

22 PAGES OF WINDOWS
STEP-BY-STEP GUIDES
MAKE YOUR PC PERFECT



ULTIMATE VPN GUIDE!
THE BEST ONLINE SOLUTION FOR WINDOWS 10



Windows Help & Advice

YOUR PC

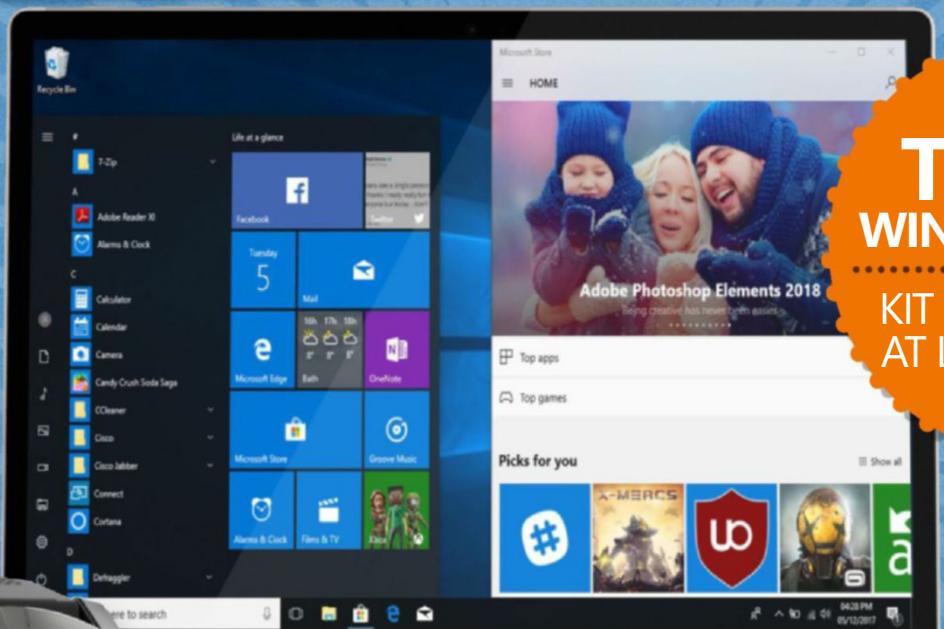
REBORN

• REINSTALL WINDOWS • KILLER UTILITIES • FREE UP SPACE



ALSO INSIDE...

- ✓ Master Photoshop
- ✓ Block intrusive ads
- ✓ Boost your battery
- ✓ Create a slideshow
- ✓ Play retro games



**TOP 25
WINDOWS APPS**

KIT OUT YOUR PC
AT LOW COST OR
FOR FREE!



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FAMILY SAFE**
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Welcome

If you're having a few problems with your PC – startup issues, badly behaving apps or worse – you may be tempted to take the nuclear option and wipe the whole lot and start afresh with a complete Windows reinstall.

While we explore that option in our lead feature, starting on page 11, we'll also show you some tips, tricks and techniques that can help you solve your issues without resorting to such drastic measures – follow each one and your PC will truly be reborn.

Once your PC has been revived and refreshed, turn to page 25 and our Explore section, which is packed with step-by-step guides on everything from creating amazing photo slideshows to protecting your privacy online.

Finally, turn to page 56 and you'll discover 25 brilliant apps that will make using your PC easier, more productive and more fun – each one of our picks is available at low cost or for free!

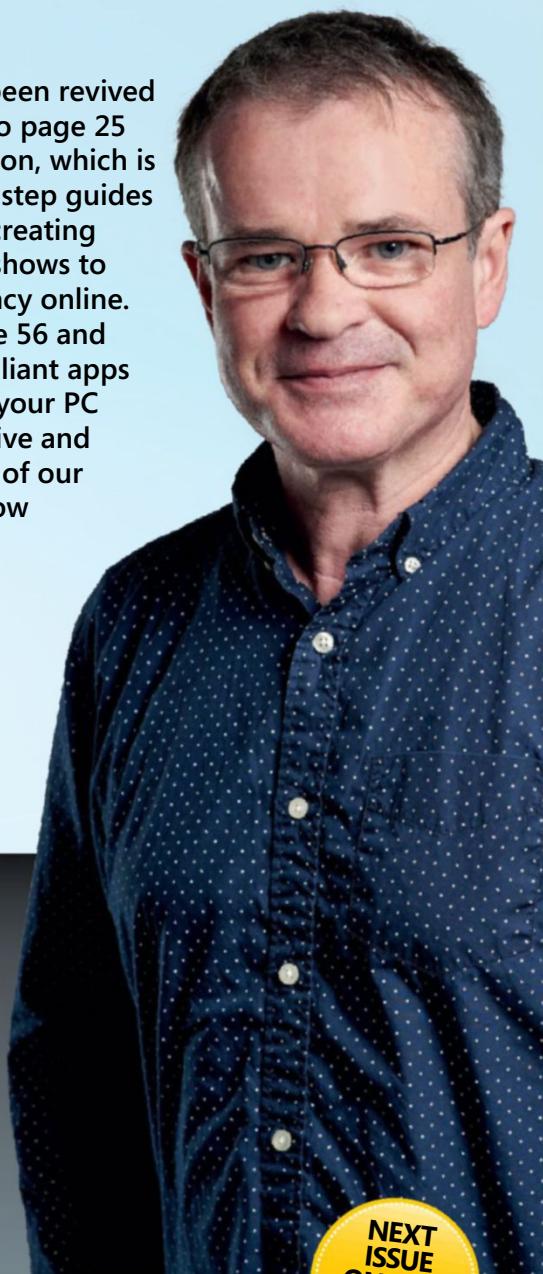
Enjoy the issue,

Rob Mead-Green Editor
www.facebook.com/windowsmag



SUBSCRIBE TO THE MAG TODAY AND SAVE – JUST TURN TO PAGE 22!

We pride ourselves in being the only magazine on the shelves to show you exactly how to get the very best from the Windows operating system, whether you're using Windows 10 or Windows 8.1. Also, don't forget to take a look at how you can read the magazine on your laptop, smartphone or tablet.



NEXT ISSUE
ON SALE
2 February
2018

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- Extend your wireless range → Maximise Windows 10's security settings
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Windows Help & Advice

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Find out more on page 22



YOUR PC REBORN

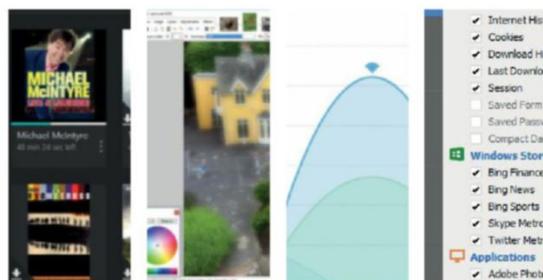
11 Give your PC a new lease of life with our guide to optimising your system for maximum performance



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SPEAK UP Controlling your devices with
your voice quickly becomes second nature.

Talk to your tech Connect your home with a digital assistant

Amazon, Google, Apple – the big names in the tech world are all contributing to the smart home revolution

Smart speakers, and the digital assistants they contain, are taking off. Amazon has just released the latest generation of its Alexa-toting Echo kit, with the supremely affordable £49 Echo Dot joined by the new Echo (£89) and the even-smarter Echo Plus (£129). Google's pushing forward with its own range of Google Assistant devices, featuring the also-affordable Google Home Mini (£49) and the less-affordable, but still great Google Home (£129). Even Apple's digging in – early 2018 will see the release of its higher priced Siri-powered HomePod – and Microsoft's Cortana has now made its way into the Harman Kardon Invoke.

NOW THAT'S SMART

So what's the big deal? A digital assistant is a great way to stay organised, taking the drudgery out of setting reminders and calendar entries. Using the likes of Alexa and Siri you can simply speak your request

and get it done straight away. You can find out facts and get news headlines, or play music or podcasts with a couple of words.

If you want to take things further, installing smart plugs and bulbs in your home makes managing your appliances and lights a breeze, and services such as IFTTT (If This Then That), or Amazon's own Alexa app, can help you automate actions. You could just say 'good night' to your smart assistant and have everything

power down automatically, with the lights slowly dimming to create a calming atmosphere.

Try it. Android phones generally respond to the

command 'OK Google', Apple phones with 'Hey Siri' – fire them up and have a chat, see what you can do. Switch on Cortana integration in Windows 10, then click the microphone button to talk to Microsoft's assistant. If extending their capabilities to controlling your home seems attractive, you know what to do.

Installing smart plugs in your home makes managing your appliances a breeze

MOBILE MASTERY Surface Book 2 is here

You have to applaud Microsoft's hardware tactics: it's dominating in the Windows tablet market by producing a best-in-class device, and the Surface Book 2 marks its attempt to do the same in the laptop world. While it's visually identical to the first generation Surface Book – not a bad thing, by any means – there's a host of improvements inside. The price might be a bit steep though; the 13-inch model starts at £1,500. You can read our review of the 15-incher on page 78.



DETACH IT The Surface branding is still relevant – pull off the screen to use it as a tablet.

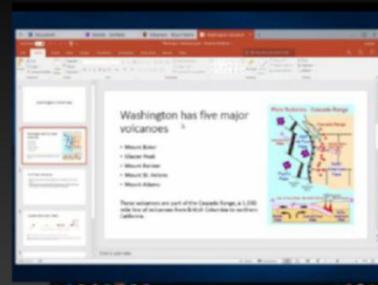


FOLD IT The Surface Book 2's fulcrum hinge is a beautiful and unique way of stowing the laptop.



FLIP IT Want to draw? Turn the screen around to find a great working angle for the Surface Pen.

The Knowledge... + | ▶



Windows Sets

Sets? Don't you mean tabs?

Well, yes. We do. Far be it for us to be a bit facetious, but that's precisely what sets are: a way of using intelligent tabs that group together all the open windows of your apps into a single manageable whole. Want to switch between open documents? Just click the appropriate tab.

Can't I just do that with the Taskbar?

Not like this. Sets won't force you to group together the open windows of a single app – you'll be able to combine multiple apps into a single entity. You might have a set, for example, with an open Word document, a browser in which you're doing research, an Excel spreadsheet to pull numbers from. Minimise or resize the set, and every app is affected.

Does it work with everything?

We don't expect for Sets to work with every app from the outset, since it's probably going to be something that requires a little extra coding, but Microsoft is aiming to get all of its Universal Windows Apps working with the Sets system when it's eventually released.

Does it do anything else?

The fact that Sets will be applied to Universal apps means you should, all being well, be able to create a set on your desktop and move it onto a mobile device or to another machine seamlessly, picking up exactly where you left off. This is only likely to happen if the Sets concept really takes off though: it's not going to be an easy one to implement.

When can I start using it?

Absolutely no idea. Microsoft has only just started rolling out the feature to its earliest testers. There's a long way to go, and a lot of feedback to work through, before it's going to be ready to roll out to standard desktop users. Our money wouldn't be on it landing in the next major update – you might be waiting until the end of 2018.

Everyone's talking about

Pre-installed software

Can you really trust the apps that are shipped with your new PC – and how do you set about getting rid of them?

HP has recently come under fire for its use of an app called Touchpoint Analytics. Silently installed into Windows 10 on its new laptops, the app stands accused of sending vast amounts of data back to HP's labs. HP's defence is that Touchpoint Analytics is an app that's been around for some years under a different name, and the company claims it merely collects anonymised information about hardware performance, perfect for support. Innocent or not, the app negatively affects PC performance while it does its thing, which has many users up in arms, though it's easily scrubbed away through Windows 10's standard uninstall procedure.

Not all pre-installed software is quite so benign. Lenovo's 2015 decision to ship laptops with a package named VisualDiscovery – which inserted ads into Google searches and could potentially access sensitive personal information – has now cost it \$3.5 million in fines from the Federal Trade Commission (FTC) in the United States, and Lenovo is required to adhere to a number of sanctions relating to its use of pre-installed software. Even

after this very public and costly mistake, though, pre-installed software is not going anywhere. If anything we've seen the volume of so-called 'bloatware' growing in the PCs that have passed through our labs recently.

Here's the good news: It's very rare that anything that comes pre-installed on a PC is actively required for that machine to run properly. The vast majority of bloatware can – and probably should – be safely removed via the usual channels

the instant you boot your new PC for the first time, provided the software doesn't have its hooks in too deep. If you're really struggling to remove something, a

third-party tool might do the trick. The PC Decrapifier (pcdecrapifier.com) will automatically sift through your machine looking for pointless performance-lowering apps and get rid of them automatically. If you stumble upon a particularly stubborn app that even the Decrapifier can't get rid of, search for it online – it's likely you'll find a special removal tool, or (less likely) a reason to leave it installed.

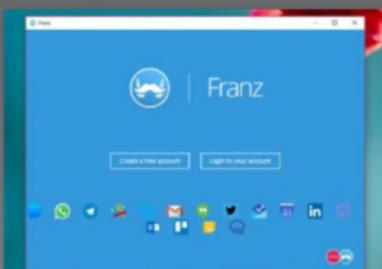


Download this...

Franz

meetfranz.com

If you have more than a couple of online friends, you've probably run into someone who refuses to use your chat app of choice. That one person who insists on using WhatsApp instead of Google Hangouts, forcing you to talk on your phone. That friend who's constantly pinging you via Facebook Messenger. That one Slack group that you absolutely need to keep on top of. Keeping tabs on everything can be quite infuriating. But Franz solves that problem: Completely free to use – unless you fancy chipping in a little to support its development – it combines a huge list of chat services into a one-stop-shop of online communication. Sign up with all your chat apps once and you can then install Franz on a different machine, sign in with your Franz account, and your chosen services will all be lined up and ready to go.



GOOD CHAT Franz lets you chat online to friends, no matter which service they use.

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NEXT ISSUE ON SALE

Friday

02
February

Answers 1A 2C 3A 4B 5C 6A

Facts & figures

Rob Mead-Green reveals a host of fascinating digital facts

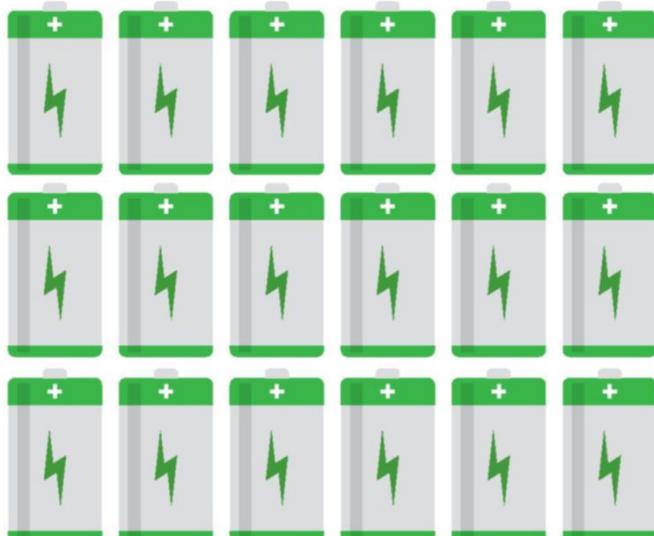
£100,000,000,000



Estimated net worth of Jeff Bezos, CEO of online retailer and tech company Amazon. The \$100 billion dollar fortune makes him the world's richest man, having overtaken the previous title holder – Microsoft co-founder Bill Gates – in 2016.

600 MILLION

Number of devices worldwide which now have Windows 10 installed, including PCs, games consoles, tablets and phones. Microsoft's original plan was to have Windows 10 on one billion devices by 2018. It's not yet known if – or when – it will hit this ambitious target.



100

Number of megawatts of power that's capable of being stored in the world's largest lithium ion battery. The Tesla Powerpack stores electricity generated by a massive windfarm near Adelaide, South Australia. The Powerpack was installed and working within 100 days at a cost of £37 million.



Maximum display resolution that's supported by the new HDMI 2.1 specification, which tech companies can now start adding to their hardware. HDMI 2.1 supports refresh rates of up to 120Hz, making it ideal for computing and gaming applications. Dynamic HDR is also supported.

64,000,000

The value of bitcoins in dollars that hackers managed to steal from the NiceHash bitcoin mining marketplace last December. Slovenian authorities said the hack had all the hallmarks of a "highly professional attack with sophisticated engineering". 4,700 bitcoins were stolen in total.

>> Incoming

The hottest new Windows hardware on the horizon



Nvidia Titan V

Price £2,700, www.nvidia.com

Yes, you read that right. Nvidia wants £2,700 for a PC graphics card. But this is no ordinary graphics card. It's the most powerful graphics card you've ever seen.

Designed to meet the exacting demands of Artificial Intelligence (AI) and machine learning technologies, the Titan V is capable of delivering 110 teraflops of computational grunt. That's nine times the power of its predecessor, the Titan Xp; and 110 times the power of the most powerful desktop PC processor you can buy today – Intel's one teraflop Core i9 Extreme Edition.

Powered by Nvidia's Volta technology, the Titan V packs 21.1 billion transistors on to an 815mm chip, and has 12GB of HBM2 memory. So powerful is the Titan V that there's only other one card that bears comparison – the datacentre-focused, 112-teraflop Nvidia Tesla V100, and that costs a cool £10,500.





YOUR PC REBORN

Breathe new life into your Windows PC with our essential guide to fixing, cleaning and tweaking your system for optimum performance

Frustrated by your PC's lethargic performance? Worried by persistent niggles, from minor glitches to major crashes? Unless your PC's problem is hardware-related, the obvious solution is to blow things up and start from scratch with a brand new reinstall.

But reinstalling Windows in this way isn't always the logical solution. Sure, it wipes things clean and gives you a completely fresh slate, but there's a lot of effort involved, and – despite our

tips and techniques – it isn't always possible to recreate things exactly the way you want.

Rather than reach for the nuclear button every time you sense something is wrong, why not see if you can regenerate your existing Windows installation instead? We're going to help you do exactly that.

We'll kick things off by giving your machine a health check, guiding you towards the tools you need to make sure that everything is working as it should. Then it's time to clear out the junk – whether it's simply

superfluous or something more sinister, like a potentially unwanted program.

We'll also look at how you can free up storage through judicious archiving of content as well as consolidating all your files and backups so you're not wasting space with extraneous copies of files. Then we'll reveal ways in which you can streamline your PC's performance further, giving you a Windows installation that has a factory-fresh feel about it.

If after all that you still want to reinstall Windows, we'll show you how to do that too.



Perform a health check

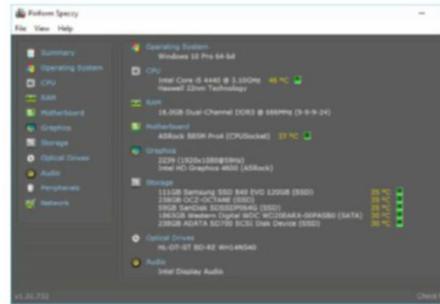
Give your computer a much-needed once over to ensure everything's fighting fit behind the scenes

If your PC is constantly falling over, or you're suffering performance-related issues with no obvious cause, the best thing to do is give your PC a checkup. Start by performing a physical examination of the underlying hardware. First, perform a power reset: this involves powering down your PC, then unplugging it from the mains and pressing the power button a few times to ensure all lingering power has been discharged (in the case of a laptop, you'll need to disconnect the battery too before pressing the power button).

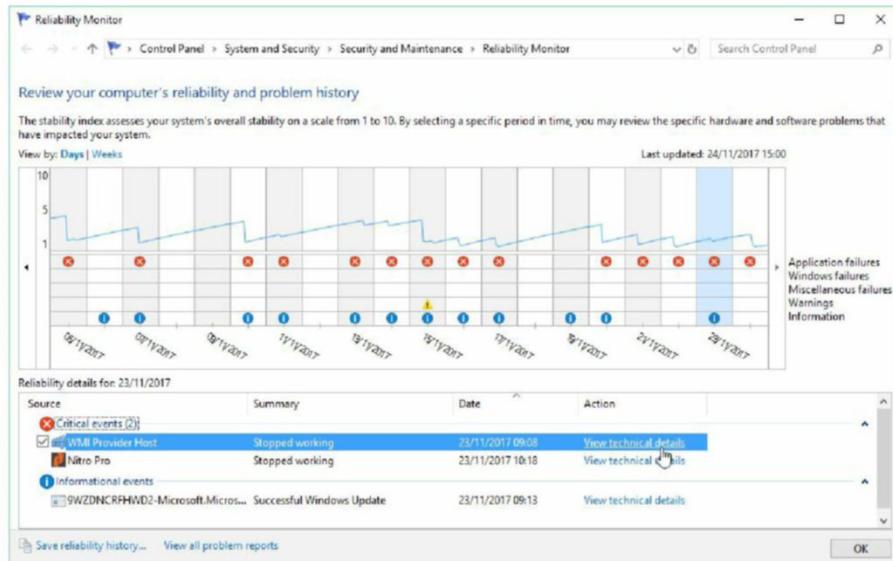
While your PC is switched off, check that its vents aren't clogged with dust – overheating not only shortens the life of your PC's components, it also affects performance and can be responsible for seemingly random shutdowns. Use a tool like Speccy (www.piriform.com) to monitor your PC's temperature sensors. A well-ventilated desktop CPU should run at no more than 50 degrees Celsius in normal use, and no more than 60–65 degrees when it's working hard. Laptop processors run hotter, of course, while hard drives should run cooler.

A visual inspection

If your desktop PC's vents seem clean, consider opening it up to check the fans inside too. Make sure it's switched off at the power socket and that you earth yourself before touching the insides. The first place to check are the fans, specifically the one attached to your processor, plus the one in your power supply and any other case fans there might be. If they're all clean, consider disconnecting the hard drives temporarily and powering up the PC with the case open. Inspect the fans while the PC boots to the BIOS to see if there's any indications of wear and tear – strange noises, for example.



Piriform's Speccy can give you a valuable overview of system temperatures inside your PC.



Reliability Monitor lets you see Windows' overall health.

If the fans check out, power down again and remove the processor fan and heatsink to check the connection with the processor itself. A thin coating of thermal paste should be present – if it has worn away, you'll either have to carefully apply a new coat or consider replacing the heatsink and fan.

Larger fans – if your PC case can accommodate them – run cooler and quieter, but be sure to source the correct fan for your processor make and model – see www.quietpc.com/cpu-fan-coolers for more details.

"A well-ventilated desktop CPU should run at no more than 50 degrees Celcius in normal use"

Dodgy power supply fans will require the power supply itself to be replaced. Be sure to pick the same size – the standard ATX measures 86x150x140mm – and at least the same power rating, although look to source a 400W power supply as a bare minimum, or higher if you are able to afford it.

RAM and hard drive

Faulty memory and failing hard drives often manifest themselves as random problems rather than consistent ones. Perform a quick check of your RAM by typing 'memory' into the Search box and opening the Windows Memory Diagnostic tool. The check is performed outside Windows, so opt whether to run

it now or when you next reboot. Any failures point to faulty RAM – if you have more than one stick installed, open up your PC and remove each one in turn to test them separately. Replace like with like using the Crucial Advisor tool (www.crucial.com/uk) to identify the correct module for your machine.

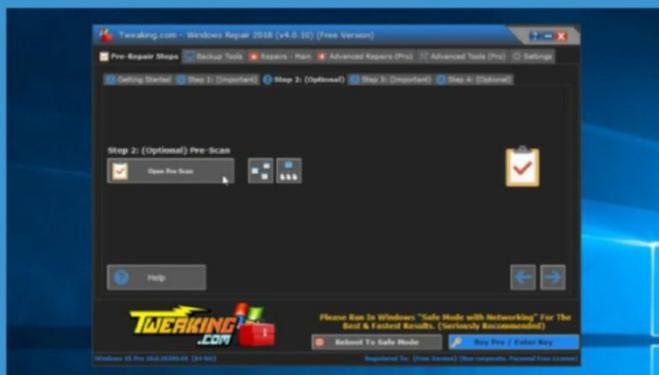
You can also check your hard drives' physical health using the Speccy app via its Storage section. Check each drive's SMART status – anything that's not rated good indicates the drive is on its way out. Replace it as soon as you can, and

be sure to back up its contents so your files are safe if the drive goes south.

Your Windows installation may also require a bit of TLC. You can get an at-a-glance view of the health of your PC by typing 'reliability' into the Search box and clicking View Reliability History. You can see a list of critical errors as well as handy informational events, such as driver or Windows updates. The lower the score, the more help your PC needs. Follow the step-by-step guide on the facing page to get the Windows Repair tool to run some system diagnostics tools, then check its collection of repairs – 47 and counting. If any match specific symptoms that you've been having, they may be the cure to your ills.

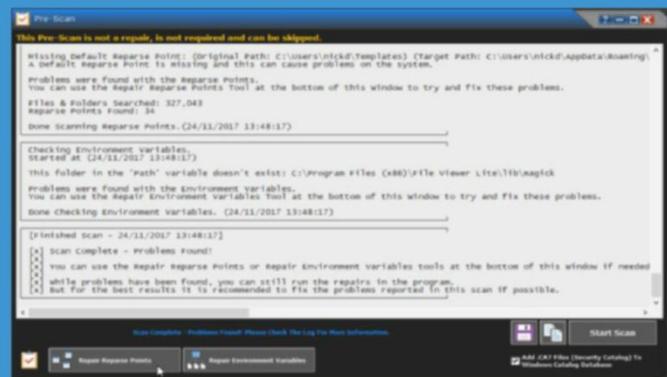


Give Windows a health check



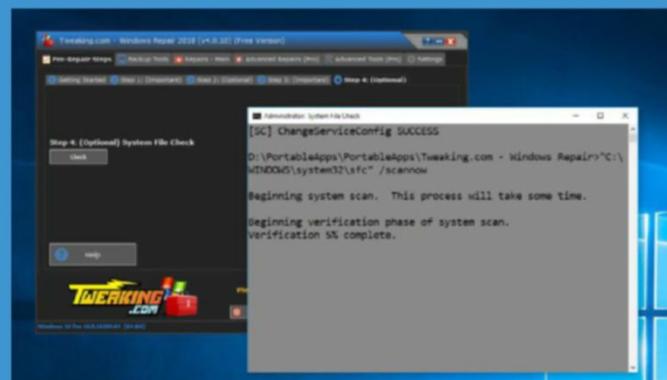
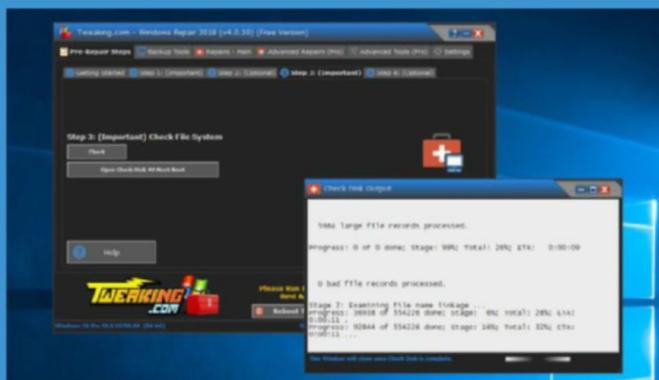
1 Setup and reboot to Safe mode

Download and install Windows Repair from www.tweaking.com – launch the tool, let it perform initial checks and click 'I Agree' when prompted. At the main screen, click 'Reboot to Safe Mode' to restart your PC in Safe mode. Then go to Step 2: (Optional) and click Open Pre-Scan.



2 Scan for errors

The pre-scan scans three specific parts of your system for potential issues – click Start Scan. Reparse or environment errors can be fixed using the repair tools provided; visit www.catalog.update.microsoft.com to download and reinstall missing packages (search by KB number).



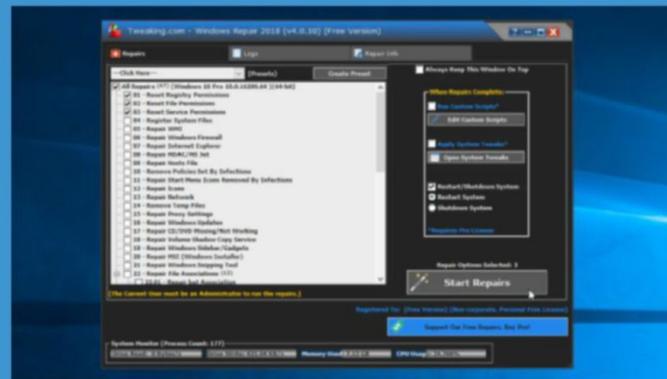
3 Check hard drive for errors

Close the window to return to the main Windows Repair screen. Click '>' followed by Check to perform a disk check. If errors are found, click Open Check Disk At Next Boot, then restart your PC to allow Check Disk to find and fix those errors. Once done, return to this screen and click '>' again.



5 View repairs

Switch to the Repairs – Main tab. There are some options for trying pre-selected repairs to fix issues with malware, permissions, Windows Update and 'common' problems, but a better bet is to click the Open Repairs button, which will enable you to manually see which repairs are available.



6 Select and fix

There are 47 repairs in total – switch to the Repair Info tab and use the drop-down menu to select one for more information about it. Select the repairs you wish to attempt, tick Restart/Shutdown System and choose Restart, then click Start Repairs. After rebooting your PC will hopefully be healthier. ■

Clean up the junk

Take a virtual vacuum to your PC, sucking up unnecessary and unwanted trash to free up system resources

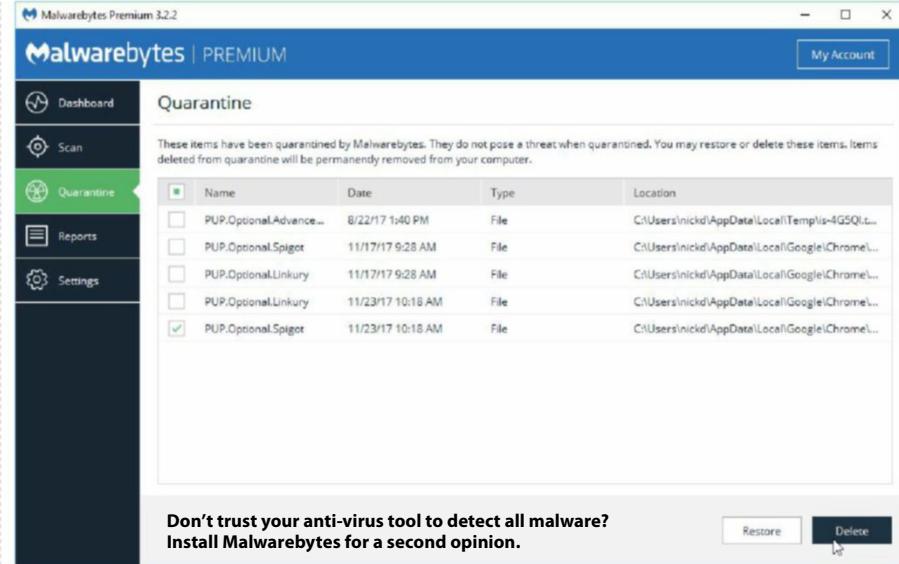
Why take a feather duster to clean out your PC when our supercharged vacuum cleaning toolkit can do a much better job? Let's start by making sure your PC is malware-free. Open your existing security tool and make sure it's updated, then run a full system scan. If malware is found, let the tool clean it, then reboot and scan again. If the malware's proving tricky to budge, try rebooting your PC in Safe mode and then running your anti-malware tool from there.

Never rely on a single security tool – we recommend that you install Malwarebytes (www.malwarebytes.com) alongside your existing security package. It'll often find threats ignored by traditional tools. For an in-depth guide to checking and removing malware from your PC, check out our November 2017 issue.

Remove junk

The November 2017 issue also covers ways in which you can remove potentially unwanted programs (PUPs) from your PC. Malwarebytes can remove some, but also try the aptly-named PC Decrapifier tool (www.pcdecrapifier.com), which will help identify programs you should consider removing.

While PC Decrapifier can remove these unwanted tools for you, relying on a program's own uninstall tool to clean

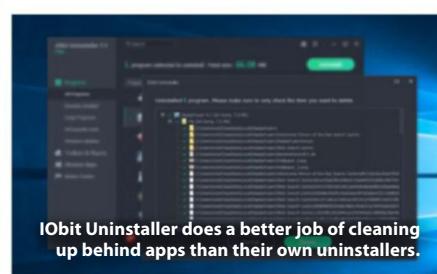


The screenshot shows the Malwarebytes Premium 3.2.2 interface. On the left, a sidebar menu includes Dashboard, Scan, Quarantine (which is highlighted in green), Reports, and Settings. The main area is titled 'Quarantine' and contains a message: 'These items have been quarantined by Malwarebytes. They do not pose a threat when quarantined. You may restore or delete these items. Items deleted from quarantine will be permanently removed from your computer.' Below this is a table with columns: Name, Date, Type, and Location. The table lists several files, mostly named 'PUP.Optional.Spiget' with various dates and locations. At the bottom of the interface, a banner reads: 'Don't trust your anti-virus tool to detect all malware? Install Malwarebytes for a second opinion.' with 'Restore' and 'Delete' buttons.

up after itself is – charitably speaking – hit and miss. A more thorough way to get rid of programs is by downloading and installing IObit Uninstaller Free (www.iobit.com – look under Utilities).

Once installed, launch the program. By default, it'll display a list of installed desktop programs. You can click the bin icon next to any one to remove it, or go through the list ticking all those applications you no longer want before clicking Uninstall to remove them in sequence. You'll be asked if you want to automatically remove residual files (and Registry entries) – untick this if you'd like

to review what's removed first. Setting a System Restore point is not usually necessary, unless you are removing lots of programs at once.



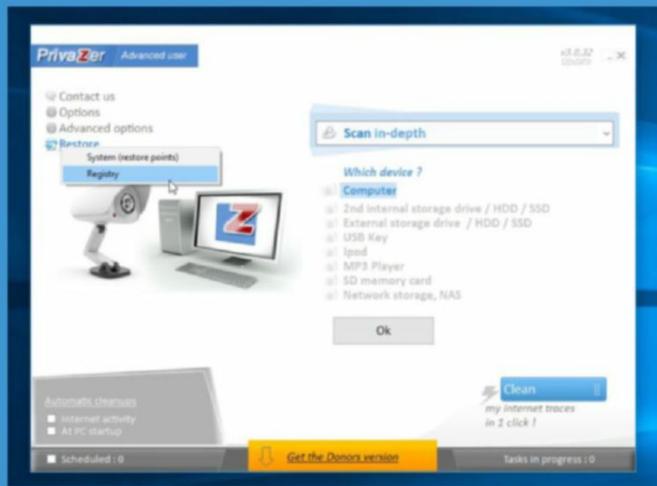
Avoid Registry cleaning

You'll notice we recommend de-selecting PrivaZer's Registry cleaning component – and for good reason. Cleaning Registry entries has zero effect on your computer's performance, but one false misstep and you can cause major problems that could ultimately bring your PC's installation crashing down. Don't believe us? Support Squad is littered with emails from people who've relied on Registry cleaning tools only to find that their systems have been crippled as a result.

The only exception to this rule is when you use IObit Uninstaller to remove programs from your PC. It's

specifically looking for entries related to the program you're uninstalling, which means you can make a measured judgement about whether they're safe to remove or not.

If you're not convinced, then at least take a System Restore point before you clean out the Registry. Also make sure 'Save registry' is ticked on PrivaZer's scanning window before clicking Clean. If you run into problems, click the Restore button on the main screen and select Registry. Restore the latest backup to see if that fixes the problem; if not, try using earlier backups until the critical entry is hopefully restored.



If you're adamant that Registry cleaners are safe to use, please make sure you take backups for the day when you discover they're not.

Each program is removed in the same way: first its own uninstaller removes the program, then leftovers are either cleaned automatically or you can review what's being deleted before choosing what – if any – of it to remove. Once done, move on to the Windows Apps section to clear out Microsoft Store apps, including those pre-installed with Windows itself (these can always be reinstalled later through the Store). Finally, use the Toolbars & Plug-ins tab to review and remove unwanted browser toolbars from all your browsers.

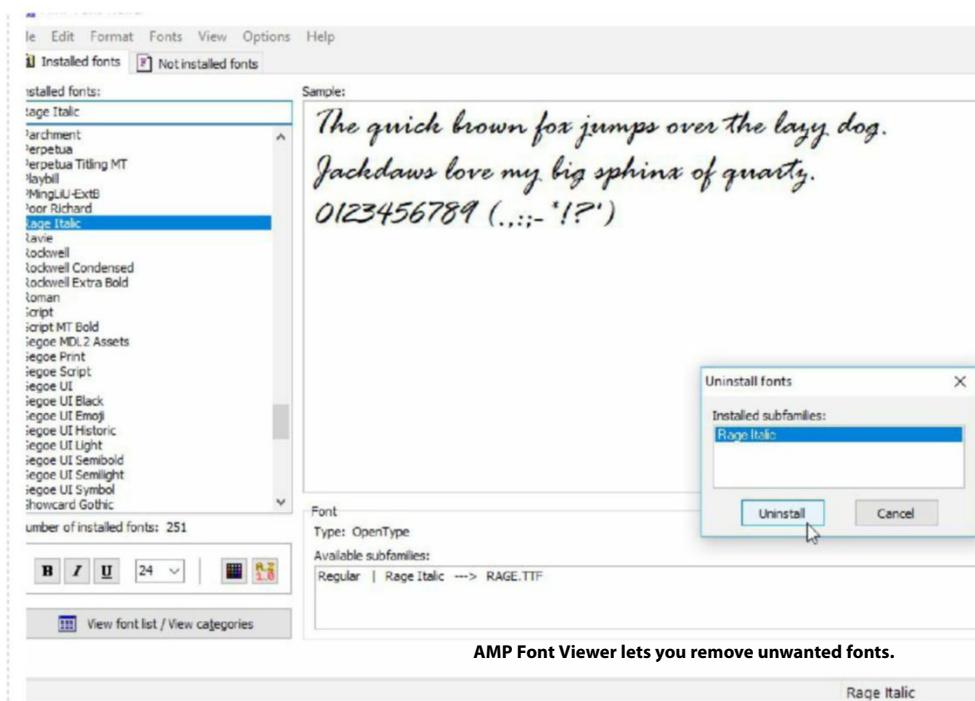
Dig deeper

Want to clean out other parts of your PC? Put off by the recent malware scare surrounding CCleaner? One alternative is PrivaZer – go to www.privazer.com to download and run the portable version. Start by setting the program's scope: tweak Adapt PrivaZer to your needs, then click Next. Choose 'Advanced' to work through all 14 possible options. Each one is self-explanatory and

"Setting a System Restore point is not usually necessary, unless you are removing lots of programs at once"

basically tells PrivaZer how far you want to go with your cleaning – everything from cleaning out various software configuration files (such as Office or photo apps). In most cases, the recommended options are best left alone – the only question mark lies with disabling hibernation on Windows 10 PCs, which may cause problems if you suffer a power cut during shutdown.

Once your preferences have been selected, choose the new file option and click OK. You'll then be taken to the main menu – the step-by-step guide



AMP Font Viewer lets you remove unwanted fonts.

Rage Italic

your font collection is using AMP Font Viewer (www.ampsoft.net/utilities/FontViewer.php). Download and extract the portable version (ZIP file), then right-click FontViewer.exe and choose 'Run as administrator'.

Go through the list identifying fonts you don't use – right-click these and choose 'Uninstall font', which removes it completely. Fonts are moved to your Documents folder as a backup – choose Options > Options to choose a more convenient location. Should you ever want to restore a font, switch to the 'Not installed fonts' tab, navigate to your backup folder and choose either 'Install selected font' to put it back permanently, or 'Install font temporarily', which enables you to use the font until you restart Windows.

(below) reveals where to go from here. If in doubt, don't delete anything. PrivaZer will securely overwrite any data it removes, so recovery will be impossible.

Niche cleaning

Want to go even further? If you're regularly cursing at the number of fonts offered by your office software, why not take steps to remove those unused typefaces? You'll not only benefit from a more manageable fonts menu, you'll free up some additional system resources too. The best way to manage

Clean your storage drive



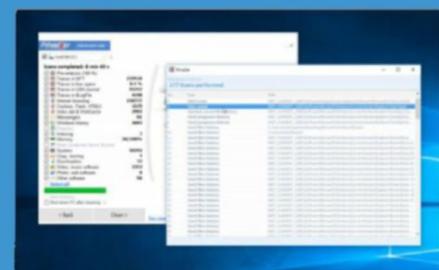
1 Choose your

Click 'Advanced options' under PrivaZer's main menu, tick 'Save registry changes made by next cleanups', then click OK. By default, your entire computer is selected for scanning. You can choose a different option under 'Which device' to restrict it, if you wish. Leave 'Scan in-depth' selected and click OK.



2 Scan for items

By default, all the scans you have previously chosen are selected, along with your C drive – you will need to repeat for any other drives that you wish to check. Roll your cursor over one of PrivaZer's options to learn more about it, then untick any that you want to exclude before clicking the Scan button.



3 Review and clean

Once PrivaZer has completed its scan, click on an item to select it, then click the results to see what's been found. Untick any categories that you don't want to remove, such as jump lists and Registry entries, before clicking Clean to remove all the detritus that you're happy for the utility to delete. Good luck!

Consolidate your files

Take your cleaning one step further by reorganising and consolidating your data files to free up storage space

Over time, your machine's drive becomes cluttered up with data files of all shapes, sizes and types. Compounding things are the way in which duplicates can quickly swallow up more storage space thanks to disorganised backups or the fact you have five near-identical copies for every snap you take on your phone or digital camera. The longer this process goes on, the harder it can be to face up to the problem, but today's the day you finally take steps to not only consolidate your files properly, but free up space too.

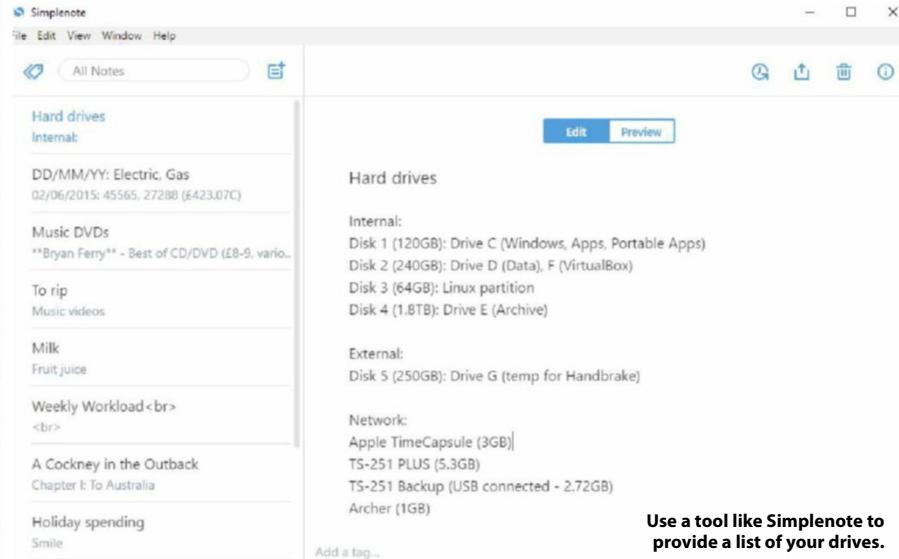
First steps

For this process to work, you need to work out where you are going to store everything. You also need to remember that moving files to a secondary drive isn't the same as backing them up if they remain the only copy in existence, so be sure to keep two copies of key files on separate drives.

Start by taking an inventory of all the available drives: your PC's internal drive or drives, plus any external (USB or network) drives that you possess. First, determine how you'd like to organise them going forward. Use a spreadsheet or note-taking tool to help you visualise what you'd like to do.

If you want to take an inventory of each drive's contents for manually comparing it, then save yourself a huge task by installing the trial version of WinCatalog 2017 (www.wincatalog.com/free.html). The trial supports up to 10 disks per catalogue, which should be ample for cataloguing your drives – a personal licence costs £25 if you need it.

Once installed, launch the program and create a catalogue file when prompted. Then click the Disk button to select your first drive. Click 'Options' to choose exactly what to add to the



The screenshot shows the Simplenote application interface. On the left, there's a sidebar with a 'Hard drives' section listing 'Internal' drives (Disk 1 to Disk 4) and 'External' drives (Disk 5). The main pane displays a list of notes, including 'DD/MM/YY: Electric, Gas', 'Music DVDs', 'To rip', 'Milk', 'Fruit juice', 'Weekly Workload', 'A Cockney in the Outback', 'Holiday spending', and 'Smile'. A note titled 'Smile' contains the text '

'. At the bottom right of the main pane, there's a note: 'Use a tool like Simplenote to provide a list of your drives.'

catalogue – you may wish to restrict it to covering specific content, or even just provide a list of folders, which will speed up the scanning process considerably, although you'll be limited in what you can do with the program.

Once your drives have been indexed – which can take a while – you can then start to see how data is currently spread across your drives, making it easy to visualise where you'd like your files to go. If you index everything on your drives, you can even use WinCatalog's Search tool to try and track down files you've mislaid – perhaps they weren't

"One of the most important actions when consolidating your files is to weed out unnecessary duplicates"

accidentally deleted after all, merely buried deep inside your file system.

Get rid of duplicates

One of the most important actions when consolidating your files is to weed out duplicates. Not only will you free up stacks of space, you'll avoid wondering what happened to your recent edits because you've opened the wrong copy of a file. WinCatalog's search tool can locate duplicates by filename, size and date modified – expand the Property pane to locate it, then click the ellipsis (...) to select other criteria to match, such as the CRC32 checksum.

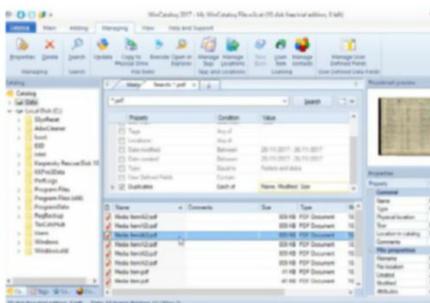
The search tool is lightning fast – results are returned instantly, but

remember you are only working within its catalogue, not the physical files themselves. If you want to remove duplicates, you'll have to right-click each duplicate in turn and choose 'Open in Explorer' to manually delete it yourself.

Too much hassle? This is where Duplicate Cleaner Free comes in, and the step-by-step guide on the opposite page reveals how to use it to weed out and remove exact duplicates. If your storage drive is stuffed full of similar files – such as multiple photos that are almost identical from your phone or camera – then upgrade to the Pro

version for £20, or try AntiDapl (<https://sourceforge.net/projects/antidupl/>) instead, which can be configured to match similar as well as identical files.

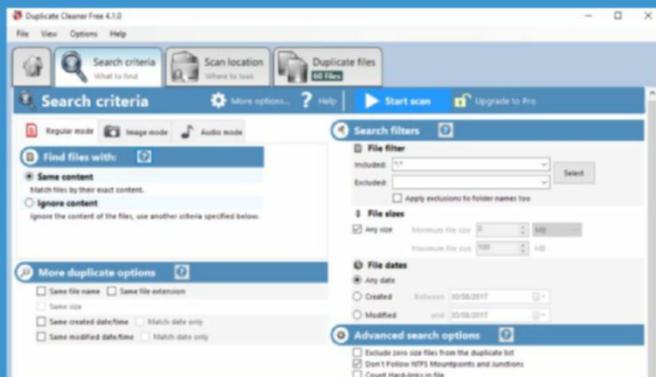
Once you have removed unnecessary files, you can then look to consolidate all the ones that remain in a way that will enable you to easily find them going forward. If possible, store these on a separate partition or drive to your Windows installation, so the next time you reinstall you don't have to worry about backing up and restoring your data first – although you should still make sure you regularly back up these files to yet another drive for safe-keeping – just in case you have a problem with your PC down the road.



The screenshot shows the WinCatalog 2017 application interface. On the left, there's a sidebar with a 'Catalog' section listing drives (Local Disk (C), Local Disk (D), Local Disk (E), Local Disk (F), Local Disk (G), Local Disk (H), Local Disk (I), Local Disk (J), Local Disk (K), Local Disk (L), Local Disk (M), Local Disk (N), Local Disk (O), Local Disk (P), Local Disk (Q), Local Disk (R), Local Disk (S), Local Disk (T), Local Disk (U), Local Disk (V), Local Disk (W), Local Disk (X), Local Disk (Y), Local Disk (Z)). The main pane displays a search results window with a table showing file details like Name, Type, Size, Date modified, and Properties. A note at the bottom says 'WinCatalog's search tool enables you to find and identify duplicates quickly.'

WinCatalog's search tool enables you to find and identify duplicates quickly.

Remove duplicate files quickly



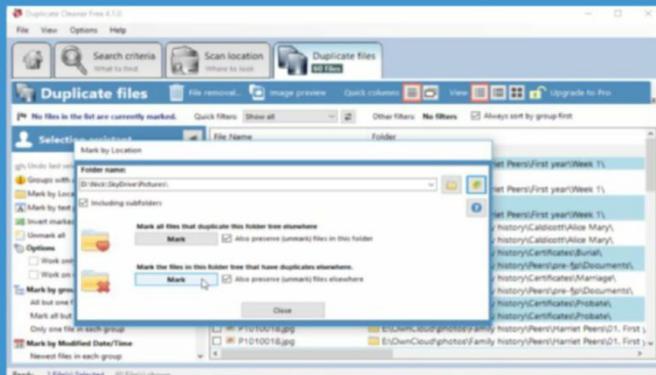
1 Choose your criteria

Download Duplicate Cleaner Free (www.digitalvolcano.co.uk/duplicatecleaner.html), then install and launch the program. By default, the most accurate type of search – a file's content – is selected, but you can choose to search by different criteria – file name, size and so on – if you prefer.



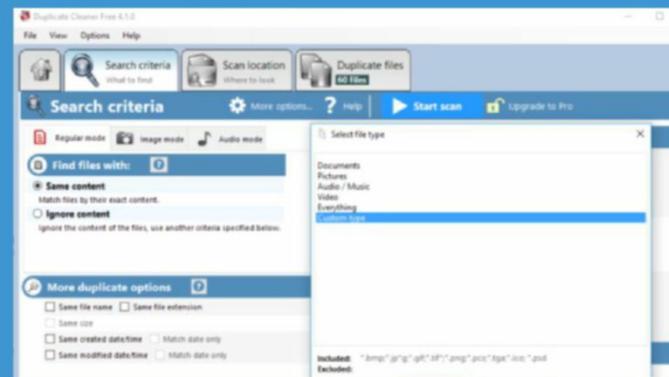
3 Select scan folders

Switch to the Scan Location tab to select one or more drives or folders to search. Select one in the left-hand pane, then click '>' to move it to the right. Decide if you're searching for sub-folders or not – click Protected if you want to make it impossible to delete files from a specific folder.



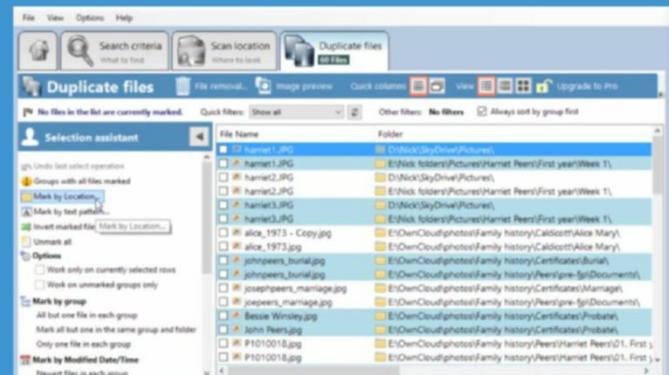
5 Set unwanted folder

Click the right-hand button next to the 'Folder name:' box to select your path. Now click the bottom-most Mark button to mark all the duplicate files in this folder for deletion and click Close. You'll see those files are now marked for deletion. You can also manually select/deselect files using the tick boxes.



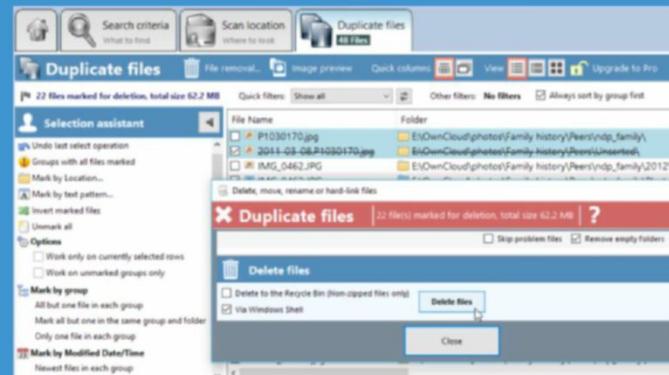
2 Choose a file filter

Click 'Select' to quickly set a search filter for specific files by type. These limits aren't comprehensive, so add your own file types to the end of the Included list (*.docx and *.rtf for text files, for example), separating each with a semi-colon. You can set file size and date limits too if you wish.



4 Review and select

Click 'Start Scan' and wait while the folders are searched. A list of matching files – conveniently colour-coded to help you determine duplicate pairs – will be displayed. To clear everything from a specific location, select one of the files from that location and choose 'Mark by Location...'



6 Review and delete

Use the 'Image preview' button to compare two photos side-by-side if you need more clarification. You can also use the View buttons to choose a different way of comparing files – handy for checking photo thumbnails quickly. Once you're happy, click 'File removal...'. Review the warning and click 'Delete files'.

Streamline your PC

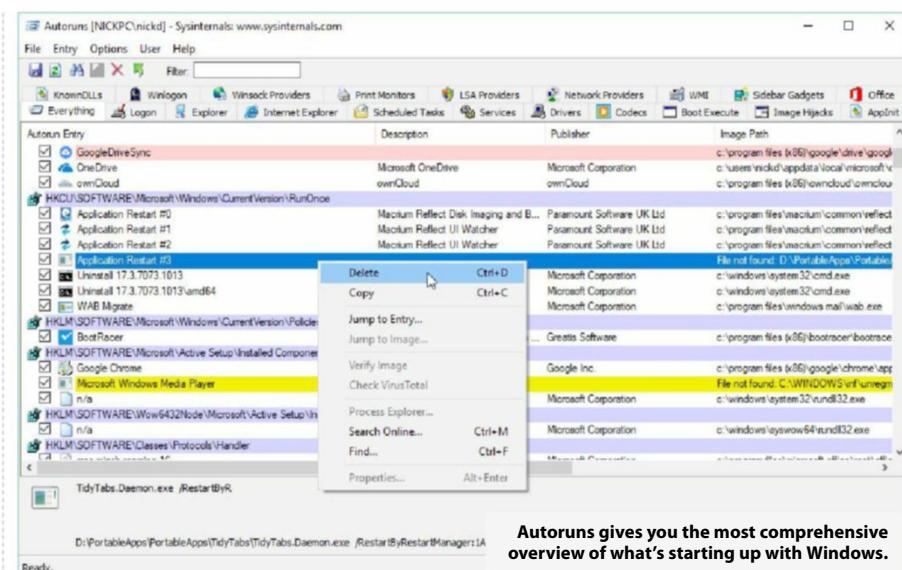
Find out how to get Windows back into something like the shape it was in when you performed your last reinstall

Beneath the surface of Windows lies a seething mass of programs, services and other system files all competing for a share of finite resources. It doesn't matter how many cores your processor has, how much RAM you stuff into your PC or whether you switch to an uber-fast solid-state drive (SSD), your PC finds a way of gobbling up everything you throw at it. In this section, we're going to show you how to rein it in.

Tame startup

The problems begin the moment Windows appears to have finished loading. If your computer had a stomach it would be doubled over with indigestion the way start-up programs and services start demanding attention even before you have managed to log into your user account.

In the October 2017 issue we took a detailed look at BootRacer (www.greatis.com/bootracer), a tool for monitoring and improving the boot times of your PC. It also includes Startup Control, a handy tool which delays start-up items until Windows has finished loading itself, then lets you see exactly how long each item takes to load. Not only can you disable and delete start-up items, you can swap their running order around too – click Set Order on the main Startup Control window and use the



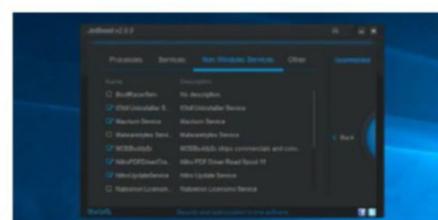
Autoruns gives you the most comprehensive overview of what's starting up with Windows.

arrow keys to either side of a boot entry to move it up and down the list.

If you want even more control over startup, including viewing hidden parts of the start-up process, download Autoruns from <https://docs.microsoft.com/en-us/sysinternals/> – look under Process Utilities. Unzip its contents and run Autoruns.exe (32-bit) or Autoruns64.exe (64-bit) by right-clicking it and choosing 'Run as administrator'.

You'll see a bewildering number of tabs appear – the Logon tab closely resembles what's shown by BootRacer, but it also includes additional entries.

Some tabs are – thankfully – empty but focus your eye on Scheduled Tasks as well as Explorer. Look for items marked in red or yellow – try disabling these



Click 'Customize' to flag non-Windows processes and services you'd like JetBoost to close.

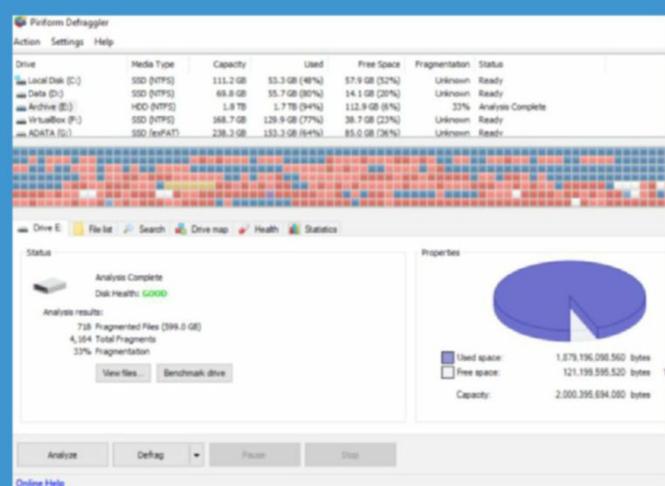
Improve hardware performance

Looking for ways to tweak your PC hardware? Start by making sure you have the latest drivers for key components, such as your graphics card. If you've been relying on Windows Update to deliver these, try visiting the manufacturer's site directly to see if a newer driver is available. Alternatively, try a driver-sourcing tool such as IObit's Driver Booster (www.iobit.com – look under Performance), which can do all the grunt work for you.

One of the biggest bottlenecks in your PC is its hard drive. Type 'defrag' into the Search box and open the 'Defragment and Optimise

Drives' tool. This will enable you to see if your SSD drives are optimised and your non-SSD drives defragged. Ultimately, if you have an SSD drive, there's little you can do to improve performance, and most optimisations have a negligible effect.

Non-SSD users might want to try Defraggler (www.piriform.com/defraggler) instead of the default Windows utility. Advantages include being able to defrag individual files and folders on demand, plus the tool can defrag system files and move larger files to the end of the drive to help boost performance further.



Defraggler provides you with more options for defragging your non-SSD drives, potentially helping push performance that little bit further.

first by unticking them; later you can right-click them to delete them, and perform other tasks such as choosing Check VirusTotal to upload the file in question for a malware scan online.

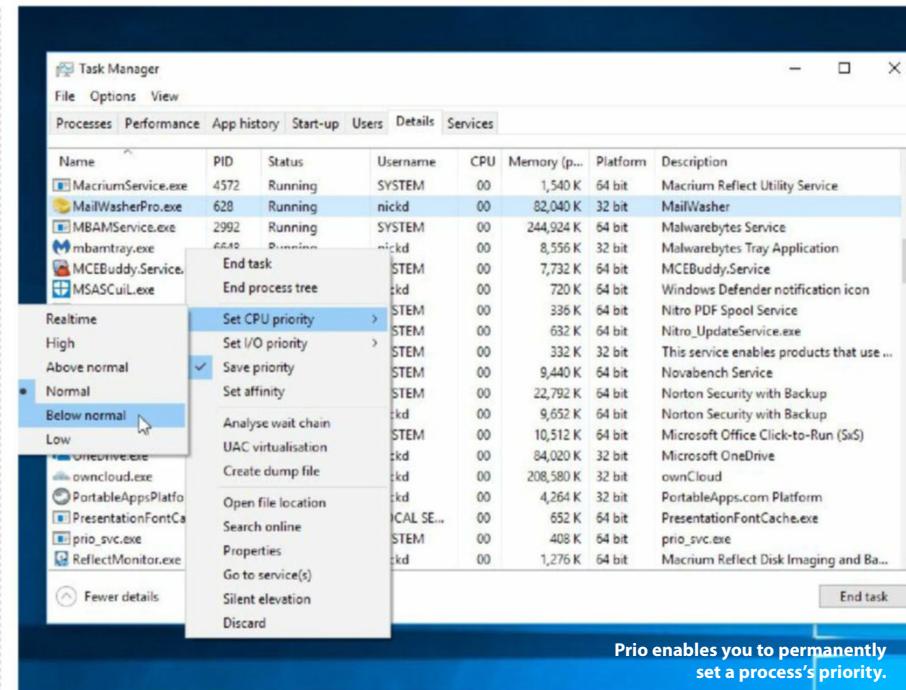
Bring services into line

You'll notice a Services tab in Autoruns, which mirrors what's shown when you press [Win] + [R] and type 'services.msc' into the Run box. These system programs run in the background and while most are linked to Windows, not all are. Not all are necessary and if you want a quick and dirty speed boost, installing Easy Service Optimizer (www.sordum.org/?p=8637) will enable you to choose one of four presets depending on what services you're willing to sacrifice in the name of performance. If you want to temporarily suspend non-essential services when performing resource-heavy tasks, such as playing games or ripping high definition (HD) video, then try JetBoost (www.bluesprig.com/jetboost.html) instead.

"Not only can you delete and disable start-up items, you can swap their running order around too"

Services compete for resources like everything else, but did you know it's possible to allocate different priorities to services and programs to give favoured apps more access to those precious resources? You can do this via Task Manager (right-click the Taskbar to open it) – switch to More Details view. Locate your target app under Processes, right-click the highlighted process and choose Set Priority to see your options.

Whatever you do, avoid 'Realtime' – this will quickly bring Windows grinding



to a halt. Instead nudge processes up or down a single notch to 'AboveNormal' or 'BelowNormal' respectively. Setting certain background processes to BelowNormal can hand resources to other programs without unduly affecting their own performance.

Manage processes

The major problem with Task Manager is that your custom priority setting lasts only as long as the process is running. The next time it's launched, priorities are reset to Normal. If you'd like to

permanently raise or lower a process, you'll need a program called Prio (www.prnwatch.com/prio/). Download the 32-bit or 64-bit version as required, and once it's running, you'll find a new Save Priority option has been added to the Set Priority sub-menu. Make sure it's ticked and any changes you make to a process's priority will be stored and reapplied the next time it's run.

If you're running a low-powered PC that often appears to hang for periods of time, then take a look at Process Lasso (<https://bitsum.com>) – the free version can 'balance' the demands made by processes, automatically lowering the priority of any which threaten to overwhelm your PC's limited resources. Once installed, you can leave the program to its devices. ■

Banish sluggish programs

The AlternativeTo website can help you track down resource-light alternatives to programs that are holding your PC back.

Most of your computing life is spent using applications rather than Windows itself. If your PC is struggling under the weight of all the programs you use on it, consider trying to source more lightweight alternatives. First, see if you can source a portable version of your favourite program using www.portableapps.com as a starting point as well as the app's own website. Portable versions are self-contained, so only consume resources when they run and don't clog up the Registry or other system folders. An added benefit is they can be

stored on another drive to Windows, ensuring that they – and your precious settings – survive your next reinstall or major system crash.

Second, see if a faster, less bloated alternative is available for those programs you can easily swap out – programs worth swapping include your office application, PDF reader, image editor and even your security software. Visit <https://alternativeto.net> to see what alternatives are out there for a specific program – look for the 'lightweight' filter to narrow down your search to less demanding alternatives.

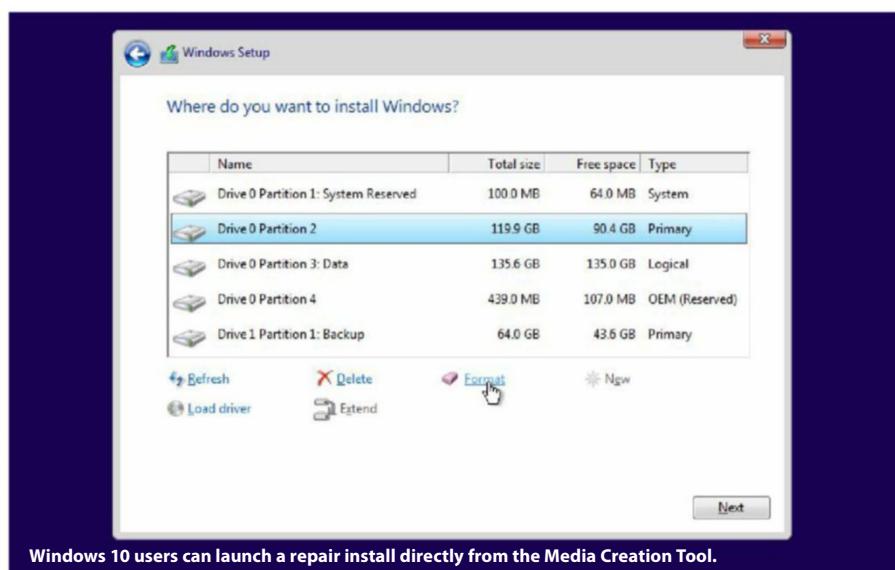
A full, destructive reinstall

If you're looking to wipe the slate clean, or need to recover from major issues, the nuclear option is always the best one

Reinstalling Windows from scratch – namely, wiping your system drive completely clean to install a brand, spanking new (and fresh) version of Windows on to it – is the ultimate choice for anyone looking to revive a slow-running PC or resolve a major, non-hardware issue, such as those caused by malware or a clogged up computer. In this final section we'll step you through the entire process.

Ideally you should have a recent and full backup of your PC, created using either File History or the Windows Backup and Restore tool before you begin, that way you'll lose the minimum of content. A full reinstall really is destructive – nothing left on your C drive will exist once you've finished. You should ensure you have the latest installation media for your target version of Windows – see the 'Reinstall Windows' feature from issue 143 for details on how to do this. This will ensure a cleaner, more up-to-date installation from the off, thus saving you time bringing it fully up to date once the installation has completed.

It's also worth sourcing networking and graphics drivers now rather than relying on Windows to provide them for you – in most cases, they should be built in, but not always. Consult your PC or motherboard manufacturer's website for these, or visit your Wi-Fi adaptor or



Windows 10 users can launch a repair install directly from the Media Creation Tool.

graphics card manufacturer's site – download them to your backup drive.

Other things to consider: uninstall any products that require activation now – this should deactivate the licences and enable you to use them with your new install without any issues. Also, be sure to have product keys and program installers to hand.

STARTING THE REINSTALL PROCESS

A full destructive reinstall should always be started by booting from your installation media, be it a DVD or USB

flash drive. The actual reinstall process doesn't differ much across Windows 7, 8.1 or 10. You'll be asked to verify your language, location and keyboard are set



Windows 7 and 8.1 users will find a large number of updates waiting to be installed after reinstalling.

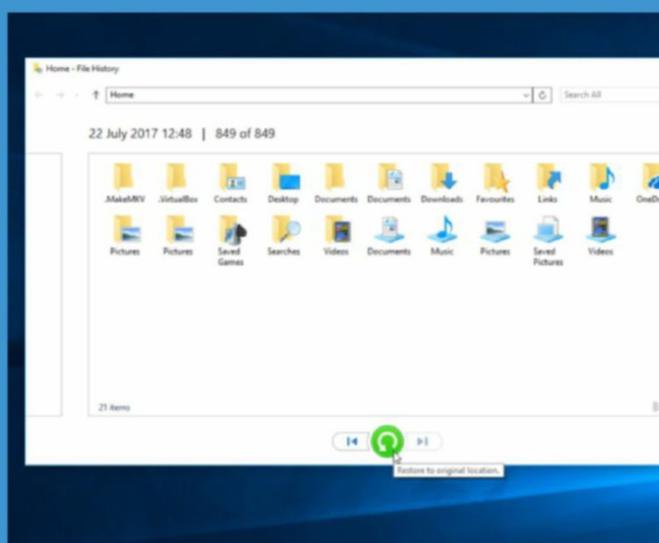
Restore programs, settings and data

Once Windows is reinstalled, open Windows Update to bring Windows fully up to date – don't be surprised if there are hundreds of updates still to apply in the case of Windows 7 and 8.1. Once it's fully up to date, consider reinstalling Macrium Reflect Free (www.macrium.com/reflectfree) and taking your first drive image – a vanilla backup you can restore in future instead of reinstalling Windows itself.

If you followed the advice in our 'Reinstall Windows' feature from issue 143, you should now be able to reinstall your core apps using CloneApp (www.mirinsoft.com) from your data

drive. If you click the Restore button, every single program setting you backed up will be restored – if there are any backup settings you don't want to restore, select Options to locate the backup folder, then open it and move any program folders you want to ignore out of the folder temporarily before clicking the Restore button. Now take your second Macrium Reflect Free backup.

Finally, open File History or the Windows Backup and Restore tool and take steps to restore any data you backed up, then make sure the tool is configured to carry on backing up going forward.



correctly, then it's a case of clicking Install Now. If prompted, enter your product key or click Skip if you're running Windows 10 on a PC you upgraded during the free period. When asked what type of installation you wish to perform, choose the Custom option.

Next comes potentially the trickiest part of the process. A list of drives and partitions will appear – you need to select the one Windows is currently installed on. By default, it should be detected and selected, but verify it's correct before clicking Format (click the advanced Drive Options button if it's not visible). Click 'OK', then once formatted, verify the drive is still selected and click Next.

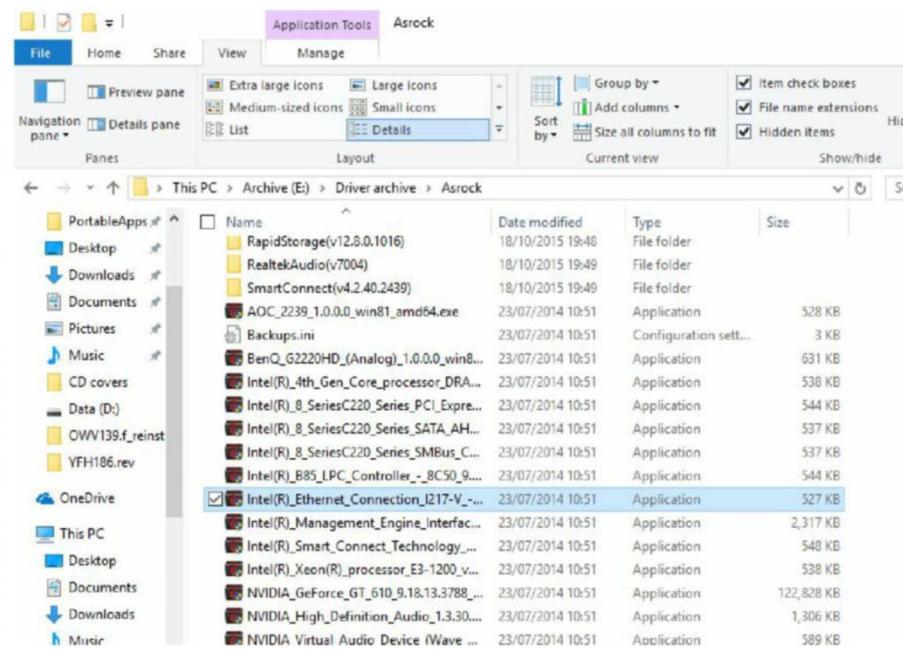
That's the technical stuff pretty much done. You'll see a checklist of tasks to be performed – just sit back and wait. One thing to note: when Windows reboots, you may see the 'press any key' prompt again to boot from CD or DVD. Don't press anything if that happens, just let the installer continue.

"Next comes potentially the trickiest part of the process. A list of drives and partitions will appear – you need to select the one Windows is currently installed on"

SET UP POST-INSTALL

The post-setup prompt begins with Windows 7 users being prompted for their product key, then it's a case of setting up a user account and you're off and running. Windows 8.1 users will get an Express Settings prompt – be sure to click the option to customise these and go through them carefully.

Post-Creators Update, Windows 10 no longer gives you an Express Settings option. For now, confirm your location and keyboard, set up your network if



Make sure you've got network and graphics drivers sourced.

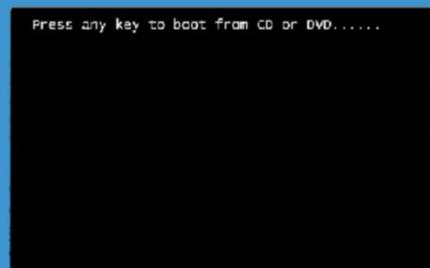
required and choose 'personal use' when prompted. You can either sign in with your Microsoft account or click 'Offline account' > 'Maybe later' if you plan to stick with the old-style Windows 7 local user account.

If you opt for the Microsoft account option now is a good time to set up a PIN to speed up future logins (note: the PIN is tied, specifically, to this PC, and you can always bypass it using your regular account password should you forget it at any point).

You'll then be asked to set up Cortana – this is where Windows 10's notorious privacy settings come into play, so review all of the options carefully, flicking the slider to Off for any you don't need or use.

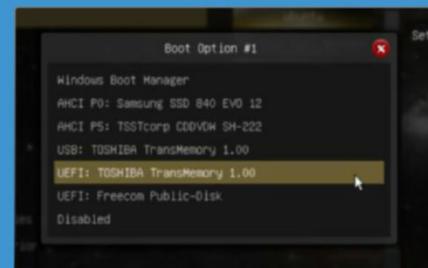
That's the end of the setup process – Windows will now configure itself based on each of your choices and you'll see a series of messages appear on-screen. Eventually, when all is ready, you'll find yourself back at the familiar Windows desktop screen. ■

Start the install process



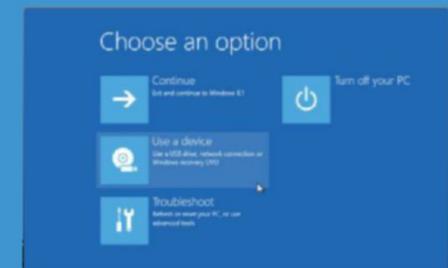
1 Reboot for media

If you're running Windows 7, or have Fast Boot disabled, insert your boot media and start your PC. Look for a 'Press any key to boot from CD or DVD' option – even if you have booted from a USB flash drive. Press any key on your keyboard and you should find that the Windows install process starts.



2 Tweak boot options

If you boot back into Windows, restart your PC again, but this time press a key, such as [F11], when prompted to open a boot menu. Once you have done so, select your boot media – choosing UEFI if that option appears – to boot; otherwise, enter setup so that you can change the boot device order.



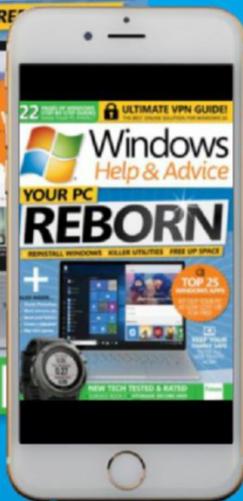
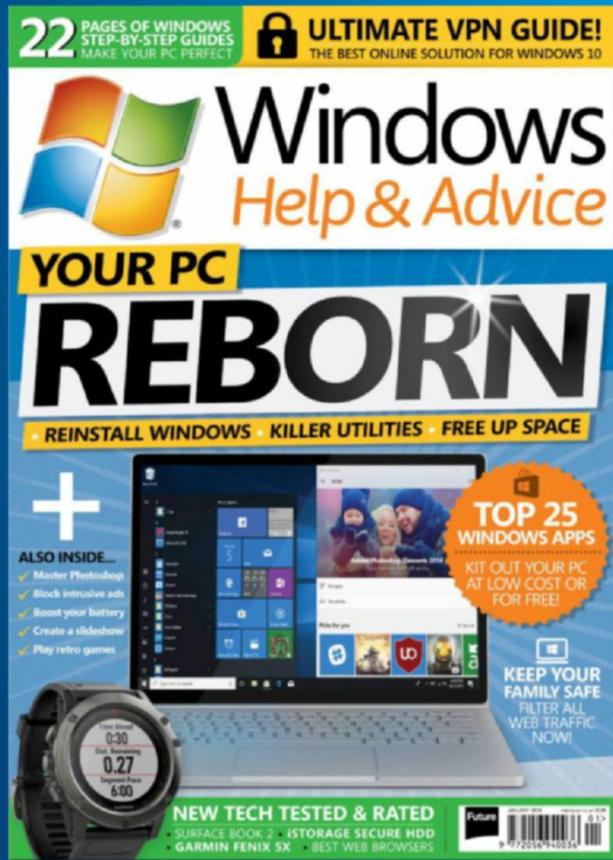
3 Windows 8.1/10

If Fast Boot is enabled on your computer, open Settings in Windows and then navigate to 'Update & recovery' > Recovery, then click 'Restart now' under 'Advanced start-up'. When the boot options appear, choose 'Use a device' to select the USB flash drive or DVD you created from the list that appears.



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LIFE...WHERE'S THE PAUSE BUTTON?

With so many demands from work, home and family, there never seem to be enough hours in the day for you. Why not press pause once in a while, curl up with your favourite magazine and put a little oasis of 'you' in your day.



PRESS PAUSE
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Explore

► WINDOWS TIPS ► INTERNET ADVICE ► EXCITING NEW PROJECTS

Welcome



This month's Explore section is filled with great ideas to help you do more with your PC – whether it's protecting your privacy online (page 26) or creating a highly shareable photo story (page 40).

We'll also walk you through the amazing new features of Mozilla's revamped Firefox web browser (page 37); explain some cool tips and tricks for boosting your laptop's battery life (page 34); show you how to catalogue any kind of media with Data Crow (page 45); and how to install and use an ad-blocker in Microsoft Edge (page 48).

Rob Mead-Green

Editor

rob.mead-green@futurenet.com

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34 Boost your laptop's battery life

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40 Tell a story by creating an amazing photo slideshow

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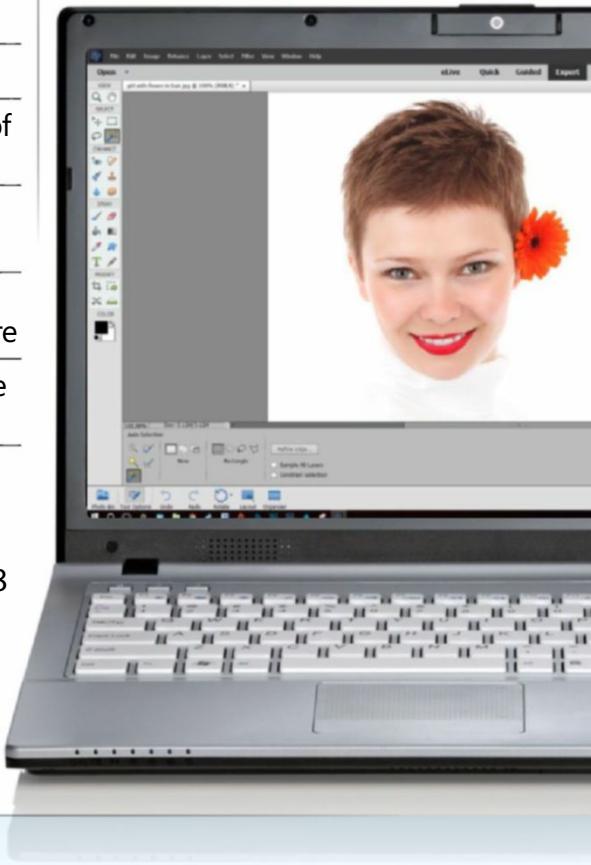
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Your guide
Ian Evenden says...

"Photoshop Elements 2018 can help you make the most of your images"

Turn to page 29 to find out more



Our promise to you...

Get more from Windows, software and all your favourite sites

Packed with informative tutorials

Every issue, we guarantee to pack the magazine with great tutorials teaching you all the best things you can do with your PC. Each article features step-by-step instructions to make learning new skills fast and enjoyable.

Customise Windows to work your way

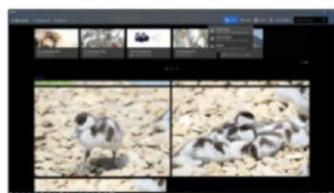
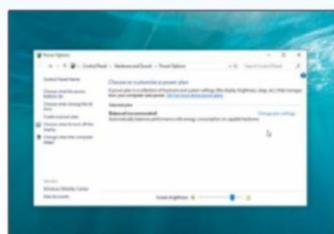
We all know how to do the basics but getting the most from Windows isn't always easy. Our dedication to the operating system means you get the very best tips and tricks for all versions of Windows.

Get more from your favourite websites

We all have our list of favourite sites but often we miss out on great features because they're difficult to use or hidden from sight. We'll show you how to do more online, for a more satisfying web life.

Discover new programs with our help

From speed-up and security software to superb photo apps, there's always something new to try on your PC. The Windows Store in Windows 10 and Windows 8.1 is packed with software to download.



Learn how to...

Be safe online with a VPN



Your guide *Nate Drake* says...

"Encrypt your Internet connection and conceal your real location with the OpenVPN client"

At a glance

Skill level...

► Anyone can do it

Straightforward

Tricky in parts

Suitable for...

 Windows 10

 Windows 8.1

 Windows 7

Virtual Private Networks (VPNs) are a great way to protect your privacy online. Although they were originally designed to enable corporate employees to dial into their offices, VPNs are also a great way to guard against snoopers and hackers, especially in countries like the UK where ISPs are obliged to record details of every website you visit.

The OpenVPN protocol is one of the best for this as it encrypts the connection between your machine and a VPN provider using ultra-secure OpenSSL. If configured properly, anyone snooping on your Internet data will only see that you've connected to the VPN provider, not which sites you visit. You can also make it appear as though you're in a different country by using a VPN server based there.

This guide will show you how to get OpenVPN up and running.

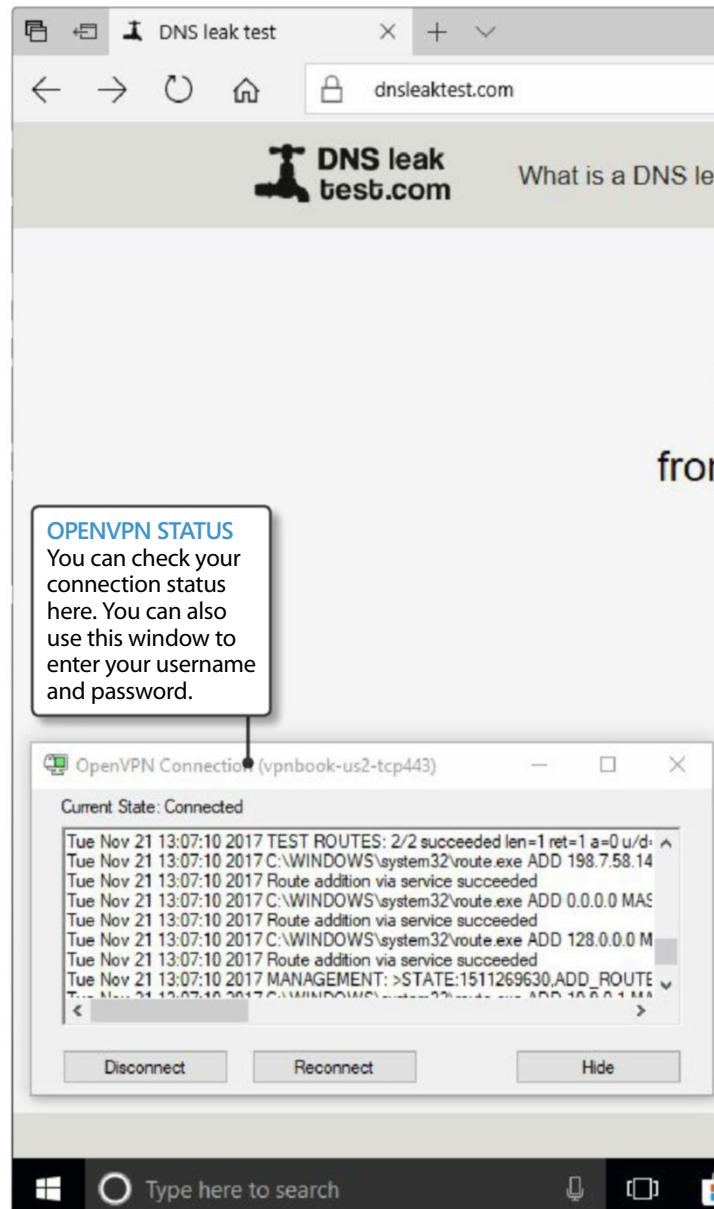
Step-by-step How to connect with OpenVPN



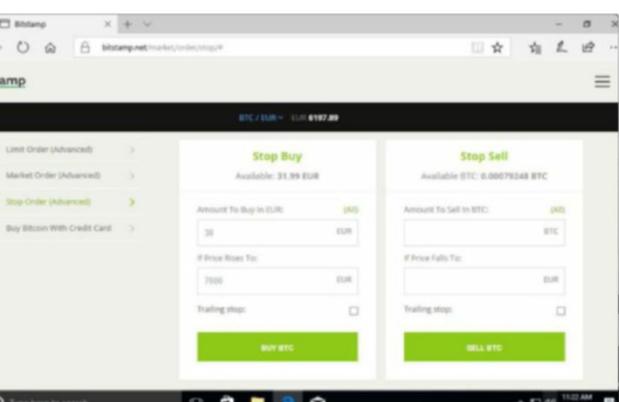
The screenshot shows the homepage of VPNBook. It features a large banner for a "100% Free VPN Service" with support for PPTP and OpenVPN protocols. Below the banner, there's a "Free VPN" section with a link to "Get Started". At the bottom, there are links for "Switch to Google Chrome" and "Unblock Websites". The address bar shows "Free VPNs • 100% Free P..." and the URL "vpnbook.com".

1 Choose your VPN provider

Use your search engine to find a [VPN](#) provider. Most offer discounts for longer subscriptions. Make sure they specifically offer OpenVPN over other protocols. If you want to appear to be in a particular country, make sure they also have servers in that location. Here, we've chosen VPNBook (www.vpnbook.com/), which is free. You can do this too, but its service isn't very fast.



The top part of the image shows a browser window titled "DNS leak test" with the URL "dnsleaktest.com". The page displays the "DNS leak test.com" logo and the question "What is a DNS leak?". The bottom part shows a "OpenVPN Connection (vpnbook-us2-tcp443)" window. A callout box points to the "OPENVPN STATUS" section, which contains instructions for checking connection status and entering credentials. The main window shows the "Current State: Connected" and a log of system events. The log includes entries like "Tue Nov 21 13:07:10 2017 TEST ROUTES: 2/2 succeeded len=1 ret=1 a=0 u/d: ^" and "Tue Nov 21 13:07:10 2017 C:\WINDOWS\system32\route.exe ADD 198.75.8.14". At the bottom of the connection window are "Disconnect", "Reconnect", and "Hide" buttons.



The screenshot shows the Bitstamp website. It features a "Stop Buy" button with "Available: 31.99 EUR" and a "Stop Sell" button with "Available (BTC): 0.00079248 BTC". There are input fields for "Amount To Buy In EUR:" and "Amount To Sell In BTC:", and dropdowns for "If Price Rises To:" and "Trading stop:". Below these are green "BUY BTC" and "SELL BTC" buttons. The address bar shows "Bitstamp" and the URL "bitstamp.net/markets/btc-euro".

2 Choose your payment method

Most VPN providers accept payment by credit card and PayPal. This makes it easy to connect a particular account to your name. If you feel paranoid consider using a VPN provider which accepts anonymous payment methods, such as Bitcoin. You can buy Bitcoins easily using online exchanges, such as BitStamp. See <http://bit.ly/2AfDehB> for more information.

What are transparent DNS proxies? How to fix a

NATE'S BEST TIP!
Your OpenVPN settings are stored in .ovpn or .conf files. You can download them from your VPN provider.

Jargon buster!

▶ VPN

A Virtual Private Network is a private network which can be extended over the Internet. Connections are encrypted so your traffic and real location aren't easily visible to people outside the VPN.

▶ Configuration file

A small file with the extension .ovpn. It contains the VPN settings you need.

▶ DNS

Domain Name Servers (DNS) are used to translate web addresses, such as www.microsoft.com, into IP addresses that machines can read.

Hello 198.7.58.147
Manassas, United States



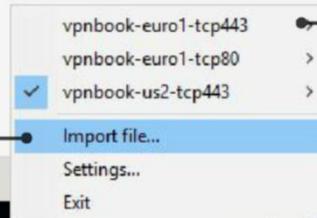
[Standard test](#) [Extended test](#)

[What's the difference?](#)

PUBLIC IP ADDRESS
While connected to a VPN network, your IP address will change making it harder to monitor your connection.

DNS TEST
Once OpenVPN has been set up, go to www.dnsleaktest.com/ to see if the sites you visit can be seen by your ISP.

VPN PROFILES
VPN providers offer multiple profiles depending on the protocol used, and the location of the server you're using.



OPENVPN TRAY
The OpenVPN icon sits in the system tray at the bottom of your screen. When connected to your VPN, it turns green.

IMPORT FILE...
The configuration files from your OpenVPN provider can be imported into OpenVPN using this menu option.

[about](#) | [link to this site](#) | [privacy](#)



VPNBOOK

VPNBook offers Free VPN accounts, Free Web proxy, How-To guides, Features, and Privacy contact.

[euro217.ovpnbook.com](#)
[euro214.ovpnbook.com](#)
[us1.ovpnbook.com \(US VPN - optimized for fast web surfing; no p2p downloading\)](#)
[us2.ovpnbook.com \(US VPN - optimized for fast web surfing; no p2p downloading\)](#)
[ca1.ovpnbook.com \(Canada VPN - optimized for fast web surfing; no p2p downloading\)](#)
[de233.ovpnbook.com \(Germany VPN - optimized for fast web surfing; no p2p downloading\)](#)
Username:
Password:
More servers coming. Please Donate.

Choose Server

<https://openvpn.net/index.php/open-source/downloads.html>

OpenVPN 2.4.0 includes updated OpenVPN GUI (11.0.0.0) and easy-rsa (2.3.2). Note that OpenVPN's bin directory is no longer added to system PATH. While most users will be unaffected by this change, you should have a look at vars.bat sample if you are migrating an old easy-rsa CA to a new easy-rsa installation.

Compared to OpenVPN 2.3 this is a major update with a large number of new features, improvements and fixes. Some of the major features are AEAD (ChaCha20 and Elliptic Curve DH key exchange support), Improved IPv6/IPv4 dual stack support and a new configuration option to automatically switch client's IP address changes (Prew-EQ). Also, the new --re-crypt feature can be used to increase user's connection privacy.

A summary of the changes is available in [Changes](#), and a full list of changes is available [here](#).

OpenVPN GUI bundled with the Windows installer has a large number of new features compared to the one bundled with OpenVPN 2.3. One of major features is the ability to run OpenVPN GUI without administrator privileges. For full details, see the [changes](#). The new OpenVPN GUI features are documented [here](#).

Please note that OpenVPN 2.4 installers will not work on Windows XP.

If you find a bug in this release, please file a bug report to our [Trac bug tracker](#). In uncertain cases please contact our developers first, either using the [openvpn-devel mailinglist](#) or the developer IRC channel (`#openvpn-devel` at irc.freenode.net). For general help take a look at our official documentation, [Wiki](#), [Issues](#), [User's guide](#), [Contributing](#) and our IRC channel (`#openvpn` at irc.freenode.net).

Device Serial (hex)	XXXXXXXXXX	Device Serial (hex)	XXXXXXXXXX
Device Serial (dec)	XXXXXXXXXX	Device Serial (dec)	XXXXXXXXXX
Device ID	XXXXXXXXXX	Device ID	XXXXXXXXXX
Latitude: XXXXXXXX.YYYY.ZZZZ	XXXXXXXXXX.YYYY.ZZZZ	Latitude: XXXXXXXX.YYYY.ZZZZ	XXXXXXXXXX.YYYY.ZZZZ

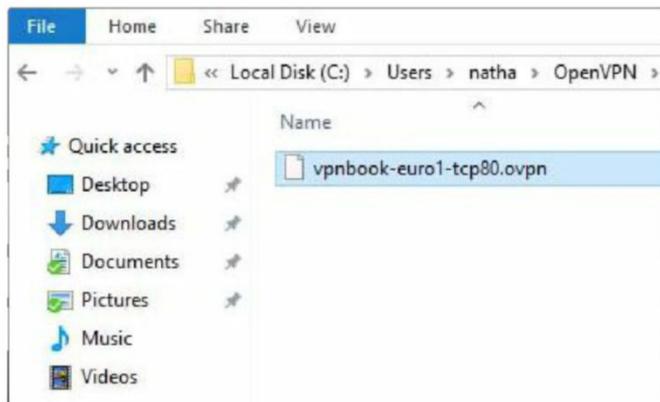
OpenVPN - the RSA key used to sign the release files has been changed since OpenVPN 2.4.0. Instructions for verifying the update: <https://openvpn.org/community/releases/openvpn-install-2.4.0-RSA-Tar.gz> as the new GPG public key are available [here](#).

3 Download the OpenVPN configuration file

Once you've registered with a VPN provider you'll be invited to download the OpenVPN [configuration file](#). This is a small file with the extension .ovpn, which contains the settings you'll need to connect to the service. If your provider requires a username and password, note this down. VPNBook lets you download the files you need and view the password without having to register.

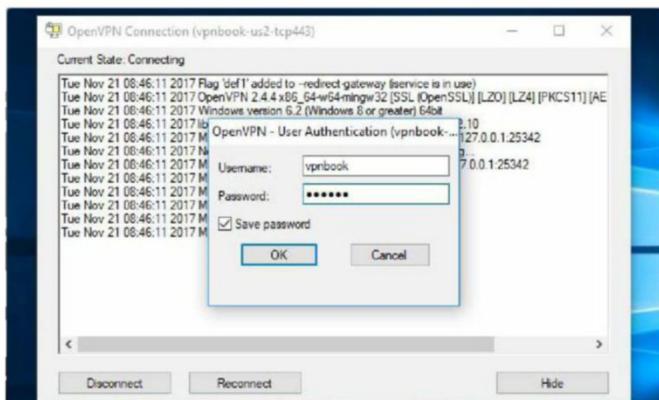
4 Download OpenVPN Client

Point your web browser at <https://openvpn.net/index.php/open-source/downloads.html> to download the OpenVPN client. Scroll down and choose 'Installer, Windows Vista and later'. Run the program and click Yes to allow changes to be made to your PC, if necessary. Minimise your web browser for now and the OpenVPN installer setup will appear. Click 'Next' to continue.



5 Install the OpenVPN Client

Read through the OpenVPN Client License Agreement and click 'I Agree' once you've understood the terms and conditions. On the Choose Components screen, leave the default options ticked. Click 'Next', then confirm the install location. You'll see a confirmation regarding the TAP-Windows provider. Click 'Install' to continue. Once setup is complete click Next, then Finish.



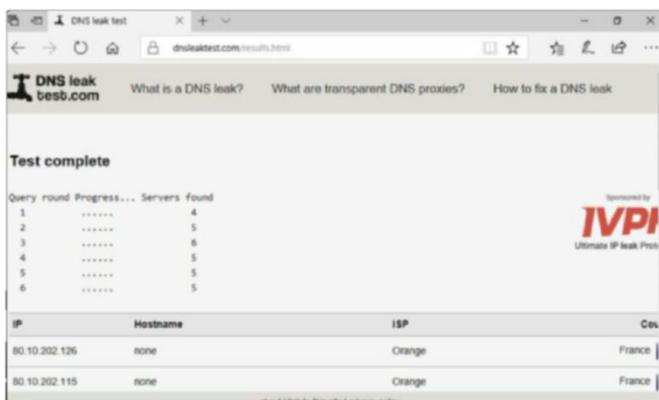
6 Add Configuration file(s)

You'll now see a shortcut to the OpenVPN client on your desktop. Leave this for now and open File Explorer. Navigate to the new 'config' folder OpenVPN has created in your account (C:\Users\<username>\OpenVPN\Config). Next, copy and paste the configuration (.ovpn) file or files you downloaded earlier from your provider. Close File Explorer when you're done.



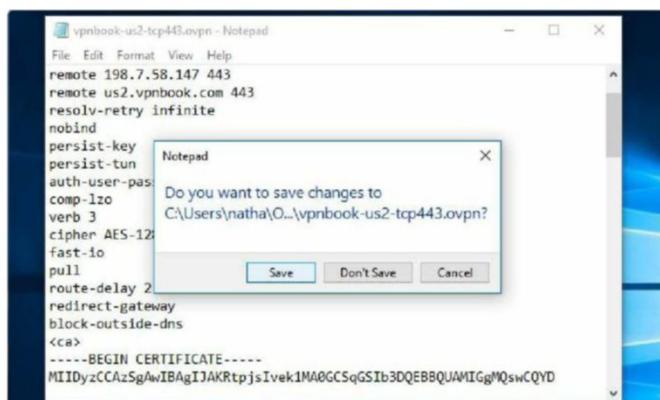
7 Launch the OpenVPN client

Double-click the OpenVPN shortcut on your desktop. The client icon will appear in the Taskbar. The first time you run the client, you'll be asked for the username and password for your chosen OpenVPN service. Make sure Save Password is ticked and click OK. Windows 10 displays a notification once you're connected. The OpenVPN icon in the Taskbar also turns green.



8 Check your IP address

You can double-check your connection by viewing your public IP address as far as the web is concerned. Open your web browser and navigate to www.whatismyip.com. This will not only display your IP address, but your apparent location. If you expected to appear in a different country, you may have downloaded the wrong .ovpn configuration file.



9 Check for DNS leaks

Depending on your VPN provider, you may find your **DNS** (Domain Name Server) requests are still being leaked. This means it may be possible for your ISP to track which websites you visit even if you're using a VPN. To check this visit www.dnsleaktest.com/ while connected via OpenVPN and click Extended Test. If your true location appears, your browsing history may be visible.

10 Fix DNS leaks

If you discover that your DNS requests are being leaked, then right-click the OpenVPN icon at the bottom of your screen and disconnect. Navigate to your configuration file and double-click to open it in Notepad. Add the line 'block-outside-dns' to the attributes listed there above '<ca>'. Save and exit. From now on you'll be using your VPN provider's DNS servers. ■

Learn how to...

Master Photoshop Elements

The latest version of Adobe's image editing program has everything an aspiring photo pro needs – and you can find out why right here

Every year, or so it seems, graphics software giant Adobe releases another version of its Elements suite – consumer versions of its professional image and video editing applications Photoshop and Premiere.

They're quite good. Good enough that you might never use all of their

capabilities, and will keep discovering new tricks and features for a long time. The only problem with them is the price – £99 each, or £150 for a bundle, is a lot to pay if you're not sure whether or not you'll get a lot of use out of a program. Happily, there's a 30-day free trial available to help you make up your mind.

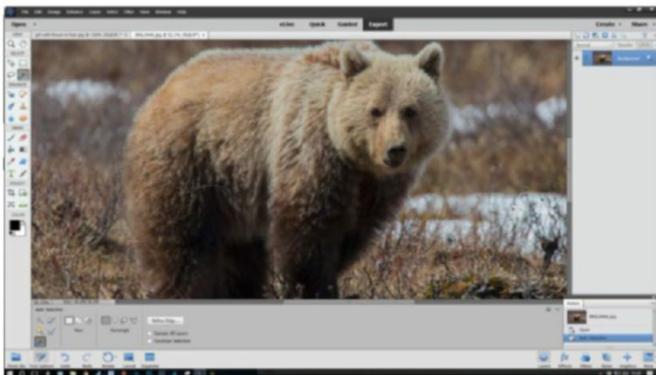
The latest editions are the first to have a year – 2018 – in their name rather than a version number, and there are a number of interesting new features to explore that can help overcome common photography problems and open up exciting image editing possibilities. And that's exactly what we're going to look at in this tutorial.

Step-by-step Explore Elements' new features



1 Get organised

Photoshop Elements is an app of two halves. There's the Editor, where the actual photo editing takes place, and there's the Organizer, which takes the pain out of dealing with large photo libraries. It's been able to use face recognition and GPS tags to sort your images for a while, but now this year is auto-curation, which aims to choose the best photos from a large batch.



2 Use Auto Curate

Enabled with a simple tick box at the top right, Auto Curate selects your best photos based on whether they contain faces, what they're of, whether they've been tagged, and their 'quality'. Yes, Elements is now judging your photography skills. You can limit how many photos it chooses – from ten to 20,000 – otherwise there are no further Auto Curate options.



3 Choose your selections

Making selections is key to successful photo edits – they enable you to make changes to a part of the image while leaving the rest untouched, but are difficult and time consuming to create accurately, even with the help of tools such as Magic Wand and Quick Selection. This is especially true if the background of the photo is the same colour as the subject, or particularly detailed.

4 Introducing Auto Selection

New in Elements 2018 is Auto Selection, which enables you to drag a rectangle around the image element you want to select, before some AI magic places the familiar 'marching ants' selection outline around it. We tried it with a confusing background and it worked almost perfectly. You can clean up the selection using Refine Edge from the Select menu if doesn't get it right first time.



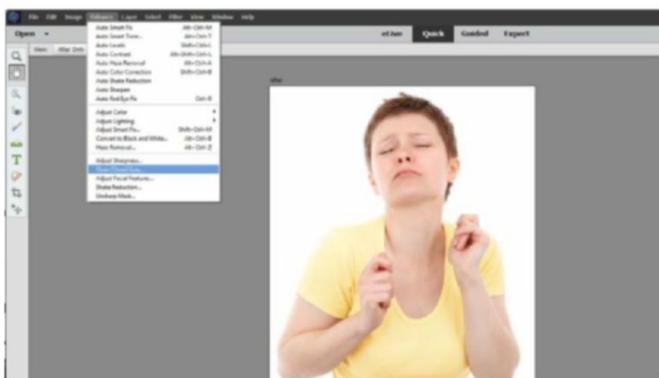
5 Replace the background

Once the subject has been selected, one of the things you can do is replace the background with something more, or less, interesting to make a stronger composition or maybe a fantasy piece. You can do it in **Expert mode** with a bit of know-how, but there's a new Guided Edit in Elements 2018 that teaches you exactly how it's done, so you'll know for next time.



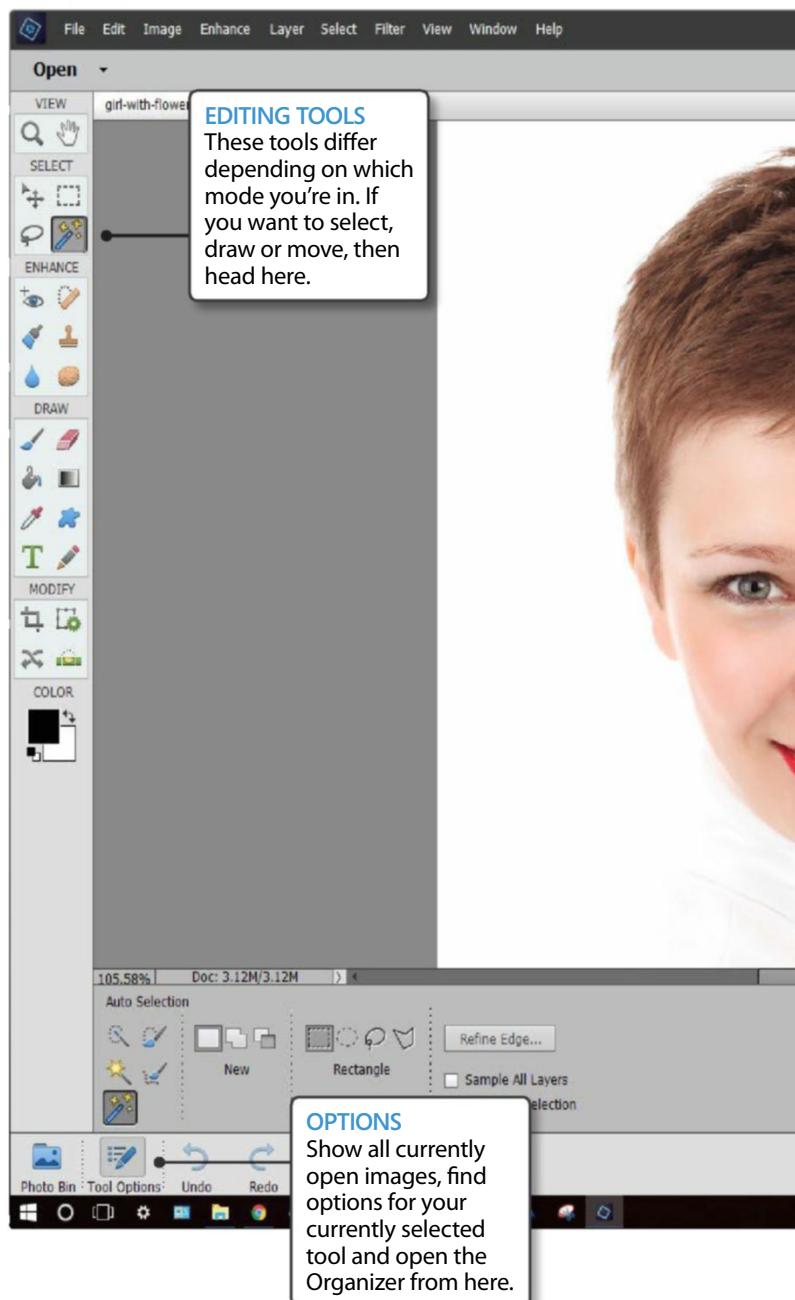
6 Guided Edits explained

There are several new Guided Edits in Elements 2018. They're interesting because, rather than doing the work for you, they teach you how the app works. Choosing the right image is crucial, but get it right and Guided Edits are some of the most fun you can have with the app. You can create a double exposure or a watercolour effect, along with many other special effects.



7 Open closed eyes

It's not uncommon when taking a group photo for someone in that group to blink at the exact moment you release the shutter. Adobe has your back in Elements 2018 with Open Closed Eyes, a command on the Enhance menu, which opens in its own window. It does exactly what you'd expect and pretty seamlessly too, but only if you feed it a source picture of open eyes first.



EDITING TOOLS
These tools differ depending on which mode you're in. If you want to select, draw or move, then head here.

OPTIONS
Show all currently open images, find options for your currently selected tool and open the Organizer from here.



8 Eyes to the right

Select the menu option and the Open Closed Eyes window appears. The app detects the closed eyes and gives you options to replace them. You can open an image from a folder or the Organizer, or use a sample set of eyes. The samples give mixed results. A photo of the same person will seem reasonably natural, but a photo of someone else can lead to odd-looking portraits.

MODES
You can switch between Quick, Guided or Expert modes here, or enter eLive for tutorials and inspiration.

LAYERS
All of the best Photoshop edits need layers, and there's a palette dedicated to them over on the right.

HISTORY
Like a multi-level undo, this records the steps you've taken and enables you to move back through them.

PALETTES
You can open Layers, History, the Histogram and more from these buttons at the bottom-right of the interface.

Jargon buster!

- Quick mode**
Elements' easiest interface with a light selection of tools, and a large, simple Adjustments palette to the right.
- Guided mode**
Teaches you how to use Elements, and home to some of the best special effects and comedy edits.
- Expert mode**
No help is given nor expected. Experts get all the tools and all the options, but have to look to themselves to know what to do with them all.

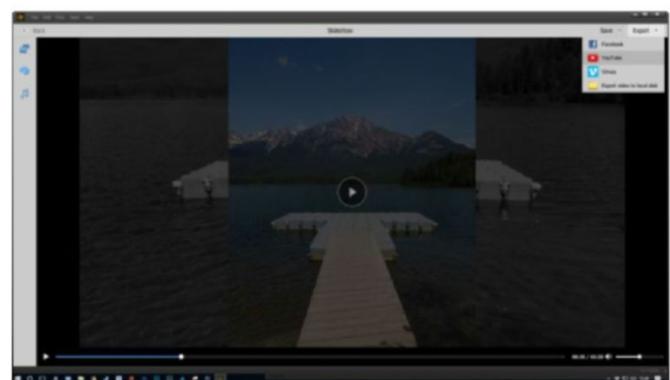
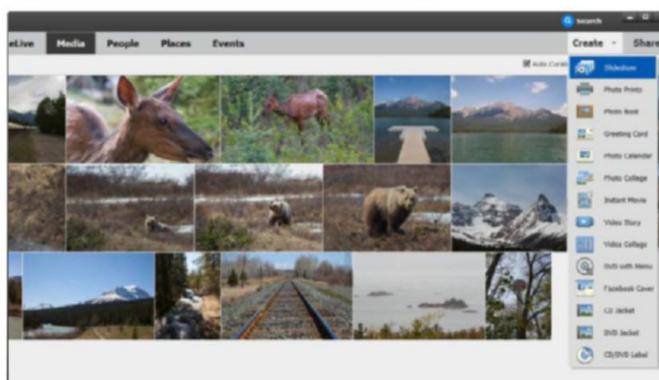
At a glance

Skill level...

- ▶ Anyone can do it
Straightforward
- ▶ Tricky in parts

Suitable for...

- Windows 10
- Windows 8.1
- Windows 7



9 Dynamic slideshows

Slideshows have been part of Photoshop Elements for some time, but 2018 ups the ante by labelling them as 'dynamic'. The creation process starts with a single-click from the Organizer – look in the Create menu – along with other things such as Facebook cover photos, greetings cards and photo books. Use Auto Curate first so only your best photos are on show.

10 Slide away

After a small amount of processing time, your dynamic slideshow will appear. On the left you'll find options for adding music (including your own) and changing the theme of your slideshow, along with fine-tuning the images involved. On the right are tools to save your work to continue with later, or export to Facebook, YouTube, Vimeo or as a video file on your PC. ■

Learn how to...

Keep children safe when they're online



Your guide **Alex Cox** says...

"If you have little eyes around, it's important to control what they see online. Safeguard their Internet use with K9 Web Protection – you won't regret it"

At a glance

Skill level...

Anyone can do it
► Straightforward
Tricky in parts

Suitable for...

Windows 10
Windows 8.1
Windows 7

Giving an Internet-connected PC to a youngster is, unless you're the forgiving type, absolutely asking for trouble. Where are they heading online? What are they up to? What site did they visit when they typed that innocent phrase into the address bar? Finding out what they've witnessed after the fact is shutting the door after the horse has bolted – you need to set proper boundaries from the start.

While a trusting relationship is one way to go about it, rock-solid web browser protection is the other. If you're logged in with a Microsoft account, Windows 10 includes its own tools for adding family members and placing restrictions on them, but K9 Web Protection's more granular controls are great. What's more, it's perfect if you've passed on an old machine, since Microsoft's family safety tools for Windows 7 have now stopped working.



Step-by-step Control your Internet connection



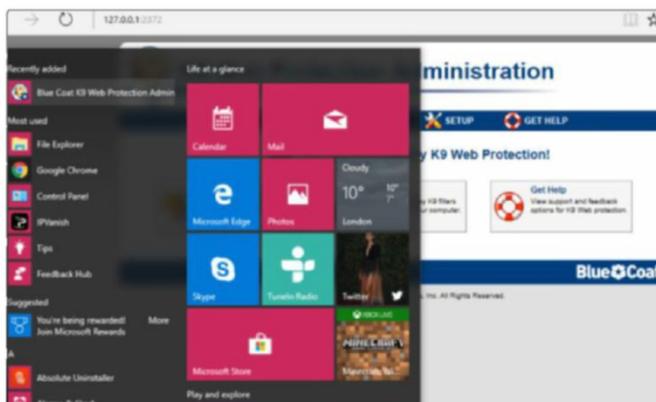
1 Sign up

Log in to your child's user account, open a web browser and go to www1.k9webprotection.com. Click the Free Download link, and input the information it asks for – this is a way to set up your administration account, so make sure you're not using a shared email address that your kids might be able to access. When you're done, click 'Request license', and head to your email inbox.



2 Download it

You should have a new email from K9. Inside is a link to download the software and below it is your personal free license code. Run the installer and, when asked, input your license code in the appropriate box, before setting an administrator password – pick something your kids aren't likely to know or be able to guess, lest they break through K9's security and take full control.



The screenshot shows the 'Web Categories to Block' section of the K9 Web Protection Administration interface. It includes a sidebar with options like 'Web Categories to Block', 'Time Restrictions', 'Web Site Exceptions', etc. The main area lists categories to block with descriptions and checkboxes for different levels of protection (High, Default, Moderate, Minimal, Monitor, Custom).

3 First run

Click 'Install' and restart your PC when prompted to allow K9 to get its hooks in. Once you're logged back in, K9 will be running secretly in the background. There'll be a new link in your Start menu to its admin page, although this doesn't always work. If it doesn't, open a web browser and head to 127.0.0.1:2372, which is a local address that directs you to the same spot the link does.

This screenshot shows the 'Web Categories to Block' configuration page. It has sections for 'Lifestyles' (e.g., Alternative Spirituality / Occult, Extreme, Gambling, Hacking), 'Sources' (e.g., Open Image / Media Search, Spyware Effects, Suspicious, Tobacco, Violence / Hate / Racism), and 'Other Categories' (e.g., Arts / Entertainment, Auctions, Brokerage / Trading, Business / Economy, Chat / Instant Messaging, Computers / Internet, Content Servers). There are also 'Unblock All' and 'Block All' buttons.

5 Customise it

Too broad for you? Selecting the Custom option, right at the bottom, enables you to block only the categories you deem to be a problem. You can click each category to see a description of the kind of content that will be blocked, then check it if you want to cut it off. Just remember, when you're done, to click the Save button at the very bottom of the page to lock in your selections.

This screenshot shows the 'Safe Search' configuration page. It includes sections for 'Redirect to K9 Safe Search' (which redirects searches on Google, MSN/Bing, Yahoo, Ask, and Flickr to K9's search results), 'Force Safe Search' (which forces the use of safe filtering on engines like Google, MSN/Bing, Yahoo, Ask, and Flickr), and 'Redirect Google SSL' (which redirects HTTPS requests to standard HTTP). A note at the bottom explains that K9 Web Protection uses the safe search functionality provided by individual search engines, so this does not guarantee that all adult-oriented content will be blocked.

7 Search yourself

While Google or Bing's search results generally won't include anything explicit, K9, by default, redirects your online enquiries to its own protected search engine. If you don't want this – bear in mind that it'll block the sites themselves if a dodgy term is dredged up – head to the Safe Search section and switch off 'Redirect to K9 Safe Search' while leaving 'Force Safe Search' on.

4 Set it up

Click the Setup button, and input the admin password you set during installation. You'll be taken to K9's core protection feature: web blocking by category. Here you can determine the kind level of blocking you want to apply to your web connection, from a minimal barrier against pornographic sites all the way to high security, which blocks everything including social networks.

This screenshot shows the 'Web Site Exceptions' configuration page. It features sections for 'Always Block' (a list of websites to always block) and 'Always Allow' (a list of websites to always allow). It also includes a 'Blacklist without Password' checkbox for adding sites to the 'Always Block' list without requiring admin password.

6 All except...

Even if you've put a broad ban on certain categories of site, you may find a particular problem site still works its way through or a favourite, completely innocent site gets blocked. Clicking 'Web site exceptions' on the left enables you to explicitly block or allow certain addresses. You can also check the 'Blacklist without password' box to allow your kids to block sites they don't like.

This screenshot shows the 'Time Restrictions' configuration page. It allows users to set specific times for web access. The interface includes a sidebar with 'Time Restrictions' selected, and a main area where users can choose 'Unrestricted', 'NightGuard™', or 'Custom' modes, and then set specific time intervals in a grid-based calendar.

8 After dark

If you're leaving a laptop with your progeny, you may wish to make sure they get some proper sleep rather than spending all night on the Internet. The Time Restrictions settings enables you to put a blanket block on evening web access using what K9 calls NightGuard, or set custom access hours to make sure homework gets done before the important business of online fun begins. ■

Learn how to...

Get better battery life from your laptop



Your guide [Alex Cox](#) says...

"A few things have changed with the release of Windows 10's Fall Creators Update – including the best way to keep your battery running for longer"

At a glance

Skill level...

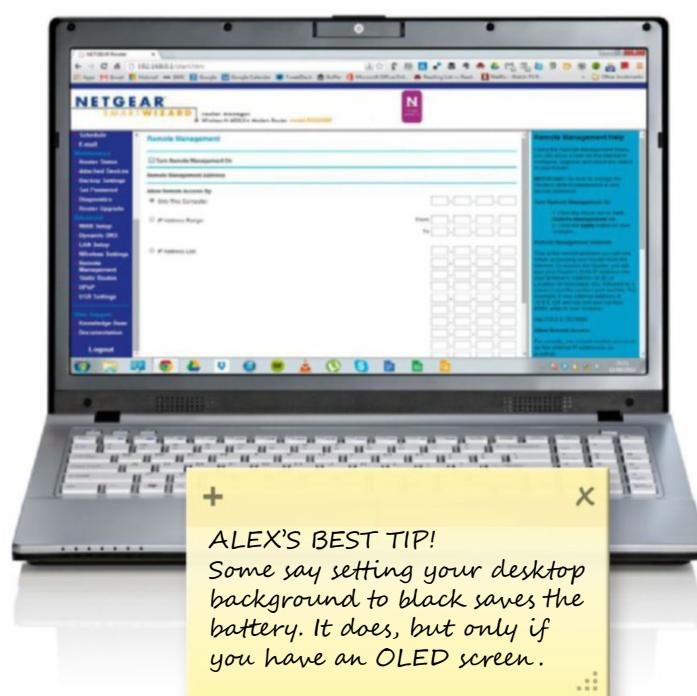
- ▶ Anyone can do it
- Straightforward
- Tricky in parts

Suitable for...

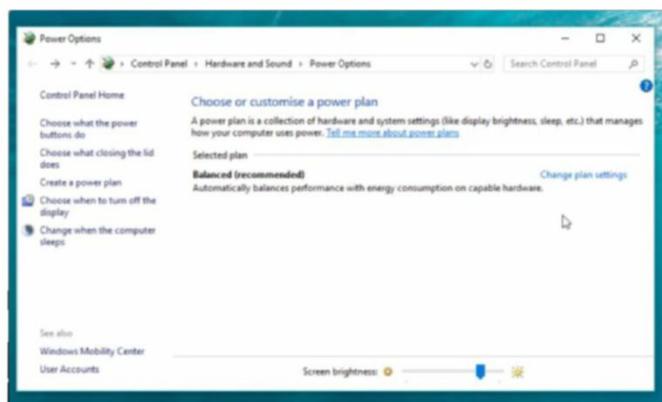
- Windows 10
- Windows 8.1
- Windows 7

When you're on the move, your laptop's battery will inevitably give up the ghost just when you really need it. We can't change that fundamental law of computing, but we can at least make sure that critical moment happens a little later. Windows 10's battery management features have changed a little, and the Fall Creators Update does one of two things, according to our office straw poll: it either does great things for your laptop's battery, or it cuts its life in half.

Whatever your experience, there are likely savings to be made. Before you wade in and start making changes, though, make sure you're running the Fall Creators Update by heading to the Settings > Updates screen. If you haven't upgraded to the latest version of Windows 10 yet, a number of these settings might be in slightly different places, but you should still be able to follow along.

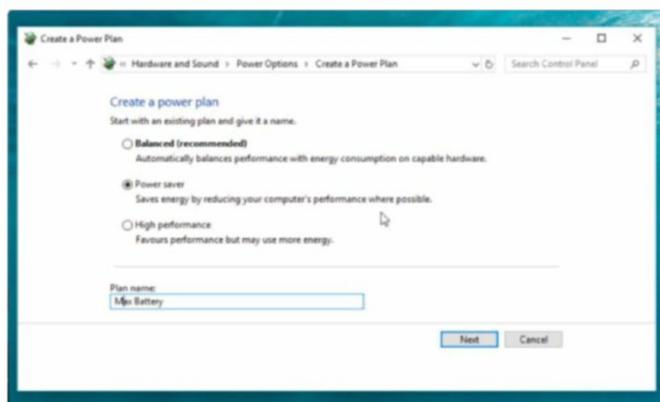


Step-by-step Boost your laptop's battery life



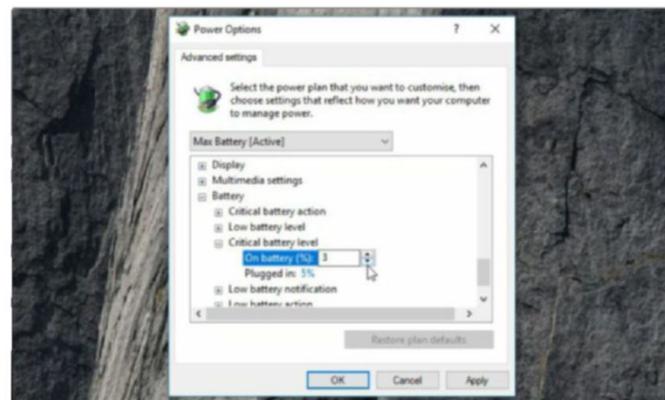
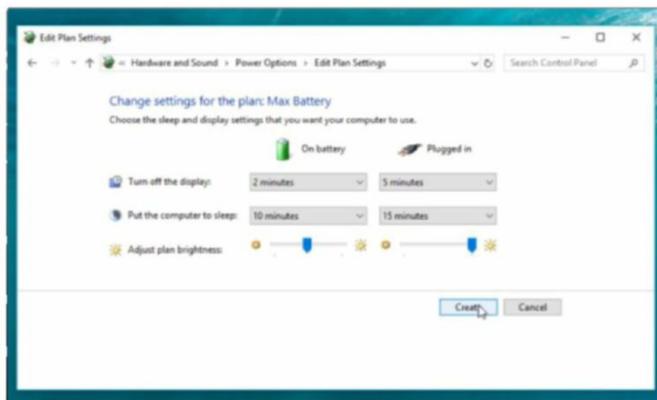
1 Classic mode

Windows' old battery options are still around, so make sure they're set correctly. Right-click the battery icon next to the clock on your Taskbar, and select Power Options. On this screen, you'll be able to select from a number of different plans, at least if they're displayed; if you can only see one – as is the case here – expand your options by clicking 'Create a power plan' on the left.



2 Pick the type

You'll be able to intricately alter the minutiae of your power plan a little later, but for now pick the broad category of 'Power saver' and give it a clever name. Click 'Next', and set time limits for the computer and its screen to switch off as well as the default screen brightness. This can make a big difference, and we'd opt to turn this as low as you can go while still seeing your screen clearly.



3 Select your profile

Once you've finished creating your base profile – you can generally leave all the 'plugged in' values pretty high – click Create. Your new profile should kick in straight away, but there are a few more things you can change about it: click 'Change plan settings' then 'Change advanced power settings' to find the appropriate settings window, which lets you get much deeper.



4 Advanced settings

Most of the settings in here are a little intimidating, but there's only a couple that are essential to check. If your laptop has a spinning hard drive rather than an SSD, use the Hard Disk option to set it to switch off after five minutes. Then head down to the Battery section, and change the critical battery level to three percent in order to squeeze out an extra few minutes of power.



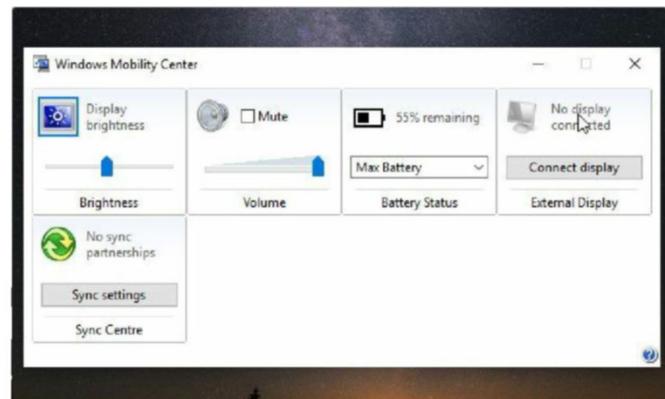
5 Saving mode

Windows will help you out when it sees your battery getting low as long as you have it set to activate Battery Saver mode. This, among other things, reduces background activity and stops checking for notifications. Activate it by heading to Settings > System > Battery and checking the appropriate box – you can also set the level at which it will activate for a little more convenience.



6 What's draining?

At the top of the Settings screen's Battery page is a link that takes you to a breakdown of which apps are hammering your battery the hardest. If something essential is at the top it might not be an awful lot of help, but shutting, disabling or even entirely removing power-sapping apps, particularly when you're away from a power source, is a great way to cut down on wasteful drain.



7 Slide it

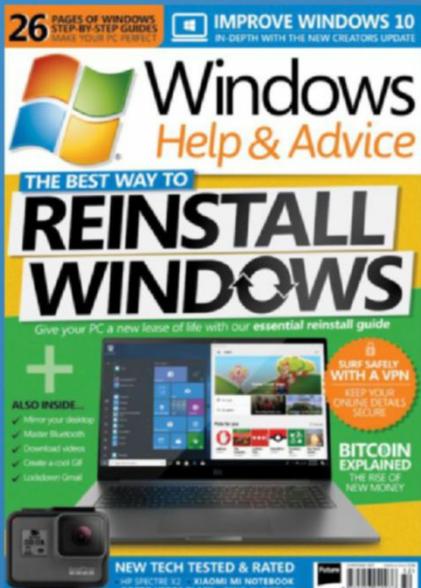
There will be times when your mobile priorities change and you need a temporary performance boost. The Fall Creators Update includes a super-handy feature – just left-click the battery icon (while you're running on battery, and not in power saving mode) to see a slider. Drag it to the left and you'll save battery, or move it to the right to gain a little more performance.

8 More options

If you want to toggle more battery-sucking features on or off quickly – your laptop's keyboard backlight, for example – then a trip to the Mobility Centre is a must. Right-click the battery icon on your Taskbar, then select the appropriate option. This is also a quick way to switch between power plans, so if you've configured a few for different uses you can jump from one to another here. ■

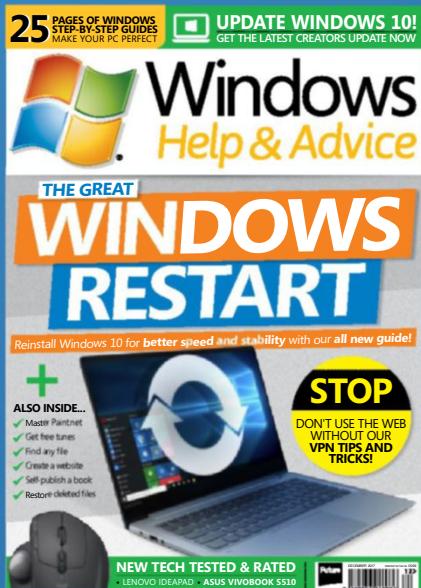
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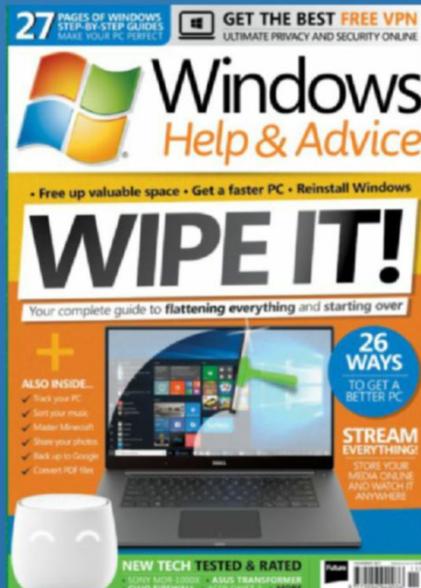
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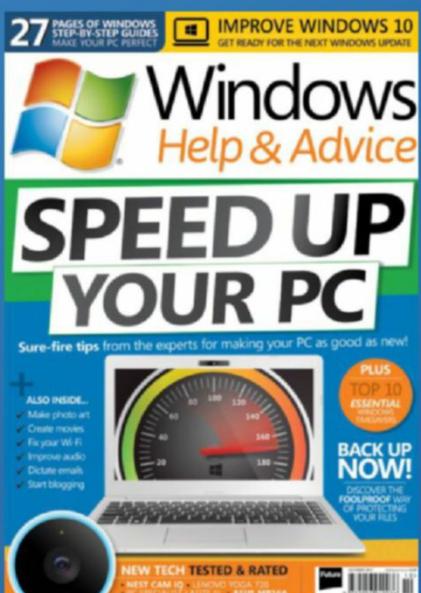
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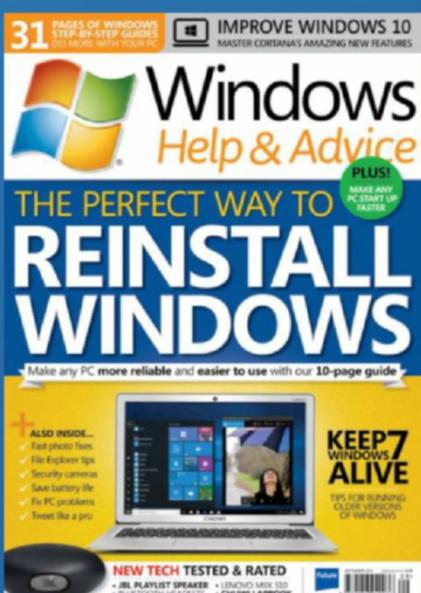
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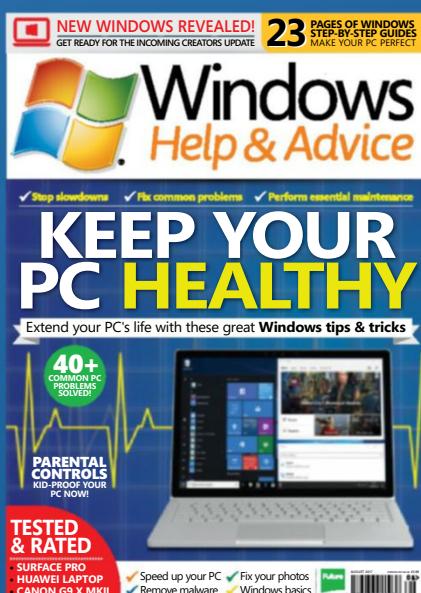
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Learn how to...

Get started with Firefox 57

Mozilla's web browser has taken a 'Quantum' leap forward, making it leaner, meaner and faster than before. Here's how to use it on your PC

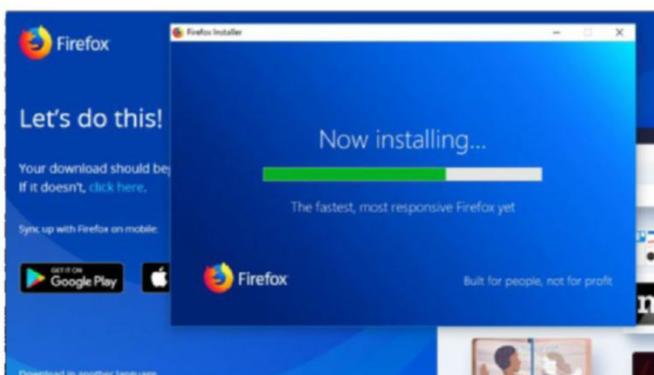
Firefox 57 (AKA Firefox **Quantum**) is a radical overhaul of Mozilla's web browser – and not before time. Despite regular updates, it was starting to feel its age, seeming sluggish in the face of much faster competition.

All that changes now. Mozilla's team has heavily rewritten over three quarters of the

browser's source code, while new tools such as Quantum CSS – which speeds up website formatting – makes it run twice as fast as before, and makes it a shade faster than recent versions of Google Chrome. Firefox's new interface, named 'Photon', also has much snappier tabs as well as a small action menu in the address bar.

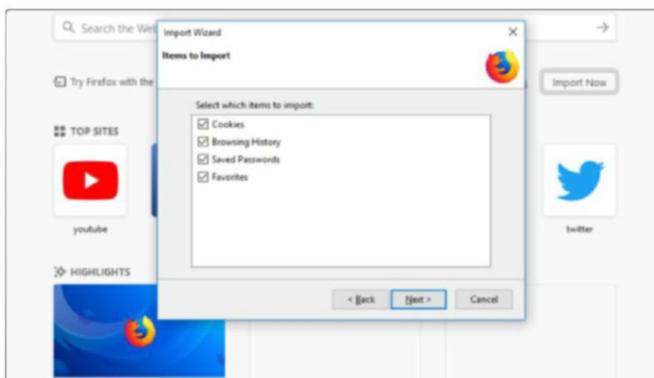
In this guide, you'll learn how to download and install Firefox 57, and take a tour of these and other dazzling features, including Firefox Sync, which keeps your data consistent across devices, private browsing and an easy-to-use screenshot tool. You'll also learn how to use web extensions to add even more new features.

Step-by-step Set up Firefox 57 (Quantum)



1 Download Firefox

Open your current web browser and navigate to <https://mozilla.com>. Click the green Download Now button. If you're using Microsoft Edge, click Run to launch the installer. Otherwise go to your Downloads folder. Choose 'Yes' to allow the installer to make changes. Firefox installer will now launch. The program will copy files automatically, then launch Firefox itself.



2 Use Firefox Sync

If you aren't an existing Firefox Sync user click 'Create an account'. Fill in the email and password fields. You also need to enter your age in the field marked 'how old are you'. Finally click Create Account. Next, choose which data to sync – bookmarks, preferences, add-ons and so on. Click 'Save settings'. Check your email and click the verification link to complete sign up.

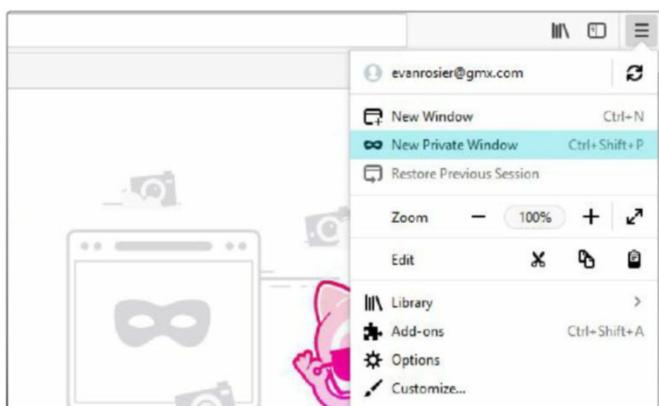


3 Import existing browser data

If you've already been using another web browser, such as Microsoft Edge, you can import any existing browsing data – search history, bookmarks, web passwords and so on – that you have there. Once the 'Import Settings and Data' window opens, choose your current browser, then click Next. On 'Items to import' check any you wish to copy across, such as saved passwords, and click Next, then Finish. Your data will now be copied across.

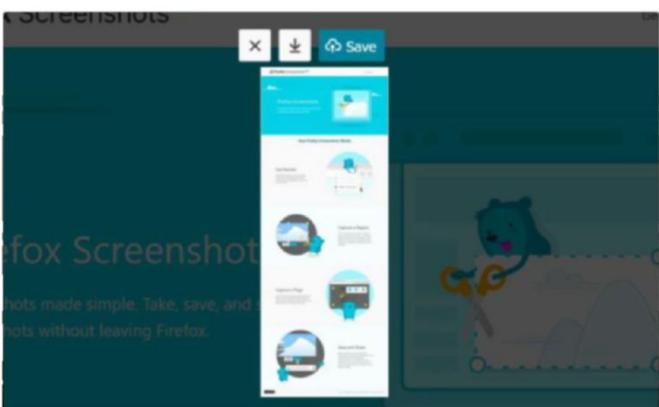
4 Start the tour

Firefox 57 will now show the browsing window. If you've never used Firefox before click 'New to Firefox? Let's get started'. This launches an interactive tour of Firefox's main features. Click the options on the left to explore each of these. Begin by clicking Performance. This will give you a quick rundown of Firefox's newest features, such as smoother scrolling and faster tabs.



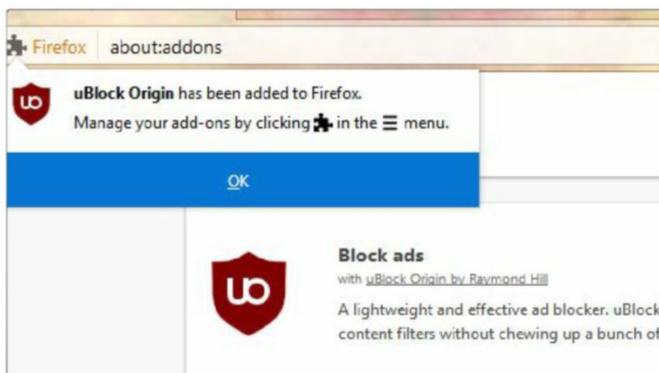
5 Surf in private

Click the option entitled **Private Browsing** on the left. Click 'Show Private Browsing in Menu' at the bottom right to try this feature. Firefox will automatically highlight the New Private Window menu option. Click this to launch a private window, which doesn't record your search history. Note: this doesn't make you fully anonymous. See <https://mzl.la/1CzyHMx> for details.



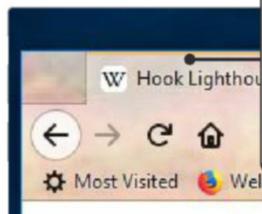
6 Take a screenshot

Click 'Screenshots' on the left, then Open Screenshots Website to access the site itself. The options menu in the address bar will open. Click 'Take a Screenshot' to launch a small preview of the tool. Choose either 'Save a full page' or 'Save visible (area)'. Firefox will show an image preview. Click the 'X' to cancel, the arrow to download, or Save to add to the Screenshots website.

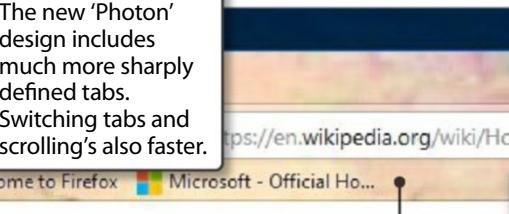


7 Add-ons

Return to the Tour tab and choose 'Add-ons'. Click 'Show Add-ons in menu', then click the highlighted 'Add-ons' option. Hover your mouse over themes to preview how they look and click the rocker switch to install them. **Extensions** are installed the same way. We recommend installing uBlock Origin since it blocks the most annoying ads. Click 'Add'(top left) to confirm installation.



INTERFACE
The new 'Photon' design includes much more sharply defined tabs. Switching tabs and scrolling's also faster.



BOOKMARKS
Keep favourite sites at your fingertips by enabling the Bookmarks Toolbar and adding your chosen sites.

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Hook Lighthouse
From Wikipedia

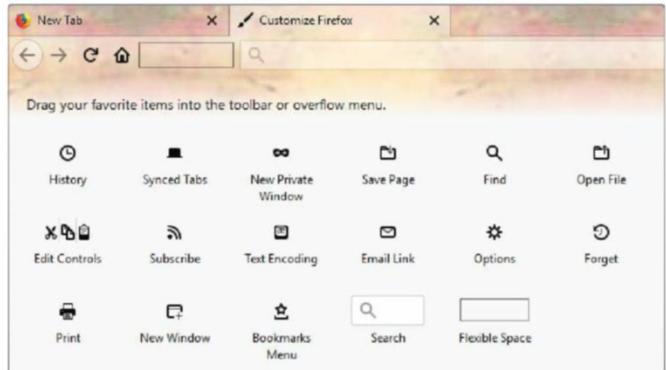
The **Hook Lighthouse** (Irish: *Teach Solais*) is a stone building situated on Hook Head at the tip of the oldest lighthouses in the world^[2] and the second Hercules in Spain. It is operated by the Community the eastern entrance to Waterford Harbour.

Contents [hide]

- [1 History](#)
- [2 See also](#)
- [3 References](#)
- [4 External links](#)

History [edit]

The existing tower dates from the 12th century. In the Wexford area, established a form of beacon tower, St. Dubhán's Head. However, the name. It is known locally as "the



8 Customise the toolbar

From the tour tab, click Customize on the left, then the 'Show Customize in menu' button. From here you can drag your favourite items either into the toolbar where they can be accessed right away, or to the overflow menu on the right so you can keep them within reach. Click 'Done' when complete. Alternatively, use the Themes menu to change to a preconfigured layout.

FIREFOX THEMES
Add new themes from the 'Add-ons' menu. You can preview themes just by hovering your mouse over them.

ADDRESS MENU
You can use this new feature in Firefox to bookmark and copy links, send pages to a device and easily take screenshots.

EXTENSIONS
Firefox now uses web extensions just like Google Chrome. These add new features such as ad-blocking.

TOOLBAR OPTIONS
You can customise the toolbar so your most frequently used tools – such as Zoom – are always within easy reach.

Rinn Duáin;^[1] also known as **Hook Head Lighthouse**) is a **Hook Peninsula** in County Wexford, in Ireland. It is one of the second oldest operating lighthouse in the world, after the Tower of the Commissioners of Irish Lights, the Irish Lighthouse Authority, it marks. The current structure has stood for almost 800 years.

... though tradition states that **Dubhán**, a missionary to the as early as the 5th century. The headland is known in Irish as the similar-sounding Irish word 'duán' means a fish hook, hence tower of Hook."

05:25 PM 12/12/2017

Jargon buster!

► **Quantum**
The codename for the latest Mozilla Firefox web browser. Browsers are any programs used to visit websites, such as Microsoft Edge.

► **Private Browsing**
Open a private browsing window to ensure Firefox won't record the sites you visit and will request that they don't track your browsing activity too.

► **Extensions**
Small pieces of code which enhance the Firefox browser. For instance, install uBlock Origin to block ads.

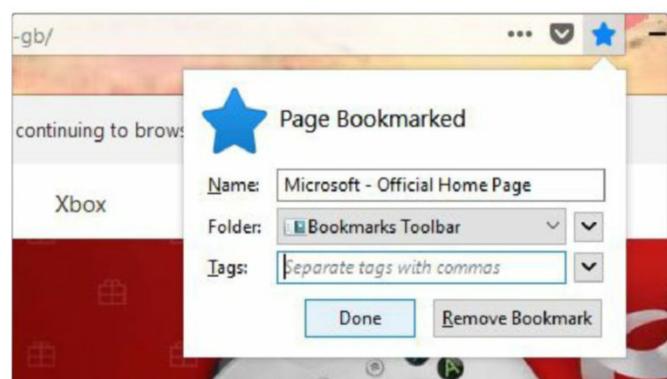
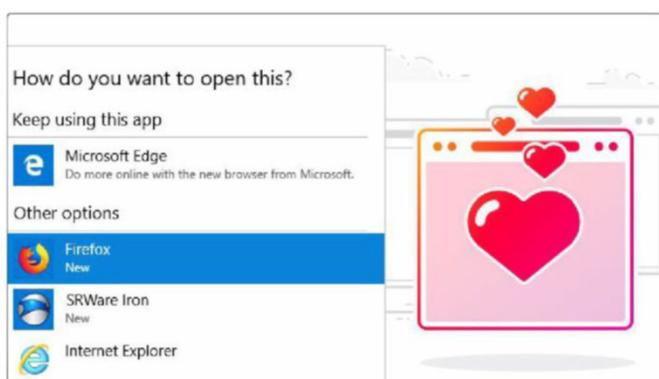
At a glance

Skill level...

- Anyone can do it Straightforward
- Tricky in parts

Suitable for...

- Windows 10
- Windows 8.1
- Windows 7



9 Set Firefox as your default

Firefox will automatically return you to the Tour tab after you've finished installing add-ons. Click 'Default Browser', then Open Default Browser Settings. A new window appears entitled 'How do you want to open this?' If you want to make Firefox your default browser click its icon under 'Other options', then check 'Always use this app' at the bottom. Click 'OK'.

10 Use the Bookmarks toolbar

Once the tour's complete, right-click the top pane and choose Bookmarks Toolbar. This enables you to store your favourite links under the address bar, saving you the trouble of using the bookmarks menu. To add a site to the toolbar, navigate to it then press [Ctrl] + [D]. When the Page Bookmarked notification appears, select Bookmarks Toolbar. ■

Learn how to...

Turn your photos into a video slideshow



Your guide *Ian Evenden* says...

"Create and share a slideshow quickly and easily with Windows 10's updated Photos app"

At a glance

Skill level...

- ▶ Anyone can do it
- Straightforward
- Tricky in parts

Suitable for...

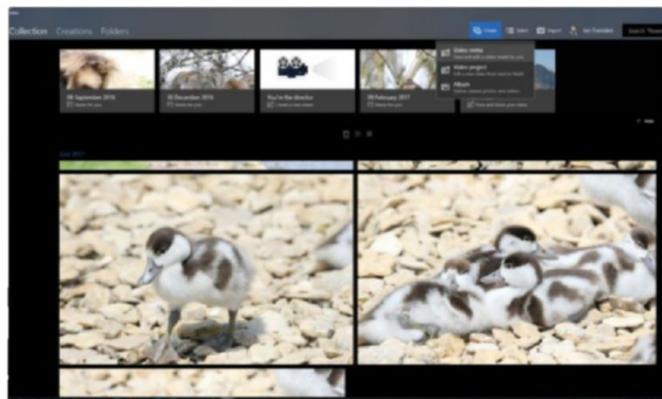
- Windows 10
- Windows 8.1
- Windows 7

Story Remix appeared in Windows 10 version 1709, also known as the Fall Creators update, so if Windows Update still hasn't delivered it to you, it's worth a trip to the Settings app to see if it's ready. Oddly, one of our systems didn't report it as available until we manually pushed the 'Check for updates' button.

You'll know when you've got it, as it makes a change to Windows 10's Photos app. If you open Photos by double-clicking an image or right-clicking and choosing the app from the Open With... menu, you'll get the usual Photos interface with editing and sharing options. But if you start the app without an initial file, perhaps using a shortcut or from the Start menu, you'll get the Remix option under the Create menu.

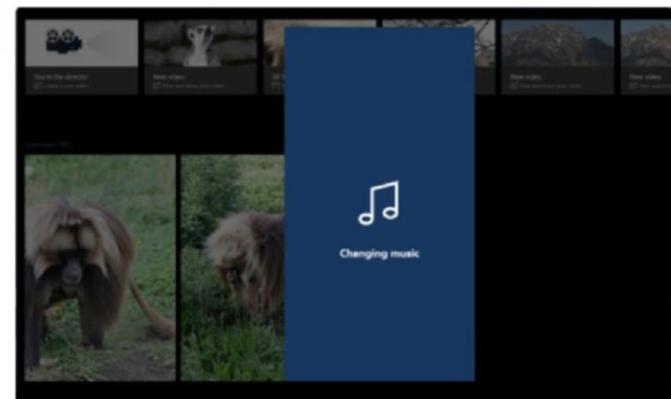
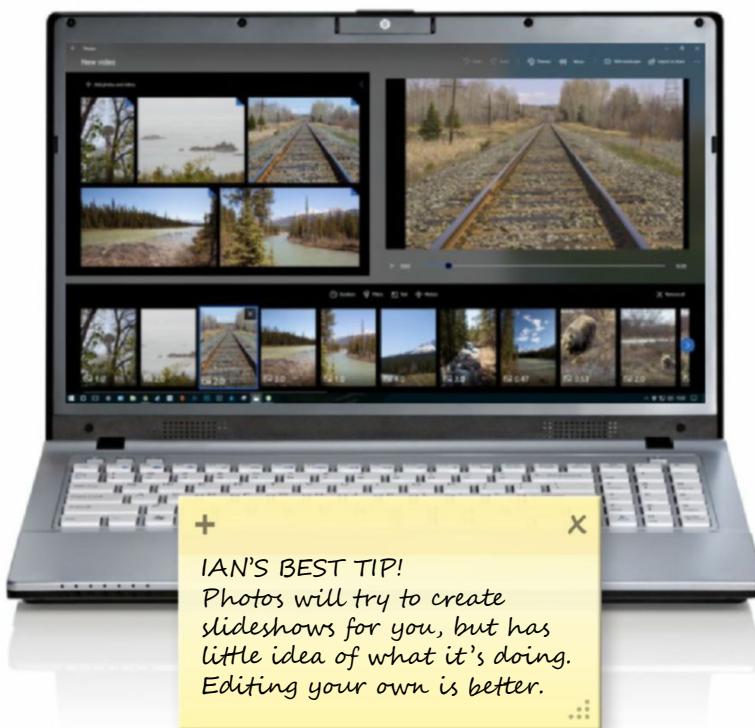
With it, you'll be able to turn your photos into a video – and in this tutorial we'll show you how.

Step-by-step Make your slideshow shine



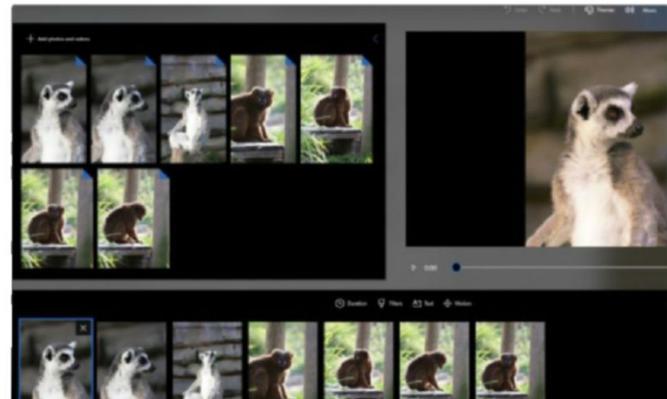
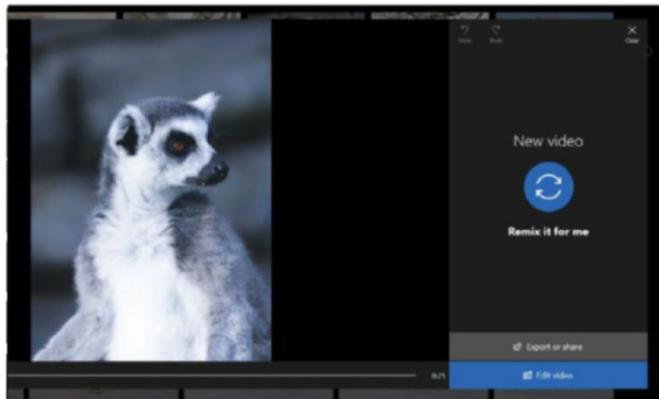
1 Find the remixer

Getting started is easy. Open the Photos app from a shortcut or the Start menu, and you'll be in the right place. From the Create menu, choose Video Remix and you'll be taken to a screen which asks you to choose two or more photos or video files to use in your project. Once you've chosen them, you're whisked to the next screen, where you preview your video.



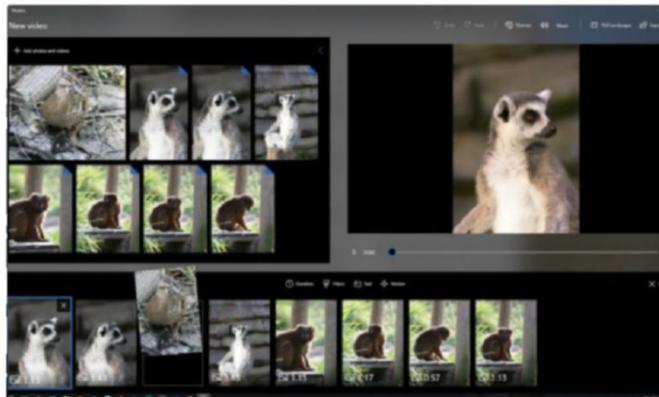
2 Remix

These videos are little more than slideshows, joining together pictures and video clips with some nice transitions and some background music. A big blue Remix button now appears on the screen, tapping this automatically changes the theme of those transitions, the choice of photos, and the music. You don't get any input into the process, however, it's purely automated.



3 Get hands-on

If you're happy with the video, you can export it and stop there. But if you'd rather get stuck in and create something bespoke, you can do that by clicking the blue Edit Video button below the Remix one. From the edit window, you're given lots of control over how the finished product will look, and can fiddle with most aspects of it until you're completely happy.

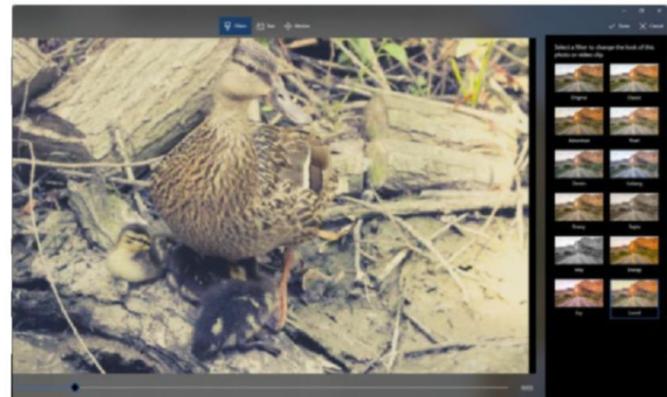


5 Add some images

Your image bin is at the top left, while the timeline of the actual slideshow is along the bottom. Drag images from the bin into the timeline in the order in which you want them to appear. You can choose the length of time they appear by selecting an image, then clicking the Duration button. If you want an image to appear more than once, just drag another copy in from the bin.

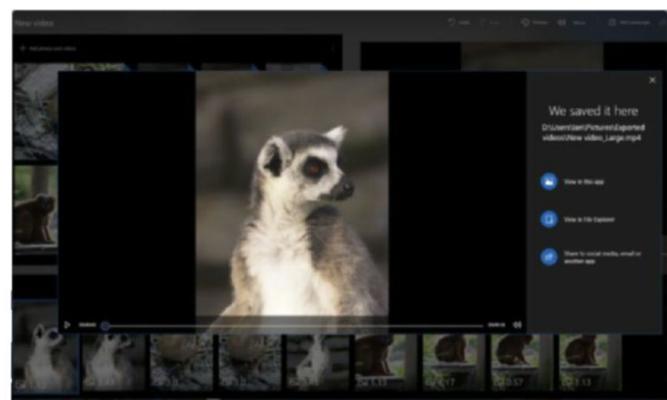
4 Add more pictures

You chose which pictures and videos would be added to the slideshow at the beginning, but you can now add more from this window without having to start again. At the top left there's a big '+' with 'Add photos and videos' next to it. Click this, and you can scroll through your image library to pick out new material to add to your video. Click 'Add' when you're finished.



6 Use filters, text and motion

To add more interest to your slideshow, you can overlay text onto it, run Instagram-style filters that change the look, and alter the way the camera pans across the images. To do this, use the buttons above the slideshow timeline. The text can be animated, and comes in various fonts, while Motion provides a generous selection of zooms, pans and tilts.



7 Add themes and music

You can also add a theme to your slideshow. The Theme button is at the top, and there's a decent selection available. Themes change the text styles and all the filters used in your creation to give it a consistent visual style. You can also add tracks from your own music collection or choose from those built into the app using the Music button.

8 Export your slideshow

The options for exporting your slideshow are slim, but there's enough there for most people. Click the 'Export or share' button (top right) and you'll be presented with three file size options. Choose the one you want, and the file will be generated before popping up options to view it or share it on social media. You can open it in other applications too, if you want to. ■

Learn how to...

Master Windows' built-in firewall



Your guide *Nate Drake* says...

"Take back control of your firewall to block and allow the programs and services you choose"

At a glance

Skill level...

► Anyone can do it

Straightforward

Tricky in parts

Suitable for...

Windows 10

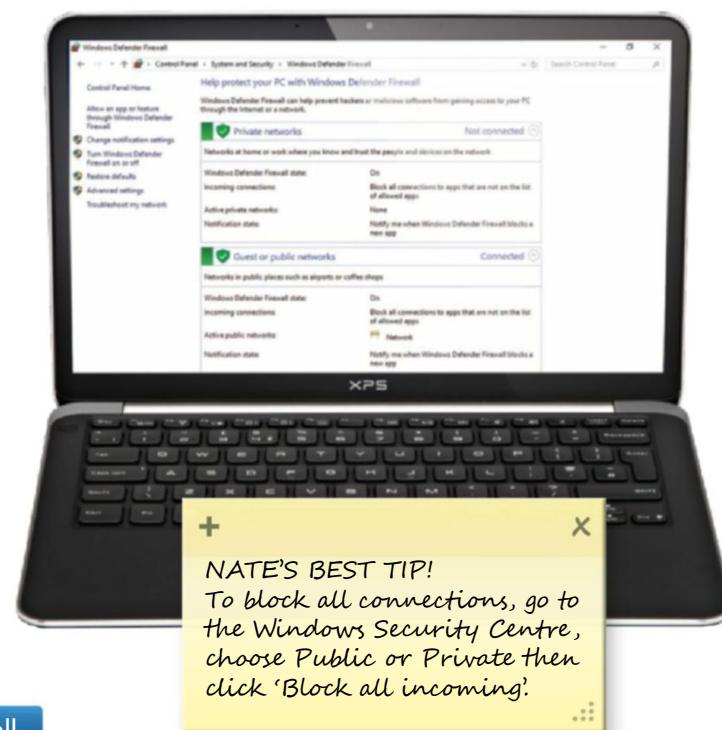
Windows 8.1

Windows 7

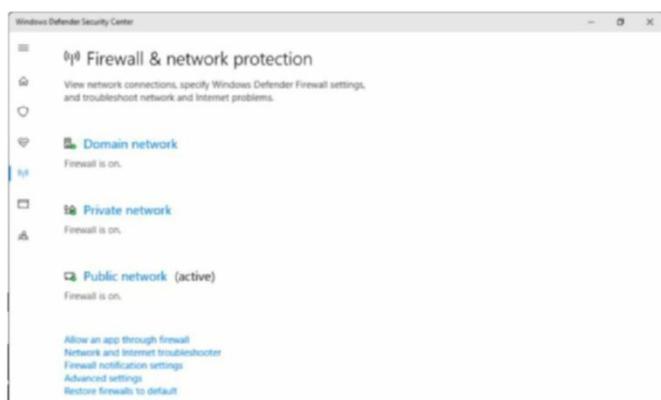
The firewall in Windows 10 is very powerful and designed to work in the background. When you install new programs – from the Microsoft Store for example – the firewall will intelligently allow them to connect to the Internet and/or other computers if they exist on a pre-approved whitelist. If a program isn't listed Windows will ask if you want to permit it.

In this guide, you'll discover how to check that your firewall is active and amend your notification settings. You'll also find out how to view which programs are allowed through your firewall as well as manually add those which aren't listed.

If you want even finer control of your machine, you can also take advantage of Windows' advanced settings to restrict a program to using specific ports or users. You can even block ports commonly used by certain apps altogether.



Step-by-step Configure Windows Defender Firewall



1 Open Firewall & network protection

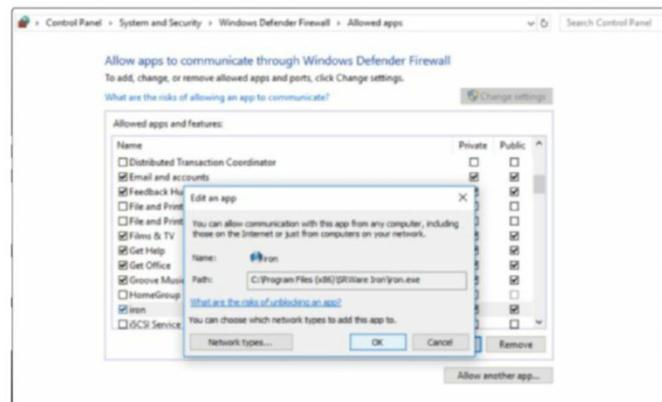
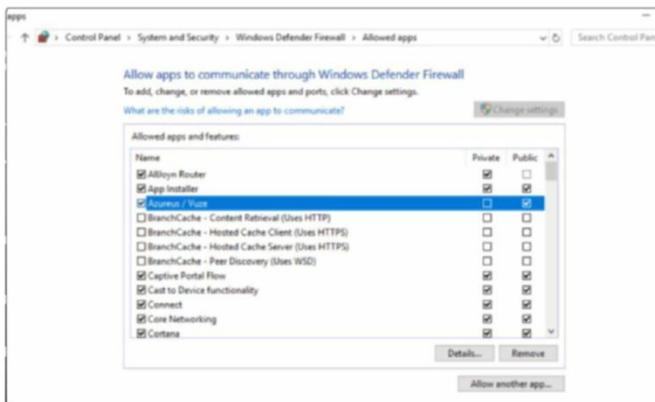
Go to Start > Settings, then from the Windows Settings menu choose Network & Internet. Scroll down and click Windows Firewall. Windows Defender Security Centre will now launch. If the firewall is not activated under Private Network or Public Network, click these and then on the rocker switch under Windows Defender Firewall to activate it.



2 Manage default settings

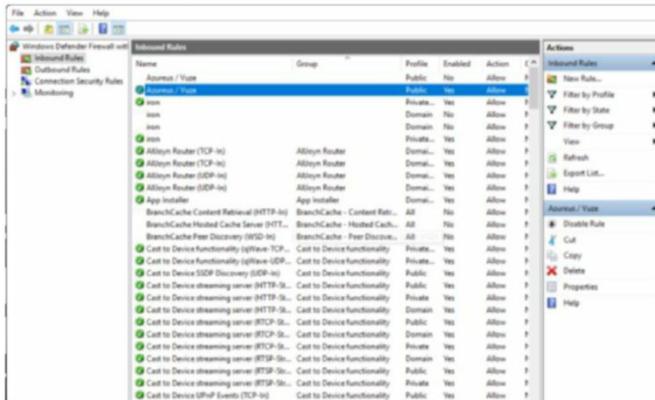
Windows Defender Firewall's default settings will adjust to accommodate new programs you add. Incoming connections are blocked unless they are on a special list of pre-approved apps or you add a program yourself. If Windows Defender Firewall blocks an app it will tell you. You can select 'Restore firewalls to default' to restore this configuration at any time.

Explore Master Windows' built-in firewall



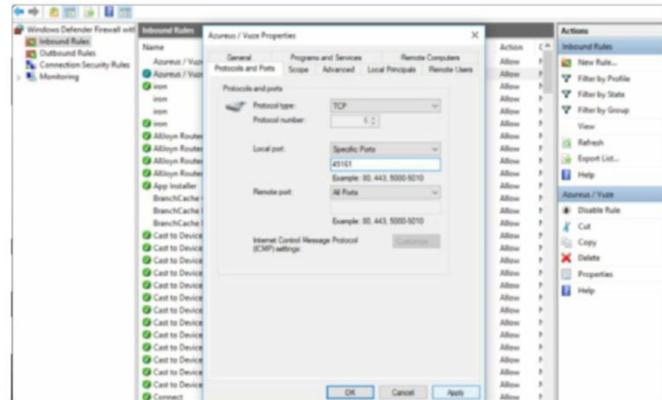
3 View allowed apps

To see which applications and services are currently allowed through the firewall click 'Allow an app through the firewall'. Click 'Change settings' at the top right, then scroll through the box marked 'Allowed apps and features'. Once again, you'll see that there are options for both Private and Public networks. Click the checkbox next to these to allow/disallow access for one or both.



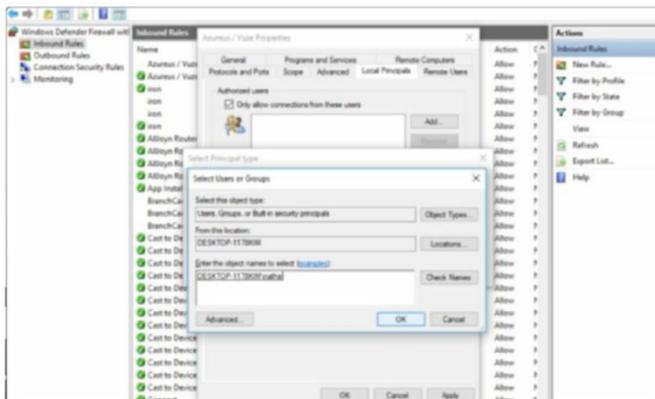
4 Add an unlisted app

If you want to allow an app, which doesn't seem to be listed under 'Allowed apps and features', click the button marked 'Allow another app'. In the new window, first click 'Network types' to choose which networks to allow (Public and/or Private). Click 'OK' to confirm. Next click the Browse button and find the path to the program, for instance in C:\Program Files. Finally click Add.



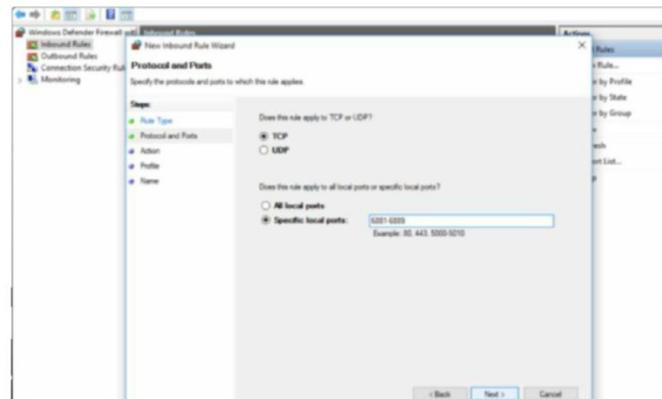
5 View inbound connections

You may prefer to fine-tune some of the firewall rules. For instance, filesharing app Vuze allows incoming connections on all ports by default. To view detailed information on each program return to the Windows Defender Security Centre window and click Advanced Settings. The Advanced Security window will open. Click 'Inbound rules' on the left and find your chosen program.



6 Configure program ports

If while browsing through programs you feel a particular connection is too vulnerable, you can restrict the ports it uses. Highlight the program in the 'Inbound rules' list and then choose Properties on the right. In the new window, choose the 'Protocols and Ports' tab. Under the Local Port drop-down menu choose Specific Ports, then enter your port of choice. Click 'Apply'.



7 Limit connections to users

Administrators can configure programs only to connect if they are run by specific users. Open 'Properties' and click the Local Principals tab. Tick 'Only allow connections from these users' then click Add. Under 'Select Principal type' leave Local User selected and click OK. In the box marked 'Enter the object names to select' enter the username you want to permit access, then click OK.

8 Block traffic on specific ports

If you want to block certain network traffic such as torrents, click on New Rule under Actions. In the New Inbound Rule Wizard choose Port, then Next. Choose TCP or UDP then click 'Specific local ports' to enter a port or range of ports to block. Click 'Next' then 'Block the connection'. Click 'Next' twice more and enter a name and description for your new rule. Click 'Finish'.

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Catalogue your media

Data Crow makes it easy to catalogue your books, media, software or, in fact, anything you like – and best of all, it's completely free!

Have you ever wanted to keep a catalogue of the important items you own? Perhaps your CD, DVD or Blu-ray collection needs organising before you start lending it out to friends or family, or you want to keep tabs on your books. Maybe you'd like to make a definitive list of your music to avoid going

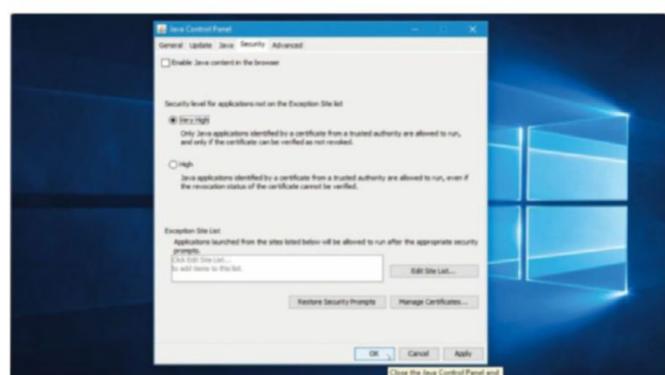
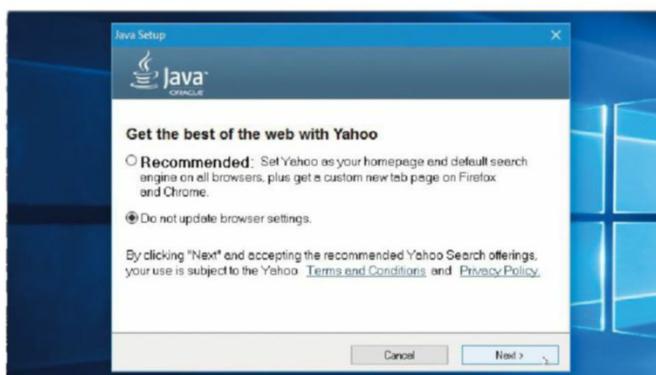
out and accidentally buying another copy of an album you already own? Or perhaps you'd like to record your collection of software packages.

Whatever your cataloguing needs are, Data Crow is the tool for you. This underrated freebie makes it easy to start building and managing collections of all

sizes, and thanks to some nifty time-saving tools, you don't need to meticulously record everything yourself; instead, simply use one of Data Crow's built-in search tools to populate the information that need from the Internet.

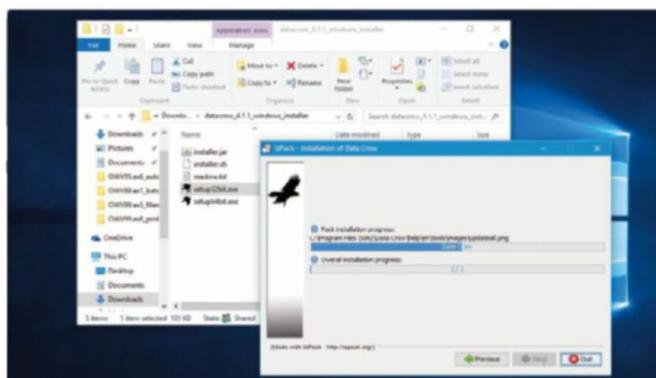
This tutorial is going to show you how to do exactly that – read on to find out more.

Step-by-step Catalogue your stuff



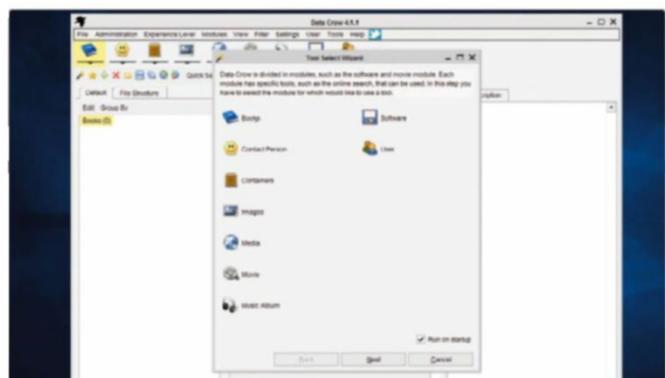
1 Install Java

Data Crow requires **Java**. If it's not installed, download it from java.com – click the Free Java Download link. Ignore any warnings about Edge; instead, click 'Agree and Start Free Download'. Launch the installer stub and click Install. When Java Setup appears, select 'Do not update browser settings' to avoid unwanted changes to your browser, then click Next to install.



2 Tighten security

Once installed, type 'java' into the Search box, then click Configure Java. Switch to the Security tab – if you only plan to use Java with Data Crow untick 'Enable Java content in the browser'; otherwise choose Very High for the security level and click OK. Now go to www.datacrow.net, select Downloads from the left-hand pane and click Data Crow Windows Installer.

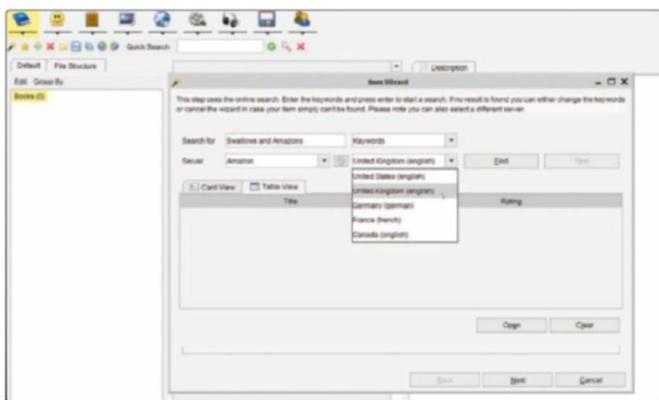


3 Install Data Crow

Click the Windows Installer link to save Data Crow to your Downloads folder. Locate the ZIP file, right-click it and choose Extract All. Once complete, double-click setup32bit.exe even if you have Windows 64-bit installed (this is because Java 32-bit is installed by default). Then it's a case of following the prompts – the default choices are fine for most. Click 'Done' to finish.

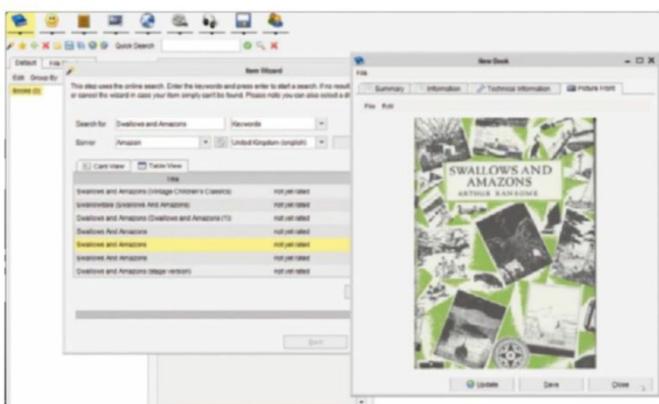
4 Create catalogue

Open Data Crow from the Start menu or via the Search box. Choose where to store the program's data. Click 'OK', select your language, then click OK again. When the program opens, click Close to open the Tool Select Wizard. Choose the type of information that you would like to catalogue – pick **Container** if it's not listed – and click Next.



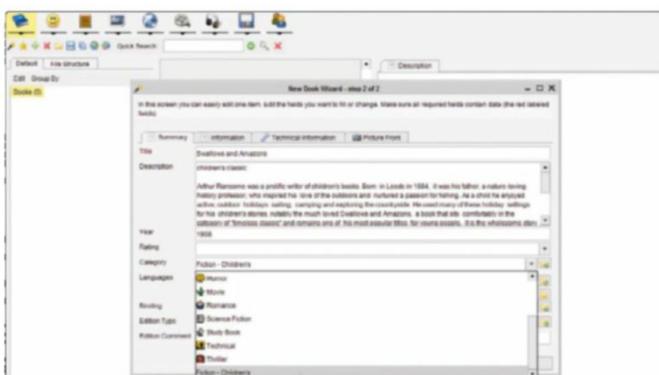
5 Add first item

You'll see a description of the key controls you can use to add, manage and delete items in your chosen catalogue – click Item Wizard to get started by adding an item from an online database. First, choose your server – Amazon is a good starting point – and select United Kingdom (English). Now enter the name of your item, such as a book's author or title and click Find.



6 Match and add item

A list of matching results will now appear. Switch to the Table View tab for an easier way to review them. If there are multiple matches – such as different editions of a book – select one and click Open to check whether it's the correct match using the tabs – Picture Front often helps in this regard. Once you've found the right match, click Next.



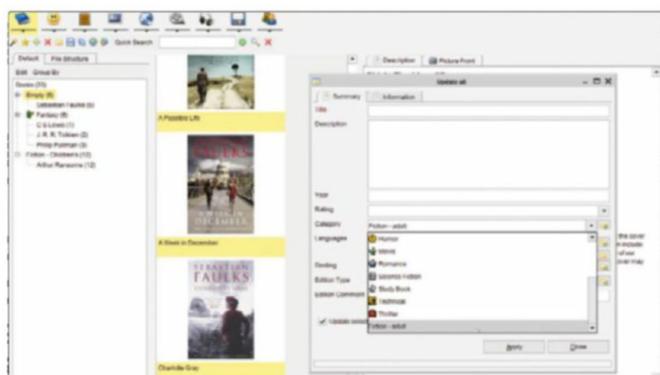
7 Review and add

The information will be downloaded, enabling you to review and make changes or additions. To keep your items organised, look for suitable fields on the Summary and Information tabs, such as Category or Genre. Click the '+' button for additional entries if they don't cover your collection. Once done, click Finish & New to add another.

ITEM MANAGEMENT
These buttons enable you to manage your catalogue by adding, deleting and even visualising (through charts) your items.

DATA TYPE
Use these to select your collection type: books, contacts, containers, images, general media, movies, music and software.

NAVIGATION STRUCTURE
Items are organised into a hierarchical structure of your choosing – here we're organising by genre and series name.



8 Edit items

Keep adding items to your collection. If you want to edit an item, right-click it and choose 'Edit...'. If you want to make the same edits to multiple items – such as genre or TV series – select them all in the middle pane using [Ctrl]-click, then right-click and choose 'Update all'. Make your changes, then click Save or Apply to apply them to the selected entry or entries in your database.

Data Crow 4.1.1

NICK'S BEST TIP!
Although Data Crow saves automatically, select Tools > Backup & Restore periodically to back up your catalogues.

ITEM DETAILS
The selected item appears in the right-hand pane complete with any additional information that has been assigned to it.

ONLINE SERVICES
You can add items using online services, such as Amazon, to quickly and easily attach key information and even artwork to it.

EDIT ITEMS
Need to make changes or add extra information? Navigate to the item using the left-hand pane, then right-click it.

Jargon buster!

► Java

A programming language – apps written in Java can be run on any platform that supports Java, including Windows, Mac and Linux.

► Container

A generic data type that enables you to use Data Crow to catalogue anything you like, such as favourite recipes, magazines or some other collectible.

► Field

A single piece of data used to store a particular piece of information, such as book author, DVD title or music track.

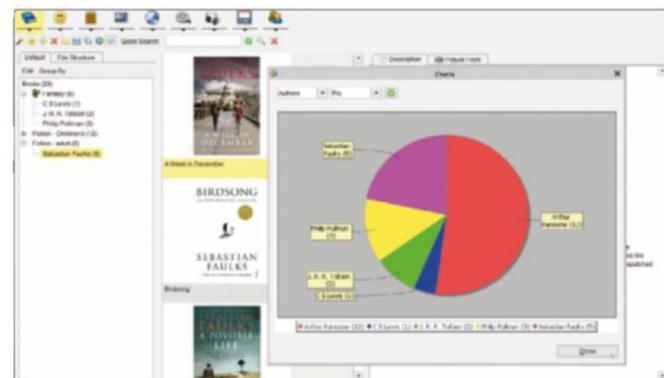
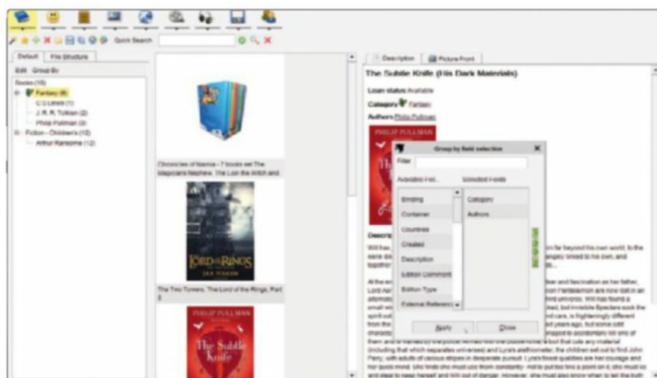
At a glance

Skill level...

- Anyone can do it
Straightforward
- Tricky in parts

Suitable for...

- Windows 10
- Windows 8.1
- Windows 7



9 Group items

As your collection grows, you'll want to organise it to make it easier to browse. To do this, click the 'Group by' button in the left-hand window and choose Select Fields, then pick how you want to display them here – for example, by author or category. To create a multi-level hierarchy, select multiple fields as you wish them to appear – for example, genre followed by TV series.

10 Your collection, catalogued

You've got the basics mastered, so keep building your collection – Data Crow saves your changes as they're made. The program is incredibly versatile, so explore the various menus to find ways to fine-tune your catalogue and change the way the program works. Also click the pie-chart button to generate charts to help you analyse your collection as it grows. ■

Learn how to...

Use an ad-blocker in the Edge web browser



Your guide [Tim Hardwick](#) says...

"Microsoft's browser now supports extensions – make sure Adblock Plus is the first one you install"

At a glance

Skill level...

► Anyone can do it

Straightforward

Tricky in parts

Suitable for...

Windows 10

Windows 8.1

Windows 7

Back in August 2016, Microsoft released the Windows 10 Anniversary Update, a free download that brought new features and security benefits to the company's flagship operating system. That update brought several hefty improvements to Microsoft Edge, including better power saving and support for modern web standards such as HTML5. But perhaps the most visible new feature was the introduction of Edge Extensions.

Extensions are plug-in tools that enable you to add features to your browser and personalise your web experience. Here we're going to show you how to install and configure the free Adblock Plus extension, which is considered by many users to be an essential plug-in. Adblock does what it says – it blocks annoying adverts on the web pages you visit and makes browsing a less cluttered, more pleasant experience.



Step-by-step How to install and set up Adblock Plus



1 Check the update

The first thing to do is check whether Windows 10 is up to date, since Adblock Plus needs the Anniversary Update or higher to work. Head to Start > Settings > System, then the About panel from the sidebar. Look at the Version number on this panel. If it's 1607 or higher, your OS is already updated – skip ahead to Step 2. If not, update Windows 10 manually by following Step 2.

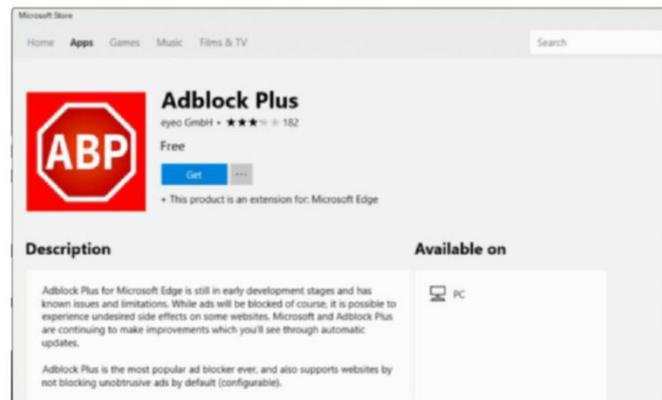
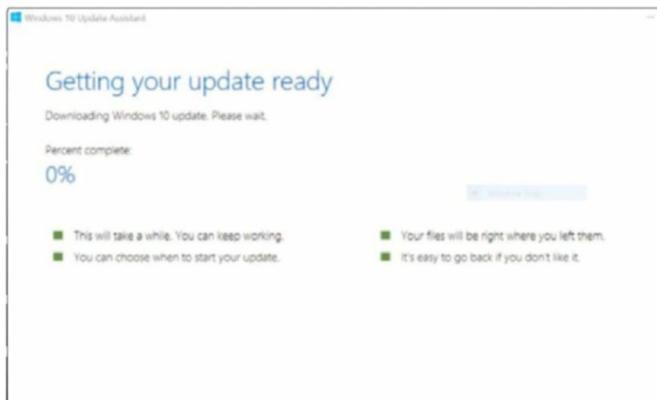


2 Get the update

Open up Edge browser and type the following link into the address bar: <http://bit.ly/1Db3y9g>. You should see the official Microsoft web page shown above – click the 'Get the Update now' button. This downloads the Update Assistant, which you should run when prompted. A window will appear asking you to update to the latest version of Windows. Click 'Update Now'.

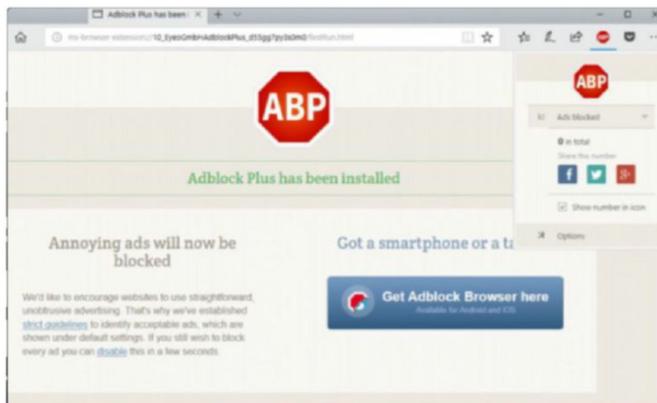
Explore

Use an ad-blocker in Edge



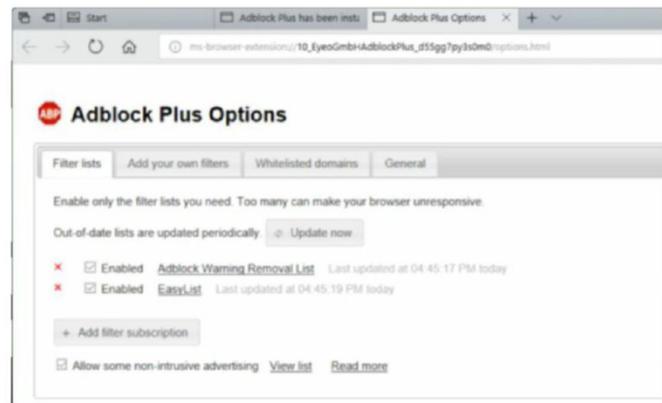
3 In progress

Go to Settings > 'Update & security', then click 'Install now' to fetch the latest Windows 10 updates. Wait for any updates to install and select the option to restart in order to complete the installation. Once you've logged back into Windows, open the Microsoft Store app from the Taskbar. With the Store open, type 'Adblock Plus' into the Search box at the top right of the window.



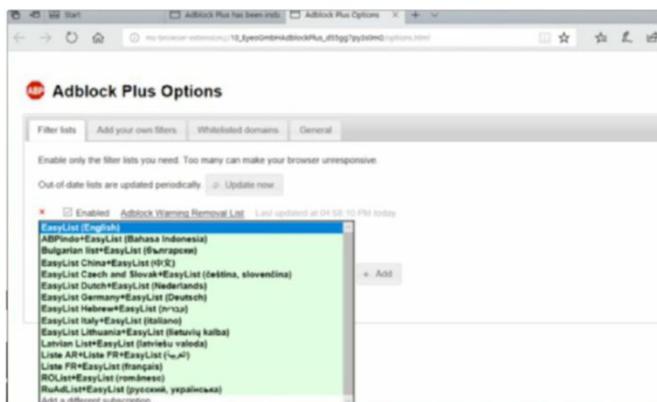
4 Get AdBlock Plus

Click on the Adblock Plus icon in the search results and then click on the blue Free button on the app's description screen. Enter your Windows username and password if prompted. The blue button should now be labelled Launch. Click it. This opens the Edge browser, where you'll be notified that you have a new extension. Click the button to 'Turn it on'.



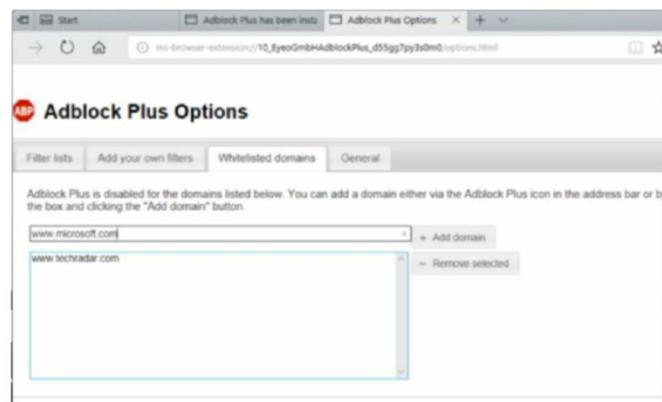
5 Successfully installed

Edge will open the Adblock Plus web page indicating that the extension has been successfully installed. At this point, you can choose to surf the web using Adblock's default settings, but we're going to have a look at what other options the extension offers. To access these click the Adblock Plus icon, which has now appeared in Edge's toolbar.



6 More options

Clicking the toolbar icon brings up a pane where you can view how many ads have been blocked and opt to show this number in the toolbar icon. You can access Adblock Plus' settings by clicking the Options button. The first tab enables you to manage Adblock's built-in filter lists – sets of rules it uses to automatically remove unwanted web content.



7 Filter lists

You can add more filter lists from this tab by pressing 'Add filter subscription'. Choose an optional list from the drop-down menu, or add one of your own (lists can be found online). The Filter lists tab also includes an option to allow some non-intrusive advertising, since ads are often the only source of revenue for sites that offer free online content.

8 Create custom filters

The second tab in Adblock's options enables you to add your own custom filters, but you'll likely be fine using publicly available ones. The third tab enables you to add website URLs to a whitelist for exclusion from Adblock's rules. Lastly, the General tab lets you enable a Block Element right-click menu item for shooing away web content manually. ■





RESURRECT YOUR GAMING CLASSICS

Want to run old games on new Windows? Here's how

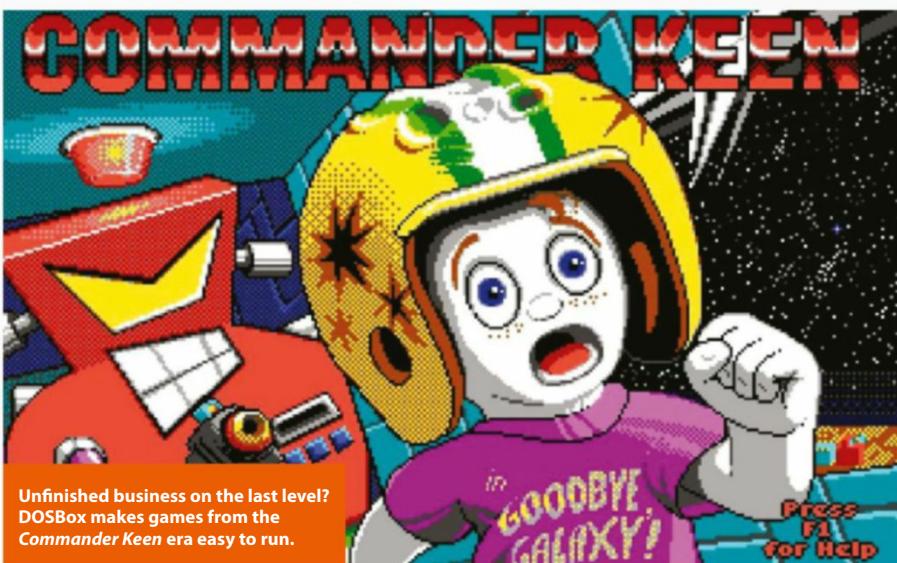
You place a treasured CD-ROM into the disc tray, wistful about the good old days, and excited to see the familiar pixels of an old favourite game. Your PC reacts like a dog watching a magic trick. Autorun doesn't work. Setup.exe doesn't work. InstallShield is looking for a long-forgotten Windows 98 library file in perpetuity. In a very real and upsetting way, your childhood is no longer compatible with the modern world, and you know that the only way to rekindle it involves hours of compatibility box-checking, Googling, and fiddling. A traumatic moment.

But it doesn't have to be. Getting software that was designed for much older operating systems and hardware to run on modern machines offers its own intrinsic satisfaction. It's like breaking the rules, somehow, raising dead software that was never intended to interface with silicon this powerful, and bending an operating system to your will. There are many different avenues to pursue when you're attempting to do so, and that in itself has its own pros and cons. That variety of approaches means it's unlikely you'll truly reach a dead end, to stretch that avenue metaphor to breaking point. But it does also mean the plethora of

conflicting information found on message boards suggesting this method or that can make this a tricky task to go about in a methodical manner. So, let's do exactly that: Let's turn what would ordinarily be an evening of directionless trial and error into a scientific process. The definitive and exhaustive guide to running old games on a new PC.

A willingness to install a few programs on your PC and a sound awareness of abandonware law are mandatory in this test environment. With those humble tools, you should be able to run any old game on a Windows 10 PC, however categorical the error messages seem upon the first attempt. Lab coats on...





Before we get stuck into the many-branched methodology of old game necromancy, let's examine why this problem exists. After all, if your PC can run *The Witcher 3* at 60fps, why does it struggle to render 1999's *Rainbow Six: Rogue Spear* at anything above single figures? And why is it so hard to get certain games installed?

"Hardware tends to play only an indirect role in incompatibility"

Essentially, it all comes down to operating systems. Whenever a piece of software or PC game is developed, its creators make a series of assumptions about the environment it'll be used in. The developers of 1999, for example, might reasonably have expected that most users would be installing their game on to a Windows 98 or Windows 95 PC, both based around the 16-bit Disk Operating System (DOS). That, in turn, means an assumption about the file libraries and drivers contained within those operating systems, and the kind of hardware that might be running it. Those developers couldn't anticipate that later versions of Windows, from Windows 2000 onward, would only emulate DOS, rather than running it natively, and that the code that installs and runs the game on DOS-based operating systems would eventually become gibberish to Windows 10. They also couldn't have known what a monumental pain User Access Control (UAC) would prove in later, more security-conscious Windows iterations.

Generally, then, programs don't work on modern machines because those modern machines are running a recent OS. Hardware tends to play only an indirect role in incompatibility. For

example, because 32-bit systems recognise only a 4GB maximum of memory, most of us run 64-bit operating systems to accommodate more RAM. But unlike 32-bit versions, 64-bit Windows doesn't include 16-bit emulation. That means it can't fool a Windows 95 application that's searching for recognisable libraries in order to install itself correctly. The same goes for today's graphics cards and processors: It

isn't they're inherently too powerful for old software, but that the old software can't interpret and harness their power correctly, because they don't understand the drivers installed.

The stumbling block for one particular vintage game might be DOS, driver support, missing libraries, security issues, or incompatibility beyond 16-bit systems, but the root cause is fairly universal: It's the software environment. The obvious solution is to modify that software environment so the old game has enough information and security privileges to function. And that's

something you can go big or small with. Since we're doing this methodically, it makes sense to begin with the small measures – such as patches and DOSBox – and work up to more drastic solutions, such as running Windows XP within a virtual machine environment.

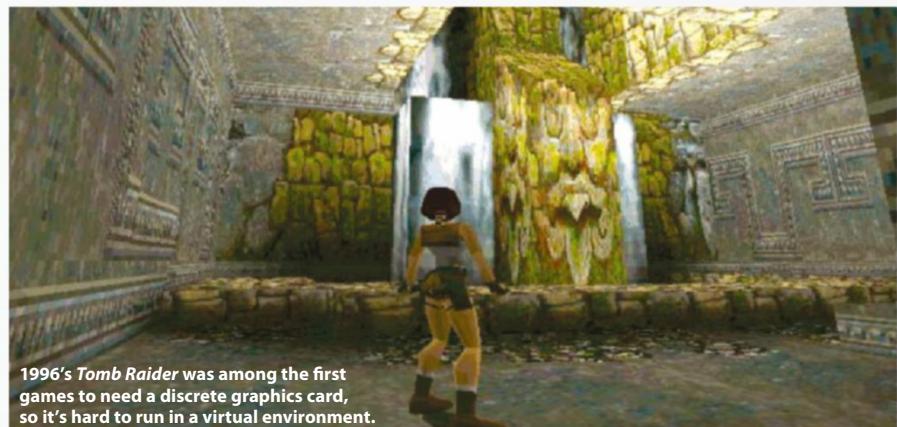
Scour for updates

If a game installs on your PC but won't run, first check online for official developer patches, and unofficial patches created by users who have experienced similar issues. Perhaps you'll strike lucky with a game like *Vampire: The Masquerade – Redemption*. First released in 2004, it's long since been regarded as a cult classic, but shipped with more bugs than a mail order ant farm. Developer Troika was still releasing patches for it five years later, and the community took it even further with an unofficial patch, which still receives updates in 2017. Try the original disc, and you'll have problems, but with those two downloads, *Redemption* runs perfectly on Windows 10.

Elsewhere, community modders have addressed issues pertaining to entire game engines, fixing a whole suite of titles in the process. Black Isle's Infinity Engine hosted many of role-playing's all-time greats, such as *Baldur's Gate I* and *II*, *Icewind Dale*, and *Planescape Torment*, but relies on Microsoft's defunct DirectDraw API, and thus has all manner of issues on modern machines. Aqrit's DDrawFix resolves those issues in nine games with one 5MB download. There are other solutions, but this is certainly more elegant than running an entire OS in a virtual machine just to access DirectDraw.

Compatibility mode options

Windows doesn't have a great reputation for the efficacy of its compatibility mode, but in certain circumstances, a checked box here and a drag-down menu option there might be all it takes to solve your problem, whether it be installing or running the old game in question. When you right-click on a program or installer, and



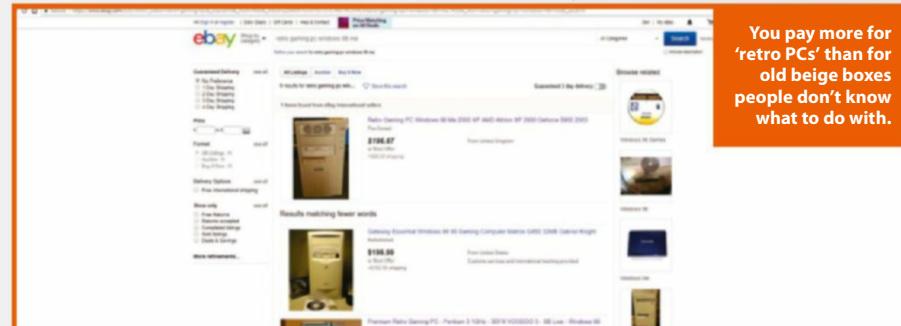
1996's *Tomb Raider* was among the first games to need a discrete graphics card, so it's hard to run in a virtual environment.



Rogue Spear is in an awkward time bracket: too old for Windows 10, too new for DOSBox. There are ways to coax it alive again.

navigate to the compatibility tab, you'll see several options to emulate different Windows versions and alter display settings. When you run an application in compatibility mode, you're telling your current version of Windows to lie to that application, and it does so by placing a layer of alternate code, known as a shim, between the application loader and Windows. File paths are translated from new to old, so C:\Users\<username>\Documents becomes C:\Documents and Settings\<username>\My Documents. It modifies the functions of certain .dlls so the application returns the expected information. The GetVersionEx function, for example, used to determine which version of Windows an application's working with would return data from the shim, rather than the true kernel32.dll's information. In other words, when the application asks 'Which version of Windows is this?' compatibility mode steps in and says 'Windows XP, honest!' before the actual OS your PC is running has chance to blurt out 'Windows 10', and give the game away.

In reality, setting the right compatibility mode options can often be part of the solution, but it's rarely your one-stop shop. As a rule of thumb, it's best to start by selecting the predominant OS at the time the game was released (Windows 98 for *Half-Life*, say), and running as an Administrator. This helps the application do what it needs to without Windows stepping in and halting it at an unexpected juncture. From there, you can experiment with 256 colours and 640x480 resolution limiting, but it's often best to move on



Doing it the hard way

Depending on your motivation for coaxing an old game back into operation, simply getting it up and running on your current machine might not satisfy. A 4K HDR display might do wonders for your Steam library, but it only serves to highlight the shortcomings of a game designed to run at 640x480. And there's something a bit strange about playing *Quake* with an RGB mechanical keyboard and a wireless mouse, when all's said and done. When you feel that the modern technology ensconcing your old software is detracting from the experience, there's only

one thing for it: a retro gaming PC build.

A word of warning: This can be costly if you're not smart about it. Perhaps it's not a big surprise that giant beige boxes with Pentium IIs and Voodoo 2s are a thriving cottage industry on eBay – everyone has one in their attic or garage, and for some people, the only way to enjoy old games is in situ. But their appetite for tobacco-yellowed Dell keyboards has driven prices well beyond what one might reasonably expect, so avoid searching specifically for 'retro gaming PC' items. If you instead search for 'Windows 98 PC', for

example, you'll find listings for near-identical machines that don't carry a premium for their trendy vintage appeal.

It's worth buying entire PCs in one package, though, rather than trying to source everything component by component. Unless you've been reading up on motherboard/CPU/RAM/GPU compatibility of yesteryear in your spare time, it can be a nightmare to find parts that play nice with each other, or even function at all. Lastly, if you're buying a CRT screen, look for photos of it in operation to check that it hasn't demagnetised over time.

and look for other solutions, rather than troubleshooting exclusively in the compatibility tab.

DOS and don'ts

Paradoxically, the further back you go with PC games, the easier it becomes to run them on modern machinery. That's in large part thanks to DOSBox, which emulates an Intel x86-based system, complete with graphics and sound cards, mouse support, and a modem. DOSBox should be your first port of call when running any pre-Windows XP game, which means it opens up about 20 years of gaming, from the *Commander Keen* days to late-nineties gems designed for DOS-based Windows. Since it's effectively a virtual machine, and you probably don't have a floppy disk drive in your machine, you need disk image files of the games you want to play. DOS games are generally considered abandonware now, so although it isn't legal to download them, it isn't likely to get you into trouble – see

the 'Abandonware, all ye who enter' box at the bottom of this page.

DOSBox works by mounting a virtual C drive created by the user, then navigating around using command prompts. For example, C:DOSGAMES becomes your DOSBox's virtual root drive with the command line 'mount c c:\dosgame'. For convenience's sake, it's worth keeping all your DOS game image files within this directory, each in individual folders. The 'cd' command changes directory, which means you can type 'cd [game name folder]' to navigate to your chosen game, then type the executable name to run it. Of all the methods available, DOSBox is one of the easiest and most reliable, and only requires a few command lines to get things up and running. Its limitations make themselves apparent when running 3D games that were considered demanding at the time, such as *Tomb Raider*, *Quake*, or *Carmageddon*. DOSBox runs these using its own software renderer, so for more advanced graphics,



Sid Meier probably isn't going to turn up at your door when you download *Civilization I*.

Abandonware, all ye who enter

Before even beginning to wrestle it into working, the act of acquiring an old Windows PC game can be tricky in itself. Physical media drives are an increasingly rare sight on modern machines, and there's every chance you threw all your old games out years ago. It might be tempting to hunt for a disc ISO file of some forgotten treasure on an abandonware site, but before you do, it's worth knowing the legality of those actions, and what the term 'abandonware' actually means.

Essentially, the term defines a legal no-man's-land in which a product's copyright might not have expired, but since its

owner no longer supplies it for legal purchase or supports it, it 'abandons' copyright enforcement. It's safe to assume Activision doesn't have a legal team pursuing all those who download ISOs of its 1998 shooter *SiN*, for example, but that doesn't mean it's legal to do so. Here's a real example: Since Microsoft officially stopped supporting Windows XP in 2014, numerous sites have offered it for free, and not a single one has faced any legal action.

So, if you own a physical copy of a certain abandonware game, but no longer have a CD-ROM drive with which to install it, you're still not

technically within your rights to download a cracked version online. But since it can't be purchased new elsewhere anymore, the copyright holder is unlikely to penalise you. If the company that holds the copyright no longer exists, you're on even safer ground, and if the original software was distributed under a shareware license – like the first third of *Doom* – well, the copyright police probably aren't tailing you day and night and preparing to haul you off to prison. Shareware is fine. The important thing is to check whether something really is abandonware before downloading it.



They really were the salad days, weren't they?

you need to seek out a 3DFX/Glide emulator designed for use in DOSBox. Some custom builds of the program, such as DOSBox SVM Daum, come with Direct3D, Glide, and other advanced features baked in, so are the best bet for running later DOS games that made use of graphics cards. Ah, the Voodoo days – brings a tear to the eye. And just to hammer the point home, don't rule out DOSBox if you're trying to run a game that was released for Windows 95 or Windows 98 – they were both DOS-based operating systems, after all.

Virtual insanity

If you want to take this vintage gaming thing to a greater extreme, it's time to consider running a virtual machine with an older OS installed. Broadly, this isn't too different an approach from running DOSBox, but if you find yourself playing a lot of games from that awkward post-DOS, pre-Windows 7 era, it might end up being more convenient. Plus, there's the heady nostalgia hit of seeing the old OS's desktop, and enjoying all the sound effects – remember when performing almost any action on a Windows machine came with its own bespoke sound effect?

VirtualBox is the go-to application for this. It's relatively easy to install even dusty old Windows 3.1 on a virtual machine, complete with the required virtual hardware, although you'll either need an install disc and product key for the OS, or a disk image. Once again, we're in the murky waters of

CLARE & DENIS LETTER RE: INFRINGEMENT OF COPYRIGHT
(ON LETTERHEAD OF COPYRIGHT OWNER OR LEGAL COUNSEL)

June 1, 2009

WITHOUT PREJUDICE

[RIGHTSHOLDER] CERTIFIED MAIL
RETURN RECEIPT REQUESTED
AND BY REGULAR MAIL

[name of infringing party]
[address]

Dear Sir:

Re: Infringement of Copyright: [name of copyrighted work being infringed] (the "Work")
Owner: [name of copyright owner]

If being sent by legal counsel: We are lawyers for [insert name of copyright owner] ("OWNER").
If being sent by copyright owner: This letter is being sent to you on behalf of [insert name of copyright owner] ("OWNER"),

which is the owner of the copyright to the above noted Work in the United States [if appropriate] and elsewhere throughout the world.

It has come to our attention that you are infringing upon OWNER's copyright by [describe how the Work is being infringed upon]. OWNER has reserved all rights in the Work, which was first published in [insert date], and has registered copyright thereon. Your work entitled "[name of infringing work]" (the "Infringed Work") infringes on the Work by clearly and the Work as a whole.

[Give examples – for instance, quote portions that are identical or nearly identical, give a summary of the points where each work is the same, etc.]

In our discretion that the Infringed Work constitutes copyright infringement in violation of 17 U.S.C. §501. On behalf of OWNER, we therefore demand that you immediately cease the use and distribution of all infringing works derived from the Work, and all copies, including electronic copies, of same. We also demand that you immediately forward to us all copied, unauthorized copies of same, or delete such copies immediately and that you do not make any further copies of same.

I that you provide a Work, as well

This is a copyright infringement notice. Get clued in on abandonware rules to avoid seeing one in the flesh.



Console yourself (or not)

Creating an artificial software environment in which a program's tricked into running successfully is one way to describe the resurrection of old PC games. It's also one way to describe console emulation on PC, which has a history as long as it is illegal.

Its origins date back to 1990, when programs such as Family Computer Emulator v0.35 allowed a handful of NES games to run on PC. Since then, almost every console has been emulated on PC, and even Nintendo's DS, with its unique control options, joined the ranks. As technical accomplishments, they're impressive, and there's

a subversive thrill in seeing another platform holder's ident appearing on a PC monitor. The key difference between using old PC games on a new PC and using old console games on a new PC is that you're breaking two sets of copyright laws when you do the latter. Consoles are closed platforms, and their games are licensed strictly for use on that very specific hardware. What constitutes a PC is open to interpretation, when you factor in the Raspberry Pi, Steam OS machines, office workstations, and quad-SLI gaming rigs. What constitutes a PlayStation 4 is not.



Tekken 2: Best on the console it was intended for, however possible it may be to run on PC.

There haven't been many legal cases, but when Sony tried to sue two PS1 emulators in the 1990s, an uneasy accord was established: Since an emulator doesn't re-use code, it's not illegal. The games are.

The legality gets trickier when considering discontinued platforms.

Arguably, since the Sega Saturn was discontinued long ago, it can be considered abandonware (along with its software library). But what if the platform comes back to life, as with Nintendo's SNES Mini? Steer clear, and concentrate on PC gaming's voluminous library instead.

abandonware here, but you can find Windows XP and older versions for free online, and Microsoft hasn't pursued any legal action against their distribution.

It's certainly preferable to be greeted by a familiar old interface when booting up games than it is to deal with DOSBox's black-and-white prompt windows, but VirtualBox does have something of an Achilles' heel: 3D graphics support. Its native support is 'experimental' (read: doesn't really work

Partition like it's 1999

Yep – partitioning your storage drive and installing an older operating system on to it might do the trick. This is overkill for the vast majority of troublesome retro games, because it's a complicated task that risks data loss if performed incorrectly. But if you really want those old Windows 98 themes and your favourite games, create a partition on your chosen disk, and mark it as active by navigating to the Boot tab in

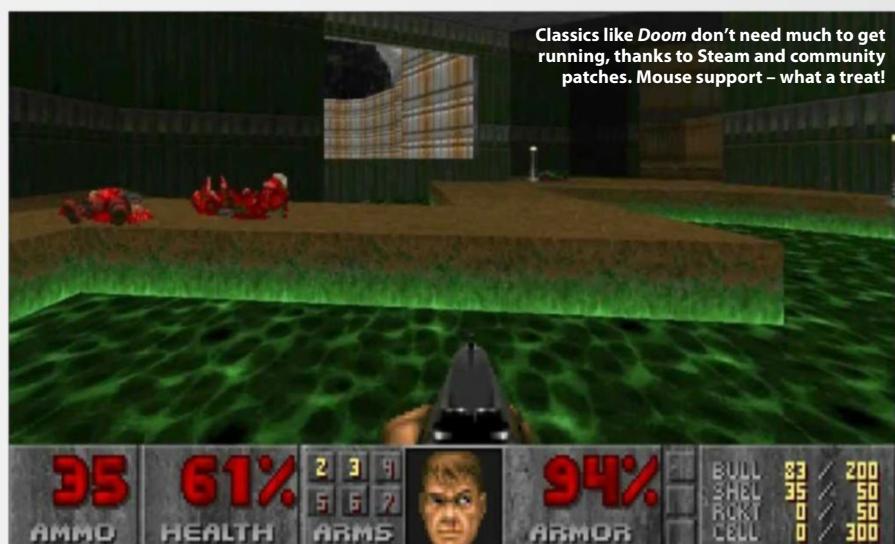
partition; <http://thpc.info> has a clear step-by-step guide on how to do this. Beware, though: Windows 98 and older won't have a clue about what to make of your modern hardware. You will have countless driver issues and ACPI conflicts. You will have to spend hours getting it to recognise your graphics card. But for some, the satisfaction of achieving a resolution beyond 640x480 pixels when those issues are resolved is reward in itself.

Summoning the gaming greats of yore can be a knotty problem, then, and there are many ways to untangle those knots. If the game in question falls under the DOS era, DOSBox should be your first port of call; if it doesn't, try searching for patches and fan fixes. Next, try compatibility mode. And if all else fails, well, your parents might still have that hearing-aid-beige Packard Bell tower in the attic. ■

"Remember when performing almost any action in Windows came with its own bespoke sound effect?"

with games), and its developers have long maintained that if the community wants 3DFX/Glide virtualisation, it's up to them to open-source it. Some members of that community have done exactly that – VirtualBox refers to this as Guest Addition content – but it's not a simple task to install it, particularly when working in older operating systems. Having installed your OS via disc or image, restart your PC in Safe Mode with Networking and navigate to the Guest Additions file on VirtualBox's site, then unzip and install it. Sounds simple, but if you're on Windows 95, there are many compatibility hurdles to overcome when using an unzipping program or downloading the file. Even when successfully installed, 3D acceleration is prone to crashing in VirtualBox, and has major performance issues that will impact your enjoyment of the game. If you have your heart set on experiencing old games through a trusty old operating system, though, there is another – and better – way.

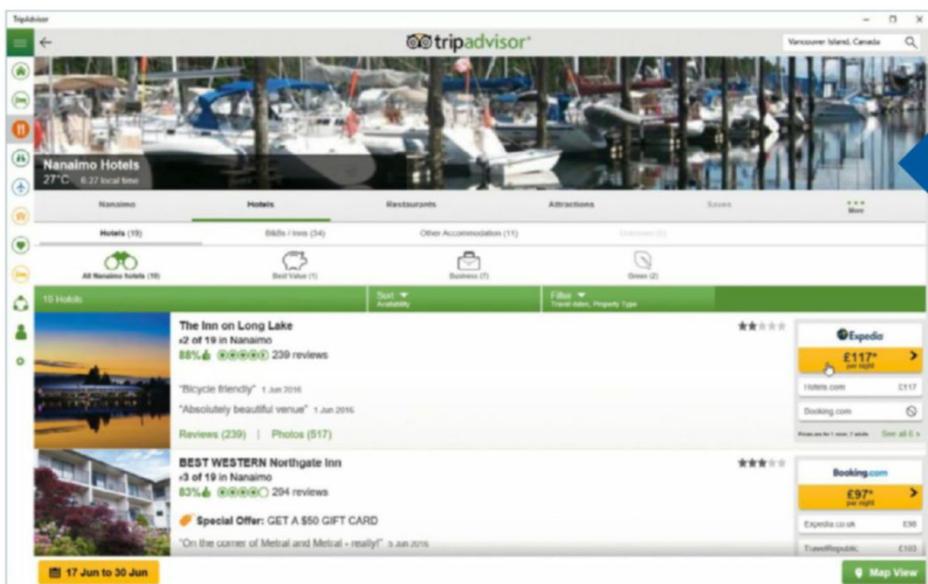
Windows System Configuration, highlighting the desired partition, and selecting 'Set as default'. Then reboot and use an old OS disk to install it to the



Classics like Doom don't need much to get running, thanks to Steam and community patches. Mouse support – what a treat!

25 BEST APPS

Nick Peers shares the 25 best apps for Windows 10. Download them now and get more from your PC today!



Plan your next trip

Whether you need help with travel, days out, hotels or things to do while on holiday, the TripAdvisor app (free, Microsoft Store) has you covered. Not only can you find what you're looking for, but you can book directly through the app too, comparing prices to get the best possible deal. Look out for the areas of interest section, giving you ideas for your next break.

Faster, easier web browsing

All web browsers are pretty much the same, aren't they? Not really. Opera (www.opera.com) has made a striking bid for uniqueness with a sleek, simple interface and the ability to sync your settings between multiple devices. Also, recent updates have introduced native ad-blocking, VPN for secure browsing and power-saving for laptops and tablets.

The screenshot shows the BBC Sport website. The main navigation bar includes links for Home, Football, Formula 1, Cricket, Rugby U, Rugby L, Tennis, Golf, Athletics, Sports Personality, My Sport, and All Sport. The main content area features a large image of two men, likely coaches, with the text 'LIVE Build-up to Premier League weekend'. Below this, there are several smaller images and headlines: 'Baird will take matters further if sledging crosses the line again', 'Watch: Bobsleigh & Skeleton World Cup - GB's Dom Parsons in men's skeleton action', and 'Premier League takes on Saturday prime-time in new TV rights package'. A green 'GOSSIP' box is visible on the right.

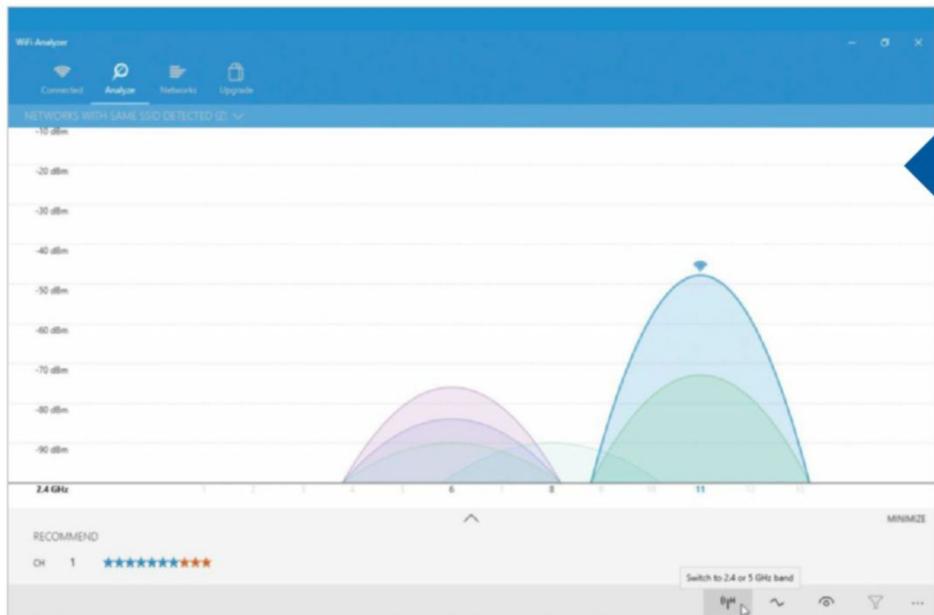
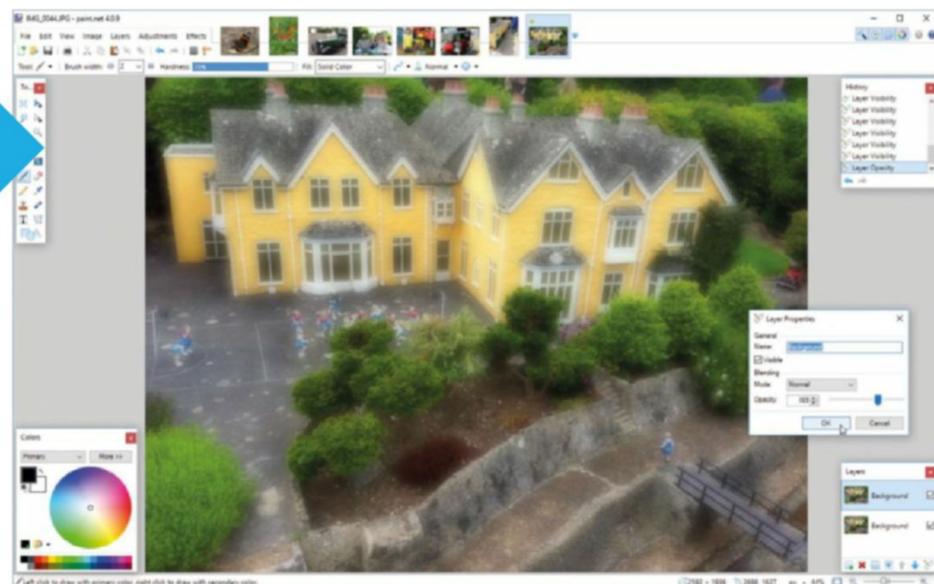
The screenshot shows the Audible app library. The left sidebar includes 'Audible', 'Search', 'History', 'Recommended', 'New', 'Stats', 'Shop', 'Settings', and 'Help'. The main area displays a grid of audiobook covers. One cover for 'Dirk Gently' by Douglas Adams is highlighted with a dropdown menu showing options like 'Download', 'View Summary', 'Tag this title as finished', and 'Rate and Review'. At the bottom, there's a playback control bar showing a progress bar and the text 'Michael McIntyre 00:48:24 left in ch. 1'.

Listen to audiobooks

One of the best ways to kill long, tedious journeys – particularly if you're driving – is with an audiobook. And the go-to place for getting digital audiobooks is Amazon's Audible. Install the Audible app (free, Microsoft Store) on your PC and you can buy, manage and – crucially of course – listen to your purchases on your computer too.

Image-editing for experts

If you want a complete set of professional-level editing tools without the cost, then Paint.NET (free, www.getpaint.net) is the best there is. Support for multiple layers, powerful filters and the ability to extend its capabilities further with a series of community-written plugins make Paint.NET an essential tool in anyone's creative toolkit.

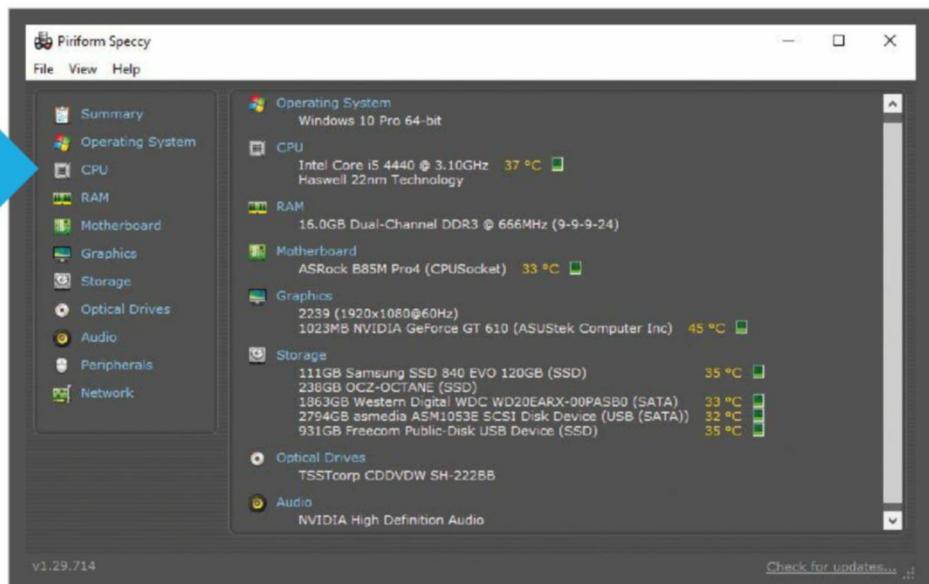


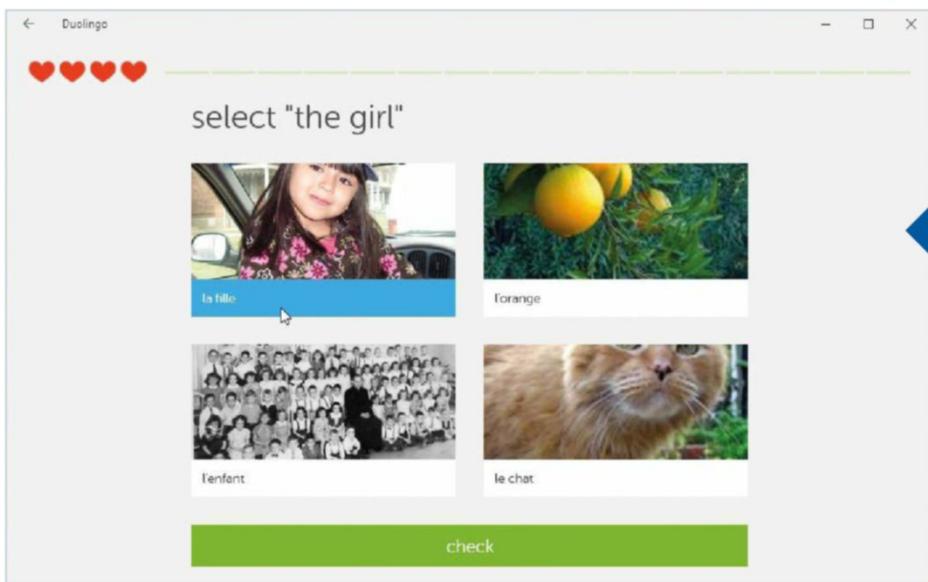
Improve your Wi-Fi signal

One of the biggest problems with wireless connections is the overlapping of networks, causing dropouts and performance issues. Wi-Fi Analyzer (free, Microsoft Store) provides you with a handy summary of your network, plus lets you compare it to other networks, suggesting the best channel to switch it to in order to minimise interference and boost performance.

Get useful system info

Want to find out more about the makeup of your PC? Need to keep an eye on the temperature of your computer while you're running intensive tasks? Install Speccy (free, www.piriform.com) and it'll reveal all kinds of useful detail, not just about the hardware in your system, but also Windows itself (including your product key).



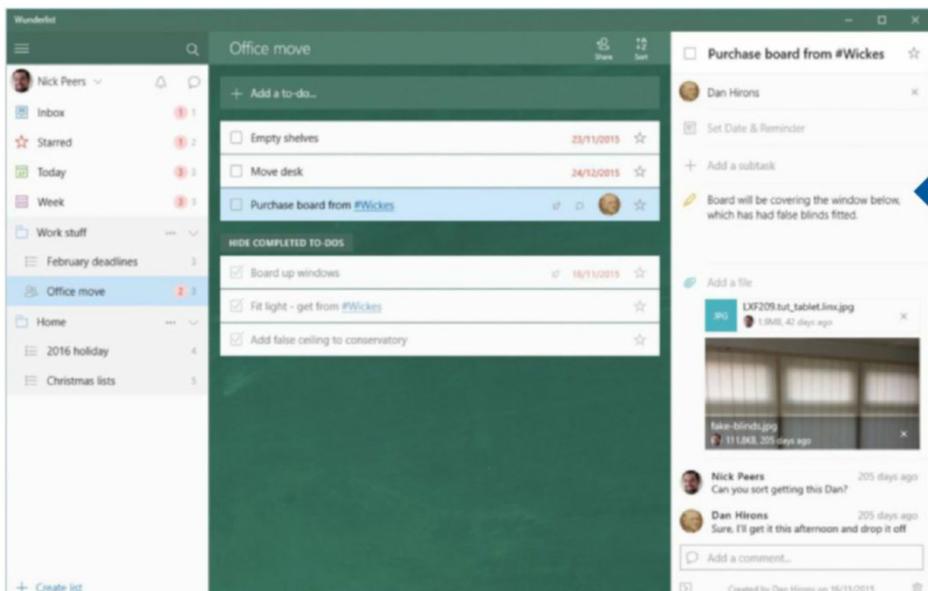
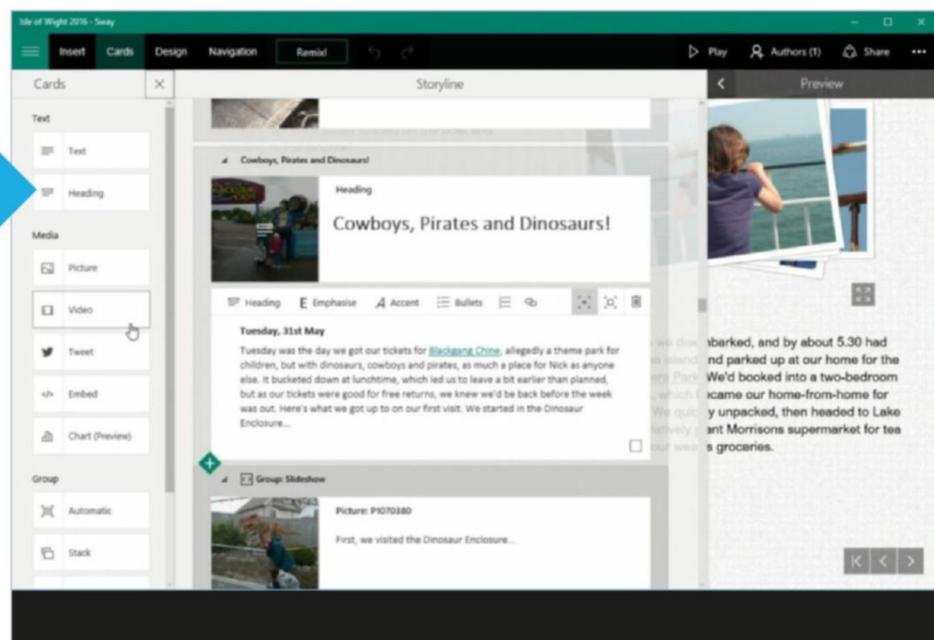


Learn new languages

Need to brush up on your linguistic skills, or want to learn a new language from scratch? DuoLingo (free, Microsoft Store) is the perfect, easy-to-follow tool that'll teach you up to 12 new European languages in a series of lessons divided into modules and tests. Visit www.techradar.com/1314224 for a complete guide.

Make stunning presentations

Looking for an original way to showcase your last holiday, or share a family story? Perhaps you want to wow someone with a presentation. Microsoft Sway (free, Microsoft Store) enables you to blend together text, photos, videos and other elements – such as embedded maps – in an eye-catching presentation you can share online. It does all the hard work of laying them out too.

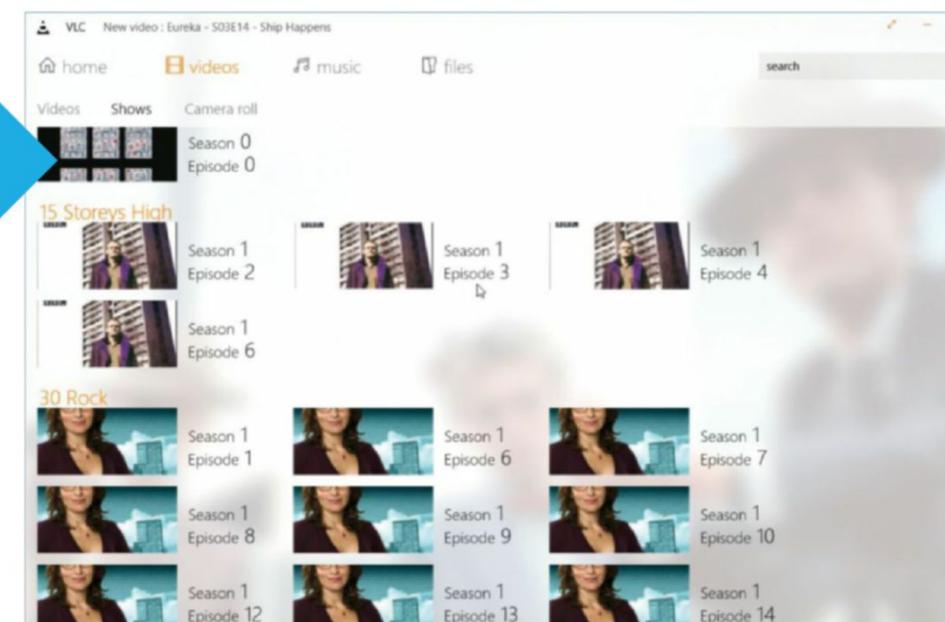
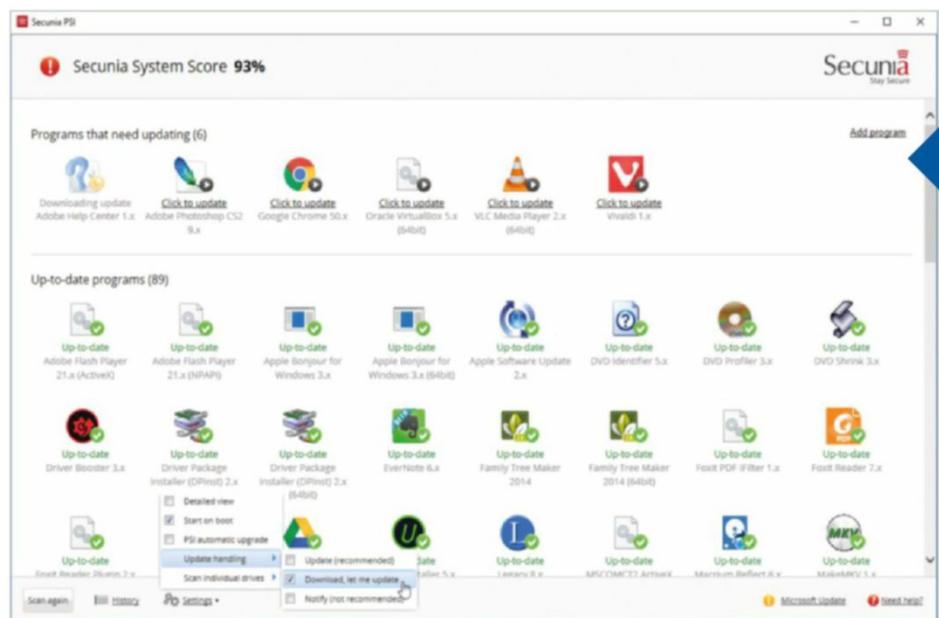


Project-manage with ease

Wunderlist (free, Microsoft Store) is a powerful cross-platform tool that makes it easy to plan and manage everything from small tasks to huge projects in one place. Everything's organised into folders, lists and to-do items, all of which can be assigned to individuals, with deadlines, notes, attachments and more. You'll never have to remember anything again.

Play any video

Want to be able to play just about any video file without having to find a suitable player? Install VLC for Windows (free, Microsoft Store) and you can add your music and video libraries and play pretty much any format you come across. Need to play DVD videos too? Install the desktop version from www.videolan.org/vlc instead.

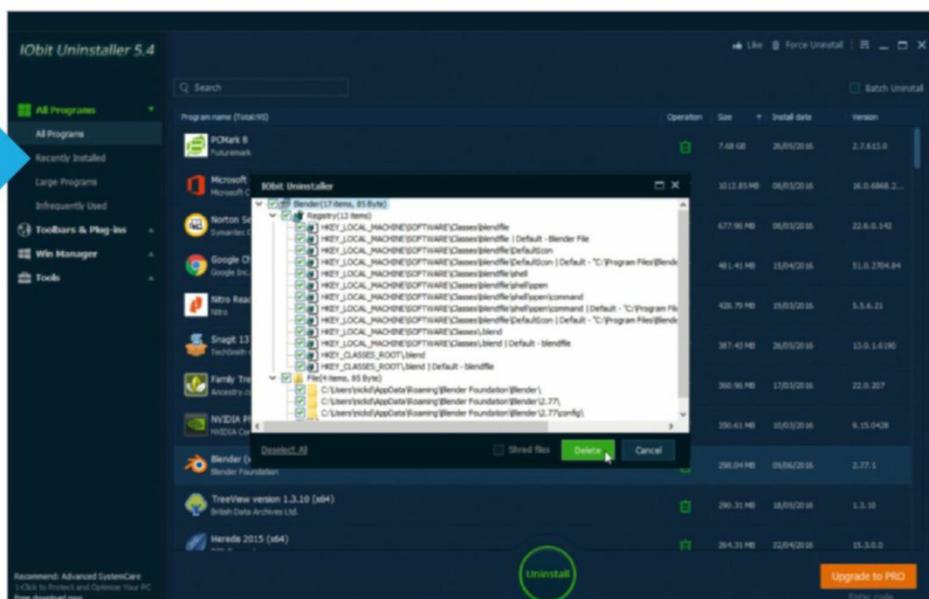
The screenshot shows the Secunia Personal Software Inspector (PSI) application window. At the top, it displays a 'Secunia System Score 93%'. Below this, there are two main sections: 'Programs that need updating (6)' and 'Up-to-date programs (89)'. In the 'Up-to-date programs' section, there is a list of 89 programs, each with a green checkmark icon and a small preview image. Some items have additional options like 'Detailed view', 'Starts on boot', 'PSI automatic upgrade', 'Update handling', 'Scan individual drives', 'Download, let me update', and 'Notify (not recommended)'. At the bottom of the window, there are buttons for 'Scan again', 'Settings', and 'Microsoft Update'.

Keep apps up to date

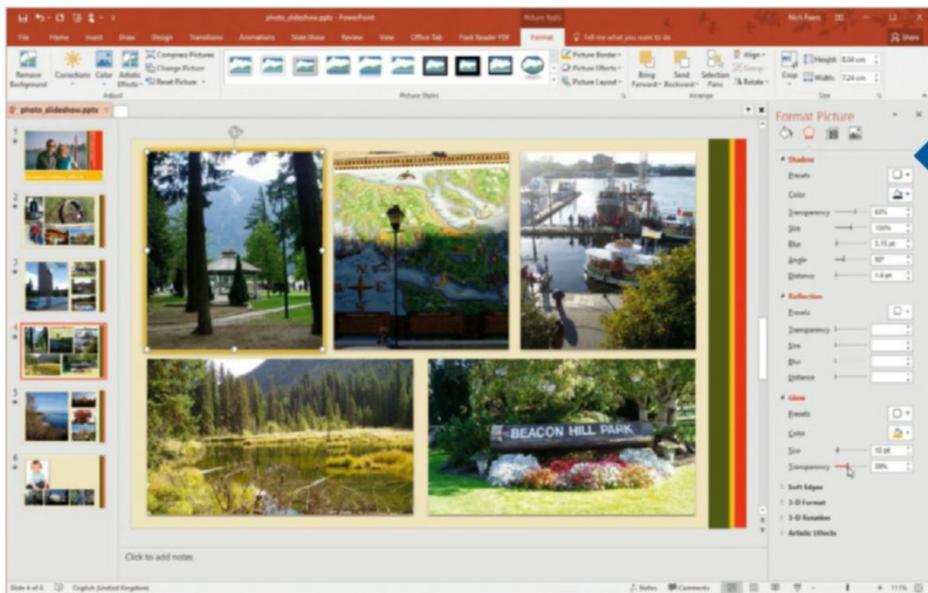
Free software updates don't just fix bugs and plug security holes, they often add new features too. Make sure you're not missing out by installing Personal Software Inspector (free, <http://bit.ly/softinspector>). It can silently keep apps updated in the background, or you can configure it to alert you when updates become available so you stay in full control of the process.

Remove programs thoroughly

Once you've installed a few of these great apps you may discover one or two you don't really use. Make sure they're completely removed – along with other unwanted apps – with the help of IObit Uninstaller (free, www.iobit.com/en/advanceduninstaller.php). Its powerful scan removes leftover files and Registry entries – just make sure you untick the option to install the full Advanced SystemCare suite during installation.



The screenshot shows the IObit Uninstaller 5.4 software interface. On the left, there is a sidebar with categories: 'All Programs', 'Recently Installed', 'Large Programs', 'Toolbars & Plug-ins', 'Win Manager', and 'Tools'. The main area shows a list of installed programs with their details: name, operation (Delete, Shred File, or Delete), size, install date, and version. One program, 'Blender', is selected, and its registry keys are shown in a detailed tree view. A 'Delete' button is highlighted with a red arrow. At the bottom, there are buttons for 'Deselect All', 'Shred File', 'Delete', 'Cancel', 'Uninstall', and 'Upgrade to PRO'. A note at the bottom left recommends 'Advanced SystemCare'.

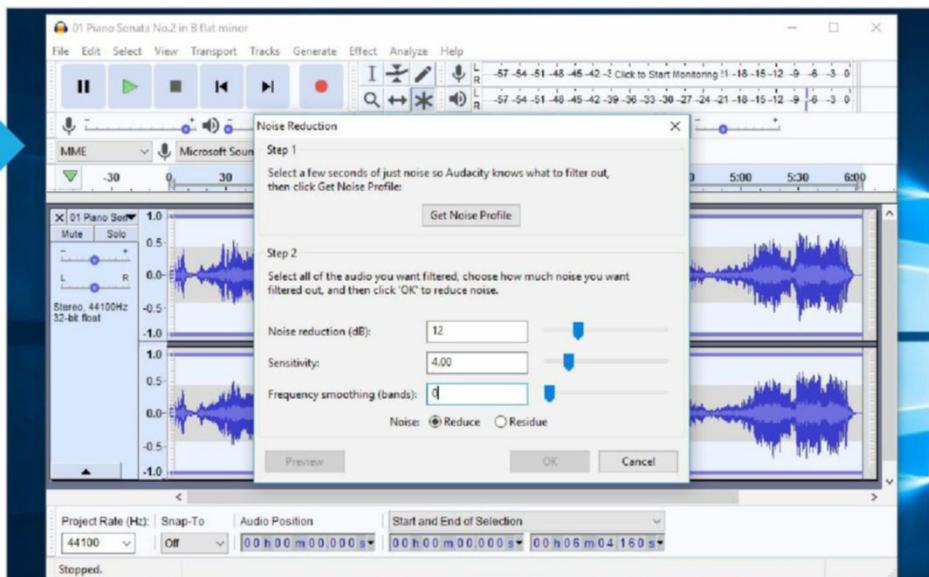


Office for all the family

Free office suites are all well and good, but Microsoft Office 365 Home (£7.99/mo, www.office.com) is exceptional value considering it covers five PCs and Macs in your home, plus gives you 1TB storage on OneDrive. You get the latest versions of Office, plus you can install powerful mobile versions on up to five tablets and five phones too.

Record and edit audio

Want to record narration or edit an existing audio file? The best tool for the job is Audacity (free, www.audacityteam.org). You can record through a mic, capture streaming audio or – with the right cables – capture sound from an external source such as a cassette player or turntable. Then use Audacity's powerful tools to trim, edit and fix noise-related issues like hiss.



LastPass...!

Your Vault
All
Sites
Secure Notes
Form Fills
Search

Favourites
account.cooperativeenergy.coop
accounts.ebuyer.com
ancestry.co.uk
uk.webuy.com

(none) (1 - 200)
123-reg.co.uk
1911census.co.uk
192.168.35.1
192.168.35.105
192.168.35.2
192.168.35.201
192.168.35.202

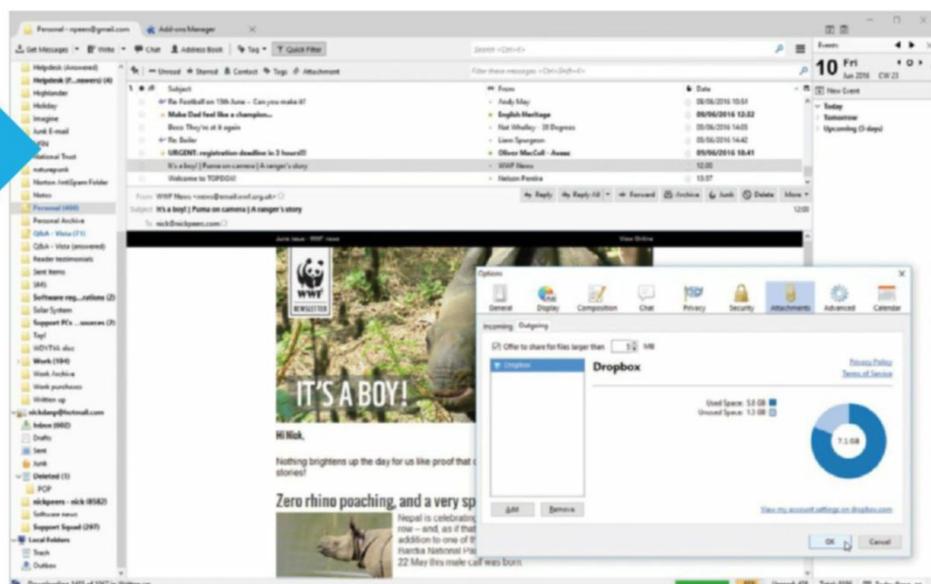
Browser Add Site Add Note Add Form Fill Edit Delete Copy Username Copy Password Help

Manage your passwords securely

If you use LastPass Premium (US\$24/year, www.lastpass.com) to keep your online passwords safe and easy to access, but don't want to have to open your browser to get at them, install the LastPass app (free, Microsoft Store). This enables you to view your passwords, secure notes and form fillers – copy and paste them into another app window, plus edit them too.

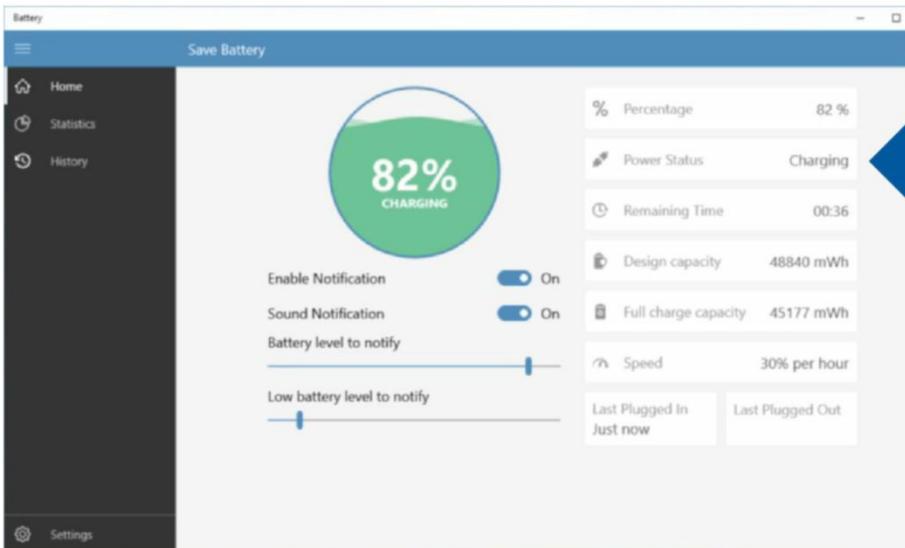
Manage your email

Looking for a versatile email client that works with just about any email account? Thunderbird (free, www.getthunderbird.com) offers all the core functionality you need, plus some handy extras like linking large email attachments (via third-party plug-ins) to your cloud storage, making them easy to share with others without clogging up inboxes.



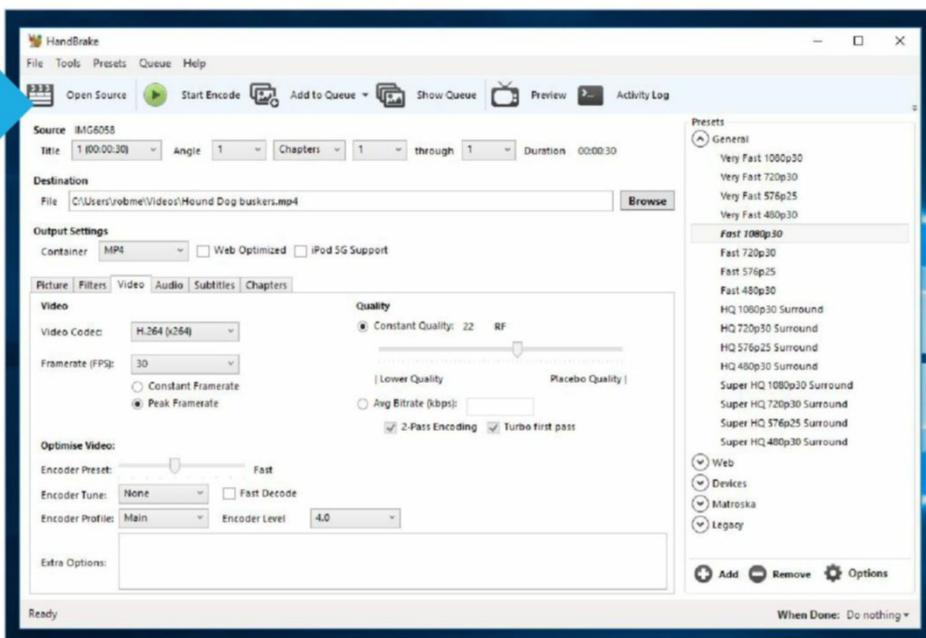
Detailed battery stats

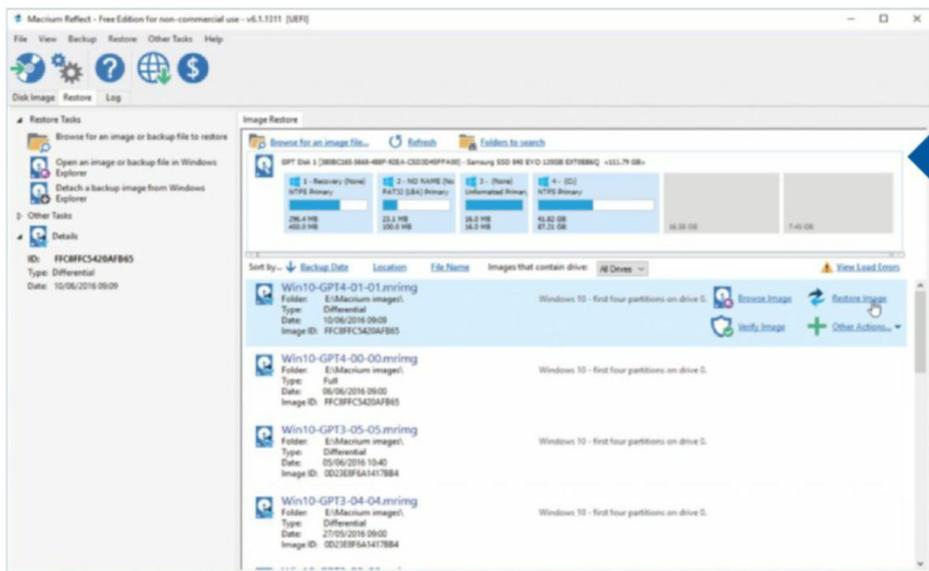
The Battery taskbar notification area icon provides basic detail about your laptop's battery. Install Save Battery (free, Microsoft Store) and you can access lots more useful detail, such as when it was last plugged in, its discharge rate and overall health. You can set battery alerts too, but the history feature requires upgrading to the Pro version (£1.19).



Rip and convert video

Sometimes you need video files in a specific format so they'll work with your phone or another device. MP4 is the most common format around, and Handbrake (free, www.handbrake.fr) can convert video from most formats into MP4 – it can even be used to quickly optimise video for playback on specific devices too.



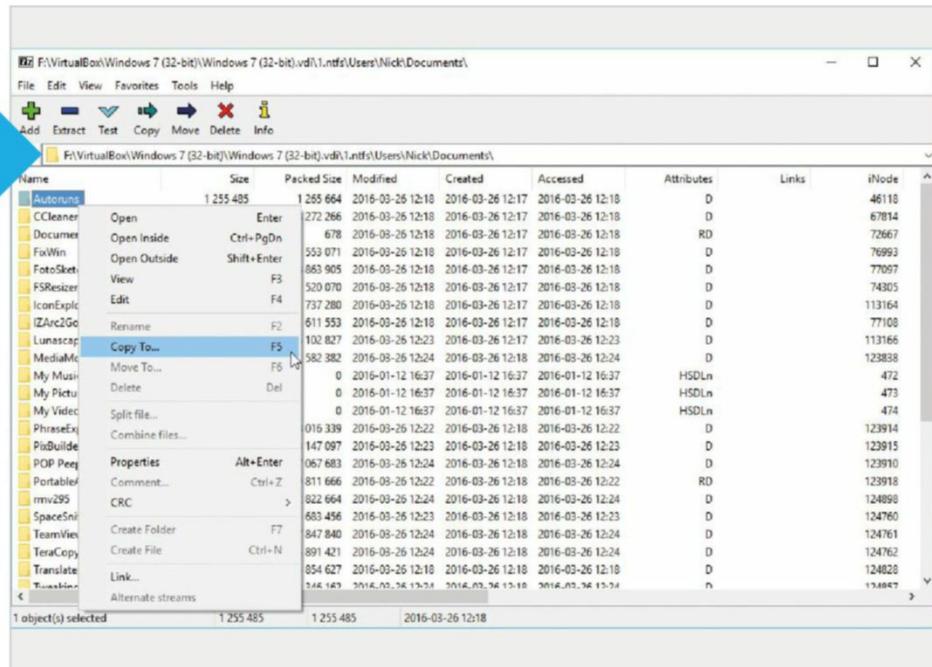


Take a failsafe backup

What happens if you're forced to reinstall Windows? Even if your data is backed up or stored on a different drive, the time taken reinstalling all your programs and settings after the event can take hours. Take a full system image using Macrium Reflect Free (free, www.macrium.com/reflectfree.asp) and you need never worry about losing programs, settings or data again.

Open any compressed file

Windows 10 ships with built-in support for ZIP files, but what happens if you come across a different kind of compressed file – such as .rar or .7z? Don't worry, 7-Zip (free, www.7-zip.org) will enable you to not only access these file archives, it can also peek inside virtual drives and create archives in common formats too.

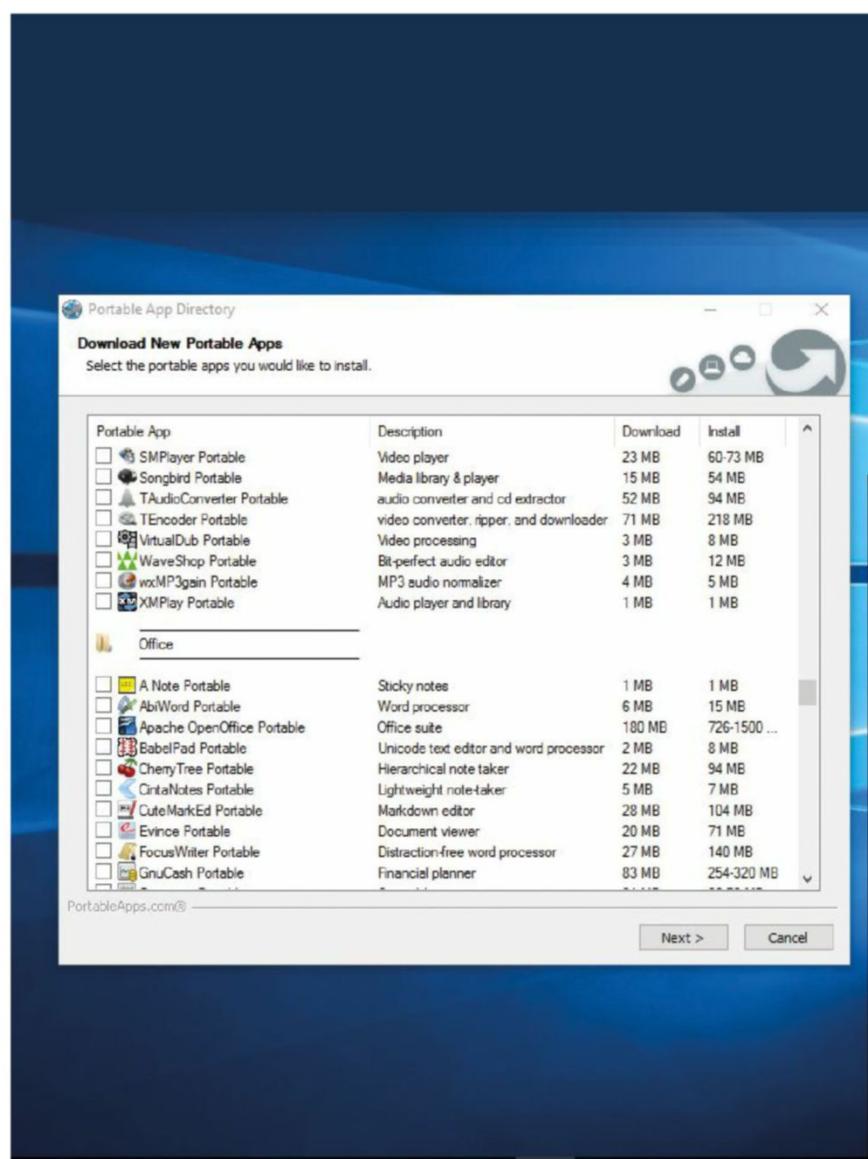


The screenshot shows the CCleaner interface. At the top, it says 'Analysis Complete - (25.816 secs)' and '848 MB to be removed. (Approximate size)'. Below that is a table of files to be deleted:

	Name	Size	Packed Size	Modified	Created	Accessed	Attributes	Links	iNode
1	Autodesk	1 255 485	1 255 664	2016-03-26 12:18	2016-03-26 12:17	2016-03-26 12:18	D		46110
2	CCleaner	272 266	272 266	2016-03-26 12:18	2016-03-26 12:17	2016-03-26 12:18	D		67814
3	Document	678	678	2016-03-26 12:18	2016-03-26 12:17	2016-03-26 12:18	RD		72667
4	FaxWin	553 071	553 071	2016-03-26 12:18	2016-03-26 12:17	2016-03-26 12:18	D		76993
5	FotoSketch	865 905	865 905	2016-03-26 12:18	2016-03-26 12:17	2016-03-26 12:18	D		77097
6	FSResizer	520 070	520 070	2016-03-26 12:18	2016-03-26 12:17	2016-03-26 12:18	D		74305
7	IconExplorer	737 280	737 280	2016-03-26 12:18	2016-03-26 12:17	2016-03-26 12:18	D		113164
8	IZArc2Go	611 553	611 553	2016-03-26 12:18	2016-03-26 12:17	2016-03-26 12:18	D		77108
9	Lunascape	102 827	102 827	2016-03-26 12:23	2016-03-26 12:17	2016-03-26 12:23	D		113166
10	MediaMonkey	582 382	582 382	2016-03-26 12:28	2016-03-26 12:18	2016-03-26 12:24	D		123888
11	My Music	0	0	2016-01-12 16:37	2016-01-12 16:37	2016-01-12 16:37	HSDLn		472
12	My Pictures	0	0	2016-01-12 16:37	2016-01-12 16:37	2016-01-12 16:37	HSDLn		473
13	My Videos	0	0	2016-01-12 16:37	2016-01-12 16:37	2016-01-12 16:37	HSDLn		474
14	PhraseExpress	016 339	016 339	2016-03-26 12:22	2016-03-26 12:18	2016-03-26 12:22	D		123914
15	PinBuilder	147 097	147 097	2016-03-26 12:23	2016-03-26 12:18	2016-03-26 12:23	D		123915
16	POP-It!	067 683	067 683	2016-03-26 12:24	2016-03-26 12:18	2016-03-26 12:24	D		123910
17	Portable	811 666	811 666	2016-03-26 12:22	2016-03-26 12:18	2016-03-26 12:22	RD		123918
18	rmv295	822 664	822 664	2016-03-26 12:24	2016-03-26 12:18	2016-03-26 12:24	D		124898
19	SpaceSniffer	683 456	683 456	2016-03-26 12:23	2016-03-26 12:18	2016-03-26 12:23	D		124760
20	TeamViews	847 840	847 840	2016-03-26 12:24	2016-03-26 12:18	2016-03-26 12:24	D		124761
21	TeraCopy	891 421	891 421	2016-03-26 12:24	2016-03-26 12:18	2016-03-26 12:24	D		124762
22	Translate	854 627	854 627	2016-03-26 12:18	2016-03-26 12:18	2016-03-26 12:18	D		124828
23	Truecaller	244 163	244 163	2016-03-26 12:24	2016-03-26 12:18	2016-03-26 12:24	D		124847

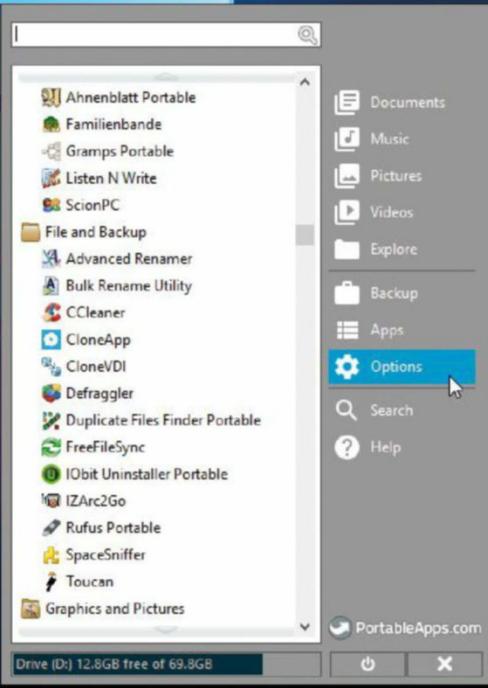
Clean out your PC

We often need reminding to keep storage drives free from clutter, so it keeps your PC running as efficiently as possible. Trimming startup programs and cleaning out various parts of your computer will help achieve maximum speed. CCleaner (free, www.piriform.com) will help you stay on top of system maintenance and prevent slowdown.



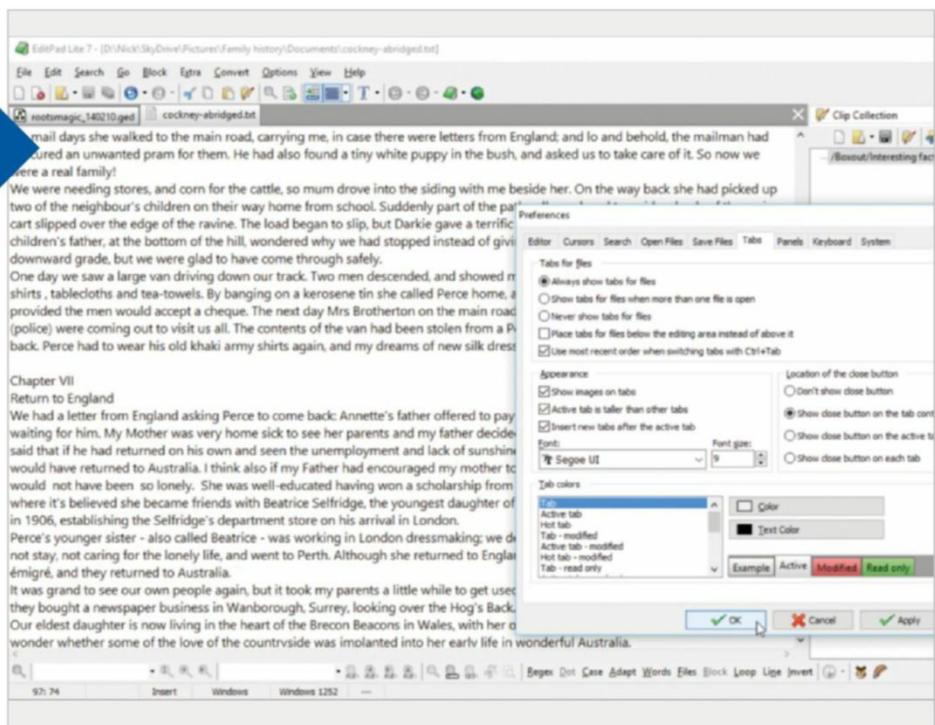
Embrace portable applications

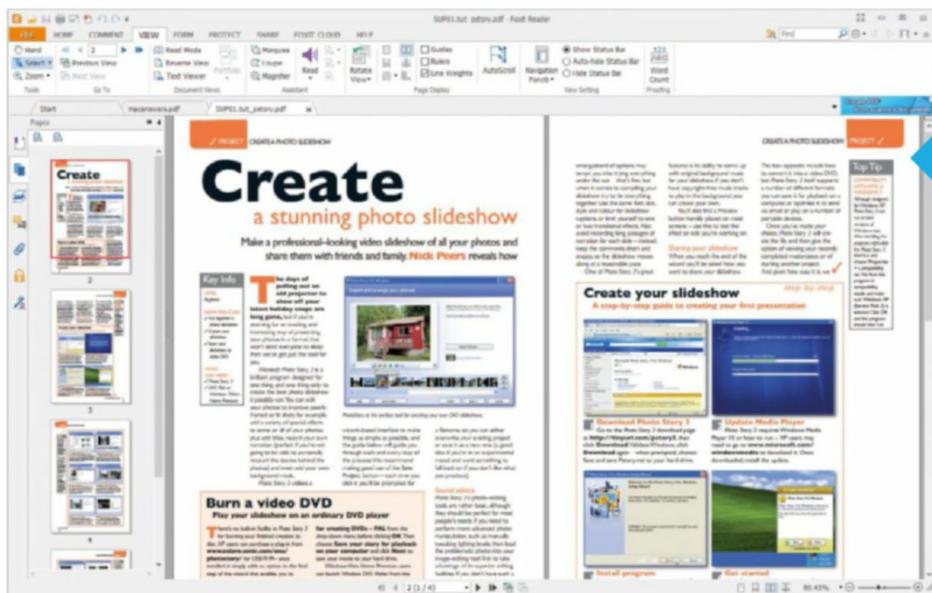
We love portable apps – these are special versions of programs that contain themselves to a single folder on your PC, with no Registry entries or files cluttering up other directories, enabling them to be run on other PCs from a USB drive. Use the PortableApps Platform (free, www.portableapps.com) to find and manage these via a Start menu-like interface.



Edit text with style

Notepad is fine for basic text-editing, but if you're looking to step up, then EditPad Lite (free for personal use, www.editpadlite.com) is an essential upgrade. Open multiple files in tabs and switch between them, enjoy unlimited undo and automatic backups as you type, plus store multiple text snippets for easy access via the Clip Collection.





View and create PDFs

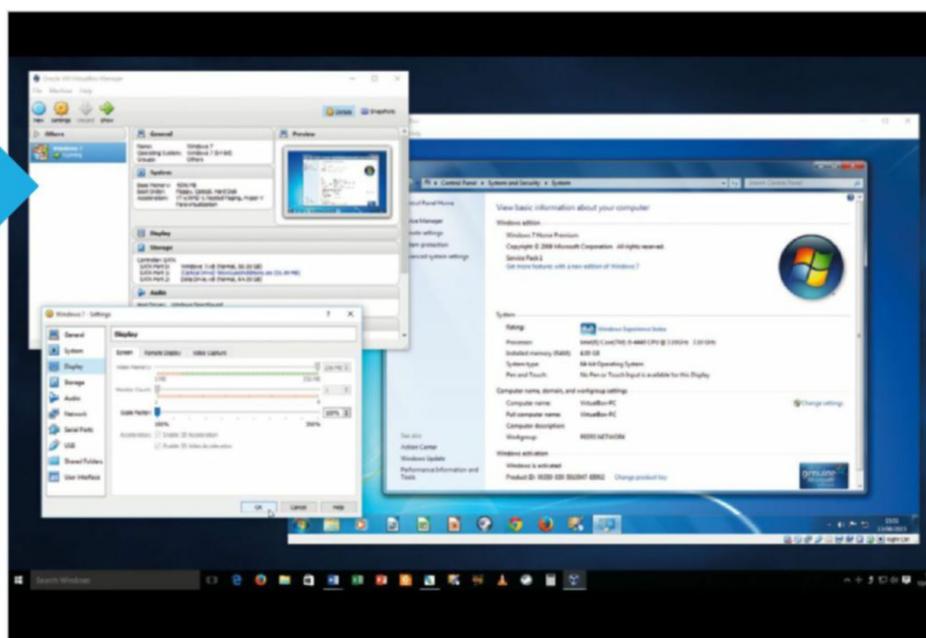
PDFs ensure that documents you share look the same on whichever computer or platform they're viewed on. These days, all good free PDF reader tools can create PDFs from other sources too, and our current favourite is Foxit Reader (free, www.foxitsoftware.com), which also has the benefit of being light on system resources and it's extremely fast too.

A screenshot of Microsoft OneNote. The left sidebar shows a table of contents with sections like 'Early life', 'War record', 'Unit photos', 'Photos from the...', 'Australia', 'Back home again - working life', '1928-1946', and 'Newspaper'. The main page is titled 'War record' and contains a detailed document about a soldier named Percy Pink. It includes sections for 'PAGE 1', 'Reportedly signed up by Boy's Brigade Leader', and a scanned image of a historical document. The ribbon menu at the top includes Home, Insert, Draw, View, and various toolbars for drawing and shapes.

Super-powered note-taking

Simplenote is great for quick notes, but if you want a fully featured digital notebook with support for annotations, photos, lists and even freehand sketches, then Microsoft OneNote (free, Microsoft Store) is a better bet. You can even transfer content from other apps, services and websites via a variety of third-party tools (including Microsoft Edge).

A screenshot of the VirtualBox application interface. It shows several virtual machines running simultaneously. One window is in the foreground displaying the Windows 10 desktop environment. Other windows show file explorers and other applications running within the virtual machines. The host operating system's taskbar is visible at the bottom.



Meet the... Support Squad



Support!

► WINDOWS HELP ► HARDWARE FIXES ► SOFTWARE SOLUTIONS ► INTERNET TIPS



Do you have a
PC problem?
Get in touch...

Email full details of your
problem to the
support team and we'll
do our best to help
windowshelp@futurenet.com

Windows FOLDER WINDOWS APPEAR ON STARTUP

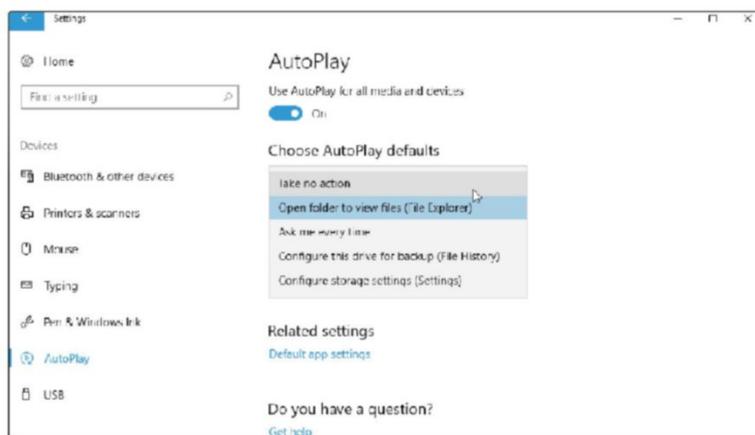
Q Some weeks ago – and with no apparent reason – Windows started opening folder windows on startup. It doesn't happen every single time Windows loads, but I consulted some online experts who copied and pasted some code to make changes to the Registry. I'm a little wary of this as the instructions were rather vague.

Can you assist please?
Ian McAndrew

Mayank's solution
We instructed Ian to first verify the problem wasn't linked to any start-up programs. To this end he installed BootRacer (www.greatis.com/bootracer/) and enabled Startup Control. This not only lists start-up programs as they're being loaded, it implements a 10-second

delay before starting them to give Windows time to finish setting itself up. The windows all appeared during this initial delay, which indicated that the problem was with Windows itself.

There are a few Registry entries that – if altered incorrectly or missing – can cause File Explorer windows to appear. But even after correcting these, Ian was still plagued with three pop-up windows, all pointing to different external hard drives. Ian checked Start > Settings > Devices > AutoPlay and set the default AutoPlay behaviour for removable drives to 'Take no action'. On rebooting Windows, the three remaining pop-up windows completely vanished.



**POP-UPS
AT START**
Disable AutoPlay
for removable
drives if they
show up at boot.

Security STRANGE POP-UP CERTIFICATE WARNING

Q I've started getting a pop-up window referring to an invalid certificate pointing to *.brll.com. I keep clicking No, but it keeps popping back up. Can you help me



BROWSER UPGRADE
IE11 is no longer offered as a default web browser in Windows.

Quickfire questions

Can you recommend an alternative to Photoshop that I can use to open Photoshop's PSD files please?

Peter Franklin

Get Paint.NET (www.getpaint.net) and install the free PSD Plugin (www.psdplugin.com/), which enables you to open and save PSD files.

I've installed Opera specifically for its VPN function, but I can't find it anywhere.

Harriet Lombard

You need to enable it first. To do that, select Menu > Settings > 'Privacy & security' and tick Enable VPN. Then click the VPN icon in the Address bar to switch it on.

"The windows all appeared during this initial delay, which indicated that the problem was with Windows itself"

identify what this is and whether it's malicious or not?
Ona Orozco



Rob's solution

This is linked to your attempts to access a specific website, or more precisely a specific component on that page – typically an advert. Both AOL and Yahoo! sites have been cited as possible sources for this certificate error, but it will be the advert rather than the site. Installing an ad-blocker (or using a browser with built-in ad-blocker support such as Opera) should hopefully resolve the problem.

Internet

EMAILS WON'T OPEN IN INTERNET EXPLORER

Q When I receive an email that requires me to click a link (for example to view a bill or access a community group on Facebook), it always opens in Edge. I have set Internet Explorer 11 as my default. I have Dashlane installed, which doesn't appear to work in Edge, hence the other browser. Do you any ideas on how to resolve this?
C Tropman



Cat's solution

There is a Dashlane extension for Edge, which you can install from the Microsoft Store (<http://bit.ly/2B5EYuH>), but we'll assume

you've done this and it isn't working properly. There's an Edge FAQ at <https://support.dashlane.com>, but it's not particularly illuminating. You could try the email contact if you have more details to share about the problem in question.

The problem with your email redirecting to Edge is linked to your use of Internet Explorer 11. The program is heavily deprecated now and is no longer available as an option for default web browser under Settings > Apps > Default

HIDDEN ADMIN
Enable the hidden admin account through the Command Prompt.

Jargon buster!

► VPN

Stands for Virtual Private Network, and provides an encrypted Internet connection, even on insecure networks such as public Wi-Fi hotspots.

► Web certificate

Proves a site's identity when it's used to provide a secure and encrypted connection.

```
C:\Administrator: Command Prompt
Microsoft Windows [Version 10.0.16299.64]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>net user Administrator /active:yes
The command completed successfully.

C:\WINDOWS\system32>
```

Quickfire questions

My laptop's keyboard has suddenly stopped working – in Windows at least. I can still use it to log in, but then it simply doesn't respond. My mouse continues to work fine.

Martin Caldicott

This is often caused by the Filter Keys feature being switched on – to fix it head to Start > Settings > 'Ease of Access' > Keyboard and flick the switch off.

I've embedded artwork directly into my FLAC music files, but my music player keeps displaying different images. Why is that?

Stewart McCluskey

Open File Explorer, navigate to your Music folder and search for folder.jpg. Delete any files you find there. Also make sure that your music player is configured to fetch local art only rather than web art to prevent them being replaced.

I used to encrypt my Thunderbird email using Enigmail, but I've switched to webmail. Is there something similar for my browser?

George Price

Try Mailvelope (www.mailvelope.com/en), a plugin for Google Chrome and Firefox, which is preconfigured for most popular webmail providers, including Gmail, Outlook.com and Yahoo.

apps. The best workaround then is to try a modern browser such as Mozilla's Firefox Quantum (www.getfirefox.com) or Google Chrome (<https://chrome.google.com>), both of which can handle Windows 10 while also supporting the Dashlane password extension.

Applications

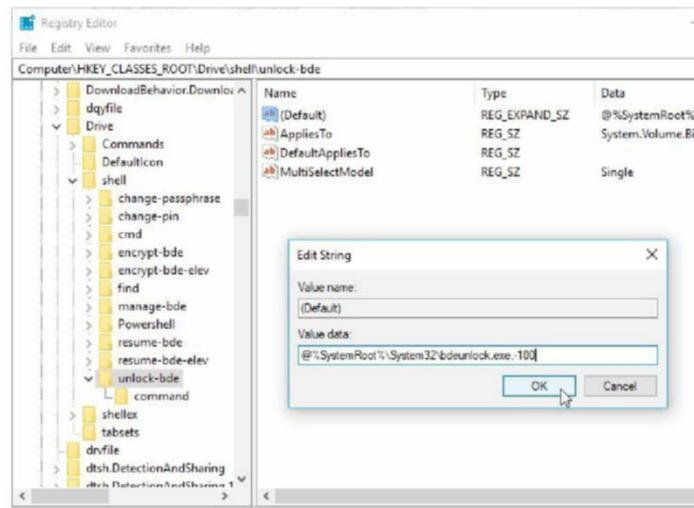
VIRTUAL TECHNICIAN WON'T RUN

Q My Windows 10 upgrade has come unstuck after running like 'oiled silk'. After safely installing McAfee Anti-Virus, I tried and failed to install the complementary Virtual Technician package. McAfee's technicians point the blame firmly at Windows 10, with numerous errors in the Event logs pointing to 'Microsoft Jscript runtime error 800a01a08'. Can you suggest anything I can do to resolve this problem?

John Ellinghouse

Nick P's solution

 McAfee's technicians are being a bit disingenuous blaming Windows 10 – a search online revealed the error had been reported as far back as 2010, with the finger firmly pointed at the Virtual Technician program itself. We had no problems downloading and running the tool this end, and after a virtual chat with Microsoft, John returned to McAfee. This time, the problem was transferred up the ladder and after enabling the hidden administrator user account, Virtual Technician was installed successfully (and works correctly across all user accounts). John revealed that his user account is now seven years old, and originated back in Windows 7 – with this in mind, it's not surprising that occasional glitches like this occur.



FIX BITLOCKER

You can restore BitLocker Drive functionality via the Registry.

Windows BITLOCKER DRIVE PROBLEM

Q When I plug in my encrypted USB flash drive and click on the padlock icon I get an 'Application not found' error message. I would appreciate your assistance please!

John Wallis

Matt's solution

 John had encrypted the USB drive using BitLocker as part of a prior Windows 7 Ultimate installation. The problem occurred on a laptop running Windows 10 Pro. By opening the BitLocker Drive Encryption Control Panel – type 'bitlocker' into the Search box – he was able to manually unlock the drive and access its contents through there.

Thankfully, a permanent fix to the error message is also available, involving a trip into the Registry (type 'regedit' into the Search box to locate Registry Editor). Visit <https://support.microsoft.com/kb/2748266/> for a detailed

RESTORE ACCESS TO CONTROL PANEL APPLETS

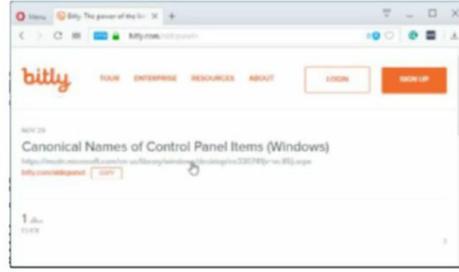
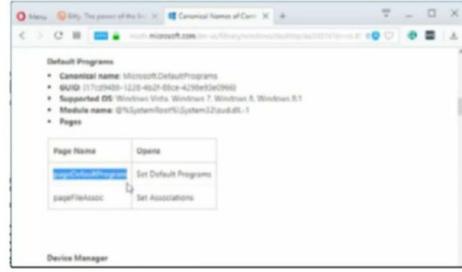
Q What happened to the old 'Set Default Programs' Control Panel applet? When I click the shortcut it now diverts me back to the rubbish Settings dialog!

William Yearst



Cat's solution

The Windows 10 Fall Creators Update sees yet more old Control Panel items retired in favour of the new Settings dialog. Luckily, the underlying features are still there – our step-by-step guide reveals how to access them.

1 Visit website

Open your web browser and type '<https://bit.ly/oldcppanel>' – we've created this Bit.ly shortlink that points towards the 'Canonical Names of Control Panel Items' page on the Microsoft MSDN website. Simply click the link to visit it.

2 Locate item

All items – including those deprecated in recent versions of Windows 10 – are listed here. Scroll down and click the Control Panel item you're looking for, then make a note of its canonical name plus the page name that you want to access.

explanation of what causes the problem, but in the meantime, navigate to the following Registry key: HKEY_CLASSES_ROOT\Drive\shell\unlock-bde. Double-click the (Default) value and change it to: @%SystemRoot%\System32\bdeunlock.exe,-100

Now expand the Command key on the left, double-click (Default) and change that to:

%SystemRoot%\System32\bdeunlock.exe %1

Close Registry Editor and BitLocker should work correctly again.

Security WI-FI WORRIES

Q I've seen a few emails and texts about a Wi-Fi vulnerability doing the rounds. What is it, and should I be concerned by it?

Debbie Steadman



Rob's solution

There's a reasonable summary of the threat – dubbed KRACK (Key Reinstallation AttaCK) – at the TP-Link website (<http://uk.tp-link.com/faq-1970.html>) Long story short, while the vulnerability is concerning, you need to remember that a potential hacker would have to be physically within your network's Wi-Fi range to even begin to exploit it.

There are several ways you can protect yourself, though: first, download the latest security patch or update for each of your wireless devices – not just your computer or phone, but other wireless devices like smart tech too. Windows patched this vulnerability back in October, for example. Routers in AP (Access Point) mode aren't affected, but wireless repeaters almost certainly are, so make sure that these are updated too.

Second, add additional layers of encryption to your Internet connection: implement a VPN, for example, and all Internet traffic is subject to further encryption beyond the reach of a KRACK attack. These will protect you both at home and when out and about.

One area where you should exercise additional caution is when using wireless technologies away from home – even paying for your coffee through a wireless Point-of-Sale machine could render you vulnerable, for example. Ask the shop whether their network connection is wired before handing over your credit card.

Windows APPS MISSING AFTER FALL UPDATE

Q After installing the latest major update to Windows 10, I've discovered a number of apps are missing. They've disappeared from the Start menu and search, but attempting to reinstall them from the Microsoft Store fails because it believes they're already present.

Valerie Unwin



Cat's solution

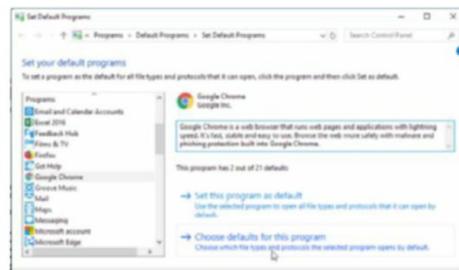
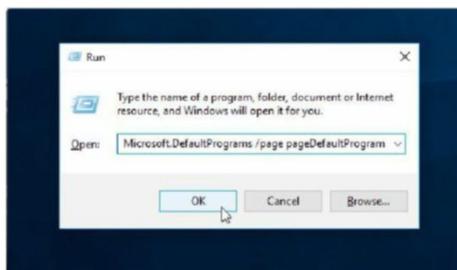
Try going to Settings > Apps. Scroll down and locate one of the missing apps, which should still be listed here. Click it, then click Advanced Options if it's present before trying first Repair and then Reset. If this fails, you might want to consider removing them – not all apps can be deleted this way, so for built-in Microsoft apps try IObit Uninstaller Free (www.iobit.com), which has the added benefit of scrubbing all leftovers too. Once removed, the apps – including those pre-installed by Windows – should be available for download once again through the Store. ■

Do you have
a PC problem?
Get in touch...

Email full details of your problem to the support team and we'll do our best to help: [windowshelpine@futurenet.com](mailto>windowshelpine@futurenet.com) Or write to:
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Windows Help &
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WI-FI SECURITY
Focus patching
efforts on your
devices rather
than your router.

"One area where you should exercise additional caution is when using wireless technologies away from home"



Jargon buster!

► BitLocker

A file encryption tool that is found in Professional and Enterprise versions of Windows. It's used to encrypt entire hard drives as well as USB flash drives.

► Canonical name

A specifically formatted name that is used to identify Control Panel applets. They can be used to programmatically launch that item via the command line.

3 Issue command

Press [Win] + [R], then type the following and hit [Enter], substituting your chosen canonical name and page name where appropriate:
control /name Microsoft.DefaultPrograms /page PageDefaultProgram

4 Add shortcut

Click OK and you should now have access to the original Windows Control Panel item you were looking for. For permanent access, right-click the desktop and choose New > Shortcut, then input the string you entered in the previous step.

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Welcome to... Windows 10

► WINDOWS 10 TIPS ► FEATURES EXPLAINED ► NEW TIPS AND TRICKS

Welcome



Just starting your Windows journey? Confused by the changes Microsoft has made to the

Fall Creators Update? Maybe you want to learn something new about Windows 10. Well, this is the section for you!

There's not enough space to tell you absolutely everything you need to know here, but *Windows Help & Advice* always has your back. On page 72 we'll show you how to master the desktop, customise application icons and take control of notifications; and on page 74 we'll explain how you can customise the Start menu from changing the default colours to managing your Live tiles.

Matt Hanson
Associate Editor
www.facebook.com/windowsmag

Featuring...

72 How to master the Windows 10 desktop

74 Change the way the Start menu works

GIVE YOUR PC A FRESH START SEE PAGE 11

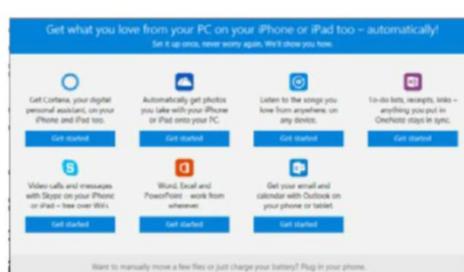


Windows 10 tip of the month

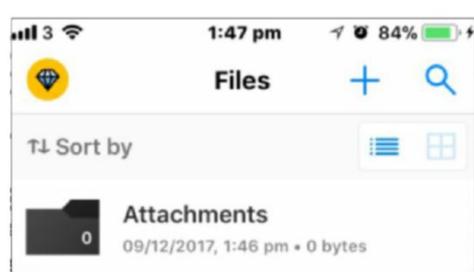
Get started with Phone Companion

Sync files across all your devices

Phone Companion is a free app for Windows 10 which enables you to sync all your documents, files, photos and other content to your phone or tablet, whether you're on Windows Phone, Android or iOS. To use it, you'll need to be signed into the same Microsoft account across all your devices and have the relevant apps installed on each one. Then go to Start > Phone Companion and follow the on-screen instructions.



SELECT & SYNC Choose your device from the options, then on the next screen choose what you want to sync.



FETCH YOUR FILES Install the apps you need on your device, then choose your syncing options. That's it!

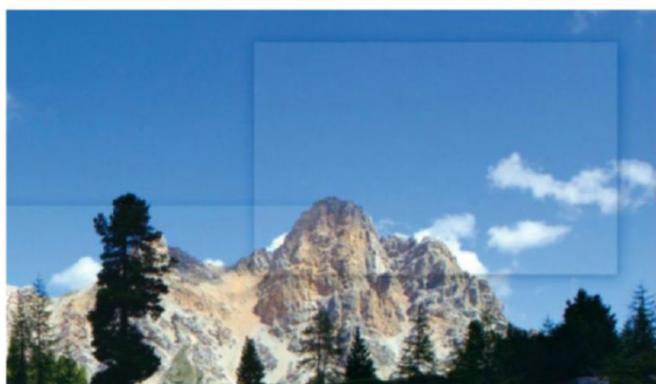
Master the desktop

You'll spend a lot of time there, so here are some great ways to make it work for you...

When not actually using applications, the Windows desktop is where you'll spend much of your time, moving files about, hunting for that obscure application you installed six months ago and suddenly need, or lining up your windows so that they fill the space perfectly (a time-wasting

pastime that's all but dead now thanks to window snapping).

In Windows 10, the desktop and the Taskbar get a few new tricks that make working with files and folders even easier, and the new search bar means pulling up an application you don't use often is a breeze. Follow these tips to a happy start...



1 Show desktop/peek

The Show Desktop button isn't marked, and some people don't even know it exists. Press this anonymous section at the extreme right of the Taskbar, and all your open windows will minimise. Hover the mouse pointer over it, and you'll get a preview 'peek' at the desktop that reverts when you move your mouse pointer away. It's very useful when you've got a chaotic number of windows open on your desktop.

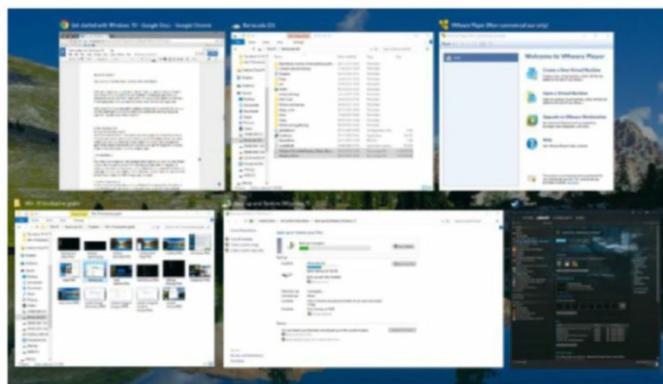
Get started with Windows 10

File Edit View Insert Format Tools Table Add-ons Help All apps

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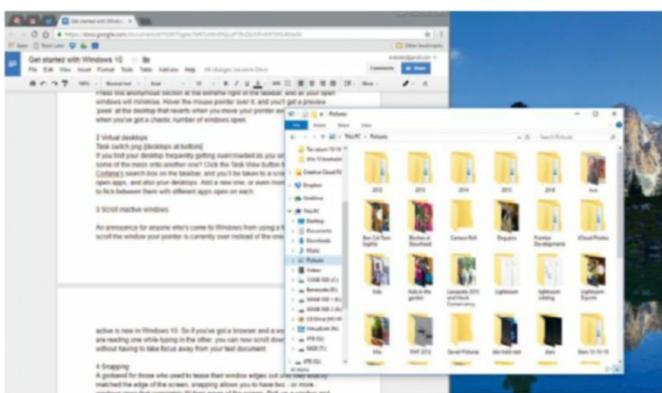
2 Virtual desktops

Task switch png [desktops at bottom] If you find your desktop frequently getting overcrowded as you work, why not offload some of the mess onto another one? Click the Task View button to the right of Cortana's search box on the Taskbar, and you'll be taken to a screen that shows your open apps, and also your desktops. Add a new one, or even more, and you'll be able to flick between them with different apps open on each. It's a great way to stay organised on your PC.



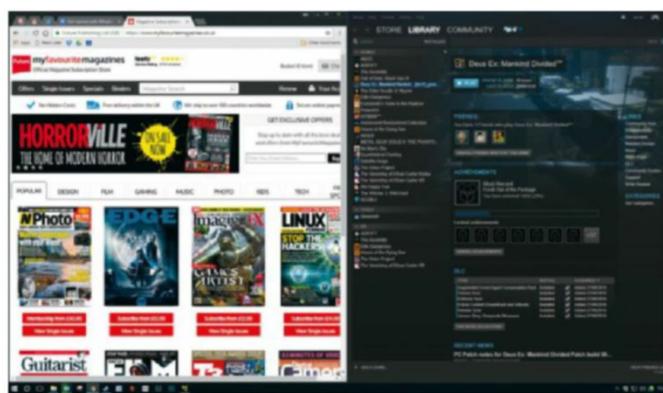
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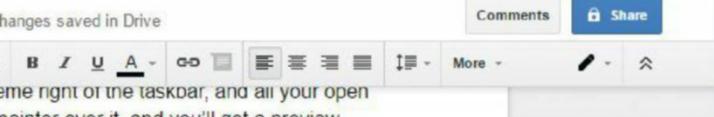
3 Scroll inactive windows

An annoyance for anyone who's come to Windows from using the Mac, the ability to scroll the window your pointer is currently over – instead of the one that's currently active – is new in Windows 10. So, if you have a browser and a word processor open, and are reading one while typing in the other, you can now scroll down in the browser without having to take your focus away from your text document.



4 Window snapping

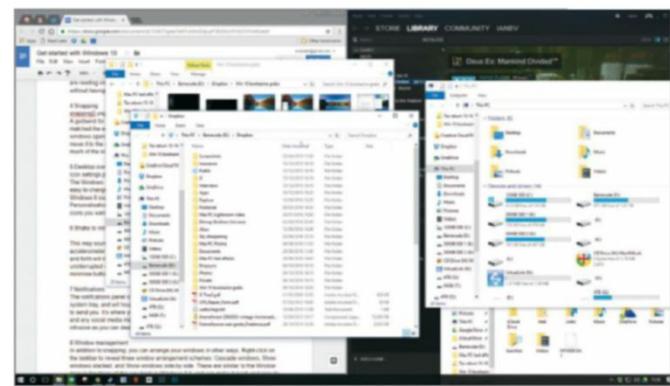
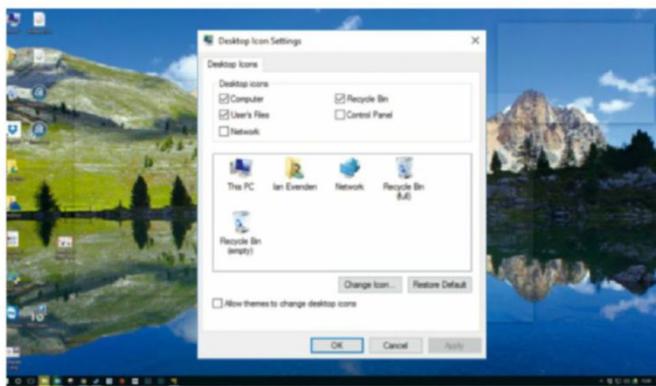
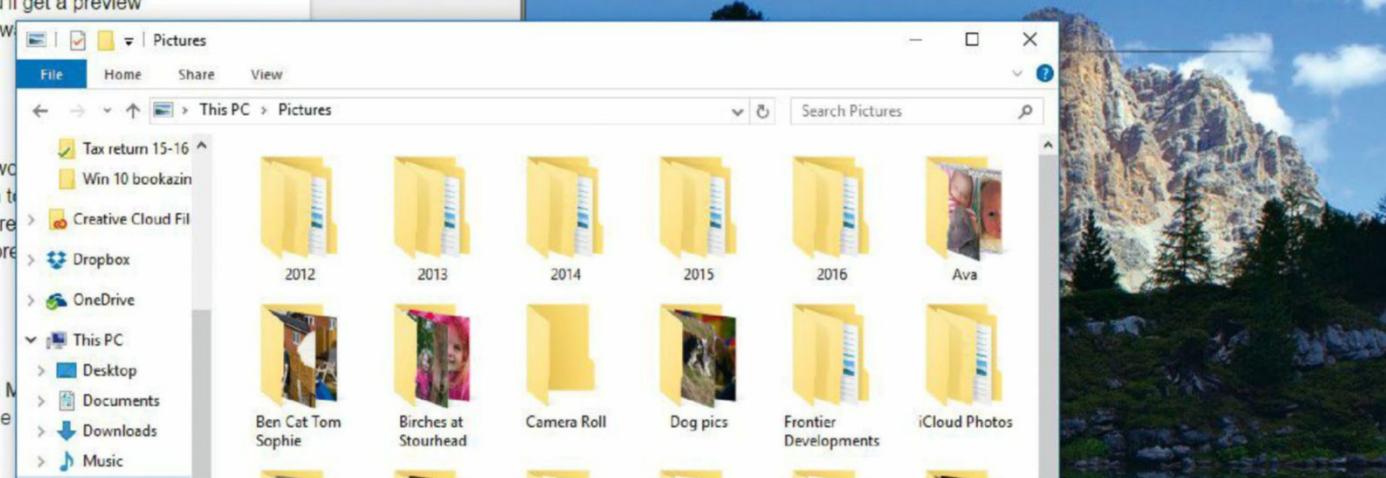
A real godsend for those who used to tease their window edges out until they exactly matched the edge of the screen, snapping in Windows 10 enables you to have two or more windows open that completely fill their areas of the screen. Pick up a window and move it to the extreme left or right edge of the desktop to try it (you'll see it 'snap' to the new half screen format). You can adjust how much of the screen they take up too.



move right or the taskbar, and all your open pointer over it, and you'll get a preview. You move your pointer away windows open.

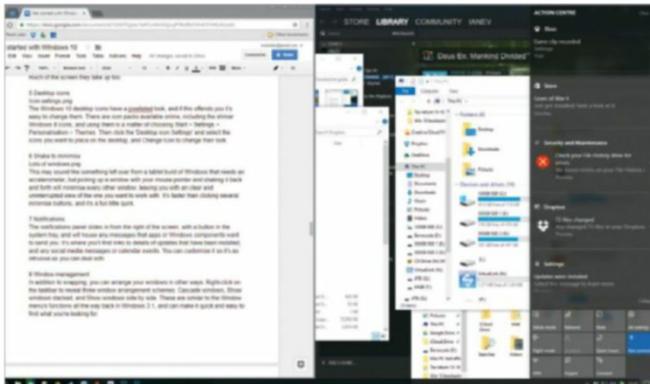
overcrowded as you work the Task View button to you'll be taken to a screen a new one, or even more open on each.

Windows from using a mouse instead of the one



5 Desktop icons

The Windows 10 desktop icons have a pixelated look, and if this offends you it's easy to change them. Luckily, there are icon packs available online – including the shinier Windows 8 icons. Download the icon pack you want to use, then go to Start > Settings > Personalisation > Themes. Click the 'Desktop icon Settings' and select the icons you want to place on the desktop, then use the Change Icon option to change their look.

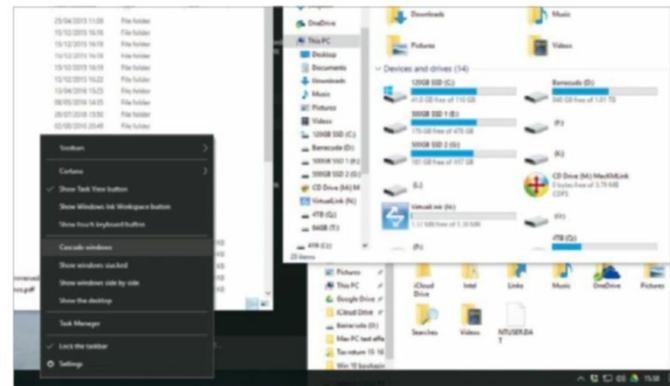


7 Notifications

The notifications panel – or Action Centre – slides in from the right of the screen, with a button in the system tray, and will house any messages that apps or Windows components want to send you. It's where you'll find links to details of Windows updates that have been installed on your machine, and any social media messages or upcoming calendar events. You can customise it so it's as intrusive as you can deal with.

6 Shake to minimise

This may sound like something left over from a tablet build of Windows that needs a built-in accelerometer, but picking up a window with your mouse pointer and shaking it back and forth will minimise every other window, leaving you with a clear and uninterrupted view of the one you want to work with. It's much faster than clicking several minimise buttons, and it's a fun little quirk that's a good one to remember.



8 Window management

In addition to window snapping, you can arrange your windows in some other ways too. Right-click on the Taskbar to reveal three window arrangement schemes: 'Cascade windows'; 'Show windows stacked'; and 'Show windows side by side'. These are similar to the Windows menu's functions that have been available all the way back to Windows 3.1, and can make it quick and easy to find what you're looking for.

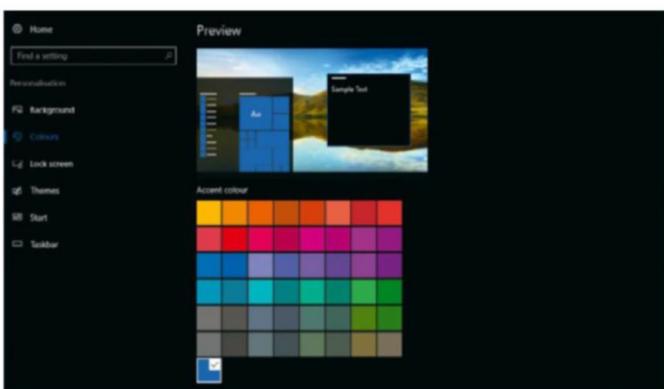
Customise the Start menu

The Start menu in Windows 10 is more powerful than ever – here are some easy tips to make it work for you

The Start menu's return was big news when Windows 10 launched, and it has evolved as the operating system has been updated. It's become a fast, and efficient way to access apps and settings – Windows 8's full-screen monstrosity is now a distant memory, thankfully!

However, if you don't like how the Start menu looks when you first pop it up on your fresh

install of Windows 10, it doesn't have to stay that way. It's fully customisable in ways that were never possible in earlier versions of the operating system, and can be made to work in just about any way you want, standing out from its background for ease of reading, or automatically blending in with the colour scheme of whatever theme you have currently set on your desktop.



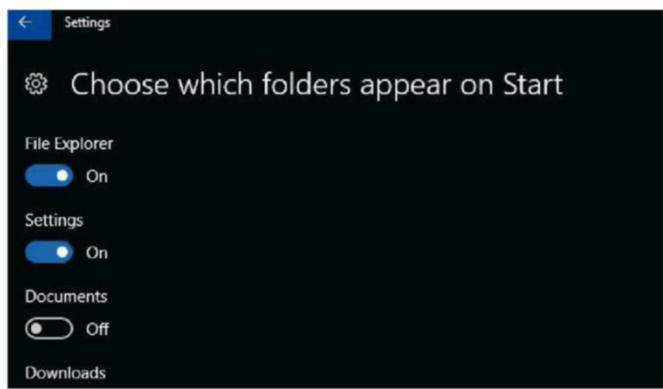
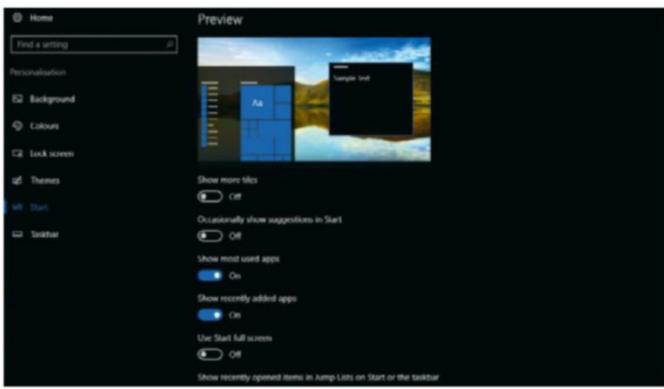
1 Colour

Your Start menu's background can be any colour you like – all you have to do is untick a box. Open up Settings, then Personalisation and finally Colours. Untick the 'Automatically pick an accent colour from my background' option and you'll be able to pick a colour from the palette. So your Start menu can be a contrasting red or yellow rather than a dull blue or grey. Play around to find a combination that works for you.



2 Size

To make space for all the customising you can do to the Start menu, you can easily resize it to your liking. Just move your mouse pointer to the top-border or right-border of the Start Menu, the pointer will change into arrows, and you'll be able to increase or decrease height and width, dragging it out to completely fill the screen if you want to. This is particularly useful if you have a PC filled with programs that you access regularly.

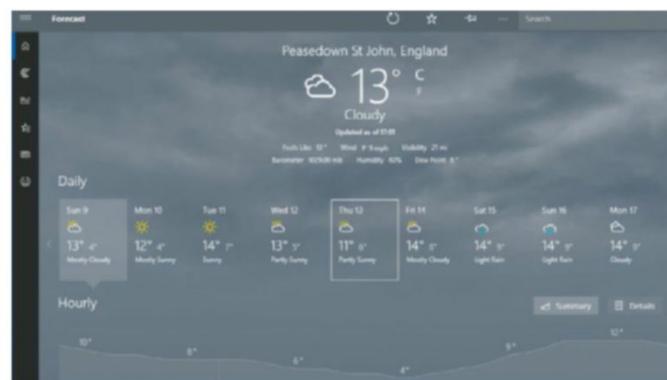
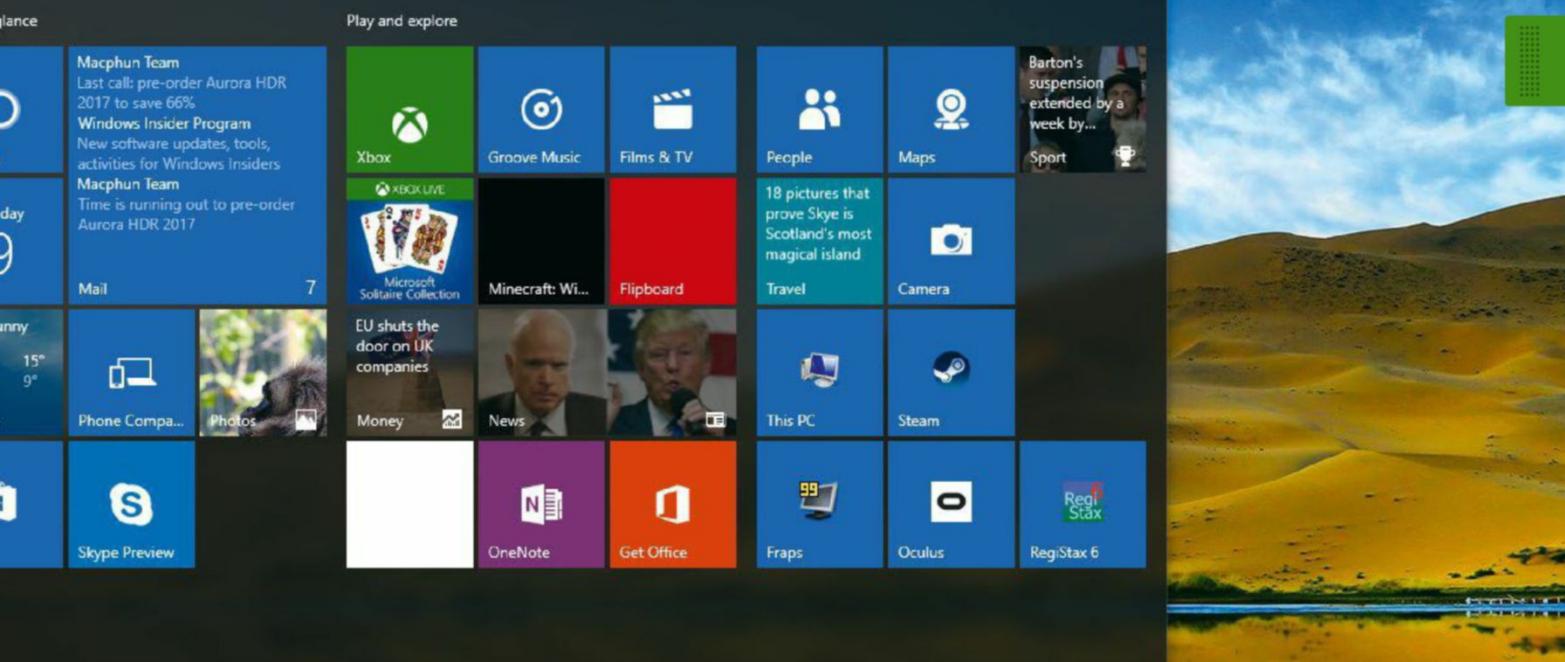


3 Folders and tiles

Your Start menu is made up of lists and tiles, and some of these can be shortcuts to folders such as Documents. Settings > Personalisation > Start enables you to tinker with this, so if you never shoot videos you can stop the empty Videos folder from taking up space on the menu. You can turn the links to the Settings window – and the one that opens an empty File Explorer window – on and off too.

4 Hide program lists

By default, the Start menu will show you lists of both your most used programs and the most recently opened ones. This can end up repeating itself, so if you want to get rid of one or the other of the lists, or both, open up Settings > Personalisation > Start, from where you'll be able to toggle the lists on or off. You can also prevent apps from appearing on the lists so you only get a view of the things you really need from day to day.



5 Use it to search with

Hitting the [Win] key on your keyboard to pop up the Start menu's Search box is one of the fastest ways to look for anything in Windows 10. Just type a few characters and you will get suggestions for applications and documents stored on your computer that match your initial query. You can also use the arrow keys on your keyboard to navigate the Start menu, if you'd rather not use the mouse.



6 Live tiles

Live tiles are tiles that are constantly updated with data, usually gleaned over the Internet to make them up-to-date. There's one for the Mail app that shows your most recent messages, one for the Weather app that uses your PC's location to tell you what's going on outside the window, and so on. If you find them distracting, you can turn them off by right-clicking them and choosing the appropriate option.



7 Pin tiles and shortcuts

If there's something you need to be able to find quickly, but which gets lost in the lists of the Start menu, you can pin and reposition it so it's always prominently placed. To do that right-click an item and choose 'Pin to Start'. It will now appear in tiles. Now click and drag the tile to where you want to move it to. To resize the tile, right-click, choose Resize then the tile size you want. You can pin shortcuts to the Taskbar for easy access too.

8 Bring back the Start screen!

It may have been almost universally mocked and reviled in Windows 8, but the full-screen Start menu is still there in Windows 10, ready to block out all your work at a single press of the [Win] key! But, if you liked it, go to Settings > Personalisation > Start and tick the box marked 'Use full-screen Start when in the desktop'. Note that wording: the Start menu now won't actually cover up your apps like it used to do in Windows 8.

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Welcome

 **Microsoft Edge** is a highly capable web browser that gets better with each Windows 10 update – but it's not the only game in town.

On page 88 we look at four equally if not more capable alternatives, from the supremely powerful Google Chrome to Opera, which has its own built-in VPN for super-secure web surfing anywhere.

We also take a look at the incredible 15-inch Microsoft Surface Book 2 (page 78); check out iStorage's secure external hard drive (page 80) and get snappy with the highly accomplished Fujifilm X-E3 (page 82).

Nick Odantzis Deputy Editor
windowsmagazine@futurenet.com

This issue's highlights



78 Microsoft Surface Book 2
An epic 15-inch laptop that's arguably the best Microsoft has ever made



80 iStorage diskAshur Pro2
A super-secure external storage drive – perfect for keeping your data safe



82 Fujifilm X-E3
Compact, mirrorless rangefinder camera with great picture quality and battery life



88 Best web browsers
Check out these awesome alternatives to Windows 10's default browser, Edge

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RATING EXPLAINED ★★★★☆ Superb ★★★★☆ Very good ★★★☆☆ Good ★★★☆☆ Disappointing ★★★☆☆ Poor



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£2,503 | \$3,299 www.microsoft.com

The best 2-in-1 laptop yet is just a bigger Surface Book – but that's no bad thing

Two years have passed since Microsoft launched the original Surface Book – a 2-in-1 laptop with an innovative design and class-leading features. It's now been replaced by two new models: an updated version of the original 13.5-inch Surface Book. Plus a new 15-inch model, which we are looking at here.

Price and availability

The 15-inch Surface Book 2 (already on sale in the US and coming to the UK in 2018) is an expensive laptop, with the top-end model, on test here, costing around £2,503 (\$3,299), although even the entry-level version comes in at a still steep £1,847 (\$2,499), the only difference being a much smaller 256GB solid-state drive inside.

The 13.5-inch version starts at £1,499 (\$1,499) for a 7th-generation Intel Kaby Lake Core i5 processor with integrated graphics and 256GB of storage – getting the

Nvidia GTX 1050 graphics and 8th-generation Intel Core i7 CPU will cost you £1,999 (\$1,999), with each storage option from there costing another £500/\$500. None of these prices include the optional – but essential – £99 (\$99) Surface Pen. It's high time Microsoft included this as standard.

The similarly premium Dell XPS 15, by contrast, starts at £1,429 (\$999) with 7th-generation Intel Core processors and Nvidia GTX 1050 graphics at the higher-end.

Design

When it comes to the look-and-feel of the 15-inch Surface Book, it's true to say that Microsoft has simply super-sized its 13.5-inch sibling. That's not necessarily a bad thing – Microsoft has clearly taken what it's learned from the Surface Book i7 and gone to town on it, crafting a light, but power-packed 15-inch laptop. Better yet, when detached from its base, this is the lightest

feeling 15-inch tablet we've ever tested – to the point that it'll feel deceptively small in your hands.

That said, the Surface Book 2's fulcrum hinge makes it a little more unwieldy to cram into a backpack than other laptops, and Microsoft hasn't done much design-wise with the 15-incher's larger size: the glass trackpad isn't quite as wide or deep as, say, the 15-inch MacBook Pro's when it could have been, given the space. Also, the lack of up-firing stereo speakers in the base is a glaring omission, with ample space on all three remaining sides of the keyboard for extra audio chambers.

Instead, you're stuck with the rather tinny, front-firing speakers on the tablet portion of the device. The bigger keyboard base should give you bigger everything, frankly, not just bigger graphics. The audio jack is also still in the same odd, upper-right position, causing headphone cables to dangle over your hands when typing.



KEY FEATURES

Microsoft Surface Book 2

Supplier www.microsoft.com

Processor 1.9GHz Intel Core i7-8650U (quad-core, 8MB cache, up to 4.2GHz with Turbo Boost)

Graphics Intel UHD Graphics 620; Nvidia GeForce GTX 1060 (6GB GDDR5 VRAM)

RAM 16GB LPDDR3 (1866MHz)

Display 15-inch; 3,240 x 2,160 (260ppi) PixelSense; 3:2 aspect ratio

Storage 1TB PCIe 3.0 SSD

Connectivity 802.11ac 2x2 MIMO Wi-Fi; Bluetooth 4.1; Xbox Wireless; 2x USB 3.1; 1x USB 3.1 Type-C; 2x Surface Connect; SD card reader; 3.5mm audio jack

Camera Windows 8MP rear-facing autofocus camera (1080p), 5MP front-facing Hello face-authentication camera (1080p HD)

Weight 1.9kg (with keyboard base)

Size 343x251x15-23mm

Speaking of which, typing on the Surface Book 2 is a pleasure, thanks to a brightly backlit keyboard that demonstrates deep-enough travel and punchy feedback. However, the feedback could stand to be a touch more forceful.

That said, we like the 15-inch Surface Book 2's design. But, Microsoft has missed opportunities to refine the product and make the experience that much bigger when it comes to how this particular model feels, looks and sounds.

the note window – you'll see traces of ink appear on whatever is there, although it will almost immediately disappear. That's thanks to a special processor rendering the ink before even Windows 10 does.

Attaching and detaching the display from the keyboard base is also speedy. Whether you're switching from laptop to tablet mode or back again, it takes less than a second before you're successfully tapping or typing away on the Surface Book 2.

"The 15-inch Surface Book 2 is the most powerful and versatile 2-in-1 laptop we've ever tested"

Display and Surface Pen

Of course, we're just as in love with the Surface Book 2 (15-inch) display as we were with the previous two models. Text looks crisp on the screen as do photos and video, even if the 3:2 aspect ratio makes for some awfully thick black bars when watching the latter.

The display's resolution is unmatched short of 4K laptops. We're told that Microsoft has also devoted a lot of its efforts into improving the touch response of the Surface Book 2's PixelSense display, and it shows – there's no perceptible lag between what you draw with the Surface Pen and your doodles appearing onscreen.

In fact, if you scribble on a sticky note and run the Surface Pen off of

Performance

To say that the Surface Book 2 is powerful would be selling it short. This is the strongest 2-in-1 laptop we've ever tested, ready to go toe-to-toe with not only every hybrid laptop on the market but a wide range of gaming laptops, too.

The Nvidia GTX 1060 graphics inside the laptop's base are more than enough to handle the very latest games at 1080p resolution – and at playable frame rates at native resolutions too. That's something that can't normally be said of Surface devices, much less any 2-in-1 laptops.

Not that gaming should be the reason you buy a Surface Book 2. Frankly, you could get the same experience for less and spend the

difference on games or even an external GPU box plus a graphics card. Few laptops will keep as cool as this one under pressure, though, partly thanks to a design which keeps the CPU and GPU apart.

The 15-inch Surface Book 2 is equally adept at everyday tasks, its quad-core CPU and 16GB of RAM barely breaking a sweat.

Battery life

The Surface Book 2 also has very impressive battery life, besting just about every 2-in-1 laptop we've tested to date. In our battery benchmark test it clocked up seven hours 39 minutes – its predecessor lasted less than half that. This figure is testament to the size of the battery in the 15-inch model.

Summary

The 15-inch Surface Book 2 is the most powerful and versatile 2-in-1 laptop we've ever tested, but it's not perfect – in simply creating a 15-inch version of the 13.5-inch original, Microsoft has missed opportunities to do more with that extra space design-wise. It is clear, however, that a lot of hard work and engineering expertise have gone into crafting this device. The proof is in its nigh-on unparalleled performance and longevity, not to mention its stylish, tactile design. ■

The best 2-in-1 laptop we've seen so far – expensive it may be, but it really is worth every penny.


**Windows Help & Advice
Verdict**





iStorage diskAshur Pro2

£489 | \$670 <https://istorage-uk.com>

A pricey portable hard drive, but good security is never cheap

Those who carry sensitive information around with them on a daily basis are doubtless concerned by the possibility of losing the device carrying that precious data (or worse still, having it stolen). Equally, if the mobile storage you use is secure, what happens if you fail to return to the office unexpectedly?

Those concerns are addressed by the new iStorage diskAshur Pro2 external hard drive, a compact storage device designed to work with secure data without the need to install software on all the systems it will meet.

Design

The Pro2 joins the diskAshur Pro, a product iStorage makes alongside other robust and secure storage devices. It comes in 500GB, 1TB, 2TB, 3TB, 4TB and 5TB capacities (it's the latter we're testing here).

At £489 (\$670), the Pro2 is pricey as 5TB external drives go, being

four times the price of Seagate's Backup Plus 5TB drive, and more than twice the price of LaCie's rugged Thunderbolt 5TB models.

After removing the Pro2 from its packaging, you soon realise why – it is, without doubt, one of the best pieces of product engineering that we've ever seen: The upper and lower surfaces are cool-to-the-touch metal, and the waistband is soft textured rubber. The Pro2 also comes with a foam-lined carry case, giving it a snug home to live in when you're not using it.

The Pro2 is just 84mm wide, 124mm long and 20mm deep, dictating that this uses 2.5-inch drives internally. As if to underline how much of the cost goes into the engineering, the 2TB model costs £329 (around \$435), only £160 (around \$210) cheaper.

From a design perspective, two features make this drive special. First is the built-in USB cable. It's only 12cm long when unclipped,

but that's enough to attach it to a PC. The fact that the cable can't be detached – and therefore lost – is the best aspect of this design. Although it would be unfortunate if the USB blade ever got damaged.

The other standout feature is the built-in numeric pad, which is used to enter a numeric password that's needed for access. The buttons are most likely on a membrane, but they're positive to use and make a nice click to confirm that you've pressed them. In addition to the numbers, there are a few special keys for operating the unit when it's attached to a PC.

Above the number pad are three coloured LEDs that confirm the locked condition, and also to show drive activity and offer feedback on important procedures.

In use

We've seen plenty of supposedly secure storage devices that can be circumvented with a little lateral



KEY FEATURES

iStorage diskAshur Pro2

Supplier <https://istorage-uk.com>
Capacity 500GB, 1TB, 2TB, 3TB, 4TB, 5TB

Data transfer speed Up to 148MB/s (read); 140MB/s (write)

Power supply USB bus powered

Encryption AES-XTS 256-bit

Connectivity Super speed USB 3.1

Dimensions 124x84x20mm (500GB/1TB);

124x84x20mm (3TB/4TB/5TB)

Weight 225g (500GB/1TB/2TB);

331g (3TB/4TB/5TB)

Performance

However iStorage has wired the internal drives to the encryption engine, it doesn't impact negatively on the drive's performance. With 148MB/s reads and 140MB/s writes, the Pro2 has some intent about it.

While an SSD would be quicker (iStorage sells those too), those performance levels are about as rapid as hard disk-based storage is likely to be. The Pro2 is also IP56 certified, making it water and dust-resistant. An extra touch in terms of the physical protection is that the keys on the pad are coated in epoxy. The coating has the dual benefit of not only extending the life of the keys, but it also makes it harder to work out which keys are being used on a regular basis.

As a final sweetener to any purchaser, iStorage is doing a deal where it gives you free software licenses from Nero and ESET, should you use either of those.

Summary

If it wasn't for the eye-watering cost, we'd be recommending the iStorage diskAshur Pro2 more forcefully. The combination of a well-considered security model with a superbly engineered device is an alluring one. How secure it is in practice, though, rather depends on you, and how seriously you take securing your data – while the Pro2 might have relatively few technical flaws, the data on it could still be exposed by sloppy practices.

As with most security systems, it's the human operator who is most often the weakest point. ■

A genuinely secure storage device that's built to handle physical abuse and nefarious decryption.


Windows
Help & Advice
Verdict



thinking. So what has iStorage done to avoid the most common security pitfalls? At the heart of this design is a secure microprocessor (Common Criteria EAL4+ ready), that handles its encryption. That, in theory, means that if the bare drive is extracted from its case, an attacker is no closer to getting to the data stored upon it.

What any data thief needs is the seven-to-15 digit numeric password created when the Pro2 was last configured. Guessing isn't a good option because failure to enter the

That enables it to work as well with a Windows, Mac or Linux computer. You can format it to whatever file system you use – even one you have created yourself.

The Pro2 comes with a default Admin PIN number defined, and you can change that directly using the pad. But, armed with an Admin password, you can also create an individual user PIN (up to four), which is handy if you share use of the drive with someone else.

Both Admin and User modes can also be made read-only, thus

"The Pro2 has numerous hardware defences in place to protect it against external tampering"

correct code enough times will result in the drive deleting the encryption key, rendering the contents beyond reach, forever – true, there may be people in the security services who know how to crack AES-XTS 256-bit, but for everyone else, the data is lost.

In addition to software defences, the Pro2 has numerous hardware safeguards in place to protect it against external tampering, bypass attacks and fault injections. Should it detect any attempt to get into the case or tinker with USB, it will enter a deadlock frozen state, making further assault pointless.

Devices with numeric pads such as this usually come with a PC app you need to install to make it work, but the Pro2 is fully self-contained.

avoiding the danger of deleting things inadvertently. But the most Bond-esque PIN code you can define is the one which initiates a 'self-destruct' sequence. This initiates an internal crypto-wipe where all the PINs and data are erased, and the drive reformatted before it can be used.

Our only reservations about this and other features are that setting some of them is complicated and you'll need to have the Pro2's manual handy (supplied as a PDF on the drive) to avoid mucking up the procedure. We're sure after regular use it will become second nature to change a user PIN or the length of time before the drive automatically locks. But initially, it's a little daunting.



Fujifilm X-E3

£849 | \$899.95 (body only) www.fujifilm.com

Fujifilm's smallest X Series camera packs quite a punch

The X-E3 is the latest X Series mirrorless camera from Fujifilm to get its 24.3MP X-Trans CMOS III APS-C sensor, which delivers a decent boost in resolution over the 16.3MP sensor found in its X-E2S predecessor. It also gets a moderate increase in ISO range over the X-E2S, with a native sensitivity range of ISO200-12,800, and an expanded range of ISO100-51,200. And unlike the X-E2S, the X-E3 supports raw too.

Features

The X-E3 is a classic rangefinder-style camera with a compact, streamlined design. It features a high-resolution 2.36 million dot OLED electronic viewfinder (EVF) with a 0.62x magnification, while the rear of the camera houses a 7.62mm, 1,040K dot touchscreen.

You can tap the display to acquire focus and trigger the shutter, as well as being able to swipe through and pinch-to-zoom

when reviewing images. There's no direct control for navigating the menus, but the X-E3 lets you use flicking motions to activate pre-assigned functions. You can also use the Quick menu.

The X-E3 includes Wi-Fi, NFC and Bluetooth connectivity, which enables you to transfer images from the camera to a paired smartphone or tablet using the free Fujifilm Camera Remote app.

The X-E3 offers 4K video capture at 30p, as well as Full HD at 60p. There's also a 2.5mm microphone input, but no audio monitoring.

Build and handling

The X-E3 is the smallest X Series camera with a viewfinder currently available. Partner it with a couple of Fujifilm's f/2 prime lenses, and you have a great little camera system.

There's a decent-sized handgrip, while the raised thumb rest on the camera's rear makes it incredibly comfortable to hold one-handed.

With the X-E3's body shrinking compared to the X-E2s, the built-in flash has been sacrificed in favour of a pocket-sized hotshoe-mounted flash. Otherwise, the top plate of the X-E3 remains the same as on the X-E2, with shutter speed and exposure compensation dials complementing the shutter button and small function button.

The shutter speed dial offers settings from 1 to 1/4000 sec plus Bulb, Time and Automatic, with the exposure compensation dial running from -3 to +3EV. There's also a 'C' setting, which enables you to set compensation up to ±5EV using the command dial.

A subtle change is the arrival of a small rocker switch around the shutter speed dial, with the option to set the camera to full Auto.

The biggest changes are at the rear of the X-E3, which has a more streamlined layout than the X-E2. The display butts up to the left edge of the camera, while the



KEY FEATURES

Fujifilm X-E3

Supplier www.fujifilm.com
No. of effective pixels 24.3 million
Image sensor X-Trans CMOS III (APS-C)
Storage SD/SDHC/SDXC/UHS-I
Sensitivity ISO200-12,800 (standard)
Display 7.62mm touchscreen
Connectivity 802.11b/g/n Wi-Fi; Bluetooth 4.0; NFC; 1x 2.5mm microphone input;
Weight 337g (inc. battery)
Dimensions 121.3x73.9x42.7mm

short of DSLRs such as the Nikon D5600, which has an 820-shot battery life. A dedicated charger is bundled in the box, while you can charge via USB as well.

Image quality

The X-E3 is capable of taking some highly accomplished images for an APS-C-based camera. Detail is excellent, and the X-E3 comes with a range of film simulation modes, with 15 effects to choose from.

Another area where the X-E3 excels is dynamic range. There's plenty of flexibility for recovering detail and highlights in images – especially raw files, with about four stops to play with at low ISOs.

The X-E3 also handles image noise very well. At the lower end of the sensitivity range files look very clean, with no signs of luminance (grain-like) noise in our shots – it's only at ISO3200 that it becomes noticeable, and its organic appearance means it's not a big issue, while even up to ISO12,800 results won't be unusable.

Summary

The Fujifilm X-E3 is a great little camera with a premium finish, tactile controls and an interface that make it a joy to shoot with. There are no complaints when it comes to image quality either – photos are rich and detailed. Connectivity options are good too.

Fujifilm may have shrunk the camera, but it hasn't sacrificed performance, and the X-E3 is everything you'd want in a compact-sized mirrorless camera. ■

A perfect combination of size and performance makes the Fujifilm X-E3 a compact camera to savour.

 **Windows Help & Advice**
Verdict



four-way controller from its the X-E2 has disappeared. Instead, you use the touchscreen control to flick left, right, up or down to access four different functions or settings, which can be customised. The X-E3 also has a focus lever, enabling you to toggle to the desired AF point; and you can use it to navigate the camera's menu system, if you wish.

Autofocus

The Fujifilm X-E3 uses a 325-point AF system. This is broken down into 169 phase-detect points set out in a

Performance

The X-E3 takes 0.4 seconds to power up, while shutter lag is just 0.05 seconds.

While the X-E3 isn't marketed as an action camera, it is capable of shooting at a very fast 14fps using the electronic shutter, or 8fps if you use the camera's mechanical shutter – if you do, expect to be able to shoot 23 raw files or 62 JPEGs before the buffer slows up.

The X-E3 uses a 256-zone TTL metering system, which normally performs well. It can sometimes

"While the X-E3 isn't marketed as an action camera, it is capable of shooting at a very fast 14fps"

grid of 13x13 in the middle of the frame, with an additional two grids of 6x13 contrast-detect points on either side to make up the 325 focusing points. That's if you're using the X-E3's single-point AF mode. When you opt for Zone or Wide/Tracking, coverage drops to a 91-point AF arrangement. In this instance, there's a central 7x7 grid of phase-detect points.

For static subjects, focusing is swift – the X-E3 locks onto a variety of subjects under a range of lighting conditions, while switching to continuous AF sees a welcome improvement in focusing accuracy over the X-E2. With five presets to choose from, AF tracking is much improved. Focusing speed could be quicker, but it's a solid performer.

underexpose a shot, but this is easy to correct thanks to the exposure compensation button – or you can simply lift the shadows in post-processing if you wish.

The electronic viewfinder image is lovely and bright, and, thanks to the 2.36 million dot resolution, rich in detail. While there's no tilt or vari-angle positioning on the rear display, the 7.62mm touchscreen is very good. It would be nice to see the menu system integrated into the touchscreen interface, but toggling through the X-E3's settings is pretty painless when combined with the rear joystick.

One area where there's room for improvement is battery life. At 350 shots per charge, it's not bad for a mirrorless camera, but falls well



Garmin Fenix 5X

£629.99 | \$699.99 www.garmin.com

A beast of an outdoor activity tracker

Garmin has been working for a long time to perfect the GPS sports watch and with the Fenix range it took a big step towards doing exactly that.

Now the Fenix 5X is here to bring that range to its pinnacle with onboard mapping, multi-sport tracking, smartphone notifications and much more. Has Garmin created that perfect watch it's been working towards all these years?

Price and availability

Garmin has separated the Fenix 5 range into three different models: the 5S is small, light and ideal for daily activity tracking at £499.99 (\$599.99); the Fenix 5 takes the middle-ground is slightly bigger and has a slightly longer battery life and also costs £499.99 (\$599.99); and there's the Fenix 5X, which is the premium model, and is ideal for adventurers who want to be ready for anything. It costs a cool £629.99 (\$699.99). It's the 5X we're looking

at here – bear in mind if you see us moaning about its size or price, those other two options are there to solve the issue – just at the cost of sacrificing the onboard maps.

The Garmin Fenix 5X is a very attractive wrist adornment, that's for sure. The exposed face screws, metal bezel and solid metallic buttons look gorgeous. The watch also feels premium-level weighty on the wrist – especially if you opt for the pricier metal strap.

That 51mm metallic strap is an issue though since it requires you to own the right tool or to go to a watch shop to have it adjusted to fit you. A hassle but something you only need do once, unless the watch is too successful in helping you lose weight. Otherwise go for the silicone strap, since that allows for size variance easily and can always be swapped with a quick release mechanism.

Whichever model you opt for, the Fenix 5X comes with a slate grey

finish and a sapphire-glass screen, the latter of which should mean a well-protected watch that won't get easily scratched or damaged.

Specs and performance

Garmin often updates its software and since it also runs its own app store, there's a constant stream of new software offerings available to help you do more with the watch.

Onboard sensors include – deep breath – GPS, GLONASS, optical heart rate (HR), barometric altimeter, compass, gyroscope, accelerometer and thermometer. All that adds up to a lot of data to power all sorts of apps.

You get your basics – such as running, cycling and swim tracking – but also golfing, stand-up paddle boarding, yoga and more. In real world use, though, we found the stand-up paddle boarding accurate for distance but the stroke count was way off, just to highlight a slight flaw in the mix.



This is a symptom that affects many Garmin watches in the pool as well, with stroke counts and lengths often not accurately recorded, although overall workouts are well measured.

Where the Garmin Fenix 5X does perform well is with more outdoor pursuits, such as hill-climbing and hiking. Here the full-colour maps, auto climb data, storm alerts and points of interest (POI), plus back-to-start navigation all work well, although it's not so great as it is with running.

"It's rugged, well connected, covers lots of sports, includes colour maps and has brilliant battery life"

This watch is like wearing a weight on your arm when out on a run, especially if you opt for the 196g steel strap version. If you're light, you could almost imagine running around in circles, thanks to having that weight on one arm. We're being overly-dramatic, of course, but this weight does make the Fenix 5X less suited for running use, despite the fact that it's a very capable run tracker, with details such as vertical oscillation, ground contact time, cadence and even lactate threshold all being measured out.

Day-to-day step tracking is accurate, and it also has a stab at calories, but the Fenix 5X can get annoying if you have sleeves and want to tuck it away.

This main way to think about the Fenix 5X is: this is definitely designed as a fashion statement where being big is key, so if you like that then you'll love this device.

Connectivity and battery

The Garmin Connect app lets you check out all your exercise data immediately on a connected phone or in more detail on a computer.

The app, which is available on both Android and iOS, is easy to use and navigate, and offers in-depth charts that you can edit so

you can see what you need – like your heart rate overlaid on hill height for example.

But since the Garmin Connect app covers all of the company's wearables, you may find its interface cluttered. It's possible to personalise the layout, but it takes time and effort. If that all proves too much for you then you can always export the GPX file for use in other platforms, such as MapMyRun or MyFitnessPal, if you're already committed to using those.

For cyclists, Strava compatibility is built in with features such as beacon and live segments right there on the watch as you train. You can then set the watch so that it automatically uploads the data when you're next on Wi-Fi.

KEY FEATURES

Garmin Fenix 5X

Supplier www.garmin.com

Display type Sunlight-visible, transreflective memory-in-pixel (MIP)

Display size 30.5mm (diameter)

Display resolution 240x240 pixels

Battery life Up to 12 days in smartwatch mode (depending on settings); up to 20 hours in GPS mode; and up to 35 hours in UltraTrac battery saver mode

Memory/History 12GB

Lens material Sapphire crystal

Bezel material Stainless steel

Case material Fibre-reinforced polymer with stainless steel rear cover

Strap material Silicone or steel

Water rating 10 ATM

Dimensions 51x51x17.5mm

Weight 98g (with silicone band)

Battery life on the Fenix 5X is one of the best of any wearable out there, especially one with this much data being collected. The official numbers say you get up to 20 hours of use in full GPS mode and up to 35 hours in UltraTrac mode, which pings the GPS less regularly. This seems accurate – although we found that the battery lasted even longer in real-world use, suggesting that Garmin is being cautious with its battery life estimates.

As for general daily use, Garmin says the Fenix 5X will last for 12 days between recharges and that again seems pretty accurate. Using the smartphone connection for notifications, daily activity tracking and training a few times a week for at least an hour, we found that the Fenix 5X still didn't need charging after almost two weeks, which is pretty impressive when rival devices, such as the Apple Watch, only manage around a day's usage.

Summary

This is one of the best GPS sports watches available right now. It's rugged, well connected, covers lots of sports, includes colour maps and has brilliant battery life. Plus you can use this as a daily activity tracker without worry of damage thanks to that sapphire-glass screen and a water resistance rating of 100 metres. You'll look good too, thanks to its chunky build. ■

There's a lot to love about the Garmin Fenix 5X. It's expensive, but ideal for outdoor adventures.

 Windows Help & Advice
Verdict



MID-RANGE MOBILES

While flagship phones grab the headlines, low- to mid-range handsets are more capable than ever. Let's see what's on offer



1 Honor 6A

£140, www.hihonor.com

The Honor 6A packs in features you previously only saw on much more expensive products. A metal body, large battery, capable camera and a Qualcomm 430 processor enable impressive performance, and 16GB of onboard storage means you shouldn't run short of space. A fingerprint reader and oleophobic screen coating are surprising omissions. The five-inch display makes the phone ideal for those who prefer a smaller device.



2 Moto E4 Plus

£140, www.motorola.co.uk

The Moto E4 Plus stands out among the crowd for one main reason – its huge battery. The 5,000mAh cell enables the phone to run for days without charging. A front-mounted fingerprint sensor, metal back, 5.5-inch HD screen and Android 7.1 make it feel bang up to date, and the 3GB RAM is particularly generous. The E4 Plus uses a Mediatek processor, which is a compromise, but this smartphone's overall performance is still more than acceptable.



3 Vodafone Smart N8

£80, www.vodafone.com

Is an £80 phone really worth buying? You might be surprised. The Vodafone N8 includes a raft of features that belie its price – a capable rear-mounted fingerprint sensor, textured finish, 13-megapixel rear and five-megapixel front cameras, 16GB of storage and the same processor as the Moto E4 Plus. The five-inch 720p screen makes the phone perfectly pocketable and it's very light, by virtue of the plastic build and 2,400mAh battery.



With flagship smartphones continuing to rise in price – the near-£1,000 iPhone X and Galaxy Note 8 being a case in point – the trend is at least offset by improvements that filter down the product ranges to

low- to mid-range devices. It wasn't so long ago that buying a cheaper phone meant almost unbearable compromise – slow processors, poor screens, limited memory and shoddy cameras – but this no longer has to be the case. You see this not only in

great-value phones from traditional device manufacturers, but also in new entrants who are doing a top job of challenging the bigger boys. Let's see what you can buy from less than £80, and stretching up to a more mid-range £270.



4 Alcatel Idol 5

£160, www.alcatel-mobile.com

The Alcatel Idol 5 doesn't feel like a budget phone. The metal body and 2.5D Dragontrail glass front are premium, with the front black slab uninterrupted thanks to the rear-mounted fingerprint scanner. There is a 5.2-inch Full HD screen, powered by an octa-core processor with 3GB RAM. The rear f/2.0 camera has phase-detection autofocus and a dual-tone LED flash for low-light shots. The Idol 5 also includes a gyroscope, vital for VR headset use.



5 Wileyfox Swift 2 X

£220, www.wileyfox.com

The Swift 2 X is a little more expensive yet it's still from a largely unknown brand (although it's frequently discounted at retail). What does your extra spend get you? Quite a lot. A very capable Qualcomm processor, 32GB of storage (double what most offer at the low end), 3GB RAM, a Full HD 5.2-inch display, a 3,010mAh battery with Quick Charge 3, and NFC with Android Pay. The Swift 2 X's fit and finish are impeccable and software updates are frequent.



6 Samsung A3

£270, www.samsung.com

The Samsung A3 2017 is the latest from the company's low-range devices. Highlights include Samsung's own Exynos 7870 processor and a 4.7-inch 720p Super AMOLED screen, offering contrasty blacks. Elsewhere, it's clear you're paying for brand rather than specs – while the f/1.9 cameras are good, the 2GB of RAM and 16GB of storage are distinctly average. 5GHz Wi-Fi is a nice inclusion and ANT+ is onboard for connecting to fitness gadgets.



THE BEST FREE WEB BROWSERS 2017

When did you last try a new browser?

1 Google Chrome

<http://google.com/chrome>

Chrome is an extendable and efficient app that deserves its place at the top of the web browser rankings. According to w3schools' browser trend analysis its user base is only rising, even as Microsoft Edge's install numbers

grow. Why? It's cross-platform, incredibly stable, takes up the minimum of screen space, and is the nicest browser there is to use.

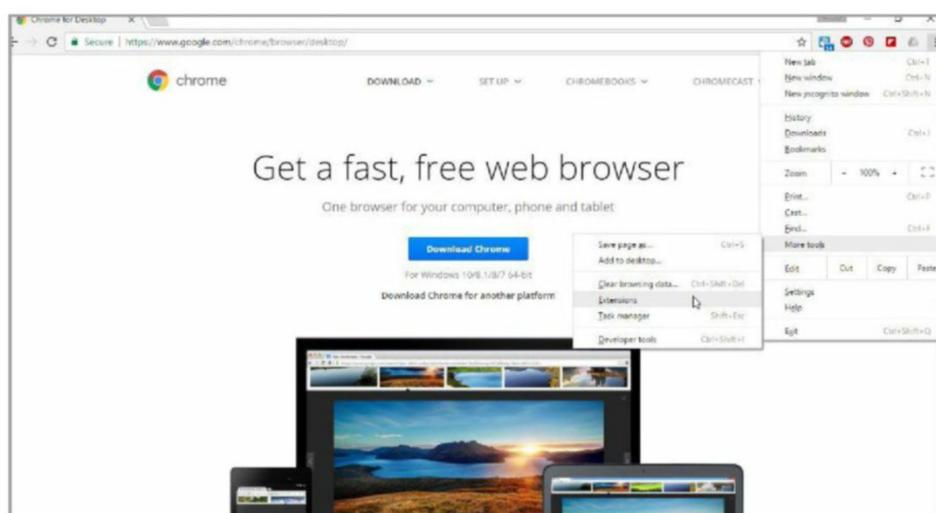
Its wide range of easily obtained and installed extensions mean you can really make it your own, and



Chrome is a superb browser if you don't mind Google handling all your online activity.

there's support for parental controls and a huge range of tweaks and settings to ensure maximum efficiency.

But there are downsides, and potentially big ones. It's among the heaviest browsers in terms of resource use, so it's not brilliant on machines with limited RAM, and its performance doesn't quite match up to some of its rivals in benchmarking terms. And with Google's tentacles running all the way through it, you might be uncomfortable with the some of the ways in which your web browsing data may be used.



2 Opera

www.opera.com

It's sad that Opera makes up only around one percent of the browser market, since it really is a quality browser. It launches fast, the interface is brilliantly clean, and it does everything its rivals

can do with a couple of extras thrown in for good measure.

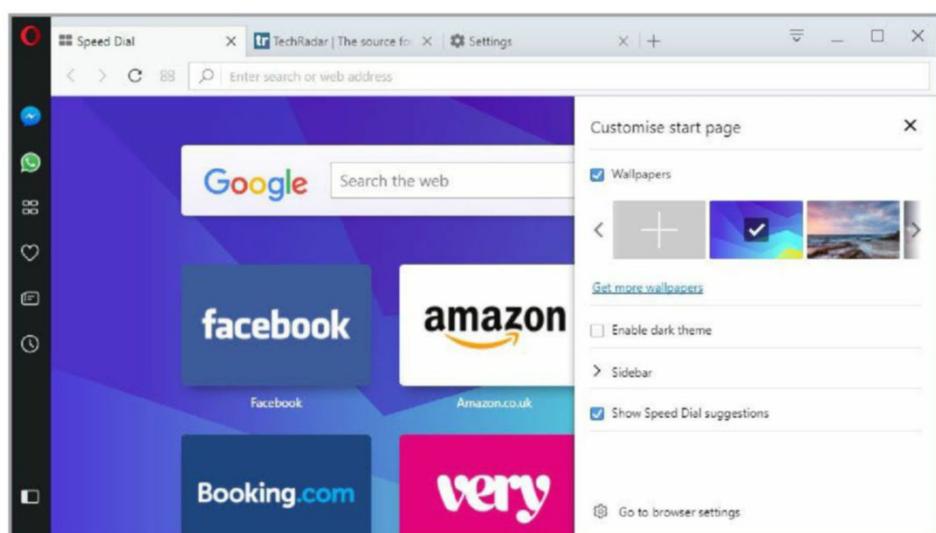
The key reason we'd at least recommend having Opera installed alongside your main browser is its Opera Turbo feature.

Opera is a superb web browser, with a clean interface and a built-in ad-blocker.

This compresses your web traffic, routing it through Opera's servers, which makes a huge difference to browsing speed if you're stuck on rural dial-up or your broadband connection is having a moment.

It reduces the amount of data transferred too, and re-routing dodges any content restrictions your ISP might place on your browsing. Opera automatically ducks out of the way if you're using secure sites, so your traffic is free of privacy violations.

There's also an ad-blocker, and a battery-saving mode for longer-lasting mobile browsing.



RATING



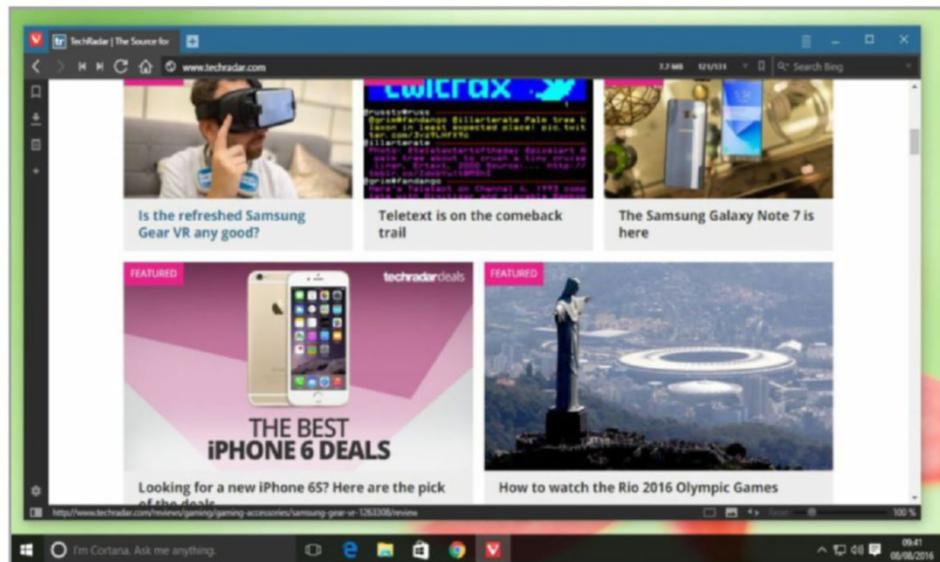
3 Vivaldi

<https://vivaldi.com/>

We all spend far too much time sitting in front of web browsers, and Vivaldi wants to make that as pleasant and as personal an experience as possible.

The whole style and structure of its interface is entirely up to you. There's a built-in note-taking system, you can dock websites as side panels while using the main

Vivaldi is a relatively new browser that's bound to see more development soon.



window to do your main browsing, and we love its innovative tab stacking tech, which enables you to group tabs and move them around to avoid the crowding that so often plagues other browsers.

Vivaldi is built on Chromium, which means you can expand it even further with extensions from the Chrome Web Store. Some extensions may behave slightly differently in Vivaldi, but most work perfectly well.

Vivaldi is a refreshing and creative take on web browsing, and is definitely one to watch in the next couple of years.



RATING



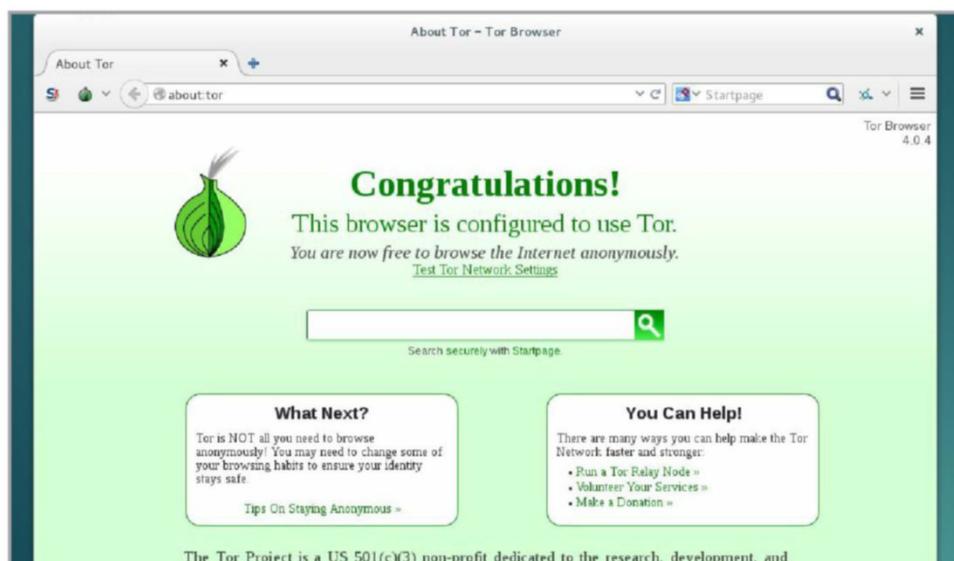
4 Tor Browser

www.torproject.org/projects/torbrowser.html#windows

The Tor Browser is unjustly associated with the seedy underworld of the dark web. While it's true that you can use this web browser to access

otherwise unlisted sites, Tor's privacy aspects – where your traffic is routed through random nodes the world over, making it hard to track – are its real asset.

Based on Firefox, the Tor Browser re-routes web traffic via random nodes worldwide.



Tor Browser is really a package of tools; Tor itself – a modified version of the Firefox Extended Support release – and a number of other privacy packages that combine to make it the most secure browsing experience you're likely to find. Nothing is tracked or stored, and you can forget about bookmarks and cookies.

You'll need to alter your browsing habits to ensure that you don't perform actions online that reveal your identity – Tor Browser is just a tool, after all – but for those private browsing moments it's a great choice.



RATING



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