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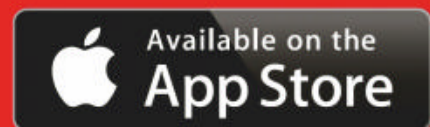


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STEP-BY-STEP GUIDES
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CUSTOMISE WINDOWS!
60 WAYS TO GET YOUR PC THE WAY YOU WANT IT



Windows

Help & Advice

THE NEW WAY TO

REINSTALL WINDOWS

• FIX SYSTEM PROBLEMS • ELIMINATE JUNK • SPEED UP YOUR PC



Hook up a
4K monitor

Find and use
new fonts

Edit video like a
pro – for free!



≈
**FACEBOOK
LIBRA**
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THE NEW DIGITAL
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**NETWORKS
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BETWEEN PCS



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Windows Help & Advice

Welcome

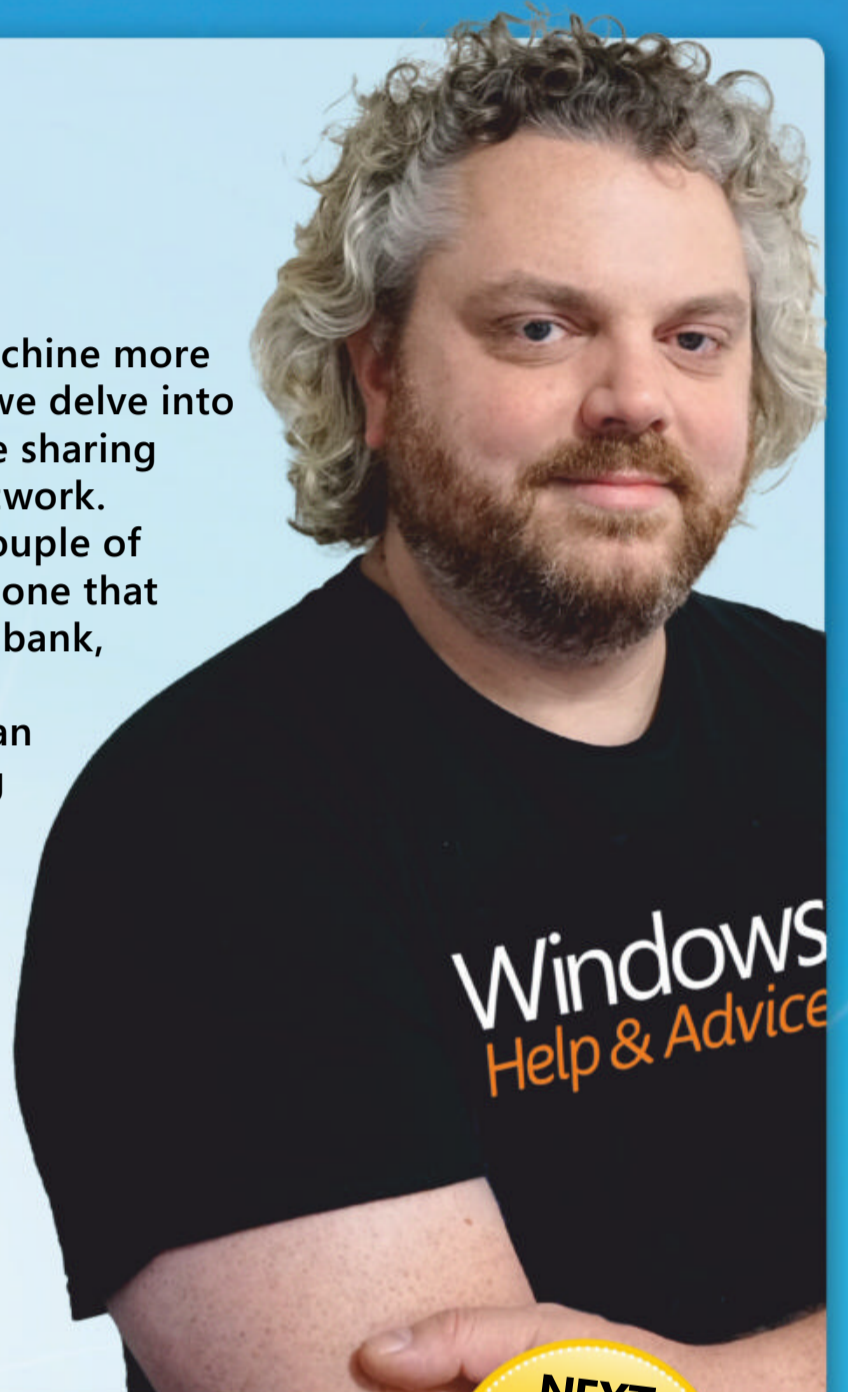
Hello, and welcome to Windows Help and Advice issue 167. This month you can learn how to customise your PC in 60 different ways. And if that wasn't enough, we've got a full guide to reinstalling Windows, and plenty of discussion about why you shouldn't. There's also an investigation into Facebook Libra, the mysterious digital currency that might be the next disruptive idea to come out of Silicon Valley (and Switzerland).

Elsewhere, you'll find the usual mix of tutorials and reviews. There's a look at installing a 4K monitor on your PC, a guide to

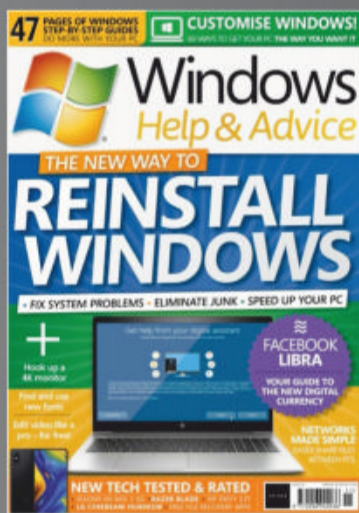
making your machine more accessible, and we delve into file and resource sharing over a home network.

We review a couple of laptops, a 5G phone that won't break the bank, and a portable projector that can turn your ceiling into a gigantic movie screen.

Whatever you plan to do with your PC this month have fun doing it.



Ian Evenden Editor
www.facebook.com/windowsmag



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**NEXT
ISSUE
ON SALE**
8 November
2019

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.

Cover image credits : Microsoft, HP

Don't miss our **NEXT ISSUE**, when we will show you how to...

→ Use Dropbox → Get Alexa on Windows → Edit photos with GIMP → Take control with Windows Power Tools → Manage checklists with Microsoft Todo

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Windows Help & Advice

FEATURES

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Make your PC feel like new again with a fresh operating system installation

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Fine-tune your desktop to suit you with our full customisation guide

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It's not every day a company launches a currency. Just what is Facebook Libra?

REGULARS

6 Discover YouTube toughens its rules around children's content. The return of Windows Power Toys. And more besides

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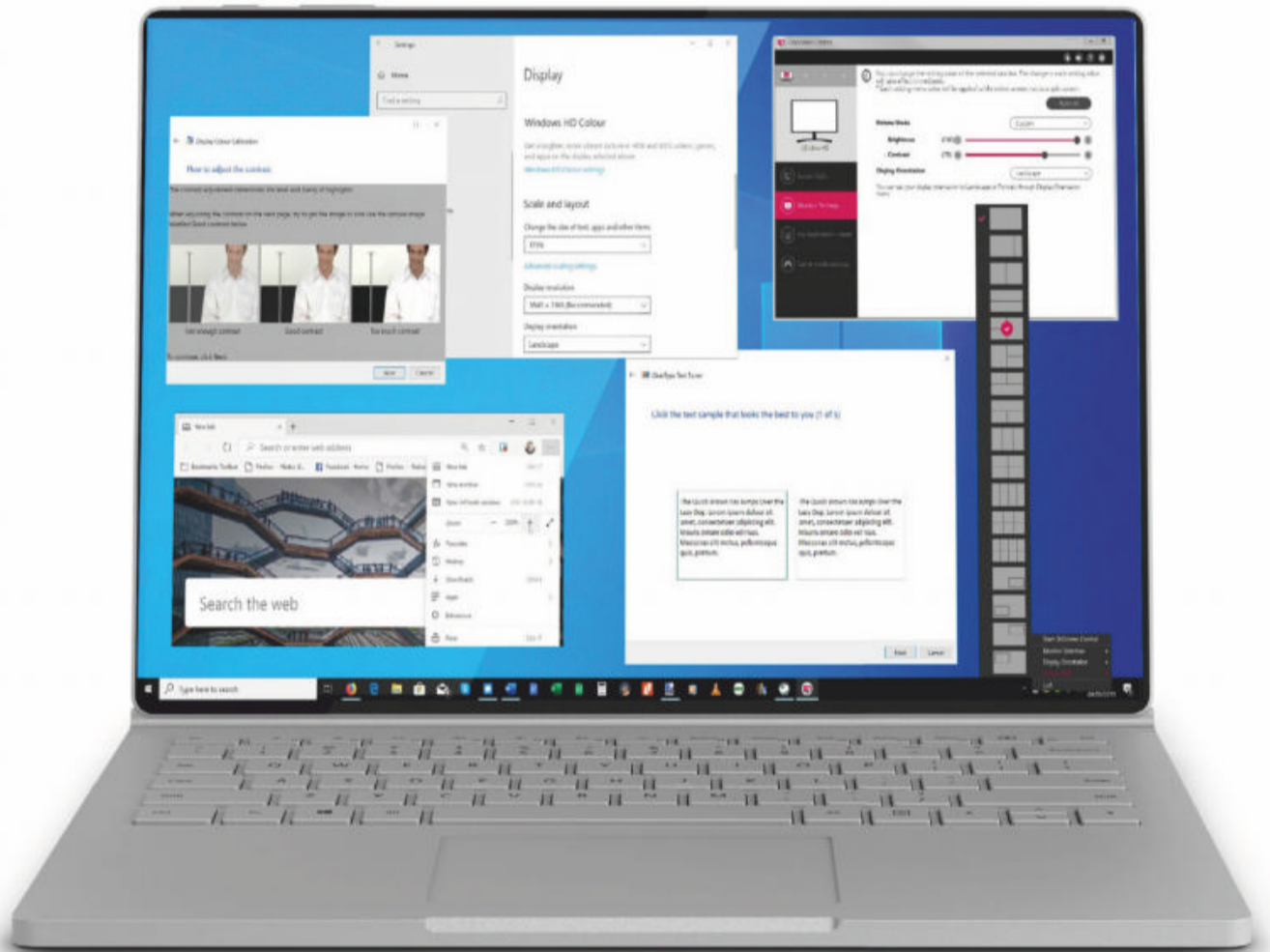
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SUPPORT

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EXPLORE

The best PC tutorials



Your guide *Ian Evenden* says...

"If you're looking for better ways to use your home computer, then this is the place to start. We'll show you all the tips and tricks the experts use and more!"

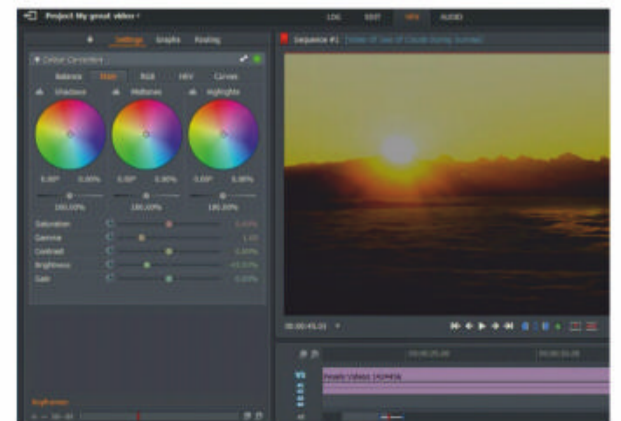
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WINDOWS REFRESH

Sometimes only a clean start will do. How to reinstall an operating system properly

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60 WAYS TO CUSTOMISE WINDOWS

Who should decide how your PC desktop looks? You, or Microsoft? Learn how to change Windows' appearance

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FACEBOOK'S NEW MONEY

What is Facebook Libra? And why should you care?

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Save money, shop smart

Bag a bargain and spend less online

Shopping on the internet is a minefield – how do you know that you’re really getting the best deal?

Every shopping website you look at will try to tell you you’re getting a bargain. It’s slightly deceptive, but that’s basic marketing, and it’s something we’ve all learned to look through. But it also means that finding out what’s really good value can be tough.

Shopping around is a good first step. You could hop between sites, checking the usual high street outlets as well as known online stores, but try searching for the item you’re looking for on Google, then selecting the ‘Shopping’ tab at the top of the page; this will bring up Google’s own price checker, which scours those sites for you. Be very careful where you’re shopping, as this will also bring to light some retailers who aren’t necessarily solid; you’re not guaranteed to be ripped off, but it is always worth putting your money into a site you trust.

If one of those sites happens to be Amazon (and, whatever you

might think about its sometimes iffy reviews, Amazon does deliver reliably and has a solid returns policy) you have an even stronger tool at your disposal to ensure you get the best price. Camel Camel Camel (uk.camelcamelcamel.com) is a free price tracker for any products on Amazon, which keeps tabs on items and follows their price over time. Search for the thing you want to buy, and you’ll see a graph which indicates its lowest price.

CAMEL CAMEL CAMEL

You can also link it to your Amazon wishlists, and keep tabs on the price of everything you’re looking to purchase in one place. If you’re using Google Chrome or Firefox as your web browser, the site also offers an extension – install this, and it’ll add price comparisons as you browse Amazon itself, ensuring you won’t overpay. Now that’s smart.

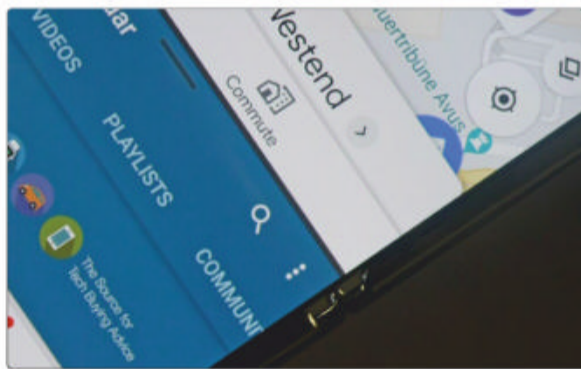
BACK TO THE FOLD The bendy phone returns

The excitement about foldable phones was palpable earlier this year, until it emerged that the technology just wasn’t ready. Early review models of Samsung’s Galaxy Fold had some glaring issues that suggested the incredibly expensive handset was a particularly flimsy way to spend over £1,000. Samsung’s engineers went back to the drawing board, retooled the hardware, and produced a new and improved Galaxy Fold with a newly protected screen.

IMAGES: microsoft, Samsung, Techradar



NEW MATERIALS Many more metal elements make the overall body of the Galaxy Fold far tougher.



STRONG SCREEN Reviewers peeled off the integral screen protector – a new edge prevents this.



RADIO TIMES The version released in the UK includes a newly-upgraded 5G radio.

The Knowledge... + <>



Windows Power Toys

That is a name I haven’t heard in a long, long time...

Indeed – the Power Toys line, a host of clever but unsupported software from Microsoft’s labs, was big in the days of Windows 95 through to XP. The concept was then dropped, but now it’s back, offering you supremely useful tools that can help you use your desktop differently.

So what’s there?

At the moment, not a lot: there are just two functions in the first Power Toys release. But what functions they are. The first is a super-handy shortcut guide. Hold down the [Win] key, and an overlay will pop up showing you all the things you can do quickly, meaning you can save a little brain space for more important things.

And the other?

This is very cool: Power Toys’ FancyZones feature takes Windows Snap to a whole new level and allows you to define areas on your desktop where you’d like your open programs to go. Hold [Shift], drag an application to one of the zones you’ve set up, and it’ll automatically resize and align itself. No more messy desktop.

How do I get them?

As this is one of Microsoft’s open source releases, basically software it is encouraging any programmer to build on and contribute to, Power Toys isn’t something you can download from the Windows Store – it’s available from Microsoft’s GitHub page at github.com/microsoft/PowerToys/releases. Download the PowerToysSetup.msi file, and run it to install Power Toys.

What’s next?

There’s no doubt a lot planned. We may see some classics from the past come back, like TweakUI, and we’ll no doubt see a lot of new, Windows 10-centric tools from the minds of both Microsoft’s engineers and from enterprising individuals looking to enhance the experience for everyone. Get on board now, and you’ll be ready for the next release.

Everyone's talking about

YouTube versus the children

The world's biggest broadcaster gets its knuckles rapped – and content for kids could be doomed

America's Federal Trade Commission has fined Google \$170 million after the company's subsidiary, YouTube, allegedly violated a children's privacy law. YouTube is accused of both marketing children's use of its platform to advertisers and of tracking the viewing habits of children to pass on to those advertisers. FTC Chairman Joe Simons said the company

"refused to acknowledge that portions of its platform were clearly directed to kids," adding, "there's no excuse for YouTube's violations of the law."

The FTC's action now requires YouTube to change its practices – and it seems the response may have to be extreme. Comments and notifications on content targeted at children will be disabled, targeted adverts on kids' videos will be abolished and, according to a YouTube statement following the ruling, the company, "will treat data from anyone watching children's content on YouTube as coming from a child, regardless of the age of the user."



At present, what is classed as kids' content is something of a grey area, and that is proving to be a worry for many content creators. YouTube's sweeping changes may cause many, even those not specifically marketing themselves to a younger audience, to lose a significant portion of their audience and their income. What is more, the changes come

after an advertiser-appealing change to the service's algorithm, which automatically removes payment from some videos deemed to violate the company's already-stringent terms – a change which has already affected many kid-focused

channels, rightly or not.

There's no telling what this will mean for YouTube's huge number of popular children's channels, but the outcome isn't likely to be positive – and with YouTube's virtual monopoly on online video hosting, there's no strong alternative platform waiting in the wings to take over. For now, times are tight: you may need to find the children in your life something else to watch.

Download this...

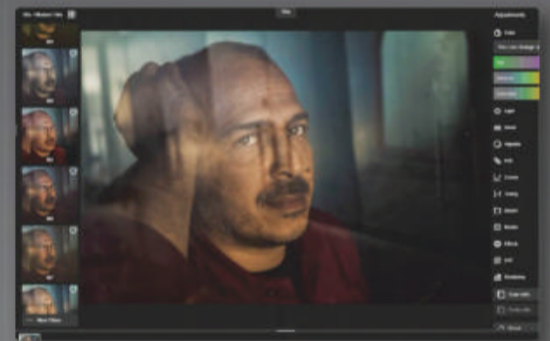


Polarr

polarr.co

Photo editing doesn't have to be intimidating, and neither does it have to cost you a fortune. We've covered a host of alternatives here before – programs like Gimp and Paint.NET, and online services like PhotoPea – but none is quite as easy and effective as Polarr, which has grown from a mobile app into a very capable piece of PC software.

It does away with the majority of the tools you'll never use in other apps to focus on what matters. You can use it to add film-like tint effects to your digital photos, quickly remove blemishes or unwanted spots from images that need tidying up, crop your images to focus on the content that matters, and add captions if something needs a label. There are also more advanced features that Polarr asks you to pay for if you want to create more arty shots.



SNAP HAPPY Even the dullest shot can get a fresh new look with Polarr.

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THE 60-SECOND QUIZ

Pens at the ready, your time starts now!

1 Which display technology is used in Amazon's Kindle?

- A CRT
- B E-paper
- C TFT

2 Which of these computers was the first to include a monitor?

- A Xerox Alto
- B Difference Engine
- C IBM Thinkpad

3 When was the first LED (light-emitting diode) display developed?

- A 1977
- B 1988
- C 1999

4 What does 'TFT' stand for when applied to monitors?

- A Twisted Flax Table
- B Thin Film Transistor
- C Ten Flip Technology

5 Which of these is a display technology commonly used by projectors?

- A DLP
- B DDP
- C DDT

6 Which of these is not a virtual reality headset?

- A Oculus Rift
- B HTC Vive
- C Virtuality EYE

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

NEXT ISSUE ON SALE

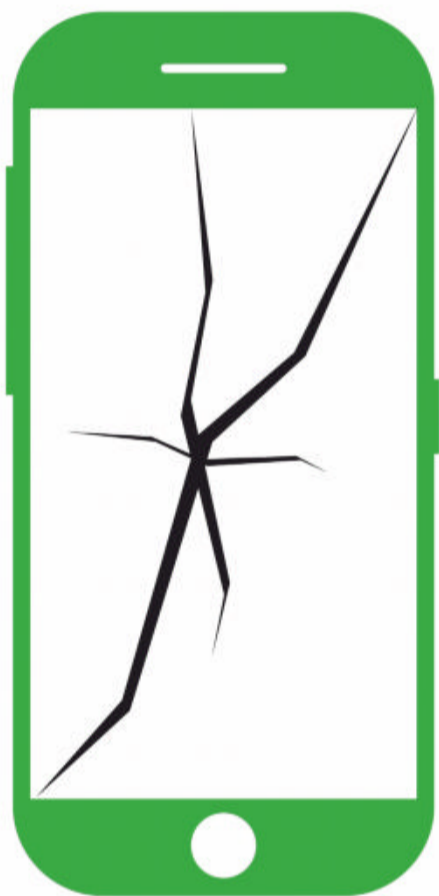
Friday

8th

November

Facts & figures

Here we reveal some mostly useless yet highly fascinating numerical facts...



27%

Of smartphones have smashed screens, according to a survey of 2,400 office workers by offices.co.uk. 2% of those are completely unusable.

1,585

The number of software vulnerabilities, including but not limited to those in Windows, discovered by Google's Project Zero between July 2014 and July 2019. The outfit gives vendors 30 days to address the problem, usually with a software patch, before going public.



11GBIT/S

The theoretical maximum combined data rate of a Wi-Fi 6 device. The new wireless standard, aka 802.11ax, will be rolling out in late 2019.

KB4515384

Is a Windows 10 update causing some people trouble with connecting to the internet. If you're affected, try rolling it back.

60 YEARS

Have passed since the COBOL computer programming language was first designed. Based on work by US rear admiral Grace Hopper, the nearly pensionable language is still widely used on mainframe computers.

```

File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT TUTORIAL_POINT_COBOL(PGMSTRC) - 01.04 Column 00007 00072
Command menu scroll
***** Top of Data *****
000100 IDENTIFICATION DIVISION.
000200 PROGRAM-ID, HELLO.
000201 AUTHOR, TUTORIALPOINT.
000202 *****
000210 ENVIRONMENT DIVISION.
000211 *****
000220 CONFIGURATION SECTION.
000230 SOURCE-COMPUTER, XXX.
000240 OBJECT-COMPUTER, XXX.
000241 *****
000250 INPUT-OUTPUT SECTION.
000260 FILE-CONTROL.
000270 SELECT FILEN ASSIGN TO DENAME.
000280 ORGANIZATION IS SEQUENTIAL.
000290 *****
000291 DATA DIVISION.
000292 *****
000293 FILE SECTION.
000294 FD FILEN.
000295 01 NAME PIC A(25).
000296 *****
000297 WORKING-STORAGE SECTION.
000298 01 WS-CLASS PIC 9(3).
000300 LOCAL-STORAGE SECTION.
000301 01 LS-CLASS PIC 9(3).
000302 *****
000303 LINKAGE SECTION.
000304 01 LS-ID PIC 9(3).
000305 *****
000310 PROCEDURE DIVISION.
000400 DISPLAY 'Hello World!'.
000500 DISPLAY 'welcome to TutorialPoint!'.
000600 STOP RUN.
***** Bottom of Data *****
F1=Help F2=Split F3=Exit F5=Find F6=Change F7=Up
F8=Down F9=Swap F10=Left F11=Right F12=Cancel

```

>> Incoming

The hottest new hardware, freshly distilled



AI-blended whiskey

From £60 <https://mackmyra.co.uk>

Sweden may not be the first country that springs to mind when you think of whiskey, but one distillery's blend of traditional techniques and cutting-edge Microsoft cloud AI may be about to put it on the map.

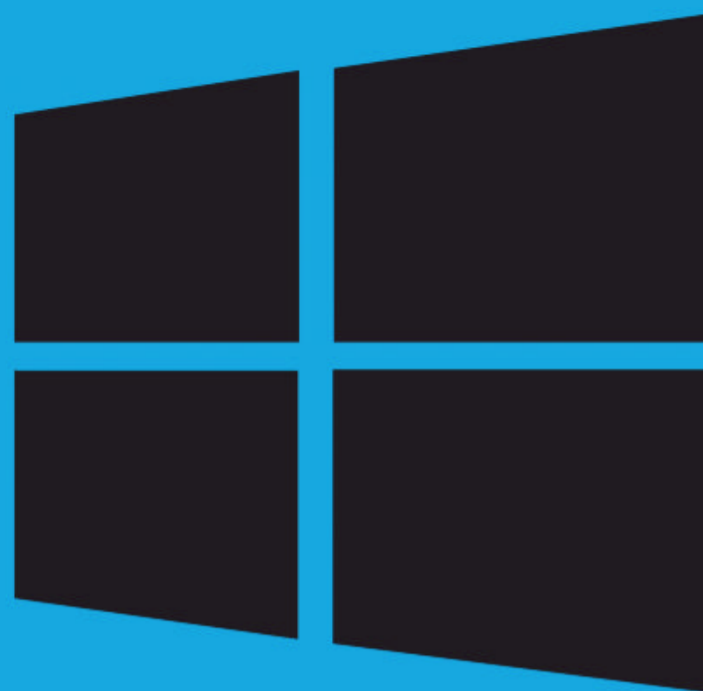
Now available to buy following its announcement earlier this year, Recipe 36 is an algorithmically generated blend of spirits that was selected by a human master blender to go into production following, we assume, a long period of tasting and contemplation. Possibly followed quite swiftly by another one, it being cold in Sweden at this time of year.

The machine learning models, powered by Microsoft's Azure cloud platform and Azure cognitive services, are fed with Mackmyra's existing recipes, sales data, and customer preferences. With this dataset the AI can generate more than 70 million recipes that it predicts will be popular, based on what kind of cask types there are in the warehouse.

A request to review a bottle remained unanswered as we went to press.

All image credits: Microsoft/Mackmyra





WINDOWS REFRESH

Ready to reinstall Windows? Are you really? Let's look at your options...
By Alex Cox and Nick Peers

So, you use Windows. You're in a slowly shrinking but still three-quarters majority, so it's not a surprise: Windows users are ubiquitous. Almost as ubiquitous as people complaining about Windows, because macOS and Linux users do that, too.

Whatever your gripes, the thought of reinstalling Windows has likely crossed your mind at some point. Perhaps you've even gone ahead without thinking of the consequences. You might even have been left with a half-functioning machine that's missing many of your critical files and programs. Let's be clear at the start of this feature (one that's ostensibly about reinstalling Windows): Reinstalling Windows is generally a really bad idea.

Hear us out. Windows 10 is a much cleaner and more stable OS than its predecessors. There's no good reason to reinstall it unless you've managed to mess with its system files to the point of oblivion,

or you've fallen victim to some serious malware that can't be expunged in any other way. If you're in the latter bracket, it's probably too late for your files – unless you've taken the correct precautions. With a proper process built into your everyday computer use, reinstalling is trivial and safe. Mostly pointless, but clean enough.

So, you could reinstall Windows, and we'll talk about it in detail, but we'll also show you other options. Before you throw everything away and start over, perhaps you'll want to clean everything up manually, or use Windows' own refresh tools, to leave your current installation in a better state. Maybe you'd like to try an innovative (and slightly silly) dual-boot, putting a clean Win 10 alongside your dirty one. You could be moving machines, and want to turn a fresh install on your new hardware into something akin to your current PC. It all sounds easy, but following the proper procedure is essential if you want to keep everything precious.

REINSTALL FOR FUN AND PROFIT

Keep lists of installed programs, and their activation keys, to rapidly make your old PC feel like new again

Reinstalling Windows 10 is a fairly trivial task. Put in the right media, boot from it, grind away the old OS, and replace it with the pristine bits of a shiny new install. This can be a painless, if time-consuming, procedure that leaves you with a like-new PC, or perhaps an even better one if you were unlucky enough to buy a PC burdened with preinstalled trashware.

Before you do this, make sure you've checked off a few prerequisites, all of which are good practice even if you're not planning to wipe everything and start again.

First, keep a record of your product key (if you have one – most likely if you've upgraded from a previous version of Windows), or make sure your digital licence is well looked after. If you've bought a PC in the last few years, you're probably using a

digital licence rather than a key. Check Settings > Update & Security > Activation. If you see the message "Windows is activated with a digital licence," this means you're digitally signed, but you should link that license to your Microsoft account in case of installation issues or future hardware changes. Head to Settings > Accounts > Your Info, sign in with your Microsoft account details, and the message should change to "Windows is activated with a digital licence associated with your Microsoft account."

Key information

Next, dig out the keys for all your crucial software and keep them safe too, as you'll need to reinstate everything manually when performing a full reinstall. You can use PowerShell to make a list of

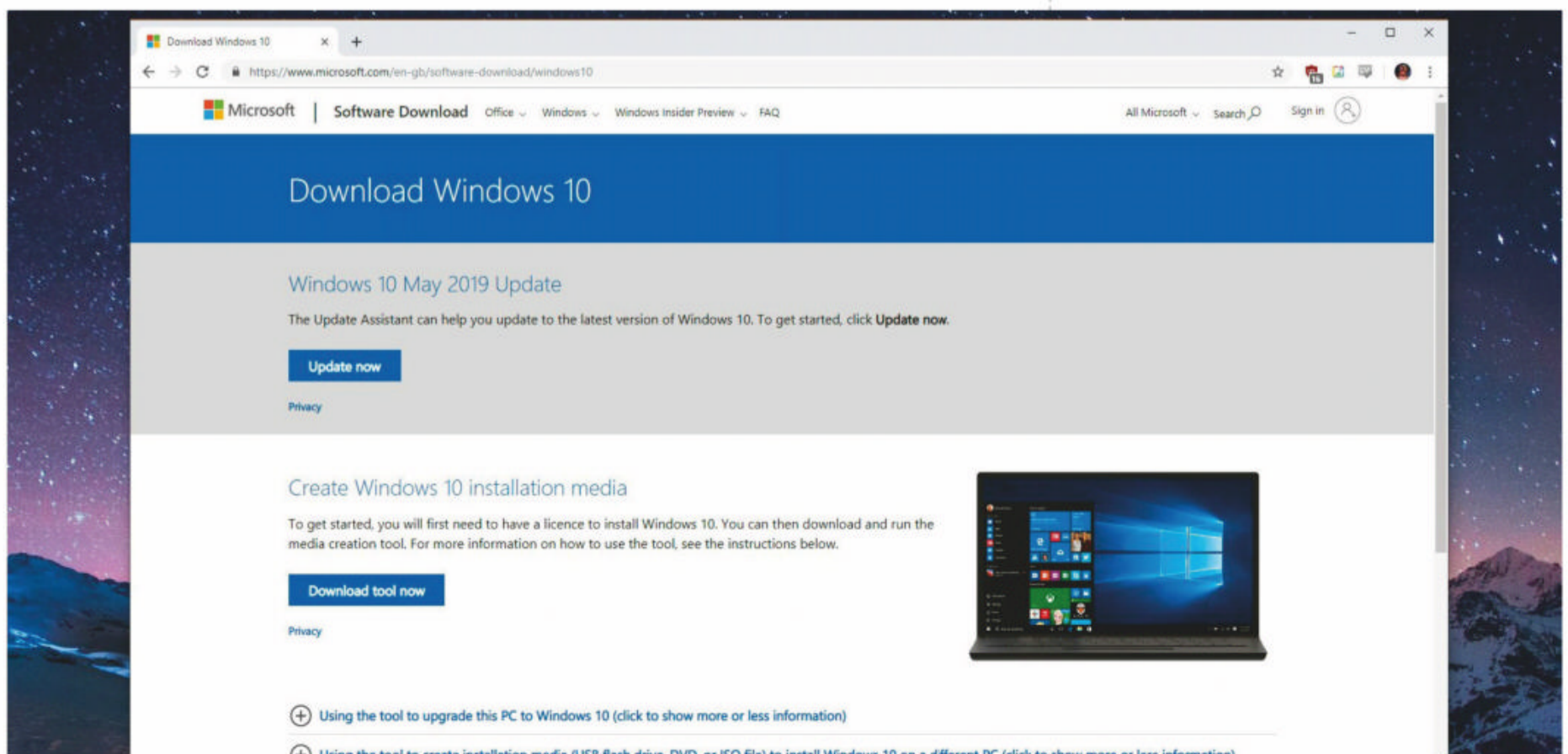
your installed programs; run it as administrator, and type: `Get-ItemProperty HKLM:\Software\Wow6432Node\Microsoft\Windows\CurrentVersion\Uninstall* | Select-Object DisplayName, DisplayVersion, Publisher, InstallDate | Format-Table -AutoSize > C:\software.txt`

A list is created as a file called `software.txt` in the root of your C drive. Tweak if you want a different file name or location. Keep a copy of this elsewhere, in case you come to your reinstalled machine and realise there's something you've forgotten.

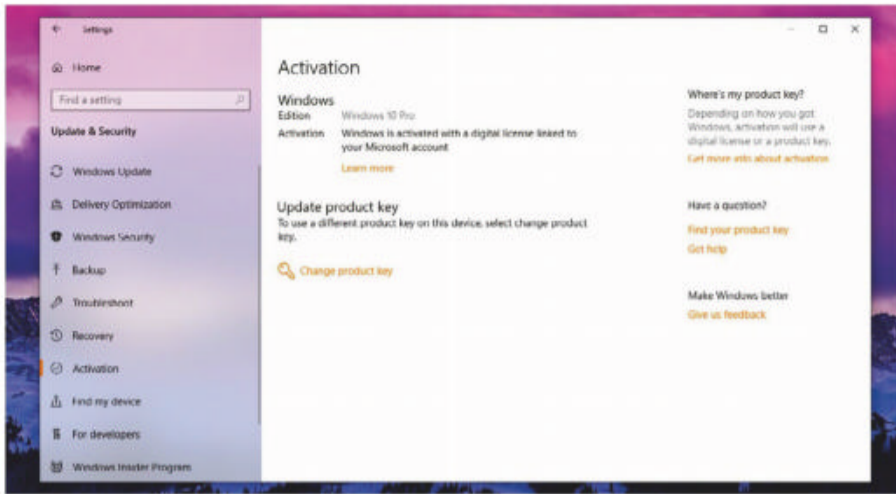
If you want to make your job easier, `ProKey` (<http://nirsoft.net>) can dig up keys for many Microsoft apps and Windows; also consider using a lockable password manager, such as `LastPass` (www.lastpass.com), to not only keep a record of logins, but to store details about your software so it's always there when you need it.

You can't back up programs (Windows' file structure doesn't work like that), but you can (and should) back up every other little thing. Backing up your hard drive using

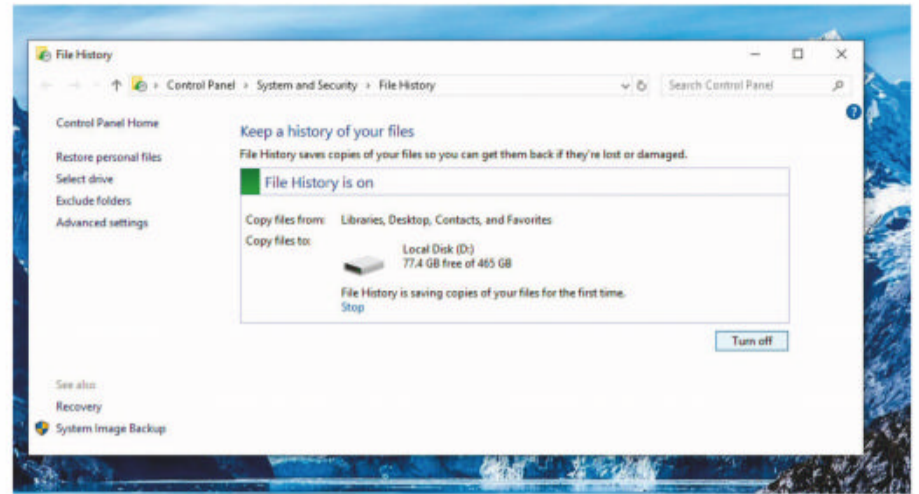
“Dig out the product keys for all your crucial software and keep them safe, as you'll need to reinstall that too”



Microsoft is happy to dole out the code for Windows 10, but you'll need a proper licence if you want to use it fully.



Ensure your licence key is properly linked to your Microsoft account before you begin reinstalling Windows.



File History isn't just about keeping versions – it's about keeping everything, and can be a real lifesaver.

something like Macrium Reflect might seem like a solid idea, and it's the best way to make sure you don't miss anything, but a compressed copy won't give you access to the files you need once it's made, and it's pointless if you're reinstalling to fix a broken system – instead, consider Windows File History to perform rolling backups of crucial folders as you use your machine. It's slow to start, but if this is something you set up to run invisibly as you use your PC (and, ideally, back up to different hardware periodically), you always have a backup ready when you need one. Try to include driver installation files in your personal folders, to be caught by File History – and consider creating a second, manual backup of all of your important files. Check them both for integrity before you pull the trigger.

One last consideration: DRM. It's a menace, but never more so than when you have a bunch of DRMed files that are tied to an account that limits PC authorizations. Kill your current install, and you might not be able to get that authorisation back – you could even lose access to all the things you've bought; DRM is cruel like that. So, make sure any management app, such as iTunes, has been de-authorized before you leave your current install behind.

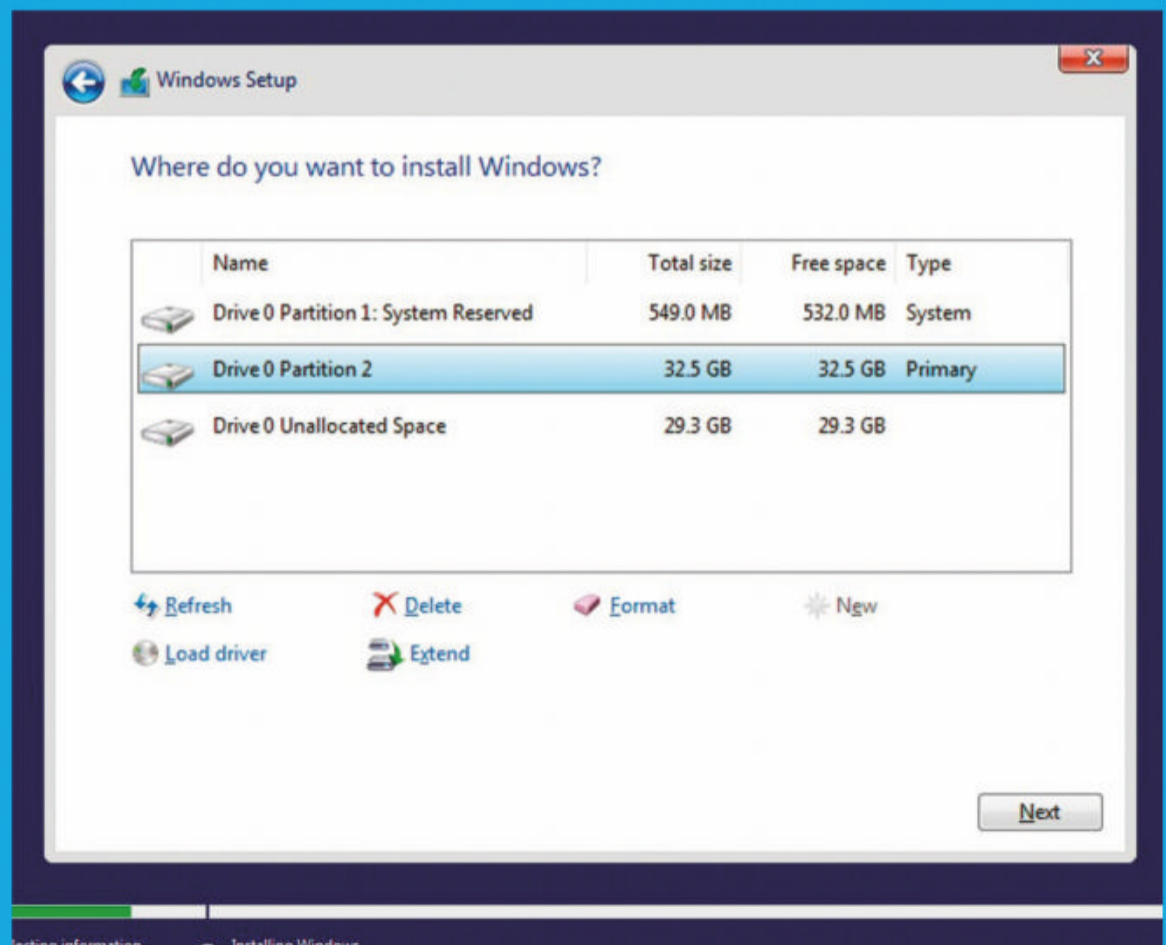
Installation art

With all this done, go ahead and reinstall. You can create your own installation media by heading to www.microsoft.com/en-us/software-download/windows10 and using the media creation tool to put the latest update of Windows 10 on a USB stick ready for installation. Over the page, we show you everything you need to reinstall your operating system, but a couple of notes first: You'll want to select Install Windows Only, because the Upgrade option will leave your PC basically as it was; and you can skip inserting a product key – you can do this later, or your PC will activate itself when you sign in to your Microsoft account.

Multibooting Windows 10

One of the factors that contributes to our pessimism surrounding reinstalling Windows is that we desperately don't want you to lose anything. We're kind like that. But there is another, slightly frivolous way to do a reinstallation if you've got working hardware to play with: you can turn one Windows installation into two. If you have a second drive that is able to support a Windows 10 installation, or enough access to your current Windows 10 installation (and enough free space) to be able to trim down its drive using Disk Management then create a new clean partition, you can install a second copy of the operating system alongside the first. Simply select a custom install, and then point Windows 10 at that spare disk space – it should do the rest for you.

It's questionable whether you'd technically need a second Windows licence to do this – you can only possibly use one instance of Windows 10 at a time if installed this way, so it shouldn't be an issue, but the Microsoft EULA does suggest that only one instance is allowed to exist. Take that as you will. You'll likely need to switch off BitLocker before partitioning your drive, and if you use Windows in this way, you'll want to do this anyway, since an unlocked filesystem on your original install can be easily accessed on your new one. Copy everything to a safe new location, make sure you've got everything, and you can ditch the original install – and if you're likely to use the new installation as your main copy of Windows, you'll need to make sure it's first in the boot order. It should be by default, but you may need to poke around in your BIOS/UEFI settings to select the correct drive, or set it through the Advanced system settings link from the Control Panel's System tab.



Just select the correct partition and install away. But make sure it definitely is the correct one before you start.

Learn how to...

REINSTALL WINDOWS 10

Create brand new installation media and then reinstall the latest version of Windows 10 from scratch on your hard drive

The act of reinstalling Windows 10 can feel daunting. Never fear: we're going to step you through the entire process from booting from your Windows installation media to running carefully through the post-install setup options.

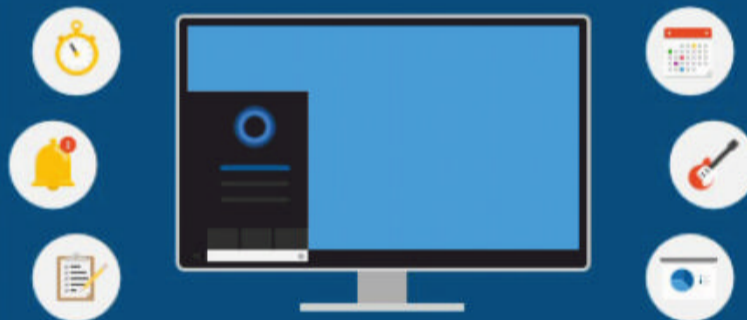
If you've not yet done so, visit www.microsoft.com/en-gb/software-download/windows10 and click Download tool now to download and run the Media Creation Tool. Insert a blank DVD, or plug in an unused USB flash drive (8GB or larger). After launching the tool, accept the licence terms, then

choose Create installation media... and follow the prompts (use recommended options when asked) to create your flash drive or generate an ISO file. If you choose the ISO file option, click Open DVD burner at the end to write it to your blank DVD. Once your installation media has been created, read on.

Get help from your digital assistant

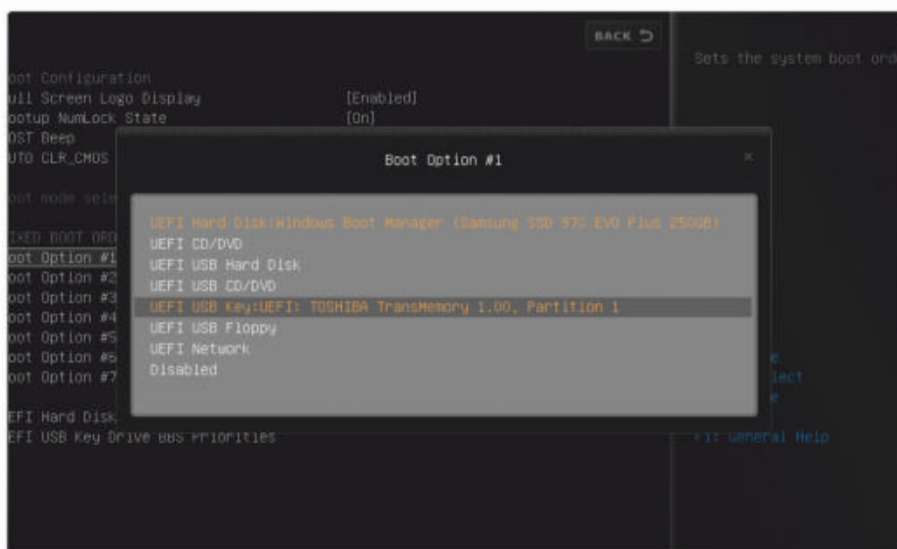
Cortana helps you manage your time, get things done and stay connected

ALEX'S BEST TIP
If in doubt about privacy settings, err on the side of caution – you can always re-enable features later.

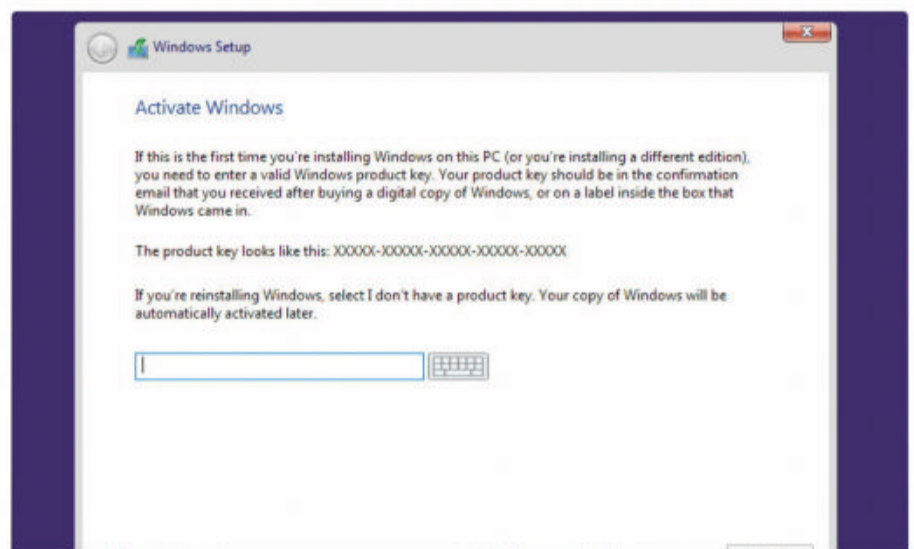


To let Cortana provide personalised experiences and relevant suggestions, Microsoft collects and uses information including your location and location history, contacts, voice input, speech and handwriting patterns, typing history, search history, calendar

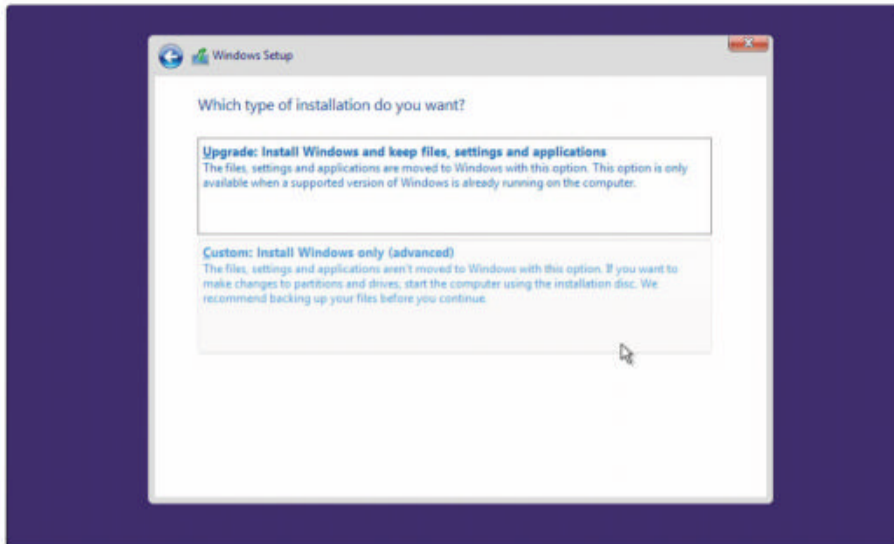
Step-by-step | Step-by-step: install Windows 10



1 Boot from installation media
Insert or plug in your Windows installation drive (choose a USB 3.0 port for your USB flash drive for maximum performance) and then start or reboot your PC. If it doesn't automatically start the installation process, reboot again, but this time look for a message about choosing a boot device (typically the F11 or F12 key). Tap this, then choose your DVD or USB drive to boot from it.

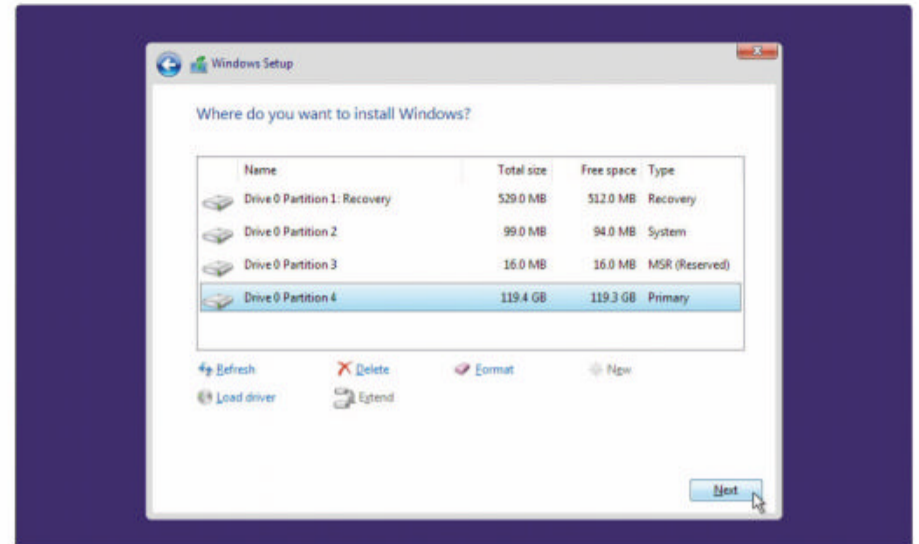


2 First steps
At the first screen, verify that the language, time and currency format and keyboard are all set to the correct location, such as English (United Kingdom). Click Next, followed by Install Now. When the Activate Windows box appears, click 'I don't have a product key' unless you're using a local account rather than a Microsoft one, in which case enter the product key and click Next.



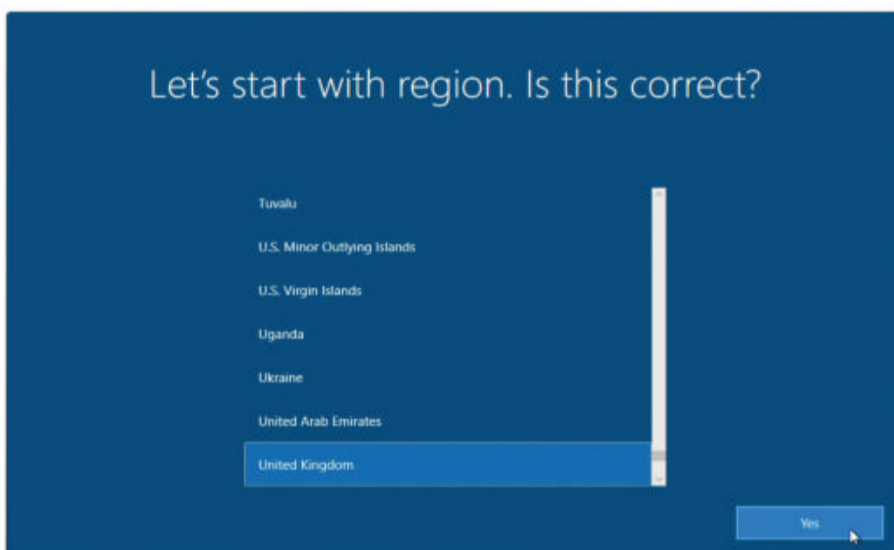
3 Choose installation type

Select your edition of Windows 10 (typically Home or Pro, not Home N or Pro N) and click Next. Tick to accept the licence terms and click Next again. Choose the Custom: Install Windows only (advanced) option. At the next screen you'll see your current drives and partition layout. Be sure to identify the correct partition containing your current Windows installation.



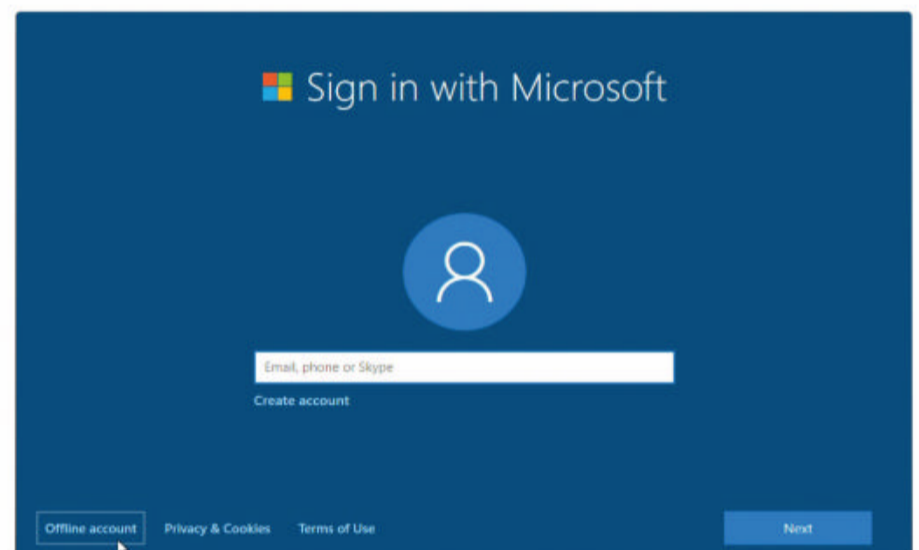
4 Set up drives, copy files

If you click Next now, Windows should detect your existing installation and offer to move it to a Windows.old folder; assuming you've backed everything up beforehand, a better option is to select the partition and click Format to wipe it (after acknowledging the warning), then click Next. Windows will move on to the file copying and installation stage. Sit back and relax.



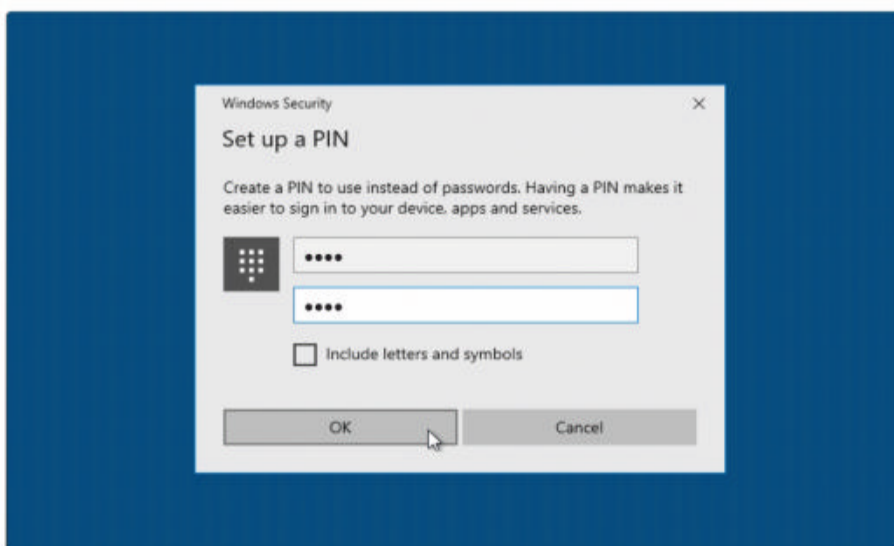
5 Basic setup

Once the 'Installing Windows' phase is complete, your PC will reboot. Step one is to confirm the region and keyboard layout are both correct – it should be the same as you selected in step two. Click Yes to confirm each, followed by Skip to avoid adding a second keyboard layout. If you're connecting wirelessly, you'll next be prompted to select and connect to your Wi-Fi network.



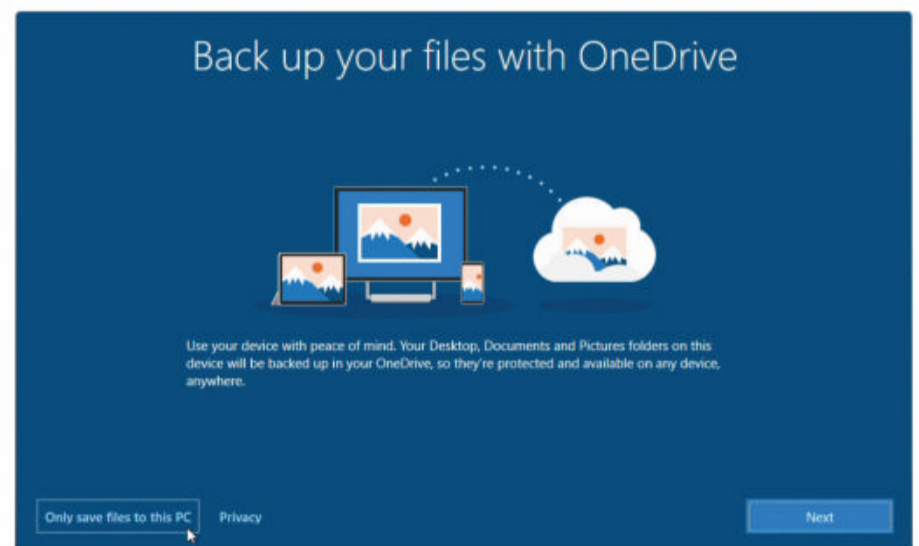
6 Choose account type

Most people will want to choose 'Set up for personal use' when prompted, so select it and click Next. You'll now be prompted to sign in with your Microsoft Account – the same one you previously used for Windows on this PC. If you entered a product key and don't use a Microsoft Account, click Offline Account followed by No to create a local one instead.



7 Set up PIN

After signing in, click 'Create PIN' to simplify future sign-ins with a numerical code rather than your password. Click OK. You'll be asked to switch on activity history – click Yes only if you use Windows on more than one device. You'll then be given the opportunity to link your Android or iPhone to your PC via the Continue on PC app. Click Next to move on.

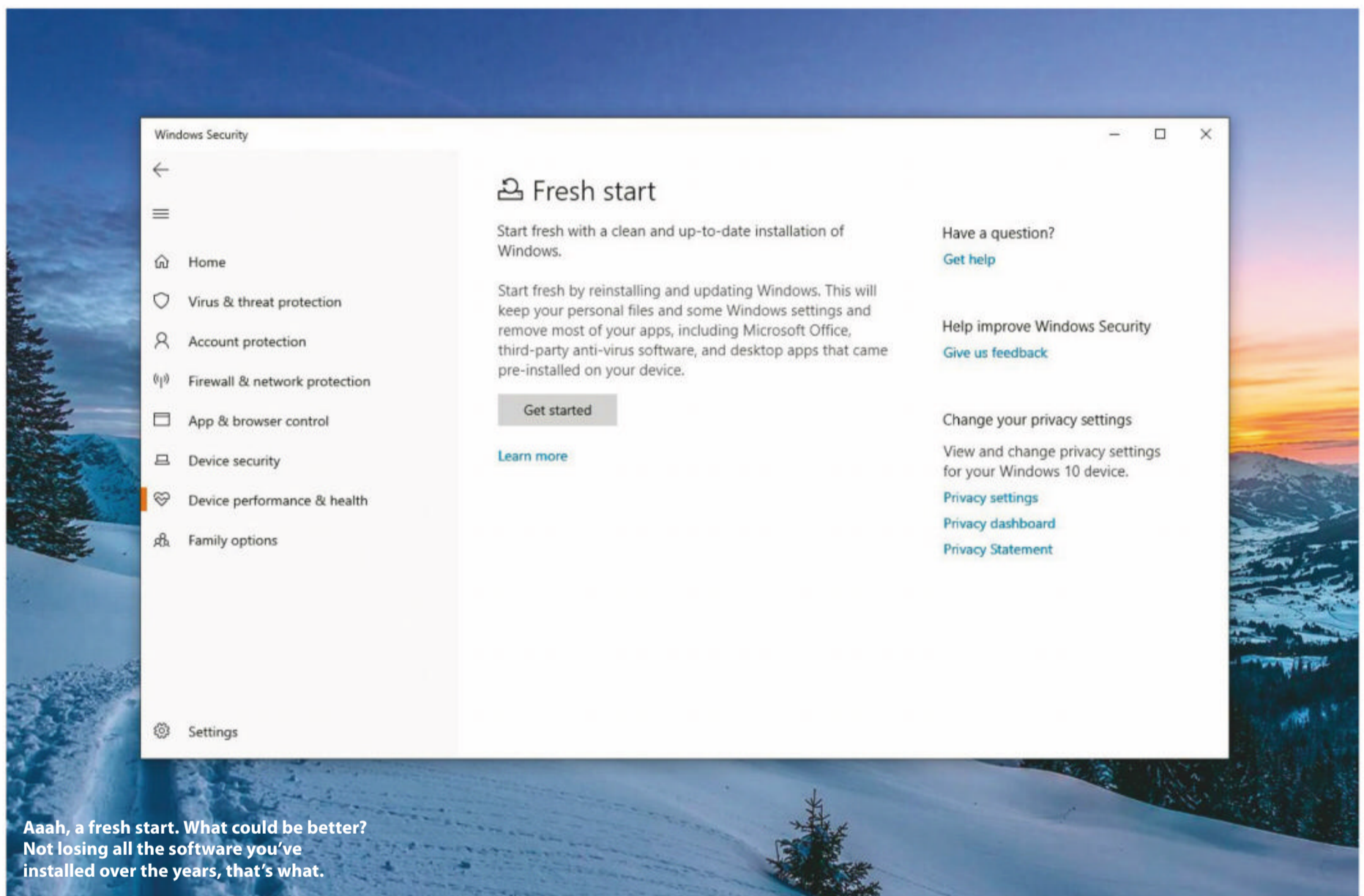


8 Manage privacy settings

Next, if you want to prevent OneDrive from becoming your default save location, click 'Only save files to this PC'. The rest of the wizard will allow you to choose whether to use Cortana, online speech recognition and various other privacy related features. Read each one carefully before selecting your choice to complete the post-install setup process. ■

REFRESH, RESTART, RECYCLE, REINSTALL

Confused by whether to refresh, reset or reinstall? Windows 10 has multiple options, and they're changing all the time



If you've gone to the trouble of creating new installation media for any version of Windows 10 past the Creators Update, you'll probably feel a bit silly when you discover that Microsoft tucked a 'fresh start' option into its later Win 10 editions.

Using it takes any Windows 10 installation back to the basics of a Windows install, even removing any preinstalled software your manufacturer might have included, and stripping away all your drivers – and it doesn't require any special media. It's basically a clean install without you having to directly perform the actions of reinstallation. You'll find it in a corner of Windows Defender Security Centre, aka Windows Security – select Device

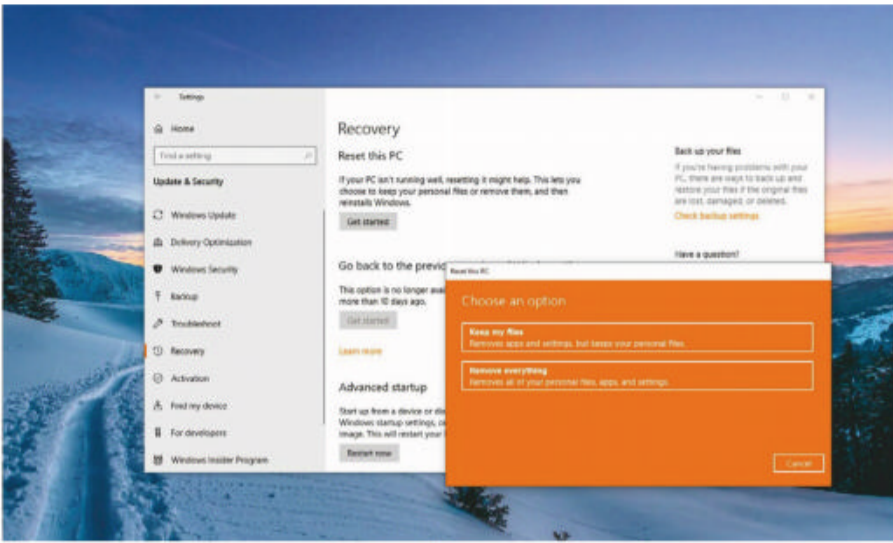
performance and & health, then Additional info, before clicking Get started to begin. Again, make sure you're backed up, as this is only slightly less destructive than formatting your hard drive. Handily, the fresh start procedure leaves a little note of all the things you've destroyed on your desktop, just so you can kick yourself later.

Press reset

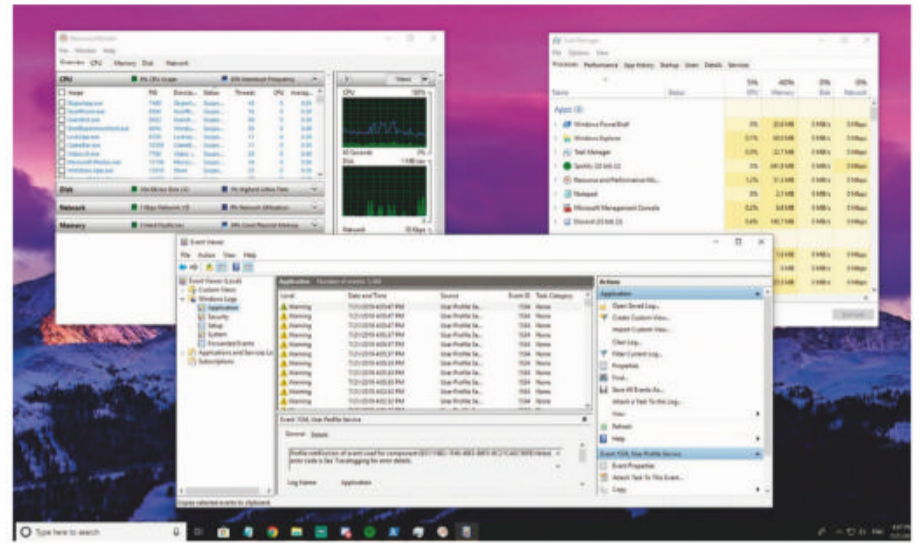
A better option might be to take advantage of Windows 10's 'reset'

feature, which strips out all of your installed applications and drivers while giving you the option of leaving personal files unmolested. This doesn't mean you can get away with not using proper backup procedures, but if there's a particular software component causing you problems, this will very likely get rid of it. Put simply, it rolls your machine back to the state in which it came to you: preinstalled software, drivers, and all. You might remember that earlier editions included two options,

“Windows 10's 'reset' feature strips out all installed applications and drivers while leaving personal files intact”



Choosing the Reset option enables you to immediately select whether to keep your files or not. Your apps are toast either way.



The holy trinity of system spying: Task Manager, Resource Monitor, and Event Log. You can add to these with thirdparty applications too.

the confusingly different 'reset' and 'refresh' – they're squashed together into this new, less baffling procedure. It does, technically, create a fresh installation of Windows, rather than uninstalling anything, as while it's running through, it uses the Windows Recovery Environment and sections off your personal files, putting them back where they were if you choose to keep them.

If you're insistent on reinstalling, perhaps you'd like to consider an upgrade? Not a version upgrade as such, but an in-place upgrade install – running through the Windows 10 install process, throwing fresh copies of all critical system files on to your PC, but leaving everything else, including software, as is.

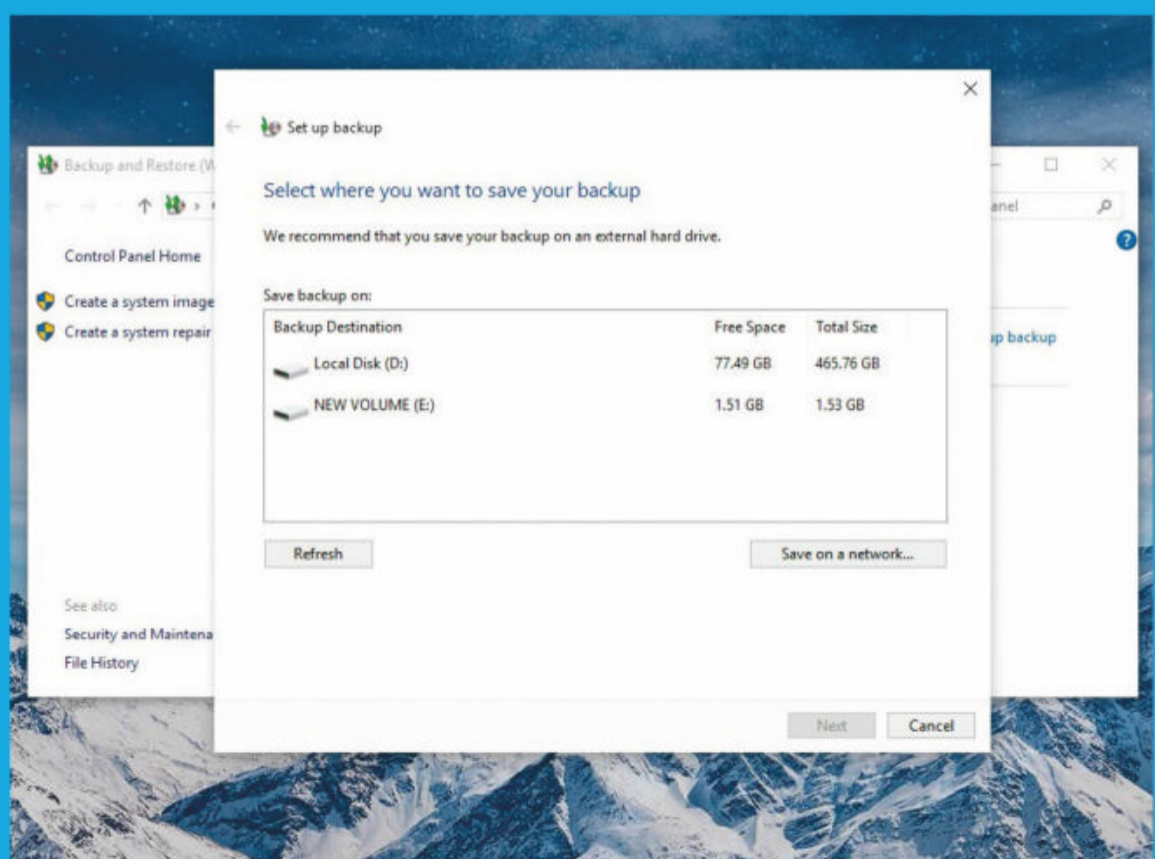
Opting to do this can (in theory) fix certain issues with your machine, and it's particularly effective against those problems that standard Windows prodding techniques don't solve. To perform an in-place upgrade, you need to be logged into an administrative account, have a good chunk of disk space free, and have secure boot switched off (at least temporarily) in your UEFI settings.

Use the Windows 10 Media Creation tool (see above) to create a USB stick, but don't boot from it: Open the drive from within Explorer, right-click the setup.exe file, and opt to run it with administrator privileges. Run through the install process, ensuring you check the box to keep all your files and apps. When done, you're left with your new, fresh Windows folder and a separate Windows.old folder on your main drive, the latter of which contains your previous install. It's possible to roll back, if everything has fallen apart, but don't take this as an excuse not to have a proper backup. When happy (you have 10 days to decide), you can dump the Windows.old folder and reclaim that precious space.

Building better backups

Reinstalling is, or should be, a last resort – and if you ever come to the point where you absolutely have to reinstall Windows and don't have copies of your files, it might be too late. A hardware failure, a cryptographic malware attack, whatever the case may be, you don't want to be left stranded. We've talked about using Windows' File History tools elsewhere, which is a good way to keep regular copies of your personal files, but Windows also includes a more thorough backup procedure in the form of Backup and Restore (Windows 7). Now, we can't be entirely sure how long this is going to last, given its archaic name, but for now, it works, and we'd wager that Microsoft will supply a tool to restore its backups even if the facility gets removed from future versions of the operating system. If you have a backup on an external drive, you can reinstall Windows from scratch and restore it using the same tool – aim to make one every week or so, so you don't lose too much time. EaseUS Todo Backup 11 Free (www.easeus.com) is a decent option for automating backups; make sure, if you do this, that you don't leave your backup drive permanently connected to your machine, because a hardware failure passed down the line is a double whammy of disappointment.

Do not discount the power of system restore points, either. While they're not kind to storage – we'd put them on your mechanical long-term storage drive, rather than an SSD, if you have the choice – making a system restore point regularly is good practice. Taking the overkill position of making one before installing anything even slightly questionable is an even better thing to do, although we don't really expect you to do that. Make sure you clean up when you're sure your machine is running fine, because a huge hoard of system restore points does nobody any good.



It's an older tool, sir, but it checks out. Backup and Restore has been with us for a long time, but does things File History doesn't.

THE POWER OF ELBOW GREASE

Why fixing problems as you go, and monitoring what your PC is doing, can be better than a full operating system reinstall

Many people look at a Windows reinstallation as a way to fix any and all ills. However, we consider it as being more of a last resort. It's a little like dealing with unruly children. Before taking drastic action and shipping your PC off to military school, you should really do everything you possibly can to fix the problems you've got, and find out the cause of its misbehaviour, because you might just find that a simple solution works better. Heavy-handed metaphor

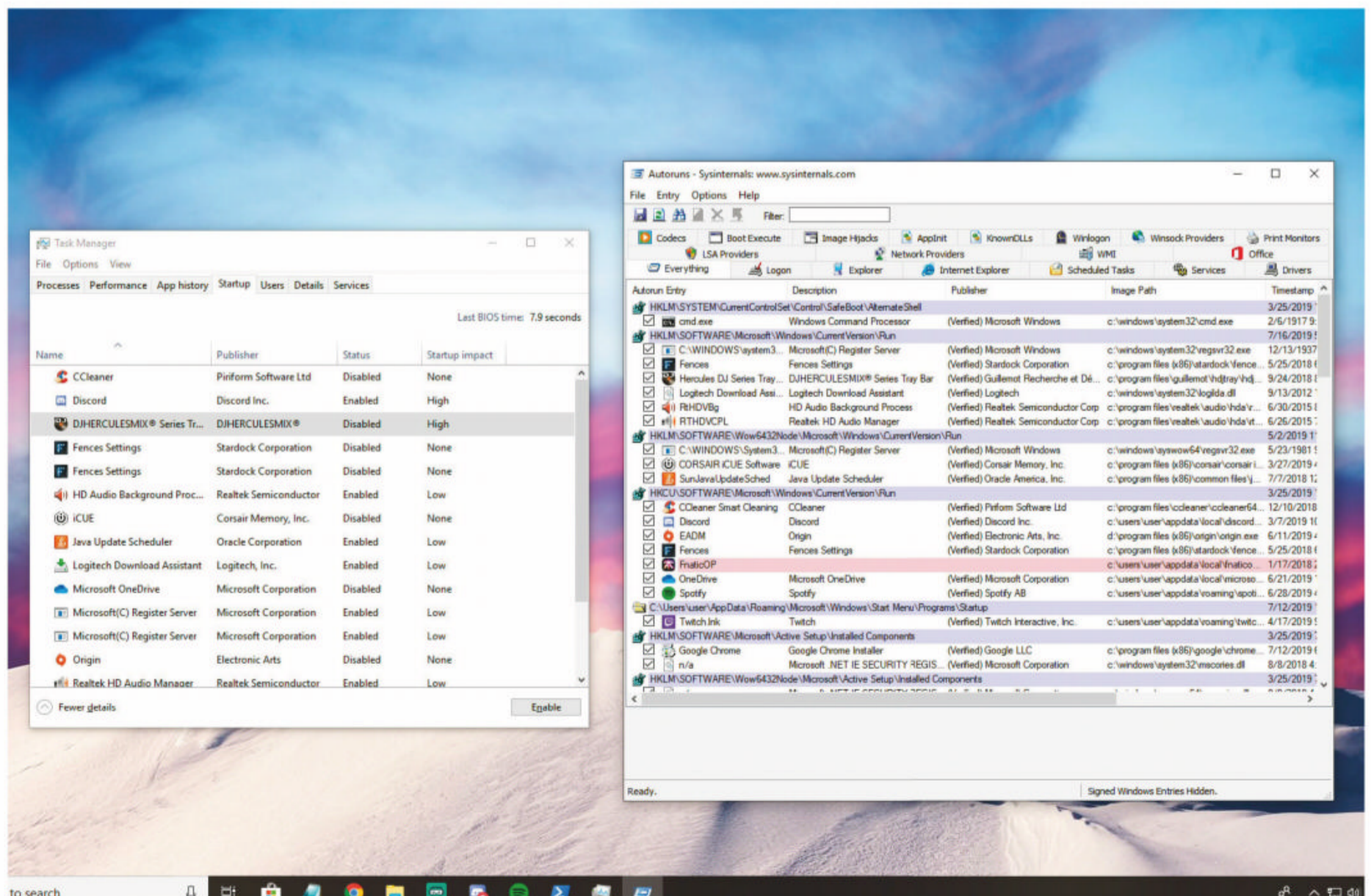
aside, keeping a keen eye on your PC's actions isn't particularly difficult, because Windows 10 includes all the tools you might need at your disposal: There's the Task Manager (which you can pull up at any time with a quick Ctrl-Shift-Escape); there's Resource Monitor (type "resmon" into the search bar) for a more detailed report on what's doing what; and there's even the difficult-to-grok but absolutely useful Event Viewer, which can throw up some worrying but utterly benign

messages, but also reveal the true cause of system crashes or slowdowns.

Clean living

It is worth keeping your system clean, not in terms of hard drive space (unless you're critically full, in which case, you should definitely start scrubbing), but in terms of the number of things that are installed on your system, how up to date they are, and how many of them you allow to just run whenever they like and eat up your system resources in the process. In terms of the latter, the Task Manager startup tab can give you some clues, not just about those auto-running apps, but also about the impact they tend to have on your

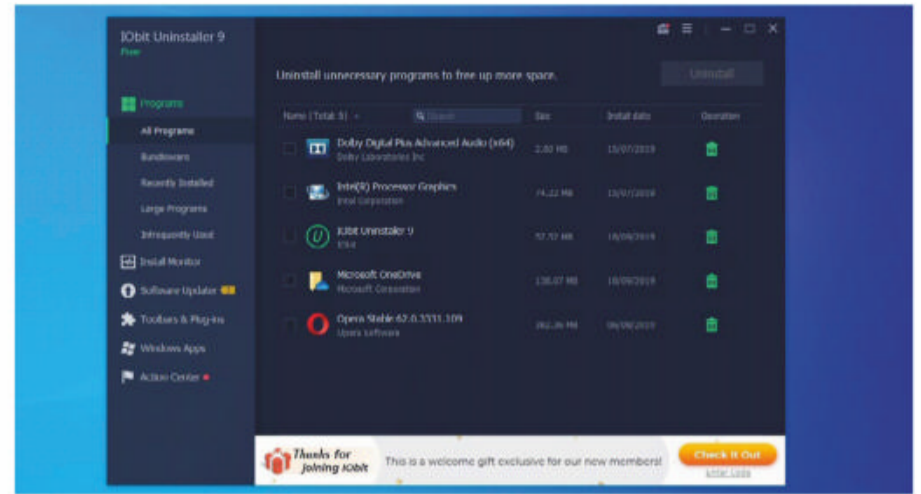
“Keeping an eye on your PC's actions isn't particularly difficult, Windows 10 includes all the tools you might need”



Task Manager can help squash auto-running programs, but Autoruns can do a whole lot more.



Head to Settings > Apps and Features to check what's installed on your PC, and when you last used it.



Uninstaller apps such as IObit Uninstaller (above) or CCleaner can remove the dregs left behind by apps, and even remove built-in space-hoggers too.

startup process, and you can also use it to disable their automatic execution. If you want to get more involved with what happens at startup, Autoruns (<https://download.sysinternals.com/files/Autoruns.zip>) gives you much more granular and deep control, although you should treat it with kid gloves, because heavy-handed tinkering could potentially cause more problems than it solves.

So, what's the best way to deal with old, unwanted apps? To completely expunge them from your system, of course. There's nothing wrong with Windows' built-in uninstallation procedures. You can flit through your Start menu, right-clicking things that shouldn't be there, and using the Uninstall option to get rid of them. Or you could use the Apps & Features tool, accessible from Windows' settings panel, which (sometimes) offers up a bit more detailed information about when a program was installed, and when you last deemed it important enough to run.

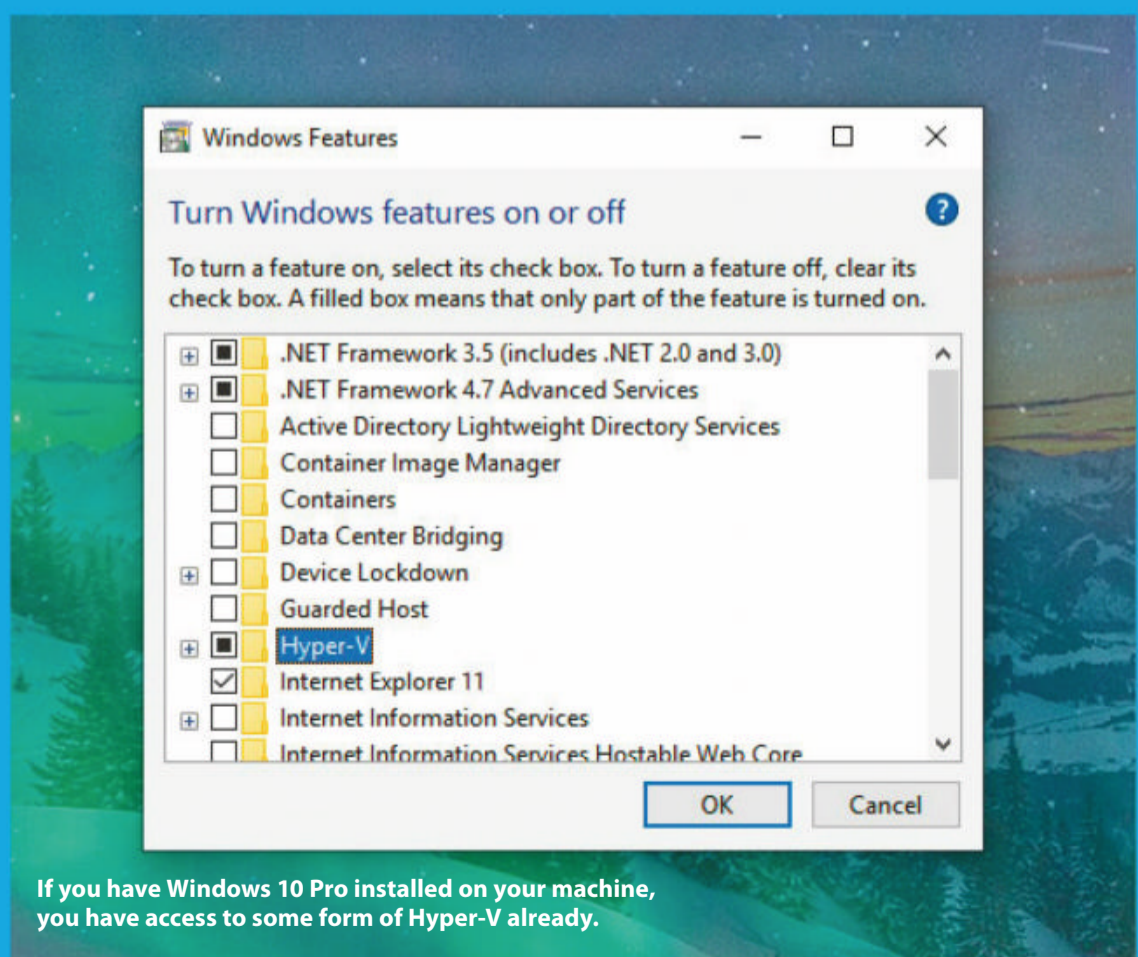
That usually works just fine. But if you'd like some more reassurance that a troublesome app is really gone, and with it any trace of its existence (we're well aware that revenge is usually a big contributor to any uninstallation process), something like the free version of IObit Uninstaller 8 (www.iobit.com) can work wonders. It makes software removal quick and straightforward, and it hunts for absolutely every file associated with the app that's on death row.

We wouldn't opt for the paid-for Pro version, even though it adds extra tools for stripping away manufacturer bloatware, because apps such as PC Decrapifier (www.pcdecrapifier.com) do the job just fine without any outlay. It might be tempting to try out CCleaner (www.ccleaner.com), too, given that it can even get rid of Microsoft's default apps, and we're not going to stop you – but it's worth pointing out that CCleaner can be very annoying in terms of notifications. If we do use it, it's generally immediately removed once the task is complete.

Go virtual instead

We're at the point in the PC's evolution where the overheads of virtualisation are proportionately so small, and the technology enabling it so plentiful, that running an everyday OS in a virtual machine is entirely reasonable. You obviously won't get 100 percent of bare metal performance from a virtualised instance of Windows 10, but it has a host of advantages. When you've got a system running just as you like it, you can take a snapshot, then quickly return to it at any point in the future. You can whip up a fresh copy of Windows in minutes, without any risk to your existing install. You can fire up other operating systems, and run them simultaneously on the same machine. If you're the kind of person who loves to settle down to a good Windows reinstall in the evening, then you're probably the right candidate for running a virtualized system.

We could fill an entire issue of this magazine with ways to do it, but if you're willing to experiment, here's a broad framework that's a good place to start. Use Fedora Workstation as your host OS (<https://getfedora.org/en/workstation>) and use the included Boxes app (a front end for KVM/QEMU) to get your VMs up and running. Install VirtIO to ensure that all of the IO functions work properly, and SPICE to deal with 3D acceleration. And make sure you've accessed your BIOS/UEFI settings and enabled all the good stuff that makes VMs work well – specifically Intel-VT or AMD-V, depending on your platform. If you fancy a challenge, both VMWare ESXi and Microsoft Hyper-V Server are pro-grade bare-metal hypervisors, which put a minimal layer between your guest OS and the hardware they're working with, but they do require some pro-grade understanding to get the most out of them, so are beyond the scope of this feature.



If you have Windows 10 Pro installed on your machine, you have access to some form of Hyper-V already.



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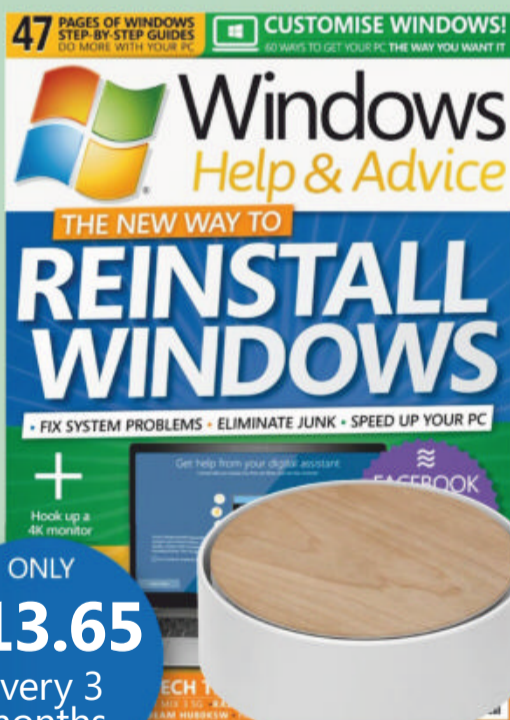


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Explore

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Welcome



Every month in Explore you'll discover some great ways to do more with your PC, whether it's mastering the basics, or getting productive with all kinds of apps.

This month, you'll learn how to set up a new 4K display on your PC (p24); how to apply quick fixes in Photoshop Elements (p27); how to find and install new fonts (p30); edit and sync notes securely (p32), and set up a simple home network (p36). There are plenty of time-saving tips and tricks too, making time spent with Windows 10 a breeze. Have fun!

Ian Evenden
Editor

ian.evenden@futurenet.com

Full listing...

24 Connect a new 4K display to your PC with our complete guide

27 Use quick fixes in Photoshop Elements to jazz up your selfies

30 Find and install new fonts for more interesting documents

32 Edit and sync notes between devices securely with Joplin

36 Use a home network to share files and resources between PCs

38 Make Windows 10 more accessible to those with sight, hearing or mobility issues

Your guide

Mark Wycislik-Wilson says...

"Learn about some of the many benefits to networking your computers at home"

Turn to page 36 to find out more



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✓ 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

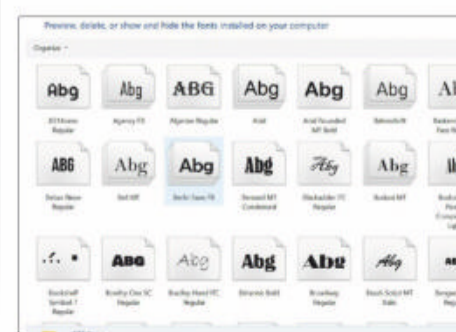
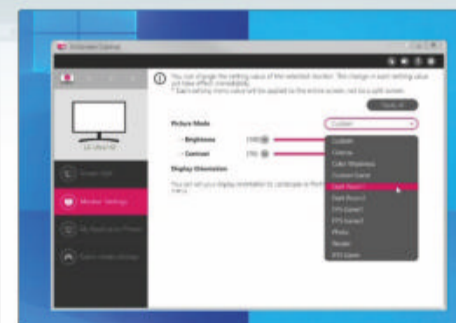
✓ We all know how to do the basics but getting the most from Windows isn't always easy. Our dedication to the operating system means you get the very best tips and tricks for all versions of Windows.

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... Set up a 4K display



Your guide *Nick Peers* says...

"Discover how to configure and optimise your new UHD monitor for a sharper, readable display"

At a glance

Skill level...

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

Suitable for...

- Windows 10
- Windows 8.1
- Windows 7

Ultra HD – also known as 4K – displays aren't just for gamers, media enthusiasts or graphics professionals. The ability to have three or four non-overlapping windows on-screen at once is beneficial even if you're just surfing the web or editing documents. And with prices now around £200 for entry level models, there's never been a better time to upgrade your monitor to 4K.

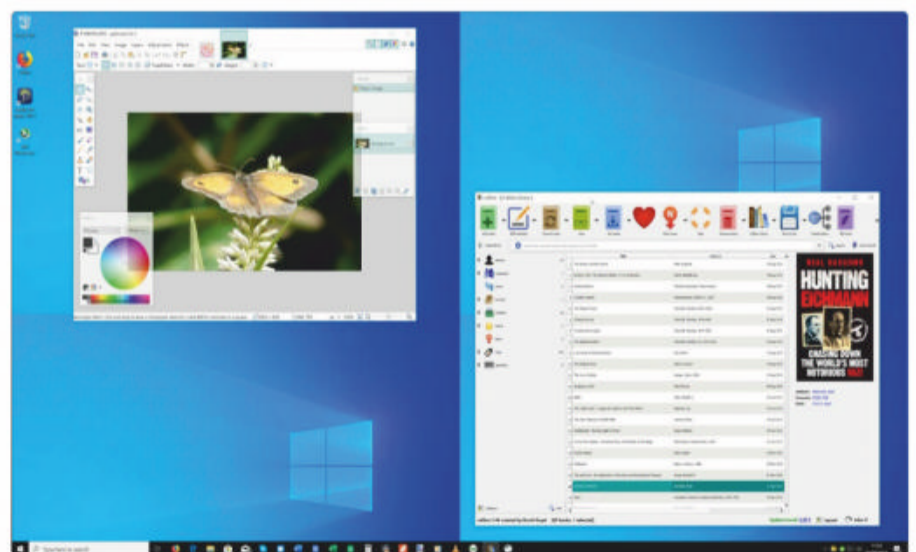
Viewing such a high resolution – particularly on smaller (24 or 27-inch) monitors – can result in tiny text and icons, making things difficult to read. Thankfully, both Windows and your monitor manufacturer (we've used LG in this tutorial as an example) provide tools to help alleviate these issues, which is where we come in. Read on to discover how to set up your display to improve readability without sacrificing resolution.

Step-by-step | How to | Set up your new display



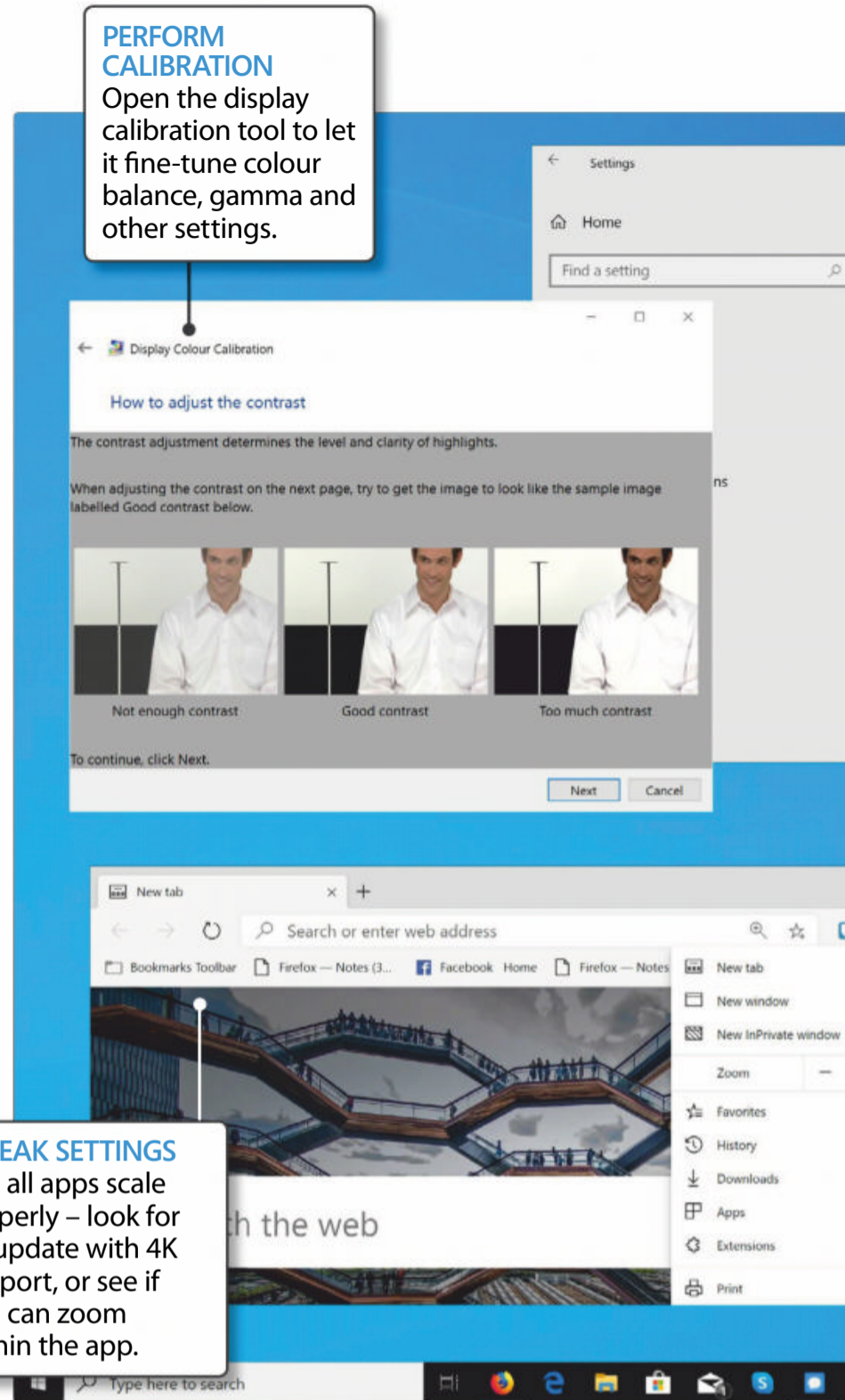
1 Pick the right cable and port

After placing your new monitor on your desk, you'll need to connect it to your PC. This may be a straightforward HDMI-to-HDMI cable, or you may find your PC only has a DVI port – in this case, verify it supports 4K (some lower end graphics adapters don't support 4K through the DVI port) before purchasing a HDMI-to-DVI cable or adapter – around £3-4 online.



2 First run

Switch on your PC and monitor. Consult your monitor's setup guide to see if you need to use the built-in controls – in most cases, the automatic settings should be in play, so it detects your PC automatically. Log into Windows when prompted: you should find the display has scaled automatically to 4K (3,840 x 2,160) – icons will be smaller, and text may be difficult to read.



Jargon buster!

► **4K**
Refers to the monitor's horizontal display resolution of approximately 4,000 pixels (3,840 pixels in Ultra HD/4K).

► **DVI**
Stands for Digital Visual Interface and is an alternative video port to HDMI. The principal difference is that DVI can only carry video signals; HDMI can carry audio too.

► **Preset**
A selection of pre-configured display settings, from brightness and contrast to colour balance, sharpness and black levels.

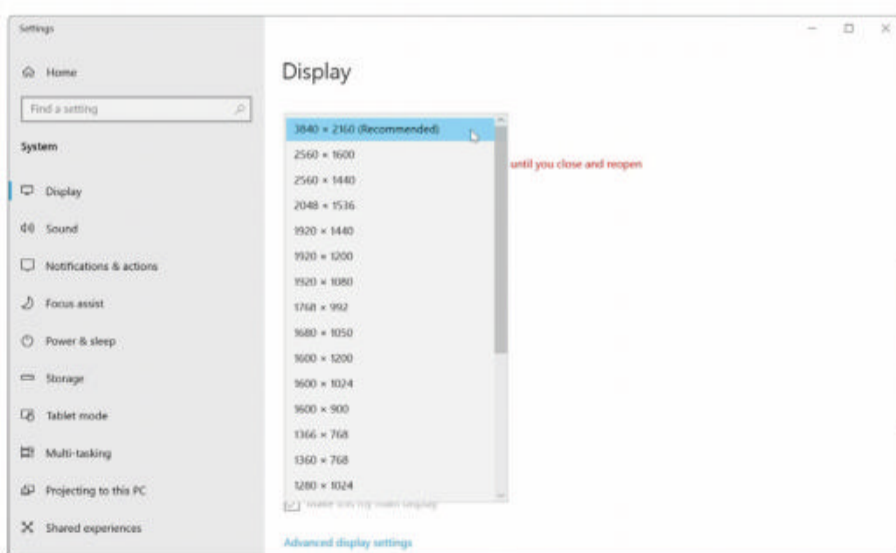
TEXT SIZE
If the text appears too small, open Display Settings and adjust it to 25% higher than is recommended.

ON-SCREEN
Check your monitor's manual for its on-screen controls. Some tools can be accessed via an app.

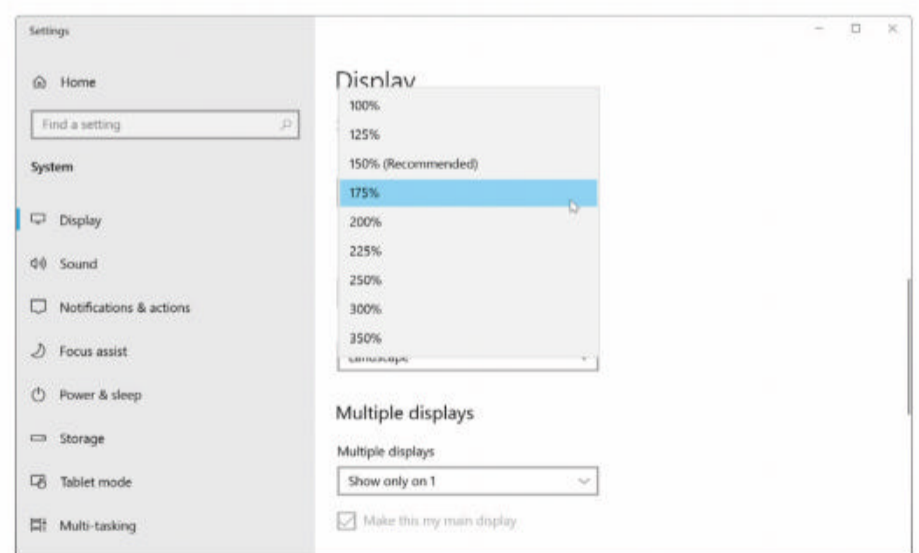
ADJUST CLARITY
If text appears a bit fuzzy when scaled up, try tweaking ClearType settings after calibrating your display.

INSTALL SOFTWARE
Manufacturers like LG offer tools that enable you to access additional features like setting up split screens.

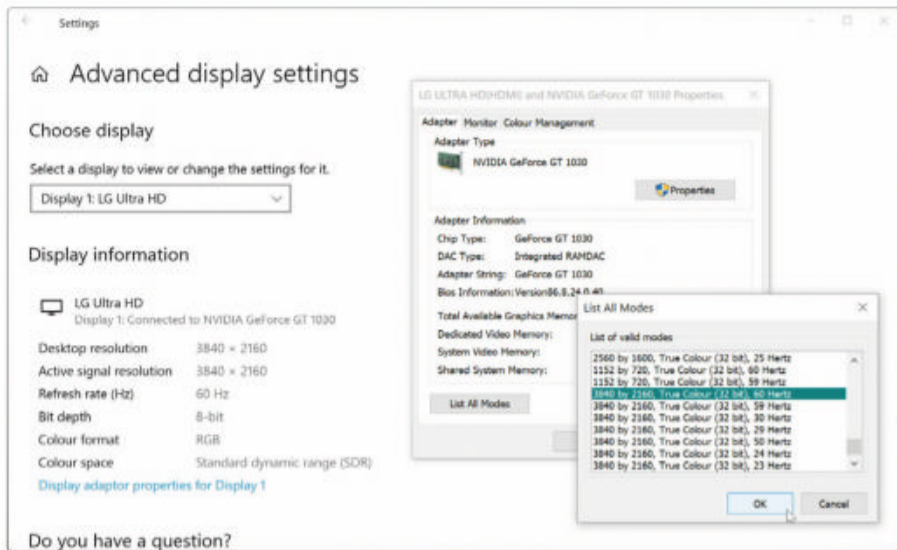
NICK'S BEST TIP!
Look for a 'gaming mode' which will fine-tune your display to adapt to the specific needs of fast motion.



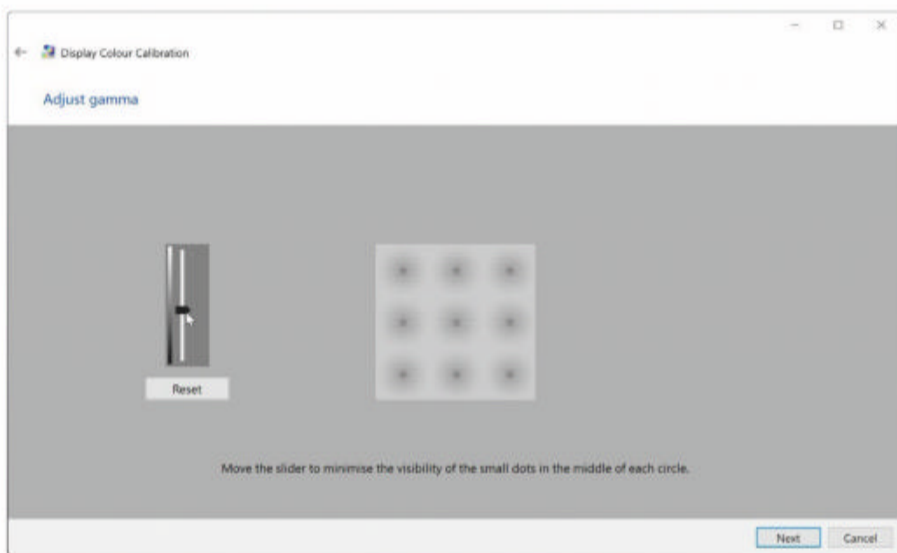
3 Configure screen settings
Right-click some empty space on the desktop and choose 'Display settings'. Your new display should be listed as '1'. Make sure it's selected and scroll down to the 'Scale and Layout' section. Verify the 'Display Resolution' is set to 3,840 x 2,160 – if it's not, click the drop-down menu to select it from the list. The display should automatically update – click 'Keep changes'.



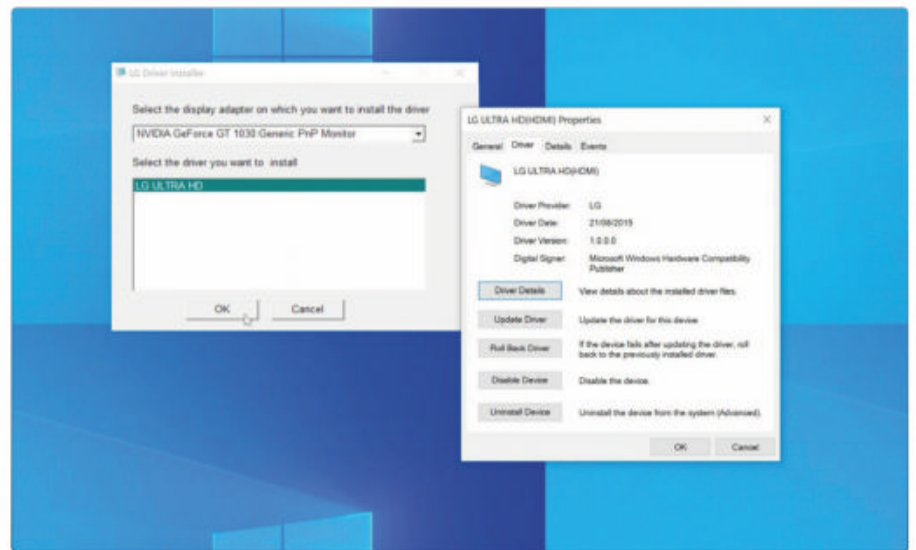
4 Tweak text size
Believe it or not, the text may have already been made larger on-screen for Windows and compatible apps. On our LG 27in display, we still found things too small at the 150% setting, so click the 'Change the size of text, apps and other items' drop-down menu and try a higher setting. 25% more should be sufficient – any larger and incompatible apps become noticeable.



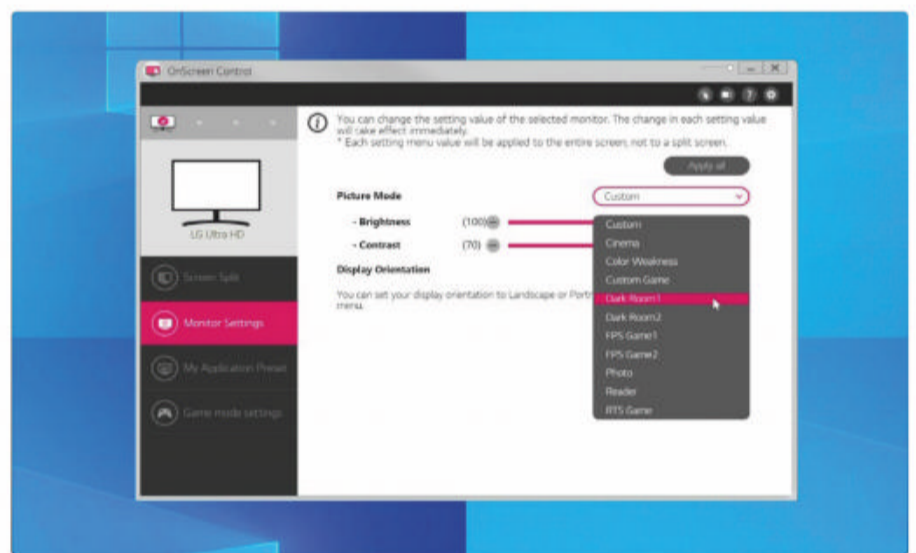
5 Improve refresh rate
 If the screen noticeably flickers, scroll down and click 'Advanced display settings'. If necessary, select your 4K display from the list, then click 'Display adaptor properties for Display 1'. Click 'List All Modes' and check the highest frequency (typically 60Hz) for 3,840 x 2,160 has been selected. If it hasn't, select it and click Apply. If the screen goes blank, wait: it'll soon revert.



7 Calibrate on-screen colour
 If you're unconvinced by your current colour settings, type 'calibrate' into the Search bar and click 'Calibrate display colour' to open the Display Colour Calibration wizard. Work your way through this in conjunction with your monitor's on-screen controls to fine-tune the display, then run through the ClearType wizard to improve the clarity of text.



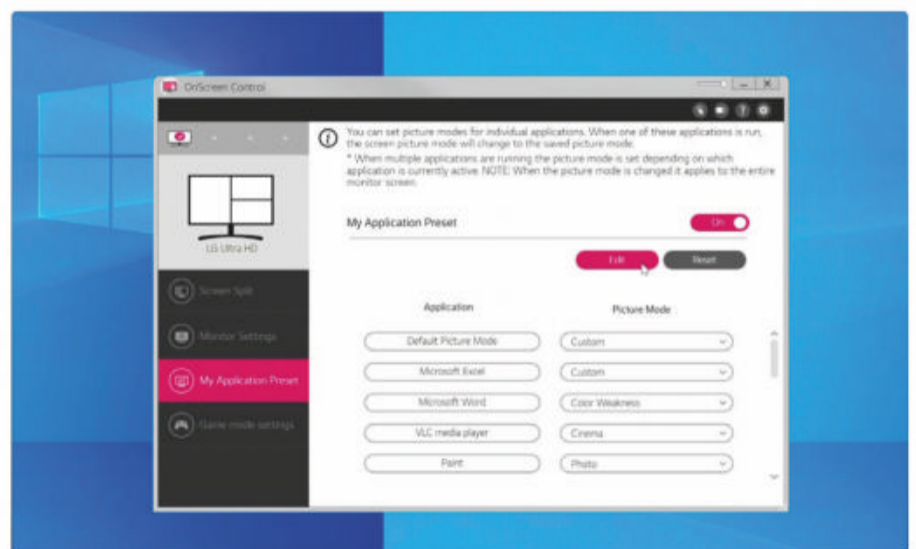
6 Update/install drivers
 Other basic display issues may be rectified by updating your graphics card drivers as well as by installing any monitor drivers your display manufacturer may have provided. Visit the manufacturers' websites to track these down. You may also come across more useful software – for example, LG monitors offer OnScreen Control (OSC).



8 Master on-screen controls
 Consult your monitor's manual for what on-screen controls are available for tweaking other settings, such as brightness and contrast, or switching between different presets optimised for different scenarios (such as watching movies or playing games). If you're lucky, some of these controls can be found and configured in Windows itself using a tool like LG's OSC.



9 Advanced controls
 Some tools offer more useful features – for example, you can split your screen into two or more zones using LG's OSC. Choose the layout via the Screen Split menu, then drag programs into each zone to move and resize them accordingly. Click the 'Application Position' button and you can automatically configure apps to always open in specific zones on-screen.



10 Set application-specific presets
 LG also supports application presets – these allow you to switch monitor presets quickly based on which application is open and in focus. Select My Application Preset, flick the switch on and click Edit to choose which apps to include (not all installed apps will be recognised, sadly). Once done, set each individual's Picture Mode and test by clicking on an application window.

Learn how to... Quickly fix a photo



Your guide *Ian Evenden* says...

"You don't have to spend hours editing an image in Photoshop Elements 2019 to get fantastic results, there are great time-saving tools built into the app"

While Photoshop Elements is an extremely powerful image-editing app that can be used to create complex layered compositions, you can also use it to touch up your selfies.

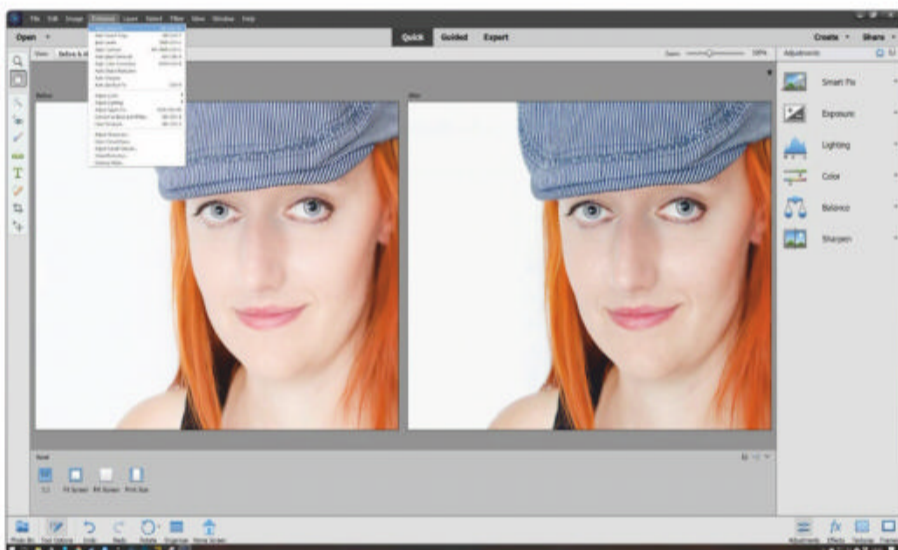
There's more to the program than Expert mode, and by dropping down the

Enhance menu, no matter which of the three modes you're in, you'll find a host of useful features that can transform an image. Dig a little deeper, though, and you'll find those fully-automated tools have close cousins that allow you more control over the results, so you end up

with a natural-looking photo rather than an over-saturated, purple, excessively sharpened mess.

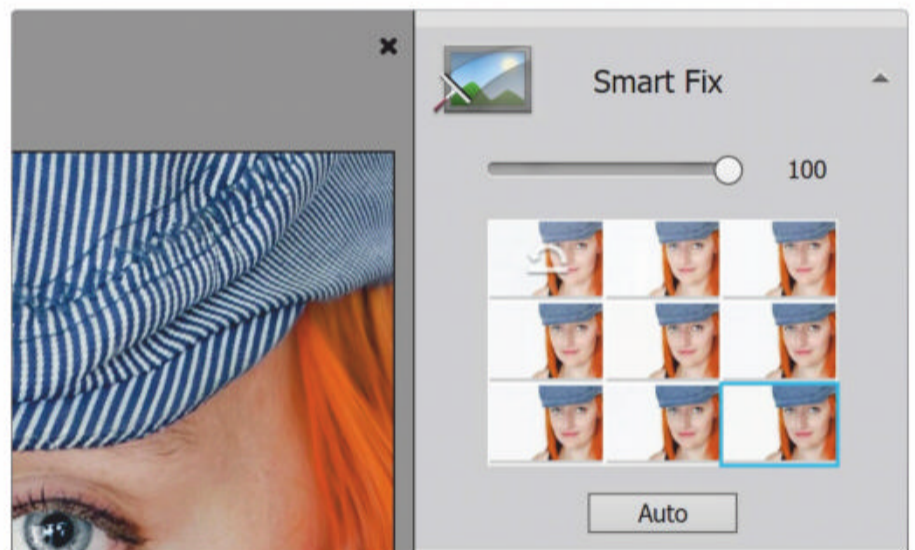
We're using the 2019 edition of the software here, but you can follow the steps in any recent version. Download a free trial from <http://bit.ly/PSE19trial>.

Step-by-step | Edit with speed



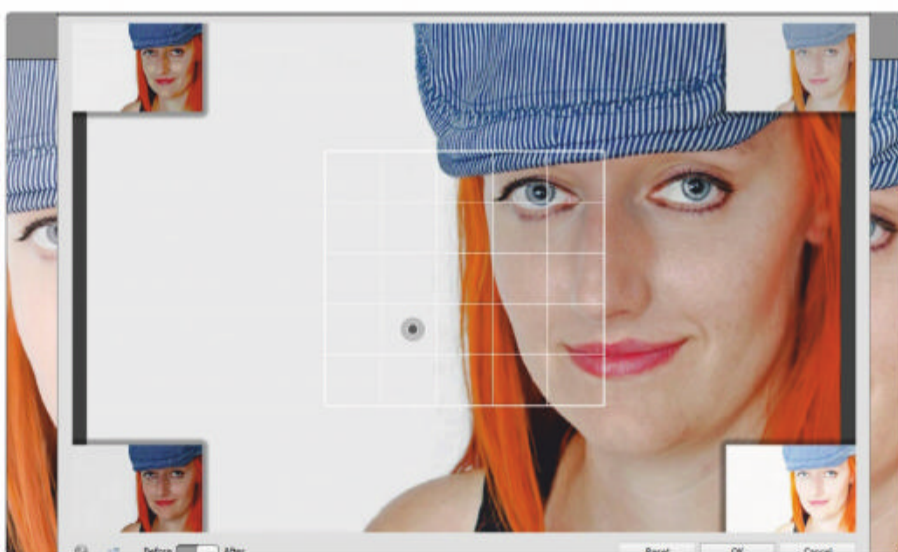
1 Auto Smart Fix

This is a one-shot filter that aims to improve your image. Using the Before and After view can make it clearer what has happened. In the image above it has darkened the model's skin while retaining the brightness of her eyes and vibrancy of her hair. You have no control over Auto Smart Fix, but it's useful if you have a lot of images to process. Find it on the Enhance menu.



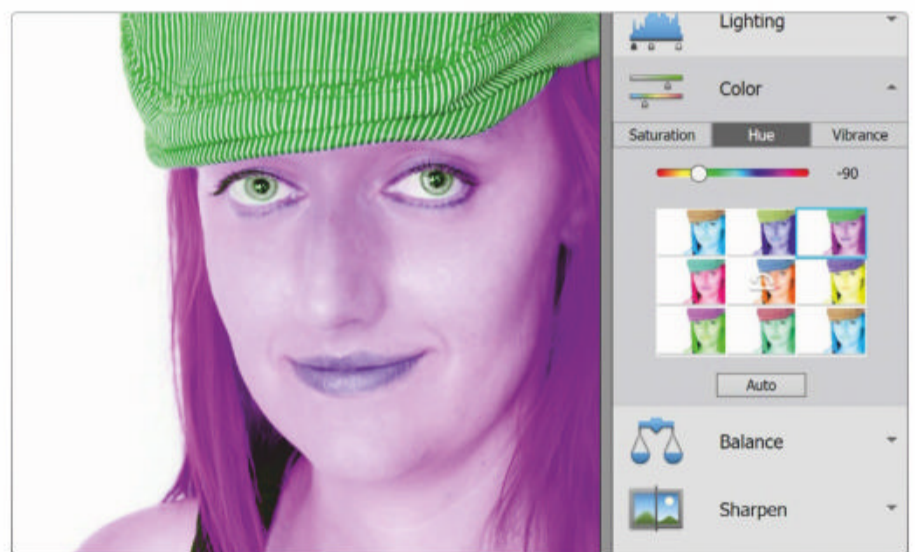
2 Smart Fix

For more control, open the Smart Fix section of the Adjustments panel on the right of the interface. This gives you a slider to alter the intensity of the effect, and a grid of thumbnails to choose from, although these effectively do the same thing as the slider. The Auto button does the same thing as Auto Smart Fix. There's a reset button at the top right of the palette.



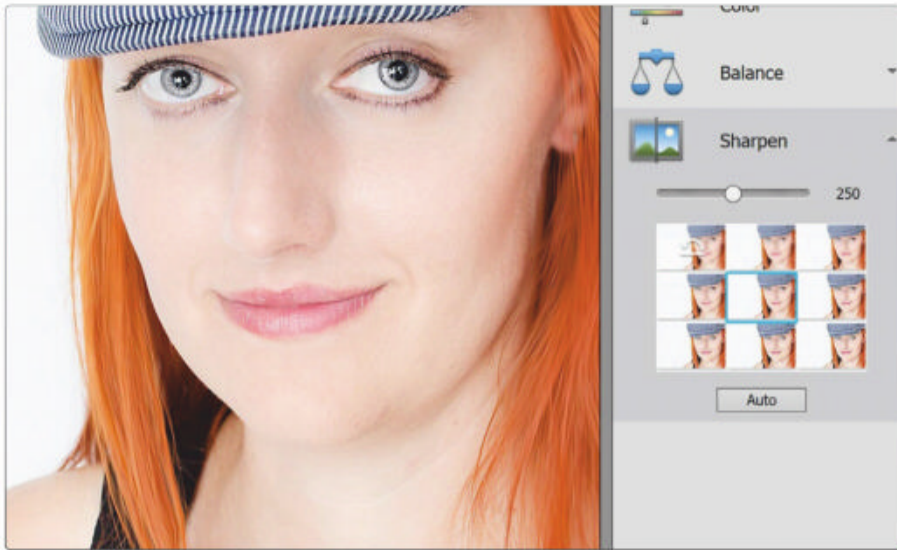
3 Auto Smart Tone

Enhance > Auto Smart Tone is a good choice for portraits, where getting skin tone accurate is important. It projects a grid across your image, with a control point you can move. In the corners are extreme versions of the image. By moving the control point toward one of these images, you make your image more like it. Settle somewhere in the grid you're happy with, and hit OK.

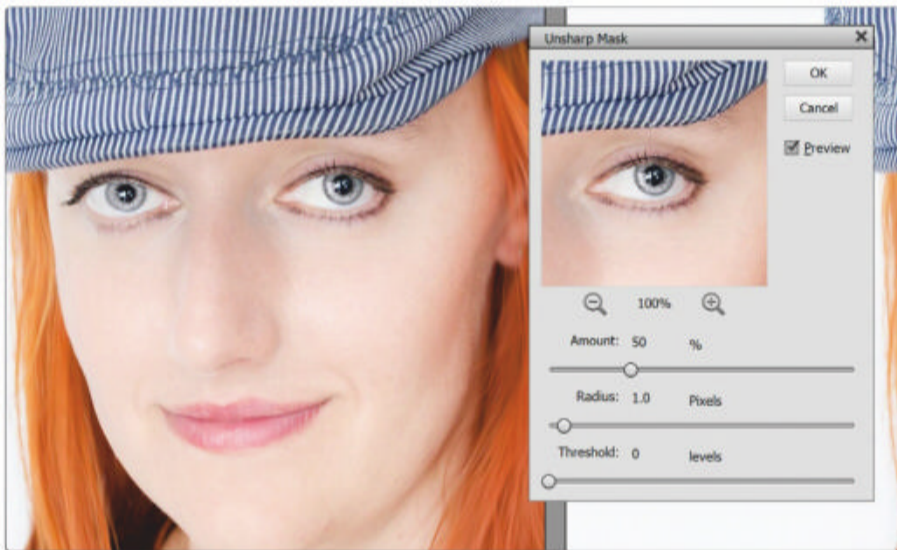


4 Lighting and Color

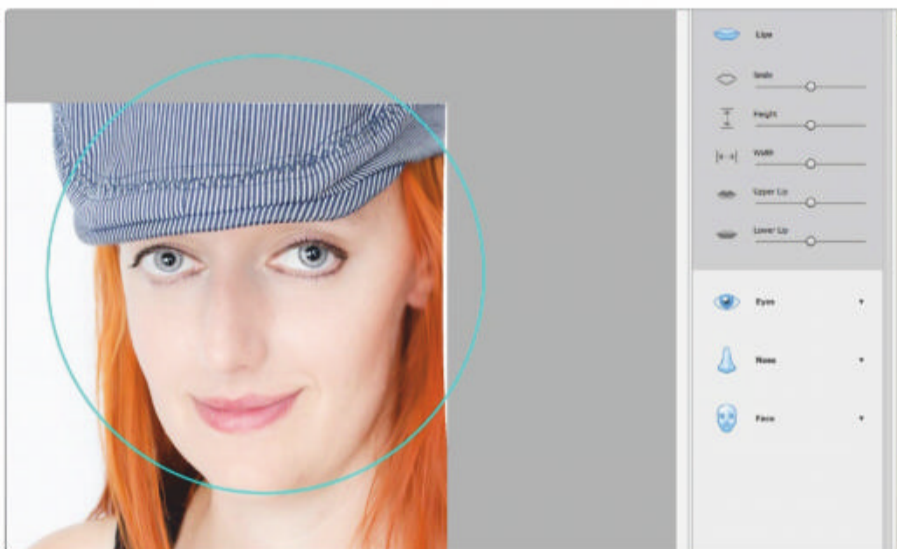
You can find Auto versions of both these adjustments in the Enhance menu, but the slightly more manual implementations in the Adjustments palette are far better. They work much like Smart Fix, with a slider and some thumbnails, across Shadows, Midtones and Highlights. There's a lot you can do under Lighting, and it gets more powerful once you open the Color section as well.



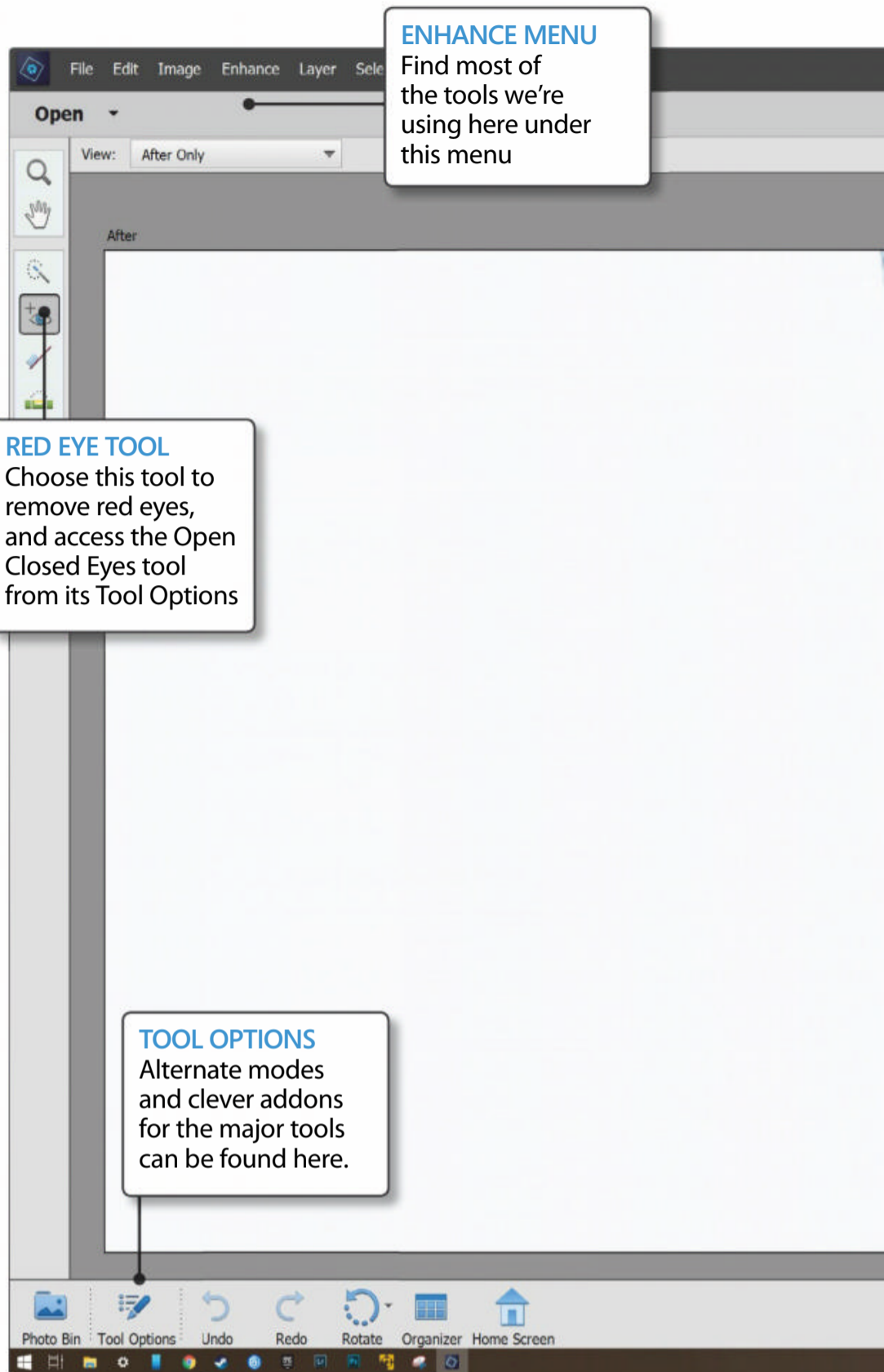
5 Sharpening
There's an Auto Sharpen option on the Enhance menu, and a Sharpen section on the Adjustments palette, but sharpening is such a complex beast that, even though this is meant to be about quick fixes, it's worth going straight to Unsharp Mask, which is also on the Enhance menu, but nearer the bottom. This gives you the chance to control the process and stop it going out of control.



6 Unsharp Mask
The Unsharp Mask window has three sliders. The Amount slider controls the strength of the effect. The Radius slider controls how far from edges the effect is applied – keeping this down restricts the sharpening to edges, areas of detected contrast, leaving areas such as soft skin alone. Threshold has a similar effect, determining how strongly the app detects these 'edges'.



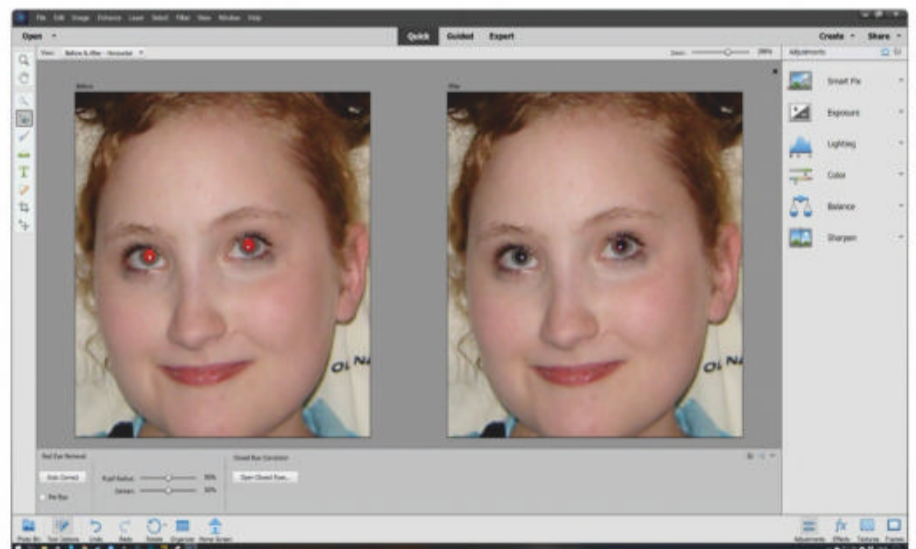
7 Adjust Facial Features
Another tool from the Enhance menu. This stretches and pinches the component parts of a detected face to change their size. So you can turn a face into a large-eyed, huge-nosed freak, or use it more subtly to enhance the beauty of a portrait sitter without them really noticing. It works extremely well as long as it can detect the face properly.



ENHANCE MENU
Find most of the tools we're using here under this menu

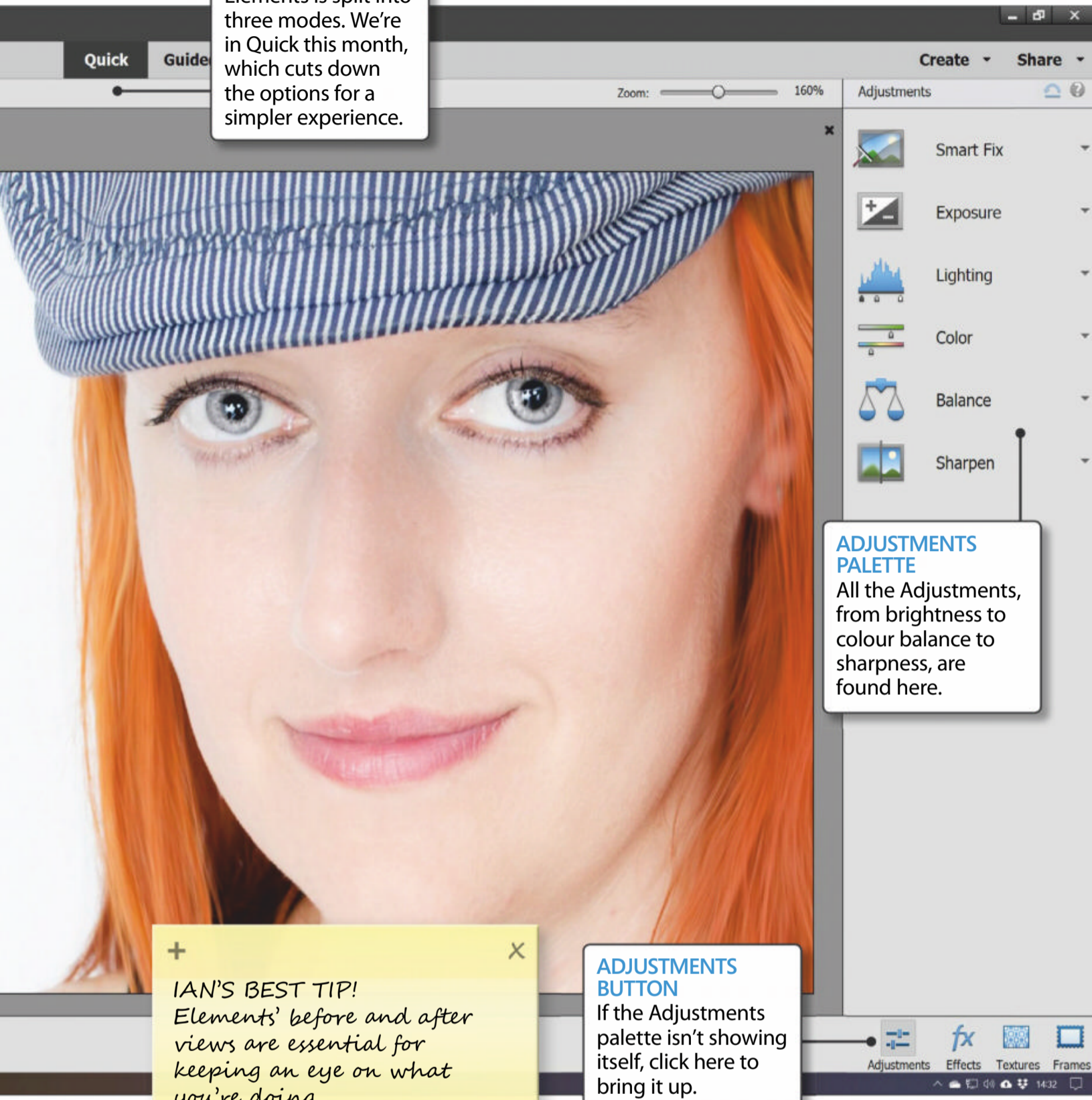
RED EYE TOOL
Choose this tool to remove red eyes, and access the Open Closed Eyes tool from its Tool Options

TOOL OPTIONS
Alternate modes and clever addons for the major tools can be found here.



8 Red eyes
The red eye effect is caused by a flash that's too close to the lens axis bouncing back off the retina, but it's so well known and easy to mitigate you almost never see it any more. Elements has an automated red eye tool that works well, and can even be used on your pets. There's also a manual version, on the toolbar, which requires you to draw boxes around each eye.

QUICK MODE
Elements is split into three modes. We're in Quick this month, which cuts down the options for a simpler experience.



ADJUSTMENTS PALETTE
All the Adjustments, from brightness to colour balance to sharpness, are found here.

IAN'S BEST TIP!
Elements' before and after views are essential for keeping an eye on what you're doing.

ADJUSTMENTS BUTTON
If the Adjustments palette isn't showing itself, click here to bring it up.

Jargon buster!

- ▶ **Organizer**
Elements' Organizer is an app that organises your photos for you.
- ▶ **Photo Bin**
Every open file lives in the Photo Bin at the bottom of the interface, where you can choose between them.
- ▶ **Face detection**
Elements uses algorithms to determine whether an image contains a face, and can add these to the Organizer's database. It doesn't always work, however.

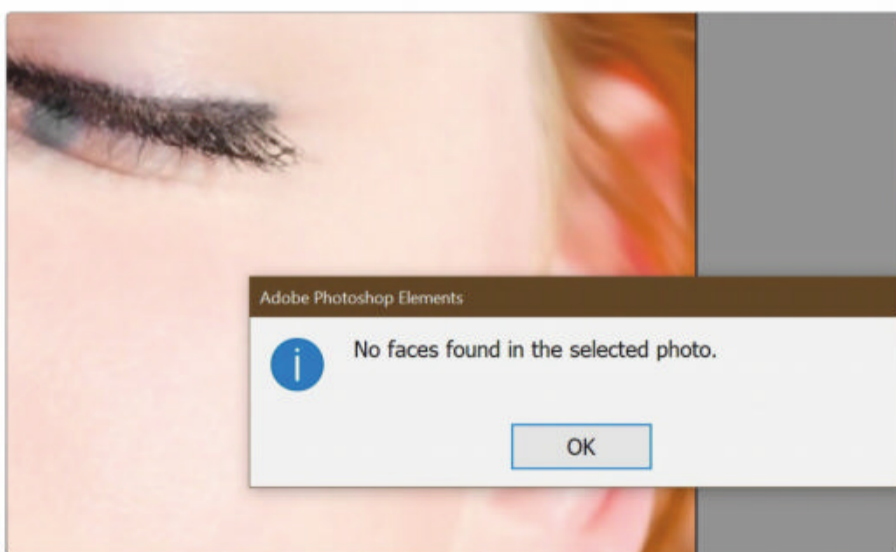
At a glance

Skill level...

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

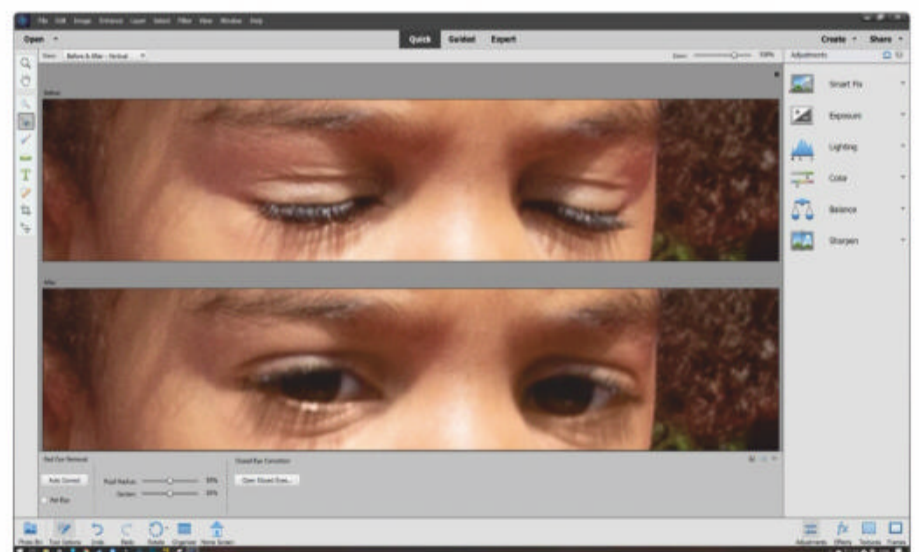
Suitable for...

- Windows 10
- Windows 8.1
- Windows 7



9 Eye opening

The ability to open closed eyes became part of Elements a few years ago, and works well as long as you meet a few criteria. You need a photo of the same subject with his or her eyes open as well as one with them closed. Pictures of other people, or even animals, can be substituted for hilarious results. Elements also has to be able to detect a face in the image – it can't always do it.



10 Don't blink

Inadvertent blinks in photos can be fixed, however. Once the face is detected, click the Red Eye tool in the toolbar, and choose Closed Eye Correction in its Tool Options. You'll be prompted to choose the face you wish to edit, and where the open-eye image is, whether on your PC, in the Organizer, or already open in the Photo Bin. Then, it's a simple click. ■

Learn how to...

Find and install new fonts in Windows 10



Your guide [Mark Wyciślik-Wilson](#) says...

"By installing new fonts, you can make your posters and other documents really stand out. Here's how to get started"

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 writing simple, everyday letters and other documents in Word or whichever word processor you've chosen, you may well never – or rarely – venture beyond using fonts such as Arial, Calibri and Times New Roman. There are times when basic and elegant is what you need, but also times when you need something a little different.

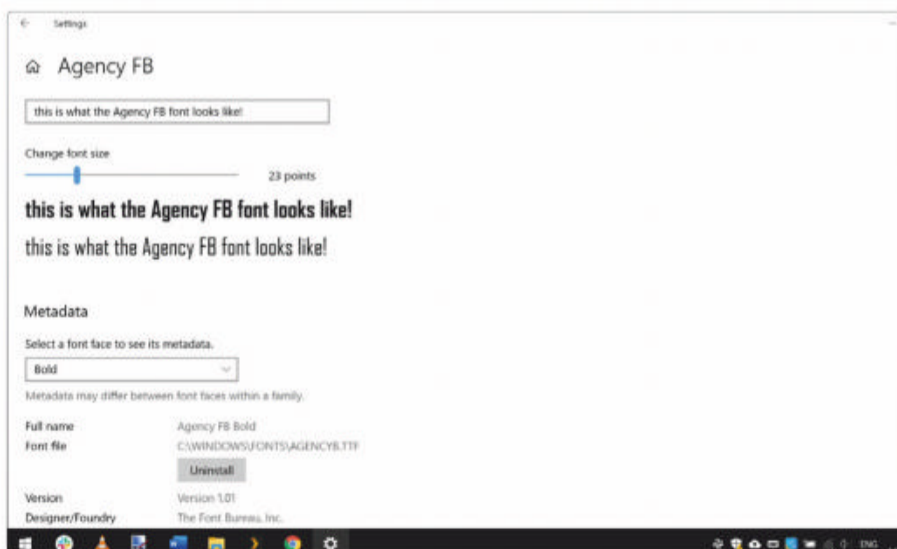
Windows includes a pretty decent range of fonts, ranging from the professional to the quirky. And when you install applications such as image editors and word processors, they're likely to add a few of their own.

But there are thousands of fonts out there, both free and paid-for, with something to suit every document and project you may be working on.

We'll show you where you can find the very best fonts, how to install them, how to manage them, and how to use them.

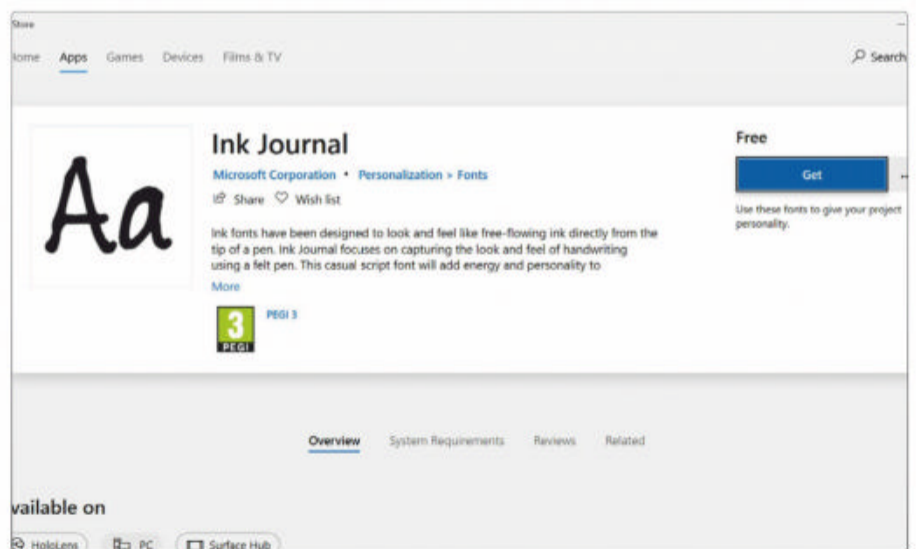


Step-by-step | Managing your fonts in Windows 10



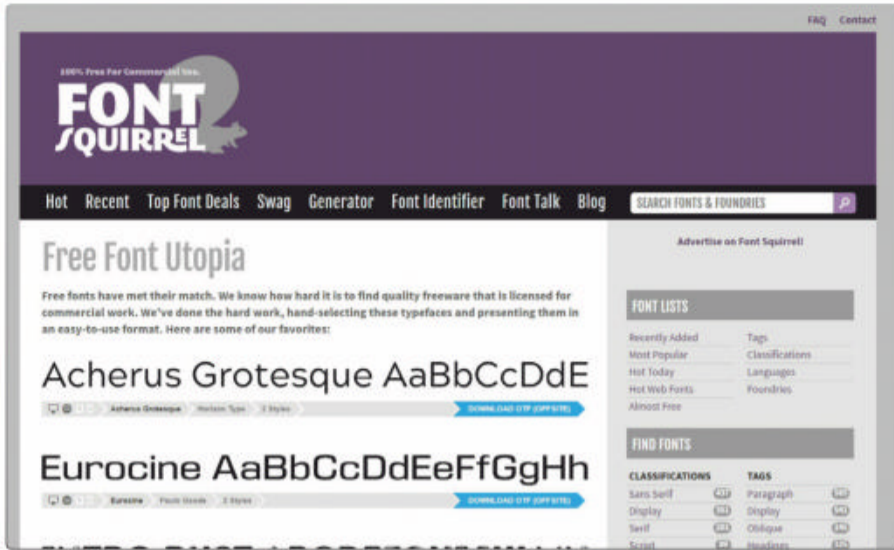
1 Viewing installed fonts

There are already a number of fonts installed in Windows 10, and it's helpful to be able to preview these and any others you may install. Open Settings, click Personalization, and then click the Fonts section to the left. Scroll down to the Available Fonts section and you will see previews of the fonts you have installed. Click any font you are interested in to see more information.



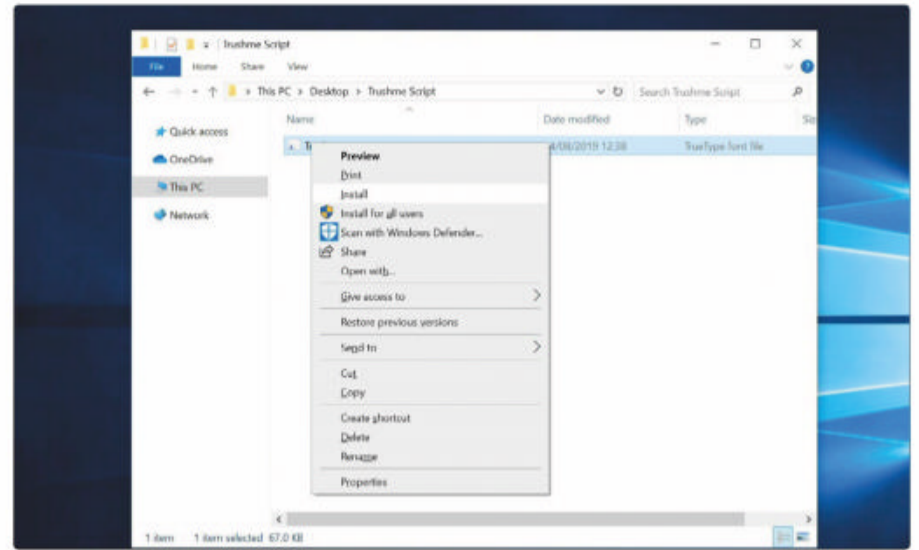
2 Finding fonts in the Microsoft Store

At the top of the Font section, you'll see the option to "Get more fonts in Microsoft Store". Click this and you'll be taken to the Fonts section of Microsoft's online store where you can browse through a selection of free and paid-for fonts. Click one that you are interested in and then click the Get button. The font will be installed for you and will automatically be made available.



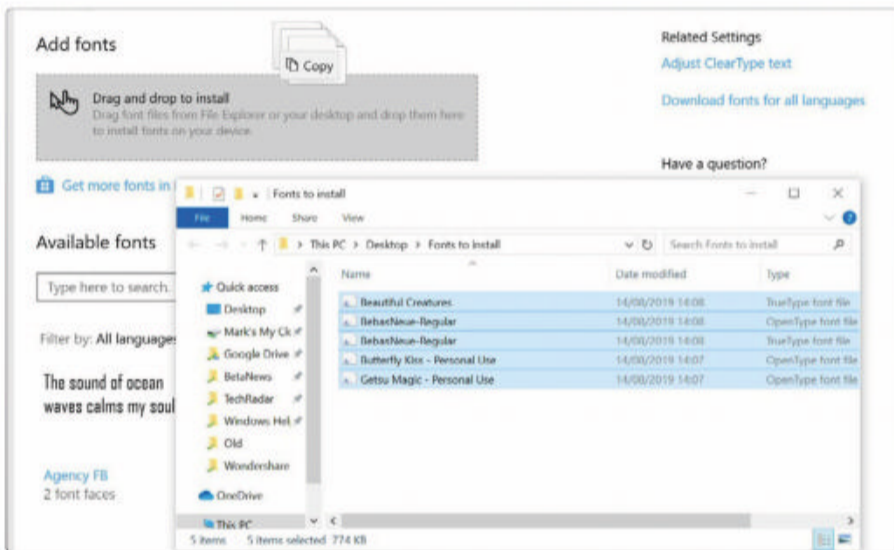
3 Finding fonts from other websites

There are countless websites where you can download free fonts and buy paid-for ones. Some good websites to try include www.fontsquirrel.com, www.1001freefonts.com and www.dafont.com. In almost all cases you will find that when you download a font, it is provided in compressed zip files which you will need to decompress before you can use them.



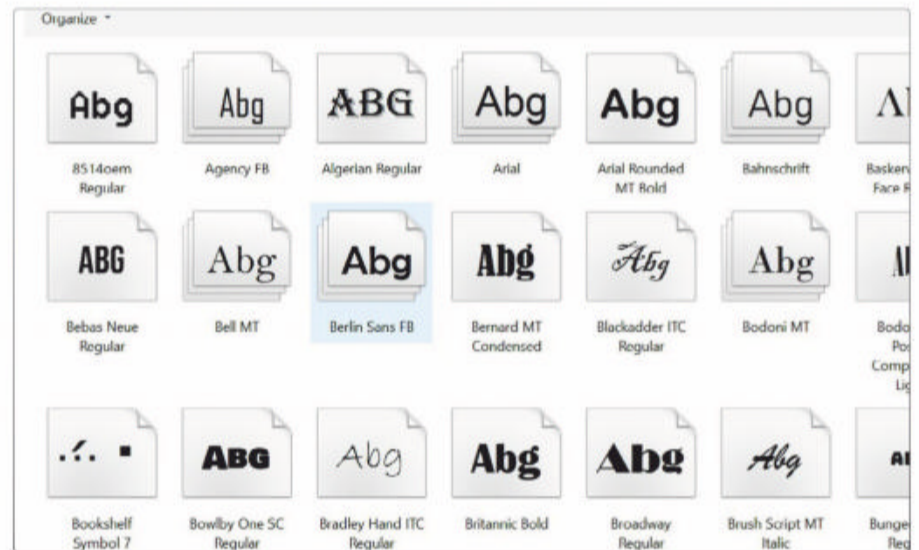
4 Installing non-Store fonts

You can extract a zip file's contents by right-clicking it and selecting the Extract All option from the context menu. You should then find that you have a font file ready to work with. Right click this file and select either Install or Install for all users. Seconds later the font will be ready, although there will be no confirmation that the installation has successfully completed.



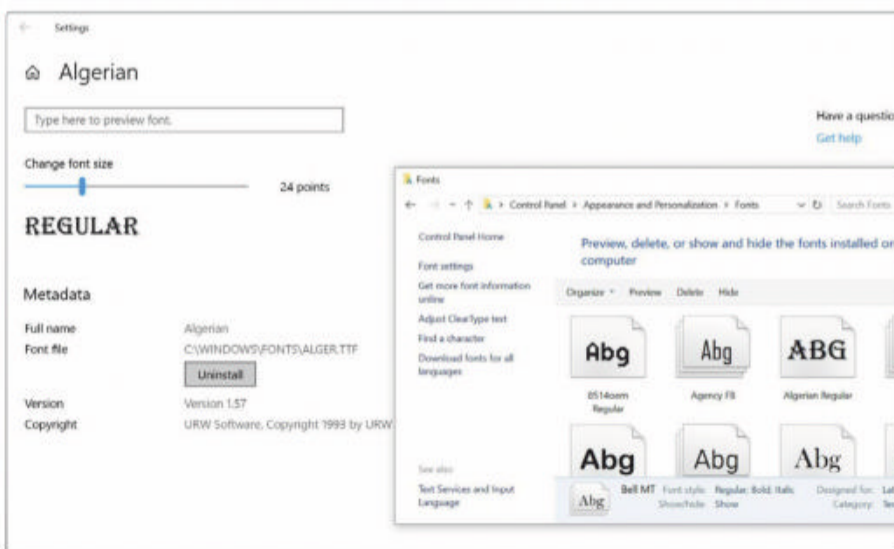
5 Installing fonts using drag and drop

If you have two or more fonts to install, you may not want to navigate the context menu multiple times. Another installation option is to simply drag and drop them into the Fonts section of Settings. At the top of this section you will find the "drop zone" box; simply select all of the fonts you have downloaded, and drag them to this area before releasing the mouse button.



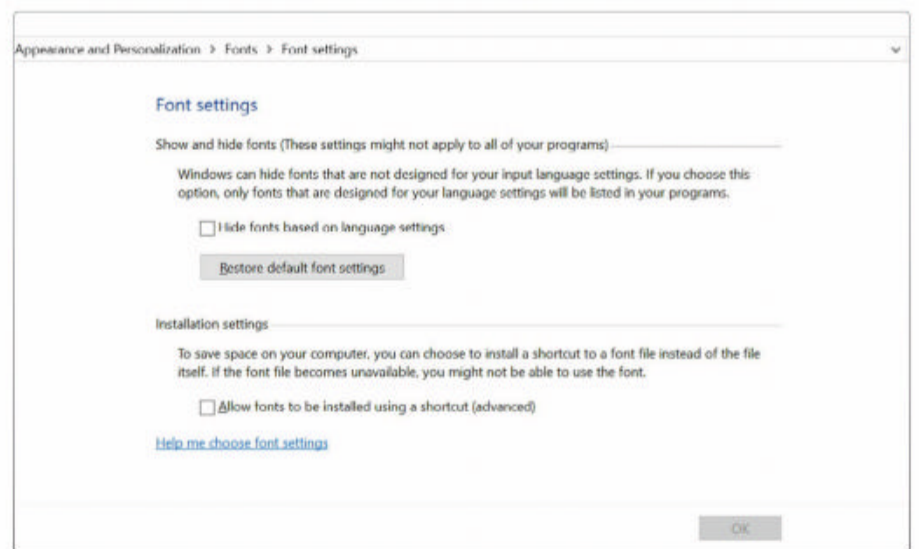
6 Installing fonts via the Control Panel

Another option for installing fonts is something users of older versions of Windows may remember. Open the Control Panel by opening the Start menu, typing Control Panel and clicking the link when it is displayed, then open Fonts – or click Appearance and Personalization followed by Fonts, depending on the view you are using.



7 Deleting fonts you no longer need

It is possible that you will get a little carried away and end up with far more fonts than you need – or you may just decide that certain fonts are not needed any more. In the Fonts section of Settings, you can simply click a font you want to get rid of and then click the Uninstall button. In the Fonts Control Panel, you can right-click a font and select the Delete option.



8 Restoring font defaults

When you are deleting fonts, it is possible to get a little carried away and delete fonts that may be needed by Windows itself. Thankfully, Windows 10 includes a quick and easy way to restore the default fonts. In the Fonts Control Panel, click the Font Setting link to the left and then click the Restore default font settings option.

Learn how to...

Edit and sync notes securely



Your guide *Nick Peers* says...

"Joplin is the perfect note-taking tool. Get started with this powerful and completely free app"

At a glance

Skill level...

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

Suitable for...

- Windows 10
- Windows 8.1
- Windows 7

We've spent a long time trying to find the perfect note-taking service, and we've finally struck gold in the form of Joplin. It's free and open source, plus works across all major desktop and mobile platforms – including Android and iOS – so you can access and update your notes from anywhere. When it comes to syncing notes, you're fully in control: you choose which cloud platform to use and can optionally encrypt your notes to provide an extra layer of protection.

You can also add note-clipping capabilities to your Firefox or Chrome web browser. Last, but not least, Joplin is perfect whether you want to record quick text-based notes or emulate the rich features found in Evernote, from fully styled text to support for images and file attachments. Joplin is everything you ever wanted in a note-taking tool – read on to start using it.

NOTEBOOKS

Organise your notes into notebooks (drag them into other notebooks for another layer of organisation).

NOTES

Each notebook is made up of notes as well as to-do lists, which you can tick when done to mark as completed.

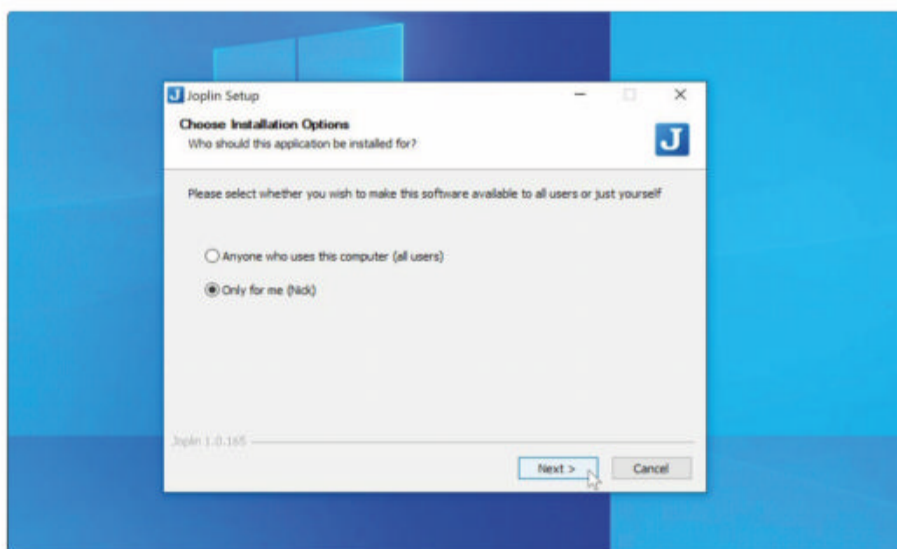
TAGS

Take the time to add keywords to your notes to create more ways to organise and filter the list of notes.

SYNC NOTES

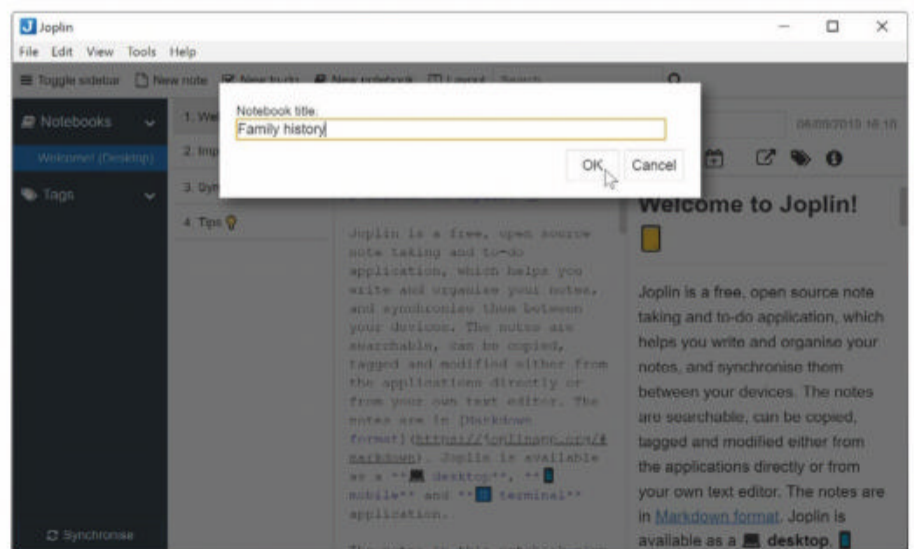
If you're storing notes online or syncing with other devices, click here to manually back up or sync your notes.

Step-by-step | Set up, use and sync notes



1 Install Joplin

Open your browser, go to <https://joplinapp.org> – scroll down the page for the download link. The 'Get it on Windows' link is a traditional installer or you can click on the 'Portable version' link for a single self-contained file (JoplinPortable.exe). If installing, you can choose to install it for just yourself or other users of your PC too. Once installed, let Joplin launch.



2 Review user interface

The annotation reveals how Joplin organises your notes using a series of notebooks, with keyword tags available to help produce filtered views. Start by clicking the 'New notebook' button to store your first related set of notes in. Give it a suitable name and click OK. If you need another layer of organisation, you can create notebooks to nest inside other notebooks too.

Jargon buster!

► **Markdown**
A lightweight markup language that is designed to denote how to style text – for example ****** indicates bold – in plain text files.

► **HTML styles**
Joplin allows users to style notes using HTML code as an alternative to Markdown where styles aren't available – for example, `<s></s>` for strikethrough.

► **WebDAV**
A means of creating, moving and deleting files on a server through standard (HTTP) connections.

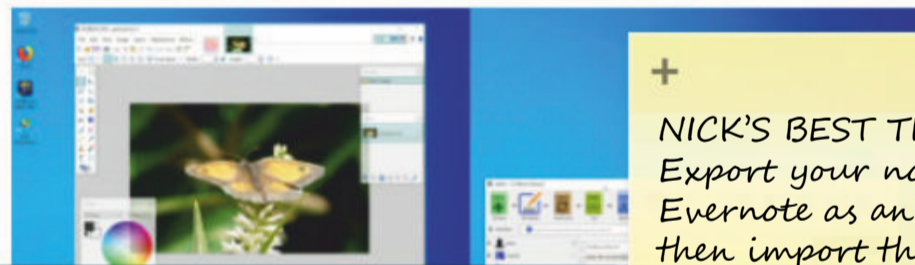
MARKDOWN
Markdown controls are found on the toolbar, or you can input them (and HTML-style codes) directly into a note.

EDIT AND PREVIEW
Type your note or make changes in the left-hand pane; the right-hand pane shows your post with all formatting.

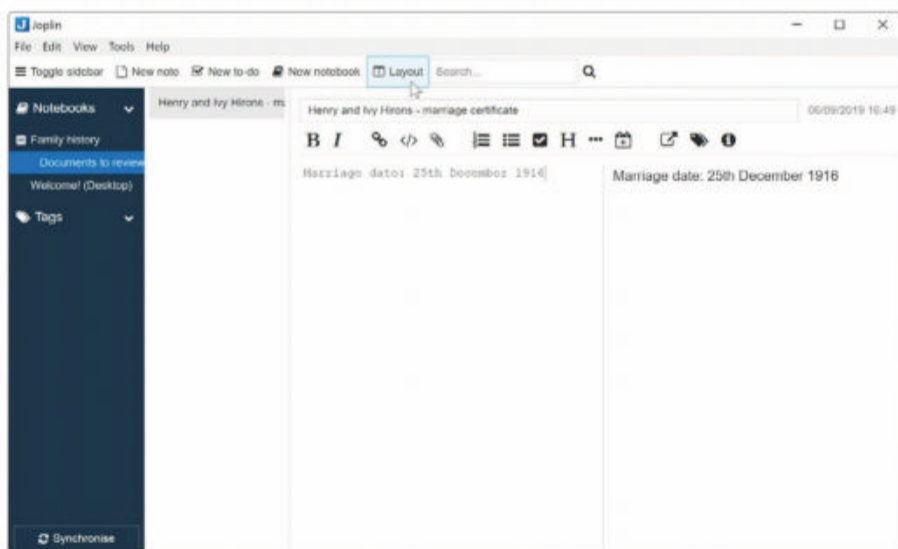


1. Pick the right cable and port

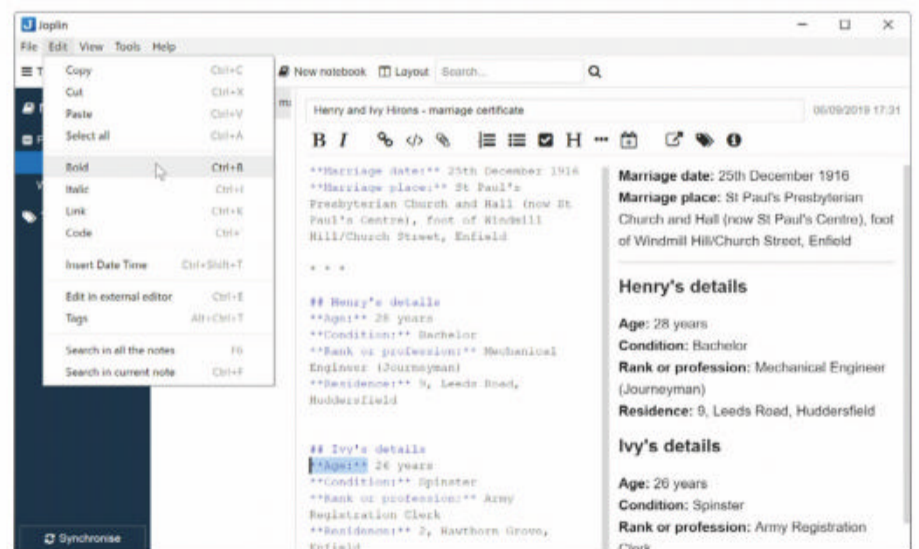
After physically setting up your monitor, you'll need to connect it to your PC. This may be a straightforward HDMI-to-HDMI cable, or you may find your PC only has a DVI port – in this case, verify it supports 4K (some lower end cards like ASUS's GT1030-SL-2G don't support 4K through the DVI port) before purchasing a HDMI-to-DVI cable or adapter – around £3-4 online.



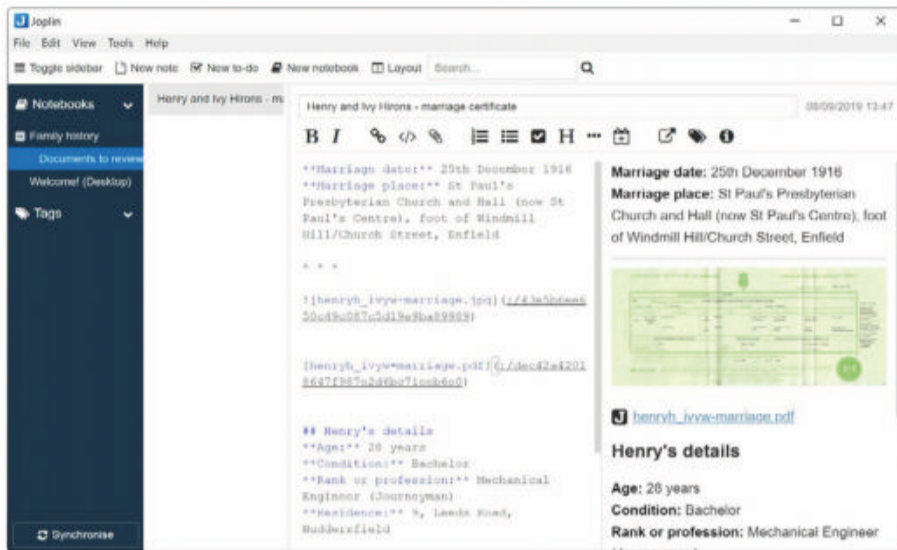
NICK'S BEST TIP!
Export your notes from Evernote as an ENEX file, then import them into Joplin via the File > Import menu.



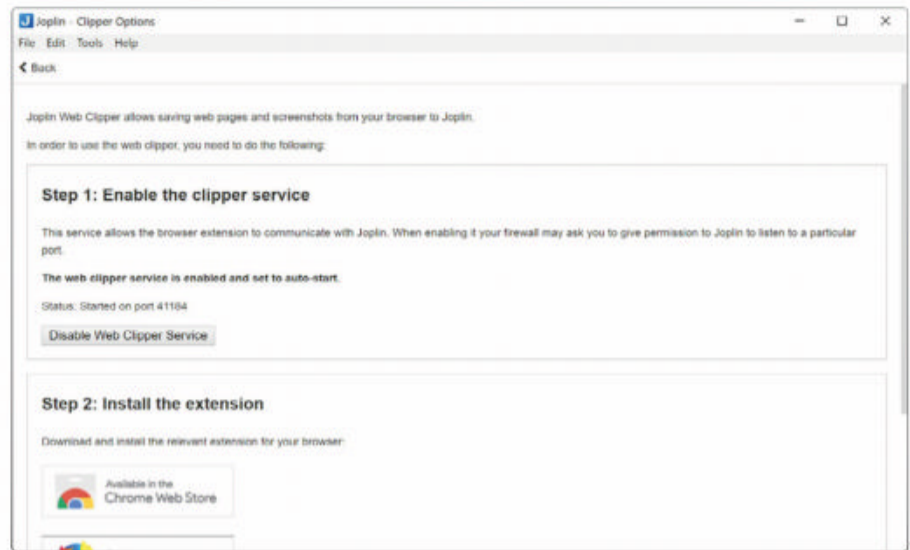
3 Create your first note
Tap 'New note' to create a new note and open the dual-paneled edit/preview window. Give it a title, then start typing in the left-hand pane – changes are saved as you make them. You'll see the right-hand pane mirrors what you type. Click the Layout button once to hide the preview window (click again to show only the preview window, and again to bring back both).



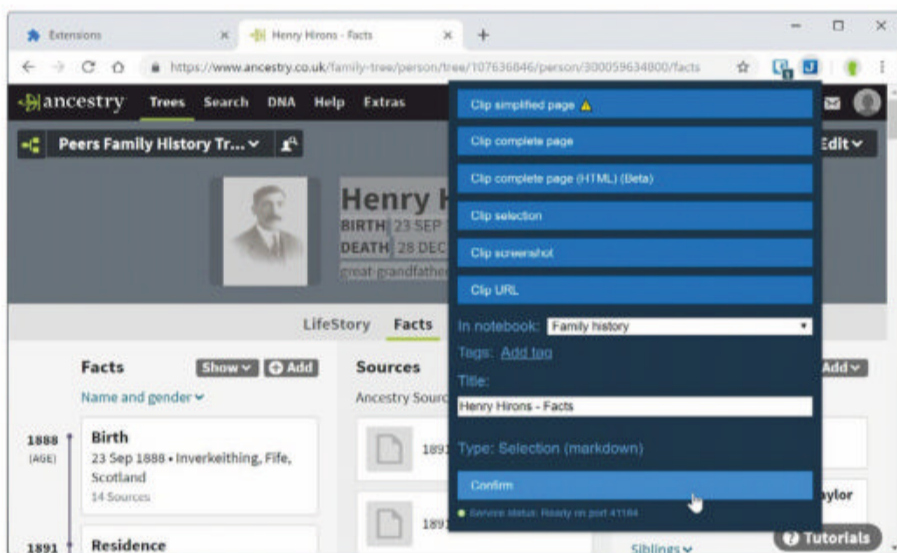
4 Style up your note
Keep typing. You'll see a series of buttons above the edit window that allow you to style up your text in various ways – these insert Markdown characters (such as ****** for bold) that appear in the edit pane, while the preview pane shows how the note will look. You can also style using HTML code, apply headings and add lists, hyperlinks, horizontal lines and tick boxes.



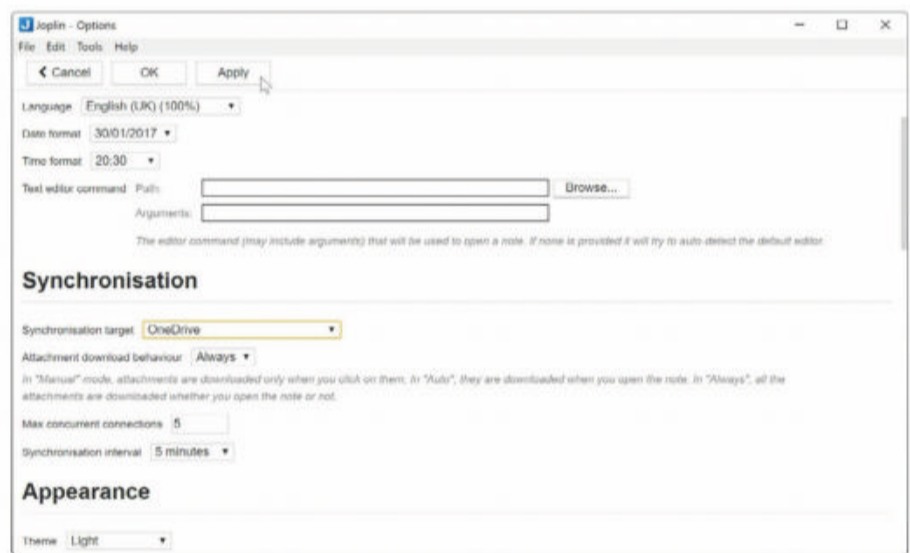
5 Attach files
 You can also attach files to your notes. Either drag the file into your note from a File Explorer window or position the cursor within your note and click the paperclip button to select it. A clickable link to the file will appear unless it's an image, in which case the image itself is displayed. Hold [Alt] as you drag an image on to the note to create a link instead of displaying it.



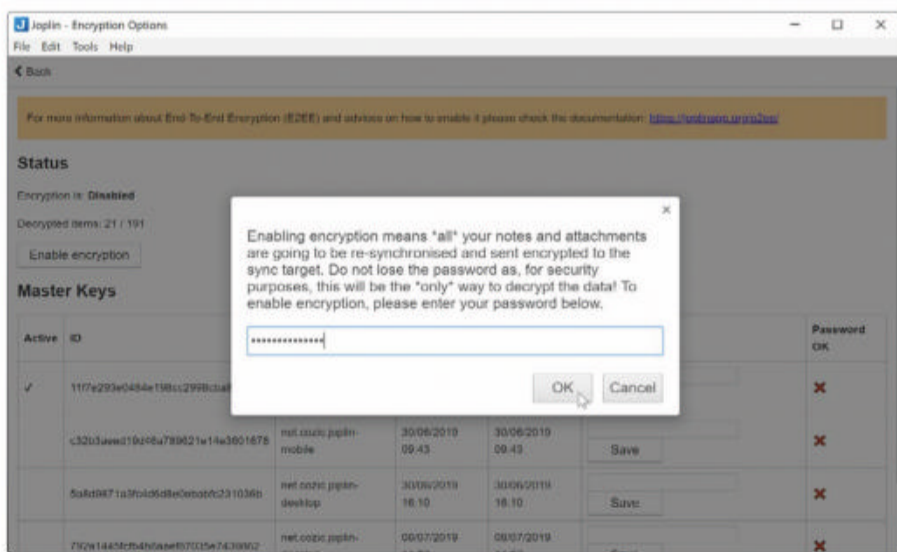
6 Enable Web Clipper
 Both Firefox and Chrome web browsers offer a free Web Clipper tool for generating notes from all or part of web pages. First, open 'Tools > Web clipper options' in Joplin. Click 'Enable Web Clipper Service', then click the appropriate link to locate and add the extension for Chrome and/or Firefox. You should see the Joplin icon appear in your browser's toolbar.



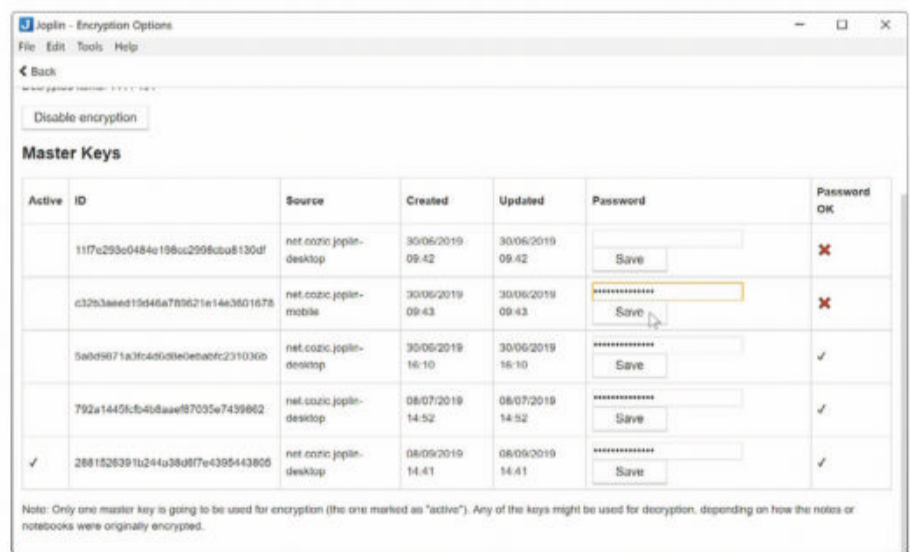
7 Clip web pages
 Once set up, browse to a web page containing content you want to use, then click the Joplin button to bring up a list of options. You can clip the complete page (including a simplified note-friendly version), or choose to clip selected content, a screenshot of the page or a URL. Choose a notebook, give your note a suitable name, add tags and finally click Confirm.



8 Back up and sync notes
 Joplin works best across multiple desktop and mobile devices. For this to work you need to set up synchronisation using a third-party service to store the notes – supported services include Dropbox, OneDrive (our choice here), Nextcloud, file system (a local network folder) and WebDAV-compatible services. Make your choice and click OK followed by Synchronise.



9 Encrypt your notes
 The first time you try to sync you'll be prompted to sign into the service you're using. Once done, your notes will be synced. By default, they're unencrypted, so choose 'Tools > Encryption options' and click 'Enable encryption' to protect them. You'll be prompted for a master password – make it strong, but memorable – then click OK. Your notes will now be encrypted when synced.



10 Stay in sync
 When you set up Joplin on another device and choose to synchronise using the same online service, you'll automatically download any notes stored in the cloud. Make sure you choose 'Tools > Encryption options' where you'll need to enter any master passwords from other devices to decrypt notes created on those devices. Your secure, synced note-taking system is now in place.

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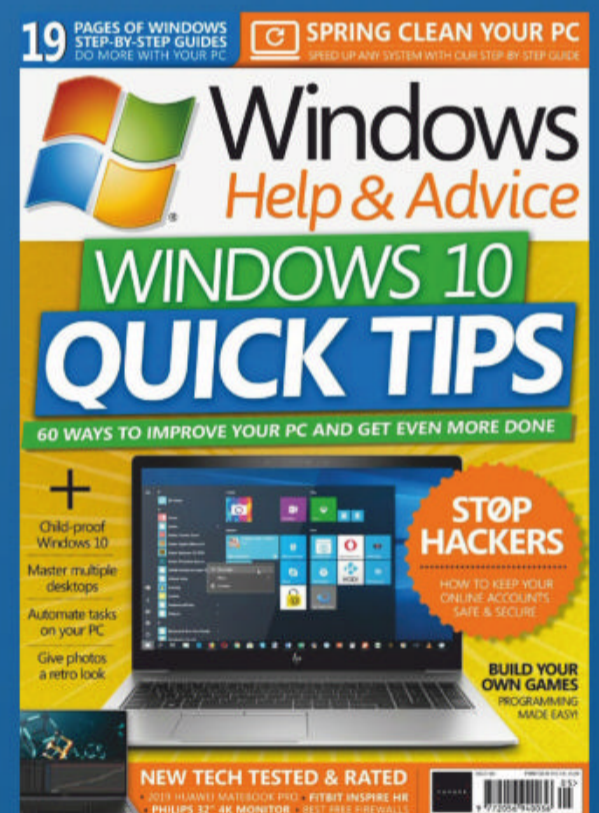
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Learn how to...

Use a network to share files and resources



Your guide *Mark Wyciślik-Wilson* says...

"Learn about some of the many benefits to networking your computers at home, including sharing files and hardware between machines"

At a glance

Skill level...

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

Suitable for...

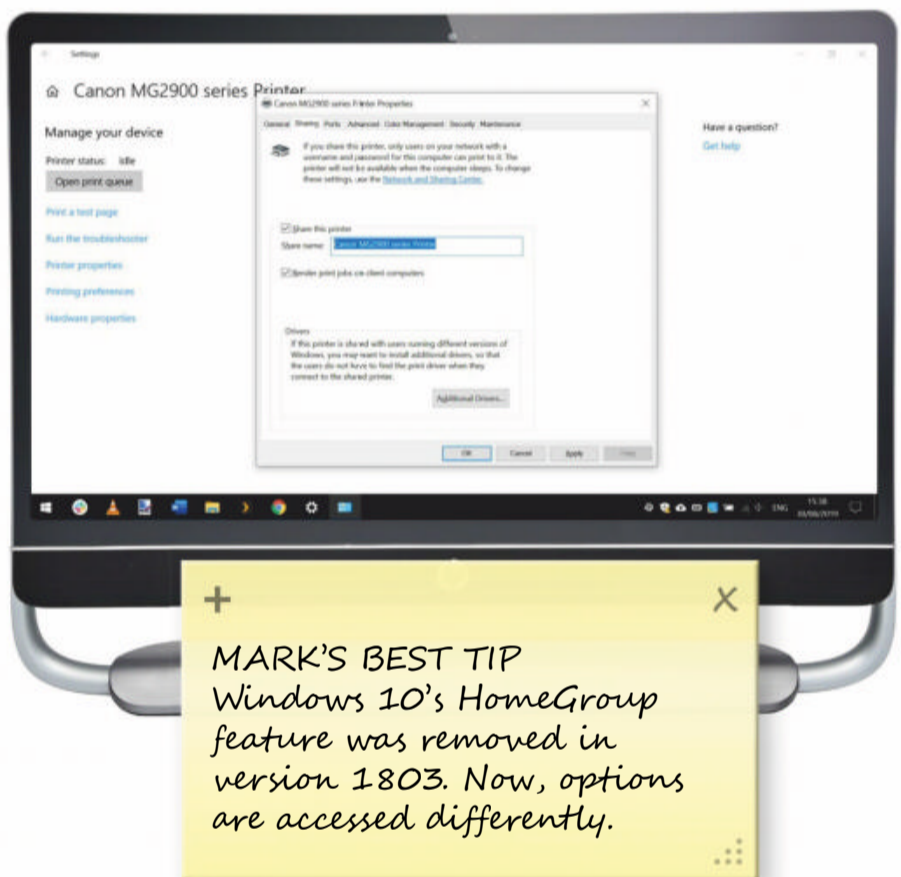
- Windows 10
- Windows 8.1
- Windows 7

There are many reasons for wanting to create a network for your home computers. For starters, it makes it possible to easily share files between computers, eliminating the need to copy them onto a USB drive or send them via email. You can also share a printer or scanner between computers so there is no need to switch cables. Perhaps the most common reason is to share an internet connection.

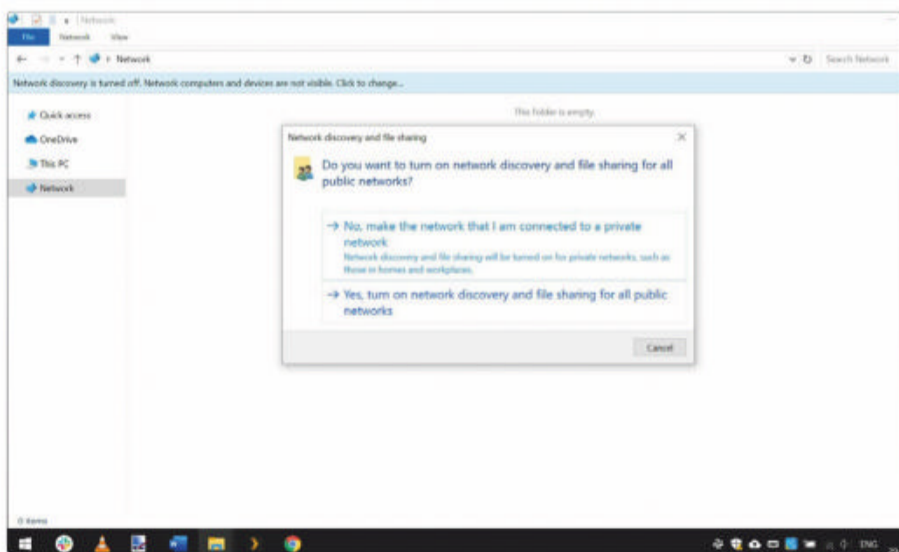
With a network in place you can store your music and video collection on one computer, and stream to another.

When it comes to sharing files, you have a great deal of control over the process. You can restrict access to a limited number of files and folders, and even give different computers different levels of access by adjusting permission settings.

Read on to find out how to get started with networking and sharing.

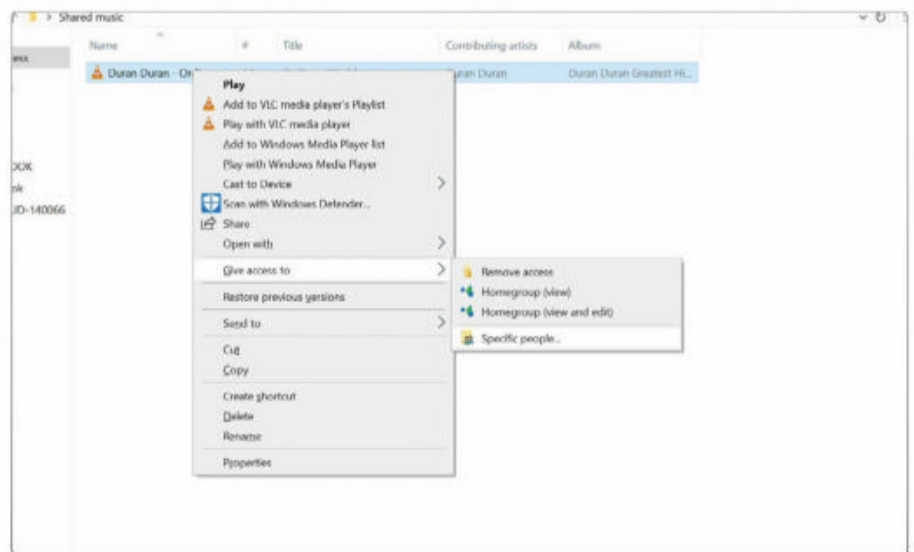


Step-by-step | Sharing files, folders and printers in Windows 10



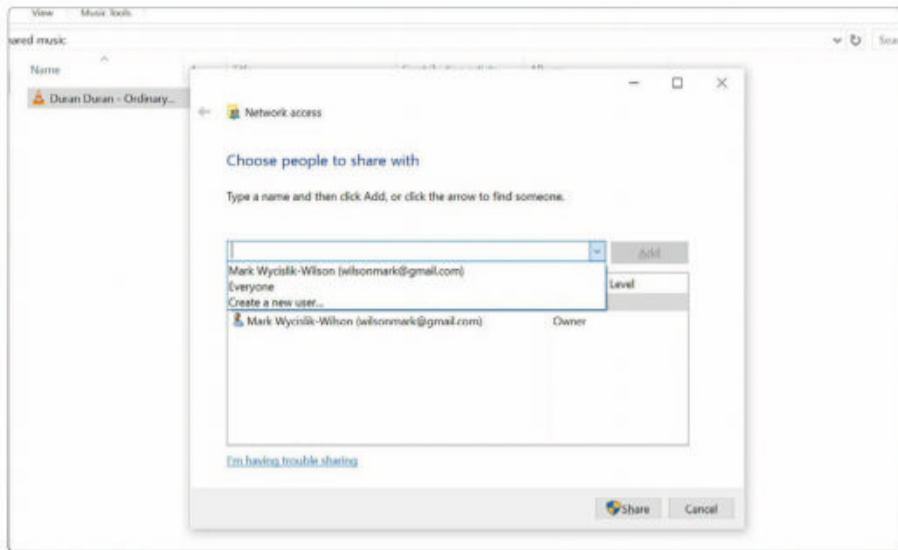
1 Enable network discovery

For your computer to see other machines and devices on your network – and vice versa – you need to have the Network Discovery feature enabled. Open File Explorer with [Win] + [E] and click the Network link in the left-hand pane. You get a warning if Network Discovery is disabled. Click OK, then click the yellow info bar before selecting 'Turn on network discovery and file sharing'.



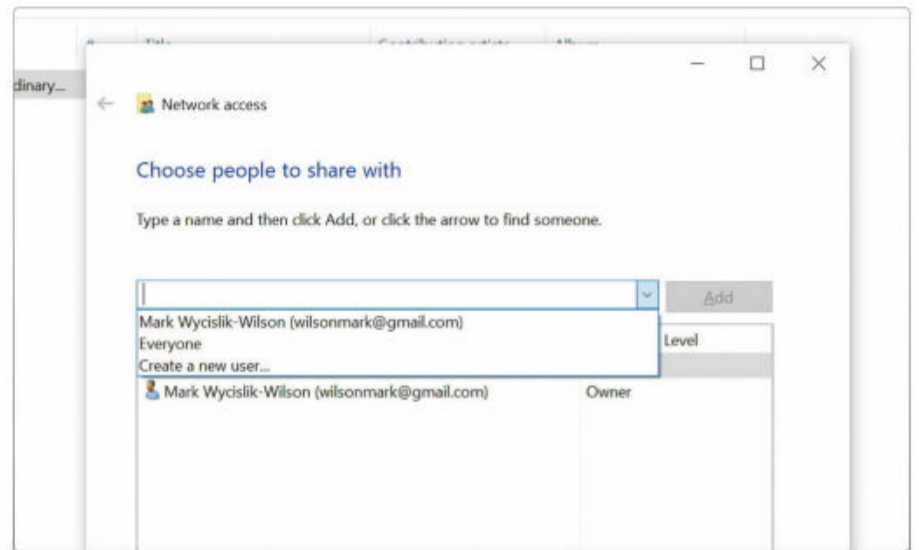
2 Sharing files on a network

If you would like to be able to access files stored on one computer from another machine, you will need to share them. Right click on a file you would like to share, and click the 'Give access to' option. Select the Specific People option, and you can then enter the name of the computer you want to share with, or select Everyone to share with all computers on the network.



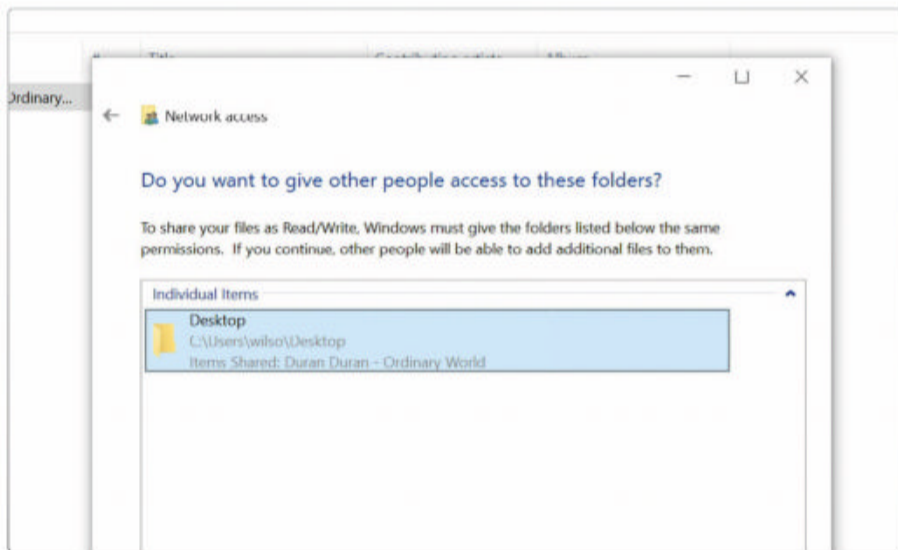
3 Sharing folders

Folders are shared in exactly the same way as files – or groups of files, for that matter. Just select the 'Give access to' option, then choose which users and computers you would like to share with. You might find it useful to create a special folder contain all of the files you want to share as you may find it is easier to manage things from one location rather than several.



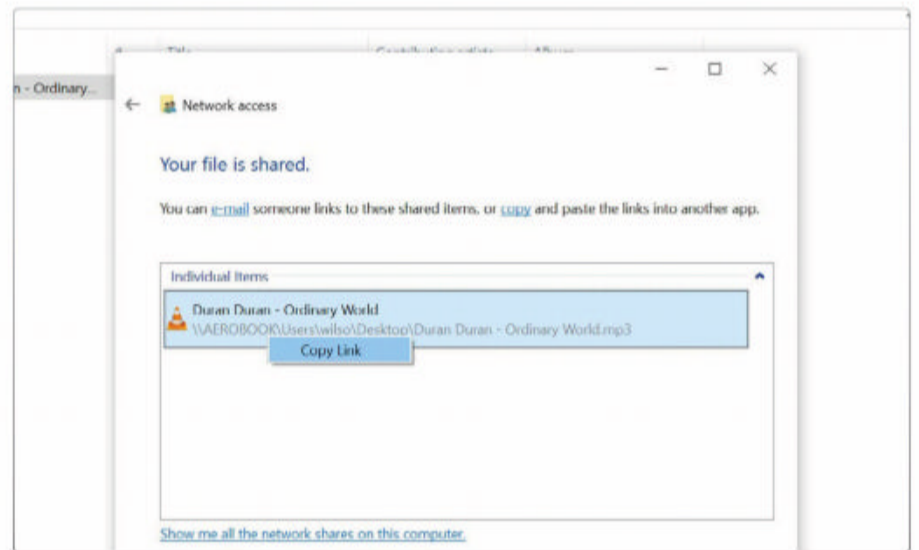
4 Configuring sharing permissions

By default, when you share a file the people you share it with will only be able to open and read it. It may well be the case that you would like other people to be able to edit files, and you will need to change permission to make this possible. In the Permission Level column, click the arrow next to Read and select Read/Write before clicking the Share button.



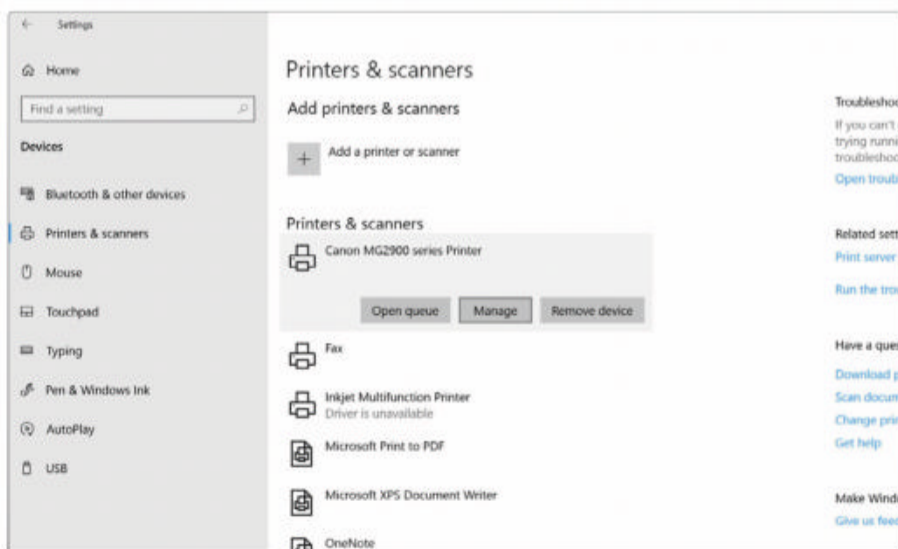
5 Additional permission options

If you have shared a file and try to assign Read/Write access to it, you will be warned that you'll need to provide the same level of access to the folder containing the file. If you're happy to do this, click Next when prompted and Windows will take care of things for you. Otherwise, click Cancel, and copy the file to a folder you are happy to share with this level of access.



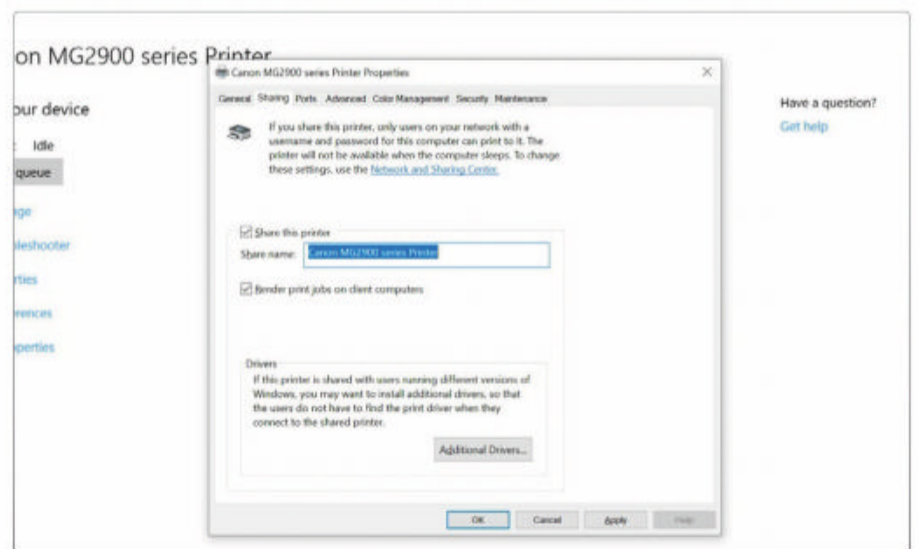
6 Sharing links to shared items

Once you have configured the settings, files or folders you have selected will be made available on the network for others to access – they just need to navigate to your computer from the Network section of File Explorer. To make things even easier, you can share a link. On the final screen of the sharing process, click 'Copy link' and you can then paste it into an email or message.



7 Sharing a printer

Sharing a printer connected to an individual PC via a USB cable, rather than working with a wireless or network printer, is a very similar process to sharing files and folders. Open Settings from the Start menu, click Devices and then go to 'Printers & scanners'. Click the name of your printer followed by the Manage button, and then click the Printer Properties link.



8 Renaming your computers and network

Move to the Sharing tab and tick the box labelled 'Share this printer'. By default, the printer will be shared on the network with the name it was assigned, but you can change this. To add and access the printer on another computer, opt to add a network printer and browse to the printer you have shared. It will only be accessible when the computer it is connected to is switched on. ■

Learn how to...

Make your PC more accessible



Your guide *Carrie Marshall* says...

"Windows is full of really useful features for people with sight, hearing or mobility issues"

At a glance

Skill level...

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

Suitable for...

- Windows 10
- Windows 8.1
- Windows 7

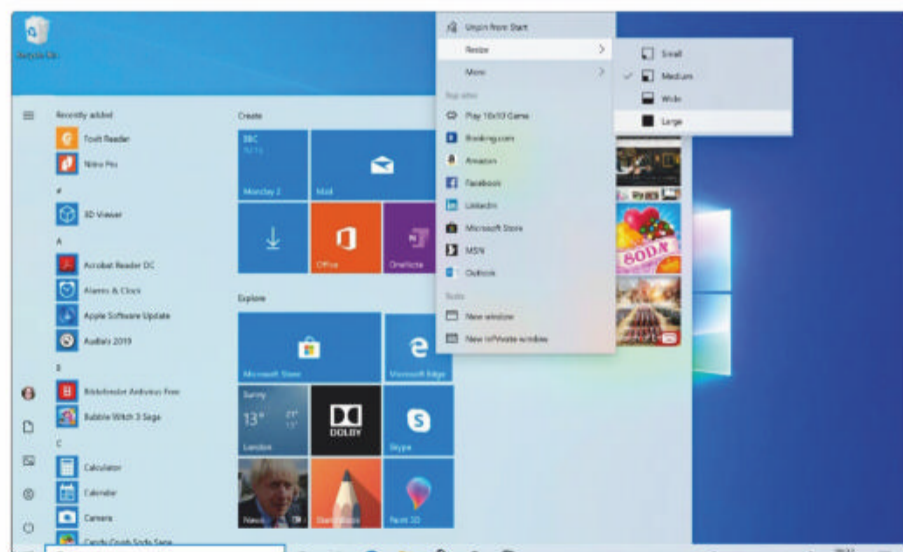
Windows is designed to be enjoyed by everyone, and that includes those of us who don't have perfect vision or mobility. Many of us experience vision problems, mobility issues or other things that mean we'd really like to make Windows look or work slightly differently – and the good news is that Windows enables you to do just that.

As we'll discover, it's easy to make Windows much more visually accessible. But it can do even more. With Narrator you can use Windows without a display, and features in the Ease of Access panel can make Windows more usable for those of us with mobility issues. Mono audio – new in the Creators Update – can make in-app speech clearer, while Skype Translator can turn voice chat into text. There's even experimental but solid eye tracking, which uses special hardware to navigate.



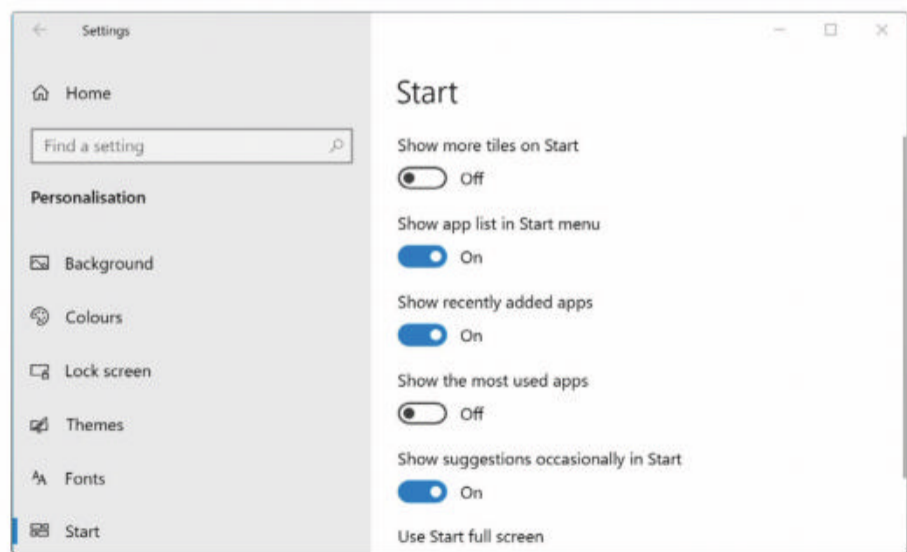
CARRIE'S BEST TIP
If your PC is in front of, or reflecting the light from, a window the screen can be harder to read.

Step-by-step | Access accessibility



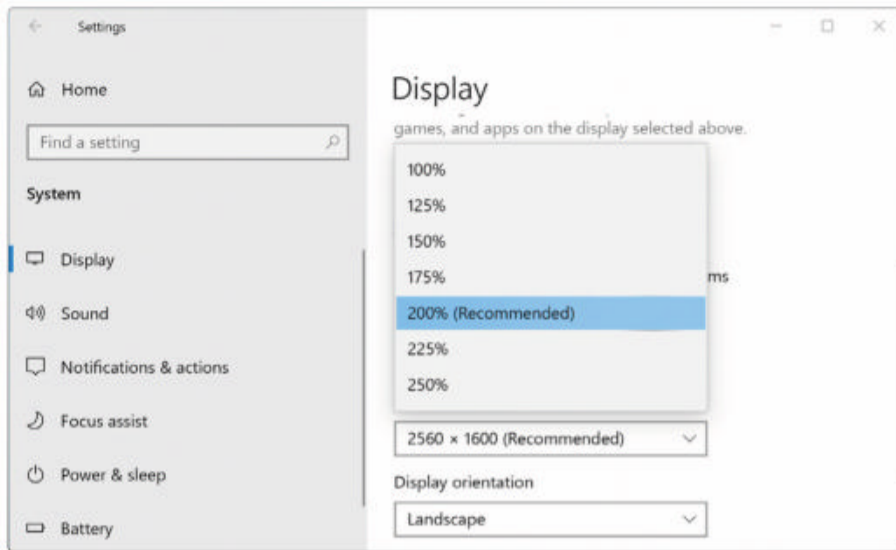
1 Start at the Start

One of our favourite things about Windows is the big friendly tiles in the Start Menu. To have nice big tiles for your favourite apps, first of all you need to pin them to the Start Menu by right clicking on the one(s) you want to pin, or by using drag and drop from the menu. Then right-click again, but this time choose **Resize**. You can now choose one of four tile sizes.



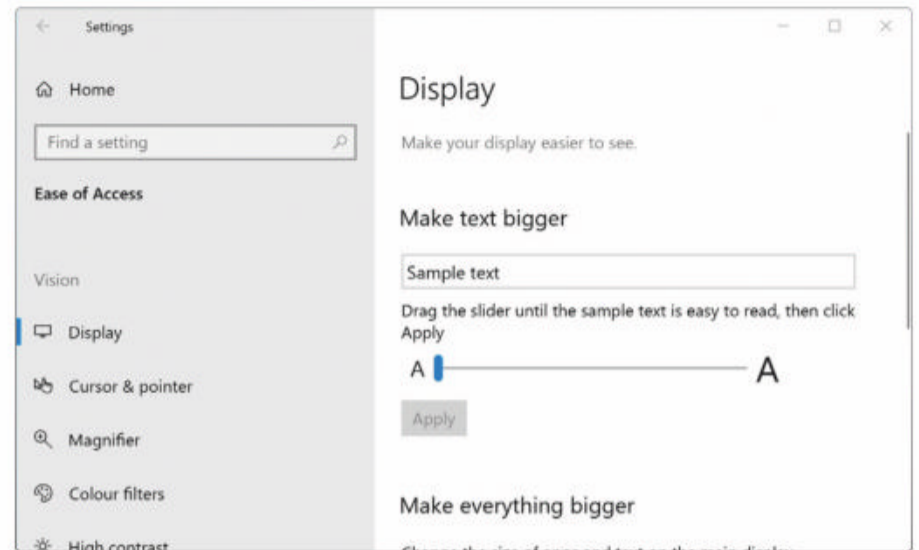
2 Make the Start Menu bigger

You can make the Start Menu bigger on screen so that you can see more of your tiles at once. To do this, just move the mouse to the top or right hand edge or to the top right hand corner. When it changes to a double-arrow, drag it up or out to make the menu bigger. If you prefer you can make the Start Menu into a full screen menu by opening up Settings > Personalisation > Start.



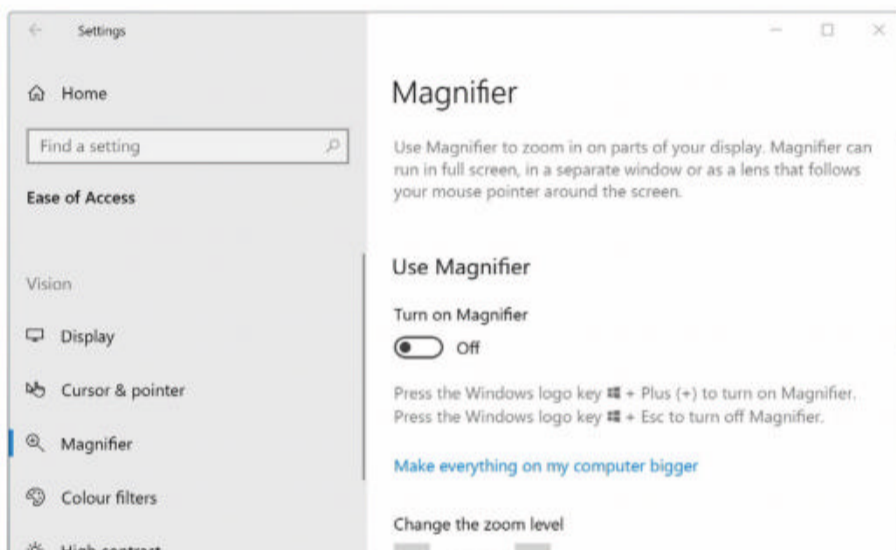
3 Make everything bigger

Sometimes everything on screen is just a little too small. This is something we've encountered a lot with high-res screens, where everything's pin sharp but really, really tiny. You can fix that by opening up Settings > System > Display and adjusting the bit under "change the size of text, apps and other items". Here we've gone for 200%, which is much easier on the eye.



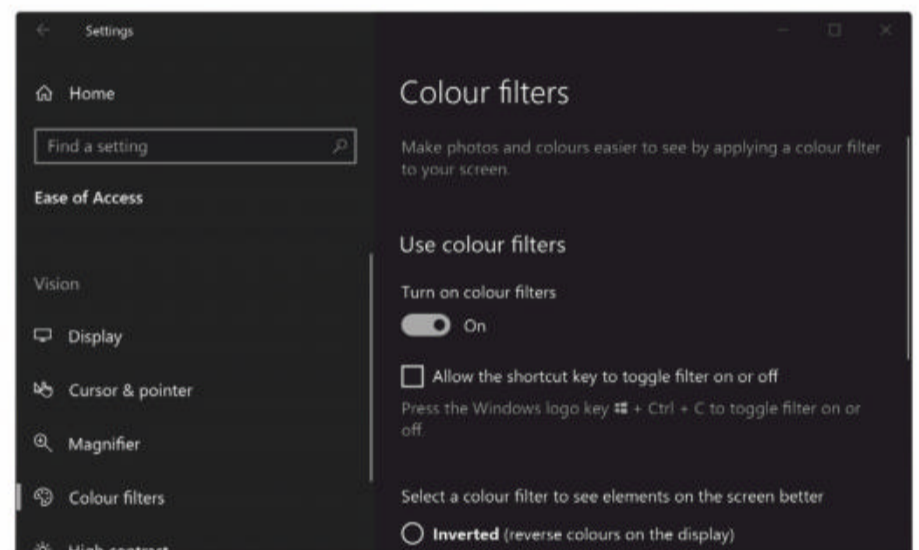
4 Make just the text bigger

If you're fine with the size of Windows' icons, images and other bits and pieces, but just wish the text was a little bit larger, you can do that too. Go to Settings > Ease of Access > Display (or Settings > System > Display). You can now use the slider to adjust the size of the on-screen sample text until it's the size you want it to be.



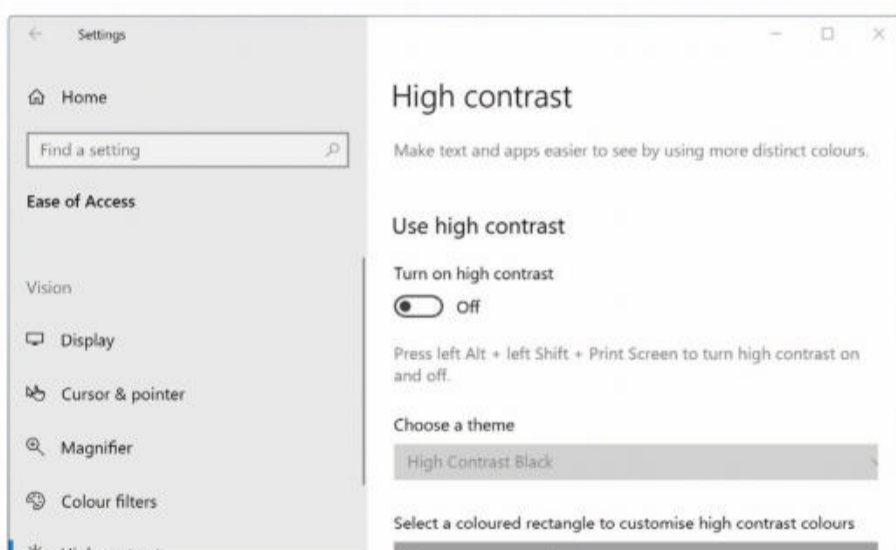
5 Get a magnifying glass

What if you just want to zoom occasionally? Microsoft has thought of that too. The Magnifier enables you to bring up a magnifying lens or window whenever you press the Windows key and the plus key (use Windows and minus to turn it off again). You can turn the feature on and specify the zoom level in Settings > Ease of Access > Magnifier.



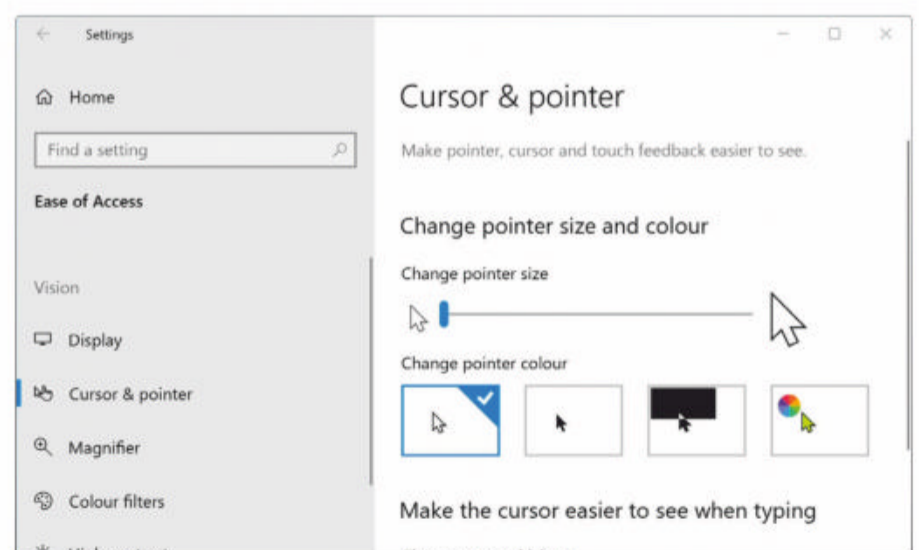
6 Add a colour filter

Colour filters, also in Ease of Access, can be a real boon for those of us whose sight isn't as good as it could be. The filters can be applied permanently or toggled on and off. There are three filters: grayscale turns everything into shades of black, white and grey; inverted makes black white, white black and so on; and grayscale inverted does both.



7 Get a High Contrast scheme

If you'd like your display to be clearer, Windows has another useful option: High Contrast. Once again it's in Ease of Access and it enables you to change the way Windows looks. It gives you colour schemes specifically designed to have a really big contrast between the light and dark colours. If they don't suit you can change their colours.



8 Get a bigger mouse

We can't be the only ones who lose sight of the mouse pointer. Good news: you can change that too. Once again it's in Settings > Ease of Access, but this time you want to click or tap on the Cursor & Pointer link. Here you can change the colour of the pointer and its size. You can also adjust the thickness of the text cursor, which is handy for apps such as Word. ■

Learn how to... Edit video for free



Your guide *Carrie Marshall* says...

You can make movies like the pros with Lightworks, an incredible – and free – video editing app

At a glance

Skill level...

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

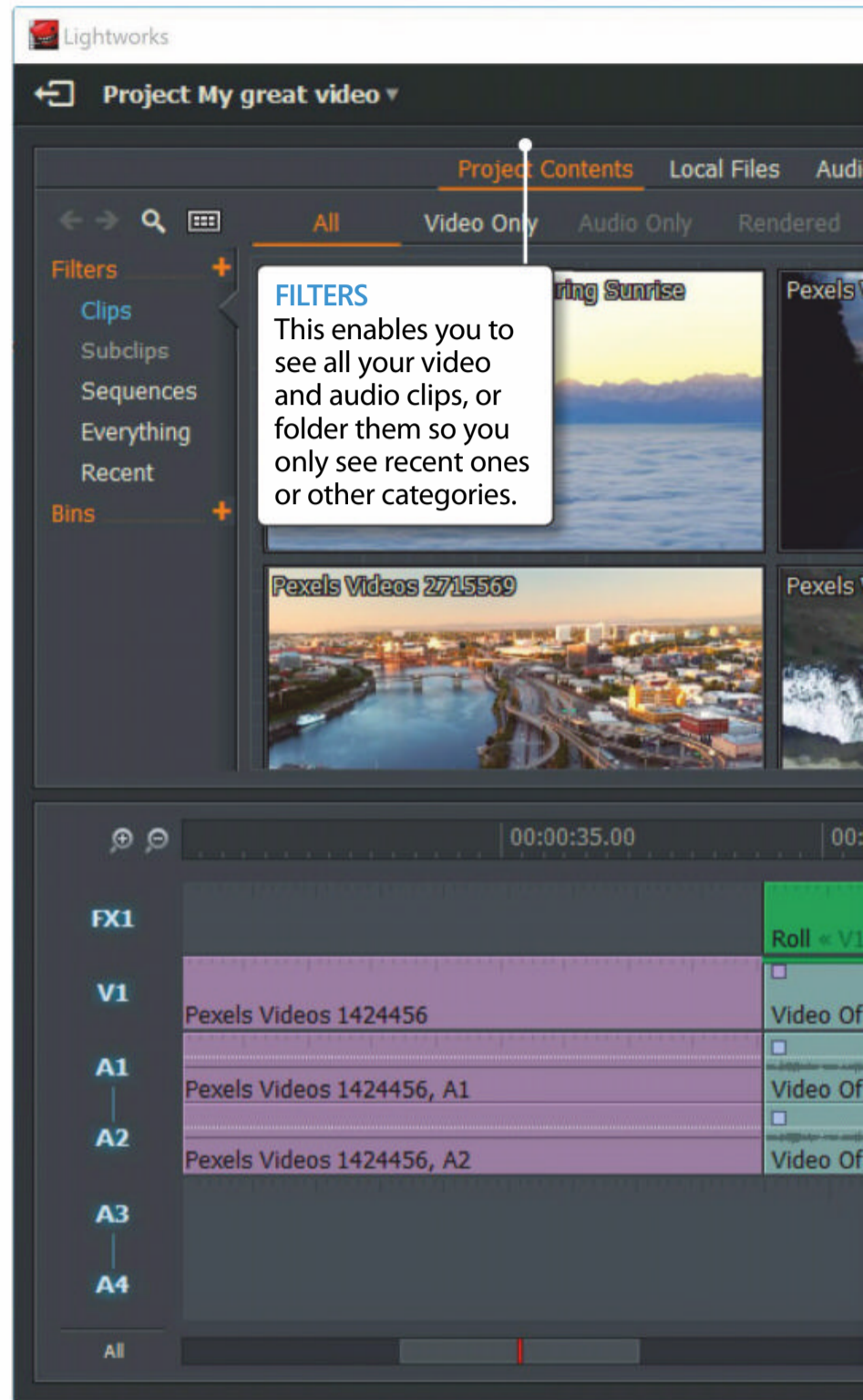
Suitable for...

- Windows 10
- Windows 8.1
- Windows 7

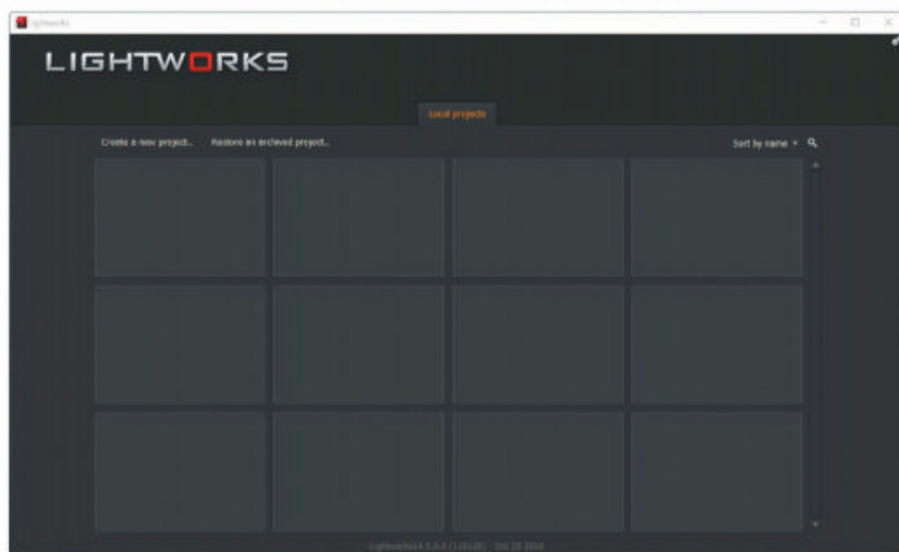
Would you like to use the same video editing software as your favourite film-makers? Lightworks has been used on Pulp Fiction, Heat, The Wolf of Wall Street and many more – and you can use it for your own videos too.

The core app is free, but if you're a pro you'll want to shell out for extra tools and the highest resolution exporting; for most of us, though, free is just great. The app contains everything you need to edit movies and export to common file formats and services such as YouTube.

Before you decide to make Star Wars in the shed, a word of warning: video editing is very demanding on your PC, so it might be wise to keep things simple while you're learning the ropes. And don't let other programs run when you're editing video: your app needs as much power as your PC can give it.

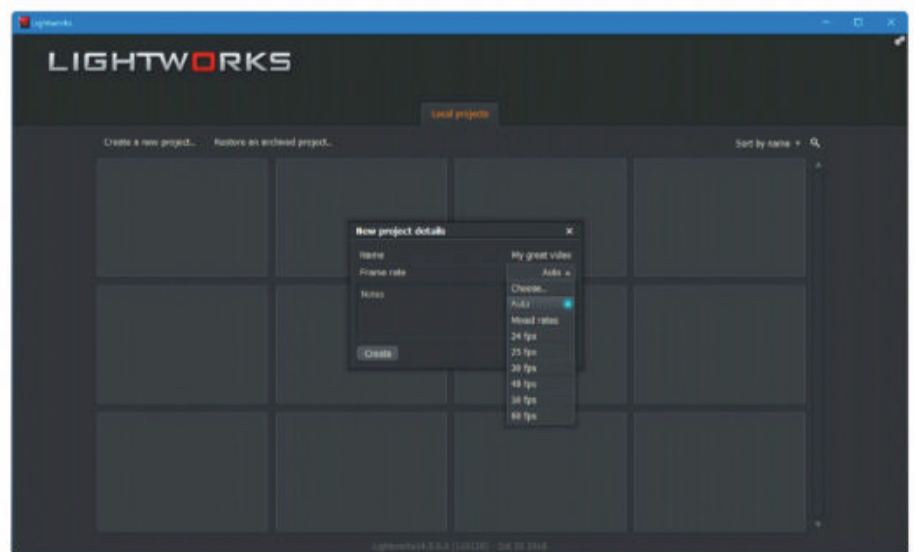


Step-by-step | Edit your movies in Lightworks



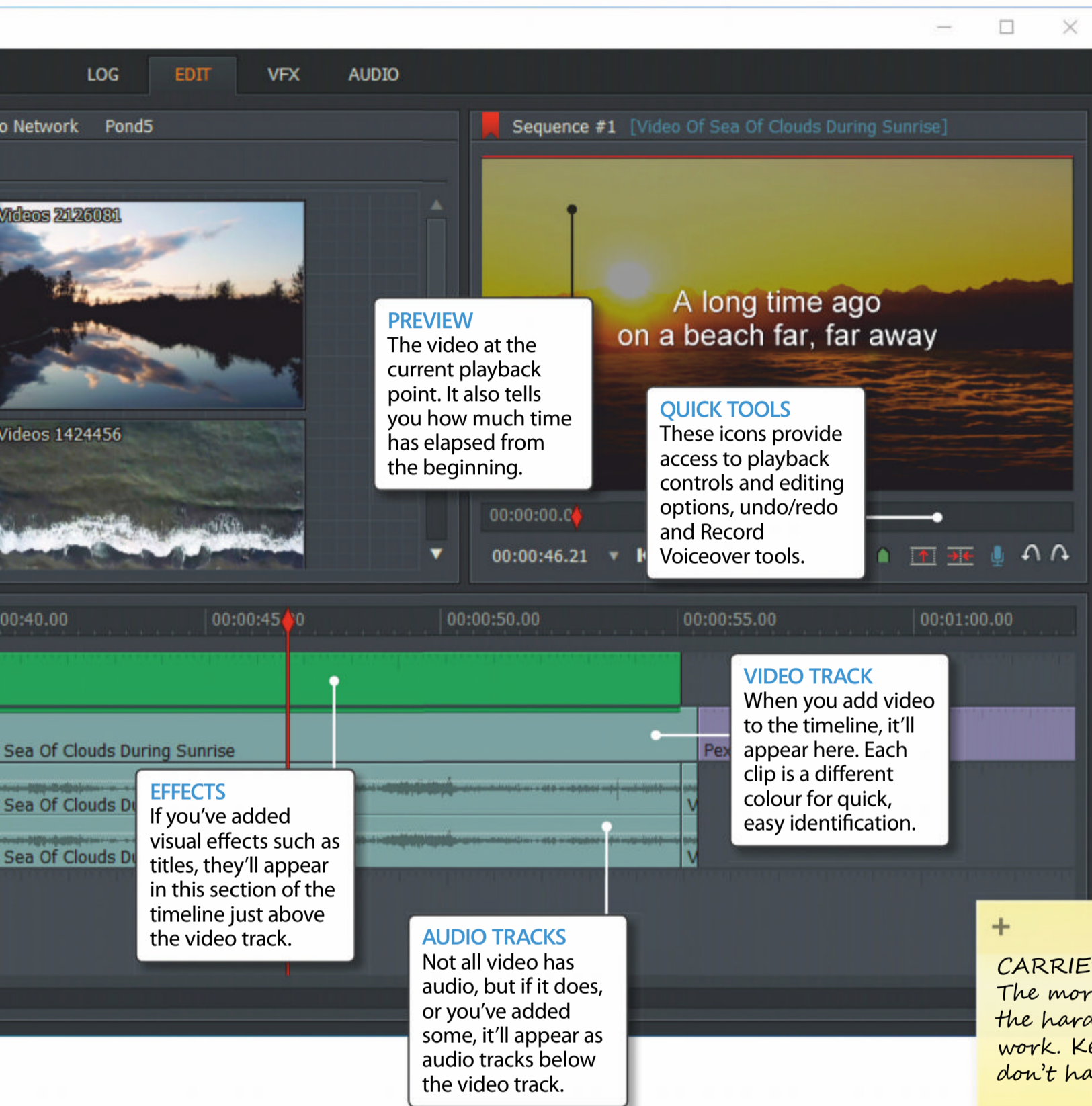
1 Create a new project

When you launch Lightworks, you'll be taken to the Local Projects screen shown here. When you've worked on some projects the various rectangles will be replaced with their titles and thumbnails, but for now everything is empty. The app doesn't have the familiar Windows menu bar – for example the settings bit is accessed by the gears icon in the top right corner.



2 Choose your settings

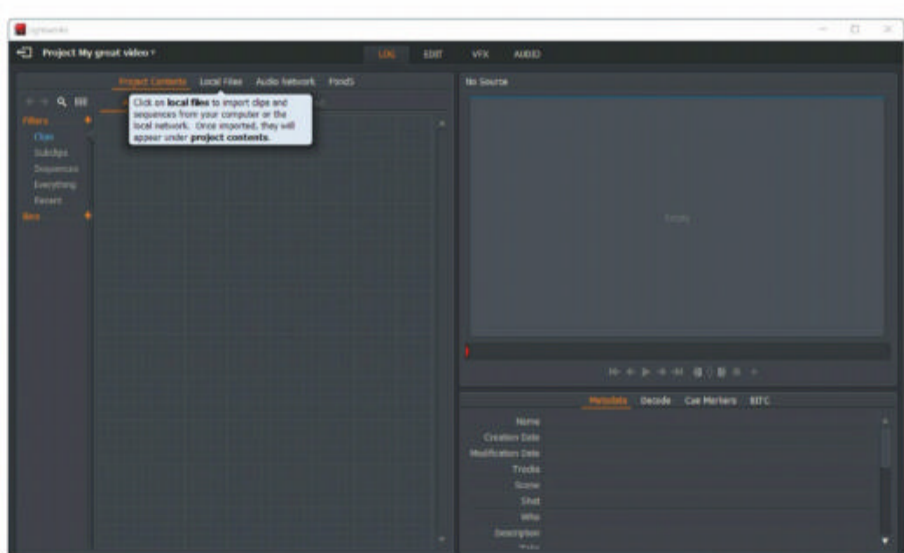
Click on Create New Project and you'll see the New Project Details pop-up. You'll need to give your project a title, and the app also asks you to choose a frame rate: this is how many frames per second the video will be. If you don't have a specific one in mind just stick with the Auto option. If you wish you can also add quick notes in the text field to describe your project.



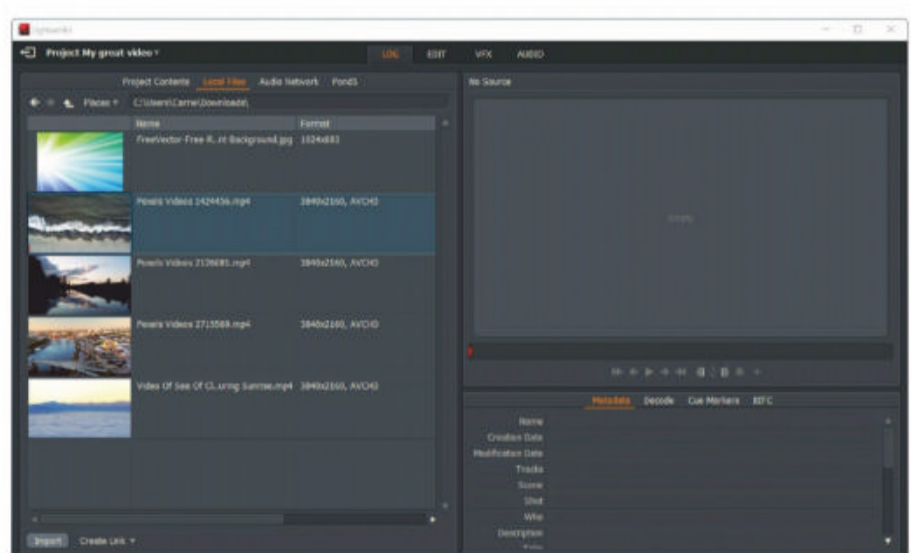
Jargon buster!

- ▶ **Frame Rate**
How many pictures ("frames") you see per second. Films are typically 24fps (frames per second) but some are as high as 60fps.
- ▶ **Colour correction**
Adjusting the settings of a video clip to make it look more natural and blend in with other clips. Some cameras tend to oversaturate video, making it unnaturally vivid.
- ▶ **VFX**
Short for visual effects, which can be anything from special effects to overlaying text titles.

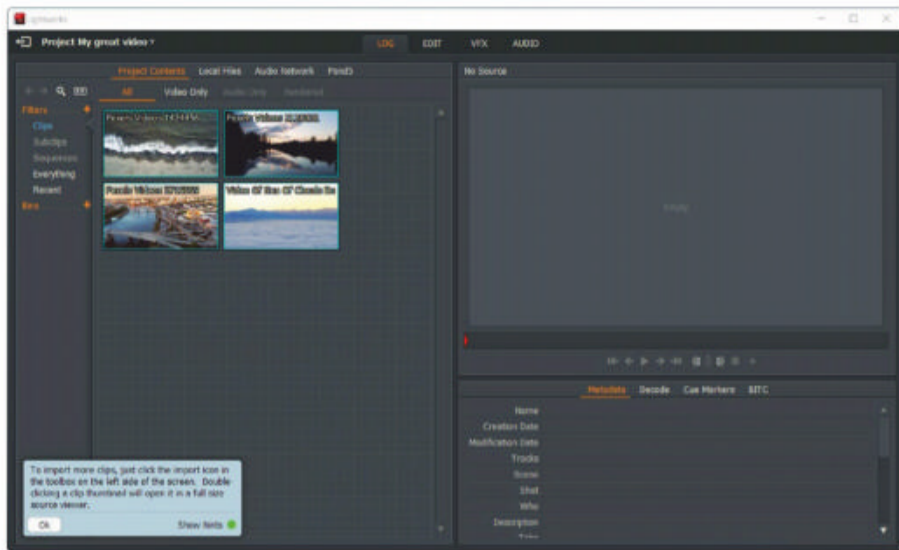
CARRIE'S BEST TIP!
The more effects and filters, the harder your PC has to work. Keep effects low if you don't have a monster PC.



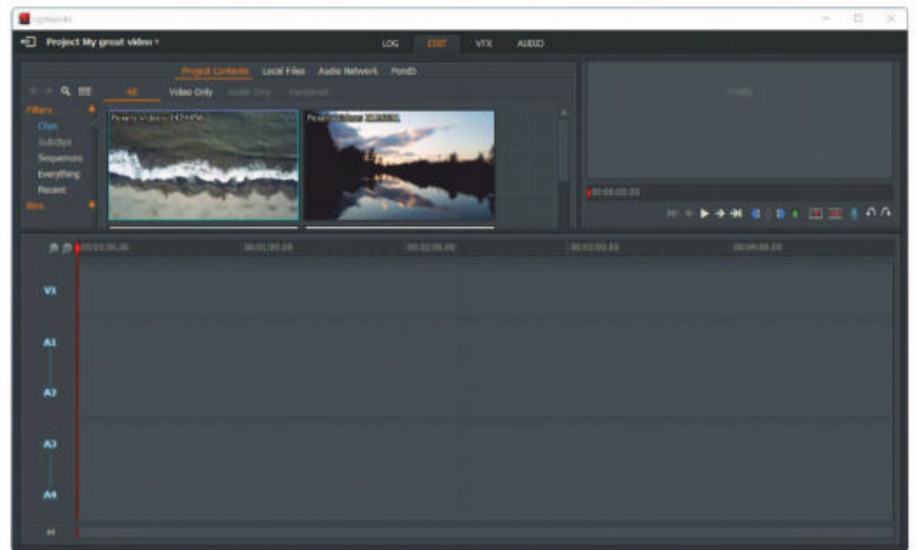
3 Find your files
If you're new to Lightworks it provides on-screen tips; you can turn them off. Here we have the Log view, which is where you locate and organise the source material for your project: your video clips and your audio tracks. When you're working on a new project the Project Contents bit will be blank. Click on Local Files to browse to and import the video clips that you want to use.



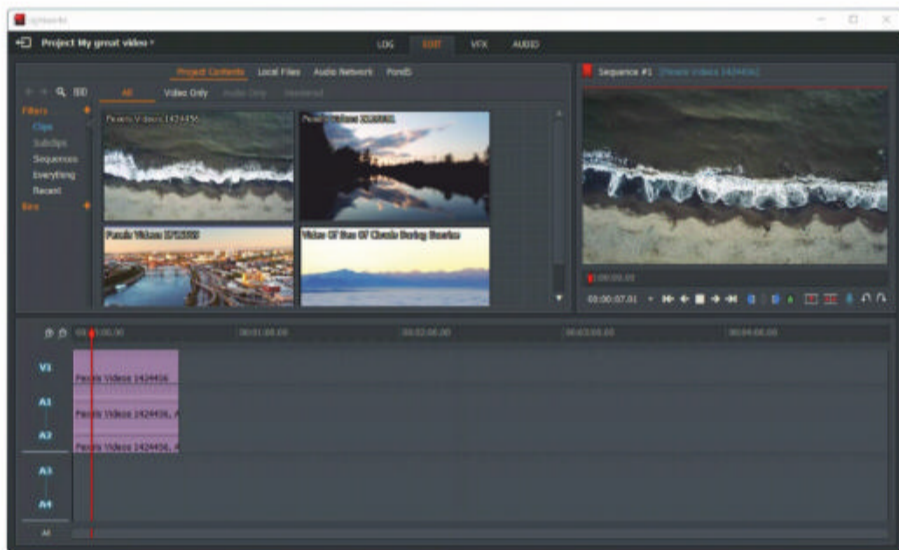
4 Choose your video
One of the key reasons for choosing Lightworks is that, unlike many video editors, it doesn't just work with one or two video file formats. It can import pretty much anything, which is a real boon if you're pulling in video from compact cameras or some smartphones. Simply browse to the folder containing your video and select the clip(s) you plan to use.



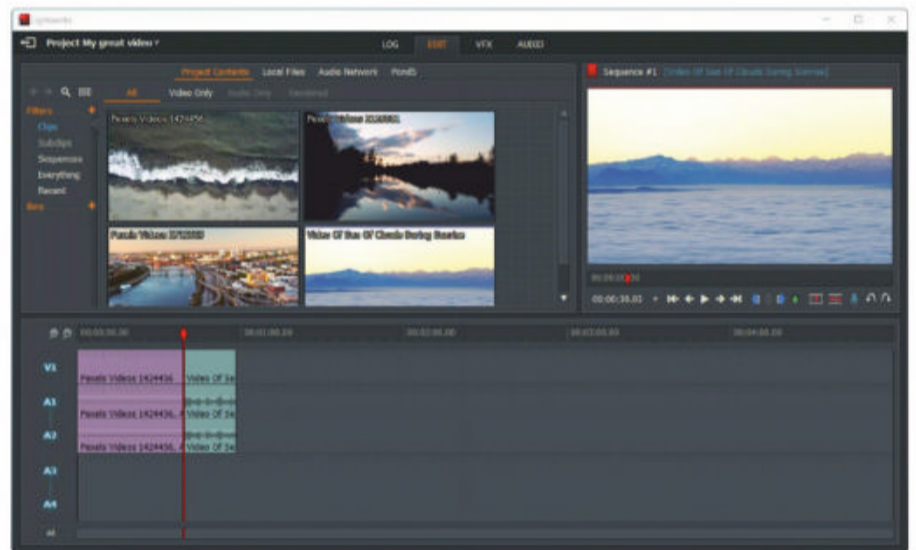
5 Import the clips
It's not immediately obvious, but the videos in your Local Files panel aren't added to your project until you import them. To do that, select them and click on the Import button in the lower left hand corner. This can sometimes make your PC look as if it's crashed, especially on lower-powered PCs, but be patient: the process can take a few minutes, especially with long, hi-res video.



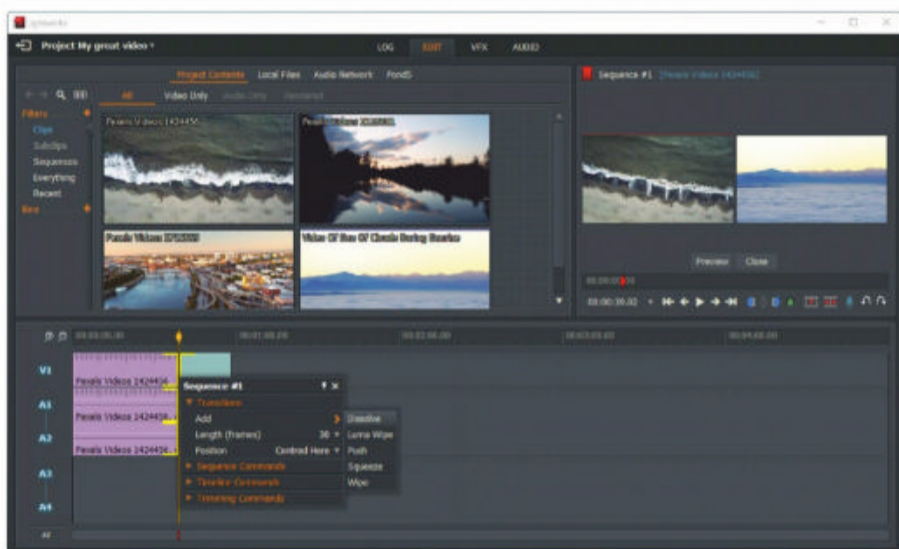
6 Enter editing mode
You'll now see the three-panel view shown here: clips in the top left, preview at the top right and the project timeline at the bottom. Don't worry if you don't have any videos of your own to edit: you can do what we've done here and download royalty free videos from Pexels.com. These videos are available for you to use anywhere for free, including commercial use.



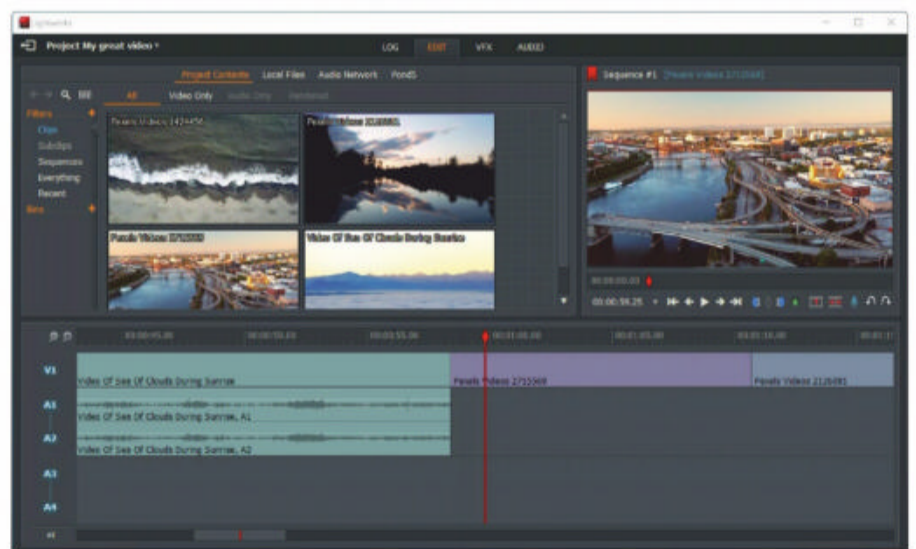
7 Insert your first clip
To make your video, you need to put the component parts on the timeline. It's like LEGO for video: you put one clip here, then another one alongside it, and another after that. Drag your first clip to the very beginning of the timeline. You'll see that Lightworks shows three things, not one, here: the bit on the V1 row it the video, while A1 and A2 are its left and right audio tracks.



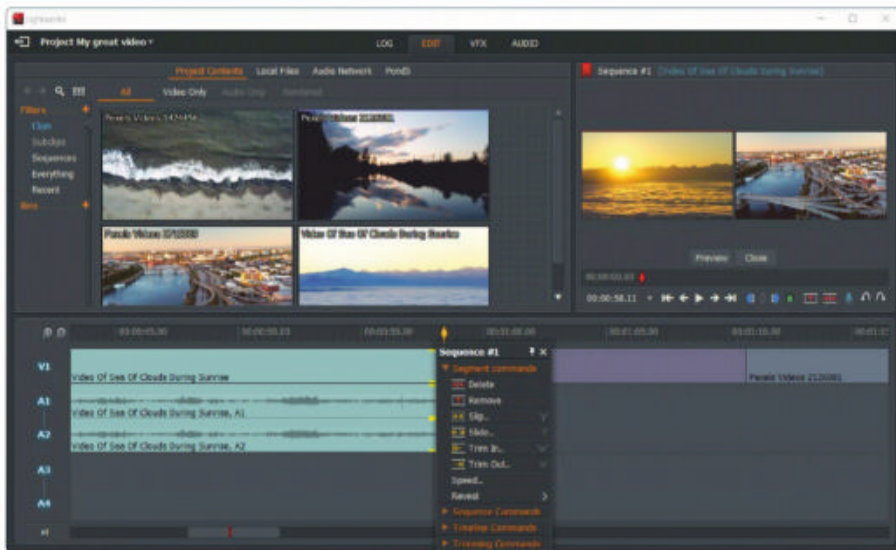
8 Add another
Most video projects are made of multiple clips joined together. Drag your second clip onto the timeline, just after the first one ends: when you get very close it'll snap to the end of the first clip so there's no gap. Once again we have three tracks here, one video and two audio. Lightworks colour-codes each of your clips so it's easy to see which one's which.



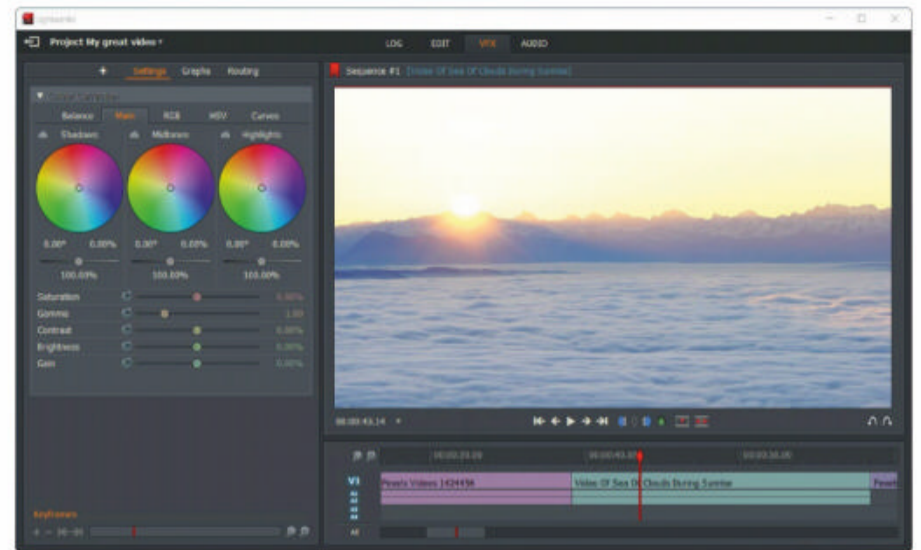
9 Add a transition
Unless you're doing it for deliberate effect, it's generally a bad idea to move between very different clips without some sort of transition such as a fade or a wipe. To add a transition between clips, right-click on the bit where the two clips meet each other and you'll see the Sequence pop-up. Select Transitions > Add and choose the one you want. You can adjust its settings here too.



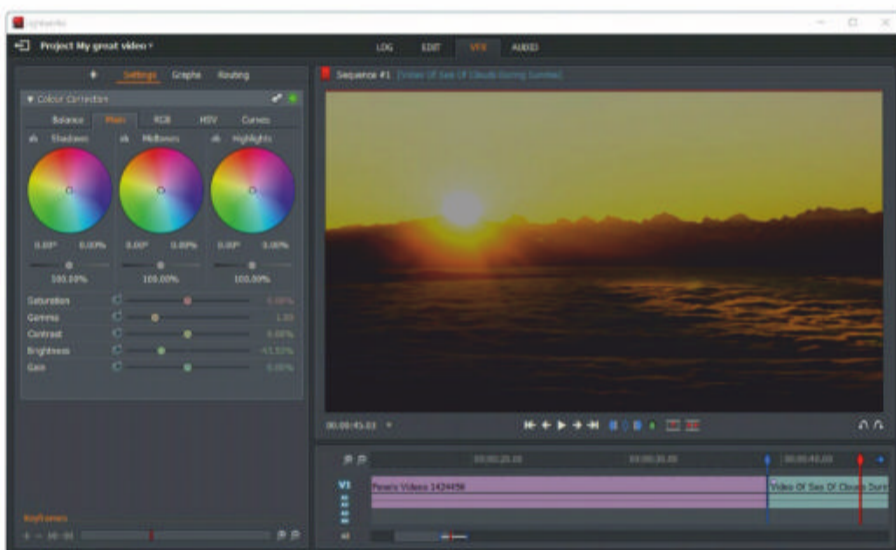
10 Add video without audio
So far all our video clips have included their own audio, but sometimes your video will come without any audio at all. As you can see, two of the three clips here don't have audio tracks. You can easily add audio by importing it and dragging it to the timeline, or you can click the microphone icon immediately below the preview (it's in the strip of small icons) to record a voiceover.



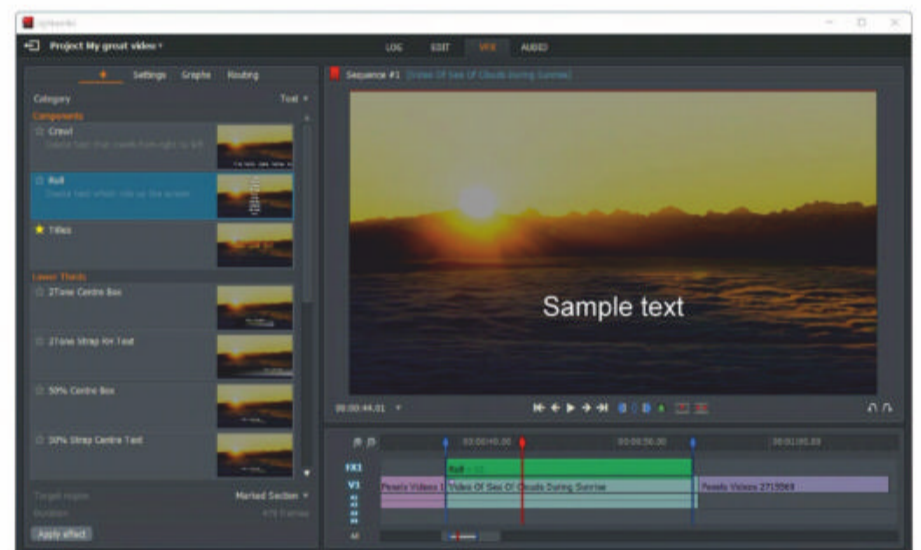
11 Trim your clips
Trimming a clip gets rid of the beginning or the end of it. To trim clips in Lightworks, right-click over the clip you want to trim and you'll see the Segment Commands options. Trim In enables you to grab the edge and pull it in to get rid of the bits you don't want without affecting any other clips. Use Slip and Slide if you want to adjust where one clip ends and another begins.



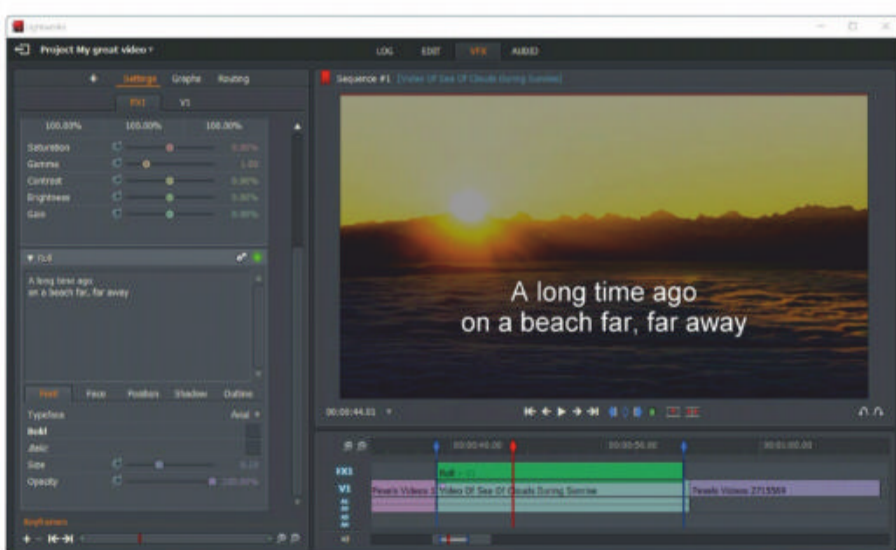
12 Add effects
If you click on the VFX tab you can do some interesting things to your video. The first time you click on the tab you'll be taken to this, the colour correction screen. You can do two common tasks here: you can adjust the colours in a clip so it looks more natural or blends better with the rest of your project, or you can make more dramatic changes to its colour.



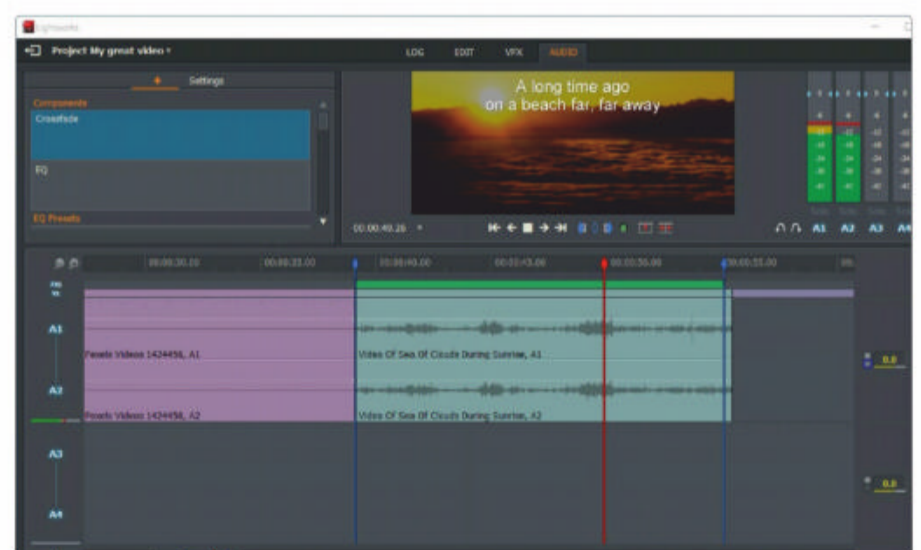
13 Change the colour
This is an extreme example of what happens when you change video settings: we've whacked the brightness right down to give a more dramatic effect on our sunrise. Like any kind of filtering, unless you're turning everything up to 11 for artistic reasons it's usually best to do as little as possible when you colour correct: too much can make your footage look distinctly odd.



14 Add your titles
If you look closely above the colour correction header you'll see a little '+' sign. This is where you can add items such as scrolling titles or the video IDs you get on music video channels and YouTube clips. You can also get it by right-clicking on a video clip in the V1 track and choosing Edit > Effects > Add > Titles. Here we've gone for Star Wars-style text that rolls up the screen.



15 Change the text
Your title settings will appear in a new section underneath the Colour Correction bit of the VFX window: scroll down to see all of it. Simply replace the sample text with whatever you want to see. You can also adjust the typeface size and opacity, its positioning and its shadow or outline. Those two are particularly handy where the video moves from dark to light or vice versa.



16 Adjust the audio
Click on the Audio tag to add equalisation or crossfades to your sound. There are some presets for reducing background noise, or you can roll your own too. Adjust volume levels by dragging the blue arrows on the sound meters at the top right. To export your project, simply return to the Edit screen, right-click on the timeline and select Sequence Commands > Export.

Create user-friendly rescue media

YOU'LL NEED THIS

A BLANK DVD OR USB FLASH DRIVE

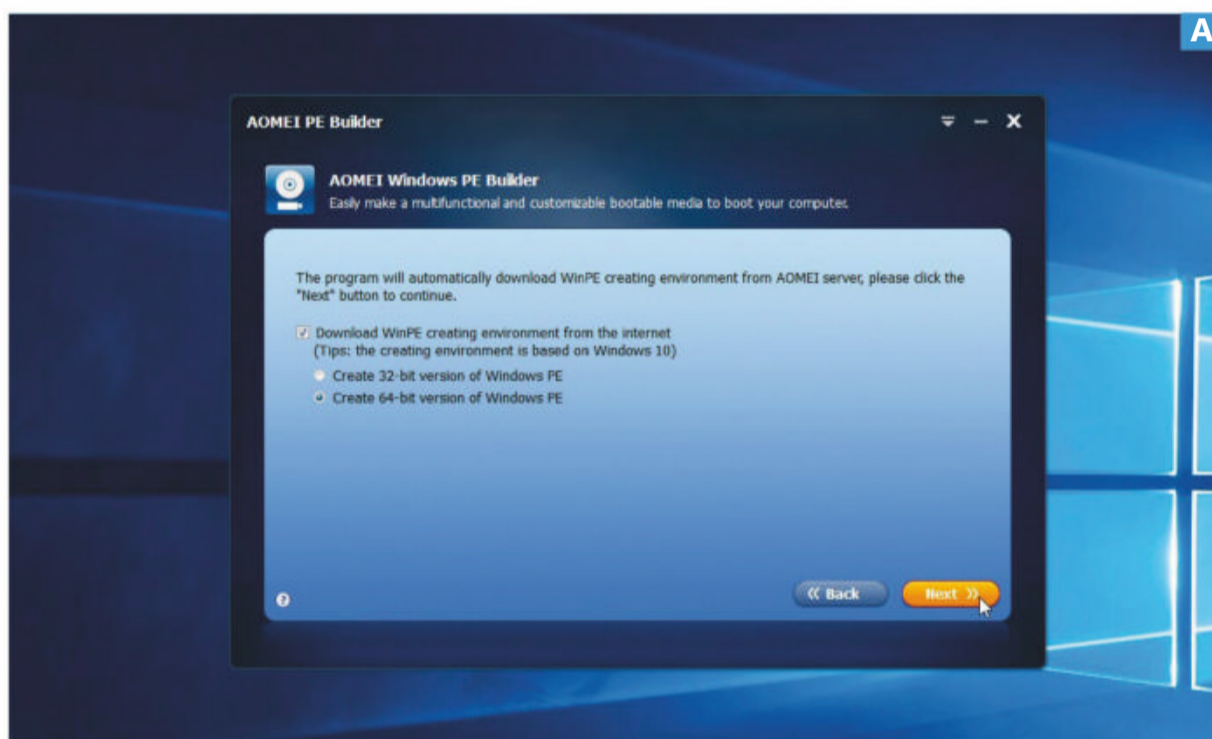
at least 2GB in size.

AOMEI PE BUILDER

Available for free from www.aomeitech.com

If Windows fails to boot, or you're otherwise locked out of your system, what can you do? Built-in recovery tools are certainly helpful, but they're not the most user-friendly. Microsoft developed a special 'pre-installation environment,' called Windows PE, which gives you access to a cut-down version of Windows that can be started from a bootable DVD or USB flash drive. It's basic, but it contains a familiar, user-friendly graphical interface that gives you access to your system even when it won't boot.

Creating this recovery media by hand can be tricky, but AOMEI PE Builder 2.0 makes it possible for you to build your own customised recovery disc, complete with the tools you know and trust for recovering data, restoring a previous backup, researching the problem online, and even performing certain repairs to bring your ailing PC back to life.



1 Download and install

Head over to www.aomeitech.com/pe-builder.html, where you'll see a pair of links, for 146MB and 72MB downloads. The larger download contains AOMEI's Partition Assistant and Backupper utilities, which will be incorporated into your rescue disc. These are key tools – Partition Assistant can recover lost and deleted partitions, for example, while Backupper can be used to take a full system image of your drive – so we recommend downloading the 146MB version.

Once downloaded, simply double-click PEBuilder.exe, and follow the on-screen prompts to install the software. Once complete, launch it from the Start menu or via a search for "AOMEI".

2 Select rescue disc system type

The opening screen provides a series of hyperlinks, explaining various aspects of the rescue disc's interface, as well as included tools and utilities. Once you've reviewed these, click Next. By default, 'Download WinPE creating environment from the Internet' is selected – it's required if you're running Windows XP, Vista, or 10, and is recommended (but not

compulsory) on Windows 7, 8, and 8.1, too [Image A].

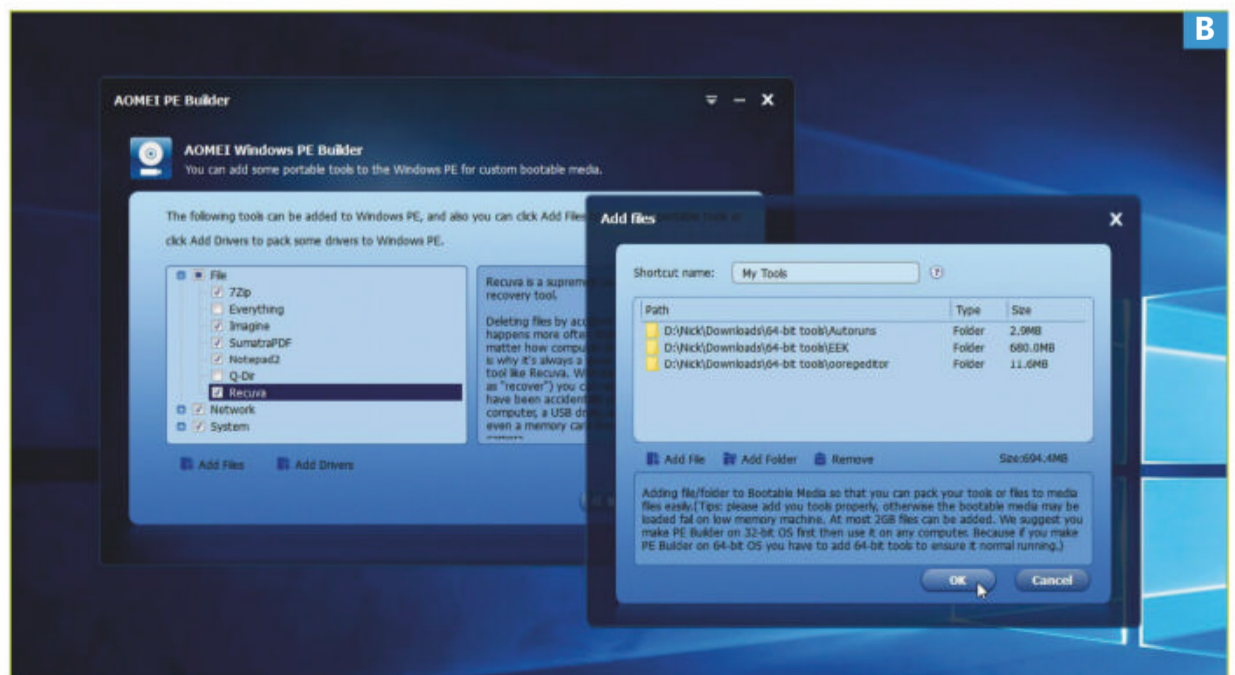
Your key choice here is 32bit or 64bit. Typically, you should choose the same system type as your own Windows installation (press Win-Pause/Break if you don't know this), but there are two considerations. First, 64bit boot media will work with both older BIOS and newer UEFI systems, while 32bit media only

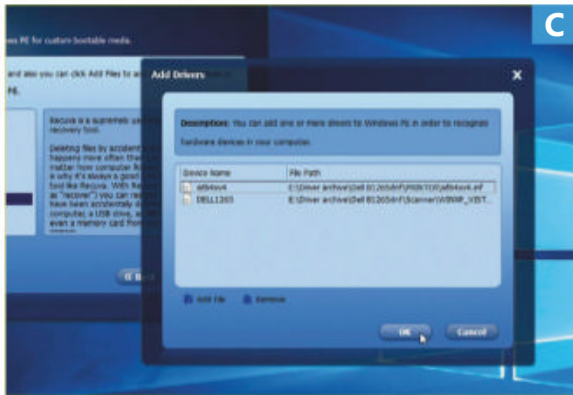
supports older legacy systems (see the troubleshooting box on page 46 for a possible workaround). Second, you need to source portable apps and drivers of the same system type as your rescue disc – 32bit apps are more common than 64bit ones. Make your choice, then click Next.

3 Customise portable apps

Expand the File, Network, and System sections to see what bonus tools are included with your rescue disc by default. Select one to read a description. In most cases, you'll leave these all selected – but we recommend deselecting the web browser QtWeb (it doesn't work properly in 64bit environments).

Click Add Files to add your own portable tools to the rescue disc – up to 2GB of programs can be added this way. It's worth gathering these apps in their own folder, then adding each tool's subfolder individually as shown [Image B] – they'll be accessible from the rescue disc's desktop under the UserTools folder. See the box opposite for tips on tools to look for, but remember you can also run portable apps directly off other drives, so long as they're detected by your rescue media, so don't go overboard.





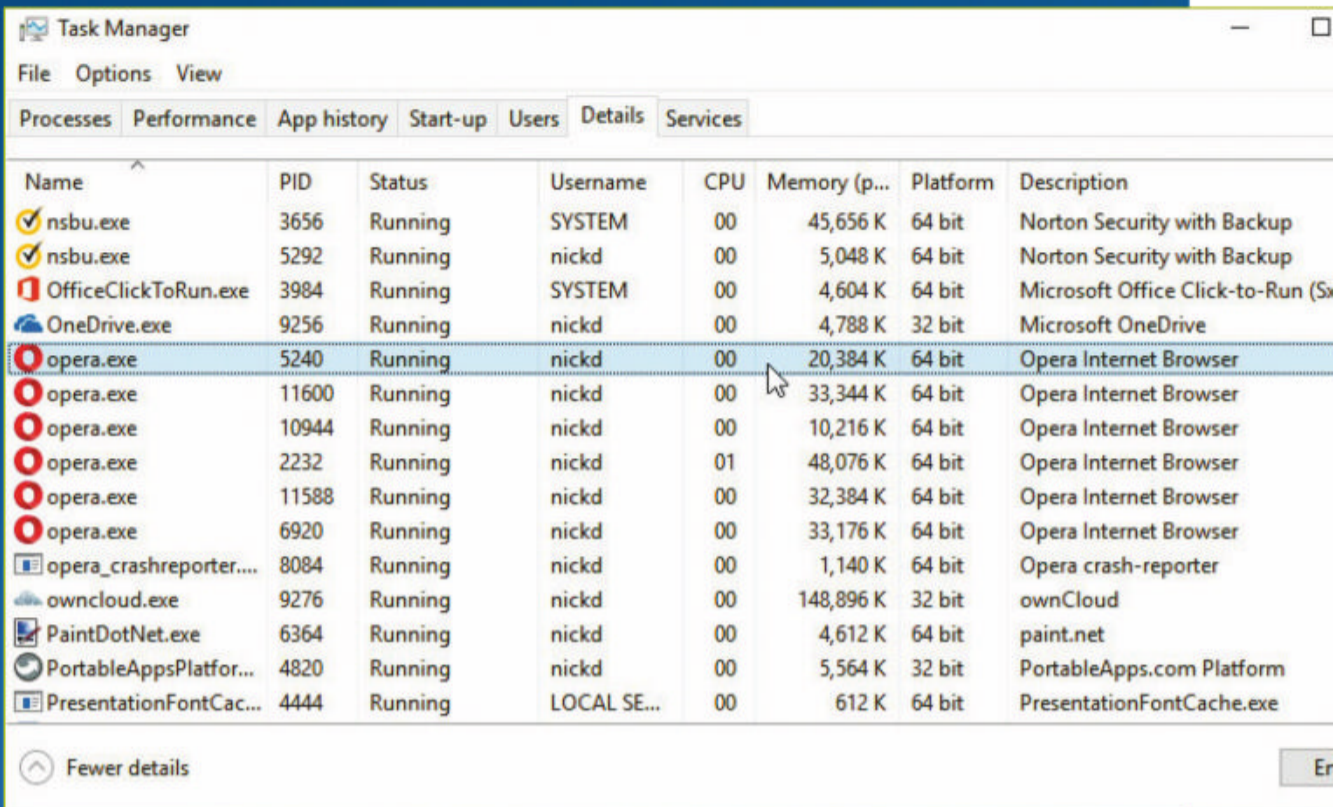
4 Add custom drivers

All the core drivers you need – graphics, keyboard, mouse, and wired network – should be covered by PE Builder, but there’s a chance that certain network (specifically Wi-Fi) and hard drive (storage controller or RAID) drivers aren’t present, while some advanced USB mice and keyboards aren’t recognised either. You’ll only discover this after you’ve created (and booted from) your rescue media.

If you discover missing drivers, you need to source the driver installation files yourself to add them to your recovery media from this screen. First, obtain the latest version of driver from the manufacturer – if you’re struggling to track it down, try www.driverscape.com, where you can search a range of popular PC and laptop models, as well as hardware devices.

You need to be able to extract the contents of whatever driver file you download, so you can locate a .INF file, which is what PE Builder needs to build the driver from. Use a tool such as 7-Zip (www.7-zip.org) to do this – if the file is a setup.exe file, try ‘Open inside’ to see if the driver files can be manually retrieved. If not, you need to look elsewhere for the drivers. If you’re able

BUILD A TOOLKIT



You can incorporate additional portable tools in your AOMEI rescue disc, giving you access to a wide range of additional apps and utilities. Just one golden rule: Your portable app must match the system type (32bit or 64bit) of your rescue disc. To determine this, first launch the app, then open Task Manager. Switch to the Details tab, right-click the column headers, and choose Select columns. Select Platform, and click OK. Locate your program, and you’ll see it’s listed as either 32bit or 64bit.

Start your search for portable tools at <http://portableapps.com>, where you’ll find most bases are covered, particularly for 32bit apps. Tools to grab from here include Autoruns (manage startup items), SSD-Z (check hard drive health), Teracopy (faster file transfers), FileZilla (FTP transfers), and PuTTY (SSH into other machines). Visit the programs’ home pages to source 64bit versions.

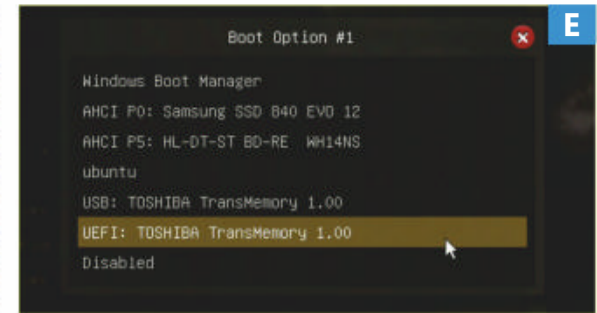
We also recommend Opera (www.opera.com/computer/portable) to replace QtWeb, data-recovery powerhouse DMDE (www.dmde.com – 32bit only for free version), dual-engine anti-malware tool Emsisoft Emergency Kit (www.emsisoft.co.uk – run it from a separate drive) and O&O RegEditor (www.oo-software.com) for editing your crashed PC’s Registry.



TROUBLESHOOT YOUR RESCUE DISC



- 32bit rescue media isn't recognised: 32bit media requires an older BIOS-based PC or a newer UEFI PC with Compatibility Mode enabled and Fast Boot disabled. Choose the USB option in the boot menu.
- Insufficient memory error: PE loads everything it has into memory – if you've not got enough RAM, rebuild your rescue media with fewer tools.
- Computer doesn't boot from USB: Try burning a CD or DVD instead if your PC isn't capable of booting from USB devices (only the very oldest PCs shouldn't be able to do this).
- Certain hardware doesn't work: There's no guarantee you'll get your hardware to work, even if you track down drivers. We failed to get two Wi-Fi adapters working (one code 37 error, another driver unrecognised), and our third only worked when we manually installed the driver after booting.
- Program won't run in recovery environment: Make sure it's the same system type (32- or 64bit) as your rescue media; also try running from a separate drive.
- I have another problem: See the FAQ at www.aomeitech.com/pebuilder/help/faq.html.



may automatically be set to boot from your CD/DVD or USB drive, or you may need to look for an option to press a key – typically a function key – to select your boot device. Once selected, look for your CD/DVD or flash drive. If more than one option is supplied, try the UEFI option first; if that fails, try the USB option [Image E]. If no option appears, or the disc or drive fails to boot, check out the troubleshooting box (left).

If successful, be patient – the loading process is much slower than via a hard drive, particularly if you've added lots of tools and drivers to your rescue media. Eventually, you should find yourself at the rescue media's desktop, with shortcuts to all the built-in tools. You'll find the resolution is set to 1024x768, which makes it appear squashed on widescreen displays. Sadly, this can't be changed, but it should give you enough room to troubleshoot in.

8 Test network connection

Check to see if you have Internet access through your rescue media. The caveat is that Windows PE only works by default with Ethernet interfaces. Double-click the PENetwork icon to open PE Network Manager. If your Ethernet adapter has been detected, it should be listed. Click the Info button to see if it's been allocated an IP address. If it appears to have one, open your portable web browser to verify your internet connection works.

If not, click Renew if you connect through DHCP, or Obtain an IP address automatically to manually set a static IP address, subnet mask (255.255.255.0), and default gateway (the IP address of your router). Set the DNS server to your router's IP address. If that fails, try 208.67.222.222.

to obtain the files and all-important .inf file, return to PE Builder, and click Add Drivers followed by Add File to locate and select the .inf file you identified [Image C]. Click OK followed by Next when you're done.

If you're attempting to add drivers to your boot media, we suggest taking out an insurance policy by clicking Add Files again – this time, click Add Folder, and add the folder containing your extra drivers to your rescue media. This will enable you to attempt a manual installation of those drivers within the recovery environment, should they not automatically load with your rescue media. Once done, click Next.

5 Choose boot media

Your rescue disc is now ready to be burned or copied. Select Burn to CD/DVD if you have a blank DVD inserted (we recommend rewritable media, because you may find your disc doesn't work, or requires tweaking later). Alternatively, select USB Boot Device to choose a flash drive to build the recovery media on – note the drive is completely wiped by this process, so copy off any data you wish to keep from it first.

If more than one USB drive is connected to your PC, verify you have the correct one selected by its drive letter. The Export ISO file option generates an ISO file you can burn or copy manually, or use in a virtual machine, such as

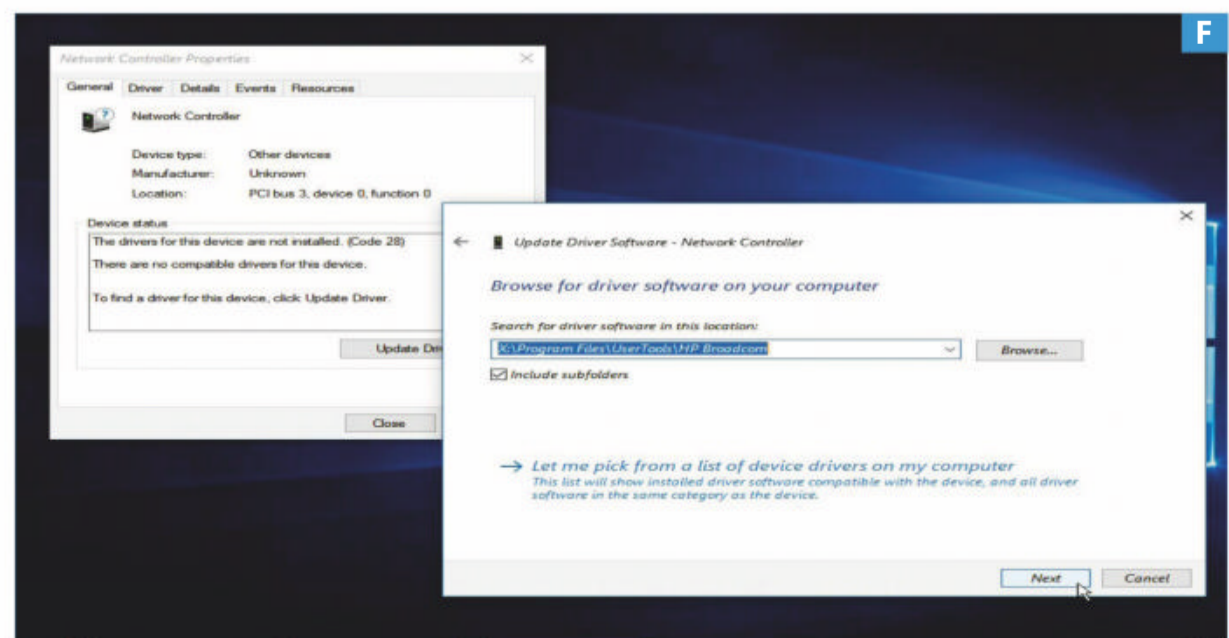
VirtualBox. Click Next when you've made your choice. Read any warning [Image D], then click OK.

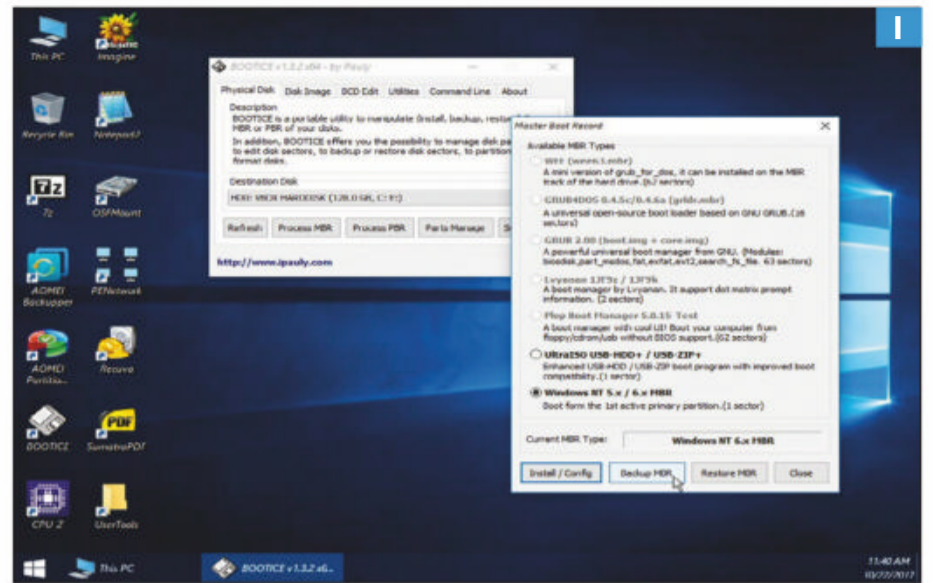
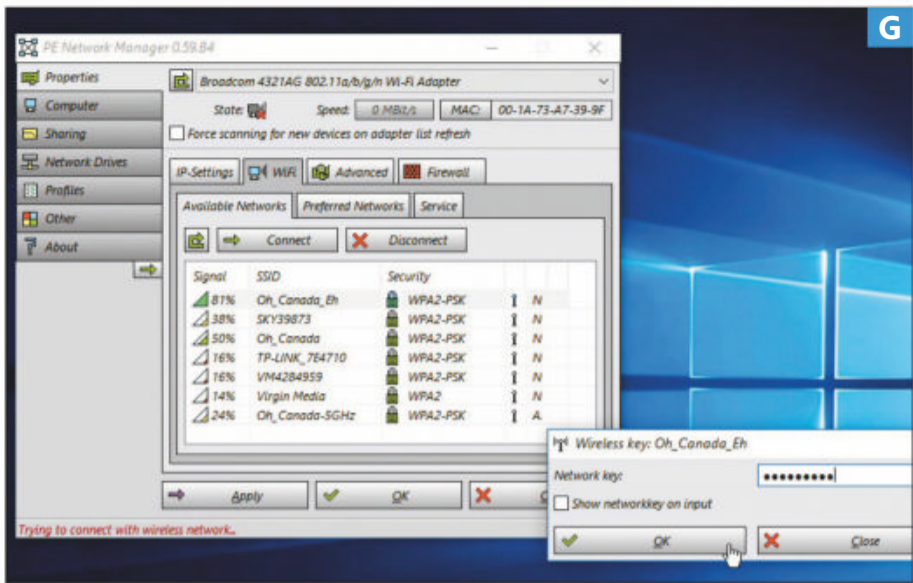
6 Create disc

Wait while your recovery media is created – the first time you run the tool, PE Builder downloads a Windows 10 PE installation image, but the file is retained for future use, so subsequent builds should be quicker, unless you switch system type between 32bit and 64bit. Once the process is complete, click Finish.

7 Test media

Leave your bootable media inserted and reboot your PC to make sure it works. It





9 Connect through Wi-Fi

If you're trying to connect via Wi-Fi, click the drop-down menu to see if your adapter has been detected; in the likely event it hasn't, and you've manually added the driver folder to your rescue media (see step four), you can attempt to install it manually. Press Win-R, type "devmgmt.msc," and hit [Enter]. Look for a reference to Wi-Fi or Network Controller under Other devices. Double-click this, then click Update Driver. Choose Browse my computer for driver software. Select the folder containing your drivers [Image F], and see whether Windows is able to install them.

If successful, go to PE Network Manager. Select Force scanning for new devices on adapter list refresh, switch to the Wi-Fi tab, click Start, then OK. Reopen the tool, and your Wi-Fi adapter should appear under the device drop-down. Select it, then switch to the Wi-Fi tab to connect to your local network [Image G].

10 A brief tour

Double-click the This PC shortcut in the top-left corner to access File Explorer. You should see all drives (internal and external) appear. If any are missing, you need to source appropriate drivers (typically RAID or storage controller – consult your PC or motherboard's support site for them) to add to your rescue media. You'll notice a drive

marked 'X' – this is the drive Windows PE has installed itself to, and is a virtual drive, in that it's stored in RAM. This is partly why it's restricted to 2GB, to work on lower memory (and 32bit) machines. Your other drives should be recognisable by their drive letters – though some may have swapped around, so browse each one for confirmation.

In case you ever find yourself using your rescue media to try to recover from a non-booting PC, now would be the time to work out which drive is your backup drive, then launch AOMEI Backupper from its desktop shortcut to take a full backup of your afflicted Windows system drive [Image H]. This would enable you to then attempt repairs knowing your files are protected, should you be forced to perform a complete wipe and reinstall.

11 Test your apps

Open the UserTools folder via its shortcut to test any apps you've added. Not all will work, even if they are the correct system type. Non-functioning apps usually exhibit no symptoms – you double-click the shortcut, but nothing happens, even after a wait (right-click the Taskbar and choose Task Manager to see if anything is present).

Some apps fail because they prefer to run from a physical drive – if you have a portable apps folder on another drive, try

running them from there. There's no rule – other than convenience – that forces you to incorporate your apps into your rescue media.

12 Quick-fire tips

There are no quick-and-easy repair tools built into the AOMEI rescue media – you may want to pair it with a Lazesoft Recovery Suite Home Edition recovery disc (www.lazesoft.com) to cover all bases. The PE environment is best used for backing up and recovering data, browsing the web to troubleshoot boot-related problems, and perform manual repairs. Built-in tools that can help include AOMEI Partition Assistant (recover lost or deleted partitions), BootICE (examine and repair boot entries), and Recuva (recover deleted files). You also have access to a limited set of system tools – press [Win] + [R] to launch Control Panel (control.exe – most links don't work, however), Device Manager (devmgmt.msc), or Computer Management (compmgmt.msc), among others [Image I].

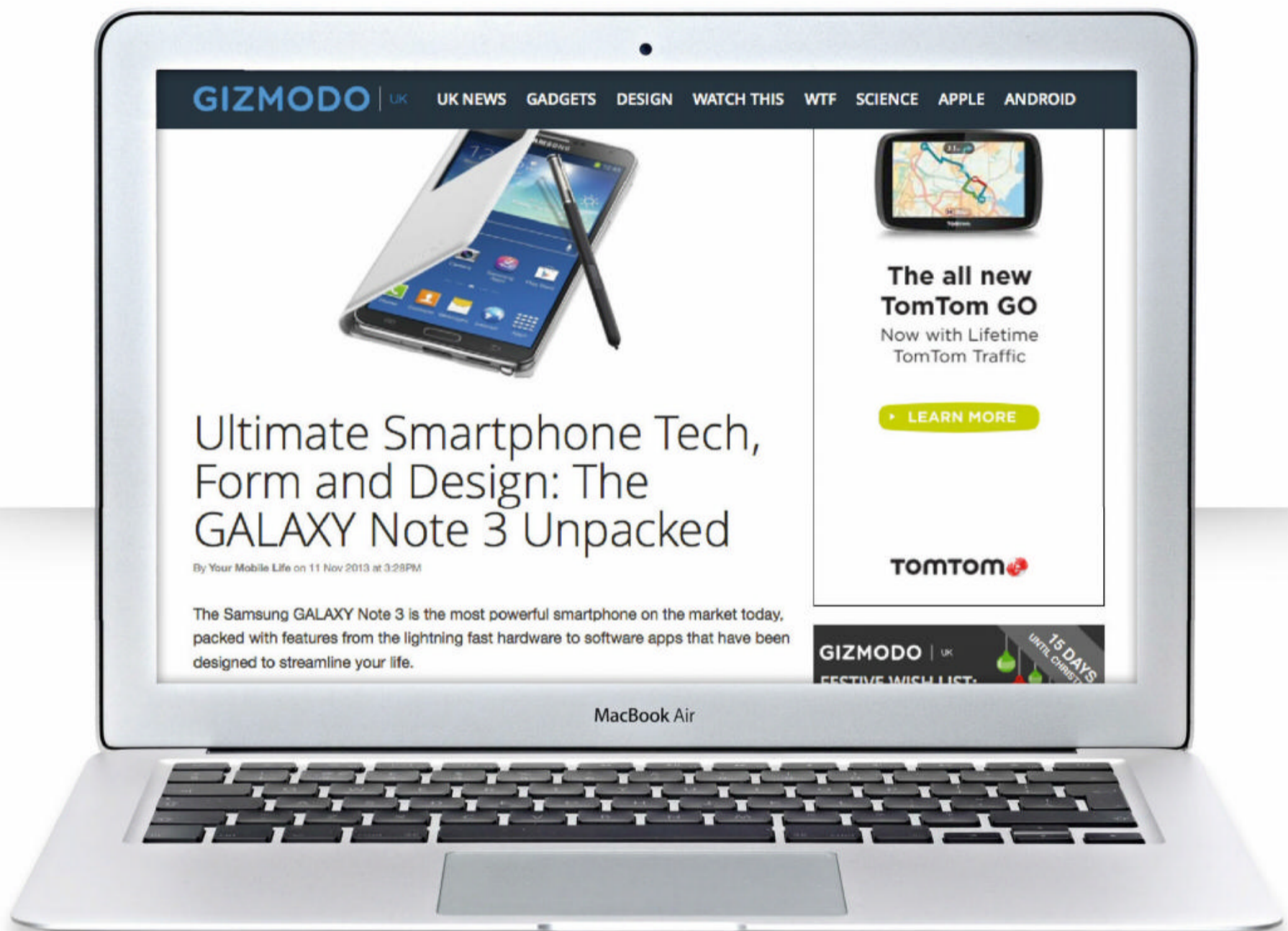
One major thing to remember is that you're not directly plugged into your Windows installation. That means taking additional steps to connect to files and settings associated with your ailing Windows install.

For example, to view and edit your BCD file on an older PC, with a BIOS rather than UEFI, you need to direct BootICE to the system reserved partition's Boot folder, and the Bcd file within. To manage your PC's startup entries in Autoruns, choose File > Analyze Offline System, and point System Root to C:\Windows, and User Profile"to C:\Users\

Any changes you make to any apps incorporated in your rescue media are lost when you reboot, so while you might want to synchronize your Opera profile with the portable app to access your favorites and add-ons, for example, you'd need to do so every time you booted from the rescue media. To get around this, use portable apps stored on another drive, where changes are recorded. ■



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60

WAYS TO CUSTOMISE WINDOWS

Nick Peers reveals quick tips and tricks to give your OS a fresh look

Off-the-shelf is good as far as it goes, but there comes a time when you want to put your personal stamp on something, and with Windows, you'll be surprised by just how much control you can wield over its look and feel. We've dug out no fewer than 60 tips to help you customise Windows 10 to your personal tastes.

There's a reminder of some familiar tips, but we've dug deeper to reveal buried settings and little-known techniques that can do more than simply change the background picture or apply a colour scheme. Indeed, we open this

feature by introducing two free tools that, between them, open up a wide array of customisable options that normally require you to be a maestro at Registry editing. You'll tackle the desktop and its constituent parts: Start menu, Taskbar, and File Explorer. You'll also discover how to replace parts of the desktop with more visually appealing (but no less practical) alternatives, transform the way you navigate your file system with a handy File Explorer add-on, and even make fundamental changes to the desktop itself, replacing the Windows 'skin' with an alternative, offering not just a new coat of paint, but a fresh approach to how you interact with Windows. Come on, let's get those brushes out.



DESKTOP, TASKBAR & START MENU

01 Tools of the trade

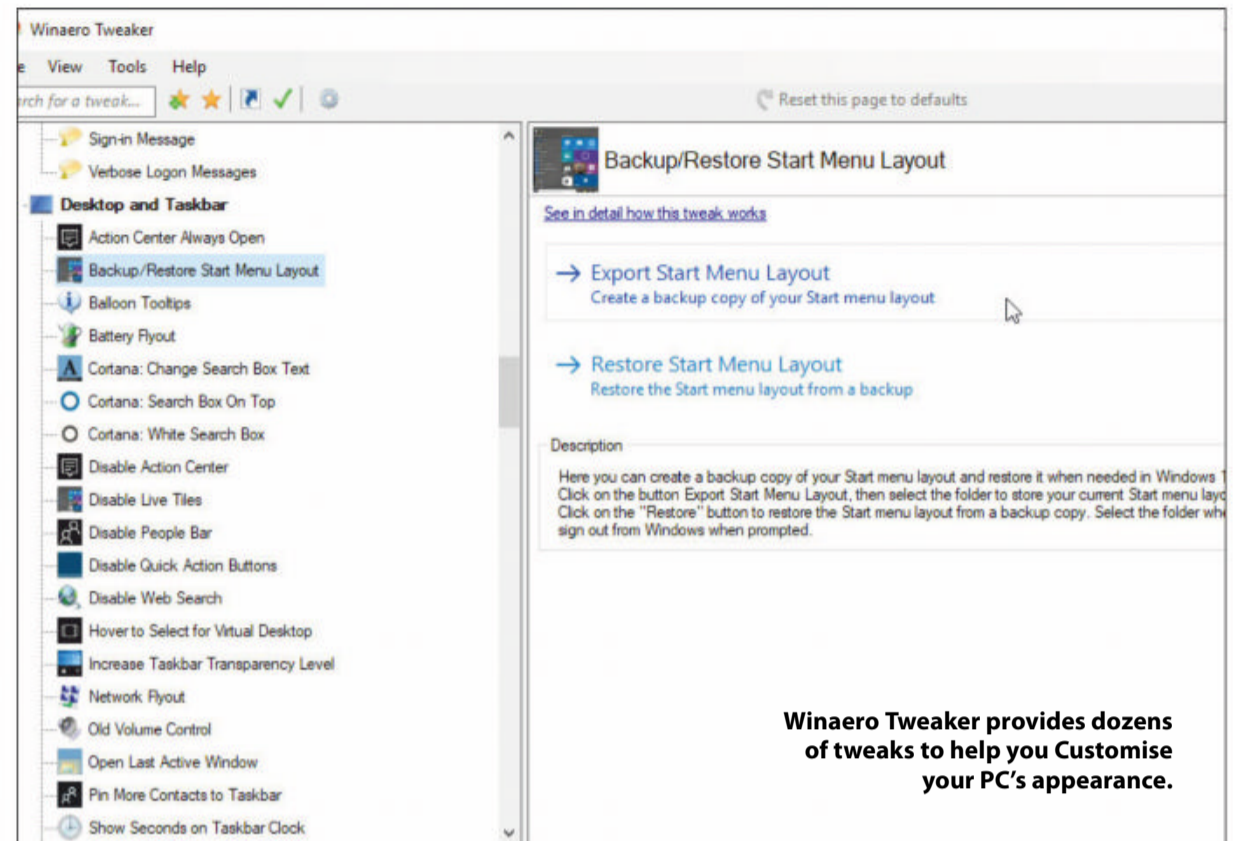
Many of the tips in this feature can be applied with the help of two powerful tweaking tools, so start by downloading both Ultimate Windows Tweaker (<https://bit.ly/uwt-10> – you'll find links to Windows 7 and 8.1 versions here, too) and Winaero Tweaker (<https://winaero.com/download.php?view.1796>). Once downloaded, extract the contents of the ZIP files – Ultimate Windows Tweaker runs as a portable app, and Winaero Tweaker gives you the option of installing it in portable form, too.

02 Quickly access Windows' personalisation settings

To start customising, right-click the desktop and choose Personalise to jump straight to Settings > Personalisation > Background. From here, you can change your background to a picture, a solid colour, or a slideshow of photos within a single folder on your PC.

03 Customise your desktop background

If you're dissatisfied with Windows' rather meagre desktop background offerings, download and install John's Background Switcher from <https://bit.ly/johnbckswtch> for more choice – after installation, you're directed to the Add button, where you define sources for your photos. These can include specific folders on your PC as well as various online sources (including Dropbox and OneDrive folders, plus RSS feeds, Instagram, Google, and Flickr). You'll see several switching options at the bottom of the main window – pay attention to the Picture Mode drop-down, where you can display multiple photos at once in various ways. There's also a More



Winaero Tweaker provides dozens of tweaks to help you Customise your PC's appearance.

button for fine-tuning all aspects of this clever background tool.

04 Override colour scheme

Windows automatically changes the colour scheme of desktop items to match the background, but you can also force your own choice of colour via Settings > Personalisation > Colors. You can switch between light and dark modes here, too.

05 Create a custom colour palette

Fed up with having to click Custom Color to choose a different one to Windows' own offerings? Fire up Winaero Tweaker and go to

Appearance > Custom Accents, where you can define up to eight custom colours of your own. These appear under Recent Colors in the Personalisation dialog box for easy access.

06 Pick a Theme

The quickest way to change your desktop appearance is through the Themes section under Settings > Personalisation. Several are provided, or click Get More Themes in Microsoft Store to browse hundreds more – click Get followed by Install to add one to your collection. Some themes change the mouse pointer and desktop icons – you can prevent them from doing so in Winaero Tweaker under Appearance > Theme Behavior.

07 Change your account picture

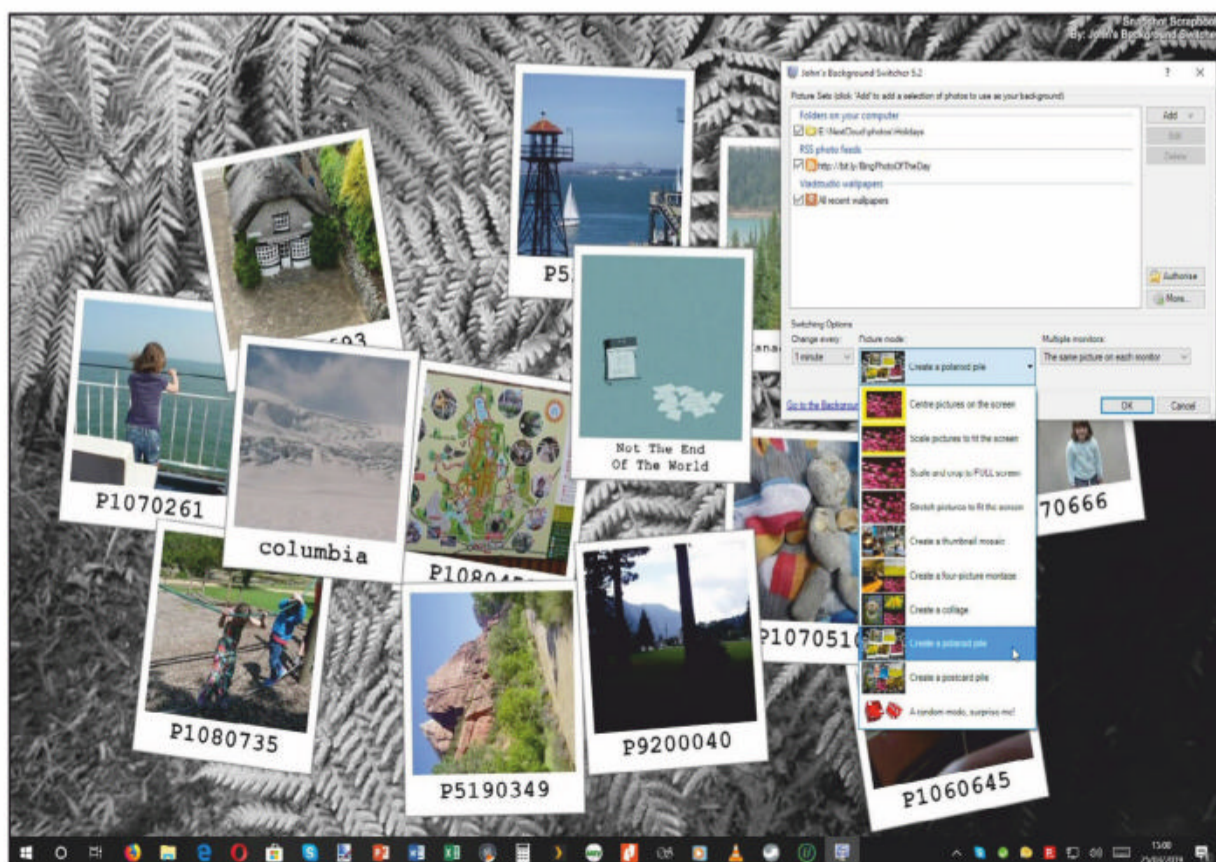
Open a photo of yourself in an image editor like Paint.NET (www.getpaint.net), then crop in to a headshot (make the selection tool 1:1 for a perfectly square crop), and save the image. Now navigate to Start > Settings > Accounts, and click your current photo under Your Info to select the new one. Previous shots are kept, enabling you to switch between them.

08 Set up a screensaver

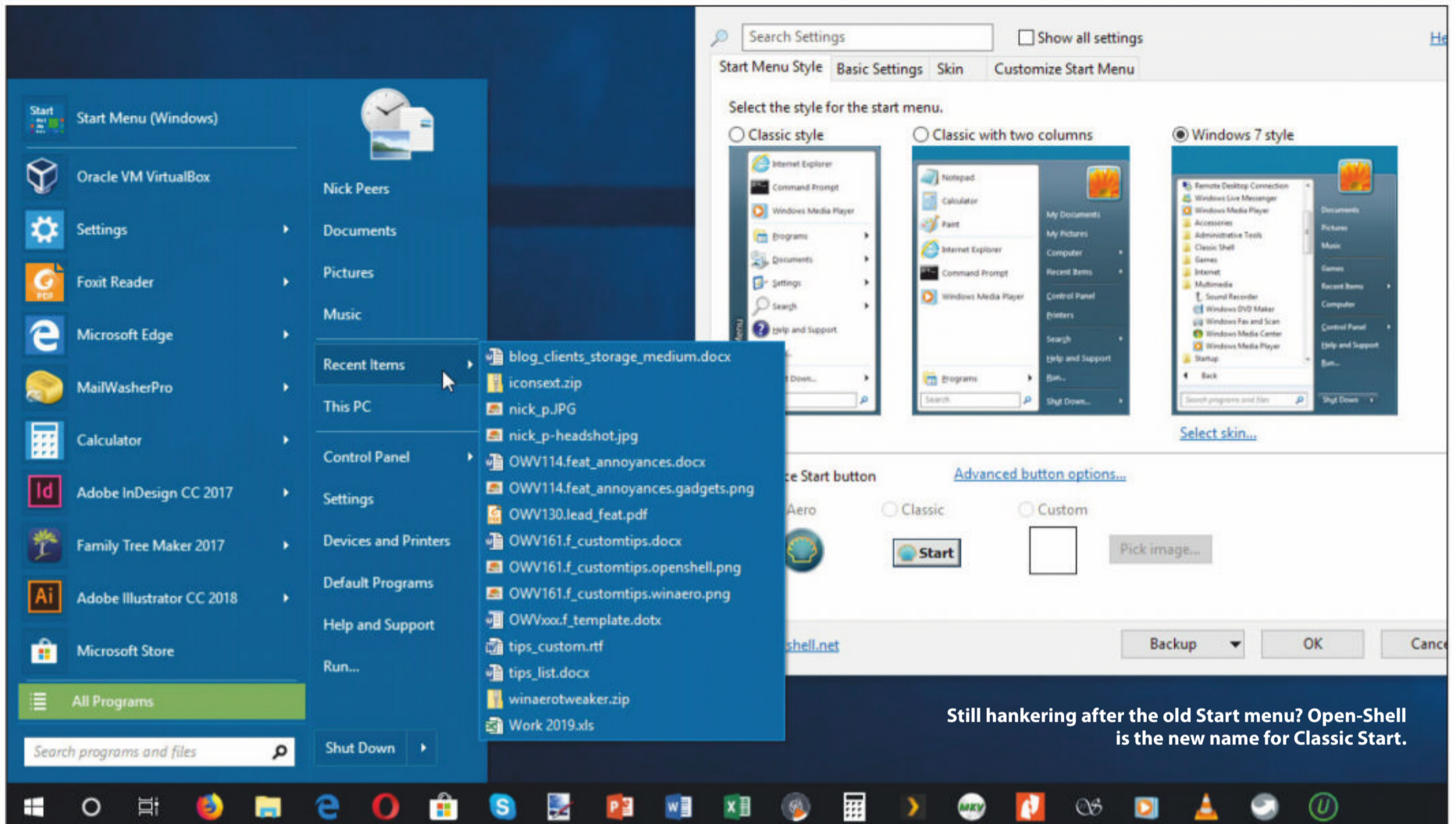
Energy-saving LCD monitors have largely rendered screensavers redundant, but if you're still hankering after one, head to Personalisation > Lock Screen, then scroll down and click Screensaver Settings to set one up. Download more screensavers from www.screensaversplanet.com (many of which are free) – save the EXE file to your computer, then double-click it to add the screensaver to the available list.

09 Start menu precautions

Before making major changes to your Start menu, navigate to Desktop and Taskbar



John's Background Switcher is perfect for adding more pizzazz to your desktop backdrop.



> Backup/Restore Start Menu Layout in Winaero Tweaker and navigate to Customisation > Universal UI, then check Lock Start Tiles to prevent accidentally rearranging them in future.

10 Customise the Start menu

Use the Personalisation > Start section of Settings to configure certain aspects of the Start menu. Tiles can be added by right-clicking items and choosing Pin to Start Menu. You can then click and drag items around to rearrange them, or click and drag items on top of each other to group them in a folder.

11 Lock the Start menu

After you've set up the tiles to your satisfaction, open Ultimate Windows

12 Ditch the Start menu

Still hankering after the Windows 7 Start menu? Our old favourite alternative Start menu – Classic Start – has been resurrected under a new name, and updated to work with the latest version of Windows 10. Download and install Open-Shell from <https://open-shell.github.io/Open-Shell-Menu>. During installation, click Entire feature will be unavailable to avoid installing these.

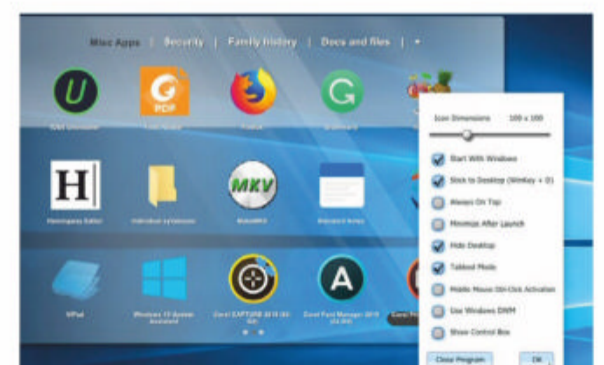
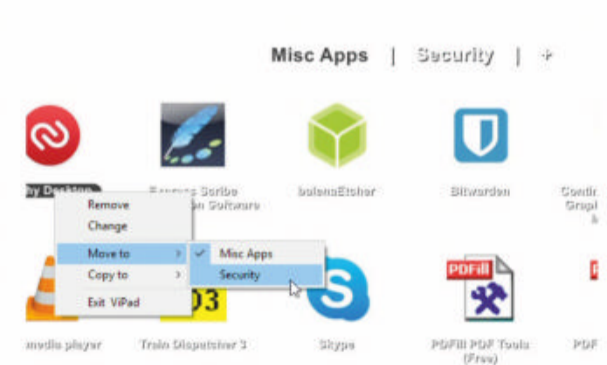
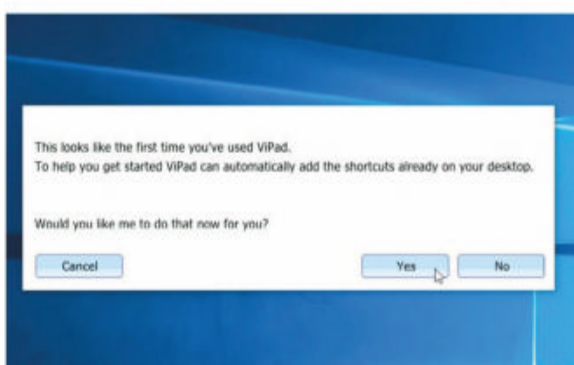
13 Customise the Quick Access menu

Press [Win] + [X] to access the alternative Start menu. You can choose which options appear on it by downloading and running the portable Win + X Menu Editor (<https://winaero.com/download.php?view.21>).

14 Restore Desktop Gadgets

Do you miss the old Windows 7 gadgets that provided extra functionality on the desktop, such as weather reports and CPU load? Visit <http://win10widgets.com> to download Win10 Widgets. It's a customised version of Rainmeter (www.rainmeter.net), with the gadgets pre-installed and running. Start menu Live Tiles can do similar things too.

15 Organise your desktop icons



A Install icons

Download and install Vi-Pad (<http://lee-soft.com/vipad>) – if the SmartScreen filter appears, click More and unblock the program. During installation, click Yes when prompted to copy all existing desktop icons to the Vi-Pad window, which will happen in real time as you watch.

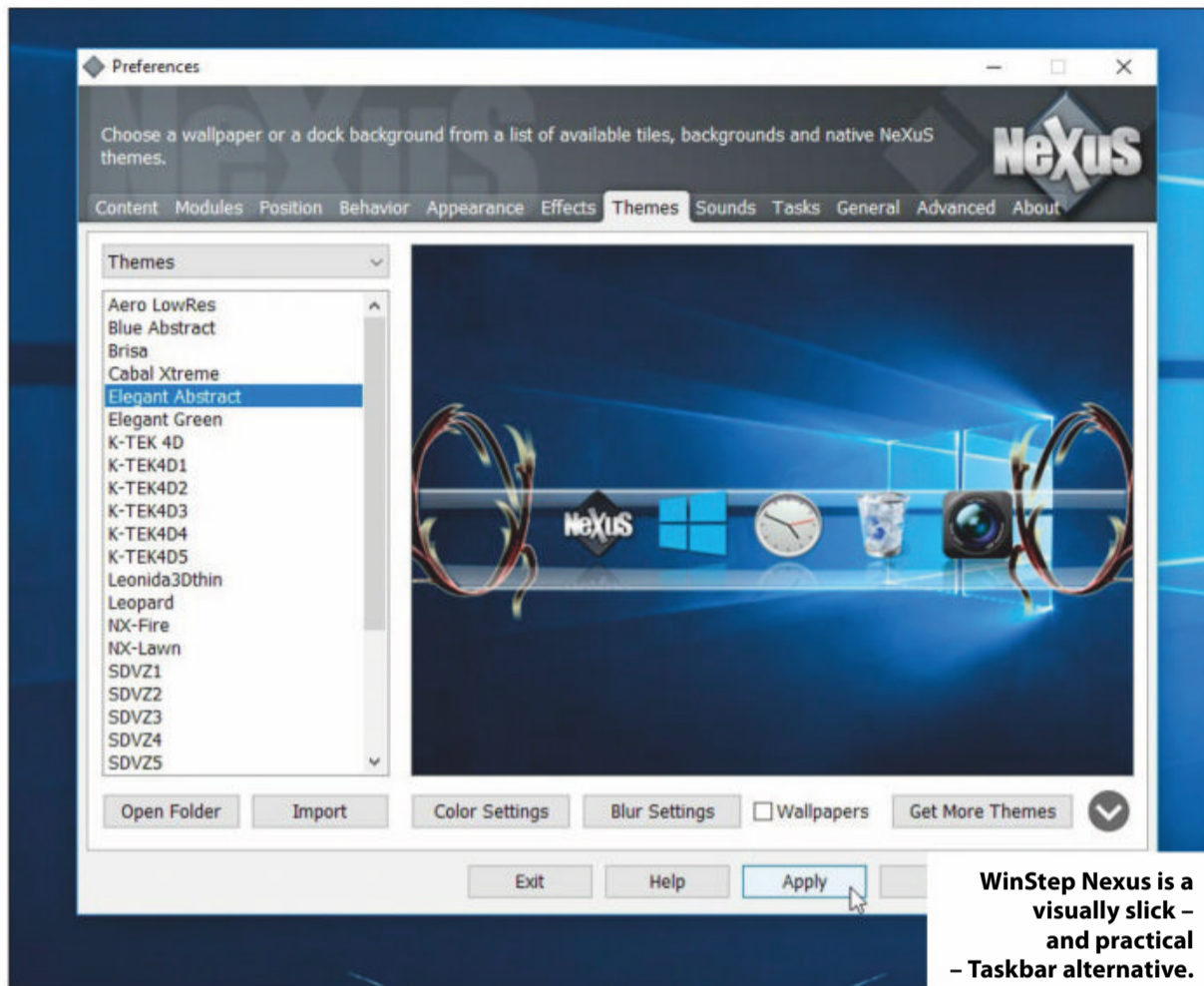
B Organise icons

All shortcut apps appear in a single tab – New Tab – spread over multiple pages. Right-click New Tab to rename it, or use the '+' button to create additional tabs, so that you can organize your apps into more categories. Once that's done, right-click an app icon to move it to that tab.

C Add new icons

You can drag new shortcuts into any tab from the desktop or from File Explorer. Right-click the program's Taskbar notification area, and choose Settings. Uncheck Use Windows DWM to make it translucent. You can also make the icons larger or smaller, using the slider at the top of the menu.

TASKBAR & NOTIFICATIONS



WinStep Nexus is a visually slick – and practical – Taskbar alternative.

16 Make better use of the Taskbar

The Taskbar is the best location for any, and all, shortcuts that you need. Right-click your existing desktop or Start menu shortcuts, and choose Pin to Taskbar to add them. You can then drag and drop icons within the bar to order them logically.

17 Minimise, or hide, the search box

Does the new search bar take up too much room on your Taskbar? Right-click an empty part of the Taskbar, and choose Cortana > Show Cortana Icon to replace it with a clickable icon; or choose Cortana > Hidden if you never use it.

18 Resize the Taskbar

Running out of space for shortcut icons? Make them smaller by right-clicking the Taskbar, choosing Taskbar Settings, and flicking the Use Small Taskbar Buttons switch to On. Or right-click the Taskbar and uncheck Lock the Taskbar. Click the top edge of the Taskbar and drag up to add space for an extra row.

19 Move the Taskbar

While it's unlocked, you can also click and drag the Taskbar to a different edge of the screen – pin it left or right for a vertical list, or at the top if it suits your way of working better.

20 Show labels

If you only have a handful of icons on the Taskbar, open Taskbar settings, scroll down, and change Combine Taskbar Buttons

to When the Taskbar is Full or Never to view a label, which helps you to easily view – and switch between – open documents within the same application.

21 Add toolbars

Right-click the Taskbar and you'll see a Toolbars menu, enabling you to add extra features to it – you can select Address to add a URL bar for opening websites in your default web browser, for example. To add easy access to your entire PC, choose Toolbars > New Toolbar. Select This PC and click Select Folder. From here, click the '>>' next to This PC to access any folder or drive with just a few clicks.

22 Increase the size of Taskbar Peek thumbnails

When you roll your mouse over an open program's Taskbar icon, you get a pop-up thumbnail of open document(s) – it's a bit small, so open Ultimate Windows Tweaker, navigate to Customisation > Taskbar, and try setting the minimum and maximum thumbnail size sliders to 400. Click Apply Tweaks, and after File Explorer restarts, you should instantly see an improvement.

23 Tweak the Notification Area

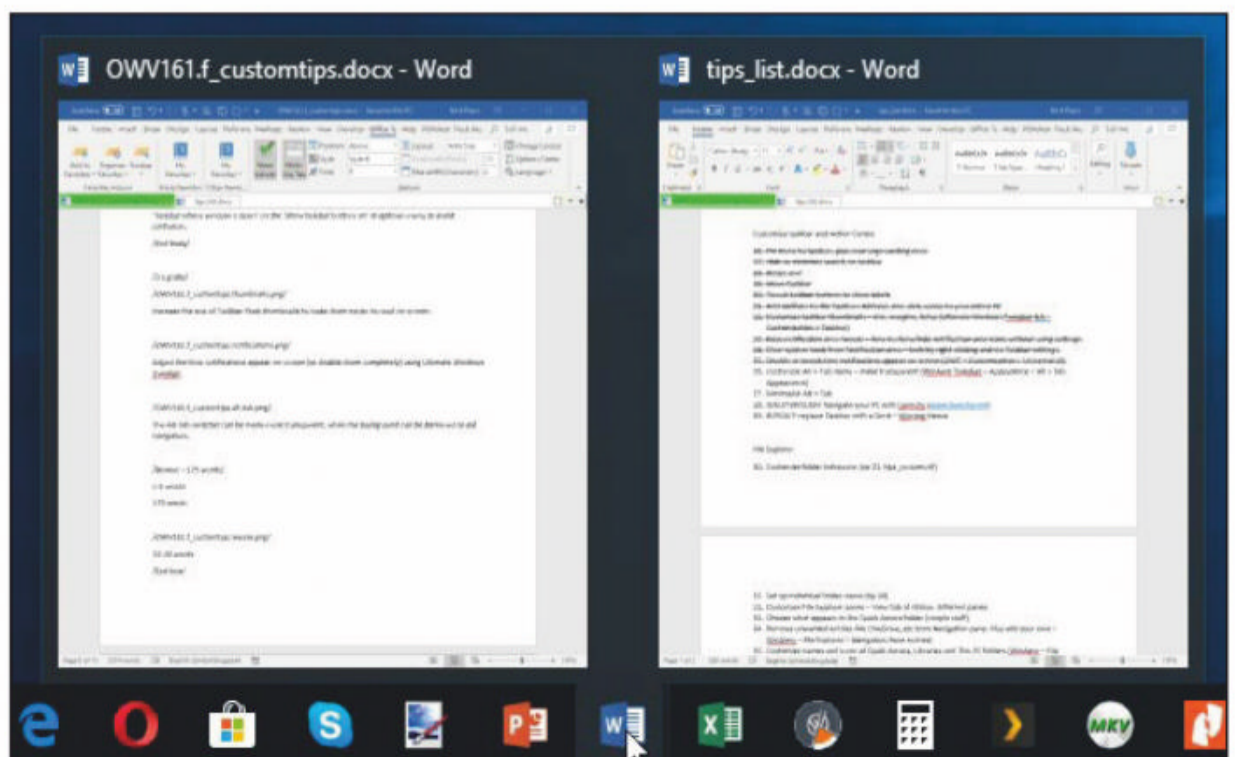
You don't need to delve deep into Taskbar settings to change the behavior of the Taskbar's notification icons. Simply drag icons between the notification area and its holding area (click '^' to reveal it). To remove icons permanently without closing the parent application, check out the program's own settings.

24 Clear system icons

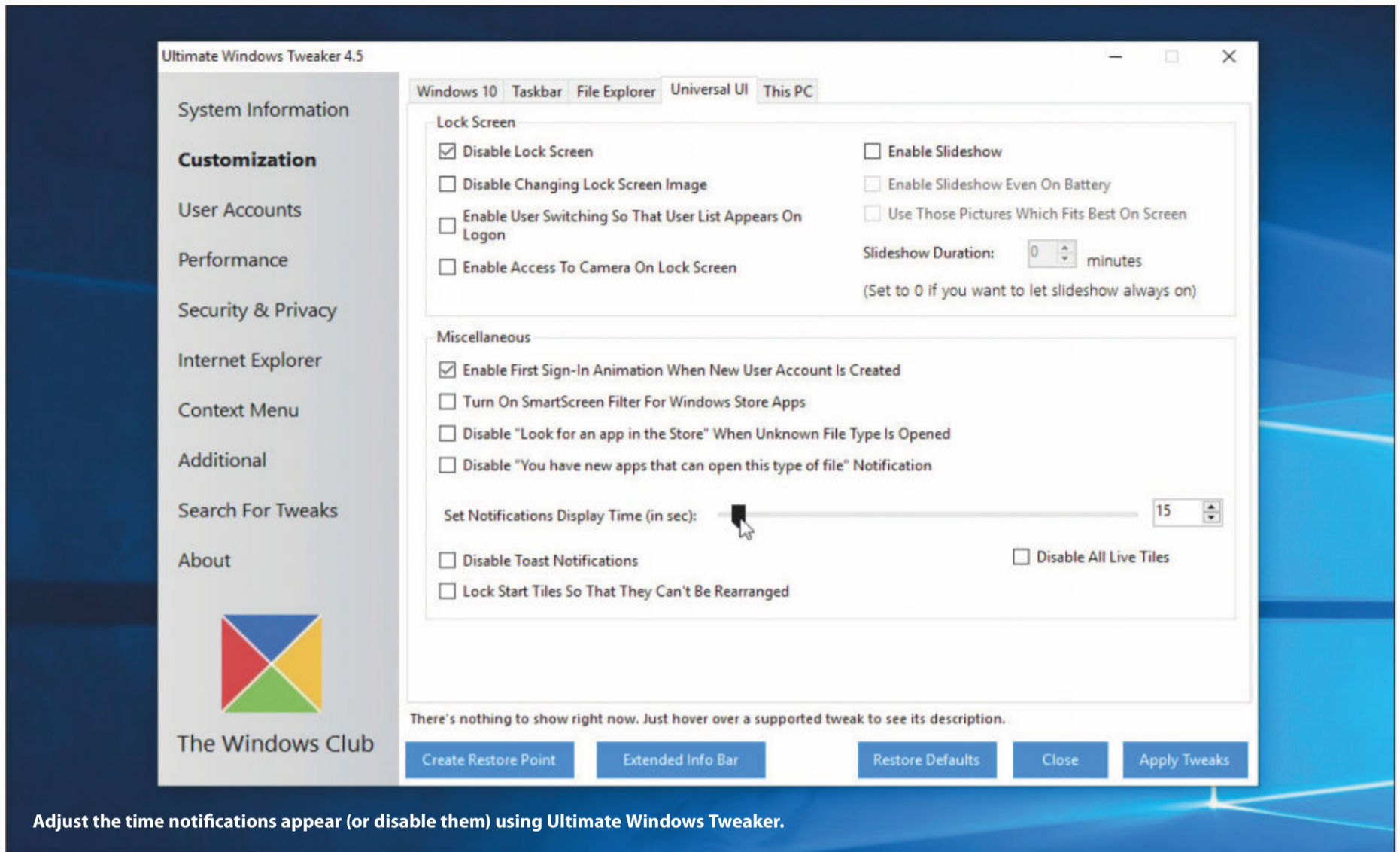
Windows places several icons of its own in the Taskbar notification area – some elements, such as the touchpad or touch keyboard, can be shown or hidden via the Taskbar's right-click menu; others, including the clock and the Action Center button, can be removed under Taskbar settings (click Turn System Icons On or Off under Notification Area).

25 Adjust notification pop-ups

While you can tweak many aspects of the Action Center on your PC via Settings > System > Notifications & Actions, one thing you can't do from here is adjust how long – five seconds – individual notifications appear on screen. To change this setting, open Universal Windows Tweaker to the Customisation > Universal UI tab. The slider enables you to



Increase the size of Taskbar Peek thumbnails to make them easier to read on screen.



Adjust the time notifications appear (or disable them) using Ultimate Windows Tweaker.

increase the time from five seconds right up to 300 seconds (five minutes). Alternatively, you can disable them completely (check Disable Toast Notifications).

26 Replace your Taskbar

The Windows 10 Taskbar is efficient, but not exactly visually pleasing. Fans of the macOS dock should examine the free version of WinStep Nexus (www.winstep.net), which combines a more eye-catching aesthetic with functionality that renders the Taskbar redundant. Not only does it include all the expected features – drag and drop shortcuts from your Start menu or desktop to add them

to the dock – but you can also add modules such as an email checker and a weather forecast gadget.

27 Tweak the entire Alt-Tab menu

It may not be as glamorous as the new Timeline, but the [Alt] + [Tab] feature is still the quickest way to switch between open apps and windows on your PC. Tweak its looks courtesy of Winaero Tweaker: Navigate to Appearance > Alt + Tab Appearance, where you'll find sliders to adjust its transparency, plus make the desktop darker when it's invoked.

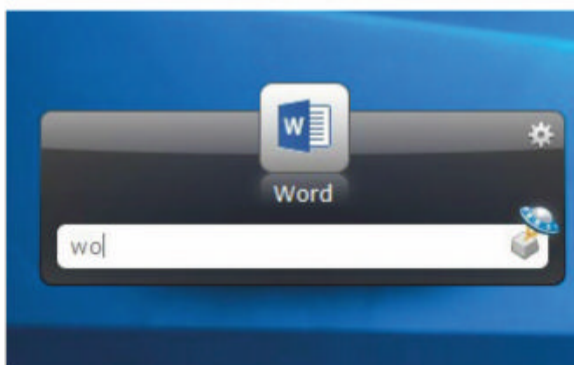
28 Minimalist Alt-Tab

You'll also see an option to Enable Classic Alt + Tab Dialog – check this, then click Restart Explorer to replace the thumbnails with a minimalist icon-based task switcher, with the currently selected icon's window title displayed beneath it to help you navigate.

29 Multi-display settings

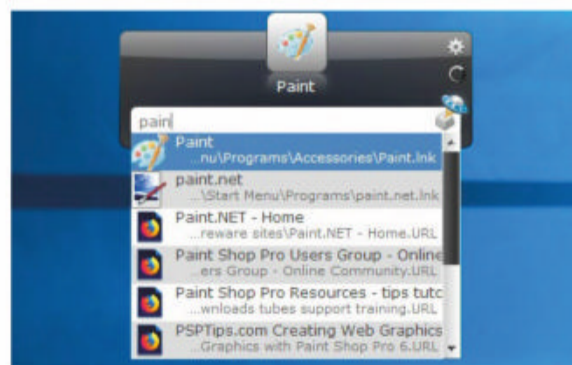
If you have two monitors, head over to the Taskbar settings, where you'll see options for configuring the Taskbar independently on each display – we recommend Taskbar Where Window is Open on the Show Taskbar Buttons On drop-down menu, to avoid confusion.

30 Launch programs quickly



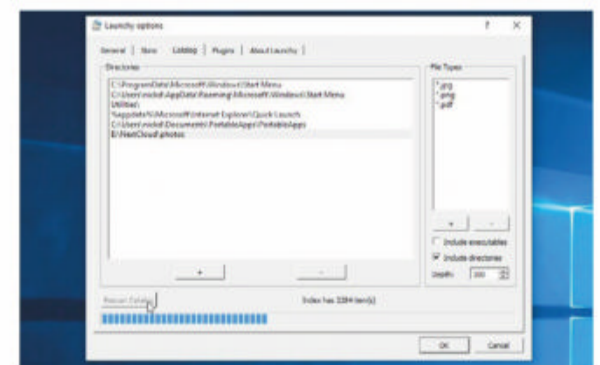
A Getting started

Download Launchy from www.launchy.net – you can either install it or run it on demand as a portable app. Once Launchy has, er, launched, it sits unobtrusively in the Taskbar notification area. To bring it into focus, press [Alt] + [Space], then start typing the name of what you're looking for.



B Search and select

An icon representing a program pops up – if it's the correct one, press Enter. Wait a few seconds, and more matching results – including web links – appear via a drop-down menu. Click one or use the arrow keys to scroll through the list, pressing Enter when you find your match.



C Widen Launchy's remit

Right-click the Launchy notification area icon and choose the Options > Catalog tab. Click '+' under Directories to add additional folders to include, then with the directory selected, click '+' under File Types to list file types to search. Finally, click Rescan Catalog.

FILES & FILE EXPLORER

31 Customise folder behaviour

Windows can be instructed to treat folders in a specific way depending on the contents inside. Right-click a folder and choose Properties > Customise, where you can optimise it for a specific file type, such as pictures or documents.

32 Change the folder icon

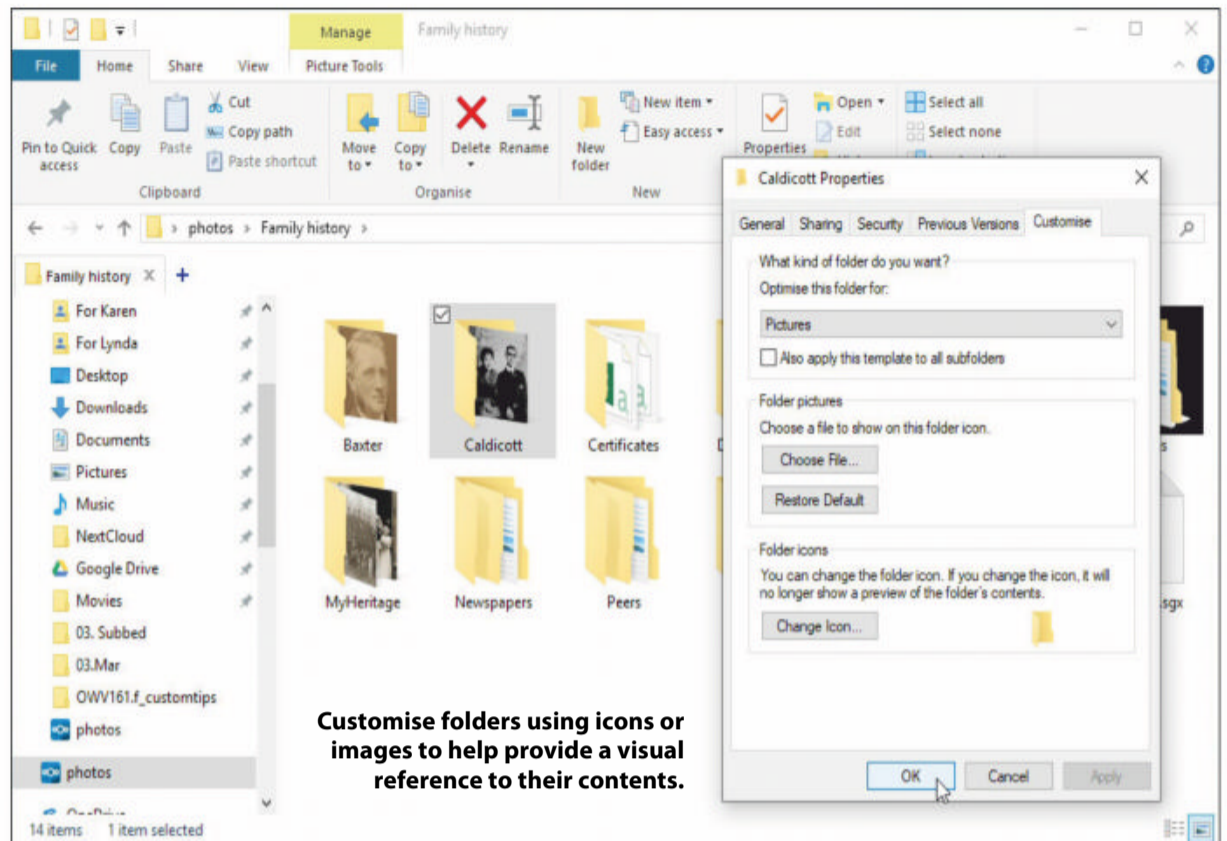
You'll also see an option to change the folder icon – useful if you want a more visual prompt as to the folder's contents. Click Change Icon to browse files for any icons they contain (the file shell32.dll is selected by default, with lots of options). You can also select previously created or downloaded icon (ICO) files – see the step-by-step guide on the page opposite for a way to extract icons from other files. Alternatively, click Choose File to choose a picture to display instead – this is perfect for photo folders, where you'd rather focus on one of the photos inside than have Windows display several of them at once.

33 Set up individual folder views

Windows also remembers any individual Customisations that you perform on a folder, so after opening it, switch to the View tab on the File Explorer's Ribbon, where you can experiment with the Layout and Current View sections to apply settings that will remain specific to that particular folder whenever you reopen it.

34 Adjust Icon Spacing

Further tweaks can be performed using Winaero Tweaker – navigate to the Advanced Appearance Settings > Icons



Customise folders using icons or images to help provide a visual reference to their contents.

section, where you can adjust the horizontal and vertical spacing of icons in both File Explorer and on the desktop, plus change the default font used to display names.

35 Tweak File Explorer panes

File Explorer displays two panes – Navigation and Details – by default, but you can also add a Preview pane via the Ribbon's View tab, plus restore Libraries to the Navigation pane by clicking it and choosing Show Libraries.

36 Set up Quick Access

The Quick Access section of the Navigation pane is File Explorer's best feature,

bar none. You can drag frequently accessed folders into here to pin them for one-click access from any File Explorer location. You can also click and drag existing entries to rearrange their running order, or right-click to unpin them.

37 Clean the Navigation pane

The Navigation pane can get cluttered with lots of entries you don't use. The simplest way to review and remove these is to open up Winaero Tweaker to File Explorer > Navigation Pane – Default Items. Want to add your own links? Select Navigation Pane – Custom Items to do so.

38 Customise Navigation pane items

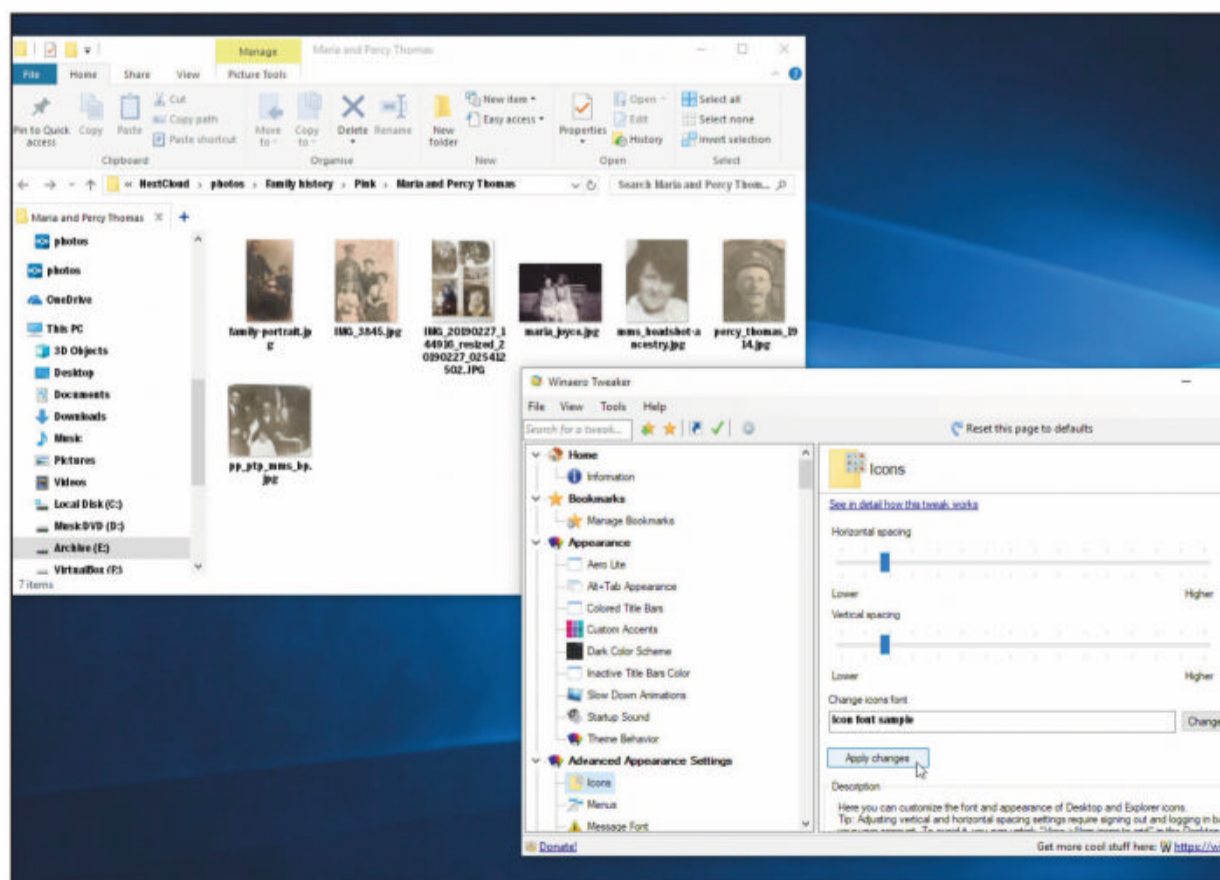
You can rename the Quick Access, Libraries, and This PC icons in the Navigation pane via Winaero Tweaker's File Explorer section, too. You can also change their icons in the same way that you edit any folder icon.

39 Customise the This PC view

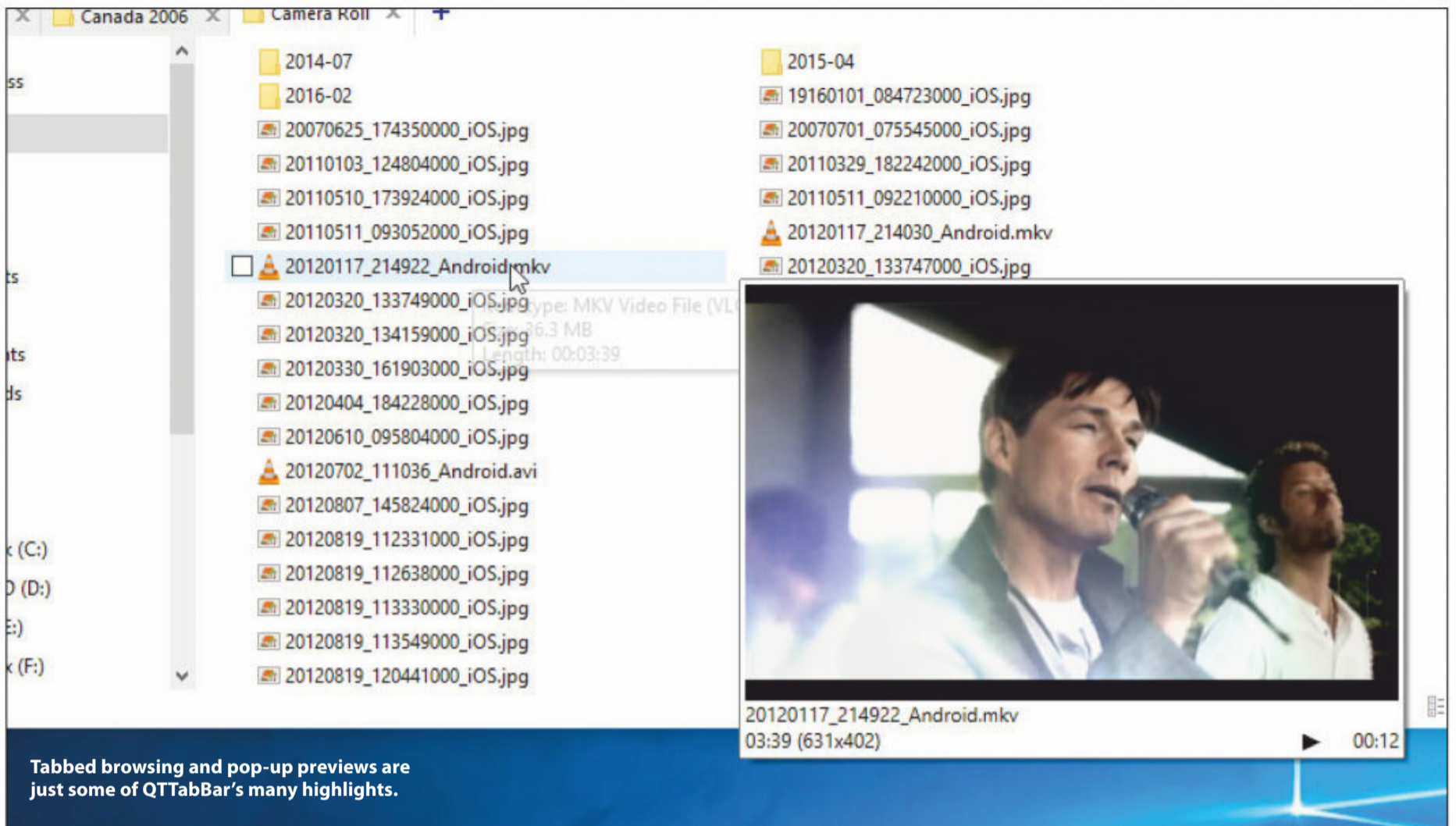
Given that most of us open File Explorer to This PC by default, it helps if you can tailor it to your exact needs. Fire up Ultimate Windows Tweaker, and navigate to the Customisation > This PC option, where you can decide which user folders should be displayed, as well as adding various useful system shortcuts at the same time.

40 Add tabs to File Explorer

Your web browser has tabs to reduce window clutter, so why not File Explorer? We've been using QTabBar (<http://qtabbar.wikidot.com>) for the best part of a year to do just that. Once installed, tabs appear beneath the Ribbon



Adjust the spacing between icons using Winaero Tweaker – you'll need to log off and on again.



Tabbed browsing and pop-up previews are just some of QTTabBar's many highlights.

– click '+' to browse for a new tab, or press Ctrl-N to duplicate the current tab.

41 Navigate subfolders more quickly

There's another fringe benefit to using QTTabBar: After installation, roll your mouse over a folder icon and click the drop-down arrow that appears over it to drill down through the folder's contents using a series of drop-down menus.

42 Pop-up file previews

QTTabBar also enables you to ditch the preview bar; instead, roll your mouse over a supported file type, and after a short

pause a pop-up preview appears. You can configure the size of the thumbnail (and other QTTabBar options) by right-clicking an empty space on its tab bar in File Explorer, and then choosing QTTabBar Options – look under Preview > Windowing.

43 Customise context menus

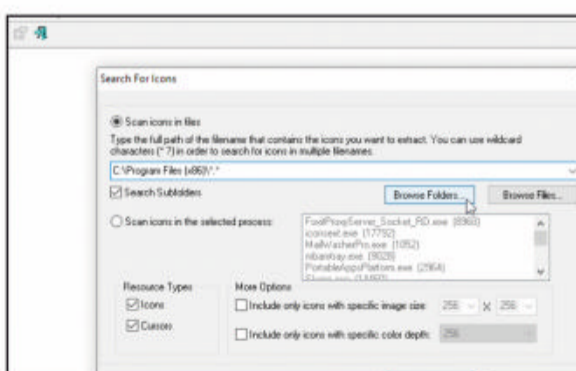
The right-click menu is a handy place to stash useful – if not frequently needed – tools. You can add numerous entries to this using Winaero Tweaker's Context Menu section – you can access the new Clipboard History feature, for example, or restore access to classic appearance options in Windows 10. It also contains system tools that enable

you to do things such as claim ownership of a folder or reset its permissions to the default.

44 Clean out the context menu

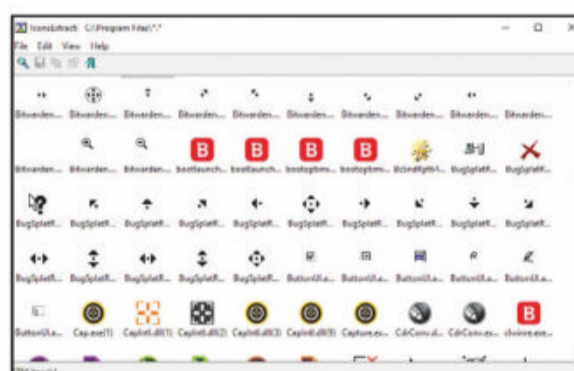
Select Remove Default Entries in Winaero Tweaker to clear out unused entries added by Windows, such as BitLocker entries. Most clutter, however, comes from third-party tools. If you can't find options to remove them within those programs, use a tool such as ShellMenuView (www.nirsoft.net/utils/shell_menu_view.html) to review and remove unwanted entries. Doing so can be daunting, but ShellMenuView is comprehensive, and all its options are grouped by app, making them easy to detect.

45 Extract program icons



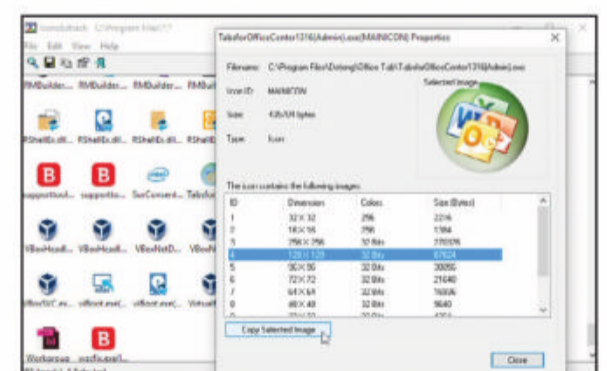
A Choose where to search

Download Icons Extractor as a ZIP file from www.nirsoft.net/utils/iconsext.html, then extract its contents, and double-click iconsext.exe to launch the program. You have the option of choosing to search a specific file, all the files inside a folder, or a running process for icons.



B Search and browse

Click Search For Icons and wait while the folder is searched – doing so can take some time, and a counter indicates how many matches have been found. You can click Stop at any time to halt the search and view the matches found so far. Double-click a match to view the available icons.



C Browse and extract

If a suitably large (128x128 or preferably 256x256 pixels) icon exists, you can either select it and click Copy Selected Image to copy it to the clipboard, or close the dialog box, right-click the icon, and choose Save Selected Icons to save it as an ICO file for use elsewhere.

TAKE THINGS TO THE NEXT LEVEL

46 Take precautions

We're now entering potential risk territory with some of these tips. Therefore, make sure you have some kind of system backup in place – either a rollback option such as System Restore or Rollback Rx (<https://horizontdatasys.com/download>), or an up-to-date drive image using Macrium Reflect Free (www.macrium.com/reflectfree.aspx). Done that? Good, let's move on...

47 Customise lock screen

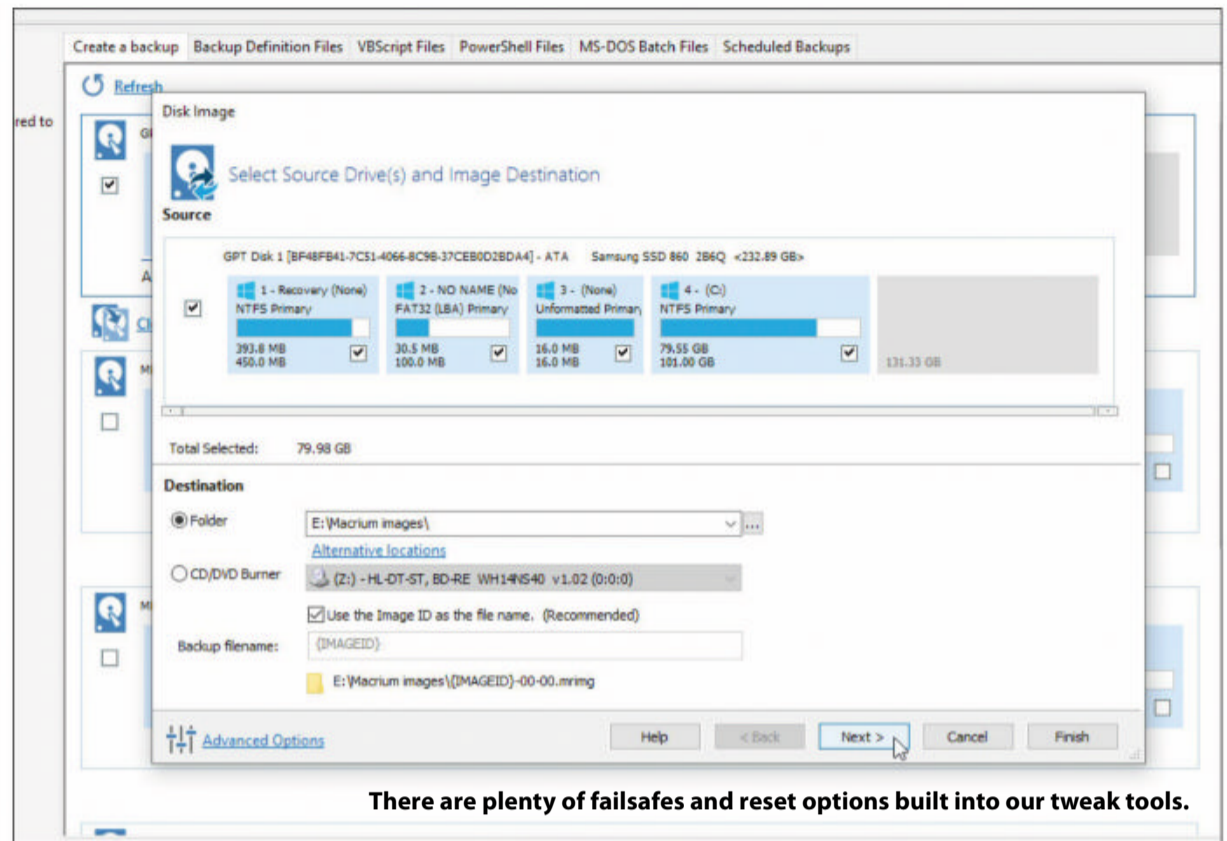
Can't tweak the lock screen to your satisfaction using the options found under Settings > Personalisation > Lock Screen? Then take a look at the Boot and Logon section of Winaero Tweaker for more possibilities, such as not automatically selecting the last logged-on user by default, or adding a limit to how long the slideshow feature plays for.

48 Grab lock screen images

If you're using the Windows Spotlight feature to display rotating background images, and you'd like a permanent copy of any or all of them, select Find Lock Screen Images in Winaero Tweaker, followed by Get this one under the current photo (if it's displayed) to save it, or Get all images stored on this PC to copy them to a desktop folder.

49 Apply Aero Lite theme

Aero Lite is a no-frills theme that's particularly suited for low-end PCs, such as 2-in-1 tablets. If you think it might help with performance – or want to see if its clean and simple lines appeal – open Winaero Tweaker and click Enable Aero Lite (default) under Appearance > Aero Lite. You can undo it from here, too.



There are plenty of failsafes and reset options built into our tweak tools.

50 Customise Aero Lite

Once enabled, select Window Borders under Advanced Appearance Settings to change the width and padding of windows – changes are performed in real time. You can also change the height of the window title bar and change the font – this requires logging off and on again, but also works with other desktop themes, too.

51 Change Windows' start-up sound

You can customise your Windows sound scheme by typing "sounds" into the Settings search box and selecting Change system sounds. What you can't do from here is

change the Windows start-up sound. Instead, navigate to Appearance > Startup Sound in Winaero Tweaker, where you can apply your own choice of WAV file in place of the default. If your chosen file is in another audio format, convert it using Pazera Free Audio Extractor (www.pazera-software.com/products/audio-extractor).

52 Switch system fonts

Tired of the rather conservative Segoe UI font used by Windows for its desktop components (and the headings in this feature)? Then swap it out for something more glamorous (but legible) via Winaero Tweaker's Advanced Appearance Settings > System Font screen. Log out and back in again to see the effect.

53 Reduce window clutter

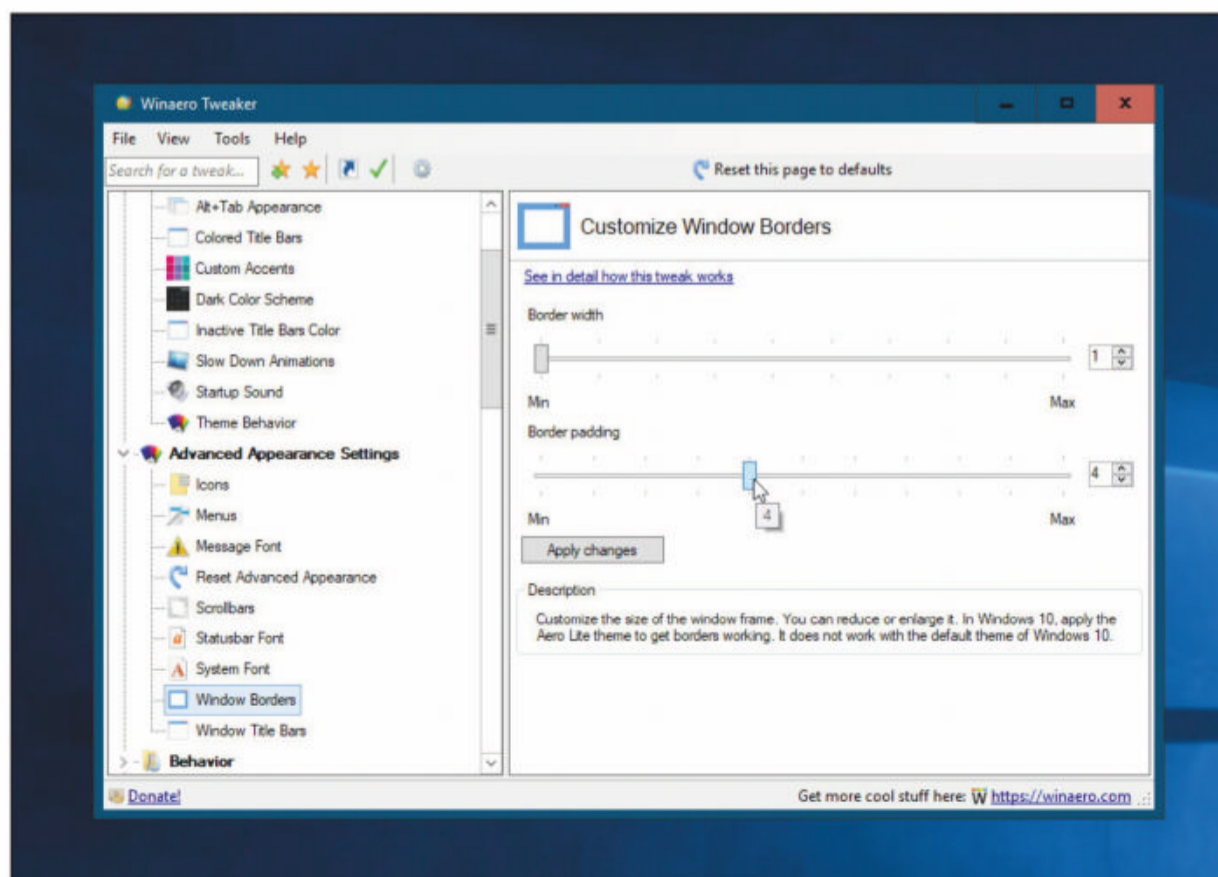
You've added tabs to File Explorer, how about grouping application windows in a single multi-tabbed window, too? TidyTabs (www.nurgo-software.com) enables you to drag up to three windows on top of each other to group them, then use the tabs to switch. Upgrade to the Pro version (a measly \$9) and you can automatically group windows from the same application together, plus group more than three windows at once.

54 Get the Aero Glass look

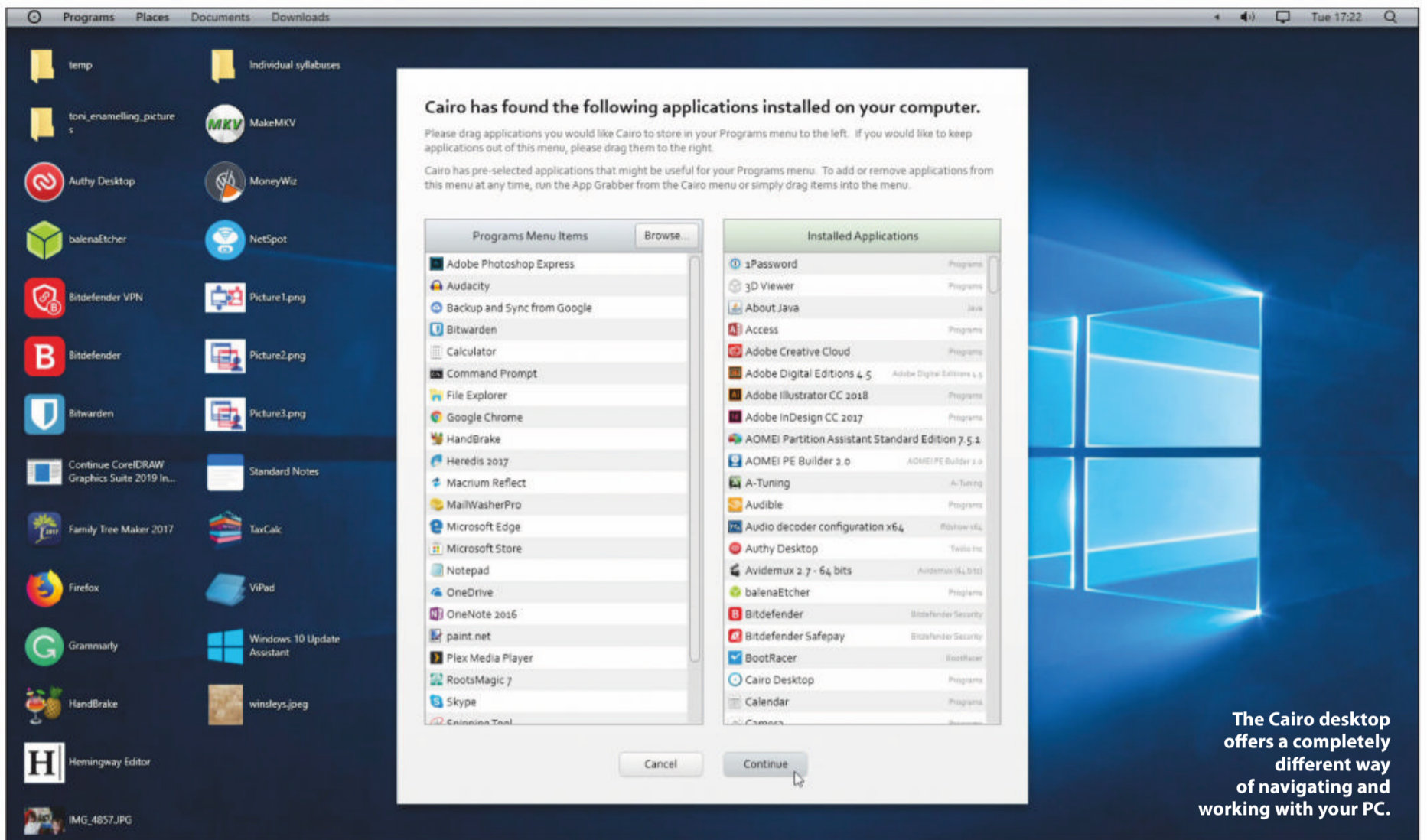
If you're a tech-savvy Windows 8.1 user, head to www.glass8.eu to download Aero Glass for Windows 8 if you'd like to restore the translucent Aero effects from Windows 7. Aero Glass technically works with Windows 10, too, although we haven't had much luck in getting any of the effects to work.

55 Try a new shell

The most radical change you can make to Windows is to replace the default



Give your low-end PC a breather by trying the svelte Aero Lite theme.



The Cairo desktop offers a completely different way of navigating and working with your PC.

shell with another one. One of the simplest to deploy is Cairo (<https://cairodesktop.com>) – during installation, leave the default settings, so it installs alongside File Explorer, not in place of it.

56 Set up apps

After installation, Cairo opens the App Grabber to enable you to choose which app shortcuts to add to the Programs menu at the top of the screen. Drag those you want into the left-hand pane, then click Continue to place them in subfolders such as System Tools or Office. Click Finish.

57 Use the menu bar

Cairo's menu bar offers shortcuts to Programs, Places (folders, This PC, Program Files, and the Recycle bin), Documents, and Downloads. There are various system tools and shortcuts on the right – click '<' to reveal your Taskbar notification area icons. Click the Cairo menu button in the top-left corner for a slimmed-down Start menu (plus access to Cairo's settings, or choose Exit Cairo to return to the regular desktop).

58 Navigate folders with Cairo

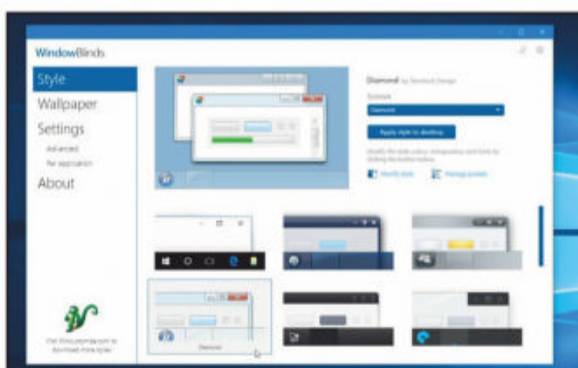
You'll see a list of files and folders on the

desktop that correspond to those that are on your desktop. A floating bar enables you to change the folder shown using the navigation buttons to move up and down the folder tree, go back to the 'home' desktop folder, or jump to a different folder.

59 Cairo's dock

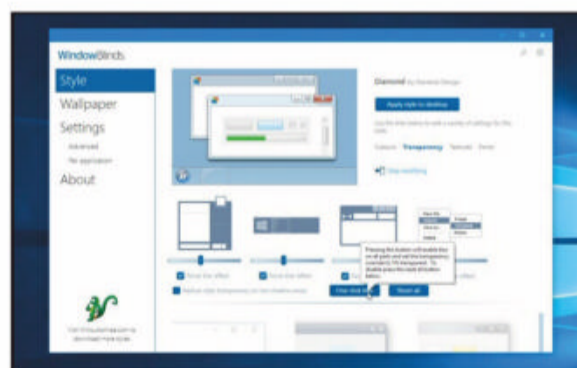
Last, but not least, is Cairo's dock – its replacement for the Taskbar. It exclusively displays shortcut icons and open windows – click to open, right-click for more options, or '=' to open Task View for a preview of open windows.

60 Transform your desktop with WindowBlinds



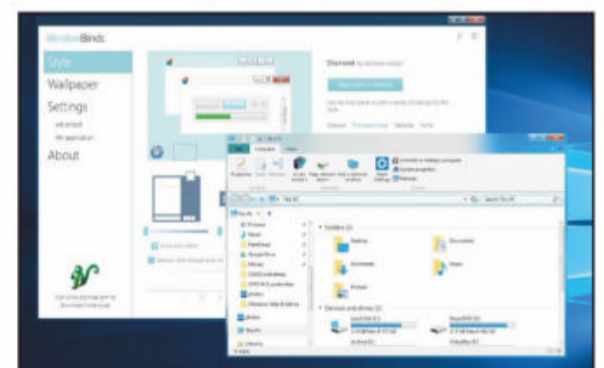
A Download and install

Download the trial version of WindowBlinds from www.stardock.com/products/windowblinds – after the program has installed, choose the 30-day trial, and enter your email address. Once activated, pick a style from the Style section of the program to preview it.



B Modify skin

Click Modify Style to make changes – work through the Colors, Transparency, Textures, and Fonts sections to customise it exactly the way you want it to look. Aching to recreate the old Windows 7 glass-like style? Select Diamond and choose One click blur under Transparency.



C Apply new skin

Once you've finished making your changes in WindowBlinds, click Stop modifying followed by Apply style to desktop. After a short pause, you'll see the Windows desktop update. Continue making tweaks – increase transparency using the sliders, for example – and apply them in real time. ■





FACEBOOK'S NEW MONEY

The social media giant takes on the finance industry with Libra

Facebook's currency, Libra, is nearing launch, and if the plans bear fruit, it's going to be the most disruptive thing to come out of Silicon Valley for years.

Let's start with what Libra isn't. It's not a cryptocurrency, you won't be able to mine coins, and it's not an opportunity for speculation or investment. It does use similar blockchain tech to drive it (see box, p60), but it's a closed system designed for stability. It's also designed to be fast, something Bitcoin struggles with (it can barely manage seven transactions a second; Libra will start at 1,000). It isn't a bank account either, something Facebook is keen to stress for legal reasons, so you won't be earning interest on your account, or get credit.

Libra is a stable private blockchain digital currency, and

will be accessible through Facebook applications. It is not unlike a PayPal account in operation, but without a link to your bank account. Facebook has developed a subsidiary, Calibra, to handle it. You will be able to store Libra 'coins' (or whatever units of Libra are called; it's not clear yet) on the Calibra wallet application, which links into WhatsApp and Messenger. Libra will also be available through Google Play. Once an account is verified using a government-issued ID, you will be able to spend hard cash to buy Libra, either electronically or by handing over actual folding stuff at the planned participating outlets. Facebook is in talks with chains of convenience stores to make cashing in and out readily accessible.

You can then send your Libra 'coins' to another Libra

wallet, or spend them to pay for goods and services online. Eventually, you'll be able to tap and pay with your phone for your coffee, Uber ride, or whatever you want. You can also cash in your coins, getting hard currency in return. It's not clear yet whether this will involve a fee, although it looks likely. Libra is not meant to be a vehicle you put money into; it has been designed to be used as money itself.

There are plans to make it possible to buy Libra at ATMs, too. Any fees will be low, certainly considerably lower than using traditional financial services, although we don't know exactly how low. The Libra website talks of "low or no" fees, and of potential rewards and bonuses for choosing to pay with Libra.

As the Libra website says, "Libra's mission is to enable a simple global currency and financial infrastructure that empowers billions of people." That's big talk, but then Facebook does like to frame its projects in grandiose language.

Buying in

When you buy a Libra coin, what you buy into is the Libra reserve fund, currently backed by assets worth around \$1 billion. The reserve fund is held in major world currencies and US Treasury bonds, which are traditionally pretty stable. By spreading the risk, the value of a Libra coin should remain fairly flat. And because you are likely to

have access to banking-like services. That's something that nearly two billion people don't currently have. Libra can power the kind of micro-transactions that make all the difference in developing countries. The potential market is massive: There are 100 million people in Pakistan alone with no access to a bank account. The market for international remittance is a target, too

blockchain ledger made it inevitable that Libra, or something similar, would appear eventually. Using money on the Internet used to be an awkward process – if you remember a time before PayPal and debit cards, you'll know.

Libra is the logical next step, where money is converted into tracked, transferable data, with the blockchain keeping a record of who has how much. Your pounds are free to flash across the world, along with the endless text messages and selfies.

Cryptocurrencies were always a threat to Facebook, as well as a huge opportunity. Facebook's billions are made selling ads to influence what people buy. Any company that developed a successful, stable, cryptocurrency would threaten that market by building a valuable set of data that tracks spending habits – just what advertisers want. If that company had the reach and power of, say, Google, it could take a sizable bite out of Facebook's business. Libra means Facebook can keep



Get used to these wavy lines; Libra introduces a new global currency.

buy and then spend your Libra coins quickly, any long-term drift is relatively unimportant. Initially, a Libra coin will be worth about one US dollar.

Libra will be much more than hipsters tapping phones to pay for skinny lattes, however. All you need is a smartphone, and you

(see box, p63). Libra has potential to do a bit of good, as well as earn Facebook and friends a lot of money.

Libra may appear revolutionary for the financial market, but the technology really isn't. The widespread use of internet-enabled devices and the development of the

Blockchain who?

What is the blockchain? It is tempting to say it's a mass of complicated maths you don't need to understand. Essentially, it's an electronic ledger that tracks the movements of digital tokens between wallets – apps that store the tokens. The tokens can represent anything: ownership of a share or proof of identity, for example. Each transaction is verified and added to the list, or chain. The wallets have two cryptographic keys, one private and one public. A transaction is encrypted using your private key and the recipient's public key. At the other end, the process is reversed, so it can only be unscrambled by the intended recipient, and they know it's from you. The scrambling involves that complicated maths we mentioned. Each transaction becomes part of the whole, because it's mathematically linked to previous transactions, so it's virtually tamper-proof. It's a neat system, which can run on a distributed network (traditional cryptocurrencies) or private systems.

While Libra uses much of the same underlying technology as bitcoin, it works differently. Coins are created as required, and 'burned' (destroyed) when they leave the system. This is quite unlike Bitcoin, which has a limited number of coins that, in theory, never get burned, although an estimated quarter of

all Bitcoins have been irretrievably lost. Although it is called the Libra Blockchain, it doesn't use blocks of data, but rather treats the data as a whole. This simplifies things, and speeds it up. It is also the reason why any transition to a distributed model will be very difficult, despite the idea that Libra will be opened out in the future. Facebook has termed Libra as a "decentralised programmable database," although this hardly

helps make things clearer. It has been widely reported as having an initial transaction speed of 1,000 per second. If true, it looks a little inadequate, unless there is some batch-processing involved. Visa runs an average of 150 million transactions per day, which equates to around 1,700 a second. Given Libra's expected use for multiple micro-transactions, and the hoped-for size of the user base, it'll need to

expand capacity at some point.

The banking world has been employing blockchain technology for years, but hidden away behind the scenes, managing business-to-business transfers, clearing, and settlement transactions between banks, for example. While the adventures of Bitcoin, with its crazy valuations, has captured the headlines, back-room blockchain systems have been working their way into the servers of big business.





transactions within a controllable suite of Facebook apps, giving even more reason for a business to buy advertisements there.

Most tech enterprises attract little attention from the world at large. Facebook carried on quietly fueling the social media boom for years before attracting attention from legislators. The fact that Libra is special is clear when, months before even a limited launch, it attracted comments from the financial chiefs of the G7 nations.

Why all the fuss?

Because money is power, and Libra side-steps so much regulation, and that has implications. If Libra gets as big as it plans, it will put a great deal of power into the hands of those who control it. Libra may sound libertarian – many aspects are – but it has the potential to be intrusive, and worse. The prime mover behind Libra being Facebook hasn’t helped bring positive reactions either. The company has a terrible record on privacy; only a few months ago, it was fined a record \$5 billion for passing on private data. The records generated by Libra will be kept by Calibra, and can’t be

shared with Facebook’s servers without authorisation using an opt-in system. However, there are plans for a friend-finder search function, which does require the linking of Calibra transactions with Facebook accounts. The trick, it seems, is to get users to give permission to share information, through incitements of some sort. Collecting data is what

financial data isn’t just a juicy target for business, either – security forces would be interested, too.

The advent of Libra has drawn a great deal of attention from US Congress, too. Banking is a heavily regulated industry, while tech companies have generally received a light touch. That looks set to change. Facebook has moved into different waters here. In July, the US Senate

committee member said, “If you’re a bank, we (will) regulate the heck out of you.”

There is not a lot of love for Facebook on Capitol Hill. It has, as yet, failed to give concrete answers on how it will implement anti-money laundering measures. Basing the organisation in Switzerland has drawn heavy fire, too (see box, p62.) Marcus claims the location was chosen to give Libra an “international place,” not to skirt regulations. Facebook has also said it won’t launch Libra before the regulatory issues have been resolved.

It’s not just in America that Libra faces problems. The French finance minister, the governor of the Bank of England, and the Swiss Data Protection Commissioner have all issued statements that warn of the need for regulation. Many countries have laws banning or limiting the use of cryptocurrencies; one huge market Libra was hoping to hit early was India, but such laws have blocked its launch there for now.

The potential for criminal use is another frequently raised concern. There are tight banking regulations to stop money laundering –



The Calibra wallet app links into WhatsApp and Messenger.

Facebook does, and Libra will be part of that process.

Your financial records are a goldmine for advertisers. Can we trust Facebook not to exploit them? In surveys, Facebook does not score well at all. A recent one by NBC and the Wall Street Journal had 60 percent of people not trusting Facebook with personal data, more than twice the figure for Amazon.

We may not trust Facebook, but we haven’t stopped using it. That

Banking Committee questioned the head of the Libra project, David Marcus, for two days. It wasn’t the friendliest of meetings. The Senator for Ohio said that the company showed “breath-taking arrogance,” and that Libra was “a recipe for more corporate power over markets and consumers.”

Facebook denies that it is a bank, and therefore is free from banking regulations. Which is just as well, because one

The Libra Association



Facebook will not run Libra directly, but through its subsidiary Calibra, it will be a partner in the body that does: the Libra Association. This is a non-profit, independent organization dedicated to running, controlling, and promoting Libra, as well as managing the reserve fund. Facebook hasn't gone alone for a number of reasons, trust being one of them. As the project leader David Marcus admitted, "If we were controlling it, very few people would want to jump on and make it theirs." The association has 28 founding members, and among them are such big names as PayPal, MasterCard, Visa, eBay, Uber, and Spotify. There are also some names you won't know, unless you are familiar with blockchain development and venture capital. This is just the initial lineup – it is expected to grow to over a hundred members by the time Libra goes live.

Each founding member paid in at least \$10 million to get a seat at the table. Decisions on the running of Libra are made by voting, with no single member getting more than one vote or 1 percent of the total votes (whichever is the greater). The idea is that Libra cannot be dominated by a few of the larger members (in theory, anyway). Each founding member is responsible for running a validator node, which maintains the integrity of the blockchain. Members will also earn interest on cash held in the system – Libra coins, or tokens, created, but as yet unspent – which could become a useful amount if the system grows as hoped. It is also used to pay for running the blockchain: server time costs.

The Libra Association is based in Switzerland. Why? Because Switzerland is a major hub for international money transfers, and Swiss banking laws are unlike any other, and notorious for their secrecy. Swiss banks were also notorious for money laundering, particularly after World War II. Thankfully, the country has cleaned up considerably since, but is still seen as one of the safest places in the world to store money. It is estimated that a quarter of all global cross-border assets are held there. Libra is expected to be regulated by the Swiss financial regulator, although it is still in preliminary talks, and has yet to reply to the Swiss privacy regulator when asked to provide details on its operations.

what does Libra have? Promises – and rather vague ones so far. Although regulated by the Swiss government, it says it will comply with all US tax, money-laundering, and fraud regulations. These include registering with FinCEN (Financial Crimes Enforcement Network), which aims to stop terrorist funding and money laundering by analysing data collected during financial transactions. It will also comply with the international anti-money-laundering regulations (AML). These include confirming people's real identities, and sending the identity of wallet-holders to the relevant government agencies.

Facebook has also applied for an export licence, and jumped through a number of other legal hoops. This hasn't stopped calls for the project to be stopped until every concern has been addressed, though.

Outdated rules

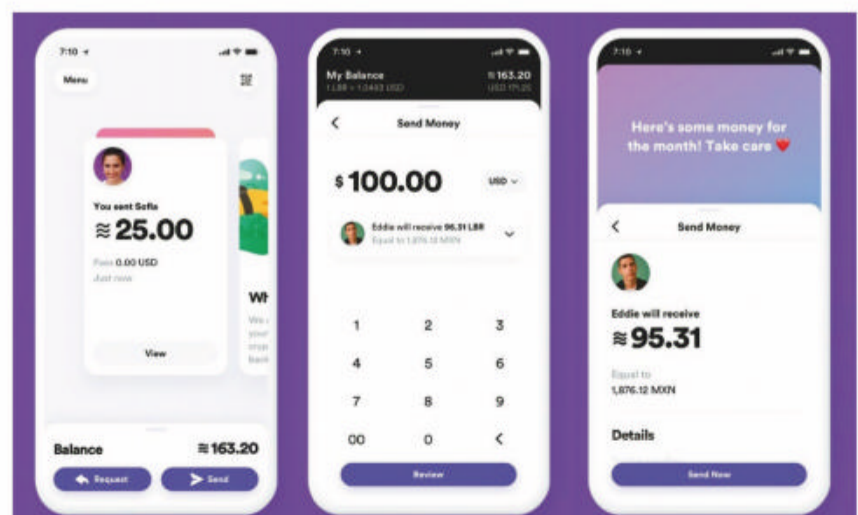
Facebook claims that outdated financial regulations have restricted commerce – for example, the banning of the majority of banks to trade in cryptocurrencies. It says that Libra offers real innovation, freeing capital quickly and easily anywhere it is needed, rather than being stuck in the banking system, which can take days to make a simple transfer. Exactly how Libra will be regulated has yet to be resolved. Whether or not it is treated

as a bank or as an exchange-traded fund will make a big difference. Facebook says Libra will complement existing financial systems, and it isn't a bank, because it does not interact directly with its users. A moot point, which will probably require lawyers to unravel.

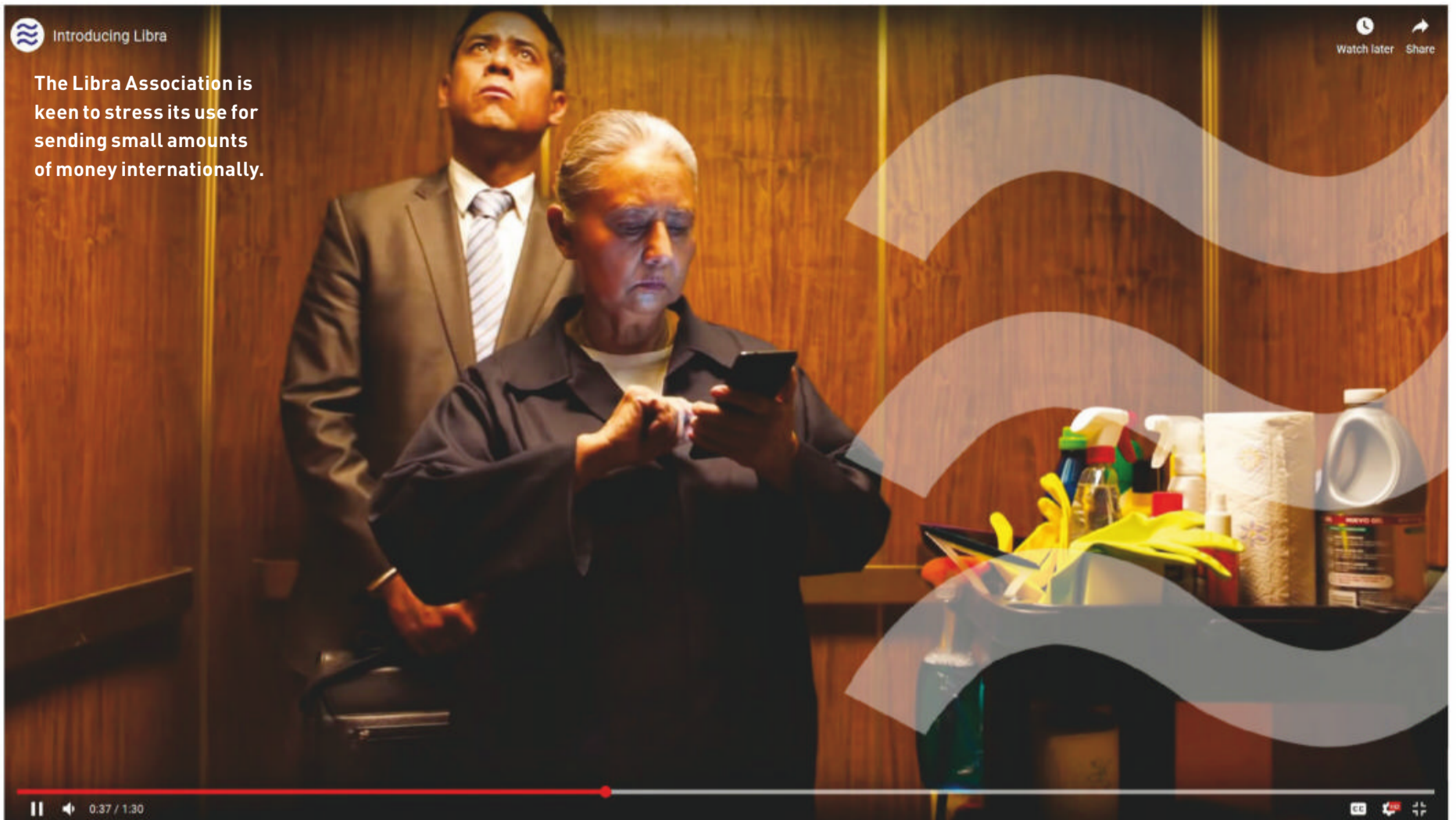
It will take more than a few US Representatives publishing open letters calling for Facebook to halt the project to stop this train. However, this is the biggest ever company to get involved in cryptocurrency, and on such a large scale. We can expect an unprecedented level of scrutiny before launch, which will have ramifications right across the world, and on any future such project.

Cryptocurrencies are often subject to scams and hacks, which have cost coin exchanges millions. Libra will not be immune; it uses open-source software and allows for third-party wallet applications, which can cause problems. There are already reports of dozens of fraudulent pages on Facebook and Instagram offering to sell Libra, often at a tempting discount. Facebook is taking them down, but it is a game it cannot ever really win.

It's difficult not to see the irony here – Libra involves real money, where trust is paramount, and the world of Facebook is awash with fakers of various hues. The very platform that Facebook uses to promote Libra is not trustworthy



The Libra wallet app, Calibra, in action. You can send money as easily as a text (almost, anyway).



Sending money home

A stated early target for users of Libra is the migrant worker who sends money home to support their family. While the individual amounts may not be large, the scale of the whole business is huge. The World Bank estimates that \$715 billion is moved around the world annually, supporting over 800 million people, and making major contributions to the economies of many nations.

The established wire transfer services, such as Western Union, take a cut of this. The global average for transfer fees is 7 percent, which is quite a hit: seven pounds for every hundred of hard-earned wages disappear when you simply send money home. There are currently few ways to avoid these fees, and they have a disproportional effect on wealth. UNESCO (the United Nations Educational, Scientific, and

Cultural Organization) has called for this to be reduced to a maximum of three percent to aid the developing world.

The infrastructure Libra needs is in already place – the use of smartphones is high, even in countries that lack other basic services. It's not unusual for more people to have smartphones than have access to a bank account. A quick bit of math also shows why this is such a tempting project for Libra. If Facebook manages to capture half of the market, and charges a more reasonable 2.5 percent, that equates to nearly \$9 billion a year. This is one reason why it had been planned to launch Libra in countries such as India early, although this has hit a regulatory roadblock for now. Offering free or low-fee money transfers is also an excellent way to get Facebook into emerging foreign markets.

itself. About five percent of all active Facebook accounts are fake. Earlier this year, Facebook attempted a clear-out, and deleted a staggering 2.19 billion accounts. Although many were profiles and removed at the point of creation, it is still an alarming number. Facebook will have to get much better at identifying and removing fake Libra pages and ads.

It has been here before, too – there were so many scams involving cryptocurrencies that it banned all ads for them in January last year. It relaxed the rules a little this spring,

allowing related products and services to be promoted, but you still can't sell cryptocurrencies or ICOs (initial coin offerings) on Facebook.

Can it go wrong?

That is a frightening, if unnecessarily pessimistic, prospect. If it did start to wobble, who would bail it out? No government is under any obligation to do so. Some doom-mongers say Facebook is at risk of developing a system that is too big to fail, but is decentralised to the point where there is nobody obliged to catch it if it

does. There is little need to worry unduly, though – Facebook will have done its research thoroughly, and the project is clearly well funded, and has a powerful group of backers.

Libra is going to be big. It is also going to hurt the core business of many large international organisations, as such disruptive technology has a habit of doing. However, it is also almost inevitable. If not Facebook, then somebody else, and Libra is unlikely to have the market to itself for long either.

Ready or not, such currencies are coming.

Libra should be ready to launch next year, although exactly where and what service it will initially offer is unclear.

In the meantime, there is going to be a good deal of sorting out, as the regulators and Facebook bargain over exactly how Libra is to be regulated and implemented. In a few years, we will probably be wondering what all the fuss was about.

The basic idea is solid, practical, and genuinely useful: a stable world currency designed from the outset to be used in a digital world. ■

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 windowsmagazine@futurenet.com

Security **IS THIS RANSOMWARE?**

Q A few days ago, I spotted a couple of strange-looking folders on my data drive: Tprogram136 and Oapplication5. An internet search revealed nothing, so I tried deleting one of the files only for Cybereason RansomFree to pop up and claim it had blocked an attempt to lock my computer. I selected the option to remove the ransomware,

but then another file popped up in its place: Tfiles37. Inside these are seemingly random files with various formats. Where are they coming from?

John Buchanan



Nick P's solution

After some extensive research and further scans using John's other tools – Avast FREE, EEK and Malwarebytes – we suddenly had

our eureka moment! The folders in question – hidden by default – are created by Cybereason RansomFree as bait. It monitors these folders and, if it notices attempts to delete or modify the files, it leaps into action.

This so-called 'heuristic' detection means the application works solely by looking for certain types of suspicious behaviour associated with ransomware rather than relying on definition updates to spot potential infections. It can be effective, but is rather blunt. Cybereason has discontinued the tool now, but as John knows what it's doing, he can leave it in place if he wishes.

Alternatively, he could try a free alternative such as Acronis Ransomware Protection (www.acronis.com/en-gb/personal/free-data-protection/), which works in a similar way but also offers 5GB of free online space where you can store particularly sensitive files out of any ransomware infection's reach, even if breaches Acronis's defences.

DROPPING BAIT
Cybereason RansomFree creates 'bait' files to detect ransomware.



Images: Cybereason, BootRacer, MSI

FIND THE SOLUTION! Fix Windows 10 webcam issues
Visit <https://support.microsoft.com/kb/13753> for a step-by-step troubleshooting guide for misbehaving webcams.



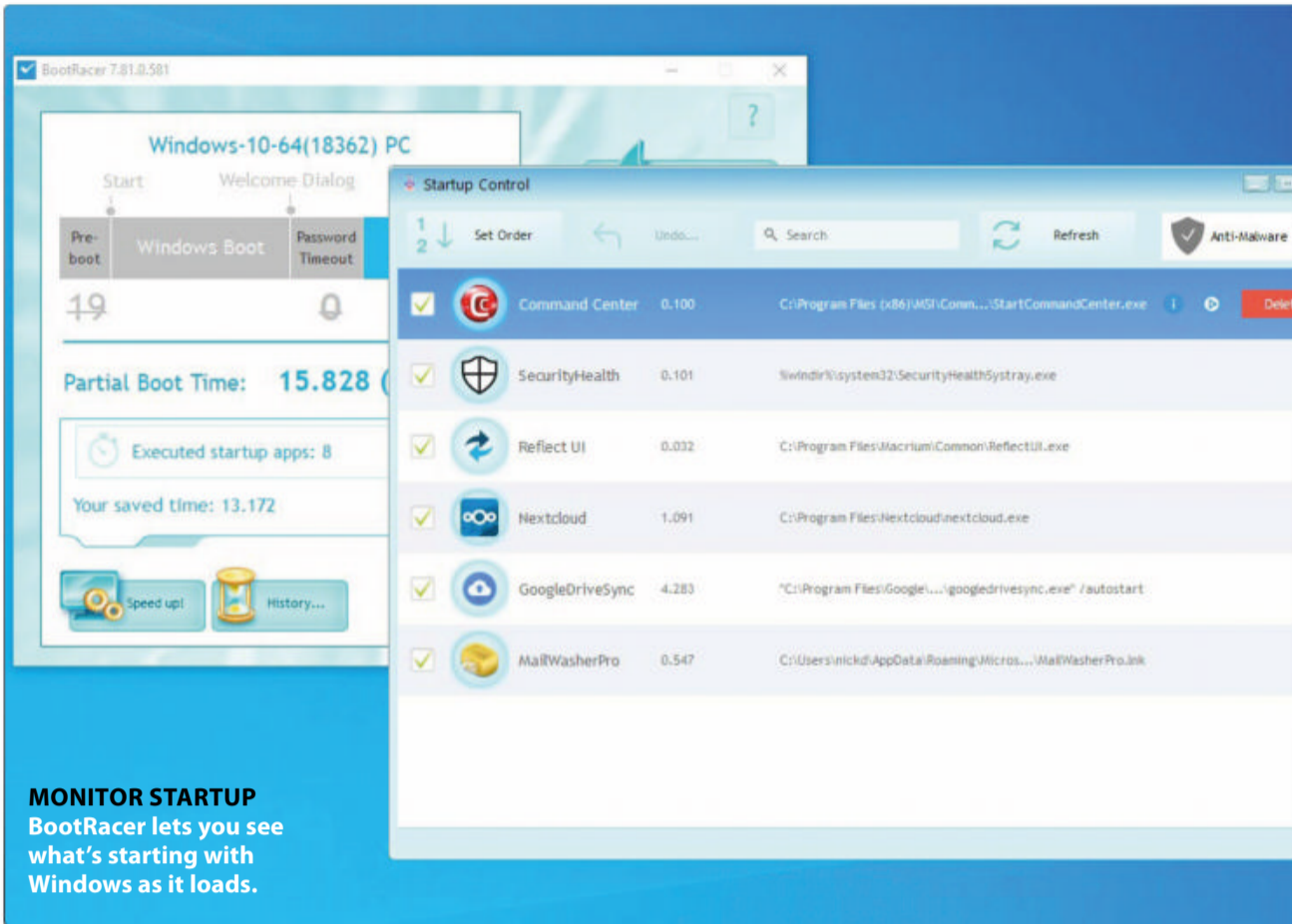
Quickfire questions

I'm getting a message about a power surge on a USB port.
Lionel Stuart

Check for devices drawing power from your USB ports – maybe USB speakers or a hard drive. You may need to consider powering these from another source, including a self-powered USB hub.

Can I enable DNS over HTTPS in Google Chrome?
Jen Oswald

From version 78, it should be an experimental feature in `chrome://flags` (if not, visit <https://judge.sh/how-to-enable-dns-over-https-on-chrome-right-now/> for a workaround).



MONITOR STARTUP
BootRacer lets you see what's starting with Windows as it loads.

Windows BLANK WINDOWS OPEN ON STARTUP

Q Can you help me please? On my Acer laptop I get six or so blank windows appear at startup, vanishing as soon as they start. I think it's something to do with Office trying to start.

Raymond Whithall



Ian's solution

Raymond eventually traced his specific problem to a driver update – once installed, the blank windows vanished. If you're plagued by something similar, use a tool like Autoruns (<https://bit.ly/autoruns>) to see what's set to load with Windows – run the tool as an administrator and investigate the Logon tab.

Disable any suspicious looking entries and then reboot to see if the blank windows disappear – if they do, investigate the disabled entries further (right-click it and choose 'Virus Total' to see if the file is known malware, then right-click and choose 'Search Online' to investigate the filename further using Google).

BootRacer (<https://gratis.com/bootracer>) can monitor the start-up process to see which background program is starting when the windows flash up, then use that as the basis for further research.

Hardware MOUSE AND KEYBOARD PROBLEMS

Q My new PC is giving me problems – or rather my

keyboard and mouse. Keystrokes are periodically delayed by a few seconds, while mouse movements can also appear jerky. The problems are intermittent, but if I reboot will occasionally go away for a while.

Andrew Inglis



Carrie's solution

This sounded like a classic issue of system resource issues – some rogue process or heavy duty program (Andrew was using Photoshop in conjunction with a scanner to sort through over 50 years of accumulated photos) consuming so much processor time and RAM that the system grinds to a halt. The problem was that

“Heuristic detection works by looking for suspicious behaviour”

Jargon buster!

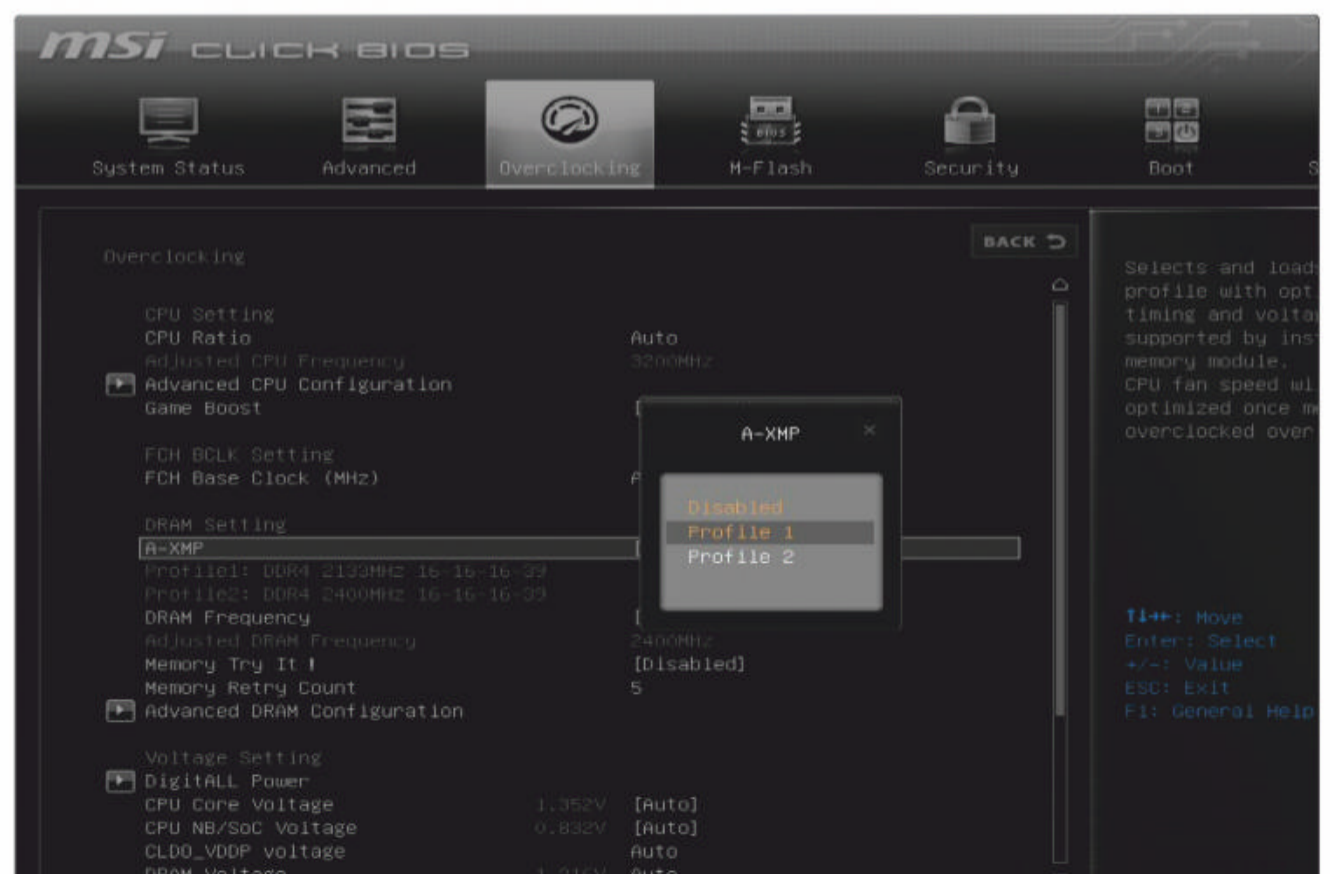
► Virus Total

A free online malware tool that uses over 70 different antivirus engines. Files can be uploaded manually or submitted through other programs.

► DNS over HTTPS

Resolving domain names over an encrypted connection to increase privacy and security.

MEMORY TIMINGS
Some RAM needs timing adjustments before it works.



Quickfire questions

Since enabling two-factor authentication on my Adobe account I'm unable to authorise my computer for Adobe Digital Editions.

Liam Elworthy

You need to enter your password as normal, then add a : followed by the six-digit code from your authenticator app – for example, password:123456 – before clicking Authorize.

Can I remove some of the built-in Windows apps?

Graeme Crickland

Download and run IObit Uninstaller Portable (https://portableapps.com/apps/utilities/iobit_uninstaller_portable) – choose Windows Apps > Windows Apps to select built-in apps to remove.

Is there some way to adjust Windows' icon spacing?

Bill Faulkner

Do it via the IconSpacing and IconVerticalSpacing values in the Registry under HKEY_CURRENT_USER\Control Panel\Desktop\WindowsMetrics, or use Winaero Tweaker (<https://winaero.com/download.php?view.1796>) – navigate to Advanced Appearance Settings > Icons for a pair of sliders.

Andrew had just purchased an impressively spec'd PC: Intel Core i7 processor, 16GB RAM, GeForce GTX 1660 graphics card with 2GB onboard VRAM and an NVMe M.2 SSD drive.

We directed Andrew to <https://helpx.adobe.com/uk/photoshop/kb/photoshop-slow-lags.html> for an extensive list of remedial steps to try in case it helped, but after much to-ing and fro-ing he was advised to create a new user account. Logging into the new account seems to have cured the problem, suggesting a corrupt file or profile setting was to blame.

Hardware CAN'T UPGRADE LAPTOP RAM

Q I bought a second-hand Toshiba Satellite c660 laptop for £50. It came with 3GB and I've tried upgrading it to 8GB RAM using Crucial's website to guide me to a purchase on eBay. But on installing it I get a blue screen "Kernel security check failure" error. A local shop also tried installing RAM and updating the BIOS but got the same error. I'm now stuck at what I can do – any suggestions?

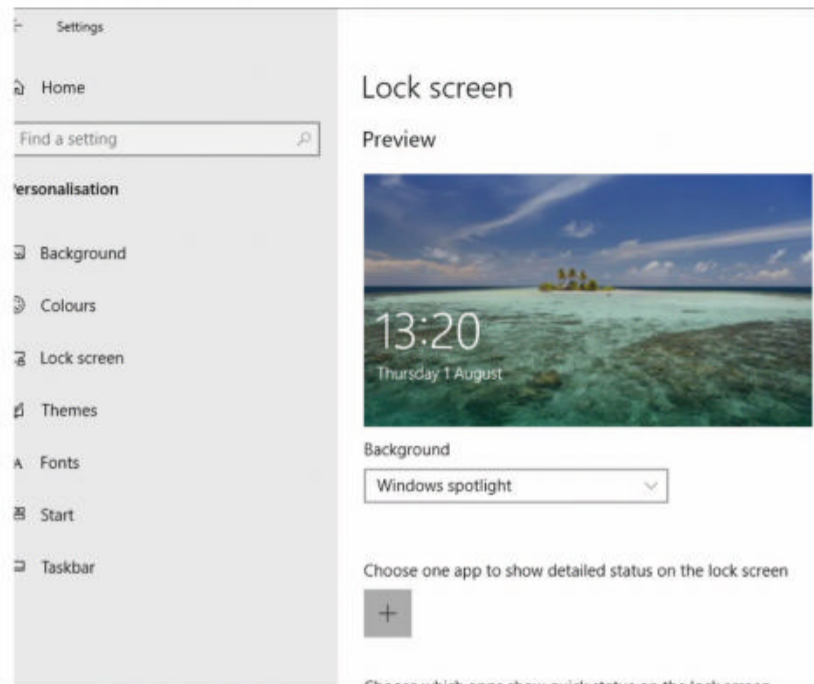
Peter Blachford



Alex's solution

We first advised Peter on upgrading to an SSD drive to improve performance, which would also give him the opportunity to see if installing a fresh copy of Windows with the 8GB fitted would work, but sadly the same error message came up before anything was written to the drive.

Older Toshiba Satellite laptops have a bad reputation for being sticklers about RAM – many users have reported success with adding



LOCATE IMAGES
Lock screen backgrounds can be located and recovered.

a single stick of 4GB to the current 2GB stick, so Peter might like to try this to see if he can bump things up to 6GB.

Otherwise it may be a case of entering the BIOS to see if he can find and write down the memory timing settings for the original 3GB sticks, then fit the new RAM (which is recognised correctly in the BIOS) and compare its memory timings – if necessary, alter these to match the original RAM.

If Peter can get at least 6GB RAM working, then clone his Windows installation to his new SSD drive, he should see a significant improvement in performance.

Windows EXTRACT WINDOWS SPOTLIGHT IMAGES

Q I'm loving the images that pop up on my Windows 10 lock screen at startup – where does Windows store these, and can I extract them for use as, say, the wallpaper on my desktop?

Angie Johnson

MOVE PROGRAMS TO ANOTHER DRIVE

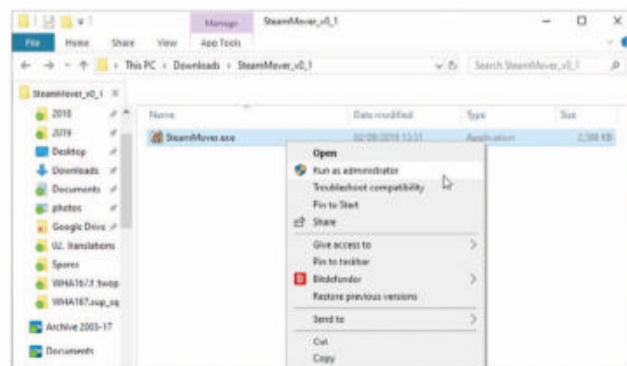
Q Is there some way to free up space on my Lenovo Miix 310's internal storage (a paltry 32GB)? I have no room left to update Windows 10.

Richard Croucher



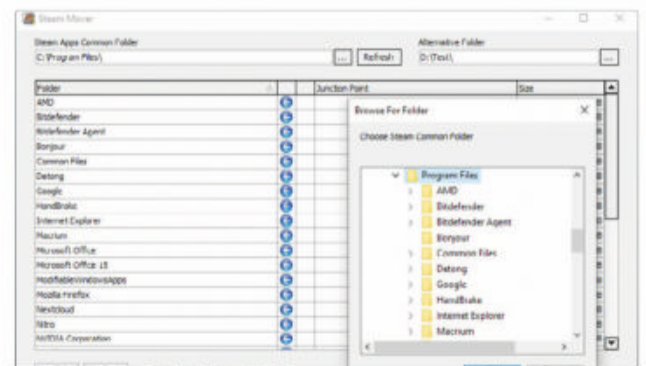
Alex's solution

If you can get it to recognise a 64GB microSD card, then use that for additional storage – first move your documents and other user data across, then follow this guide to move apps over without having to reinstall them first.



1 Obtain Steam Mover

Download Steam Mover from www.traynier.com – once done, right-click SteamMover_v0_1.zip and choose Extract All. Open the extracted folder, right-click SteamMover.exe and choose 'Run as administrator' to launch it.



2 Set folders

If Steam Mover doesn't automatically select your Program Files folder, click ... next to 'Steam Apps Common Folder' to choose C:\Program Files. Click ... next to 'Alternative Folder' to select a suitable folder on your secondary drive.



Ian's solution

It's fiddly, but certainly possible to find them. Press [Windows] + [R] and type %LOCALAPPDATA%\Packages and hit Enter to open this hidden folder.

Now browse further to Microsoft.Windows.ContentDeliveryManager_cw5n1h2txyewy\LocalState\Assets where you'll find a load of files with apparent gibberish for names.

Copy these into another folder, then browse to that folder in File Explorer, click inside the Address bar at the top, type cmd and press Enter to open a command prompt window. Type the following command and hit Enter:

```
ren *.* ???-pic.jpg
```

You'll immediately see the file icons update to show a thumbnail of each image, making it easy to identify the backgrounds from other photos stored in the same folder.

Applications PRINT MUSIC FOLDER LIST WITH METADATA

I've ripped songs to separate folders per CD. I wish to make a printed list where first the folder is displayed and then all the songs inside that folder, displaying title, contributing artist and album.

I tried the free version of Directory List & Print Pro but greys out the detail I'm looking for as I've not purchased a licence. Can you suggest a workaround or freeware alternative?

Gerald Gibson



Cat's solution

\$22 isn't a huge amount to pay for a program, however infrequently you use it. We hunted high and

low for a free directory printing tool with metadata support and came up short. In the course of our search we discovered Directory List & Print Pro (www.infonautics-software.ch/directorylistprint/) is the simplest tool for the job, another big tick in favour of paying the modest one-off fee for the features you need.

A portable version exists too, which means you can run it without cluttering up your system.

Networking EMULATE A WI-FI ADAPTER

I have a VirtualBox machine running Windows 8.1, and I'd like to be able to emulate a Wi-Fi adapter in it. Is that possible?

John Dexter



Nick's solution

You'll need a compatible external Wi-Fi adapter. Open your virtual machine and click Settings > USB to add a filter selecting your USB device. Now start your VM – leave any existing network settings enabled for now to allow you to download and install any required drivers. Assuming the device is detected correctly, clicking the Network button in the Taskbar notification area should bring up the Networks list, with Wi-Fi options indicating you're now able to surf wirelessly with your VM.

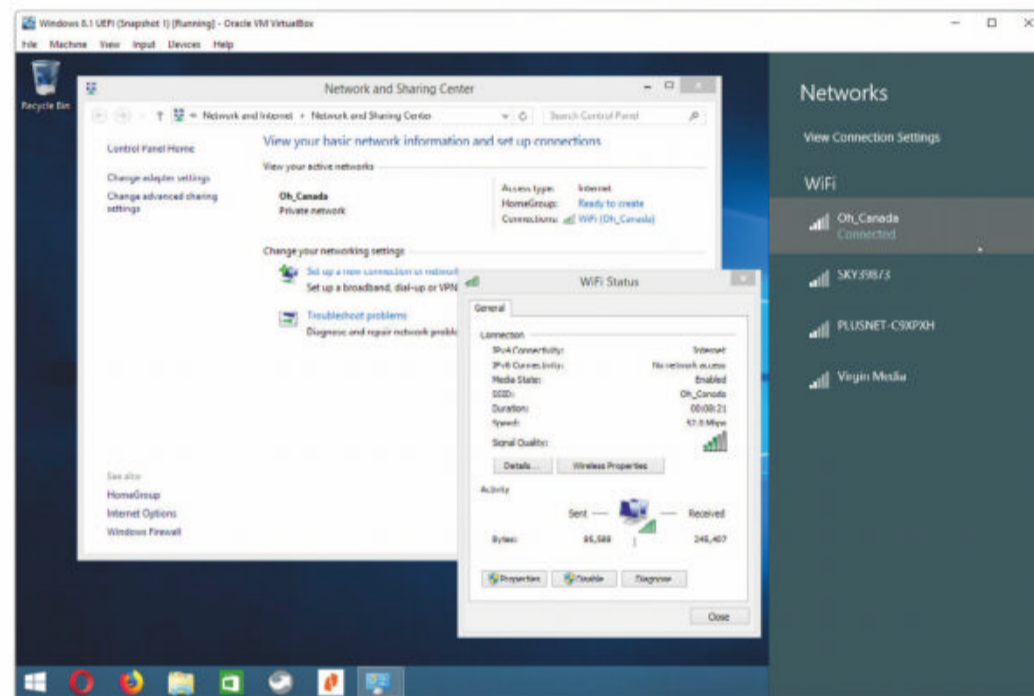
Once you've confirmed this, shut down your VM and open Settings > Network to disable the virtual network adapter, then restart to access your network exclusively through the wireless USB adapter.



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

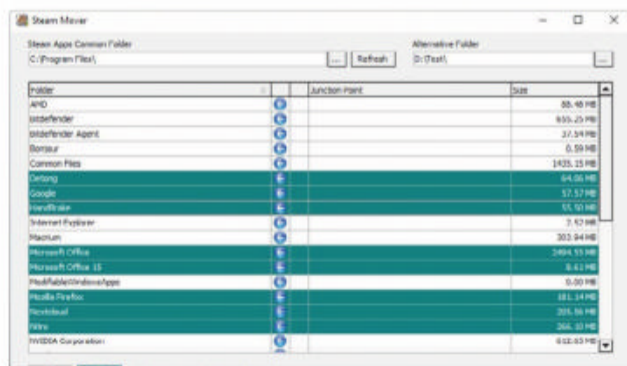
Email full details of your problem to the support team and we'll do our best to help: windowsmagazine@futurenet.com

Or write to the support team and we'll do our best to help: **Support Squad, Windows Help & Advice magazine, Future Publishing Ltd, Quay House, The Ambury, Bath BA1 1AU**



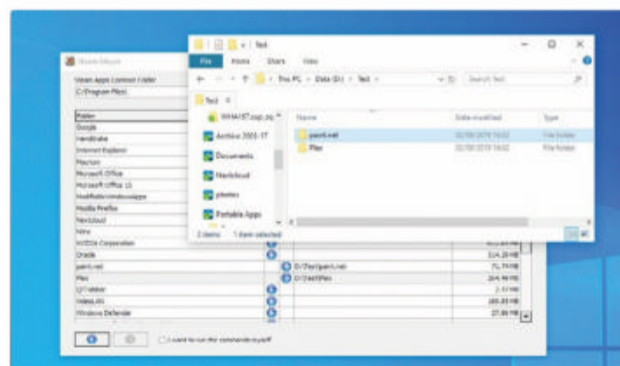
ADD WI-FI
VirtualBox can only emulate Wi-Fi with a USB adapter.

“It's another big tick in favour of paying the modest one-off fee for the features you need”



3 Select apps and transfer

A list of installed apps will appear in the list. Hold [Ctrl] and click on each app you wish to transfer to highlight it. Try to focus on larger apps and those you don't use that often. Once done, click > to move the files.



4 Test and restore

After the command prompt window closes, you should find the apps are now on your D drive, and space has been recovered. They should work as normal, but you can restore them by selecting them and clicking < at any time.

Jargon buster!

► NVMe M.2

A new form of solid-state storage that is connected through the PCI-Express bus to provide consistent transfer speeds far in advance of what traditional SATA-connected SSD drives can manage.

► Memory timings


Four numbers – for example 14-14-14-34 – that determine how fast RAM operates. Lower numbers are faster, but can cause stability issues.

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Welcome to...

Windows 10

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

Welcome



Windows 10 is always evolving, and looks quite different to the way it did back in 2015.

It's always worth installing the latest security and cumulative updates for your PC – the benefits far outweigh any dangers, and problem updates can easily be rolled back. Big feature updates aren't to be feared either, even if they can take a long time to download.

On p70 we find out what the latest Windows updates bring, while on p72 we discover how to work with the Windows desktop. Finally, p74 has a guide to navigating your PC's files and folders.

Matt Hanson
Associate Editor

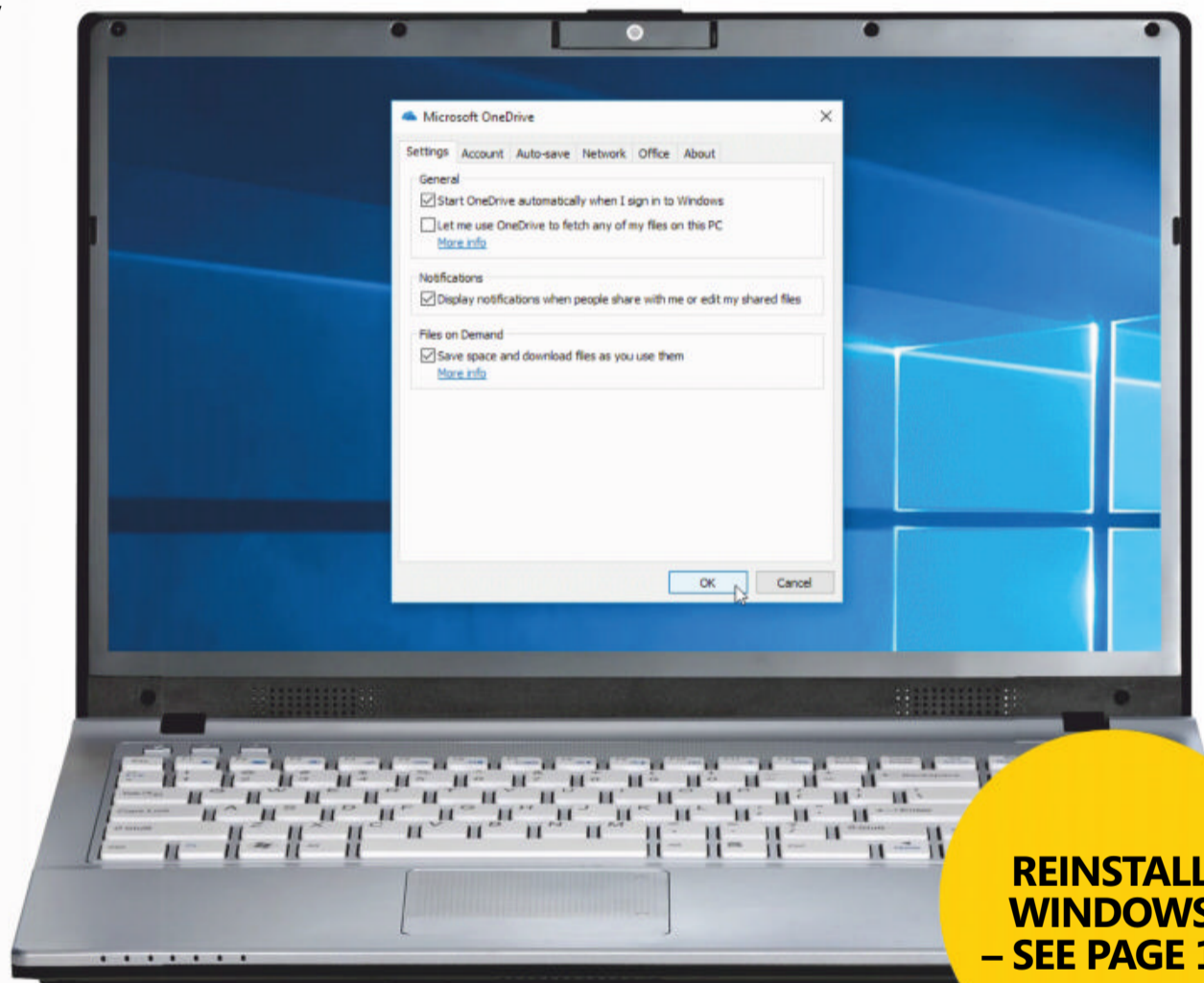
www.facebook.com/windowsmag

Featuring...

70 What's new in Windows 10?

72 Explore the Windows desktop

74 Navigate your PC quickly and easily



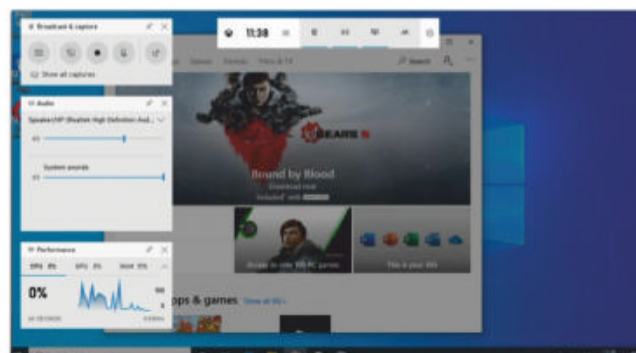
**REINSTALL
WINDOWS
– SEE PAGE 11**

Windows 10 tip of the month

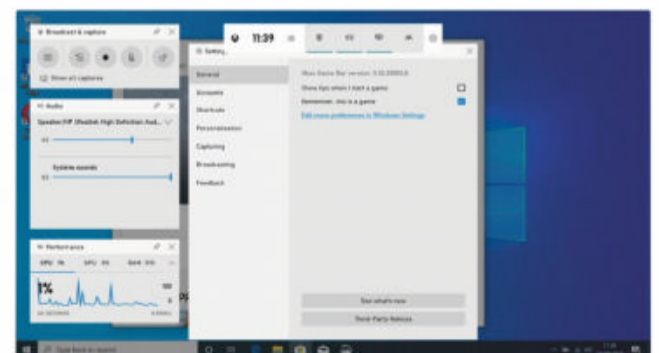
Capture video of any app, easily

Capture video with the new Game Bar

The Game Bar was introduced as a way for capturing gameplay videos, allowing you to boast of your multi-headshot prowess on social media. In reality, it can be run on any application as long as you tell the Bar that it's a game, so Chrome, Word, even Photoshop become games when you want to capture video of them. The Bar was upgraded in the May 2019 update to an overlay that gives you CPU and GPU usage stats too.



THE BAR IS OPEN Hit [Win] + [G]. Here's the Game Bar running on that well known game, the Windows Store.



CAPTURE AND CONTROL Video capture is at the top left, while in Settings you can reiterate this is a game.

Image credits: Microsoft

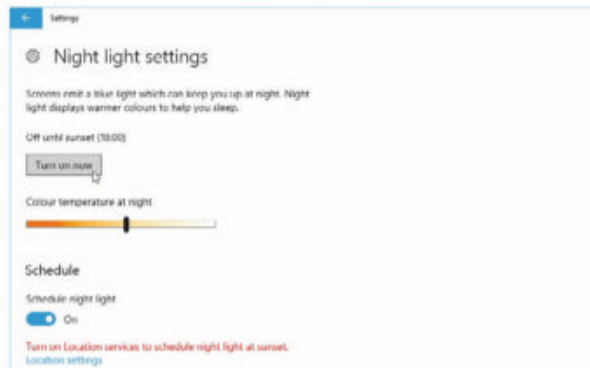
What's new in Windows?

Need reminding what's been added and improved in successive versions of Windows 10? These are the features to look out for



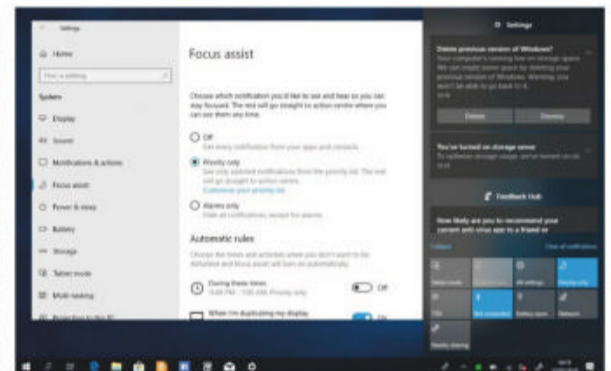
When it first appeared, Windows 10 introduced lots of new features, from a revamped desktop to Cortana, the virtual personal assistant who's always on hand to help, provided you're prepared to give up some of your privacy. Internet Explorer got dumped in favour of the all-singing (if not, initially at least, all-dancing) Edge web browser. It also blended the best bits of Windows 8.1 – the vastly superior File Explorer for accessing your files, for example – with the best bits of Windows 7, such as bringing back the Start menu.

Other changes have followed with each new successive feature release. The step-by-step guide on the facing page highlights six major new features, but numerous smaller changes have been applied with each release too. For example, the Anniversary Edition also introduced a new dark theme that – from the Fall Creators Update – can now be applied to compatible apps, too.



Prevent eyestrain after dark with Windows 10's 'Night light' feature.

'Night light' was a highlight of the Creators Update, helping to reduce eyestrain when using your PC at night (switchable via the Action Centre). A new Game Mode was also introduced, which aims to prioritise system resources when you're playing games so that the experience is as smooth as possible. The Creators Update also made it easy to capture a selected portion of your screen and copy it to the clipboard with a single key combination – [Shift] + [Win] + [S].



Windows 10's Action Centre has been refined numerous times.

The Fall Creators Update introduced Mixed Reality – the ability to mix actual footage with 3D objects – as well as a handful of other minor new features.

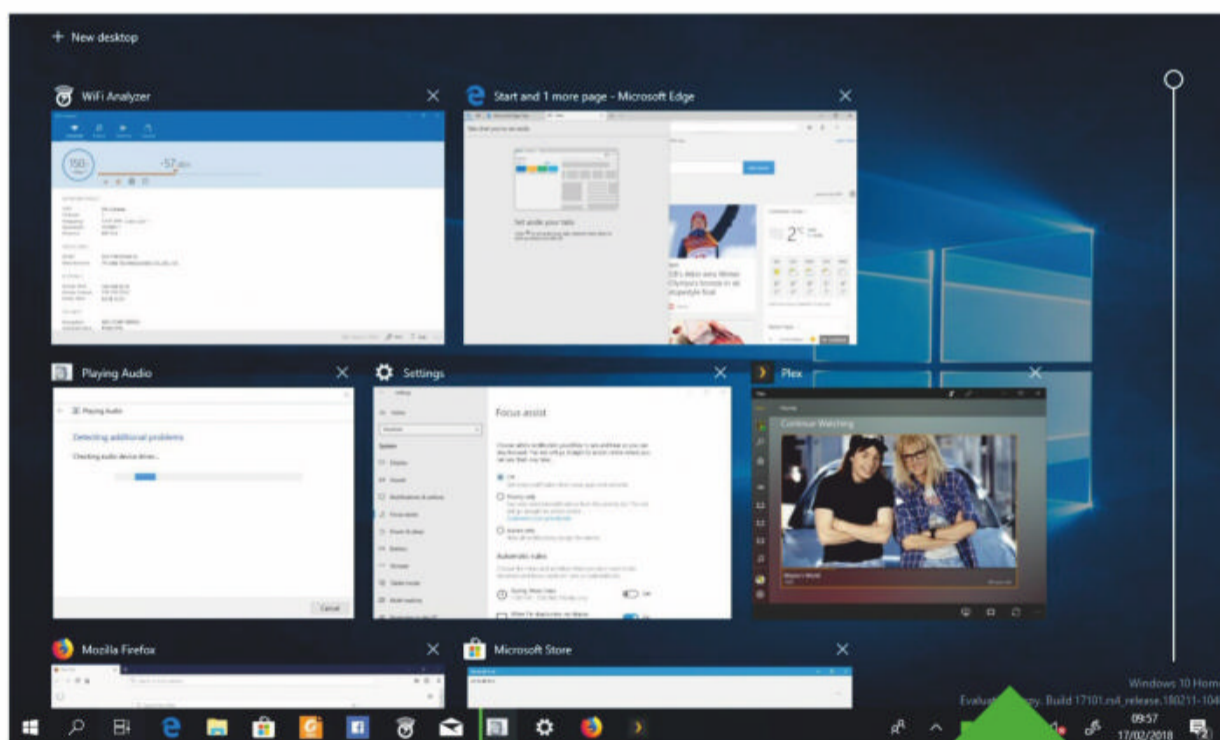
Refining existing features

Bigger changes can be detected when looking at features introduced with Windows 10. Cortana's become smarter over time, but there are question marks over privacy as she offers to integrate herself more closely into your daily life. The Start menu has continued to evolve as well, with design tweaks such as removing the default 'most used' view for apps in favour of an All Apps list underneath recently added or updated programs. Advertisements have started to appear here, too, but we'll show you how to remove these later.

The Action Centre has been rolled into the notifications pop-out that's accessible from the bottom-right corner of the Taskbar. This has evolved to give you more control over what's shown along with handy features such as Quiet Hours, which enables you to disable notifications for a specific period.

When Windows 10 was launched the Settings app contained only a limited number of system tweaks, while the Control Panel still played a major role. With each major release, Microsoft has rolled more functionality into the Settings app, with the Control Panel increasingly sidelined. Since the Creators Update, it's no longer accessible from the 'Quick access' menu ([Win] + [X]) and its days are certainly numbered – for now, access the Control Panel via the search bar or by pressing [Win] + [R], typing "control" and pressing [Enter].

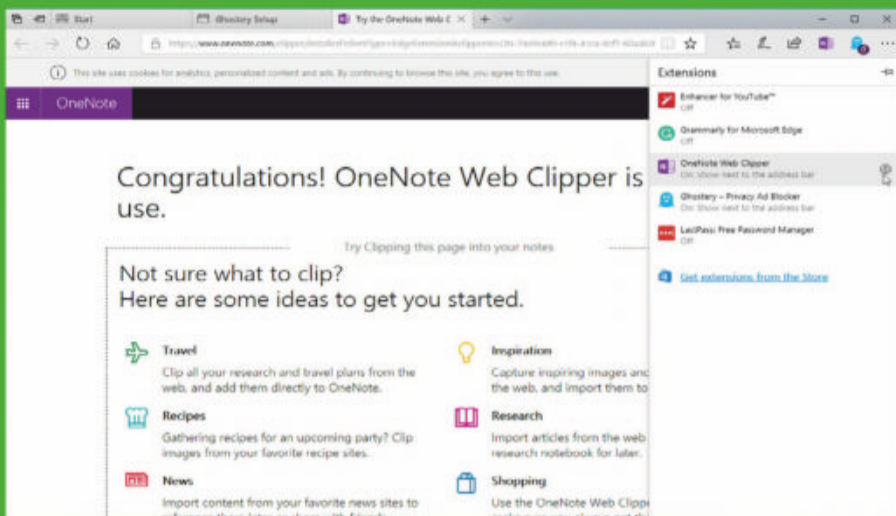
The list of apps that are integrated with Windows 10 has also changed over time – the Windows 10 Skype app was added to the Anniversary Edition, while Paint 3D first appeared in the Creators Update. The Paint app also got a major overhaul in the Fall Creators Update.



What else is new?

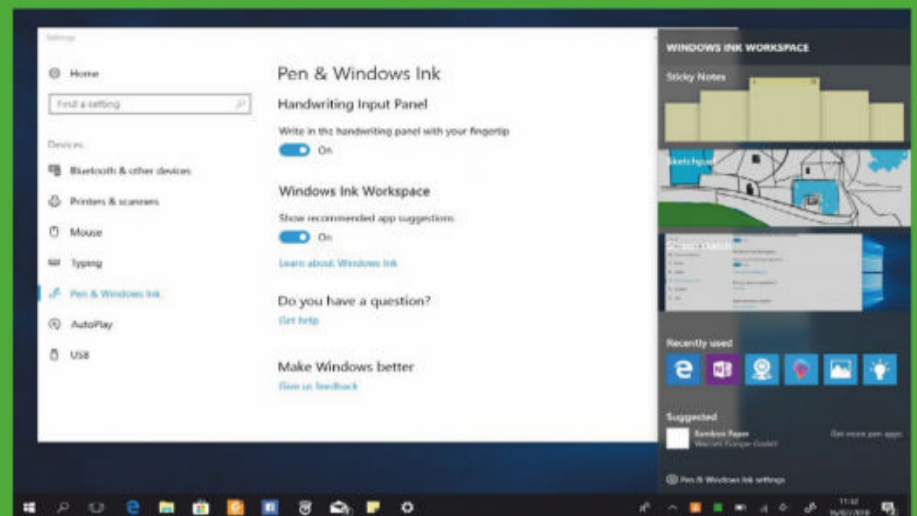
The April 2018 Update introduced lots of new features, including the Timeline. This is embedded into Task View and enables you to jump back to files, apps and sites that you've recently used. The Action Centre also gained a few extra tweaks – look for Focus Assist under Settings where you'll be able to further prioritise what notifications you receive and when. One feature that was originally promised for the April 2018 Update, but never arrived, was Sets. It would have enabled you to group related apps, documents and sites together under a single tabbed window, though Microsoft has since killed the idea. Luckily, TidyTabs (www.nurgo-software.com) does much the same thing.

What's new in Windows 10



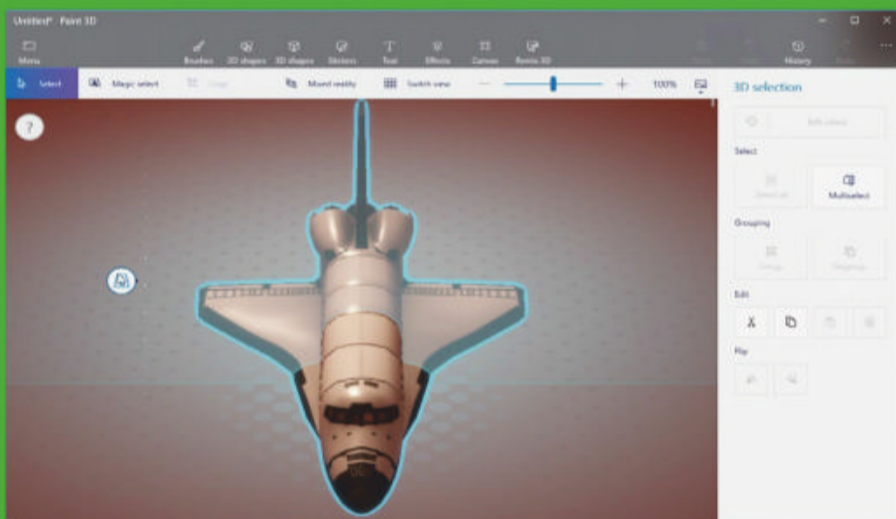
1 Edge supports extensions

One of the biggest turn-offs for Windows 10's new web browser was a complete lack of support for add-ons and extensions. This was rectified from the Anniversary Edition on, and because extensions are only available through the Microsoft Store, you can be sure they've been properly vetted.



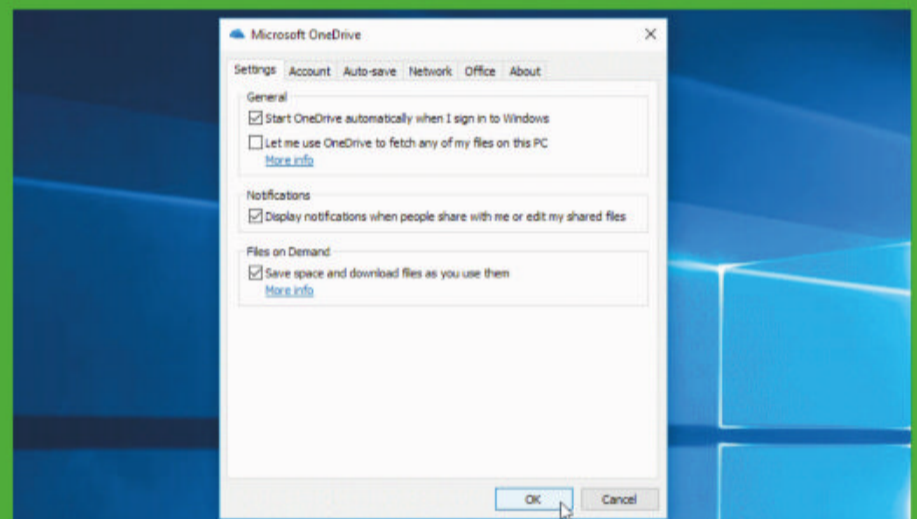
2 Tablet-friendly features

The Anniversary Update also took steps to make Windows friendlier on touch devices, such as 2-in-1 tablets. This saw the introduction of a dedicated Windows Ink workspace with sketchpad, sticky notes, annotated screenshot tool and digital ruler, all designed to play nicely with touchscreens and styluses.



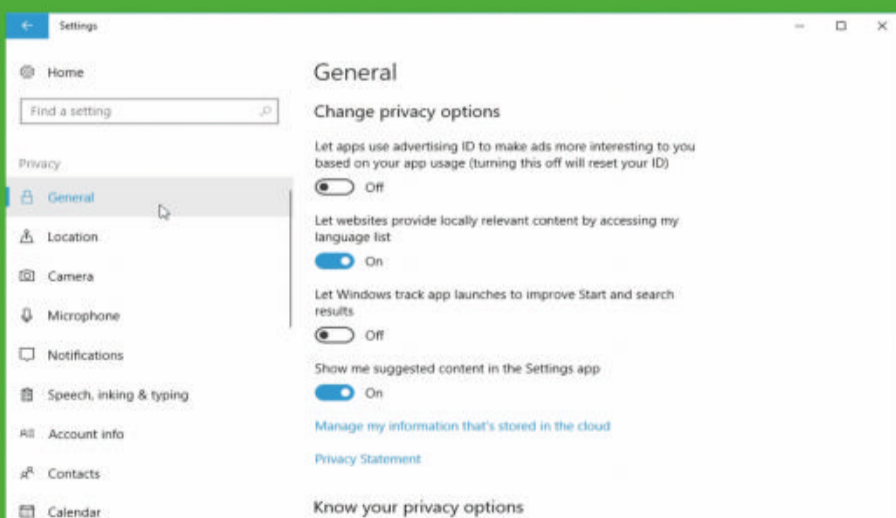
3 3D updates

The Creators Update introduced widespread support for 3D, from a brand new app (Paint 3D) to support for 3D content in other Microsoft tools, including both Edge and PowerPoint. This was accompanied by support for VR headsets and other Augmented Reality (AR) features.



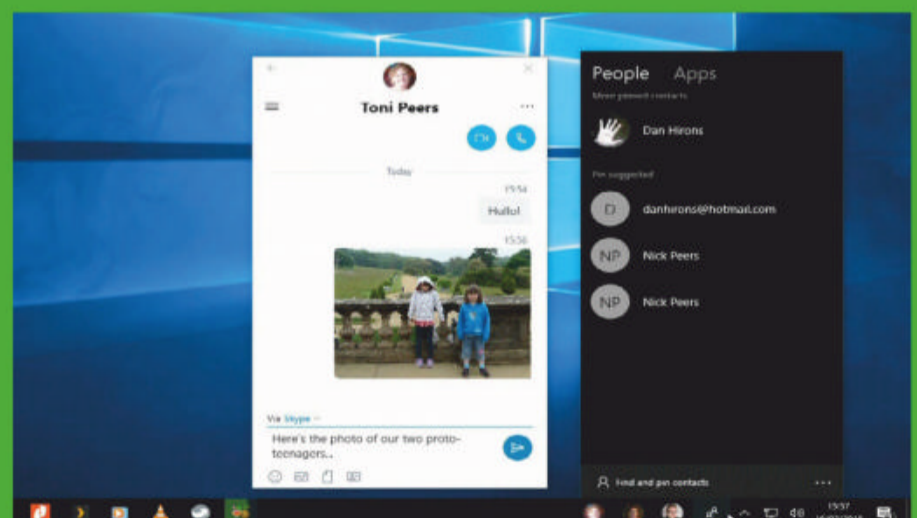
4 OneDrive on demand

The Fall Creators Update can now reduce the size of your OneDrive folder by making files only available 'on demand'. To enable this, right-click the OneDrive Taskbar notification area icon and choose Settings, then select 'Save space and download files as you use them'.



5 More control over privacy

You'll see more granular privacy options being offered to you when you next reinstall or update Windows, but why wait? Go to Start > Settings > Privacy to work your way through a comprehensive list of options. Too much hassle? O&O ShutUp10 (www.oo-software.com/en/shutup10) makes it easy.



6 My People

The Fall Creators Update has made it easier to quickly stay in contact with your favourite contacts – individuals can be pinned to the Taskbar enabling you to message them via Skype or email without having to open a separate window. Right-click the Taskbar and choose 'Show People button' to get started.

Master the desktop

The Windows 10 desktop can be at once both familiar and alien. Discover how to make the most of its best features

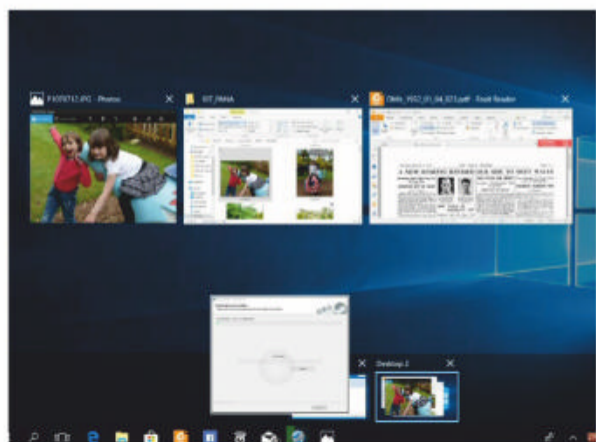
The Windows desktop has undergone some radical changes over the past few years, but after experimenting with Windows 8's Metro user interface – which was rapidly scaled back in Windows 8.1 – Windows 10 has returned the desktop to something closer to Windows 7. This means the desktop has returned to its original function – as a virtual desk. You can use it as a simple backdrop when switching between application windows, or keep shortcuts, files and folders on it for easy access (right-click on it and choose Personalise to change its look and feel).

Adding items to the desktop is simple enough – just drag them from a File Explorer window. You can also create desktop shortcuts by right-clicking the file or folder in question and choosing 'Send to' > 'Desktop (create shortcut)'. While this is convenient, your Windows desktop can quickly become messy, and get buried beneath any application windows that you have open.

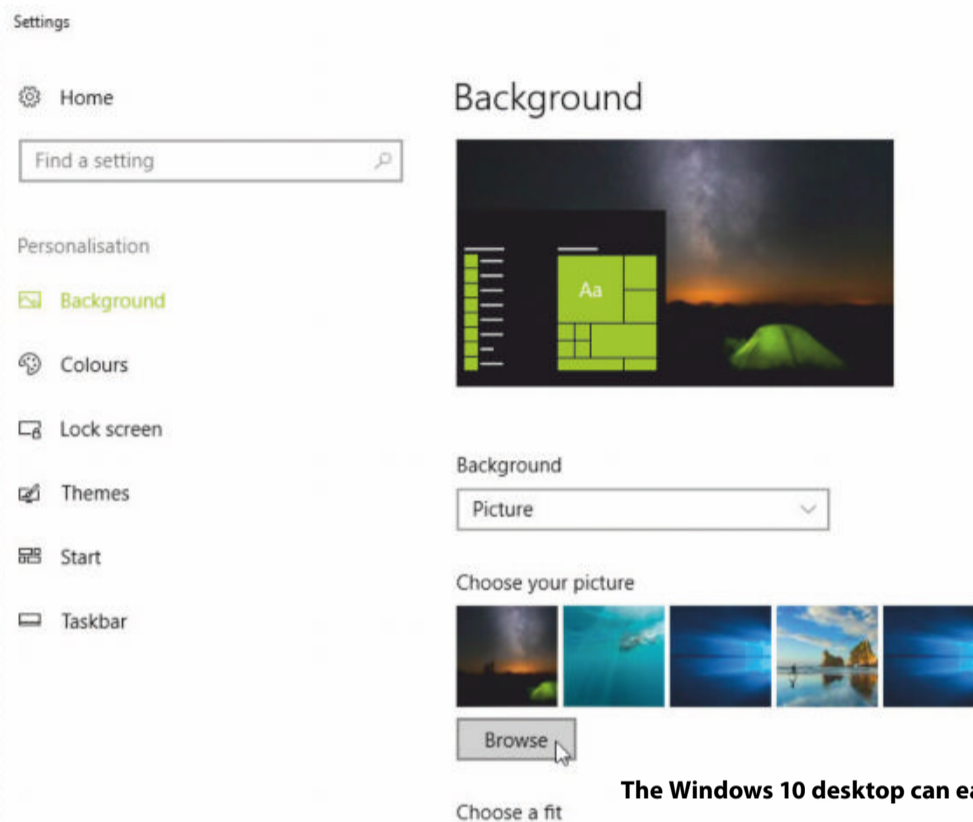
Where to place shortcuts

An alternative route to follow is to keep the desktop clutter-free – simply right-click the desktop, choose View and untick 'Show desktop icons' to hide everything without removing it. You can then store shortcuts using other desktop elements, such as the Start menu or the Taskbar. The most visible place is the Taskbar – 'pin' a program here and you'll be able to access it with a single click from anywhere.

To pin items, open a program window so its icon appears in the Taskbar, then right-click the icon and choose 'Pin to taskbar'. Once pinned, simply drag items around to reorder



You can easily set up and manage multiple virtual desktops using Windows 10's Task View.



The Windows 10 desktop can easily be customised.

them. You can also pin items from elsewhere – right-click a program's Start menu shortcut and look under the More menu or click and drag a program file or shortcut from File Explorer on to the Taskbar itself.

There's also the Start menu for shortcuts – the step-by-step guide on the page opposite includes steps for pinning shortcuts to the Start menu in addition to customising it in other ways. Also take the time to right-click the Start button to reveal a list of handy shortcuts to system tools and

In the right-hand corner of the Taskbar sits the notification area. You'll see a selection of small app icons providing updates and access to key apps and settings. Many programs set to start with Windows hide away here, enabling you to right-click them to access their features, tweak their settings or simply exit the program completely. Click the '^' button on the left to reveal 'hidden' app icons. Just drag icons from here on to the notification area to pin them permanently, or vice versa to hide them from view. More options for configuring

“Click the button to view a slide-out window that provides notifications from a range of sources”

settings – this Quick Access menu can also be invoked by pressing the [Win] + [X] keys.

More Taskbar tricks

The Windows 10 Taskbar also includes shortcuts to Cortana (covered on page 73) and Task View, which enables you to view all open windows in a grid-like view, making it easy to switch between them. Task View also enables you to organise your windows into multiple virtual desktops, then switch between them. Either click 'New desktop' to create a blank desktop, or right-click a window in Task View and choose 'Move to' and select an existing desktop or create a new one from scratch.

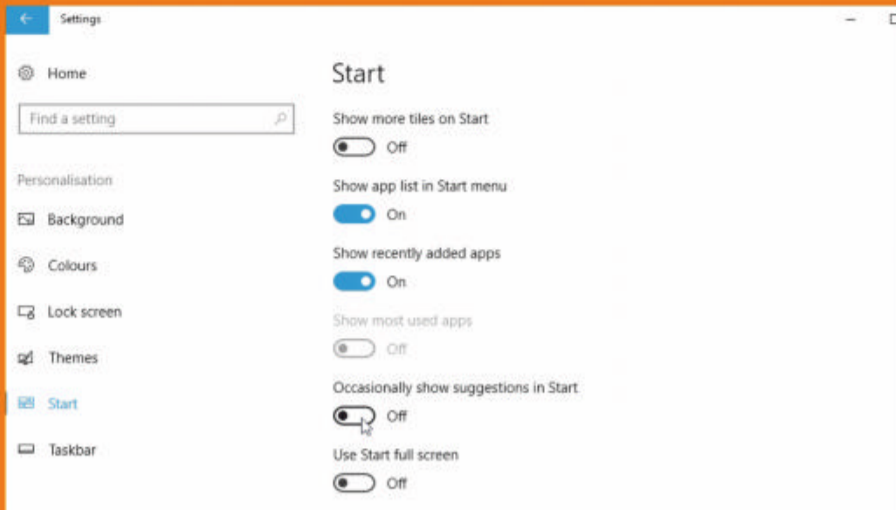
these can be found under Settings > Personalisation > Taskbar – click 'Select which icons appear on the taskbar'.

In the far right-hand corner is the Action Centre, which is Windows 10's notifications system. Click the button to view a slide-out window that provides notifications from a range of sources. These are displayed chronologically, and many come with buttons for taking further action. At the bottom of the Action Centre is a series of buttons giving you quick and easy access to certain functions.

Choose which buttons are displayed, plus control how notifications behave by visiting Start > Settings > System > 'Notifications & actions'.



Customise the Start menu



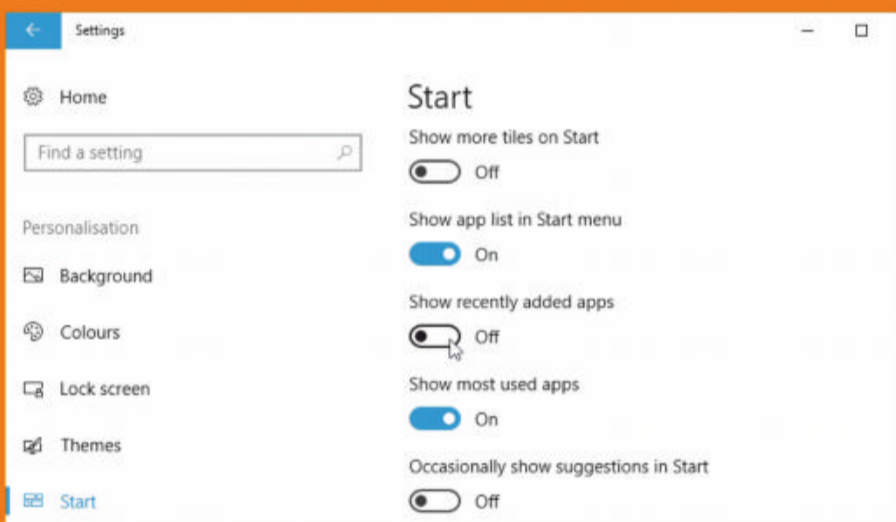
1 Disable ads

To remove unwanted ads, go to Start > Settings > Personalisation > Start and toggle the 'Occasionally show suggestions in Start' switch to Off. Now open the Start menu and look for a Get Office entry under All Apps. Right-click this and choose Uninstall to stop the Office ads from appearing.



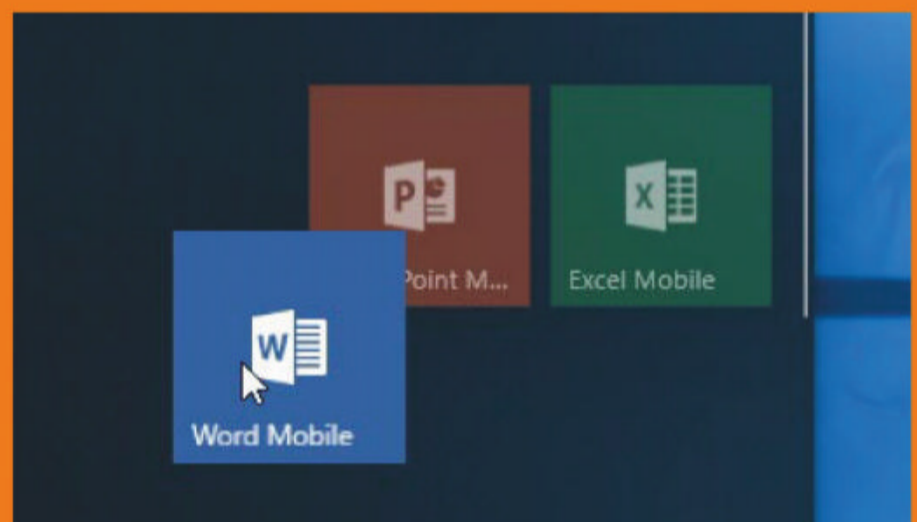
2 Customise the left-hand panel

The buttons on the left give you one-click access to power, Settings, user options (including the 'Switch user' function) and much more besides. You can customise which user folders and tools appears here via Personalisation > Start – click 'Choose which folders appear on Start'.



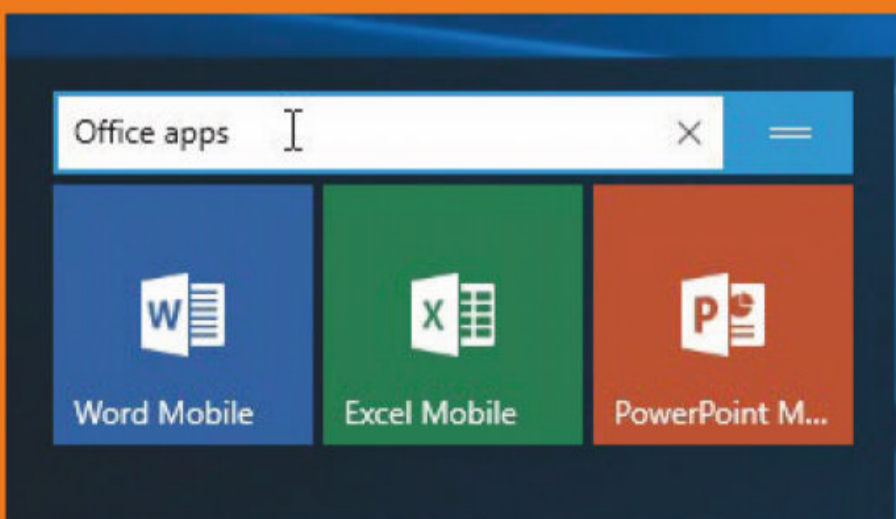
3 Tweak the app list

You can disable the A-Z list of apps in the Start menu via Personalisation > Start (switch off 'Show app list in Start menu') or choose whether to head the list with recently added or most used apps for convenience sake. Finally, select 'Use Start full screen' if you miss Windows 8's Start screen.



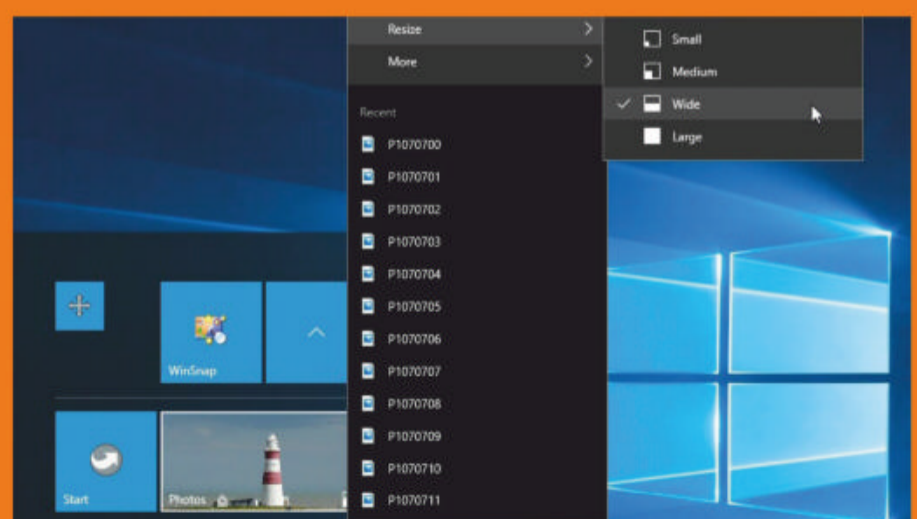
4 Customise tiles

The main part of the Start menu is its Tiles section, where app and program shortcuts can be pinned by right-clicking them in File Explorer or on the Start menu's Apps list. Once pinned, drag and drop pinned items around to rearrange them and pin them together in related groups.



5 Managing grouped tiles

Drag one tile on top of another and they'll be merged into a single tile – click this to reveal the tile's contents. Roll your mouse above a series of grouped tiles to reveal a title bar – click under 'Name group' to give it a suitably descriptive name; click and drag the '=' icon to move the group.



6 More customisation tricks

Right-click a tile and choose Resize to change its size: Small, Medium, Wide or Large. Right-click and choose More – if a live tile option is offered, selecting this will see the icon dynamically update with content from the app rather than simply displaying its icon.

Navigate your PC

It's all about the files on your computer: documents, programs, settings and more – discover how to find and access them

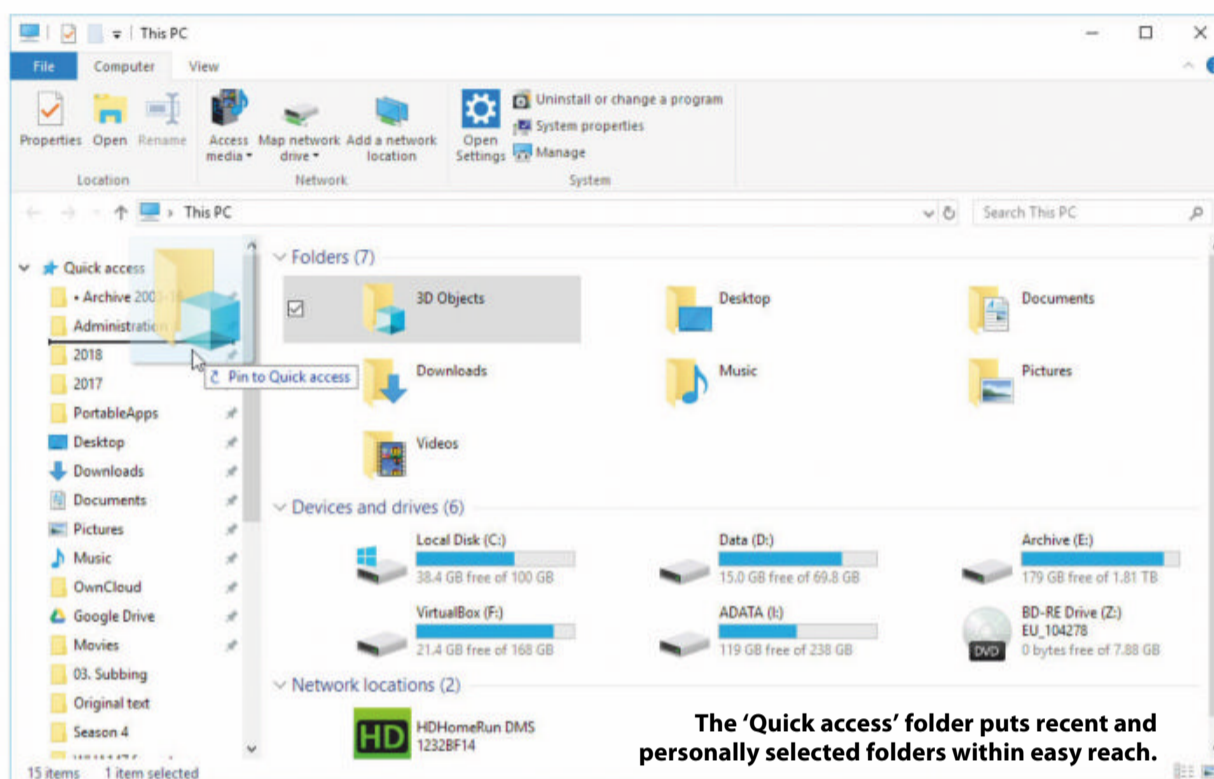


We've seen how the desktop can provide you with a means of pinning favourite programs and files within easy reach, but it's only the start of

your journey into navigating Windows 10. Let's start with File Explorer – the tool you use to browse and manage your computer's contents. You'll see its folder icon on the Taskbar, so click this and it'll open to one of two views: 'Quick access' or This PC – you can change the default view by switching to the View tab on File Explorer's ribbons, clicking the Options button and making your choice from the 'Open File Explorer to' drop-down menu.

'Quick access' is a special folder that contains shortcuts to both recently opened files and folders you frequently open. It's also possible to 'pin' favourite folders to the 'Quick access' menu that appears in the Navigation pane on the left of the File Explorer window – the quickest way to do this is simply to drag a folder into the 'Quick access' list where you want it to sit and release the mouse button (you can later remove the folder from this list by right-clicking it and choosing 'Unpin from Quick access').

The left-hand pane also has shortcuts to OneDrive, This PC (a list of all your user folders as well as the drives attached to your PC), selected external drives and your Network. There used to be a Homegroup entry here too

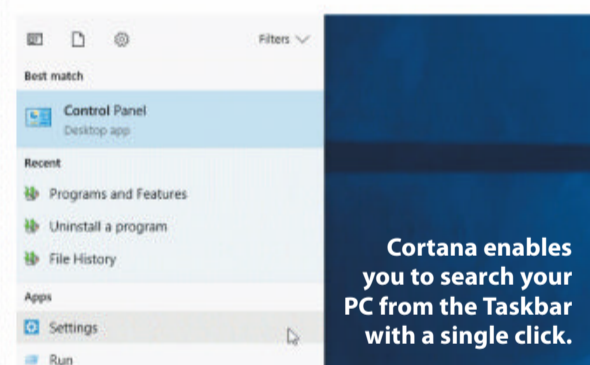


– only it disappeared in the Spring Creators Update along with Homegroups themselves.

Windows 10 introduces lots of handy new features in File Explorer that will be new to you if you're moving from Windows 7: switch to the View tab on the Ribbon and tick 'Item check boxes' if you frequently need to select multiple files in a folder – this enables you to simply tick them to do so.

Also keep an eye on the Ribbon when selecting individual files of a specific type – for example, select a photo and a context-sensitive Picture Tools option

will appear. Click this to reveal additional options relevant to photos, such as rotating images or viewing the folder's contents as a slideshow.



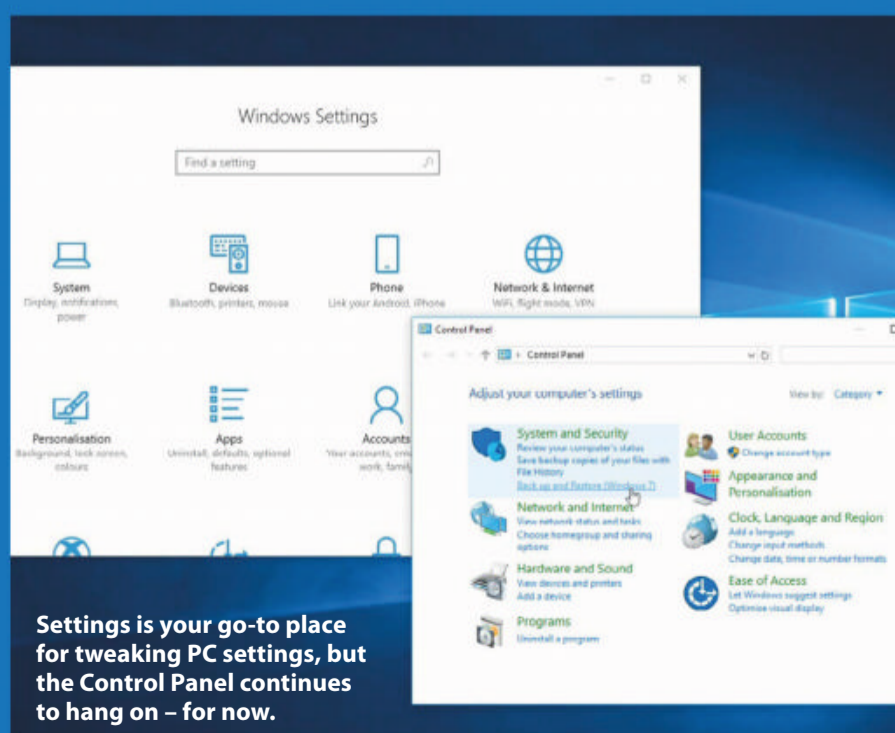
Tweak PC settings

When it comes to changing system settings – from the apps you've installed, to the picture to use for your desktop background – you'll need the Settings tool, accessible from the Start menu by clicking its button. Settings is currently divided into 13 discrete sections – click one and you'll see a series of sub-menus on the left, each of which contain subsets of options.

Settings is Windows 10's replacement for the Control Panel. When Windows 10 was first released, it was still very much a hybrid of both Settings and Control Panel, but with each successive feature update

more settings have made their way from the Control Panel into Settings. For example, from the Spring Creators Update, you'll manage your fonts from within Settings rather than being redirected to the Control Panel.

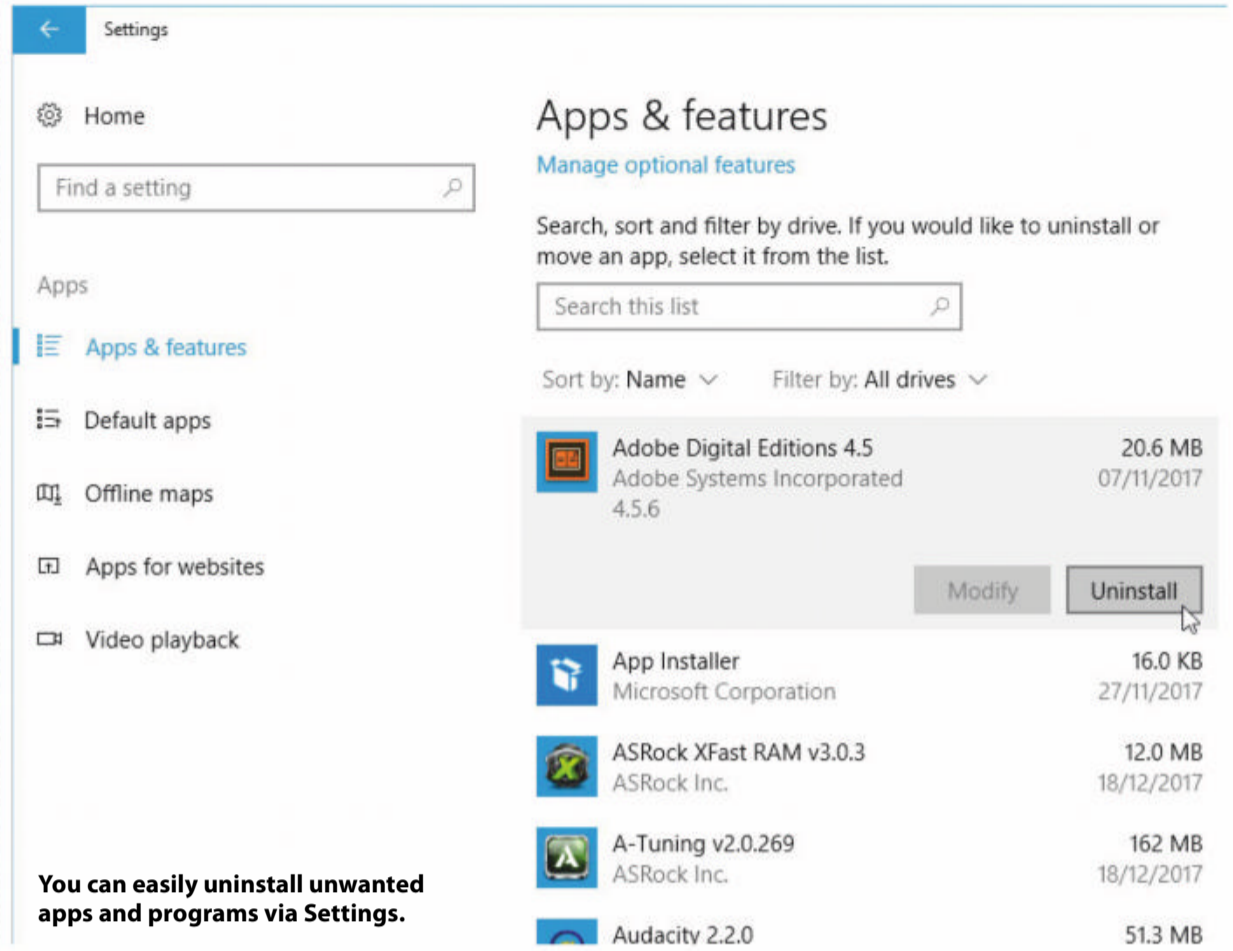
Thankfully, Settings has its own search tool to help you quickly locate the tweak you want to perform, while some shortcuts – and search results such as Storage Spaces – still point to the equivalent Control Panel applet. However, if you'd rather explore the Control Panel directly, press [Win] + [R], type "control" and press [Enter] to force it to appear.



Search your PC

File Explorer also has a search tool built into it for searching the currently selected location (navigate to the This PC level to search your entire PC). Type your search terms and a list of matching entries will appear. Depending on where you search, the process may take some time if you've included folders that haven't been indexed – indexing records a folder's contents in a small database that allows for much quicker searches since the index is searched rather than the folder or drive itself.

Indexed content can also be searched using the Cortana search tool, which is built right into the Taskbar. Just type what you're searching for and a list of matching items will appear. Click 'Filters' to restrict your search to a specific type of item (such as documents, settings or web results). The step-by-step guide below reveals how to configure Cortana, as well as how to disable the personal assistant entirely so the box only



You can easily uninstall unwanted apps and programs via Settings.

“Should you wish to make changes to or from a desktop program or Microsoft Store app, you will need to head to Start > Settings > Apps”

functions as a convenient search tool for items on your PC without any additional privacy connotations.

Indexed folders tend to be those where personal data is likely to reside, such as your user folders. To see what folders are being indexed, type **indexing** into Cortana's search box and click Indexing Options. You'll see a list of indexed locations – click Modify to select folders to add to this list.

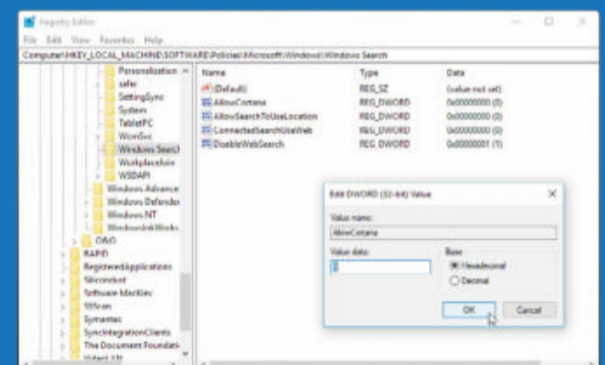
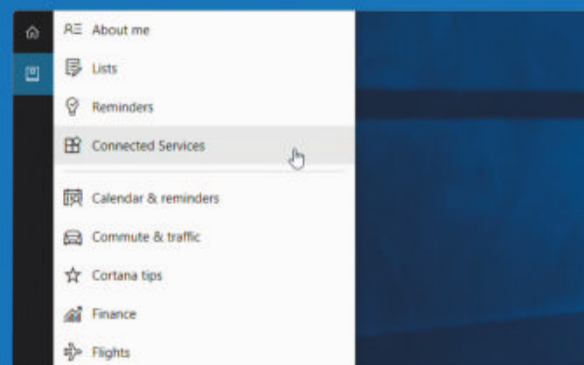
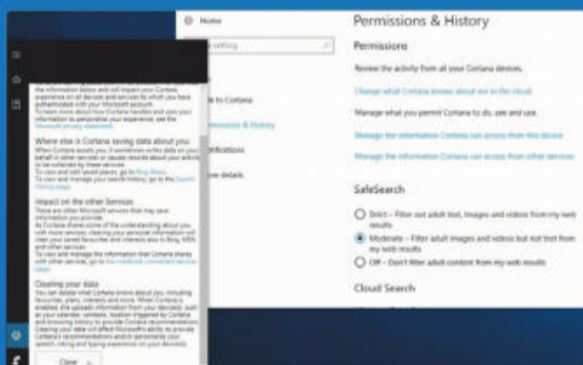
Managing apps

Should you wish to make changes to, or remove, a desktop program or Microsoft Store app, you will need to head to Start > Settings > Apps. Select a program from the list and you'll see options to modify, repair or uninstall it – just as with the original 'Programs and Features' Control Panel. Windows apps also come with two additional options: Move, which enables you to move the

app on to a different drive to free up space on your main system drive; and an 'Advanced options' link. This latter option enables you to reset the app, something that removes all user data and returns it to factory-fresh condition (handy if you're troubleshooting a problem or want to start from scratch).

While Windows 10's own tools are adequate for managing apps, download and install IObit Uninstaller Free (www.iobit.com/en/advanceduninstaller.php) if you want to be able to remove apps installed alongside Windows, such as Photos or Skype – these can always be reinstalled through the Microsoft Store. IObit Uninstaller also searches for program leftovers to ensure they're removed more thoroughly, so helping to keep your PC clutter-free.

Configure Cortana



1 Basic configuration

Click Start > Settings > Cortana to configure your mic, set permissions (and delete history), configure web search settings and manage notifications between all your devices running Cortana. To clear everything, select 'Change what Cortana knows about me in the cloud', scroll down and click Clear.

2 Manage services

Open Cortana and click the Notebook icon on the left to configure Cortana's functionality as a personal assistant. Most options involve choosing the kind of information that you want to know about; click Connected Services to link supported providers such as Gmail, Office 365 and Wunderlist.

3 Disable Cortana completely

Press [Win] + [R], type regedit and press [Enter]. Browse to HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Windows\Windows Search. Choose Edit > New DWORD (32-bit) Value. Name it AllowCortana and double-click it to set its value to 0. Now reboot your PC.

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Upgrade

▶ NEW HARDWARE ▶ ESSENTIAL ACCESSORIES ▶ LATEST GADGETS

Welcome



It really is a great time to be in the market for a new laptop.

New models are hitting every section of the market, from bargain-basement PCs to sleek professional Ultrabooks to the kind of chunky gaming laptops that can leave your lap feeling uncomfortably warm but perform far in advance of anything else.

It's also a great time to get a new phone, with the rollout of 5G services provoking a rash of upgraded re-releases as manufacturers scramble to take advantage of the new technology.

Whichever you choose, enjoy your PC.

Nick Odantzis Deputy Editor
windowsmagazine@futurenet.com

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An elegant Ultrabook with premium design and strong performance



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Svelte and powerful, this is the sharpest Blade... if you've got the money



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Get 5G speeds the most affordable way with this retooled mid-range offering



86 Best action cameras

These ace 4K cameras have everything you need for recording excellent action

Our promise to you...

The Upgrade section is your key to finding out about the latest products, all designed to help you get more from your PC

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



HP Envy 13t 2019

From £849 | \$999 www.hp.com

An elegant Ultrabook with premium design and strong performance at a fair price

HP's Envy line of laptops is effectively the more affordable alternative to its premium Spectre line of Ultrabooks. But, over the years, more and more of the premium features have trickled down into Envy laptops, and the latest Envy 13t keeps that up with plenty to offer at a more affordable price.

The unit we're reviewing is around £1,000 as configured, and includes an 8th-gen Intel Core i7 quad-core CPU, 16GB of RAM and Nvidia GeForce MX250 graphics.

That puts it well below the £1,250 Spectre 13 with a slower Intel Core i7 and half the memory. Meanwhile, the £800 Dell XPS 13 may fit into the same price ballpark, but the base configuration is an Intel Core i3 processor paired with just 4GB of RAM and 128GB of storage.

Looks and build quality

The HP Envy 13t readily fits into the thin-and-light category at just

1.17kg and 14.5mm thick. We've been tossing the Envy into a backpack that weighs more than it, and it feels light enough on our back that we have to double check it's even in the backpack before heading out for the day.

The chassis is made from aluminium. It's sturdy with minimal flex, but the screen portion of the laptop is more susceptible to bending and twisting. One downside to the aluminium is its softness. We managed to get a small ding on the front edge of the laptop which we consistently feel with our thumb when using the clickable trackpad.

Speaking of the trackpad, it's incredibly wide, offering plenty of space. However, it feels short when compared to how wide it is. There's also a small, square fingerprint scanner we find rarely works on the first try.

The keyboard is standard for its size, and thankfully doesn't do

anything weird. There are no shrunken Shift keys or oddly placed arrow keys. It even makes the most of its space to add Home, Pg Up, Pg Dn, and End keys at the right.

The keys themselves are a delight to use. They're all wonderfully poppy with minimal wobble and even travel. Pressing on the very edge of a key works as effectively as pressing on the centre. They're also fully backlit, though a white backlight on silver keys can actually make it harder to see the characters in certain situations.

Each side of the laptop includes a USB Type-A port with an unusual mechanism that partly closes the port when not in use – it's an interesting solution for making the laptop so thin while still including full-size USB ports, though it can be tricky to plug into. There's also a 3.5mm headphone jack and USB-C port on the left side. There's also a microSD card slot and a little switch that physically disables

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Specs as reviewed

HP Envy 13t 2019

Supplier HP

Operating system Windows 10

Processor Intel Core-i7-8565U

Storage 256GB PCIe NVMe SSD

RAM 16GB

Graphics Nvidia GeForce MX250 2GB

Connectivity Intel 802.11ac (2x2) Wi-Fi, Bluetooth 5.0

Weight 1.17kg

Screen size 13.3-inch

Display resolution 1920x1080

the webcam, which sits above the display. The webcam itself is a simple 720p number that can get the job done, but provides hazy details even in excellent lighting conditions.

There are four speakers, with two down-firing speakers at the front sides of the laptop and more housed in a long, stylish speaker grille above the keyboard. The speakers are impressively loud and clear. We watched a couple episodes of *The Boys* out on a balcony with minor street traffic on

their laptop on desks and tables, but it could quickly become a dealbreaker for lap users.

The back of the display also has a discreet but somewhat unsightly strip of plastic near the bottom of it that runs almost the whole length. But, this hopefully improves the performance of the machine, as it's a pass-through for radio signals like Bluetooth and Wi-Fi.

The 13.3-inch display itself is a contender, but shows where the Envy's affordability results in shortcomings. It has thin bezels on

“The laptop feels snappy, with programs launching quickly and simple tasks working fast”

the road below, and could still hear well enough.

The display uses a special hinge that raises the laptop up on an angle, allowing for better airflow through the bottom vents. HP has cleverly added two small, rubber strips on the back edge of the display so that the aluminium doesn't get scraped if it's resting on a metal table.

Design downside

The downside of this hinge design is that the laptop is uncomfortable to actually use on your lap. We either have to sit it far forward on our knees, or have the back edge focus all the pressure along one line on our legs. It may not be a big issue for people who mostly use

the sides with a slightly thicker bezel up top and a much thicker one at the bottom. It's not winning any awards for these bezels, especially with the likes of Asus's ZenBook line.

The screen can get fairly bright, but it's somewhat hampered by being glossy. Even though it can get bright enough to use outdoors, the glare (and finger grease – it's a touchscreen after all) can still make it slightly strenuous. And, HP doesn't provide an anti-glare display option.

Battery life

In our day-to-day use, the Envy 13t easily keeps up with our demands. Four cores of computing power is plenty for most tasks, and with the

headroom to boost clock speeds up to 4.6GHz, it can burst as needed. This keeps the laptop feeling snappy, with programs launching quickly and some simple tasks, like basic photo editing, working fast.

The Envy 13t also manages to offer efficiency, with a long-lasting battery. It features a four-cell, 53Wh battery and supports fast charging that can go from drained to 50% charge in 45 minutes.

In our experience, the battery holds up well. We've sat down to do a bit of work with 30% charge without feeling anxious about how soon it would die.

After two hours of work (Chrome running with over 20 tabs, Slack open, music streaming, and one quick benchmark) with the screen at 50% brightness and modest battery-saver settings, we only lost 23% charge. After three hours and 15 minutes, we were down to 66% charge. We then took an hour lunch (3% lost). After, we moved outdoors and increased the screen brightness to its maximum, where the battery only dropped to 57% after another hour running. After three hours of max brightness, we'd gone down to 21% charge (a 42% drop). We kept going, and eventually battery-saver mode kicked in and dimmed the screen, but we made it to well over seven hours of active time with the screen at max brightness for most of it.

The HP Envy 13t puts a lot into one package, going premium in many ways while keeping the price well below some of its competitors.

This laptop's design earns plenty of credit, and its performance leaves little to be desired

Windows
Help & Advice
Verdict





Razer Blade 2019

From £1,399 | \$1,599 www.razer.com

The sharpest Blade, if you've got the money

The Razer Blade 2019 is eerily similar to the 2018 model, but has ample updates to the hardware inside to make the price increase worth it..

The biggest upgrade is the novel Nvidia Turing graphics now inside, and these are undeniably much more powerful than the Pascal predecessors. This gaming laptop also has radically increased battery life as well as an added infrared camera, finally permitting for Windows Hello login.

For a 15-inch Razer Blade with Nvidia GeForce RTX graphics inside, Razer wants a monstrous £2,199 to start. That gets you a model rocking RTX 2060 graphics, a 144Hz 1080p display and a 512GB SSD. You can compromise with a GTX 1060 Max-Q, which will slash a few hundred quid off the price tag to £1,399.

The Nvidia GeForce RTX 2080 Max-Q graphics option (our review configuration) comes with 512GB of

SSD storage for £2,849, and drives the very same 1080p display. 4K display models are also on hand for the RTX 2070 and RTX 2080 configurations in the US and the UK, which of course come at an even higher price.

Design and display

Inside the usual all-black, unibody aluminium case, the Razer Blade keeps the exact same angular shape for 2019 as last year's model.

At 17.8mm thin, this year's Blade is slightly thicker than before, though only just as heavy at 2.10kg. This, too, is a laptop just 14 inches wide with a 15-inch display, owing to those slimmer screen bezels.

Par for the course, the Blade retains the webcam in its ideal position above the screen while employing narrow bezels. However, at just 720p, the image it yields is awful. It's functional for video calls, but don't try to broadcast yourself while gaming with this webcam.

The new keyboard feels comfortable and satisfying to use, and it continues to offer quite forceful feedback for an island-style unit. There's a keyboard layout issue inherited from earlier models, however – with the 'up' arrow key set between the 'Shift' and '?' keys. This makes typing questions a bit of a pain, inadvertently pressing the up arrow and adding a question mark to the line above where we are typing – all the time. We would undoubtedly have favoured smaller arrow keys if it meant a more workable layout.

The trackpad feels similarly excellent. However, it's still held back by one tiny weakness. In this case, the tracking surface is a little too close to the laptop's edge, causing mild palm rejection problems when navigating the operating system. We haven't noticed this issue while typing specifically on this year's model, which is a plus. Still,



Specs as reviewed

Razer Blade 2019

Supplier www.razer.com
CPU 2.2GHz Intel Core i7-8750H
GPU Nvidia GeForce RTX 2080
RAM 16GB
Storage 512GB SSD
Connectivity 802.11ac Wi-Fi,
Bluetooth 5.0
Weight 2.1kg

for this much cash, the experience should be impeccable.

Finally, we're pleased to see Razer finally bring Windows Hello facial recognition to its Blade webcam array. It's not the fastest or most sophisticated implementation of the feature, being a little more sluggish than other flagship laptops we've reviewed and blasting a garish red light in our faces while scanning. However, it's still a handy feature to have, even if it requires just a little more tweaking.

The Blade keeps the same display

variety of colours supported at impressive precision and vibrancy. The screen calibration done by Razer on the assembly line helps a lot as well.

Performance

For a laptop with such a steep price tag, you would instinctively anticipate excellent all-around performance, gaming and otherwise. And, the Razer Blade unquestionably holds its own in this department, with astonishing framerates in some

"Razer has packed as much value into the Blade as possible, making it worth the cash"

from last year, which is not a bad thing. With a matte coating that's unexpectedly effective at deflecting glare, this screen may only be 1080p, but it's definitely making the most of it.

Much of this beauty comes courtesy of the screen's 144Hz refresh rate, which smooths out the animations and motion by outpacing the frame rates the GPU inside is capable of. This is the best-case scenario for Nvidia's new ray tracing and deep learning supersampling (DLSS) techniques for rendering lighting in games. Drops in framerates due to these intense features were rather buoyed by this refresh rate.

Again, the 100% sRGB color gamut makes for quite a wide

of the newest games. Of course, straight processor performance isn't going to improve much year to year, especially since this laptop uses the exact same Intel processor as before. That's not a big deal, since the six-core i7 processor is more than enough horsepower to deal with advanced workflows, like video encoding and other intensive tasks. And, if it isn't adequate for you, you can always upgrade to the 9th-gen CPU.

At this level of power, the Razer Blade could effortlessly do double duty as both a creative professional's workstation and a hardcore gamer's gaming powerhouse. However, it's the laptop's Thunderbolt 3 and DisplayPort connectivity that

really drive this point home. Even if this configuration of the laptop doesn't come with a 4K display attached, it can definitely drive one via either option – or two with both.

Battery life

One of the major revelations from this year's Blade is its startlingly impressive longevity – that is, by gaming laptop standards. Sticking with the same 80Whr lithium ion battery as last year, Razer was somehow able to attain an enormous 87% increase in the PCMark 8 Battery Life results.

Similarly, the laptop ran an even more impressive 98% longer in our local 1080p video playback test. These numbers bring the Blade much more in line with rival thin and light gaming laptops, which has been a long time coming.

This is, by far, Razer's most improved gaming laptop to date. Both sheer graphical performance and, unexpectedly, battery life, are immensely improved.

Razer also took this opportunity at a refresh to correct the glaring omission of Windows Hello. Though the implementation requires some refining, we welcome the feature – especially at this price point.

This may be one of the most egregiously priced gaming laptops out there, but Razer has evidently taken great pains to pack as much value into the Blade as possible, making it worth the consumers' hard-earned cash. If you do end up dropping the thousands required, you know you're getting the complete package.

Egregiously priced, but Razer has packed much more value into its high-power laptop than ever.

 **Windows**
Help & Advice
Verdict





Xiaomi Mi Mix 3 5G

From £56/month www.mi.com/uk

Get 5G speeds the most affordable way

Like Huawei, OnePlus and Oppo, Xiaomi has decided to reprise one of its pre-5G phones to make its debut in the 5G space. Rather than its latest flagship phone, however, it has picked the slightly older Xiaomi Mi Mix 3.

The Mi Mix 3 5G includes a battery boost compared to the original, though that has come at the cost of wireless charging. The rest of the specs read almost identically, and just like a flagship, with an all-screen display, dual front and rear cameras, a Snapdragon 855 chipset and an ample 3,800mAh capacity battery.

You'll have a hard time finding the Mi Mix 3 5G off-contract in the UK. The phone is available through Vodafone, and that's where you'll have to buy it from rather than Xiaomi's Mi store, which is where you can find the rest of its line-up.

Starting at £56 per month with a £29 upfront cost, the base package offered with the Mi Mix 3 5G

doesn't include 5G data speeds, so don't go for it. Instead, stump up an extra £7 per month for the Unlimited Max package. When you consider the 4G options you could pick up for that kind of money – the excellent Huawei P30 Pro is available for significantly less on the same package – it becomes clear, 5G is a pricey added extra.

O2 has confirmed it'll also be bringing the Xiaomi Mi Mix 3 5G into its range soon. The Xiaomi Mi Mix 3 5G isn't currently available at all in the US.

Design and screen

Like the original, the Xiaomi Mi Mix 3 5G is a hefty bit of kit; clocking in at 225g, it's almost as heavy as the significantly larger Huawei Mate 20 X. Despite its weight, the phone fits comfortably in the hand and pocket, given the fact it's heavy, not huge. The weight also adds a premium feel to the mix.

The phone's 6.39-inch screen

slides down while the back slides up to reveal the dual front cameras at the top of the unit. This feature means the Mi Mix 3 5G has an all-screen front, and a 93.4% screen-to-body ratio, making it look sufficiently futuristic.

The phone sports a polished 7000-series aluminum frame and a curved ceramic back, as well as a Gorilla Glass 5 front. The 5G edition is only available in one color in the UK, Onyx Black, and while it looks great, boy does it love fingerprints.

There's a Google Assistant button on the left side of the Mi Mix 3 5G, while the standard power and volume buttons are on the right. At the base there's a mono-speaker and a USB-C port, and as with most of its 5G playmates, there's no headphone jack.

There's also no under-display fingerprint scanner on the Mi Mix 3, nor is there a triple camera, with a dual-snapper around the back. Practically speaking, we didn't mind

Specs as reviewed

Xiaomi Mi Mix 3 5G

Supplier www.mi.com/uk

Chipset Snapdragon 855

Storage 128GB unexpandable

Connectivity Wi-Fi, Bluetooth, USB Type C

Screen 6.39in, 1080x2340px

Cameras Dual 12MP

Weight 225g



the phone's heft, but the sliding mechanism wasn't for us. Despite feeling very secure, we kept activating our front camera almost every time we took the phone out of our pocket, as it would open.

Additionally, sliding it one-handed left us fumbling and fearful of dropping the Mi Mix 3 5G. If you can get past that, then you'll

"We never struggled to make the phone last through a full day of relatively intensive use"

probably get on very well with this phone, but maybe try it in a shop before you pick one up.

As for the display, it's a Full HD+ panel with a resolution of 1080 x 2340, a 19.5:9 aspect ratio and a pixel density of 403 pixels-per-inch. That's sharper than an iPhone XR, but not quite as sharp as an iPhone XS.

All this adds up to respectable levels of detail, and there's a great deal of depth to it as well. Colours aren't as zingy as those on the Samsung Galaxy S10 or OnePlus 7 Pro screens, even when you boost the saturation, but fans of more muted, natural tones will like what they see.

More importantly, viewing angles are wide and brightness is strong,

which means it's easy to see what you're doing outdoors. The addition of HDR support means that whether you're streaming or watching your own videos, it looks great, and the display is responsive.

Battery and camera

The bump up to a 3,800mAh battery in the new Xiaomi Mi Mix 3

5G is very welcome, with a capacity that's 600mAh larger than that of the original Xiaomi Mi Mix 3. That said, the increase in battery size has come with a price – wireless charging is nowhere to be seen, which is a shame.

We're delighted to report that the Mi Mix 3 5G comfortably makes it through a full day of relatively intensive use. After a 90-minute video played back at max brightness, it still had 89% left in the tank, and we were never struggling to make the phone last until the end of the day.

The Xiaomi Mi Mix 3 5G features dual 12MP rear cameras with different focal lengths, allowing for portrait mode photos and a 2x zoom without a major quality loss.

It's a typical camera setup for a high-end phone these days, though most of the competition packs three primary cameras. Still, in good light, the Mi Mix 3 5G is capable of clear, detailed shots.

The camera app isn't the fastest we've used, with a small amount of lag when switching between modes, but most of the time you can stick with the standard mode.

HDR mode (high dynamic range) is turned off by default, but you will want to tap the icon and switch it to auto so it can pull out detail in backlit conditions and brighten up dark foregrounds.

Slide across the modes above the shutter key, and you'll move to portrait mode, which allows you to take an image of your subject with a blurred background.

This uses the 2x zoom telephoto camera and is a little fussier than we've found on the likes of the Google Pixel 3 and OnePlus 7 Pro, with the app telling you to get nearer or further away from the object you want in focus. Once you lock on to your target though, the results are very good indeed, especially in brightly lit conditions.

The lack of a headphone jack might irk wired headphone fans, but there is a 3.5mm to USB-C adaptor in the box at least. There's also 128GB of storage included which should be ample for most.

Naturally, this phone also gets fast over 5G networks, with data speeds of up to 250Mbps in our tests when we were in the right spots in London. As with all 5G phones, the Xiaomi Mi Mix 3 5G is for early adopters in need of speed (in a handful of locations).

If you find it at a decent price, and want something a bit different with 5G, this is a good phone.

 **Windows**
Help & Advice
Verdict





LG CineBeam HU80KSW

£2,000 | \$2,400 www.lg.com

A one-box home cinema system you can set up in minutes

No longer is a home cinema strictly the preserve of the rich. For those who covet that big-screen experience from the comfort of their own sofa, the market is strewn with portable projectors available for around the cost of a takeaway dinner.

At the other end of the spectrum, you could build a pretty decent entry-level system for a couple of grand, your very own mini picture house. But what happens when you covet a true 4K HDR picture, with all the functionality of your smart TV and built-in speakers that won't give you tinnitus, all without sacrificing the convenience of being able to pack it away in the broom cupboard after every film?

Well, that's where the LG CineBeam comes in. The HU80KSW will put up a fight against any dedicated projector at its price, but, more than that, it is a full home cinema system cannily distilled into one portable box you can carry like

an elongated briefcase. Even the power cable is attached and wound into the base of the unit, so you really don't have to plug anything into it if you don't want to.

Design and features

The basic design of the CineBeam proves the power of simplicity. Lift the lens cap and on the underside of it you'll find a mirror. By simply reflecting the image onto whatever surface you've cleared for your film – or shining the projector directly at it, of course – this means you can place the unit pretty much anywhere in the room you like. It should recognise automatically how you're using it, while the Auto Vertical Keystone will help align the picture if you haven't the time or patience to do so manually.

Focus and zoom are controlled by dials towards the top of the CineBeam, which allow for projection of an image anywhere between 66 and 150 inches.

Brightness is an impressive 2,500 lumens, while LG claims a whopping 20,000-hour laser life. To put that into perspective, you could watch a two-hour film every day for 28 years before having to find a replacement.

The CineBeam has a range of physical connections for tethering a traditional source such as a Blu-ray player or the output from a laptop, but it also comes with LG's smart hub. From here you can download apps such as Netflix, Amazon Prime and YouTube, as well as those for catch-up TV. It can also mirror the screen from your smartphone, tablet or laptop without cables.

LG has fitted a pair of HDMI ports and two USB (one 3.0, another 2.0) to access content from an external hard drive or USB stick. There is also an Ethernet connection, which we'd always recommend using for greatest speeds and bandwidth when streaming.

For this to be a true one-box



Specs as reviewed

LG CineBeam HU80KSW

Supplier www.lg.com
 Resolution 4K UHD, HDR10
 HDMI inputs 2
 USB inputs 2
 Brightness 2,500 lumens
 Weight 6.71kg

purely as a projector, it doesn't quite match class leaders at this price for absolute detail, especially in darker scenes, and offers a little roll off when it comes to contrast, but generally it holds its own.

Our only real quibble is to do with motion processing. LG has used its TruMotion technology, designed to reduce and smooth the judder innate in projectors, but it can feel a tad overdone. Fast-moving scenes and camera pans can feel somewhat artificial, regardless of the motion setting, but still this is a trifling caveat when it comes to a brilliant performance.

Sound performance

Our expectations were more basic when it came to sound, but again the CineBeam can impress.

It is inherently limited by its form – you'd not be able to fit a projector with honking great drivers without it vibrating the whole unit, thus also the picture – so it is a predictably lean presentation, but it goes really rather loud.

Adding an external speaker is by no means a necessity here, but doing so offers maximum gains. It makes for a fine boost to the system without having to go for a full surround package.

There's no doubt that for most of us the CineBeam is more than a frivolous purchase for those every-so-often film nights, but it performs all of its tasks admirably enough to be a solid and genuinely innovative home cinema system. Even better, as far as we're concerned, is how LG has effectively future-proofed the unit by offering several means of upgrades and building a wider system around it.

More than a portable projector, this is a home cinema system with scope to be built on over time.

Windows
Help & Advice
Verdict



system, however, focus has to be spread equally across audio as well. In that regard, LG has enlisted the aid of Harman Kardon to fit the CineBeam with a 7W-per-channel stereo speaker system that emits sound from either side of the unit.

You can boost that as we've already mentioned by wiring it into a traditional AV set-up, or use the Bluetooth or physical audio outputs – namely 3.5mm aux, SPDIF and optical digital – to send sound seamlessly to any speakers.

While providing everything you

little experimentation at first use will save you plenty of time next time you get it out – LG here offers a mightily impressive picture straight from the box.

The CineBeam has a number of presets that make wholesale changes to the picture, and it's well worth giving each a try, but we'd suggest going for the User setting and making a few tweaks depending on light and the surface onto which you're projecting.

Fundamentally, though, the picture is crisp and impressively

“The picture is crisp and impressively detailed. LG offers a commendably natural presentation”

need to start enjoying big-screen movies at home, LG has not boxed its customers in, offering numerous ways to upgrade and supplement the CineBeam.

Picture performance

Often with products such as these, the importance of a strong performance is matched by the necessity of something near that being achievable with very little tinkering or scrolling through menus. The CineBeam sets its stall out early, and that's much of what we love about it.

You'll need to spend some time figuring out its ideal placement in your room, of course, but once the 'screen' is big enough, clearly focused and properly aligned – a

detailed. Projectors of all prices can suffer when it comes to image depth, with a flat-looking image leaving us rather underwhelmed, but LG here offers a lot in what is a commendably natural presentation.

That natural feel extends to colours as well. It isn't that the CineBeam doesn't have the ability to really pop, and blacks go relatively deep, but LG has evidently opted for a more neutral pallet that focuses on nailing aspects such as skin tone rather than blinding us with glaring lights. It ends up being a more engaging picture because of it, where sometimes an over-egging of more garish hues can leave a picture somewhat detached from reality.

If you're looking at the CineBeam

ACTION CAMERAS

Image stabilisation, waterproofing... These ace 4K cameras have everything you need for fast action



1 GoPro Hero7 Black

£380, www.gopro.com

Whether this GoPro is the best action camera for you comes down to what type of pursuits you regularly film, and whether a camera's looks and feel, as well as live streaming capability and great app functionality, are important to you. If they are, you're in the right place.

Waterproof down to 10 metres on its own, you can expand that to an impressive 30 metres with an optional GoPro waterproof housing. Plus, there's a positively gargantuan number of compatible mounts and extras.



2 DJI Osmo Action

£330, www.dji.com

The Osmo Action is fractionally bigger and fractionally heavier than the Hero7 Black, but that's acceptable considering how it's packing a colour front-facing screen in addition to a 2.25-inch touchscreen at the back.

Just like the GoPro, the Osmo Action offers a range of control options, including voice activation. There are two built-in microphones, but we'd recommend adding an external microphone to enjoy the best audio quality.



3 SJcam SJ8 Pro

£170, www.sjcam.com

If you're on the hunt for GoPro-matching 4K60fps resolution at a fraction of the price, the SJ8 Pro is a worthy contender. This stealthy cam offers plenty of other resolution options too, including 1080p120 and 720p240 for capturing ace slo-mo shots.

With a focus on shooting the best quality video footage possible, the SJ8 Pro's lens comprises seven layers of glass for added clarity and reduced distortion, alongside a fixed 2.8mm focal length, f2.8 aperture and 170° field of view.



Action cams are small and rugged and, because of the firstperson footage they capture, have become the go-to gadget for those looking to film their high-octane adventures or capture cool

timelapse videos. Buy one with a waterproof housing and you can take your action camera in the ocean. There are also models with waterproofing as standard.

The most important things to consider are what you want

features-wise and what your budget is. If you want to shoot super-smooth footage in 4K and control the camera hands-free (with an app or voice control), be prepared to spend upwards of £250, depending on what deals are being offered.



4 Sony RX0 II

£730, www.sony.com

The Sony RX0 has been reimagined into the RX0 II with a super-rugged build to help it withstand knocks, bumps and scrapes. And while Sony's expensive camera features its own take on electronic image stabilisation (EIS), plus some nifty imaging tech, overall it's just too fiddly to use for capturing spontaneous bursts of action. However, if you want a super-tough outdoors-friendly compact camera for capturing fantastic stills plus video (if mounted on a tripod), the RX0 II can be relied upon.



5 GoPro Hero 5 Black

£330, www.gopro.com

The Hero5 Black offers a decent amount of features for an affordable price despite being two generations old.

Surfers, paddle boarders and those of you into snorkelling will enjoy buddying up with this tried and tested action cam, as it's waterproof to ten metres without a casing. It's durable, too.

Video can be recorded up to 4K at 30fps, and the cam also snaps 12MP stills. Battery life varies, but you can expect to get anywhere between one to three hours use per full charge.



6 YI 4K+

£389, www.yitechnology.com

The YI 4K+ is a well-featured action camera with the ability to record 4K at 60fps. Video recording is smooth, although admittedly not as impressive as what the GoPro delivers at 4K 30fps.

YI technology makes a big deal about the 4K+'s voice command function, but we found it can be a little patchy. The screen is crisp and easy to read, which is handy for viewing and framing in sunlight. The YI 4K+ isn't waterproof and requires a waterproof casing before you can take it beneath the waves.



THE BEST FREE FILE RECOVERY SOFTWARE

Lost or deleted an important file? These free tools can help



1 MiniTool Power Data Recovery Free

www.minitool.com

MiniTool Power Data Recovery Free is the only program in this round up which provides you with essential advice during the installation: do not install the

software to the drive you want to recover data from, as you may overwrite files.

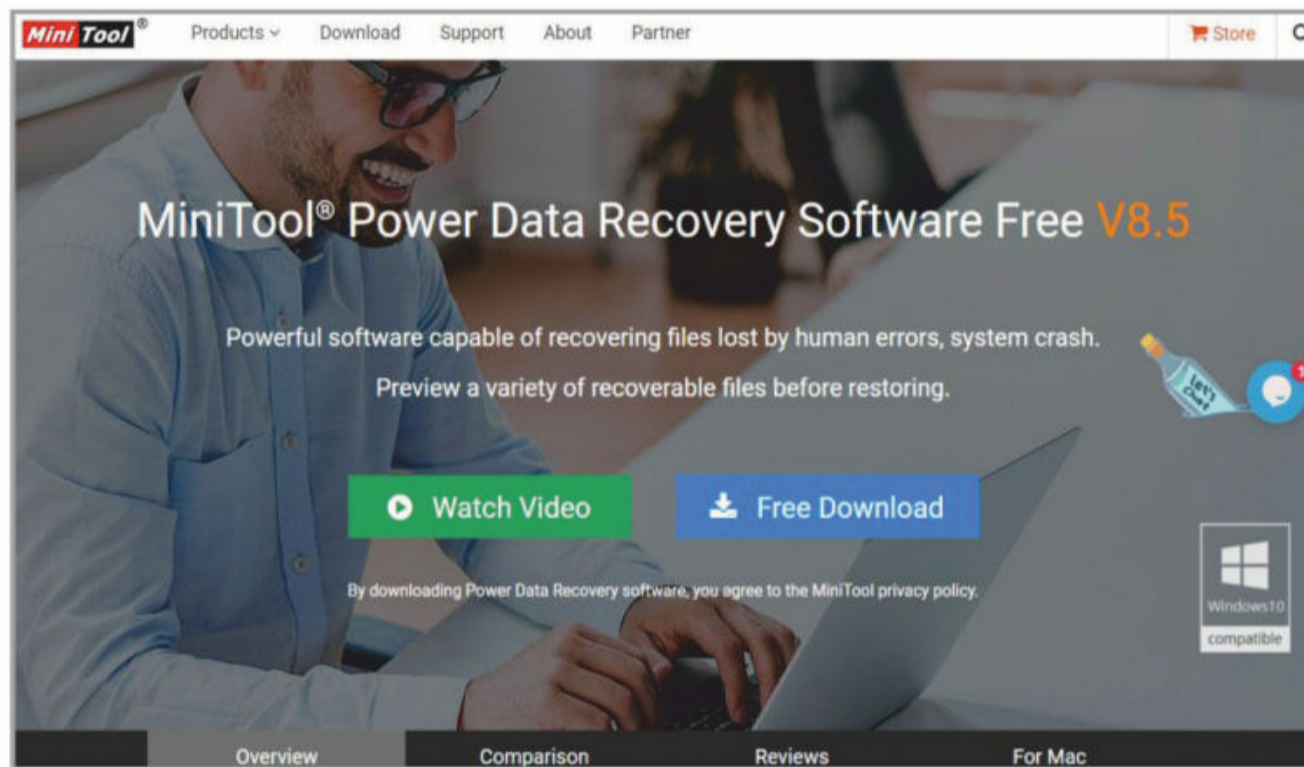
This version is free, but there are paid-for editions available as well,

Effective, but limited to 1GB of recovered data.

so you will realise that there are a few restrictions.

You can only recover 1GB of data, you don't have the option of saving scan results to work with later, and a few other options are missing – but there's absolutely nothing that stops this from being a great free recovery utility, aside from the occasional ad.

You can limit scans to specific file types, and MiniTool Power Data Recovery Free is capable of getting files back from partitions you are not even able to see, and there's support for removable drives including optical media.



RATING



2 Disk Drill

www.cleverfiles.com

Featuring a delightful simple interface, Disk Drill makes file recovery very simple. There's no need to fiddle with complex options, and the program can be used to scan local as well as

removable drives and memory cards. Scan your chosen drive, and you're presented with a list of recoverable files, grouped by type, and you have the option of previewing image files in advance.

Simple but effective, and with a great tutorial.

It's a simple tool with a high success rate.

What seems like a nice touch for anyone who is a little nervous about data recovery, is the inclusion of a quick tutorial the first time the program is run – but it is simplistic in the extreme and of little real value, and ultimately serves as an ad to upgrade to the Pro version.

Upgrading to Pro increases the number of computers the software can be used on, and opens up more options such as advanced scanning and wider file system support.



RATING



3 EaseUS Data Recovery Wizard Free

www.easeus.com

Fire up the program and you're presented with a screen asking which drive you would like to scan for recoverable data – you then just need to hit the Scan button.

There are no options to configure, but if you know exactly where a file has gone missing from, you can specify a folder to scan.

Results are presented in an

The friendly, accessible face of file recovery.



Explorer-style view which is easy to navigate, but unfortunately there is no indication of the quality of files that have been found – although a preview option is available. You can select the files you're interested in, and restore them.

It's worth noting that the free version of the program only lets you recover up to 2GB of data (500MB by default, but this can be increased from within the program) before you have to upgrade to the paid-for version.

This should be enough to help you to get back your most important files when you need to.



RATING



4 Recuva

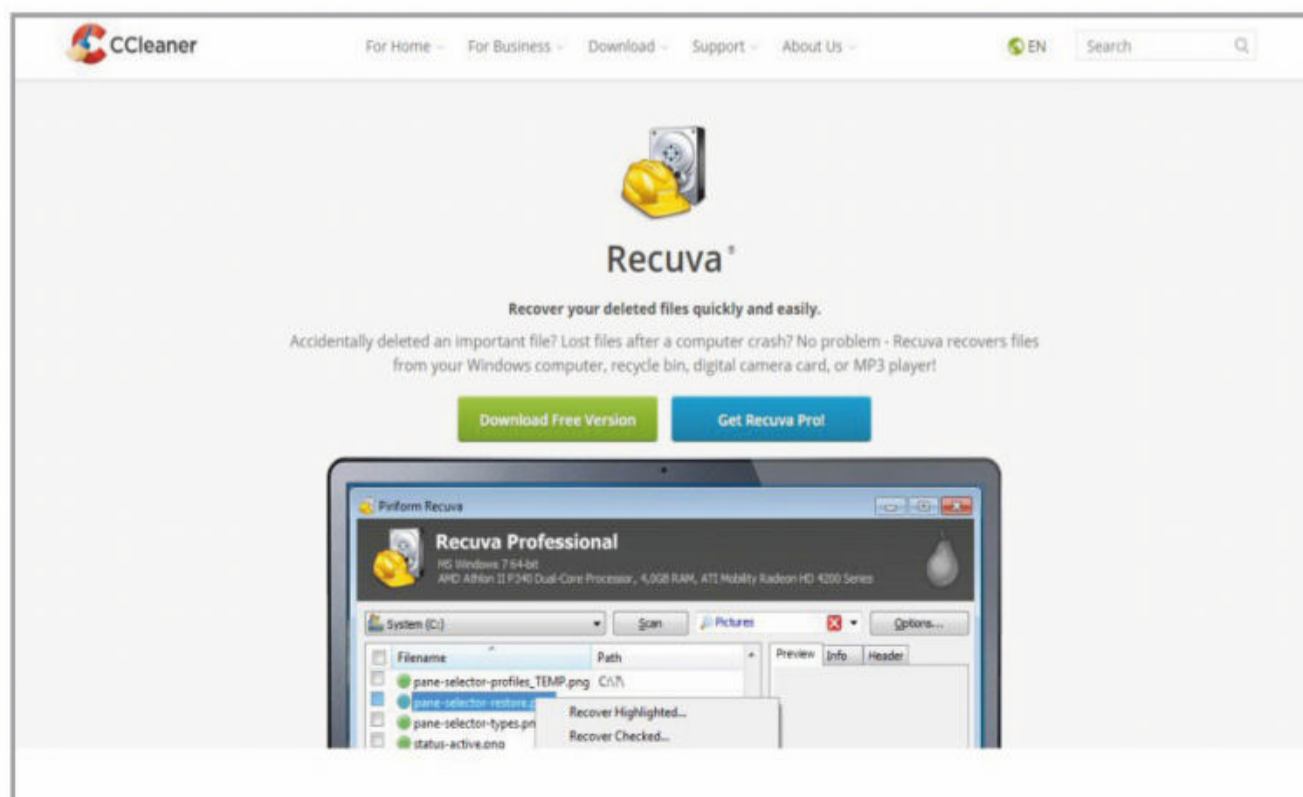
www.ccleaner.com/recuva

Something of a stalwart of the data recovery genre, Recuva has managed to build up a dedicated following – and it's not hard to see

why. The program can recover data from hard drives and memory cards, and even iPods.

While some data recovery tools

Recuva's secure deletion means data can stay lost.



make this easy by having a simple interface, Recuva takes things further and guides you through the entire process with a wizard. You can perform a lengthy deep scan to track down all recoverable data, or you can limit the search if you're looking for something specific – and it's nice to have this flexibility.

A downside is the heavy promotion of the Pro version of the app, but if you can turn a blind eye to this, you have a powerful tool on your hands – and you can probably live without support for virtual hard drives anyway!



RATING



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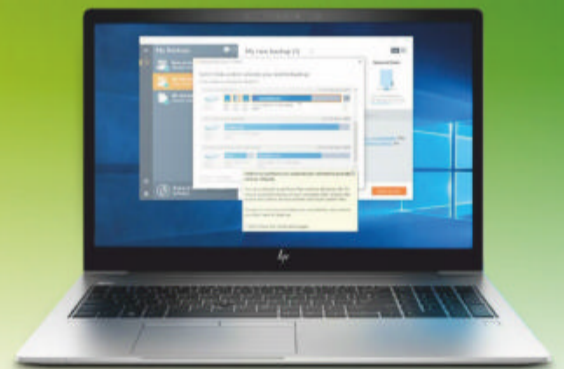


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