Is Your ISP Ripping You Off?

7 ways you can check
see page 48

Virgin media · sky · EE · EE · BT
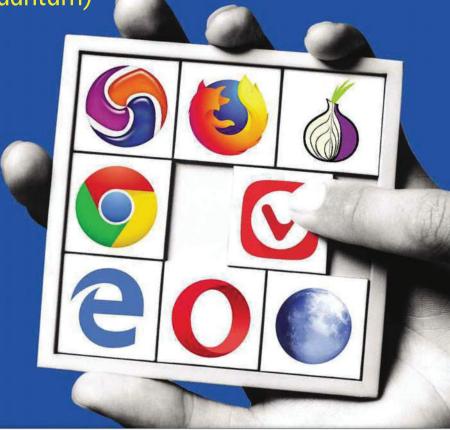
SWITCH YOUR BROWSER NOW

Ditch Chrome for the best new browser p40

(and no, it's not Firefox Quantum)

✓ Best of 10 tested
✓ Easy to tweak
✓ Stay anonymous
✓ Unique features
+ *Incredibly* fast!

£2.20

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STOP RUNNING OUT OF PHONE STORAGE
Use Google's superb new app

RECORD YOUR VOICE AND VIDEO CALLS
Play them back on any device

DO OTHER PEOPLE USE YOUR PC?
Then find out what they search for

p57

Make browsing more arousing

Back in the days of Windows 98, I knew several people who referred to Internet Explorer as "the blue E", never wondering or caring what the browser was actually called – or even that it was called a browser. I'm sure that *Web User* readers know if they use Chrome, Firefox, Edge or whatever, but when was the last time you pondered if you'd made the right choice?

In this issue's cover feature, we compare 10 of the most popular Desktop browsers (for Windows – sorry, Safari fans!) to see what each has to offer, and we think you'll be surprised by their various strengths and weaknesses. Some browsers respect your privacy, for example, while others are called Google Chrome! We don't expect you to read our reviews and uninstall Edge in disgust – mainly because Microsoft won't let you – but hopefully you'll try a new browser and perhaps it'll even arouse ya!

Please let me know if we've overlooked your favourite browser, or if you disagree with our conclusions.

Robert Irvine, Editor
robert_irvine@dennis.co.uk
#webuser

5 Things you'll learn this issue

1 How to stream classic games from the web to an old BBC Micro computer **page 7**

2 How to speed up your typing by using hotkeys to enter words and phrases **page 28**

3 How to isolate the current tab in Chrome to stop it being hijacked by hackers **page 32**

4 How to stop Windows 10 displaying your login screen twice **page 67**

5 How to remove the integrated Pocket tool from the latest version of Firefox **page 68**

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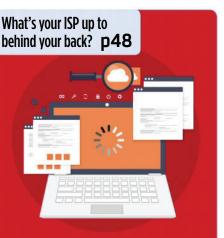Never miss another issue — subscribe at subscribe.webuser.co.uk

abc Average sales, Jan-Dec 2016, 28,298 copies per issue

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FREE Screwdriver Set

SUBSCRIPTIONS
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COVER FEATURE

SWITCH YOUR BROWSER NOW

Which of the 10 most popular web browsers should you be using in 2018?

p40

The latest craze – breeding collectable digital cats **p38**

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Record your voice and video calls **p50**

IN DEPTH   Articles on the latest tech topics

REVIEWS   Apps, sites and products on test

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Declutter Android
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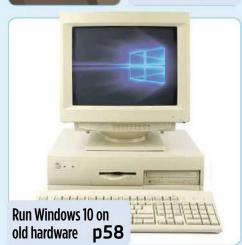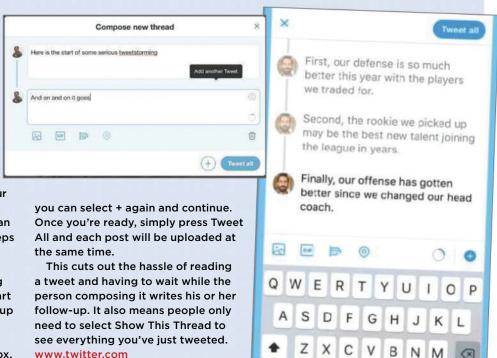
Create a thread-based tweetstorm

Twitter recently extended the number of characters you can use in a tweet from 140 to 280, but sometimes you need even more room to make your point. One way to do this is to create a thread by continuing to reply to your own tweet until you've got everything off your chest. The main problem with this, however, is that other people replying to your tweets will interrupt the sequence, making your train of thought difficult to follow.
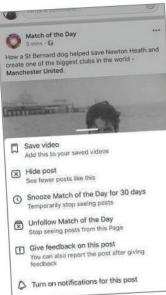
To help, Twitter has introduced an official 'threads' feature which keeps these tweets together, thereby making them easier to read as a whole. It has done this by adding a plus (+) button whenever you start a new tweet. Selecting this opens up another tweet-composing box, allowing you to carry on typing. When you reach the end of that box,

you can select + again and continue. Once you're ready, simply press Tweet All and each post will be uploaded at the same time.

This cuts out the hassle of reading a tweet and having to wait while the person composing it writes his or her follow-up. It also means people only need to select Show This Thread to see everything you've just tweeted.
www.twitter.com

Snooze annoying Facebook friends for 30 days

www.facebook.com

Do some of your Facebook friends bore you to tears with their rants, memes and seen-it-all-before photos? Then you may want to use Facebook's new 'snooze' button to temporarily mute them. The social network's latest feature lets you mute connections for 30 days while still remaining pals. It's less dramatic than the Unfollow button and it helps to put you in greater control of what you want to see at any particular moment in time. What's more, it even works with Pages and Groups. All you have to do is tap the three-button menu within a post from someone you're tiring of. You can then select the new Snooze option. Once the 30 days are up, you'll start seeing that person or company's posts again, but it may give you some respite from the usual barrage of baby photos or relentless political rants.

Visit Amazon's Treasure Truck

bit.ly/treasure440

Rather than have you wait in for a delivery, Amazon is now encouraging people in parts of the UK to personally pick up their items from a lorry. The Amazon Treasure Truck is not only laden with limited-edition deals but offers the potential to grab some free food, win prizes and meet celebrities. To check details and find out where the truck is situated, sign up and ensure you've downloaded the Amazon app to your phone. If you then decide to take up the offer, you pay within the app and make your journey to collect the item. The concept rolled out in the US in 2016 where it's been hugely successful and it's now making its way to London and Manchester with more cities coming soon. You can keep up to date with the latest visits on Twitter @treasuretruckuk.

We pick the 10 best things you must do on the web this fortnight

Take a literary tour of Rome

bit.ly/rome440

As you come across key buildings and monuments on this 1841 map of Rome, you can discover and read a selection of 19th Century literary works that have been inspired by them. Created by the Morgan Library and Museum, you can also compare old and new images of the landmarks for a better sense of the eternal city.

Get celebs to answer questions

www.google.co.uk

Many of us use Google to discover more about the lives of our favourite celebrities. But what if the answers to your burning questions could come straight from the horse's mouth?

That's the premise of Google's new mobile search feature, which allows US celebrities to directly answer the most commonly asked queries about themselves. Just type a question about the likes of Seth MacFarlane, James Franco, Priyanka Chopra, Mark Wahlberg, Gina Rodriquez and Will Ferrell, and a selfie-style video containing the answer may appear at the top of the results page.

Stream games to a BBC Micro

bit.ly/micro440

If, by chance, you have an old BBC Micro or Acorn Electron computer in the loft, dust it down and head to this site, which lets you stream a host of fun games from the web by simply hooking the cassette port of these Eighties machines to the headphone socket of a laptop or smartphone and clicking the file you want. There are 1,000 titles in total, and nostalgic gamers will love the once-familiar tape squeaks as the games load. But if you don't own either machine and still want to see what the fuss is about, there are loads of emulated games to instantly enjoy at www.bbcmicro.co.uk.

Learn Spanish via a podcast

podcast.duolingo.com

When you're trying to learn a language, listening is as crucial as speaking and reading. For that reason, Duolingo – the free language-learning service – has launched a series of podcasts that mix Spanish with English translations over the course of 15 minutes. It's a compelling set of stories about Latin American life designed to get you hooked, with new episodes released every Thursday.

5 TO FOLLOW ON TWITTER

@TUIUK
Dreaming of the summer holidays already? Thomson's rebranded feed has lots of suggestions

@coindesk
Bitcoin's value continues to rise so keep an eye on it via this feed

@atari
A new Atari console is coming, more than 45 years after Pong

@ToffTalks
The winner of *I'm a Celebrity* has attracted many more followers since her time in the jungle

@movierebootbot
Wacky ideas for film reboots and the potential people to make them

Pre-order iOS apps
bit.ly/ios440
You can now pre-order iOS, MacOS and TvOS apps that are up to 90 days from release. Just select a pre-order in the App Store and the app will be downloaded to your device within 24 hours of its launch.

Track your Amazon parcel
www.amazon.co.uk
Not only does Amazon tell you your parcel has been dispatched, but it now has a map on its delivery page that shows the driver's location and the number of drop-offs before your destination.

Livestream Messenger games
messenger.com
When you play a game in Facebook Messenger, you can now tap a camera icon in the top-right of the screen, press Start Live Video and broadcast your progress. Once that's done, the video is posted to your Page or Profile.

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

Apple faces legal action for slowing old iPhones

What happened?

Apple has admitted that it slowed the performance of older iPhones in order to preserve battery life, but failed to warn users and now faces legal action.

The lithium-ion batteries that power most phone batteries eventually wear out, usually around the two-year mark, although this depends on a host of factors including how many times the phone has been recharged and even the temperature where you live. That doesn't mean these batteries entirely fail, but they don't work as efficiently.

Some iPhones have been known to crash during peak power usage, such as when launching apps, so Apple came up with its own solution, rolling out an update to iOS, the operating system that runs iPhones. This update adjusted the code to better manage power-use peaks, which meant that apps would sometimes launch more slowly.

Apple didn't tell iPhone users it was making the change, which rolled out on several different models of the handset, but users noticed the slower performance and started to complain online. Software company Primate Labs benchmarked the devices and proved the phones had indeed been slowed.

Now, Apple faces a slew of class-action lawsuits from customers who are angry that their iPhones were meddled with. Cases have popped up across the US, as well is in Europe and Israel, accusing Apple of damaging their phones in violation of consumer law. The company has issued a statement containing an apology and explanation on its website (bit.ly/apple440).

How will it affect you?

The controversial update was rolled out last year, so you've probably already installed it. The update in question, iOS 10.2.1, featured code that altered power management during certain activities.

The change affected the iPhone 6, 6 Plus, 6S, 6S Plus and the iPhone SE, though the company extended it to iPhone 7 and iPhone 7 Plus later with

Apple has issued an apology and an explanation for the iPhone battery slowdown

the iOS 11.2 update. Apple says it made the change to reduce the number of "unexpected shutdowns", or times when your smartphone crashes and restarts, so you may have noticed your handset is now better behaved. On the other hand, your apps may take longer to launch and other heavy-demand activities may run more slowly.

Apple has reduced the price of a replacement battery from £79 to £25 for the iPhone 6 or older; if you take up this offer, Apple says your device's performance will automatically return to normal. Any newer models with a failing battery should still be under warranty.

Apple has also promised to roll out an update early in 2018 that displays information about the condition of an iPhone's battery, so we can better understand the impact on performance.

What do we think?

This incident highlights two aspects of modern technology. First, it shows the value of replaceable batteries. A decade ago, an easily removable battery that could be replaced when it was out of charge or wearing out was a common feature of smartphones – though never

the iPhone. It took no specialist knowledge or skill, and helped extend the life of smartphones without fiddling with code or reducing performance.

However, the trend toward ever-slimmer handsets means manufacturers have started to follow Apple's lead, glueing in batteries and making them difficult – but not impossible – to remove. If you want to try replacing your smartphone's battery, head to iFixit.com for easy-to-follow instructions for most major models.

Secondly, this incident once again draws attention to Apple's rather high-handed attitude, which suggests it sometimes thinks its customers can't be trusted to make decisions about their own handsets.

We think iPhone owners should have been trusted with the full story and offered the software update, with a full explanation of the effects on the battery and performance, or the discounted battery replacement. Apple doesn't appear to trust its own users to make decisions about their own property, and continues to lack transparency as a company. Hopefully the looming lawsuits will teach Apple a lesson.

What we think of this fortnight's top tech news stories and rumours, and how they affect you

Kodi now available for the Xbox One

What happened?

Kodi media-streaming software will finally support the Xbox One, allowing you to watch TV via the console if you own one.

The Xbox One was released in 2013 and has since been superseded by the Xbox 360, so this update feels long overdue. The Kodi software first appeared as Xbox Media Centre (XBMC) on the original Xbox, and was renamed in 2014 to Kodi, but it has never worked on later versions of the Xbox due to a number of compatibility reasons.

Those obstacles have now been overcome thanks to a rather surprising source: Microsoft. By forcing app developers to produce software that works on 64-bit systems, The Windows creator inadvertently made it easier to port Kodi back to Xbox consoles.

How will it affect you?

If you own an Xbox One, you'll be able to run Kodi on it and output the resulting streams to your TV. That support will arrive later this year in Version 18, but be warned: Kodi's coders have stressed the Xbox support is limited and may be missing a few features.

Those missing bits include no access to external hard drives or the Xbox One Blu-ray drive, and only limited availability for accessing certain video and music folders. Additionally, some Kodi plugins might not work yet.

What do we think?

The port back to Xbox is a timely reminder that Kodi and its predecessor XBMC have been kicking around as a legitimate video player for well over a decade – it's only recently that the streaming software has become a battleground for online piracy.

Whatever the reason for this long overdue support for the Xbox One, it's unlikely that most users will access Kodi in this way. The limitations of this early version of the app make it less attractive than the many other devices that can be used with Kodi.

Android apps secretly listen to users

What happened?

Some Android apps can listen to your surroundings and analyse the ambient noise to understand what you're watching and where you are. The creepy surveillance system is made by a startup called Alphonso, which taps into your smartphone or smart TV microphone to listen to sounds, analysing them to understand what you're doing.

The games and apps can eavesdrop even when you're not actually using them, turning on your microphone to nab a quick snippet of sound whenever they please. The startup says it doesn't record human speech but the content that's being listened to or watched – at home, at a friend's house or even at the cinema.

How will it affect you?

The 250 or so apps using the system must ask for permission first, but the text isn't always clear or prominently displayed.

When installing new apps, always read the finer details in the pop-ups they show asking for permission, including the "further details" or "more information" tabs. For this particular spying system, look for the name Alphonso or the phrase "Automated Content Recognition software".

In this case, the audio samples aren't linked to your name, but are "hashed" and compared anonymously with existing, known digital content, so the company has a sense of what people are watching in order to display advertising that's of interest to you. The technology is even being used in children's apps, according to a *New York Times* report.

What do we think?

Digital advertising is out of control. Tapping our phones and TVs to listen in on our music and TV choices feels like a gross invasion of privacy, regardless of whether users have ticked a box to opt in. Regulators have slapped down companies for using such technologies before, and it's clearly time for tougher action.

We need to be able to trust our smart devices to do what we expect, not act against our self interest, or such companies should expect us to stop using them altogether.
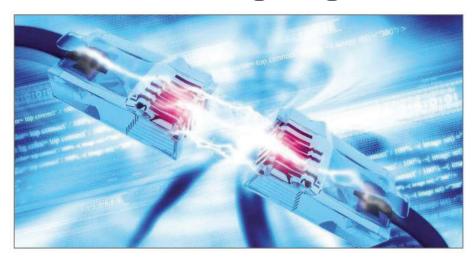
High-speed broadband to be a legal right

What happened?

After years of campaigning, access to high-speed broadband will soon be written into law as a legal right for everyone in the UK. A Universal Service Obligation will be introduced by 2020 to make sure everyone can request – and get access to – connection speeds of at least 10Mbps. Ofcom defines 'decent' broadband speeds as 10Mbps for downloads and 1Mbps for uploads. However, thousands of UK properties are currently unable to achieve these speeds, particularly in rural areas.

Digital Minister Matt Hancock added a caveat to the announcement by saying the plans will give people the *right* to ask for high-speed broadband by 2020, even though a connection can't be guaranteed by that date. The Conservative party's 2017 manifesto pledged that "by 2020, every home and every business in Britain [will have] access to high-speed broadband". This is a step toward that, but Hancock's proviso suggests that the commitment may have been a tad over-ambitious. The minister did not expand on the details of the legislation.

This announcement follows Ofcom's recent Connected Nations report (bit.ly/connected440), which said around 1.1 million UK properties are in areas that can't get acceptable broadband. Slow broadband speeds for 17% of residents in rural areas is unacceptable compared to 2% in urban areas.

"Broadband coverage is improving, but our findings show there's still urgent work required before people and businesses get the services they need," said Ofcom's technology chief Steve Unger. "Everyone should have good access to the internet, wherever they live and work."

How will it affect you?

If you live in an area with slow broadband, this is good news and means internet providers can no longer fob you off with excuses about why you're not getting an acceptably fast connection. Sadly, you're still going to have to wait two years until the legislation comes into force and, even then, you won't be guaranteed 10Mbps broadband straight away.

What do we think?

It's about time the government did something about the state of broadband in the UK, which lags far behind many other countries. However, we wish the 10Mbps minimum could be introduced earlier than 2020, by which time it will seem comparatively slow. Rural areas need a solution for poor internet speeds *now*, not merely the right to ask for it in two years' time. Still, we're pleased that the government at least recognises the importance of a 'decent' connection.

FIRST LOOK

Garmin Vivoactive 3
bit.ly/garmin440

The Garmin Vivoactive 3 is a fitness wearable that you'll never want to take off. You can wear it when exercising, but also while you're going about your normal daily activity, walking around the house, to and from the shops, and while you're sleeping. It can be used to track swims as well as runs, bike rides and gym sessions, plus it delivers notifications like a proper smartwatch – a job it is surprisingly good at.

It's not quite a smartwatch in the sense of an Android Wear or Apple Watch, because the number of apps that can be installed isn't as broad. Think of it instead as a wearable that bridges the gap between a fitness device and a smartwatch.

Priced at £270, the Vivoactive is more expensive than the TomTom Adventurer (£226) and Spark 3 Cardio (£169). However, those watches don't provide notifications and aren't nearly as sleek, lightweight and comfortable.

It offers all the sensors you need for virtually any fitness-tracking task you can think of: on its rear, there's an optical heart-rate sensor; inside, it contains GPS and GLONASS radios, a barometric altimeter, compass, accelerometer and thermometer. The watch is waterproof to 50m so you can take it for a swim, and the Gorilla Glass screen should be resistant to scratches and scuffs.

Battery life is superb – we found it lasted six days between charges when not using the GPS, which trounces many of its competitors. The only disappointments are the lack of on-watch music playback and the Garmin Pay contactless-payment system, which no UK banks or credit cards currently support.

Overall, though, the Garmin Vivoactive 3 is an impressive fitness watch. It's usable and accurate, has GPS, altimeter and heart-rate sensors, and tracks all your regular fitness activities.

WHAT'S THE RUMOUR

Will Chrome start blocking online ads?

The rumour that Google plans to introduce ad-blocking functionality in its browser, Chrome, has been doing the rounds for a while, though details as to why, how and when were scarce. Now, the internet giant has announced that its new ad-blocking policy will be enacted from 15 February – well, sort of.

The feature will be built into Chrome, automatically removing particularly annoying adverts without the need for third-party tools, which have rocketed in popularity in recent years. The policy will only apply to repeat offenders; a lone low-quality ad isn't sufficient for Google to come down on the culpable website.

Google is already part of the 'Acceptable Ads' scheme offered by Adblock Plus, which allows some ads to be displayed – for a fee. Developing its own ad-blocking feature is going one step further, however. Why would a company that generated $60bn in revenue from online advertising in 2016 alone want to block adverts?

Speculation is that this laudable move is a way for Google to curb the worrying growth of third-party ad blockers. By offering its own service within Chrome, Google can wrestle back some control over which online ads are filtered.

Google will base its judgements on standards laid out by the Coalition for Better Ads (bit.ly/coalition440), which the internet giant joined last year. The idea is that ads for consumers should be improved, with vulgar and ostentatious ads (think full-page, flashing or unexpectedly noisy) discouraged and banned.

LIKELIHOOD RATING
✓✓✓✓✓

Google is only planning to target the most annoying adverts in Chrome, to dissuade people from installing third-party ad blockers. We certainly haven't seen the last of online ads, but Google is now set to exert even more control over them.

What's new on Kickstarter
Our favourite new project on the crowdfunding site

Zanco Tiny t1
bit.ly/zanco440 | From £30

The Zanco Tiny t1 bucks the trend toward ever-bigger smartphones. Described as the "world's smallest phone", this miniature mobile measures a mere 46.7 x 21mm and weighs only 13g. This makes it easy to slip into any garment when you need to travel light, and to keep as a backup or emergency phone. It operates on the 2G network, stores up to 50 text messages and 300 contacts, and offers three days of standby and 180 minutes talk time. The Zanco team looks set to smash its target of £25,000 by 18 January.

WEBOMETER

WE LIKE...

⬆ **Switch mobile contract by text**
From 2019, you'll be able to switch mobile network simply by sending a text message. Currently, if you want to take your phone number to a new network, you have to call customer services for your port authorisation code (PAC).

⬆ **Germany gets tough on hate speech**
Germany has introduced a law that demands social networks quickly remove hate speech, 'fake news' and illegal content. Services that do not take down "obviously illegal" posts within 24 hours face fines of up to €50m (£44.3m).

WE DON'T LIKE...

⬇ **Windows Hello poses security risk**
Windows 10 users have been warned that the operating system's facial authentication system, Windows Hello, could leave PCs open to attack. Security researchers from German firm SYSS bypassed the feature using a printed picture.

⬇ **WhatsApp goes down on New Year's Eve**
WhatsApp went offline for millions of users around the world on New Year's Eve, causing panic among users trying to send messages to friends and family. Fortunately, by 7.30pm GMT the service was back up and working again.

Stay Safe Online

News about the latest threats and advice from security experts

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

20% of web users fall for phishing scams

One fifth of British web users have fallen victim to phishing scams, according to research by webmail service GMX. In the run up to Christmas, GMX found that the most frequent type of phishing attack involved criminals faking emails from parcel suppliers and using track-and-trace links as a gateway to malware.

Because more people receive parcels at Christmas, the criminals' rate of success was statistically higher, making it an effective way to steal victims' details, the company explained. Although half of phishing recipients usually delete malicious emails as soon as they receive them, just under a quarter (24%) mark them as spam and 2% open them, saying curiosity gets the better of them.

GMX advised anyone receiving a suspicious email purportedly from a delivery company to manually enter the company's web address in their browser rather than clicking the link. From there, they can enter any tracking information that might be provided in the email. **bit.ly/phish440**

Mr Robot add-on angers Firefox users

Mozilla experienced a backlash after a *Mr Robot*-themed add-on was automatically installed in its browser, causing concern among users that they were being spied on by hackers. Firefox users reported that a mysterious extension called Looking Glass had appeared in their browsers without their permission, which added text to certain websites, including phrases such as "My Reality is Different Than Yours".

Unsurprisingly, this raised fears that the extension was some type of malicious code, particularly as users were given no indication that it had been installed, nor any information as to its function. According to Mozilla, the Looking Glass add-on was actually a collaborative effort with the team behind the *Mr Robot* TV series, designed as a "shared experience to further your immersion into the *Mr Robot* universe".

The extension only appeared in the browser if the user had given Firefox permission to install Shield Studies, which Mozilla uses to test new features. It tweaked websites with clues for people playing a *Mr Robot*-themed puzzle game. However, the forced installation led some users to accuse Mozilla of abusing its position. **bit.ly/robot440**

Security Helpdesk | Your questions answered by security specialists

THIS ISSUE'S EXPERT: Marty P Kamden, CMO of NordVPN (www.nordvpn.com)

Q **What are the best security apps for my smartphone?**
Georgia Storey, Twitter

A Signal (signal.org) is an encrypted messaging and voice-calling app that provides end-to-end encryption to secure all communications. The app can also verify the identity of anyone you are messaging and the integrity of the channel they are using. When texting non-Signal users, you can invite them to an encrypted conversation via Signal.

Tor Messenger (bit.ly/tormess440) is an encrypted messenger from the makers of the Tor browser. The app enables greater anonymity with Off-The-Record (OTR) messaging – a safe and encrypted way to have private conversations over Tor's network of computers.

Norton Identity Safe (bit.ly/norton440) gives you freedom from remembering passwords: it saves all usernames and passwords on your Android phone or iPhone, and syncs them across your devices. Secure passwords can be created within the app and it also allows for faster checkout and fills in forms with your bank info.

Keeply (inappshrimp.com) is a spy-level app that stores your private moments and data – PINs, credit cards, notes, photos and videos – on your phone. Its Fake Pin feature is an alternative password you can give to nosy friends or family – when they enter it, Keeply shows an empty application. It can also take a photo of anyone who enters a wrong PIN code into your phone. Best of all: everything is stored only on your device.

Finally, Best Phone Security Pro (bit.ly/best440) is an iPhone app that rings an alarm if an unauthorised person touches your device. You can choose the lock option: Touch ID, pattern lock or passcode lock – and even record your own alarm sound.

➕Email us your security questions at webuser@dennis.co.uk

Best New Websites

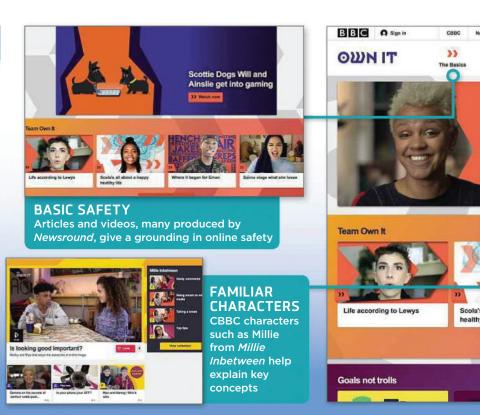## Site of the Fortnight

ONLINE SAFETY `NEW`

BBC Own It
www.bbc.com/ownit

To ensure that children remain safe online, it's crucial that they're made aware of the potential dangers they face. Rather than strike fear into youngsters, however, the BBC's new Own It site takes a balanced approach, recognising that online life is vital for young people while also helping them deal with everything from malware to cyberbullies. Aimed at nine to 12-year-olds, Own It uses video, text, quizzes and images to cover key issues, while cannily throwing in fun stuff such as tips on interviewing celebs. The hope is that the message gets through to kids without appearing preachy. You really have to applaud the effort.

Our rating ★★★★★

BASIC SAFETY Articles and videos, many produced by *Newsround*, give a grounding in online safety

FAMILIAR CHARACTERS CBBC characters such as Millie from *Millie Inbetween* help explain key concepts

---

HEALTH

Healthier Together
what0-18.nhs.uk

This health-focused website dealing with children and young people from birth to 18 is for residents of Wessex, but it's packed with information that's relevant to all. It's well designed and offers comprehensive coverage of topics such as tummy aches, asthma, pregnancy and emotional behaviour. It's very user-friendly, too. Some sections use a traffic-light system so parents can tell at a glance when symptoms require urgent medical attention, while others provide a list of symptoms and explanations of what to do to help. All advice is written by NHS medical experts, and the site works well on mobile devices, so you'll always have the information to hand.

`RELAUNCH`

Our rating ★★★★★

FASHION

Asos
www.asos.com

`NEW`

Asos is the place to go for the latest fashion, but when the online retailer relaunched its website recently, it caused widespread anger. Some users said they didn't like *any* change while others bemoaned the loss of the sidebar menu and 'quick view' feature. We think the new site is sleeker and more stylish than the old one. Its new horizontal navigation bar makes light work of finding items, the search bar is more prominent and the pages are clear, easy to share and packed with detail. The images are large and well-shot, too, and there's plenty to inspire you, not least in the Style feed.

Our rating ★★★★☆

Reviews by David Crookes

We review this fortnight's best new and relaunched websites and rate them for content, design and features

ONLINE DILEMMAS
There's lots of advice on dealing with online issues, as well as links to charities

GOOD UNDERSTANDING
The site balances enjoying the freedom of the web with being informed and acting responsibly, and offers tips on avoiding conflict with parents who restrict access

---

NEW

FOOD

Menu Museum
menumuseum.eu

A website full of historic food menus may not sound particularly appetising, but it's likely to leave you hungry for more. Produced by academics at the University of Brighton to aid hospitality students, it features more than 500 menus so far, ranging from a 1996 Pizza Express menu – Margheritas for £3.40 – to a Savoy menu from 1973. You can search the mouthwatering collection using various criteria, from description and country to year and price range. The creators hope students will use it to review trends in menu design and cost while analysing changing tastes in food and drink.

Our rating ★★★★☆

RELAUNCH

PROPERTY

Pinpoint
pinpointproperty.com

This property site covering Northern Ireland is one of the most pleasant we've seen. Not only does it do a great job of showcasing the homes and commercial sites under its wing, thanks to large images and lots of detail, but its map and location searches make properties easy to find. We like the fact that you can preview properties from the search bar and save your searches as you go. You can even make offers online and use PayPal in transactions with Pinpoint. With email alerts and a smattering of estate-agent news for those who are interested, it's a real step up the ladder.

Our rating ★★★★☆

RELAUNCH

MUSEUM

Museums & Galleries Edinburgh
www.edinburghmuseums.org.uk

Bringing together 14 of Edinburgh's museums and galleries, from Lauriston Castle to the City Art Centre, this relaunched site lets you search for exhibitions and events in the capital and browse some of the highlights. Using its excellent search engine, you can specify exactly what you're looking for, when you're likely to visit and the venue you're interested in, and there's information about volunteering, too. We like the way the venue pages offer some historical background, but greater insight into the collections would also be welcome.

Our rating ★★★★☆

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

RELAUNCH

VIDEO GAMES

MCV

www.mcvuk.com

People say business and pleasure shouldn't mix but MCV's website proves otherwise. Dealing with the industry side of video games, it keeps you up to date with news about the people and companies making games in the UK. It does an excellent job and has its finger firmly on the pulse, although the move to a new grid layout, with large images and headlines, makes scanning for stories more cumbersome. However, you can read PDF copies of the accompanying magazine online, check game release dates, get the lowdown about gaming media and find out when key events are taking place.

Our rating ★★★☆☆

NEW

FILM

Rotten Apples

therottenappl.es

As Hollywood continues to reel from accusations of sexual harassment, you may want to check that a film you're about to watch hasn't been tainted in any way. Rotten Apples – a riff on movie-review aggregation site Rotten Tomatoes – tells you if a film is tied to someone accused of sexual misconduct, whether it's an actor, screenwriter, executive producer or director. Simply enter the name of a movie or TV show into the search engine and, if it's in the database, names may appear. Clicking a name takes you to an article about that person, while films that have been given the all-clear are dubbed Fresh Apples.
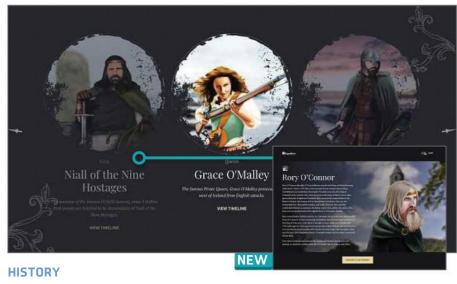
Our rating ★★★★☆

RELAUNCH

RELIGION

A Church Near You

www.achurchnearyou.com

Finding God has just become easier thanks to this new website from the Church of England. It lists more than 16,000 churches and lets you locate those nearby or search for a particular service, event or facility. It also offers advice about funerals, christenings and marriage, as well as a daily prayer. Even so, it suffers from a few teething problems. The search engine couldn't find us a single local church with a choir, for instance, although this may be an issue with tags ("regular choir" worked perfectly). Otherwise, it's well presented, with churches plotted on a map and useful links to pages full of information.

Our rating ★★★★☆

NEW

HISTORY

Kings & Queens That Shaped Ireland

bit.ly/kings440

Hundreds of years ago, Ireland was ruled by kings and queens, but they weren't always chosen in the same way as royalty in Britain. Find out about these monarchs by visiting this lavish site created by travel company Expedia.ie. Beautifully illustrated with images of how the kings and queens might have looked, it lets you explore profiles of 11 Irish royals to understand more about them. Each includes a timeline of their life, and you can share the pages on social media. The site also helps you follow in their footsteps by suggesting a two-day travel itinerary of places connected to them, which includes suggestions of where to stay and maps of the journey.

Our rating ★★★★☆

COULD DO BETTER

NEW

COMMUNITY

Help Out Nottingham

www.helpoutnottingham.co.uk

As with many British cities, social and economic issues have led to an increase in homelessness in Nottingham. This portal aims to help those who are begging or sleeping rough to get off the city's streets, but though it makes a good attempt to separate fact from fiction, it feels rather dry. There are no case studies, for example, and too few images. We also felt the section encouraging people to donate time or money to homeless charities should be more prominent. This makes the site a chore to read, which is a shame because its work is very valuable.

Our rating ★★★☆☆

Build a Better Site

Specialist tips, top tools and practical help

Top Tips of the Fortnight

New SEO guide from Google

Search engine optimisation (SEO) is the art of manoeuvring your website up the list of results that's displayed after an online search. Search engines such as Google use thousands of different factors to work out their results, and most of those are secret – to stop people cheating their sites up the rankings. However, there are guidelines available and Google has just updated its own Search Engine Optimisation Starter Guide (bit.ly/seo440), which has plenty of advice for anyone interested in maximising their site's potential in Google searches.

Send international visitors to the relevant Amazon store

Amazon has updated its WordPress plugin for affiliate sales (bit.ly/amaz440) so that it automatically directs visitors to their local shop. This means that site builders don't have to include links to lots of different Amazon stores in order to benefit from their international visitors. Unfortunately, you still have to have an affiliate account set up with each country's store, but at least it keeps your site looking neater, with a single Amazon link that will work for all your visitors.

Deal of the Fortnight

Easyspace (www.easyspace.com) is offering 25% off all its hosting packages, bringing its Standard Hosting down to £4.32 per month.

Web-building Helpdesk

THIS ISSUE'S EXPERT:
Nick Akam, CTO,
Easy Internet
(www.easy-internet.co.uk)

Q I've been told that websites should have a 'static IP'. What is this and do I really need one?
Daniel Ellis, via email

A They might have meant that you need a dedicated IP. There's some potential confusion for site owners over the different types of IP – static, dynamic, shared and dedicated.

A static IP is something you might request as part of your broadband service, so that you always have the same IP address, which is useful if you want to connect to devices on your network remotely, for example.

A dedicated IP address used to be necessary for running secure HTTPS (SSL) sites but it's no longer essential. There's no limit on the number of sites that can share a single IP address.

MINI WORKSHOP | Add animated GIFs without slowing down your WordPress website
WP GIF Player: bit.ly/wpgp440 | ⏱ 10 mins | WordPress.org website

Animated GIFs have to fully download before they start animating, which can make a site slow to load. WP GIF Player is a click-to-play WordPress plugin that only loads GIFs when they are clicked by your site's visitors.

1 From your Dashboard, click Plugins, then Add New. **1** Type `wp gif player` **2** into the search box, then install it by clicking its Install Now button. **3** Once it's installed, click the Activate button to make it available on your site.

2 To create a new post with an animated GIF, click Posts, then Add New. **1** A new Add GIF button **2** appears at the top of the post-editing window. Click it and upload the GIF as you would any other image. Click the Insert button to add it to your post. A special code is added to the post editor. **3**

3 Preview how the post will look by clicking the Preview button. The GIF loads in the post as a still image with a round GIF button **1** and will only load the animation if the visitor clicks it. Once they've seen enough, they can click the image again to pause the animation.

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

Pick of the fortnight

NOW TV sky

Watch Sky's epic *Britannia*
From 18 January

The huge, global success of HBO's *Game of Thrones* has resulted in a raft of similar – but generally not as good – shows from rival broadcasters, including *Vikings*, *Spartacus*, *The Bastard Executioner* and *The Last Kingdom*. The latest such epic to grace our screens is *Britannia*, a Sky Original series with high production values and a quality British cast. It's set in 43AD, during the Roman invasion of Britain, and features warrior women and powerful druids. The cast is led by the always-excellent David Morrissey (*The Walking Dead*), who plays Roman General Aulus, and Kelly Reilly (*True Detective*), as Celtic princess Kerra. Other famous (but not always recognisable) faces in the show include Zoe Wanamaker, Ian McDiarmid, Julian Rhind-Tutt and Mackenzie Crook.

The first season consists of 10 episodes, and you'll be able to watch all of them from 18 January on Sky Atlantic and Sky's streaming services Now TV and Sky Go.

A trailer, providing the first look at the new show, is available to view at bit.ly/brit440 – just be aware before you press Play that it's quite violent and gory. If you saw *Star Wars: The Last Jedi* at the cinemas recently, you might have already seen this trailer because it was screened before the movie.

Watch *Fargo* Season 3
From 20 January

Each season of *Fargo* – the darkly comedic crime drama loosely based on the 1996 Coen Brothers film of the same name – features a fresh cast, and this time around it's headed by Ewan McGregor (pictured, right), who pulls double duty by playing two brothers, Ray and Emmit Stussy. Season 3 takes place between December 2010 and March 2011 and, somewhat unusually, isn't set in Fargo, North Dakota but rather in three Minnesota towns. You don't need to have seen either of the previous two seasons to watch this one because the characters and plot are all new. There's some quality acting on display – both McGregor and his co-star David Thewlis were nominated for Golden Globes for their roles in the show, which was first screened on Channel 4 last summer. Watch the trailer for *Fargo* at bit.ly/fargo440.

Watch *Van Helsing* Season 2
From 19 January

TV's obsession with supernatural creatures continues unabashed. As you can guess from the name of this Syfy show, *Van Helsing* is based on the classic *Dracula* story, though it takes place "in the near future". Vanessa Van Helsing (played by Kelly Overton), a descendent of famed vampire hunter Abraham Van Helsing, wakes from a coma to discover that vampires have risen up and taken over the world. She's pretty much mankind's last hope, thanks to the fact that she has some weird special powers, super-fast healing and blood that can turn vampires back into humans. If it all sounds a bit mad, it totally is. You can watch the trailer for season 2 of *Van Helsing* at bit.ly/van440.

Watch *Homeland* Season 6
From 15 January

American drama *Homeland* returns for a new season on Netflix. Carrie Mathison (played by Claire Danes) is now back home in the US and working as an advocate for Muslim Americans. Season 6 was originally shown in America at the start of 2017 (and Channel 4 in the UK), shortly after Donald Trump was sworn into office, and the action here takes place between the election and inauguration dates. However, it's not Trump who comes into power but a female president-elect (no doubt inspired by Hillary Clinton).

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

Meanwhile, hot from the US, the brand new (and penultimate) Season 7 will be screened on Channel 4 and All4.

Watch *Black Lightning*
From 23 January

US broadcaster The CW is home to a number of superhero TV shows based on DC Comics properties. These include *Arrow*, *The Flash* and *Supergirl*. The latest addition to its roster, and available exclusively on Netflix for UK viewers, is *Black Lightning*, which focuses on a New Orleans high school principal/superhero with the power to

control electricity (we expect his mobile phone never loses its charge). The show premieres on Netflix six days after it airs in the US, with new episodes made available weekly.

The other shows air on Sky One in the UK, but viewers without Netflix needn't be alarmed because, despite coming from the same production team, no crossovers with *Black Lightning* are currently planned.

A trailer for the show is available to watch at bit.ly/black440.

TVPlayer gains a cloud-based DVR

TVPlayer (tvplayer.com) lets you watch free-to-air channels, including BBC One, ITV, Channel 4, Channel 5 and Dave, on your PC, TV, mobile phone or tablet. It's entirely free, but ad-supported. There's also a paid-for ad-free version called TVPlayer Plus, priced from £5.99 a month, which provides access to over 100 channels and up to 38 premium channels not included on Freeview or Freesat. TV Player has just introduced a new DVR service that allows Plus subscribers to record 10 hours of programming direct to the cloud. If

that's not enough, you can expand this to 150 hours for just £5 extra a month.

Unfortunately, the DVR only works with paid-for TV channels, although TVPlayer is planning to add more channels in the future, depending – we would imagine – on what demand for the service is like.

BT and Sky to offer each other's programmes

It may have taken a couple of years to come to an arrangement, but BT has at last announced it will start selling Sky's Now TV service to its customers, giving them access to some of the satellite broadcaster's most popular content, including Sky Sports, Sky Cinema and the Sky Atlantic channel. The full Now TV service will be available on BT TV's set-top box, and the telecom giant will also sell subscriptions to Now TV passes. In return, BT has agreed to offer its Sports channels directly to Sky customers. These include exclusive live access to UEFA Champions League and Premier League football.

Don't get too excited just yet though, because these new services won't be available to customers until early 2019.

Amazon moves away from new comedy

Amazon has a lot of good, original content but it's lagging some way behind Netflix. In a bid to bolster its appeal, the retail giant has shifted its programming focus to drama – the recently announced *Lord of the Rings* TV series being a prime (pun intended) example. The main casualty of this move seems to be scripted comedy as, according to entertainment-news sites Deadline (bit.ly/deadline440), Amazon has decided not to turn any of its recent comedy pilots into full series. So if you liked *Sea Oak* (pictured right, which stars Glenn Close as a woman back from the dead), *Love You More* or *The Climb*, and were looking forward to seeing more episodes later this year (or early next year), it's bad news. A pilot is all you're going to get.

Mini PCs

There's no reason why your next desktop PC needs to take up loads of room. Here, we've reviewed five Windows 10 PCs that are small enough to hide behind your monitor

Desktop PCs are usually so big you need to keep them in a spare room tucked under a desk, but it doesn't have to be this way because modern PCs come in a wide range of sizes and configurations. In this Group Test, we've focused our attention on petite desktop PCs that take up very little space.

Included in the test are two full PCs (the Asus VivoMini and the HP Elite Slice); two 'barebone' PCs (the MSI Cubi 3 Silent and the Zotac Magnus ER51060) that come with no memory, storage or operating system; and a PC on an HDMI stick (the Intel Compute Stick) that slots straight into the HDMI port of your monitor or TV. The barebone models won't work straight out of the box and you'll need to purchase and fit the additional hardware – which was surprisingly easy in both cases – and then install Windows 10.

HOW WE TESTED

We ran (or attempted to run) our 4K Windows benchmark on each of the PCs so we could easily compare their performance when running a selection of typical Windows tasks. We also tested them with our usual Dirt Showdown gaming test, running the game with its graphical detail turned up to High, and measuring how many frames per second (fps) it produced.

Asus VivoMini | **£672.99** | bit.ly/asus440

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

Most mini PCs only deliver the essential components – processor, memory and a single storage drive – while barebone systems start off with even less, so it's rare to see a tiny Windows computer that's as well-equipped as the VivoMini.

Here, we've reviewed the VM65N-G072Z, but the VivoMini range has many different configurations that are worth checking out if you want to spend less. This model sits close to the top of the range, with a dual-core i5-7200U processor, 8GB of memory and both a 128GB SSD and a 1TB hard drive.

The VivoMini's specifications aren't as impressive as the Silver Award-winning Zotac Magnus ER51060, but it's significantly cheaper and much more compact. It performed reasonably well, scoring 39 overall in our 4K benchmark tests, placing it behind the Zotac but well ahead of the cheaper Cubi 3 Silent. Its performance in our gaming test was just as impressive, running Dirt Showdown in 720p resolution with High graphics settings at 43fps (frames per second).

The VivoMini has the best storage options of all the PCs in this test, with the dual drives offering a perfect balance of speed and capacity. You can even open it up to access the drives and

upgrade the storage or memory, should you find yourself running out of either in the future.

Despite the VivoMini's compact case, Asus has included a good selection of ports: four USB 3 ports, two USB 3.1 sockets, both HDMI and DisplayPort (so you could have two monitors attached) and Gigabit Ethernet. There's also an SD card reader and 802.11ac Wi-Fi.

All this means that it's a bit larger than some of the other mini PCs we've reviewed, but it looks great and is also light enough to be mounted onto the back of a monitor if you'd prefer to keep it hidden from view.

WebUser **GOLD AWARD**

VERDICT
★★★★★

With capable performance, generous storage and extensive connectivity, this is an impressively versatile mini PC. A reliable contender for use in a home office, it's also one of the few models we tested to contain both a main SSD and a back-up hard drive. This makes it larger than some of the other PCs in this test – there are sleeker, more stylish alternatives available – but the VivoMini makes use of its extra surface area by providing plenty of ports and outputs.

Zotac Magnus ER51060 | **£699** |
bit.ly/zotac440   (excludes memory, storage and OS)

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

The Zotac Magnus is large for a mini PC and comes with no storage (you needs to install an M.2 SSD), memory (SO-DIMM RAM) or operating system – but it's a powerful PC with an AMD Ryzen 5 1400 processor and Nvidia GeForce GTX 1060 graphics card.

We tested it with the same 4GB of memory that we put in the Cubi 3 Silent and it performed brilliantly in our 4K Windows benchmark, topping the group with an overall score of 85. Dirt Showdown running at 720p resolution and the graphics set to High produced 133fps, which is 90fps better than the second best in this test, although pushing it hard made the noisy fan kick in. Buying Windows and the components used in this test cost about £200, bringing the price up to £899. That may sound like a lot but it's actually good value for such a great-performing PC.

VERDICT	★★★★☆

For a mini PC, the Zotac Magnus is bulky, and you'll need to add your own SSD, memory and operating system. However, whether you're a gamer or an all-rounder, you won't be disappointed with its impressive performance.

MSI Cubi 3 Silent | **£339** |
bit.ly/msic440   (excludes memory, storage and OS)

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

MSI's Cubi brand has been a stalwart of 'barebone' PCs, where you buy the chassis and processor, then add extra components according to your needs and budget. You have to buy and fit the memory, hard drive and operating system, but there's nothing to be daunted by because it's very easy to put together. It could also save you a lot of money. The 4GB of memory and 128GB SSD with Windows 10 preinstalled, with which we tested the MSI, costs £201, making the total of this PC £540,

The case has no fan, which means it's as silent as the name suggests, but we found that the case got very hot while running under the extreme pressure of our benchmarking tools. This affected its performance, only managing an overall score of 24 in our 4K Windows benchmark, and a frame rate of 17fps with High settings on Dirt Showdown at 720p.

VERDICT	★★★★☆

The MSI's low performance score means it's not ideal for use as a full-on PC, but its silent operation and excellent selection of ports make it ideal for sitting next to your TV and streaming video or browsing the web.

Intel Compute Stick | **£238.28** |
bit.ly/intel440

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

Mini PCs don't come any smaller than this stick, which is about the size of a cereal bar. Like a TV streamer, it's built onto an HDMI plug, so you can connect the entire PC straight into the back of your monitor or TV.

The Compute Stick's tiny size means it's not particularly powerful, and although there's a range of different configurations, the choice of processors is limited. We tested a model with a dual-core 900MHz Core m3-6Y30 processor, 4GB of memory and Windows 10 installed, but we couldn't run our 4K benchmark on it because the device wasn't able to cope. The 1080p alternative ran adequately but this is clearly the worst performing PC in this group. Its gaming performance isn't up to par, either, running 720p Dirt Showdown at just 20fps on its High graphics setting.

There isn't a great deal of storage on Intel's stick but a microSD slot means you can expand this. It also has three USB ports, which isn't bad for such a tiny computer.

VERDICT	★★★★☆

The Intel Compute Stick is so tiny that it can't carry out processor-hungry Windows tasks, although it manages pretty well with simple ones. It's surprisingly cheap, and would work well behind either a TV or a monitor.

HP Elite Slice | **£1,186.80** |
bit.ly/hpe440

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

This modular PC is designed to let you add different sections ('slices'), depending on what modules you need. Right now, however, there are only two modules available – one of which, a combined DVD-RW drive and Bang and Olufsen speaker, was included with this setup that we've reviewed. The other module is a clip-on mount that lets you hang the PC on the back of a monitor.

Its quad-core 2.5GHz Intel Core i5-6500T processor, 8GB of memory and 256GB NVMe SSD helped it perform well, though perhaps not as well as you might hope, given the high price. It scored 61 overall in our 4K Windows benchmark, second behind the Zotac Magnus. It also managed 31fps on our Dirt Showdown test with the graphics set to High, which is good but still a long way behind Zotac's PC.

VERDICT	★★★☆☆

This smart-looking modular PC performs well, but not well enough to justify its price. Its modular concept is a clever idea but there aren't yet many modules available. It comes with Windows 10 Pro, which is overkill for most home users.

➡

	Asus VivoMini	Zotac Magnus ER51060	MSI Cubi 3 Silent	Intel Compute Stick	HP Elite Slice
WEBSITE	www.asus.com	www.zotac.com	uk.msi.com	www.intel.co.uk	www.hp.com
PRICE	£672.99	£699 (excludes memory, storage and operating system)	£339 (excludes memory, storage and operating system)	£238.28	£1,186.80
BUY FROM	bit.ly/asus440	bit.ly/zotac440	bit.ly/msic440	bit.ly/intel440	bit.ly/hpe440
PROCESSOR	Dual-core 2.5GHz Intel Core i5-7200U	Quad-core 3.2GHz AMD Ryzen 5 1400	Dual-core 2.5GHz Intel Core i5-7200U	Dual-core 0.9GHz Intel Core m3-6Y30	Quad-core 2.5GHz Intel Core i5-6500T
MEMORY	8GB DDR4	✗	✗	4GB DDR3	8GB DDR4
GRAPHICS ADAPTER	Intel HD Graphics 620	3GB Nvidia GeForce GTX 1060	Intel HD Graphics 620	Intel HD Graphics 515	Intel HD Graphics 530
STORAGE	128GB SSD, 1TB hard drive	✗	✗	64GB SSD	256GB SSD
USB PORTS	2 x USB3.1, 4 x USB3	1 x USB3.1, 1 X USB Type-C, 4 x USB3	4 x USB3.1	3 x USB3	2 x USB3.1, 2 c USB Type-C
NETWORKING	802.11ac Wi-Fi, Gigabit Ethernet	802.11ac Wi-Fi, 2 x Gigabit Ethernet	802.11ac Wi-Fi, Gigabit Ethernet	802.11ac Wi-Fi	802.11ac Wi-Fi, Gigabit Ethernet
MEMORY-CARD READER	SD	SD	✗	microSD	✗
OPERATING SYSTEM	Windows 10 Home	✗	✗	Windows 10 Home	Windows 10 Pro
SIZE	190 x 190 x 52mm	225 x 203 x 128mm	160 x 110 x 70mm	114 x 35 x 11mm	165 x 165 x 35mm
WARRANTY	Three-years return-to-base	Two-years return-to-base	One-year return-to-base	One-year return-to-base	Three-years on-site

OUR VERDICT

We gave our Gold Award to the Asus VivoMini because it manages to balance price with performance, and comes with everything you need preinstalled. It didn't outperform the fastest PC in our test but it's a decent all-round package that will suit most web users who aren't fussed about running the latest games.

If gaming is a requirement for your family PC, however, the Silver Award-winning Zotac Magnus ER51060 is worth looking at. You'll need to spend another £200 on top of its £699 price to get this barebone PC working but when you do, its performance is phenomenal.

If you haven't got that kind of money to spend, take a look at our Bronze Award winner, the MSI Cubi 3 Silent. Its performance is disappointing but not bad for the price, for which you get a functioning Windows 10 PC that you can easily hide behind a monitor or TV.

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Did you know that European forests, which provide wood for making paper and many other products, have been growing by over 1,500 football pitches every day!

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UNFAO, Global Forest Resources Assessment 2005-2015

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TWO SIDES

Web User's Best Buys

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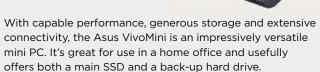
HARDWARE

MINI PC

Asus VivoMini

NEW!

£672.99 from bit.ly/asus440
Tested: Issue 440

With capable performance, generous storage and extensive connectivity, the Asus VivoMini is an impressively versatile mini PC. It's great for use in a home office and usefully offers both a main SSD and a back-up hard drive.

KEY SPECS
Dual-core 2.5GHz Intel Core i5-7200U processor ■ 8GB memory ■ 128GB SSD, 1TB hard drive ■ 6 x USB ports ■ 802.11ac Wi-Fi, Gigabit Ethernet connectivity ■ 190 x 190 x 52mm ■ Three-years return-to-base warranty

KEYBOARD

BakkerElkhuizen UltraBoard 940

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

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

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

VOICE ASSISTANT

Amazon Echo

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

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

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

HIGH-SPEED ROUTER

TP-Link Deco M5

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

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

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

BUDGET TABLET

Amazon Fire HD 8

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

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

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

BUDGET PHONE

Samsung Galaxy J5 (2017)

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

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

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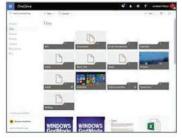
All prices correct at time of review

SOFTWARE & SERVICES

CLOUD-STORAGE SERVICE

Microsoft OneDrive

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

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

KEY FEATURES

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

INTERNET SECURITY

Kaspersky Internet Security 2018

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

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

KEY FEATURES

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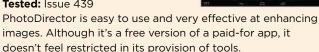■ Advanced ad-blocking system ■ Multi-device version
■ Compatible with Windows 10

Web User Gold Award winners

PHOTO-EDITING APP
PhotoDirector
NEW!

Free from bit.ly/phod439
Tested: Issue 439
PhotoDirector is easy to use and very effective at enhancing
images. Although it's a free version of a paid-for app, it
doesn't feel restricted in its provision of tools.

WINDOWS 10 FILE MANAGER
Metro Commander

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

NEW TAB PAGE
Momentum

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

ANDROID LAUNCHER
Microsoft Launcher

Free from bit.ly/microsoftl435
Tested: Issue 435
This is the best free launcher for performance,
usability and features. It's very fast and supports gestures.

VIDEO-EDITING TOOL
Microsoft Photos

Free from bit.ly/phot434
Tested: Issue 434
This tool is built into your Photos app and
is very efficient at giving home videos a professional look.

⬇ Best Free Software

PhraseExpress 13
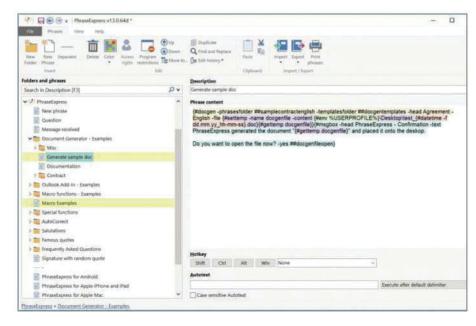
www.phraseexpress.com
Min requirements: Windows XP/
Vista/7/8+/10
File size: 9.6MB

If you often find yourself typing the same words and phrases over and over again in emails and documents, PhraseExpress could prove to be a major time saver. This program lets you create and store phrases you use regularly (with or without formatting) so they're ready to paste into an email, a chat message, a Word document or any other text window. To paste your phrase, you can simply tap a hotkey or type a short keyword.

That's not all the program does, either. It can autocomplete text, fix spelling mistakes, expand abbreviations (type 'ASAP', for example, and it can change this to 'as soon as possible') and

add details, such as the date and time, to outgoing messages. It can even generate a new document from a list of supplied phrases.
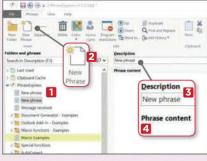
PhraseExpress caches anything you cut or copy to your clipboard, so you can go back and paste in a word, phrase or link you've used in the past if you need to. The last nine items you've saved in the program are automatically assigned a hotkey to save you even more time. In this latest version, the Clipboard Manager recognises multiple

email addresses, URLs and file paths, which makes it easier to send messages to contacts or revisit websites.

Other improvements include the ability to rescue phrases you've deleted by accident from Trash, and the interface has been updated to make it easier to use.

PhraseExpress is available for free, but if you use any of the features reserved for one of the commercial editions, you'll see a licence reminder after 30 days.

⚙ MINI WORKSHOP | Save typing time with PhraseExpress

1 The 'Folders and phrases' sidebar panel **1** in PhraseExpress offers a selection of example phrases and tips to get you started. To create your first string of text, click New Phrase at the top. **2** Give it a description, **3** then type your phrase into the 'Phrase content' box. **4**

2 Create a key combination you can use to paste your new phrase into a text window. **1** You can also enter some Autotext **2** so that instead of having to hit the assigned hotkey, you can simply type this word and PhraseExpress will replace it with your full text.

3 The Clipboard Cache **1** stores every piece of text you've ever cut or copied in the past. **2** You can select any item from here and create a hotkey or some autotext for it. **3** The View tab **4** lets you change the look of the software, and you can toggle Expert Mode on or off. **5** Switching this on adds a few more options to the interface.

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

IMAGE EDITOR
SnapEase
bit.ly/snap440
Min requirements: Windows XP/Vista/7/8+/10 **File size:** 1.6MB

SnapEase is a speedy photo editor that lets you make changes to multiple images at once. You can crop, rotate, desaturate and rename pictures or remove them from the list. Dials appear on each image for adjusting the brightness, contrast, hue and saturation. You can also sort your images by path or date, and create and save lists. When you've finished making your adjustments, you can export your images in batches, specifying the size, output format, JPEG compression level and location.

WALLPAPER MANAGER
Splashify
splashify.net
Min requirements: Windows 7/8+/10 or MacOS **File size:** 36.1MB

Spruce up your Desktop with a choice of beautiful images taken by photographers from around the world. Splashify finds pictures from photo-sharing site Unsplash (unsplash.com). You can browse the Curated, Popular and Latest categories or search for images by name. When you find one you like, click to view it in detail, zoom in or out, and select Set Wallpaper to apply the image to your Desktop.

FILE SHRINKER
FileOptimizer 12
bit.ly/fileo440
Min requirements: Windows XP/ Vista/7/8+/10 **File size:** 72.7MB

FileOptimizer uses clever recompression and optimisation techniques to reduce the size of your photos, videos, documents and more. Simply drag your files to the program's interface and click the Optimize button. Once the process is complete, the program shows you the original and optimised file sizes. The latest version offers higher-resolution icons, performance improvements and a better uninstaller.

New Windows Apps

Microsoft Sticky Notes 2
bit.ly/sticky440
Min requirements: Windows 10
File size: 82.27MB
The latest version of Windows 10's sticky-notes app has a smart modern look and adds support for bulleted lists. There's also a new Maps view, and its performance has been improved.

Backroads
bit.ly/backroad440
Min requirements: Windows 10
File size: 215MB
Backroads is a handy travel planner that lets you record various activities such as biking, driving, hiking and diving. It comes with a calendar, weather details and map support.

Moleskine Notes
bit.ly/mole440
Min requirements: Windows 10
File size: 66.27MB
High-end notebook manufacturer Moleskine's Smart Writing System (bit.ly/sws440) digitises everything you write using the special Pen+. Now you can transfer handwritten notes to this new Windows 10 app.

Best Free Software

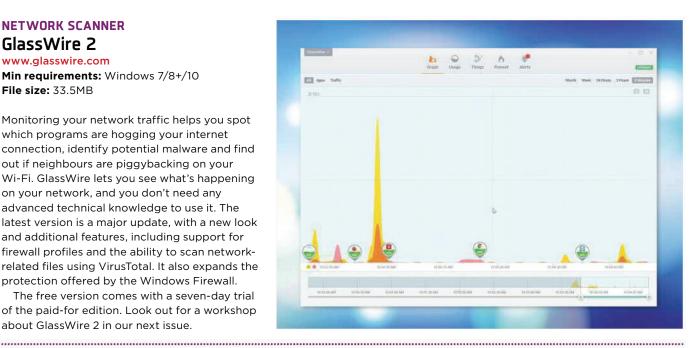## NETWORK SCANNER
GlassWire 2
www.glasswire.com
Min requirements: Windows 7/8+/10
File size: 33.5MB

Monitoring your network traffic helps you spot which programs are hogging your internet connection, identify potential malware and find out if neighbours are piggybacking on your Wi-Fi. GlassWire lets you see what's happening on your network, and you don't need any advanced technical knowledge to use it. The latest version is a major update, with a new look and additional features, including support for firewall profiles and the ability to scan network-related files using VirusTotal. It also expands the protection offered by the Windows Firewall.

The free version comes with a seven-day trial of the paid-for edition. Look out for a workshop about GlassWire 2 in our next issue.

VIDEO TRIMMER
VidCutter 5
bit.ly/vidcut440
Min requirements: Windows 7/8+/10, MacOS or Linux **File size:** 65.9MB

VidCutter lets you trim scenes from your videos and save them, with no loss of quality, to create perfect movies that you can share on YouTube and elsewhere. It's easy to use: simply drag a video on to the interface and use the simple tools to make your edits. You can reorder clips and then combine them into a single MP4 file.

This new version of VidCutter introduces a SmartCut feature that helps you trim frames accurately, while progress bars on the timeline give you an idea of how much longer the video will take to process. The latest edition fixes a problem with thumbnail generation, and there's a new 'View keyframes' option under Video Info.
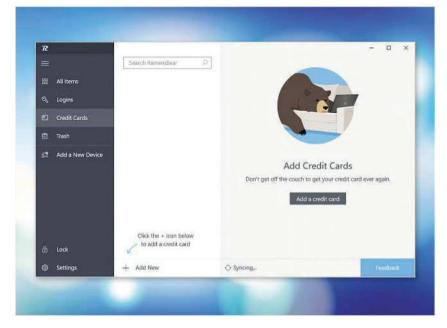
PASSWORD MANAGER
RememBear
www.remembear.com
Min requirements: Windows 7/8+/10 or MacOS **File size:** 38.7MB

This new password manager from the company behind the popular VPN TunnelBear is available for Windows and Mac, iOS and Android devices, and Chrome and Firefox browsers (Safari is coming soon). To get started, you create a strong local password, print the emergency key (in case you forget your password) and import your logins. RememBear can generate strong passwords, back up and sync items securely, log you into sites automatically and even store your credit card details. You can connect other devices to your account and import logins from other password managers. See our Workshop on page 57 to find out how to use RememBear.

GAME
Zero-K
bit.ly/zerok440
Min requirements: Windows XP/
Vista/7/8+/10 **File size:** 669MB

We don't see many fantastic free
real-time strategy (RTS) games like this
these days. You can play in single or
multiplayer mode, taking control of
more than a hundred different units with
unique abilities over hundreds of maps.
The game features an advanced physics
system, and lets you manipulate the
surrounding terrain to create mountains
and valleys. You can even take on your
opponent with an army of robotic fleas!

✗ Don't install...

Cryptic Disk
bit.ly/cryptic440
Min requirements:
Windows XP/Vista/7/8+/10
File size: 14.6MB

We often moan about the
cost of paid-for software,
but this file-encryption tool
deserves a special mention
because it costs a wallet-
busting $94 (£70). To be
fair, the makers offer a free
demo version with no time
limit, but if you want all the
features, you need to pay
a small fortune – although,
as the developer helpfully
points out, it's still "much
cheaper than the cost of
your data".

...Install this instead ✓

VeraCrypt
www.veracrypt.fr
Min requirements: Windows XP/Vista/7/8+/10,
MacOS or Linux
File size: 23.6MB

If you need to encrypt a lot of sensitive files,
there's no better free software than VeraCrypt.
This open-source tool is easy to use and offers
powerful, industry-standard encryption. It
creates password-protected containers (called
'volumes') that, once 'mounted', look like any
other drive in Windows Explorer. You have a
choice of 10 industry-standard encryption
algorithms, and a step-by-step tutorial guides
you through the process of creating your first
container. It also runs as a portable program
and lets you turn a USB stick into a private vault.

🔄 UPDATED | New tweaks and fixes for your favourite free programs

SYSTEM CLEANER
CCleaner 5.38
www.piriform.com/
ccleaner
Min requirements:
Windows XP/Vista/7/8+/10
File size: 10.7MB

This free system-cleaning
tool owned by Avast
is updated monthly.
The latest version of
CCleaner no longer
removes set-aside tabs
when cleaning up after
Microsoft Edge, and can
now clean cookies from
Local Storage in Chrome.

PARTITIONING TOOL
EaseUS Partition Master Free 12.8
www.partition-tool.com
Min requirements:
Windows XP/Vista/7/8+/10
File size: 36.7MB

Partition Master is a powerful
drive tool that lets you
create, resize, format and
delete partitions, as well as
convert and hide them. The
new version improves
partition resizing and adds
support for more drive types.
Decline the bundled junk
during installation.

PDF READER
Foxit Reader 9.0.1
bit.ly/foxit440
Min requirements:
Windows XP/Vista/7/8+/10
File size: 51.5MB

The latest version of Foxit
Software's popular PDF
reader integrates with
OneNote, so you can
send PDF files directly to
Microsoft's note-taking
tool. You can also open
potentially risky files in
Protected View to stop
any malware they might
contain infecting your PC.

AUDIO EDITOR
Audacity 2.2.1
www.audacityteam.org
Min requirements:
Windows XP/Vista/7/
8+/10, MacOS or Linux
File size: 23.3MB

This superb free multi-track
audio editor lets you
import, improve and mix
music files and fix common
problems. This update
adds the ability to change
the colour of waveforms in
your project and updates
message translations
for 19 languages. ■

GET FREE SOFTWARE FIRST subscribe to Web User at **subscribe.webuser.co.uk**

Best New Browser Tools

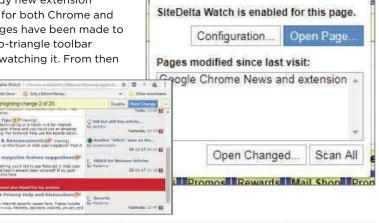## Monitor your favourite websites for changes

There's a constant flow of content online, which can make it difficult to keep track of what's new on your favourite websites. A handy new extension called SiteDelta Watch (bit.ly/sitedelta440), available for both Chrome and Firefox, makes life easier by informing you when changes have been made to pages you've chosen to 'watch'. Click the add-on's two-triangle toolbar button while viewing a site and select Enable to start watching it. From then on, any changes that are made to the page are highlighted so you can see them at a glance. Select Configuration to change the colour of the highlighting, and to tell the extension which aspects to ignore and how frequently to check for changes. SiteDelta Watch presents a list of all the sites you're watching, giving you one-click access, and offers a Scan All option to check for updates.

Beat hackers and crashes by isolating sites

One is the loneliest number, but when you're browsing the web it's also the safest, which is why Chrome now offers a site-isolation option. This experimental security feature was introduced in version 63 of the browser and ensures that the site you're viewing is rendered in its own dedicated process, isolated from other sites. Not only does this 'boundary' stop hackers interacting with and hijacking the site's content through third-party domains, but it means that if the current site crashes, it won't bring other tabs or your browser down with it.

To activate the option, type `chrome:flags` into the address bar

and press Enter to access Chrome's Experiments page. Search for 'enable-site-per-process ' to find the 'Strict site isolation' entry, click Enable and restart Chrome. Be aware, however, that the experimental feature may "increase memory usage by approximately 10–20%", which is why Google hasn't enabled it for all users yet.

View summaries of online articles

If you like to keep abreast of the latest news, reviews and opinions, but you don't have the time or the inclination to read entire articles from start to finish, you'll appreciate a new Chrome extension called Core Summarizer (bit.ly/core440). This summarises the content of the page you're viewing, picking out the most important points and conclusions, while "filtering out weak arguments, speculation and asides". That sounds like quite an advanced skill for a humble browser add-on, but we that found that it worked pretty well, displaying a concise summary as soon as we clicked its toolbar button and telling us how many minutes we'd saved by not reading the entire piece. Core Summarizer claims to reduce text by 50 to 80% on average, "depending on how much valuable information it contains".

Track product prices on Amazon

Anyone who did their Christmas shopping through Amazon will have noticed that prices on the online store fluctuate constantly – usually getting cheaper just after you've placed your order! Keepa (keepa.com) is an invaluable tool for Chrome and Firefox that ensures you never miss a bargain again. The tool lets you track the price of products over a week, month, three months or year, so you can see whether they're getting cheaper or more expensive. Once installed, Keepa displays a price-history graph on each item's Amazon page, along with a table that shows the highest, lowest and average cost of the item. You can elect to receive an alert through email, Facebook, Twitter or Desktop notifications when the price drops to a specified amount, and find out how much your chosen product sells for – both new and used – on Amazon Marketplace and eBay.

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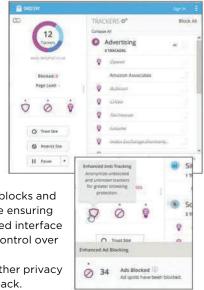
FIREFOX

Block even more unwanted content using Ghostery 8

It's nearly a year since Cliqz (cliqz.com) bought the popular privacy tool Ghostery (www.ghostery.com), incorporating it into its own Cliqz browser (see Issue 419, bit.ly/webuser419). Now Cliqz has updated the Ghostery add-on for Firefox, Chrome, Opera, Edge and Safari, to make its content blocking even more powerful. Ghostery 8's features include Enhanced Antitracking Protection, which detects trackers in real-time and overwrites any data they could use to identify you. An Enhanced Adblocker provides further protection, and a new Smart Blocking feature automatically blocks and unblocks trackers to speed up websites while ensuring pages display correctly. Ghostery's redesigned interface is faster and simpler, and gives you greater control over which elements you block and allow.

   If you previously ditched Ghostery for another privacy tool, this excellent update could tempt you back.

Be more productive by using tomatoes

If one of your New Year's resolutions is to get more done in 2018, help is hand from an add-on called Tomato Clock (bit.ly/tomato440). It's based on a time-management method called the Pomodoro Technique (and was originally named after it until a "trademark dispute" ensued), which works by breaking up your activities into 25-minute intervals called 'tomatoes'. After each tomato you take a short break, or a longer one after every four tomatoes. The aim is to make you more productive by organising your day into manageable chunks. The extension serves as a timer for your tomatoes, and uses a Desktop notification and sound to alert you when it's time to take your break. Tomato Clock also provides a graph showing how many tomatoes you've completed over the past week, so you can see when you were most and least productive.

View a mini map of long web pages

Some web pages seem to go on forever – we're looking at you, Mail Online homepage – which can make browsing them both time-consuming and tough on your scrolling finger. Minimap Scroller (bit.ly/minimap440) is a handy new Firefox add-on that solves this problem by adding a miniature map of a page's layout in a sidebar on the left-hand side of your browser window. This helps you navigate the page quickly, so you can jump straight to specific sections without having to keep scrolling.

   The extension works on all websites excluding the official Firefox Add-ons site, although the developer warns that you may experience a few bugs because the add-on is still 'experimental'.
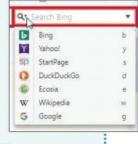
OTHER BROWSERS

Search smarter using Opera's VPN

Opera is one of the few browsers to offer a free, built-in VPN, but users have reported problems when searching the web because the results aren't relevant to their location and are sometimes in the wrong language. Opera addresses this problem – which occurs because the VPN routes your connection through another country – in version 50 of the browser. You can now bypass the VPN while searching with Google or Bing, and the VPN is automatically re-enabled when you click a link in the search results. To activate this feature, click the menu button and go to Settings, 'Privacy & security' and select 'Enable VPN' and 'Bypass VPN for default search engines'.

Switch between search engines in Vivaldi

Vivaldi has a useful feature that makes it easy to switch between Google, Bing, DuckDuckGo, StartPage and more, depending on what you're looking for and how private you want to be. Either click the down arrow next to the magnifying glass in the search box and choose a different engine, or use a shortcut before your search term, such as g something to search Google or w something to search Wikipedia. You can view and change these shortcuts in the search-engine list.

Best Free Apps

App of the Fortnight

MUSIC
Shazam
bit.ly/shazamdroid440
bit.ly/shazamios440

 (varies) 9

UPDATED

Tap to Shazam

The future of this brilliant music-recognition app seemed a little uncertain when, at the tail end of 2017, Apple announced that it had snapped up the British firm behind it for a rumoured £300m. It's probably not hard to guess what the Cupertino company has in mind for Shazam's technology.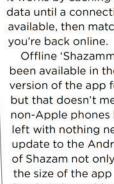 It's already built into iOS to some extent in the form of Siri's music-recognition abilities. But owning Shazam outright could pave the way for even deeper integration with Apple's software, potentially allowing for the type of always-on music recognition that Google's Pixel smartphone offers, as well as providing the opportunity to incorporate song identification into the Apple Music streaming service.

Either way, it would be easy to assume that Apple's acquisition might spell doom for Shazam's standalone apps – especially the Android version. The fact that the app has been updated on both platforms seems to suggest that this isn't the case, however – at least in the short term.

The iOS version of Shazam has gained a handy new offline mode, which lets you identify songs even when you don't have access to Wi-Fi or a mobile data connection. It works by caching the song data until a connection is available, then matching it when you're back online.

Offline 'Shazamming' has been available in the Android version of the app for a while, but that doesn't mean users of non-Apple phones have been left with nothing new. A recent update to the Android version of Shazam not only reduced the size of the app by 10MB but added an Auto Shazam mode (also available in the iOS version), which automatically identifies songs that play around you.

My Shazam
57 Shazams • 48 Following
BUY SONGS   PLAY ALL

"Brothers Of Destruction EP" Album Intro
The Lemon Twigs
21 Dec 2017, 06:45

Kyabe Knights
Nova
18 Aug 2017, 22:32
Buy on iTunes

No Stars
Rebekah Del Rio
22 Jul 2017, 21:34
Buy on iTunes

A Violent Yet Flammable World
Au Revoir Simone
22 Jul 2017, 20:27
Buy on iTunes

Tarifa
Sharon Van Etten
13 Jul 2017, 21:50
Buy on iTunes

MINI WORKSHOP
Use Shazam automatically and offline

1 To identify a song when you're offline, tap the blue button **1** as usual. Shazam will listen to the song and analyse the tune – you'll see a message saying that the Shazam has been saved. **2** Tap OK **3** in iOS or Got It! in Android. When you're back online, open the app and tap My Shazam. **4** The identified song will appear at the top of the list.

1 Pending Shazam

Shazam Saved
We'll name that song when you're back online
OK

2 To identify songs automatically without having to open the app and tap the Shazam button, long-press the button to enter Auto Shazam mode. In iOS, you'll see a message saying 'Auto Shazam is on'. In Android, you'll be asked what you'd like to do. Tap Turn On. **1** In both cases, Shazam will continue to listen for songs and identify them, even when you exit the app.

Tap to Shazam

Auto Shazam
Good job! You've found Auto Shazam. We'll keep naming those songs even if you leave the app.
JUST SHAZAM ONCE   TURN ON

3 If you've enabled notifications for Shazam, you'll receive an alert every time the app identifies a new song. **1** Check the notification settings (tap Settings, Notifications, Shazam in iOS; or Settings, 'Apps & notifications', Notifications, Notifications, Shazam in Android) to enable notifications **2** and check that your alerts are configured correctly. **3** To turn off Auto Shazam mode, open Shazam and tap the blue button.

07:28
SHAZAM
New match!
New match! Shazam matched Your Type – Always
Allow Notifications
Sounds
Badge App Icon
ALERTS
Show on Lock Screen
Show in History
Show as Banners
Temporary   Persistent
Temporary banners appear at the top of the screen and go away automatically.
OPTIONS
Show Previews   When Unlocked (Default)

Our rating
★★★★★

This fortnight's top free and paid-for apps for Android, iOS and Windows phones and tablets
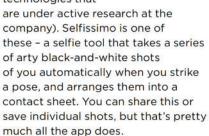
PHOTOS

NEW

Selfissimo

bit.ly/
selfdroid440
bit.ly/selfios440

📱 5 🍎 9.3

At the end of last year, Google released a trio of free photo and video apps as 'appsperiments' (apps based on technologies that are under active research at the company). Selfissimo is one of these – a selfie tool that takes a series of arty black-and-white shots of you automatically when you strike a pose, and arranges them into a contact sheet. You can share this or save individual shots, but that's pretty much all the app does. Selfissimo is a cool tool, especially for selfie addicts, but it lacks any real depth.

Our rating ★★★★☆

PHOTOS

NEW

MoShow

bit.ly/moshow440

🍎 9.1

Another new photo tool (although not from Google this time), is MoShow – an instant slideshow generator that takes your photos and transforms them into fun, shareable video clips, complete with music, transitions and effects. It's easy to use: just select your shots, choose from a range of different styles, add text (if you like), then share your slideshow with the world. The only minor drawback is that some useful features, such as extra styles and the ability to remove the MoShow logo, are locked behind an in-app paywall.

Our rating ★★★★☆

KEYBOARD

NEW

Grammarly Keyboard

bit.ly/
grammardroid440
bit.ly/
grammarios440

📱 4.0.3 🍎 9.3

You're probably already familiar with Grammarly's excellent free Chrome extension, which checks for and corrects grammatical mistakes in blog posts, social media updates and more. This keyboard tool for iOS and Android takes the concept a step further by applying the laws of grammar to your every smartphone or tablet keystroke. Grammarly Keyboard is almost brilliant, but it's not quite there yet, with few customisation options and the occasional glitch, especially in the iOS app. Hopefully, these will be fixed in future updates.

Our rating ★★★☆☆

PHOTOS

NEW

Scrubbies

bit.ly/
scrubbies440

🍎 10

Another of Google's recent quirky app releases, Scrubbies is an iOS-only tool that lets you manipulate the speed and direction of video clips to produce slow-mo, speeded-up or reversed mini clips. Tap the camera icon to record a clip, then use one finger to scrub through your recording to find a bit you want to use. Then use two-fingered gestures to direct the action, swiping backwards or forwards, slowly or quickly to achieve the desired effect. Your finished results can be saved or shared. It's a pity you can't import existing videos from your library, though, and the process of creating a cool-looking clip can be somewhat hit and miss.

Our rating ★★★★☆

PHOTOS

UPDATED

Storyboard

bit.ly/storyboard440

📱 5

The final app in Google's trilogy of recent oddball experiments is designed to take any videos you've recorded and convert them into a kind of comic strip, applying hand-drawn effects and arranging selected frames in a layout that mimics the panels of a comic page. Currently, there aren't many options for controlling the app's output. Once you've loaded a video, you can swipe through various layouts that use different types of effect until you find one you want to keep. You can save any layouts you like or share them over social media. Like Selfissimo and Scrubbies, Storyboard is currently quite basic, but fun.

Our rating ★★★★☆

5 NEW APPS WORTH PAYING FOR

NOTIFICATIONS
Notification History Log Pro
bit.ly/notification440
Price: £2.99
🤖 4.1

Ever dismissed a notification, then instantly regretted it? If so, this updated app is for you. The Pro version is worth paying for because it adds an unlimited log.

GAME
Bridge Constructor Portal
bit.ly/portaldroid440
bit.ly/portalios440
Price: £4.99
🤖 4.1 8

This may not be the game Portal fans were hoping to play on their mobile devices, but it's still a very engaging mashup between two of Valve's best gaming franchises.

GAME
Inside
bit.ly/inside440
Price: £6.99
(in-app purchase)
 11

Inside, from the makers of the wonderful Limbo, is just as creepily beautiful and mindbending as its predecessor. If you like 2D puzzle platformers, it's an absolute must.

GAME
Oddworld: New 'n' Tasty
bit.ly/odddroid440
bit.ly/oddios440
Price: £7.49 (Android), £7.99 (iOS)
🤖 5 8

This remake of the PlayStation classic finally makes it on to mobile devices and it looks great. Make sure you read the compatibility notes on iTunes or Google Play before you buy, though.

MUSIC
Bandimal
bit.ly/bandimal440
Price: £3.99
 10

Introduce little ones to the joys of making music with this beautifully designed app. The different musical instruments are represented by cute animated animals, which makes crafting compositions both highly intuitive and fun.

Notification History Log Pro

Bridge Constructor Portal

Inside

Oddworld: New 'n' Tasty

Bandimal

❌ Don't install...

Pizza Hut UK Takeaway Delivery
bit.ly/pizzahut440

Android users have been getting angry about Pizza Hut's app on Google Play, with many of them rating it just one star. The fact that the town finder refuses to find many of the town names you enter doesn't help. And it's frustrating that you can't view prices or deals without naming your nearest restaurant. Glitches, such as progress tracking that vanishes when you close the app, just make matters even worse.
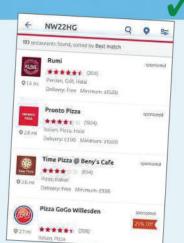
...Install this instead ✔

Just Eat
bit.ly/justeat440

If you're desperate for a stuffed crust, you may well have to put up with Pizza Hut's idiosyncratic app, but for greater choice, as well as a much more hungry person-friendly in-app experience, we heartily recommend tucking into Just Eat. You can search for local restaurants by postcode or restaurant name, filter the results according to the type of cuisine you're after, then browse menus to your heart's content. Logging in with a Just Eat account provides further benefits, including the ability to review your meal and the restaurant service or save your favourites and reorder them in just a couple of taps. ■

Take a Screen Break

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

CAN YOU GUESS THE CLASSIC ALBUMS FROM THE EMOJI?

1. 🏨 🏴 (hotel / California flag)
2. 🚰 S 🌳
3. 🦇 ⬅️ 😈
4. 💃 ➡️ 🌃
5. 💜 🌧️
6. ⚛️ ❤️ 👨‍👩‍👦

WEB USER WORD PUZZLE

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

1 US Actor, star of long-running detective series *Columbo* (5,4)
2 US state, capital St Paul
3 Constellation known as The Seven Sisters
4 Mediterranean island, capital Cagliari
5 1984 Queen single and inspiration for Stefani Germanotta's stage name (5,4)
6 Author of *For Whom the Bell Tolls* and *The Old Man and the Sea*
7 Food writer, restaurateur and judge on *The Great British Bake Off* (4,5)
8 1963 John Schlesinger film with Tom Courtenay and Julie Christie (5,4)

COMPETITIONS

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Our guide to CryptoKitties

The purr-fect game or an ridiculous waste of money? **David Crookes** examines the latest craze of collectible digital cats
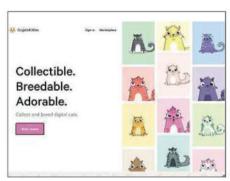
What are they?

CryptoKitties is a new internet craze centred around everyone's favourite online creature: cats. It involves collecting, trading and breeding virtual kittens using a blockchain network. But while some people are enjoying the trading game purely as a fun pastime, others are making serious money.
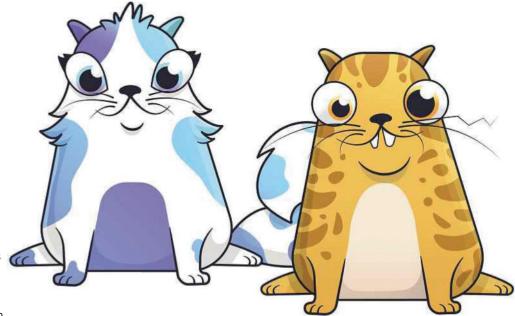
How does it work?

The game is built on the Ethereum blockchain, which is a method of digital bookkeeping that chains together a continuously growing list of transactions in secure batches of data known as blocks (you can read more about this in our FAQ on Blockchain in issue 435). At the simplest level, players buy a kitten using a cryptocurrency called 'Ether', in much the same way as you'd buy a physical toy using cash. The CryptoKitty then belongs to the purchaser. The fact that each cat is unique means many of them are becoming highly prized.

Where does the gaming element come from?

There are two key parts to CryptoKitties. The first is that the kittens can be sold to other collectors via a button on their profile that allows the virtual animals to be put up for sale. But the second – and most intriguing – aspect of this increasingly popular craze is that two

CryptoKitties can be bred to produce another unique kitten. It is why the developers AxionZen are describing their game as "breedable Beanie Babies" (see box on opposite page).

So how do I get a CryptoKitty?

To play CryptoKitties, you have to install the MetaMask digital wallet (metamask .io), which is only available as an extension in the desktop versions of Chrome and Firefox. You then need to buy Ether (or ETH as it's known) from an exchange such as Coinbase (www.coinbase.com) and transfer it to MetaMask. Once that's done, you simply

visit the CryptoKitties website (www .cryptokitties.co) and create an account. CryptoKitties are available in the marketplace in exchange for Ether.

How much do they cost

Well, that's the $64,000 question – literally, as we'll see. At the time of writing, according to the Kitty Sales website (kittysales.co), the average mid-range price was $23.29, but that hasn't deterred fans from buying more than 61,555 unique kittens.

Prices are set by users and drop over 24 hours until the auction ends or the kittens are snapped up. At the same time, new CryptoKitties are released every 15 minutes and their prices are determined by the average price of the last five kittens sold plus an extra 50%.

Wow! So they're not cheap?

Not at all. Again, the Kitty Sales website shows the top price paid for a CryptoKitty (as of 8 December) as an eye-watering $113,749, which translates to 253 Ether (or £84,485). Total sales of all CryptoKitties so far amount to about £10m, which is quite an achievement when you consider that the game

Cryptokitties are cute, colourful and highly collectible – for a price

You need to install the MetaMask extension to buy CryptoKitties

CryptoKitties aren't cheap to start with and their price is rapidly soaring

only officially came into being on 28 November 2017.

What if someone steals a kitten?

Ah, that's the good thing about CryptoKitties' use of blockchain. The technology is tamper-proof, which means that kittens cannot be captured, destroyed or replicated. The blockchain securely tracks each kitten's ownership so when you buy a kitten, the transaction is added to the blockchain and creates a permanent online receipt.

If you buy a CryptoKitten, then you own it and look after it forever (although in all honesty, they don't need much looking after: they don't eat, defecate or show any emotion). There's no chance that the kittens can be deleted if the company decides to shut down.

What happens when the kittens breed, though?

Well, this is the interesting bit, although it needs some background explanation. When the game launched, it did so with 100 Founder Kitties that are referred to as Gen-Zero. More of these Gen-Zero kittens are released every 15 minutes but there is a limit to how many can be created. Indeed CryptoKitties is limiting them to 50,000. They will finish generating by November 2018, which ensures a level of scarcity.

So how have more than 50,000 kittens been bought?

That's where breeding comes in. As you'd

When two CryptoKitties get together, they produce an egg to hatch another

expect, you need two CrypoKitties to do this and because they are gender-fluid, you don't need to worry about putting a Dame and Sire together – each CryptoKitty can play either role. Once you've selected which is going to be the mum and which the dad, you just wait for virtual nature to take its course. After a short while, two Gen-Zero kittens will spawn a Gen-One offspring while a Gen-One and Gen-Five kitty, for example, would produce a Gen-Six. This goes on and on, producing ever more kitties.

So there's lots more cash to be made, then?

To a degree. CryptoKitties with lower generation numbers are worth more than those with higher ones, and the trick is to get lucky and breed a kitten with rare traits. But since each creature has a unique 256-bit genome and there are four billion possible genetic variations, this isn't as straightforward as it sounds. The traits of a CryptoKitty – such as facial features, colour, whiskers, markings and cooldown time – are decided by an algorithm that the developer is keeping close to its chest.

Which ones should I look for?

The most highly prized are called Oldlace but there are only five of those in existence right now according to CryptoKittyDex (cryptokittydex.com/cattributes). Wolfgrey kitties are also rare and valuable: there are just 31 of those. If you end up with Totesbasic, though, you're going to be less fortunate since there are 68,486 of them – and counting.

Discover which CryptoKitties are most valuable at the CryptoKittyDex

It sounds complicated. Is it really worth it?

It does, on the face of it, sound as if the world has finally lost its mind, but some people are making serious money out of CryptoKitties. They are so popular that the game now accounts for more than 15% of network traffic on Ethereum (which has consequently raised the price of joining the game). Rival games such as CryptoPets (www.cryptopets.co) have already appeared online, so this could go either way: people may get fed up with the whole thing very quickly or they may hop from one trend to another to make a quick buck.

Surely the developer must be making money?

It sure is. AxionZen takes a 3.75% fee of all auction and siring transactions via its website. Given the soaring price of the CryptoKitties, it's bound to be amassing a pretty penny.

BREEDABLE BEANIE BABIES

Although CryptoKitties' developer describes its game as "breedable Beanie Babies", it would do well to heed the lessons of this once phenomenally popular toy range. Huge in the 1990s, Beanie Babies at one time accounted for 10% of eBay's sales and made a lot of people a lot of money. This was helped by the makers creating scarcity in the market by retiring certain Babies on a whim, thus driving up the prices. But eventually, the novelty wore off – when retirements were announced in January 1999, prices remained stable and a flurry of new releases failed to generate interest. By 2000, the Beanie Babies bubble had burst. Still, as we explain above, CryptKitties' developer currently earns commission on every purchase, so it probably isn't panicking just yet.
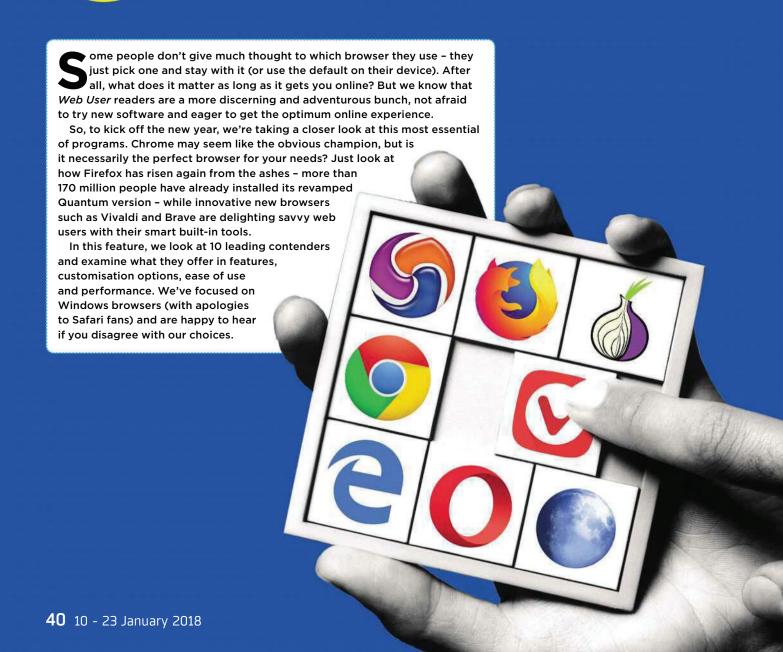
SWITCH YOUR BROWSER NOW

Should you change to a new web browser in 2018 or stick with what you're using? **Robert Irvine** compares the 10 best options to discover what they have to offer

Some people don't give much thought to which browser they use – they just pick one and stay with it (or use the default on their device). After all, what does it matter as long as it gets you online? But we know that *Web User* readers are a more discerning and adventurous bunch, not afraid to try new software and eager to get the optimum online experience.

So, to kick off the new year, we're taking a closer look at this most essential of programs. Chrome may seem like the obvious champion, but is it necessarily the perfect browser for your needs? Just look at how Firefox has risen again from the ashes – more than 170 million people have already installed its revamped Quantum version – while innovative new browsers such as Vivaldi and Brave are delighting savvy web users with their smart built-in tools.

In this feature, we look at 10 leading contenders and examine what they offer in features, customisation options, ease of use and performance. We've focused on Windows browsers (with apologies to Safari fans) and are happy to hear if you disagree with our choices.

WebUser GOLD AWARD

Vivaldi
vivaldi.com

FEATURES ★★★★★   **PERFORMANCE** ★★★★★

CUSTOMISATION ★★★★★   **EASE OF USE** ★★★★☆

It was a close race for the top spot in this round-up, but in the end we gave it to bright new hope Vivaldi. Whereas most browsers now ape the pared-down design of Chrome, Vivaldi most resembles older versions of Opera, which isn't surprising since it was created by Opera's co-founder to be "Opera as it should've been" (before it became more Chrome-like). But that doesn't mean the browser is derivative or old-fashioned – quite the opposite – in fact, Vivaldi is the most original and progressive browser around.

Its default interface may not look particularly groundbreaking, but dig deeper and you'll discover all manner of clever features, customisation options and time-saving tricks, which are frequently updated and refined, and reported in the friendly Vivaldi blog (vivaldi.com/blog).
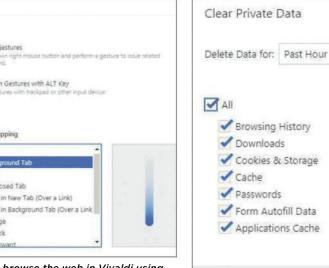
When you first run Vivaldi, you're invited to choose from six attractive themes, set the position of your tab bar and pick a background wallpaper. Web pages can be handily displayed in pull-out panels, navigated using mouse gestures, annotated for future reference, captured with the screenshot

You can browse the web in Vivaldi using the mouse gestures of your choice

tool, grouped into tab 'stacks' to save space or tiled to view them side by side.

Most browsers support keyboard shortcuts but Vivaldi goes a step further by letting you create your own, and you can easily add more search engines to its default options. It also gives you impressive control over your privacy settings and lets you clear all your

Vivaldi makes it easy to clear all your private data in one go
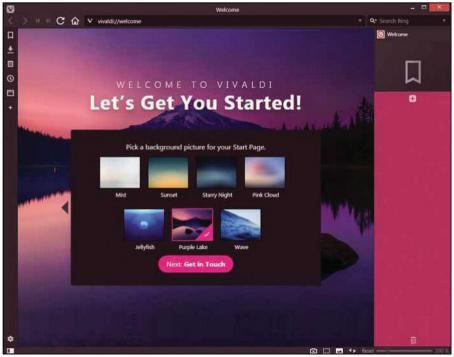
private data in one go. In our speed test, it came a close second to Chrome for page-loading times and feels smooth and stable as you browse.

Vivaldi doesn't yet have its own extensions site – you have to use the Chrome Web Store, which is confusing because the buttons are still labelled 'Add to Chrome'. But all the add-ons we tried worked perfectly in Vivaldi and make it much less restrictive than Brave or Epic (see pages 43 and 44), though it lacks their built-in security tools.

We'd like to see syncing options and a version of Vivaldi for mobile devices – both are apparently 'in the works' – and fewer entries preinstalled in the browser's Bookmarks. Commendably, Vivaldi actively seeks feedback about bugs so it can fix them as quickly as possible.

Vivaldi can be customised with attractive themes – we've plumped for Hot Pink

VERDICT ★★★★★

Fast, friendly and fresh, Vivaldi is our pick of browsers for 2018. It takes a little getting used to but considering it's only in its first stable version, it's already very impressive. We can't wait to see how it develops in future.

Chrome
www.google.co.uk/chrome

FEATURES ★★★★☆ **PERFORMANCE** ★★★★★ **CUSTOMISATION** ★★★★★ **EASE OF USE** ★★★★★

Simplicity is the great strength of our Silver Award winner: rather than overload its browser with features, Google lets you choose what to install from the vast Chrome Web Store of extensions and themes (chrome.google.com/webstore). The sheer variety is astounding, although Chrome's reliance on third-party tools has made the browser itself less innovative in recent years, especially since switching to a 'rapid release cycle' that means new versions bring only minor changes.

This 'if ain't broke, don't fix it' approach can make Chrome seem unadventurous when compared to our Gold Award winner but, in its favour, Chrome has many useful built-in tools that work unobtrusively, including a form filler, spellchecker and password manager, and Google features such as Translate and voice control.

Aside from extensions, Chrome thrives on three S's: search, sync and security. Being able to search Google from your address bar and easily sync all your bookmarks, history, passwords, tabs and other data across all your devices is incredibly useful, and we like that the browser now warns you about dubious sites, add-ons that make changes to your settings and potentially harmful software. A fourth S – speed – is also a given, with Chrome narrowly beating Vivaldi to the top spot in our performance test.

Chrome's biggest flaw is that it voraciously devours

Chrome's excessive memory usage can cause the browser to hang or crash

memory. Because it uses a separate background process for every tab, plugin and extension, this soon adds up and can lead to pages hanging and crashing. Add-ons are often the biggest hogs, but it still makes Chrome less stable than other browsers.

VERDICT ★★★★★

Chrome's support for the latest web technologies places it at the cutting edge, even if other browsers offer more features

Chrome's huge choice of extensions is one of the best reasons to use the browser

Opera
www.opera.com

FEATURES ★★★★★ **PERFORMANCE** ★★★★★ **CUSTOMISATION** ★★★★★ **EASE OF USE** ★★★★☆

Opera has been around for 22 years but it's never claimed more than a 6% share of the browser market and remains relatively unsung beyond all but the savviest web users. This is a travesty because Opera has introduced more innovations than any other browser and its latest, 50th version offers such useful features as a built-in ad blocker,

a screenshot tool, a sidebar for chatting to friends in WhatsApp and Facebook Messenger, a power-saving mode for laptop users and a pop-out video player.

Best of all is the free VPN, which spoofs your IP address and encrypts your data to keep you safe and anonymous online. No other browser has this excellent feature, which is easily turned on and off via a tick box in Opera's settings – even the privacy-focused Brave and Epic rely on proxy servers rather than VPNs.

Opera came third in our speed test and uses much less memory than the two market leaders, Chrome and Firefox. You may occasionally encounter sites that aren't designed for Opera and don't display properly, but this problem can usually be fixed

with an add-on. Indeed, since Firefox switched to WebExtensions, Opera is second only to Chrome in its choice of add-ons. Technically, since you can install Chrome extensions (bit.ly/install440), it's actually in first place.

Opera can seem confusing at first because some of its best features are tucked away, and its interface feels slightly dated. However, the promise of Opera Neon – heralded as the "future of web browsers" – shows that it's not resting on its laurels.

VERDICT ★★★★★

If you're put off by Chrome's privacy and memory issues and aren't impressed by the new features in Firefox Quantum, Opera won't let you down and may even take you by surprise.

Opera offers many features other browsers don't, including a free built-in VPN

Firefox www.mozilla.org/firefox

FEATURES ★★★★☆   **PERFORMANCE** ★★★★☆   **CUSTOMISATION** ★★★★★   **EASE OF USE** ★★★★★

To say that Quantum, the 'reborn' version of Firefox, is an improvement on previous releases is an understatement: it's a much smarter browser with several useful new tools. It's also much faster, despite coming fourth in our speed test.

Quantum uses multiple processor cores and a new CSS engine to reduce memory (and battery) usage – around 30% less than the old version – and load

pages faster. Tweaks have also been made to ensure the tab you're currently viewing is given priority over background tabs, and to deliver smoother video playback.

Firefox now has a built-in screenshot tool, a handy sidebar displaying your Bookmarks, History and Synced Tabs, and a unified address and search bar. Although not as instantly customisable as Vivaldi, it lets you personalise your New Tab page and, of course, install thousands of extra tools from its Add-ons site (addons.mozilla.org). These 'WebExtensions' are more secure than the old add-ons and should work across other browsers, but you may find that some of your

favourites haven't made the transition and no longer load. Mozilla has also integrated its read-it-later tool Pocket with the browser, but if you don't want it, you can disable it via 'about:config' (see our tip on page 68).

We wish some of Brave and Opera's security tools were built into Quantum but you can at least be reassured that Firefox has privacy settings such as Tracking Protection enabled by default.

VERDICT ★★★★☆

If you ditched Firefox for Chrome a few years ago, you should at least give Quantum a try, if only to see what's different.

Brave www.brave.com

FEATURES ★★★★☆   **PERFORMANCE** ★★★★★   **CUSTOMISATION** ★★☆☆☆   **EASE OF USE** ★★★★★

Created by the former CEO of Mozilla, Brave's focus is to keep you safe online. Its powerful 'shields' block all cookies, ads and scripts that compromise your privacy and security, and it automatically redirects you to the secure versions of websites. Whereas Chrome and Firefox's private modes merely stop your browsing history being stored on your computer, Brave's private-tab mode prevents all tracking cookies from following you around the web.

Statistics for content blocked by the browser are displayed on your New Tab page, along with photos, the current time and shortcuts to your favourite sites, and Brave also ranked respectably in our performance test. It's very easy to use, with a streamlined design and the useful option to preview a tab's content.

Instead of add-ons, Brave has nine preselected tools, including a torrent client, discount-finder Honey and (rather unnecessarily) four different password managers. It's a pity Brave

doesn't offer more extras, but we understand its desire to lock down settings and prevent slowdown. We should also point out that Brave isn't actually adverse to advertising, but has an opt-in system called Basic Attention Tokens that lets you earn cryptocoins for viewing its partners' ads.

VERDICT ★★★★☆

If you don't mind trading flexibility and customisability for privacy, security and speed, then Brave is a great choice and very easy to use.

Maxthon Cloud Browser www.maxthon.com

FEATURES ★★★★★   **PERFORMANCE** ★★★☆☆   **CUSTOMISATION** ★★★★★   **EASE OF USE** ★★★☆☆

Maxthon Cloud Browser's homepage boasts of 670 million users, yet most people have never heard of it – which is a shame because Maxthon is packed with innovative features you won't find elsewhere, supports more than 800 extensions – 10 times as many as Edge – and is available for both desktop and mobile.

Notable tools include cloud sync across devices; a built-in ad blocker (Adblock Plus),

video downloader and screen-capture tool; a night mode to protect your eyes; customisable skins; and optional extras such as a password manager, note-taking tool and virtual mailbox. Indeed, Maxthon's main flaw is that it tries to cram in too much, so its interface lacks the simplicity of Vivaldi, Chrome and Firefox, particularly when you delve into its menus and settings.

This surfeit of features makes the browser slower to start and load pages

than many of its rivals, and we found several extensions looked slightly dodgy or hadn't been translated from Chinese (Maxthon's country of origin). Also, the ad blocker didn't work on Maxthon's own homepage!

VERDICT ★★★★☆

You'd be hard pushed to find a more feature-packed browser but we recommend reading Maxthon's privacy policy (www.maxthon .com/privacy) before installation.

Edge www.microsoft.com/edge

FEATURES ★★★★☆ **PERFORMANCE** ★★☆☆☆ **CUSTOMISATION** ★★★☆☆ **EASE OF USE** ★★★★☆

Microsoft's successor to the much-maligned Internet Explorer may not have toppled Chrome and Firefox, but it's a perfectly good browser with some interesting built-in tools that its rivals only offer as add-ons. These include the ability to add notes to web pages, a reading view that strips out superfluous

content, a read-it-later list for saving interesting articles and the option to convert pages into Start-menu live tiles. Then, of course, there's integration with Windows 10 voice-assistant Cortana, which either makes your browsing easier or gets turned off almost immediately.

In its first year, Edge was hampered by a lack of extensions, though this also meant fewer security and performance problems. There are now around 80 useful free tools including ad blockers, password managers, privacy protectors and shopping assistants. Edge has yet to get an essential extension of its own, but at least the growing choice makes switching from another browser more appealing.

Edge's interface is pleasantly minimal, with page previews that appear when you hover over a tab, but there are a few odd omissions. For example, you can't press F11 to go full-screen, search your history for a specific site or save a page as HTML. We also found it very slow in our speed test, which was surprising on a Windows 10 laptop!

VERDICT ★★★☆☆

Edge is undoubtedly better than IE, with handy built-in tools and a growing number of extensions, but it feels unexciting compared to rival browsers.

Pale Moon www.palemoon.org

FEATURES ★★★☆☆ **PERFORMANCE** ★★☆☆☆ **CUSTOMISATION** ★★★★☆ **EASE OF USE** ★★★★☆

Pale Moon, originally based on Firefox, has diverged from Mozilla's browser significantly over the years, maintaining features that Firefox dropped and adding tools of its own. These include a customisable Start page that displays widgets for your favourite websites, services and RSS feeds; a sync option that encrypts your data before it's uploaded; and DuckDuckGo as

the default search engine rather than nosy Google or Bing. It also benefits from a busy forum (forum.palemoon .org) for discussion and tips.

Pale Moon's main shortcoming concerns add-ons. Mozilla's switch to WebExtensions means that thousands of classic Firefox add-ons no longer work in Pale Moon – NoScript being perhaps the most notable example. Pale Moon offers its own extensions, as well as

search plugins and attractive themes, but the Quantum update has severely reduced the choice. However, the lead developer behind Pale Moon hopes to address this problem with a new build of the browser later this year, so you may want to wait before switching.

VERDICT ★★★☆☆

Pale Moon is how Firefox may have turned out if it had taken a different path. Unfortunately, it performed poorly in our speed test.

Epic Browser www.epicbrowser.com

FEATURES ★★★★☆ **PERFORMANCE** ★★☆☆☆ **CUSTOMISATION** ★★☆☆☆ **EASE OF USE** ★★★★☆
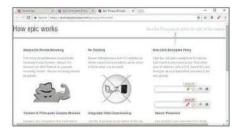
With most browsers, you need to install an arsenal of privacy add-ons to avoid being tracked online, but Epic has this functionality built in. Like Chrome, it's based on Chromium (and works on Windows and MacOS), but offers a safer, no-frills browsing experience.

Epic ensures that everything you do

remains private by blocking all trackers, third-party cookies and ads; redirecting your searches through a proxy server so no one can see what you're looking for; always using an encrypted connection (where possible) when you visit websites; and automatically clearing your browsing data at the end of each session. You can also hide your IP address with a single click, so no one can tell where you're browsing from.

Aside from its rather dull design, the drawback to Epic's ultra-vigilant approach is that you're limited to seven 'secure' add-ons, including LastPass, Pocket and Xmarks, and can't install your favourite extensions. Also, because

Epic automatically erases your browsing history, you'll need to make sure you bookmark any web pages you may want to revisit in the future.

We had problems running our speed test with Epic, which kept crashing halfway through, so we weren't able to log a performance result.

VERDICT ★★★☆☆

Epic has some useful privacy features but it's not as smart as Brave and you may find some pages don't load properly. The design is a bit uninspiring, too.

Tor Browser   bit.ly/torbrowser440
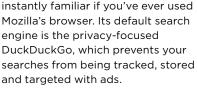
FEATURES ★★★★☆   **PERFORMANCE** ★★☆☆☆   **CUSTOMISATION** ★★☆☆☆   **EASE OF USE** ★★★★☆

Tor Browser's biggest benefit is the reliable protection it offers against hackers, identity thieves and nosy parkers, including government agencies. Tor comes with two powerful security tools preinstalled – NoScript and HTTPS Everywhere – and routes your web traffic through a series of 'nodes' (other computers) to conceal your real IP address and location. It's based on an older, pre-Quantum version of Firefox (52, to be precise), so it will feel instantly familiar if you've ever used Mozilla's browser. Its default search engine is the privacy-focused DuckDuckGo, which prevents your searches from being tracked, stored and targeted with ads.

On the downside, Tor is noticeably slower than other browsers if you have all its security settings whacked up to the max, because of the roundabout way in which it connects you to the web. However, these settings are easy to disable on sites that don't pose a threat, either temporarily or by 'whitelisting' the relevant URLs.

Some people worry that using Tor will expose them to the horrors and dangers of the so-called Dark Web, but this isn't the case at all. Sites that can only be accessed through Tor have convoluted '.onion' addresses that you won't accidentally stumble across, although you should be as vigilant as usual about opening suspicious links.

VERDICT   ★★☆☆☆

If you want to browse the web anonymously, then Tor is definitely the tool to use, but be prepared for slower page-loading times.
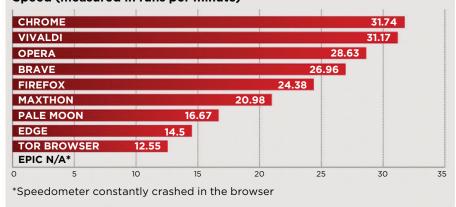
BROWSER SPEED ON TEST

We tested all 10 browsers using the online benchmarking tool Speedometer (bit.ly/speedometer440), which uses demo web applications to simulate user actions and calculates the mean speed in 'runs (operations) per minute' after performing 10 tests. We disabled all add-ons, closed all tabs except Speedometer's and ensured no other programs were running.

Here's how the browsers fared on a 64-bit Windows 10 laptop.

Speed (measured in runs per minute)

Browser	Speed
CHROME	31.74
VIVALDI	31.17
OPERA	28.63
BRAVE	26.96
FIREFOX	24.38
MAXTHON	20.98
PALE MOON	16.67
EDGE	14.5
TOR BROWSER	12.55
EPIC	N/A*

*Speedometer constantly crashed in the browser

OUR VERDICT

WebUser
GOLD
AWARD

It was a tight race between Chrome and Vivaldi, which are both fast and highly customisable, but we eventually chose innovation over ubiquity to give the newer browser our Gold Award. Although Vivaldi still lacks a mobile version and syncing options, it feels more modern than Google's browser and is stronger on privacy. Opera and Firefox Quantum also impressed us, as did the security-focused Brave. More surprising was the poor performance of Microsoft Edge on a Windows 10 system, suggesting it still has some way to go to take on the big guns.

NEXT ISSUE   on sale Wednesday 24 January 2017

MAKE THE WEB
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PLUS...

STOP LEAKING DATA
Hide personal info you don't realise you're revealing

TECH MYTHS EXPOSED
Can a Pringles tube *really* boost your Wi-Fi signal?

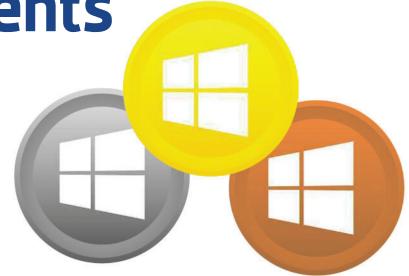**HACK YOUR MONITOR**
Secret tweaks that improve the quality of your screen

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The best Windows Start menu replacements

Following the news that ClassicShell is no longer in active development, **Jonathan Parkyn** explores the best replacements for this once-brilliant tool

StartIsBack | £2.23 | startisback.com | ★★★★★

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

WebUser GOLD AWARD

What we liked:

As soon as you've installed StartIsBack, you're prompted to 'Configure StartIsBack now' – click this and you can choose one of the program's Start menu, taskbar and Start button styles. The default option looks and works just like Windows 7's Start menu, complete with links to the Control Panel, This PC and the Run tool. Your user library folders appear on the right, and there's a pane where you can pin your favourite programs and apps on the left.

If, at any time, you want to view the standard Windows 10 Start menu, press Ctrl+Win to reveal it. The right-click Start menu remains the same, except that selecting Properties provides access to StartIsBack's configuration menu, where most of its features and functions can be tweaked and customised to your liking.

For example, if you've no desire to use Windows 10's built-in apps, you can click the Start Menu tab on the left, then untick 'Display Modern apps' and 'Display frequently used Modern apps' to banish them from your Start menu. Alternatively, you can alter the appearance of Windows 10's tiles (click Switching, then 'Tweak modern icons') so that they look more like classic icons.
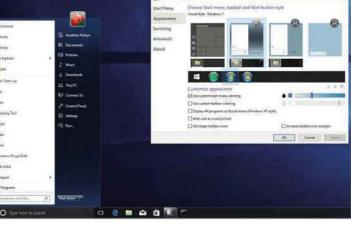
A recent update to StartIsBack added a replacement Jumplists taskbar, which offers a few extra tricks that you won't find in Windows 10's built-in Jumplist. Right-click a taskbar icon then right-click the program for a handy list of options, including the ability to 'Open file location'. You can also end an unresponsive process from a Jumplist without having to open the Task Manager.

How it can be improved:

Unlike ClassicShell, StartIsBack is not free, though there is a free trial you can install before you commit to payment. That said, £2.23 is a small price to pay for such a brilliant tool. We don't have many other gripes with StartIsBack, though the configuration tool could do with a facelift – it looks a bit plain and some of its best options can be difficult to find.

OUR VERDICT

With its instantly familiar look and many customisation options, StartIsBack is one of the few Start menu replacements that provides an equivalent to almost everything ClassicShell had to offer. That's why it's our favourite choice, even though it's not free.

Stardock Start10 | £3.72 | bit.ly/sds440 | ★★★★☆

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

WebUser SILVER AWARD

What we liked:
Start10 is one of Stardock's many Windows customisation tools, along with Fences (for managing your Desktop icons) and Groupy (organises multiple applications into grouped tabs). You can choose from three main Start menu styles – Windows 7, Modern and Windows 10 – all of which can be modified using themes and tweaks to individual settings. The program's default setting does a good job of emulating Windows 7's Start menu, but it's worth experimenting with the options to get things how you like them. Right-click the Start button and select Configure Start10 for a tabbed menu of options.

As with StartIsBack, you can change not only how the Start menu looks and works but also customise related controls, assigning actions to Windows button key combinations and the power button. There are also some useful options for tweaking the look of the taskbar and Desktop.

How it can be improved:
Some of Start10's alternative icons – including its selection of Start buttons – won't be to everyone's taste, and despite costing more than StartIsBack, it has fewer useful configuration options. Also, Start10's default setting completely disables Windows 10's handy right-click Start menu, and there's no obvious way to get it back.

OUR VERDICT
Not quite as polished or useful as StartIsBack, Start10 nevertheless nails that Windows 7 Start menu look and feel, and there's a decent selection of customisation options.

Start Menu X | Free | www.startmenux.com | ★★★★☆

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

WebUser BRONZE AWARD

What we liked:
If you choose the default Start Menu X style, you can drag and drop the Start menu anywhere you like – it doesn't have to remain stuck in the bottom-left corner. Click Start, Options, then Options again for Start Menu X's configuration settings. Under Personalization, there's a useful option to alter the scale – increasing this setting makes the menu easier to read.

You can add programs and apps to groups: System, Games, Office and so on. Their shortcuts appear at the top of the all-programs list – just click Manage Virtual Groups in the Personalization options to customise them.

The program's keyboard shortcuts speed up tasks such as shutting down your PC, and are listed under Shortcuts in the Options dashboard. Once you've got Start Menu X the way you like it, you can export your settings (under 'Advanced options') to back them up or import them on another PC.

How it can be improved:
Compared to the smart 'classic' look of our Gold and Silver winners, Smart Menu X's design looks dated. Some features – notably support for tabs and single-click program launching – aren't in the free version and, at £7.99, the Pro version is expensive compared to its rivals.

OUR VERDICT
This isn't the best looking Start menu replacement, but there's a free version and it offers some useful options and shortcuts. We particularly like its ability to place the Start menu wherever you like.

BEST OF THE REST

Start Menu Reviver | Free
bit.ly/revi440
This free tool gives your Start menu a whole new look and has been developed with touchscreens in mind, which makes it a good choice for Windows 10 tablets and hybrids. However, there aren't many configuration options and, while it seems to be still in active development, Start Menu Reviver hasn't been updated since 2016, which could mean that ReviverSoft is neglecting its software.

IOBit Start Menu 8 | From free
bit.ly/iosm440
Like many Start menu replacements, this tool was initially developed as an alternative to the dreaded Windows 8 Start screen. Start Menu 8 borrows heavily from Windows 7's look and feel, while offering a handful of customisation options. It's still in active development – a new version was released just recently – but it currently costs about £10 to activate the full version.

ClassicShell | Free
www.classicshell.net
Although the developer of the best free Start menu replacement tool has called it a day, it's still available to download. At some point soon, though, ClassicShell will become unsafe and potentially unreliable in the wake of continuing Windows 10 updates. The software is now officially open source (bit.ly/csos440), so we're hoping that someone else will pick up the mantle and continue development.

Expose your ISP's secret tricks

Is your broadband suspiciously slow and ridiculously expensive?
Robert Irvine answers the seven vital questions you need to ask

Are you getting the speed you pay for?

It's very rare to experience the maximum download speed promised by your ISP – hence Ofcom's proposal for providers to quote a "minimum guaranteed" figure to prospective customers (bit.ly/ofcom440) – but your connection may be significantly slower than what you pay for. There are loads of free online tools that measure your broadband speed, but for accurate results you need one that uses a local server.

The best-known is Ookla Speedtest .net (beta.speedtest.net), which is available in your browser, on your Desktop and on your phone, and quickly measures your download and upload speeds, and 'ping' – the time it takes to send a single packet of data to a server, and get a single packet back in reply.

It's worth trying the test at different times of day for an overview and getting a second opinion from Thinkbroadband (bit.ly/think440). This asks you to specify your postcode and ISP before running its test, then compares your results with other customers. If you're way off your promised speed, then it's time to give your provider a call.

Is your ISP throttling your bandwidth?

Some of the problems that result in frustratingly slow broadband, such as faults caused by rats gnawing through cables, are beyond your provider's control and thus forgivable – provided they're fixed quickly and compensated adequately. But an ISP that deliberately 'throttles' your connection without explanation is being both devious and dishonest, and should be exposed.

Some providers only slow certain types of traffic, such as BitTorrent downloads, while others throttle customers' connections if they download too much data in a month. In some cases, ISPs are merely trying to manage network congestion. Throttling is a particular problem in the US at the moment, and has sparked a debate about net neutrality.

A site called Battle for the Net (bit.ly/speed440) runs a series of speed tests to detect inconsistencies in the performance you're receiving when connecting to different parts of the net, although this isn't necessarily proof of throttling. You can also try Netflix's Internet Speed Test (fast.com) to see if your connection to the streaming service is noticeably slower than your general speed.

Not all UK ISPs shape traffic, or at least not any more. See Choose's breakdown of 'Broadband fair use policies' (bit.ly/fairuse440) for more information.

Are you too far from the broadband exchange?

Historically, households with very slow connections were those furthest from their local broadband exchange, although the rollout of fibre-optic cables has vastly improved the situation. Still, if your speed is consistently sluggish, it's useful to know how far away you are from your exchange – or your fibre broadband cabinet. Enter your postcode in SamKnows' Exchange Search (bit.ly/samknows440) to view the name of your local exchange, then click it for detailed information including a map, the type of broadband it delivers and the number of premises it serves – both residential and business.

If your nearest exchange doesn't offer superfast fibre broadband, you can find

Thinkbroadband compares your speed to other customers in your area

Find out whether your ISP is slowing your binge-watching of Netflix shows

SamKnows provides information about your nearest broadband exchange

one that does by using Think Broadband's excellent Availability Checker (bit.ly/thinkbroad440). This lists your five closest exchanges and tells you the ISPs that use them and whether fibre is enabled, to help you decide who to switch to.

To find a local BT fibre cabinet, enter your phone number in the BT Wholesale ADSL Checker (bit.ly/cabinet440). This will give the number of your cabinet, so you can look for it while out and about or on Google Street View.

Is your mobile coverage as good as claimed?

All mobile networks provide maps on their websites that show you their 3G and 4G coverage across the UK, but it's best not to take them at face value. EE's Coverage Checker (bit.ly/eecov440), for example, includes the caveats: "This map is not a guarantee of service availability in a particular location", and "results are based on computer prediction", which might explain why your 4G is slower than it should be.

It's worth checking if there are filters to give you a more accurate depiction of signal strength than the solid block of colour most networks initially display. For example, Three's map (bit.ly/threecov440) lets you specify your phone model to view probable coverage for that device, while O2 (bit.ly/o2cov440) lets you see the exact location of phone masts.

Ofcom's mobile coverage checker highlights potential blackspots

For a more impartial overview of mobile availability in your area, try Ofcom's 'Mobile and broadband checker' (checker.ofcom.org.uk). Enter a postcode to view a map of EE, O2, Three or Vodafone coverage, indoors and out. Ofcom's colour-coding shows where you're likely and unlikely to have reliable coverage for 3G, 4G and voice calls, based on its own field tests as well as the networks' signal predictions. The map is updated every month, but Ofcom points out that there are many factors that affect mobile speed, including network congestion, buildings, trees and even weather conditions.
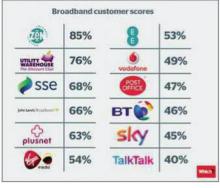
Are you receiving poor customer service?

From unreliable connections to unhelpful support, there are many ways that ISPs disappoint their customers. Fortunately, there are bodies that monitor provider performance, of which the two most notable are the official communications regulator Ofcom and consumer watchdog Which.

Ofcom's most recent broadband survey, published in April, covered data from 2016, so it's a bit out of date but useful nonetheless (www.ofcom.org.uk/servicequality). It found that Virgin Media offered the fastest speeds and the highest level of customer satisfaction (91%), while TalkTalk came bottom (71%). TalkTalk also fared badly when dealing with customer complaints, although it did answer calls in a mere 47 seconds. In contrast, Plusnet customers were kept waiting for an average seven minutes and 27 seconds, but it's since hired more staff to tackle the problem.

Which published its biannual broadband survey in September (bit.ly/whichbest440), after speaking to more than 1,700 customers. It rated TalkTalk worst for overall customer satisfaction (40%) and Zen Internet best (85%), with the main complaint being "very slow" broadband speeds.

Although such surveys may not

Which conducts a twice-yearly survey of broadband satisfaction

reflect your own experience, they're certainly worth perusing if you're thinking of switching.

Could you get a better broadband deal?

BT and Virgin Media both recently increased their broadband prices, by up to £36 a year for some packages, leaving many customers wondering if they should move to another provider. You can only cancel your contract without penalty if you do so within 30 days of being notified of the price rise, and that deadline has now passed so your best bet is to haggle for a better deal.

MoneySavingExpert.com provides useful advice for negotiating with BT, Virgin Media, Sky, Plusnet and TalkTalk on its 'Haggle with service providers' page (bit.ly/haggle440). Tips include ensuring you get through to the customer-retention department (BT's is on 0800 800 150), never accepting the first offer you're made and asking for extras, such as free calls, to be thrown in.

MoneySavingExpert.com provides specific advice for haggling with BT

If none of MSE's tips work, it may be time to move on. There's no shortage of broadband-comparison tools online, but some have been accused of hiding the best deals from customers. You can certainly trust Broadband Genie (www.broadbandgenie.co.uk), which provides our Broadband Table every issue and is completely impartial. ■

SHOULD YOU GET A WHITEBOX?

Sometimes it's hard to tell whether the source of your broadband problems is at your end or your ISP's, which is why internet-performance specialist SamKnows has come up with the Whitebox. This purpose-built sensor promises to tell you "what's really going on with your connection", by giving your broadband a full examination. It monitors and measures your download and upload speeds, data-packet loss, internet-call and streaming quality, and other criteria, then presents that data in an easy-to-understand dashboard on your Desktop or phone. This helps you diagnose problems and even provides a monthly health check.

You can sign up for a free Whitebox at samknows.com/signup.

Record your voice and video calls

Want to record a conversation for personal or legal reasons? **Wayne Williams** reveals the best tools available for capturing your calls on PC and mobile

Record voice calls on your PC

A few years ago, VoIP (Voice over Internet Protocol) was hugely popular for making phone calls from your PC, but its appeal has dwindled now that it's easier to make free Skype and WhatsApp calls on your mobile phone. But if you still call people from your PC, you can record the audio in various ways, and one of the easiest is to use the brilliant free program Audacity (audacityteam.org).

To set it up, click the Audio Host drop-down menu in the top-left corner and change MME to WASAPI. Select your speakers and microphone, making sure the box on the right is set to stereo, and you can then place your VoIP call and click the red Record button to begin recording. Click Stop when you've finished. You can then play back the recording, and trim, edit and save it.

Record your Skype calls

Skype doesn't come with any built-in tools for recording your phone calls, whether you use it on your computer or your mobile device, but that doesn't mean you can't capture your Skype conversations. There are plenty of third-party programs available for Windows, Mac and Linux that can perform this task, and Microsoft (which

Audacity lets you record phone calls made on your PC

owns Skype) even lists some of them on its website at bit.ly/skyperec440.

If you only want to record audio calls, MP3 Skype Recorder for Windows (voipcallrecording.com) is a good option. This free program lets you record from both the Desktop version of Skype and the Windows 10 app. It doesn't impose any limits on recording time for private, non-commercial use.

A professional edition is also available, which adds a couple of extra features and costs £8 for a one-PC licence, but you probably won't need this.

MP3 Skype Recorder lets you record voice calls on your computer

Record your video calls
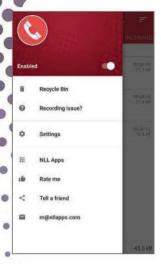
Recording video calls on your PC is easy with the excellent free Any Video Recorder (www.any-video-recorder.com). Before you start, specify the temporary and output directories, enter a name for your recording and select the quality you need by adjusting the target frame rate and video bitrate. Click Record Now and resize the red border so it covers the chat window you want to record. Then you can click the Rec button to start recording and the Stop button when you've finished. Recordings are saved as MP4 files so you can watch them in any media player.

Capture your video calls to watch them at any time on any device

Record calls on Android for free

Another Call Recorder (ACR) for Android (bit.ly/acrec440) lets you capture conversations on your phone for free. It offers lots of useful features,

Capture phone conversations on Android and save them to the cloud

such as the ability to group saved recordings by date, and the option to delete old recordings automatically (unless you've marked them as important). You can password-protect sensitive chats and delay recordings. Upgrading to the premium version for £2.49 removes the adverts and introduces additional features, such as integration with Dropbox and Google Drive, so you can save your recordings to the cloud.

Record iPhone calls for free

Record your iPhone calls and have them transcribed

To record calls on your iPhone, try Call Recording by NoNotes (bit.ly/nonotes440). This free app records incoming and outgoing calls and saves them in the cloud. You can share your recordings by email or on Facebook, and even send files to be transcribed, which is handy if you want a written version of your conversation. Transcription

costs £35 for an hour, £175 for five hours and £350 for 10 hours.

The free version of the app limits you to 20 minutes of recording time a month, which is plenty if you only need to record the occasional short call. You can buy more time if you need it: for £6 a month, you can make unlimited recordings. The app's usage section shows how much monthly free recording and paid transcription time you have left.

Capture calls using TapeACall

If you need to record a lot of phone conversations, TapeACall (www.tapeacall.com) is worth looking into. Available for Android and iOS, it works by setting up a three-way call. To use it, simply open the TapeACall app and tap the big Record button. The app dials TapeACall and starts recording as soon as the service picks up. It can handle incoming and outgoing calls, and you can start a recording halfway through a conversation. You can even share your recordings (although not publicly without permission – see box below) and download them in MP3 format to listen to them anywhere.

TapeACall is a useful service, but it has some disadvantages that you should be aware of. First, it's not free – you have to sign up for a £3.49 monthly subscription. What's more, your mobile phone

TapeACall lets you record calls made on your smartphone

provider must support three-way calling for it to work. Vodafone does but EE and Orange UK don't, so check with your provider before you fork out.

Record live video in iOS 11

One of the best new features in iOS 11 is the ability to record videos of your screen. You can use this to capture video chats on your iPhone or iPad. It works with any program, including WhatsApp, although it has one major limitation, which is that once the call starts, the audio is muted. If you only want to capture a video and sound isn't important (perhaps because the person you're calling is showing you something) this might come in handy, especially as it takes seconds to set up.

For easy access to the built-in screen recorder, open Settings and go to Control Centre. Tap Customise Controls, then scroll down the list and tap the green plus sign next to Screen Recording. This adds a Record option to your device's Control Centre. When you're ready to record your live video, swipe up from the bottom of the screen to open the Control Centre and tap the Screen Recording icon. A three-second countdown will begin, giving you plenty of time to minimise the window and switch to your chat app. ∎

Recording your screen in iOS 11 also lets you capture video calls

IS IT LEGAL TO RECORD PHONE CALLS?

The Regulation of Investigatory Powers Act 2000 (RIPA, bit.ly/ripa440) states that it's not illegal to record conversations, provided they are for your own personal use. If, for example, you're recording a chat so that you have a copy of any facts or figures quoted by the other person, that's fine. However, if you're recording the conversation in order to pass it on to a third-party or post it online, you're legally obliged to inform the person on the other end

that they're being recorded. If you don't, you could find yourself facing a civil claim if they can prove you've breached their privacy.

You don't necessarily need the other person to agree to being recorded before or during the conversation – you can also obtain consent retrospectively. You might get away with not telling them you're recording if the chat is deemed to be "in the public interest", but this is all a bit of a grey area, so tread carefully.

Stream video from your PC to your Chromecast using VLC

Google's Chromecast lets you stream web content directly to your TV, and local content via VLC Media Player. Here's what you need to know

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

SUBTITLE
Toggle available subtitles on or off here. They'll appear on the video streamed to your Chromecast

PLAYBACK CONTROLS
When streaming video to your Chromecast, your PC's screen goes black. You still have full access to the playback controls, though

Chromecast (www.google.com/chromecast) is a £30 dongle that plugs into an HDMI socket on your TV and lets you enjoy streaming video from a wide range of sources including YouTube, Netflix, BBC iPlayer, ITV Hub and Google Play. Content can be 'cast' from the Chrome browser, and you can also stream local media such as home videos or movies downloaded to your PC. For the latter, you need a version of VLC that supports Chromecast streaming – this has recently been added to the development version.

1 Download the latest development build of VLC. Make sure you get the right version for your PC – there are 32-bit (bit.ly/32vlc440) and 64-bit (bit.ly/64vlc440) versions – and install it. You may see a message stating 'Windows protected your PC'. Click the small 'More info' link, then click 'Run anyway'. **1**

2 Once the nightly build of VLC has installed, make sure your Chromecast is connected to the big screen and is properly set up. Now run VLC and click Video. **1** Go to Renderer, **2** then Scan. **3** If you don't see this option, check that you're definitely running the development version.
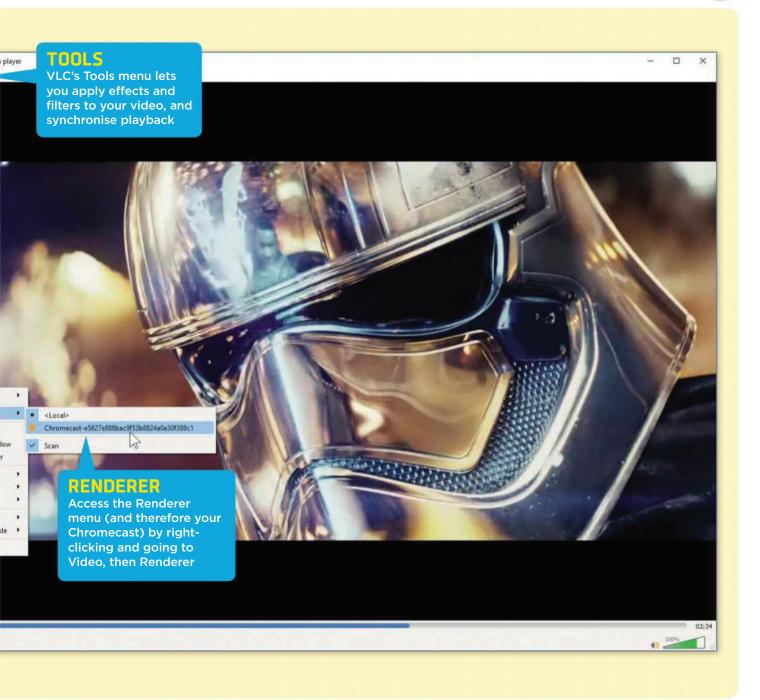
3 The software will scan your network, looking for a connected Chromecast. Wait a while before opening the Renderer menu again. You can now select your Chromecast from the menu. **1** If it's not there, make sure the Chromecast is connected to the same wireless network as your PC and try again.
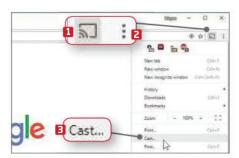
4 If you've managed to connect to your Chromecast, you're now ready to stream something to it from VLC. In the software, go to Media, **1** Open File **2** and locate the video you want to play. Alternatively, you can simply drag a video file on to the VLC Media Player window.

5 Because you're attempting to stream your video to a networked device, an 'Insecure site' warning will appear on screen. Click View certificate, then click the 'Accept permanently' button. **1** The certificate in question will be added to your PC and your video should begin streaming to the Chromecast.

TOOLS
VLC's Tools menu lets you apply effects and filters to your video, and synchronise playback

<Local>
Chromecast-e5827e888bac9f53b8824a0e30f388c1
Scan

RENDERER
Access the Renderer menu (and therefore your Chromecast) by right-clicking and going to Video, then Renderer

02:34
100%

6 If that doesn't work, there's another option that uses Google Chrome. Start your video playing in VLC, then launch Chrome. Click the Cast button in the browser **1** or, if it's not there, click the three-dot button **2** and select Cast **3** from the menu.

7 Click the 'Cast to' button, then select 'Cast desktop'. **1** Provided it's found your Chromecast, you're good to go. Switch back to VLC and maximise the window. What's playing in the software should now also appear on the big screen. The quality won't be as good, but it should at least be watchable.

8 If VLC is unable to find your Chromecast, note down your IP address (you'll find this in your router settings) and go to Tools, Preferences. Under 'Show settings', click All. **1** Scroll down to 'Stream output', **2** expand 'Sout stream' and select Chromecast. **3** Enter the IP address **4** and click Save. **5**

Free up space on your Android device

Files Go: bit.ly/fg440 | 🕐 **20 mins** | 🤖 **Android 5.0+**

Most new Android devices have a reasonable amount of storage but this can quickly fill up with photos, videos, apps and music. On top of that, updates to existing apps and everyday tasks such as browsing the web can add to the build-up of clutter. Before you know it, you'll start seeing warnings about the lack of space on your device.

Google has released a new app for Android devices that can help reclaim some of your missing storage. In addition, it can also help you find files faster, back up content to the cloud and share files with friends, safely and for free. Google says people testing the app have found it saved them, on average, 1GB of space.
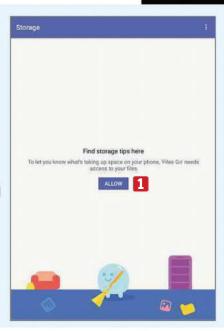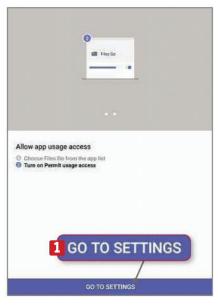
1 Install the app from the Google Play store. Your device needs to be running Android 5.0 (Lollipop) or later. Grant the app access to photos, media and files. When prompted to give Files Go permission to access your files, tap Allow. **1** The app then checks your current storage situation.

2 You're shown the amount of space you're using on your device, as well as the total amount of storage. **1** The sections below provide information on how to free up space. One of the first things to do is to remove unused apps. **2** This will have a big impact.

3 Tap 'Find unused apps'. On the next screen, you're asked to grant usage access to the Files Go app. Tap the Go To Settings bar at the bottom **1** to see a list of apps with usage access. Tap Files Go and toggle the switch to On. Go back to the 'Unused apps' screen.

4 A list of apps pops up, showing you which ones you haven't used for a while (or ever). You can see the size of each app and the date it was last used. **1** This information will help you decide whether or not to keep it. If you find an app you have no further use for, tap the circle next to it **2** to select it.

5 Use the button in the top-right corner to switch between list and thumbnail views. **1** The button next to it lets you order the list by name, date modified and size. **2** The bar at the top shows the amount of space you'll save. **3** When you're ready, tap Uninstall **4** to remove the selected items.

6 Next, remove any duplicate files. These are often responsible for wasting a lot of space on PCs, and Android devices are no different. Tap the 'Duplicate files' panel (if it's present) and select the items to remove – the app assumes you want to keep the latest version and displays the older ones for removal. **1** Tap 'Smart suggestions' **2** to select them all. Tap Delete. **3**

7 By now, you should have freed up a fair amount of space. The next step is to clear out temporary files from installed apps. Tap the 'App cache' section on the main screen to see a list of apps. Select the ones you want to clean up **1** or select 'All items'. **2** Tap Delete. **3**
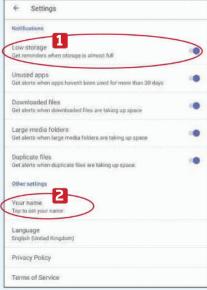
8 Cleaning the temp files can often save a lot of space, as can removing old downloads. Tap the Downloaded Files section on the main screen and you'll see all your previous downloads. As always, you can reorder this list by name, date and size. **1** Select the files to remove **2** and tap Delete. **3**

9 As you delete items, you'll see information boxes updating you on the app's progress **1** and there will be fewer sections left to work through. Tap the 'Large files' section. **2** Removing these can reclaim a significant amount of space but they often consist of photos and videos that you probably want to keep. Choose any you don't mind losing and tap Delete.

10 You can swipe away any sections you want to leave as they are. Each time you run the app, any that need your attention will reappear. Tap the three-dot menu in the top-right corner and select Settings. From here, you can configure when to receive alerts about your device's storage space **1** and set your name for personal messages. **2**

+ Get more practical advice at forum.webuser.co.uk

Never forget your passwords

RememBear is a new, super-secure password-management tool from the maker of the TunnelBear VPN. It's currently in beta, but anyone can download and experiment with it for free. When the finished version is eventually released,

RememBear will be available as a free program that works on an individual device, and a paid-for version that you can sync across all your devices.

RememBear: www.remembear.com | ⏱ **10 mins** | 🖥 **7, 10** **MacOS 10.11+/iOS 9+** 📱 **4.4+** 🌐 🦊

1 Install the software and create an account with a master password. You're given a key, which you should keep in a very safe place because if you forget your master password there's no other way to access your account. RememBear can search for existing passwords **1** or you can start from scratch. **2**
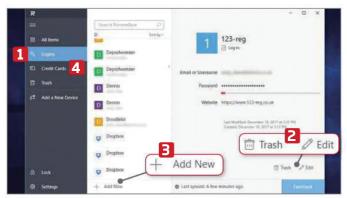
2 Install the browser add-on for Chrome (bit.ly/rbch440) or Firefox (bit.ly/rbff440) to sync with the software. To jump to a site and log in straight away, click the icon **1** and start typing the site's name. **2** Click the account you want to use. This takes you to the site and signs you in.

3 When you register an account on a new website, the RememBear icon appears in the password field. **1** Click to open the Password Generator panel, choose the type of password **2** and adjust the settings depending on the site's security requirements. **3** A coloured bar indicates its strength.

4 In the Windows tool, click Logins **1** to manage your passwords. You can remove or edit any password, **2** or add a new one. **3** The Credit Cards **4** option lets you save your card's details and enter them with a single click when you get to a shop's checkout page.

5 Click Settings, **1** then Security **2** to set how long RememBear stays unlocked if you leave it idle, **3** and whether it locks when your PC goes to sleep. **4** You'll need to enter your master password to get back in. You can change your master password in the Account section. **5**

6 In the beta (and eventually the paid-for version), you can click 'Add a New Device' **1** to sync your passwords with RememBear on other devices. You can sync with Android and iOS devices **2** or another PC or Mac. **3** Mobile versions use QR codes while the computer versions provide a key to log in.

Find out what other people search for on your PC
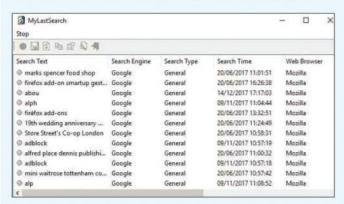
If you share your PC with family or friends, you might want to keep an eye on the searches they've been carrying out. NirSoft's My Last Search software collates the search queries typed into all the browsers on your PC and lets you arrange the results by browser, search engine or query. The free program can also create handy reports and lists that you can keep for future reference.

MyLastSearch: www.nirsoft.net | ⏱ **10 mins** | 🖥 **Windows XP, Vista, 7, 8, 10**

1 Go to the NirSoft site, search for `mylastsearch` and download the software to a folder – it's portable, so you don't need to install it. Double-click the MyLastSearch application to run it. The software will start scanning your browsers' history files for reference to search engines.
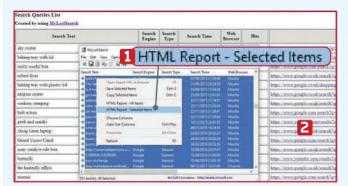
2 By default, the results are sorted alphabetically by the term searched. This makes it quick and easy to scroll through the results looking for anything suspicious. You can easily spot if people have searched with different search engines **1** or browsers **2** from the ones you usually use.
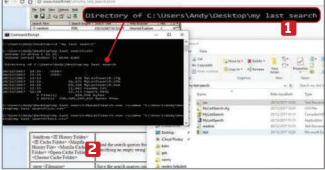
3 To order the results by a different column, click the heading at the top. **1** This makes it easier to go through the results if you want to find those specific to a particular time, browser or search engine. Click again to switch the order from ascending to descending.

4 To only see results from a specific browser, click Options **1** and choose Advanced Options **2** from the menu. Untick any browsers **3** you don't want to see results from and click OK. **4** The results will be filtered immediately, displaying the new information.

5 If you find any results you want to keep, so you can refer back to them without having to search again, left-click to highlight them, using Shift and Ctrl to select multiple entries. Right-click the selection and choose 'HTML Report - Selected Items' **1** to open it in your browser. **2**

6 The tool can be launched with command-line parameters to produce specific filters, sorts or report types. Open Command Prompt and change to the folder the software is stored in. **1** Type `MyLastSearch.exe` followed by the parameters on the NirSoft site. **2**

Weekend Project

Get to grips with some serious PC DIY to boost your computer's performance

M T W T F S S

How to... Configure Windows 10 to work on a low-spec PC

Windows 10 can slow your old or under-powered PC to a crawl. **Wayne Williams** offers tweaks and changes to get it up to speed

Windows 10, like every other version of Microsoft's operating system, is a little bloated. Each major update brings new apps and features, may of which you may never use. The Fall Creators Update, for example, comes with two apps for Mixed Reality (Microsoft's own version of augmented reality), two versions of Paint (Paint and Paint 3D) and two browsers (Edge and Internet Explorer). It also offers niche tools such as Groove Music and Xbox.

All these added extras require ever more resources, which means Windows 10 may struggle to run on an older or under-powered PC. In this issue's Weekend Project, we'll explain how you can remedy this.

Remove bundled apps
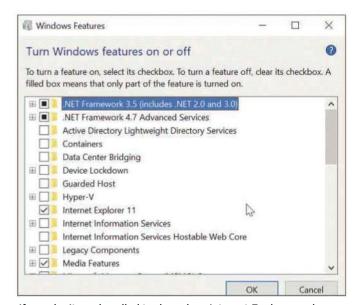
The first thing you'll want to do is strip away any Windows 10 apps you don't need. This will free up hard-drive space and may also result in fewer processes running in the background.

There are several ways to remove apps. You can right-click an app's entry in the Start menu and select Uninstall, or you can go to Settings, then Apps, and remove programs under 'Apps &

features'. What you'll discover, however, is that you can't remove a lot of the default apps because the uninstall option is greyed-out. For those, you'll need a more thorough tool, such as IObit Uninstaller 7 (www.iobit.com). We show you how to use it in our Mini Workshop, opposite.

You can uninstall some (but not all) apps directly through the Windows Settings app

If you don't use bundled tools such as Internet Explorer and Windows Media Player, you can remove them

Cleaning up after a Windows 10 update can free up a lot of hard-drive space

Slim down Windows

To remove unwanted features in Windows 10, type `Programs and features` into the search box and select 'Turn Windows features on or off' (it won't be the top option). In the window that opens, untick any tools you don't need but make sure you don't disable anything important. For example, you can safely remove Internet Explorer 11, Hyper-V, Windows Media Player (found under Media Features), Microsoft Print to PDF, Work Folders Client and XPS Viewer. Click OK to remove the selected items.

Clean up after updates

Every time Windows 10 installs a feature update – the Fall Creators Update, for example – it backs up the previous version of Windows. This is in case you encounter a problem with the new version, so you can use the back-up to easily roll your PC back to how it was before the update. The downside is that the backed-up version can be huge – in the tens of gigabytes. If you're sure you don't want to roll back Windows, you can remove this content and free up the space.

To do this, type `Disk Cleanup` into the Windows 10 search box, then click the Disk Clean-up entry. Make sure your main system drive (usually C:) is selected and leave Windows to calculate how much space can be freed up. Click the 'Clean up system files' button and Windows will recalculate your space savings, then give you the option to remove Previous Windows Installations.

Reduce your Windows footprint

There are two files on your PC that can take up huge amounts of space, depending on how much memory your PC has – pagefile.sys and hiberfil.sys. The former is an area of your hard drive that acts as virtual memory, while the latter is hibernation data, used to start up your PC more quickly. Windows manages the page file size for you and does a great job for the most part. You can switch this to manual control, but you could end up causing your PC to slow down even more. Our advice is to leave it alone.

Hiberfil.sys is another matter. When you put your PC into hibernation (as opposed to shutting it down or putting it into Sleep mode), Windows copies everything in the memory to a file on your hard drive called Hiberfil.sys,

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⚙ MINI WORKSHOP | Free up more space with IObit Uninstaller
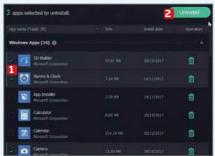

1 Decline any bundled junk offered during installation, then run the software. Old PCs can't handle powerful applications such as Photoshop, so remove anything that's too resource hungry. You can filter the list by size **1** and date of installation. **2** Tick any software you want to remove **3** and click Uninstall. **4**

2 IObit Uninstaller can remove Windows apps that were bundled with Windows 10, which aren't easily uninstalled in the operating system itself. Click Windows Apps **1** and expand the Windows Apps section. **2** To remove an individual item, click the bin icon next to it, **3** then click the Uninstall button. **4**

3 You can remove multiple apps in one go. Tick the boxes for any bundled software you don't require, **1** then click the Uninstall button. **2** The program can intelligently delete any leftover files and settings relating to those apps once the uninstallation completes, if you want it to.

Broadband Deals

A few simple commands can reduce the size of the Hibernation file by nearly a third

Chrome is a better browser but Edge uses fewer resources on Windows 10

and then powers down properly. When you turn on your computer again, Windows loads this saved file into the memory, bypassing the usual boot checks, so you can resume where you left off. The size of Hiberfil.sys is directly linked to the amount of memory you have installed: the more memory, the larger the file.

You can reduce the size of Hiberfil.sys, or remove it entirely. To do this, type `cmd` into the Windows search box, right-click the Command Prompt entry and select 'Run as administrator'. To shrink Hiberfil.sys, type `powercfg /h /type reduced` and press Enter. This command will reduce the size of the file by a third.

If you want to go back to the full-size Hiberfil.sys file, use the command `powercfg /h /size 100` and press Enter.

To switch this off entirely, type `powercfg /h /off` and press Enter.
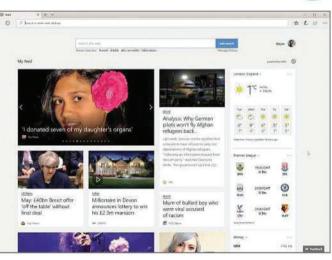
Move to the cloud

Where possible, you should consider using web-based apps rather than installed software. This pushes the heavy lifting that your PC can't handle on to cloud servers, which is exactly the approach that Google has taken for turning low-specification Chromebooks into usable PCs. There are several excellent online image editors, office suites, video editors and more to choose from. While you might prefer Chrome (or Firefox) over Edge, using Microsoft's browser with Windows 10 makes a lot of sense, because its high level of integration provides advantages that its rivals don't have. Chrome and Firefox both consume a lot of memory, especially if you have a large number of add-ons installed. Try to limit the number of tabs you have open at any time, too.

Use Compact OS

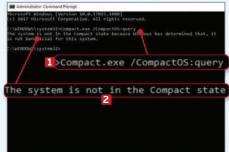While removing unwanted extras and freeing up space can help with speeding up Windows, another trick that can reduce the operating system's footprint significantly is to use the Compact OS function. This is essentially a replacement for the old WIMBoot (Windows Image File Boot) feature, which compresses all Windows installation files and bundled apps, freeing up space. We show you how to use the Compact OS in our Mini Workshop, below.

This is a built-in Windows 10 tool and, as such, should be perfectly safe, but we'd be remiss if we didn't point out that using it (and indeed any tool that makes major changes to your system) is not without risk. For that reason, we recommend you make a full backup of your PC beforehand – just in case. ∎
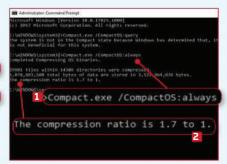

MINI WORKSHOP | Use Compact OS to compress Windows

1 Compact OS is a command-line tool, which means you have to type the relevant commands into a window, rather than launching an app and clicking buttons. Type `cmd` **1** into the Windows search box, right-click the Command Prompt entry **2** and select 'Run as administrator'. **3** The Administrator Command Prompt window opens. **4**

2 Before you compress your operating system, you'll want to make sure it isn't already compressed (it shouldn't be, but it's better to be safe than sorry). Do this by typing `Compact.exe /CompactOS:query` into the Command Prompt window (note the capital letters in the command) **1** and press Enter. It should say: "The system is not in the Compact state." **2**

3 Assuming your PC isn't compressed, type `Compact.exe /CompactOS:always` into the Command Prompt window **1** and press Enter. It will go to work and reduce the size of Windows 10 and its pre-installed apps. The process will take 20 minutes or so to complete. When it's finished, you'll see the compression ratio achieved. **2**

NEXT ISSUE **How To...** Hack your PC monitor and laptop screen

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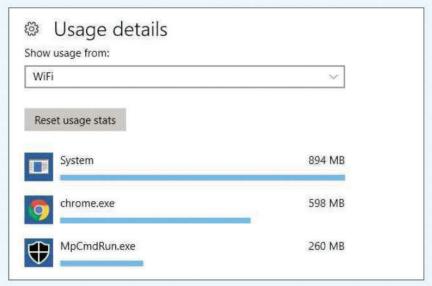
Web User Masterclass

Don't let Windows and your mobile devices use up all your internet data. Our experts show you how to **limit data usage in Windows** to stay in control

Check how much data Windows is using

Windows 10 tracks the amount of data it transfers over wired and wireless connections, and the results it displays can be surprising. To see the usage on your PC, open the Settings app (by pressing Windows+i) and click Network & Internet. Select 'Data usage' on the left and you'll see a summary displayed on the right for both Wi-Fi and wired networks.

If you want to know which items are using the most data, click the 'View usage details' link to see the total data used by your system and apps. What is surprising is that apps you haven't used sometimes appear in the list. This is because they run in the background to update or sync.

The information displayed is from the last 30 days but it can be cleared by clicking 'Reset usage stats'.

See what is using all the internet data on a Windows 10 PC

Enable 'Battery saver' mode

To reduce the amount of power a laptop uses, Windows 10 has a 'Battery saver' mode that halts many background processes. However, it also stops Windows Updates downloading, for example, and blocks other apps that update in the background. Battery-saver mode uses the internet less and reduces the data transferred.

Click the power icon in the taskbar and drag the slider all the way to the left. Alternatively, click the notifications icon at the right-hand end of the taskbar and click the Battery Saver tile.

Drag the power slider to the left to reduce the amount of internet data transferred

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.**

Use metered connections

Some Wi-Fi hotspots make you pay for internet access and charge by the megabyte. To keep the cost down, Windows lets you set your Wi-Fi connection as metered, to minimise internet activity and reduce the data transferred. Open Settings and click Network & Internet, then select WiFi and click the Wi-Fi connection on the right. Scroll down to the 'Metered connection' section and flick the switch to On.

Set Wi-Fi to 'metered' and Windows will use less internet data

Pause OneDrive

When the OneDrive folder on your computer's hard drive syncs with your OneDrive online storage, it uses internet data. If this is a problem, OneDrive can be paused to reduce its usage. Click the up arrow on the taskbar to show the tray of icons, right-click the OneDrive cloud icon and select Pause Syncing. You can set the duration to 2, 8 or 24 hours.

Vary the time of day

Some internet plans provide a mix of metered and unmetered usage. For example, there may be usage limits at peak times of the day, such as 4pm to 11pm, but outside of these hours it may be unmetered.

Go to your internet provider's website and find out if your plan

offers periods of the day where access is unlimited. That's the time to disable 'Battery saver', set the Wi-Fi as unmetered and allow updates, downloads and syncing (with OneDrive, for example) to take place.

Change broadband providers

Internet plans with limited downloads are being phased out and many ISPs now offer unlimited downloads. If you are on a limited plan, such as a fibre deal that only allows 25GB of data, it may be time to switch. You could get a plan that costs the same, but is unlimited.

Having said that, 'unlimited' doesn't generally mean 'without any limits at all', and terms and conditions in the small print of the contract are likely to impose some restrictions. However, you don't need to be as careful with the bandwidth you use as you do with a limited internet plan.

Stop updating apps

The apps bundled with Windows 10 aren't that big but some apps in the store, mainly games, can be over 1GB in size. The Store app automatically updates your apps, and this can use a significant amount of internet data, which is why it's best to carry out updates in manual mode so you can choose when and how often they occur.

Open the Windows Store app, click the three-dot menu in the top-right corner, then turn off the switch in the 'App updates' section.

Save data on Android

Google Datallay is a free app that aims to minimise your data usage so you don't unwittingly go over your limit and incur charges. Install it from the Google Play Store and it will allow all your apps to have internet access when Wi-Fi is available. At other times, when you can only access mobile data, Datally automatically blocks any unnecessary and background apps. You can manually configure mobile access on an app-by-app basis, but Datally does a good job on its own of selecting the right ones. It was our 'App of the Fortnight' in our last issue.

Google Datally reduces the amount of mobile data Android phones use

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

Configure Windows updates

Windows Update can include massive Windows 10 installation files, uploading hundreds of gigabytes of data and busting any ISP limit you have. It also includes a peer-to-peer download feature for updates and Store apps that uses your web connection to upload updates for other users.

Open Settings and click 'Update & security'. In the 'Update settings' section, click 'Advanced options' followed by 'Delivery optimisation'. If 'Allow downloads from other PCs' is on, turn it off to save data.

Click the 'Activity monitor' link to see your download and upload stats. Upload Statistics shows how much data you have been uploading. It may be more than you expect.

Click 'Advanced options' and you'll see three sliders. 'Download settings' is the bandwidth used to download Windows Updates. Set it to 25-50% so you can continue browsing the web while downloading updates.

Windows updates are supplied to other PCs on the internet and this could potentially upload up to 500GB! Drag the slider down to the minimum 5GB to limit the amount of data used.

Set a low monthly upload limit or disable it completely

Stop Android app updates

Android phone and tablet apps automatically update when new versions are released and some update weekly. All this can add up

Turn off Android app updates and only update when you want to

to significant internet usage. To stop automatic updates and reduce your data usage, open Google Play Store, tap the menu button in the top-left corner and press Settings. Press 'Auto-update apps' and select 'Do not auto-update apps'. Once a month, open the store, press the menu, tap 'My apps & games' and press Update All. Updating in this way uses less data.

Refresh Android apps less often

Some apps let you choose how often they refresh or sync, and choosing a longer time interval reduces the data used. In Twitter, for example, tap your photo at the top and select 'Settings and privacy'. Press 'Data usage' to see the settings that reduce data.

Images can be hidden, and both 'Video autoplay' and 'High-quality video' can be set to 'never'. Down at the bottom is 'Sync interval' with options ranging from every five minutes to daily. Longer time periods use less data. Look for similar settings in other apps.

Save data on iOS

The iPhone and iPad have similar data-saving options. For example, go to Settings, iTunes & App Store and in the Automatic Downloads section, turn off Updates. The App Store icon shows a red badge when updates are available but they don't download unless you open the store, press Updates in the bottom toolbar and then Update All. Do this once a month to save data.

Turn off Wi-Fi Assist

Your iPhone can automatically switch from Wi-Fi to 3G/4G mobile data if the Wi-Fi signal is low. This improves web access but uses more mobile data. To turn it off, go to Settings, Mobile Data and scroll down to the bottom. Turn off the Wi-Fi Assist switch.

Limit iOS apps to Wi-Fi

To reduce mobile data usage, restrict iPhone apps to Wi-Fi only. Go to Settings, General, Background App Refresh, Background App Refresh and select Wi-Fi.

Ask the Expert

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

GENERAL PC

Clean up after Windows update

Q I've lost 21GB of hard-drive space after installing the Windows 10 Creators Update. Several folders have appeared, including 'found.002', 'Windows10Upgrade', 'Windows.old' and 'XXUSB Drive Backup'. Most are small or empty, but 'Windows.old' is 21.3GB. What is it for, and do I need it?
Julian King, via email

A Files with names such as 'found.002' are drive faults that have been corrected, so you can delete them. XXUSB Backup may be from a backup program, but it's nothing to do with Windows Update.

Major updates such as the Fall Creators Update need over 5GB of hard-drive space for the installation files. During installation, the installer backs up Windows to Windows.old, in case you need to undo the update if it

Updating Windows requires lots of disk space, but Disk Clean-up can recover it

fails or restore the previous version of Windows if you don't like the upgrade.

Windows deletes Windows.old and other files after 30 days, but if you can't wait, go to the Start menu, find the Windows Administrative Tools section and click Disk Cleanup. When the window appears, click the 'Clean up system files' button. After rescanning, Disk Cleanup reappears with a new list of items. Tick them all and click OK to remove them.

For more details, see our Workshop in Issue 438 (bit.ly/webuser438).

INTERNET

Understand varying download speeds

Q I recently ran an internet speed test to check the speed of my connection, but the results are very confusing. When I used the Internet Health Test (bit.ly/speed440) as recommended in What's New Online, Issue 437 (bit.ly/webuser437), it indicated that I had a download speed of around 18Mbps. Then I tested it again

Different speed tests may report different results at different times of the day

using the Internet Speed Test extension (bit.ly/intst440) in Opera, and it showed a download speed of just 3Mbps.

In the past, I've conducted tests with the BT Broadband Speed Hub (bit.ly/bt440), and this has reported download speeds of around 15-18Mbps, which is what I should be getting. Whenever I actually download anything, though, the speed is usually around 2Mbps. Why are the results from these speed checkers so different?
Bob Hubbard, via email

A Lots of things can affect the speed of your internet connection. The number of people using the internet varies throughout the day and heavy traffic can slow down the whole network. Evenings are particularly busy, and ISPs may impose download limits or throttle speeds on some internet plans when demand is at its highest.

If a website receives more visitors

than it can cope with, it will slow down, no matter how fast your internet connection is. To combat this problem, some websites throttle their speed to stop heavy users hogging the bandwidth and preventing others from accessing it.

It's also possible that your computer is using the internet in the background – to download Windows updates, virus definitions and so on – while you're trying to perform your speed test. This takes up some of your personal internet bandwidth, which can cause speed tests to run more slowly.

With so many factors in play, it's no wonder speed tests can vary so dramatically. However, you can increase the test's accuracy by doing it on a Sunday morning after the PC has been running for at least 15 minutes. That's the quietest time. Open an incognito or private browsing window to run the speed test so it isn't bogged down by browser extensions or web history.

HARDWARE

Fix a non-booting DVD

Q I've bought an HP computer, but I can't see the DVD drive in the boot menu, which means I can't boot from a DVD. Can you help?
Tom Hutchings, via email

A First, insert a CD or DVD into the drive and open or play it to check that the drive is working. If it is, insert a bootable disc in the drive and restart your PC. A message should appear asking whether you want to start the PC from the CD/DVD or start normally. If you see this message, everything is working fine.

If you tried starting your computer with a bootable disc in the drive and nothing happened, restart your PC and press F9 several times after powering on. Provided you press it at the right time, a boot menu appears with a list of options. Some HP computers require you to press the Esc key first, followed by F9. The CD/DVD drive option should be listed but may be hidden if there's no bootable disc in the drive.

Some PCs let you set the boot order

Switch-off fast startup to make accessing startup options with F-keys easier

by pressing F10, F6 or F2 after switching on the power but before Windows loads. Alternatively, the CD/DVD drive may automatically become the first boot device if Windows fails to start.

If you're having trouble accessing the boot options and so on because you can't press the function keys at the right time, disable Windows fast startup. Open the Control Panel and click Power Options. Click 'Choose what the power buttons do' on the left, then click 'Change settings that are currently unavailable'. Finally, remove the tick next to the option 'Turn on fast startup'.

GENERAL PC
Create a multi-purpose recovery disc

Q Both my laptop and desktop PC run Windows 10 with the Fall Creators Update. Following the instructions in your Weekend Project in Issue 437 (bit .ly/webuser437), I successfully created a Windows 10 rescue disc using AOMEI PE Builder (bit.ly/aomei440) on my laptop. I've tested it on the laptop and I'm pleased with the results. Can I use the same disc for my desktop PC or do I need to create another one?
Henry Wood, via email

A A rescue disc contains a minimal operating system that you can use to start your PC, and software tools to help you get it running again. Because both of your computers use the same version of Windows and the same AOMEI backup software, any rescue

Create a recovery disc in AOMEI PE Builder and it should work on any PC

disc you create will also be the same.

You can check that the disc works in both computers by using it to boot each one. Make sure you're able to see the backup and can select the restore option on both computers.

HARDWARE
Choose graphics hardware

Q Earlier this year, I bought a PC with an Intel Core i7-4500U processor, which has Intel's HD 4400 graphics chipset built in. I've installed the latest drivers and it works satisfactorily, but should I have bought a graphics card, too? Please can you explain the advantages of using a graphics card rather than Intel's graphics hardware?
Barry Singleton, via email

A A chipset is a set of computer chips that perform a particular function. Graphics chipsets are made by companies such as Intel and Nvidia, and come in different versions, such as Intel HD Graphics 4000, Intel Graphics 6000 and so on.

PCs use expansion cards, which plug into slots on the motherboard, to perform specific functions. A few years ago, you needed a graphics or video card to display anything at all on a screen, because the motherboard and main processor didn't have the necessary components built in.

Since then, computer technology has become more efficient and functions that once required expansion cards

Expansion cards such as this GeForce GTX 1080 are more powerful than integrated graphics

are now often integrated on the motherboard. Single chips can perform more than one function, and many processors now have graphics hardware built in. This means the motherboard and processor have all the necessary components to produce the screen display, so you don't need a separate expansion card. All this results in more efficient manufacturing processes and smaller, less power-hungry PCs.

Built-in graphics chipsets are perfect for general office work, web browsing and simple gaming, and they have significant benefits for the size and battery consumption of laptops. However, if you want to play sophisticated 3D games, you still need to upgrade your internal graphics with an expansion card. These have bigger and better graphics chips that can process more information and produce greater detail and better frame rates, particularly when processing 3D games. They also require more power, and they have their own built-in memory so they don't hog the resources your PC needs for other tasks.

GENERAL PC
Remove the second login screen

Q Since updating my PC to the latest version of Windows 10 (1709), I have to log in twice. I enter my password, but then Windows presents the login screen again. After that, it starts as usual. What can I do?
Mick Ward, via email

A One fix is to open Settings (Windows+i) and click Accounts, then 'Sign-in options'. In the Privacy section, switch off the option to 'Use my sign in info to automatically finish setting up my device after an update.'

If you can't see this option here, go to Settings, 'Update & Security' and select Windows Update on the left. Click 'Advanced options' on the right

If you have to sign into Windows twice, clear this tickbox to fix the problem

and you should see it there.

Another method that works for some people is to press Windows+R and type `netplwiz`, then press Enter. In the window that appears, select your user account and clear the tick from the box 'Users must enter a user name and password to use this computer.' Restart Windows and repeat the procedure, then tick the box again.

This fortnight, Roland has been giving his PC a very early spring clean and has already cleared out over 100GB of junk

➕ Find more solutions to PC and web problems at forum.webuser.co.uk

Your Top Tips

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

TOP TIP

GENERAL PC

Check your drive-space usage

In the past, I used a utility to analyse my hard drive to find out which files and programs were taking up the most space. I've now uninstalled it because Windows 10 has something similar built in. It doesn't provide quite as much detail as the standalone tool, but it's good enough for me.

Open the Settings app (press Windows+i) and select System, then Storage to view your drive usage as a graphic. Click a drive entry, such as C:, to see a list of the items that occupy the most space.

You can click some of the items in the list for more information. Click Other, for example, to see a list of your files and folders arranged with the biggest at the top. Click 'Apps & games' to find out how much space the various Windows Store apps use.

My hard drive is nearly full, so this

Use the Windows 10 Settings app to see how your PC's hard-drive space is used

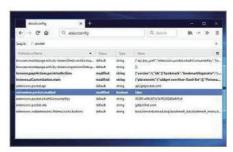is a useful way to find out where all that storage space has gone.

R Davies, via email

BROWSERS

Remove Pocket from Firefox

I'm sure there are people who think it's great that read-it-later tool Pocket (getpocket.com) is now built into Firefox, but I'm not one of them. I've never used it and don't intent to start now. Fortunately, I've found out how to remove it from my browser.

Type `about:config` into the address bar, press Enter and click the 'I accept the risk' button if it appears. Start typing

Go to Firefox's 'about:config' page to remove Pocket from your browser

`pocket` into the search box and when you see 'extensions.pocket.enabled' in the results below, double-click it. You need to change the entry in the Value column from 'true' to 'false'.

Doing this disables Pocket, but its content still shows up on the New Tab page. To remove that as well, open a new tab, click the cog icon in the top-right corner and untick the 'Recommended by Pocket' option.

Harry Bowler, via email

GENERAL PC

Navigate around a cluttered Desktop

Is your Windows Desktop a mess of shortcuts and folders that you don't want to delete in case you ever need them? If so, you can find the shortcut you want more easily by typing the first letter of the associated file or program. To find Audacity, for example, press the 'A' key repeatedly to highlight and cycle

through all the shortcuts that begin with that letter.

If you don't know or can't remember the shortcut's first letter, you'll just have to sort out your Desktop!

Colin Horn, via email

MOBILE

Fix a misbehaving phone by cleaning the SIM

My five-year-old Samsung Galaxy S5 Android phone started to play up recently. The voicemail message indicator was displaying constantly on the home screen, even when I had no new messages. Writing, sending and receiving texts became erratic, too, and only worked some of the time.

Despite lengthy conversations with my mobile network provider's tech-support department, they couldn't fix the problem, even after rebooting my device at their end. It got to the point where they decided they couldn't help me. They suggested there may be a fault with the phone and said they would have to reinstall the operating system.

To do this, I would have to clear all my texts and take the phone to one of their shops to try the SIM in a different phone to see if the problem persisted. This all sounded a little too drastic so I took matters into my own hands. I removed the SIM card from my phone, rubbed the contacts on a piece of clean cloth for 10 seconds and put it back in. It has been working perfectly ever since!

George C Griffiths, via email

Some phone problems may be due to a dirty SIM card

GENERAL PC
Type, don't click

Did you know that you can open programs by searching for them rather than using the Start menu? To open Notepad, for example, click the search box on the taskbar and type notepad. It appears at the top of the search results, and you can click it to run it. Similarly, if you start typing 'wordpad', 'paint', 'regedit', 'sticky notes' or any other program you want, you can click its name in the search results to run it. You don't even need to enter the full name. If you press Windows+S, then type ph, for example, the Photos app appears at the top, and you can click to run it.

If you're feeling really lazy and don't even want to type, click the microphone icon to the right of the search box and say the name of the program you want to open, such as "notepad". If you say something more ambiguous, such as "Photos", you may be asked which photos app you want to run, assuming you have more than one.

Rachel Dawson, via email

Forget the Start menu – just type or say the name of the software you want to run

EMAIL
Add icons to Gmail

Gmail lets you add stars to emails by clicking the gray outline in the inbox next to an email. Click the star again and it changes to a different symbol, such as a blue 'i' or a green tick.

If you've tried clicking a star two or three times and nothing happens,

You can mark your Gmail messages with all sorts of icons and then search by them

click the cog icon and select Settings. On the General tab, you'll see a Stars section, which has two lists: 'In use' and 'Not in use'. Drag any items you want from the 'Not in use' list to 'In use'. Clicking a star icon in an email cycles through the items in the 'In use' list.

These icons provide another way to search for emails. Type has:green-tick in the search box to see all the emails you've tagged with that icon. You can also search for 'has:yellow-bang', 'has: blue-info' or 'has:purple-question' to search for items marked with those icon.

Jacob Dixon, via email

SECURITY
Use Norton's free tool to kill browser infections

My computer was recently infected with a piece of malware called Apusx.com (don't type that into your browser!). I'm not sure where I got it from because I only ever install commercial software from trusted sources. However, the malware hijacked all my browsers, which kept redirecting me to the Apusx site.

I checked that my browsers' default pages were set correctly and deleted a Registry entry for Internet Explorer that referred to the malware. Then I tried to run Malwarebytes (www.malwarebytes .com), Zemana AntiMalware (bit.ly/zem440) and HitmanPro (www .hitmanpro.com), but none of these tools could remove the malware. Finally, the

free Norton Power Eraser (bit.ly/npe440) managed to release my browsers from the redirect trap.

ronh, Web User Forums

SOCIAL
Create an online avatar

I've always been a bit jealous of the cartoon-like avatars people sometimes use instead of their real pictures on forums and social networks, so I decided to find out where to get one. Lo and behold, it turns out that there are lots of free avatar generators on the web, but my favourite is Avataaars Generator (getavataaars.com). To create your avatar, select the various elements that affect appearance from a series of drop-down menus, and the website creates a simple, stylish avatar that you can download and use wherever you like.

Ralph Pritchard, via email

Choose from a set of menu options to create a cartoon avatar of yourself
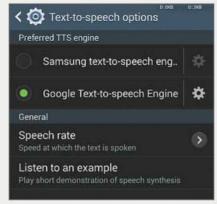
BLUNDER OF THE FORTNIGHT

MOBILE
Text-to-Speech stopped my phone scrolling

Activating Text-to-Speech on my Samsung Galaxy J5 left me unable to do anything on my phone. When I looked online for instructions on how to disable it, all the suggestions required going to Settings – but I couldn't access Settings because I couldn't get the phone to scroll!

I didn't want to reset the phone to its factory settings because there were texts on the device that I really wanted to keep.

Eventually, I contacted Samsung's technical support over a live chat. The support staff helped me work out that when Text-to-Speech is active, you have to use two fingers to scroll the screen. Who knew? Now I can

Use two fingers to scroll when Text to Speech is active on your Android phone

scroll through the settings again and switch Text-to-Speech off if I need to.

JOHN, Web User Forums

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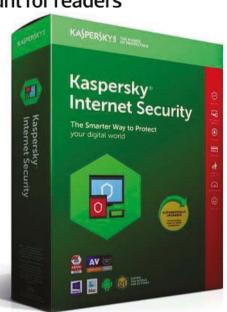
Readers' Helpdesk

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

PHOTOS
Open JPEGs in the Photos app

Q My daughter emailed me some photos in the JPEG format from her mobile phone. Clicking the attachment brings up a box showing various ways of opening it, but I want to use the Windows Photos app, which isn't in the list.

Is there a workaround for this or a way of adding it to the list?
fossewayfella, Web User Forums

A In my version of Windows 10, Photos is the default app for opening JPEG files. Open Settings (Windows+i) and click Apps, then 'Default apps'. Scroll down to find 'Choose default applications by file type', then scroll down to the two JPEG options ('.jpeg' and '.jpg') to see what is set for yours. Click one and you'll get a menu where you can choose Photos. Do the same for the other one.
Cantrel, Web User Forums

Choose the default apps that you'd like your files to be opened in

GENERAL PC
Get your mic working in Skype

Q My computer came with Realtek Audio installed. I have no idea how to use it but that doesn't usually matter because I get sound with no trouble. The exception is Skype.

In Skype's audio settings, I have both the speakers and microphone set to 'Realtek high definition audio'. The microphone jack is plugged into the microphone socket on the front of the PC and is not set to mute. However, I can't get a reaction from the PC when I test

GENERAL PC
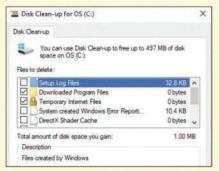### Create enough space to update

Q I have two Windows 10 laptops and both are displaying the message for last April's Creators Update: "coming soon, would you like to be one of the first to receive it?".

I realise my tiny laptop won't ever get the update because its hard drive is so small (with Windows 10 and a bare minimum of software installed it only has 5GB spare). However, my other laptop has plenty of space and should be able to run the update, even though it only has an Intel Core i3 processor with 4GB of memory.

I don't particularly care about the update (or the more recent Fall one) because I don't think any of the improvements are of use to me, but I'm interested in keeping my laptops secure in the longer term.
The Shadow, Web User Forums

A You may be able to free up enough space to get the updates by running a Disk Clean-up. Start typing `disk clean-up` into the Windows

Make room on your hard drive so you can install updates

search box until you can click it in the menu that appears. After its first scan, click the 'Clean up system files' button, which provides more options to delete. If it says it can clear a significant amount of space, it's worth running.

The `dism` command can also be used to clean up the WinSxS folder, which can become bloated. Open the Command Prompt (press Windows+R, type `cmd`, then press Enter). Type:
`dism /online /cleanup-image /startcomponentcleanup` and press Enter. This can take a while to run. When it's done, close the Command Prompt window and check to see if you've gained any free space.
Cantrel, Web User Forums

the sound in Skype's audio settings or when I make Skype calls. I can hear the person at the other end but they can't hear me. I have fiddled with the settings in the Realtek Audio Manager to no avail.
Minnehaha, Web User Forums

A Start by making sure that you have the latest Realtek drivers. To do this, open the Device Manager by starting to type `device manager` into the Windows search box, then click the option when it appears. Click 'Sound, video and game controllers', then double-click 'Realtek High Definition Audio' to open the Properties window. Click the Driver tab and click the Update Driver button.

Next, check that the microphone is switched on. Go to Settings (Windows+i) and click Privacy. Select Microphone on

the left and switch it on. You can also select the apps that can access your microphone, so make sure Skype is included.
calimanco, Web User Forums

Ensure Skype has access to your hardware in Microphone in the Windows Settings app

Inbox

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

Star Email

Mug winner WebUser

Give us the broadband service we pay for

I read Barry's column in Issue 438 (bit.ly/webuser438), 'ISP compensation plans are no gift at all', with interest. I have just had an absolute nightmare of a home move with EE.

The home move was requested on 14 November – my granddaughter (whose broadband is in my name because I pay for it) was moving to a flat in the same complex. I was told it would take two weeks, but the earliest they could manage was 1 December. The engineer turned up but said he could not move the broadband because he couldn't access a cupboard and refused to wait while we contacted the landlord.

After a long conversation with EE, we rescheduled for 5 December and this time the engineer was able to access the cupboard. However, he said it was too complicated for him and he would come back later with another engineer. This did not happen and we contacted EE again for another date, 7 December. This time the engineer didn't turn up at all.

EE told me it was the fault of Openreach, but at no time were we contacted to be told the engineer was not attending. The next appointment was 11 December. This time the engineer *did* turn up but did not have an ADSL filter, so I had to pick one up myself.

I have complained to EE, who refunded the month my granddaughter was without broadband and reduced my bill by £50. Having made five phone calls to EE, four of which involved being on hold for an hour, I am totally disillusioned. During the time my granddaughter was without broadband, she was using mobile data, which cost me over £30.

Broadband providers treat us with disdain and do not realise we are actually customers and as such are entitled to the service we paid for.

Doreen Shoobridge, via email

Banning children's phones is disrespectful

I'm writing to those who disagree with my response to Barry's column 'Stop your children phubbing you' in Issue 433.

They keep saying the children are disrespectful, but what's described has nothing to do with respect and everything to do with coercion. Lord Sugar states that he has *banned* smartphones in the dining room. The tone of the original article is clearly in favour of using force to stop "phubbing" at all costs. The problem is that coercion does not work and is counterproductive.

The inevitable result will be that the children will do everything in their power to avoid visiting grandpa and, if forced to talk, they'll say only enough to avoid punishment. Indeed, it's Lord Sugar who is being disrespectful to his grandchildren and he will ultimately pay the price.

Terry Bradley talks about the "art of conversation", but conversation requires a minimum of two willing participants. How anyone can enjoy a conversation with someone who is having their arm twisted is beyond me. As I mention in my original response, if the children want to converse with grandpa, they will gladly put down their phones with no pressure or intimidation.

If Lord Sugar were a little wiser, he'd make an effort to reach out to his grandchildren and befriend them on their level, rather than imposing unpopular rules. Remember, strategy always wins over brute force, hands down.

Humbert, San Antonio, TX USA

Mega is the best cloud-storage service

Regarding your comparison of cloud-storage services in Issue 438, I know you can't include all cloud-storage offerings, but I was surprised you included the not very brilliant Amazon Drive but failed to mention Mega (mega.nz).

I use all the free storage I can lay my hands on: OneDrive, Google Drive, Dropbox, Box and, yes, Amazon Drive. But Mega, with its free 50GB and

Quiz Answers: Issue 439

1 *Doctor Who*

2 *Blue Planet 2*

3 *Pointless*

4 *Holby City*

5 *MasterChef*

6 *Homes Under The Hammer*

WINNER!
Well done to **Connor Wilkins** who wins a Web User mug

WORD PUZZLE

Checksum

effortless synchronisation, is my go-to service at present.

Tony Allaway, London

Android update permissions go too far

I read with interest your news story in Issue 437 about Android devices being out of date. I must admit that I have stopped updating mine.

The reason is that each time the device asks me to authorise an update, Samsung wants access to my contacts list and phone logs. There is no legitimate reason for this that I am aware of – in fact, it is almost certainly illegal. It certainly is in Europe and definitely in the UK, under the Data Protection Act (or their versions of it). Barry Collins' column in the same issue may also be relevant on this.

Without listing the specific sections and sub-sections of the Data Protection Act, it clearly violates the first, second, third, fifth (possibly), seventh and eighth (possibly) Data Protection Principles. Anyone doing business in the UK is also bound by our laws, wherever their main office is based. Not that the UK Information Commissioner is any use on this matter for the ordinary person.

John Lockett, via email

Most apps for tablets are rubbish

Most apps are useless and not even secure – *Web User* should do a write up of the worst ones! I only need a few on my tablet: Kindle, Just Eat and my banking apps, which I would only use in an emergency on a tablet.

I have to laugh at the adverts advising bamboozled old people to buy cheap tablets loaded with essential apps. Only about five or six are useful; the rest are garbage, but they look good in the advertising photo. Any dutiful offspring who knows a bit about tablets should be shot if they buy that rubbish for their parents. Amazon Fire tablets are a similar price and the only drawback is that some useful apps are only on Google Play. Bezos and Google are both too full of themselves to sort it.

Martin Fletcher, Thorpe Hesley

What you say...

OFCOM SAYS A MILLION PREMISES STILL CAN'T GET 10Mbps. WHAT BROADBAND SPEED DO YOU GET?

150Mbps when it suits with Virgin Media. Sometimes much lower when the contention ratio is in force.
Steve Ellis @gb022621

Download 80Mbps, upload 20Mbps. I'm fed by fibre-to-the-cabinet in East Sussex. My son gets 300Mbps in Cornwall by fibre-to-the-premises.
Iain Garner

10Mbps is a pipe dream. Less than 2Mbps for me. How about addressing the real low speeds before getting people to silly level? The reseller is Timico, actual end provider is TalkTalk.
Mike Kuhl

8Mbps with TalkTalk in Weymouth.
Gerrit Max

20.57Mbps download and 7.99Mbps upload. That's Sky Fibre in Aberdeen.
Pamela J Anderson

FIREFOX QUANTUM LAUNCHED A MONTH AGO. WHAT'S YOUR VERDICT?

I have gone back to the old version of Firefox because Quantum kept giving me 'Firefox not responding' on many of my web pages.
Colin Wallace

So far so good. Certainly faster and seems quite stable.
Howell Rees

Not a fan. Was a big Firefox supporter even back to the first version, but the last two years I've used Opera and will continue to do so.
Jason 'Boz' Bowyer

It is okay, much faster, but I don't like the new interface (luckily, it can be fixed with many themes).
Zoran NeoGeo @zoran_neogeo

FRANCE IS BANNING PHONES IN SCHOOLS. SHOULD THE UK FOLLOW SUIT?

Yes. Why do students need phones in class? If a parent needs to contact the child, ring the school. Simple!
Anthony Higham

Children are easily distracted as it is without bringing phones into class.
Brian Brown

My twins have their phones turned off until after school. With the world the way it is, I need to know my kids are safe when school's over.
Heidi Canavan

My kids' primary school collects the phones at the beginning of the day and gives them back after. The secondary school has put a ban in place. They're not allowed to touch their phones at any time.
Caroline Alderson

FACEBOOK IS INTRODUCING ADVERTS BEFORE SOME VIDEOS ON ITS SITE (bit.ly/fb440). WOULD THAT PUT YOU OFF WATCHING THEM?

I don't watch them anyway. I have auto-play turned off.
Nat Grove

I just won't bother watching them. I already scroll away when annoying middle-of-the-video adverts interrupt.
Isabel O'Brien

Constant ads before and during a video – I'm reaching the end of my patience with Facebook.
Gary McPherson @gsmcpherson682

I can cope with the short three-second ones you get at the beginning. Nothing more.
Iain Loudon

⚠️ Page 404

Barry Collins refuses to pay a small fortune to be freed from a faltering mobile network

Why I won't pay BT's ransom fee

Help me, I'm being held hostage by BT. The ransom fee is £565. All major credit cards accepted. Let me explain. About a year ago, as revealed on this very page, I had a major falling out with my then mobile network Three. Reception in my house had become so poor that I could barely make or receive a call without wandering out into the garden. Not a major hassle on an August lunchtime, but a tad inconvenient on a sub-zero night in January.

Three fobbed me off for weeks with excuses about engineers repairing a local mast before we finally parted ways midway through my contract. I gave them my (ageing) phone back, and I was freed without a charge. A no-score draw on the pools coupon.

I jumped ship to BT Mobile and, initially, things were much better. Indoor reception was occasionally wobbly but I could make 90% of calls sat at my desk or on the sofa. (I live in a modern suburb in Sussex, by the way, not John O'Groats, in case you were wondering.)

About six weeks ago, things suddenly went a bit Three-ish. Calls were not connecting indoors, and those that did manage to struggle through were intermittent. Anyone tapping my phone would think I was being stalked by Norman Collier, God rest his stuttering soul.

Eventually my patience snapped and I called BT. I kid you not, I was midway through explaining the problem to the BT chap when the call dropped. He rang me back a couple of minutes later and said: "I see what you mean, pal".

The BT chap then proceeded to run through his pre-prepared support script, offering to replace my SIM card and have the phone checked by BT's engineers, even though the phone works fine everywhere else. He too then began muttering about work being done on the local mast, which I'm now 99% sure is what mobile networks say when they've run out of all other excuses.

Could I have one of those signal boosters that hooks up to your broadband and amplifies your mobile signal? "We've stopped doing those," said the BT chap. "But you can buy one off the internet!" Actually, they're still illegal if not bought from a mobile network. "Ah," says the chap. "I didn't know that."

> **There's more chance of me buying a family holiday to Chernobyl than there is of me paying £565 for a service you're not delivering**

So what am I meant to do, I ask? "Well, there's nothing we can do," he replies. "We don't guarantee indoor coverage." I refer him to the 4G signal checker on the BT website, which says my precise postcode will be bathed in "very good indoor and outdoor signal". "Yes," he mutters embarrassedly. "But that's not a guarantee." No, just a lie (see our feature on page 48 for more about this trick).

So how about we cancel the contract and call it quits then? You can even have my phone back, if you like. "Ah, sorry sir. That's not possible," says the manager I've now been forwarded to. "If you want to cancel your contract early, it's £565."

Dear BT: there's more chance of me paying for a family holiday to Chernobyl than there is of me giving you the thick end of six hundred quid for a service you're not delivering. You're going to be hearing an awful lot more from me over the next few weeks. You'll know it's me calling because every third word will be silent.

Illustration: Andrew Torrens

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