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TECH ADVISOR

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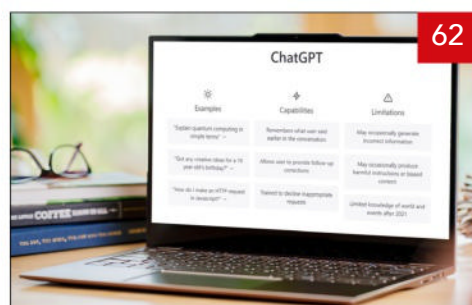
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Credit: Getty Images/ksimage

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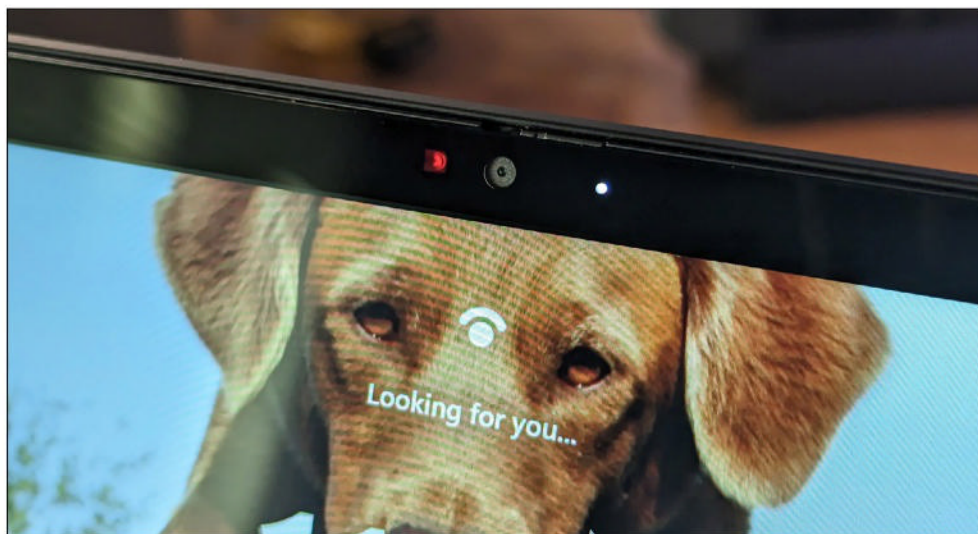
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Windows 11's incoming presence sensing options stop apps spying on you

A new Windows beta build includes a toggle that allows users to manually disable presence sensing. **MICHAEL CRIDER** reports

Presence detection is a broad term that means your gadget can tell when you're using it, and in some cases, even whether or not you're paying attention. It's a useful tool – for example, Windows Hello webcams use simple face scanning to replace login passwords – but it also has some

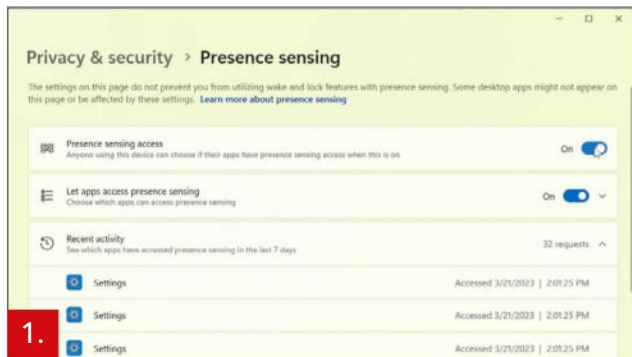
privacy issues associated with it. To help address them, Microsoft is exposing a 'Presence sensing' setting in the latest beta version of Windows 11.

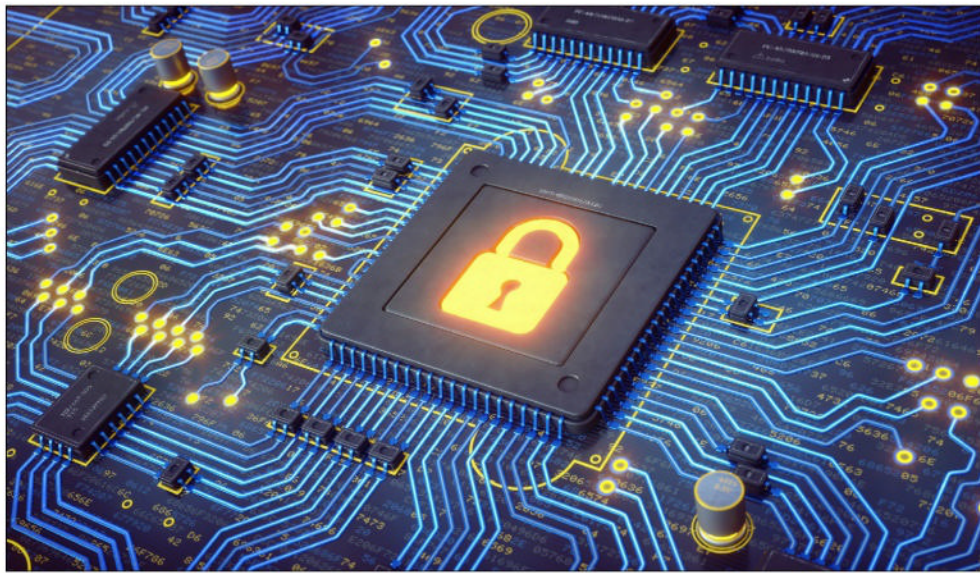
Bleeping Computer reports ([fave.co/41C99SC](https://www.bleepingcomputer.com/news/windows-11-presence-sensing/)) that the setting has appeared in the Privacy & Security menu of Windows 11 version 22624.1610,

now available in the Beta channel to Insider testers (1.). The toggle only applies to Windows and apps that call directly on the HumanPresenceSensor series of APIs. That means that third-party tools using a proprietary system might be able to engage in presence detection using cameras, microphones, or other sensors even if the setting is disabled.

Presence detection can be used for things like logging in or keeping the screen active by detecting eye motion, or automatically locking it when you step away. But it's also possible to report more sensitive data, like exactly how many minutes a remote worker spends away from their desk per day. Presence sensing is also a fairly intensive background process for hardware – disabling it might save you some battery life or CPU power, depending on how it's being implemented.

Whether or not the privacy setting will make it to a full release of Windows 11 remains to be seen. But with more and more laptops and tablets including hardware capable of presence sensing, it seems like a smart inclusion for user privacy.





Credit: Getty Images/matejmo

AI can crack most passwords faster than you can read this article

Artificial intelligence is accelerating the ability to crack weak passwords quickly. **ALAINA YEE** reports

If you didn't already believe that weak passwords could be cracked easily, artificial intelligence is here to prove the point definitively. An AI-driven tool cracked over half the passwords fed to it in under a minute – and 65 percent in under an hour.

The experiment, which was run by cybersecurity firm Home Security Heroes, involved PassGAN, a new kind of password cracker. Unlike typical password cracking tools, which lean on fixed data sets, PassGAN is driven by two neural networks: one taught

to generate passwords, and the other taught to distinguish between the first's 'fake' passwords and passwords taken from real data breaches. As it's trained, this kind of generative adaptive network learns to offer more sophisticated password predictions, allowing for faster and widespread cracking.

For Home Security Heroes' test, PassGAN was fed over 15 million passwords from the 2009 RockYou breach, a data set often used to train password cracking tools. Passwords under four and over 18 characters were excluded. In no surprise to anyone, passwords with low character count and little character variation were cracked instantly. But even slightly more complex passwords could be determined much quicker. If simple enough, an 11 character password also fell immediately. Overall, the tool was able to crack 51 percent of common passwords in under a minute, 65 percent in under an hour, 71 percent in a day, and 81 percent in a month.

Based on their findings, Home Security Heroes offers several pieces of advice, two of which are repeats



This chart shows how the mix of numbers, letters, and symbols affects cracking time.

often said by security experts (and those who report on security, ahem). First, don't reuse passwords. Second, change your passwords every so often, especially for hacked websites. Finally, use passwords at least 15 characters in length, with a mix of at least two letters (upper and lower case), numbers, and symbols in the string – and don't follow any obvious or predictable password patterns.

You can read more about Home Security Heroes' findings in their blog post (fave.co/3LcGApC), but the biggest takeaway just may be how much randomness in a password can affect cracking time. We at Tech Advisor have said for years to use long, random, and unique passwords for each site, but this experiment drives the point

home. Home Security Heroes says that a password with 18 lower and upper case letters, symbols, and numbers would take 6 quintillion years to guess. (A quintillion is one-billion billions, so in other words, that's a six followed by a heck of a lot of zeros.)

However, that's right now. An 18-character password likely won't solve our security needs forever. AI models learn rapidly – you've probably seen how other applications that use artificial intelligence, such as AI-generated art and AI chat bots, are growing in leaps and bounds. Just imagine that applied to data from never-ending hacks. The only way to stay secure is by employing the strongest passwords you can manage – and there's help for that in the form of password managers. Not only can they generate random, unique passwords for you, but they'll help change your credentials when it's time to yet again step up your password strength. Be sure to turn on two-factor authentication wherever you can, too, just in case your password does go down.



Microsoft Edge puts Bing's AI image generator at your fingertips

When stock art isn't enough, you make your own AI-generated images within Edge. **ALAINA YEE** reports

Bouncing between apps and programs can become a time suck – a problem that Microsoft Edge's newest features want to nip in the bud. Splashiest among them is the integration of Microsoft's Dall-E powered Bing Image Creator, which

lets you generate custom AI art right within the browser.

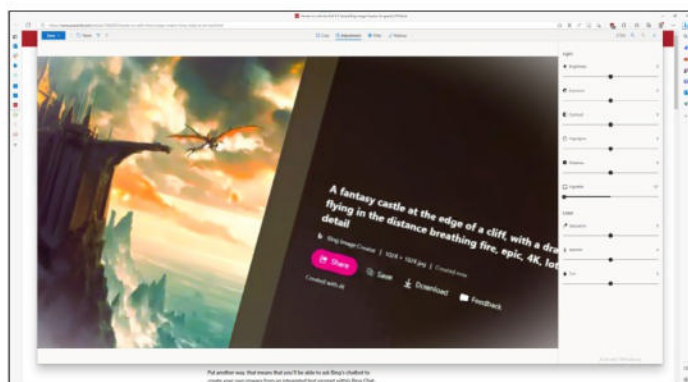
Available for desktop users, Bing Image Creator generates four images for download in response to a prompt; for example, "smartphone with a thick case but broken screen". For users

who've had the feature roll out to them, you'll need to first add it to Edge's sidebar, or the strip of icons running along the right side of a browser tab or window. Afterward, getting started is merely a single click in the sidebar.

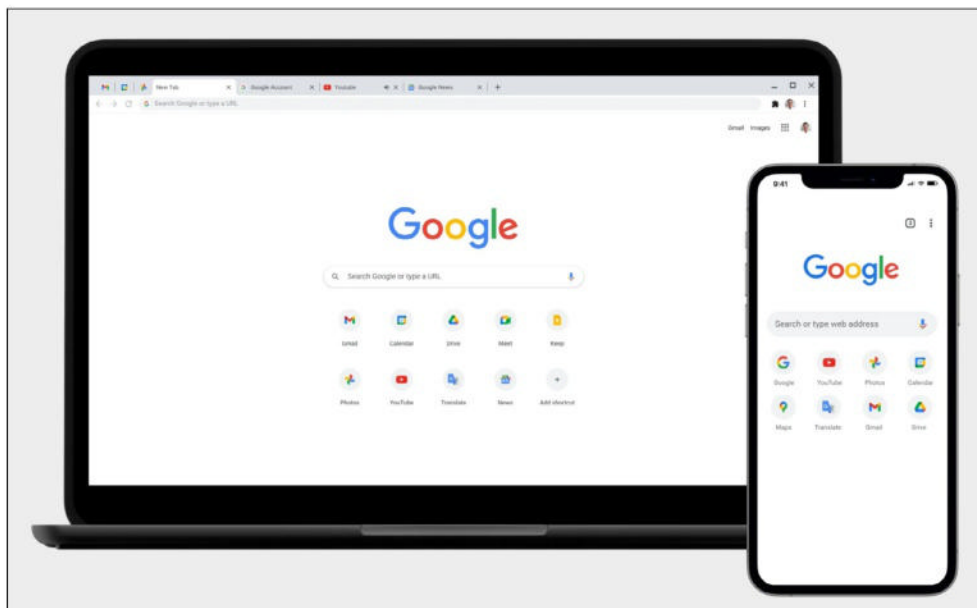
But the new Drop and image editing tools are equally helpful – if not more so. You may not craft presentations or write articles that require bespoke images, but you probably collect photos, notes, and other bits of information that you're sending yourself across platforms to keep track of. Edge's Drop feature gives you one central location to corral everything. Also accessed through the sidebar, you'll need to log into a Microsoft account to get started. After, you can access whatever you upload across devices.

Meanwhile, right-clicking on images in Edge now offers a new option, Edit image, that opens up an in-browser overlay with the selected image. Adjustments like rotation, colour filters, cropping, and more are available, with the ability to save your final product after you're finished with your tweaks.

For our round-up of the best AI image generators, see page 68.



The image editor will scale to your browser resolution, so on a high-res monitor, this image blew up to nearly 300 percent. The final result was crisp when viewed at a normal 100 percent zoom.



Update Chrome now to protect yourself from zero-day exploit

The details of how attackers have been exploiting this flaw are not yet known, but don't wait to apply the fix. **ALAINA YEE** reports

Attackers have been exploiting a new major flaw in Chrome – the kind that can be used to run malicious code on a compromised device. Revealed last month alongside the release of an emergency fix, the

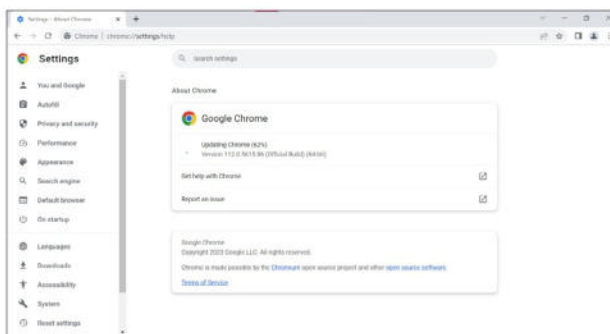
vulnerability requires a patch that should be now available to most users of Chrome and other Chromium browsers (like Edge). This vulnerability is being exploited in the wild so you'll want to update Chrome pronto.

If the update has already been pushed to your copy of Chrome, you should see a small notification in the upper right of your window (as will Edge users). Click on the button to apply the patch and restart the browser. Otherwise, follow these instructions to manually verify your browser version number and apply the patch:

Chrome: Click on the three-dot settings icon on the far right of your menu bar. Then choose Help > About Google Chrome. You can also instead type **chrome://settings/help** into your address bar.

Edge: Click on the three-dot settings icon on the far right of your menu bar. Then choose Help and feedback > About Microsoft Edge. You can also instead type **edge://settings/help** into the address bar.

If you're not yet up to date, Chrome should automatically begin downloading the patch as soon as you open the About Google Chrome screen. You should then be updated to version 112.0.5615.121. Be sure that



Our version of Chrome didn't download the update until we manually triggered it.

your version number matches the entire string – when we checked one of our PCs with Chrome installed, we were still on 112.0.5615.86, which meant the patch had not yet been applied. For Edge users, the same process applies, but the final version number will be 112.0.1722.48.

This exploit relies on a type confusion bug in Chrome's V8 JavaScript engine, which we've seen in the wild before. This latest instance is the first one of 2023. Reported by Clément Lecigne of Google's Threat Analysis Group last month, it affects Windows, Linux, and macOS. Details of how attackers have been manipulating this bug have yet to be unveiled, though, as is usual when a high-severity flaw is first uncovered. The delay of an explanation gives those affected time to apply the fix – which now you know to do.



Asus Zenbook 14 Flip OLED (2023)

Price: £1,499 from fave.co/3LbEXlu ★★★★★☆

Asus releases dozens of laptops every year, although Zenbook is one of its most established product families. The line began life back in 2011, and it's been one of the leading names among thin and light laptops ever since.

Well over a decade later, the Zenbook 14 Flip continues that tradition, packing a host of premium features into its 1.5kg chassis. But with

a starting price that puts it among the most expensive 2-in-1s you can buy, the device has a lot to live up to.

Unfortunately, despite plenty of positives, it falls just short of those lofty expectations. Here's our full review.

DESIGN

Asus has played it safe with the Zenbook 14 Flip design, yet it still manages to stand out from the crowd.

That's primarily due to the back of the device, which features a matte finish and unique angular pattern.

But this is a double-edged sword: it looks great, particularly when catching the light, but fingerprint smudges and dirt can quickly accumulate. You might not have thought about cleaning the back of your laptop very often, but it's something you'll need to consider here.

I really like the futuristic design and so am happy to accept this is a trade-off, but not everyone will be as enthusiastic about it. The effect is more pronounced on the Jade Black version compared to Pine Grey, although the



The Asus offers decent connectivity.

latter doesn't stand out in the same way.

The 14 Flip certainly still qualifies as an ultrabook, although it's not as thin or light as I was expecting. A 1.5kg chassis is heavier than plenty of 14in laptops, while 15.9mm thick is nothing remarkable.

However, there are benefits to these design choices. The weight helps it feel both premium and robust, so it's no surprise to see military-grade durability here. I didn't see any signs of fragility during my testing time, and it should mean the device holds up well long-term.

This is particularly important on a convertible laptop, where you're regularly bending the screen almost a full 360 degrees. Despite two relatively small hinges, the 14 Flip doesn't



The rear of the device has a matte finish and unique angular pattern.

feel flimsy at all. There is slightly more of a wobble than a regular clamshell laptop while using the keyboard, but it doesn't get annoying while typing.

Deciding against a razor-thin chassis also means there's room for plenty of ports. Both USB-C ports support Thunderbolt 4 for fast data transfer, charging or connecting to an external display. They're joined by a full-size HDMI 2.1, 3.5mm audio jack, and a USB-A on the opposite side. If I'm being really picky, a second USB-A port would've been nice, but this is enough for most situations.

KEYBOARD

A 14in display means there's plenty of room for a full-size keyboard, and it's a very good one. Despite relatively little key travel, I could comfortably use it for several hours at a time. Each key feels clicky and responsive.

The keyboard offers three levels of backlighting. The lowest setting is great for a room that's very dark, while the maximum allows you to comfortably see the keys in much brighter environments.

Disappointingly,

there's no fingerprint sensor on the 14 Flip. It'd be nice to have an alternative to the Windows Hello face unlock, although the latter is relatively fast and reliable.

The 14 Flip does have one more trick: a virtual number pad built into the trackpad. Activated via a long press of the top-right corner, it works as advertised, but feels unnecessary and much clunkier than the usual physical version. Overall, I found the virtual number pad to be totally pointless, but luckily, you can easily forget it's there.

Fortunately, the trackpad is much more impressive for its usual purpose. A large surface area means you can easily highlight lots of text in one go, yet it remains precise enough to select very specific areas of the screen too. As an alternative to connecting a mouse, it definitely does the job.



We were impressed by the full-size keyboard.

Laptop manufacturers are slowly transitioning to offer at least Full HD (1080p) quality, but Asus has let the 14 Flip lag behind. It's still frustratingly stuck at 720p, and further burdened by washed-out footage which struggles for exposure. While usable, I wouldn't recommend this laptop to anyone who wants to use a built-in webcam for video calls.

DISPLAY

Display is where the Zenbook 14 Flip really excels. It's a 14in, 2,880x1,800 OLED touchscreen, giving it the 16:10 aspect ratio that's common on modern laptops. But a high refresh rate screen is far less common. It's a 90Hz panel here, although you'll need to turn it on in Settings – 60Hz is selected by default. Once activated, I saw an immediate difference in fluidity while moving around Windows 11. Everything feels that bit slicker, and I didn't notice a drop-off compared to even faster 120Hz laptop panels. The effect is less noticeable than on smartphones, though.

Even without this feature turned on, the 14 Flip's display is a joy

to use. Being an OLED, it delivers both rich, vibrant colours and deep blacks, making content consumption feel genuinely immersive. That high resolution means there's plenty of detail, too – I couldn't ask for much more from a laptop display.

I can't verify Asus's claim of a 0.2 second response rate, but it certainly feels fast. That's relevant for both touch and stylus input, with the Asus Pen 2.0 included in the box. The latter's apparent 4,096 levels of pressure sensitivity gives you a real feeling of control, and it'll be weeks before you need to make use of the USB-C charging.

The only real display disappointment is brightness. Up to 550 nits of advertised peak brightness is fine for



The 14 Flip's display is a joy to use.

almost all indoor environments, but you can forget about using it in the garden on a sunny day.

Audio is surprisingly punchy, despite the stereo speakers firing sound from the bottom of the device. With an impressive amount of detail and a decent hit of bass, the 14 Flip can hold its own against almost any slim laptop. The speakers here won't replace dedicated audio equipment, but they're great for watching the occasional film or TV show – especially in tent mode.

PERFORMANCE

Convertible laptops are often less powerful than equivalent regular clamshell devices, and that's the case here. Performance on the 14 Flip is very good, but not quite top notch.

While you do get Intel's latest 13th-gen CPUs, the Core i5-1340P and Core i7-1360P are far from the most powerful in the range. You'll often find P-series chips on thin and light devices, but the H-series is significantly more capable.

But the bigger limitation on performance is the integrated graphics. The 14 Flip uses Intel Iris Xe rather than a discrete GPU of any description, making it unsuitable for most content creation and demanding games.

Alongside 8- or 16GB of DDR5 RAM, it can handle almost every other regular

task, though. My daily workflow includes lots of web browsing, word processing, emails and the occasional video – with all often running at the same time. The 14 Flip can cope with all these tasks without breaking a sweat. Combined with that 90Hz refresh rate, it's a superb option for most everyday situations.

In benchmarks, the 14 Flip keeps pace with a model of the Dell XPS 13 Plus that's around £500 more expensive. But performance is similar to both a regular clamshell Zenbook and four of the best 2-in-1 laptops you can buy, all of which are around £200 to £400 cheaper in the UK.

Geekbench 5 (multi-core)

Asus Zenbook 14 Flip OLED (2023):

8,332

Asus Zenbook S 13 OLED (2022): 7,714

Dell XPS 13 2-in-1 (2023): 6,898

Microsoft Surface Pro 9 (Intel): 6,489

Samsung Galaxy Book 2 360: 6,226

Microsoft Surface Laptop Studio: 5,219

PCMark 10

Asus Zenbook 14 Flip OLED (2023):

5,539

Asus Zenbook S 13 OLED (2022): 5,738

Dell XPS 13 2-in-1 (2023): 4,969

Microsoft Surface Pro 9 (Intel): 4,235

Samsung Galaxy Book 2 360: 4,777

Microsoft Surface Laptop Studio: 5,558

Battery life

Asus Zenbook 14 Flip OLED (2023): 13 hours, 18 minutes

Asus Zenbook S 13 OLED (2022): 17 hours, 55 minutes

Dell XPS 13 2-in-1 (2023): 9 hours, 25 minutes

Microsoft Surface Pro 9 (Intel): 11 hours, 1 minutes

Samsung Galaxy Book 2 360: 14 hours, 58 minutes

Microsoft Surface Laptop Studio: 15 hours, 22 minutes

Charge in 30 minutes

Asus Zenbook 14 Flip OLED (2023): 34%

Asus Zenbook S 13 OLED (2022): 37%

Dell XPS 13 2-in-1 (2023): 37%

Microsoft Surface Pro 9 (Intel): 34%

Samsung Galaxy Book 2 360: 46%

Microsoft Surface Laptop Studio: 37%

You can choose between 512GB and 1TB of SSD storage, although the former will be plenty for most people.

There's nothing remarkable here in terms of connectivity, with Wi-Fi 6E and Bluetooth 5 but no 4G or 5G support. The option to stay connected while out

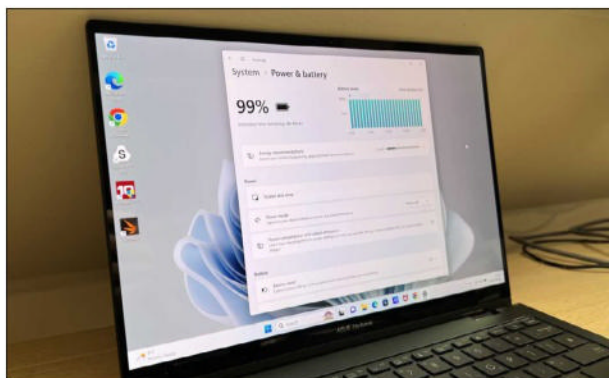
and about would've been nice, but you can always hotspot from your phone.

BATTERY LIFE

Asus describes the Zenbook 14 Flip's 75Wh battery as "class-leading", although a similar capacity can be found in many rivals.

The good news is that this laptop delivers above-average battery life that will satisfy all but the most demanding users. You should be able to get a full working day from a single charge, although it's worth staying near a power source from late afternoon onwards.

In our video loop battery test, the device lasted a respectable 13 hours and 18 minutes on a single charge. This simply serves as a measure of screen on time, as the brightness was set to a relatively low 120 nits and volume muted. But it means the 14 Flip



This Asus delivers above-average battery life.

ranks as one of the longer-lasting laptops we've tested.

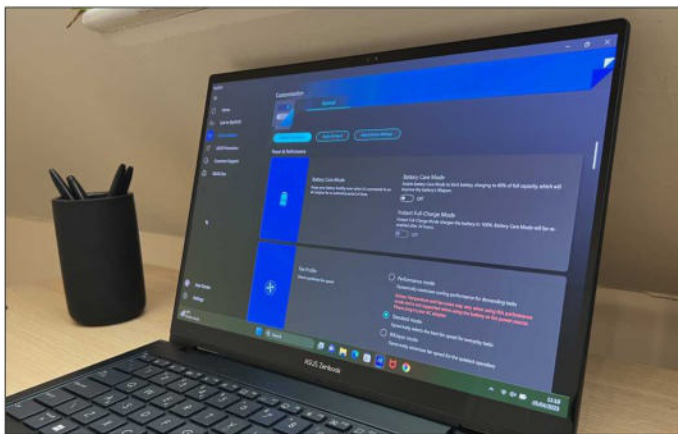
When it comes to charging, both USB-C ports support Power Delivery fast charging. Using the supplied power adapter (Asus doesn't specify its wattage), I got 34 percent battery

back in 30 minutes. A full charge took somewhere between 1 hour 45 minutes and 2 hours. Considering the size of the battery, that's pretty good.

SOFTWARE

The Zenbook 14 Flip runs Windows 11 Home, and it's very close to the version you'll find on Microsoft's own Surface devices. However, the same can be said for almost every Windows laptop, with the software tweaks nothing like you'll see on Android.

And in terms of extra pre-installed apps, Asus is one of the worst. Undoubtedly the most annoying is antivirus software McAfee, which opts you into a free trial and then repeatedly bugs you to pay for a subscription. Antivirus pop-ups are particularly jarring when the free Microsoft Defender app



The Zenbook 14 Flip runs Windows 11 Home.

offers everything most people need.

Frustratingly, there are also occasional pop-up ads from the MyAsus companion app. It does at least offer tools for managing display, sound, battery and fans, but isn't the most intuitive to use.

ScreenXpert is genuinely useful, acting as a hub for capturing content and moving around the operating system. But most of the tools it offers are already available elsewhere in Windows 11, and it probably won't change the way you use the device.

The bloatware can easily be removed, but it shouldn't be there in the first place.

The rest of the Windows 11 experience will be familiar to many people by now. Frequent updates

since launch mean the touchscreen experience is impressive, while the option to run desktop apps on such a versatile device is great. It's far from perfect, but other shortcomings are consistent across all Windows 11 devices.

Microsoft delivers software updates to all devices at roughly the same time, so you won't have to wait long after general availability. If Windows 12 arrives as rumoured in 2024, the 14 Flip will almost certainly meet the hardware requirements – even if they're stricter than Windows 11.

VERDICT

The Zenbook 14 Flip OLED impresses in many key areas, but it doesn't stand out in the way you might expect from such a premium convertible.

Its stunning 90Hz OLED touchscreen is a real highlight, especially when combined with convertible functionality and the stylus included in the box.

The keyboard and trackpad are also very good, despite a couple of unusual design decisions. Battery life and charging speeds are solid, as is the plentiful port selection.

However, impressive everyday performance won't translate to the most demanding workloads due to a lack of discrete GPU or Intel's most capable CPUs. You'll also have to put up with a

poor webcam and annoying bloatware.

Anyron Copeman

SPECIFICATIONS

- 14-inch (2,880x1,800) 90Hz, OLED display
- Windows 11 Home
- Intel Core i7-1360P processor
- Intel Iris Xe GPU
- 16GB RAM
- 512GB/1TB SSD
- 1x USB 3.2 Gen 2 Type-A
- 2x Thunderbolt 4
- 1x HDMI 2.1
- 3.5mm audio jack
- FHD camera with IR function to support Windows Hello
- Wi-Fi 802.11 a/b/g/n/ac/6e dual band
- Bluetooth 5
- 75Wh battery
- 311.5x223.4x15.9mm
- 1.5kg



MSI Prestige 14 Evo (2023)

Price: £1,099 from fave.co/3KPnQuX ★★★★★☆

The Prestige 14 Evo (B13M) is the 2023 refresh of MSI's line of work-centric Windows laptops aimed primarily at business users. With prices starting at around the £1,000 mark they're reasonably priced, considering you're getting a machine with 13th gen Intel processors, up to 32GB of LPDDR5 RAM, and a 512GB SSD.

Other key selling points include Thunderbolt 4 ports and Wi-Fi 6E, the latest standards for wireless Internet and data transfer. MSI's lofty battery life

claims also stand up well to scrutiny. But there's stiff competition in the business laptop space, with the likes of Huawei, Microsoft and Apple all offering great alternatives. The MSI Prestige 14 Evo isn't an easy recommendation, but it is an impressive device that's still worth considering.

DESIGN

The MSI Prestige 14 Evo might not win prizes for originality – it's a fairly standard-looking silver machine – but

that doesn't mean it's not a nicely designed laptop.

With the exception of the thin black plastic bezel, every edge and surface is covered in aluminium. The metal chassis feels cool to the touch, and gives the Prestige 14 Evo an air of, well, prestige. It's slim and light enough to be easily slipped into a bag and carried around, but most of the weight is concentrated in the end of the deck, so holding it in one hand isn't the easier.

The Prestige 14 Evo features a dropped hinge, meaning that when its opened on your desk, the hinge lifts the deck up off the surface of the desk. This allows for better air flow and a more comfortable typing angle than traditional laptops.

On the left-hand side, there's an HDMI 2.0 port and two Thunderbolt 4 ports. On the right, you'll find a

single Type-A USB 3.2 (Gen2) port, microSD card reader, 3.5mm audio jack and physical shutter toggle for the webcam. Not bad at all.

The webcam sensor is tiny, and you'll likely forget that it's there most of the time. It's capable of recording 1080p at 30fps video and quality is actually not bad, and it can unlock the Prestige 14 Evo via Windows Hello. But it's not good at picking out your face in low light.

KEYBOARD

The MSI Prestige 14 Evo's keyboard is one of the better ones I've used on a 14in laptop. The layout is generally well-spaced, with most things easily within reach, and the fingerprint scanner cleverly located due south of the arrow keys.

Each backlit keycap is nicely sized, and exhibits a pleasant, springy action, which gives the impression of more travel than the keys actually have. MSI hasn't said exactly what type of switches are used or how much travel you get, but the company has hit on a winning formula here.

The only complaint I have about the keyboard



The metal chassis gives the Prestige 14 Evo an air of prestige.

are the arrow and nav keys, which are shoehorned into an incredibly small area of the deck. The keys themselves are tiny.

Even after using the Prestige 14 Evo for a week, I would still on occasion find my little finger accidentally hitting 'Page Down' when I'd either tried to hit the 'Enter' or 'right' arrow key. It's quite annoying, especially when you're working on long 1,500-word reviews, to have a huge suddenly appear in the middle of a sentence.

Small arrow keys are a common bugbear for laptops of this size, but I would have preferred larger arrow keys (which double as nav keys when combined with the function key) or



The only complaint I have are the arrow and nav keys, which are shoehorned into an incredibly small area.



The keyboard's layout is generally well-spaced, with most things easily within reach.

removal of the nav keys altogether. It's a shame, because aside from a few cramped keys, the typing experience is excellent.

There's some noticeable flex in the area immediately just below the keyboard, which unfortunately extends to the trackpad. The latter requires more force to action clicks at the top than bottom, which raises questions about how it'll fare long term.

MSI says that the Prestige 14 Evo is MIL-STD-810G-certified for durability, but it makes you wonder. Aside from this, the trackpad is good – nicely sized at 5.6in and responsive, allowing you to glide through menus and web pages with ease.

DISPLAY

The Prestige 14 Evo's 14in Full HD+ display's brightness and contrast levels make it more than adequate for everyday use, thanks to punchy brightness and good viewing angles. But the reflective coating picks up overhead glare, and low colour accuracy make it less viable for serious photo work.

Using a SpyderX colorimeter, I recorded 99 percent of the sRGB colour space. That's solid, and means websites, games, and digital art still look accurate, Adobe RGB and DCI-P3 spaces were low at 77- and 78 percent respectively. If your photo editing requirements don't extend beyond cropping and resizing, then you'll be able to get away with this. But if your line of work or study requires a very colour-accurate display, this isn't the laptop for you.



The display offers punchy brightness and good viewing angles.

Likewise, a refresh rate of 60Hz means that, along with the low DCI-P3 score and no discrete GPU, this is not a laptop you should buy for gaming or video editing.

Maximum recorded brightness using the same colorimeter was 429.7 nits, tallied with a black point of 0.23 nits, adding up to a contrast ratio of 1880:1, which is respectable. Ideally, you'll want a display that can give you maximum brightness above 500 nits to guarantee that you can work in all lighting conditions, and a black point as close to zero as possible, indicating that dark areas of an image look deep and rich, and not washed out.

This is broadly in line with what you get on the Huawei MateBook 16s, but it's not quite as good as the Surface Pro 9's display.

The aspect ratio of 16:10 is a

welcome update from last year's MSI Prestige 15 A12UC. It gives you a bit more height to work in, something you'll appreciate if you're working on a particularly long report.

Two downward-firing speakers sit underneath the deck. The spec sheet might say that

they're 'DTS Audio Ready', but in reality, they're pretty average laptop speakers.

Dialogue from streamed video sounds good, as do vocals from songs, but anything with lots of high end treble noise sounds weak and tinny. The cymbals on Master of Puppets might as well have been a load of KitKat wrappers stuck together, they sound that bad through the Prestige 14 Evo's speakers. If you're listening to music on this, grab some headphones.

PERFORMANCE

The 2023 series of Prestige 14 Evo laptops feature 13th gen 'Raptor Lake' Intel CPUs. You have the option of a 12-core i5-13500H processor which boosts to 4.7GHz, or a more powerful 14-core Core i7-13700H chip, with a boost clock speed of 5.0GHz. Depending on where you're based, options for 8-, 16- or 32GB of RAM are available, plus 512GB or 1TB of storage. The model tested here features the Core i7 CPU, 16GB of RAM and a 512GB SSD.

For basic office tasks, the device runs very well indeed. If your primary concern is having lots of apps running at



The MSI's connectivity options.

once (including the likes of Zoom, Slack, Google Drive and Microsoft Word), the Prestige 14 Evo handles all everyday tasks without breaking a sweat.

This is reflected in the high PC Mark 10 scores for Essentials (11593), where the benchmarking tool simulates a number of PC office tasks. Elsewhere, PC Mark 10 scored the Prestige 14 Evo pretty highly for Productivity (7767) and Digital Content Creation (7733).

The Prestige Evo 14 racked up an overall PC Mark 10 score of 6353,

beating the Surface Pro 9 and 2022 version of Huawei MateBook 16s. However, it comes in slightly behind last year's Prestige 15 A12UC.

The Geekbench 6 CPU benchmark similarly yielded good results for single-core (2,515) and multi-core (12,909) stress tests.

This is a newer version of the Geekbench benchmark, and so it's not a straight comparison, but you can see roughly where these scores place the Prestige 14 Evo alongside the competition.

Strangely, the usual OpenGL Aztec Ruins benchmark wouldn't run, with the program either crashing before any score could be recorded, or simply not starting at all.

Luckily, the 3DMark graphics benchmark did, with the Night Raid benchmark returning a score of 21,731, a result that's roughly on par with other laptops in the same class.

Compare it with even a cheap gaming laptop, like the Asus TUF Gaming A15 (2022), which scored 49,215 in the same test, though, and you can see the difference that having a



The MSI lasted over 16 hours in our battery life test.

dedicated graphics card makes. Perhaps unsurprisingly, while the Prestige 14 Evo did an okay job of running Civ 6, it did so at a lowly rate of 20fps.

Battery life is one of those things that's hyped up on spec sheets, but happily, the MSI Prestige 14 Evo lived up to claims of being able to give you 16 hours of power – at least in testing. Running a looped film with brightness locked at 120 nits, the battery lasted 16 hours and 23 minutes before giving up the ghost.

In real-world usage, it doesn't last quite as long. But you can still get a full working day and have charge to spare.

It's quick to charge back up, too. Using the supplied adapter should see you fill an empty tank to 48 percent after half an hour, and 85 percent after

an hour, taking just over two hours to completely recharge.

As there's no dedicated port for the mains adapter, this means that one of those Thunderbolt ports will be pulling double duty for whenever you need to recharge. Luckily, there are plenty of Thunderbolt 4 and USB4 hubs and docks available, so you at least have some options.

Finally, while at no point in testing did the Prestige 14 Evo run especially hot, those fans can be loud. Even when doing something relatively light, like opening photos in GIMP, or watching something on YouTube, the fans would roar into life. It's enough to be slightly distracting while streaming a show in bed or on the couch, and it could potentially annoy any noise-sensitive colleagues.

VERDICT

The Prestige 14 Evo is a good choice for anyone in the market for a Windows laptop that'll comfortably deliver the basics in a work environment.

It's powerful, and reasonably priced, boasts good connectivity options, and the fast-charging battery will last all day.

People with larger hands may struggle with the cramped arrow keys, but noisy fans are the only other real complaint here. Competition is

strong, but the Prestige 14 Evo is worth considering. Thomas Newton

SPECIFICATIONS

- 14-inch (1,920x1,200) 90Hz, IP display
- Windows 11 Home
- Intel Core i5 13500H processor
- Intel Iris Xe GPU
- 8GB/16GB/32GB RAM
- 512GB/1TB SSD
- 1x USB 3.2 Gen2 Type-A
- 2x Thunderbolt 4
- 1x HDMI
- 3.5mm audio jack
- 1x microSD card reader
- 1080p webcam
- Wi-Fi 802.11 a/b/g/n/ac/6e
- Bluetooth 5
- 72Wh battery
- 314x227.5x17.9mm
- 1.6kg



Samsung Galaxy A54 5G

Price: £449 from fave.co/40ZliB2



Previous Galaxy A models have been some of the best selling smartphones globally, which puts a lot of pressure on new generations. Last year's A53 was a bitter disappointment but Samsung is back on track with the A54 5G for 2023.

Not much has actually changed year-on-year, but the A53's sluggish processor has been given a serious

upgrade, and this is one of the keys to how the Galaxy A54 5G is recommendable as a top mid-ranger.

This £449 candy bar handset has the sleek looks of the flagship Galaxy S23 range, an excellent screen with a 120Hz refresh rate, solid battery life, dependable cameras, and Samsung's industry-leading software support. There's little to dislike here, even if

Samsung is behind a number of rivals on charging speeds, and the lack of a charger in the box will irk some. It has fierce competition though, with the likes of the Google Pixel 6a and Nothing Phone (1) still a serious temptation for anyone not loyal to Samsung.

DESIGN

The Galaxy A54 5G is a stylish smartphone, easily one of the best-looking mid-rangers on the market. While it looks similar to its predecessor, small tweaks in line with the flagship S23 range, such as more rounded corners, keep things fresh and differentiate it.

Whether you like the new camera arrangement or not is personal preference, but I'm a fan of the port-hole styling, although it annoys me how wobbly it makes the phone when it's on a flat surface (it's almost unusable).

The phone could pass as the Galaxy S23+ from across the room, and the illusion holds up until you investigate the finer details. It's got a plastic rear cover and frame, although the latter doesn't feel like it, and there's still Gorilla Glass 5 protecting the display.

Like the Galaxy S23, it's a slippery customer, but build quality is very good and it's one of a select few mid-range phones with an IP67 dust and water-resistance rating.



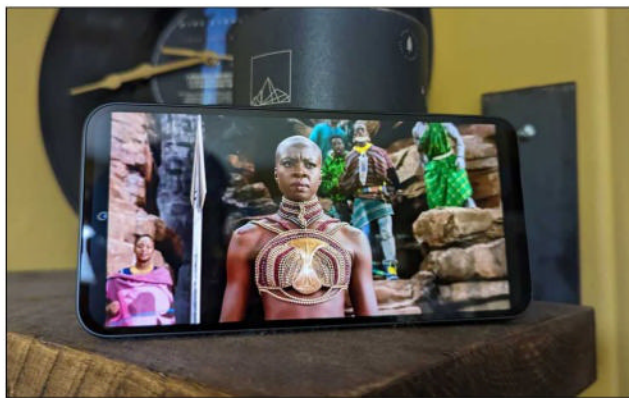
The Galaxy A54 5G is one of the best-looking mid-rangers on the market.

It's a shame the handset has gained a bit of weight, up 13g on the A53 to 202g. It's not hugely heavy, but if you want something lighter then the Google Pixel 6a is a more manageable 178g.

I've tested the plain Awesome Black colour but you can get the A54 in more exciting flavours of Awesome White, Awesome Lime and Awesome Violet.

DISPLAY

Samsung has reduced the screen size slightly to 6.4in, but otherwise this packs mostly the same display specs as the Galaxy A53. The headline specs are that it's an AMOLED panel with a Full HD+ resolution and 120Hz refresh rate.



The display offers excellent colours and contrast.

It's bright enough for outdoor usage in strong sunlight and the display is also blessed with excellent colours and contrast as you'd expect from an AMOLED panel.

At 120Hz, the A54 5G remains one of the smoothest mid-rangers, with an Adaptive mode on by default or the option to cap it at 60Hz for longer battery life (though that's mostly not a concern). It's not the only 120Hz phone at this price, with the likes of Xiaomi and Realme offering it too, but key rivals such as the Pixel 6a are only 60Hz.

The display also benefits from an embedded fingerprint scanner which I found worked better than the one on the Galaxy S23. The facial recognition is also decent, and you can use either when you unlock.

The A54 has no headphone jack but

the built in stereo speakers are pretty decent, offering good velocity and clarity. They do lack bass, though.

PERFORMANCE

A single digit change in the processor model doesn't seem very significant, especially on a mid-range phone, but in this case it is.

While the Exynos 1280 found in last

year's Galaxy A53 was slow and stuttering, the A54 is smooth and reliable thanks to an upgrade to the Exynos 1380, which offers double the number of high-power performance cores as its predecessor.

I'm not saying it's flawless, so you might have to wait a while for a complex night photo to process or a big game to load, but these are reasonable expectations in a phone this price. In general, day-to-day operation, the phone can keep up just fine and it can run games like Asphalt 9 at high quality settings.

There's disappointment for US customers as there's only the option of 128GB storage and 6GB of RAM, whereas the UK and other markets go up to 256GB storage and 8GB of memory. Note that I am testing the UK

model here, meaning the US version might be slightly more sluggish.

As the name suggests, the Galaxy A54 5G comes with 5G connectivity as well as all the usual nuts and bolts such as NFC, Wi-Fi 6, and Bluetooth 5.3.

Some users will find it beneficial that it's dual-SIM and there's even a microSD card slot able to take up to 1TB of storage, although it does use up one SIM spot.

Here's how the A54 5G compares in our usual set of benchmark tests.

Geekbench 5 (multi-core)

Samsung Galaxy A54 5G: 2,851

Google Pixel 6a: 2,754

Nothing Phone (1): 2,722

OnePlus Nord 2T: 2,739

Samsung Galaxy A53: 1,833

Apple iPhone SE 2022: 4,540

GFX Manhattan 3.1

Samsung Galaxy A54 5G: 46fps

Google Pixel 6a: 57fps

Nothing Phone (1): 56fps

OnePlus Nord 2T: 53fps

Samsung Galaxy A53: 35fps

Apple iPhone SE 2022: 60fps

Battery life

Samsung Galaxy A54 5G: 10 hours, 57 minutes

Nothing Phone (1): 7 hours, 33 minutes

Samsung Galaxy A53: 9 hours, 53 minutes

Charge in 30 minutes

Samsung Galaxy A54 5G: 31%

Nothing Phone (1): 67%

OnePlus Nord 2T: 100%

Samsung Galaxy A53: 26%

Apple iPhone SE 2022: 61%



The Galaxy A54 5G can run games such as Asphalt 9 at high quality settings.

PHOTOGRAPHY

The A54 5G packs a pretty typical trio of rear cameras, with a 50Mp main lens joined by lower resolution ultrawide and macro cameras. You shouldn't expect things like telephoto lenses on a phone this price.

The main camera can snap excellent quality



The 50Mp main lens is joined by lower resolution ultrawide and macro cameras.

pictures in a range of situations. It's got an f/1.8 aperture and benefits from optical image stabilization (OIS) to

avoid blur from a shaky hand. Results are detailed, vibrant and more than acceptable for social media or even printing out. Low-light performance is better than most mid-range phones too, although the phone still has its limits here – you'll need to spend more for a flagship for truly excellent night mode shots.

The ultrawide is what you'd expect: nice to have when you need to fit more in the frame, but at the obvious expense of quality compared to the main shooter.

Meanwhile, I had a lot of fun with the macro lens which is one of the best I've tested on any phone. With a fixed focus,

Here's a selection of photos taken with the Galaxy A54 5G.







you need to have time and patience, but can get some pleasing photos. It's not a must-have, but gives you some fun options.

The oddity is that the macro mode is tucked away in the 'more' menu even though it's a dedicated lens (not that it's only Samsung that does this) and this is where you'll also find other options such as Night, Panorama and even Pro mode.

My biggest bugbear is with Samsung's tuning, as colours aren't totally accurate between the different cameras. I can let that go on a mid-range phone (it's not too bad) but I can't stand the oversaturated – an understatement – look of the Food mode, which makes it look like I've used some nuclear ingredients.

As for the front, the 32Mp selfie camera is a highlight with bags of quality and options such as a solid portrait mode and a wider angle view for fitting more people or background in.

Video recording is also very good, due to the OIS on the main camera. By default, you'll be recording in Full HD at 30fps but you can go up to 4K at the same frame rate if you wish. Even at 1080p, the quality is good with vibrant colours and smooth footage even when being dragged along by my dog.

BATTERY LIFE

Charging is still a sore point when comparing Samsung to the wider market, especially when you consider the likes of Xiaomi and Oppo are hitting speeds of over 200 watts now. The 25-watt charging on the A54 isn't particularly modern and, for better or worse, Samsung doesn't supply a wall adapter in the box – only a cable.

I tested the phone with a 67-watt fast charger from another brand and only saw it top up to 16 percent in 15 minutes and 31 percent in 30. If speedy charging is important to you then you'll have to look elsewhere.

Fortunately, things get better when we look at battery life. There's a large 5,000mAh cell and the phone can comfortably last a full day of mixed usage with 4- to 5 hours of screen time. I'm a lighter user than that on a normal day and can manage two days before needing to charge, which is great.

SOFTWARE

Software is a strong point for Samsung as much on mid-range phones as it is on flagships. Here you are getting the latest version of Android and the firm's One UI skin. The same can't be said of some rivals which are often lagging behind on Android 12.

Said rivals often don't have any

official guarantees of future updates either. However, Samsung promises four years of OS upgrades, so you'll not only get Android 14, but up to at least Android 17 on this phone.

I would still personally have a Pixel phone for the pure Android experience but One UI is perfectly serviceable and has a lot to like. It's easy to navigate and looks great. Features like the sidebar for favourite apps are useful, though virtual assistant Bixby is not so much.

Samsung still insists on installing a lot of apps from the off including plenty of duplicates of Google services you're more likely to use. And despite me unticking the boxes, the A54 rudely still installed a trio of unwanted games.

Other pre-loaded apps are arguably more useful such as Disney+, TikTok and OneDrive, but you can at least remove any you don't want.

VERDICT

I'm relieved to report that Samsung is back on track with the Galaxy A54 5G after a miscue last year.

Much is the same, with top-notch styling, IP67 protection, one of the best screens on a mid-range phone, and a dependable set of cameras. Furthermore, battery life is solid and Samsung continues to impress with



Samsung promises four years of OS upgrades.

its software upgrade guarantee. This would have all been fine on the A53 had performance been as reliable but luckily that's fixed this year with a more powerful Exynos processor.

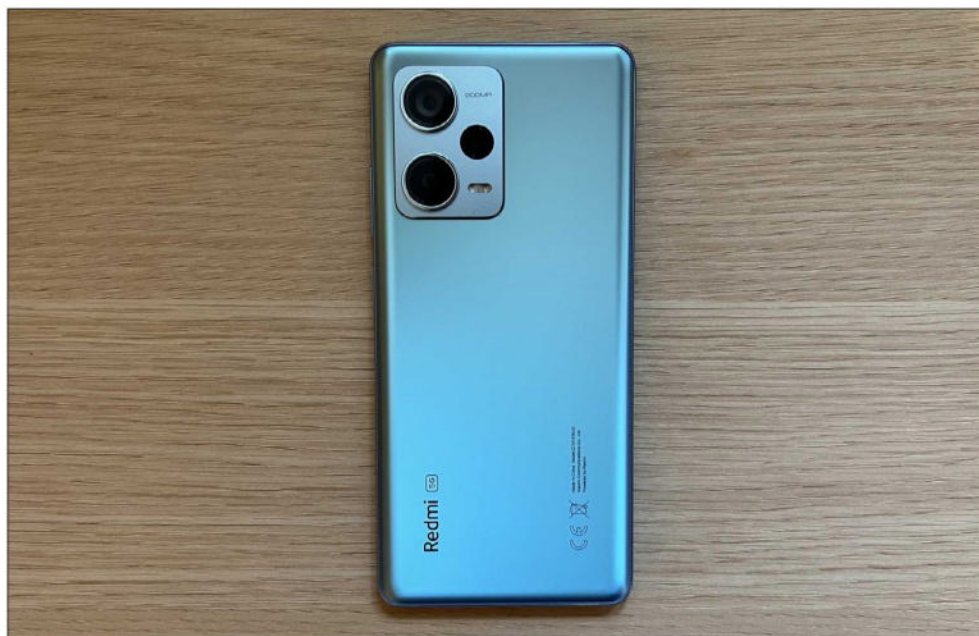
It's not automatically the best mid-range phone you can buy, especially with some excellent rivals at cheaper prices but it's easy to recommend even if you're not a Samsung loyalist.

Still, it would be nice if Samsung could install some faster charging and allow users to choose a power brick for free when ordering. Chris Martin

SPECIFICATIONS

- 6.4in (2,340x1,080; 403ppi) Super AMOLED, 120Hz, HDR10+ display
- Android 13, One UI 5.1

- Exynos 1380 (5nm) processor
- Octa-core (4x 2.4GHz Cortex-A78, 4x 2GHz Cortex-A55) CPU
- Mali-G68 MP5 GPU
- 6GB/8BG RAM
- 128GB/256GB storage
- Three rear-facing cameras: 50Mp, f/1.8, (wide), 1/1.56in, 1.0µm, PDAF, OIS; 12Mp, f/2.2, 123-degree (ultrawide), 1.12µm; 5Mp, f/2.4, (macro)
- Selfie camera: 32Mp, f/2.2, 26mm (wide), 1/2.8in, 0.8µm
- Stereo speakers
- Wi-Fi 802.11 a/b/g/n/ac/6, dual-band, Wi-Fi Direct
- Bluetooth 5.3, A2DP, LE
- GPS, GLONASS, GALILEO, BDS
- NFC
- USB Type-C 2.0, OTG
- Fingerprint scanner (under display, optical)
- Non-removable 5,000mAh lithium-polymer battery
- 158.2x76.7x8.2mm
- 202g



Xiaomi Redmi Note 12 Pro+

Price: £449 from fave.co/3MzW6Ng ★★★★★

Xiaomi makes some of the best budget and flagship phones around, but you shouldn't ignore what the company is doing in the mid-range market.

Its Redmi sub-brand has existed there for a while, although the Note 12 Pro+ takes things to the next level. For just £449, you get premium features such as a 200Mp camera, 120Hz OLED display and 120-watt charging.

Fortunately, all three are genuinely impressive, while the rest of the phone is good enough to compete with many flagships. Compromises are inevitable at this price point, but they shouldn't be dealbreakers for most people.

DESIGN

The Note 12 Pro+ has a sleek, premium design which could easily pass for a device costing twice the price.

It starts with Xiaomi's choice of materials: plastic on the sides, but glass on both the front and back. The latter is a pleasant surprise, as it's by no means a standard feature on mid-range handsets. A matte coating limits the build-up of fingerprint smudges, allowing the phone to shimmer attractively as light hits it.

That's particularly apparent on the Iceberg Blue model you see in photos, but the effect on Arctic White and Obsidian Black versions is similar. While there's no Gorilla Glass protection here, the back of the 12 Pro+ feels impressively durable and grippy. A clear silicone case is included in the box, but you might not need it.

However, the IP53 rating is a bit of a disappointment. It protects against dust but only splashes of water, rather than the submersion afforded by IP68 on flagships.

Redmi branding and CE information are both visible on the back of the phone, but it's the camera module that dominates. It houses three lenses and a flash, so the slight bump is easy to excuse. But while I wouldn't call the camera module ugly, it's far from the prettiest. You'll find one of the phone's big compromises on one side, but it's not the plastic used. Rather than an in-display fingerprint sensor, the 12 Pro+ has

one built into the power button instead. It has a smaller target area, yet remains very reliable and tends to unlock the phone quicker.

This doesn't feel like a downgrade at all, and I'd recommend using it over the less secure face unlock.

There's even still a 3.5mm headphone jack, a real standout feature in 2023. If you still have great wired headphones, there's no need to put up with a USB-C adapter here.

A detailed assessment of the display is included in the next section, but it's worth mentioning the haptics here. An advanced vibration motor means the subtle haptic feedback you get here is excellent, whether it's



We reviewed the Iceberg Blue version.

unlocking the phone, multitasking or reorganising apps. It really adds to the navigation experience.

DISPLAY

Let's talk about that screen, then. It's a large 6.67in OLED panel at 2,400x1,080. A higher resolution would've been nice, but only enthusiasts will be able to tell the difference between this and a 1440p panel. In most scenarios, the 12 Pro+'s display is a joy to use. It delivers deep blacks and rich, vibrant colours that really pop. It's accentuated by the recommended 'Vivid' colour scheme, but you can change this to 'Saturated' or 'Standard', or even create your own.

But for most people, that default mode is the one to go for. It means the

phone excels at content consumption, whether it's via social media or in movies and TV shows. For watching videos on your phone, the 12 Pro+ is one of the best in the business.

Navigating the phone is just as impressive, too, thanks to a 120Hz refresh rate. Scrolling and transitions are satisfyingly fluid, even on the default dynamic mode. This automatically switches between 60Hz and 120Hz, depending on what you're doing (to help save battery life), but you can manually set it to either if you'd prefer.

Xiaomi claims up to 900 nits of peak brightness, although you'll struggle to replicate that at home. But even at the 515 nits I recorded, the screen remains clearly visible in bright outdoor environments.

The display is curved at the edges, making it more comfortable to hold than many phones of this size. Slim bezels mean almost 87 percent of the front panel is screen, with a small hole punch selfie camera keeping disruption to a minimum.

Working in tandem with the display are stereo speakers, as the usual downward-firing grille combines with a second



For watching videos on your phone, the 12 Pro+ is one of the best in the business.

on the top of the phone. Not relying on the earpiece benefits sound quality, with a depth and detail to the audio that you don't often get on phones. The speakers get impressively loud, but high volumes are where you'll notice the lack of bass and treble. Distortion is avoided for the most part, though.



The Note 12 Pro+ is powered by the Dimensity 1080, a 5G chip that's specifically designed for mid-range phones.

PERFORMANCE

Rather than the Qualcomm chips we see in its flagships, Xiaomi continues to opt for MediaTek on many Redmi handsets. The Note 12 Pro+ is powered by the Dimensity 1080, a 5G chip that's specifically designed for mid-range phones. That suggests performance is nothing to write home about, but it turns out to be one of the phone's key strengths. Even with just 8GB of RAM, it excels across all everyday tasks.

My typical day includes plenty of web browsing, messages, taking photos and watching the occasional video. I also often quickly switch between them, making multitasking very important.

In all these scenarios and many more, the phone was easily able to keep up. It's no surprise the Dimensity 1080 is used on more expensive handsets (such as the Xiaomi 12T Pro) – it's a

very capable chip. Alongside that 120Hz refresh rate, the 12 Pro+ delivers some of the best performance of any mid-range phone.

Only the most demanding workloads will push it to the limit. If you're serious about mobile gaming or use other intensive apps on a regular basis, consider something more powerful. But for the vast majority of people, the 12 Pro+ has everything you need.

Having said that, it's not perfect. There were some stutters and hesitations during my testing time, plus the occasional app crash. But these are more likely to be related to software rather than hardware.

The benchmarks don't provide a true reflection of the performance available here, although they show that the 12 Pro+ is far from the only powerful mid-range phone you can buy:

Geekbench 5 (multi-core)

Xiaomi Redmi Note 12 Pro+: 2,215

Xiaomi 13 Lite: 2,585

Google Pixel 6a: 2,745

Samsung Galaxy A54: 2,842

Nothing Phone (1): 2,722

OnePlus Nord 2T: 2,739

GFX Manhattan 3.1

Xiaomi Redmi Note 12 Pro+: 37fps

Xiaomi 13 Lite: 56fps

Google Pixel 6a: 57fps

Samsung Galaxy A54: 46fps

Nothing Phone (1): 56fps

OnePlus Nord 2T: 53fps

Battery life

Xiaomi Redmi Note 12 Pro+: 11 hours

Xiaomi 13 Lite: 9 hours, 14 minutes

Samsung Galaxy A54: 10 hours, 57 minutes

Nothing Phone (1): 7 hours, 33 minutes

Charge in 30 minutes

Xiaomi Redmi Note 12 Pro+: 100%

Xiaomi 13 Lite: 80%

Google Pixel 6a: 42%

Samsung Galaxy A54: 31%

Nothing Phone (1): 67%

OnePlus Nord 2T: 100%

Regarding internal storage, 256GB is your only option. With no

support for microSD expansion and around 25GB of that taken up with system files, power users may run close to capacity. But for most people, this won't be an issue. Alongside 5G, you also get Wi-Fi 6 and Bluetooth 5.2. Despite not being the absolute latest versions, they're fine for almost every phone-related task you could think of.

PHOTOGRAPHY

If you're reading this review, the camera is probably the section you most want to know about. The Note 12 Pro+ is one of only a handful of phones to feature a 200Mp main lens, and it's impressive to see this flagship feature make it to the mid-range.

So, how does it perform? The short answer is very well, albeit not significantly better than phones with a



The Note 12 Pro+ is one of only a handful of phones to feature a 200Mp main lens.



Zoom and saturation appear to be the main differences between the regular 12.5Mp image (left) and full 200Mp version (right)?

much lower megapixel count. Details and dynamic range are both excellent, while it handles contrast and shadows impressively. Despite most of my testing taking place on overcast days, exposure was also a pleasant surprise. Overcast skies add to the atmosphere of many shots, without ending up looking blown out and unrealistic. The main camera is a great point and shoot lens in a variety of scenarios.

Unlike the Xiaomi 13 and 13 Pro, there's no option to switch between 'Vibrant' and 'Authentic' modes within the camera app. By default, the 200Mp lens definitely leans towards the latter, producing impressively true to life shots with little evidence of post-processing. If you really want something more saturated, turning on AI will usually do the trick.

I'm also very impressed with the way it handles low light. During sunset or on streets with lots of artificial lighting, you won't even need to turn night mode on to get a great shot. But with it activated, there's a nice boost to brightness and detail in darker environments.

However, it's worth remembering that the 12 Pro+ doesn't actually shoot in 200Mp by default. Instead, it uses a process called pixel binning to essentially combine 16 images into one higher quality 12.5Mp photo. This is primarily to avoid huge files clogging up your phone, but also because there's very little difference in raw 200Mp stills – the improvements are minimal and insignificant.

Landscapes and street photography are a real strength of the main lens, so it's disappointing to see such a drop-off

We'll start off with a set of shots of the same subject taken using the 0.6x zoom...



...1x zoom...





...2x
zoom...

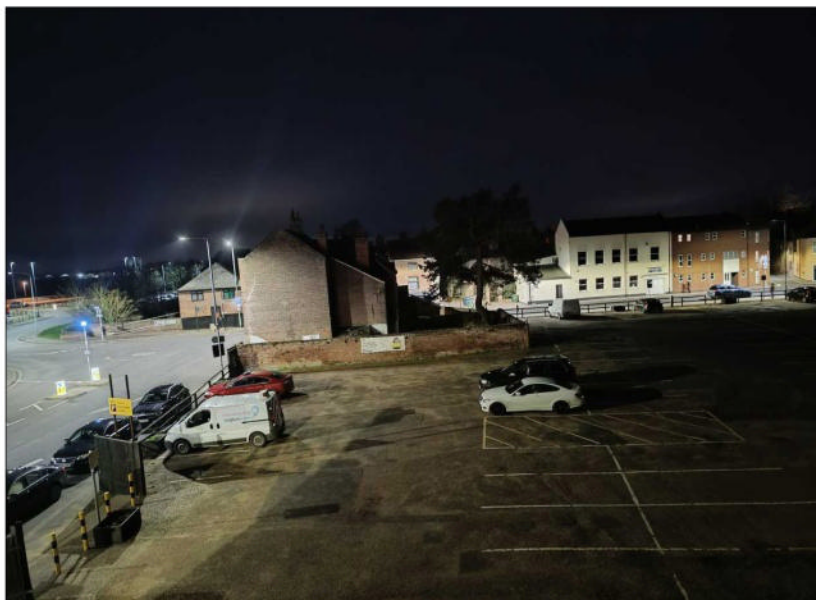


...and 10x
zoom.

Next up,
we have
night mode
off...



...and on.





Here's
an image
taken at
sunset.

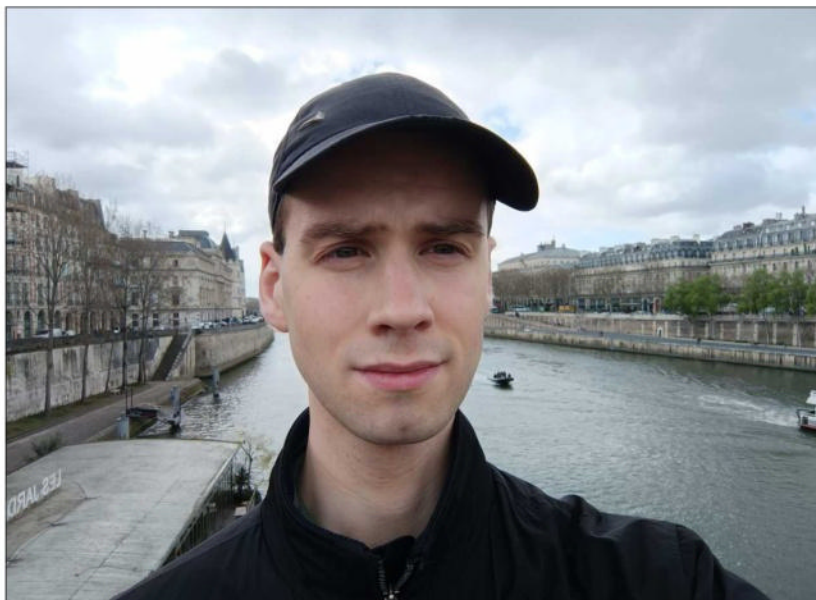


This photo
is an
example
of a macro
shot.

We'll finish off with a portrait selfie...



...and a selfie with beauty mode off.



when you move to the 8Mp ultrawide. It has a useful 120-degree field of view, but detail, exposure and colour accuracy are all compromised to the extent that I was reluctant to use it.

It's a similar story for the 2Mp macro lens, although you can get some attractive close-up shots at times.

With no depth sensor, the phone relies on software for its portrait mode. However, the all-too-common issue of edge detection makes it frustrating to use, even if you can adjust the amount of background blur before or after you take the shot. Portrait selfies using the 16Mp front-facing camera are much more impressive, while even regular shots do a good job with skin tones and exposure. Just make sure you turn off the pre-activated beauty mode for the best results.

The 12 Pro+ can capture video at up to 4K 30fps, but the default 1080p at 30fps offers plenty of detail for casual home videos or social media. Optical image stabilization (OIS) on the main lens means it can cope with lots of movement, too.

BATTERY LIFE

The Redmi Note 12 Pro+ has a 5,000mAh battery. That's a fairly standard

capacity for a modern smartphone, and it means battery life is solid, but nothing spectacular.

With the brightness set to 200 nits, I recorded exactly 11 hours on PCMark's battery test. That aims to reflect real-world usage by simulating common tasks, although you'll struggle to get anything close in terms of actual screen on time.

Even so, the 12 Pro+ can last a full day with charge to spare. Even on those days where you're using GPS, taking lots of photos and keeping brightness high, you shouldn't need to connect to the power until later in the day.

Gaming is perhaps the only exception to this rule, where a few hours running a demanding game will deplete the battery much more quickly.

But with some of the fastest charging around, running low on battery is much less of a concern. The 120-watt adapter



The 12 Pro+ can usually last a full day with charge to spare.

included in the box doesn't quite hit Xiaomi's claims of a full battery in 19 minutes, but you can hit 58 percent in 15 minutes and 100 percent before half an hour has passed. Most people will be able to plug in their phone when they wake up and have it fully charged long before needing to leave home.

There's no wireless charging, but I'd much rather have the fast wired version.

SOFTWARE

As a Xiaomi-owned brand, the Redmi Note 12 Pro+ uses the MIUI software skin. It's version 14 here, which is based on Android 13 but different in several significant ways.

Undoubtedly, the most annoying of these is bloatware. Xiaomi has added its own apps for the likes of web browsing, managing files, taking notes, viewing photos and plenty more – none of which can be uninstalled. It feels very jarring when the Google version is already sitting there.

However, that's only the tip of the iceberg when it comes to pre-installed software. Dozens of other tools, popular apps and games have been



You can expect three years of Android version updates and four years of security patches on the 12 Pro+.

downloaded for you. The process of removing them is tedious, but at least it's possible.

Most of these apps have bright, colourful icons, making it easy to identify them. But alongside some vibrant wallpapers and eye-catching widgets, the home screens can quickly become cluttered and distracting if you're not careful.

Separating notifications and quick settings (depending on where you swipe down from the top of the screen) is fine, but Android 13 already does a good job of including both on the same screen.

In general, MIUI's tweaks to the familiar Android user experience make it more frustrating and less intuitive. It's still very usable, and shouldn't be a dealbreaker at this price point, but I

wish Xiaomi had more of a light touch approach to software. So-called 'stock' Android would work very nicely on such premium hardware.

Like all Xiaomi phones, you can expect three years of Android version updates and four years of security patches on the 12 Pro+. The MIUI equivalent of Android 14, 15 and 16, and updates until 2027 should all be on the way.

VERDICT

The Note 12 Pro+ elevates Xiaomi's Redmi brand from competitive mid-ranger to potential flagship killer.

Its headlining 200Mp camera is a bona fide premium feature, while performance and display are among the best you'll find at this price point. Battery life is solid too, while the 120-watt fast charging is excellent.

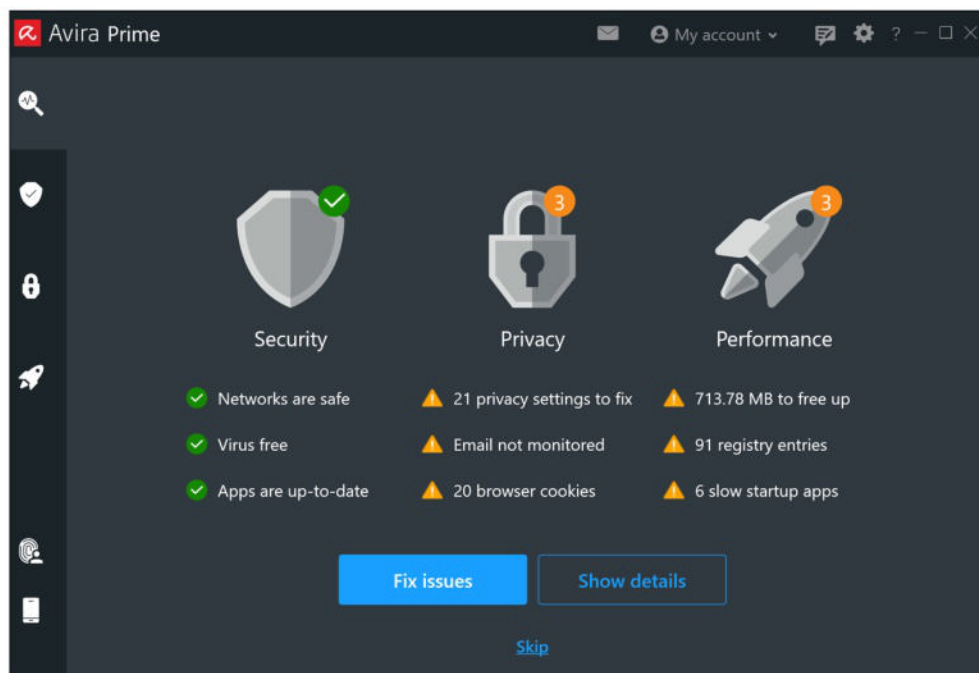
As a result, the 12 Pro+ is easy to recommend. The polarising MIUI software and poor supporting rear cameras might make you look elsewhere, but you certainly shouldn't rule out this phone. Anyron Copeman

SPECIFICATIONS

- 6.77in (2,400x1,080; 395ppi) OLED, 120Hz, Dolby Vision, HDR10+ display
- Android 13, MIUI 13
- Mediatek MT6877V Dimensity 1080

(6nm) processor

- Octa-core (2x 2.6GHz Cortex-A78, 6x 2GHz Cortex-A55) CPU
- Mali-G68 MC4 GPU
- 8GB/12GB RAM
- 256GB storage
- Three rear-facing cameras: 200Mp, f/1.7, 24mm (wide), 1/1.4in, 0.56µm, PDAF, OIS; 8Mp, f/2.2, 120-degree (ultrawide), 1/4in, 1.12µm; 2Mp, f/2.4, (macro)
- Selfie camera: 16Mp, f/2.5, (wide), 1/3.06in, 1.0µm
- Stereo speakers
- 3.5mm headphone jack
- Wi-Fi 802.11 a/b/g/n/ac/6, dual-band, Wi-Fi Direct, DP, LE
- GPS (L1), GLONASS (G1), BDS (B1I+B1c), GALILEO (E1), QZSS (L1)
- NFC
- USB Type-C 2.0, OTG
- Fingerprint scanner (side-mounted)
- Non-removable 5,000mAh lithium-polymer battery
- 162.9x76x8.9mm
- 208.4g



Avira Prime for Windows

Price: £51 from fave.co/41mEEQP



To provide thorough protection, today's security products must do more than just scan for viruses and malware. They need to check for harmful Internet traffic, intrusive browser tracking, privacy issues, outdated software, and weak passwords, among other items. One product providing all that and more is Avira Prime for Windows.

Designed for all supported versions of Windows, Avira Prime packs a lot into one program. Under the banner of security, the software includes the usual virus protection but throws in a software updater and a firewall. In the area of privacy, Avira Prime provides a file shredder, an identity-theft monitor, a password manager, and an online tracking blocker. And to help boost

your PC's performance, the program offers a driver updater, a battery saver, a duplicate file finder, a disk space optimizer, and a few other tricks.

Like most paid security products, Avira Prime charges a subscription rate based on the number of PCs and devices you want to protect and the length of the plan – £8.99 per month, £51.99 per year, or £164.99 for two years for five devices, and £10.99 per month, £112.99 per year, or £216.99 for two years for 25 devices. The devices protected under your chosen plan can include Windows PCs, Macs, iPhones, iPads, Android devices and web browsers. A free 30-day trial lets you check out the full program on up to five devices.

INSTALLATION

Installing Avira Prime is quick and simple, with just a small status window showing you the progress. After the installation is done, the program prompts you to run a smart scan to look for a variety of potential problems, including viruses, privacy concerns, performance obstacles,

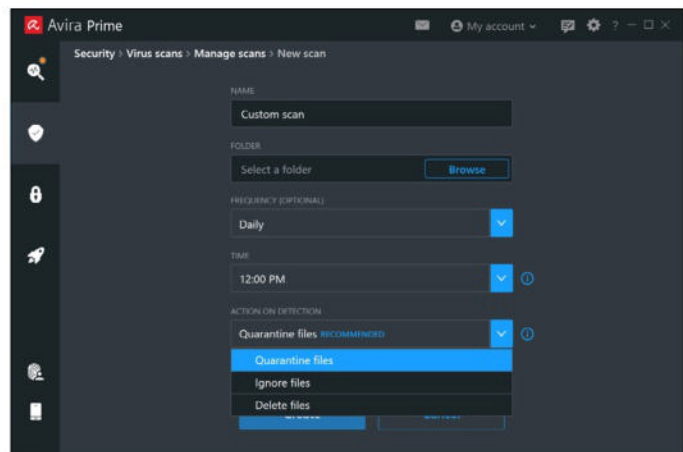
and outdated apps. Upon checking your system, the scan alerts you to any issues. From here, you can view more details on the issues and select the ones you want automatically fixed.

FEATURES

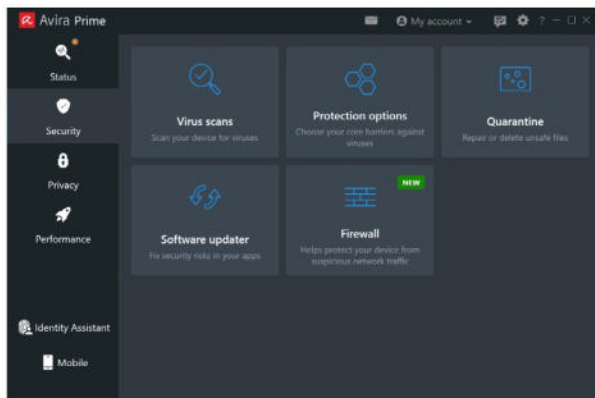
The main dashboard is well designed, organizing its tools into three different categories – Security, Privacy, and Performance. Beyond running the smart scan, you can easily drill down to each category and tool.

Security options

Under Security, the virus protection offers a few different types of scans. A full scan checks your entire PC, either immediately or at a scheduled



Beyond the full and quick scans, a custom scans lets you choose the location, frequency, and action in the hunt for malware.



The security area offers tools for virus protection, a software updater, and a firewall.

updater, which scans your PC for outdated applications and can automatically update them. Additionally, a firewall attempts to block malicious or suspicious apps and other activity coming through your network. You have full control over the firewall, so you can modify existing rules to allow or block specific processes, add new rules, or turn off the firewall completely.

frequency – daily, weekly, or monthly. A quick scan checks only certain folders and vulnerable areas immediately or at a scheduled day and time. You can also create a custom scan in which you choose the folders and the frequency. With a full or custom scan, you're able to specify whether malicious files should be quarantined, deleted, or ignored.

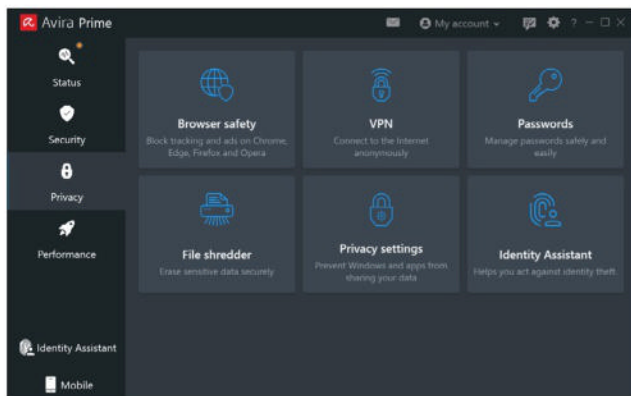
Naturally, Avira Prime offers real-time scanning with three options enabled by default. The virus protection prevents malware from trying to infect and modify files on your computer. The web-based protection tries to defend you from online threats. And the ransomware protection aims to prevent hackers from locking your device or encrypting your files.

Also under security is a software

Privacy options

In the area of privacy, the Avira Safe Shopping extension works with all the major browsers to keep you away from malicious sites and prevent tracking by ad networks. A built-in VPN lets you choose different locations around the world through which you can securely route web traffic. You're able to keep the VPN on all the time or just for certain Wi-Fi networks. Next on the list is a file shredder that will permanently delete files, thus making it harder for anyone to recover them.

The built-in password manager requires that you set up an account and a master password with Avira and install the required extension in Microsoft Edge, Google Chrome, and/or Firefox. From there, Avira will suggest



In the privacy area are a web tracking blocker, VPN, password manger, file shredder, and identity assistant.

and save a strong password when you create a new account and automatically enter the credentials when you need to sign in. The password manager is also available as a mobile app for iOS/ iPadOS and Android.

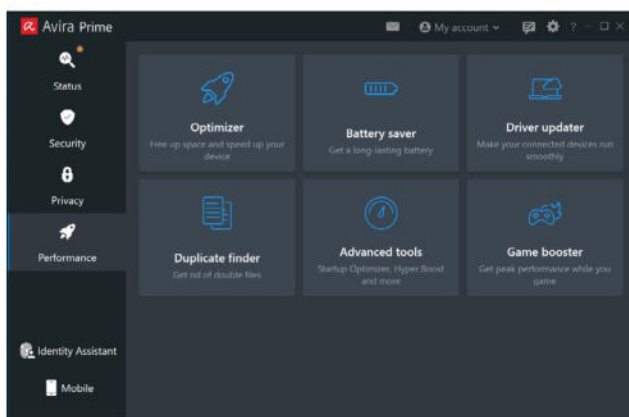
Another privacy tool is an identity assistant. If enabled, this one will monitor your email address for Dark Web activity and alert you if any of your personal data has been compromised. As the icing on the cake, a privacy settings tool gathers all the Windows privacy options in a single place so you can easily manage each one. You can even choose

a predefined level of privacy, and the program will apply it for you.

Performance options

Finally, under the performance area is an optimizer that will free up space, clean cookies and broken Registry entries, and try to speed up your PC. The results identify junk files, downloads, and slow start-up apps

that you can opt to remove or fix. The battery saver displays your current battery status and lets you choose a specific power plan to better extend your battery charge. A driver updater scans for outdated drivers and offers to



Under performance are a space optimizer, battery saver, driver updater, and more.

update any old ones. A duplicate-file finder scours your PC for duplicate files and removes any you don't need. A game booster aims to optimize your PC if you're playing a full-screen game that needs more CPU, memory, and video resources. Further, the start-up optimizer looks for apps and other items that can be removed from your start-up routine, while a hyper-boost option analyses and tries to shorten your start-up time.

To cap off all the features, Avira Prime provides a detailed Settings menu where you control key options for the three different categories. There's also an online dashboard that shows you all the devices on which Avira Prime is installed along with access to the built-in tools, links to helpful tips and documents, and a page for customer support.

PERFORMANCE IMPACT

To gauge the impact of Avira Prime on PC performance, I ran before and after benchmarking tests using the PC Mark, 3D Mark, and Procyon benchmark programs. The results showed just a minor impact on performance with Avira Prime installed, indicating that the software doesn't hog your system resources.

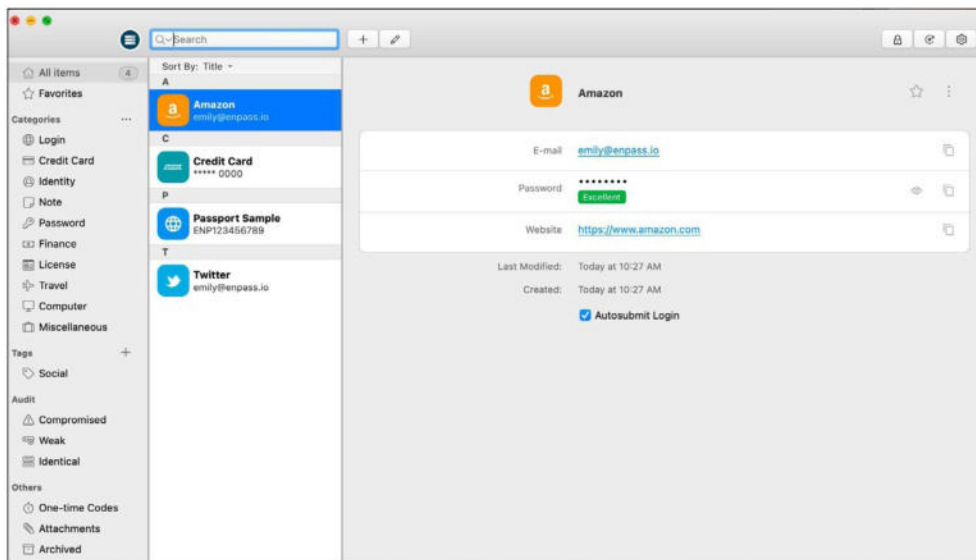
Trying to access the different test files from the EICAR testing site (fave.

co/3LnW2iZ) prompted the software to flag the files themselves as unsafe, preventing me from downloading them directly. I was able to download the two EICAR zip files, but when I tried to extract them, Avira blocked and quarantined them as potential threats.

AV-Test reviews throughout 2022 awarded Avira Internet Security top marks for protection, performance, and usability. Older reviews from 2020 and earlier gave Avira Antivirus Pro high grades in the same areas. Reports from AV Comparatives in 2022 awarded Avira Prime stellar grades for protection and performance.

VERDICT

Avira Prime offers not only effective malware defences but a host of other tools designed to protect you from both online and offline threats. In spite of all its features, the program is well designed and easy to use. For those reasons, Avira Prime is well worth the subscription price. Lance Whitney



Enpass

Price: £19.49 from fave.co/41DVOcz

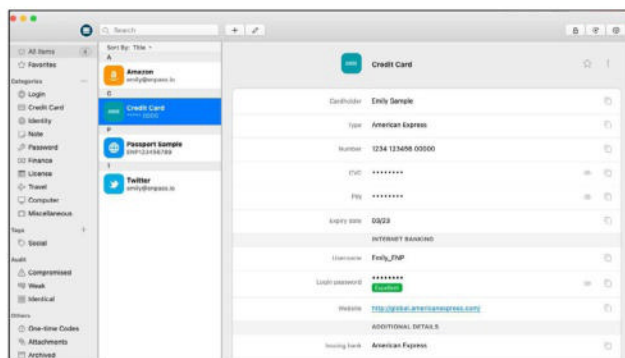


Handling the passwords we need to manage our affairs is difficult enough without a complex password manager adding another obstacle. Enpass is a simple solution to help individuals improve their password hygiene and secure their most sensitive data even if they don't have a high degree of technical know-how.

GETTING STARTED

Enpass is offered as a desktop app for Windows, macOS and Linux, and

a mobile companion app for Android and iOS. Once you download the desktop app, onboarding with Enpass is simple. You're prompted to register a new account and then to create a master password. Once that's done, Enpass launches a quick setup tab that lets you install its browser plug-in, enable touch ID access, check for compromised passwords, and other options with a simple toggle. After that, you can import your passwords from your browser, a CSV file, or



Desktop users can use all Enpass's features and syncing capabilities for free.

directly from more than a dozen other password managers.

Enpass allows you to store login credentials, credit card information, personal ID data, licenses, passports, and more in your vault and keeps everything organized in an intuitively labelled category menu. A search bar across the top of the interface helps with locating specific entries, which can be made more searchable via tags and sub-tags. Enpass automatically creates a primary vault when you set up your account, but you can create additional vaults to more cleanly separate work from personal logins, for example.

FEATURES

Once you've populated your vault, Enpass can audit all your entries for compromised, weak, identical, or

breached passwords. Any offenders can be replaced using Enpass's password generator. By default, it creates passphrases rather than random character strings; phrases can be from two to 15 words – the default is six – and can include uppercase letters and digits and separate each word with a hyphen.

Enpass also supports

random-character-string passwords – you just toggle off the 'pronounceable' option – of up to 32 characters. You choose what type of characters to use and how many of each.

While the Enpass desktop app stores and syncs your data, capturing and replaying login credentials are handled by its browser extension. Rather than dropping down from your browser's toolbar like other password extensions, it displays as a separate window that floats over the page. The extension can display all your vault entries and when you click on one, it will fill in the relevant information on a page. Like the desktop app, the browser extension has its own search bar for quickly locating items. When you log in to a site for the first time, the plug-in will capture your username and password. You can edit

the entry and apply tags right from the extension.

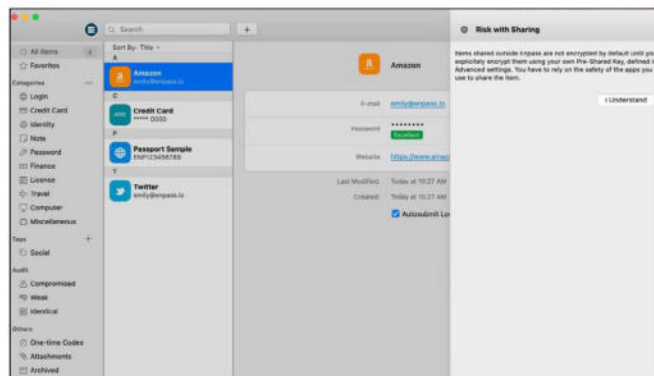
SECURITY

Unlike most other password managers, Enpass doesn't upload your data to its servers. It's stored locally on your device. To sync your data across multiple devices, you need to either connect your Enpass account with a cloud service like Dropbox or Google Drive or set up Wi-Fi sync to keep your Enpass data up to date across devices on the same wireless network. Neither option is turnkey, and both require searching through Enpass's support pages for instruction. That extra work may be a turn-off for some users.

Enpass encrypts your data with 256-bit AES and SQLCipher to better protect against brute-force and side-channel

attacks. It does not, however, use multi-factor authentication. The company explains on its website that if you choose to store your data off-site with a cloud service like Google Drive or One Drive, you are already enabling multi-factor security: Your data is secured by your Enpass master password and your cloud-account credentials, plus any additional authentication your cloud provider requires such as one-time codes, biometric identification, or an app-specific password. In this scenario, Enpass argues, anyone trying to steal your passwords would have to get through three layers of authentication. It does support the use of Keyfiles, though, which can be required in combination with your master password to decrypt your Enpass data. Here again, users will need to search

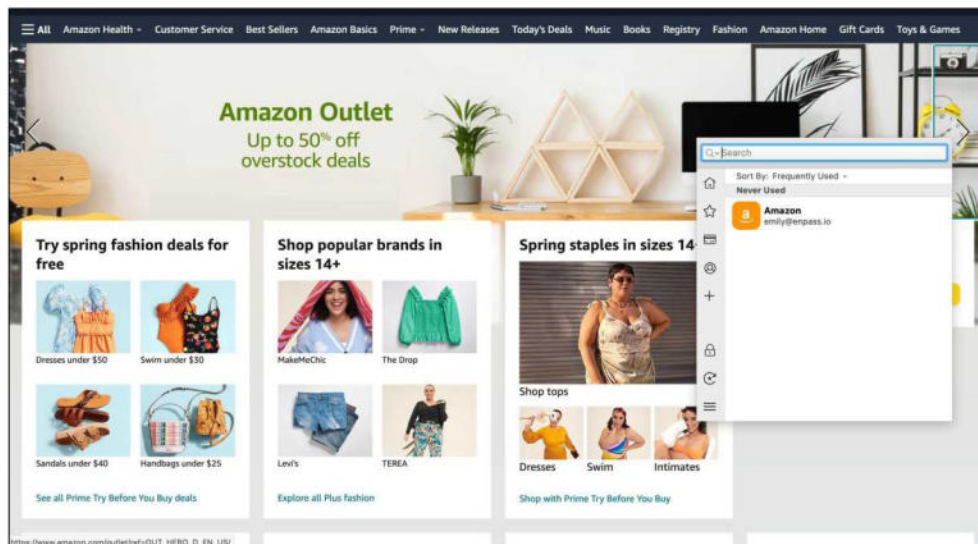
instructions for setting up a Keyfile in Enpass support documentation.



Enpass allows you to share items but you must create a personal pre-shared key to secure each one.

SHARING

You can share passwords and other entries from the desktop app but doing so surfaces a warning that items shared outside Enpass aren't encrypted. To secure them, you have



Enpass's browser extension captures and replays your passwords on secure sites.

to define a pre-shared key – essentially a password you create to share with the recipient of the item before you share the item itself – in Enpass's advanced settings. In addition to this ad-hoc encryption, you can toggle off fields in the item you don't want to share. Once you're ready to share, you send the item via email or copy it to the clipboard to share a different way.

Password inheritance isn't currently supported. Inheritance features, which are included with some other password managers including Keeper and LastPass, allow designated individuals to access your passwords and sensitive data in the event of your death. Given

that Enpass is designed to primarily work offline, it's not surprising it doesn't support this capability. However, it's worth considering if you need to designate a custodian for your data after you're gone.

THE PLANS

Enpass is free to use on Windows, Mac and Linux. You get access to all the desktop app's features and unlimited syncing across desktop devices. You can sync up to 10 items in a single vault with mobile devices.

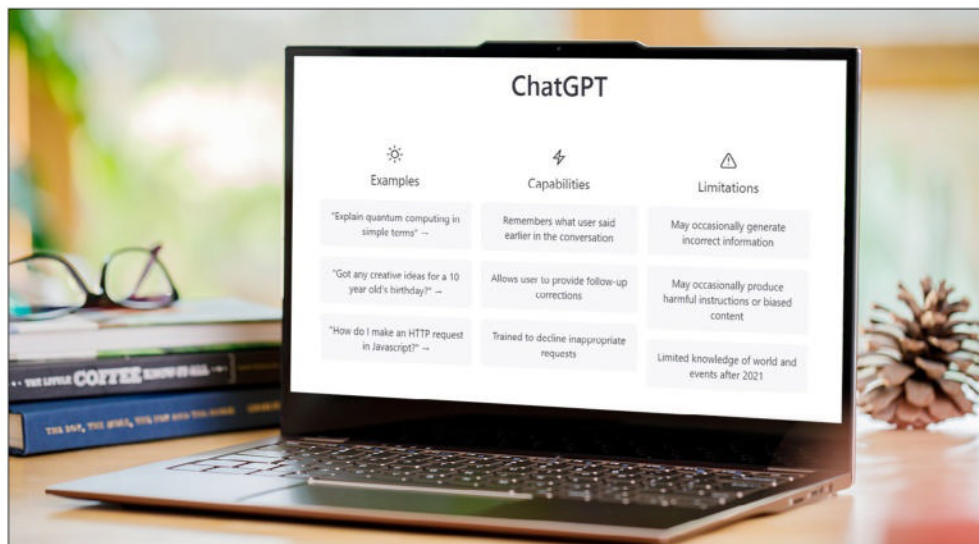
To do any more than that you'll need a paid plan. The Individual plan costs £19.49 per year and removes all

entry, syncing, and vault limits. It also provides security alerts for website breaches and will identify any accounts in your vault that support two-factor identification. The Family plan extends the same features to up to six users for £38.99 per year. You can also purchase a permanent lifetime license for an individual for a flat fee of £82.99.

VERDICT

If you're new to password managers or just want a solution that's not overly complex, Enpass is worth the investment. Although it lacks the advanced capabilities found in some of our top picks, it provides all the foundational password management features you need to secure and safely use your sensitive data in an exceptionally easy-to-use app.

Michael Ansaldo



10 practical tasks you can do with ChatGPT

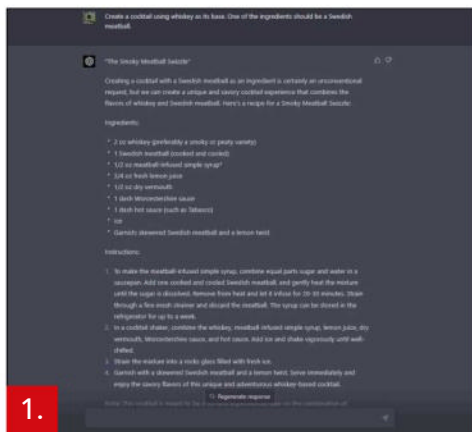
Put this powerful chat-based AI to work. **MARSHALL GUNNELL** reports

ChatGPT, a powerful language model chatbot developed by OpenAI, has revolutionized the way we interact with artificial intelligence. With its advanced natural language processing capabilities, ChatGPT can help you with a wide range of tasks, from answering trivia questions to composing poetry.

Here are 10 wonderfully fun, practical ways to put ChatGPT to work.

1. **CREATE FUN RECIPES**

One interesting thing ChatGPT can do is generate recipes based on user preferences, ingredients, or specific dietary requirements. Give it a starting point by providing certain information about the desired dish, such as the type of cuisine, the main ingredients you want to use, or any dietary restrictions you may have. ChatGPT will then provide a recipe with step-by-

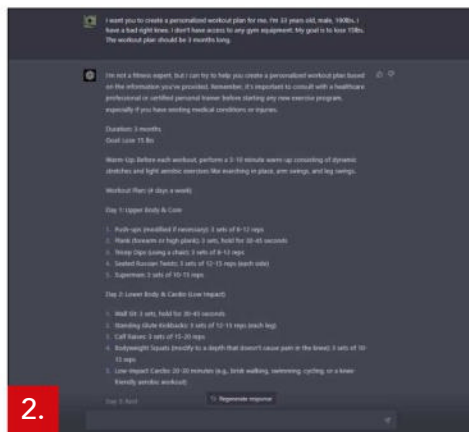


step instructions, ingredient quantities, and cooking tips.

I asked ChatGPT to create a whiskey-based cocktail using a Swedish meatball as one of the ingredients. It quickly acknowledged that this was an unconventional request, but then proceeded to provide a recipe based on my requirements. It even named the cocktail 'The Smokey Meatball Swizzle', though I think 'Meatball Manhattan' is a much better name.

2. DRAFT A PERSONALIZED WORKOUT PLAN

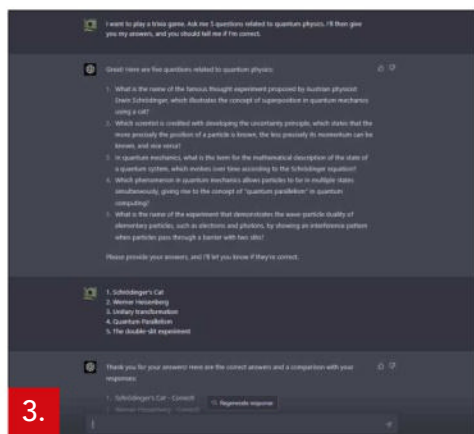
ChatGPT can create personalized workout plans tailored to your fitness level, goals, available equipment, health condition, and more. To get started, you'll need to provide some information about yourself, like your



basic information, current fitness level, workout experience, goals, health condition, and access to equipment.

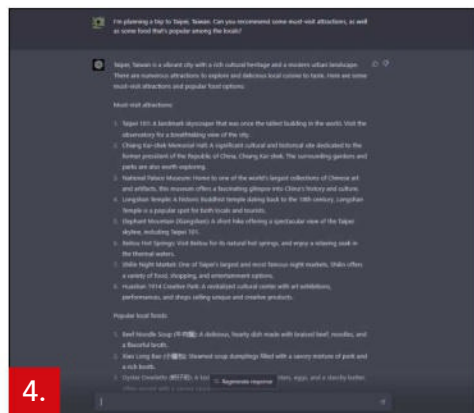
I asked ChatGPT to create a 3-month exercise plan for me. I input my age, gender, weight, and told it I have a bad knee. I also mentioned that I don't have access to gym equipment and that my goal was to lose 15 lbs. It let me know that it's important to consult with a healthcare professional or certified personal trainer before starting a new exercise routine and to monitor my form to make sure I don't injure myself. Regardless, it outlined a routine for me based on the information I gave it.

If you don't know which information to put in, you can ask ChatGPT what it requires to develop the most accurate and personalized workout plan possible.



3. ENGAGE IN TRIVIA GAMES

You can challenge ChatGPT to, or have it create, trivia games by providing questions, answers, or interesting facts on a wide range of subjects. Just tell ChatGPT you want to play, specify the topic or theme you'd like to focus on, and then ChatGPT will generate questions for you to answer. Or, you



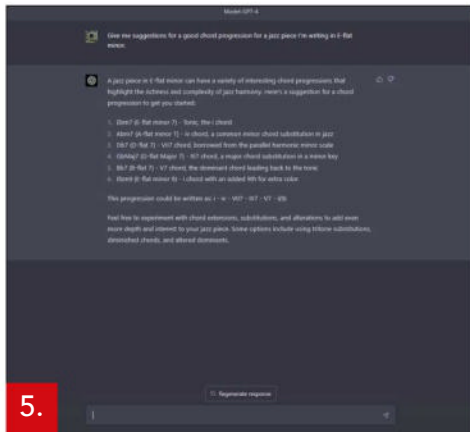
can challenge ChatGPT with your own trivia questions.

I told ChatGPT that I wanted to play a trivia game with it and asked it to give me five questions related to quantum physics. I told it I would give it my answers and it should tell me if I'm correct. I got three out of five questions correct (with the help of Google). As it turns out, quantum physics is hard.

4. FREE VIRTUAL TRAVEL GUIDE

ChatGPT can act as a virtual travel guide by providing information, recommendations, and advice about various travel destinations. One thing to keep in mind is that ChatGPT's knowledge is, at least for now, based on data up to 2021. This means that it can't recommend anything that may have popped up recently, such as a new restaurant. It can still offer valuable insights about places to visit, local customs, cuisines, and other travel-related topics.

I told ChatGPT that I'm planning a trip to Taipei, Taiwan, and asked it to recommend some must-visit attractions and some food that's popular among the locals. It sent a solid list of places to visit, and the list of food that it recommended was pretty accurate, though I was disappointed it didn't add Dan Bing to the list.



5. COMPOSE MUSIC

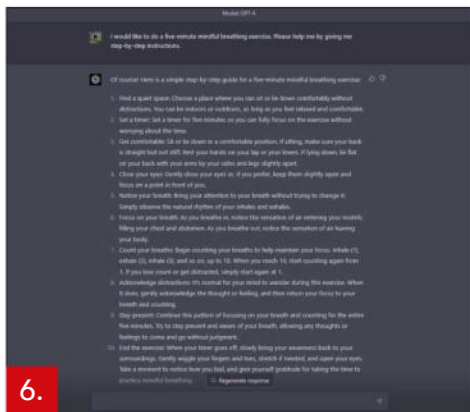
While ChatGPT can't directly compose music or create audio files, it can help with various aspects of music composition like writing lyrics, suggesting chord progressions, or providing tips on song structure and arrangement. You can ask for guidance on specific musical concepts or

brainstorm ideas for melodies or harmonies. I asked ChatGPT to give me suggestions for a good chord progression for a jazz piece that I'm writing in E-flat minor. It then suggested the i – iv – VII7 – III7 – V7 – i(9) chord progression, and encouraged me to experiment with chord extensions, substitutions, and alterations to add depth to the jazz piece.

6. GET HELP WITH MEDITATION AND MINDFULNESS EXERCISES

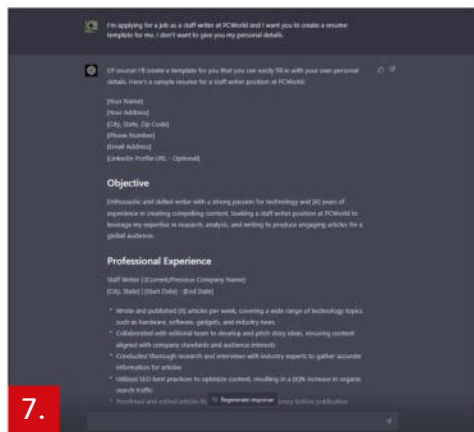
For those who like to meditate, ChatGPT can help guide you through mindfulness exercises by providing instructions and support. For example, if you want to do a five-minute mindful breathing exercise, ChatGPT will give you detailed step-by-step instructions on what to do.

If you want to do a different type of meditation or mindfulness exercise, but aren't sure what to do, you can always ask ChatGPT to give you some suggestions.



7. CRAFT A CV

There are many CV builders out there, but ChatGPT can provide guidance, suggestions, and tips for content and formatting if you want to create your resume yourself. You'll need to provide information about your work experience,

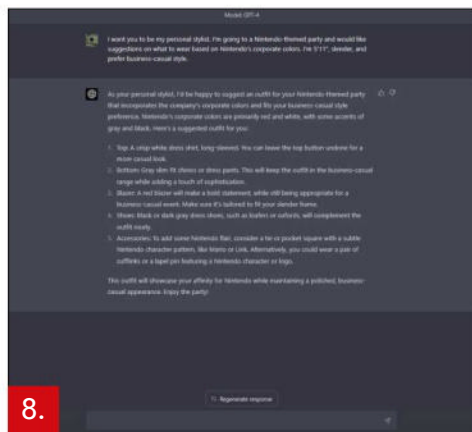


education, skills, achievements, and other relevant details that you'd like it to include.

If you're not comfortable doing that, you can ask ChatGPT to give you a resume template for the job you are applying for. I told it that I was applying for a job as a staff writer at Tech Advisor but I didn't want to give it my personal information, and it made a decent CV template for me. All I'd need to do later would be to fill in the blanks.

8. GET A PERSONAL STYLIST

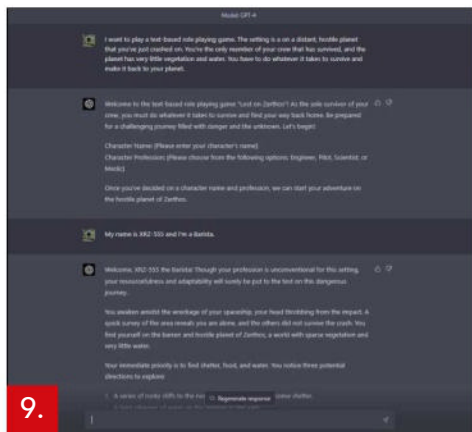
AI hasn't made it to the point where it can physically style someone, but it can offer fashion advice by suggesting outfit ideas, colour combinations, accessorizing, and more. It can also give you tips on what to wear for specific occasions.



You'll need to share some personal details with it, like your style preferences, body type, what the occasion is, or other specific requirements you may have. I told ChatGPT that I was going to a Nintendo-themed party and needed suggestions for a business-casual style that incorporated Nintendo's corporate colours. Its suggestions were very detailed.

9. PLAY A TEXT-BASED RPG

ChatGPT can create text-based role-playing games that you can play by responding to the given prompts and making choices based on the scenario. You can leave it up to ChatGPT to create the setting of the game or you can give it a detailed explanation yourself. I told ChatGPT that I wanted

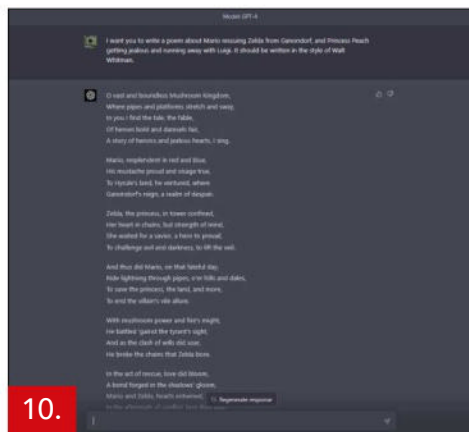


to play a text-based role-playing game set on a distant, hostile planet that I've just crashed on. I'm the only surviving member of the crew, and the planet has very little vegetation and water. The goal is to survive and make it back to my planet. ChatGPT didn't fail to deliver.

10. WRITE POETRY

ChatGPT can write poetry in various styles and themes. Give ChatGPT the basic information it needs to create the poem, like a topic, style, desired mood, or anything else you think is relevant. It will then generate a poem based on that information.

I asked ChatGPT to write a poem about Mario rescuing Zelda from Ganondorf, and Princess Peach getting jealous and running away with Luigi. I



told it that it should be written in the style of Walt Whitman, who is generally considered the father of free verse. It generated a fantastic poem and then turned that into a haiku when asked.

WHAT'S NEXT?

ChatGPT has opened up a world of possibilities for users seeking assistance, entertainment, or creative inspiration. Its versatility in handling a diverse range of tasks demonstrates the power of AI in enhancing our everyday lives. As technology continues to evolve, we can expect even more innovative applications of ChatGPT and similar AI models. The future of AI-powered assistance is bright, and we are only beginning to scratch the surface of its potential to revolutionize the way we interact with the digital world.



Best AI Art generators: Bring your dreams to life

It's easier than ever to try out AI art for yourself, with a number of low-cost or free AI art generators. **MARK HACHMAN** reports

AI art generators have moved from novelty to niche to even commodity in just months, with numerous services promising the ability to create generative AI art

instantly using natural-language text prompts. The very best AI art services offer superb imagery and superior tools, either for free or for a low price.

Why use AI art? Many of us

can appreciate a great painting, photograph, or drawing, without the ability to draw it ourselves. We may also be able to describe what we want to see, and that's where AI art comes in. Instead of searching for a piece of art that matches that description, the service actually generates it, matching what it knows of the scenes depicted in its image database and comparing them to the scene and style you specify.

All that complexity, however, demands intensive computing resources. AI art services tend to handle this in two ways: either limiting the generated images (either the number of images, or their resolution) or charging you 'credits' or actual money to enable further subscriptions. We factor that in.

Finally, we can't ignore the legal and moral implications of AI art. Generative AI art was trained on a vast number of images – some public, some possibly private – and the services use that as a 'seed' for the image they produce. Not all AI services are transparent about the source of their images. Companies like Getty Images feel that this is illegal, and have filed suit. The actual originality of AI art is in dispute, however, and AI proponents note that even human artists are typically trained or influenced by their exposure to existing art, whether public or private. Just know that you

probably won't 'own' a piece of AI art without some evidence that you yourself have altered it to make it an original work.

Confused? We'll talk more about how to get started with AI art and some of the specifics of AI art terminology you might like to know (like inpainting) at the end of this story.

HOW TO GET STARTED WITH AI ART: THE BASICS

If you're interested in trying out AI art, remember that there are plenty of sites that will let you try out AI art for free – and you should. A Google account seems to be the default requirement, however, as many don't even offer the ability to choose a username and password.

Few AI art generations will look perfect on the first try. What sites like Midjourney do is help new users up. You can get a great result with just a very basic description.

But, like any hobby, AI art has its own nerds. Some sites will refer to (and even offer tutorials on) "prompt engineering," or tailoring your text prompt to get the result just so. What other sites offer as an alternative is a simple visual list of styles and models that you can choose from – and selecting those will add the proper text

to the prompt itself. (It can be useful to understand just how synthwave differs from cyberpunk.) Some, unfortunately, lock these additional models behind a paywall.

If you're suddenly at a loss for what to create, think of tweaks to the real world: a dragon perched on the Brooklyn Bridge. The cute centaur at the end of the bar. You'll have even more fun with casting scenes in the styles of your favorite artists or photographers. Words matter, as does phrasing. Sometimes a phrase like 'while skateboarding' may be misinterpreted, but 'riding a skateboard' might not be.

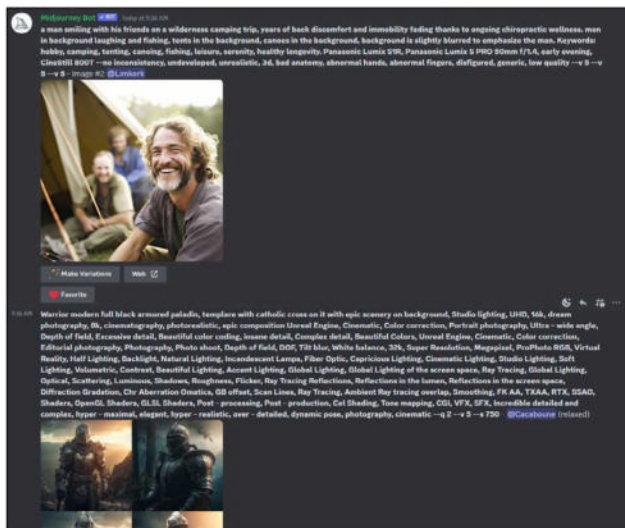
You can often generate more than one image at a time, though it will often cost you in terms of credits or whatever the site uses to limit generations. Larger images will often require more credits, but this varies by service.

Think of a prompt in this way: ‘a photo/comic/woodcut of a squirrel/Marilyn Monroe/a fairy in the style of Van Gogh/Ansel Adams/Salvador Dali’, where you choose one of each. Then add whatever modifiers you can think of: is the scene viewed through the branches of a tree? Shot with a Canon DSLR with a long lens? AI can accommodate more than you’d think.

Well, almost everything.

AI art also has one weakness: hands and fingers. Why? We're not sure, but it's such a common weakness that it's almost a meme. Some terms of service also allow NSFW images, while others don't – when you think about all of the awful things that people can imagine, this makes sense. Others don't care about allowing celebrity likenesses, such as former presidents.

Just like someone
skilled in Photoshop or



You can simply write a prompt like 'man sitting next to tent' and you'll receive a result from an AI art service. But some people prefer to get very, very specific.

Lightroom can need time to edit a photo, so can you. You may need a few dozen efforts to get things just so – and that’s why it’s worth trying AI art on a site that allows multiple prompts, for cheap, to see if it’s worth it. Try multiple sites, too. Additional editing tools like inpainting and outpainting can help fix errors.

Yes, inpainting. Don’t know what that means? Neither did many of us until fairly recently. We’ve included a glossary, below, to provide additional AI art definitions to help get you started.

Prompt: A simple (or complex) text description that describes that the image portrays. This is affected by the prompt weight (see below).

txt2img (text-to-image): This is basically what we think of in terms of AI art: input a text prompt, generate an image.

Negative prompt: Anything you don’t want to see in the final image.

img2img: (image to image): Instead of generating a scene from scratch, you can upload an image and use that as inspiration for the output image. Want to turn your dog into a king? Upload the dog’s photo, then apply the AI art generation to the scene.

Model: AI uses different generative models (Stable Diffusion 1.5 or 2.1 are the most common, though there are many others like DALL-E 2 and Midjourney’s custom model) and each model will bring its own ‘look’ to a scene. Experiment and see what works.

Prompt weight: How closely the model and image adheres to the prompt. This is one variable you may want to tweak on the sites that allow it. Simply put, a strong prompt weight won’t allow for much creativity by the AI algorithm, while a weak weight will.

Sampler: Nothing you probably need to worry about, though different samplers also affect the look of an image.

Steps: How many iterations an AI art generator will take to construct an image, generally improving the output. While many services will allow you to adjust this, a general rule of thumb is that anything over 50 steps offers diminishing improvements. One user uploaded a visual comparison of how steps and samples affect the resulting image (fave.co/43M6tDT).

ControlNet: A new algorithm, and not widely used. ControlNet is specifically designed for image-to-

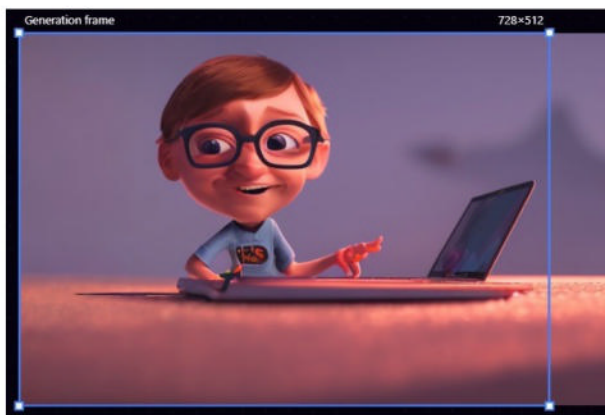
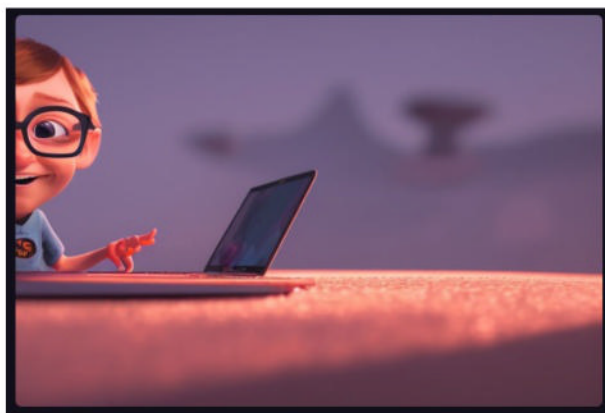
image generation, 'locking' aspects of the original image so they can't be changed. If you have an image of a black cat and want to change it to a calico, ControlNet could be used to preserve the original pose, simply changing the colour.

Face fixing: Some sites offer the ability to 'fix' faces using algorithms like GFPGAN, which can make portraits look more lifelike.

Upscaling: Default images are usually small, square, 1,024x1,024 images, though not always. Though upscaling often 'costs' more in terms of time and computing resources, upscaling the image is one way to get a 'big' image that you can use for other purposes besides just showing off to your friends on social media.

Inpainting: This is a rather interesting form of image editing. Inpainting is basically like Photoshop plus AI: you can take an image and highlight a specific

area, and then alter that area using AI. (You can also edit everything but the highlighted area, alternatively.) Imagine uploading a photo of your father, 'inpainting' the area where his hair is, and then adding a crown or a clown's wig with AI.



AI cut off the top image for some reason, leaving the image with half a face. Outpainting uses AI to extrapolate what the rest of the scene should look like.

Outpainting: This uses AI to expand the bounds of the scene. Imagine you just have a small photo, shot on a beach in Italy. You could use outpainting to 'expand' the shot, adding more of the (AI-generated) beach, perhaps a few birds or a distant building. It's not something you'd normally think of.

\$60 (around £48) per month

Images: 25 prompts for the free trial, then varies

Image licence: Non-commercial use for the free trial, otherwise commercial use permitted except for large businesses

NSFW/Celebs: No/Yes

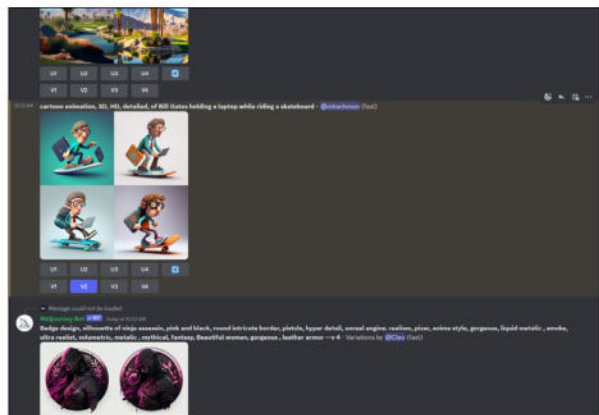
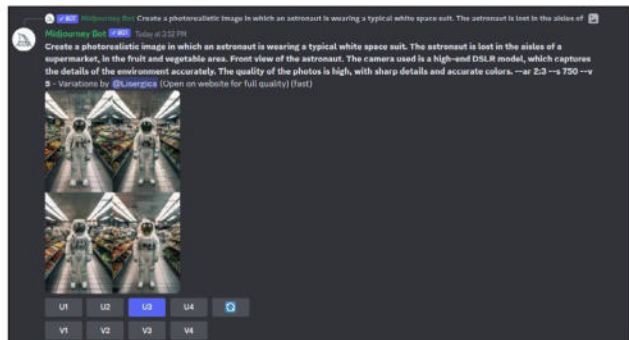
AI art can be worrying for artists who may now have to, perhaps unfairly, compete with machine-generated AI art. However, we choose to look at AI art as its own, unique, creative outlet, encouraging you to think about and create your own pieces. After all, you can buy food at a restaurant, or follow a recipe and combine ingredients yourself. Each has its place. Encouraging more people to become part of the creative process is what AI art is all about.

THE BEST AI ART GENERATORS

Midjourney

URL: fave.co/3Aebast

Price: Free trial (on hold), \$10 (around £8), \$30 (around £24),



Midjourney's UI is actually on Discord, where users can enter public prompts and see the images others generate. We've zoomed in on a screenshot taken from Discord, showing the final photorealistic result.

So far, Midjourney stands out as the unparalleled leader of AI art since its launch last year – though the magnificence of its images contrast rather ironically with the absolute clunkiness of its interface. Midjourney

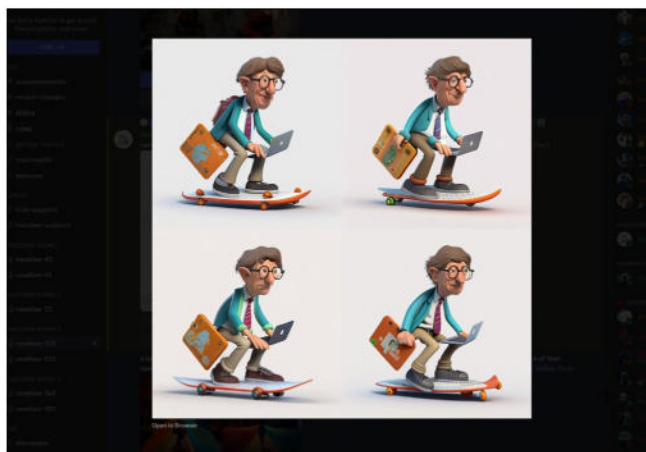
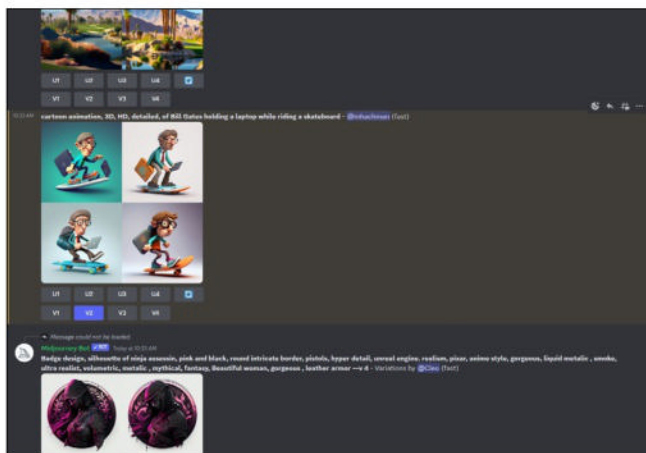
v5 (the current version as of press time) delivers the sort of hyperrealistic, fake images (the Pope in a puffy jacket, say) that generate news stories. ‘Reality’ can now be artificially generated.

Midjourney uses Discord as its

interface because the start-up didn’t want to invest in any infrastructure. You’ll need to sign up for that app, then drop into one of the ‘newbie’ Discord channels and use the /imagine command to prompt the service with your request for AI art.

Each prompt generates four images, any of which can be chosen for ‘variation’, as well as upscaling. Inpainting is also possible. You can open the image either in Discord or a browser to download it. Midjourney says that you can use its generated images ‘in just about any way you want’, which includes ownership of those images, subject to its terms of service.

Let’s reiterate:



Each of the four Midjourney images can either be upscaled or you can ask for variations on them, as shown here.

Midjourney images are magnificent, and, since they're public, you can see other users generate images in real time as well as browse a gallery of historical images. The magic of Midjourney is how it typically delivers a good image routinely. But using it is a lot like a command-line version of Photoshop: there are tons of available tweaks, and they're not obvious at all.

Microsoft Bing Chat (Creative Mode)

URL: fave.co/3MY7bb2

Price: Free with Microsoft account

Images: Apparently unlimited

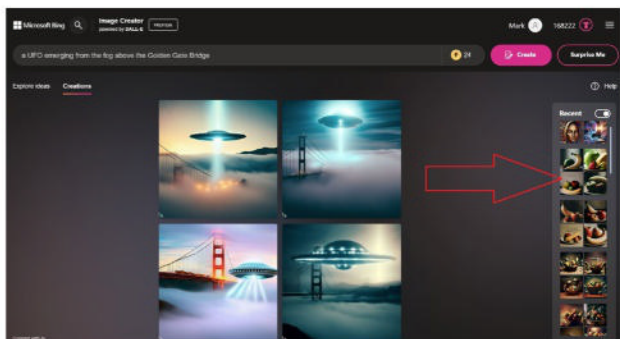
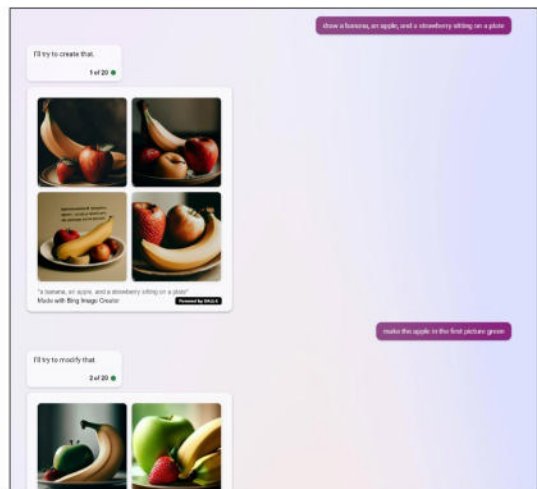
Image licence: Unclear

NSFW/Celebs: No/Some

Normally, we'd highlight Bing Image Creator as Microsoft's AI image contribution. The AI-powered Microsoft Designer, too, is excellent. But weirdly, we like Bing Chat (specifically, its Creative Mode) as a top AI art generator for one specific reason: iterations.

All three of Microsoft's AI art services are essentially free and apparently unlimited, provided that you have a Microsoft account

and managed to get through the wait list for Bing Chat and Image Creator. (Image Creator has an odd 'boost' system which may or may not be in play here, but Microsoft doesn't seem to flag any limits on the number of images you can generate, which is a huge selling point.) Microsoft doesn't claim to own



You can ask for AI art within Bing Chat, but the images will be stored in Bing Image Creator.

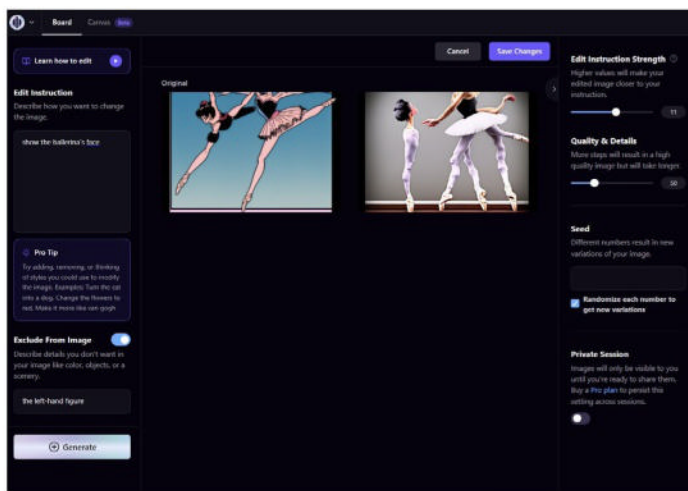
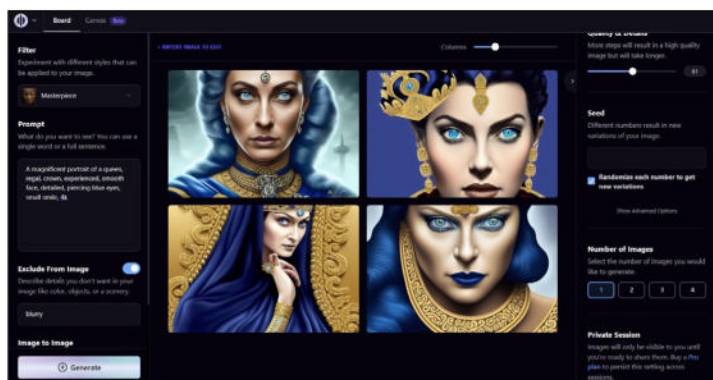
any of the images it generates, but it doesn't say that you own them, either.

Otherwise, all you need to do is go to Bing Chat and enter a prompt like 'draw me a...' followed by a description of the image.

Bing will then take a few moments and generate four 1,024x1,024 images that you can click on to see more clearly and download them. Bing won't draw celebrities like Bill Gates or Donald Trump, but Brad Pitt is just fine, apparently.

Microsoft uses a trained version of the DALL-E 2 model, and the results are, subjectively, just a step below Midjourney. Bing Chat doesn't seem to allow inpainting, you can do something that not all other AI art generators do: incrementally iterate on a scene. By that, we mean that we

could prompt it to: 'draw a basket of fruit' and then, in the next prompt, ask it to adjust a detail of the scene. (It won't edit the scene, however, just download another image.)



Playground AI provides a very nicely designed UI for AI art generation, but its AI editing features may need some tweaking. One of its strengths, though, is in outpainting, which we describe in the glossary at the end of this story.

What Bing Chat doesn't seem to do itself, however, is archive images. You'll need to promptly (heh) download them or visit Bing Image Creator, where you'll find them hidden.

Playground AI

URL: fave.co/3GYFcnO

Price: Free, \$15 (around £12) per month.

Images: 1,000 per day (free) / 2,000 per day (paid)

Image licence: You own them, even for commercial use

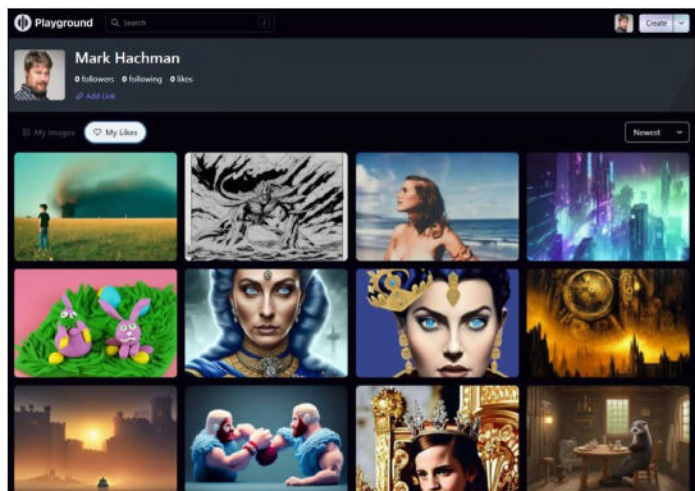
NSFW/Celebs: No/Yes

Though Microsoft Bing Chat probably wins out in terms of its absolute simplicity, Playground AI is probably the cheapest, simplest, yet most comprehensive way to sample AI art for yourself. With nothing more than a Google account, you can sign up for Playground and its 1,000 free images per day. (Some quality and size details are limited after 50 daily images.)

Playground's UI is very well designed, with prompt information and

styles on the left rail, with adjustable sizing, weighting, and other tweaks to the right. The generated images aren't quite as good as Bing or Midjourney, but it's a very small step down, if that. About the only limitation are the available models: just Stable Diffusion 1.5 and 2.1, which will suffice for many people. You can play around with celebrity images if that's your thing, but NSFW images are a no-no.

Where Playground shines, though, is in editing. Like Bing, you can edit created images through additional prompts, whether it be the whole thing or just a portion (inpainting). Playground calls this the Canvas, a beta feature that needs some work – the transition from creation to editing (via prompt)



Some example images I created with Playground AI.

to editing (via in- and out-painting) is rougher than it needs to be. Otherwise, this service really delivers.

Adobe Firefly

URL: fave.co/3GZQrg1

Price: TBD

Images: Unlimited, at least in beta

Image licence: Non-commercial usage only while in beta

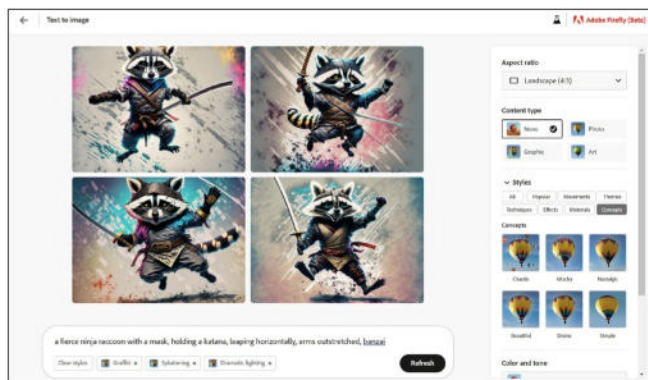
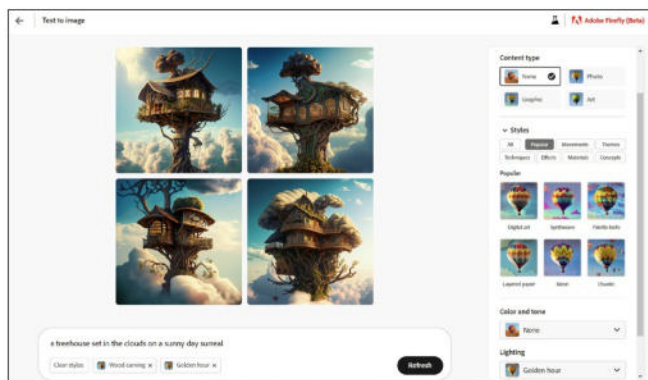
NSFW/Celebs: No/No

Adobe is a major player in creative design, so it makes sense that all of its tools will incorporate AI to some extent. Adobe Firefly represents Adobe's first public steps in that direction. Currently in beta, Firefly is built upon copyright-free or openly-licensed images, or images it itself has owned. Maybe for that reason, Firefly images look professional – a self-fulfilling cycle, maybe, given that you've probably seen many images originally created from Adobe tools and Adobe stock.

Right now, we don't

know what Adobe will eventually charge for Firefly, or whether it will be a standalone product. We'd expect the Firefly engine, at least, to land in Photoshop and Adobe's other tools.

The beta currently offers an unlimited amount of text-to-image generative art as well text effects, or AI-generated textures applied to text via a prompt. Adobe also says that it's 'exploring' inpainting, outpainting, turning



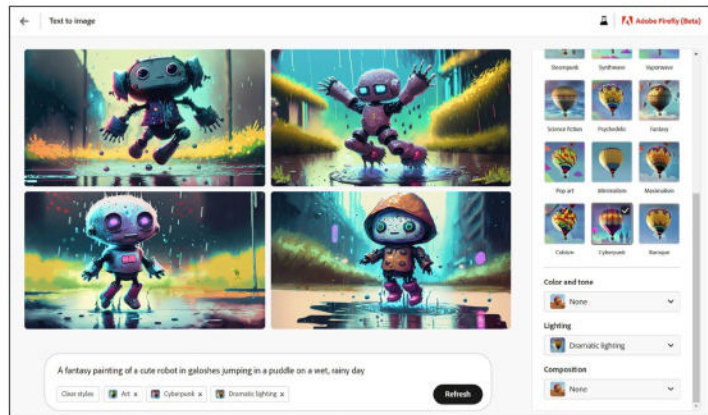
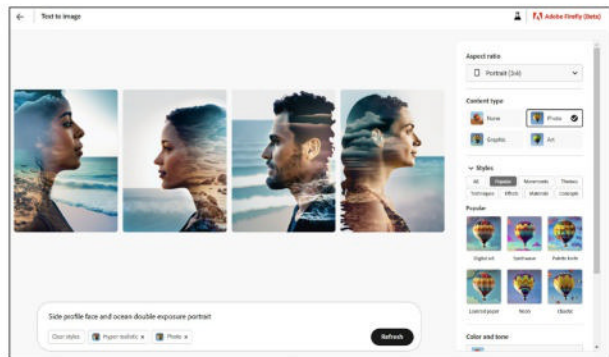
Adobe Firefly created some interesting AI art.

3D models into images, personalized AI models, sketch-to-image, and more.

Adobe's model doesn't seem as creatively free as some others, but makes up for it with its slick, professional look. Each prompt generates four images, which you can adjust

with easy-to-parse stylistic adjustments from content type (photo, graphic, art) to styles (layered paper, fur, neon, palette knife) to colour, tone, and lighting. Adjusting the image format changes the image, too. Just forget anything NSFW or with celebrities inside of it.

Adobe Firefly seems to do best with images that have some connection to the real world and its stock imagery. Odd connections ('a fly buzzing around a king's head') produce stunning visions of just one portion of the scene. Pros will love Firefly, which will undoubtedly be locked behind an expensive Creative Cloud subscription.



Examples of AI art that uses double exposure.

Stable Diffusion

URL: fave.co/43Q8qPu

Price: Free

Images: Unlimited

Image licence: Unclear

NSFW/Celebs: Yes/Yes

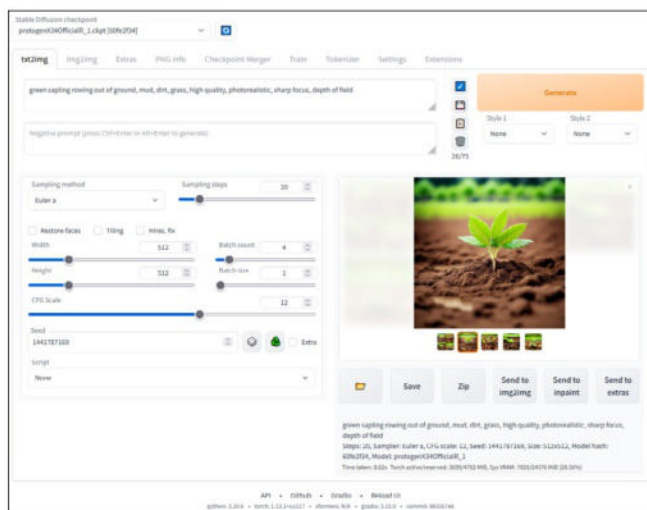
Unlike cloud-based AI art services, a key selling point of Stable Diffusion is that it runs locally, on your PC – not on

a server. If you want to create dozens of images of bikini-clad elves frolicking in pools of jelly on Midjourney, the world is going to be able to see. Otherwise, if you have a powerful gaming laptop or desktop, you can download the Stable Diffusion code and a variety of image models and training data and go to town on the privacy of your PC. And it's all free, provided

that you have the time to download a multi-gigabyte software model, the hardware resources to run it, and the patience to set it all up.

Stable Diffusion can be a bit like running Linux. Its legacy is the command line, and there's just a ton of publicly available code on GitHub and so on to play with, if that's your thing. However, UI-driven implementations of Stable Diffusion are becoming more common, and the most popular at the moment seems to be AUTOMATIC1111 (fave.co/3KS0cxQ).

Naturally, the more powerful hardware, the better – but it's not only your CPU or even your GPU that matters. Instead, the key component



The Automatic1111 UI.

seems to be your GPU's available VRAM. There are models and toggles and other options to tweak Stable Diffusion in favour of your CPU or lower-tier GPUs, but the easiest way to run Stable Diffusion is with a powerful PC.

Stable Horde (Artbot)

URL: fave.co/43Ong99

Price: Free

Images: Unlimited, though subject to queuing

Image licence: Unclear

NSFW/Celebs: Yes/Yes

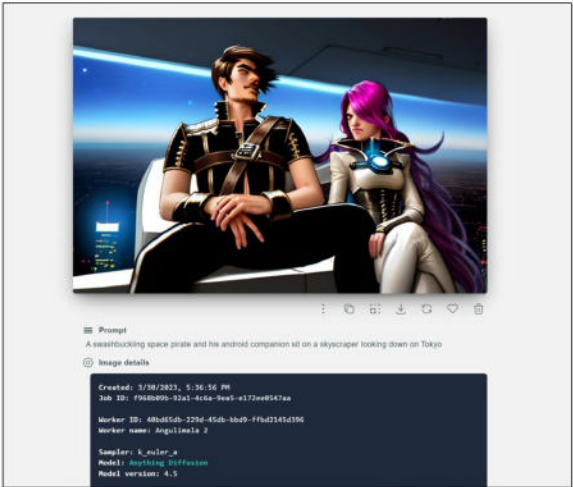
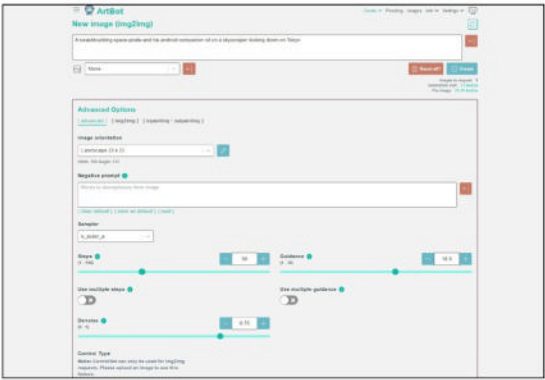
So what happens if you don't have a powerful enough PC to run Stable Diffusion? Stable Horde is one answer.

Like the old-school (now defunct) SETI@ Home, all you're doing is sending your prompt out to a cluster of connected PCs running Stable Diffusion. There are a few front-end interfaces, but we rely on Artbot.

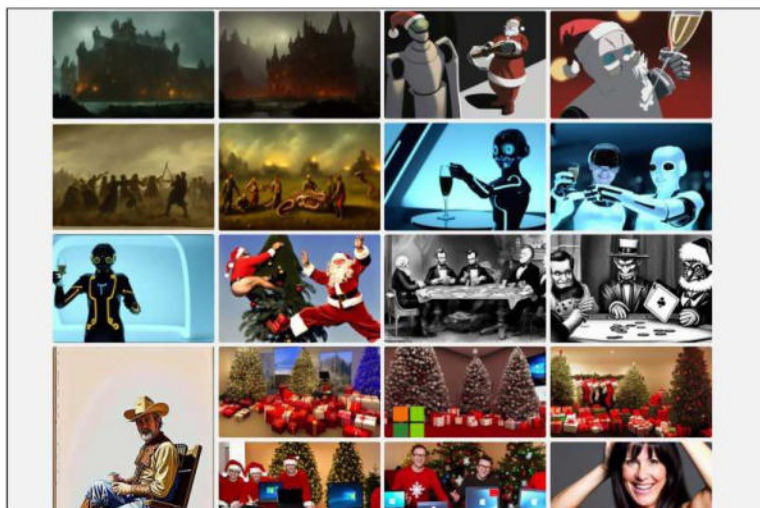
Unlike Stable Diffusion's roots, Artbot uses a GUI that's somewhat navigable: prompt at the top, followed by a ton of available options and models. What Artbot offers are helpful tool tips that explain what those options do: how weighting the prompt affects it, negative prompting, and more. There's an extremely helpful list of the various models which you can use as a framework for your prompt, showing you visually how they'll affect the style of the output. The configurability is amazing.

Stable Horde isn't really free, however. It works on a 'kudos' system, where you'll need to sign up with an API key – a hurdle to unfamiliar users. After that, you'll start with a balance of kudos, which are subtracted with each image you generate. The more complex the image is, the more kudos it consumes. The fewer the kudos, the further back in the queue

you'll end up with other users. That's not always a problem – with 30 or so PCs all working together to churn out images, you may find that your image is generated immediately. (Images are saved in a library on the site until you clear your cookies.)



One of the best things about Stable Diffusion is its AI art models, which can often be hit or miss.



A collection of images I generated with Artbot.

You can ‘buy’ kudos, however, by rating images, training the model on which images humans (you) prefer or connecting your PC to the Horde itself. While you can go into ‘debt’ by frequently generating images, there are certain actions you can’t take without an actual kudos ‘balance’ to fund it.

Why use Artbot? The vast number of AI models, and the variance in style those images produce. Otherwise, generating images via Artbot can be a bit of a gamble, and you may expend a great number of kudos simply exploring all the options. Since there’s no real setup besides figuring out the API key, Stable Horde (Artbot) can be worth a try.



Opinion: AI chatbots aren't search engines. They're crypto bros

Don't trust them. **BRAD CHACOS** reports

Over the past few months, AI chatbots have exploded in popularity off the surging success of OpenAI's revolutionary

ChatGPT – which, amazingly, only burst onto the scene around December. But when Microsoft seized the opportunity to hitch its wagon to OpenAI's rising

star for a steep \$10 billion dollars, it chose to do so by introducing a GPT-4-powered chatbot under the guise of Bing, its swell-but-also-ran search engine, in a bid to upend Google's search dominance. Google quickly followed suit with its own home-grown Bard AI.

Both are touted as experiments. And these 'AI chatbots' are truly wondrous advancements – I've spent many nights with my kids joyously creating fantastic stuff-of-your-dreams artwork with Bing Chat's Dall-E integration and prompting sick raps about wizards who think lizards are the source of all magic, and seeing them come to life in mere moments with these fantastic tools. I love them.

But Microsoft and Google's marketing got it wrong. AI chatbots like ChatGPT, Bing Chat and Google Bard shouldn't be lumped in with search engines whatsoever. They're more like those crypto bros clogging up the comments in Elon Musk's terrible new Twitter, loudly and confidently braying true-sounding statements that in reality are often full of absolute bullshit.

These so-called 'AI chatbots' do a fantastic job of synthesizing information and providing entertaining, oft-accurate details about whatever you query. But under the hood, they're actually large language models (LLMs) trained on

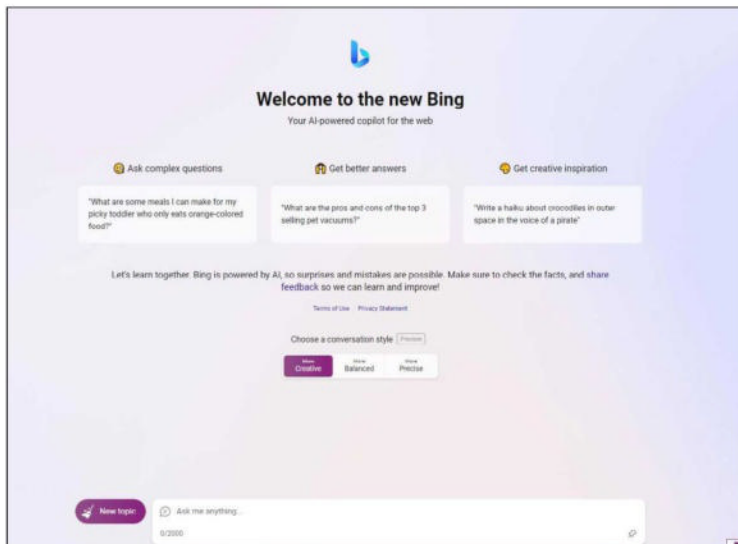
billions or even trillions of points of data – text – that they learn from in order to anticipate which words should come next based off your query. AI chatbots aren't intelligent at all. They draw on patterns of word association to generate results that sound plausible for your query, then state them definitively with no idea of whether or not those strung-together words are actually true.

I have no idea who coined the term originally, but the memes are right: These chatbots are essentially autocorrect on steroids, not reliable sources of information like the search engines they're using despite the implication of trust that association provides.

They're bullshit generators. They're crypto bros.

AI CHATBOTS SAY THE STRANGEST THINGS

The signs were there immediately. Beyond all the experiment talk, Microsoft and Google were both sure to emphasize that these LLMs sometimes generate inaccurate results ('hallucinating', in AI technospeak). "Bing is powered by AI, so surprises and mistakes are possible," Microsoft's disclaimer states. "Make sure to check the facts, and share feedback so we can learn and improve." That was driven



Yes, the Bing Chat interface says ‘surprises and mistakes are possible,’ but you enter it via the Bing search engine and this design insinuates you’ll get ‘better answers’ to even complex questions despite the tendency for AI hallucinations to get things wrong.

home when journalists discovered embarrassing inaccuracies in the glitzy launch presentations for Bard and Bing Chat alike.

Those falsehoods suck when you’re using Bing and, you know, Google – the world’s biggest two search engines. But conflating search engines with large language models has even deeper implications, as driven home by a recent *Washington Post* report (fave.co/3URdGhO) chronicling how OpenAI’s ChatGPT “invented a sexual harassment scandal and named a real

law prof as the accused”, as the headline aptly summarized.

It’s exactly what it sounds like. But it’s so much worse because of how this hallucinated ‘scandal’ was discovered.

You should go read the article.

It’s both great and terrifying. Essentially, law professor John Turley was contacted by a

fellow lawyer who asked ChatGPT to generate a list of law scholars guilty of sexual harassment. Turley’s name was on the list, complete with a citation of a *Washington Post* article. But Turley hasn’t been accused of sexual harassment, and that *Washington Post* article doesn’t exist. The large language model hallucinated it, likely drawing off Turley’s record of providing press interviews on law subjects to publications like the *Post*.

“It was quite chilling,” Turley told the *Post*. “An allegation of this kind is

incredibly harmful.”

You’re damned right it is. An allegation like that could ruin someone’s career, especially since Microsoft’s Bing Chat AI quickly started spouting similar allegations with Turley’s name in the news. “Now Bing is also claiming Turley was accused of sexually harassing a student on a class trip in 2018,” the Post’s Will Oremus tweeted (fave.co/3UR9ej4). “It cites as a source for this claim Turley’s own *USA Today* op-ed about the false claim by ChatGPT, along with several other aggregations of his op-ed.”

I’d be furious – and furiously suing every company involved in the slanderous claims, made under the corporate banners of OpenAI and Microsoft. Funnily enough, an Australian mayor threatened just that around the same time the *Post* report published. “Regional Australian mayor [Brian Hood] said he may sue OpenAI if it does not correct ChatGPT’s false claims that he had served time in prison for bribery, in what would be the first defamation lawsuit against the automated text service,” Reuters reported (fave.co/3MZp49l).

OpenAI’s ChatGPT is catching the brunt of these lawsuits, possibly because it’s at the forefront of ‘AI chatbots’ and was the fastest-adopted

technology ever. (Spitting out libellous, hallucinated claims doesn’t help.) But Microsoft and Google are causing just as much harm by associating chatbots with search engines. They’re too inaccurate for that, at least at this stage.

Turley and Hood’s examples may be extreme, but if you spend any amount of time playing around with these chatbots, you’re bound to stumble into more insidious inaccuracies, nonetheless stated with full confidence. Bing, for example, misgendered my daughter when I asked about her, and when I had it craft a personalized resume from my LinkedIn profile, it got a lot correct, but also hallucinated skills and previous employers references. That could be devastating to your job prospects if you aren’t paying close attention. Again, Bard’s reveal demonstration included obvious falsehoods about the James Webb space telescope that astronomers identified instantly. Using these supposedly search engine-adjacent tools for research could wreck your kid’s school grades.

IT DIDN'T HAVE TO BE THIS WAY

The hallucinations sometimes spit out by these AI tools aren’t as painful in more creative endeavours. AI art generators rock, and Microsoft’s killer-



AI chatbots have a big microphone and all the boisterous, misplaced confidence of that dude always yelling about sports and politics at the bar.

looking Office AI enhancements – which can create full PowerPoint presentations out of reference documents you cite, and more – seem poised to bring radical improvements to desk drones like yours truly. But those tasks don't have the strict accuracy expectations that come with search engines.

It didn't have to be this way. Microsoft and Google's marketing truly dropped the ball here by associating large language models with search engines in the eyes of the public, and I hope it doesn't wind up permanently poisoning the well of perception. These are fantastic tools.

I'll end this piece with a tweet from Steven Sinofsky (fave.co/3H1nRea), who was replying to commentary (fave.co/41nq37W) about severely wrong ChatGPT hallucinations causing headaches for an inaccurately cited researcher. Sinofsky is an investor who lead Microsoft Office and Windows 7 to glory back in the day, so he knows what he's talking about.

"Imagine a world where this was called 'Creative Writer' and not 'Search' or

'Ask anything about the world'," he said. "This is just a branding fiasco right now. Maybe in 10 years of progress, many more technology layers, and so on it will come to be search."

For now, however, AI chatbots are crypto bros. Have fun, bask in the possibilities these wondrous tools unlock, but don't take their information at face value.



Credit: Getty Images/ksimage

Digital fingerprinting: The secret, insidious way you're tracked online

There's a new way to track web activity. **MICHAEL CRIDER** reports

By now you probably know that your web activity is tracked at pretty much every step. Things like your IP address, a number associated with your connection to your Internet service provider, and cookies, tiny files collected by your web browser,

can identify you to websites, advertisers, and anyone who's interested enough in your data to pay for it. But there are far more complex methods of tracking users on the open Internet – ways that can get past even blocked cookies or an IP address masked with a VPN.

This collection of varied data to groups of users, and sometimes even a single user, is called a digital fingerprint. With a wide enough net cast to collect data through information gathered via websites and advertising, it's possible to get a startlingly accurate picture of what a specific user is doing online, sometimes down to a near-complete history of their web usage.

WHAT A DIGITAL FINGERPRINT ISN'T

Despite the allusion to something you might see on a TV show about cops and investigators, a digital fingerprint isn't a single file or point of data. Unlike a tracking cookie or an IP address, it's a wide and varied set of information variables collected from your devices (smartphones, laptops and desktops, even things like smart TVs or appliances) as you use the Internet. Combining all of this data together can track a single user and collect a log of their activity.

So, the bad news is there's no magic pill or a single method of blocking a site or an advertiser from collecting all of this data. You can't just turn on Incognito Mode and assume someone can't get to your information. It means that if you want to keep from being monitored, you need to take a systemic approach to protecting your

information and your activity. That goes for every device you're using, whenever you're using it.

WHAT INFORMATION IS IN A DIGITAL FINGERPRINT?

What kind of data is being collected? A huge variety, some of which you may never have even imagined was being recorded. Obvious things like the type of web browser and operating system you're using are some of the first steps, but with modern web technology, sites can gather data such as which browser extensions you have installed (like ad blockers or password managers), which programs or apps are installed on your device, the language your system is set to, or even the specific fonts you have installed.

Here's a long, but by no means definitive, list of the different kinds of data that can be combined to form a digital fingerprint:

- Your estimated location, gathered from data like IP address, country reporting and your device's time zone setting.
- Your device's type, manufacturer, operating system, and even the operating system version number.
- Your web browser (reported by its user agent), browser version number,

and settings like 'Do not track' and default language.

- Your browser's installed plug-ins and extensions, like a PDF viewer or an ad blocker.
- Your device's display information, including resolution, size, and even the available display dedicated to the web page itself.
- Your device's hardware permissions granted to the browser, like camera control, microphone, or accelerometer.
- Your device's basic hardware information, like battery level or available RAM.
- Your installed video and audio formats for available media playback.
- Your default keyboard layout, and whether you're using a touchscreen or not.
- Your installed fonts.
- Complex browser information including HTTP headers, available APIs, CSS info, and JavaScript objects.

Some tracking systems can get even more complex. For example, an embedded bit of script can query your device's CPU to perform a quick cryptographic function, something it does in less than a second all the time. But by measuring how fast your gadget does the math, and comparing it to all the other devices performing the same

test, it can get a benchmark of your processor and guess what type and model it is.

I should point out that there's a reason that all this information is shared in the first place, and it's typically harmless. For example, modern websites need to know your screen size and resolution in order to show you text you can read easily, and format it to fit on your screen so it doesn't cover other elements of the page. But advertisers and other actors have found ingenious ways to collect and combine this data into incredibly complex tracking systems that don't need old-fashioned cookies or IP numbers.

WHAT CAN SOMEONE DO WITH MY DIGITAL FINGERPRINT INFORMATION?

Because modern devices are so complex, and always-online users tend to use their computers and gadgets so differently, it's easy to combine all of these data points and narrow them down into small groups of users. In fact, if you've been using your phone or computer for more than a week or so and you haven't taken specific steps to mask yourself, your digital fingerprint is probably unique – a collection of data so complex and specific that it points right to you, and only you.



You can check your digital footprint using a tool, such as AmlUnique.

You can test this out with a service like AmlUnique (fave.co/3mGSQW0) or the Electronic Frontier Foundation's Cover Your Tracks tool (fave.co/3ov3qjn). Unsurprisingly, both of these tools determined that my desktop computer is leaving a completely unique digital fingerprint among more than a quarter million surveyed results. It's possible, and even pretty likely, that an advertiser can pinpoint my unique user profile among all the web traffic on the planet.

That doesn't mean that my digital fingerprint tells specific things about me, personally. It can't know my age, nationality, race, sex, home address, phone number, and so on – at least, not without connecting to some other database of stored information. But what it CAN do is track the websites I visit and what I do there.

That's because websites and advertisers pass digital fingerprints around like trading cards. With a wide enough network collecting from websites and ads, especially the most commonly-visited sites like Google,

Amazon, Facebook, YouTube, and so on, you can build a nearly-complete record of what specific users are doing on the web. And by extension, you can build a profile of what they're interested in...and what they might want to buy.

Yup, this all comes back to advertising, the backbone of the modern Internet. Now, it's possible for governments, law enforcement agencies, hackers, and other scary people to track individuals using the same techniques. But unless you're incredibly wealthy, someone highly placed in government or industry, or you're on the run from the law, odds are pretty good you won't be individually targeted using these techniques. It's all about the ads.

However, that advertising data can be connected to your personal information, at least if you're logged

into any site that has that information available to it. That presents a more moderate danger for things like identity theft or more elaborate attempts at harm, like phishing or pig butchering. Again, you're more likely to be targeted by this if you're wealthy or important.

HOW CAN I PROTECT MY DIGITAL FINGERPRINT?

Because a digital fingerprint is made up of so many data points, it's pretty hard

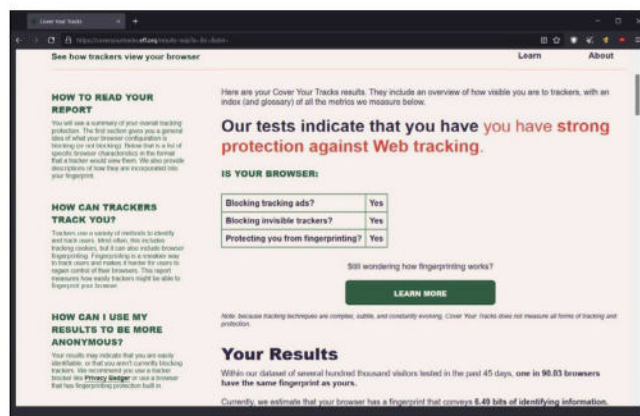
to completely stop sites and advertisers from tracking you with it. Basics like spoofing your location with a VPN and blocking cookies just won't cut it, though they do make it a lot harder for the tracker to narrow you down to a specific web user.

Blocking JavaScript with a tool like NoScript will restrict a lot of the data points being collected. But just like completely blocking cookies, that can make a lot of websites simply not work,

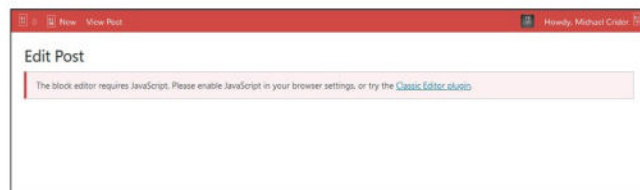
especially more complex web services and tools. Using an ad blocker will also stop some, but not all, fingerprint data collection.

Some browsers have systems that try to limit the amount of data accessible for fingerprinting – Firefox blocks at least some of it, and more privacy-focused browsers like Tor, Brave, Mullvad (fave.co/3UTkKuq) and DuckDuckGo either block the data or submit generic, non-specific information so fingerprinting becomes more difficult.

But they aren't perfect.



Setting Mullvad to super-safe mode lets me pass the EFF fingerprinting test, but...



...when I disable JavaScript, I can't use Tech Advisor's WordPress editor...which makes it impossible to do my job.

For example, the AmlUnique and EFF tools I mentioned earlier said switching from Chrome to Mullvad made tracking harder, but my desktop PC still gave off a unique user footprint based on my hardware and software. I had to completely disable JavaScript in the settings to pass the tests. But doing so makes YouTube show nothing but grey boxes, and the WordPress interface I use to write articles relies on JavaScript, so this high-security mode isn't really a feasible solution for me.

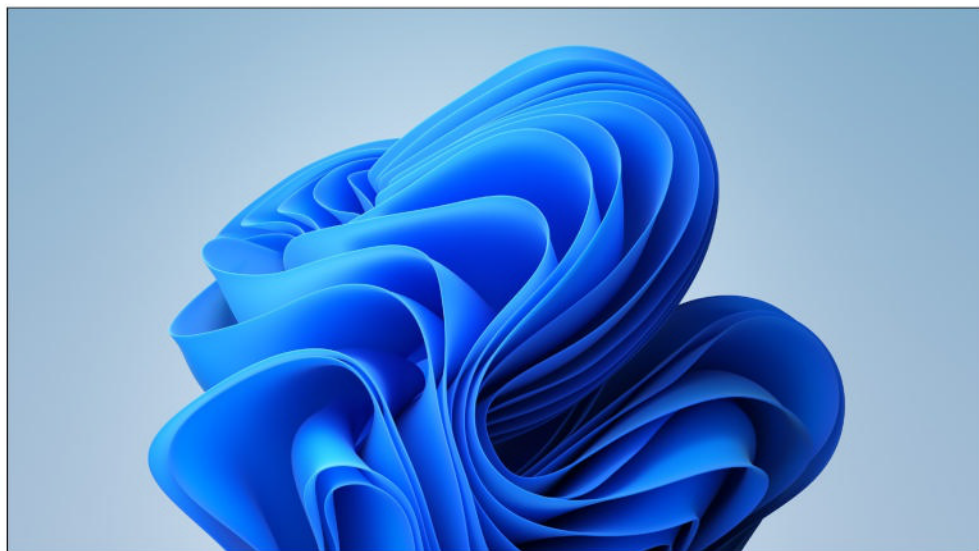
A DIFFICULT COMPROMISE

Digital fingerprinting has become a commonplace and ubiquitous practice for web advertising. So common, in fact, that it's nearly impossible to use the Internet without giving at least some data away, which can be used to create a profile for you and your activity. You can take steps to lower the amount of information collected, but engaging with any sort of complex web service (like an online shop or social network) means sharing at least some data that can be tracked.

The danger in a digital fingerprint isn't immediate – there's very little risk to targeted advertising, aside from its tendency to be annoying. The potential for mischief occurs when that data is combined with more personal

information. And keeping your personal information safe goes back to more basic, practical security measures: keeping as little of that data in as few hands as possible.

Unfortunately, there's no practical way to engage with the modern Internet and leave zero fingerprints on your activity. The best you can do is make it a little harder for sites and advertisers to pin you down specifically.



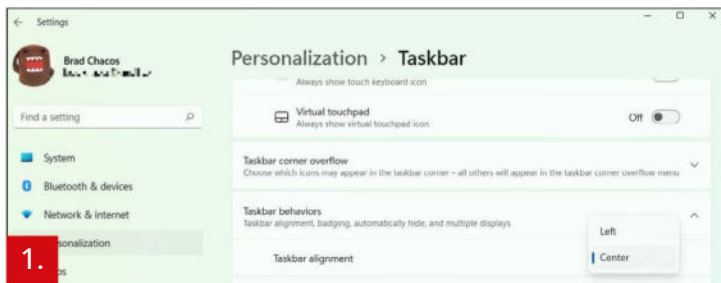
6 Windows 11 settings worth changing now

Changing these six settings makes Windows 11 much better in under five minutes of your time. **BRAD CHACOS** reports

While Windows 11 provides a fine enough out of the box experience – terrible new task bar aside – it handles so much better after tweaking just a handful of settings to make it feel more like the Windows of old.

No, I'm not talking about making Windows 11 look like Windows 10 through an extensive overhaul (though

if you're a Windows veteran that's worth doing). I'm talking about fast, simple changes that improve the feel of the operating system, turn off annoying ads, reduce the data you send to Microsoft, and more. Better yet, you can do them all in under five minutes – something I did mere weeks ago when I needed to pick up a Windows 11 laptop for some travel.



Here are six Windows 11 settings worth changing immediately, with an added bonus at the end.

1. MOVE THE START BUTTON TO THE LEFT CORNER

What can I say, I'm a traditionalist. I understand Microsoft's desire to revamp Windows 10's interface to more closely mirror the style of Macs and Chromebooks, but Windows 11's shifting taskbar icons drive me batty.

I want mousing over to the Start menu to be muscle memory, not yet another task I have to look at and mentally process.

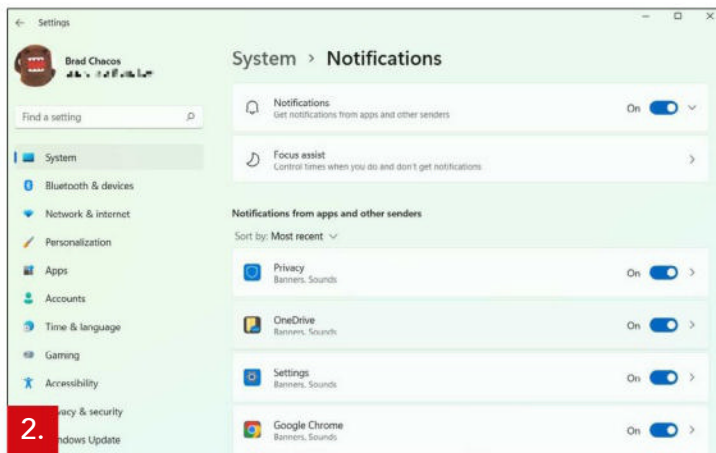
Fortunately, Microsoft makes it easy to move the Start menu back to the left-hand corner. Simply open

the Start menu and head to Settings > Personalization > Taskbar > Taskbar behaviours. You'll see a field labelled Taskbar alignment with a drop-down menu. Change the

drop-down menu from Centre to Left.

2. TURN OFF ANNOYING NOTIFICATIONS

Next, it's time to turn off those annoying pop-up notifications. Windows 11 itself spawns some, but the worst offenders are third-party apps, especially if your laptop or desktop came preloaded with bloatware. Making the distractions stop is simple. Head to Start > System > Notifications. You can



turn notifications off universally if you desire. I prefer to work through the list manually, leaving notifications on for critical tools like Slack, Discord, and my antivirus software. Either way, this menu cures many headaches.

3. TURN OFF MICROSOFT ADS

That segues neatly into the next tip. Keep scrolling down beyond the bottom of the list of apps that can send you notifications. There, you'll see a couple of additional boxes that relate to Windows 11 itself providing 'tips and

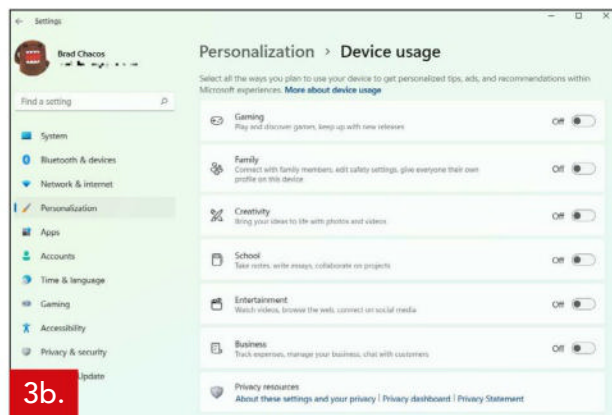
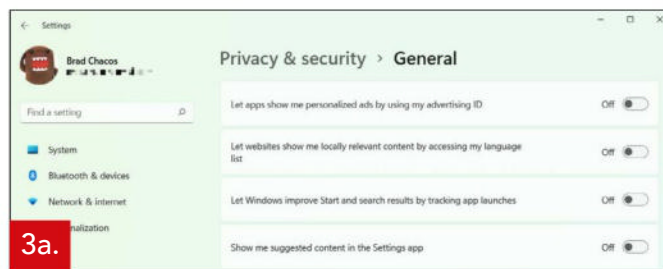
suggestions' on how to use your PC. If you know your way around well enough, deselect the Offer suggestions on how I can set up my device and Get tips and suggestions when I use Windows boxes. I prefer to leave the Show me the Windows welcome experience... option checked so I'm notified of new features when a big update drops.

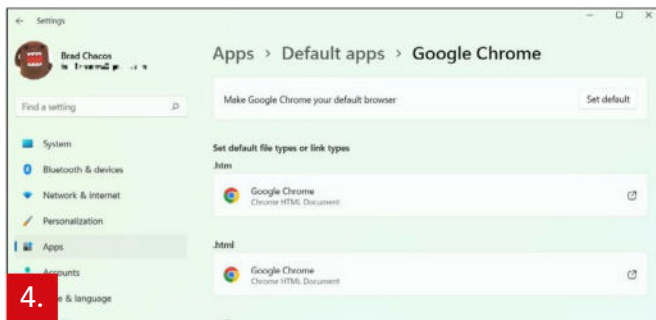
We're not done yet, though. If you don't like seeing Microsoft promotions pop up in your Settings app, head to Start > Settings > Privacy & security > General (3a.). Disabling 'Show me

suggested content in the Settings app' does the trick, though you may want to turn off all these options.

Finally, head to Settings > Personalization > Device Usage (3b.).

The options here tell Microsoft how you use your computer so Windows 11 can provide tailored recommendations for apps, websites, Office 365 trials, and more. Turn them all off if you're not interested in your £120 copy of Windows 11 upselling you on more Microsoft services.





'Make <browser name> your default browser' banner with a Set default button at the top of the page does the trick.

5. DECLUTTER THE TASKBAR

Yep, Windows 11's new taskbar sucks

There are other places Microsoft promotions lurk such as the beautiful lock screens provided by Bing Images, but tweaking this handful of settings eradicates the most irritating ones.

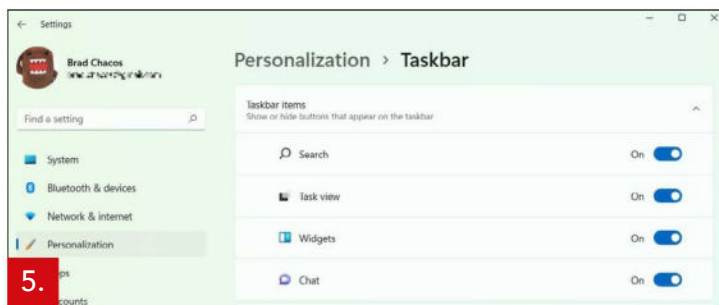
4. CHANGE YOUR DEFAULT BROWSER

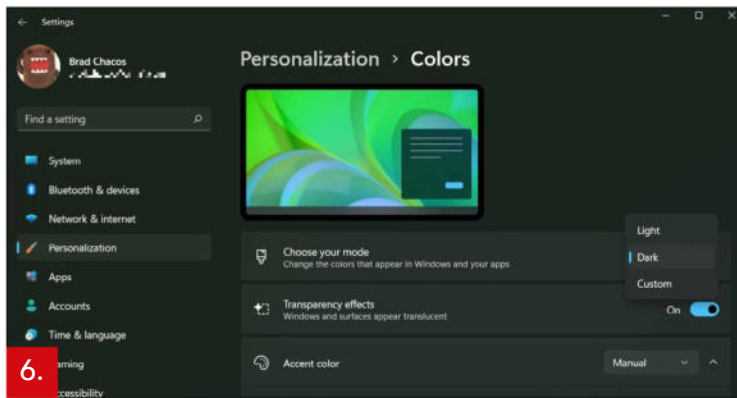
Microsoft Edge is pretty darned good, actually, but if you're a diehard Chrome, Firefox, Opera or Brave user, switching your default browser is easy.

After downloading and installing the browser of your choice, it should ask if you want to make it the default. Do so, duh. But if you missed your chance during setup, navigate to Settings > Apps > Default apps, find the name of your browser in the list, and click on it. A

and Microsoft stuffs it to the brim with icons and features you probably have no interest in. Make it easier on the eyes and reclaim some space by heading to Settings > Personalization > Taskbar and deselecting any of the taskbar items you'll never use. Adios, Widgets and Teams Chat.

While we're on the topic, spending £5.99 on Stardock's Start11 (fave. [co/40Yul5W](https://www.stardock.com/40Yul5W)) or StartIsBack (fave. [co/3Kp3JTI](https://www.startisback.com/co/3Kp3JTI)) is well worth it. The programs offer granular options that expand the look and functionality of the taskbar and Start menu alike, making





it a lot easier to make Windows 11 look like Windows 10. They're beyond the scope of this article but deserve a shout-out.

6. DARK MODE

Finally, an optional personal preference. Some people like staring at black text on white screens all day. Others, like me, prefer not to sear their retinas. So, the very first thing I always do with a new Windows install is activate dark mode, a preference that carries over into several apps once you've set it.

Simply head to Settings >

Personalization > Colours and look for a field called Choose your mode. Change the drop-down menu from Light to Dark. Your eyes will thank you.



Take full control of your keyboard with this handy Windows tool

Personalize your PC and incite chaos for other users of your computer? It's a double win. **ALAINA YEE** reports

Last month, Microsoft revealed that the Print Screen key's function would be changing in Windows 11. This venerable artifact on modern keyboards will eventually open Windows 11's Snipping tool by

default, rather than taking a screenshot of your whole screen.

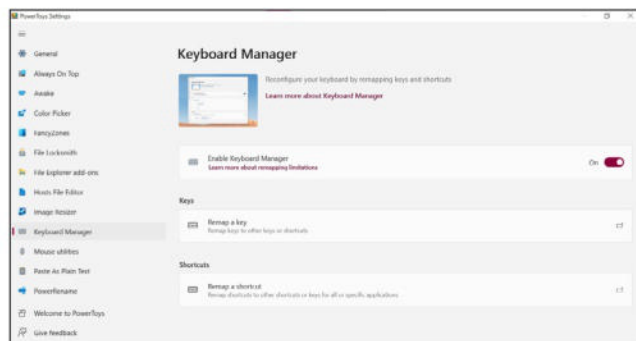
This change won't be the first time Print Screen has changed in utility. Nor are you stuck with this new update when it launches – you can toggle it

back to the existing functionality. But reading this news made think about two things – one, the legacy of Print Screen (now often shortened to Prt Scr on keyboards). I remember the days of when hitting that key meant it would actually print what was on your screen to a piece of paper. And two, how much I hate it when Microsoft upends decades of muscle memory with a tweak to a long-standing feature.

Fortunately, when it comes to keyboard output, you still have some control over it. Thanks to Microsoft's superb PowerToys apps, which are a set of incredibly useful tools not baked into Windows but should be, you can remap keys via the Keyboard Manager utility. What's remapping? As Microsoft's own explanation (fave.co/3LfUabl) of the software outlines, if you want the A key to output a 'b' when you hit it, well,

that's your business and this tool will help you make that happen.

I like using Keyboard Manager whenever I encounter keyboards that put the control key in weird spots (for my fingers, at least), but you can basically set up your own macro keys. Remap shortcuts to F1 through F12, or any other keys you don't use often. The possibilities are really endless – including the potential for mayhem. Trolling via surreptitious remapping of keys is exactly the kind of thing my cousins and I would inflict upon each other as children.



A blank slate now, but soon to be full of delightful mayhem – for other people who dare to use my PC, that is.



Credit: Getty Images/Henrik5000

How to block blue light on Windows 11

Begone, tension headaches. **ALEX HUEBNER** reports

If you spend hours a day staring at a computer screen, there's a high possibility you may suffer from tension headaches and eye strain. While there are a few solutions available for

purchase like screen films, Windows 11 has a built-in feature to block blue light without paying for anything extra. All you have to do is just make a few simple tweaks in your settings.

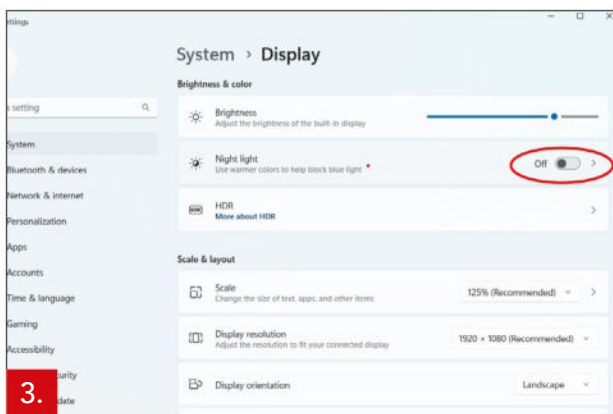
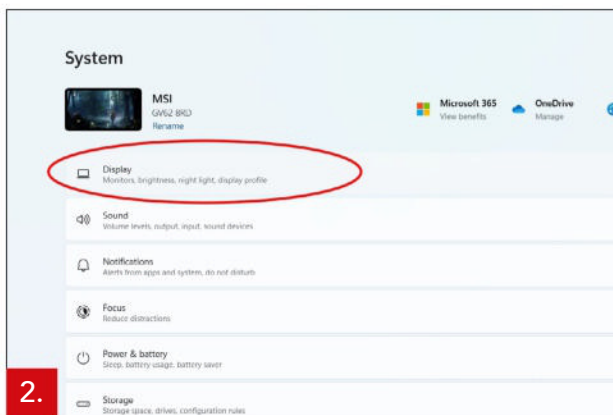
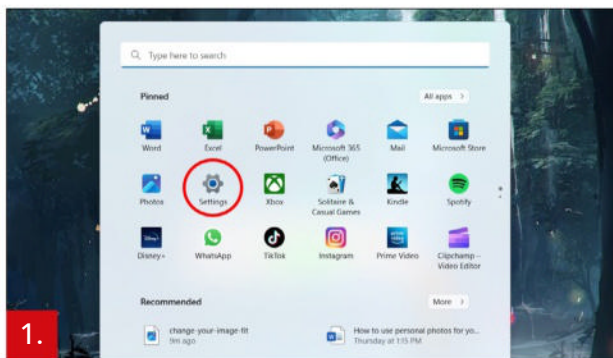
HOW TO ENABLE THE NIGHT LIGHT SETTING

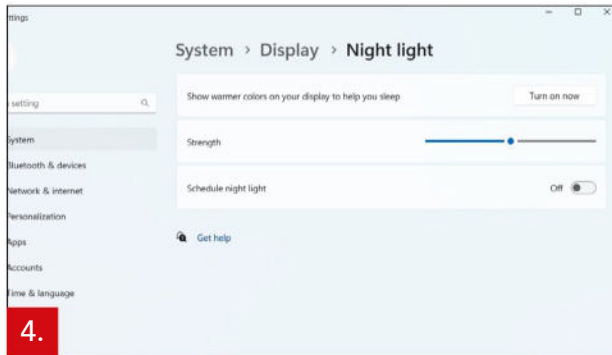
To get to your settings, click the Windows icon on your taskbar and select the gear icon labelled Settings (1.). This will open your system settings menu. To access the Night Light settings, select Display (2.). If you'd like to block the blue light all the time, click the slider to switch the Night Light setting to on (3.).

Click the arrow to change the strength of the blocker or set it on a schedule (4.).

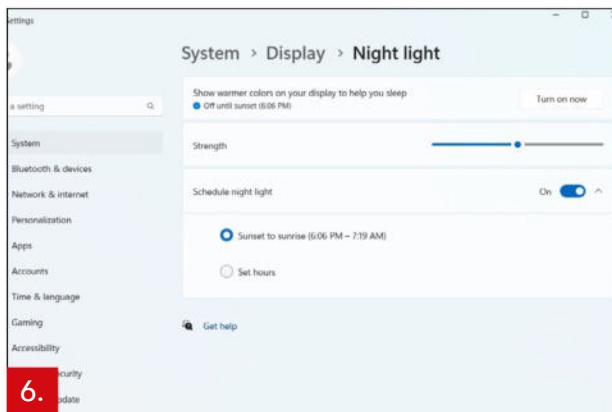
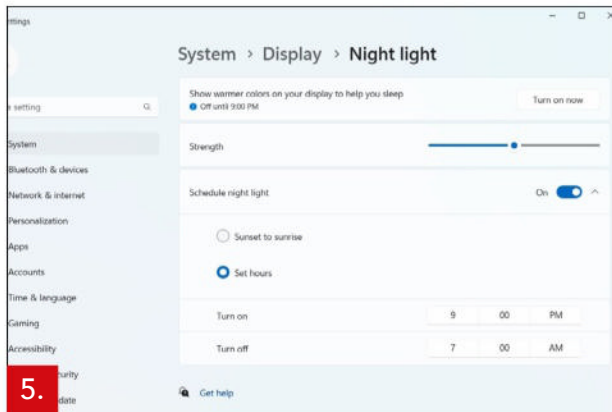
When you select the slider next to Schedule night light, you can choose to set custom hours by pushing the set hours bubble (5.). Just click the numbers and AM or PM to change the times.

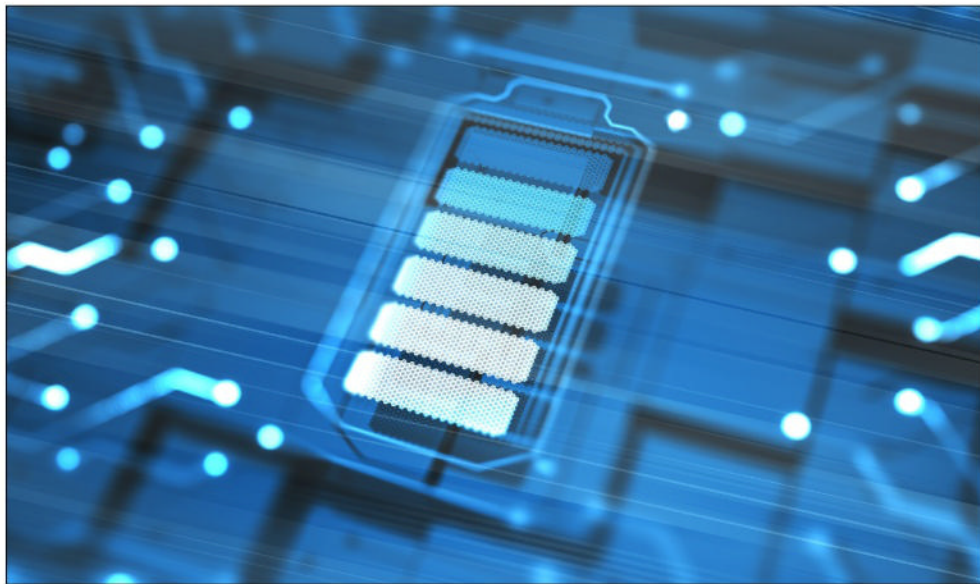
Selecting the bubble next to the Sunset to sunrise option (6.) will use your location to determine specific sunset and sunrise times to keep your night light active during evening hours.





It's that easy. Any time you want to shut off the night light, just return to the display settings and switch the Night Light slider to off.





Credit: Getty Images/MF3d

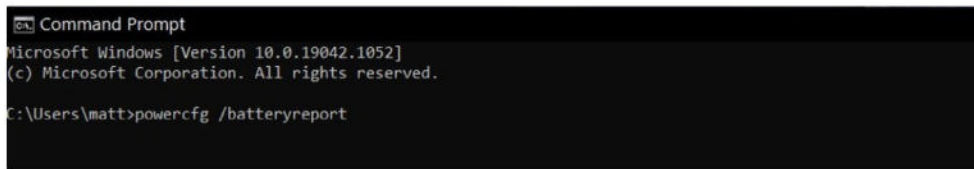
How to check your laptop's battery health

The obscure Battery Report tool in Windows can help you get hard numbers on your laptop's endurance. **MATTHEW S. SMITH** reports

Battery life is an often vague and nebulous concept. In theory, it can be represented by a single number but, in practice, literally hundreds of factors can shorten or lengthen endurance. That's frustrating if you're trying to gauge the battery life and health of your notebook, especially if you're trying to determine if it's time

to buy a new laptop.

Windows has a secret feature called Battery Report that can help. It's what we use while testing notebook endurance – and it's how you can tell if your laptop's battery life is dropping faster than you think. Here's how to access Battery Report and understand what it reveals you about your laptop.



```
Command Prompt
Microsoft Windows [Version 10.0.19042.1052]
(c) Microsoft Corporation. All rights reserved.

C:\Users\matt>powercfg /batteryreport
```

The Windows Command Prompt.

HOW TO CREATE A BATTERY REPORT

Battery Report is not a new feature, but it remains under-the-radar because there's no way to access it through Windows' settings menus. You can only create a Battery Report through the Command Prompt. Here's how to do it:

- Perform a Windows Search for CMD or Command Prompt. You'll see Command Prompt appear and the search results. Open it. Alternatively, you can find Command Prompt listed under Windows System in the Windows Start menu.
- Once open, you'll see a command line starting with C: and ending with the name of your user account. A blinking cursor will appear at the end of this command line. Type **powercfg /batteryreport** and press Enter on your keyboard.
- If successful, the Command Prompt will tell you a battery life report was saved to your user folder.
- Navigate to the folder listed in

the Command Prompt. This will be your default user folder, which is C:\Users<yourusername>

You can access the Battery Report either by using File Explorer to navigate to your user folder, or by performing a Windows Search for battery report. Note that it may take several minutes for Windows Search to index the new report and allow you to search for it, so File Explorer might be faster.

The Battery Report is saved as an HTML document, so you can open it with the web browser of your choice. Once open you'll find a long document that is packed with information. Here's how to decipher what each section means.

HOW TO USE BATTERY REPORT TO ESTIMATE BATTERY LIFE

The Battery Report can be used to gauge battery life in a few ways, but most people will want to scroll to the bottom of the report where you'll find the Battery life estimates section.

This calculates how long the battery could last based on how long you've used it each day or week. The estimate is handy because you don't have to fully drain the battery.

Take a look at the Active column under At Full Charge. This will show a result formatted in hours, minutes, and seconds. If the column says 4:56:22, for instance, that means the battery was estimated to last four hours, 56 minutes, and 22 seconds (1.).

You will also notice the log lists At Full Charge and At Design Capacity. The At Full Charge column is the estimate you want to pay attention to, as it creates an estimate based on the maximum charge your laptop's battery can handle right now.

The At Design Capacity column creates an estimate based on the maximum battery charge of your

laptop when it was new. This is a useful comparison for an older laptop.

The log is not perfect. The estimate is based on how you used the battery in the past so it will be off if you change how you use the PC in the future. Even a minor change, like switching the web browser you use, can throw off the estimate.

Battery report's math can also prove a bit...odd, at times. You will see errors when a system is used for only a short period of time or in short bursts throughout the day. You may also notice errors if the system is not used at all for several weeks.

HOW TO USE BATTERY REPORT TO MEASURE BATTERY LIFE

The battery life estimate is useful for a quick glance, but you'll need to go deeper if you want an accurate result.

Take a look at the Battery usage section of the report (2.). This shows you how the battery was actually used in the last three days. You can try to piece together battery life using these snippets, but it's tough.

You can only record an accurate result by forcing your laptop to discharge its entire battery in one go.

2.

Battery life estimates

Battery life estimates based on observed drains

PERIOD	AT FULL CHARGE			AT DESIGN CAPACITY		
	ACTIVE	CONNECTED	STANDBY	ACTIVE	CONNECTED	STAND
2021-04-19 - 2021-04-26	-	-	-	-	-	-
2021-04-26 - 2021-05-03	-	-	-	-	-	-
2021-05-03 - 2021-05-10	-	-	-	-	-	-
2021-05-10 - 2021-05-17	8:44:11	268:46:58 6 % / 16 h	-	8:34:20	263:44:04 6 % / 16 h	-
2021-05-17 - 2021-05-24	0:00:08	-	-	0:00:08	-	-
2021-05-24 - 2021-05-31	0:00:08	-	-	0:00:08	-	-
2021-05-31 - 2021-06-07	0:00:08	-	-	0:00:08	-	-
2021-06-07 - 2021-06-14	0:00:08	-	-	0:00:08	-	-
2021-06-14 - 2021-06-21	304:34:31	276:03:03 6 % / 16 h	-	298:51:17	270:51:58 6 % / 16 h	-
2021-06-22	-	-	-	-	-	-
2021-06-23	8:42:54	188:33:24 8 % / 16 h	-	8:33:05	185:01:03 9 % / 16 h	-
2021-06-24	5:57:38	25:02:18 6 % / 16 h	-	5:50:55	249:16:01 6 % / 16 h	-
2021-06-25	7:06:14	399:03:14 4 % / 16 h	-	6:58:14	391:33:31 4 % / 16 h	-
2021-06-26	-	472:07:07 3 % / 16 h	-	-	463:15:04 3 % / 16 h	-
1. 5-27	4:56:22	134:39:11 12 % / 16 h	-	4:50:48	132:07:26 12 % / 16 h	-



It's possible to do this while using the laptop normally, but it's easier to use a video, script, or benchmark that can run unattended. Here's a few suggestions:

- A YouTube video that's 10 hours long, or longer.
- Use the Basemark Web 3.0 benchmark (fave.co/3LiG8pz). Check the benchmark's configuration options and turn on Battery Life mode, which infinitely loops the benchmark.
- Use iMacros (fave.co/40rFVos) to create a custom web browsing macro and then use the loop feature to run the macro until the battery is drained.
- Use a program like Macro Recorder (fave.co/3UVZnsf) to create a loop that repeats infinitely.

Also turn off all sleep and hibernation features, including those

that turn off or dim the display.

Start your chosen test and wait until the laptop reaches its critical battery state. It will automatically power off. Connect the laptop to power, turn it on, and run the battery report again. The Battery usage section of the report will tell you how long the battery endured.

Running this test will give you an accurate endurance baseline. You can compare it to similar tests from other people who own the same system, or you can run the test every month to see how battery life holds up over time.

HOW TO USE BATTERY REPORT TO MEASURE BATTERY HEALTH

Battery Report offers two more ways to decide if your battery is over the hill.

The first is Cycle Count, which you'll find near the top of the report under Installed Batteries. Cycle count is an estimate of how many times your laptop's full battery capacity has been discharged.

This is cumulative: one cycle can mean the battery was discharged by 20 percent five times, or 100 percent once. A typical laptop battery should handle several hundred charge cycles before there's any meaningful change in

Battery capacity history
Charge capacity history of the system's batteries

PERIOD	FULL CHARGE CAPACITY	DESIGN CAPACITY
2016-10-11 - 2016-10-20	33,311 mWh	43,124 mWh
2016-10-20 - 2016-10-27	30,147 mWh	39,027 mWh
2016-10-27 - 2016-11-03	30,010 mWh	38,850 mWh
2016-11-03 - 2016-11-10	31,169 mWh	42,411 mWh
2016-11-10 - 2016-11-17	31,402 mWh	43,124 mWh
2016-11-17 - 2016-11-24	31,402 mWh	43,124 mWh
2016-11-24 - 2016-12-01	31,402 mWh	43,124 mWh
2016-12-01 - 2016-12-08	31,402 mWh	43,124 mWh
2016-12-09	31,402 mWh	43,124 mWh
3. 2016-12-10	31,402 mWh	43,124 mWh
2016-12-11	31,143 mWh	42,769 mWh

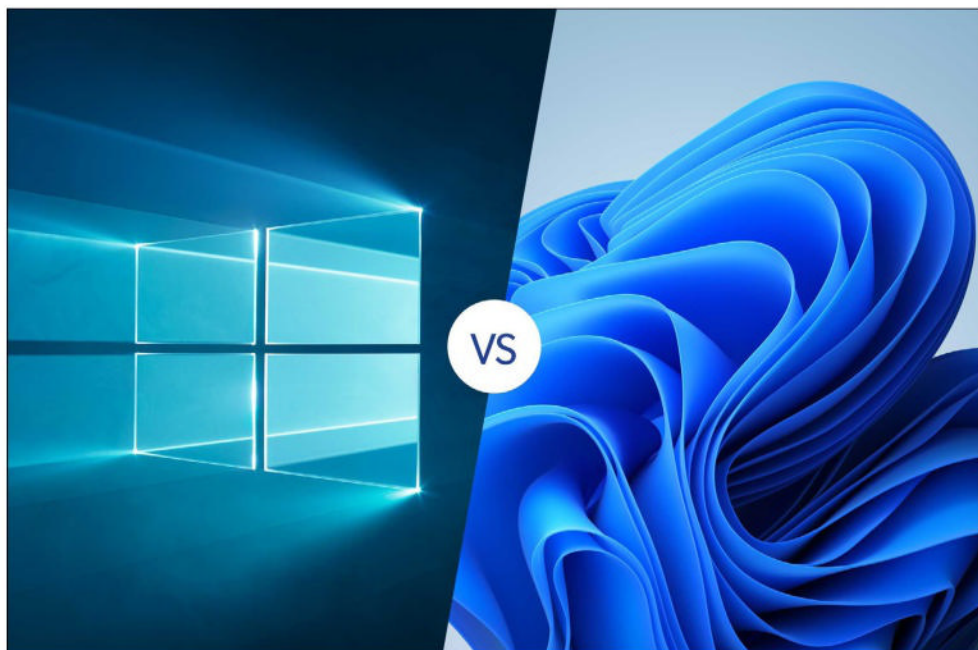
from running a battery into the ground, though. A modern laptop battery will stop working entirely long before its full charge capacity reaches zero.

battery capacity. Most can handle 500 to 1,000 cycles before battery capacity becomes a problem.

You can also examine the Battery capacity history section (3.) found halfway through the report. This provides a log of measured battery capacity and also, for convenience, shows the battery's design capacity, which is how much power the battery should hold if it performed as intended.

Many new laptops will show a full charge capacity that's a bit higher than the design capacity, but the full charge capacity will decrease as the battery ages. The laptop above, for instance, is approaching its tenth birthday.

A full charge capacity that's 20 percent lower than the original design capacity, or lower, indicates an older battery. There's nothing to stop you



Opinion: Every time I use Windows 11, I wish I was using Windows 10

I feel so much joy when 5pm rolls around. **ALAINA YEE** reports

As careers go, I have little to complain about. But I have to confess – there are parts of the job I like less than others. And Windows 11 is one of those things. I don't think it's a bad operating system. That (dis)

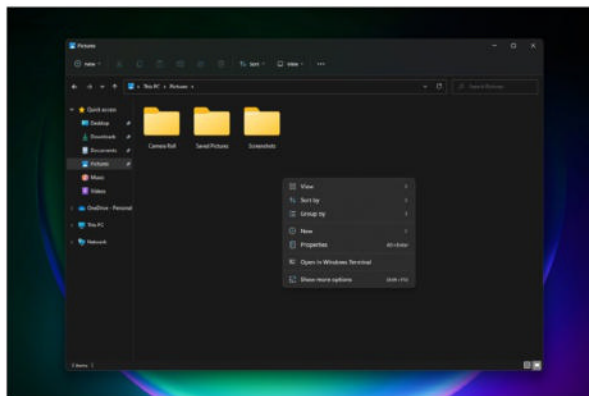
honour goes to Windows ME, with Vista as runner up. (Serving as tech support for my parents' PC with Windows ME ranks among my least favourite periods of my life.) But even after a year and a half since Windows 11's launch, I

still find myself longing for Windows 10 whenever I make myself use Windows 11.

What makes Microsoft's latest operating system a thing I tolerate between the weekday hours of 9am to 5pm? It's the collection of multiple low-grade annoyances I can't easily evade. I won't bore you with all the details – yes, the Windows 11 Start menu remains an annoying step backwards – but let me give you some examples of the biggest irritations.

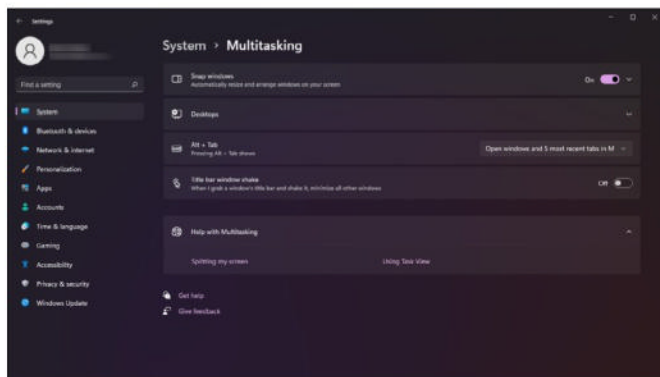
BURIED (OR ELIMINATED) CONTROLS

The user interface teams at Microsoft apparently did not listen any focus group feedback from my demographic, also known as the 'Why the [censored] would you ever do that?' cohort. Last year I wrote about how Windows 11's right-click menu sucks, but it's still worth repeating 12 months later. For decades (literal decades), Windows offered action



Windows 11 buries long-available features in a secondary context menu.

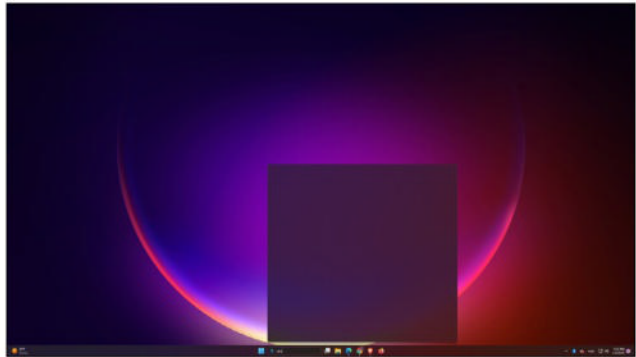
shortcuts like refresh through that context menu. Then in Windows 11, such mainstays abruptly got shunted off into a secondary right-click menu – what took one mouse click to find now takes two. And this is still the default, as is the neutering of the ribbon in



Pretty, but hard for my eyes to scan and pick things out quickly. Feels like everything has the same visual weight.

File Explorer, which put a lot of other commands front and centre.

Could I dig into the registry for every Windows 11 PC I spin up for work in order to 'fix' these problems? Yes. Do I like messing with the registry? No.



What is this nonsense?

SETTINGS MENUS THAT ALL LOOK THE SAME

Windows 11's Settings menu options all look alike, and it drives me crazy. Don't get me wrong, they're pretty with those translucent blocks. But scanning them to quickly find the feature I want to tweak is murder on my brain, especially since some elements changed between Windows 10 and Windows 11. I assume I'm supposed to search to find things quickly, but it's not actually faster when I have to first Google to identify the right search term, then type it in.

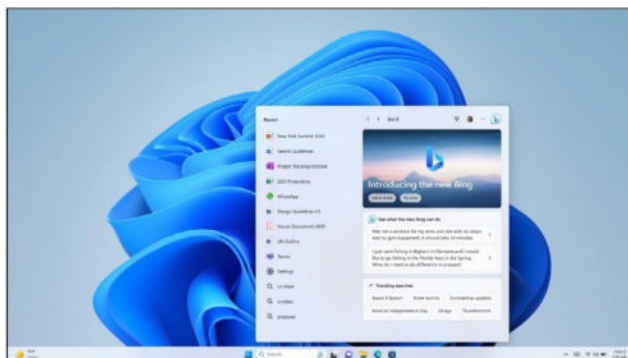
BUGS

The Windows 11 machine I currently use most will inexplicably throw up a blank start menu from time to time. The search function will simultaneously go dead, too. I haven't figured out why yet – in the grand scheme of things, rebooting every day or two isn't horrific,

and it takes less time than going through the standard troubleshooting steps. Still, I can't always reboot immediately when it happens, leaving me to stew on the problem in the back of my head anyway. Is it Windows? Is it Windows reacting badly to apps I've installed? Am I going to have to nuke the whole thing and start over to solve this issue? The behaviour is so strange for a PC that barely has any software on it. You know what never does this to me? Windows 10.

DEFAULT START MENU POSITION

Something about that centred cluster of start menu button and open apps throws me off any time I use a Windows 11 PC. I know that's now a changeable setting. But I can't really turn it off.



That centred location for the Start Menu and open apps? I'm not a fan.

In my opinion, part of my job involves helping people who stick with defaults – whether that's navigating them as-is or changing them to be less annoying. But I can't know what those defaults are (and how they shift) if I've configured my machine to suit my taste and leave it that way.

So I leave everything as presented by Microsoft. It allows me to directly experience what many people will, so that I'm better equipped when dispensing advice. You can call me masochistic – and you wouldn't be wrong – but when I get a text message from a friend or relative asking for assistance, the last thing I want is trying to remember what I left default and what I tinkered

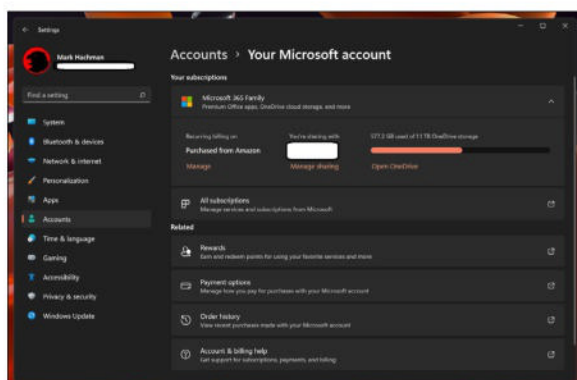
with as I'm talking them through their issue.

Meanwhile, I keep instinctively clicking left on my taskbar, thinking the Start menu button is there. Every time.

NO LOCAL ACCOUNTS

Look, Microsoft, you don't know my life better than me. Do I agree

that the signing in with a Microsoft account provides smart protections? Yes, especially since laptops are so popular these days – most people will benefit from device encryption and other features if their PC becomes lost or stolen. But do I want to sign in with



Yes, using your Microsoft account to log into Windows has its perks. But sometimes the very same features are a drawback for me.

a Microsoft account across countless computers for work and subsequently ending up with all kinds of random things syncing to it? Nope.

Windows 10 gently pushes users to sign in with an account, but there's still at least that back door for people like me to slip through. Windows 11 basically forces you to use a Microsoft account.

Let me live on the edge, Windows 11. I know what I'm doing.

FIXABLE, BUT BROKEN

I'm about to have about fifteen billion people swarm out of the woodwork and hit my mentions about how I could just tweak everything with some registry fixes or paid software. I know I technically could.

But let's just back up a second. Leaving aside the legitimate reasons for why I can't, as outlined above... Why do we need to tinker in the registry to bring back functionality that worked for decades? (I can't stress this point enough. We had some of these user interface features for decades.) Or alternatively, having to pay for a piece of software that makes those adjustments and also adds back functionality we were used to?

It's a philosophical sore spot for me, and one I think about whenever my

Windows 11 start menu goes blank. Or I move my mouse to the left side of the taskbar without thinking. Each time, I sigh softly to myself and wish for Windows 10. If you, like me, can't shake its grasp, it's worth changing these five Windows 11 settings immediately.

FOUNDRY

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