Secure Anything
With a USB Stick

Stop using passwords in 2020 **p40**

- ✓ Protect all your data with a YubiKey
- ✓ Double-lock your online accounts
- ✓ Stop anyone accessing your PC
- ✓ Beat phishing scams and hackers

+ *Create your own USB security key – for free!*

£2.30

9 771473 709172   48>

The key to securing your data

I'm never without a bunch of keys in my pocket, so I struggle to see how anyone copes with only carrying one. No doubt they use clever technology such as NFC, Bluetooth or shouting "Alexa, open the ruddy door!" as an alternative means of access, but the more keys the merrier, I say. Until I drop them down a drain after a night out, and am forced to call a locksmith at three in the morning.

The key to this issue's cover feature is a tiny USB stick called a YubiKey, which combines powerful data security with the convenience and reassurance of having a physical item to attach to your keyring. Just plug it into a USB port and tap the button on the device to sign into your online accounts without faffing around with verification codes.

We explain exactly how a YubiKey works, why you should invest in one and all the services you can use it with. We also look at other types of USB security key and reveal how to make your own - for free.

Robert Irvine, Editor
editor@webuser.co.uk
#webuser

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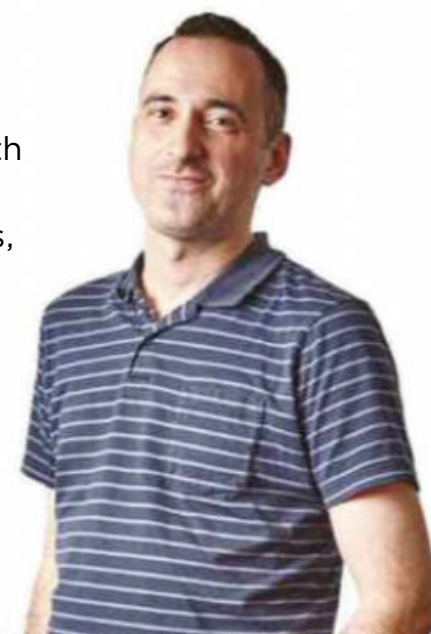
5 Things you'll learn this issue

1 How to view locations that were bombed in air raids during the Second World War **page 7**

2 How to permanently delete a file from your PC so that it can never be recovered **page 29**

3 How to use Facebook's Messenger app without signing up for a Facebook account **page 48**

4 How to convert photos that you capture on your iPhone into other image formats **page 66**

5 How to disable the new tab-hover cards feature in the latest version of Chrome **page 70**

Cover

WHICH VPN SHOULD YOU INSTALL? The fastest, safest & cheapest way to beat web restrictions p20 — **p20**

WebUser Issue 489
27 Nov - 10 Dec 2019
Best software / New apps / Close to the Edge

Secure Anything With a USB Stick
Stop using passwords in 2020 **p40**

✓ Protect all your data with a YubiKey
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PLUS
BEST WEBSITES YOU MUST VISIT WITH Tor
Don't be afraid of the dark web p48 — **p48**

EDIT VIDEOS FOR FREE USING VLC
Unlock its secret tools p54 — **p54**

UNINSTALL CCLEANER
Switch to a PC cleanup tool that respects your privacy p57 — **p57**

p40

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abc Average sales, Jan-Dec 2018, 26,519 copies per issue

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FREE PC REPAIR TOOLKIT!

SUBSCRIPTIONS
Turn to page 62 for special subs offers

COVER FEATURE

Secure Anything With A USB Stick

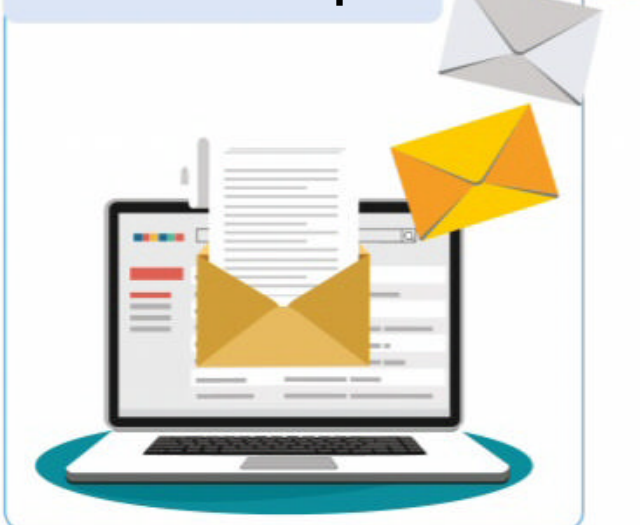## Stop using passwords – protect all your data with a YubiKey

p40

Get the most from Facebook's messaging app   **p50**

The sinister rise of stalking software   **p38**

Upgrade your inbox by using free email software   **p46**

IN DEPTH   Articles on the latest tech topics

REVIEWS   Apps, sites and products on test

FAVOURITES   Must-read regulars

Is the latest Windows laptop completely bonkers?   **p74**

Practical WebUser
16 pages
Workshops, tips, projects and problem solving

Use VLC to trim your videos   **p54**
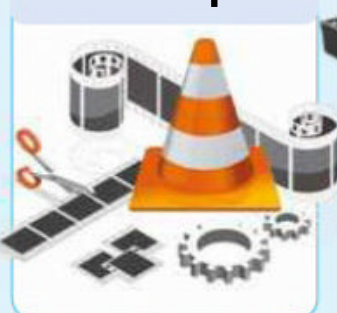
Keep your PC clean and private   **p57**

Make your phone and tablet easier to see, hear and use   **p58**

What's New Online

Master machine learning without using code

You don't need to be a programming genius to get to grips with the basics of machine learning. Indeed, a couple of years ago, Google launched its Teachable Machine, which allowed anyone to use a webcam or files on their hard drive to teach the computer how to recognise patterns in data.

Now, Google has unveiled Teachable Machine 2.0, which again doesn't require any coding and lets you interact via your microphone. Choose between an Image, Audio and Pose project and, by selecting photos, sounds or people moving around, the computer can be trained to pick up on the differences to classify new examples – such as telling the difference between a human and a dog. Trained models can then be exported to websites,
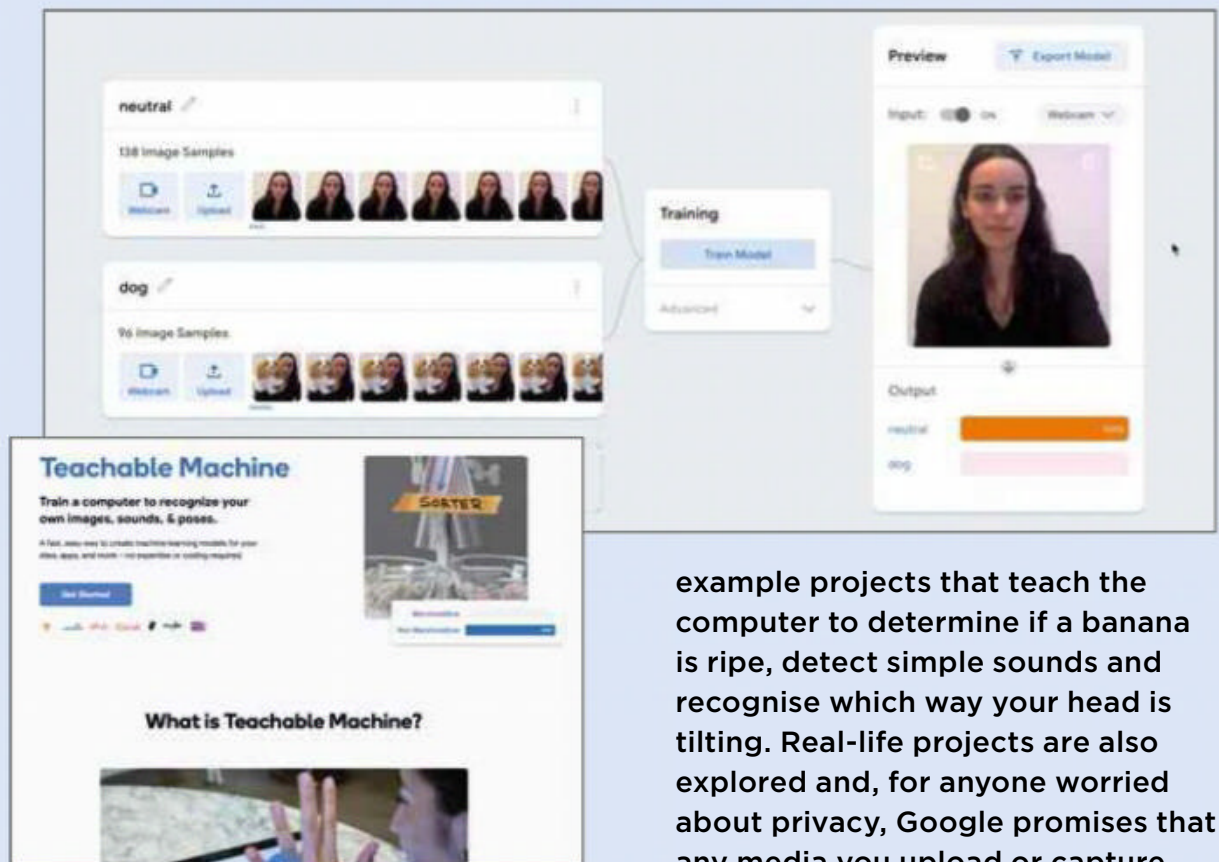
devices and apps.

Along with easy-to-follow video tutorials, there are links to three

example projects that teach the computer to determine if a banana is ripe, detect simple sounds and recognise which way your head is tilting. Real-life projects are also explored and, for anyone worried about privacy, Google promises that any media you upload or capture remains on your device unless you save a project to Google Drive.
teachablemachine.withgoogle.com

Queue videos on YouTube

www.youtube.com
YouTube has made a few tweaks to its website, the most useful of which is a new "add to queue" button. This appears when you hover over a video thumbnail or click the three-dot menu underneath. As with the YouTube mobile app, the queue option lets you choose the next set of videos to watch without interrupting the one that's currently playing and, unlike Watch Later (which remains an option), it doesn't add them to your permanent playlist.
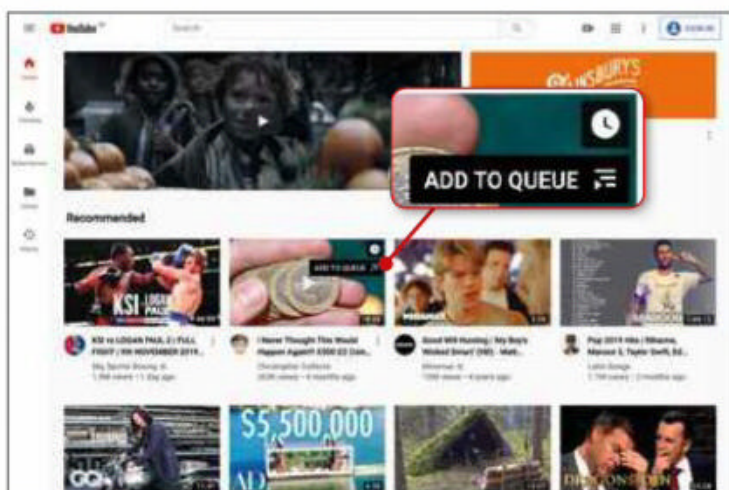
Other changes include longer video titles, larger thumbnails and video previews that play in a higher resolution. YouTube has also added channel icons below thumbnails to make it easier to recognise content creators. Recommendations remain, but it's now possible to tell YouTube not to promote a particular channel on the YouTube homepage. Just click the three-dot menu and select Don't Recommend Channel.

Share large Dropbox files with anyone

www.dropbox.com/transfer
Dropbox lets you share files that others can access and edit, but the downside is that collaborators can alter the original documents and view any updates you subsequently make. With a new feature called Dropbox Transfer, you can select files from your hard drive or Dropbox account and generate a link, so recipients are restricted to downloading the content without altering the original.

It's similar to WeTransfer and allows users to get around email file-size restrictions, although free Dropbox users are limited to 100MB. Paid-for accounts offer limits between 2GB and 100GB, depending on the plan, and let you set expiration dates and protect the files with passwords. It's also possible to check how many times someone has accessed the files and make transfers from Dropbox's desktop and iOS apps.
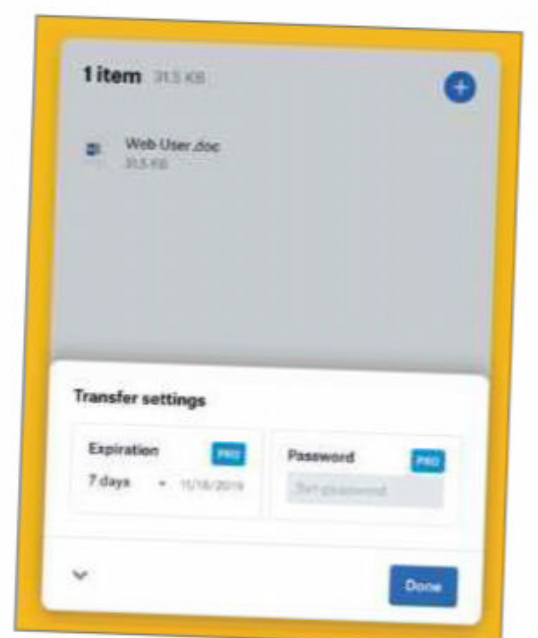
We pick the 10 best things you must do on the web this fortnight

Have a bot complete your text

talktotransformer.com
Backed by Elon Musk, OpenAI can study a small amount of text and create a large document based on what it reads. You can test the neural network by typing in the text box or choosing an example, before watching as it creates coherent sentences a word at a time using a language model called GPT-2.

Read books cited on Wikipedia

www.wikipedia.org
Although the web is a fount of knowledge, much of the world's wisdom is contained in books. Just visit Wikipedia and you'll see that

looking up many of its sources involves a trip to the library. With this in mind, the Internet Archive has teamed up with Wikipedia, letting visitors click a cited source to view an online copy of a referenced book. So far, 130,000 Wikipedia references link to 50,000 digitised books, each shown as previews. You can 'borrow' the full versions for a limited time, and the Internet Archive plans to digitise another four million physical books over the next few years.

View a WW2 air-raid map

bit.ly/bombing489
When The National Archives announced the launch of a Second World War air-raid map using
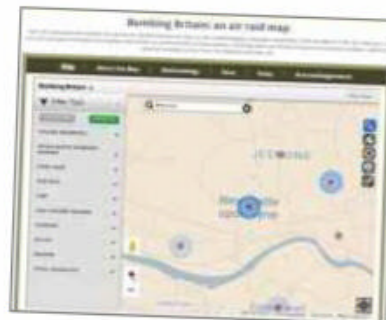
data from its collection, there was so much demand that it was forced offline. Created by Dr Laura Blomvall, a historian from the University of York, the Bombing Britain map pinpoints the location of more than 32,000 German air raids on the UK between 1939 and 1945, drawing on 6,500 pages of daily reports compiled by wartime intelligence officers. Clicking the pins shows more information, such as the bombing location, time of attack and the number of casualties. You can also learn more about the map, data and methodology.

NEW VOICE COMMANDS

Apply for a McJob
Applying for a job via Google Assistant (and Alexa) is something of a world-first. Say: "Hey Google, Talk to McDonald's Apply Thru" and answer some basic questions.

Play songs from YouTube Music
Using Siri in iOS 13, you can say "Play [song] on YouTube Music" to stream that song on the service. It'll ask for permission to access the app's data the first time.

Interact with BBC News
A new interactive news service launched by the BBC lets you listen to the latest headlines ("Alexa, give me BBC News"). You can then "skip" or get background info by saying "more from the BBC".

Follow topics on Twitter
twitter.com
Rather than trying to keep up with the latest news by following individuals on Twitter, you can now follow topics instead. Search for a subject (there are more than 300) and choose Follow in the results.

Remove Facebook shortcuts
www.facebook.com
Facebook now lets you manage its navigation options in the Android and iOS apps. Tap and hold an icon (such as Marketplace or Watch) to remove it from the shortcuts bar or turn off the notification dots.

Search The Guardian records
bit.ly/guardian489
The Guardian News & Media Archive's records relate to its online presence from 1995 until 2009. Use terms such as "guardian online" for written descriptions of documents, but you'll need to make an appointment and visit the paper's London office to view them.

See where land is likely to flood

coastal.climatecentral.org
This interactive map uses information taken from airborne laser instruments to show the revised estimates of our planet's risk of coastal flooding. Grant it access to your location and you can switch between previous predictions and alter the projections, including by year and pollution, with all land projected to be below the annual flood level in 2050 highlighted in red.

Tell us your favourite new things at **twitter.com/webusermagazine**

Need to Know

Google sparks privacy fears over health data plans

What happened?

Google has again caused alarm by hoovering up medical data, this time via a partnership with a US hospital chain that involves the health records of 50 million people being shared with the search giant.

Known as Project Nightingale, the plans entail data held by the American medical company Ascension being passed to Google to help build an artificial-intelligence tool for clinicians. Unlike previous medical data-sharing projects, there's been no effort to anonymise patient data and, worryingly, patients weren't even told that their data was being shared. Google is able to see full health records including medical diagnoses, along with patients' names and addresses.

The project's details were revealed by journalists at the *Wall Street Journal*, and it is now under investigation by the US Department of Health following criticism from politicians. Google said it was "happy to cooperate" with the federal inquiry into its medical work. The partnership has been running for at least a year, and Google did mention its partnership with Ascension in an earnings call last summer, noting that it had dozens of other similar projects.

One of those is in the UK – a contract was signed in October with the Taunton and Somerset NHS Trust – and involves Google analysing patient data to feed into its AI systems to help spot disease and illness more quickly. Under the partnership, the trust is handing over five years' of patient data, including

Google published a blog post refuting claims that it uses patient data for ads
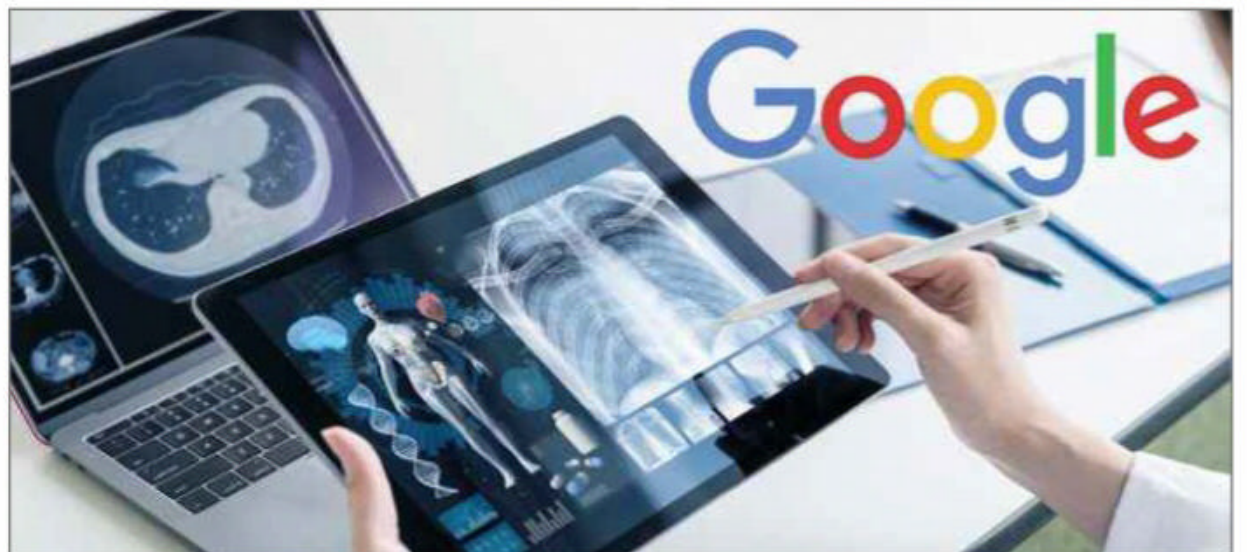
diagnosis and treatment history, as well as demographic details. The trust previously had a contract with the UK startup DeepMind, which was subsequently acquired by Google. Initially, Google said that data from the medical research firm would be stored separately, but last year changed its mind and health data is now held not by DeepMind but by Google itself.

Similarly, in 2015, DeepMind started work with the NHS Royal Free hospital trust in London, on a project for an app that algorithmically analyses patient data to spot the signs of kidney failure. The two organisations used real patient data but patients were neither notified not asked for consent. Two years later, the Information Commissioner's Office deemed the data sharing illegal. Google and the hospital are still working together on the project, but now have a clearer data-sharing agreement.

The news comes as an investigation by the *Financial Times* revealed that health websites are sharing information gathered using cookies with Google, including data about drugs and fertility, though Google said it did not use such sensitive data for targeted advertising.

How will it affect you?

Project Nightingale is currently US-only but Google has plenty of other medical projects around the world, and has run AI trials in the UK via its DeepMind machine-learning division.

Google said in a blog post (bit.ly/ascension489) that the data it sources from Ascension can't and won't be tied to Google's own customer data, so a patient's identifying details won't be linked to their Gmail account or their behavioural-advertising profile.

Google also stressed that the data is held securely in an encrypted environment controlled with access logs that is regularly audited. A limited number of Google employees have access to private health information under the partnership.

What do we think?

We're being asked to trust Google with our medical records, which perhaps isn't the wisest move. Google says it has no plans to link its profiles on us to any medical data it gathers, but it also said it wouldn't directly hold health records used in research by DeepMind, then changed its policy and swallowed up that data regardless.

It's possible to develop AI tools, store records in the cloud and analyse data for research without handing over any of it to Google, but if we're going to trust any tech company with our medical records, we need robust laws that protect our sensitive data. This should be a priority for politicians and data watchdogs alike, as well as the NHS. Hospital trusts are the ones signing over our data, and it's essential that they treat our private data seriously.
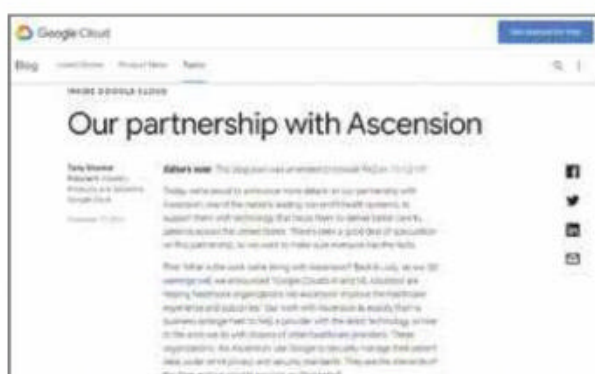
What we think of this fortnight's top tech news stories and rumours, and how they affect you

Labour promises free broadband if elected

What happened?

The Labour Party hit the headlines with a pledge to give every home and business in the UK full-fibre broadband for free if the party wins the looming general election. The plans would see BT partially nationalised at a cost of £15 to £20bn, with some of the costs funded by a tax on technology companies.

There are two aspects to the plan: the first is to roll out full fibre to all premises in the UK, rather than the slower fibre-to-the-cabinet that makes up most of our network; the second involves nationalising Openreach, the infrastructure and networking company that

BT owns but was forced to separate from in 2017. Most ISPs in the country actually resell Openreach services, though some – such as Virgin Media – have built their own networks. BT was previously a publicly owned company.

How will it affect you?

If Labour wins a majority, and manages to pull off this plan amid other distractions, the aim is to have full fibre coverage by 2030. The Conservatives have already pledged £5bn in public funds to help spur a fibre rollout by 2025. BT argues that Labour's goal will cost as much as £30bn, and that the party has underestimated the difficulty of achieving perfect high-speed coverage in rural areas.

Then there's the free

service. The details of how this would work isn't clear, but it's worth noting that plenty of Brits buy broadband as part of a TV and mobile package, and that contracts in the UK are already some of the cheapest in Europe.

What do we think?

Regardless of who wins the election, something needs to be done to push Openreach into accelerating its full-fibre rollout – and, one way or another, it's going to cost us. But it's good news to see broadband back as a major policy for the political parties, getting the necessary attention it deserves.

Microsoft kills off Windows 10 features

What happened?

Microsoft has revealed details of a handful of built-in tools that will be dropped from future versions of Windows 10.

These include the People app, which pulls together contacts from phone lists, Skype and your email account into a single location – although why you'd need someone's phone number to email them has never been particularly clear.

Other features set to disappear include Snipping Tool, which was used to capture screenshots and has been replaced by Snip & Sketch; Windows To Go, which allowed Enterprise users to boot from a USB drive; and the 3D printing

app Print 3D, which has been replaced by 3D Builder.

How will it affect you?

These tools don't yet have a 'death date', so don't plan the funeral just yet. Instead, they're the latest to be added to the deprecated features page (bit.ly/deprecated489), which signals that Microsoft isn't going to spend any more time or money developing them. They could still be revived in the future, as happened with the Paint app after an online backlash, but they're more likely to simply be removed via an upcoming update. That means anyone using these tools needs to find suitable alternatives before the built-in versions disappear, although there should be

some warning from Microsoft before they vanish for good.

What do we think?

Microsoft's telemetry data lets it know in detail how well used such Windows 10 apps and tools really are, but that doesn't always paint a true picture – someone may only use the People app now and then, but rely on it as their main contacts-list backup,

for example. So we hope Microsoft gives plenty of warning before the tools are permanently removed.

But it's understandable that Microsoft isn't willing to pay developers to keep working on tools that aren't well used. It makes sense to focus efforts on more popular features that provide a benefit to a greater number of users.

Facebook 'bug' secretly opens iPhone cameras

What happened?

Anyone worried about the privacy implications of using social-media apps such as Facebook now has even greater cause for concern because the app has been discovered activating users' cameras without their knowledge. A handful of iPhone users have taken to Twitter to share evidence that their phone's camera started running in the background, and was automatically activated while they were scrolling through their Facebook news feed.

First reported on 2 November by Twitter user Joshua Maddux (@JoshuaMaddux), several people have now discovered the same bug affecting their device. It appears as though the camera can be inadvertently activated when you're looking at photos or watching videos in your feed. Because of a glitch that meant the Facebook screen was shunted slightly to the right after viewing an image or clip in full screen, several people were able to see that the camera had been opened and was running behind their Facebook app.

How will it affect you?

Facebook's Vice President of Integrity, Guy Rosen, has acknowledged the problem and stated that this is definitely a bug – not something that the company is doing deliberately. He has also responded to concerns on Twitter, stating that the camera would neither capture nor upload any photos or videos. Rosen said: "We've confirmed that we didn't upload anything to FB due to this bug and that the camera didn't capture anything, since it was in preview mode. We've submitted a fixed version to the App Store which is already rolling out."

Since Facebook says it has fixed the bug, there's not much you can do to find out whether your phone was affected by this problem. We'll just have to take the social network's word that no data was actually recorded.

What do we think?

It's important to approach apps such as Facebook with a healthy dose of cynicism: none of us can know precisely what they're doing with our data, and allowing unfettered access to our devices means it's easy for something to go wrong. In this case, it really does seem to be a bug: there's no evidence that Facebook was acting maliciously or that users' security was compromised.

All that being said, Facebook users are putting a huge amount of trust in the company, and we don't think that it's unreasonable to expect better of them. Bug or otherwise, this kind of mistake shouldn't be happening, and we hope that Facebook has learned a lesson and will tighten up its quality control processes as a result.

Joshua Maddux
@JoshuaMaddux

Found a @facebook #security & #privacy issue. When the app is open it actively uses the camera. I found a bug in the app that lets you see the camera open behind your feed. Note that I had the camera pointed at the carpet.

FIRST LOOK

Snapchat Spectacles 3
bit.ly/specs489

Remember when high-tech glasses were set to change the way we saw the world? The idea was that you'd slip on a pair, record your every waking moment with the built-in camera and share it with your adoring followers on social media. Google had a go with its Glass specs, and failed, but Snapchat hasn't given up and its Spectacles 3 glasses are its latest attempt to turn the dream into reality.

Built into either side of the lenses are two cameras ready to record HD images and video at 60fps (frames per second). This gives Spectacles 3 its unique selling point: the ability to capture the world in 3D. You can then play them back using the included 3D viewer – essentially, a cardboard box with a slot for your phone – which gives your footage a sense of realistic depth. Sync up media with your phone and you're then free, in true Snapchat fashion, to add all manner of creative filters and 3D effects to your photos.

Digging into the specs' specs reveals a basic phone-inspired set-up, presumably to maintain the lightweight 56.5g frame: two f/2.2 aperture cameras, a four-microphone array, Bluetooth and Wi-Fi, and 4GB storage capable of saving 100 3D movies.

The main drawback, however, isn't the low specification or even the invasiveness of having a pair of cameras strapped to your face – it's that the glasses' design is awful. The cameras look like a second pair of eyes, squinting above your own, and the ultra-thick arms, bridge and top bar will get you noticed for all the wrong reasons. Still, at least it's easy to share the baffled looks you'll get – on social media and in 3D.
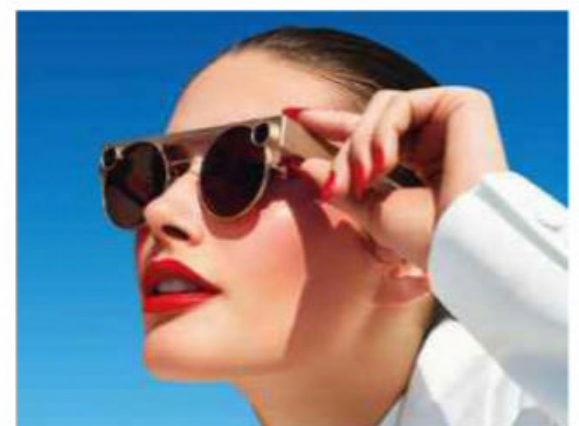
Snapchat Spectacles 3 are available now for an unjustifiable £330, and come in two shades: mineral and carbon.

WHAT'S THE RUMOUR

Are British TV shows leaving Netflix?

Netflix has, for a long time, been the home for some of the best British TV ever made, including classics such as *Blackadder*, *The Office* and *Fawlty Towers,* allowing viewers to ditch their old DVDs and stream their favourite shows instead.

Now, it seems, all this could change. Rumour has it that the 'vast majority' of British shows will leave Netflix and Amazon Prime Video next year, and it's all down to the launch of BritBox .

The subscription service, a partnership between all the main UK TV broadcasters, is focused on becoming the online home of British TV shows – and that means reclaiming fan favourites from the American streaming sites.

Paul Moore, ITV's communications and affairs director, explained that each show is licensed to those platforms on a 12-month rolling contract. As each contract runs out, it's thought the shows will revert to the original licence holders: BBC, ITV, Channel 4 and Channel 5.

However, while Netflix has already been stripped of certain programmes, including *Love Island* and *Gavin & Stacey*, it's believed that not all will be removed.

LIKELIHOOD RATING
✓✓✓✓✓

It's likely that, by the end of next year, BritBox will be the *only* place to legally stream archive UK TV programmes. The BBC, ITV, Channel 4 and Channel 5 are going to need all the help they can get to coax a £6 monthly fee out of new subscribers, so don't bet against them trading on their heritage titles to get customers through the door. It's the best chance they have right now, given the lukewarm reception to the current BritBox catalogue, and more popular British shows will give it a better shot at competing with Netflix and Amazon Prime.

WEBOMETER

WE LIKE...

⬆ Netflix streams *The Crown* for free

Netflix is letting viewers watch the first episode of the third series of *The Crown* for free – even if they don't have a Netflix subscription. The episode of the Royal drama will be available online until 15 December at netflix.com/thecrown.

⬆ Windows 10 fixes search problem

The latest preview build of Windows 10 fixes a problem with Windows Search that causes excessive hard-drive and processor usage, which some users have experienced in the past. The update is due in the first half of next year.

WE DON'T LIKE...

⬇ Google breaks Chrome with update

Thousands of Chrome users were left with broken browsers after Google silently rolled out a new power-saving feature that caused tabs to display a blank screen and made Chrome totally unresponsive. A fix has since been released.

⬇ Security flaws found in EU Exit app

An app developed by the Home Office to help EU nationals apply to live in the UK post-Brexit can be exploited by hackers to steal sensitive data. This includes a copy of the applicant's passport, according to security firm Proton.
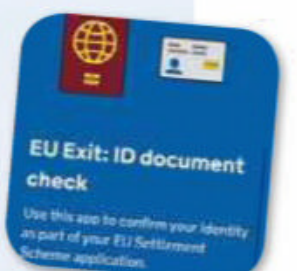
What's new on Kickstarter
Our favourite new project on the crowdfunding site

Em1
bit.ly/microscope489 | From £360

Developed by a fellow of the Royal Microscopical Society, the Em1 microscope is a more affordable laboratory-grade microscope. Unlike its table-top counterpart, it's incredibly mobile, allowing you to get close to almost any environment with 100x, 400x and 600x magnification. Powered by three AAA batteries and built to withstand knocks and bumps, it slips easily in the palm of your hand. There's also space for a smartphone as a view-finder to capture your findings. Pledges start at £360 for the early-bird special, which comprises the complete Em1 400 microscope package.

★ Best New Websites

SPACE   **RELAUNCH**

European Space Agency www.esa.int

ESA's relaunched website is a world apart from what boldly went before. It now makes better use of screen space and focuses more on photos and videos which, considering the subject matter, provide plenty to be amazed by. The homepage now scrolls down further, introducing numerous sections of content such as t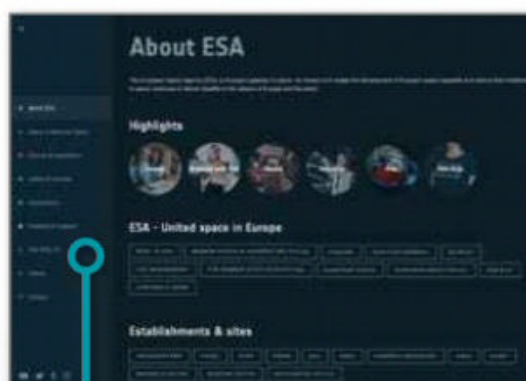he latest news, ESA's shop and information about missions. It's an impressive and sometimes dazzling voyage of discovery, with most items well organised within four categories. Articles are clearly written, searching is fast and the responsive design makes the site well suited to mobile devices, too.

Our rating ★★★★★

LOTS OF CONTENT
Categories are divided into subheadings with links to specific pages and subsections below
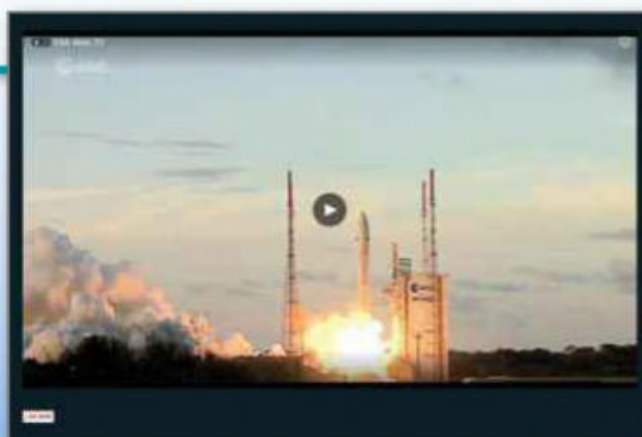
WEB TV
The online TV channel includes live launches, lectures, a daily programme of shows and videos on demand

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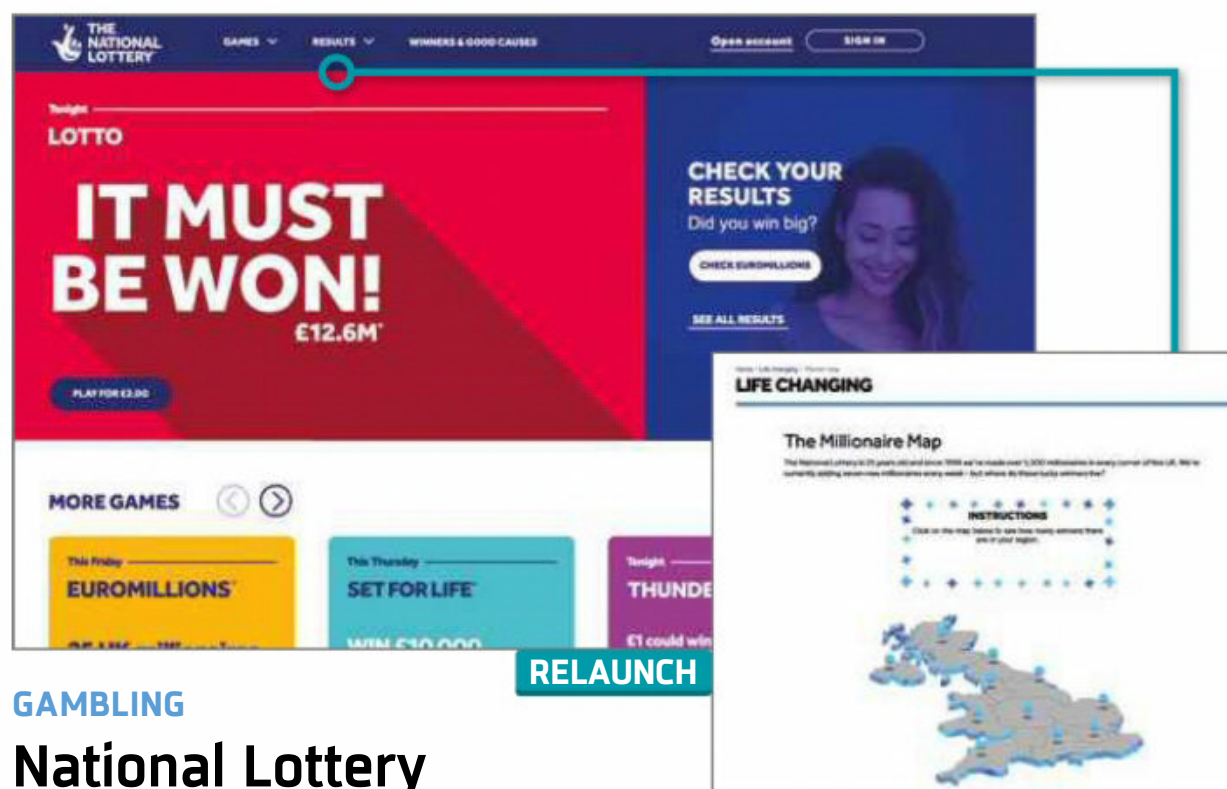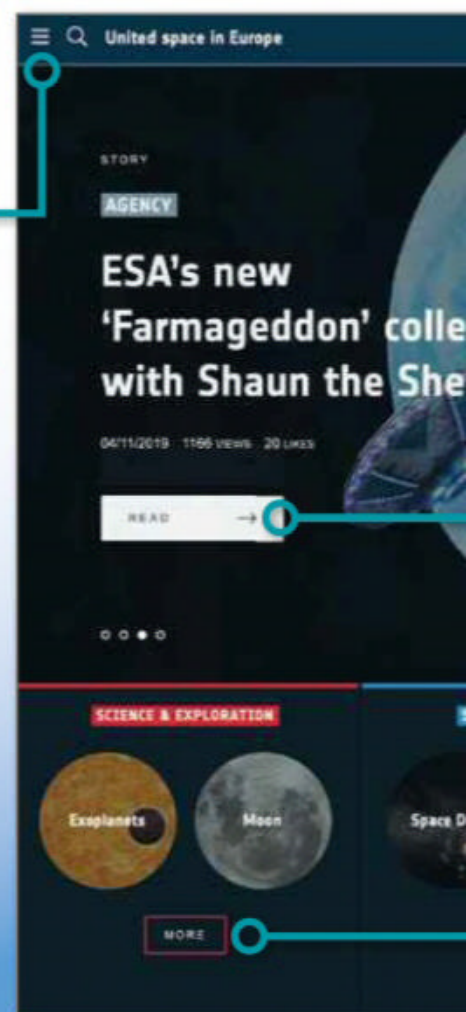
GAMBLING

National Lottery

www.national-lottery.co.uk

The National Lottery has finally updated its website with a fresh, colourful design that places a greater emphasis on the different games. The homepage highlights forthcoming lotteries and their headline jackpots, and content is clearer, with online 'scratchcards' now promoted under Instant Win Games rather than GameStore. As before, buying a ticket is straightforward and there's a useful section on responsible gambling that provides a budget calculator. You can also view a millionaire map to see where people are striking it lucky and, while you still need to click to see the latest results, these are easier to access, making the overall site a real winner.

RELAUNCH

Our rating ★★★★★

TRAVEL   **NEW**
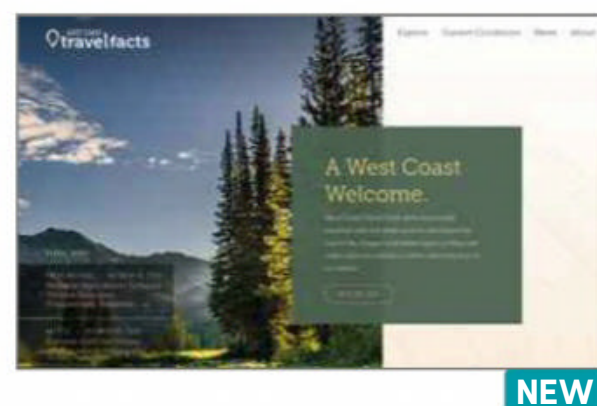
West Coast Travel Facts

www.westcoasttravelfacts.org

If you're planning a trip to the West Coast of the US, then check out this new travel guide created by the tourism boards of California, Washington and Oregon. It's been developed in light of the wildfire season so potential visitors can consult a map for the current air quality and see the latest webcam footage. You can find details of the nearest visitors centre for information and check resources relevant to each state, such as a wildfire map and travel alerts. There are brief overviews of the delights that each state has to offer and links to relevant articles.

Our rating ★★★★☆

Reviews by David Crookes

We review this fortnight's best new and relaunched websites and rate them for content, design and features
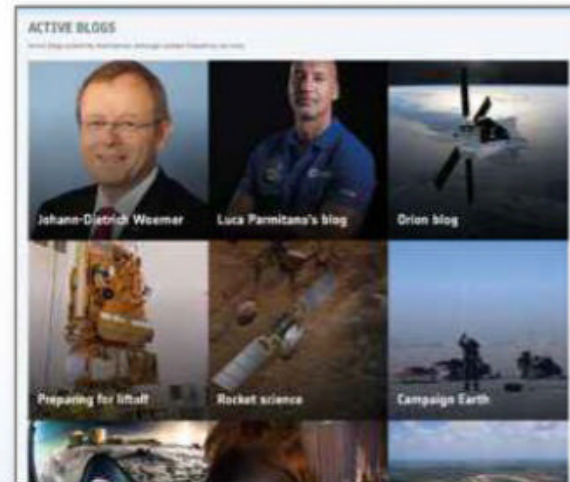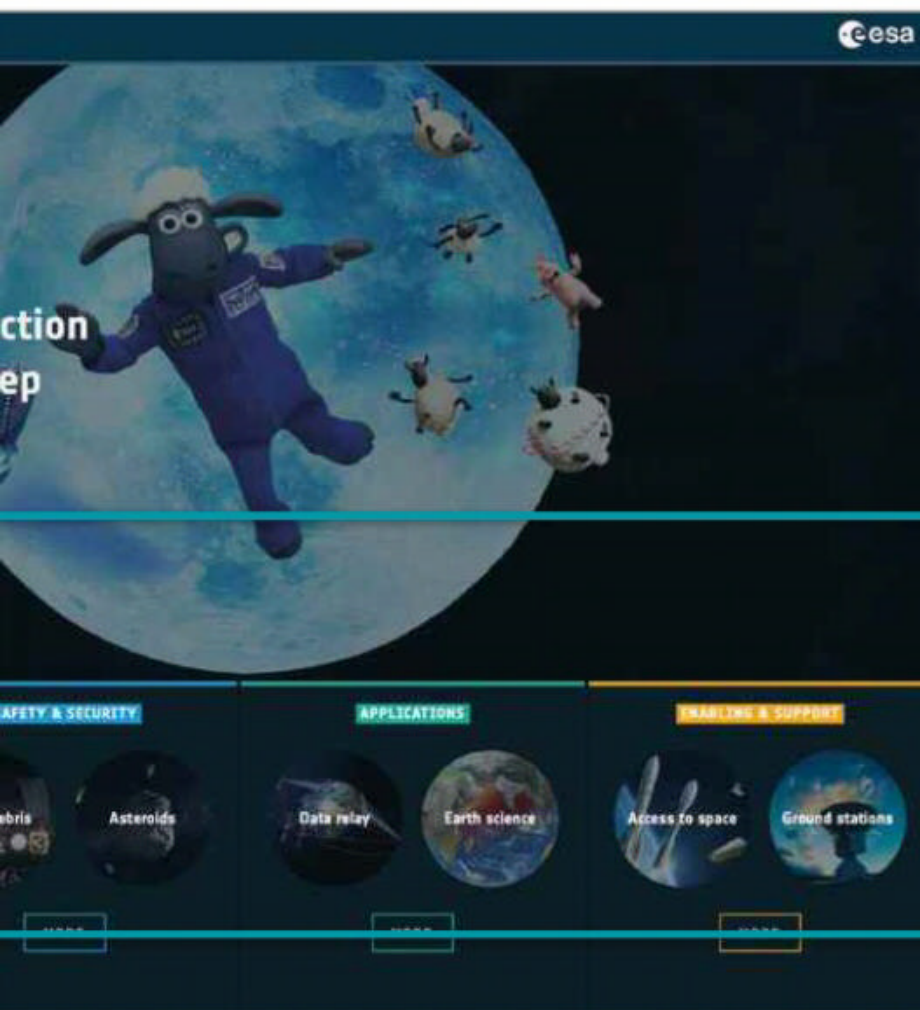
BLOGS
There are lots of blogs from astronauts and mission scientists, as well as one by ESA's Director General

LATEST DISCOVERIES
Science updates are posted almost daily and can be filtered by stories, videos and images

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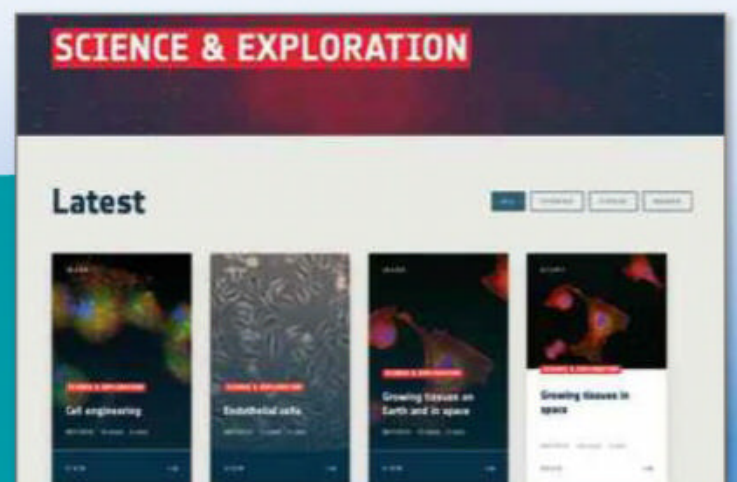
RELAUNCH

FOOD

Bakerdays
www.bakerdays.com

Instead of cooking up a completely new site, Bakerdays' new management – who took over following its recent closure – has largely reheated the old one. The result is still appetising, though there's so much unnecessary explanatory homepage text that it falls short of being fulfilling. That said, it's a simple site to navigate: the product categories are clear, photos are bold and fun, and it's easy to personalise cakes with words and images. We like its occasion reminders, loyalty scheme and newsletter, and that it caters for food intolerances by letting you specify your preferences.

Our rating ★★★★☆
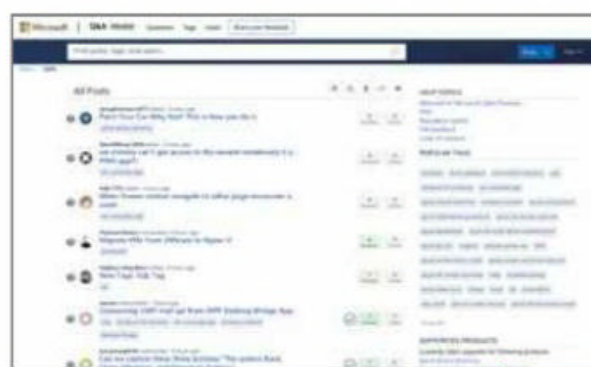
NEW

TECHNOLOGY

Microsoft Q&A
bit.ly/answers489

Created as a replacement for the TechNet and MSDN forums, Microsoft Q&A lets visitors ask technical questions about the company's products and services. You need a Microsoft account to sign in and post but, if you're simply browsing for answers, you can click on the questions or the accompanying tags. Posts, tags and users can be followed for updates, and content can be bookmarked. As a nice touch, the site will also monitor any questions you type and suggest answers. Be aware that it's aimed primarily at business users so you won't find answers to specific consumer niggles.

Our rating ★★★☆☆

NEW

CULTURE

Black Cultural Archives
bit.ly/black489

In celebration of Black History Month, Google Arts & Culture has worked with the Black Cultural Archives to tell more than 30 stories and showcase a staggering 4,000 artworks, artefacts and images, some rendered in Gigapixel resolution. The presentation is typical of other Arts & Culture projects, with a single scrolling page highlighting a mass of material – in this case, exploring themes such as the evolution of Black British dance and how the Black community became empowered in the 1970s and 80s. It's a huge body of work brimming with fascinating content.

Our rating ★★★★★ ➡

RELAUNCH

TECHNOLOGY

The MagPi
magpi.raspberrypi.org

Since the Raspberry Pi computer launched less than eight years ago, it has sold more than 20 million units and gained lots of fans. Many are readers of the official magazine, *The MagPi*, which can be downloaded for free here. This has now been made easier, thanks to a more prominent link at the top of the screen, but the designers have also played around with the rest of the site's layout so that the articles it posts online (some of them specially written for the web) are better highlighted, too. With back issues available for online reading and plenty of reviews and tutorials, it's an impressive Pi-focused resource.

Our rating ★★★★☆
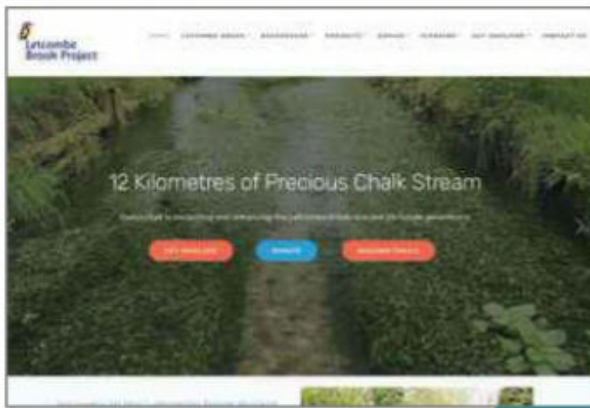
NEW

ENVIRONMENT

Letcombe Brook
letcombebrook.org.uk

As well as inviting visitors to learn more about its efforts to conserve a rare Oxfordshire habitat, Letcombe Brook shows the value of creating a well thought out community website. The site's large photos of the rare 12-kilometre chalk stream and details of the local wildlife provide an attractive environment for communicating the group's aims. There's an interesting history, a look at specific projects and information about reporting incidents along with a comprehensive FAQ. There are also clear explanations of how you can get involved and make donations. The blog needs more work, however.

Our rating ★★★★☆
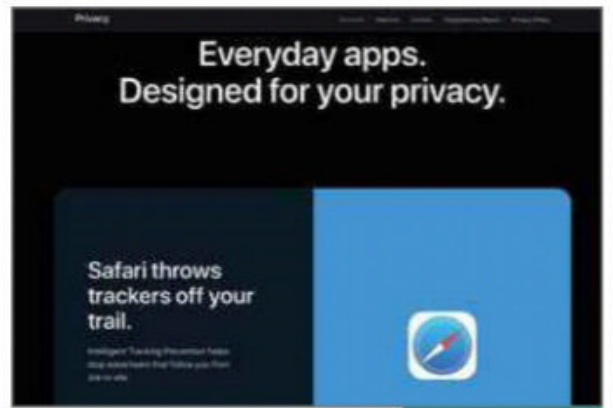
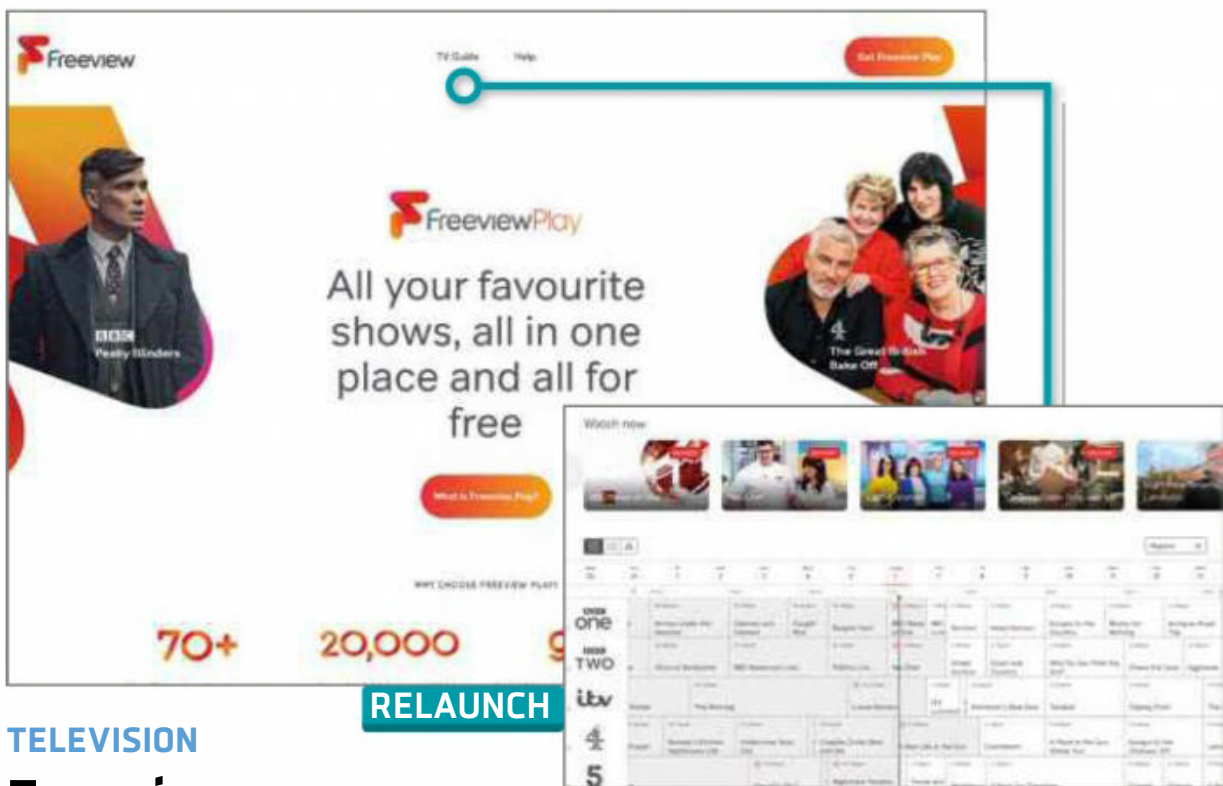**RELAUNCH**

TECHNOLOGY

Apple Privacy
www.apple.com/privacy

In the ongoing effort by tech companies to convince us that they take our privacy seriously, Apple has updated its section on data protection and controls. Now adopting a dark-modish look, it explores apps such as Safari, Maps, Photos, Messages, Siri and Apple Pay, and covers devices, too. There's plenty of detail, especially in the many white papers covering Location Services, Face ID and more, which are randomly scattered around the Features and Control sections. Finding government request reports is easier: intriguingly, the UK asked for customer data on 1,109 occasions between July and December 2018.

Our rating ★★★☆☆

RELAUNCH

TELEVISION

Freeview
www.freeview.co.uk

As the choice of TV viewing expands, a decent online TV guide is sure to get a great reception. As such, Freeview's revamped site is worth tuning into, with its choice of three layouts – horizontal, vertical and channel specific – and a new Watch Now feature for programmes aired by the BBC, ITV, Channel 4 and Channel 5. Available shows are highlighted at the top of the screen but you have to clumsily click the left and right arrows to see them all. They also play on the relevant TV player rather than via the Freeview site. Even so, it's an improvement. The site also lets you check Freeview's current status and see planned outages, works and available channels.

Our rating ★★★★☆

COULD DO BETTER
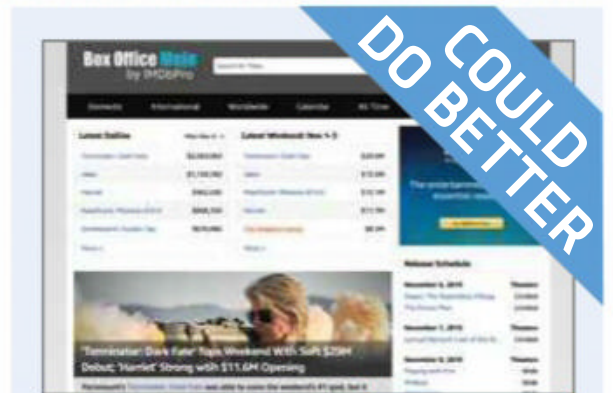
RELAUNCH

FILM

Box Office Mojo
www.boxofficemojo.com

When Box Office Mojo launched in 1999, it became a hit with movie lovers, thanks to its invaluable tracking of film revenue and exclusive news. Part of IMDb since 2008, this is the first time it's been rebooted but, like many Hollywood remakes, the redesign has proved controversial. While it does a fine job of presenting the latest box-office figures, much of the info has been hidden behind a paywall, including historical data on studios and genre breakdowns. Some angry users are seeking to build an alternative version (reddit .com/r/TheBOMRebuild) in response.

Our rating ★★★☆☆

SEASON'S READINGS

THE PERFECT GIFT THIS CHRISTMAS

Treat the technology enthusiast in your life to a Christmas gift subscription from our fantastic range of magazines
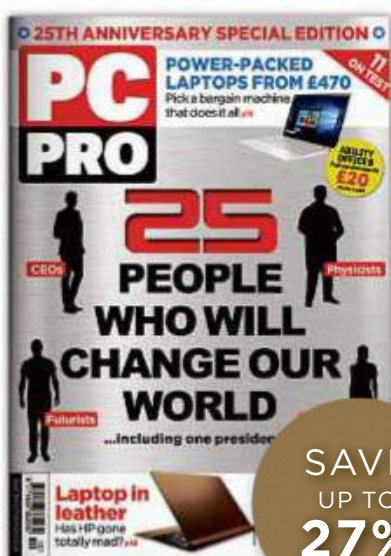
SAVE UP TO **27%**

FROM **£26.49**

SAVE UP TO **29%**

FROM **£21.49**

SAVE UP TO **26%**

FROM **£21.49**

SAVE UP TO **24%**

FROM **£23.49**

Build a Better Site

Specialist tips, top tools and practical help

Top Tips of the Fortnight

Switch image formats to WebP

If your website includes a lot of images, you may want to consider switching from JPEG to WebP. WebP images take the best compression elements from JPEG, PNG and GIF to create images with file sizes around 30% smaller.
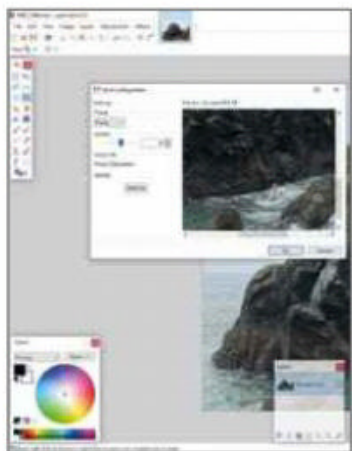
Creating WebP files is simple and most image editors can handle them. For example, in Paint.net (www.getpaint.net), choose Save As, select WebP from the 'Save as type' box and set the level of compression. It provides a guide to how large the file will be at the top. Your images will be smaller but can hold more detail.

Write code online

If you're ready to take your programming skills to the next level, Microsoft is launching an online version of its popular Visual Studio tool. You can try Visual Studio Online for free while it's in its beta test period. Go to bit.ly/vso489 to set up an account and give it a go.
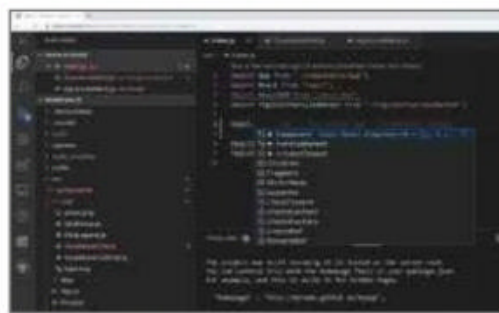
Deal of the Fortnight

Fasthosts (www.fasthosts.co.uk) is offering a discount for anyone looking to run more than one WordPress website, with prices dropping to £1.99 per month per site.

Web-building Helpdesk

Q I'd like a 'magazine' style theme for my WordPress website but most of the decent ones I've found seem to cost money. Do you have any recommendations?

Luke Wright, via email

A There are lots of great themes around but getting professionally designed ones for free is tricky. However, we think you might like the work of Anders Norén, and particularly his Rowling theme (bit.ly/rowl489). Anders Norén is a professional designer from Sweden who creates stunning free WordPress themes in his spare time. His Chaplin theme (bit.ly/chap489) is the framework on which WordPress is basing its new Twenty Twenty theme – due in version 5.3. It may already be available by the time you read this.

Andy Shaw, Technology & Reviews Editor
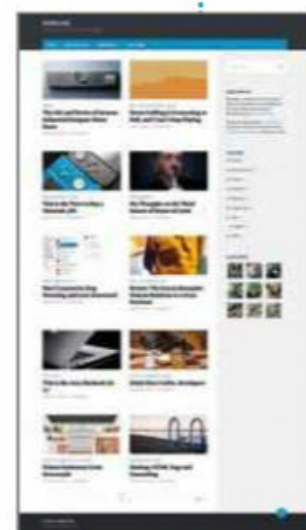
MINI WORKSHOP | Add a custom Google map to WordPress

Google My Maps: bit.ly/mymap489 | 🕐 10 mins | WordPress website

The best way to add a custom map to a WordPress website is to use Google My Maps. Create a map using the tool, then follow the instructions below to add it to your website
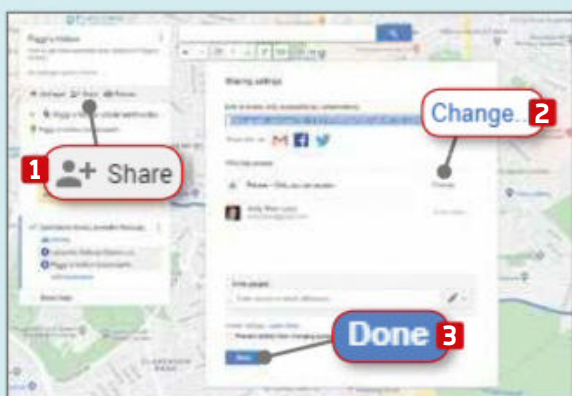
1 Open or create the map that you want to share in Google My Maps (bit.ly/mymap489). Click Share. **1** If your map isn't publicly viewable, click the Change link **2** and select 'On - Public on the web'. Click the Done button. **3**
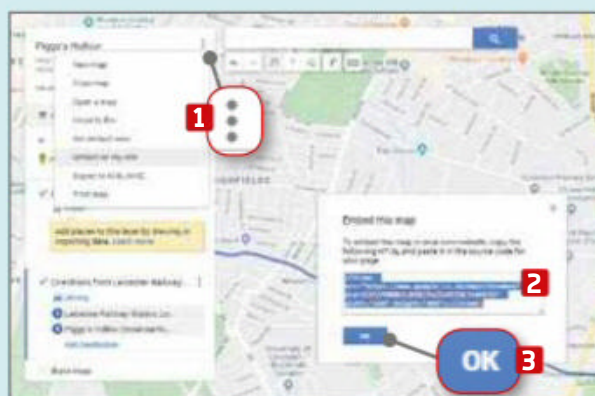
2 Click the three-dot menu button next to the map's name **1** and choose 'Embed on my site'. A window pops up with some text pre-selected. **2** Copy it by pressing Ctrl+C. Click OK. **3**
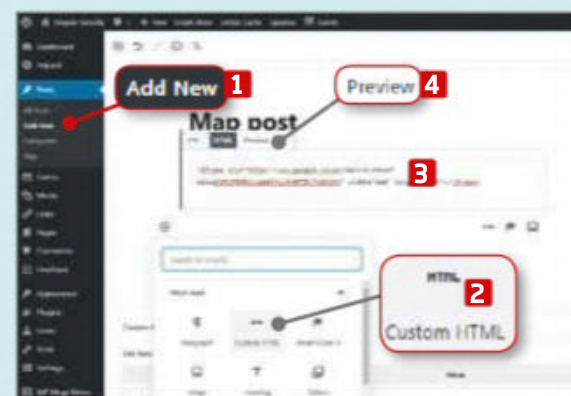
3 In WordPress, create a new post **1** and give it a title. Click the plus button to add a new block and choose Custom HTML. **2** If you can't see it, search for it. Paste the code you copied from Google My Maps into the box. **3** To see how it looks, click the Preview tab. **4**

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

Stay Safe Online

News about the latest threats and advice from security experts

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

Trend Micro insider sells customer data to scammers

A rogue agent at Trend Micro has been selling its customers' data to unknown criminal third parties, the cybersecurity company has disclosed.

A blog post on the company's website (bit.ly/trendblog489) revealed that a Trend Micro employee was discovered to have harvested the personal details of around 70,000 customers, which they then sold to an "unknown third-party malicious actor".

The insider infiltrated a Trend Micro customer-support database containing names, email addresses, support-ticket numbers and some customers' telephone numbers. The company stated that it has found "no indication" that the culprit accessed any financial or payment information, but said that the attack exclusively affected home users of its security products, rather than its business or government clients.

Trend Micro was first alerted to the issue in August, when customers complained about fraudulent calls from scammers claiming to represent Trend Micro support agents. The subsequent investigation identified a specific employee, who was immediately locked out of the system and dismissed.
bit.ly/micro489

Hackers use fake summons to spread malware

A new phishing campaign is targeting web users with emails that claim to be from the Ministry of Justice, but infect the victim with data-stealing malware. Uncovered by researchers at cybersecurity company Cofense, the scam states that the recipient has been issued a court summons and asks them to click a link to see more details about the case, giving them 14 days to comply.

The enclosed link uses trusted sources – namely Google Docs and Microsoft OneDrive – to redirect the victim to a malicious macro-laden Microsoft Word file, which downloads a form of malware called Predator the Thief. This is able to steal usernames, passwords, browser data and the contents of cryptocurrency wallets, as well as take photos using a webcam, before self-destructing and removing any evidence that it was there in the first place.

The phishing email refers to a 'subpoena', a common American term no longer used by the UK court system. So far, the scam has mostly targeted employees in the insurance and retail industries.
bit.ly/cofense489

Security Helpdesk | Your questions answered by security specialists

THIS ISSUE'S EXPERT:
Ray Walsh, Digital Privacy Expert at ProPrivacy
(**proprivacy.com**)

Q Why are there privacy concerns over 5G phone masts in the UK?
Nick Hutton, Twitter

A The news that the UK government will no longer need permission from local councils before installing 5G phone masts is a major cause for concern.

5G technology uses sub-millimetre waves that can track consumers to within a metre of their physical location and, because of the rapid speeds delivered, devices and apps will be able to relay huge amounts of consumer data.

Compared to existing technology, the sub-millimetre waves employed by 5G technology dissipate very quickly, so many more masts are needed to get a 5G network up and running.

What's more, these waves can't penetrate buildings, and even encounter signal problems when an object – such as a bus – gets in the way. It's therefore necessary to have relay antennas located up every street and even throughout buildings to bounce the 5G signal along to its desired endpoint.

This vast number of masts

> " 5G technology can track consumers to within a metre of their physical location "

will make it much easier to track individuals, which will create serious privacy implications. Concerns exist not only over the potential for 5G to be used by companies to persistently monitor consumers, to serve them personalised ads based on where they are and what they are doing, but also for the technology to be harnessed by government agencies to accurately track people as they move around locations where 5G has been rolled out.

What To Watch Online
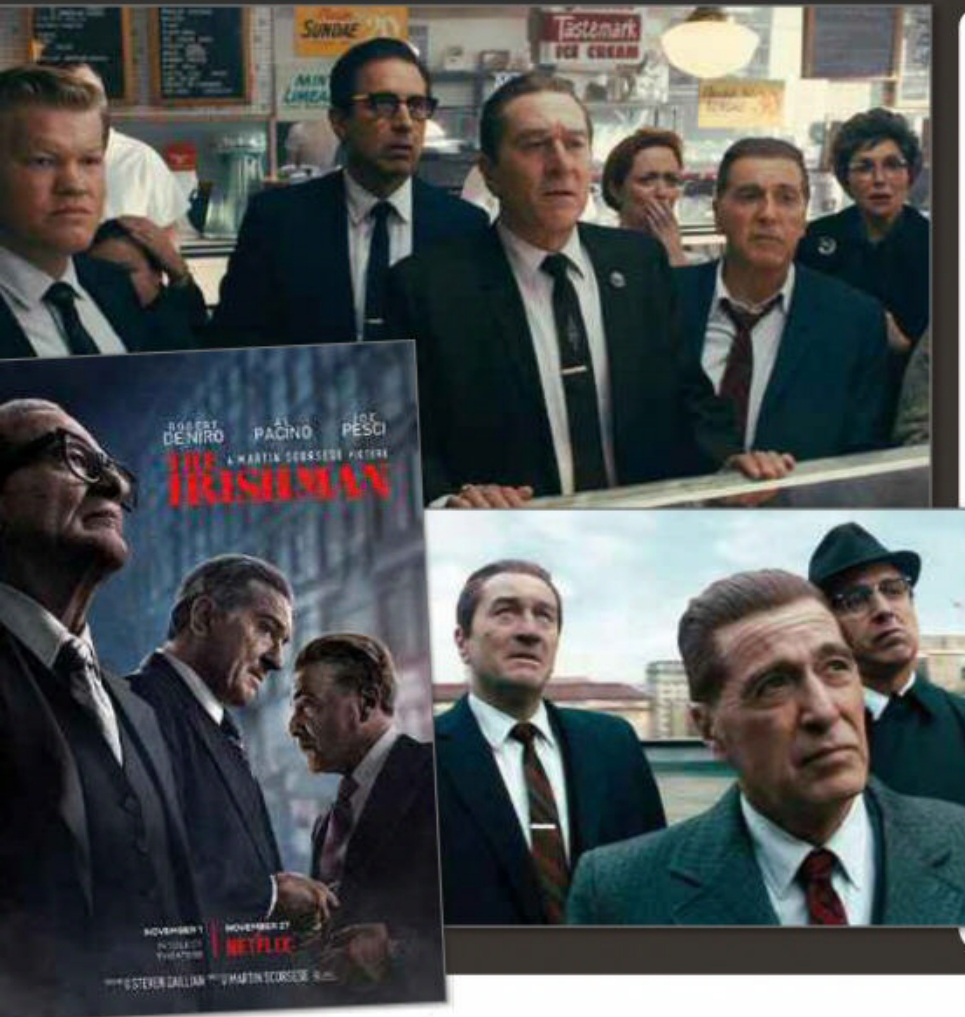
Watch Scorsese's Netflix-exclusive film *The Irishman*

From 27 November

The new epic from three godfathers of cinema – Martin Scorsese, Robert De Niro and Al Pacino – won't be coming to a multiplex near you any time soon. Instead, *The Irishman* is set to become Netflix's biggest film to date.

The Irishman languished in limbo for years, until only Netflix stumped up the cash to let Scorsese "make it the way we needed to". Cinema chains refused to allow a simultaneous online release, so Scorsese gave the rights to Netflix. A few independent cinemas are screening the film under a limited deal.

The three-and-a-half-hour story centres on Mafia murderer Frank "The Irishman" Sheeran (De Niro) and his part in the 1975 disappearance of crime boss Jimmy Hoffa (Pacino). Glowing reviews hail Joe Pesci as the scene-stealer, while Stephen Graham, Harvey Keitel and Anna Paquin add to the outstanding cast.

The Irishman comes to Netflix on Wednesday 27 November at bit.ly/irishman489, where you can watch the teaser, trailer and announcement for free.

Uncover CIA secrets in *The Report*

From 29 November

Adam Driver (*Star Wars*) leads the cast of this fact-based political drama, which explores the CIA's dodgy interrogation techniques following 9/11. Annette Bening and Jon Hamm also star.

The Report is currently showing at select cinemas, but Amazon is its main distributor in the UK and will add it to the Prime Video line-up on 29 November. Watch the latest trailer at bit.ly/report489.
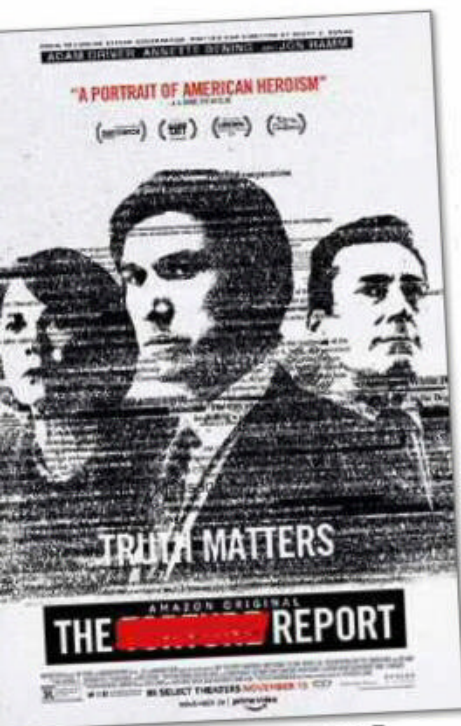
Follow Tim Minchin and his piano in *Upright*

From 28 November

Australian musician and comedian Tim Minchin returns to TV in this new comedy-drama, which he also wrote and directed. The Upright of the title is a piano that Minchin has to transport from one end of Australia to the other, with the help/hindrance of teenage misfit Meg (Milly Alcock).

You can watch all eight episodes on Now TV from 28 November. Whet your appetite with a teaser posted on YouTube by Minchin himself at bit.ly/upright489.

Watch M Night Shyamalan's *Servant*

From 28 November

The Sixth Sense director M Night Shyamalan is up to his old creep-out tricks in the new Apple Original, *Servant*. The 10-part drama stars Lauren Ambrose (*Six Feet Under*) and Toby Kebbell (*Dead Man's Shoes*) as a couple whose baby dies, so they replace him with a very lifelike doll (see the trailer at bit.ly/servant489). Rupert Grint (Ron Weasley in the *Harry Potter* films) also appears.

The first three episodes will be available to stream on-demand from 28 November at bit.ly/servanttv489, after which seven further episodes arrive weekly.

You can stream Apple TV+ in your browser or via its apps for iOS and Roku. A subscription costs £4.99 per month after a seven-day trial (bit.ly/appletv489).

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

Unravel the truth in Apple's new crime drama

From 6 December

Oscar-winner Octavia Spencer plays a true-crime podcaster whose Miss Marple-ish sleuthing put a man behind bars – but was he wrongfully convicted? Apple's gripping drama co-stars Aaron Paul and Elizabeth Perkins, and is exec-produced by Reese Witherspoon.

As with *Servant*, *Truth Be Told* lands in a three-episode chunk, with seven further episodes unravelling one per week. Watch the show at bit.ly/truthbe489 and its official trailer at bit.ly/truthtrail489.

Watch new seasons of *Vikings* and *The Marvelous Mrs Maisel*

From 5/6 December

Two of Amazon Prime Video's best-loved shows return – one of them for the

Classic *Doctor Who* materialises on BritBox

All 627 episodes of classic *Doctor Who* are coming in December to BritBox, the streaming service from the BBC and ITV that finally launched in the UK on 7 November. Every existing *Doctor Who* episode broadcast between 1963 and 1989 – including the original unaired pilot – will be available to stream from Boxing Day, along with animated recreations of some missing episodes previously only available on DVD.

The Doctor is set to be followed by thousands of hours of films and TV shows from Channel 4, which has signed a multi-year deal with BritBox. Channel 4's content, which includes Film 4 films, will start to arrive on the service in the new year. BritBox also told us that subtitles for "most" BritBox shows will be available "by Christmas".

At launch, BritBox boasted nearly 350 box sets of classic TV shows including *Tinker Tailor Soldier Spy*, *Brideshead Revisited* and *Cracker*. A subscription costs £5.99 per month after a free 30-day trial (www.britbox.co.uk).

final time. Norse epic *Vikings*, made by the US History Channel and exclusive to Amazon in the UK, bows out with a bumper 20-episode sixth season on 5 December at bit.ly/vikings489. Watch the latest trailer at bit.ly/viktrail489.

Emmy winner Rachel Brosnahan showcases her singing and comic talents in a third season of the 1950s-set Amazon Original *The Marvelous Mrs Maisel*. Watch eight new episodes from 6 December at bit.ly/maisel489, where the latest trailer is free to watch.

Stream live sporting events including Joshua vs Ruiz Jr

From 1 December

British boxer Anthony Joshua tries to snatch back his world heavyweight belt from Andy Ruiz Jr on 7 December, and you can stream the action live via Now TV – but you'll need a Sky Sports Box Office Pass, costing a punchy £19.95. Find out more at bit.ly/boxoffice489. Now TV also has the Abu Dhabi Grand Prix on 1 December. Stream the action live and on-demand with a standard Sky Sports Pass, which costs £9.99 per day, £14.99 per week or £33.99 per month from bit.ly/nowsports489.

Snooker fans can watch the UK Snooker Championship for free on the iPlayer, or stream wall-to-wall coverage via the Eurosport Player (£6.99 per month from bit.ly/eurosport489). The two-week tournament ends on 8 December.

In case you missed it...

Eighty-one years after Orson Welles didn't actually spark mass panic with *War of the Worlds* (bit.ly/orson489), the Beeb has again dramatised HG Wells' Martian-invasion story in a three-part adaptation. Watch the trailer at bit.ly/worlds489 and stream episodes via bit.ly/worldsbeeb489.
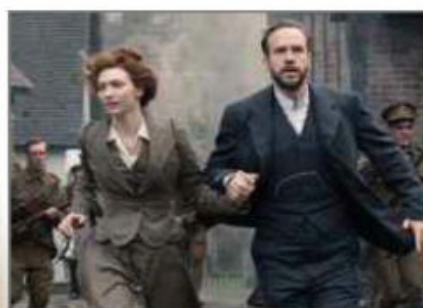
Other new iPlayer shows include *Vienna Blood*, a three-part detective story set in the 1900s Vienna of Sigmund Freud (bit.ly/vienna489); Season 2 of crime drama *The Mallorca Files*, which arrives as a box set (bit.ly/mallorca489); and Season 2 of Netflix's *The Sinner*, now streaming for free via bit.ly/sinner489.

All 4 is now streaming the fourth season of brilliant inter-dimensional animated comedy *Rick and Morty*, with new episodes each Wednesday at bit.ly/morty489.

Tell us your favourite new TV at twitter.com/webusermagazine

VPNs

Beat web restrictions and stay anonymous online with our roundup of the best virtual private networks

A VPN (virtual private network) is the best way to keep your internet connection completely private. VPN services run servers across the globe, which you can pass through before accessing the web. Because the data between this server and your PC is securely encrypted, it blocks your ISP from seeing what you're doing and stops the sites you visit from knowing who – and where – you are.

Here, we've put 16 VPNs through their paces and picked out our top four. You can see why the remaining 12 VPNs didn't make the grade in our summary, opposite.

HOW WE TESTED

To test each VPN's performance, we installed it on a Windows 10 PC using a domestic fibre-broadband line rated at 110Mbps. We connected to a selection of each VPN's servers around the world and tested their speed with the free Ookla Speed Test (www.speedtest.net). We also scrutinised the features available from each VPN, how easy it was to use and the value for money offered.

## NordVPN | nordvpn.com | £2.29 per month for three years

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

NordVPN has been in the news recently, after it revealed that some of its user data was hacked from a server it was leasing from another company back in 2018. It doesn't look like NordVPN was specifically targeted and the leaked data didn't contain passwords. Rather, some accounts were broken into because users had set up the same combination of username and password on multiple sites, including one or more that have compromised passwords in the past (check yours at haveibeenpwned.com). NordVPN has declared that, following an internal audit, it's perfectly safe and secure to use. We're inclined to trust it, but if you're not, skip to the next review.

NordVPN has 5,500 servers across 60 countries. Clicking on a country automatically connects you to the fastest server available. In our tests, we saw speeds of 100Mbps from Switzerland and the Netherlands, and 80Mbps from New York. It gets slower around the Pacific Rim, with 60Mbps in California, Japan and Australia, but that's still fast enough to stream 4K video. We accessed Netflix US with ease.

NordVPN has special servers for peer-to-peer services, double connections that further disguise your location by routing through two distant servers, and a range of servers that let
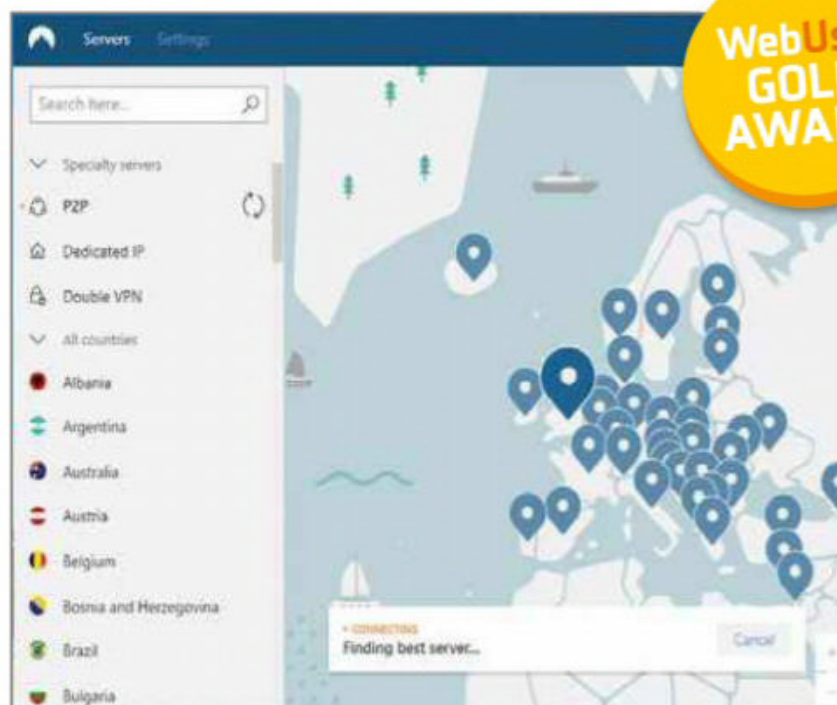
you surf from a static IP address, though the latter option costs an extra £54 per year.

Despite its nordic-sounding name, the VPN is based in Panama, which should be safe from government interference, and has commissioned a Price Waterhouse Coopers audit as proof that it doesn't record user activity.

It's not the cheapest VPN, at £5.36 per month for six devices if you pay annually, but the price drops to £2.29 per month if you're prepared to commit to three years.

VERDICT
★★★★★

WebUser GOLD AWARD

NordVPN strikes the perfect balance between usability, features and price. It's easy to initiate a private connection and then seamlessly continue with whatever you're doing, and there's a good selection of servers across the globe for you to choose to appear from. Although NordVPN revealed that it suffered a recent security scare, we think this was managed sensibly and the service's security remains convincing, not least because it regularly undertakes reviews of its security and practices, and publishes the results to its users.

Surfshark | surfshark.com
From £1.59 per month for two years
FEATURES ★★★★☆ PERFORMANCE ★★★★☆
EASE OF USE ★★★★☆ VALUE FOR MONEY ★★★★★

WebUser SILVER AWARD

Surfshark lets you connect with an unlimited number of devices, so if your household is packed with computers, phones and smart appliances, you don't have to worry about disconnecting one device to connect another.

Rates are very competitive: an annual subscription costs £4.79 a month, which plummets to £1.59 if you commit to two years – the cheapest of all the VPNs reviewed here. The trade-off is that Surfshark only has 800 servers across 59 countries, some of which are virtual servers that aren't located in the country they claim to be in. Servers are heavily concentrated in the US, with 26 cities represented. Australia gets five, but no other country gets more than three.

Speeds range from very fast, topping 100Mbps in Switzerland and the Netherlands, and 98Mbps via Silicon Valley, but slowed to 26Mbps when streaming via Japan. We had no problem accessing US Netflix via the New York server.
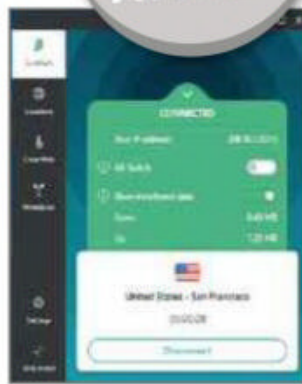
VERDICT ★★★★☆
It may not top the table for speed or number of servers, but Surfshark does everything most users want from a VPN. It's superb value for money, with unlimited connections for £1.59 per month if you sign up for two years.

CyberGhost | cyberghostvpn.com
£2.10 per month for three years
FEATURES ★★★★★ PERFORMANCE ★★★☆☆
EASE OF USE ★★★★★ VALUE FOR MONEY ★★★★★

WebUser BRONZE AWARD

CyberGhost appears as a black pop-up in your notification area – ready to connect to the fastest nearby server with a single click of a button. It's easy to jump on specific servers in popular countries and unblock the localised locks on streaming services, including Netflix US and BBC iPlayer. Click again to open up even more servers spread over 61 countries.

CyberGhost provided a solid 104Mbps via the Netherlands, and 50Mbps from New York and Japan. Australia fell to 14.6Mbps, though, which isn't enough to stream 4K video.

The service is very versatile – you can connect up to seven devices at once, including Amazon Fire TV, or set up your router to provide access to all your devices. There's a handy kill switch that cuts all internet activity if the VPN connection drops, and you can set up rules, such as connecting to a specific location when you're using a particular program.
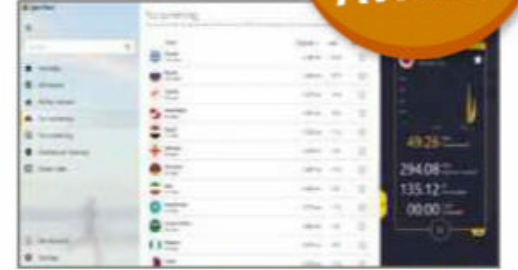
VERDICT ★★★★☆
CyberGhost offers a lot of options but the interface remains clean and intuitive – nothing is more than a few clicks away from the main screen. We love how the interface unfolds as you learn its potential and find more things it can do.

ExpressVPN | expressvpn.com
£7 per month for one year
FEATURES ★★★★☆ PERFORMANCE ★★★★☆
EASE OF USE ★★★☆☆ VALUE FOR MONEY ★★★☆☆

Like CyberGhost, ExpressVPN starts small and only ventures further if you have a specific need. By default, it picks a fast connection for you and remembers the last two connections you made, in case you want to return to something you were doing before.

Going further afield is more fiddly. Clicking a connection offers a search box for seeking out servers in other locations but you can't see at-a-glance how fast they are. Instead, you need to click on them to run a speed test.

On the most part, performance is good, with speeds topping 100Mbps in Switzerland and the Netherlands, 88Mbps from New York, 71Mbps in California and 50Mbps in Australia. Japan was disappointing, however, at 16.3Mbps.

The only thing stopping ExpressVPN getting one of our award is its price. The best deal is £7 per month, regardless of how many years you sign up for.
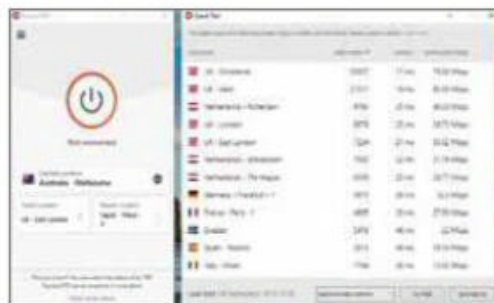
VERDICT ★★★★☆
ExpressVPN has strong security and privacy credentials, and its solid performance and liberal approach to streaming make it a persuasive choice. However, there are no deals on offer so it looks expensive compared to its rivals.
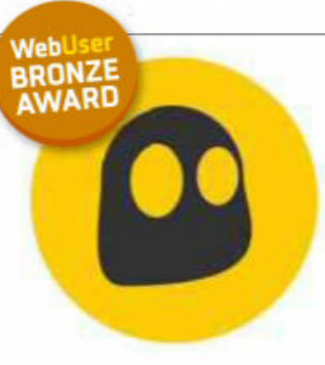
BEST OF THE REST
- **HMA Pro** (hidemyass.com | **£3.59 per month for three years** | ★★★★☆) performed well but isn't such good value for money, so it missed out on our awards.
- **Hotspot Shield** (hotspotshield.com | **£9 per month for three years** | ★★★★☆) is hampered by its price, which is extraordinarily high. It's also based in the US, which might be an issue if you want total privacy.
- **Private Internet Access** (privateinternetaccess.com | **£2.70 per month for one year** | ★★★★☆) has reasonable pricing, even if you only commit to one year, but its interface is a bit technical and not particularly easy to use.
- **Windscribe** (windscribe.com | **price varies** | ★★★★☆) lets you set up your own service, so you can choose which countries to use. This is flexible but it barely works out any cheaper than its rivals.
- **Getflix** (getflix.com.au | **£1.85 per month for two years** | ★★★★☆) is brilliant if you want to stream video from foreign services but won't do anything for your privacy.

WORST OF THE REST
Buffered (buffered.com): Slow and didn't unlock Netflix US
F-Secure Freedome (f-secure.com): Competent VPN but few extra features
IPVanish (ipvanish.com): Too expensive (£5.30 per month)
PureVPN (purevpn.com): Only average performance in speed tests
TunnelBear (tunnelbear.com): Doesn't support BitTorrent and didn't unlock Netflix US
Avast SecureLine (avast.com): Disappointing results in our performance tests
Norton Secure VPN (uk.norton.com): Too basic, and average performance in speed tests

|	NordVPN	Surfshark	CyberGhost	ExpressVPN
WEBSITE	nordvpn.com	surfshark.com	cyberghostvpn.com	expressvpn.com
BEST PRICE	£2.29 per month for three years	£1.59 per month for two years	£2.10 per month for three years	£7 per month for one year
SIMULTANEOUS CONNECTIONS	6	Unlimited	7	5
ROUTER SUPPORT	✓	✓	✓	✓
HQ LOCATION	Panama	British Virgin Islands	Romania	British Virgin Islands
FREE TRIAL	✗	✗	24 hours	✗
COUNTRIES	60	50+	61	94
TOTAL SERVERS	5,500+	800+	4,700+	3,000+
VPN PROTOCOL	IKEv2, OpenVPN	OpenVPN	L2TP, IKEv2, OpenVPN	PPTP, L2TP, IKEv2, OpenVPN
BITTORRENT SERVERS	1,000+	21	56	All
SPLIT TUNNELING	✗	✓	✓	✓
DOUBLE VPN	✓	✓	✗	✗
STATIC IP OPTION	✓	✓	✗	✗
PLATFORMS	Windows, macOS, Linux, Android, iOS, Fire TV	Windows, macOS, Linux, Android, iOS, Fire TV	Windows, macOS, Linux, Android, iOS, Fire TV	Windows, macOS, Linux, Android, iOS, Fire TV
BROWSER EXTENSION	Chrome, Firefox	Chrome, Firefox	Chrome, Firefox	Chrome, Firefox

OUR VERDICT

We've given our Gold Award to NordVPN because it's affordable, performed well in our tests and is straightforward to use. It's worth noting that you only unlock its best prices if you commit to staying with the VPN for three years, which is a long time in computing terms, but having survived a recent security scare with its integrity intact, we think NordVPN is here to stay.

For even better value for money, particularly if you want to connect a lot of devices to your VPN, consider our Silver Award winner, Surfshark. While it isn't the household name our other VPNs have become, its best price only ties you in for two years.

Our Bronze Award goes to CyberGhost, which does a great job of offering lots of features without over-complicating its interface. It dynamically reveals its tools as you need them, making it as simple for beginners as it is for experienced VPN users. ■
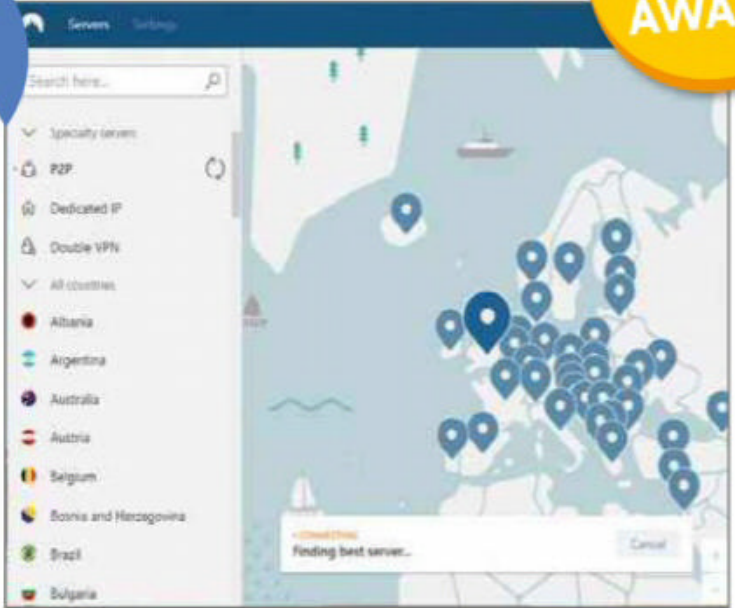
Web User's Best Buys

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

HARDWARE, SOFTWARE & SERVICES

VPN

NordVPN
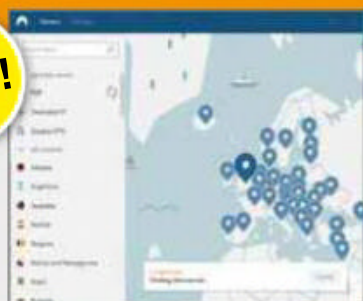
NEW!

From £2.29 per month
from **nordvpn.com**
Tested: Issue 489

NordVPN strikes the perfect balance between usability, features and price. It's easy to set up a private connection and it has servers in dozens of countries across the globe.

KEY SPECS

Six simultaneous connections ■ Choice of 60 countries ■ 5,500+ servers ■ IKEv2, OpenVPN protocols ■ Double VPN security ■ Router support ■ 1,000+ BitTorrent servers ■ Static IP option ■ Windows, macOS, Linux, Android, iOS, Fire TV

LAPTOP

HP Pavilion x360

£679 from **bit.ly/hp487**
Tested: Issue 487

Slim, attractive and powerful, and with a great keyboard, the HP Pavilion x360 gets more or less everything right, at a price that undercuts most of its rivals. The ability to flip the laptop's screen into tablet mode is a bonus.

KEY SPECS

Intel Core i5-8250U processor ■ 256GB SSD ■ 8GB memory ■ 14in screen ■ 1,920 x 1,080 pixels resolution ■ 2 x USB 3, 1 x USB-C ports ■ 802.11ac Wi-Fi ■ Windows 10 Home ■ 326 x 224 x 20mm ■ 1.61kg ■ One-year return-to-base warranty

CHROMEBOOK

Lenovo Chromebook 500e

£349.98 from **bit.ly/leno483**
Tested: Issue 483

This versatile and rugged convertible Chromebook has been designed for the classroom but would be just as useful at home and on the move. It's tough enough to survive a few knocks and you can use a stylus on its touchscreen.

KEY SPECS

Intel Celeron N3450 processor ■ 32GB storage ■ 4GB memory ■ 11.6in touchscreen ■ 1,366 x 768 pixels resolution ■ Intel UHD Graphics 500 card ■ 2 x USB-C, 2 x USB 3 ports ■ 290 x 204 x 20.4mm ■ 1.31kg ■ One-year collect-and-return

SECURITY CAMERA

Google Nest Cam IQ Outdoor

£279 from **bit.ly/nest481**
Tested: Issue 481

This is the best-quality external security camera we've tested, capable of capturing clear, sharp video footage. It takes a bit of setting up and is expensive, but it's worth paying for if you're serious about your home security.

KEY SPECS

Outdoor camera ■ 1080p video resolution ■ 130-degree lens ■ Motion and audio detection ■ Night vision ■ 802.11ac Wi-Fi ■ 128 x 93 x 93mm ■ Three hours of free cloud storage ■ One-year return-to-base warranty

INKJET PRINTER

Canon Pixma TS6250

£114.36 from **bit.ly/cango479**
Tested: Issue 479

This multifunction printer looks smart and is easy to use, whether you're printing from a PC, mobile device or its own touchscreen. With great results and acceptable running costs, it's easy to recommend.

KEY SPECS

4,800 x 1,200dpi print resolution ■ 2,400 x 1,200dpi scan resolution ■ 200-sheet A4 paper capacity ■ Double-sided printing ■ 7.5in colour touchscreen ■ 802.11n Wi-Fi ■ 372 x 315 x 139mm ■ 6.2kg ■ One-year return-to-base warranty

MINI PC

ASRock DeskMini 310

£668.70 from **bit.ly/asro477**
Tested: Issue 477

The performance of this diminutive PC comes remarkably close to a full-size system, once you've paid for and installed its components. It's compact, quiet and runs Windows well.

KEY SPECS

Intel Core i5-8400 processor ■ 250GB SSD ■ 16GB memory ■ Intel UHD Graphics 630 card ■ 1 x USB Type-C, 2 x USB 3.1, 1 x USB 2 ports ■ 802.11ac Wi-Fi, Gigabit Ethernet ■ 158 x 155 x 80mm ■ 1.87kg ■ One-year return-to-base warranty

All prices correct at time of review

Christmas Gift Guide 2019

Have yourself a very merry Christmas with this bonanza of ideas for even the toughest recipient (including you)

FOR **AUDIOPHILES**
Creative Outlier Gold
Where to buy www.uk.creative.com
UK RRP £94.99

Go on wild adventures without worrying about subpar audio quality or short-lived battery life! The Outlier Gold, with its impressive 39 hours of battery life, ensures that you'll always be on your A game while on the go. Together with Software Super X-Fi®, experience unmatched audio clarity even while you're out and about.

FOR **UPGRADERS**
HyperX DDR4 FURY RGB
Where to buy www.ebuyer.com
UK RRP £60.11 for kit of two

HyperX® FURY DDR4 RGB delivers a boost of performance and style with speeds of up to 3,466MHz, aggressive styling, and RGB lighting that runs the length of the module. FURY DDR4 RGB is XMP-ready and available in 2,400MHz to 3,466MHz speeds, CL15–16 latencies, single module capacities of 8GB and 16GB, and kit capacities of 16GB to 64GB to give you a performance boost for your gaming, video editing and rendering. It features plug-and-play automatic overclocking at 2,400MHz and 2,666MHz and is compatible with the latest Intel and AMD CPUs. 100% tested at speed and backed by a lifetime warranty, FURY DDR4 RGBs are your worry-free, cost-effective upgrade of choice.
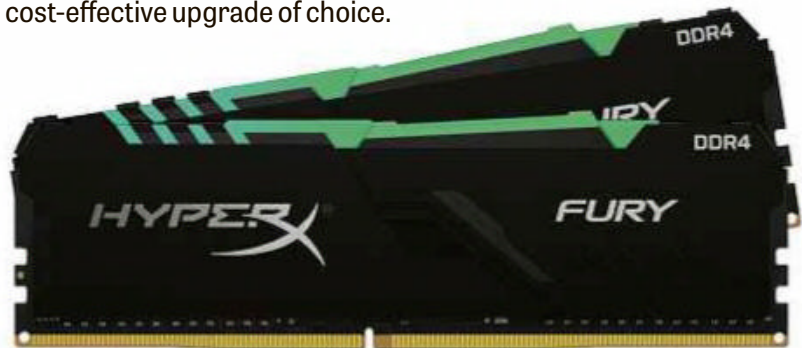
FOR **CHARACTERS**
Razer Kraken Kitty Edition Headset
Where to buy www.amazon.co.uk
UK RRP £149.99

Whether you're looking to stream, make photo ops pop or just be immersed in your favourite movie or game with killer audio, the Razer Kraken Kitty Edition allows you to fully express your own unique personality with glowing earcups in addition to kitty ear lighting.

FOR **MOBILE GAMERS**
Nintendo Switch 1.1
Where to buy www.johnlewis.com
UK RRP £279.99

The Switch is now more tempting than ever, thanks in part to Nintendo quietly updating its mobile gaming device with a longer-lasting battery. As ever, games look glorious whether viewed on a big-screen TV or the 6.2in screen, and if you can live without detachable controllers there's the Switch Lite for £199.99.

FOR **TRUE GAMERS**

iiyama G-Master GB2760HSU-B1

Where to buy www.amazon.co.uk
UK RRP £259.99

Looking for a monitor that gamers will love? Then iiyama has the answer with the sleek, black 27in G-Master GB2760HSU-B1. It doesn't just look good: it's built for gamers, with a Full HD resolution, 1ms response time and a smooth 144Hz panel. Add support for AMD FreeSync™, HDMI and DisplayPort, and it has the lot.

FOR **PROFESSIONALS**

iiyama ProLite XUB2792UHSU-B1

Where to buy www.amazon.co.uk
UK RRP £399.99

If you want a screen packed with detail, look no further than the 4K ProLite XUB2792UHSU-B1. It stands out from the crowd thanks to an ultra-slim bezel, built-in USB hub and 3860x2160 glorious pixels. It's versatile too, with HDMI, DisplayPort and a height-adjustable stand.

FOR **INQUIRING MINDS**

Sphero RVR

Where to buy www.amazon.co.uk
UK RRP £249.99

This is a superbly versatile programming device. It's an instant hit thanks to point-and-drive play, but from there you can develop children's coding skills using a Scratch-like programming language right up to JavaScript. You can even add a Raspberry Pi (or BBC micro:bit), giving you the opportunity to turn the RVR into a roving, programmable device. Think of it as a Mars rover for your living room. There are plenty of education-based activities already available too, which helps to justify that rather chunky price.

FOR **PHOTOGRAPHERS**

Lowepro ProTactic 350 AW II

Where to buy www.amazon.co.uk
UK RRP £209.95

Keep all your camera kit safe and close at hand with this pack from pro photography specialist Lowepro. The outer shell is tough and solid, yet somehow Lowepro has managed to create an exceptionally light backpack. During testing, we found it far more comfortable than lugging around a DSLR in a shoulder bag.

FOR **BETTER FITNESS**

Fitbit Versa 2
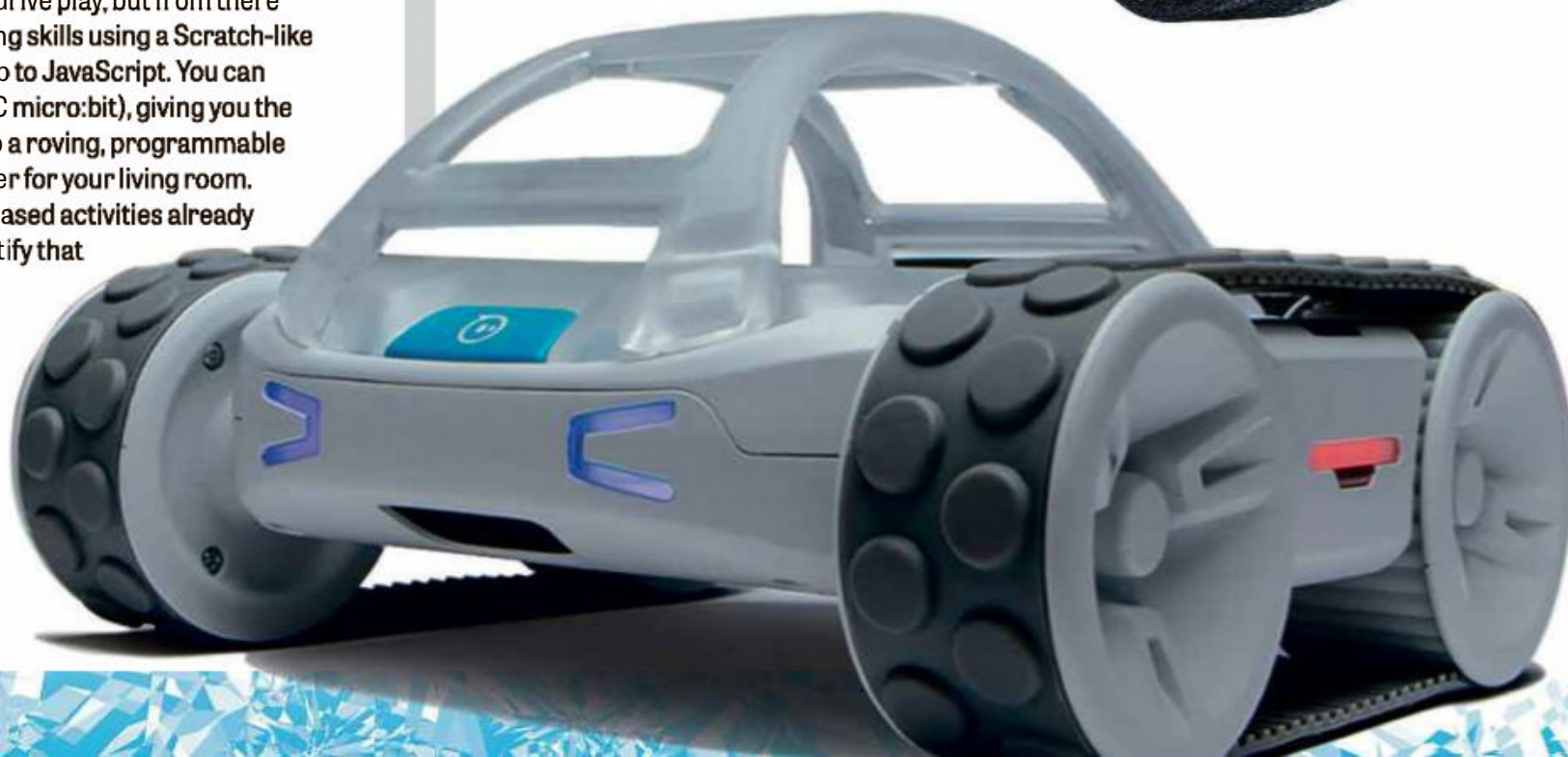
Where to buy www.fitbit.com
UK RRP £199.99

While true fitness freaks will be better served by a smartwatch with GPS, the Versa 2 is a superb choice for anyone who wants a stylish watch, heart-rate tracking and the option of an always-on screen thanks to its AMOLED display. Add Fitbit's superb app and community, and you have a highly attractive device.

FOR DRONERS
DJI Mavic Mini
Where to buy store.dji.com
UK RRP £369

The Mini lives up to its name – you can just about stuff it into a jacket pocket – but it still packs a video camera capable of a 2,720 x 1,530 resolution at 30 frames per second (or 1080p at 60fps). Quality is pretty darn good, the battery lasts for 30 minutes and it's superbly easy to fly. And you don't need to pass an official safety test to fly it, either.

FOR "LOSERS"
Tile Pro (2020)
Where to buy www.amazon.co.uk
UK RRP £29.99

You know the Tile concept by now: add this to your luggage, keyring or other valued item and always be able to locate it: even if it's out of range, the Tile community can help you find it. The Tile Pro now has a range of 400ft and an incredibly loud ringer, and you can replace the CR2032 watch cell battery yourself – batteries last for at least a year. As we say above, it's perfect for the "losers" in your life.
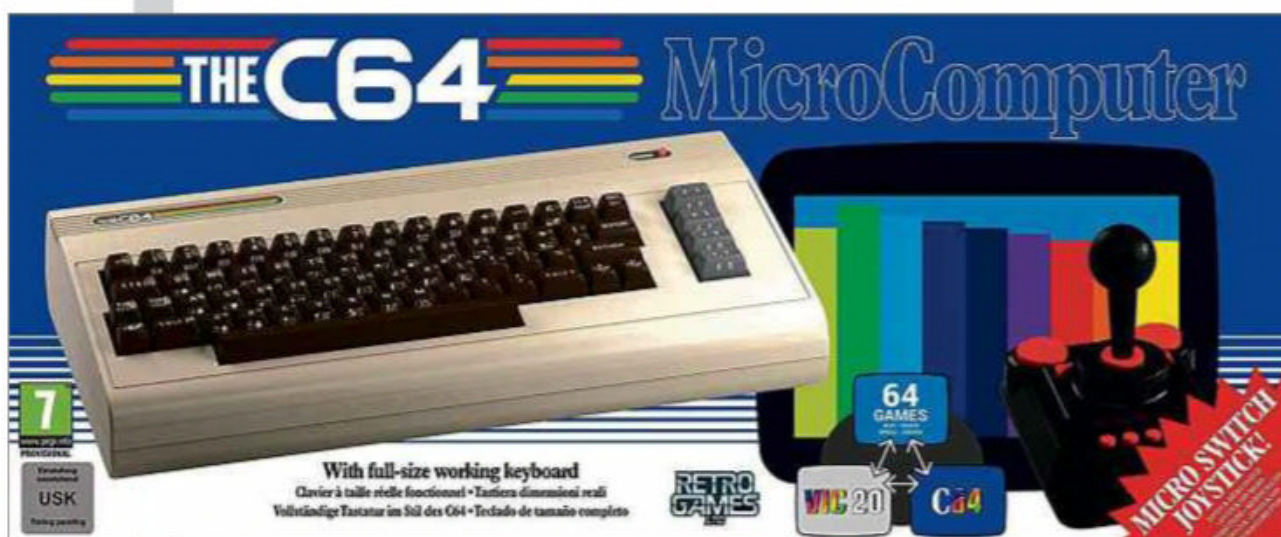
FOR THE MEMORIES
The C64
Where to buy www.amazon.co.uk
UK RRP £109.99

Indulge your Commodore 64 nostalgia with this full-size replica, complete with joystick, 64 games (how appropriate) and a keyboard that will transport you right back to the days of 8-bit computing. And if you want to go even further back into history, you can flip The C64 into VIC 20 mode, allowing you to explain to your children just how low-resolution computers used to be in the early 1980s.

FOR COMMUTERS
Apple iPod touch
Where to buy www.apple.com/uk
UK RRP From £199

Not everyone wants – or can afford – an iPhone, but there's nothing quite like the slick Apple interface or range of apps if you're after some light entertainment. The iPod touch is fast, ranges from 32GB (£199) to 128GB (£299) to 256GB (£399), and comes in six attractive finishes. There's a 3.5mm headphone jack, too...

FOR TV LOVERS
Roku Streaming Stick+
Where to buy www.amazon.co.uk
UK RRP £59.99

Simply the best streamer if you want to access both Amazon and Google video services: just slot it into your TV's HDMI interface and supply power via the USB cable. There's no voice support, but the remote control is easy to use while the interface itself is incredibly responsive.

Lenovo

Lenovo IdeaPad C340
Where to buy Dixons, John Lewis, AO, Shop Direct, Amazon, Lenovo.com, Argos
**UK RRP** £399.99 to £649.99

Inspire, create and express yourself with the IdeaPad C340. Handle any everyday situation with the C340's multimode ability. Watch, share and interact while on the go with up to 12.5 hours of battery life – and take advantage of Lenovo's rapid charge technology, giving you 80% battery life in just one hour.

Lenovo IdeaPad S540
Where to buy John Lewis
**UK RRP** £529.99 to £849.99

In today's fast-paced digital world, you need a device that is stylish, responsive and powerful. Step forward the IdeaPad S540. Combining heavy-duty performance and a premium look and feel, you can trust the S540 will be by your side all day, everyday.
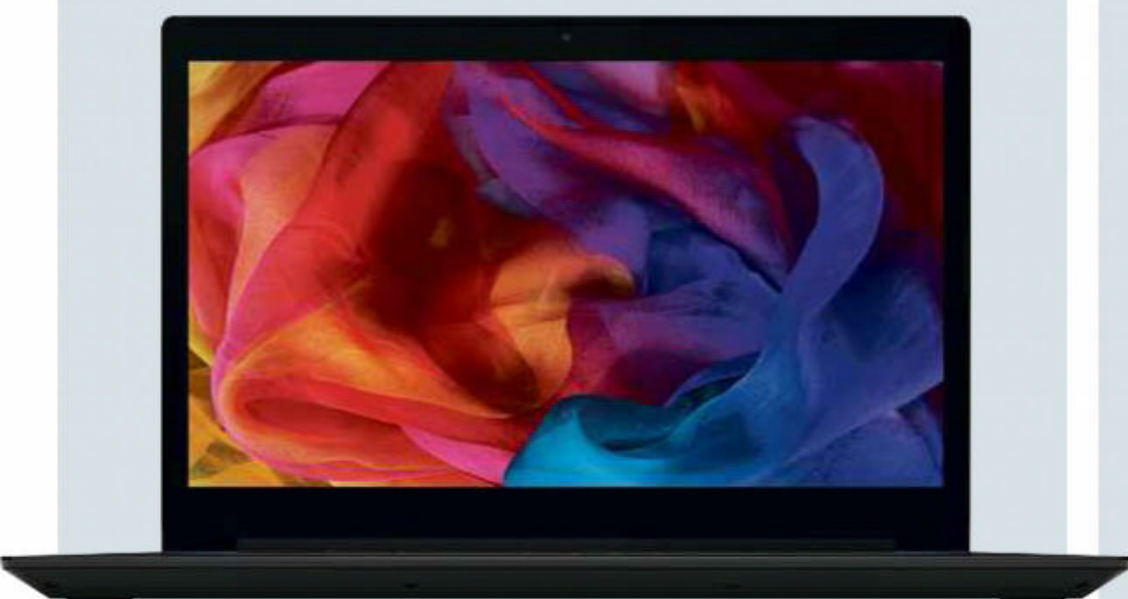
Lenovo IdeaPad L340 Gaming
Where to buy Dixons, John Lewis, AO, Shop Direct, Amazon, Lenovo.com, Argos
UK RRP £699.99 to £849.99

Always on the go? Need a device that allows you to game and work? The IdeaPad L340 Gaming lets you control your own fate by gaming in quick mode or working in quiet mode. Packed with power, and with Nvidia GeForce graphics behind you, go into any battle with obscene confidence.
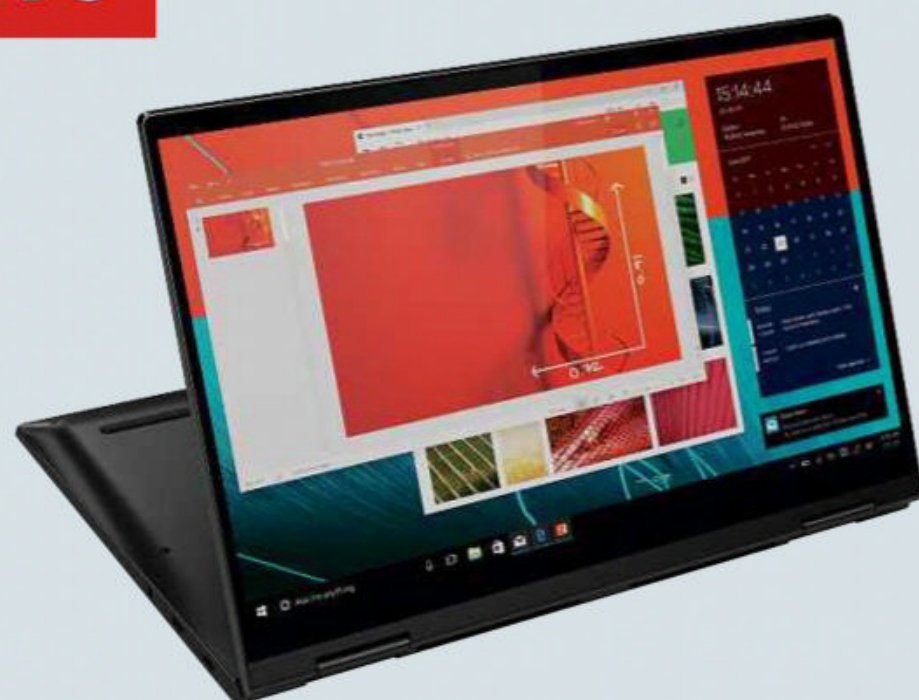
Lenovo Yoga C740
Where to buy Lenovo.com
UK RRP £899.99

Combining Yoga's famous 2-in-1 versatility with a premium and sleek design, the Lenovo Yoga C740 will allow you to work and play in style. Enjoy vibrant entertainment with a Full HD wide-angle display as well as a Dolby Atmos speaker system.

Lenovo Chromebook S340
Where to buy Dixons
UK RRP £199.99

Fast, flexible and fun, the Lenovo Chromebook S340 seamlessly brings together all your favourite applications in one secure, easy-to-use interface. Stay on the go with lightning-fast Chrome OS and up to ten hours of battery life on a slim, light and useful laptop.
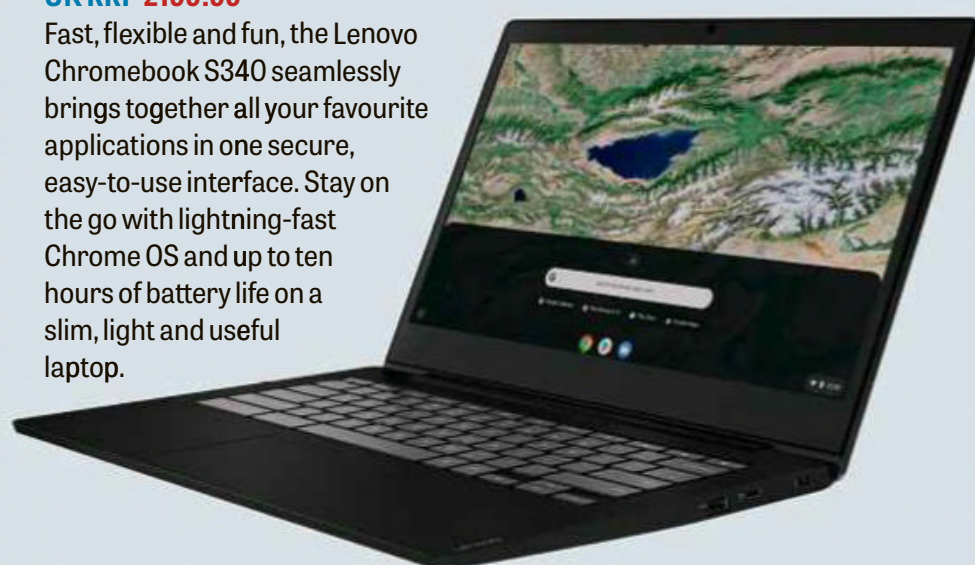
Lenovo IdeaCentre A340
Where to buy Dixons, John Lewis, AO, Shop Direct, Amazon, Lenovo.com, Argos
UK RRP £379.99 to £749.99

Elegant yet simple, the IdeaCentre A340 is sure to catch your eye. Make it your perfect family PC with superfast, smooth performance that means it's ideal for work, entertainment or video chats. Whatever you want to do, this PC will make light work of heavy workloads.

Best Free Software

IObit Advanced SystemCare 13 Free

bit.ly/advanced489
Min requirements: Windows 7/8.1/10
File size: 48.7MB

IObit's Advanced SystemCare Free is an all-in-one toolkit that can clean your system, boost performance, protect your privacy and fix all manner of annoying PC problems. As with previous versions of the software, all you need to do is click the big Scan button on the home screen and it will run through a series of tasks in sequence.

There's also a Speed Up section offering a number of options designed to boost system performance, and a Protect area that prevents your browser homepage from being changed, and offers facial recognition via Face ID.

This updated version of Advanced
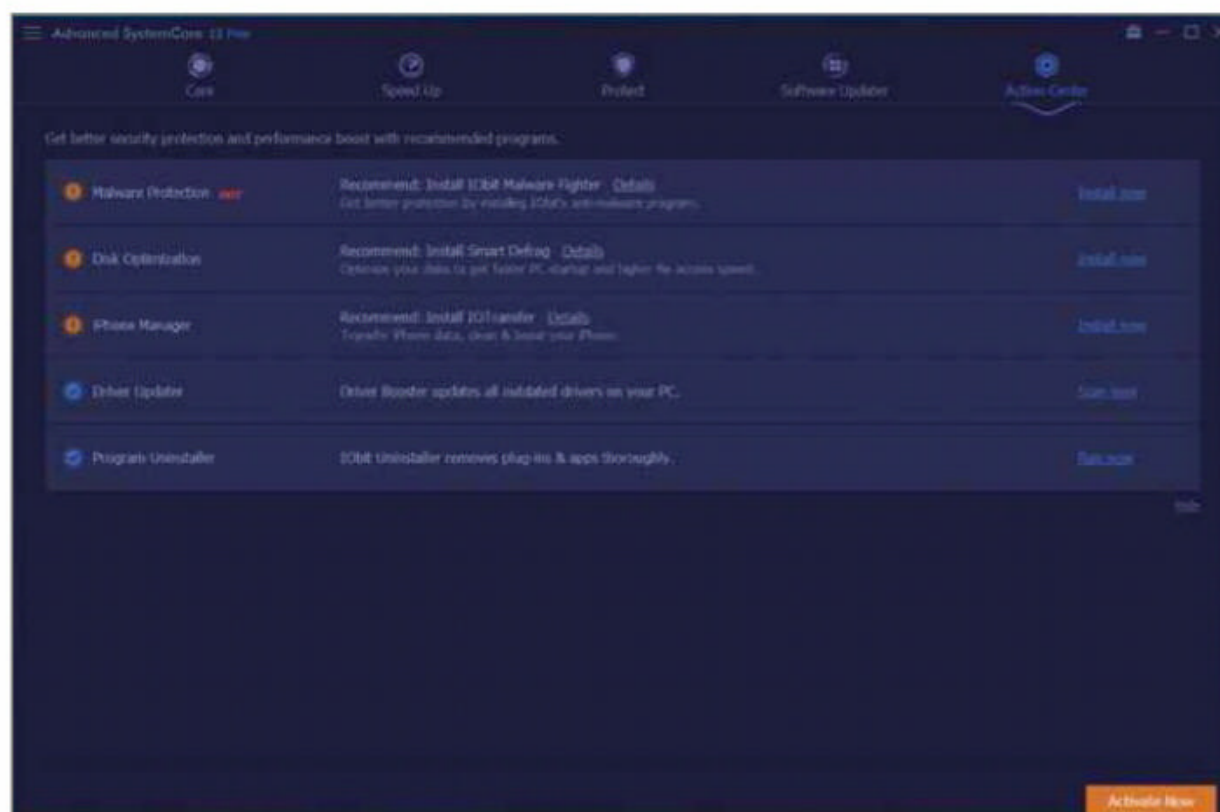
SystemCare Free introduces a new email protection feature (available alongside surfing protection and ads removal), which aims to detect and block spam, phishing scams and malicious links. Another useful module is Software Updater, which scans your system looking for outdated versions of programs and gives you the chance to update them manually.

Each yearly update of Advanced SystemCare sees the interface undergo some minor changes. In this version, the Scan button has been tweaked,

while the tabs at the top have been given icons and renamed: 'Clean & Optimise' is now Care; and Toolbox has become Software Updater. The Toolbox, which provides access to all the individual tools, still exists but it's now moved to the top-right corner of the interface, next to the Minimise button.

There are two other new tools in this edition: Context Menu Manager, which lets you disable or delete entries from Windows' right-click menu; and File Shredder, which can securely erase files and folders, preventing their recovery.


MINI WORKSHOP | Speed up your PC using Advanced SystemCare Free 13
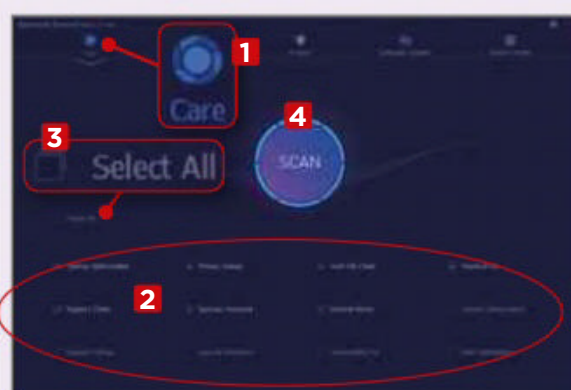
1 Open Advanced SystemCare, click the Care tab **1** and choose the modules you want to include in your first scan. **2** For a thorough health check, click Select All. **3** Click the Scan button **4** and the software will run through the selected tasks in sequence. You can skip any stage or halt the scanning process at any time.

2 When the software completes its scan, you'll be presented with a screen showing the total number of problems found, **1** the amount of space that can be reclaimed **2** and the number of items that can be optimised. **3** The sidebar breaks down the findings by section. **4** Deselect any items you don't want to include, then click the Fix button in the bottom-right corner of the screen.
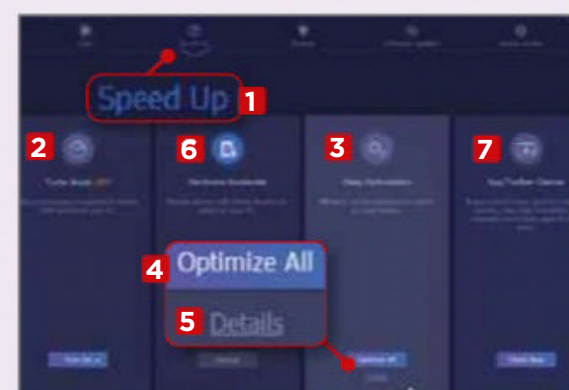
3 The Speed Up section **1** aims to improve system performance. Turbo Boost **2** ends unnecessary programs and processes and frees up RAM, while Deep Optimisation **3** tweaks system settings. Hover over the Optimize All button **4** to see details. **5** Hardware Accelerate **6** and App/Toolbar Cleaner **7** require additional IObit programs to be installed.

This fortnight's top new software downloads to help you make the most of your PC, and they're all FREE
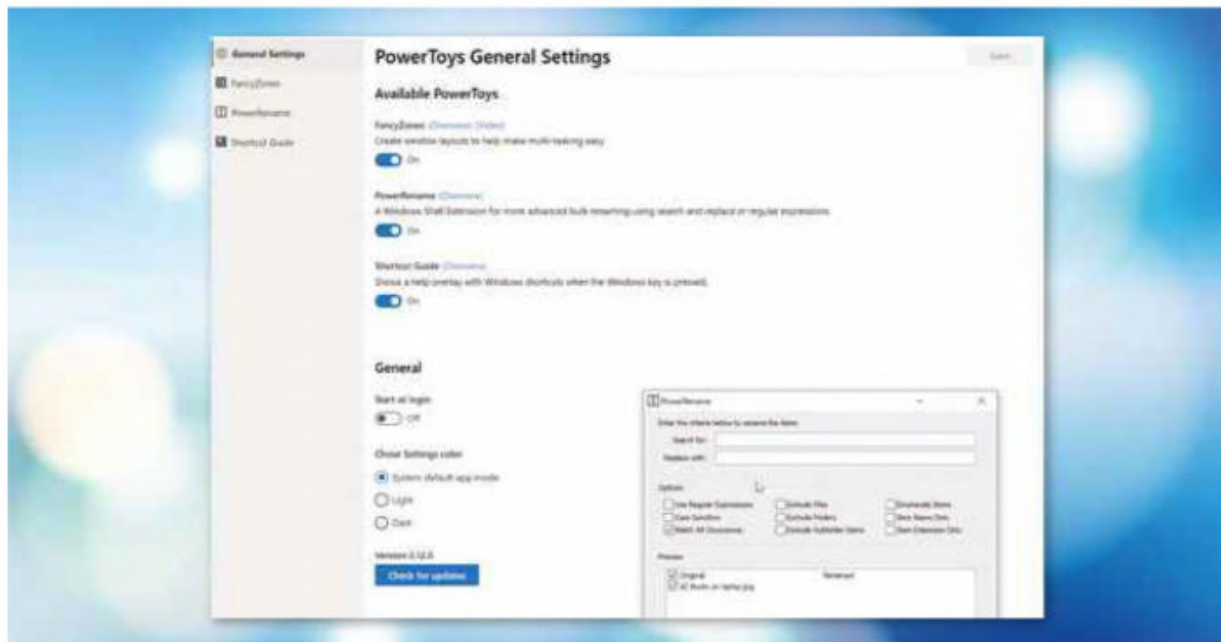
SYSTEM TOOL

PowerToys: PowerRename
bit.ly/ptoys489
Min requirements: Windows 7/8.1/10 **File size:** 3.1MB

Microsoft's original PowerToys were a collection of tweaking tools for Windows 95 and XP, and the company has now begun releasing Windows 10 tools under that same name. The newest addition, called PowerRename, is a Windows Shell Extension for bulk renaming that lets you add numbers to names, replace words, ignore folders and more. Furthermore, Microsoft has started to add support for dark mode to its PowerToys, "where appropriate".

Compare Text
bit.ly/compare489
File size: 29.43MB

If you have two versions of the same document – or two suspiciously similar pieces of work – and you want to determine the differences between them, Compare Text can make the task easier. It works with TXT and RTF files, and can automatically clean up documents (remove line breaks, align paragraphs, change the font and size and more), before running a comparison and highlighting the differences.
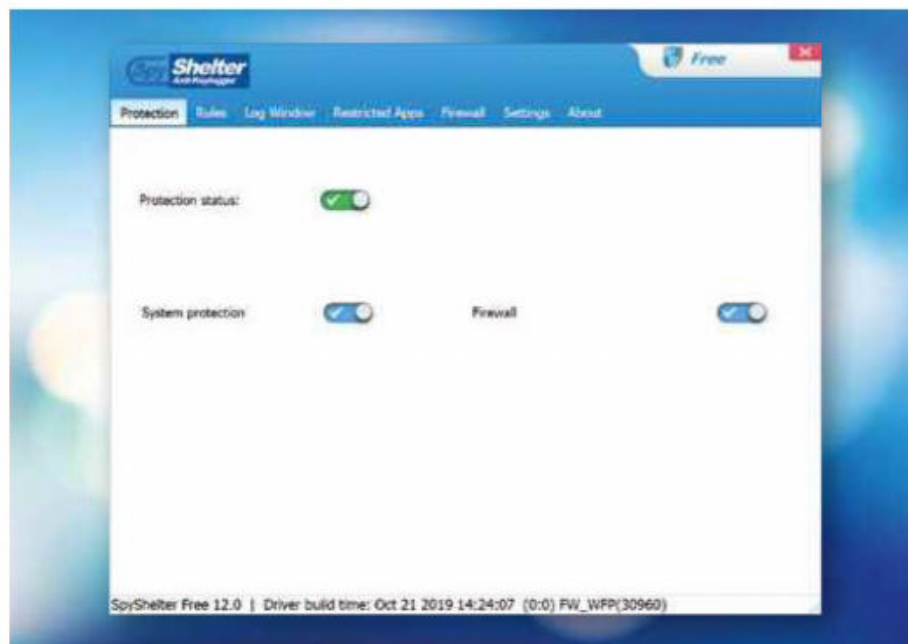

FIREWALL

SpyShelter Free 12
www.spyshelter.com
Min requirements: Windows 7/8.1/10 **File size:** 8.4MB

The full, paid-for edition of SpyShelter is an anti-keylogger that protects you from all sorts of threats. SpyShelter Free is more limited but it offers a two-way firewall you can use to control incoming and outgoing connections, and real-time system protection that safeguards your Registry, RAM and processes from malicious code. You can choose between High (better protection) or Medium (fewer alerts) security levels when installing the software, as well as from the Settings.
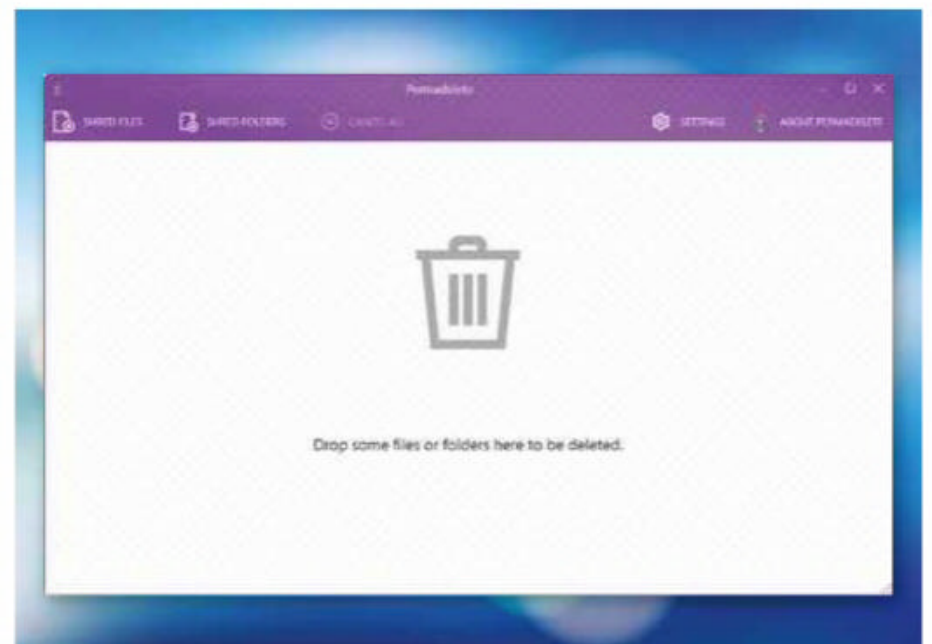
FILE ERASER

Permadelete
bit.ly/pdel489
Min requirements: Windows 7/8.1/10 **File size:** 2.4MB

When you delete a file from your PC, all you are actually doing is removing the reference to it on the hard drive – you're not physically erasing the file itself. Even formatting a drive won't wipe the contents for good.

Permadelete is a simple tool that overwrites a file or folder multiple times to prevent recovery. Just drag and drop the item you want to erase to the interface, choose the number of passes to perform and click Shred.

SECURE WEB BROWSER
Tor Browser 9
www.torproject.org
Min requirements: Windows 7/8.1/10, macOS or Linux **File size:** 63.7MB

Based on the same engine as Mozilla Firefox, this secure browser uses the Tor network to protect your browsing and disguise your location. It also comes with a number of privacy-focused add-ons, and you can adjust the security level of the software, choosing from Standard, Safer and Safest. The new version features important security updates to the browser engine (it's based on Firefox 68 ESR - Extended Support Release), and makes using Tor more intuitive. The Tor button and Tor Launcher extensions have been integrated into the browser, and the software now uses a technique called Letterboxing to hide the size of your screen dimensions from snoopers.
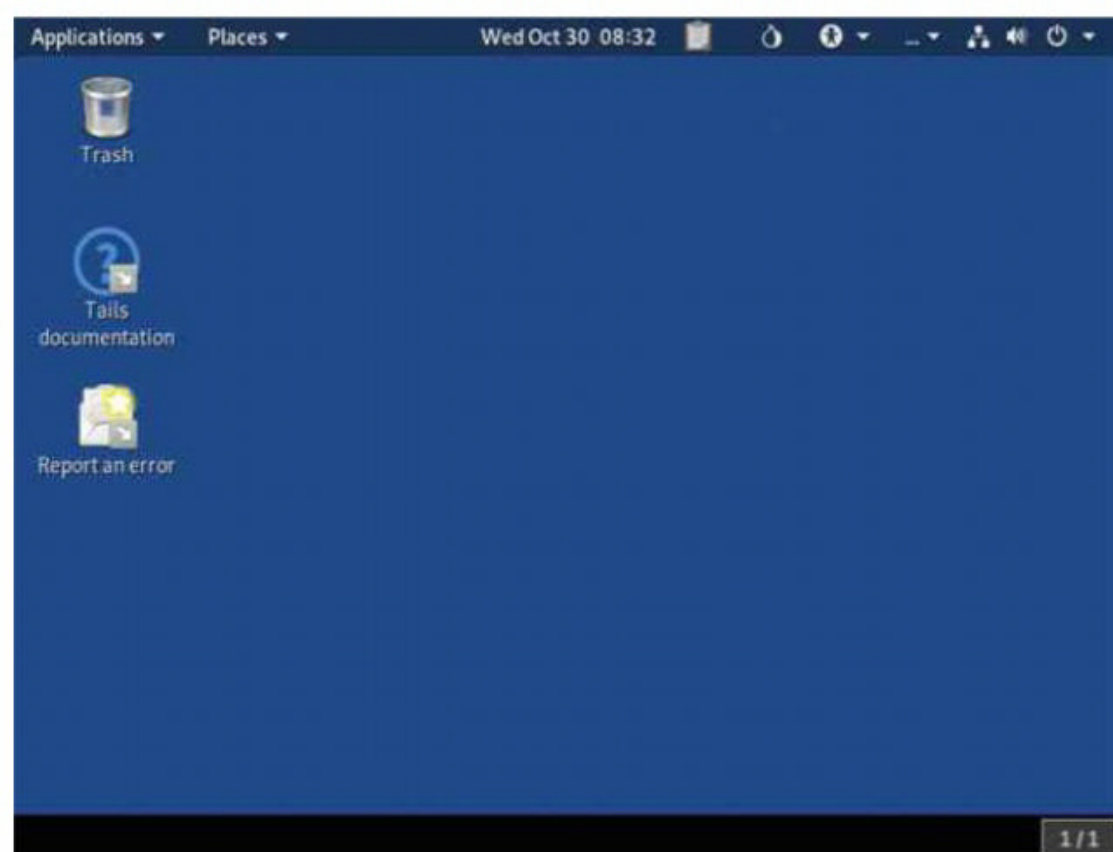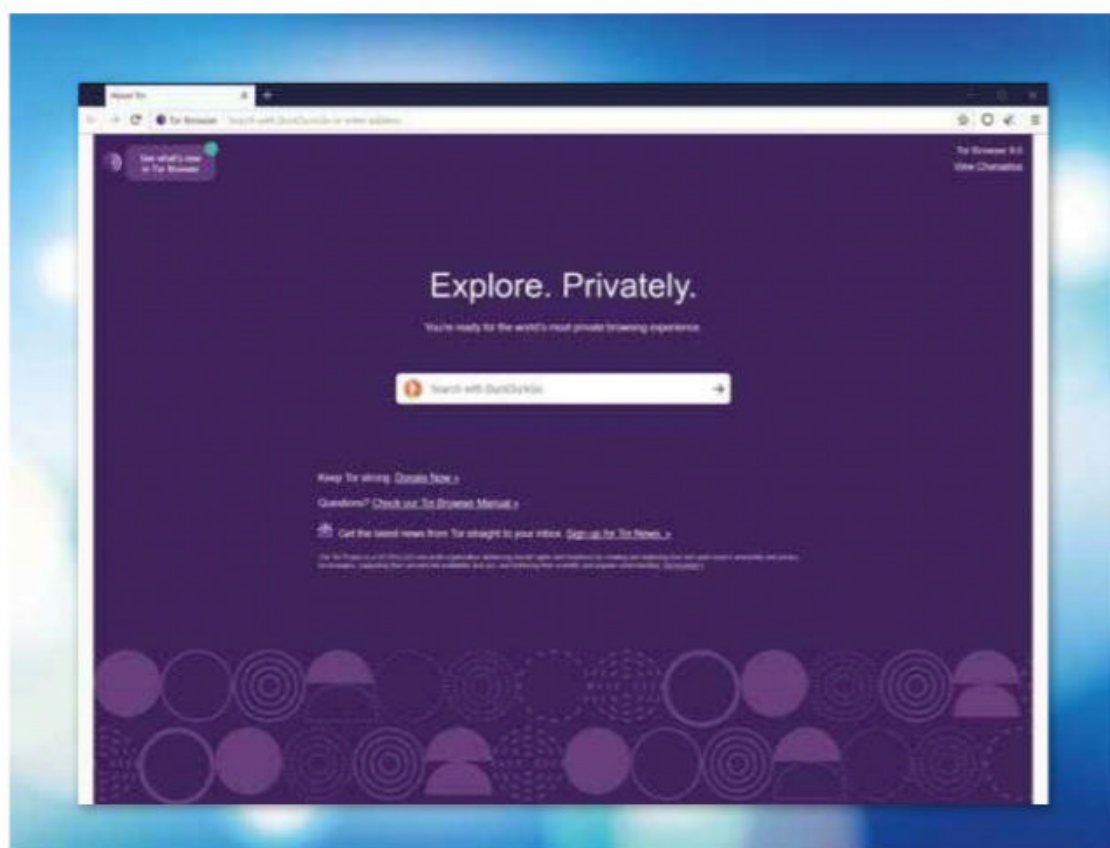
PRIVACY OS
Tails 4
tails.boum.org
Min requirements: Windows 7/8.1/10, macOS or Linux **File size:** 1.1GB

If you're concerned about your privacy, then Tails – which stands for The Amnesiac Incognito Live System – is the operating system you need to put your mind at ease. It's a live Linux OS that you can boot into from a DVD, USB memory stick or SD memory card. The OS can hide who and where you are, encrypt your files, emails and instant messaging chats, and protect you from malware threats. This new build is based on Debian 10 (Buster) and includes updated versions of the software bundled in Tails, including Tor Browser 9 (see above). The Welcome to Tails greeter has been updated, and there have been a number of performance and usability improvements made, too.

SYSTEM CLEANER
BleachBit 3
www.bleachbit.org
Min requirements: Windows 7/8.1/10 or Linux
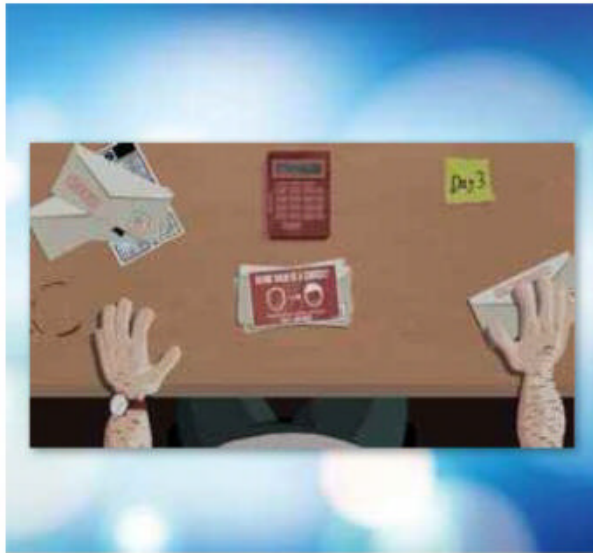**File size:** 11.3MB

BleachBit is an excellent open-source system cleaner that removes junk files from your PC, thus freeing up space, and protects your privacy by securely shredding personal files so they can't be recovered. It's very easy to use – all you have to do is select the areas you want to target, click the Preview button to see the results and then click Clean to remove the selected items.

This release gives the interface a major makeover – including an optional dark mode – and provides improved performance, more thorough cleaning and greater reliability.

See our workshop on page 57 to find out how to use BleachBit 3.

✔ **Install this program...** | **...Not this one** ✗

FastStone Photo Resizer
www.faststone.org
Min requirements: Windows 7/8.1/10
File size: 1.7MB

If you need to reduce the size of some photos for sharing via email or uploading to the web, FastStone Photo Resizer is the perfect tool for the job. This free program can batch-resize multiple images at once and lets you specify a new width and/or height, or pick a standard size. You can choose to resize your photos in pixels, percentage or print size, and there are also smart-cropping and smart-filling options. As well as resizing photos, FastStone can also convert them, rename them and apply various effects, and it supports all the main image formats.

Batch Image Resizer
binarymark.com
Min requirements:
Windows 7/8.1/10
File size: 1MB

This program sounds impressive – quickly resize, crop, rotate and flip lots of images in just a few clicks, and access more than 130 tools – but one glance at its hideous website should be enough to put you off downloading it. If not, then its hefty asking price of £31.99 (reduced from £64.99) will definitely send you running for the exit.

GAME
A Game About Literally Doing Your Taxes
bit.ly/taxes489
Min requirements: Windows 7/8.1/10 or macOS **File size:** 52.6MB

The aim of this game is to do your taxes. No, wait! It's actually more fun than it sounds. You're faced with a pile of papers and must sort the tax-related items from the junk by swiping left or right. At the end of each day, you'll be given a score and can move on. The game doesn't go quite how you might expect, though, so prepare yourself for some weirdness.
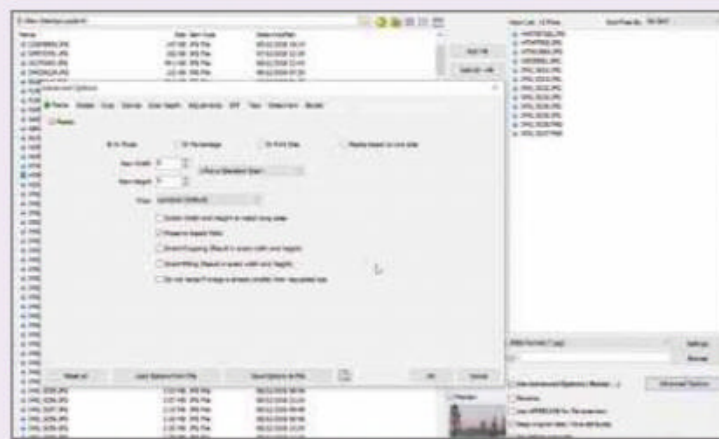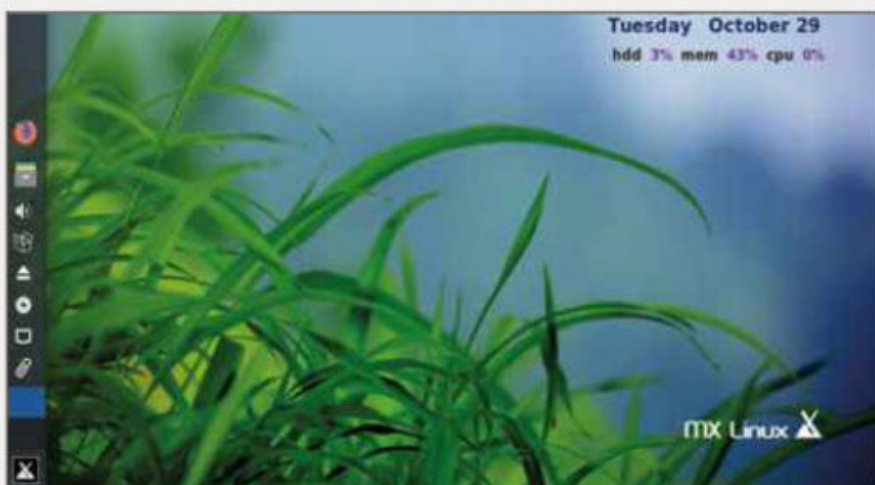

OTHER OPERATING SYSTEMS What's new for Linux and macOS

LINUX DISTRO
MX Linux 19 'Patito Feo'
mxlinux.org
Min requirements: 512MB of RAM, 5GB free hard-drive space **File size:** 1.4GB

MX Linux is gaining in popularity and the newest release, code-named Patito Feo (Spanish for ugly duckling), is a leap forward. Based on Debian 10 (Buster), the OS features Linux kernel 4.19, has a stylish Xfce desktop environment, comes with the latest versions of Firefox, Thunderbird, LibreOffice, GIMP and more, and includes new wallpaper. Users of previous versions of MX Linux will have to perform a fresh install as it doesn't allow for an in-place upgrade.

SYSTEM TOOL
Retroactive
bit.ly/retromac489
Min requirements: macOS 10.15 Catalina
File size: 3.9MB

If you've updated your Mac to the latest version of Apple's OS, you'll know iTunes has been replaced with separate apps, and Aperture and iPhoto no longer work. Retroactive, from third-party developer Tyshawn Cormier, is a clever solution that reverses the situation and allows iTunes, Aperture and iPhoto to run in Catalina. Once Retroactive is up and running (the website provides instructions), choose the app you require and it will be modified to work.

Best New Browser Tools

Get your weekly bookmarks emailed to you

How often do you bookmark a page with the intention of returning to it later, only to completely forget about it – or unearth it months later, by which time the page is irrelevant?

Mailist (bit.ly/mailist489) lets you bookmark pages by clicking its toolbar button and choosing 'Add page to Mailist' so you can receive them in an email newsletter every week. Another option is to select 'Manage all links' to manually add bookmarks at my.mailist.com. The Settings here let you set the number of links sent to you each week – anywhere from one to 10 – and choose a particular day.

However, the best part is that you can add all your other bookmarks from both Chrome and Firefox. This is a fairly straightforward procedure that sees you export them from your browser, then upload them to Mailist. At least this way, you'll never forget about another saved page again.
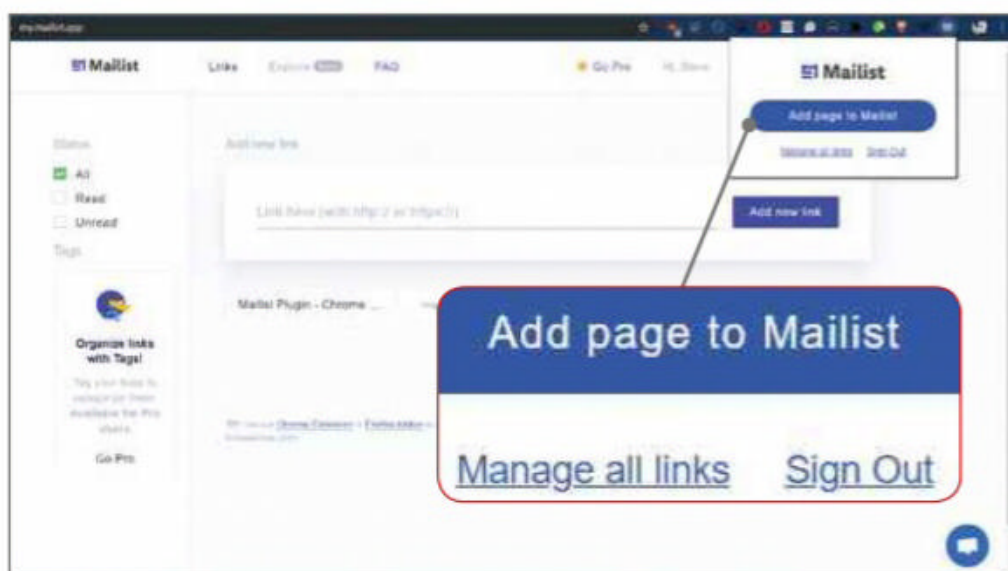
Hear web pages read aloud to you

Elocance (www.elocance.com) is a browser tool and app combo that makes the web more accessible. Many users struggle to read text on the screen, which means missing out on swathes of content. Install Elocance in Chrome and on your phone, sign in on both devices with the same account and you'll be able to get emails, web pages and text documents read aloud on the app.

Once you find an article that takes your fancy, click the extension's toolbar button and choose 'Add this page to my library'. For documents, either upload them via File Explorer or drag and drop them to the box. If you're browsing on your phone, tap the Share button to see an option to send to Elocance. You can then open your library to play back your text. Here, you can also change the Elocance voice and discover new articles.
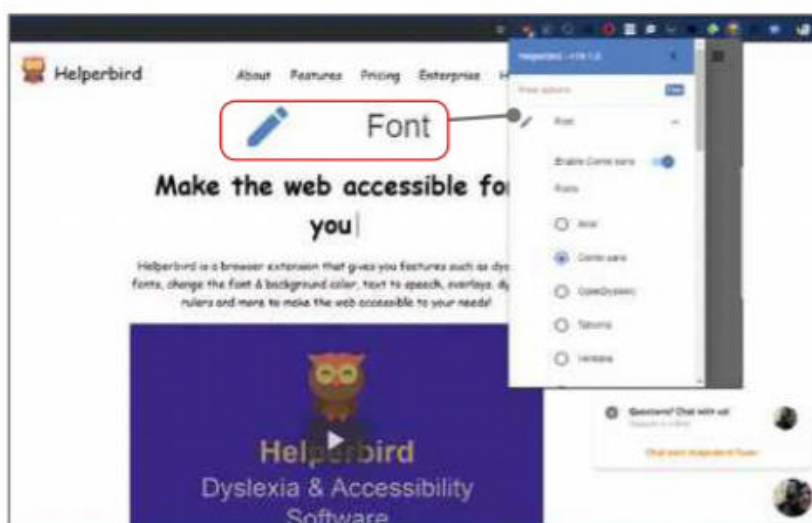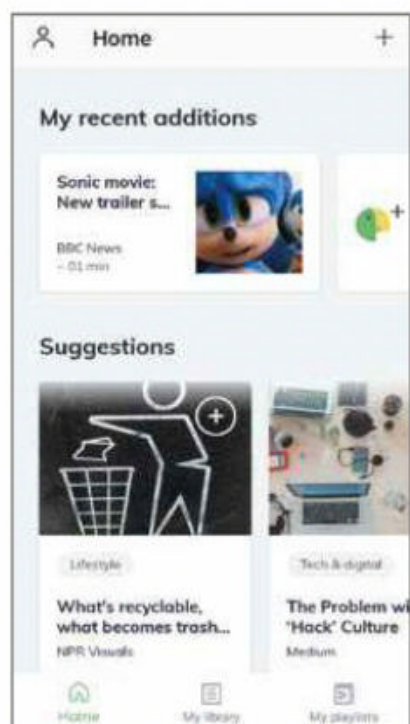
Make the web even more accessible

In keeping with the accessibility theme, try Helperbird (www.helperbird.com). This handy browser tool is designed for people who suffer from dyslexia and struggle to read onscreen text. It lets you tweak the appearance of just about any website – one click lets you change a page's Font, use Zoom and enable Colour Blind mode.

Each of the three options has numerous selections within. Click into Fonts and choose from 15 different typefaces, then toggle the Enable Font switch to On. Zoom lets you get up close and personal with websites, from 10% to 100%. Finally, Colour Blindness includes Emphasize Links, which adds a block around any clickable text, and Stroke, which turns it into red bubble writing.

Helperbird also offers a monthly subscription, so if you plan on sticking to the free version, choose Get Started, not Upgrade when you click the extension's button.

Add estimated reading time to emails

Email Reading Time for Gmail (bit.ly/reading489) tells you how long it will take you to read a message you've received in Google's webmail service. Open an email in your Inbox and, directly below the subject line, you'll see the estimated time to read, as well as the word count. This gives you a fair idea of how long it'll take you, on average, to get through the whole message – or whether you should save it for when you have more free time.
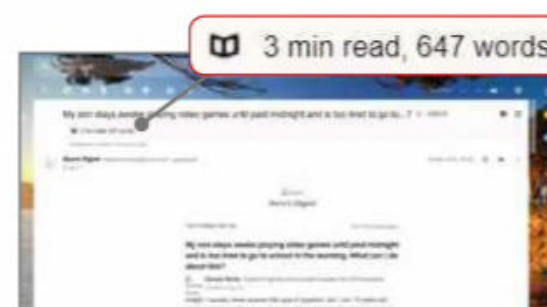
This fortnight's most useful tips and add-ons to help you get the most from Chrome, Firefox, Opera and more

FIREFOX

Download any image from the web

It's always been a convoluted process to get images from the web. Typically, you need to choose Save Image, enter a filename to save it as and then download – and that's if the option is even available in the first place, which it often isn't.

The Firefox add-on Download Image from Context Menu (bit.ly/image489) streamlines the process by adding a new, useful option – 'Download image' – when you right-click any image on the web, whether in Google Images or on a website. Simply select this option and your image is downloaded instantly – no checking if you're sure, or deciding to change the name or save location – it's sent straight to your Downloads folder.
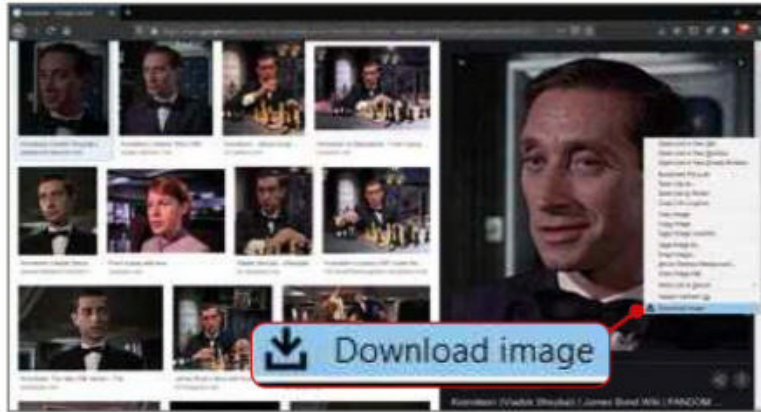
Download videos and audio files online

As if downloading images wasn't time-wasting enough, getting hold of other media files is usually even trickier.

Media Download Helper (bit.ly/media489) speeds things up by scraping all your open tabs for videos, images and audio files.

Click the toolbar button and the extension presents you with a list of all the media it's found, alongside three options: 'Copy to smartphone', 'Copy link' and Download. When you select the first option, it creates a QR code that can be scanned by your phone to open the link.

Below the preview image are buttons that filter different media types. You can also choose to download everything on the page (including as a zip file, to save space). The add-on is a bit cluttered, particularly with its sidebar of hot-links and a footer full of settings, so it's worth spending some time with the tool to get the most out of it.
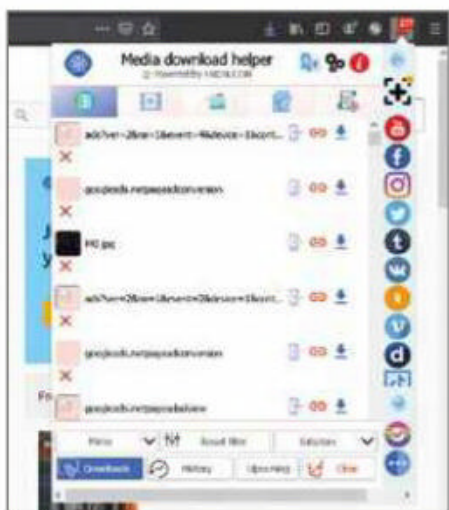
Convert files on your new tabs

File Converter Live (bit.ly/convert489) adds a useful tool to your New Tab page. On the downside, you get the usual search bar – which uses nobody's favourite search engine, Yahoo – as well as the date, time and weather. But it's the bar at the top that's impressive.

Alongside the redundant Quick Search bar, there is an option to convert any files. Just drag and drop – or browse via File Explorer – then choose the output format. The tool's smart enough to know if you're converting an image or text document, and serves up related, relevant file types. Once you're set, click Convert to begin the process. After conversion, choose Download File to retrieve your file.
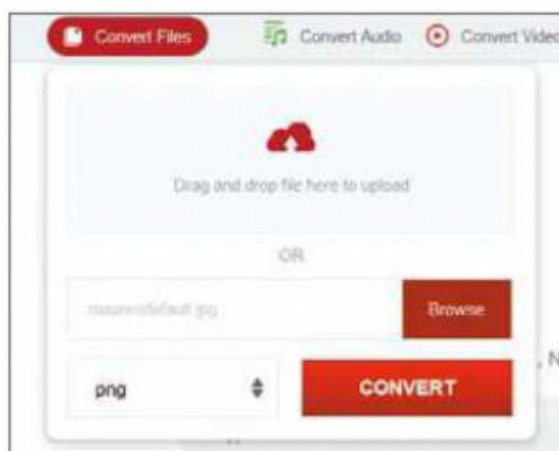
OTHER BROWSERS

Tweak your privacy settings

Privacy fears are never far from our minds when we're online, especially when it comes to preventing websites from tracking you. Privacy Tweaks (bit.ly/tweak489), newly available for Opera, Firefox and Chrome, makes it ludicrously simple to exert more control over your browsing. The add-on lets you block seven major privacy problems, including adverts, location, WebRTC and the most common trackers. Just tick the box and you can browse a little safer than before. Under Settings, there are time zone, location and proxy options, as well as the ability to whitelist specific sites.
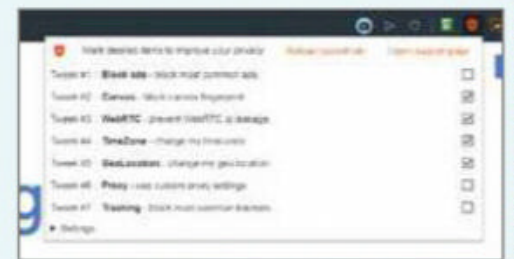
Use emojis with ease

The new Opera extension Emoji Keyboard (bit.ly/emoji489) makes it easier to add smiley faces, thumbs-ups and much, much more to your online chats, to make them more interesting and entertaining. With a click of the add-on's toolbar button, you'll see every available emoji, which can be clicked to copy the emoji's 'code'. This can then be pasted and converted into an image on websites, apps and anywhere else where words just won't suffice. In addition to scrolling through the outrageously large list, you can also filter emoji by type and search for specific ones.

Best Free Apps

FITNESS

NEW
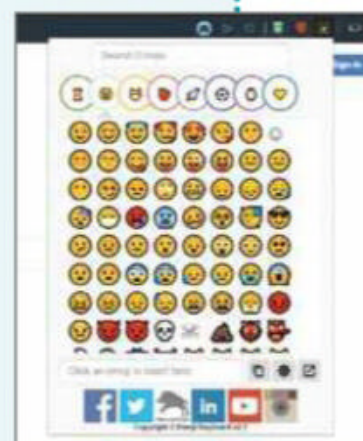
Pedometer

bit.ly/pedometer489

4.4

We all need to keep ourselves fit but not all of us can afford the extra expense of a fitness band to help monitor our exercise. While both Apple and Google provide their own fitness apps, Pedometer is an excellent option for Android users.

The app's stylish, minimalist design looks great and is very straightforward to use. Its chief aim is to count your steps and present you with daily, weekly or monthly reports that let you track your fitness goals and share your progress with friends and family. In our tests, we found that it was reasonably accurate, though not as good at tracking steps as the best, dedicated wearables. Plus, you have to remember to keep your phone with you at all times.

Unlike some similar apps, Pedometer has a very low impact on your device's performance. Although it runs in the background (even when your phone is on standby), it uses your device's built-in sensors to count your steps – because there's no GPS tracking involved, it barely consumes any battery power.

Pedometer doesn't ask for any unnecessary permissions when you install it and you don't even need to sign into an account. The app's developer claims that it never collects your personal data or shares information about you with third parties.

It's also 100% free, so you won't find any features annoyingly locked behind a paywall. Our only complaint concerns the large full-screen ads that pop up intermittently. These aside, Pedometer is a refreshingly simple way to keep on top of your daily step count.

Our rating ★★★★★
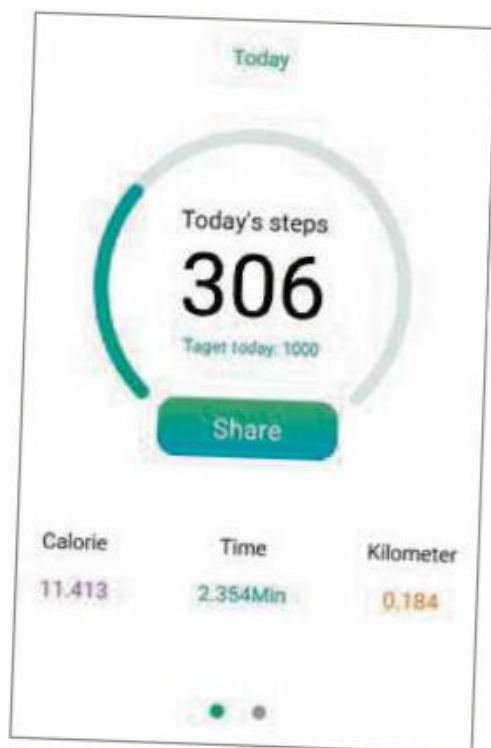
MINI WORKSHOP
### Track your fitness using Pedometer

1 When you first launch Pedometer, you need to complete some Personal Information screens. Select the Man or Woman icon **1** under Gender, then use the vertical sliding scale **2** to set your Height (in cm). Tap Next Step **3** and enter your date of birth using the tumblers. Tap Next Step again and, on the final setup screen, swipe the scale to set your current weight. Press Complete.
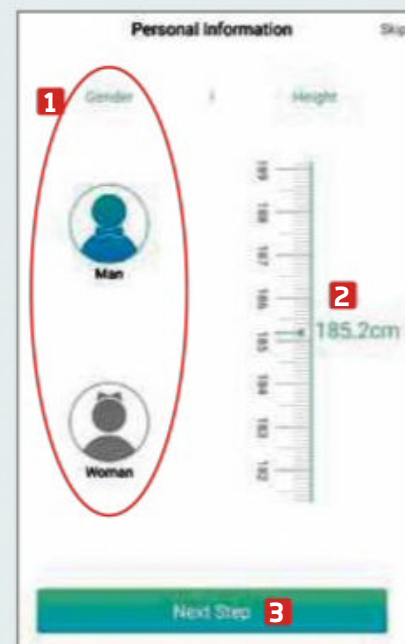
2 The app's main screen provides you with a summary of your day's steps so far, **1** along with further information about the calories you've burned, the time you've spent exercising and the distance you've travelled. **2** Press Share **3** to send your achievements via your preferred messaging app. Swipe left to view a graph showing your daily exercise hour-by-hour.
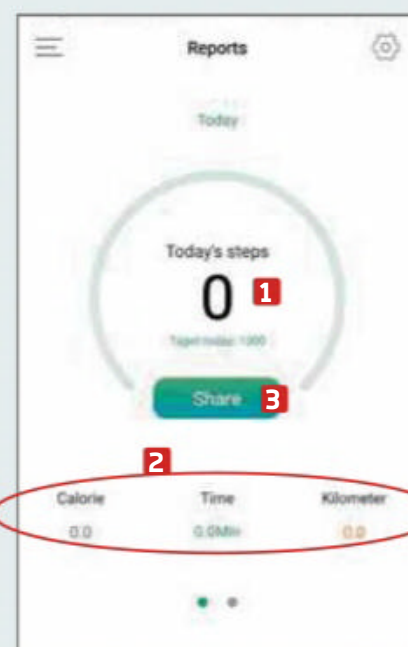
3 You may want to adjust some of Pedometer's settings before you start using it – press the cog icon in the top-right corner to open a menu of options. You can choose Target Step Number, **1** then select a higher (or lower) number of daily steps **2** – the default is 10,000. Back on the main screen, tap the top-left menu icon to view weekly or monthly step data.
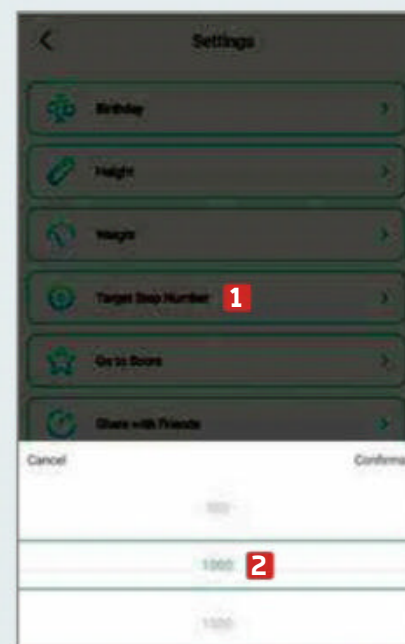
This fortnight's top free and paid-for apps
for Android and iOS phones and tablets

NEWS
Google News
bit.ly/
gnewsdroid489
bit.ly/gnewsios489

🤖 4.4 11.2.2

Google is
rolling out an
update for its
News app that
introduces
bilingual
support for
your news feed.
Basically, this allows you to read stories
from different regions – for example,
the UK and France – within the same
feed. To enable bilingual support, tap
your profile icon, then tap Settings,
'Languages and regions of interest'.
Here, you'll see that your primary
language is already selected. To add a
secondary language, tap
'Add a language and
region', then select your
chosen language from
the list that appears.

Our rating ★★★★☆

EMAIL
Yahoo Mail
bit.ly/
yahoodroid489
bit.ly/
yahooios489

🤖 (varies)
 11

Yahoo Mail may
be less popular
than it once
was but, if
you're still a
regular user,
you'll be pleased to hear that the
webmail service has updated its mobile
app, with a new look and several useful
new features. Chief among these is a
customisable navigation bar
(nicknamed the 'Joy Bar'), which runs
along the bottom of the screen. It's
designed to let you use the app
one-handed and it works
well. However, be aware
that a number of users are
reporting problems with
the app since the update.
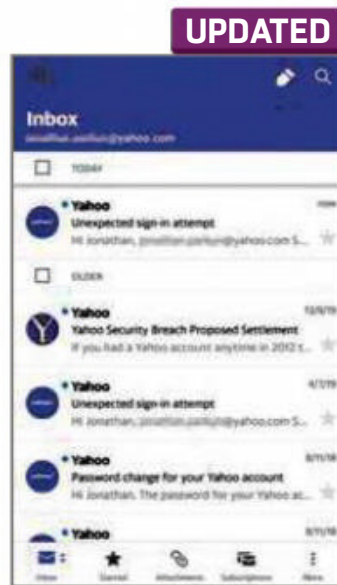
Our rating ★★★☆☆

LAUNCHER
Zone Launcher
bit.ly/zone489

🤖 5

This new
Android
launcher has a
neat trick – it
provides quick,
single-swipe
access to a
selection of your
favourite apps.
Unlike similar
tools, Zone
Launcher works alongside your current
launcher instead of replacing it. It adds
a special hidden spot on your screen
which you swipe to reveal a screen of
app icons, then launch the app of your
choice. You can customise which apps
and shortcuts appear here
and arrange them into
colour-coded 'zones'. The
app supports icon packs
and dark mode.

Our rating ★★★★☆

GAME
Minecraft Earth
bit.ly/minedroid489
bit.ly/mineios489

🤖 8 12

Microsoft has
finally brought its
augmented reality-
centric sandbox
game to UK
Minecrafters,
following its
announcement in
May and closed beta
testing over the
summer. As with the
original, you collect
resources, build
structures and collaborate with other players. But now, you
can place your creations in the real world and view them on
your device via the magic of AR. Be aware that
the game is technically still in early access, so
there are a few wrinkles and it may not run well
on all devices. Microsoft has pledged to improve
Minecraft Earth and add more features over time.

Our rating ★★★★☆

GAMING
Xbox Game Streaming
bit.ly/
xboxstream489

🤖 6

This new app could
well be a taste of
what's to come
when the next
generation of
games consoles
rolls out next year.
It offers two distinct
game-streaming
experiences: Xbox
Console Streaming,
which lets you stream games from your own Xbox One to
your Android device over your home Wi-Fi or further afield
via mobile networks; and Project xCloud, which allows you
to stream selected games, including Gears 5 and Sea of
Thieves, directly from Microsoft's servers – no
Xbox required. Currently, it's all in beta, which
means you need to sign up for Microsoft's Xbox
Insider programme. You'll also need a Bluetooth-
enabled Xbox One controller.

Our rating ★★★★☆

➕ Recommend free phone apps at www.facebook.com/webusermagazine
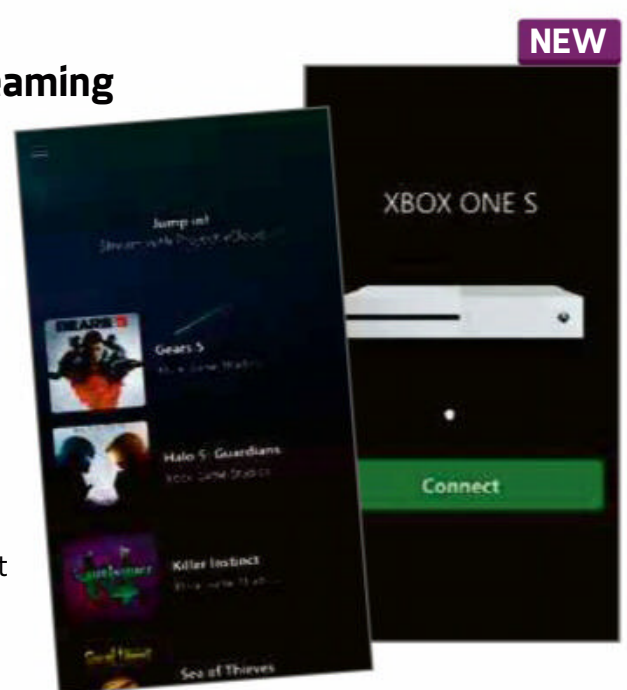
③ NEW APPS WORTH PAYING FOR

IMAGE EDITING
Photoshop for iPad
bit.ly/adobe489
Price: £9.99 per month
🍎 13.1

Adobe has already released a number of its desktop programs as cut-down mobile apps but, a year ago, the company took the step of announcing a 'full' version of Photoshop for iPad. Now that it's finally arrived, we're sad to say it falls a little short of the mark. It looks and feels like Photoshop and supports Apple's Pencil, but it's missing a lot of the features that professionals and enthusiasts love. Adobe promises it is "just getting started" and that more features will be added as development continues. But, right now, it's hard to justify the subscription fee.

GAME
Mystic Pillars
bit.ly/pillars489
Price: £3.99
🍎 12

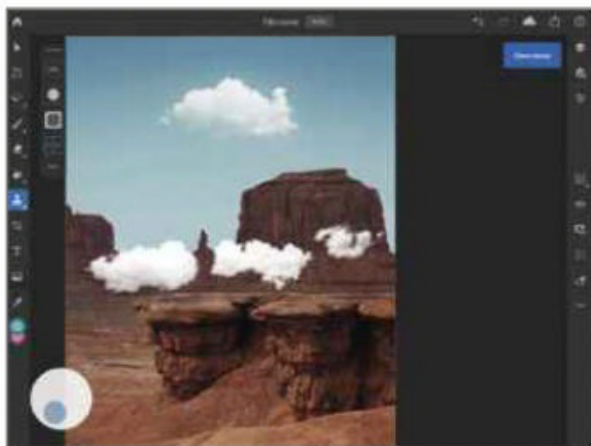This interesting game from an Indian developer fuses clever logic puzzles and an intriguing mythical storyline with beautiful 2D artwork. You're tasked with restoring the once-prosperous Zampi Kingdom to its former glory by destroying a series of pillars.

ENTERTAINMENT
BritBox
bit.ly/britboxdroid489
bit.ly/britboxios489
Price: £5.99 per month
🤖 5 🍎 10.1

A collaborative effort from the BBC and ITV, BritBox is an attempt to out-Netflix Netflix by making the best of British TV available to binge on your devices. Currently, content is a bit lacking and there's no Chromecast or Fire TV support. Ultimately, the app may not have the same appeal in the UK as it does in the US (where the service has been running since 2017), given how many of these shows are repeated on Freeview channels, and licence-fee payers may also baulk at the idea of paying for BBC content. But, as the collection grows, there may be more reason to stump up the monthly subscription.

✔ Install this app...

Waze
bit.ly/wazedroid489
bit.ly/wazeios489
🤖 4.1 🍎 10

Waze has come a long way since its early days as a crowdsourced map app. Now, it can keep you bang up to date with the latest traffic hazards, roadworks and accidents on your route in real-time and redirect you if necessary. Waze fully supports Android Auto, allowing you to use the app from your car's display (assuming your vehicle supports Android Auto, too). It'll offer an accurate ETA, based on live traffic events, and find you a parking spot when you get there. It'll even help you save cash by finding the cheapest petrol stations on your journey.
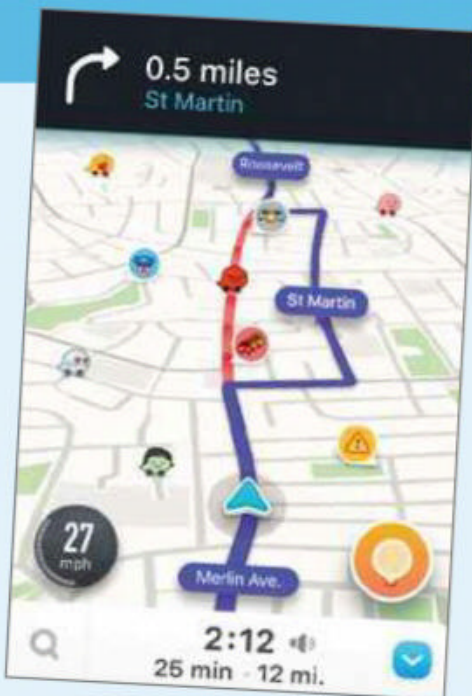
...Not this one ✘

GPS Navigation & Map by Aponia
bit.ly/gps489

Good navigation apps need to stay up to date, but this one hasn't seen any attention from its developer since 2017. Meanwhile, there are lots of disgruntled users complaining about compatibility and performance issues, including crashes and sync failures, on the app's Google Play page. We couldn't even get past an initialisation error on launching the app when we tried it out for ourselves – all of which seems to suggest it's abandonware. ■

Take a Screen Break

Take a rest from your browser with our fiendish fortnightly challenges. Can you solve our 1990s-songs emoji and guess the Wikipedia article?

CAN YOU GUESS THE 1990s NUMBER ONES FROM THE EMOJI?

1. 🧊🧊👶

2. 😴🛰️

3. 🌍🎶

4. 🦁🦁🦁
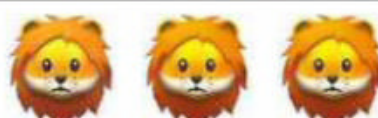
5. 🕯️➡️💨

6. 🧞➡️🍾

GUESS THE WIKIPEDIA ARTICLE

Can you work out which technology-related Wikipedia entry the following clues refer to?

3 @

WIKIPEDIA

1 "Invented by Ray Tomlinson, it entered limited use in the 1960s. The history of modern services goes back to the early ARPANET, with standards published as early as 1973."

2 "Some early systems required the author and the recipient to both be online at the same time, in common with instant messaging. Today's systems are based on a store-and-forward model."

4 "It has been widely accepted by business, governments and other organisations in the developed world, and it is one of the key parts of a revolution in workplace communication."

5 "On mobile devices, adults check it more than they browse the web or check their Facebook accounts, making it the most popular activity for users to do on their smartphones."

COMPETITIONS

FAQ

Everything you need to know about the most interesting new technology trends and events

Stalkerware

Ever get the feeling you're being watched – maybe by someone you know? **David Crookes** looks at the scary rise in stalking software

What is stalkerware?

Stalkerware is a type of surveillance software that's installed on mobile phones, tablets and computers with the purpose of allowing someone to spy on the device's user without their consent. It can monitor call logs and the content of text messages, among other things, to generate daily activity reports for the person who installed it. As you can imagine, it is often used as a tool of abuse and victims are often entirely unaware that they're being watched.

Who is using these tools?

Most of the time, it is someone close to the victim, which is why the various apps that allow this kind of invasive activity are also sometimes referred to as "spousewear". They appear to be popular among ex-partners, jealous lovers, possessive friends or rivals at work.

How is stalkerware installed?

Unlike spyware, which is usually spread via other software, stalkerware is actively downloaded before being manually and deliberately installed. This generally requires physical access to the victim's device and the ability to unlock it.

Once stalkerware is installed, all the perpetrator has to do is launch it and enter their email address and a password. Reports about how the device is being used are then either sent to them or made available via an online dashboard.

What exactly is being tracked?

Aside from monitoring call information and text messages, stalkerware can keep an eye on someone's browsing history, access a device's GPS and even record the screen. It can also launch a device's camera so that the person who installed the software can directly spy on the individual and see what they're doing at that time. In fact, anything seems to be fair game: from social media and passwords to photos and emails. Some stalkerware can even track encrypted communications made through apps such as WhatsApp and access the microphone.
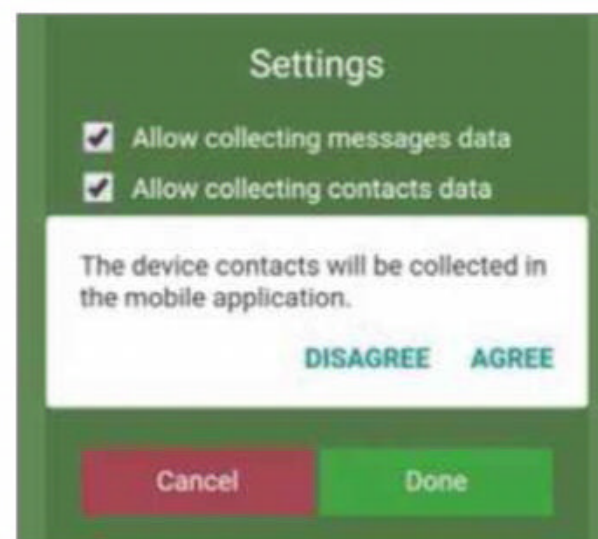
Stalkerware harvests information from a victim's device without their knowledge

Surely a victim knows they're being spied on?

Unfortunately, it's really hard to determine if a device has been compromised because stalkerware can immediately hide its tracks. Some tools even continue running in the background after being uninstalled, which makes it easy to believe that nothing untoward is happening. Indeed, a victim may only get a hunch that they're being spied on when the perpetrator starts to discuss matters they weren't directly told about.

Who is creating this stalkerware?

A depressing number of developers appear to believe it is perfectly acceptable for people to spy on someone else's digital activity. Many will claim that their apps have a legitimate use and are designed for parents looking to monitor their children or for employers anxious to discover if workers are misusing
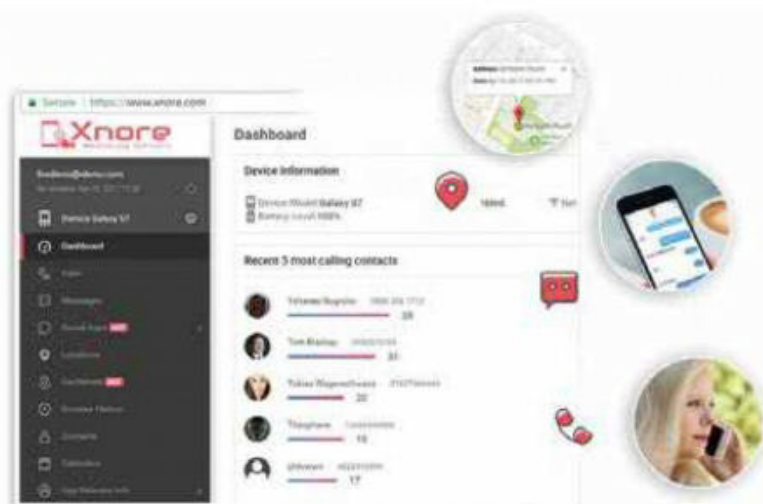
Once installed, stalkerware allows a victim to be monitored via an online dashboard

FlexiSpy is a popular stalkerware app used to monitor victims' activities

Earlier this year, Avast found eight Android stalkerware apps in the Google Play store

Kaspersky has a Privacy Alert tool in its Android app that detects stalkerware

workplace equipment. Some, however, go further and suggest using their apps to catch a cheating partner. It goes without saying that all such uses are on shaky moral ground.

How are people downloading these apps?

Believe it or not, Google and Apple were both found to have inadvertently distributed stalkerware in the past, via the Play Store and the App Store. Stalkerware is also purchasable on the web and includes the likes of Xnore, mSpy, TheTruthSpy and FlexiSpy, which has been widely criticised for allowing the monitoring of "everything that happens on a PC or Mac".

What action is being taken?

In October, the creator of a stalkerware app called PhoneSheriff was ordered to destroy user data by the US Federal Trade Commission and told to ensure its apps could only be used in legitimate situations. Also, back in July, the security company Avast brought eight Android stalkerware apps to Google's attention and the internet giant promptly removed them from the Play store. Seven were from a developer based in Russia: Spy Kids Tracker, Phone Cell Tracker, Mobile Tracking, Spy Tracker, SMS Tracker,

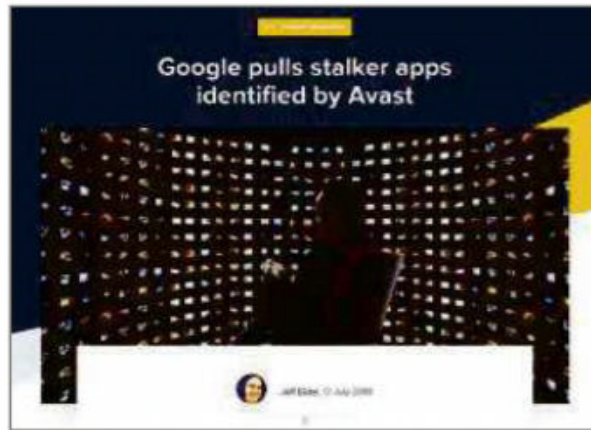Employee Work Spy and the catchily named Track Employees Check Work Phone Online Spy Free. All managed to get past Google's review team, which is supposed to ensure that apps meet its privacy standards. It's likely that there are more such apps out there.
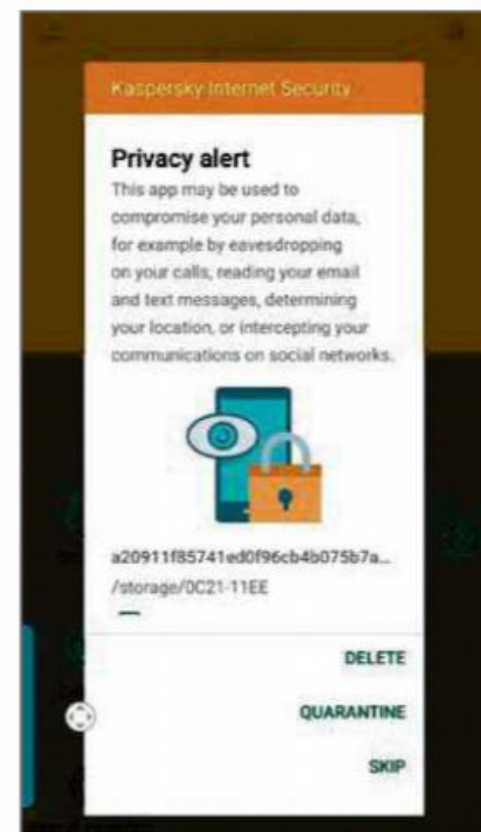
How big an issue is this?

According to Avast, the eight apps pulled from Android were downloaded 140,000 times. Spy Tracker and SMS Tracker were the most popular, with more than 50,000 installs. Kaspersky claims to have detected the presence of stalkerware, or attempts to install it, on 518,223 occasions over the first eight months of this year, affecting 37,532 users – a rise of 35% on the previous year when 27,798 users were targeted.

However, the mere fact that stalkerware exists makes it a big issue regardless of numbers. Not only does it make the victim vulnerable to control, manipulation and 'gaslighting', but it breaks trust, breaches privacy and is often carried out within an environment of domestic violence.

Is Android at greater risk than iOS?

It would appear that Android devices are

currently seeing a growing number of stalkerware detections, at least according to Kaspersky, which added a Privacy Alert to its security app for Android (bit.ly/ kaspersky489) back in April. At that time, there were 7,075 detections on Android, rising to 9,251 in August. Because Apple is more stringent in its review process, stalkerware isn't as easily found on the iOS App Store, which means the operating system will generally need to be 'jailbroken' to install stalkerware.

How can I protect myself?

The easiest way is to prevent anyone from installing stalkerware in the first place, by keeping your phone, tablet or computer with you at all times. Since stalkerware must be manually installed, this would certainly stop anyone from gaining physical access to your device. However, in reality, this may not be practical, particularly if you're living with the person who is hell bent on putting you under surveillance. In such circumstances, ensure your device is locked using a passcode that only you know. Experts warn against using fingerprint or facial recognition to gain access to a device in case someone points it at your face or grabs your thumb while you're asleep.

It's wise to perform regular security scans and remove any signs of stalkerware. Your device could also be factory reset to remove all traces of the problem.

Would the law be able to help me?

If you find someone has put you under surveillance using stalkerware, then a prosecution can be brought under the Protection from Harassment Act 1997. You can also seek advice from Paladin: National Stalking Advocacy Service (paladinservice.co.uk), which has a phone line open from 9am to 3pm weekdays (10am to 5pm on Wednesdays).

CAN I BE MONITORED WITHOUT STALKERWARE?

Stalkers don't necessarily have to turn to stalkerware in order to place you under surveillance. They could secretly activate Share My Location within the Find My app on your iPhone, iPad or Mac (turn it off by opening the app, tapping Me and toggling Share My Location), or the similar Find My Device tracker for Android. They could also use your fitness apps or check for your whereabouts in social-media status updates, so do be wary and delve into the settings if you're worried.

Even Google Maps can become an enemy by divulging your position to others. If this option has been set up, you can stop it by launching the app, selecting the menu icon, tapping Location Sharing, choosing a contact and deactivating Share Your Location.
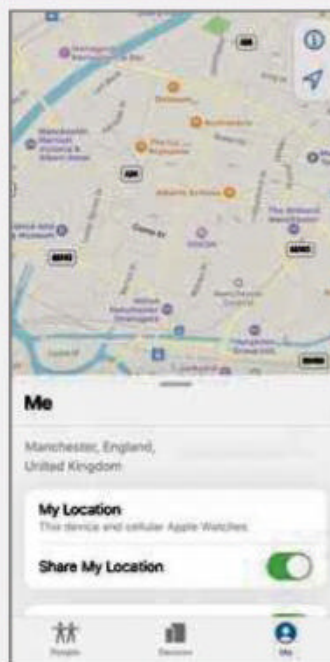
Secure Anything
With a USB Stick

Protecting your online accounts doesn't have to be fiddly and confusing. **Wayne Williams** explains how you can ensure all your data remains safe by investing in a YubiKey

As we explained in last issue's cover feature, 'Stop leaking your identity', protecting your online accounts against every security breach is nigh on impossible, and your passwords may already have been stolen without you realising. With phishing and keylogging scams to worry about, too, it's worth adding a second line of protection to ensure that your data can't be accessed – even if your passwords are leaked.

Two-factor authentication (2FA) provides a reliable defence, but its system of sending a verification code to your phone or email address can prove tiresome, which is why YubiKeys are becoming increasingly popular. In this feature, we reveal the benefits of buying one of these tiny USB sticks, examine the options available and explain how to use one to protect all your files, accounts and devices.

If you don't fancy putting a YubiKey on your Christmas list this year, we also show you how to create your very own USB security key – for free.

YOUR YUBIKEY QUESTIONS ANSWERED

WHAT IS A YUBIKEY?

YubiKey is a physical security key that looks similar to a flat USB flash drive. It enables strong two-factor and password-free authentication, preventing attackers from gaining access to your online accounts.

Made by Swedish-American company Yubico (www.yubico.com), the product was invented by husband-and-wife team Stina and Jakob Ehrensvärd (now Yubico's CEO and CTO respectively) in 2008. The origin of its unusual name is the Japanese word for finger (yubi) but it's also short for "your ubiquitous key".

Working closely with Google and Microsoft, Yubico helped create the FIDO (Fast Identity Online) Universal 2nd Factor (U2F) and FIDO 2 open authentication standards (fidoalliance.org). These allow you to securely access multiple internet services with a single security key, and without the need for special drivers or software.

There are a number of different YubiKeys available, offering a variety of features, although they all essentially work in the same way. Once set up, you use them as a second line of security alongside your existing password.

WHY DO I NEED A YUBIKEY?

Hardly a day goes by when we don't hear of another data breach in which user login details have been stolen or leaked. According to the FIDO Alliance, web users have on average more than 90 online accounts (although many probably aren't in active use) and reuse up to 51% of their passwords. That last statistic is a concern because passwords are the root cause of over 80% of data breaches.

If you use a YubiKey to protect your logins, no one can access your account – even if they have your username and password. While there are other two-factor authentication methods out there – using your phone as a second login method being the most popular
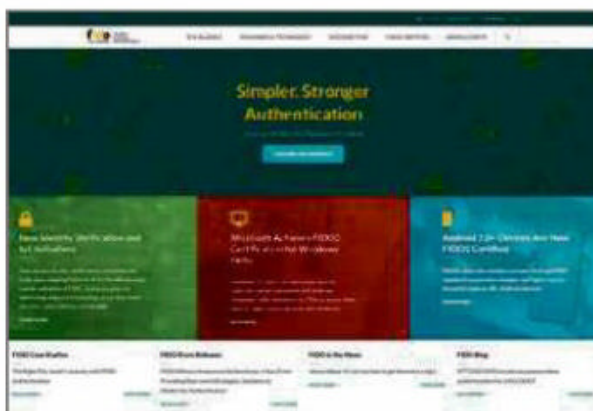
The FIDO Alliance aims to provide a solution to the world's password problems

> **The origin of its unusual name is the Japanese word for finger (yubi) but it's also short for "your ubiquitous key"**

– the beauty of a YubiKey is that you don't have to worry about typing in any codes to confirm your identity, and there's no personal information associated with the key itself.

Additionally, a YubiKey can protect you from all manner of threats including phishing scams, session hijacking and man-in-the-middle and malware attacks. Phishing scams – where users are unwittingly tricked into logging into a fake version of a website, usually by clicking a link in a convincing looking email – are very common these days, but are easily defeated with a YubiKey. No matter how convincing the fake site looks, only the real site can be authenticated using your key.

There's no limit on the number of accounts you can use your YubiKey with – for instance, if you have more than one Gmail account, you can use the same key on all of them.

HOW DO I USE A YUBIKEY?

Different types of YubiKey work in different ways. If you have a USB-A model, you plug it into a spare USB port in your PC or laptop. If you have a USB-C key, then you plug this into the

USB-C port on a computer or a mobile phone (if it supports the new USB standard). The YubiKey 5Ci, which has both USB-C and Lightning connectors, can be plugged into a computer, mobile phone with a USB-C port, or iPhone or iPad. If you have a key that supports NFC, you just tap this on a compatible Android phone. Some keys are designed to be carried with you (they all have a hole at one end for attaching them to a keyring) and used as needed, while others are intended to stay plugged in at all times.

Once you have your key, you simply need to enable it on all of the sites you want to use it with. We'll explain the process for this a little later but, essentially, you just find the option for adding a key under the two-step verification on a site (usually under Settings, but you may need to hunt around). If you can't find this option, check on the YubiKey site to make sure the service you want to add a key to is supported.

You don't need to have your YubiKey with you at all times to access a site. During setup, you'll be given the option to have the site remember the computer ➡

The YubiKey Manager software lets you manage your key's security settings

you are logging in from, and you won't be asked for your key again in the future. You should only tick this box when on your home computer or private laptop, so your account remains protected when signing in from elsewhere.

YubiKey doesn't need charging (it pulls its power from the USB slot when plugged in), so there's no danger of you failing to log in due to a dead key, and there's nothing to install, either.

Although you don't need any extra software to use your key, there are a number of tools that offer enhancements, including a YubiKey Manager for Windows, macOS and Linux (bit.ly/tubman489), which shows the name of the key and its current firmware version, and lets you configure FIDO 2, OTP and PIV functionality and adjust settings (on supported keys). There's also a Personalisation Tool (bit.ly/yubper489), and an Authenticator (bit.ly/yubauth489) that generate OATH credentials via Windows, Mac and Linux computers. Both work with all Yubico devices bar the blue Security Key.

WHICH SERVICES DOES YUBIKEY WORK WITH?

YubiKey works with all the major services you are likely to want to use it with – the ones that you'd be most devastated about if your account was hacked – such as Google/Gmail, Facebook and Microsoft. We explain how to set up YubiKey with Gmail in the workshop below, and the process is the same for other supported web services.

In the case of Facebook, log into the social network as you would normally, using a supported browser (Chrome and other Chromium-based browsers such as Vivaldi, Brave and Opera or Firefox), then go to the Security and Login Settings page (bit.ly/fb489) and scroll down to 'Use two-factor authentication'. Click the Edit button, then find the Security Key entry and click Set Up. You can add your security key there.

For Microsoft, go to your account page (bit.ly/msaccount489) and sign in as normal. On the page that opens, click

Facebook lets you use a security key for two-factor authentication

the safe picture under Security and sign in a second time. Click 'More security options' and, under 'Windows Hello and security keys', click 'Set up a security key' and follow the instructions.

You can browse the full catalogue of services that work with YubiKey at bit.ly/yubcat489. The page lets you sort the list by security protocol, category (browser, computer login, cloud storage and so on), YubiKey type and company.

Some services only support One-Time Password (OTP) authentication, whereby the key generates an encrypted password for one-time use. There are two variations of this – HOTP (HMAC-based One-Time Password) and TOTP (Time-based One-Time Password). The former uses a counter, while the latter uses the time. The full list of these One-Time Password-only services can be viewed at bit.ly/hotp489 (HOTP) and bit.ly/yubtotp489 (TOTP), but include 1password, LastPass, Electronic Arts, Epic Games, Instagram, Kickstarter, WordPress and the Windows Hello app. OTP isn't as secure as FIDO U2F, but it's secure enough (see bit.ly/otp489).

If you log into Windows using a local account (as opposed to a Microsoft account), you can use the new Yubico Login for Windows tool (bit.ly/yublog489). Download the software (there are 32- and 64-bit versions available) and follow the instructions. It works with Windows 7, 8.1 and 10. If you log into Windows using a Microsoft account, you can't use a standard YubiKey to speed up the process, only


⚙ MINI WORKSHOP | Use A YubiKey to protect your Gmail account
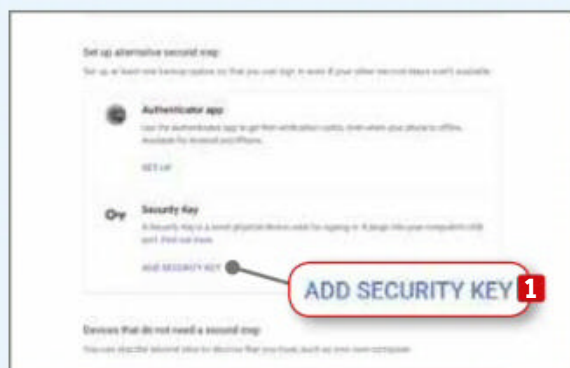
1 To protect your Google account, including Gmail, begin by turning on 2-Step Verification (bit.ly/goo2fa489), if you haven't already. Make sure you have your YubiKey to hand but don't insert it yet. Go to bit.ly/gkey489. Towards the bottom of the page, you'll see the option to add a security key. **1** Click this link.
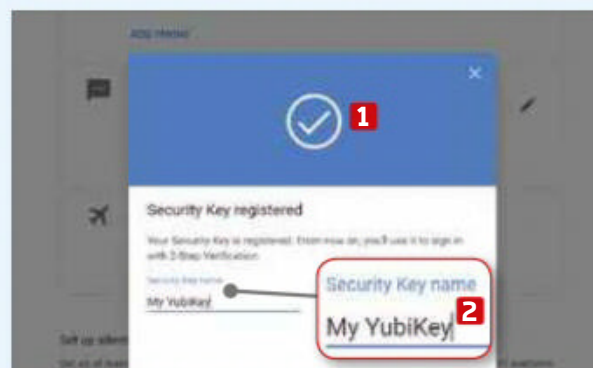
2 Click Next and insert your key into a spare USB port. Your key will start to flash and you may see what looks like an error message on screen. Press the button or gold disk on the device. The key should be recognised and you'll see a confirmation message. **1** You'll then be given the chance to name your key. **2**
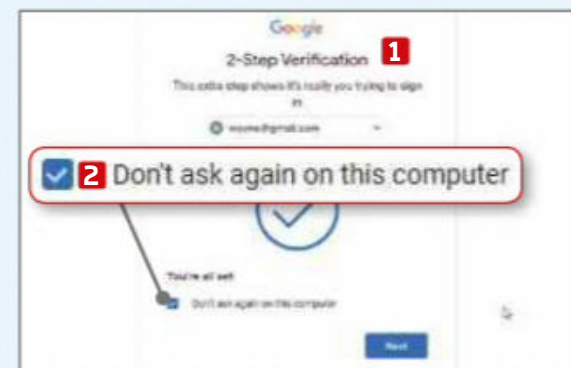
3 Click Done, then log into your Google account. A message will appear prompting you to use your security key to sign in. **1** If you're on your home computer, tick the box next to 'Don't ask again on this computer' **2** to skip this step in future. Plug in your key and press the button to complete the login.

Browse the 'Works with YubiKey Catalog' to discover compatible services

WHICH YUBIKEY SHOULD I BUY?

Take Yubico's quiz to find out which type of YubiKey is best for your needs

to provide additional authentication, as mentioned previously. However, you will be able to do this with the new YubiKey Bio (see box, bottom right).

Apple Mac owners can use a YubiKey to log in using the Smart Card functionality. There's a configuration guide which explains how to do this at bit.ly/yubmac489. A word of warning, however: the guide doesn't cover the latest version of macOS – Catalina.

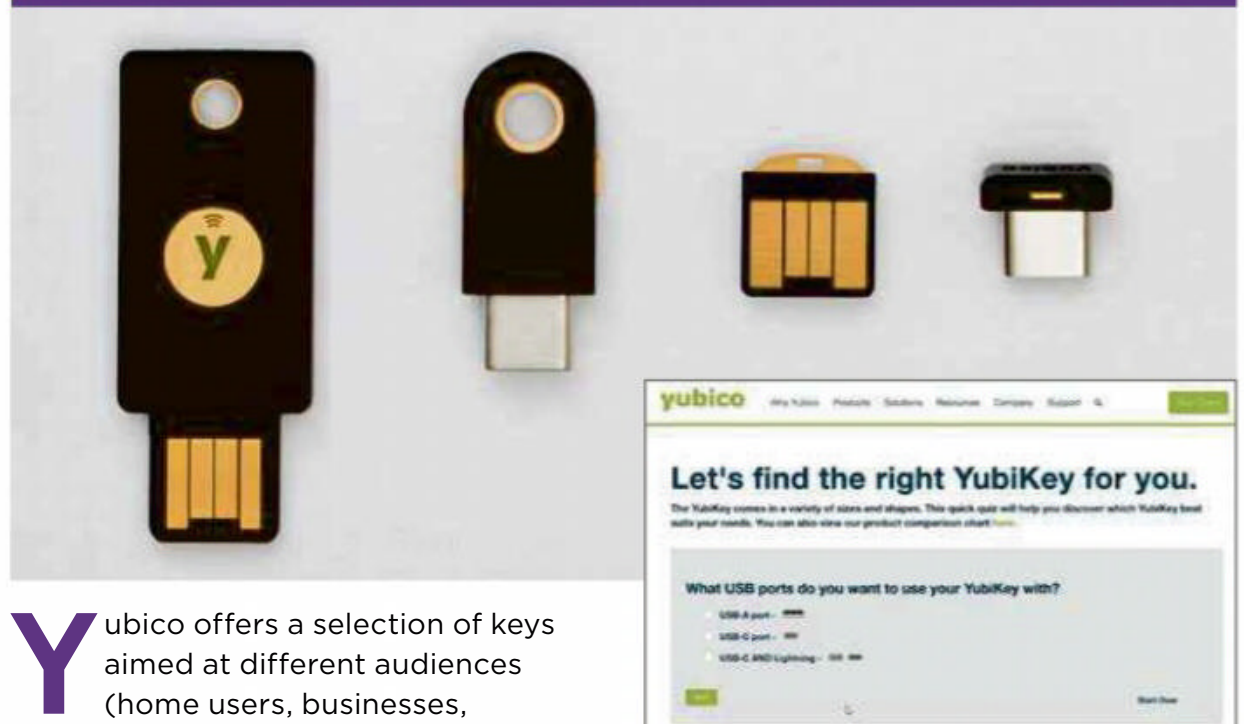Linux users use the Yubico Pluggable Authentication Module (PAM), and there are instructions for this at bit.ly/yubpam489.

The British government is actually the first government in the world to support FIDO U2F, and Gov.uk Verify (bit.ly/gov489) lets you use a number of government services without needing to verify your identity online or wait for a letter to arrive in the post. You can use it to apply for Universal Credit, file your tax return, check your state pension and much more, and further services will be added in due course. To use your YubiKey, you'll need to register it with Digidentity (www.digidentity.eu), one of the government's certified identity service providers. See bit.ly/digid489 for more details.

Yubico offers a selection of keys aimed at different audiences (home users, businesses, government agencies) and devices (computers, smartphones). Which one you choose will depend on your personal needs and the devices you use.

The easiest way to narrow down your options is to take the YubiKey quiz at www.yubico.com/quiz. This will ask you what type of user you are (individual, IT/security professional, government worker) and the type of ports you'll be using the key with – USB-A (the common one), USB-C or Lightning. The quiz offers drawings of the ports if you're not sure which ones you have. You'll be asked if you want to use the YubiKey with an Android NFC-enabled phone or tablet (unless you choose the Apple Lightning option) and what you plan to do with the key. Once you've finished the short quiz, you'll be shown

the product that most closely matches your needs.

The most popular option is the YubiKey 5 Series which is available for USB-A, USB-C, NFC and Lightning. The USB-A version costs £42 in stores such as Amazon (bit.ly/yubi5489), while the Nano version (a very tiny key) is £46 (bit.ly/yubinano489). If you don't need all the features offered by the YubiKey 5, then you should choose the Security Key instead. This is available for USB-A with NFC for £25 (bit.ly/yubisecurity489).

If you want to use a YubiKey to log into a Windows 10 PC instantly, keep an eye out for the YubiKey Bio – see below.

SECURE ACCOUNTS WITH YOUR FINGERPRINT

YubiKey devices come with a button or gold disk that you press when authenticating with a website. However, they don't include a fingerprint reader (even if it looks as if they do). Yubico has long been rumoured to be working on a biometric key with a built-in fingerprint reader and, at this

year's Microsoft Ignite conference at the start of November, the company finally previewed its first such product – the YubiKey Bio (bit.ly/yubibio489).

The Bio key will support both fingerprint and PIN-based logins, and work with the biometric enrolment and management features that are built into Windows 10. Like Yubico's other security keys, YubiKey Bio doesn't require a battery, drivers or additional software. There's no word on pricing or availability at the moment but Yubico does say it's "coming soon", so we're hoping it might arrive in time for Christmas.

You can use a YubiKey to log into the government's online services more easily

CREATE YOUR OWN 'YUBIKEY' USB SECURITY KEY

If you'd rather not spend the money on a YubiKey, you can turn a USB memory stick into a security key to lock and unlock a PC. This will stop anyone accessing your computer, and you'll no longer need to enter a password to unlock it, but it does require you to have the key plugged into a USB port at all times when using your PC. Our preferred tool for the job is the free program USB Raptor – it works with any USB drive, which doesn't have to be blank. The lock file itself is only 1KB in size.

## USB Raptor **bit.ly/rapt489** | 🕐 10 mins | 🏁 Windows 7, 8 or 10
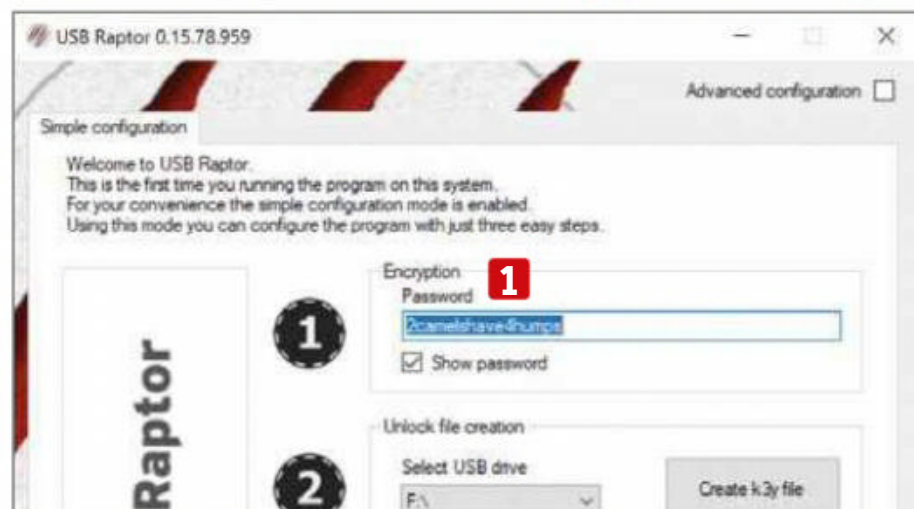
1 Download USB Raptor from its SourceForge page and run the EXE file. Tick the box saying you've read the disclaimer, and the 'I agree' button. Plug in the USB memory stick that you want to use as your security key. Enter a secure password **1** and make sure it's something that you won't forget.
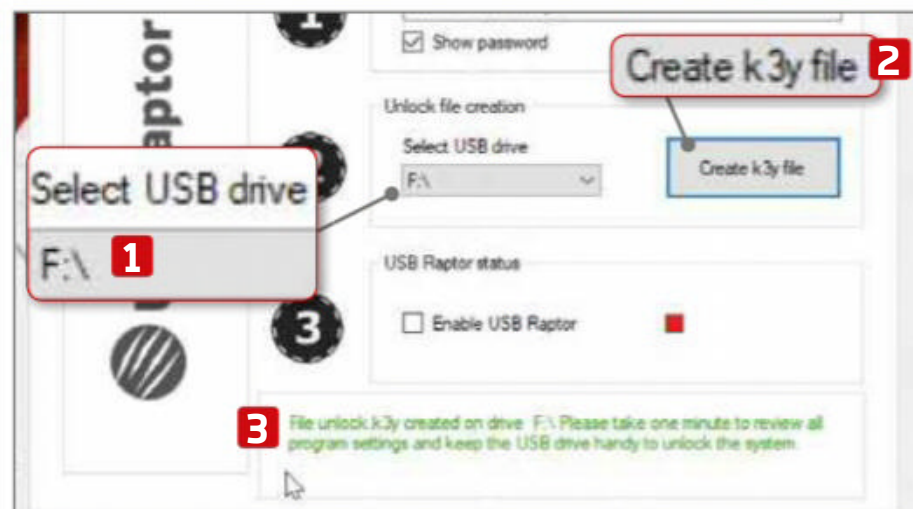
2 Click the drop-down menu to select your USB drive. **1** Make sure you choose the correct one. You can check in File Explorer if you're not sure (USB Raptor only shows you the drive letter, not the volume name). Click 'Create k3y file'. **2** A message confirming this action will appear in green. **3**

3 That's all you need to do to set it up. When you're ready to start using your new USB security key, tick the box next to Enable USB Raptor. **1** The square to the right will turn from red to green to show that it's active. **2** A message informs you that you can no longer change your password. **3**
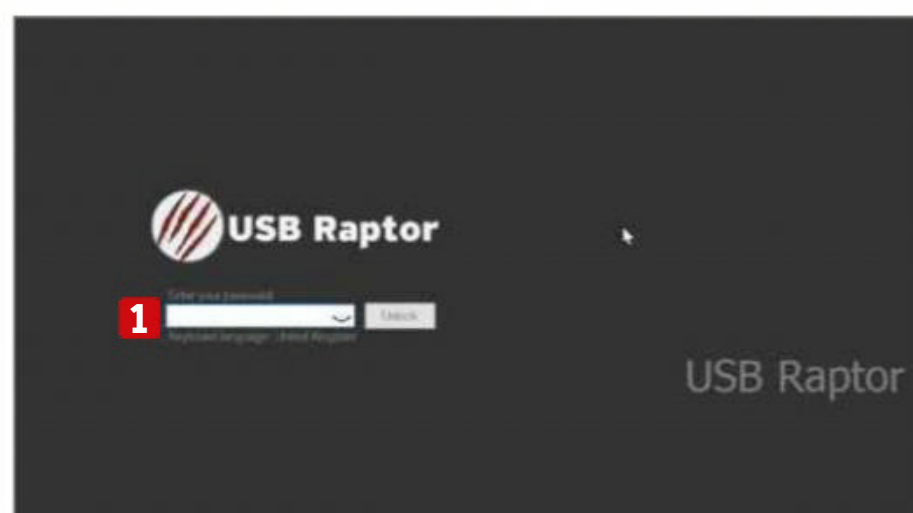
4 To check the key is working, pull out the drive. The screen should lock, displaying a single-colour background with USB Raptor text and copyright information scrolling across it. Plug your key back in and the PC will unlock. If you lose your key, double-click the screen to display a password box. **1**
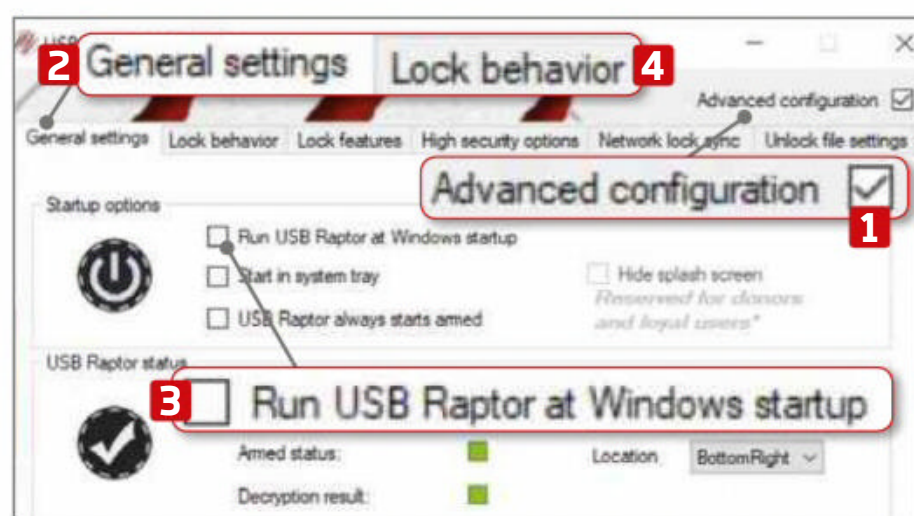
5 Tick 'Advanced configuration' **1** to open additional settings that make the software more useful and more secure. Under 'General settings', **2** you can set USB Raptor to run at Windows startup. **3** 'Lock behaviour' **4** lets you add a delay or timer, and optionally have a program of your choosing run on lock/unlock.
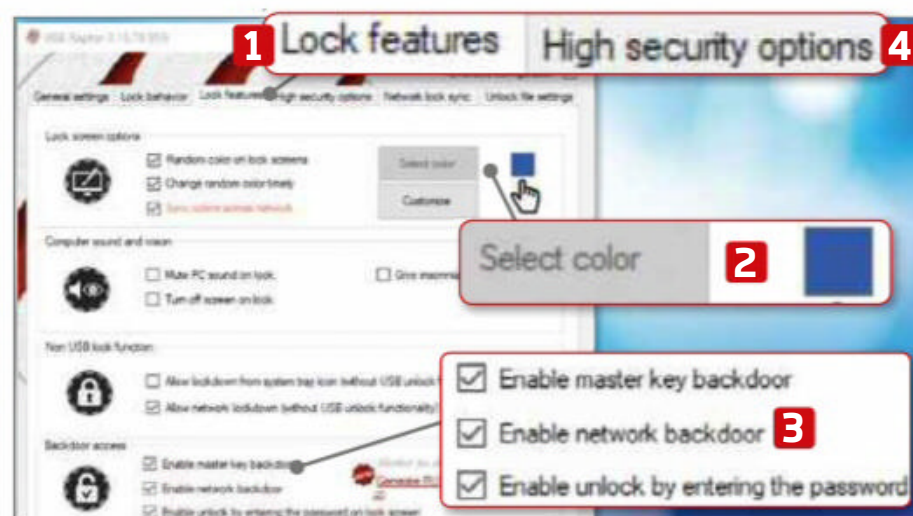
6 The 'Lock features' tab **1** lets you change the screen colour **2** and enable backdoor access **3** in case you lose your key. Under 'High security options', **4** you can insist that the program use the same key when locking, and also require a password or PIN to complete the unlock.

BEST YUBIKEY ALTERNATIVES

YubiKey is the most popular brand of security key but it's far from the only one. The next best known, thanks to the company behind it, is Google's Titan Security Key (bit.ly/titan489). This costs £50 and contains both USB-A and Bluetooth security keys. The bundle includes adapters that let you use the USB key with either USB-C or Micro USB.

The Feitian ePass FIDO-NFC Security Key (www.ftsafe.com), which costs £22 on Amazon, works with Windows, macOS and Linux via USB, and Android through the NFC chip. It's the closest to YubiKey in terms of security and features, and supports FIDO U2F multi-factor authentication on all the major services, including Google, Dropbox, Facebook and Twitter, as well as FIDO 2 passwordless authentication on Microsoft Accounts and OneDrive.

Kensington's VeriMark Fingerprint Key (bit.ly/kens489) is another option – as well as supporting FIDO U2F, it comes with a fingerprint reader and can log you into your computer using Windows Hello. It's very tiny, so it won't get in the way when connected to a USB port. You can pick one up

Google Titan Security Key

for £45 from Amazon.

Nitrokey (www.nitrokey.com) is a German company that makes a number of security-based keys including the Nitrokey FIDO U2F for secure web logins, which costs €28 (£23.70), and the Nitrokey Pro 2, which also offers email, file and hard-drive encryption, for €55 (£46.60). Smart Login for Windows, which lets you log into a Windows computer using a Nitrokey, costs €46 (£39).

Finally, Thetis (thetis.io) offers two FIDO U2F security keys – one regular (£17) and one with BLE (Bluetooth Low Energy, £23), which can be used on mobile devices. Both products can be ordered from the American site (add £10 for shipping). ■

Kensington VeriMark Fingerprint Key

IS A YUBIKEY COMPLETELY SAFE?

The purpose of YubiKey and Google's Titan Security Key is to keep your logins secure. You would imagine – since there's no software involved – that there's little that could wrong, but both developers have had to recall keys due to hardware flaws. That sounds worrying, but you shouldn't be too concerned. In the case of Yubico's recall, the problem only affected its FIPS-certified security keys, which are aimed at government and regulated industries, not individuals, and the company quickly made replacements available free of charge.

Google's Titan Security Key was recalled due to a misconfiguration with the Bluetooth Low Energy (BLE) version in the US (non-Bluetooth keys weren't affected), which meant it was possible for an attacker within approximately 30 feet of you to communicate with the key or the device to which it was paired. Google pointed out that it was still safer to use the affected key than no key at all, but offered free replacements anyway. Google's Titan keys are manufactured by Feitian and – unsurprisingly – that company's own security keys were also hit by the issue.

Despite these flaws – which didn't affect the standard USB and NFC products – security keys remain very safe, and the fact that Yubico, Google and Feitian were all quick to acknowledge the problems when they came to light (and issue free replacements) should help put your mind at rest.

The Register

Security

Titan-ic disaster: Bluetooth blunder sinks Google's 2FA keys, free replacements offered

A pairing problem makes an account compromise possible, although improbable

By Thomas Claburn in San Francisco 15 May 2019 at 19:42   10 ☐   SHARE ▼

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Best free email software

Why stick with a webmail service or the basic Windows Mail app when you could upgrade your inbox to use quick, free email software? **Steve Clark** downloads and tests six of the best free email clients

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Mailspring | getmailspring.com | ★★★★★
FEATURES ★★★★★ **PERFORMANCE** ★★★★★ **EASE OF USE** ★★★★★


WebUser GOLD AWARD

What we liked:
Mailspring is everything that email software should be: clean, clutter-free and super fast. Think of this as an evolution of traditional email software, rather than a revolution. The software's Windows Mail- and Thunderbird-inspired heritage is nakedly apparent – along the left is a sidebar that lets you jump to folders and options, while the centre pane displays your emails and the right-hand side features a reading pane. However, in comparison to its older rivals, the look and feel of Mailspring is impressively modern. There's even a handful of different themes to choose from, including (but not limited to) Dark Mode.

With the free version, you're able to add up to four email accounts. Unlike other email software, this isn't Gmail-or-bust territory because there's support for a wide range of platforms including iCloud, GMX, Outlook and Yandex.

Mailspring also lets you search your inboxes using Google-style search terms, including 'in: [folder name]', 'from: [email address]' and 'before: [date]'. Don't worry about remembering all the combinations because the options appear in a drop-down menu
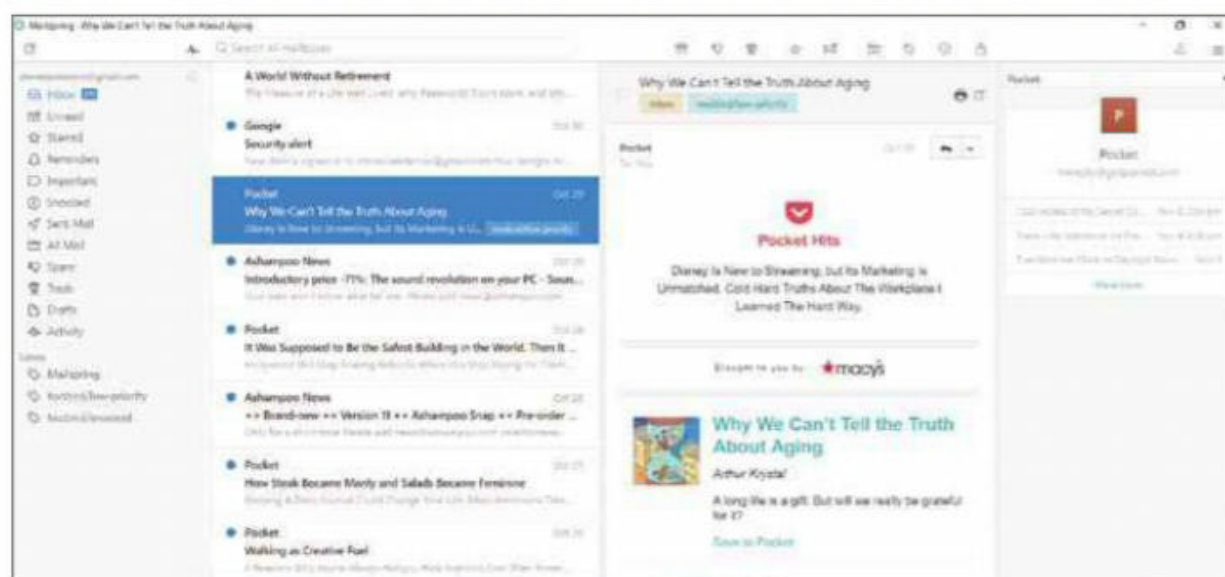
every time you click the search bar.

One of the best features is the Activity section, found at the foot of the sidebar. Here, you can monitor busy periods, which is particularly useful if you're trying to limit email usage. You may also get a kick out of monitoring the performance of your emails, based on the most-opened subject lines, read receipts and tracking links.

How it can be improved:
For software that's so well designed, Mailspring has one glaring design flaw: some of the icons feel a tad small, especially in-email actions such as 'Move to Trash' and 'Mark as Spam', which hover above the reading pane,

near-invisible to the naked eye. It also lacks optional extras found in other email clients, such as note-taking and a dedicated calendar. We hope to see these added in the future, along with a mobile app.

OUR VERDICT
Mailspring is a modern take on an old classic. Standard features, such as Snooze and Search, sit alongside some quirky extras, but the focus remains firmly on sending and receiving emails. You don't get calendars and note-taking, but it is an excellently designed inbox.

Thunderbird | www.thunderbird.net | ★★★★☆
FEATURES ★★★★★ **PERFORMANCE** ★★★★★ **EASE OF USE** ★★★★☆

WebUser SILVER AWARD

What we liked:
Thunderbird has, for a long time, been considered the premiere email client – and with good reason. Mozilla's open-source software powers up your inbox in a way Windows Mail never could, although it takes a lot of design cues from the original Outlook, which makes it immediately familiar to navigate.

Double-click an email and, rather than opening in a new window, it pops out in a tab, which works in the same way as a browser. This keeps your desktop free when you want to focus on email management. You can expand the Thunderbird experience by installing new themes and add-ons, which bring additional functionality to the software, such as Tabbed Folders, Send Later and Grammar Checker.

Beyond the basic inbox, Thunderbird also features a calendar and a chat app for more immediate communication. With one click, you can download your email for offline viewing, so you're not chained to an internet connection.
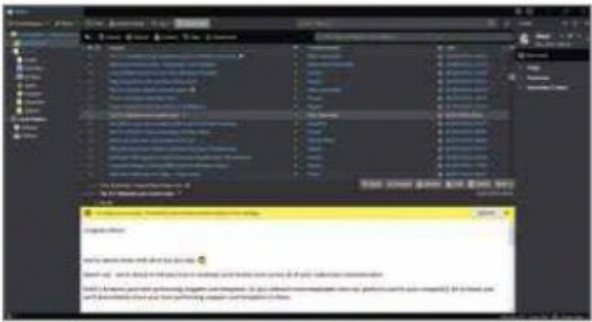

How it can be improved:
It's understandably contentious, placing Thunderbird in second place. After all, it's been a fan-favourite for years. However, for as long as we can remember, the layout has felt cluttered and, at a time when we're receiving more emails than ever and other apps are shifting to a more user-friendly design, this has become less forgivable.

OUR VERDICT
Thunderbird remains a top email program that's totally free and easy to use. Despite that, the design is beginning to show its age and could do with a moderate revamp to drag it into the 21st Century.

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eM Client | www.emclient.com | ★★★★☆
FEATURES ★★★☆☆ **PERFORMANCE** ★★★★☆ **EASE OF USE** ★★★★★

WebUser BRONZE AWARD
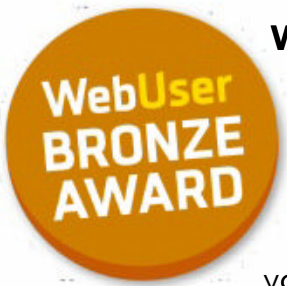
What we liked:
In time, it's possible that eM Client could topple Thunderbird in the email software stakes. One glance at the program and you'll note the similarities in design and features, including calendar and chat support.

It's well laid out, too. The clean three-panel window offers plenty of space between messages, so you never feel overwhelmed, even if your inbox is brimming. Below the folder list, there are buttons for Calendar, Tasks and Contacts. This is a great way to utilise unused space without cluttering up the ribbon or tucking options out of sight behind drop-down menus. To the far-right of the screen are tabs showing Contact Details for your current email, Agenda and Chat.

The ability to connect Gmail, Outlook, Microsoft Exchange and iCloud accounts isn't as extensive as our Gold and Silver award winners, but it's better than many other offerings. There's also extensive server support.
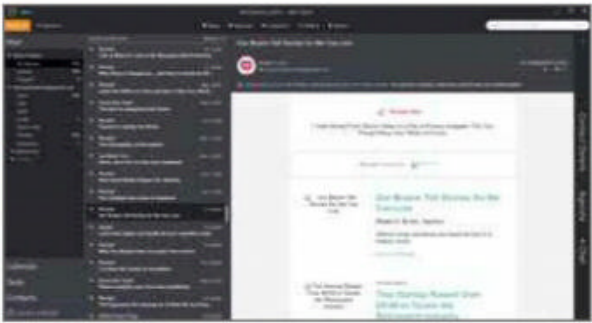
How it can be improved:
To say eM Client's features are basic is an understatement. Outside of chat and calendar, there's not much else to do here, so if it's a toss-up between this and Thunderbird, opt for the latter. We also noticed several images refusing to load and, given the software's emphasis on wide support, we're left wondering where the phone apps are.

OUR VERDICT
eM Client is a solid option if you're looking for email software that apes its more famous competitors and looks good doing it. Support for email servers is excellent.


BEST OF THE REST

Spike
www.spikenow.com
Spike is an email client fit for the Facebook age. The inbox itself is spacious and inviting, while navigation is performed via helpfully large icons at the bottom of the screen, including a collaborative Groups setting. All other actions are performed by clicking the three-dot button in individual emails, which keeps the design uncluttered. Overall, the app reminds us more of an instant-messaging app than an email client, but that's no bad thing.
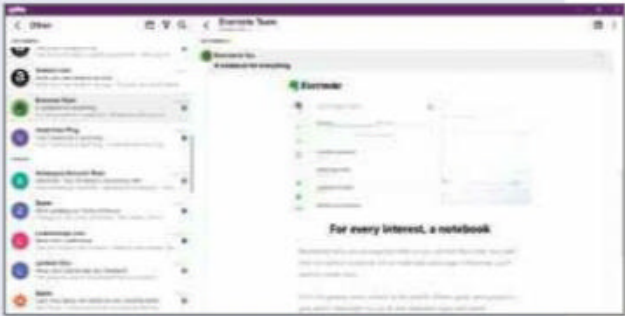
### Windows Mail
bit.ly/winmail489
Windows 10's default client, Mail, remains a fine choice for basic email services – there's nothing special about it, nor is there anything that should put you off. Connecting multiple email accounts to the app is easy but it's a bit old-fashioned, particularly when writing your own emails. You can't even add a proper HTML signature, which is bizarre.
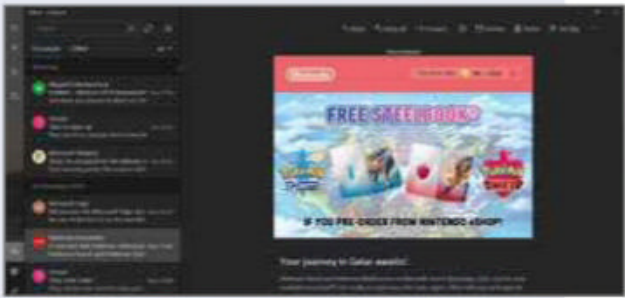
Twobird
www.twobird.com
We wanted to like Twobird a lot more than we did, but it has one fatal flaw: you can only connect to Gmail (for now, at least). Worse still, it wasn't easy to get the full version running on our PC, although the app (available on Windows, Android, iOS and macOS) worked perfectly. Like Spike, the tool's ample space and clean design make it pleasant to use and navigate.
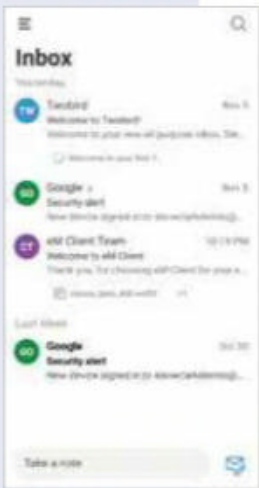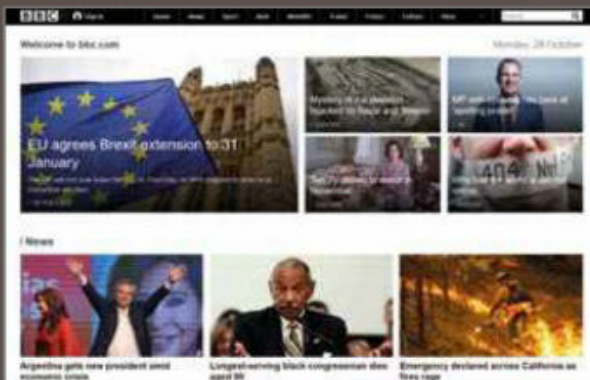

Make light of the
DARK WEB

There's a lot more to the so-called dark web than dubious and criminal activity. **Robert Irvine** rounds up eight of the best hidden sites that are completely safe and legal to use

BBC

bbcnewsv2vjtpsuy.onion

Considering that the BBC is "committed to impartiality", it's strange to think of its content being censored, but such is the case in certain countries including China, Iran and Vietnam, which block or restrict access to the BBC News website. Not to be outdone, the Beeb has now launched a dark-web 'mirror' site to deliver unbiased and uncensored news to the citizens of these countries via the Tor network. Visiting the '.onion' address above takes you to the international edition of the BBC homepage, from where you can click through to its News, Sport and other sites (News can be accessed directly at **s5rhoqqosmcispfb.onion/news**). Usefully, the homepage also provides links to the BBC News site in nearly 30 languages, including Chinese, Persian, Russian, Urdu and Vietnamese.

Note that you won't be able to watch anything on BBC iPlayer through the mirror site because Tor makes it look like you're outside the UK, so it's no use for catching up on *Strictly* while you're out of the country.

HOW TO ACCESS THESE SITES

The websites we've covered in this feature can't be accessed via your usual web browser. Instead, you'll need to download and install the Tor Browser (**www.torproject.org**), which is based on Firefox and has just reached its ninth stable version (see Best Free Software on page 28). Type the 16-character '.onion' URL into the Tor Browser's address bar and press Enter to visit the hidden site – you may find it slower to load than a standard website. Contrary to popular belief, you won't be exposed to disturbing and illegal sites by browsing with Tor unless you specifically go to those addresses.

CIA

ciadotgov4sjwlzihbbgxnqg3xiyrg 7so2r2o3lt5wz5ypk4sxyjstad.onion

American intelligence agencies have been lurking on the dark web for years, so it makes sense for the CIA to have its own hidden site, which it launched back in May. Indeed, the whole concept of 'onion routing', which underlies Tor, was originally developed for the purpose of protecting US intelligence communications online.

Whereas most onion addresses have 16 characters, the CIA has opted for a finger-unfriendly 56 – as you can see from the ridiculously long link under the heading for this section – to reduce the risk of impersonation by hackers (try **bit.ly/ciator489** to save time and typing). The site itself is a straight mirror of the standard version, but allows Tor users to contact and report information to the CIA in a "secure, anonymous and untraceable" manner.

You can also apply for jobs with the agency, browse its news archives and search its open-source library, while young dark-web users (with parents' supervision) can crack codes, solve puzzles and discover clues in the Spy Kids games area.

Facebook

facebookcorewwwi.onion

Facebook may be notorious for invading its users' privacy but – unlike the similarly nosy Google – it offers a dark web version that lets you access the social network through Tor, while maintaining the latter's 'cryptographic protections'. Facebook insists that you sign up under your real name, and you wouldn't be able to find people (and they wouldn't be able to find you) if everyone used pseudonyms, so its onion site is not a workaround for staying anonymous online. Instead, it's primarily aimed at residents of

countries where Facebook is blocked or censored, but is equally useful for anyone concerned about online surveillance because it claims not to keep logs of user activities. The site attracts more than a million dark web users a month and can also be accessed on mobile devices via the Tor app for Android (bit.ly/tordroid489). Tor's built-in script blocker means you shouldn't see any ads, either!

DuckDuckGo
3g2upl4pq6kufc4m.onion

The default search engine in Tor is the privacy-focused DuckDuckGo, which – unlike Google and Bing – doesn't store your search history or personal information, or track you around the web. However, if you want to guarantee that nobody else can see what you're looking for online, it's worth switching to the 'dark web' version of DuckDuckGo. This encrypts all your Tor search queries end-to-end and stops anyone knowing that you're even using the search engine.
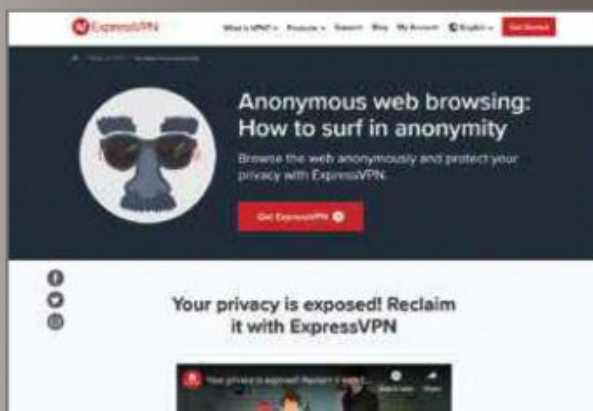
You can either access the hidden DuckDuckGo via the onion link above, or select DuckDuckGoOnion from the options below the Tor Browser's address bar or search box when you type a search query. To always use this version, right-click its icon and choose Set As Default Search Engine. Because of the 'onion routing', you'll find it's a little slower than standard DuckDuckGo.
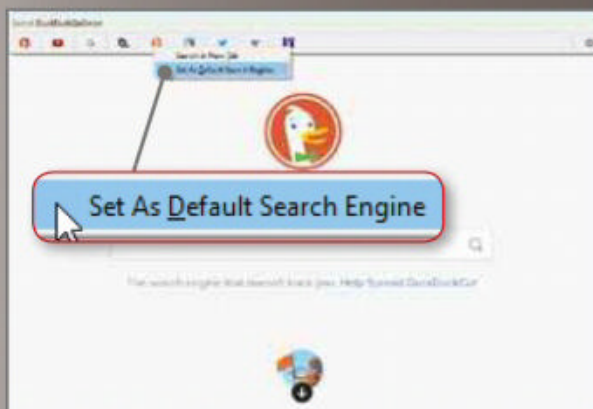
ExpressVPN
expressobutiolem.onion

VPNs and the Tor network both keep you anonymous online by concealing your real identity and location, and encrypting your browsing data. For maximum privacy and security, you can combine the two – although this will noticeably slow your internet connection – by signing up for ExpressVPN via its dedicated dark website. Not only does this site allow people living and working in countries that block VPNs to enjoy the benefits of the service, but it lets anyone register for ExpressVPN anonymously and pay for their subscription using Bitcoin.

ExpressVPN says that connecting to its service, then launching Tor is the most secure browsing method, and that its encryption will prevent your private data from being leaked through exit nodes (the last point Tor traffic passes through before it reaches its destination).

ProtonMail
protonirockerxow.onion

ProtonMail (protonmail.com) is already the most secure webmail service available: it encrypts incoming and outgoing messages, doesn't log IP addresses and stores your data in an underground bunker in Switzerland, which has some of the strongest privacy laws in the world. But if you're still worried about email snoopers or you're in a country that blocks access to ProtonMail, you can log into its hidden service through Tor.

ProtonMail's dark web version provides true end-to-end encryption, which makes it impossible for anyone spying on your web activities to know that you're using the service. Tor's encryption also prevents man-in-the-middle attacks, because your connection is completely anonymous and your IP address undetectable – even to ProtonMail itself.
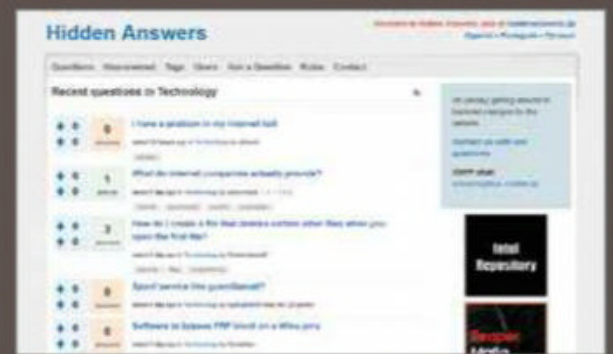
The free version of ProtonMail limits you to 500MB of storage and 150 messages a day but you can increase this to 5GB and 1,000 messages for €5 (£4.25) a month.
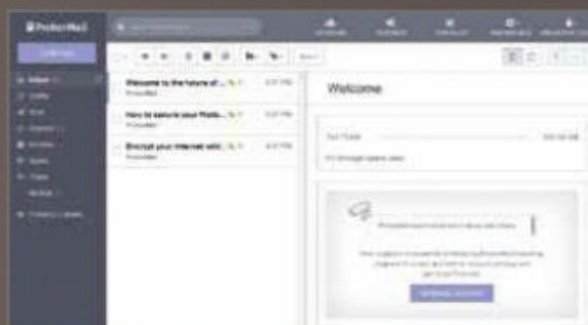
Hidden Answers
answerstedhctbek.onion

Like a dark web version of Reddit, Hidden Answers is a great source of information and opinion, with a community that is happy to provide helpful – or, at least, honest – answers to any question. Some of the discussions are slightly shady, but the Technology board is by far the most popular, addressing such innocuous topics as 'How can I recover deleted files?' and 'Does the onion version of Facebook actually work?'. You'll also find useful advice about online security and privacy, and tips on avoiding the latest scams.

Hidden Answers forbids its members from trading illegal wares and blocks users who flout its rules about spam, pornography and attacking others.

SecureDrop
secrdrop5wyphb5x.onion

The dark web is widely used by activists, campaigners, whistleblowers, journalists and other people wary of government censorship and surveillance, to share and source information anonymously. SecureDrop provides a safe system for submitting and accepting confidential documents, encrypting data in transit, protecting against hackers and masking IP addresses, identities and other metadata.

The SecureDrop website provides a directory of all the media organisations that use its service, complete with their 'onion' addresses for file drops, which you can search by country, topic and language. In the UK, SecureDrop 'instances' include the Guardian and HuffPost, while other big names include Al Jazeera, BuzzFeed, the New York Times and the Washington Post. Submission categories span everything from criminal justice and human rights to cybersecurity and celebrities, and you can add your own company to the directory. ∎
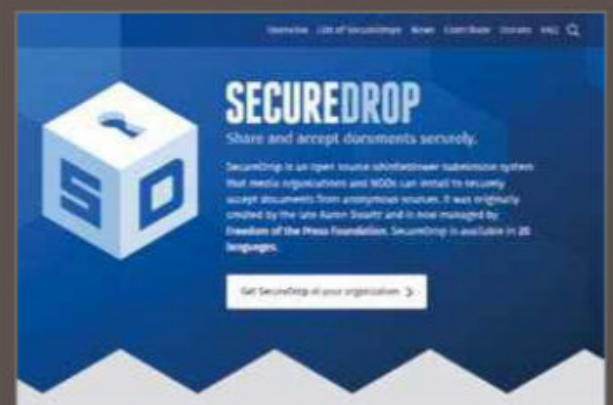
SECRET TIPS
for Facebook Messenger

Are you getting the most from Facebook's messaging app? **Jane Hoskyn** reveals how to unlock Messenger's best tricks and tools
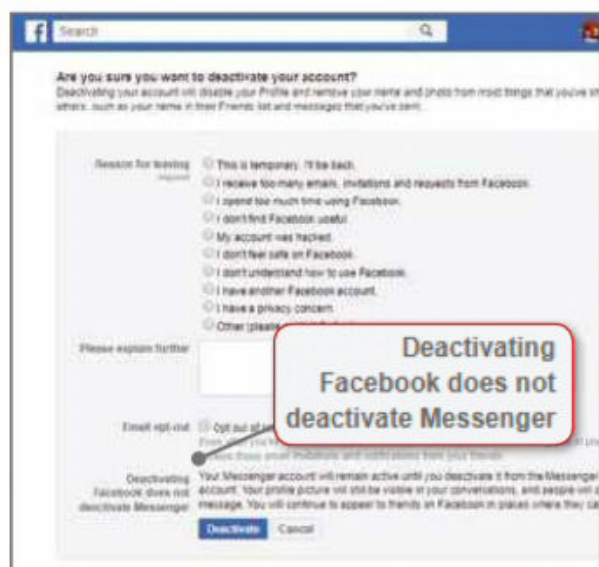
Use Messenger without a Facebook account

Messenger began as just another Facebook feature, but you can now use it entirely separately from your Facebook account. All you need is a phone number.

To start from scratch, install the app (Android: bit.ly/messdroid489, iPhone: bit.ly/messios489) then select 'Not on Facebook' after opening it. You'll need to enter an SMS code to confirm your phone number.

If you already use Facebook and want to leave it without losing Messenger, head to bit.ly/delete489 and choose Deactivate to carry on using Messenger with your old Facebook credentials. Alternatively, choose Delete (ideally after downloading your data via bit.ly/fbinfo489), then install Messenger afresh and sign up using your phone number, as above.

Certain devices, such as Samsung phones, offer a 'Dual Messenger' option that lets you install two instances of the app, so you can have one that's linked to Facebook and one that isn't. To set this up, reinstall Messenger, then tap the Dual Messenger notification.

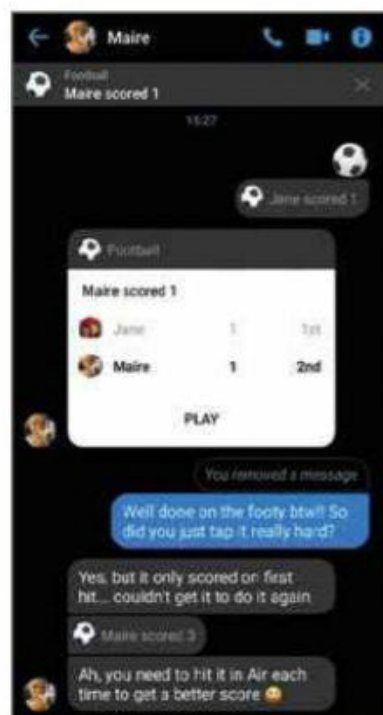*Deactivate suspends your Facebook account without messing with Messenger*

Play hidden games in Messenger

Messenger is packed with third-party games such as Words With Friends, Tetris and Daily Sudoku, and they tend to be faster and less resource-hungry than their equivalent standalone apps. To find them, tap More (four dots or the plus symbol) in a chat, or Discover (compass icon) on the Chats screen, then Games. You're forced to "play" a default game before unlocking the list, but all you really have to do is load then close the default game.

You can kick off a couple of turn-based games simply by sharing an emoji in a chat – for example, send the football emoji, then tap it to kick off; or send the basketball emoji, then tap it to shoot hoops.

Kick off a game of football with an emoji, then watch yourself slide down the in-chat scoreboard

Complain to a company's AI bot

Open the Discover screen's Businesses tab to search and browse thousands of artificially-intelligent bots, each programmed by a specific organisation to reply to your enquiry, complaint, booking or ev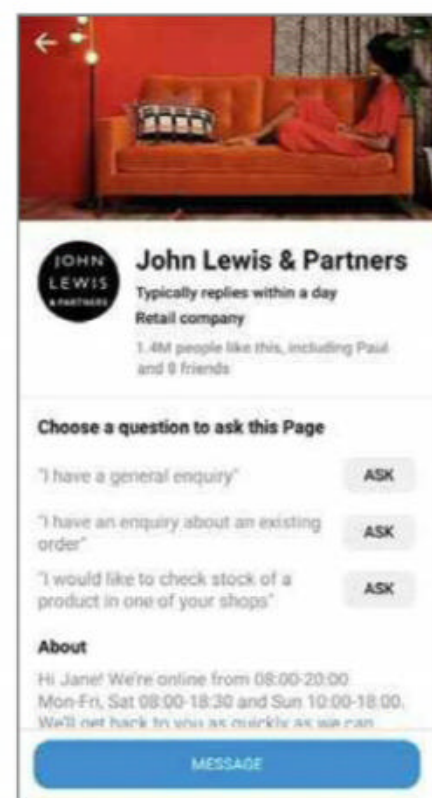en compliment. These chats include all the usual attachment options, so you can upload a photo of a receipt or even record a voice message.

Unlike WhatsApp, Messenger's voice-message tool doesn't let you cancel while recording. It's automatically sent the moment you lift your finger. If you want to delete it (by long-pressing it, then tapping the bin), it only disappears from your screen, not from your recipient's (human or bot).

Messenger bots often have stock enquiries you can tap to get the fastest response

Mark a chat as unread

To restore the bold text to a conversation on the Chats screen, perhaps to remind yourself to read it and reply, swipe it left and choose 'Mark as unread' (see screenshot, right). The same menu lets you archive, block, mute
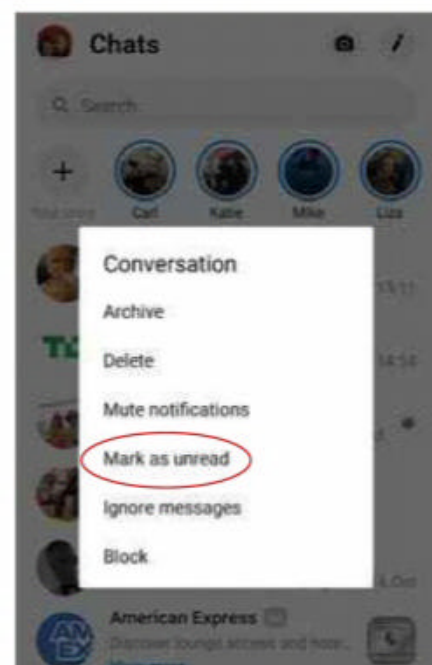
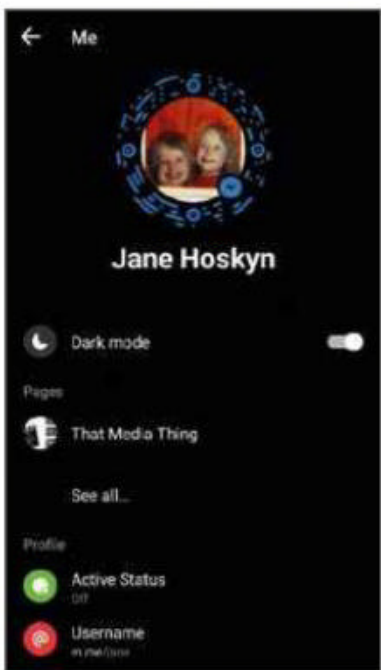*Turn a conversation bold in the Chats list to remind yourself to read and reply*

or delete the conversation.

There are more customisation options behind the 'i' icon in the chat itself. Here, you can change that chat's highlight colour from the default blue and switch its response emoji from the default thumbs-up; give the chat a nickname; search its messages; and start an encrypted 'secret conversation'.
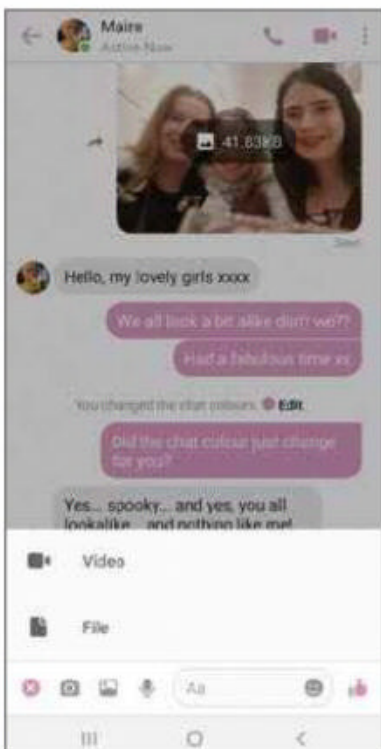
Switch to dark mode

Dark mode is the new black in the world of apps. Even Facebook's desktop version is testing a native dark mode (bit.ly/fbdark489), but Messenger got in early with a 'Dark mode' toggle on the Me screen (tap your profile photo).

Dark mode has several advantages – white text on a black background means less eye strain when reading after dark, and it also uses less battery power, especially if you have an OLED screen.

Turn off the lights with Messenger's 'Dark mode' toggle

Go 'Lite' to save phone resources

Even in dark mode, Messenger devours battery, storage and memory, but you can dramatically cut the bloat by switching to its nimble sister app, Messenger Lite (bit.ly/lite489). It's currently Android-only (unless you're in Turkey), though you can try spoofing your location with a VPN to get the iOS version (bit.ly/liteios489).

Messenger Lite doesn't have all the bells and whistles of the main Messenger app (no dark mode, business bots, secret conversations, filters or games) but it's not completely stripped-back. As well as the messaging basics, it includes free video and audio calls, multimedia attachments, voice clips, 'Mark as unread' and custom colours.

Messenger Lite retains many features, including video attachments

Create an interactive date reminder

Quickly agree the whens, wheres, whos and whats of a future event – without having to muck around with links to external calendars – by tapping More, then Reminders. When sent, the reminder automatically turns into a calendar-style invitation card with an interactive response button for your recipient – or for everyone, if it's a group chat. If you've added an alarm (under 'More options'), it'll appear as a 'sticky' message at the top of the chat, unless you dismiss it.

Like WhatsApp, Messenger now has a Live Location tool that you can use to let someone track you when you're trying to meet up. Oddly, this isn't integrated into Reminders.
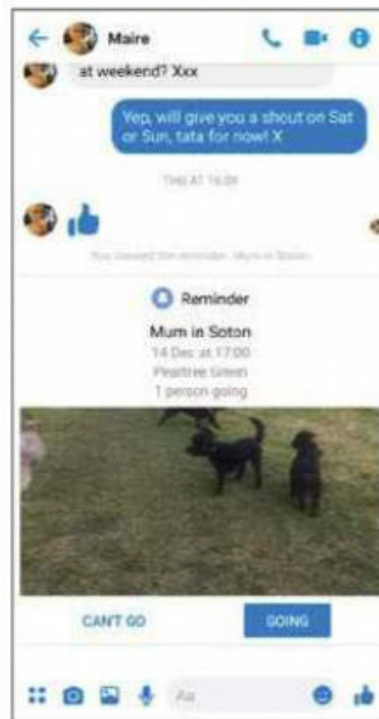
Create an interactive invitation and reminder without having to bother with calendars

Instead, you'll need to enable Live Location when it's time for your rendezvous, by tapping Location under More.

Poll your friends and family

Group chats have an extra option under More: Polls (on iPhone, you'll find the Polls icon in the 'Type a message' field).

As well as being a fun way to validate your opinions (or not, as the case may be), polls are an efficient way to let multiple people respond to a suggestion. For example, you could use a poll to agree on a meet-up location or to decide what to have for dinner tonight.

To start a group chat, tap the pencil icon on the Chats/ Conversations screen, then 'Create a new group'. Tap Polls and pen your poser, along with a choice of answers. Messenger now lets you set photos as optional replies, as well as text. ■
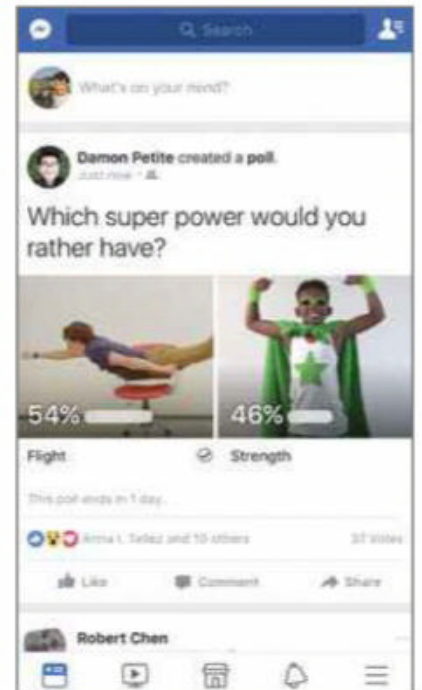
Avoid (or trigger) arguments and make plans easily by polling your friends and family

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IMPROVE FACEBOOK MESSENGER WITH ADD-ONS

Messenger is so stuffed with clever features that it hardly needs extensions, but it can't do *everything* on its own. Here are some of the best extra tools.

• **Dual Space** (Android: dualspace .com): Create two instances of Messenger on one phone, and log in using separate accounts.
• **Messenger Kids** (Android, iOS: bit.ly/kids489): Official app for youngsters with tools such as sleep mode. No phone number is needed, so it works on tablets.
• **Unseenly** (Chrome: bit.ly/ unseen489, Android APK: bit.ly/ undroid489): Prevent people from seeing when you've read their messages.
• **Multimessenger** (Chrome: multimessenger.cc): Manage Messenger, WhatsApp, Instagram and other messaging tools in one floating browser window.
• **Messenger online** (any browser, messenger.com): Access Messenger
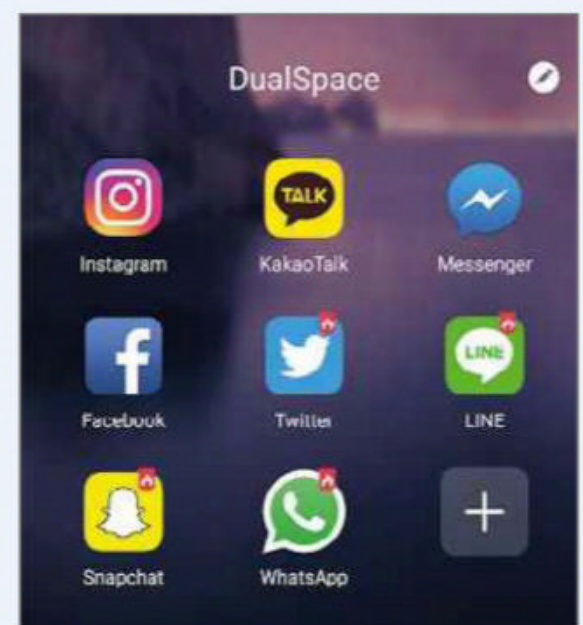
on your PC without having to sign in using Facebook.
• **Pinned Messenger** (Firefox: bit.ly/ pinned489): Get an always-on Messenger tab.
• **Messages Saver for Facebook** (Windows, Chrome: chatsaver.org): Download entire conversations in text format. At £2.49, it's the only tool in our list that isn't free.

Explore the new Chromium version of Microsoft Edge

The new version of the Edge browser is based on Chromium. Here's what you need to know

**Microsoft Edge: bit.ly/edge489** | ⏱ 20 mins | ⊞ Windows 10

E dge comes as part of Windows 10, but the redesigned browser, which Microsoft expects to launch on 15 January, is built around Chromium, the open-source version of Google Chrome. Though it isn't finished yet, you can now download the Release Candidate from bit.ly/edge489.

If you're feeling adventurous, you can also preview test versions that contain extra features, such as Collections, which lets you collate information from web pages as you browse. To try these extra features, you'll need to download the Dev or Canary versions of the browser, which are cutting-edge test releases that are updated with new features as they're developed.

IMAGE DETAILS
If you like the current image of the day, clicking the text next to the Bing logo will tell you where and what it is
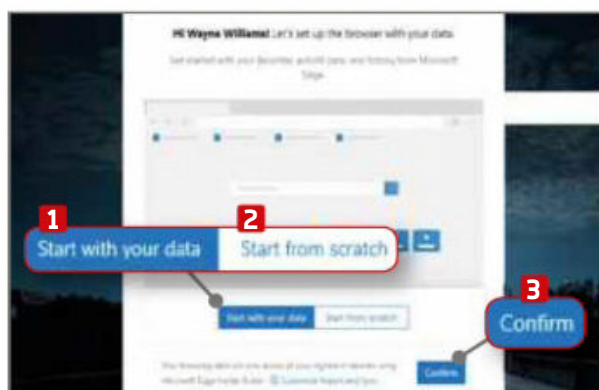
1 The first time you run the new Edge browser, you're greeted with a personal message and given the chance to either add all your browsing data (favourites, history and more) **1** or start from scratch. **2** Click Confirm **3** and, on the next screen, you can choose a look for the new tab page.
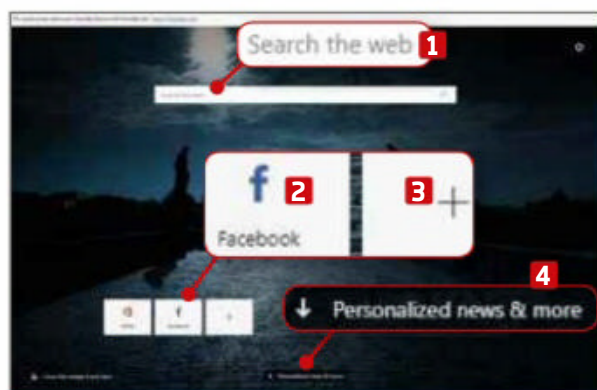
2 This is the Inspirational layout. Its background is a Bing image and it has a Bing search box **1** with your favourite or most recent sites in a bar along the bottom. **2** This gets populated as you browse. Click the plus button **3** to manually add new sites. You can add personalised news and other items. **4**
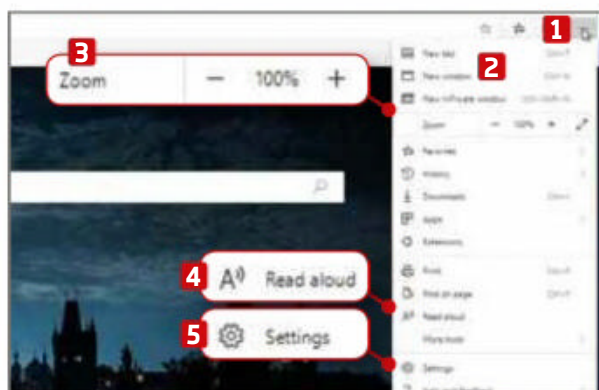
3 Click the three-dot menu button in the top-right corner. **1** From here, you can open a new tab, new window or new InPrivate window. **2** You can also zoom in or out, **3** and access favourites, history, downloads, apps and extensions. There are options to have the page read aloud **4** and open Settings. **5**

4 The Settings screen displays all the categories on the left, **1** with the settings for each section on the right. **2** You can switch profiles, **3** choose what information to sync between devices, view and manage saved passwords **4** and import data from another browser. **5**
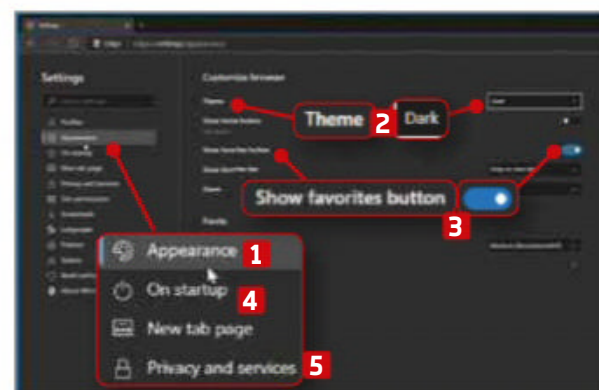
5 The Appearance section **1** lets you customise the look of the browser, changing the theme **2** and toggling the favourites tools on or off. **3** You can manage what the browser displays on startup, customise the new tab page **4** and manage privacy settings and services. **5**

FAVOURITES
Click the star in the address bar to bookmark a page. You can view your saved pages by clicking the Favourites button to the right
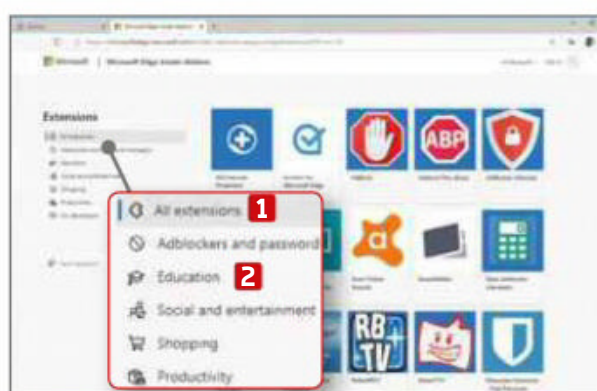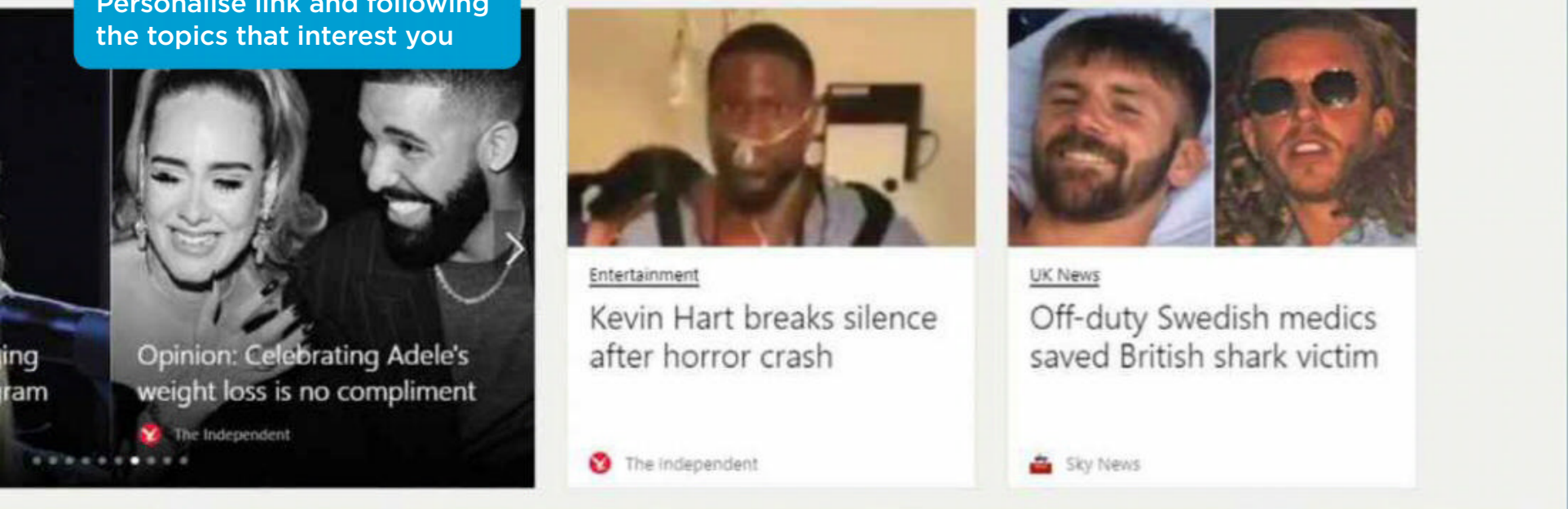
LAYOUT
Click the cog on the new tab page to change the layout. You can choose between Focused, Inspirational, Informational or Custom

Choose your layout

Focused

Inspirational

Informational

Custom

Search the web

Office

Facebook

PERSONALISE NEWS
You can customise the sort of news stories the browser displays by clicking the Personalise link and following the topics that interest you

Cars

powered by Microsoft News

Entertainment
Kevin Hart breaks silence after horror crash

The Independent

UK News
Off-duty Swedish medics saved British shark victim

Sky News

Opinion: Celebrating Adele's weight loss is no compliment

The Independent

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6 The original Edge didn't have many add-ons but that changes with the Chromium version. You can view and download a host of extensions directly from the Microsoft Edge Insider Addons page (bit.ly/edgeaddons489). Browse the full selection **1** or view them by category. **2**
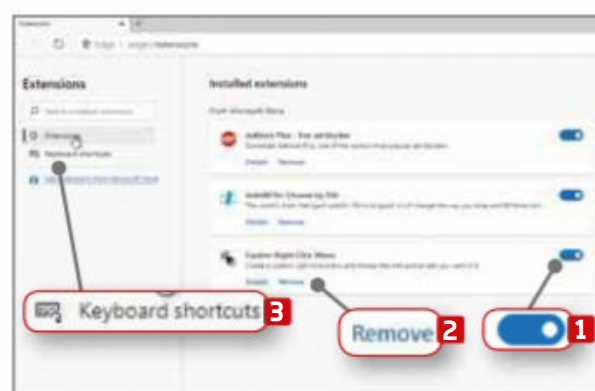
7 Click an extension, then click the Get button on its page to install it. In the box that appears, click 'Add extension'. To view and manage add-ons, open Edge's menu and click Extensions. You can enable or disable something, **1** or remove it. **2** Click 'Keyboard shortcuts' **3** to set a hotkey to activate an extension.
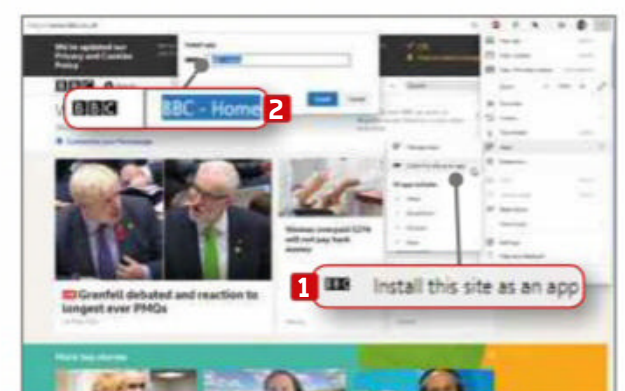
8 Edge lets you turn web pages into standalone apps. Navigate to a page, open the browser menu, go to Apps and select 'Install this site as an app'. **1** Name it **2** and it will open in a new window and be added to the Start menu. You can also access your apps in the browser menu, and manage or remove them from there.

Workshop 2

Edit your videos for free using VLC

VLC: www.videolan.org | ⏱ 20 mins | XP, 7, 8, 10

V LC is usually thought of as a media player, and a very good one at that. However, there's more to the software than meets the eye. Did you know you can use it to make simple edits to your videos as well as just watch them? This saves you needing to download a separate video-editing tool if you're short on space or don't use one often enough to justify the installation.

VLC's editing tools are a bit rough and ready, but because its options are limited, it can be used to create clean, unfussy videos, free of elaborate transitions that can be too tempting to ignore in regular video editors. That said, the software can also perform a handful of magic tricks to transform your footage, which we look at in the last two steps of this workshop.
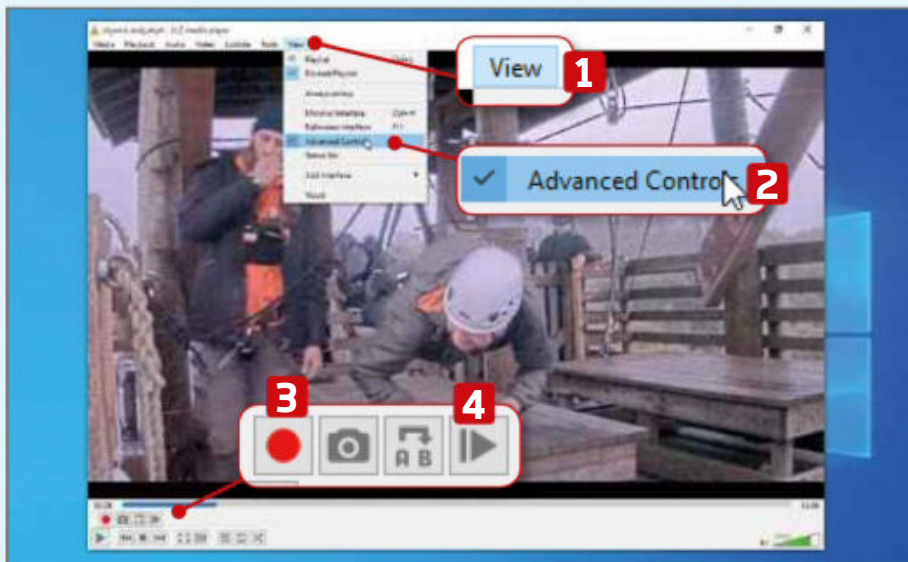
1 First, we'll look at how to trim video, so you can remove unwanted sections to create a clip. To do this, you need some extra tools. Open the View menu **1** and choose Advanced Controls. **2** This adds a Record button **3** and a useful 'Frame by frame' button. **4**

2 Load the video and watch it through to make sure you're familiar with where you want the start and end points to be. Use the slider **1** to get the video near to your preferred starting point. Click the Play button **2** and immediately press the Record button **3** when you get to the correct place.
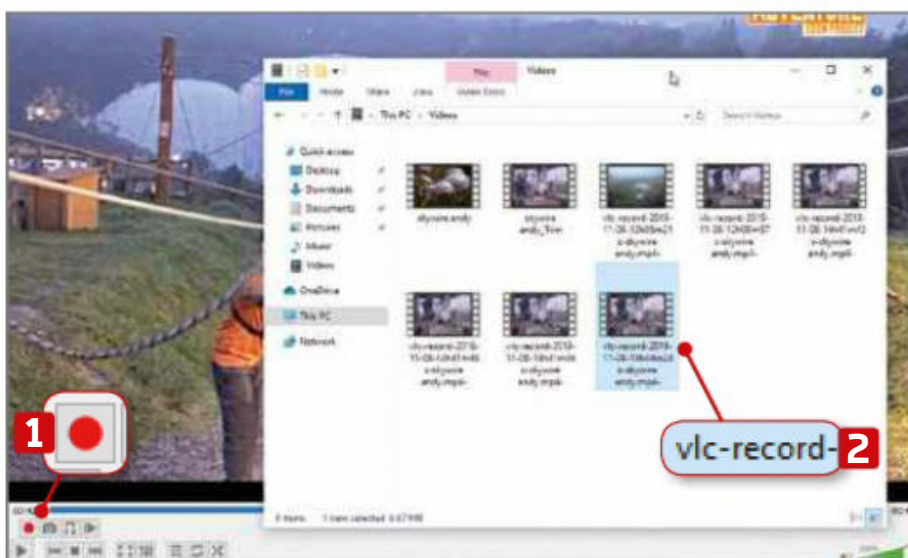

3 You have to mark the end of your clip manually. When the video gets to the stop point, click the Record button again. **1** The trimmed video file is saved to your Videos folder with 'vlc_record' at the front of its name. **2** Do this as many times as required to collect the clips that you need.
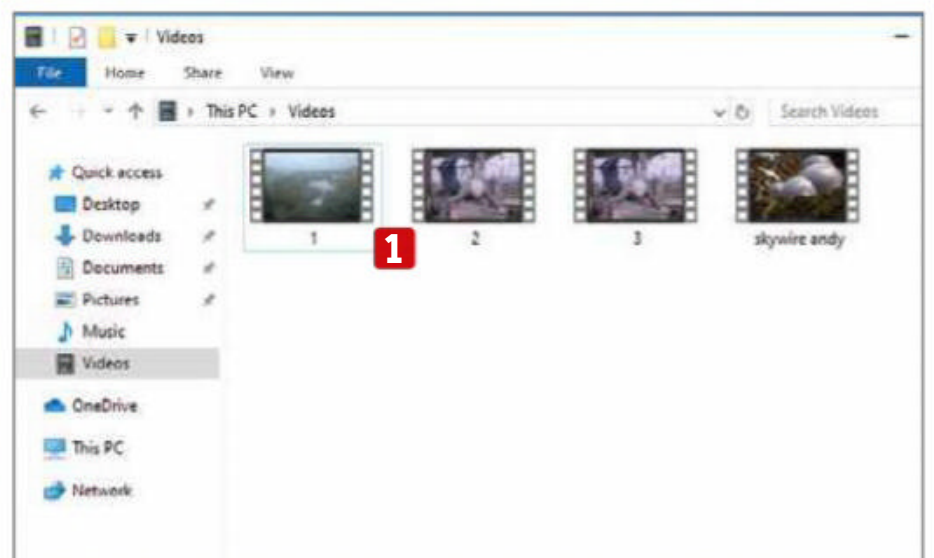

4 While VLC is perfectly capable of sticking video clips together, the option was removed from the latest version of the graphical interface. However, the action can still be performed from the Command Prompt. Start by renaming the files you want to stitch together – use a simple, consecutive system, such as numbering them. **1**
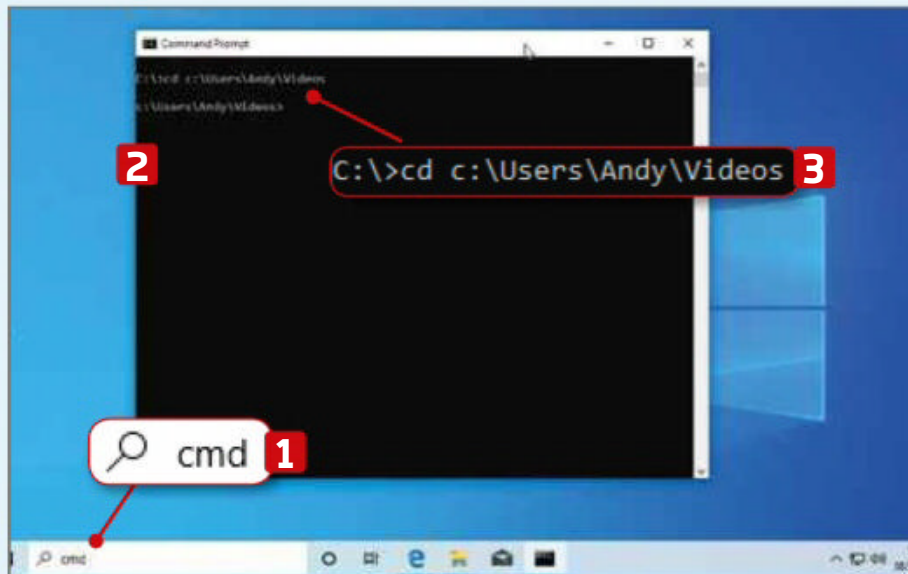
5 Close any instances of VLC that you have open. Enter `cmd` in the search box **1** to launch the Command Prompt, **2** and navigate to the folder that contains your renamed video files. In our case, we used `cd c:\Users\Andy\Videos`. **3**
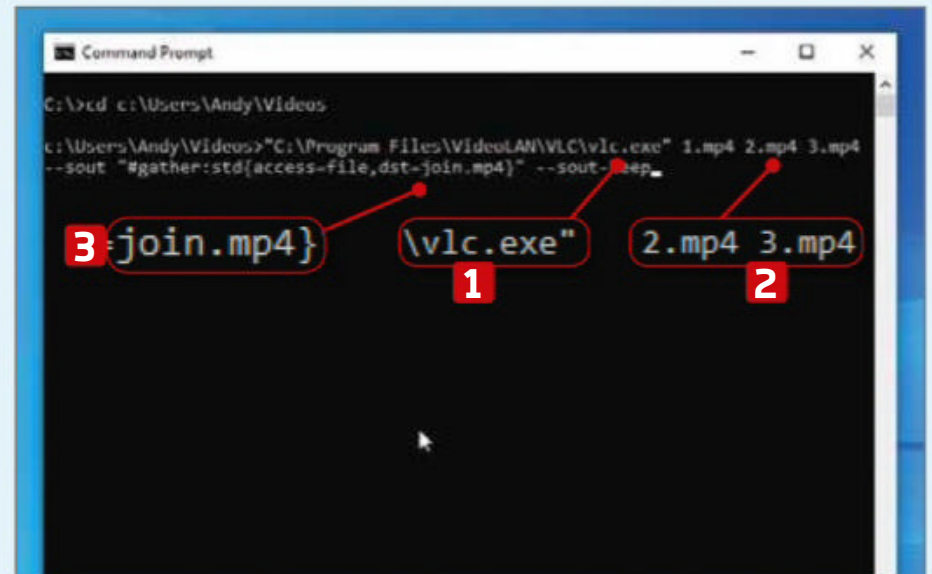

6 Next, type a command with the path to the vlc.exe file, **1** the names of all the files you want to join **2** and a couple of additional commands including the name of the final file. **3** Ours was "C:\Program Files\VideoLAN\VLC\vlc. exe" 1.mp4 2.mp4 3.mp4 --sout "#gather:std{acce ss=file,dst=join.mp4}" --sout-keep
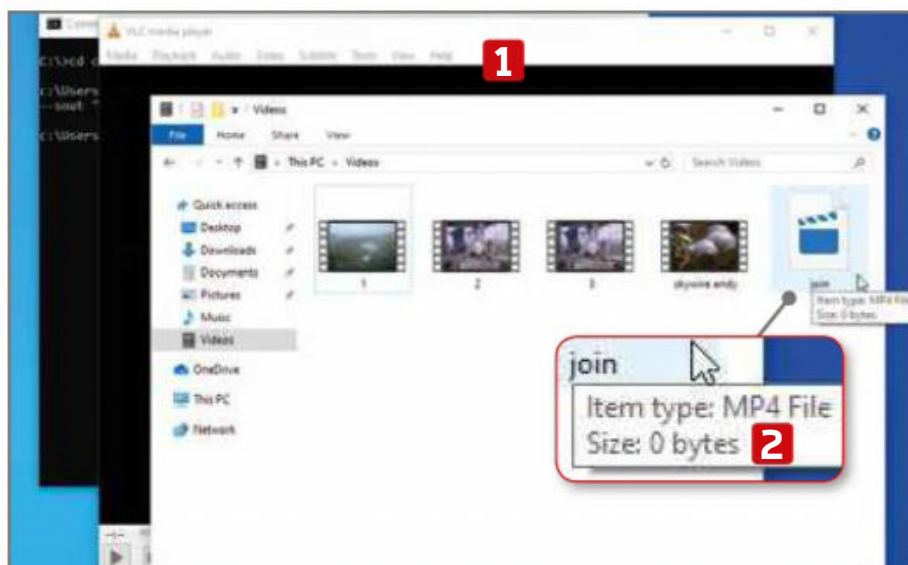

7 VLC opens and joins the files together. The process is carried out discreetly, so you won't see anything appear on the screen. **1** You now have to shut VLC down again before the new file (in our case, called 'join') is properly finished. If you look at it before closing VLC, it will appear to be an empty file. **2**
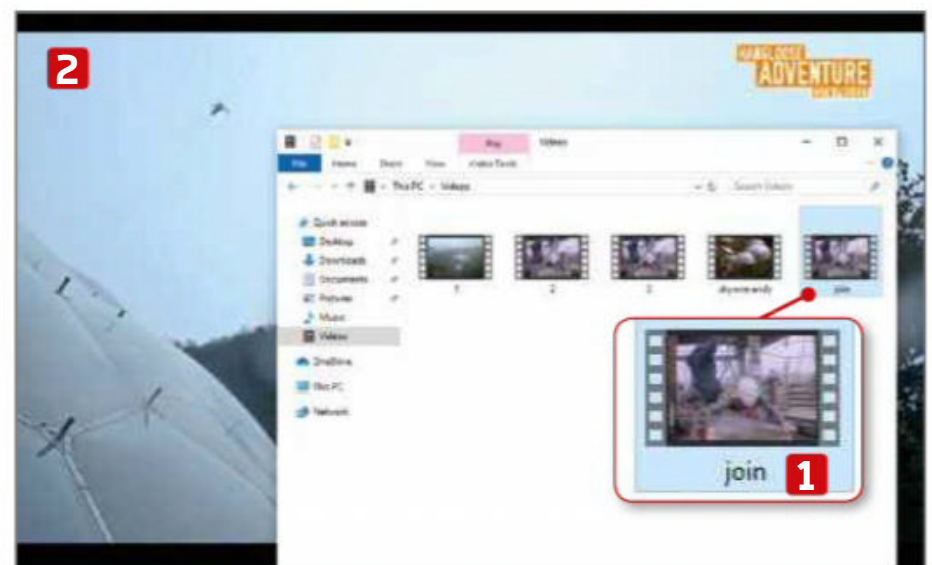
8 The file's thumbnail appears. **1** You can reopen VLC and play the video as normal. **2** If you want to make any changes to the file, such as adding more clips, make sure you rename the output file in Step 6, so it doesn't overwrite your existing file.
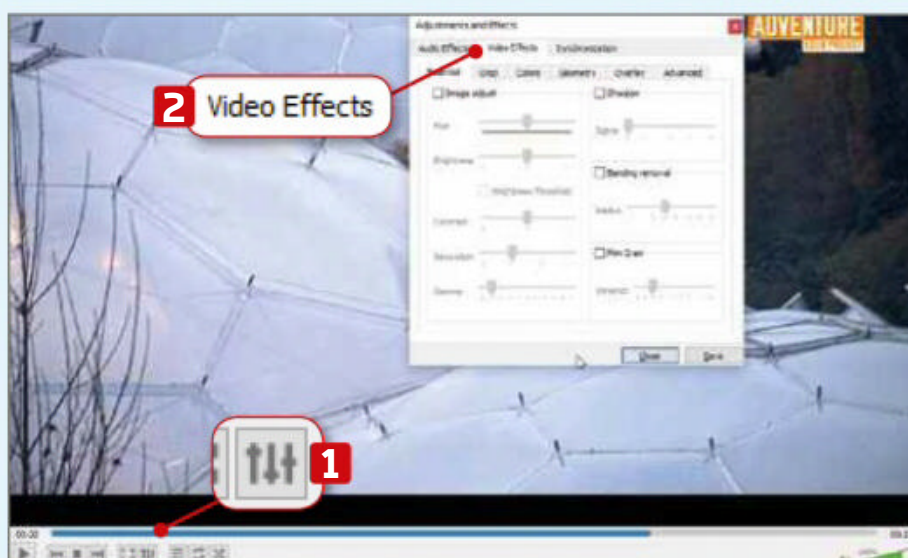
9 You may feel your video is a bit boring and decide to spice it up with a few video effects. If you do this as you record your clips in Steps 2 and 3, you can insert them into your finished production. Click the 'Show extended settings' button **1** and click the Video Effects tab. **2**
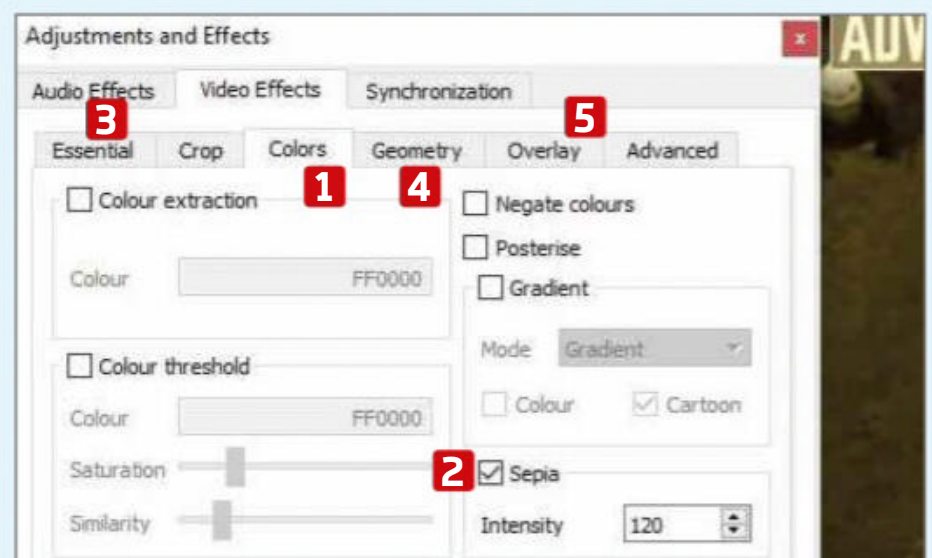
10 There are plenty of effects to experiment with, such as changing the colour of your video from the Colors tab. **1** Here, we've chosen a Sepia tint. **2** The Essential tab **3** has subtler colour changes, Geometry **4** lets you rotate the video and Overlay **5** can insert a logo or text.

Get phone notifications on your computer

If you regularly spend your day switching between your phone and your computer, Crono is the tool you need to bridge any gaps. This combination of app and browser tool lets you create a link between the two devices, pushing phone notifications, messages and more to your PC browser. Once you've set it up, the experience is streamlined, effortless and, most importantly, instant.

Crono: bit.ly/crono489 | 🕐 **10 mins** | 🤖 **Android 5.0+**

1 Download and log into the Crono app with your Google account, then download the extension at bit.ly/cronoext489. Click the browser tool and, in the app, tap 'Connect to Crono Web'. Scan the QR code to connect the two. Name the browser **1** and tap Save. **2** Press the plus sign **3** to add more browsers.
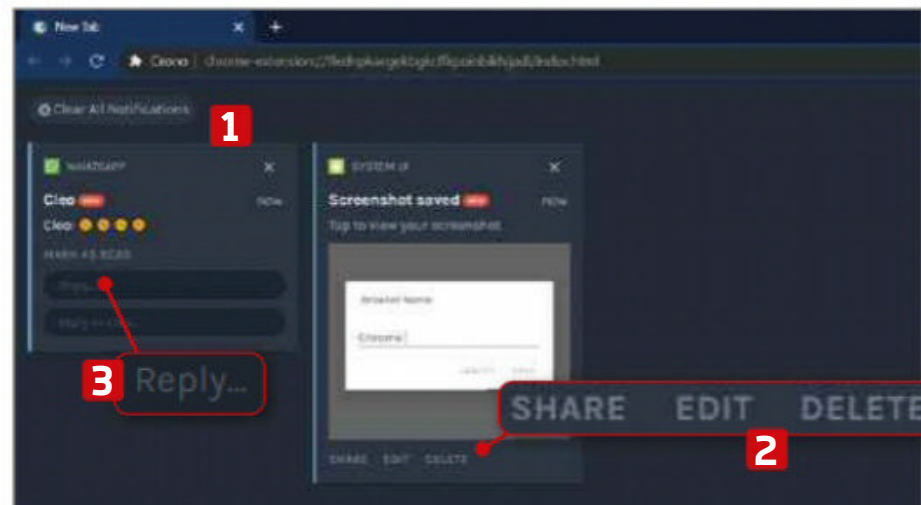
2 In the app, select Enable Notifications Access. Toggle on Crono, then tap Allow so it can read your notifications. With this set up, notifications on your phone are mirrored in the Crono browser window. **1** Options to Share, Edit or Delete appear below **2** and there's a reply box **3** for messages.
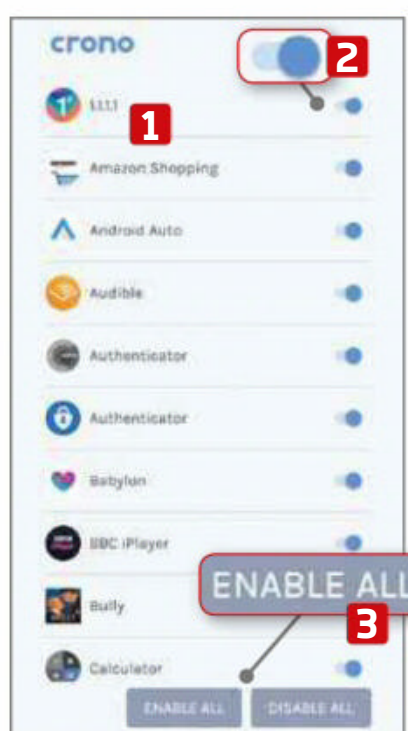
3 Next, tap Select Apps. This presents a list of all the apps on your phone **1** alongside toggle switches. **2** You can choose to have notifications from individual apps pushed to your browser by switching them on. At the foot of the list, there are two buttons for quick selection: Enable All **3** and Disable All. **4**
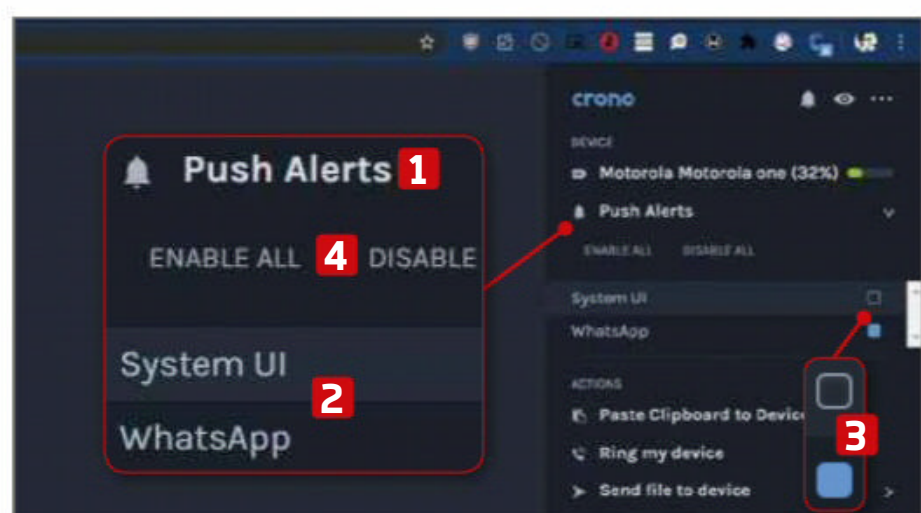
4 It's also possible to determine which apps are displayed from the browser extension. Click Push Alerts **1** to show the app list. **2** Clicking each box **3** activates or deactivates the app, while selecting Enable All or Disable All **4** is another way to set them all on or off by default.
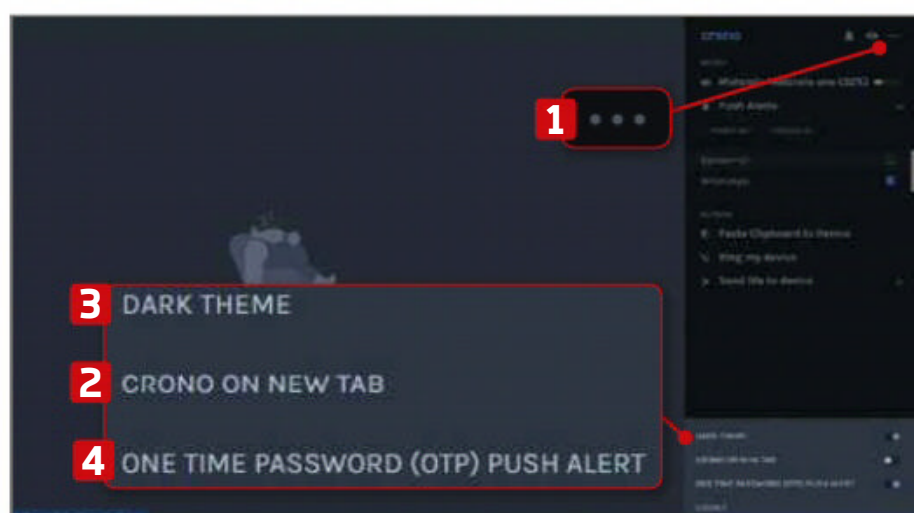
5 To make sure you never miss a phone notification, click Crono's menu button. **1** At the bottom of the sidebar are a handful of options, including Crono on New Tab. **2** Switch this on. While you're there, set dark mode **3** and two-factor authentication notifications **4** to deliver to the browser, too.
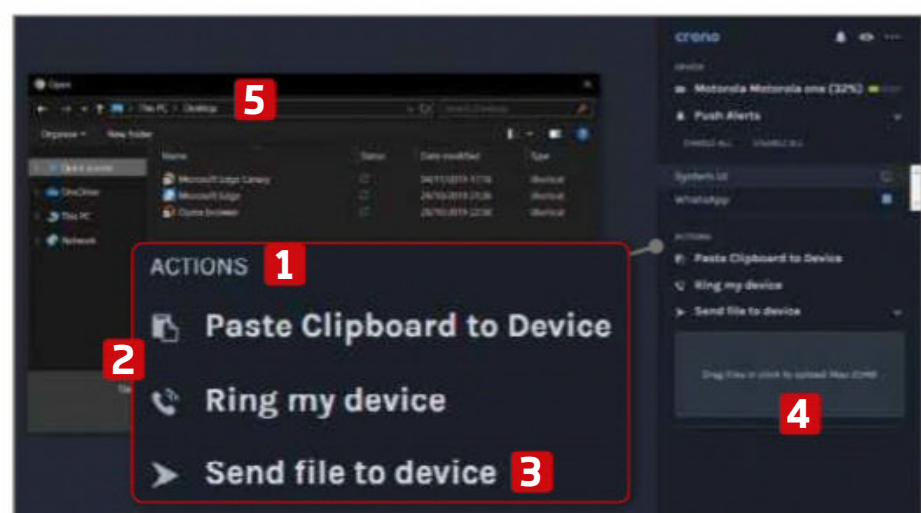
6 Under Actions, **1** 'Paste Clipboard to Device' and 'Ring my device' **2** both require a single-click. When selecting 'Send file to device', **3** however, use the box **4** to drag and drop files or click to upload via File Explorer. **5** Pick these up in the app by going to View Files.

Keep your PC clean and your data private

BleachBit is the ultimate PC-cleaning tool, since CCleaner's fall from grace. Free and open source, it's been designed to remove clutter and personal data from your PC, so no one can snoop on your actions or look at any files you created and deleted. The latest version introduces lots of new tools which we'll explore below, after a quick recap of the basics.

**BleachBit 3.0: www.bleachbit.org** | ⏱ **10 mins** | 🪟 **Windows 7, 8, 10**
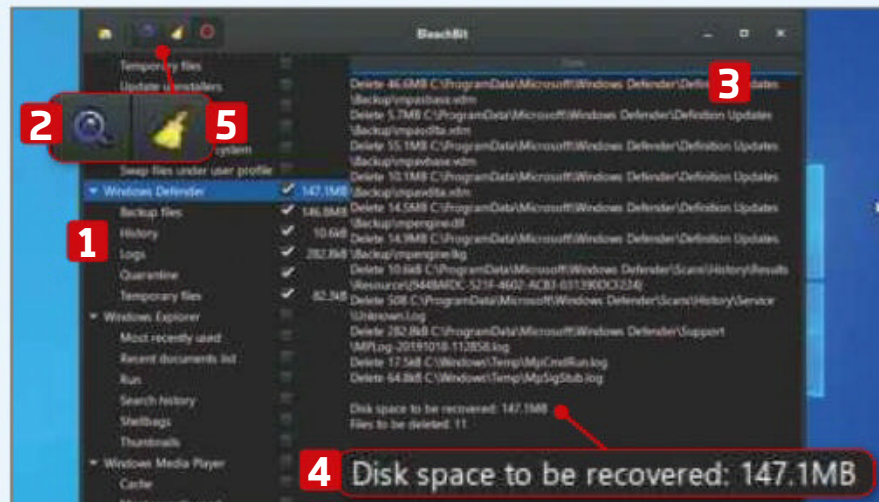
1 In the left-hand column, choose the type of clean-up you want to perform. **1** You can select a heading or choose individual elements. Click the Preview button **2** to see which files will be cleaned **3** and how much space you'll gain. **4** When you're happy to proceed, click the Clean button. **5**
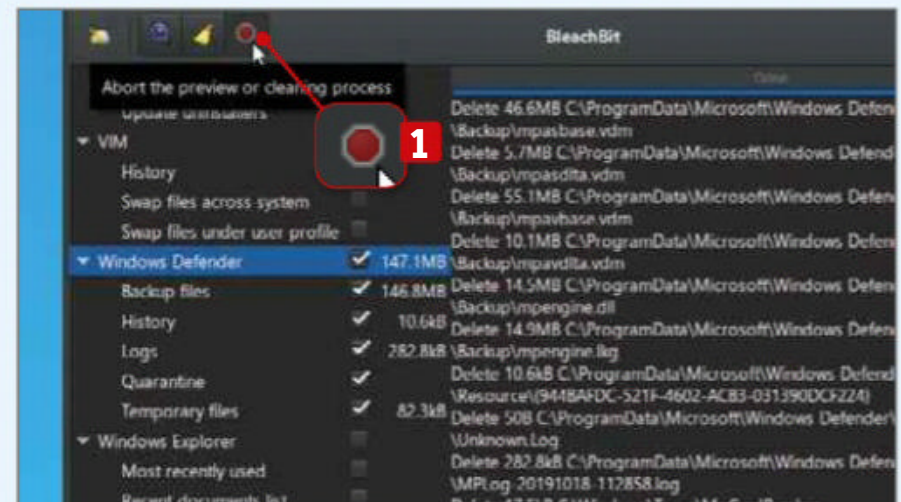
2 You get a final chance to cancel the cleaning process just before it starts. However, eagle-eyed veterans will notice a new button on the toolbar. This Abort button **1** lets you cancel a clean-up operation, even if it's already started.
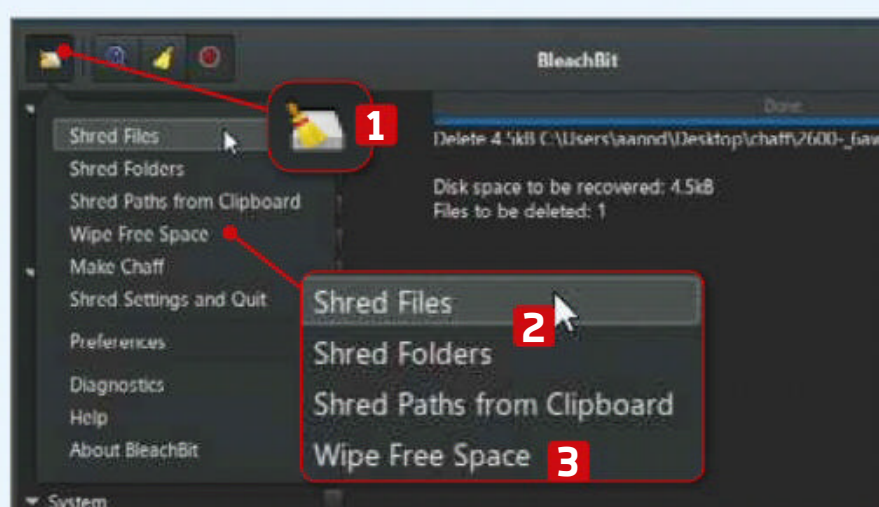
3 You can also use BleachBit to shred files. Click the Menu button **1** and choose one of the Shred options. **2** You can also Wipe Free Space, **3** which lets you completely remove any files that you may not have deleted as thoroughly in the past.
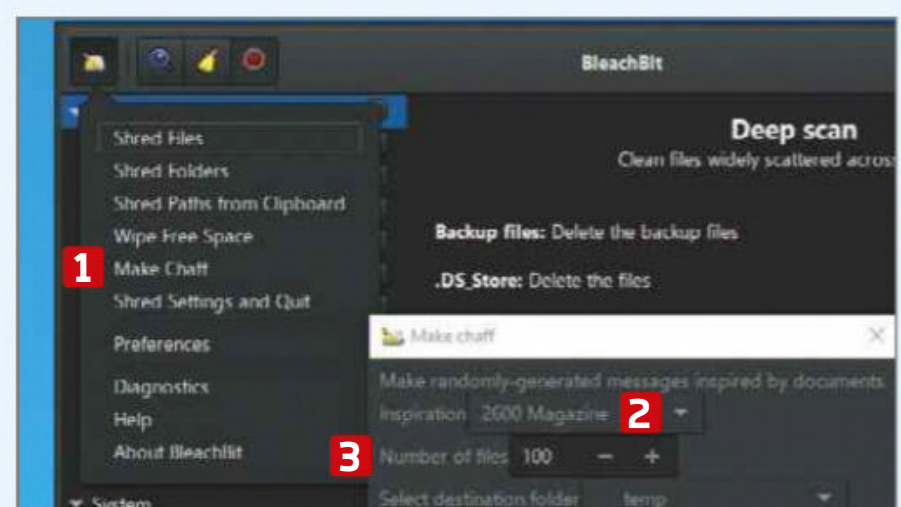
4 BleachBit has a new tool for creating 'chaff' – hundreds of nonsense files for hiding important documents. Click the Menu button, choose Make Chaff **1** and select the Inspiration (a tech magazine or, bizarrely, Hillary Clinton's leaked email archives) **2** and the number of files to create. **3**
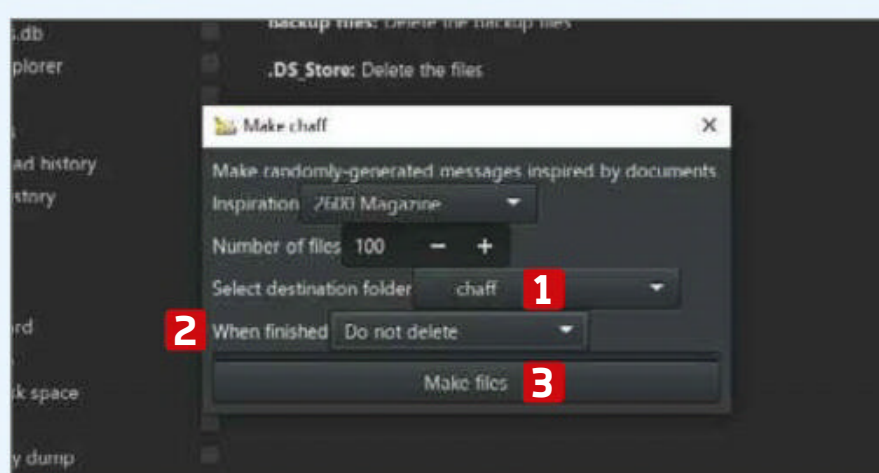
5 Select a folder for the chaff **1** or create a new one. You can choose to immediately delete the files (to hide any sensitive deleted files among the chaff) or keep them. **2** Click 'Make files'. **3** The first time you do this, it downloads some small files it uses to create the chaff from.
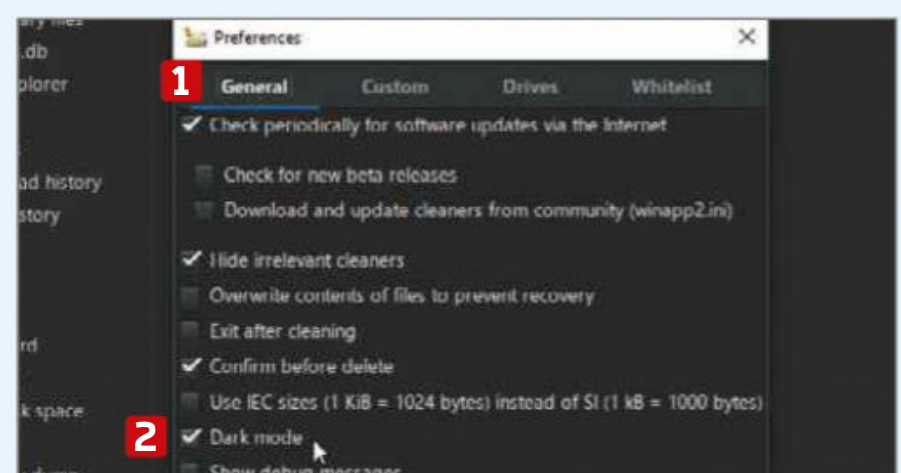
6 The new version of BleachBit has a dark mode which, if you're installing it from scratch, it launches in automatically. If you'd rather have a traditional white background, open the menu and choose Preferences. Select the General tab **1** and untick 'Dark mode'. **2**

Get to grips with some serious tech tinkering to boost your computer and other devices

MTWTFSS

How to... Make your phone and tablet more accessible

Wayne Williams reveals the tweaks and apps that can make your mobile devices much easier to see, hear and use

Smartphones and tablets are designed to be very easy to use, but a significant portion of the population have problems with them. Some people are born with disabilities that make interacting with today's technology a challenge, while others struggle as a result of accidents, debilitating illness or old age. Those with impaired vision struggle to see buttons and text, while users with poor motor skills may find it difficult to interact with controls and apps.

Thankfully, iOS, iPadOS and Android all have settings you can adjust to help combat these problems and make the devices much easier to use, whether for yourself or for someone you know.
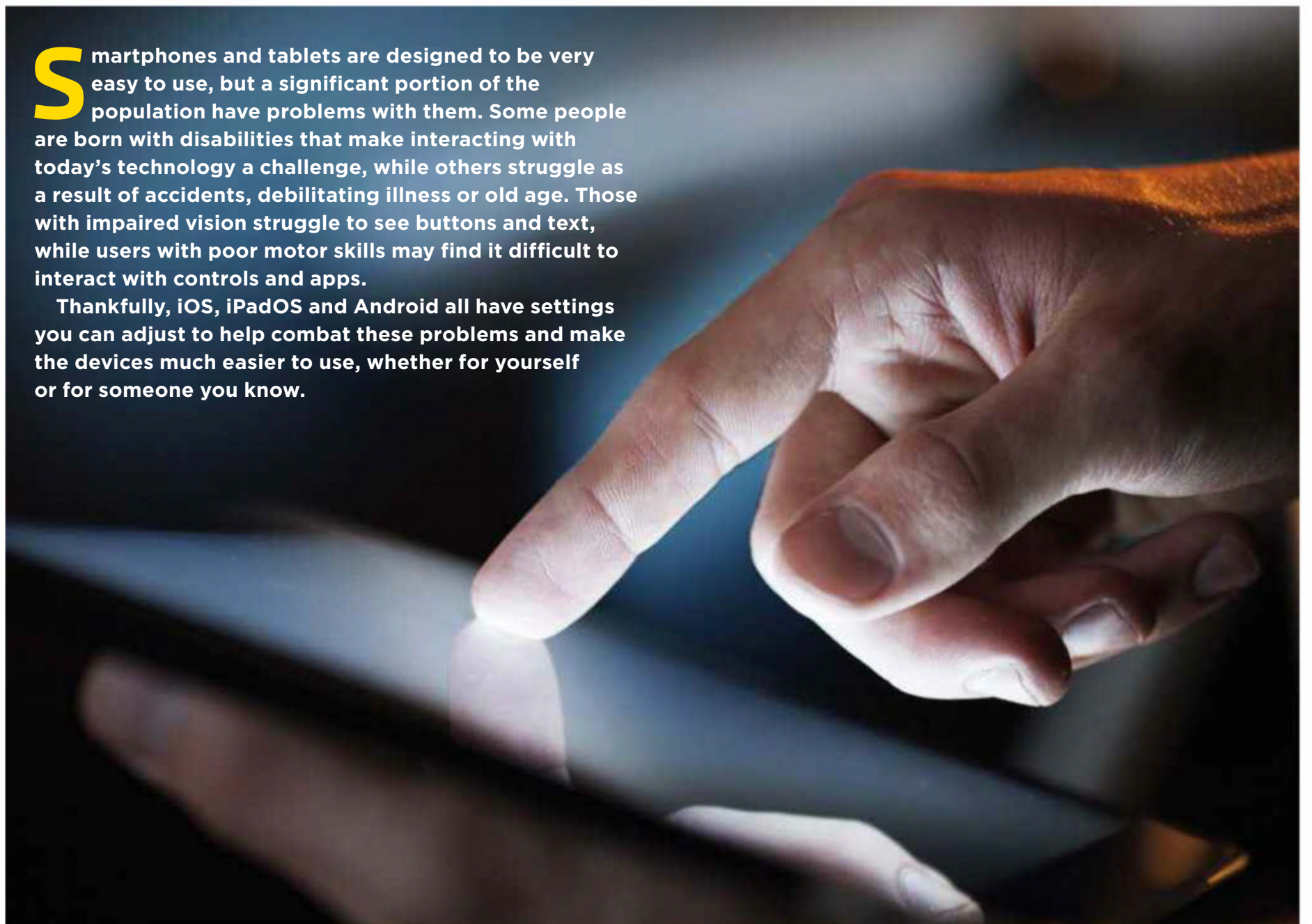
Simplify Android use

The accessibility options available to Android users depend on which version of Google's operating system you have installed on your phone. To complicate matters further, many developers customise Android, adding and removing features. For this project, we'll be focusing on what's on offer in the standard version of Android 9 (Pie).

To get started, open Settings and go to System, then Accessibility. Here, you'll find an Accessibility Menu which, when enabled, provides a large on-screen menu to control your phone. Tap the Accessibility button that appears on the bottom of the screen to access this menu.

From the Settings screen, you can enable 'Select to Speak', which reads selected text aloud; or TalkBack, which provides spoken feedback on everything on the phone. We show you how to use TalkBack in our Mini Workshop, opposite. The 'Text-to-speech output' setting lets you adjust the speech rate and pitch using sliders. Tap the Play button to hear some example text read aloud.

People with motor impairments can control their device using one or more switches, and that option can be enabled here also.

Back in the main Settings menu, select Display and you can change the font size
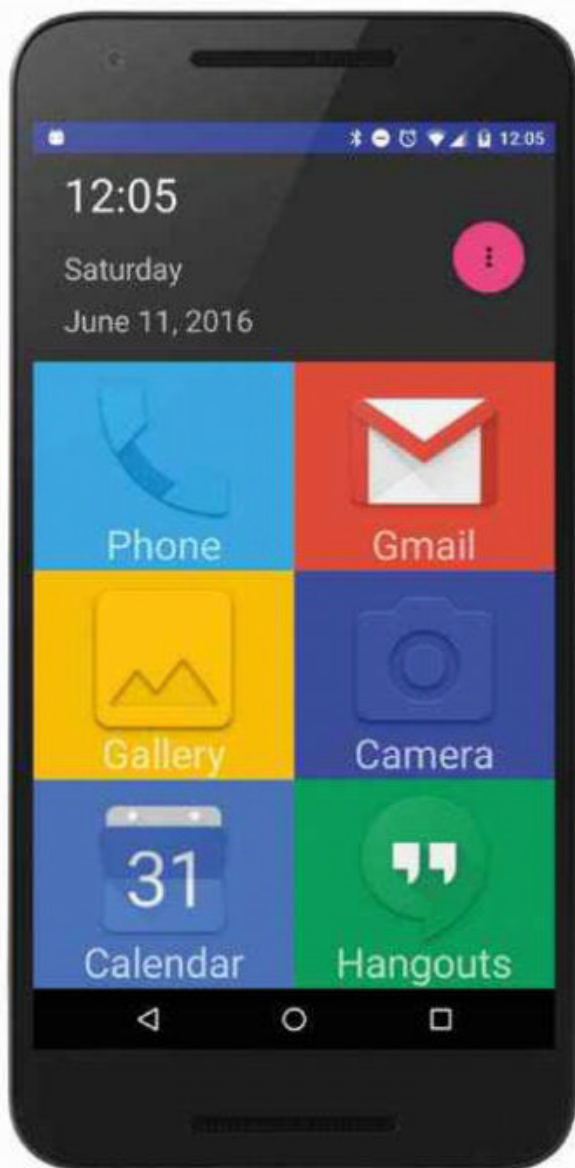
The Senior Homescreen launcher only shows apps most likely to be used

Simple Launcher strips back the look of the phone to make it more accessible

Android offers a variety of useful tools through its Accessibility menu

The colour-correction tool offers three modes to help the colour blind

and display size. The latter option lets you increase the size of items on the screen, such as buttons, menus and text. Use the slider to adjust the settings and preview the effect of the changes. You can also turn on magnification, which lets you zoom in on items. As well as colour correction, for people who suffer from colourblindness, there's also a Colour Inversion option that inverts the colours. It's not the same as dark mode, though the results are similar.
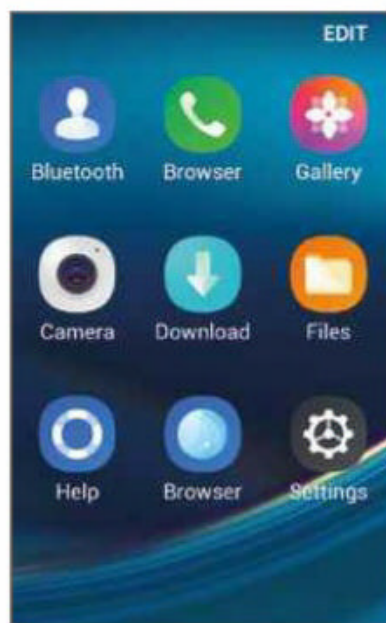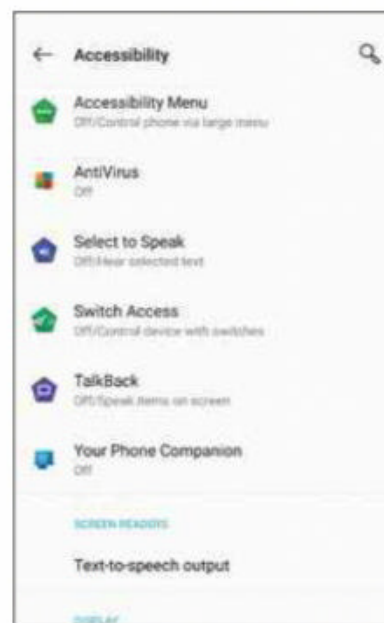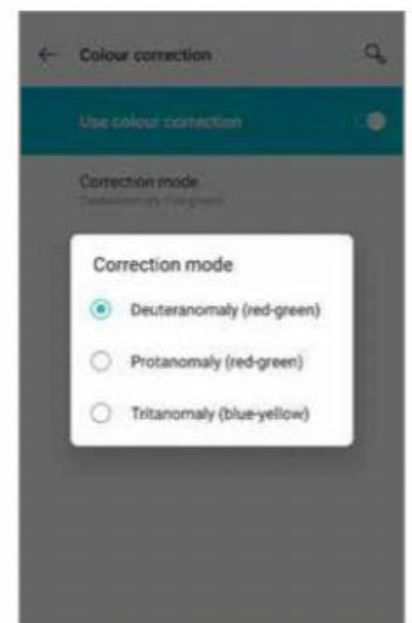
If you use a mouse with your Android device, it's possible to increase the size of the cursor. You can also remove animations, set dwell timing (which, when using a mouse, performs a click if the cursor has been stationary for a period of time), switch to mono for audio and enable captions. Android 9 also has an experimental High Contrast Text setting which can be enabled at the bottom of the Accessibility screen.

In addition, Android users can make use of Google Assistant to perform tasks using spoken requests, and there are special Android launchers available that redesign the look of the interface, making it easier to use. Two we'd recommend are Simple Launcher (bit.ly/simple489), which displays big fonts and icons; and Senior Homescreen (bit.ly/senior489), which is aimed at older users and displays the apps they are most likely to need, such as phone, camera, photos and WhatsApp. Access any installed launchers through Settings, 'Apps & notifications', 'Default apps', 'Home app'.

Make iOS easier to use

iOS and iPadOS (Apple's new tablet operating system) come with a number of options to make Apple's devices more accessible. Open Settings and tap

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MINI WORKSHOP | Use the TalkBack screen reader in Android
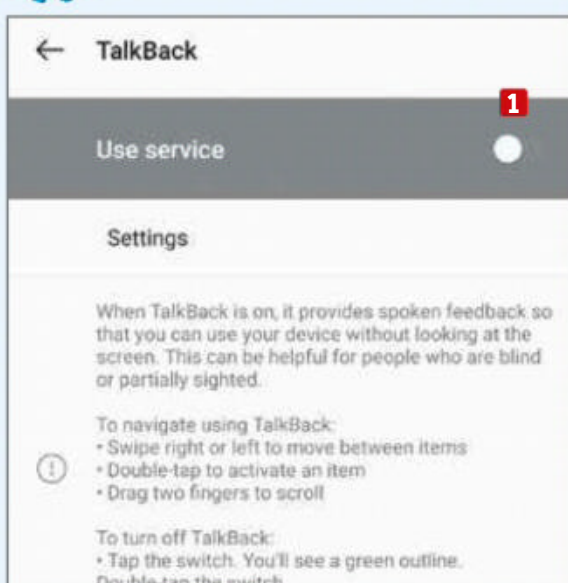
1 With TalkBack switched on, you can use your phone without looking at the screen – handy for blind or partially sighted users. To enable it, open Settings, go to System and tap Accessibility (the exact process may vary depending on your version of Android). Tap TalkBack and switch the toggle to On. **1**
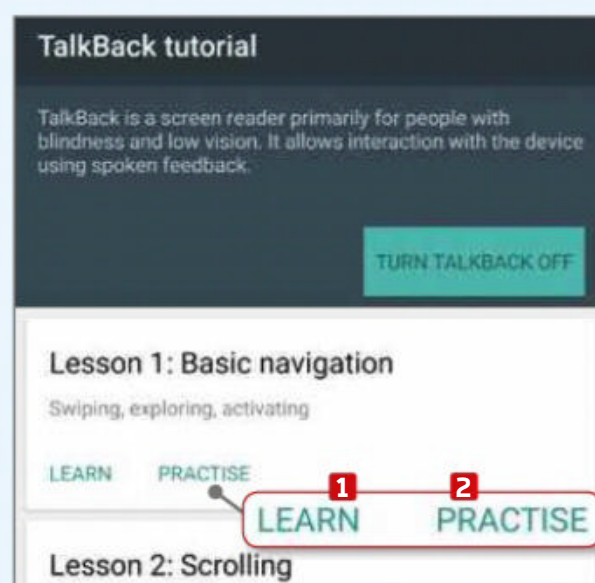
2 Grant TalkBack its required permissions and the tutorial screen loads. This explains how it works and offers a few lessons to help master it. You can learn about a lesson **1** or practise it. **2** Single-tap on anything (such as buttons and text) and TalkBack reads what it says aloud. Double-tap to action the command.
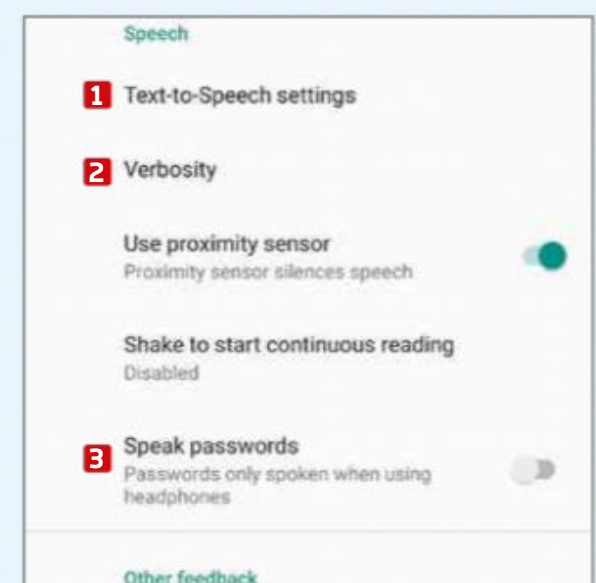
3 With the tutorial done, return to the screen where you enabled TalkBack and tap Settings. Text-to-Speech output **1** lets you change the speech rate and pitch. Set what's spoken under Verbosity. **2** You can set TalkBack to only speak passwords when headphones are being worn. **3** Scroll down to access the navigation options.

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1	Shell ENERGY Broadband	Shell Energy: Fast Broadband	£16.99	18 months	11Mbps avg. speed	∞ unlimited	CHEAPEST £203.88
2	TalkTalk For Everyone	TalkTalk: Fast Broadband	£17.95 (£30 after 18 months)	12 months	11Mbps avg. speed	∞ unlimited	£215.40
3	sky	Sky: Broadband Essential	£20.00 (£25 after 18 months)	18 months	11Mbps avg. speed	∞ unlimited *	£240.00
4	Virgin media	Virgin Media: Big Bundle + Fibre Broadband + Weekend Calls	£33.00 (£54 after 12 months)	12 months	54Mbps avg. speed	∞ unlimited	£396.00

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Data supplied by www.broadbandgenie.co.uk. Correct as of 11 November 2019.

Ofcom

Broadband Genie's helpline is powered by Simplify Digital, the Ofcom-accredited switching service

Accessibility. The tweaks are sorted into four categories – Vision, 'Physical and Motor', Hearing and General. Most of these settings are set to Off but you can enable any that are likely to be helpful.

• The **Vision** tweaks fall broadly into two types: you can make items easier to see or you can get audio descriptions. The Zoom tool magnifies the entire screen and you can adjust the maximum magnification amount, and enable or disable other settings. Display & Text Size lets you make things easier to see in a number of ways, from increasing the size of text to making it bolder, reducing transparency and more. You can also use your device to make it easier to see things in the real world by activating the Magnifier. This works with your camera and lets you zoom in on hard-to-see text. We show you how to use it in our Mini Workshop, below.

• The **VoiceOver** setting provides a spoken description of almost everything, including buttons, menus, notifications and even details such as your screen dimming. Once enabled, tapping an item tells you what it is, and double-tapping actions it like a normal tap. You can adjust the speaking speed. If you don't need that level of description, the Spoken Content feature can read out selected text or the screen's content, and provide typing feedback. Enable Audio Descriptions and these play automatically when available.
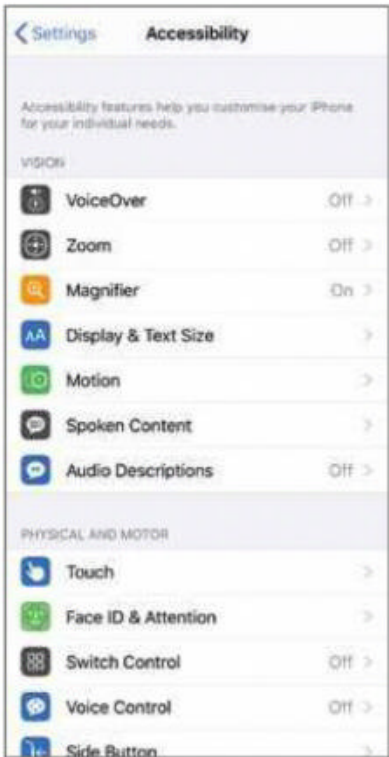
Apple's mobile operating system has a dedicated Accessibility section
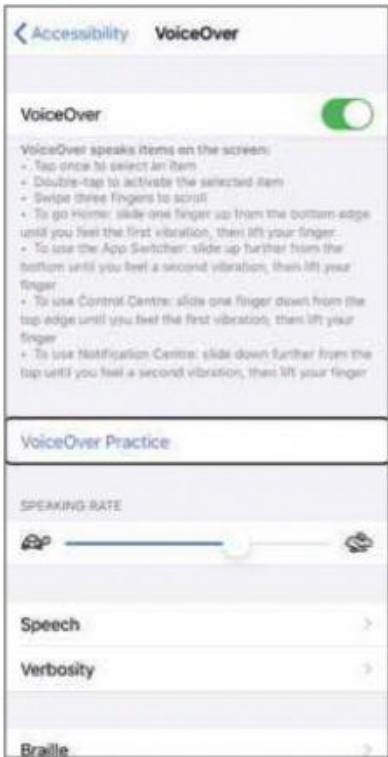
VoiceOver provides an audio description for almost everything on a device
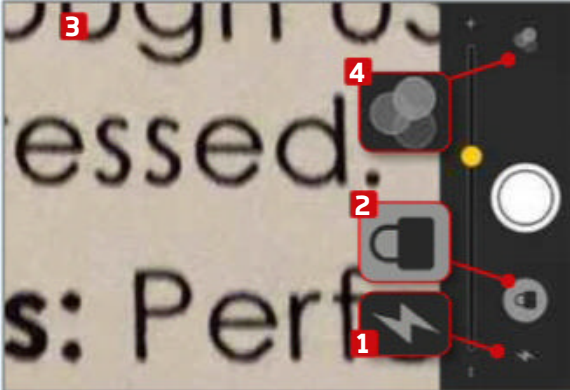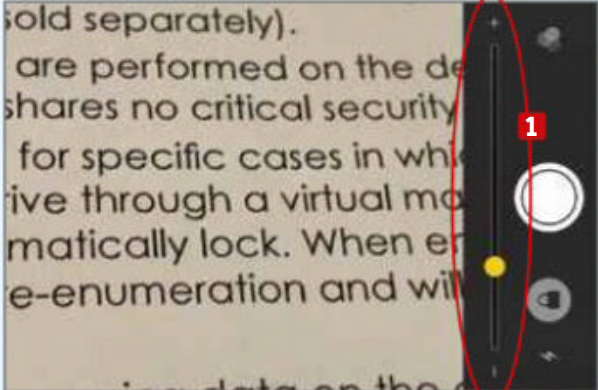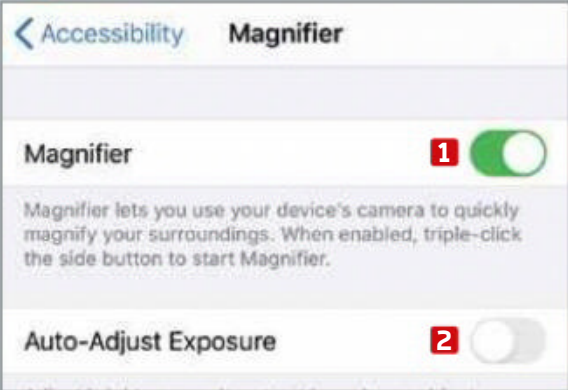
Motor iOS has settings to help users with physical or motor problems

• Options in the 'Physical and Motor' section make Touch easier to use and let you manage features such as 'Tap to Wake', 'Shake to Undo' and Vibration. There are options for Face ID and Attention (on devices that support it). Switch Control lets you set up your phone to work with adaptive accessories.

• Anyone who has difficulty interacting with the device through touch can enable **Voice Control** and use spoken commands. For devices with a side button, such as the iPhone X and newer, you can use it to manage the click

speed and other settings, and enable keyboard features such as Sticky Keys and Slow Keys.

• Under **Hearing**, you can connect a compatible hearing aid, switch to mono audio, enable phone noise cancellation and set LED flashes for alerts, as well as enable closed captions and subtitles.

• Finally, iOS has options for **Guided Access** (which keeps the device in a single app and controls what features are available), Siri and Accessibility Shortcuts. ◾

🛠 MINI WORKSHOP | Use the Magnifier feature in iOS

1 Smartphones can come in handy for making small text in the real world easier to read. Use the zoom controls in the camera to view text or take a picture and then zoom into the image. iOS also has a useful Magnifier option. Enable it in Settings, Accessibility, Magnifier. Toggle Magnifier on **1** and the optional auto-adjust exposure setting, **2** if required.

2 Open your device's camera and point it at the item that you're having difficulty seeing. Summon the Magnifier by pressing the button three times. The view switches to a much closer one. If things still aren't clear enough, use the slider **1** to zoom in or out as required.

3 Tapping the flash button **1** puts the phone light on to make things easier to see. You can lock the focus **2** and freeze the display. **3** Tapping the overlapping circles **4** lets you adjust the brightness and contrast, and quickly invert the colours. You can also choose from a number of vision-friendly presets, such as white/blue, yellow/blue and greyscale.

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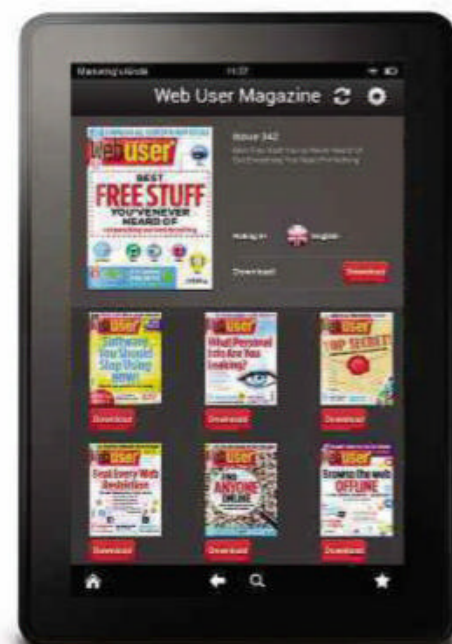
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STEP 4 Enter your Apple ID password to confirm

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Launch Windows programs directly from the taskbar

A few icons appear at the left side of the taskbar by default, such as Explorer, Microsoft Store and Mail, but you can add more if you want. Run a program by launching it from the Start menu, then right-click the taskbar icon and select 'Pin to taskbar'. Launching an app from the taskbar is much quicker than having to find it in the Start menu.

You can use keyboard shortcuts to launch your apps from the taskbar: Win+1 for the first app on the left; Win+2 for the second and so on. If you have a lot of program icons in the taskbar, it can be easy to get the number wrong, so click and drag your most used tools to the left of the taskbar and leave the lesser used ones further along on the right.
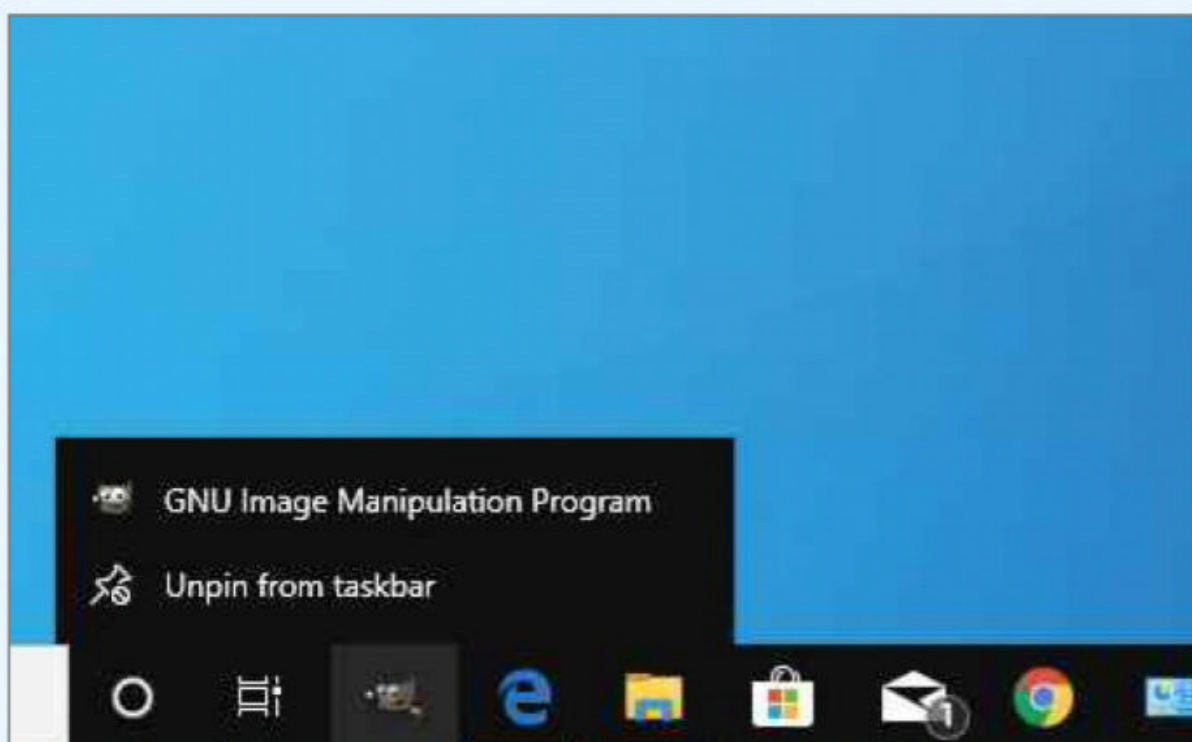
Add programs to the taskbar and start them with Win+1, +2, +3 and so on

Access Start menu shortcuts

Left-clicking the Start button displays the Start menu but, if you right-click it, you get a different menu containing shortcuts to tools that let you configure Windows and repair faults, such as Device Manager, System, 'Apps and Features', Disk Management and more. Some options are for advanced users only, such as Event Viewer and Windows PowerShell. Microsoft can't decide what should be on this menu and sometimes changes it with Windows updates.

Choose taskbar icons

Some icons appear at the far right of the taskbar in the notification area but there are often more hidden in a pop-up panel

– click the arrow to see them. If a frequently used icon is hidden in this panel, you can move it to the taskbar where it's easier to access.

Press Win+i and select Personalisation, then Taskbar. Scroll down and click 'Select which icons appear on the taskbar'. Use the switches


Choose whether icons appear in the notification area or are hidden from view

to choose whether an icon appears on the taskbar or can be stowed in the pop-up panel. You can also click and drag icons between the taskbar and panel to move them.

Hide system icons

System icons – such as the clock, power and volume – are displayed to the right of the notification area. Open Settings, Personalisation, Taskbar and click 'Turn system icons on or off'. You can use the switches to show or hide items – for example, if your computer has keyboard buttons for adjusting the audio volume, you can choose not to display the Volume system icon.

Show or hide taskbar badges

Some icons on the taskbar can display badges, which means they can be overlaid with a number. This is useful with the Mail app, for example, so you can see the number of unread emails waiting in your inbox.

If you're not seeing any badges, open the Settings app and click Personalisation, then Taskbar. Turn on

---

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.

---

the switch under 'Show badges on taskbar buttons'.

Shrink taskbar items

The taskbar can become crowded on a small laptop screen and you might want to get rid of the search box to free up space. Right-click the taskbar, go to Search and cick 'Show search icon'. It's replaced by a magnifying-glass icon, which you can click when you want to search for something.

If you don't want even the magnifying-glass icon cluttering your taskbar, right-click the taskbar and select Search, then Hidden to remove it. When you want to search for something, click Start and begin typing.

Another way to make room for more icons on the taskbar is to use smaller icons. Open Settings, Personalisation, Taskbar and enable 'Use small taskbar icons'. Remove the Explorer icon – you can just press Windows+E to open it.
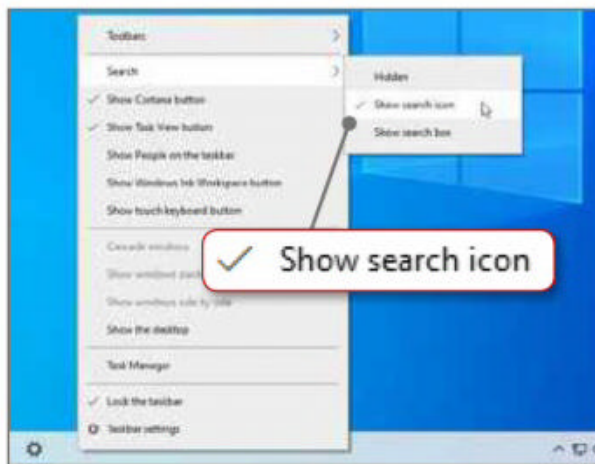
Shrink the search box to an icon to make more room on your taskbar

Annotate screenshots

Right-click the taskbar and select the Windows Ink Workspace button. A new button appears on the taskbar and clicking it shows two options: Whiteboard or Full Screen Snip. Whiteboard is an app with various drawing tools that can be used to create and export illustrations, so you can share them with others.

Full Screen Snip takes a screenshot and opens the image in the Snip & Sketch app, which can be used to draw, annotate and edit it, before you save it.

Add people to the taskbar

Right-click the taskbar and select 'Show People on the taskbar'. Click the new People icon to see suggested contacts from Outlook email, Skype and Calendar. It aims to make it easier to access your contacts – you simply click People, click a contact and see their details or send them an email. However, this feature only shows contacts stored in your Microsoft apps and services, not elsewhere, such as in Gmail and Google Contacts.

Improve Windows Search

The taskbar search box can find files, documents, emails and even search the web. You can extend the search parameters to make it find more things. Open the Settings app and click Search. In the Permissions & History section, choose Strict, Moderate or Off for the adult-content filters, as you prefer. This mainly affects the Web tab in the search results panel.

Select Searching Windows in the Settings sidebar, then select Enhanced under Find My Files. This indexes all files on the hard drive and it means that taskbar searches will find files outside of the normal Documents, Pictures, Music and Videos folders. If there are folders you don't want included in searches, click 'Add an excluded folder'.
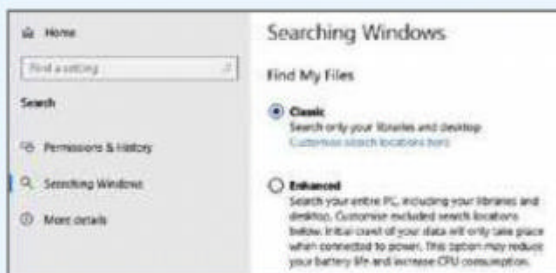

Choose between Classic and Enhanced searches in the taskbar

Use taskbar tasks and jump lists

Pinning programs to the taskbar makes it easy to launch them, but you also get a right-click menu of actions. For example, find the Calculator app on the Start menu, right-click it, select More and click 'Pin to taskbar'. Now, right-click the taskbar Calculator icon to open a menu that lets you choose standard, scientific, programmer or date-calculation mode. Right-clicking a browser's taskbar icon may offer normal and incognito windows.

Right-clicking some taskbar icons displays a jump list of recently opened
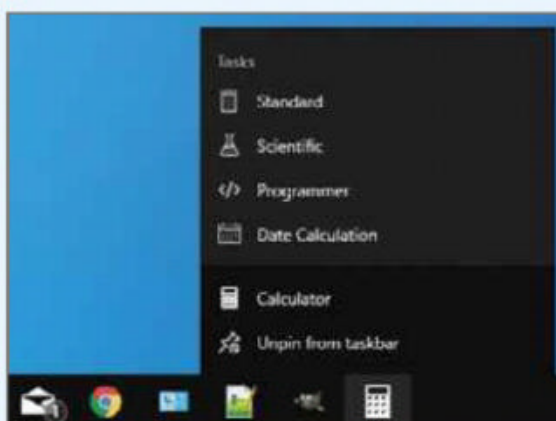
Right-click program icons in the taskbar for shortcuts to tasks and files

files, folders, websites and more. These make it easy to revisit a website or reopen a file. If you don't see a jump list, the program might not provide them – to be sure, open Settings, Personalisation, Start and turn on the switch under 'Show recently opened items in Jump Lists on Start or the taskbar'.

Add taskbar toolbars

Right-click an empty part of the taskbar and select Toolbars followed by Address or Links. Address adds a browser address box to the taskbar and you can enter website URLs to launch a browser and visit the site.

Links shows browser bookmarks stored at C:\Users\YourName\Favorites\Links or C:\Users\YourName\Favorites\Favorites Bar. Unfortunately, these seem to mirror Internet Explorer's Favourites Bar, rather than any of the usual popular browsers. However, you can drag a website URL from Chrome's address box and drop it in this folder to add it.

Create your own toolbar

Any folder can be turned into a taskbar toolbar that lets you access its contents from a menu. For example, right-click the taskbar, go to Toolbars and select 'New toolbar'. Browse the hard drive and select a folder, (the Documents folder is selected by default but you can choose another).

The folder's name appears on the taskbar and clicking the double-headed arrow next to it shows a menu. Folders become sub-menus and clicking a file opens it in the associated program. To remove it, right-click the taskbar, go to Toolbars and deselect the one to hide.

Switch taskbars

Switch (bit.ly/switch489) adds extra taskbars, which is useful if the main taskbar is full. Run it and it appears on the right of the screen. Click an empty spot and select a program to add to it. The taskbar auto hides and pressing Alt brings it back. We found some task switching bugs but it's fine for starting programs.

Add an extra taskbar to the Windows desktop

Ask the Expert

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

Save iPhone photos to your PC

Q Can you explain how to save photos taken on an iPhone to a Dell computer, please? Is it possible to just treat it as an external storage device, or is a specialist program or app needed to do this?

On a slightly different but related matter, I believe I read that iPhones capture photos in a unique format and that it's necessary to alter some setting to save them as JPEGs. As I am well over 70, I would appreciate some simple instructions, if possible.

Alan S, via email

A There are several ways to transfer photos from an iPhone to your computer. If you store photos in iCloud, you can log into the www.icloud.com website on your computer and open the Photos app. Browse your photos and select the ones you want to download, then click the cloud icon to download them as a zip file.

Another way to transfer photos is to install the OneDrive app on your iPhone. Open the app, tap the plus button at the top and select the photos you want to upload to OneDrive. Windows 10 has OneDrive built in, so uploaded photos will automatically appear on your PC's hard drive in the OneDrive folder.

You can use other online drives, such as Google Drive and Dropbox, if you prefer. All these online storage services have options you can set for automatic photo upload that sync your mobile device, online drive and PC as you take your snaps.

The iPhone saves photos as HEIF files (High Efficiency Image Format), though the file extension is actually '.heic'. You can also take Live Photos on the iPhone – they look like a very short video with about a second of movement before the still shot. Photos downloaded from the iCloud website on a PC are automatically converted to JPEG images (static photos) and MOV movie files (Live Photos), so there are no file format problems.

Photos that aren't transferred using an online drive remain in their original file format. If you can't open a photo, search the Microsoft Store app in Windows 10 for `HEIF` and install the free extension. Because Live Photos taken

You can choose the file format used for iPhone photos in the camera settings

on the iPhone are like a video, they require Windows HEVC extensions, which cost 79p.

GIMP (www.gimp.org) is a free photo editor you can use to edit HEIC photos, and an image-conversion tool such as IrfanView (www.irfanview.com) converts HEIC to other file formats, such as JPEG.

If you'd rather your photos were saved as JPEG files as soon as they're taken, open Settings in your iPhone and go to Camera, Formats, then select Most Compatible. In the camera app, there's a button you can use to switch off Live Photo if you don't want it to save the video part of the photo.
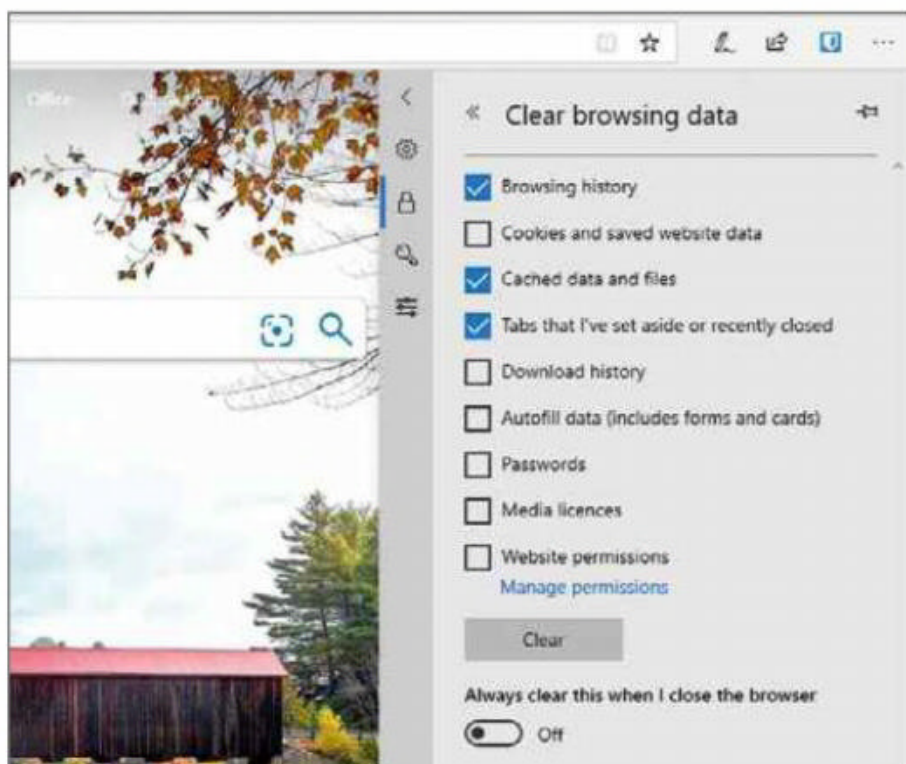
Clearing cookies logs you out of websites, so make sure you know your login details

Safely clear browser data

Q In the Web User Masterclass in Issue 486 (bit.ly/webuser486), I followed the instructions in advanced tips and got the following: "Your stored cookies, site data, and cache are currently using 2.8MB of disk space". I decided to free up the 2.8MB but a box appeared stating that I would lose various caches and so on, and the consequences looked rather dire if I carried this out, so I did not proceed. Can you explain what, if anything, is likely to happen?

fossewayfella, via email

A Cookies and other browser settings are stored for your convenience – nothing more – and most people can

live without them. However, clearing them can cause a major problem in certain circumstances, which is why you are given a warning before they are removed.

If we type `mail` into the address box of our browser and press Enter, Google Mail appears a second later and displays our email inbox. If cookies and other data are cleared, we have to type the full mail.google.com address into the browser, which takes longer. Google then requires us to log into our account and asks us to type in our email address. In the next step, we have to enter our password and, after that – because two-factor authentication (2FA) is enabled – Google sends us a text message, so we have to find our phone, unlock it, read the message and copy the code into the computer. Finally, the email inbox is displayed.

These extra steps mean it can be very inconvenient when cookies and other browser data are cleared. Multiply this by the number of websites you log into and you can see how it can really mess up your day. And if you don't use a password manager and can't remember your password, or you don't have your phone on you to read the 2FA security text that is sent, you wouldn't be able to get into your account. This is why a warning appears when clearing cookies.

Cookies are useful but clearing them is no worse than buying a new computer, which won't have any cookies on because it's never been used. If you have a password manager to store your website logins and your phone is within reach for sites that use 2FA, nothing bad will happen.

SOFTWARE
Create an essential PC toolkit

Q After buying your magazine for the last few years, I decided to start taking note of the programs I want to install on my PC. I'm not technically minded, so I was wondering if you could please look at this list and tell me if I should install the following and confirm that they are easy to use: Pegasun System Utilities (pegasun.com/system-utilities), SUMo (bit.ly/sumo489), AdwCleaner (www.malwarebytes.com/adwcleaner), Driver Booster Free (bit.ly/driboo489), uBlock Origin (bit.ly/ublo489), Restore Point Creator (bit.ly/repc489), Patch My PC (patchmypc.com/home-updater-download), CCleaner (www.ccleaner.com) and Spybot (www.safer-networking.org).

Are any of these programs duplicates? Are there any simple programs you could recommend that aren't on my list? Bear in mind that they have to be easy to use.

I currently have Kaspersky (www.kaspersky.co.uk) on my PC and run a NordVPN (www.nordvpn.com). I want to uninstall Kaspersky when my subscription runs out because it intermittently seems to stop my internet working – I sometimes have to turn it off to get online – so I was looking to install Comodo (bit.ly/como489) instead.

Peter Lang, via email

GENERAL PC
Get the clipboard back

Q I have not been able to try the interesting features in your thorough and informative Clipboard Masterclass in Issue 484 (bit.ly/webuser484), on either Windows or Android. This is because Windows Clipboard History hasn't worked for several weeks and I don't know how to get it back.

Clipboard History and syncing is always switched on in Settings. When I copy something, I get the audible click to notifying that a clip has been made and, until today, there was also a visual notification, though this has now stopped. However, when I press Win+V, I don't get a list of what's been copied.

I know my copies are successful because I use a useful third-party app, ClipClip (clipclip.com), which displays them. ClipClip is very good and I recommend it to others, after having found it in *Web User*. I now depend on it for all my cut-and-paste activity and will certainly keep it, at least as a backup. It's very versatile.

Even so, I want Clipboard History back for several reasons, not least because of its ability to sync with other devices, including my Android phone and tablet. ClipClip is great but it isn't able to sync to Android.

Christopher Clayton, via email

A Let's start with the basics. Open Settings, System, Clipboard and enable all the options to use clipboard history and syncing between your computers and devices. These features may be blocked by privacy settings, so open Settings, Privacy, Activity History and turn on all the switches, so the clipboard can be synced via your Microsoft account.

Some people find that restarting Explorer works. Right-click the taskbar and select Task Manager, select the Processes tab and find Windows Explorer, then right-click it and select Restart.

Press Win+R and type `regedit` to open the Registry Editor. Go to:
HKEY_LOCAL_MACHINE\
SOFTWARE\Policies\Microsoft\
Windows\System

On the right, we have nothing and clipboard history works fine. However, some people find adding the following values solves the problem: `EnableActivityFeed`, `PublishUserActivities`, `UploadUserActivities`, `AllowClipboardHistory` and `AllowCrossDeviceClipboard`.

Go to Edit, New, DWORD (32-bit) value to create them. Double-click them and set the values to 1.

*Enable the clipboard history and syncing to use multiple clipboards*

A You've come up with an excellent list of programs, all of which we would fully recommend. However, they are mostly designed to fix various sorts of specific problems and there is a saying that's worth bearing in mind: "If it 'aint broke, don't fix it".

Driver Booster, for example, finds and updates hardware drivers more easily than if you had to hunt down and apply them yourself, but it should only be used if you are experiencing a hardware problem. The same is true of some of the other tools. AdwCleaner and Spybot prevent or clean spyware and adware, but are only useful if your PC is infected with spyware or adware.

Pegasun System Utilities and CCleaner clean caches, cookies, temporary files and so on. They can be useful on an old PC that's accumulated a lot of junk files, but there's little benefit on a new PC. And, as explained in our reply to fossewayfella on page 66, cookies and caches can be useful and fix problems in some circumstances.

Our advice is to keep the software as a list. If you have a problem you need to fix, download and use the appropriate tool, but don't install and run them all on a PC that is working properly.
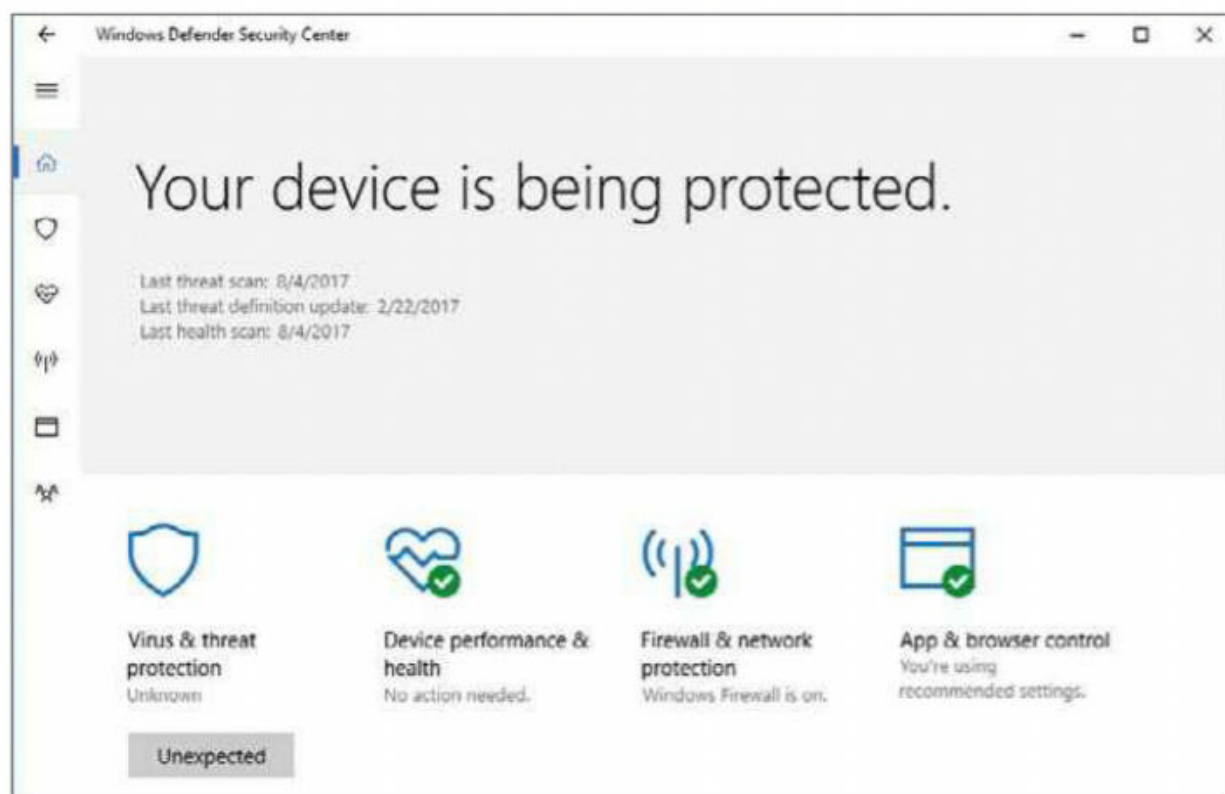
Windows Defender is much better at protecting PCs from malware than it used to be

Kaspersky shouldn't stop the internet working, but sometimes odd things can happen with software, so it may be worth trying an alternative program. Tests of the latest security software can be found at AV-Comparatives (www.av-comparatives.org/consumer) and AV-Test (www.av-test.org/en).

The usual suspects are all good performers, such as Avast (www.avast.com), AVG (www.avg.com), Bitdefender (www.bitdefender.co.uk), Avira (www.avira.com), Norton (www.norton.com), Trend Micro (www.trendmicro.com) and others. Windows Defender now offers good malware protection, but the others we've listed offer extras that aren't available in Microsoft's tool.

Don't overfill your inbox

Q I have read on several occasions – perhaps you've mentioned it in *Web User*, too – that you should regularly clear out the trash in your email account and delete old emails. Why is this? They are not doing any harm as far as I can see. Why not just leave them? I use Outlook and Gmail.

Ray Holmes, via email

A One reason for clearing out old emails is because many people use free online storage and the space provided is capped. Both Google and Microsoft limit you to 15GB of free storage, and you can end up using it all for emails, particularly if you receive a lot of attachments. When this happens, you'll no longer receive any messages because they'll be deleted on arrival. What's more, you might not realise this is happening until you wonder why an important email that you know has been sent fails to arrive.
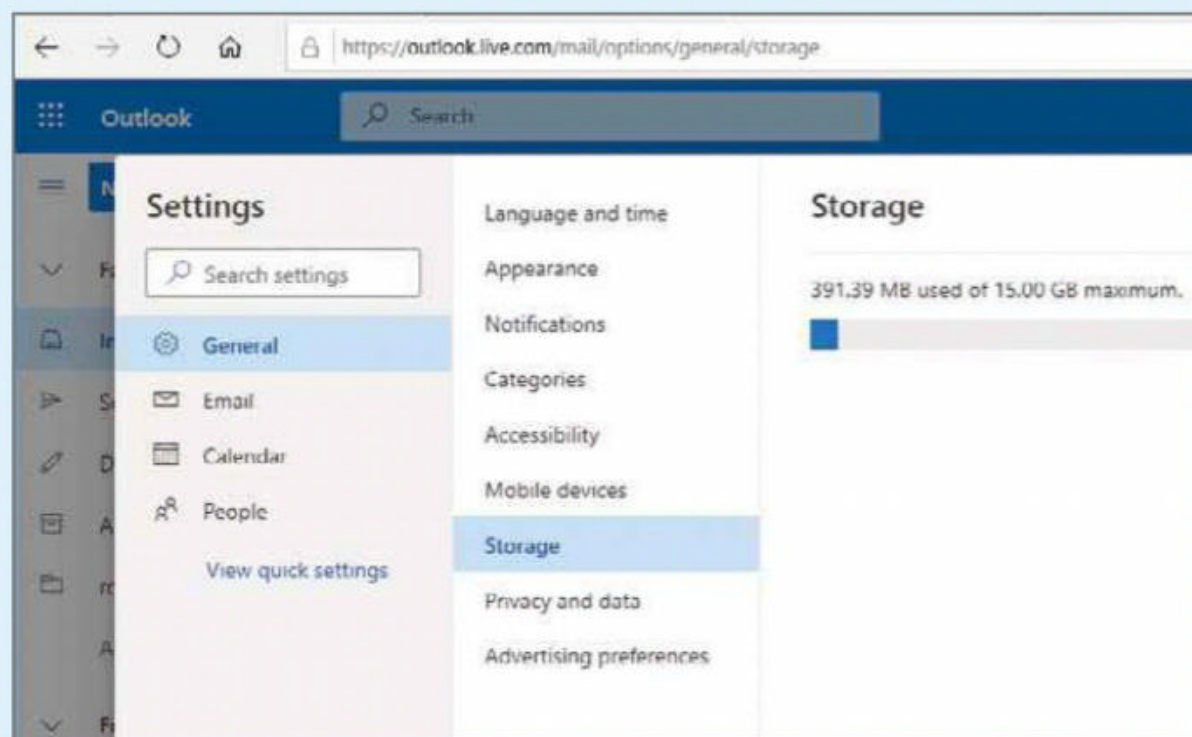
Check that the amount of storage used for email isn't reaching full capacity or you might lose your messages

Go to drive.google.com and click the Upgrade Storage link on the left. Ignore the sales pitch at the top and scroll down to the bottom to see your Google Drive usage. The overall space used and the amount used individually by Gmail, Drive and Photos is listed. Make sure you have plenty of space.

Go to outlook.com and click the cog icon at the top. Click 'View all Outlook settings', then select General and Storage to see the amount of space used. Unlike Google's services, where Drive, Gmail and Photos share the same pool, email storage is kept separate in OneDrive.

This fortnight Roland has been watching a lot of online TV, claiming that he's "evaluating streaming services"

Readers' Helpdesk

Can you help your fellow readers with their computer problems? Send your questions and answers to webuser@webuser.co.uk

READERS RESPOND

MOBILE
Speed up Android

Q My Android phone is only a couple of years old but it's become very slow of late. Switching or opening apps takes an age, and closing a web page even longer. I'm not one of those 'power users', but it's driving me to distraction. Has this happened because it's now considered an old phone? Surely Google can fix this.
Todd Churchill, via email

A It's possible that your hardware is out of date but another reason for a sluggish Android is that the phone has been used a lot and become cluttered with data and apps that slow it down. Start by uninstalling any apps you don't use and replacing large apps such as Facebook with lightweight versions. Then, open Google's Files app and delete junk data. You could also try turning off animations using 'Developer options'.

To force 'Developer options' to appear, go to Settings, System, then About. Find your phone's build number and tap it seven times. Now, go back to Settings – near the bottom, you'll find 'Developer options' within which there is an option called 'Transition animation scale'. Select 'Animation off' and see if your phone is any speedier.
Steve Clark, Features Writer, Web User

Try changing this setting if Android feels sluggish

GENERAL PC
## Stop the 'IT administrator' error

Q I've tried to turn on Windows Defender's new Tamper Protection but I get told I need administrator privilege. The pop-up says: "Your IT administrator has limited access to some areas of this app, and the item you tried

YOUTUBE
Watch YouTube's tech channels

A In Issue 487 (bit.ly/webuser487), Mike Keese asks for some YouTube channel suggestions. I, too, had exhausted my favourite channels and am not keen on loud presenters. However, I can heartily recommend Techmoan (bit.ly/techmoan489), who offers glimpses at all sorts of old tech. If Mike, or anyone else, is interested in vintage gaming, try LGR (bit.ly/lgr489). He reviews games from the 1990s, looks at the rise and fall of tech
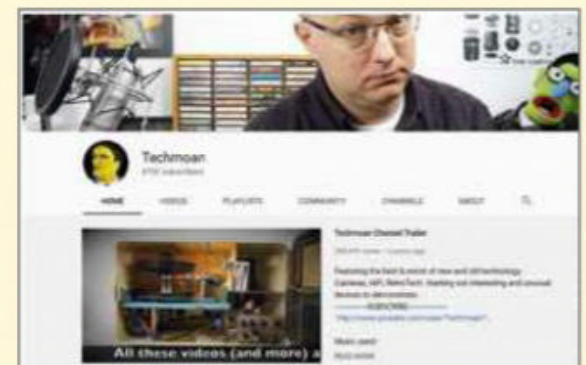
Tell us which YouTube tech channels you'd recommend

companies and his 'Oddware' reviews are fascinating. I find both channels informative and very well produced.
Joe Lillard, via email

CAN YOU HELP?
webuser@webuser.co.uk

You can seek help or suggest solutions to other readers' problems by emailing webuser@webuser.co.uk or via www.facebook.com/webusermagazine or twitter.com/webusermagazine.

GENERAL PC

Q Every time I tried to get the new Windows 10 November Update, I got to error code 0x80073712. What does this mean and how can I fix it?
MR Kline, via email

MOBILE

Q Why do I keep getting notifications that one of the email accounts on my phone needs permissions for Cloud Print? It doesn't appear to do anything.
Lee Burr, via email

to access is not available. Contact IT helpdesk for more information". However, I'm connecting at home and my account is already set as an Administrator account. I've even tried opening with Ctrl+Shift+Enter, but that doesn't work either. I also get the same problem with Find My Device, which may be related. Any help would be most appreciated.
John Shambrook, via email

A The two most common reasons why you're seeing this message are your group policy settings and interference from antivirus software. If it's the latter, just check that Windows Defender is enabled in your group policies. Tamper Protection is part of the Windows Defender settings, and different antivirus tools don't always play well together.

When using anything except Defender, uninstall or temporarily disable it, then switch on the setting.

If you're still seeing the message, try again using the hidden admin account. Open Command Prompt in Admin Mode. Enter `net user administrator /active:yes` to make the second account active. Sign out of your usual account and into this one, then try to change your Tamper Protection settings.
Steve Clark, Features Writer, Web User

Do you have permission to tamper with Defender's Tamper Protection setting?

Your Top Tips

Our pick of the best advice from our readers. Please send questions and answers to webuser@webuser.co.uk

TOP TIP

BROWSERS

Remove Chrome's tab hover cards

In the last issue of *Web User*, you mentioned Chrome's new tab hover cards. They sounded like a good idea but after about two minutes they started driving me crazy and I had to work out how to get rid of them. Luckily, it's a pretty straightforward process, although you do have to use the experimental flags tool, so proceed with care!

Start by opening Google Chrome and going to `chrome://flags`. Once there, use the search box to find `tab hover cards`. You're taken to a screen with a bit of information about
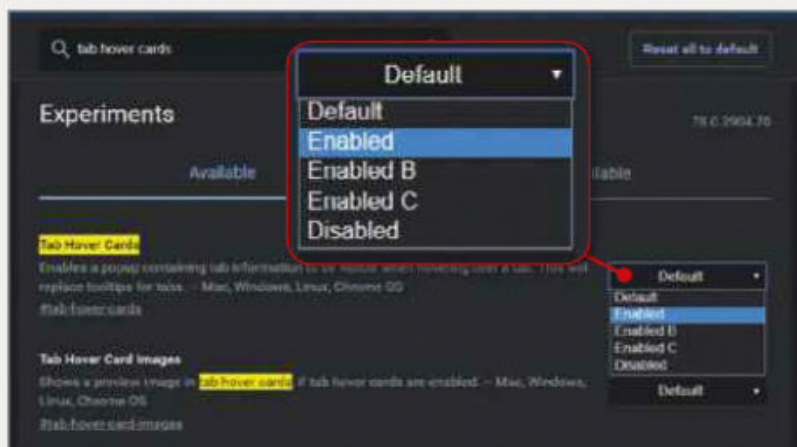
Get rid of Chrome's latest feature with this Flag

how the hover cards work. Open the drop-down menu to the right and select Disabled. Finally, click the Relaunch button at the bottom of the screen to relaunch Chrome and see the changes take effect.

Alan Dunster, via email

delete automatically'. Select how frequently you want your YouTube history to be cleared. At the moment, the options are every three months or every 18 months.

Polly Devaney, via email
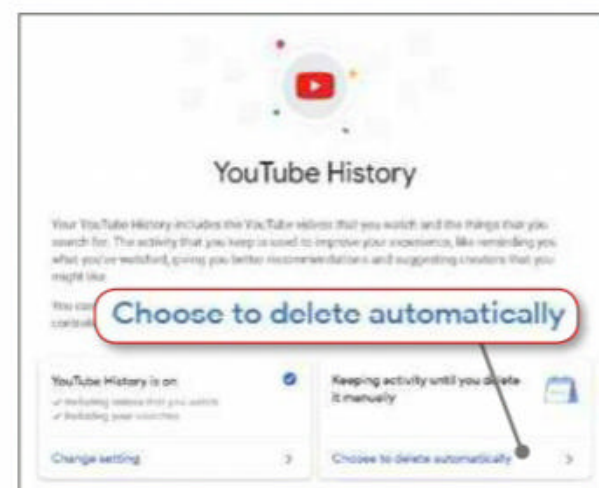
Stop Google keeping tabs on your YouTube history

OFFICE

Correct UK spellings in Word Online

One thing that irritates me in the Microsoft Word web app (www.office.com) is that spell-checking defaults to US and not UK. This means it underlines 'colour' as wrong because it's expecting the US spelling 'color'. To fix this, press Ctrl+A to select all the text in a document, then click the Review menu. Click the arrow to the right of Spelling &

Writing in Word online? Don't forget to set the spelling to UK English

Grammar, then click Set Proofing Language and select English (UK) in the language list.

It would be useful if UK English could be set as a default but it seems you have to change the spelling to UK in every document you create.

Tom O'Neill, via email

VIDEO

Automatically clear your viewing history

I often watch YouTube on our family PC and my kids sometimes take the mickey out of me for my old shows and music. I decided to clear my history, then found out that you can actually get YouTube to delete your viewing history automatically, which makes life slightly easier.

Go to bit.ly/youcontrol489 to access the settings page for watching YouTube, then click the link to 'Choose to

PHOTOS

Rotate images with a right-click

Is anyone else supremely frustrated when you need to rotate an image the right way up? Most of the photos taken on my phone automatically show up the right way round but plenty of others don't, especially those I receive via email. To save my time (and sanity), I've started using JPEG Autorotate (bit.ly/arot489). Install the tool and it adds a new option
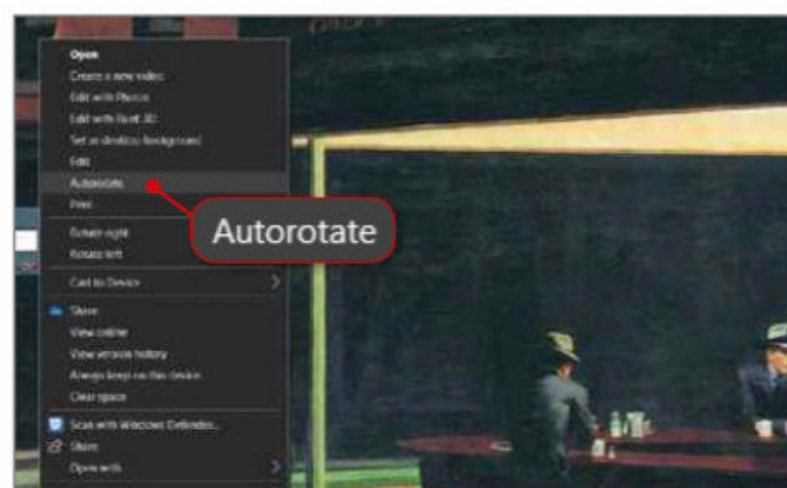
JPEG Autorotate is a simple tool that lets you rotate images with a right-click

in the context menu. Right-click your photo, select Autorotate and the tool rotates your images instantly.

Damian Andrew, via email

Defrag with every shutdown

I definitely want my next computer to have an SSD (solid-state drive) because they are so much faster than the mechanical dinosaur that's buzzing inside my current PC. However, my next PC is at least a year off, so I'll have to keep this one running as best I can.

If you still have a hard drive in your PC, it needs defragging. Windows does this automatically in the background, but I find it still leaves lots of fragmented files, so I use Defraggler (www.ccleaner.com/defraggler) to do the job. Instead of shutting down my computer from the Start menu in the evening, I use Defraggler to shut it down instead. Right-click the desktop and select New, then Shortcut. Click Browse, find the Defraggler installation folder and select 'df.exe'. Add `c:\ /QD /shutdown` to the end of the command line (note the spaces between each element) and click Next. Name it Shut Down and click Finish.

To shut down the computer, just click the desktop Shut Down icon you created. It does a quick defrag (the '/QD' parameter) and then shuts down the PC (the '/shutdown' parameter).

Mike Hardie, via email

CHROME
Automatically sort your Google downloads

Sorting through files is such a chore, but I have found a Chrome extension that makes life a little easier, by sorting all your downloaded files by date. The extension is simply called 'Organise Downloads by Date' (bit.ly/downloads489) and it does what it says on the tin, grouping your downloads into folders based on the day, month and year they were downloaded.

Graham Wooley, via email
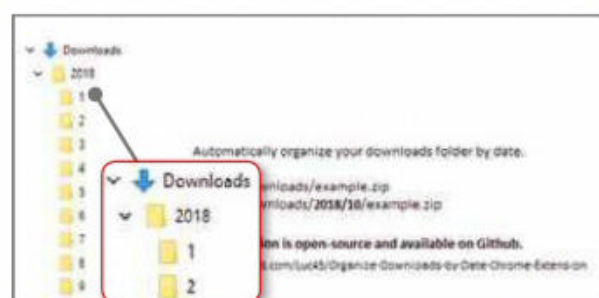
Organise your Downloads folder better

GAMING
Back up your game saves

I put a lot of hours into the games I love so I always worry about losing the save files. Recently, a mate told me about GameSave Manager (www.gamesave-manager.com), which makes it really easy to back up your PC saves. Download the tool and let it scan your computer for saves. Once it's found all the relevant files, you can choose which ones you want to back up. I haven't had to use my backups yet, but it's great peace of mind just knowing they're there!

Joe Gribble, via email

Never lose your progress by backing up your game saves

GENERAL PC
See through the Command Prompt

I don't often use the Command Prompt but, every now and then, I follow a tip in *Web User* that requires it. To make it more interesting to use, I've made it semi-transparent. Press Windows+R and enter `cmd` to open a Command Prompt window. Click the icon in the top-left corner of the window and select Properties from the menu. Click the Colours tab and use the slider to set the degree of transparency from 30% to 100%. It's pointless but fun!

Pat Lee, via email

GAMING
Join the Xbox streaming beta

I've been excited for a while about the forthcoming Xbox One streaming feature, so I jumped at the chance to join the beta and try it first-hand. The idea is you can stream any game to a mobile or tablet device and, as a beta member, I'm already able to play with the tool. If you're registered as a beta tester, you can try it yourself by downloading the Xbox Game Streaming app (bit.ly/xbox489). Sign in with your Microsoft account, then pair your controller with the mobile device that you're using. The app walks you through the process.

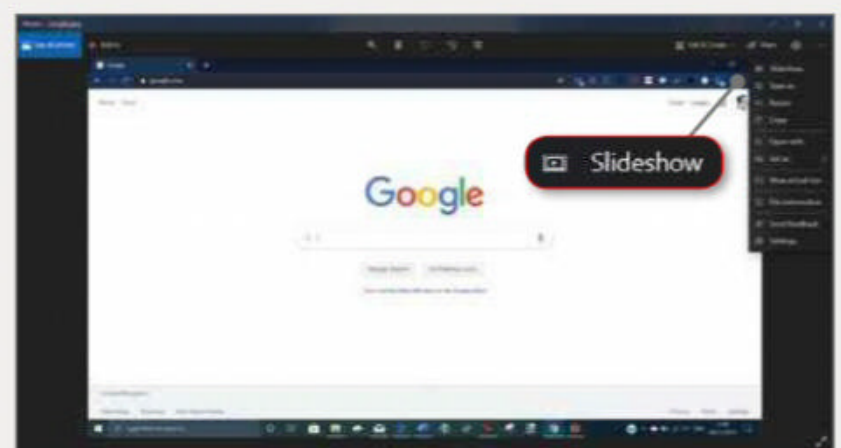**Dylan Jakeway, via email**
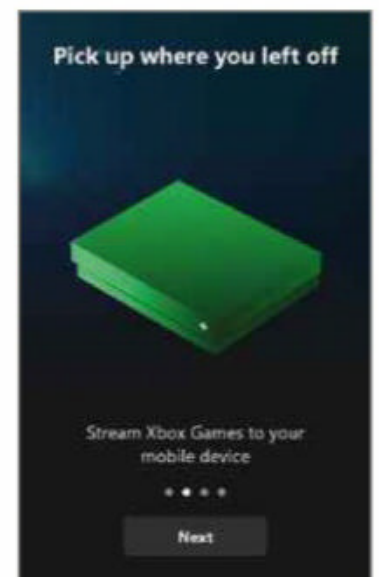
Play console games on your phone

BLUNDER OF THE FORTNIGHT

PHOTOS
Display your images as a slideshow

I have always enjoyed showing off my snaps to my family but I've never been very organised about it. I used to flick through the pictures one by one, which meant that people had to sit through every boring image to get to the good ones. Recently, I realised that I could have been creating my own slideshows using the Photos app.

First, you need to make a new folder that contains only the images you want to show, then click to open the first photo. It should take you straight to the Photos app, unless you have a different image viewer set as the default, in which case right-click the file, choose the 'Open with' option, then select Photos.

Once it's open, look for the three-dot button in the top-right corner. The first option is Slideshow. Click it and it starts a slideshow of all the photos in that folder. Navigate using the left and right arrow keys.

Jack, via email

Spend a little time making sure your next slideshow only displays your best photos

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

Inbox

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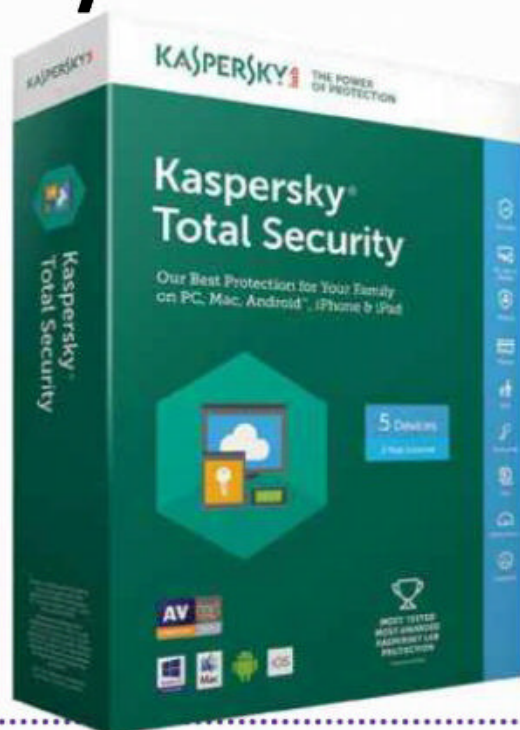and www.twitter.com/webusermagazine

Star Email

Don't get ripped off by auto-renewal

I thought I should warn readers about Kaspersky's automatic licence-renewal process.

When you sign up for a new antivirus subscription from Kaspersky, you are asked if you would like auto-renewal, so you're not left vulnerable by your antivirus protection going out of date. This is fine and works well, but what they don't tell you is that they will always charge you the full price, which at the time of writing is £39.99 for Kaspersky Total Security.

Many people will just let the auto-renewal process run year after year, without thinking to check how much the program would cost if they renewed it themselves as required. Without searching too hard, you can renew the licence manually through Kaspersky's own website for £27.99. That's an effortless saving of £12.

This caught me out once, so I complained to Kaspersky and they refunded me the difference, but how many people are getting bamboozled by this? I now wait for the reminder emails, then renew the licence myself. You get countdown emails so it's not difficult to remember.

Alistair M, via email

Always check your Spam folder

I was interested to read your 'Block spam messages and calls forever' feature in Issue 486, but I was surprised you didn't mention how to deal with so-called 'false positives' – when perfectly harmless and sometimes important messages are wrongly classified as spam by your email provider and filtered into your Spam folder without ever reaching your Inbox.

I have often had emails that fail to materialise, despite the sender insisting they have been sent. On checking my Spam folder in Gmail, lo and behold they are there, complete with a warning across the top. Clicking 'Report as not spam' restores the message to its rightful place in my Inbox.

I would recommend that everyone checks their Spam folder regularly, because you don't know what messages you may have missed. Gmail generally does a very good job of identifying which emails are junk and which aren't, but it doesn't always get it right.

Peter Aldred, via email

Block scam calls using 1572

Your news story in Issue 487, 'New warning over 'Microsoft tech-support scams', reminded me of a simple solution to this problem. Only this morning, I received a call on my house phone reminding me that my Amazon Prime account was due for payment and it would be closed if I failed to deal with it.

I do not have an Amazon Prime account, so I put down the receiver and phoned 1572, which put me through to BT's Call Protect number-blocking service. It's very easy to use and I am sure readers will find this useful.

Eric Page, via email

Please include more Linux apps in *Web User*

I have been a Linux Mint user for around 12 years, and a *Web User* reader for longer than that. So I hope I know what I'm talking about when I say that Linux users can be left feeling shortchanged by *Web User*.

Although much of your magazine focuses directly on the web, where it doesn't matter which operating system you use, some sections are almost totally Windows-based. For example, in the Best Free Software section, Linux applications are only referenced if there is a Linux version of a Windows program. How difficult would it be to at least reference

Quiz Answers: Issue 488

| #		
1	The pen is mightier than the sword	
2	Don't blow your own trumpet	
3	Curiosity killed the cat	
4	Don't cast pearls before swine	
5	A fool and his money are soon parted	
6	Money doesn't grow on trees	

an equivalent Linux application in the header when the program is only for Windows?

Under 'Other Operating Systems', Mac applications are occasionally referenced, but only Linux distributions. Most Linux users are not 'distro hoppers', but tend to choose a distro and stick with it – and most Linux applications work with most distros.

I acknowledge that Windows isn't going to lose its market dominance any time soon, but please can I put a plea in that when *Web User* publishes a Windows-based feature, it signposts a Linux alternative, too?

Tony Franks, via email

Get more apps for Linux Mint

I was pleasantly surprised to see an article about using Linux on older hardware in Issue 487, as I currently use Zorin OS on my old PC (I dual-boot it alongside Windows 7). However, your small criticism of Linux Mint regarding how it can be improved could easily have been rectified by stating that the user can download a wide variety of free apps (multimedia and games) from the software centre.

It should also be noted that Linux Mint comes in many flavours and that installing Mate instead of Cinnamon would suit older hardware better. Having said that, it makes a refreshing change to see Linux covered in the magazine and I hope there are plans to do more in-depth coverage of Linux soon.

Staniforth P, sent using Zorin OS

EaseUS has dropped free backup options

In reference to the program EaseUS Todo Backup Free (bit.ly/ ease481), as recommended in your Best Buys section. As part of an apparently new sales strategy, this company has removed the incremental, differential and, more importantly, the 'Smart backup' options from the free version of this software.

Smart backup is now only available in the paid-for version, and the incremental and differential backups can only be set within a scheduled backup, and not as before. In view of this, you may wish to reconsider it as one of your Gold Award winners.

Alan Lambert, via email

What you say...

HAVE YOU EXPERIENCED ANY PROBLEMS WITH YOUR ONLINE BANKING SERVICE (bit.ly/bank489)?

I've never had a problem with Lloyds, the exception being planned maintenance for which you are forewarned.

Geoffrey Boow

Once, with NatWest a few weeks ago on payday, but I was able to access my account later that day.

Martin Phillp

Only once. The downtime lasted only a few hours, so it wasn't a problem.

Anthony Higham

As a TSB customer, I haven't experienced any problems for a while.

Brian Brown

Barclays often goes offline on Sunday mornings for essential maintenance but they always let you know a few days before.

Jackie King

WHAT DO YOU THINK OF FACEBOOK'S NEW COMPANY LOGO (bit.ly/ fblogo489)?

FACEBOOK

Why bother? People aren't going to change their minds about Facebook now. Its reputation is already tainted beyond repair.

Darren Graves

The sad part about their bland new logo is the waffle used to try and create the impression that this is actually meaningful and is somehow an inspired decision.

Rich Grove

A new logo to distract from the accusations of political laxity and money grubbing perhaps?

Caroline Chapman @cantstopthesgnl

BRITBOX HAS LAUNCHED IN THE UK (see page 19). WILL YOU BE SIGNING UP FOR IT?

Nope. Sky has enough repeats without us paying for any more. Netflix all the way! I predict a year from now the headline will be: 'Streaming service BritBox has closed due to lack of interest'. Mark my words!

Joey Joe Joe Junior Shabadoo @Boz1972

No. It's the same old shows shown on Challenge TV, UK Gold, ITV 4 and the like, year after year. Until they start showing something truly different, I'll stick with other services that do.

Gavin Green

Surely for us Brits, this is paying for the content twice. Licence payers should get access to it for free.

Dan Hannon @Daniel__Hannon

Why don't they make the whole BBC a £6-per-month subscription and bin the TV licence? I won't be subscribing to BritBox. It's a waste of cash for repeats of repeats.

Simon Mellor @4KBacon

Why should I – a TV licence payer for more than 40 years – have to cough up £6 a month, or £72 a year, to watch shows I've already paid for? BritBox may appeal to Americans who haven't seen these programmes before, but I won't be fooled by it.

Colin Searle

I'll certainly sign up for the 30-day free trial, just to see what's on it. Hopefully the quantity and quality of programmes justifies the price.

Sarah Beasley

If *Box of Delights* is on there, I might sign up for the free trial to watch that. But I have no desire to sit through *Gavin & Stacey* or *Doc Martin*.

Ben Walbridge

⚠ Page 404

Barry Collins is bemused by Microsoft's endless capacity to repeat the same mistakes

X marks the Windows laptop to avoid

If the definition of insanity is doing the same thing over and over again while expecting a different result, someone needs to send two pencils and a pair of underpants to Redmond to go full-on *Blackadder Goes Forth*.

Cast your mind back to 2012, when Microsoft launched Windows RT (the RT stands for Really Terrible). RT, which launched alongside Windows 8, was the version of Windows designed for devices with the kind of ARM-compatible processors you find in phones and tablets. The theory was that these devices would offer much longer battery life, the trade-off being you couldn't run most of the traditional Windows apps that are coded to work with Intel/AMD's x86 processors.

Windows RT turned out to be as successful as Bill Oddie's swimsuit calendar (don't Google it). The poor chumps who bought an RT device quickly discovered they had a Windows PC that couldn't run Windows apps and promptly took it back in their droves. Return rates went through the roof and

RT was quietly taken out the back and shot, never to be seen again.

Never one to be disheartened by an outright disaster, Microsoft is now having another stab in the form of the Surface Pro X. Once again, it's a foldy tablet-cum-laptop thing that looks absolutely lovely – although I've always had my doubts about that clip-on keyboard, which never sits comfortably when you're typing on your lap.

This is a Windows 10 Home device, not Windows RT, but it's saddled with the same dirty secret – it's using an ARM-compatible processor, which means it can't run many everyday Windows apps. If you look at Microsoft's website for the Surface Pro X (bit.ly/surface489), you'll do well to notice it's anything but a regular Windows laptop. But there – midway down the page in a discreet grey box – is the small warning that "App compatibility may vary on a

> ❝ Windows RT turned out to be as successful as Bill Oddie's swimsuit calendar (don't Google it) ❞

Windows 10 ARM-based PC".

What does that mean in practice? Any app you wish to run on the Surface Pro X has to have been rewritten to run on 64-bit ARM processors. That essentially leaves you with a handful of apps, mainly ones that Microsoft makes itself, because few other developers can be bothered to go to the cost and complexity of recompiling apps that are going to be used by 0.1% of their customer base.

So, Microsoft is working around this with an "emulation layer" – a piece of software that takes traditional Windows apps and translates them on the fly to run on the ARM processors. That may sound clever, but like someone translating a speech from French to English, it slows things down. That's just about acceptable when it's something simple like a web browser or word processor, but it falls apart at the seams when it comes to heavyweight apps such as Photoshop or 3D games, which – according to early reviews – are completely unusable on the Surface Pro X. Worse, if a Windows app is already 64-bit, as many are, Microsoft's emulator won't work at all.

So, once again, you've got a Windows device that won't run many Windows apps. That might just about be forgivable if this thing cost around £400, the price of a similarly hobbled Chromebook. But it starts at £999, going all the way up beyond £1,800 for the top-of-the-range spec.

I'll bet my right ARM they'll be filling skips with all the returned Surface Pro X devices once buyers work out they've been hoodwinked again.

➕ Do you agree? Let us know at webuser@webuser.co.uk

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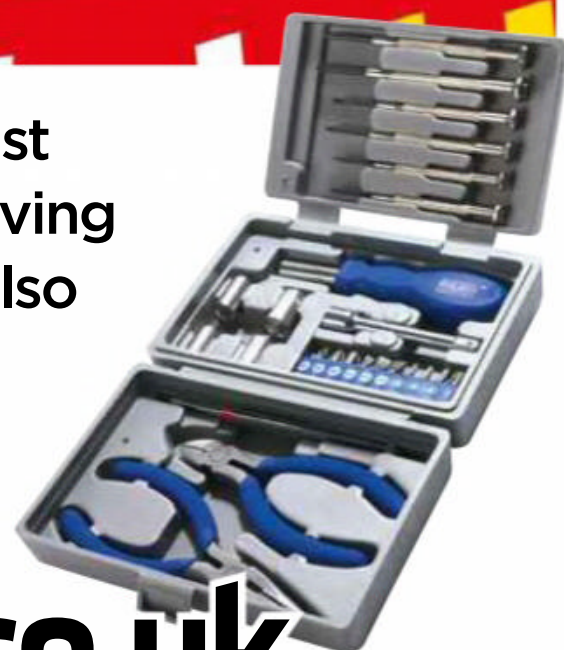
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