PCWorld

JUNE 2024

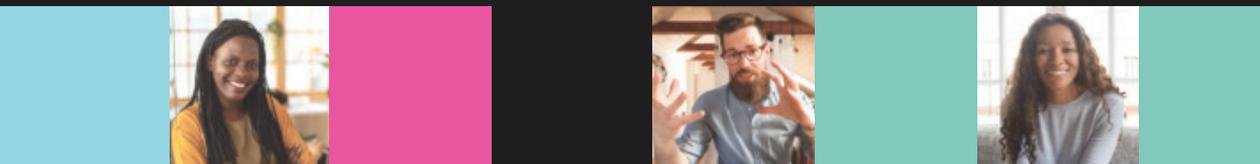# 7 ANTIVIRUS MYTHS
THAT ARE DEAD WRONG

PLUS

PASSKEYS EXPLAINED:
EMBRACE A PASSWORDLESS FUTURE

DROP THE F*BOMB

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FENTANYL
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4 just-added Windows 11 features that make your life easier

With Windows 11 Moment 5, Microsoft is integrating various new functions into Windows 11. In this article, we show you the new features. **BY THOMAS JOOS**

Windows 11 Moment 5 is the latest version of Windows 11, released on April's Patch Tuesday. Moment 5 prepares for the update to Windows 11 version 24H2, which will be released later this year, and adds some new features intended to simplify and streamline everyday tasks in Windows.

This is accompanied by the new update KB5036893 (fave.co/3QEVdnR), which

activates the new features from Windows 11's Moment 5 on compatible computers. In addition to the new features listed below, Microsoft also made some improvements under the hood with this new Windows 11 update. USB ports can now deliver up to 80Gbps, but the hardwired connections in your laptop or desktop must be technically capable of handling the higher specification.

IMAGE: FOUNDRY

HOW TO GET WINDOWS 11 MOMENT 5 FASTER

If Windows 11 Moment 5 is not yet installed on your PC and is not offered in Windows Update, activate the "Get the latest updates as soon as they're available" function in Settings > Windows Update.

If you then check for updates again, there is a good chance that new features will be available more quickly. If this does not work, you can also use the Windows 11 installation wizard.

Now let's dive into the good stuff!

Windows also displays the icons of the programs that are arranged in the various windows on the screen.

USERS CAN UNINSTALL SYSTEM APPS

With Windows 11 Moment 5, users can uninstall a larger number of pre-installed apps than was previously possible. For example, Microsoft Edge can be completely removed from Windows 11. Other apps, such as Camera or Photos, can also be removed from the system.

BETTER ARRANGEMENT OF WINDOWS

When you drag a window to the edge of the screen, Windows 11 now suggests an intelligent arrangement of all windows. If you move the cursor over the icon to maximize the window, Windows 11 will display the new, intelligent functions without you having to hold and drag
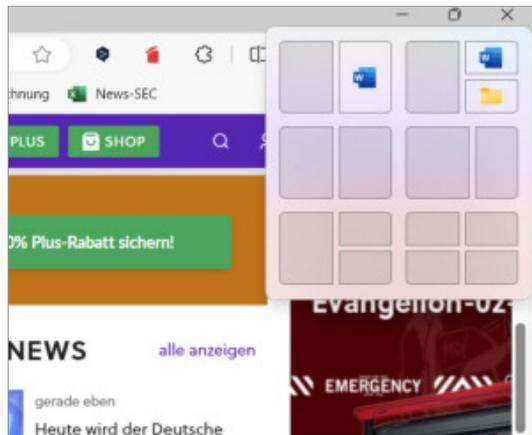
windows. Windows also displays the icons of the programs that are arranged in the various windows on the screen.

This feature is called Snap Layout. With Windows 11 Moment 5, Microsoft is expanding these functions and offering more options for the automatic arrangement of windows. It takes some getting used to, but if you often work with several applications at the same time, you'll quickly learn how to use the feature, and it makes it much easier to arrange windows.

WINDOWS AIRDROP IS BEING EXPANDED

With the Windows feature Nearby, also known as Nearby Sharing, users can share files between Windows PCs more easily. This function is based on Airdrop in macOS. With

the new Moment 5 update, users can control more sharing details—for example, the name of the PC when using Nearby. This makes sharing easier.

Microsoft has improved sharing in Windows 11 Moment 5 in general. In many places, including in Windows Explorer, files can now be shared more easily. Environment sharing appears more frequently here. In addition, you will now find more apps in the quick menu for sharing, such as Teams, WhatsApp, or Facebook.

FIX PROBLEMS MORE EASILY

In the future, the option "Fix problems using Windows Update" will be available in the Windows 11 settings under System > Recovery. If Microsoft is aware of your problem and an update is available to help fix it, you can install it here.
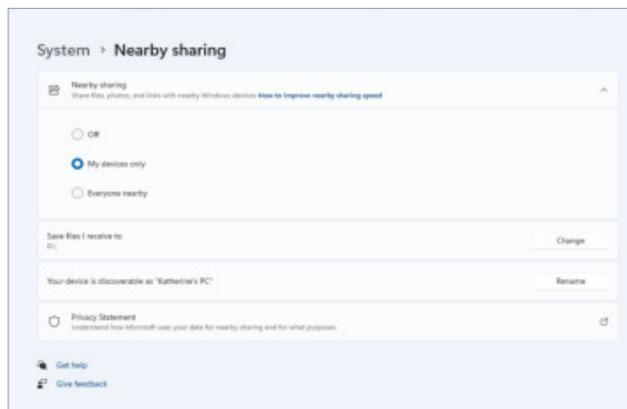
With Nearby Sharing, users can share files between Windows PCs more easily.

During the process, Windows 11 is reinstalled using the current version. All settings and data on the system are retained. Basically, the procedure is similar to the cloud installation. This function has been part of Windows 11 for a while, but it's easier and more directly accessible as of Moment 5.

WHAT'S NEXT: AFTER MOMENT 5 COMES WINDOWS 11 24H2

The next Windows update for Windows 11 is the 24H2 update, which is already available as a preview for Insiders. However, the update to 24H2 also increases the demands on the CPU.

Windows 11 24H2 also blocks various third-party apps so that users can no longer customize the taskbar and Start menu, for example. This is the case with the well-known ExplorerPatcher tool (fave. co/4b8mveH) and StartAllBack. It seems that Microsoft wants to block particular programs.

Older PCs that are currently still compatible with Windows 11 may not be updatable to Windows 11 24H2. Intel Core 2 Duo T6500 CPUs and AMD Turion II P650 processors are apparently affected. However, other processors may be added. ⏻

Ring of bogus web shops steals 850K credit card numbers

Fake online storefronts, which show up in great numbers in Google and other search engines, are becoming a big problem. BY MICHAEL CRIDER

L et me tell you a quick story. I like Johnston & Murphy shoes. I've been trying to get this pair for weeks (fave.co/3JVvSSJ), but since it seems a lot of other people like it too, it's been out of stock in my very common shoe size. So I did a Google search to see if I could find other stores that had it in stock.

And wouldn't you know it, there was another Johnston & Murphy site, with "USA" added to the URL. It looked similar to the other site, but it had every single size of that shoe in stock, ready to buy. And it was half off the original price, what a deal! It must be an overstock outlet for the brand. I put the shoes in my cart and prepared to check out.

But for some reason, PayPal was the only payment option. No big deal; I often use PayPal and it has a purchase security program. So I went through the PayPal interface…and the very last step in the process, the one that would confirm the order, said "Agree and Subscribe" instead of "Purchase." It also asked me to pay someone who isn't Johnston & Murphy, but "Association Islamique Fulado." That name didn't return any useful Google results—its address is somewhere in Luxembourg, assuming it's the same person or organization.

I've seen that button before. It's used when you want to make a recurring payment to a charity or a creator, à la Patreon. Why would I need to "subscribe" for a one-time payment option?

To be honest, my red flags were raised from the start when I saw the URL, but at that point I went into *Arkham Asylum* detective mode. Step one was to check out that fishy URL with a Whois lookup. The main Johnston & Murphy domain has been registered for almost 30 years (fave.co/3URdYql), and though it's gone through a private registrar, that registrar is based in Florida in the US. If a judge in the U.S. were to issue a subpoena to Johnston & Murphy, they'd have someone to track down.

I tried the same lookup with the "USA" alternative site, the one that had the shoe in stock and was ready to sell it to me via a PayPal subscription. This one was registered in January of this year to a Chinese company, with a Gmail address for the private registrar.

Now, since I'm posting this story publicly, I'm not going to flat-out accuse this site of being a scam. But I can't think of any legitimate reason that a Johnston & Murphy domain for an American company would be using a registrar in China. And I can't imagine why the PayPal system would only let me "subscribe" to pay for it, especially when the verified site only lets you pay with a credit card. I decided to wait for those shoes.

I will say that fake retail storefronts are incredibly common, even showing up
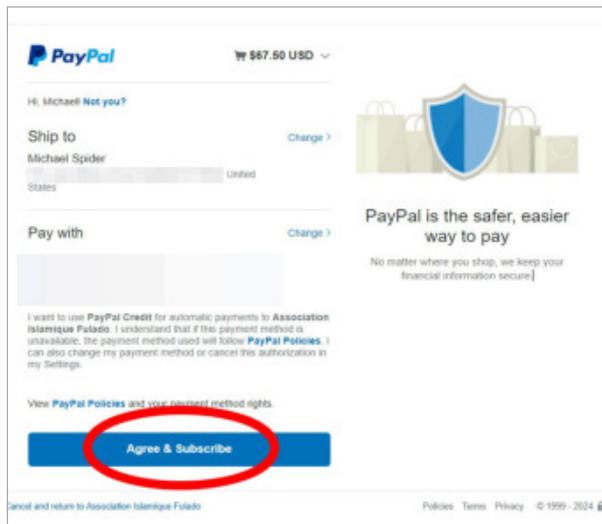
Not pictured: a shoe sale.

frequently in Google searches like the one I did. I've seen a lot of similar—and similarly suspicious—sites selling hugely discounted kayaks in Google shopping results. They were likewise new stores, with designs that aped or just outright stole the layout of other stores, and with prices and availability that seemed too good to be true.

A recent report from German firm Security Research Labs (fave.co/3wiiYva; spotted by BleepingComputer, fave.co/3wjxNh3) found a ring of fake retail sites operating tens of thousands of domains. The "BogusBazaar" ring took in 850,000 orders, mostly from the U.S. and Germany, with the rest of the "sales" going to Canada and Western Europe. Shops are quickly set up and copied with automated WordPress tools, including e-commerce plugins for accepting info from PayPal, Stripe, and other methods.

What's the point? They don't simply charge the money and try to get away with it—which is often harder than it seems, now that banks, credit card companies, and other payment processors are on high alert for fraud. Instead, they're collecting personal information, especially addresses and credit card numbers. Put all that info together, and it's a valuable start to an attempted identity theft.

SRLabs says that the BogusBazaar system operates with a small team of developers, who then sell their services to other fraudsters in a "franchise" system, mostly out of China. They look for recently abandoned domain names that have decent search results in order to pull in traffic. It's a method that's "low-key" and "highly scalable," bringing in stable income via information theft. When one ring of stores gets discovered and wiped from the search engines, they'll just copy and paste with a new set, rinsing and repeating their techniques to gather more data.

Remember that in online shopping, it is as in life: If something seems too good to be true—well, it probably is. ⏻

Shoppers are being tricked into giving fraudsters their credit card details.

I'm ditching my passwords—and you should, too

Interested in upgrading your online security? This is the move you need to make.
BY ALAIN YEE

Passwords suck. If they're easy to remember, they're the simplest to guess. If they're difficult to crack, they're the hardest to recall. Even if you use the strongest passwords possible (fave.co/3IRkfRz), they're ineffective if they become known.

Which is why I've stopped using them as much to log into my accounts. But I haven't weakened my online security by doing so. In fact, I've improved it—and sped up my login times, too.

How? I set up passkeys (fave.co/3yIITCw) for my accounts. It takes just a few minutes, doesn't cost anything, and can be done using your smartphone or PC. Using them is equally painless. When logging in, you choose the passkey option, then approve the login request with your thumbprint, face scan, or PIN. It's fast.

This authentication method is secure, too. A passkey improves on several password weaknesses:

Passkeys can't be guessed. Passkeys use an encryption method that uses two different kinds of keys as part of the verification process. The website gets the public key, while your smartphone, PC, security hardware key, or compatible password manager (fave.co/3IRkfRz) keeps and protects the private key. A private key can't be determined from a public key, so a website hack won't compromise your corresponding passkey.

Copies shouldn't work. Passkeys are specific to the smartphone, PC, or security hardware key that created them. If a copy of the private key is somehow stolen from your device, it won't register as valid. This is true for password managers that support passkeys, too—so long as they're configured to verify that a passkey was used from the password manager's platform.

Phony sites can't use them. Passkeys are tied to not just to the device that generated them, but the specific website they were created for. A spoofed site won't pass the verification check. So even as phishing sites and scams get more sophisticated, you'll be better protected against them.

The best part is the ever-widening support for passkeys. It's not just the big names like Google, Microsoft, Apple, and Amazon. I've started spotting them elsewhere, like on

Target.com and other shopping sites (fave. co/3wweAbU)—even on WhatsApp. And sites with passkeys continue to expand their reach. In honor of World Password Day 2024, Google broadened its passkey program to include its Advanced Protection Program participants.

If you still like using passwords, you don't have to drop them entirely. Sites generally let you have multiple sign-in methods. Just follow our tips for how to quickly shore up your online security— especially the part about adding two-factor authentication to your accounts. If you have a password + 2FA active, that combo can serve a backup method of login if you ever lose the device or security key with your passkeys.

(That's the only real drawback of using passkeys exclusively—you need to have multiple devices with them, in case one becomes lost, stolen, or unusable.)

The less online security interests you, the quicker you should make the move to passkeys. Most people treat passwords like the nuisance they are, reusing them or creating weak ones as often as possible. Bitwarden's latest survey (fave.co/3QCoaRa) proves this point, with over 30 percent of U.S.-based respondents reusing passwords across 11 to 20-plus (!) sites or apps. Yikes.

With passkeys, there's nothing to remember and no software to manage. And again—passkeys are free. ⏻

Controversial Windows 11 Start menu ads begin rolling out

Microsoft has pushed "Promoted" apps from the Store to the Windows 11 wide build just a few weeks after they started appearing to Insiders. **BY MICHAEL CRIDER**

Microsoft is pushing advertising into every possible corner of Windows 11 (fave.co/ 3K1AEhv) that it can find, and the Start menu is definitely not a safe space. We reported a few weeks ago that Windows Insider builds were showing "Promoted" applications once again (fave.co/3UDscdu). In a shockingly short amount of time, that

function has been pushed into the current Windows 11 wide release build.

The Verge spotted the update as part of the documentation for build KB5036980 (fave.co/3WvYuJW), which is an optional update at the moment, but will be headed to all current builds as Windows Update propagates. The Recommended section of the Windows 11 Start menu, normally
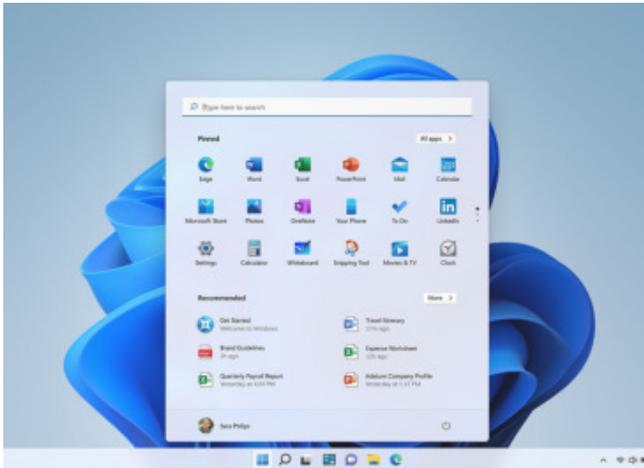
We won't have to wait long until we see ads on the Start menu.

reserved for apps you've just downloaded or frequently accessed user files, will add oh-so-helpful links to the Microsoft Store.

And by "helpful," I mean they're apps that have paid to suddenly appear on millions of users' Start menu before they actually choose to install them. While we were expecting this to roll out to wide users at some point, Microsoft's usual pace for these kinds of updates would have put it months away at the earliest. Moving from Insider builds to wide release this quickly is frankly shocking.

While we've seen anecdotal reports of the ads popping into Start menus on new Windows 11 installations, we can't actually generate one on our own systems, even with the KB5036980 update applied. It's possible that Microsoft hasn't flipped the switch yet, at least not for everyone with the requisite Windows update applied.

If you see the new Promoted ads in the Recommended section of your Start menu, and you would rather not, you can disable them. Head to the main Windows menu, then click Personalization > Start. Disable the toggle for "Show recommendations for tips, shortcuts, new apps, and more." Hopefully this option doesn't disappear on a future update. ⏻
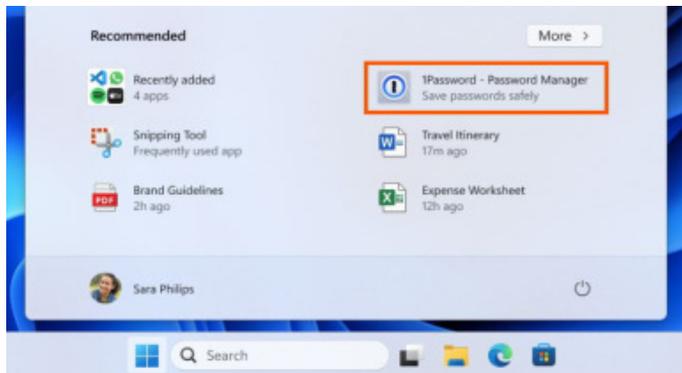
If you see the new Promoted ads in the Recommended section of your Start menu, and you would rather not, you can disable them.

Sick of ads in Windows? This ingenious program eradicates them all

This clever free tool removes all the ads that Microsoft keeps stuffing into Windows 10 and 11. **BY HANS-CHRISTIAN DIRSCHERL & BRAD CHACOS**

Microsoft is packing more and more advertising into its Windows operating system. In Windows 11, ads now even appear in the Start menu (though Microsoft calls ads for apps or Windows services "recommendations")—see page 15—and you'll see full-screen ads for the Edge browser. You can sift through Windows settings and find individual options to turn them all off, but the flood of ads has encouraged resourceful programmers to develop tools designed

OFGB has a selection menu that lets you choose which Windows adverts you no longer want to see.

specifically to eradicate them. Meet OFGB (Oh Frick Go Back).

After starting the small program, OFGB displays a selection menu (see the image above) that lets you select which Windows adverts you no longer want to see using checkboxes.

For example, you can switch off ads in File Explorer or on the lock screen, and deactivate ads that appear in the Windows settings menu. You can also use it to banish the various welcome messages that appear in different places in Windows. The developer wrote OFGB in C# and it removes the ads by making the necessary changes in the registry.

Once you have made your selections, in most cases you will need to restart your PC for the chosen ads to disappear from Windows.

OFGB is free and of course ad-free. You can find the download here (fave. co/4bbVmHs) and a description of the tool here (fave.co/4ba0fkB). You can read some background information about the motivations of the developer, who comes from the Linux scene, over at Tom's Hardware (fave. co/3yeiLcO). If you want options, Winpilot (fave.co/3WB4EZb) also removes ads from Windows 11 free of charge. ⏻
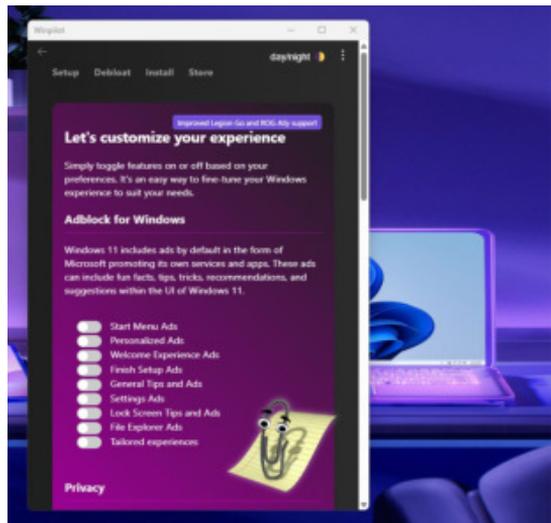
You can also use WinPilot to remove ads.

If you get a phone call from LastPass, it's a scam

A new breed of sophisticated phishing scammers are targeting LastPass users with phone calls and emails. **BY MICHAEL CRIDER**
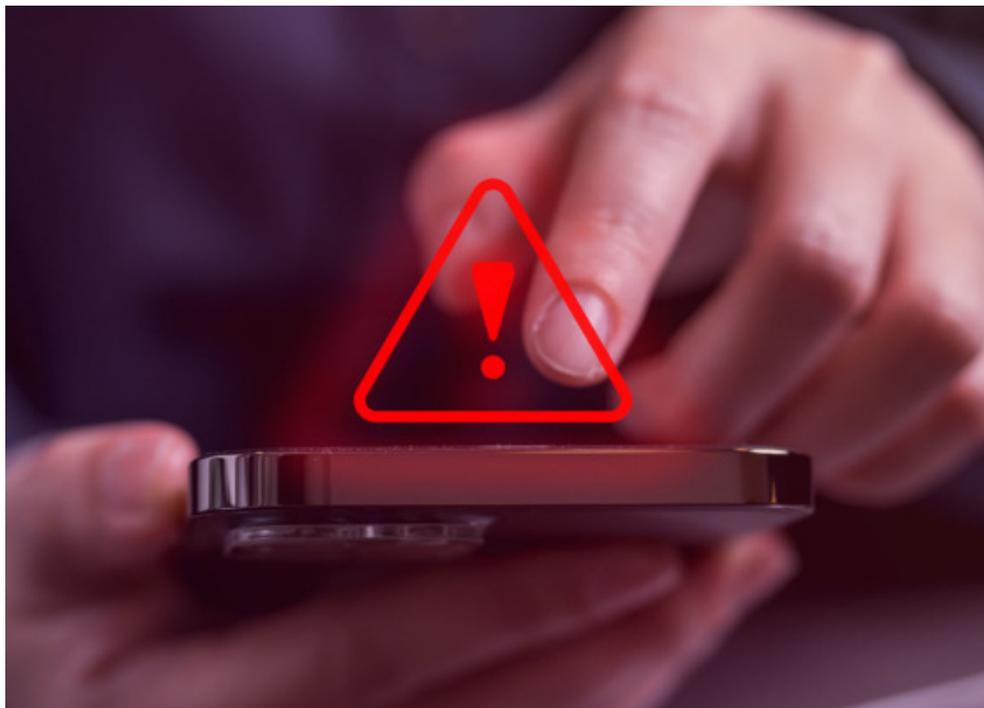
By now you're probably on high alert every time you get an actual phone call from someone you don't know. If it isn't the usual "we've been trying to contact you about your car's extended warranty" recording, then it's probably someone from "Windows" trying to get you to install a remote access program. If they mix it up a bit and tell you they're from LastPass, yeah, it's the same old BS.

Ars Technica reports (fave. co/3UAUHID) that phishing scammers have expanded their operations to impersonate the password saving service LastPass. Calls
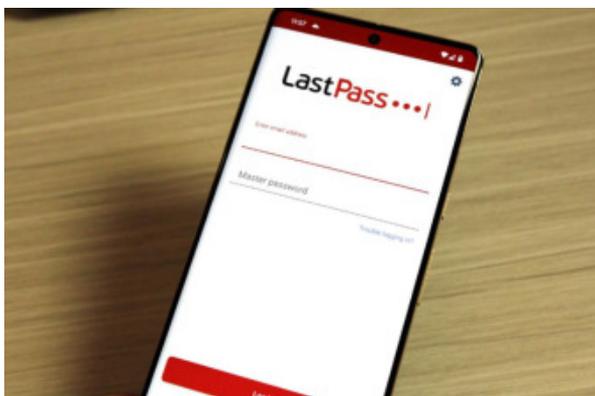
It's been reported that phishing scammers are impersonating the password saving service LastPass.

alert users that their account has been accessed from a new location, and they need to press one or two to stop this presumably nefarious hacker. According to an alert from LastPass itself (fave. co/3UyfsEV), follow-up calls from real, live humans will then instruct the user to give them their email address, where a phishing message will attempt to steal their real login info.

Once the phishers have the master LastPass password, they instantly lock the real user out and have access to whatever information is saved within. It's a motherlode of identity theft data, especially since the legitimate user is generally

then unable to access the randomly generated passwords they've created for dozens or hundreds of sites, including banking and medical info.

LastPass appears to have enough users at this point that it's become a frequent target for phishing scams, to say nothing of the tempting nature of its all-in-one personal data setup. The company has been frequently hit with high-profile hacks, most recently in 2022 (fave.co/3XDTctq). The latest batch is targeting users themselves thanks to the prevalence of ready-made phishing kits such as CryptoChameleon.

LastPass representatives say they've been able to shut down the site for the latest phishing attempt as of April 16th, but it seems almost inevitable that the malefactors will simply try again with another URL. Heads up. ⏻
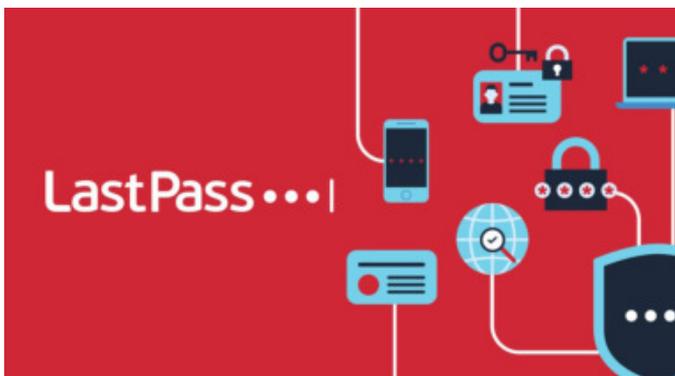
LastPass says it's shut down the site used for the latest phishing attempt.

Adios, cheap SSDs? WD and Seagate warn that PC storage prices are going up

If you're considering a storage upgrade, act sooner rather than later. **BY MARK HACHMAN**

I f you're in the market for a hard drive or SSD, act fast (fave.co/2Z26gQg)! Otherwise, you could be paying more than you'd like.

According to Taiwan analyst company TrendForce, storage makers Western Digital and now Seagate have sent letters to customers warning them that the companies will be raising prices on hard drives. WD's letter said that it would be raising prices on SSDs, too.

"Demand recovery continues across several segments of our business and our reduced manufacturing capacity is limiting

our ability to meet all of our customers' demand and is resulting in longer lead times," the letter says (fave.co/3y8qwAW). It's signed by BS Teh, executive vice president and chief commercial officer at Seagate. "As a result, we will be implementing price increases effective immediately on new orders and for demand that is over and above previously committed volumes."

WD sent a similar letter (fave.co/3y708aE) earlier this month. In it, WD warned that is seeing "higher than expected demand across its entire flash and hard drive portfolio resulting in supply constraints.

"Given these circumstances, we will continue to implement price increases on flash and hard drive products this quarter, with some changes taking effect immediately," WD senior vice president Scott Davis wrote, as noted by TrendForce and TomsHardware (fave.co/4bbjEBD). "These updates will apply to our entire product portfolio."

The letters both companies sent are addressed to their commercial partners, including PC makers who are responsible for ordering hard drives and SSDs for PC production. But with two of the world's largest storage companies warning of price

hikes, it's hard to believe such increases wouldn't hit retail products as well. In other words, if you're interested in upgrading your SSD or buying an external hard drive or SSD (fave.co/3n5NlMC), prices may be increasing in the near future.

The warning signs were there, however. In November, analysts warned that the price of SSDs was going up (fave.co/3JVnCSP). That prediction appears to be coming true, and has sucked in hard-drive prices, too.

The good news? Hard drives prices are typically a fraction of the price of an SSD—this 1TB external Seagate hard drive (fave.co/4buyOS1) is currently priced at $75 on Amazon, while a quality WD 1TB external SSD is $89 (fave.co/4dwJpOh). Could those prices climb? It certainly appears possible. ⏻

WD's 1TB external SSD is currently available for $89.

Why pay? One of Photoshop's best features is free in Windows

Use AI to edit out unwanted objects (or people) using Generative Erase within Windows Photos. **BY MARK HACHMAN**
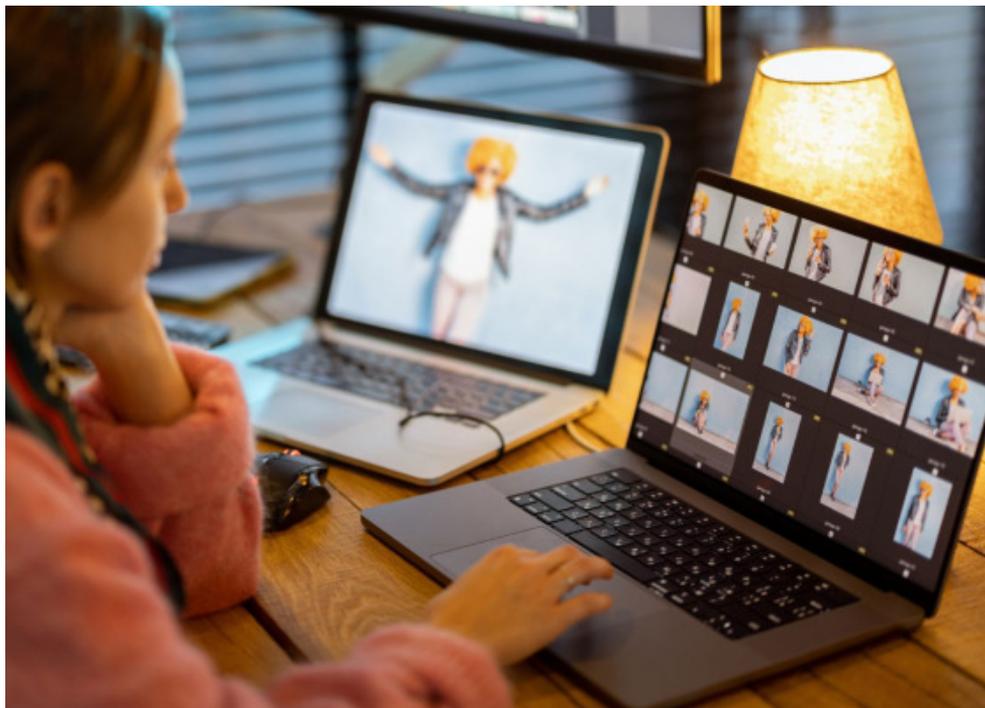
After letting Windows apps like Paint and Photos languish, Microsoft has brought them back with a vengeance. And Windows Photos now has one of the better features you could ask for in any app: Generative Erase.

I like features that don't take a lot of explanation, tutorials, or anything else. They should be intuitive and just work. And you know what? Generative Erase does just that—about as well as Photoshop does, too, and for *free*. Microsoft is rolling it out to Windows 11 right now, and Windows 10

users should see it, too. You'll want to use Generative Erase if you've ever taken a photo and want to remove those one or two objects that get in the way of a perfect shot. Maybe it was a photo of the beach, with a stray dog running in the background. Maybe it was a vacation photo…and your ex snuck into the shot. Either way, Photos' Generative Erase feature uses AI to interpret what you want cut out and what it should be replaced with.

If you're a longtime user of Photos, you're probably aware that Microsoft has flirted on and off with an editing technology called Spot Fix (fave.co/3UD9Vgc). For me, Spot Fix has always been invaluable. You have no idea how much otherwise unseen dust and grime can make its way onto a laptop or peripheral, showing itself only after I've taken the picture. With Spot Fix, I can encircle the bit of dust or grime, click, and…boom! It's gone. Generative Erase is

like the improved version of Spot Fix: It simply allows you to "paint" an area you want removed.

HOW TO USE GENERATIVE ERASE WITHIN MICROSOFT PHOTOS

To use Generative Erase within Photos, you must first launch Photos. You can type **Photos** in Windows Search to launch it, or right-click an image file in File Explorer and open the app via that method. Photos won't automatically save any edits you make without your permission, but you might want to make a copy of the file first.

When the photo file opens, you'll need to then select the editing icon, which is the teeny-tiny little icon to the far left (**1**).

Photos offers a number of editing options, from basic crops to an AI filtering option that can be found under the Filter tab. But Generative Erase is in its own tab second from the right, marked Erase (**2**).

To use Generative Erase, you'll need to "paint" the area that you want Photos to erase. I'd recommend that you first toggle off the Auto Apply

1.
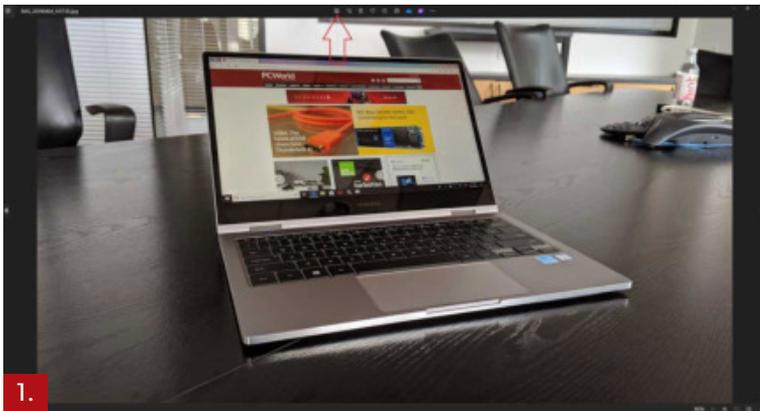
option. Otherwise, the erase effect will be applied every time you click and release. That's just fine for a small edit, but if you want to fine-tune your selection, you'll want the extra control.

2.

Note that you can adjust the size of the brush or circle, and choose to add or subtract the mask. That's a fancy way of saying that you have the option to "paint" the area in which you want to erase, but subtracting the mask allows you to trim it down if you've gone too far. When you're ready, click Erase.

This isn't the only AI-dependent editing function within Photos; the Background tab on the far right lets you use AI to remove the background entirely.
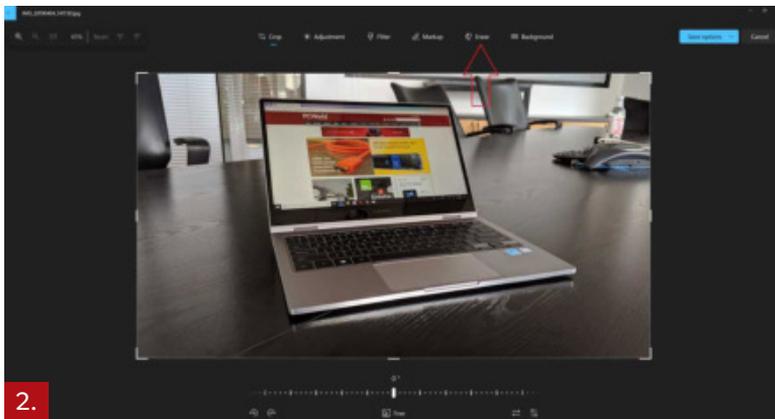
PHOTOSHOP VS. PHOTOS: WHICH ERASES UNWANTED OBJECTS THE BEST?

Because I couldn't just stop there, I wanted to know whether Photos' Generative Erase actually does a better job than the granddaddy of photo editors, Adobe Photoshop. I use Photoshop all the time for something Photos *can't* do: Generative Expand, which uses AI to add
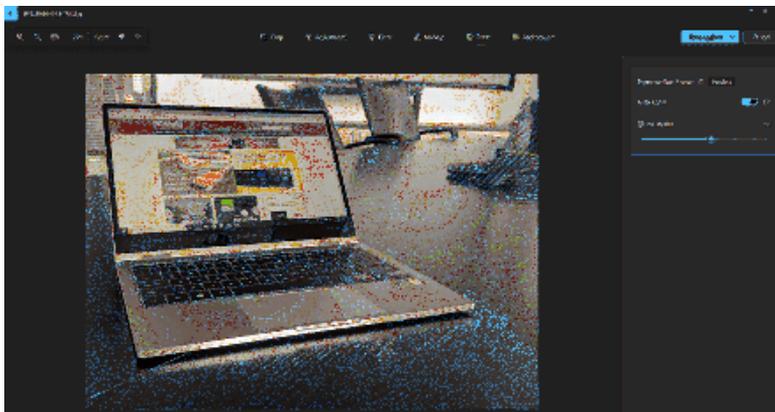
Use Generative Erase to "paint" over the stuff you want to remove.

3.

4.

part of the photo that never existed. It's really helpful when vendors provide a narrow product shot and I need to "extend" the photo's background to fit our image parameters.

I compared Photos' Generative Erase to two Photoshop functions: the Remove tool, which is essentially Adobe's version of Generative Erase; and the sort-of backwards Generative Fill option, where I used the Photoshop Magic Lasso to outline an object, then used the Generative Fill option to remove the object and fill it in with an AI-generated background. The latter isn't all that intuitive, but it works.

I used two of my own photos: a shot from the
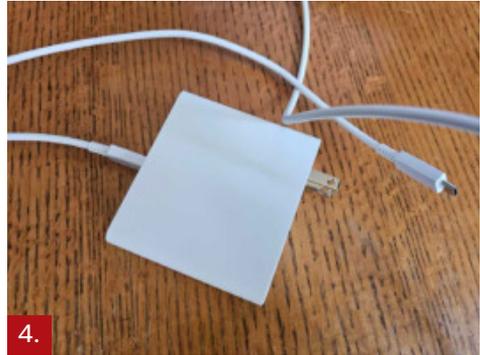
ferry to Alcatraz Island (**3**), and a very basic photo of a laptop charger and a cable snaking around it (**4**). For the first photo, I attempted to remove someone standing and partially blocking my shot of the island; for the second, I tried to "erase" some of the charging cable.

Microsoft Photos' Generative Erase doesn't do a great job here of trying to "erase" the man who partially blocked my shot.

With Photoshop, you use the Remove tool in much the same way as Photos' Generative Erase. Click **J** or long-press the "bandage" icon in the left-hand vertical nav bar to show the Remove tool. Then paint over the portion of the image to remove.

Clicking the lasso icon on the left-hand nav bar opens up the Magic Lasso. You can also "paint" the area to be removed, but it's easier just to outline or "lasso" it. You should see a toolbar pop up as soon as you've lassoed the object, with a small Generative Fill button highlighted. Click it, and do not fill in the box unless you want AI to fill in the scene with something specific. Otherwise Photoshop will do all the work.

On the outdoor shot, there was too much going on for any of the solutions to work perfectly. In fact, Photos' Generative Erase and

Photoshop's Remove tool produced about the same results. But the Generative Fill option does a surprisingly good job. On the

The top photo uses Photoshop's Remove tool to try to "erase" the same man. On the right, I used Photoshop's Generative Fill tool. The bottom shot looks better, but there are still AI hallucinations, like the smaller tower emerging from the roof of the building.

previous page you see Microsoft's effort with Photos and Generative Erase. And at right is

5.

For this I used Adobe Photoshop again, using the Remove tool for the middle photo and the Generative Fill option for the bottom photo.

what Adobe could do with it.

Note that there are undoubtedly photo-editing experts, that with time and the proper tools, could probably generate something that looked perfect to the naked eye. But I was looking for something that could solve my problem without a lot of fuss.

With the simpler shot of the charger and its cables, both Photos and Photoshop got me 90 percent of the way there. If you knew that a cable existed, you could clearly see that neither Photos not Photoshop eliminated it completely. But it passes muster, at least if you're not looking for a professional solution.

Again, we'll use the Microsoft Windows Photos app with Generative Erase first (**5**). It looks pretty good. I may have been able to go over it a couple of times with the Erase tool to see if I could improve the edit.

Again, though. the Magic Lasso/ Generative Fill technique proved superior. If you have an Adobe Creative Cloud subscription, using that option seems like it could be a genuinely useful way of quickly editing a photo. At left are the two shots using both techniques.

Is Photoshop better? Depending on what tool you use within it, yes, probably. But you'll pay at least $19.99 per month for Photoshop alone. The difference, of course, is that Microsoft's option is absolutely free as part of Windows. I don't know about you, but I'll take free any day of the week! ⏻

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ADOPTUSKIDS.ORG

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and even deadly,

is distracted driving.

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Don't drive distracted.**

NHTSA

ad COUNCIL

Acer Aspire Go 15: A $300 laptop that's worth your money

A good option for the budget-conscious. **BY MARK KNAPP**

PCWorld EDITORS' CHOICE

The Acer Aspire Go 15 (fave. co/4bux6QM) is the latest affordable laptop in the Aspire family, offering a simple computing platform for users who don't make major demands on their machine.

While this lands it with an approachable $300 starting price, it also comes with fairly limited hardware such as an older Alder Lake–based Intel processor that relies exclusively on lower-power E-cores and on UFS storage instead of an NVMe SSD. Despite all this, the system proves to be a fairly competent worker, keeping up with everyday browsing and work tasks well enough.

SPECS AND FEATURES

The Acer Aspire Go 15 has few configurations (fave.co/3JVRRsR) at the moment, though

IMAGE: ACER

Acer has some blurred lines with 14-inch as well as AMD-based models occupying the same space. The Intel-based, 15-inch models, indicated by AG15-31P in the name, stick with low-end Intel processors, topping out at the Intel Core i3-N305 as tested here, which features only E-cores with no hyper-threading and limited clock speeds. By default the Acer will come in Windows 11 Home S Mode, but you can switch it over to standard Windows 11 Home should you need.

Acer has given the Aspire Go 15's lid and keyboard deck a silver shine to offer that metallic look.

CPU: Intel Core i3-N305

Memory: 8GB LPDDR5

Graphics/GPU: Intel UHD Graphics

Display: 15.6-inch FHD LCD

Storage: 128GB Universal Flash Storage

Webcam: 720p

Connectivity: 1× USB-C 3.2 Gen 2 with Power Delivery and DisplayPort, 2× USB-A 3.2 Gen 1 , 1× HDMI, 1× 3.5mm combo audio, 1× Kensington lock slot, 1× DC barrel jack (19V 3.42A)

Networking: WiFi 6, Bluetooth 5.3

Biometrics: N/A

Battery capacity: 53.9 watt-hours

Dimensions: 14.29×9.44×0.74 inches

Weight: 3.74 pounds

MSRP: $299 as tested ($249 base)

The different configurations have small differences in price, though the actual differences between systems aren't always too clear. The model tested here is $299, but a similar model for $349 appears to have almost all the same specs except that it reports using 128GB of flash memory instead of a 128GB SSD (a curious difference given this configuration claims to have an SSD online but reports a SanDisk UFS drive as the primary storage in the system itself). As the system uses LPDDR5 memory, it won't be upgradeable after the fact, so it's important to ensure that you get enough memory for your needs. Acer's product page suggests 1TB storage and 16GB memory configurations as options, though neither is listed among the actual options.

DESIGN AND BUILD QUALITY

Acer has stuck to a common design that I've seen on so many of its Aspire and even Swift

models that sometimes I get a little worried I'm not reviewing the same machine for a second time. Little surprise, then, that the Acer Aspire Go 15 is nearly identical to last year's Aspire 3 (fave.co/40Bp6co) despite what the new naming scheme would have you think.

Since this is Acer's cheaper line, it is predictably constructed with all plastic—the lid, keyboard deck, and underside of the laptop. Acer has given the lid and keyboard deck a silver shine to offer that metallic look. The silver-and-black color scheme is classic and doesn't look half bad, though the rougher plastic of the keyboard and display bezel not only has an awkward shimmer but also looks and feels a little too cheap. The plastic is also flexible, bending under strain and depressing considerably under pressure above the keyboard. The display is susceptible to bending as well and has a bit of wobble when it's first opened.

Very little about the design isn't just a traditional laptop. The bezels around the display are all pretty thick. Ports sit on either side. The hinge isn't some exotic design, nor is there any fancy decoration. The closest the design gets to truly unique is the situation of the exhaust port, which sits above the keyboard, visibly opening upward to dispel heat right into the display. The design has been made all the more common by Acer's use of it on many of its recent laptops.

Perhaps the best call Acer made in design was chamfering the front edge of the base. This makes for a smoother shift from front side to keyboard deck so the laptop doesn't put as pointed pressure on the wrists as it could have.

Altogether, it's not great looking or marvelously constructed. But it's not bad, and it's hard to expect more at $300.

KEYBOARD, TRACKPAD

Acer's keyboards have a contentious design with almost domed keycaps, and that hasn't stopped the company from applying that design to just about every model it produces, from the high end to the budget. That means

Acer's keyboards have a contentious design with almost domed keycaps

the Acer Aspire Go 15 finds itself with that design as well. Pair that with the cheaper mechanisms underneath and the rougher plastic used for the keys, and you don't get a great typing experience.

I could comfortably type around 110 words per minute with reasonably high accuracy (upward of 96 percent), though I did find I suffered a little bit from the keycaps, which make it harder to consistently land on the center of the keys and thereby keep my fingers on track with the keyboard. Thankfully, the keys are at least not too wobbly.

Acer shrinks its arrow keys like most laptop makers. Since this is a 15-inch laptop, it did see fit to include a number pad. However, it's a thin one that not only has small keys but also leaves out the operation column on the right hand, so there will be some relearning if you have muscle memory for a full-size number pad. Also worth noting is that the Acer Aspire Go 15's keyboard has no backlighting and has replaced its right Control key with the new Co-Pilot key. That latter change makes some keyboard commands (such as Ctrl-minus [–] to zoom out) all but impossible to execute with one hand.

Acer's choice of trackpad is large and smooth, making for easy mousing around. I haven't run into any issues with palm rejection while testing, which is good news since it's a little too easy to rest my palms on either edge while typing. That said, occasionally I'll find it skipping to some other part of the screen while I'm using it. It seems to be caused by some confusion when I have two fingers touching the trackpad at once—it registers the two touches as a swipe from one finger to the other. Thankfully this hiccup is rare.

DISPLAY, AUDIO

The display on the Acer is a strictly utilitarian affair, and it does its job. The best aspect of it is the combination of a modest brightness (measured at 284 nits) alongside a matte finish. This provides good visibility even in less-than-ideal conditions. Even with an overhead light beaming directly down onto the display, I can see my work clearly.

In spite of its limited brightness, the display has enough contrast to look halfway OK most of the time.

At 15.6 inches, the 1080p resolution isn't stretched too thin for clarity. And in spite of its limited brightness, the display has enough contrast to look halfway OK most of the time. The system uses a dynamic contrast feature I've seen all over the place: It lowers the backlighting when more of the screen is displaying dark content and raises it when more content is bright, but it lags behind what's on screen and can leave things looking unsightly for a second when there are big changes, such as opening a new, bright window. On largely black windows, there's also clear backlight bleed coming from the bottom edge of the display.

What holds the display back most is that it's so lacking in color gamut that it can't help looking a little drab and lifeless. A work machine like this could also have benefited from the extra vertical screen real estate a 16:10 aspect ratio might have provided. At least the 15.6-inch size provides decent space for side-by-side window multitasking.

Like much of the machine, the speakers on the Acer Aspire Go 15 also put emphasis on being simply serviceable. They're bottom-firing little speakers that lack any fullness, but they don't sound horrible or grating, and they can get loud enough to actually hear. They emphasize the vocal range best, with treble not sounding great and bass effectively absent. For podcasts, calls, or lectures, they can do the job. But they're no good for movies or music, and they struggle when

there's a lot going on musically, spewing out more cacophony than symphony.

WEBCAM, MICROPHONE, BIOMETRICS

You'll find a basic webcam on the Acer Aspire Go 15, capturing grainy and soft 720p footage. It might get the job done, but it's not a great option if you're at the center of presentations or trying to make content. The mics also pick up a lot of room sound, rather than canceling out echo and focusing in on the voice.

The laptop lacks fingerprint or facial recognition. So you'll be relying on a password or PIN to secure the system, and even then some extra steps may be necessary. Even with a password set, I found the laptop not asking for it after had been asleep for a short while. And even with the lid closed and the laptop moved to a new location, it let me right back in without a password. Get in the practice of entering Windows + L to lock it out before closing out of the laptop to ensure it's secure the next time it's opened up.

This is a lax default approach to security I have not seen on other Windows laptops and am honestly somewhat shocked by. It may be the result of Acer's setup for the review unit, but if this is how Acer ships retail units, it's worth rectifying by going to Settings > Accounts > Sign-in options and scrolling to Additional settings where you can change the settings for "If you've been away, when

Acer supplies a decent array of ports, but they're not the latest.

should windows require you to sign in again?" to "Every Time."

CONNECTIVITY

To its credit, Acer isn't leaving users in the past with connectivity in spite of the low price here. The laptop supports Wi-Fi 6 and has held fairly stable connections in my testing. The same goes for Bluetooth, which is up to Bluetooth 5.3 here and rarely ran into issues during my testing.

Ports are a slightly different matter. Acer supplies a decent array, but they're not the latest. USB-A ports on either side top out at 5Gbps. A single USB-C port on the left side goes up to 10Gbps. This leaves out any Thunderbolt or USB4 options, and even falls short of the USB 3.2 Gen2x2's 20Gbps speeds that are so rarely on offer.

The left side of the laptop includes an HDMI port and a DC power adapter, while the right side offers a 3.5mm headphone jack and Kensington lock slot.

PERFORMANCE

With just a cluster of eight E cores, the Acer Aspire Go 15 wasn't going to set any performance records, and that bears out in testing. Perhaps disappointingly, it even leaves room for earlier (read outdated) Aspire models to still best its performance.

Looking at PCMark 10, which measures overall system performance in a variety of office-related, general tasks, the Acer Aspire Go 15 lags considerably behind last year's Aspire 3 (fave.co/40Bp6co), which had only four cores but offered higher clocks, multiple threads, and ran on a very different architecture. The system also couldn't keep up with the much older Acer Aspire 5 (fave. co/3xzRrn7), which ran a generations-older Core i5-1135G7. It's not as though those other Aspire models were much higher configurations either, as both had just 8GB of memory and fairly small storage.

PCMark 10 Overall
CPU performance

Acer Aspire Go 15 (2024) Core i3-N305	3,469
Acer Aspire 3 A315-24P-R75B Ryzen3 7320U	4,284
Acer Aspire 5 Core i5-1135G7	3,902
Microsoft Surface Go 3 Core i3-10100Y	2,620
Asus Zenbook UM3402 Ryzen 7 77342	5,812

LONGER BARS INDICATE BETTER PERFORMANCE

Cinebench R15
CPU performance

System	Score
Acer Aspire Go 15 (2024) Core i3-N305	783
Acer Aspire 3 A315-24P-R75B Ryzen3 7320U	1,925
Acer Aspire 5 Core i5-1135G7	866
Microsoft Surface Go 3 Core i3-10100Y	218
Asus Zenbook UM3402 Ryzen 7 77342	1,854

LONGER BARS INDICATE BETTER PERFORMANCE

3DMark Time Spy
GPU performance

System	Score
Acer Aspire Go 15 (2024) Core i3-N305	678
Acer Aspire 3 A315-24P-R75B Ryzen3 7320U	584
Acer Aspire 5 Core i5-1135G7	1,226
Microsoft Surface Go 3 Core i3-10100Y	363
Asus Zenbook UM3402 Ryzen 7 77342	1,437

LONGER BARS INDICATE BETTER PERFORMANCE

The Aspire Go 15 can at least beat the truly meager performance of something like the Surface Go 3 (fave.co/4bc1lft), though. Compared to a modest, sub-$1,000 ultrabook like last year's Asus ZenBook 14 OLED (fave.co/3SjDWSm), all of these systems lag behind, and that can spell trouble when those prior-year models have a tendency to see considerable discounts that bring their performance and superior designs and builds to a more competitive price.

It's plain to see that a lot of the difference in performance is coming down to the CPU. In Cinebench R15, the performance gap between the Acer Aspire Go 15 and its older siblings appears again, with the Ryzen-based Aspire 3 coming just shy of tripling the performance (and remember, that's with half the cores), and even the dated Core i5 model coming out narrowly ahead.

Since these systems are relying on integrated graphics, which are built into the CPUs, their performance falls mostly in line with the CPU performance. That is to say, the weak CPU performance translates to weak graphics performance. The Acer Aspire Go 15 can struggle when its iGPU is taxed, such as when it's running a YouTube video in one window and doing just about anything else in another window.

The Intel UHD Graphics it offers aren't up to modest tasks. It at least has an edge on last year's Aspire 3, but the dated Aspire 5 actually gets some props for the stronger performance of its Intel Iris Xe Graphics (fave. co/3JXFz1d). Meanwhile, the Asus ZenBook 14 OLED again shows there's a lot to be gained from a higher-end system, with leading performance here with some benefit coming from its larger memory providing more resources to the integrated graphics.

Also worth mentioning is the storage speeds. Using CrystalDiskMark to measure, the Aspire Go 15 offered max read speeds of 1074MB/s and write speeds of 298MB/s. These would be slow for even PCIe 3.0-based

Battery life
Minutes

Acer Aspire Go 15 (2024) Core i3-N305	708.5
Acer Aspire 3 A315-24P-R75B Ryzen3 7320U	480
Acer Aspire 5 Core i5-1135G7	395
Microsoft Surface Go 3 Core i3-10100Y	445
Asus Zenbook UM3402 Ryzen 7 77342	920

LONGER BARS INDICATE BETTER PERFORMANCE
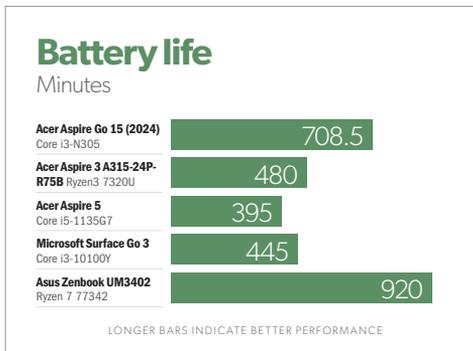
SSDs, let alone the PCIe 4.0 options becoming more common in recent laptops.

BATTERY LIFE

Acer makes up for the lacking power of the Aspire Go 15 by having a system that sips its battery power rather than chugging it.

In our video playback test, the Acer Aspire Go 15 readily ran for almost 12 hours. That's a huge jump from the older Aspire 5, which had a similar 53Wh battery and a smaller display but ran for closer to 6.5 hours. Last year's Acer Aspire 3 had a smaller 40Wh battery, but even taking that difference into account, it ran less efficiently.

Only the Asus ZenBook 14 OLED managed to beat it here, and it was surely helped by its almost 50 percent larger 75Wh battery, which did not net it a 50 percent longer runtime. Video playback is a favorable scenario for runtime, though, and with the system working harder on office tasks, battery life more typically fell closer to 6 to 8 hours.

BOTTOM LINE

The Acer Aspire Go 15 is nothing exciting, but it has clear value. It's an effective working machine, making surprisingly good use of its 8GB of memory and putting its low-power CPU to good use by running efficiently. With plenty of battery life to get through the day and a display that's easy to see despite its low brightness, it's a worthy machine for $300.

It can't put up much of a fight against laptops that pack in higher-end components, but it avoids a lot of direct competition with them. That said, there are plenty of great laptops that get considerable discounts from time to time, including Asus Zenbooks (I grabbed a new one for just $500 a while back), and with the many upgrades those machines offer, it may be worth keeping an eye out for deals on prior-year machines. ⏻

Acer Aspire Go 15

★★★★☆

PROS
• Affordable.
• Decent battery life.
• Good display visibility.

CONS
• Big and bulky.
• Cheap build.
• Limited performance.

BOTTOM LINE
The Acer Aspire Go 15 (2024) isn't much to look at, but it plods along without much fuss, only struggling when demand is put on the meager integrated graphics or too much CPU horsepower is called for. For simple computing needs, it offers a clear value at just $300.

From $249

McAfee Total Protection review: Top security undermined by a major feature

The interface could use a touch more refinement, too. **BY ALAINA YEE**
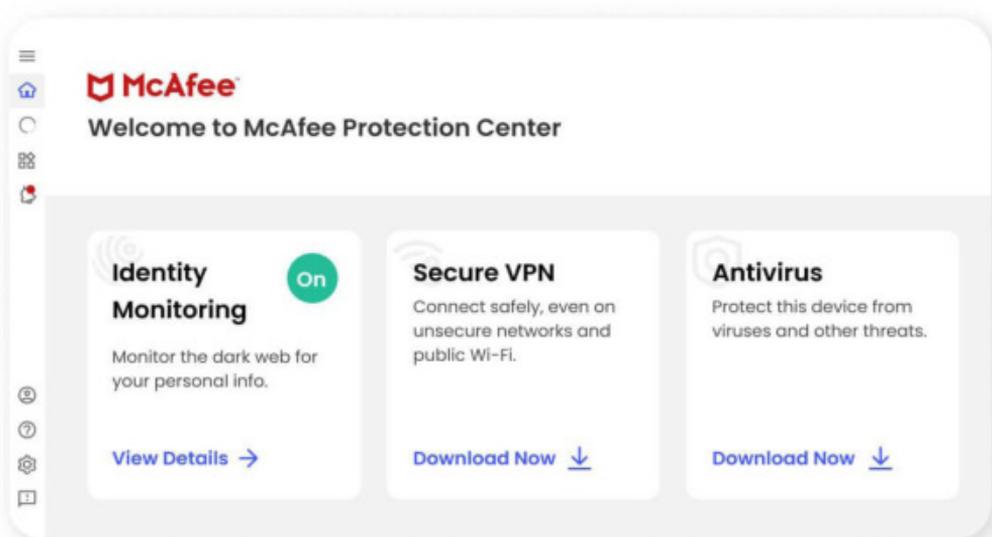
Not everyone needs an antivirus plan with extra bells and whistles—sometimes a subscription covering the fundamentals is all you need. (Why pay for what you won't use?)

On paper, McAfee Total Protection fits that bill nicely. In addition to strong antivirus and firewall protection, this software package also throws in a VPN and a password manager, along with dark web monitoring and a couple security-oriented utilities for your PC. The problem is that not every feature is a winner, which diminishes Total Protection's appeal.

WHAT DOES MCAFEE TOTAL PROTECTION INCLUDE?

Despite the low introductory pricing, McAfee's entry-level plan is more

comparable to rivals' mid-tier offerings. The basics include malware, network, and online threat protection that scans continually for dangerous software and exploits on your PC, potential network intruders, and suspicious websites. Also included are a password manager and VPN with unlimited use; a tracker remover that wipes cookies, trackers, and browser history from your browser; and a file shredder utility. A separate Scam Protection app for mobile devices is available, too.

The Essential plan does not offer parental controls. You must upgrade to the McAfee+ Premium Family subscription for access to those tools.

PRICE

McAfee Total Protection varies in price depending on the number of devices covered. When purchased through the McAfee website, the Essential 5-device plan (used for this review) costs $40 for the first year, and then $120 per year afterward. The Basic 1-device plan runs $30 for the first year, and then goes up to $90 per year afterward.

Plans come with a 30-day money-back guarantee (fave.co/3wCRss7). Annual users are signed up for auto renewal by default, and McAfee charges for the next year 30 days before your current subscription ends.

For unlimited device coverage, you'll have to upgrade to a McAfee+ plan.

5-device Essential plan
$40 for the first year
$120 per year thereafter

1-device Basic plan
$30 for the first year
$90 per year thereafter

Device support spans Windows, Windows for Arm, macOS, ChromeOS, iOS, and Android. (However, not all features are multiplatform.) You get five licenses for the VPN and password manager, which you can share with others.

You can bring down the cost of McAfee Total Protection by buying a license through a third-party retailer, like Amazon (fave. co/4dtBHoh) or PCWorld's own software store (fave.co/3QC2Rzi). Going this route is not only cheaper (fave.co/43mDUwY), but also gives more options for the number of covered devices—you can find 3-device and 10-device plans through these online stores.

KEY FEATURES
Installation and user interface

Despite McAfee's semi-confusing website (due to inconsistent product names), getting started with McAfee Total Protection on your PC is straightforward—you can first opt for the free trial (fave.co/3QEwDUf), or head directly to purchasing a license. Either way, you'll get a download link to the app.

The McAfee app is clean and modern, but it carries a faint underlying vibe of disorganization. You can find main features pretty easily, with shortcuts to antivirus scans, the VPN, tracker remover tool, downloads for additional devices, and identity protection available on the home screen. You can also see your McAfee protection score, a rating of how thoroughly you've set up the plan's features.

Additional features can be found through the left navigation bar, which is a strip of five icons that expand into a slide-out menu when clicked. The button with four tiny squares opens the My Protection submenu, which presents all scanning options, quarantined items, the file shredder utility, firewall settings, identity monitoring, the password manager, the VPN, tracker remover, and link to the web protection browser extension in a list format.

Account and app-related info is available through the left nav bar's bottom icon (Account). Here you'll find the options for adding a device, visiting the account web portal (where you can look up activation codes for the VPN and password manager), app updates, help, and privacy and legal terms. App settings live here, too, but you
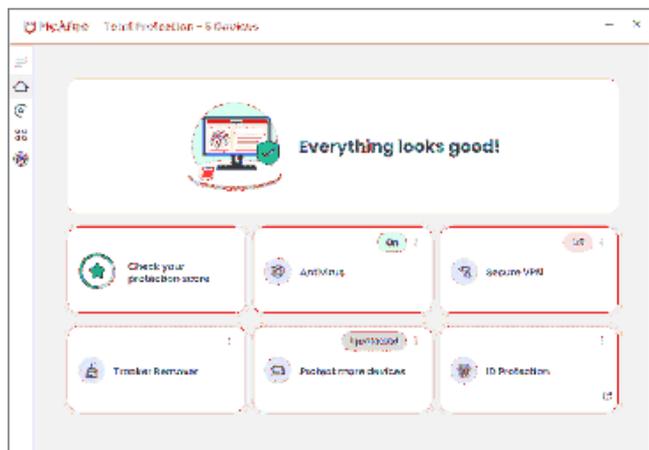
The Home screen in the McAfee Total Protection app.
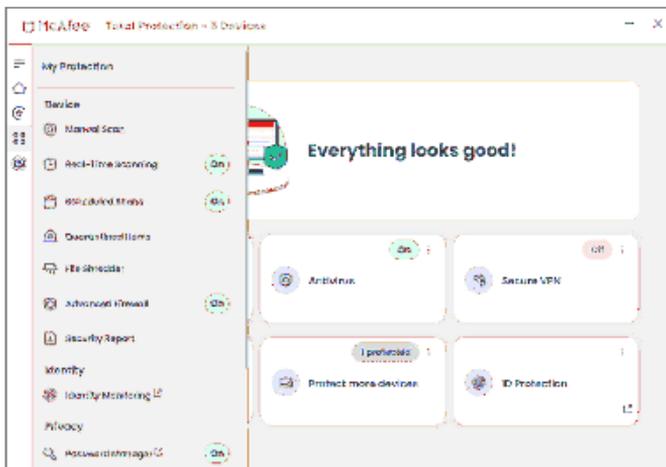
The My Protection submenu overlay in the McAfee Total Protection app.

can't configure much at all.

If McAfee had just one web portal, using Total Protection would feel more cohesive, but information and features are split across a device app and two websites. Acclimating would be easier if account information was part of the McAfee Protection Center website (fave.co/4dxpDCh), instead of broken out separately. As it is, expect to click around extraneously until you remember where everything is.

Virus, malware, and threat protection

Real-time protection

McAfee Total Protection continually monitors your PC for unusual activity—new or changed files and apps (including app behavior) all get screened. But don't expect to dig around under the hood and tinker with how this works. McAfee's approach is to make this process as invisible as possible. Your only real choice is to keep real-time scanning on, or turn it off for troubleshooting purposes.

For protection while surfing the web, the McAfee WebAdvisor browser extension must be installed separately. It keeps watch for websites with malicious content and downloads as you browse online, both warning you if they appear in search engine results and blocking bad sites if you accidentally navigate to one. However, Bing isn't a supported search engine—so diehard Microsoft fans may have to bite the bullet and use Google instead to get full coverage.

Scheduled and manual scans

McAfee Total Protection is automatically configured to scan your system periodically in the very early morning—on our test system, it defaulted to every second Monday at 4:00 a.m. You can change the interval to a different preset (once per week or once per month), or make your own custom scan schedule that runs every week, other week, or first week of the month.

For manual scans, you get two choices.

Quick scan checks locations on your PC often targeted by attackers. Meanwhile, Full scan sifts through all the drives and folders on your PC, excluding network drives. If you only want to check an individual file or folder, you can right-click on it and then select Scan.

Firewall

McAfee is unusual in that its firewall works alongside the default firewall within Windows. It focuses on screening just outgoing connections, letting Windows monitor incoming connections. If an app installed on your PC tries to connect to what appears to be a malicious website (or otherwise behaves erratically in its traffic requests), McAfee will cut off its internet access. If the decision was a mistake, you can remove the software in question from the block list.

Scam protection

With fraudulent links being sent more frequently over SMS, McAfee's relatively new mobile apps can put a shield between you and a would-be scammer. Letting the McAfee Security & Wi-Fi Privacy app (iOS, fave. co/3WCMiaq) or the McAfee Security: VPN Antivirus app (Android, fave.co/4bAnP9Z) run in the background will allow McAfee to
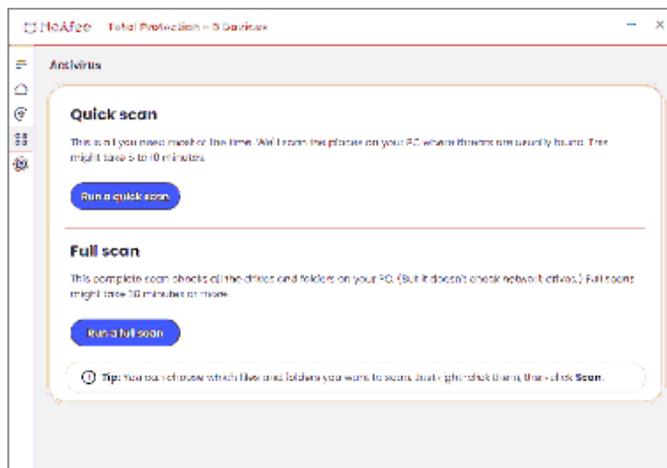
The manual scanning options in McAfee Total Protection.

check all your text messages for any risky links. To see any that raise the suspicion of the AI-based scanner, you'll have to head to your filtered messages on iOS, or the McAfee app on Android.

VPN

The easiest way to access McAfee's VPN is through the Total Protection app—the controls are built right in and are put all on one screen. You can flip the VPN on (or off), pick or change your location, and change the auto-connect and safe reconnect settings. (Safe reconnect is more commonly known as a kill-switch setting—your online access automatically cuts off if the VPN connection gets interrupted.)

Alternatively, you can download and install the McAfee Safe Connect app through

the protection web portal. The interface is a bit different—using the VPN, looking at usage stats, and changing its settings are done through different screens. The primary advantage of the Safe Connect app is that as a separate app, you can isolate this one feature for a device like a Chromebook or a smartphone.

Unlimited VPN use is only included with Total Protection plans when auto-renewal is on.

Servers are available in 49 countries, spanning Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, Colombia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Indonesia, Ireland, Italy, Japan, Kenya, Latvia, Lithuania, Malaysia, Mexico, Moldova, Netherlands, New Zealand, Nigeria, Norway, Peru, Philippines, Poland, Portugal, Romania, Serbia, Singapore, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, United Arab Emirates, the U.K., and the U.S.

Password manager

If it gets you to use a password manager, then McAfee True Key is a worthwhile addition to Total Protection. But it's largely lackluster compared to a standalone service (fave.co/3IRkfRz)—even good free password managers (fave.co/3nT9nDq) are better.

Let's start with the most frustrating aspect: logging into more than one device. An emailed verification link is required before you can sign in, but the message doesn't always arrive before the request expires. I had this issue during this review as well as when I evaluated McAfee+ Ultimate (fave.co/3Wy6jP9) late last year, and others have complained about it on McAfee's forums for years.

Also irritating is the need for an activation code to unlock unlimited use. If you can't find it in your email, you'll have to hit up your account webpage (Downloads & devices) or the protection portal (My protection).

As for its actual features,
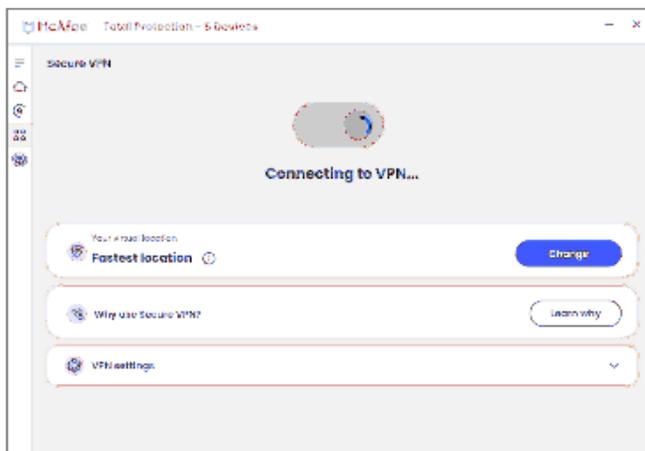
The VPN within the McAfee Total Protection app.
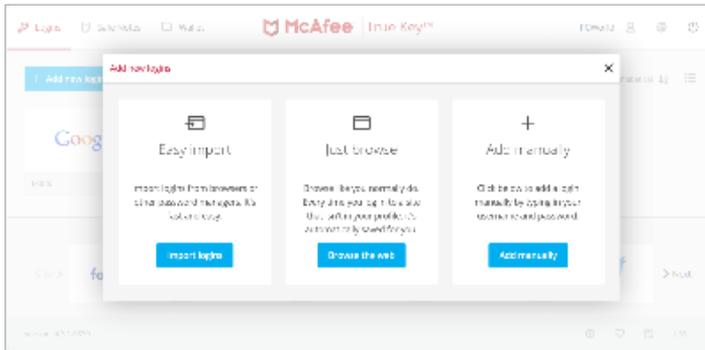
McAfee's True Key password manager is simple and basic, with sign-in difficulties that make it unappealing.

True Key overemphasizes simplicity at the cost of security. You can't disable autofill (fave.co/4ai5ZaH)—a feature that's convenient but can expose you to risk. Two-factor authentication methods are also limited to just a second device, trusted device, or Windows Hello; stronger methods like OTP (fave.co/3K2s02h) software codes and hardware keys aren't supported.

If the sign-in procedure was more reliable, True Key would be a useful feature, even if eclipsed by rival password managers. But you can do better.

Identity monitoring

Identity Monitoring scans the dark web for information about you from data breaches and leaks. By default, the email address associated with your account is monitored, but you can add more details to screen for: credit cards, bank accounts, email addresses, usernames, and phone numbers (up to 10 each); tax IDs, passports, driver's licenses, and health IDs (up to two each); and your social security number (SSN) and date of birth.

The results are more useful as a rough idea of what info has leaked—you won't always get specific names for the breach or leak, but you can see partial info. It can help you figure out your next steps in protecting your online identity—like where to change your password or if you need to place a freeze on your credit reports.

Additional features
Browser extensions

McAfee Total Protection is most complete when you install its two affiliated web browser extensions. McAfee WebAdvisor adds extra protection when you're surfing the internet, checking for dangerous links and content on websites. It also rates search results as safe or risky, though only for Google, Yahoo, and AOL. (Sorry, Bing users.) Note that Chrome users may need to manually enable the safe search badges within the extension's settings.

As for McAfee's password manager, True

In Microsoft Edge, the McAfee WebAdvisor extension automatically adds visual icons to Google, Yahoo, and AOL search results signaling if they're safe or not. Chrome users will need to activate this feature.

Key only works through its browser extension on PC—there's no web interface. (On mobile, you can install the dedicated app.) However, True Key can be difficult to use, so it's not as necessary—provided you use a different password manager instead.

File shredder

Files deleted normally can be recovered—which is where secure erase utilities (aka file shredders) come in. These tools overwrite the data in question using specific protocols designed to obfuscate the original info, and usually do more than one pass to ensure the job's done properly.

McAfee's File Shredder lets you securely wipe batches

of files (Recycling Bin contents, temporary internet files, a folder you choose, or an individual file) using the Department of Defense (DoD) standard. You can pick between two, three, or five passes. For bulk erasure, you'll use the Total Protection app; for individual files, you must right-click on them and choose Shred.

One caveat about this tool, however—this kind of secure deletion is designed for hard-disk drives. It doesn't work nearly as well on solid-state drives (SSDs), which is the more common kind of storage in modern laptops and desktops. It can also shorten their lifespans. Other methods are better for securely wiping an SSD (fave.co/3wkp0LP).

The File Shredder utility in the McAfee Total Protection app.

Customer support

Help for McAfee Total Protection is available through several avenues: McAfee's support website, fave.co/4bvj959 (either through the knowledge database or the virtual assistant), community forums (fave.co/4bBBUE9), social media (Facebook, fave.co/3wxeIb3; X/Twitter, fave.co/3wxeFvT; and YouTube, fave.co/3Uz09vH), or by contacting the company though chat or phone. You can contact McAfee at any time of day.

Generally, the support pages are the fastest way to answer simple, common questions. But sometimes the help files are outdated, with screenshots showing older interfaces. This discrepancy can make figuring out an issue harder, and reflects the overall disarray of McAfee's websites.

Updates and maintenance

Updates run automatically by default but can be adjusted. You can instead choose to have the app download updates but not install them, or only notify you when updates are available. For the overwhelming majority of people, the default setting provides the best protection.

You can also manually check for updates within the app through the Account screen, then navigating to Help > Update App.

PERFORMANCE

For threat protection, McAfee performs well in tests done by leading security research institutes. In AV-Test's zero-day attack and malware tests for January and February 2024, fave.co/4bcguNY (the most current as of this article's publishing), McAfee's engine blocked 100 percent of the threats.

In AV-Comparatives' real-world protection test for July through October 2023 (fave.co/48RHPDy), McAfee caught 99.6 percent of the 512 test cases, with six false positives. (When antivirus software blocks a legitimate website or download, it results in a false positive.) It also performed fairly well in AV-Comparatives' September 2023 malware

In AV-Comparatives' real-world protection test for July through October 2023, McAfee caught 99.6 percent of the 512 test cases, with six false positives.

protection test (fave.co/3SDzNsW), with a 99.2 percent online detection rate and a 99.95 percent online protection rate.

However, McAfee was weak in one area—in the same September 2023 malware protection test, it detected only 65.2 percent of offline threats, with a higher false positive rate of 10 false alarms. Without an active internet connection, McAfee won't protect your system as well. Top performers in this area (like Bitdefender, fave.co/4bekQEa) score 98 percent and above, while Windows Security app (included free with Windows) comes in at 77 percent.

McAfee did not participate in AV-Comparatives' November 2023 Advanced Threat Protection Test (fave.co/4b1LeBJ), which examines an antivirus engine's ability to block targeted threats (such as fileless attacks and malicious scripts).

As for effect on PC performance, McAfee can hit system resources hard during full scans on mid-range and budget systems. When running our full scan torture testing—where we purposely run a full scan continuously during a series of benchmarks to see its effect—results took sharp declines.

During PCMark 10's benchmark, which simulates web browsing, video chatting, gaming, and editing in open-source programs like GIMP and LibreOffice for images and documents, running a full scan reduced the test scores by about 21 percent.

The bigger drop was in UL Procyon, which measures Microsoft Office app use—it simulates working in Word, Excel, and PowerPoint, with a fair amount of editing and updating multiple documents. Results dropped by a whopping 41 percent. Our Handbrake encoding test fell in the middle,

In the same September 2023 malware protection test, McAfee Total Protection detected only 65.2 percent of offline threats, with a higher false positive rate of 10 false alarms.
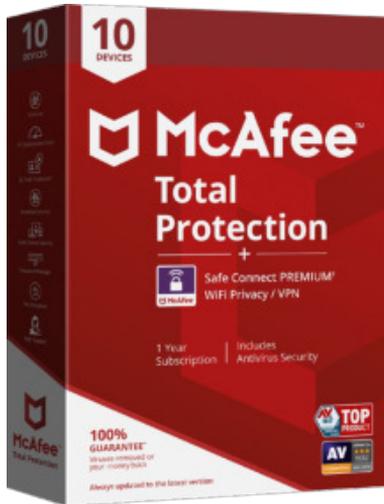
McAfee Total Protection covers the full basics of online security.

with the time needed to transform a large video into a smaller, compressed version increasing by almost 29 percent.

But as noted above, our full scan tests don't reflect real-world behavior. McAfee skips files unchanged since a previous scan, which speeds up the task and makes the hit to system performance smaller. When monitoring my activity quietly in the background, Total Protection's effect on PCMark, Procyon, and Handbrake benchmark scores was all but the same as before the app was installed.

So while your first full scan could hit your PC hard, subsequent ones should go much easier on it—so long as you don't often add or update tons of files on your machine. But even if you do, McAfee times its full scans for

off-hours by default, which should minimize the impact.

BOTTOM LINE

McAfee Total Protection covers the full basics of online security. Free software can adequately cover malware and network protection, but Total Protection pairs password management and VPN services with its antivirus engine, plus adds in a couple of PC utilities to cover your bases. But this enticing package is undercut by an interface simultaneously simple and sprawling, and a password manager with an unreliable system for setup. Similar rivals provide better-rounded performance, which is unfortunate—with more polish, McAfee's software would be an easier sell. ⏻

McAfee Total Protection

★★★½☆

PROS
• Solid antivirus protection.
• Broad protection against online threats.

CONS
• Can heavily impact performance on some PCs.
• User interface is a little scattered.
• Password manager is difficult to use.

BOTTOM LINE
McAfee Total Protection's strengths lie in its defenses against malware, network, and other online threats, as well as its easy-to-use VPN. However, its unreliable password manager undermines its overall value, and the app can notably affect system performance on mid-range and budget PCs. Currently, rivals eclipse this entry-level offering—which is a shame since Total Protection tidily bundles all the necessary security essentials.

From $89

SK Hynix Tube T31: Looks like a USB drive, performs like an SSD

SK Hynix's Tube T31 looks like a standard thumb drive, but performs more like the external SSD it actually is. **BY JON JACOBI**

PCWorld EDITORS' CHOICE

SK Hynix is nothing if not creative with naming. Witness the previously reviewed scarab-shaped Beetle (fave.co/3PmVIRV), and now the Tube T31. The Tube T31 is, in fact, a Type-A USB stick, aka a thumb or flash drive or "tube" if you will—at least in shape and design. Internally, the T31 features NVMe and 10Gbps USB and performs more like the cable-attached external 10Gbps USB SSDs we review—that is, it's fast.

Note that while we distinguish between what's referred to as a thumb drive and external

IMAGE: SK HYNIX

SSDs, the former is in fact a type of the latter. The major distinction is that a commodity thumb drive generally uses older, slower technology such as SATA and USB 5Gbps.

FEATURES

The Tube T31 is a Type-A USB 3.2, 10Gb/s SSD that weighs around 1.2 ounces and measures approximately 3.6 inches long by 1.17 inches wide by 0.54 inches thick. While SK Hynix wasn't specific about the internals, the performance tells me the internal transport is NVMe and the NAND is likely QLC.

As you can see from the images, the Tube T31 is black, with the only styling flourishes being the silver of the logo and, when the cap is removed, the Type-A connector.

SK Hynix warranties the T31 for three years. The warranty is limited, as all warranties are, so overuse (writing too much data) and physical abuse will give the company the option to ignore a claim.

No mention is made of the T31's TBW rating (terabytes that may be written), but it's likely around the industry average of 600TBW per 1TB of NAND. That's a lot of data and more than you're likely to write in a decade, let alone three years.

PRICE

The 1TB Tube T31 is currently available on Amazon for $100 (fave.co/4bbMORd), while the 512MB capacity is $80 (fave.co/3WCPkv4). That's pricey if you think of it as a thumb drive, but quite reasonable if you compare it with other high-powered external SSDs, such as SK Hynix's aforementioned Beetle.

PERFORMANCE

As discussed, the Tube T31 is very fast for a thumb drive. It's easily the fastest we've tested—neither the Teamgroup C212 (fave.co/4bCJoq7) nor the PNY Pro Elite V2 (fave.co/44IqhZQ) thumb drives could keep up.

CrystalDiskMark 8
Sequential Performance
MBps

■ SK Hynix Tube T31   ■ PNY Pro Elite V2
■ Teamgroup C212   ■ Kingston XS1000

Sequential Write (Q=1, T=1)
915
706
462
916

Sequential Read (Q=1, T=1)
938
596
374
984

Sequential Write (Q=8, T=1)
1,035
753
447
989

Sequential Read (Q=8, T=1)
1,064
637
291
1,064

LONGER BARS INDICATE BETTER PERFORMANCE

CrystalDiskMark 8
Random Performance
MBps

■ SK Hynix Tube T31   ■ PNY Pro Elite V2
■ Teamgroup C212   ■ Kingston XS1000

Sequential Write (Q=1, T=1)
81
75
82
74

Sequential Read (Q=1, T=1)
40
22
23
24

Sequential Write (Q=8, T=1)
252
79
152
187

Sequential Read (Q=8, T=1)
220
27
184
210

LONGER BARS INDICATE BETTER PERFORMANCE

Neither of the other two thumb drives holds a candle to the Tube T31 in sequential transfer.

The SK Hynix Tube T31 offers very good random 4K performance.

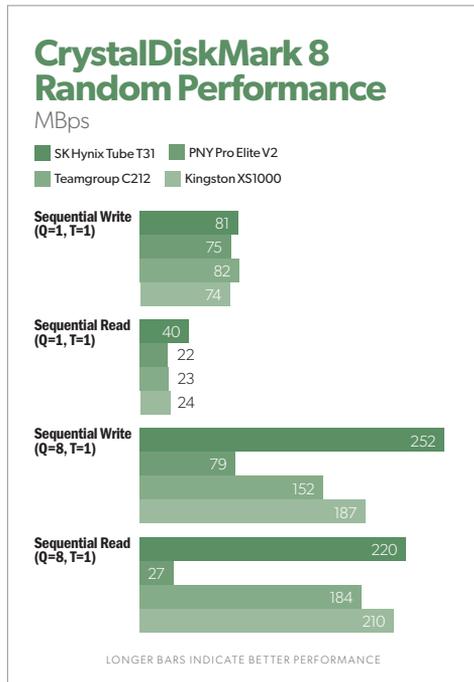Note that the Kingston XS1000 (fave.co/ 3WCa6Lm), which did keep up in some tests, is a Type-C cable-attached SSD, not a thumb drive, but is actually a tad smaller overall than the Tube T31. It's priced similarly, so we threw it in the ring.

As you can see, CrystalDiskMark 8 rated the Tube T31 as very fast at transferring large files. It also ruled the roost among the three drives in random 4K performance, as shown below.

You wouldn't think that the T31 was a thumb drive looking at the 48GB transfer

results below. It is, though obviously it's not a garden-variety one.

While middling for an external 10Gbps SSD, the T31's 450GB write time is fantastic, again, for a thumb drive.

I mentioned up top that QLC is the likely type of NAND involved. This is largely based on the write rate dropping to around 255MBps when secondary cache was exhausted. And it was exhausted at around the 95 percent mark of the 450GB write, which added quite a few seconds to the

48GB Copies
Seconds

- SK Hynix Tube T31
- Teamgroup C212
- PNY Pro Elite V2
- Kingston XS1000

Total Time
- 313
- 630
- 860
- 320

48GB Folder Write
- 130
- 235
- 371
- 141

48GB Folder Read
- 67
- 184
- 194
- 109

48GB Write
- 67
- 112
- 175
- 36

48GB Read
- 49
- 99
- 120
- 34

SHORTER BARS INDICATE BETTER PERFORMANCE
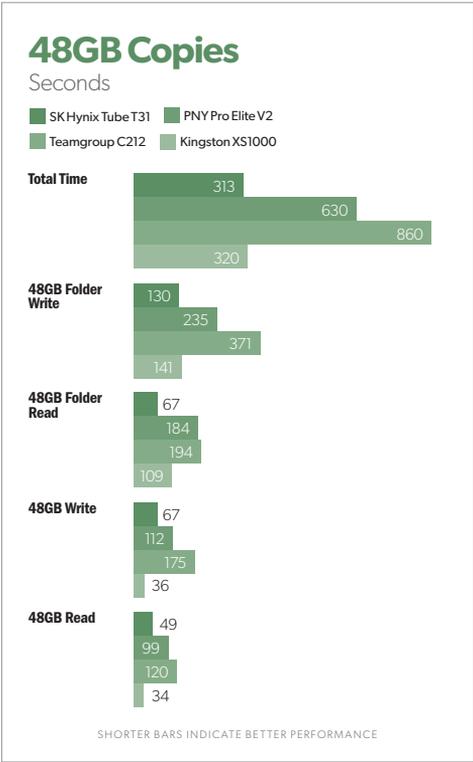
These are times more commensurate with external SSDs.

450GB Write
Seconds

- SK Hynix Tube T31
- Kingston XS1000
- Teamgroup C212

48GB Folder Write
- 725
- 3,172
- 2,110

SHORTER BARS INDICATE BETTER PERFORMANCE

This is an excellent 450GB write time by the Tube T31. (The PNY Pro Elite V2 from the previous charts is not included here as its 256MB capacity didn't allow for a 450GB write.)
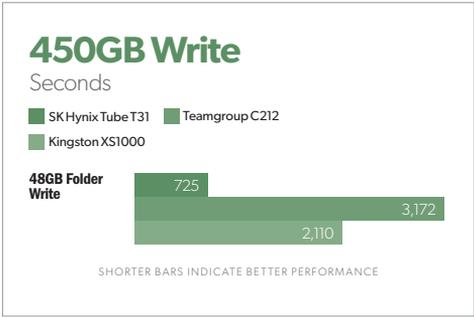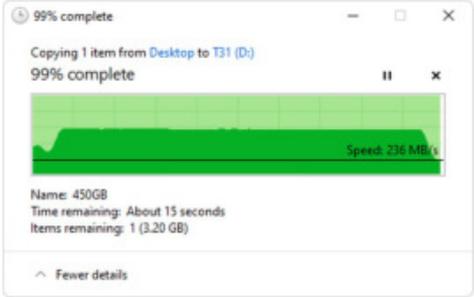

Once the secondary cache is exhausted, the Tube T31's write rate drops to around 235MBps.

Tube T31's time. This type of write is not something most users will ever perform, so don't weigh this result heavily in your buying decision.

BOTTOM LINE

If you want the speed of an external SSD, but the convenience of a captive Type-A connector and a svelte form factor, the Tube T31 is what you seek. It's the one I'll be keeping in my pocket, which is indeed a high recommendation.

HOW WE TEST

Drive tests currently utilize Windows 11, 64-bit running on an X790 (PCIe 4.0/5.0) motherboard and i5-12400 CPU combo with two Kingston Fury 32GB DDR5 4800MHz modules (64GB of memory total). Both 20Gbps USB and Thunderbolt 4 are

If you want the speed of an external SSD but the convenience of a captive Type-A connector and a svelte form factor, the Tube T31 is what you seek.

integrated to the back panel and Intel CPU/ GPU graphics are used. The 48GB transfer tests utilize an ImDisk RAM disk taking up 58GB of the 64GB of total memory. The 450GB file is transferred from a 2TB Samsung 990 Pro which also runs the OS.

Each test is performed on a newly NTFS-formatted and TRIM'd drive so the results are optimal. Note that in normal use, as a drive fills up, performance may decrease due to less NAND for secondary caching, as well as other factors. This is less of a factor with the current crop of SSDs with their far faster NAND.

Caveat: The performance numbers shown apply only to the drive we were shipped and to the capacity tested. SSD performance can and will vary by capacity due to more or fewer chips to shotgun reads/writes across and the

amount of NAND available for secondary caching. Vendors also occasionally swap components. If you ever notice a large discrepancy between the performance you experience and what we report, by all means let us know. ⏻

SK Hynix Tube T31

★★★★⯪

PROS
• Fast like an external SSD.
• Decently affordable.
• Small form factor.
• Captive Type-A USB connector.

CONS
• Costs more than the common thumb drive.
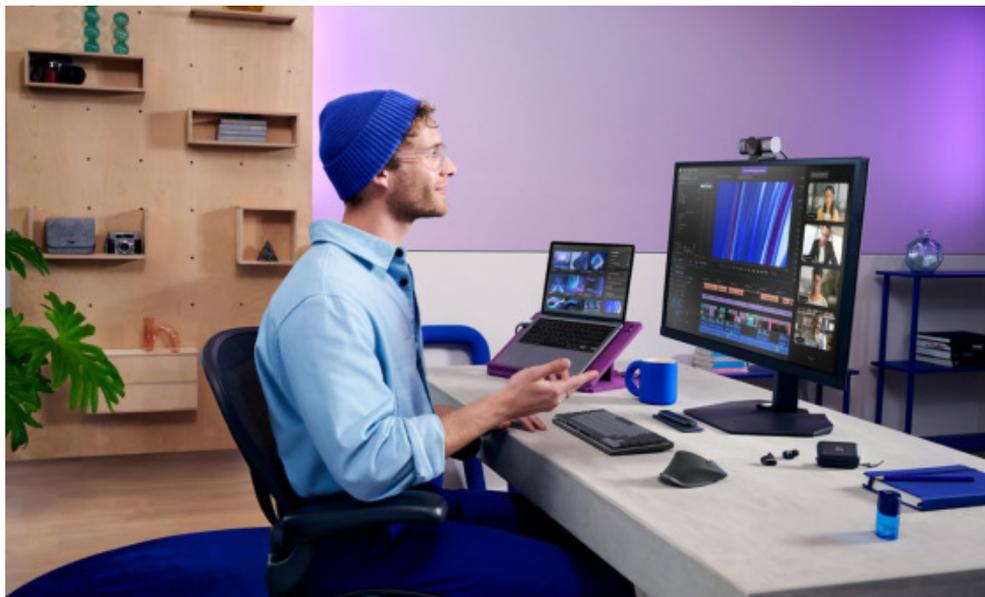
BOTTOM LINE
SK Hynix's Tube T31 looks like a standard Type-A USB thumb drive, but performs more like the external SSD it actually is. Fast, portable, universally connectable. Nice.

From $80

Logitech MX Brio webcam: Great video, with some flaws

Is the MX Brio a great webcam? Yes. Is it a polished product? Not as much as I'd like.
BY MARK HACHMAN

Logitech's MX Brio webcam produces some startlingly good images, even though you'd expect this semi-premium 4K webcam—from industry icon Logitech, no less—to deliver. I'm less impressed with some of its other elements, however—namely the accompanying software and its noise filtering.

Logitech's MX Brio is essentially the Logitech Brio 4K webcam (fave.co/3QEKCJy)

without Windows Hello, but with an enlarged sensor that promises improved low-light sensitivity. It's a little puzzling that Logitech excluded Windows Hello, but that choice may have been made with cost in mind.

DESIGN AND FEATURES

The Logitech MX Brio is a 4K webcam, though it can only record up to 30fps at 4K resolution. If you'd like a more video-like

Though compact, the MX Brio sat securely on both a desktop monitor and a laptop.

60fps, you can record in either 1080p or 1440p resolution.

Out of the box, Logitech's MX Brio feels surprisingly compact, compared to the enlarged lenses used by some rival 4K cameras. The webcam measures 3.75 inches from side to side, and when mounted is 2 inches high. The noise-cancelling mics sit on either side of the lens, which measures 4cm (1.57 inches) in diameter. Logitech uses a comfortably long 58-inch cord to connect the camera to your laptop, with USB-C connections at either end.

To close the lens, all you need to do is twist the ring on the outside of the lens. You'll see two halves of the lens shutter close,

top to bottom, making it immediately apparent that the lens can't physically see you. Logitech's MX Brio webcam does not include a ring light, though a small LED to the right of the lens signals when the camera is on and in use.

However, that won't prevent a hypothetical hacker from recording the audio from the camera's mics. That mic remains active, as I confirmed by recording a brief bit of audio through Windows Sound Recorder. The MX Brio's LED light will light up in yellow to indicate that the mic is recording, however, which is different from

The Logitech MX Brio, from the side. Adjustable arms help secure the webcam, plus some sticky tapes attached to the flat surface that contacts the monitor.

the white LED that lights up while recording video.

Though compact, the MX Brio sat securely on both a desktop monitor as well as a laptop. I think Logitech overengineered it a bit, honestly. As with most webcams, there's a "tooth," or lip, that hooks onto the front of the display. Some webcams just mount the webcam on top of it, adding a 90-degree hinge to hold the webcam in place.

Logitech added a swiveling chin that lines up with the back of your monitor *and* coated the chin with a sticky substance that helps hold it fast. The sticky bit comes covered with a sticker, and I think you can leave it alone—it's sturdy enough as it is, at least on a desktop monitor. Don't worry about the webcam falling off in either direction, either. On a laptop, consider using the sticky tape, though! Everything tends to slide around.

The *MX Brio* also flips down into what Logitech calls Show Mode, a top-down perspective that flips the image to show it as you'd see it from the front. Nothing does this as well as the CA Webcam Flex (fave. co/4ajEE8h), which has a telescopic arm that works very well. Show Mode feels a

The Logitech MX Brio is connected magnetically to its mount, with a threaded screw hole for an optional third-party stand.

little claustrophobic so close to the monitor, but it works.

There's one thing, however, that the mount excludes: the threaded ¼-inch screw hole that most webcams include to allow mounting them on tripods. There's no threaded hole at all.

Correction (April 15, 2024): I was unaware that there is a mounting hole at the time of the review. Logitech informs me that the webcam is magnetically attached to the mount, and the hole that feeds into the mount is threaded to allow it to be mounted. The magnetic connection is strong—so strong that I assumed it was all one piece. I regret that error.

We'll talk more about how well the hardware performs a bit later, but let's

mention something that I somewhat dislike about the Logitech Brio 4K: the software. Logitech manufactures a galaxy of peripherals, from webcams to keyboards, mice, and more. It's unsurprising that you'd have to download an app to take advantage of the full capabilities of the MX Brio, but Logitech offers two: Logi Options+ and G Hub. Some Logitech executive thought it would be a good idea to try to sell you a Logitech mouse and keyboard alongside your new webcam.

You'll need to spend more effort than you should examining the Logitech MX Brio product page and finally concluding that Options+ is for connecting various Logitech devices, and G Hub is the utility software that the MX Brio requires—which is also a web app, and which immediately kicked off a firmware update. Oh, and did I mention that Logitech wants a username and password,

too? Ugh. At least you can use an existing authenticator, like Google.

What annoyed me the most, though, was that G Hub doesn't actually control the basics. What if you want to switch the camera between resolutions? G Hub doesn't offer that option. It's left to another app, like Windows Camera, to make that adjustment. What G Hub does do is to offer everything else: field-of-view adjustments (65, 78, or 90 degrees), some manual panning or centering of the video, plus automatic or manual adjustments to exposure, HDR, white balance/color temperature, and autofocusing. These options are well organized and intuitive! It's just odd that the most basic feature isn't accessible via the G Hub menu.

(Logitech did supply a mouse and keyboard as part of its review package, which included the MX Brio. Logitech's MX, or Master, series is designed to work together.
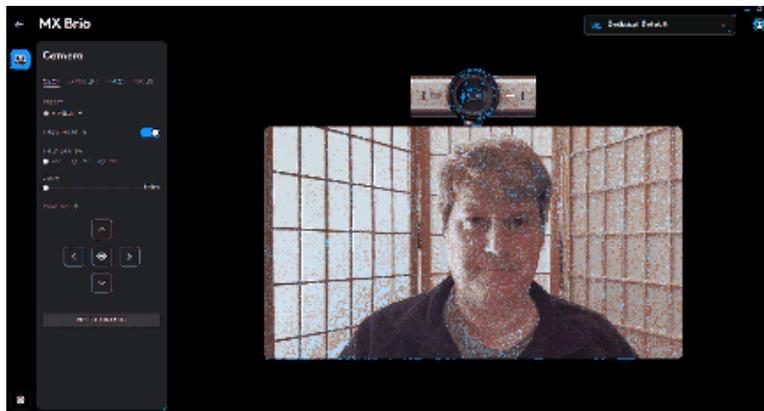
Logitech's G Hub software controls the MX Brio webcam.

Although I have reviewed ecosystems like the Samsung Galaxy apps [fave.co/3ysfd6l] before, I didn't test the Options+ app and how it interacts with other Logitech devices for brevity's sake.)
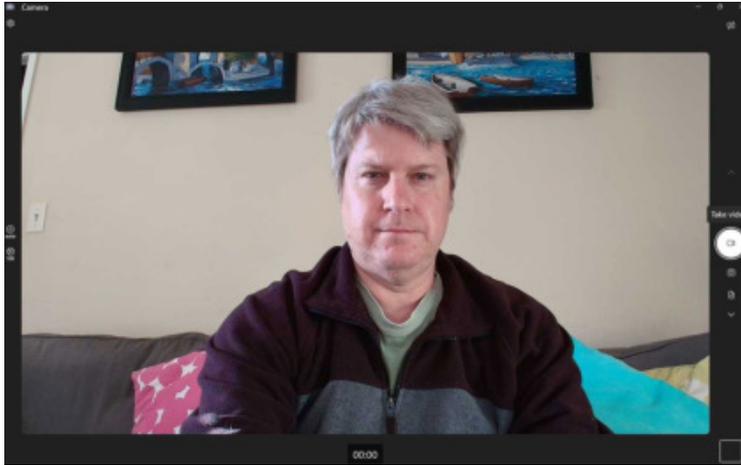
Our publishing software doesn't do this screenshot from the MX Brio justice—it's a little down-rezzed on my screen, which smeared some of the detail.

And images captured by the MX Brio look great, almost surprisingly so. I'm really impressed with how well the MX Brio captured me in decent afternoon side lighting—warts and all. That is a drawback of a 4K camera—a blemish on my face was captured pretty clearly, and I'm not sure how well our publishing software captured that. The webcam even captured a few stray hairs left by a razor. The color of the MX Brio's images looks very nice, and flesh tones were captured accurately.

Logitech's MX Brio includes up to 82 percent post-consumer recycled plastic, and the aluminum in the camera was made with renewable energy. That won't impact the camera's performance, just the environment.

PERFORMANCE

Remember that most of the top-tier videoconferencing services don't support 4K streaming yet. However, you can still stream to a service like YouTube in 4K, and record archival video in 4K as well. A 4K sensor may also let in more light and offer better color balance—that's part of the value the MX Brio offers.

Where I use a more dimly lit space with a mix of artificial and natural lighting, my face was a bit too ruddy and the colors were a bit off.

The MX Brio fits nicely into that sweet spot between the ultra-premium cameras and the more standard options.

Downstairs, where I use a more dimly lit space with a mix of artificial and natural lighting, my face was a bit too ruddy and the colors were a bit off. Here I'm using the tightest field of view, or 65 degrees.

I'm not terrifically impressed with the noise-filtering capabilities of the Logitech MX Brio's mics, either. While I don't think it's quite realistic to ask for the kind of nearly perfect noise filtering AI PCs are beginning to deliver (fave.co/3TqSoHu), I don't think it will be too long before something like that will be table stakes. I test by playing audio back from Spotify on a phone nearby, and see how the mics filter it out. The background audio was clearly audible, and louder than I would like.

BOTTOM LINE

I've seen some excellent, excellent webcams lately. At press time, the Logitech MX Brio is the same price as the BenQ IdeaCam S1 Pro (fave.co/4bCXjwn), which delivers more for the money at an identical price. I think that the Razer Kiyo Pro Ultra (fave.co/42J0yhi) produces better images, though at a $100 premium.

At $199, the Logitech MX Brio fits nicely into that sweet spot between the ultra-premium cameras and the more standard options. I'd like to see it a little cheaper: $149, maybe. At that price, it would be a killer upsell option. As it is, there a couple of things I'd fix before I could wholeheartedly recommend it…but it won't take much. Logitech has still got it. ⏻

Logitech MX Brio

★★★★☆

PROS
• Webcam looks good to great under most lighting conditions.
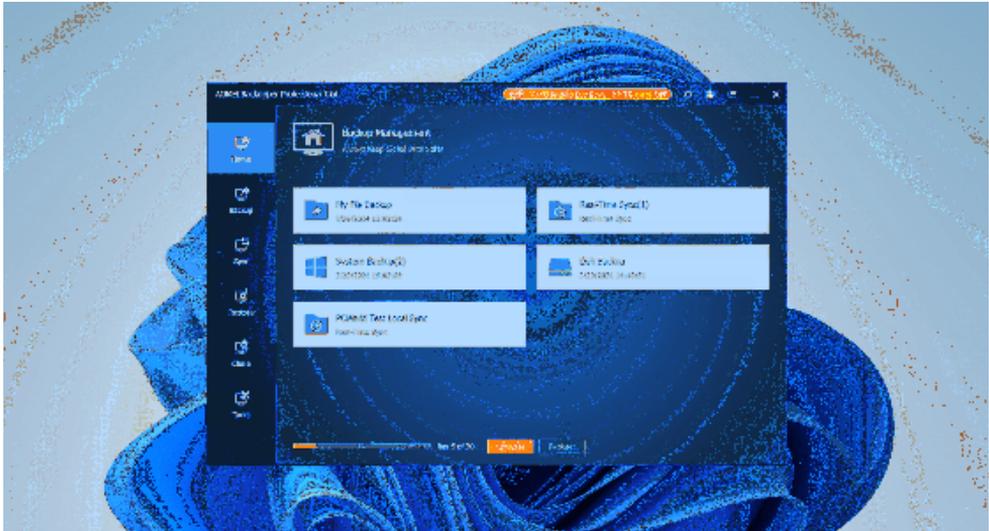• 60Hz capability.

CONS
• Noise-cancelling mics don't do a great job.
• No 4K/60Hz option.
• Software controls are a little confusing.

BOTTOM LINE
Logitech's MX Brio delivers on its primary responsibility: making you look really good on camera. But this 4K webcam could use some polish on some of its other aspects.

$199

Aomei Backupper Pro: All-in-one backup, now with online storage

Now with cloud storage, Backupper Professional is swinging with the backup big boys in terms of features. **BY JON JACOBI**

Our last look at Aomei Backupper's imaging, file backup, and sync program was at version 6, and it was a tad buggy, but developing apace.

Version 7 of Aomei Backupper Professional adds incredibly affordable Aomei Cloud online storage to mix, as well as targeted backups for email and Outlook for those who don't know where that data resides. More importantly, Backupper seems more stable and reliable.

FEATURES

Backupper's existing features run the gamut of backup functionality, including imaging of your files, folders, system, drives, and partitions; Linux and Windows PE disaster recovery boot media; system, disk, and partition cloning; and several flavors of folder sync.

Backups and syncs may be saved anywhere, to any type of nonoptical media (optical is supported for boot discs), including network locations, which may also be selected for backup. Alas, a longstanding

IMAGE: FOUNDRY
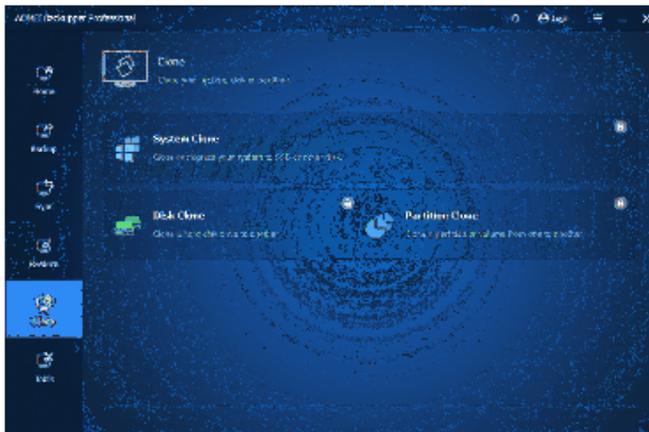
Backupper will clone your disks or portions of them.

gripe has yet to be addressed: You can't browse to select a network location. You must manually enter the location—for instance, \\192.168.1.105/Public—or map the parent folder as a Windows drive.

You can schedule backups as granularly as one hour (continuous is available as real-time sync), as well as run pre- and post-backup commands, including scripts.

Beyond that, Aomei's change log (fave.co/3QHUa6t) lists mostly smaller improvements and optimizations. All of

this is welcome, but nothing is particularly sexy.

Backupper also includes a number of storage-related utilities, including a disk-wipe app that will overwrite sensitive data, destroy malware, and so on; an image explorer so you can browse files on images; an image integrity checker; and a hidden emergency partition containing a recovery copy of your Windows installation (one-key recovery), as you'll find on large vendors' PCs.

The various types of sync available with Professional include Basic Sync (see the image below), which backs up newly added
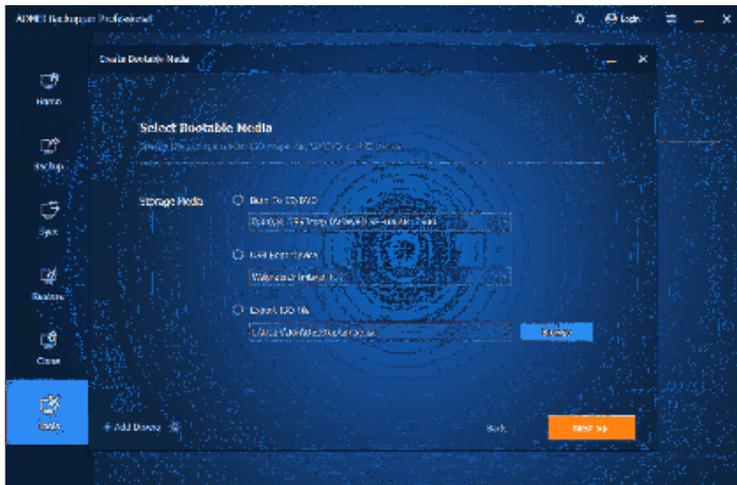
Backupper supports burning optical boot discs for disaster recovery.

or changed (replacing the older version) files to the destination, but leaving files deleted from the source in place in the destination.

Mirroring maintains an exact duplicate of the source folder's contents in the destination folder, removing files deleted from the source folder. Two-way sync simply means that changes made in either the source or destination folder are duplicated in the other. Real-time sync is just what it sounds like: instantaneous mirroring of changes made in the source folder to the destination, rather than by scheduling.

While many of the advanced features discussed above are available only in the Professional and Enterprise versions of Backupper, many users will be just fine with the basics available in the free version. There's a version comparison here (fave.co/3wo756V) if you want the complete lowdown.

HOW EASY IS AOMEI BACKUPPER TO USE?

Aomei Backupper is quite similar in both appearance and workflow to Acronis Cyber Protect Home Office (fave.co/3UCqHwc), though neither is particularly ground-breaking: a column of basic categories on the
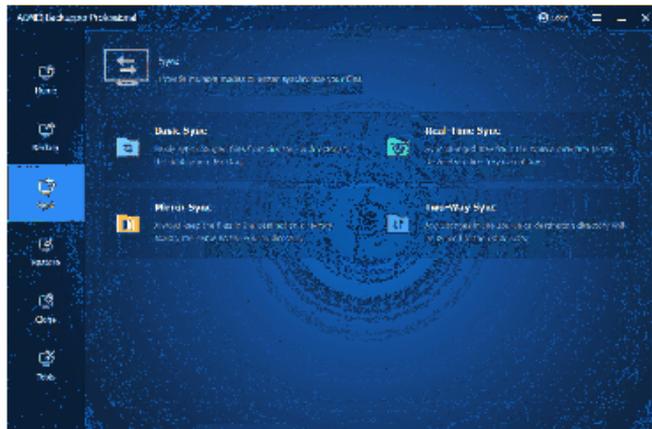
The Professional version offers several options for syncing data.

left, with a pane of subcategories to the right that morph into detail view. The GUI is clean and the features are explained with easily understandable language. Kudos to the English translators—it's impressive.

That said, while the PDF help file is quite thorough and well written, you should read it in its entirety first. It lacks links that would let you jump from a topic in the table of contents to the subject itself. That's a small but mildly annoying time-waster.

The upshot is that the program is very easy to use. If you understand backup at all, you won't have any difficulty using Backupper. If you're new to backup, your learning curve should be minimal.

Of course, the free version, which is what most people will start off with, suffers from a perpetual upgrade nag on the main screen, as well as other hints that if you like the
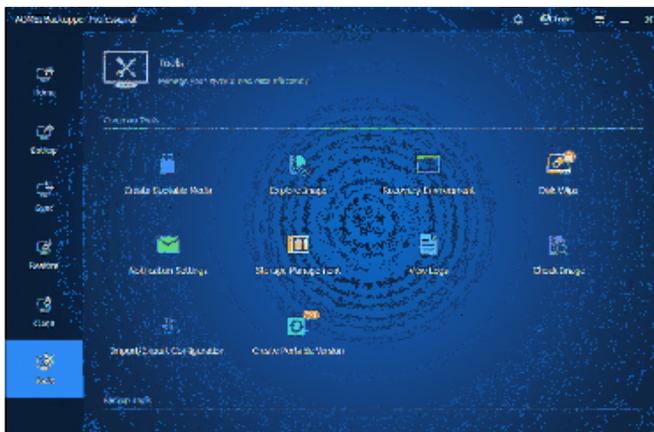
Backupper offers quite a few related tools. Some, such as creating a portable version, are only available in the pricier corporate versions.

software, you should probably support the company that provided it. True that.

PRICE

This is a more complicated topic than with many products, and the pricing is different depending on where you look, so bear with me. Backupper is available in two consumer-oriented versions: Standard, which is free and surprisingly capable, and Professional (reviewed here) for $39.95 annually (often on sale), which adds a whole bunch of advanced features to the Standard version—including Aomei Cloud at an additional $20 a year, for a total of $60.

The latter was the upgrade price shown within the program. In another spot on the Aomei website, it was only $10 for Cloud, for a total of $50. Whether this was locked in for

subsequent years, I can't say. I doubt it, but getting a straight answer from Aomei was nearly impossible. More likely it's the $20/$30 discussed below.

A perpetual license is $69.95 for one user, or $89.95 for five users, but this doesn't include cloud storage. Aomei offers this to perpetual users at $20 a year according to media relations, or $30 according to tech support. Either way, it's quite the bargain, though it can only be used in conjunction with Backupper. OneDrive is $70 annually for 1TB by way of comparison.

There are also small-business plans: Workstation for $50 yearly with PXE boot ($60 with the 1TB of online storage), Server for $150 with support for various Windows server operating systems. Additionally, two enterprise-oriented versions are available: Technician for $499, and Technician Plus for $699 with image deployment and the portable version.

PERFORMANCE

After some initial issues on our software test bed due to other software installed (most likely detritus from a failed FileShadow [fave. co/4bkFCSH] uninstall), Backupper performed both quickly and without error.

Imaging, file backup, and sync to local, network, and online proceeded apace given the bandwidth available on each medium.

Creating recovery disks was easy, including automatic download of the required Windows PE files. Both the Linux and Windows PE versions booted just fine on PCs. Restore and clone operations to a replacement SSD performed flawlessly as well.

While everything went off okay in the end, Backupper is occasionally rough around the edges and not particularly informative if something goes wrong. For instance, when I tried to back up a network location that had too much data for the local destination, it didn't inform me of that. It just "cancelled" the job with an error 23 in the log.

Another small glitch was that when creating a new folder in the destination selection dialog, Backupper didn't update the name when I renamed the folder to something meaningful. It instead said it couldn't find "New folder." Selecting another item, and then the renamed folder, fixed the issue.

These are indeed minor issues, but along with the linkless help PDF, they do give me the impression that perhaps Aomei's programmers and testers don't sweat the details as much as they should.

Regardless, in the end, when I didn't try to overload a destination and I had cleaned out the test bed, Backupper proved itself fast and stable—offering a real improvement over the last iteration.

BOTTOM LINE

The free version of Backupper is a no-brainer. Download it and have at it. However, the company's continuing lack of attention to detail and obscured pricing for the online storage leaves R-Drive Image (fave. co/3p6FP63) and Acronis Cyber Protect Home Office (fave.co/3UCqHwc) as my top recommended pay options. Then again, 1TB of storage for $20/$30 a year is fantastic. Just remember that it's only usable as a backup repository for Backupper.

Note that you can use any backup software, including the free Backupper Standard, with nearly any online storage service these days, thanks to cloud storage managers (fave.co/4azEVol). ⏻

Aomei Backupper Pro
★★★⯪☆

PROS
- File backup, sync, and imaging in one program.
- Easy interface.
- 1TB of online storage for $20 extra with yearly license, $30 with perpetual license.

CONS
- Minor interface glitches and sloppiness.
- Doesn't support VHD/VHDX.

BOTTOM LINE
With the addition of online storage, Aomei Backupper 7 can now compete with Acronis and R-Drive Image in our race for the top spot in the backup, sync, and disaster recovery category.

From $40

Lenovo Yoga Book 9i: Dual monitors on the go

A multiple monitor experience on the move. **BY CHRIS HOFFMAN**

PCWorld EDITORS' CHOICE

The Lenovo Yoga Book 9i (Gen 9; fave.co/3UUJhkq) is a well-executed 2-in-1 laptop that delivers a beautiful dual-screen monitor experience on the go. After PC fans spent years watching Microsoft cancel devices like the Courier tablet (fave.co/3V83rHX) and dual-screen Surface Neo PC (fave.co/4bDoU0r), it's great to see Lenovo deliver year after year, upgrading last year's successful experiment (fave.co/3SfegpX) with the latest Intel hardware. If you

IMAGE: LENOVO

want a lot of screen that you can take with you, this machine delivers a better experience than Lenovo's ThinkPad X1 Fold (fave.co/3UITRAA)—and it's less expensive, too.

SPECS

The Lenovo Yoga Book 9i has a retail price of $1,999, and it includes an Intel Core Ultra 7 155U CPU, Intel integrated graphics, 16GB of RAM, and a 1TB solid-state drive for storage.

This PC's Intel Core Ultra 7 155U is a little different from the Intel Core Ultra 7 155H CPU we've used on many laptops we've reviewed lately. Both are CPUs from Intel's new Meteor Lake line of processors (fave.co/3U1YPmm), but the U model—as featured in this laptop—is more focused on power efficiency. Specifically, the 155U processor here has a lower TDP (thermal design power), which means it will generate less heat. It also has fewer cores than its 155H cousin.

Additionally, the 155U has less powerful integrated graphics hardware than the 155H laptops. The integrated Intel graphics here isn't branded as "Intel Arc" like on those 155H systems: it's just "Intel graphics." This laptop's hardware is more focused on power efficiency and heat dissipation, which makes sense when you realize you're getting two OLED displays attached via a hinge. Those are going to use more power than a typical laptop with just a single screen.

You do get a neural processing unit (NPU) (fave.co/3SG6Nza) for accelerating AI tasks as part of Intel's Core Ultra platform. Windows can't do much with it yet, but it's future-proof if Microsoft starts requiring it for future Windows AI features (fave.co/48WBSER), as we expect the company to.

CPU: Intel Core Ultra 7 155U

Memory: 16GB LPDDR5x-7467

Graphics/GPU: Integrated Intel graphics

Display: Two 13.3-inch 2.8K (2880×1800) 60Hz HDR OLED displays with touch

Storage: 1TB PCIe Gen 4 NVMe SSD

Webcam: 1440p webcam

The Lenovo Yoga Book 9i's hardware focuses on power efficiency and heat dissipation.

You're getting two beautiful OLED screens attached via a hinge that can rotate 360 degrees.

Connectivity: 3× Thunderbolt 4/USB4 40Gbps ports with USB Power Delivery 3.0 and DisplayPort 2.1

Networking: Wi-Fi 6E, Bluetooth 5.3

Biometrics: IR camera for Windows Hello

Battery capacity: 80 Watt-hours

Dimensions: 11.78×8.03×0.63 inches

Weight: 2.95 lbs.

MSRP: $1,999 as tested

DESIGN AND BUILD QUALITY

The Lenovo Yoga Book 9i stands out in an ocean of black and silver laptops. It's available in what Lenovo calls a "Tidal Teal"

colorway—a subdued but different-looking color. The laptop as well as the included folio case, external keyboard, stylus, and mouse all share this color. The chassis has a lot of rounded edges—it's nice to look at and feels nice to hold.

The design is very different from the average clamshell laptop. You're getting two beautiful OLED screens attached via a hinge that can rotate 360 degrees. The hinge feels very solid—it can hold the laptop's screens at all kinds of angles without any wobble.

Lenovo also bundles a folio stand, a Bluetooth keyboard, an active pen stylus, and a mouse with the laptop. When you're not using it, the folio stand wraps around the

In tent mode, you can give a presentation on the back of your laptop while seeing your notes on the front of your laptop.

keyboard and has a nice loop to hold the stylus, which makes it easy to travel with all the accessories and keep them together.

You can use the Yoga Book 9i in a wide variety of configurations, including the following:

• As a standard clamshell laptop without any accessories, using the bottom half as a touch keyboard when necessary.

• As a clamshell laptop with the Bluetooth keyboard magnetically attached to the bottom.

• Using the folio stand to hold the laptop up, positioning the screens in either landscape or portrait orientation.

• In tent mode, giving a presentation on the back of your laptop while seeing your notes on the front of your laptop.

I found myself drawn to using the Yoga Book with the folio stand propping it up, with both screens in landscape mode above the keyboard. It works just like having portable multiple-monitor setup, and it felt *glorious* to use on a trip where I normally wouldn't have as much screen space as I would at home. The Bluetooth keyboard attaches magnetically to the bottom of the folio stand, so everything stays together and is a lot more solid than it might look at first glance. Still, that folio stand is going to work best on some kind of table—you wouldn't want to use it in this way on your lap.

The folio stand lets you prop up the laptop, with both screens in landscape mode above the keyboard.

Lenovo bundles a lot of software and guides to help you understand the variety of options, configurations, and multi-finger taps you can use. That all seems very useful.

The software is a little noisy out of the box. You're getting a free trial of McAfee antivirus, and it will bug you to install browser extensions. You've got popups for a Dropbox promotion. It's all easy to remove, if you like, but it's not the cleaner experience I saw on Lenovo's business-focused ThinkPad X1 Carbon (fave.co/3WGAELK)—which, of course, is more expensive.

KEYBOARD AND TRACKPAD

The Lenovo Yoga Book 9i is packed with input options. The included Bluetooth keyboard is very reasonable, although it's no

mechanical keyboard (fave.co/493Dz3o). I like the compact size and the way it magnetically attaches to either the folio stand or the bottom of the laptop itself. It's reasonable to type on, although this keyboard definitely isn't going to win any awards for the best typing experience.

The touch keyboard experience is great for a touch keyboard experience. You can tap the bottom display with eight fingers to pull up a full-screen touch keyboard. Because of the size, it's very reasonable to type on. Still, it's a touch keyboard—you're not getting any tactile feedback, and I wouldn't want to type documents on the virtual keyboard all day.

Likewise, the virtual on-screen touchpad experience is a little strange. There's no

tactile feedback of an "edge," and it would be easy to move your finger outside the touchpad zone. Still, it's a good touchscreen, so it's nice and responsive with a smooth surface for your finger. And there's a button you can tap to make the virtual touchpad extend across the entire width of the display, rather than sitting in a small rectangle below the keyboard. Both screens are touchscreens, too, so you can also just tap something and skip the virtual touchpad.

The active pen (stylus) also worked well, delivering a great experience when drawing in OneNote. The included mouse worked well, too—it's a compact little Bluetooth mouse that matches the laptop's color scheme, and it even has a switch on the bottom so you can pair it to multiple devices and switch back and forth. It's not going to top our best mice rankings (fave.co/3cn3M5B), but it's convenient and nicely compact. I used this mouse extensively and was perfectly happy with it.

Of course, you don't *have* to use that included Bluetooth keyboard. You could stand up the laptop with the folio stand and use any external keyboard you like, although it wouldn't attach magnetically to the folio stand or the bottom of the laptop.

The biggest issue with the keyboard is that it's a little awkward

The Bluetooth keyboard magnetically attaches to either the folio stand or the bottom of the laptop itself.

The Yoga Book 9i bundle includes a keyboard, mouse, and stylus.

This form factor works well for typing at a table. In fact, thanks to the dual screens, I'd say it works better than a traditional laptop once you have a few moments to set it up on a solid surface. But there are advantages to the traditional clamshell design, of course, especially if you move around a lot or you're constantly opening and closing the laptop.

if you're truly on the go. This isn't a problem with the laptop itself—this is just because of the form factor. With a traditional clamshell laptop that sandwiches together a display and a physical keyboard, you can pop it open whenever you like, type on the keyboard, and then quickly close it. When you open up this laptop and want to type something quickly, you have to either use the touch keyboard, or snap the external keyboard onto the bottom of the display and start typing. When you're done, you have to remove the keyboard from the bottom of the laptop before shutting it. You would not want to try to close the laptop with the keyboard in the middle of both displays.

DISPLAY AND SPEAKERS

The Lenovo Yoga Book 9i's displays are beautiful—both of them. You're getting 13.3-inch 2.8K (2880×1800 resolution) OLED panels that support HDR. Both displays support touch, and the touch also

The 13.3-inch OLED displays are beautiful – both of them.

works very well. No complaints there! Both displays support the pen, too, offering multiple levels of pressure and a solid writing experience.

The displays feel plenty bright with up to 400 nits of brightness and offer a 60Hz refresh rate—on the low side as far as those rates go, I suppose, but nothing that bothered me in day-to-day use. This isn't a gaming laptop, after all.

Lenovo talks up the speaker experience on this laptop, saying the hinge houses "premium Bowers & Wilkins" speakers. Specifically, Lenovo says: "There are two 1-watt tweeters located in the soundbar and two 2-watt woofers located on the bottom corners of the device." In practice, the speaker setup sounds quite good, with plenty of volume and a surprisingly broad soundstage. It's unusually good among laptop speakers, although it doesn't deliver the kind of bass you can get with larger external speakers, naturally.

WEBCAM, MICROPHONE, BIOMETRICS

The Lenovo Yoga Book 9i packs a surprisingly solid webcam. It's a 1440p webcam. Both on paper and in practice, it beats the 1080p webcams found in most laptops we've been reviewing lately. The picture is surprisingly good under a variety of lighting conditions. This is one of the better webcams I've seen in laptops lately—it really punches above its
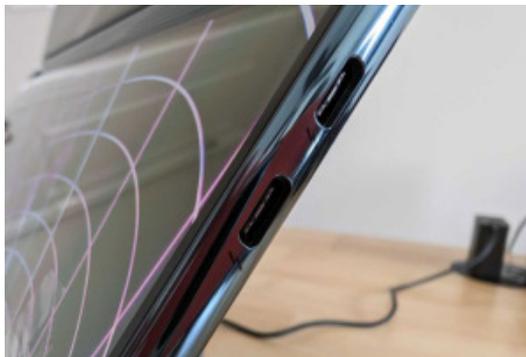
The laptop has three USB-C ports.

weight. I feel like I would much rather use this webcam than the one found in Lenovo's more expensive, business-focused (fave.co/4dAHckZ) ThinkPad X1 Carbon, which shocked me—it's certainly higher resolution.

There's a physical switch at the right side of the bottom half of the laptop that will disable the camera for privacy, if you like.

The Yoga Book 9i's integrated microphone works very well, too, producing clear audio. The high-quality webcam and microphone mean this is an excellent system for online meetings. The integrated IR camera works well, too. It reliably signed me into Windows 11 with Windows Hello (fave.co/3ImacXy) in a variety of lighting conditions.

CONNECTIVITY

The Yoga Book 9i's port selection is skimpy. You've got three USB-C ports—they're Thunderbolt 4/USB4 40Gbps ports with USB Power Delivery 3.0 and DisplayPort 2.1.

One is on the left, and two are on the right. You'll need to plug into one of them to charge the laptop, which leaves you with two free USB-C ports.

That's it, though—the Lenovo Yoga Book 9i doesn't even have a headphone jack, so you'll be using either Bluetooth headphones or USB-C headphones with it. You won't find a larger USB-A port, SD card reader, HDMI out, Ethernet port, or anything like that, either. Many people will want a USB dongle (fave.co/30z4JBG) to connect this laptop to more devices.

The Yoga Book 9i includes both Wi-Fi 6E and Bluetooth 5.3 hardware. Those both worked well—I had no problems with the Wi-Fi in a variety of settings, and Bluetooth always worked well with the keyboard and mouse. It would be nice to see Wi-Fi 7 and Bluetooth 5.4 for futureproofing, but those aren't very widespread yet, and their omission certainly isn't a big problem.

PERFORMANCE

The Lenovo Yoga Book 9i was plenty snappy in day-to-day use, and I never had a problem while juggling two screens full of all the browser tabs, documents, spreadsheets, Slack workspaces, video meetings, OneNote notebooks, and image editors I use for work every day. As always, though, we ran the Lenovo Yoga Book 9i through our standard benchmarks (fave.co/4cjKcl4) to see how it performs.

PCMark 10 Overall
CPU performance

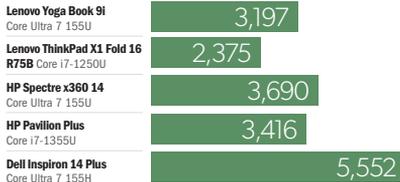|	
Lenovo Yoga Book 9i Core Ultra 7 155U	6,465
Lenovo ThinkPad X1 Fold 16 R75B Core i7-1250U	4,590
HP Spectre x360 14 Core Ultra 7 155U	5,721
HP Pavilion Plus Core i7-1355U	5,446
Dell Inspiron 14 Plus Core Ultra 7 155H	7,061

LONGER BARS INDICATE BETTER PERFORMANCE

First, we run PCMark 10 to get an idea of overall system performance. The CPU is a pretty big factor here, so we get an idea of how well the Intel Core Ultra 7 155U processor in this system performs.

The results are impressive, with the Lenovo Yoga Book 9i delivering strong performance numbers. It beat other recent thin-and-light laptops like the HP Spectre x360 14 (fave.co/3yq652t), despite that machine having an H-series CPU instead of the U-series CPU here. It absolutely stomped the foldable ThinkPad X1 Fold 16 (fave.co/3UITRAA). If you want a lot of screen right now, it seems you're better off going for the type of hinge design found in the Yoga Book 9i than a full-on foldable screen.

The chunkier Dell Inspiron 14 Plus (fave.co/49EfdOa) beat out the Yoga Book 9i here, which is no surprise as that kind of design is going to deliver better cooling—thin-and-light laptops are always more constrained by cooling needs than thicker machines.

Cinebench R20
CPU performance

Lenovo Yoga Book 9i Core Ultra 7 155U	3,197
Lenovo ThinkPad X1 Fold 16 R75B Core i7-1250U	2,375
HP Spectre x360 14 Core Ultra 7 155U	3,690
HP Pavilion Plus Core i7-1355U	3,416
Dell Inspiron 14 Plus Core Ultra 7 155H	5,552

LONGER BARS INDICATE BETTER PERFORMANCE

Next, we run Cinebench R20. This is a heavily multithreaded benchmark that focuses on overall CPU performance. It's a quick benchmark, so cooling under extended workloads isn't a factor. But, since it's heavily multithreaded, CPUs with more cores have a huge advantage.

The results aren't surprising: Laptops with an Intel Core Ultra 7 155H CPU have more cores and pull ahead. Lenovo's foldable ThinkPad X1 Fold pulls up the rear once again, demonstrating that this Yoga Book 9i is a better machine if you want a lot of screen space—and it's cheaper.
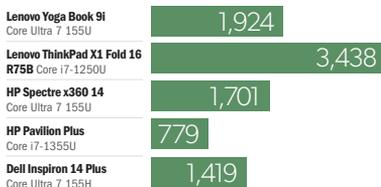
We also run an encode with Handbrake. This is another heavily multithreaded benchmark, but it runs over an extended period of time. This demands that the laptop's cooling kick in, and many laptops will throttle and slow down under load.

The result is a little on the long side compared to other thin-and-light laptops, with the Yoga Book 9i taking 32 minutes (1924 seconds) to encode our file. That's not a surprise because this laptop's CPU has a few fewer cores, and this system isn't designed for extreme cooling and heavy extended CPU workloads. Still, the Yoga Book absolutely stomped the more expensive ThinkPad X1 Fold once again.

Next, we run a graphical benchmark. This isn't a gaming laptop (fave.co/4dEHNIK), but it's still good to check how the GPU performs. We run 3DMark Time Spy, a graphical benchmark that focuses on GPU performance.
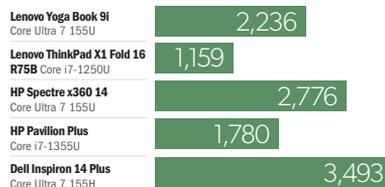
Handbrake 0.9.9 Encode
Seconds

Lenovo Yoga Book 9i Core Ultra 7 155U	1,924
Lenovo ThinkPad X1 Fold 16 R75B Core i7-1250U	3,438
HP Spectre x360 14 Core Ultra 7 155U	1,701
HP Pavilion Plus Core i7-1355U	779
Dell Inspiron 14 Plus Core Ultra 7 155H	1,419

SHORTER BARS INDICATE BETTER PERFORMANCE

3DMark Time Spy
GPU performance

Lenovo Yoga Book 9i Core Ultra 7 155U	2,236
Lenovo ThinkPad X1 Fold 16 R75B Core i7-1250U	1,159
HP Spectre x360 14 Core Ultra 7 155U	2,776
HP Pavilion Plus Core i7-1355U	1,780
Dell Inspiron 14 Plus Core Ultra 7 155H	3,493

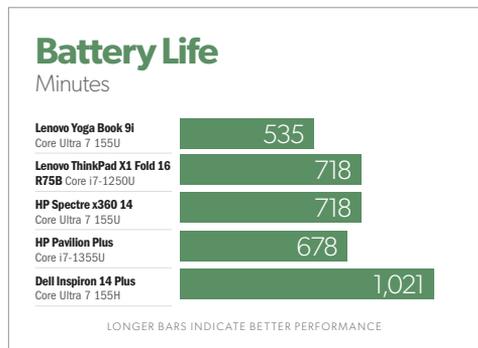LONGER BARS INDICATE BETTER PERFORMANCE

Intel's year-over-year improvements to its integrated graphics are evident here. The Yoga Book 9i pulled ahead of laptops with previous-generation Intel integrated graphics. This system doesn't have the more powerful Intel Arc integrated graphics, though, and performance was behind Intel Core Ultra 7 155H-powered systems with Intel Arc graphics.

Overall, the laptop felt great in day-to-day use, but the benchmarks tell the full story. This definitely isn't a workstation for running long, CPU-heavy workloads—go for a higher-performance, single-screen laptop if that's your priority. It does absolutely stomp Lenovo's more expensive ThinkPad X1 Fold, demonstrating that this two-screens-plus-hinge design is superior to the one-folding-screen design at the moment.

BATTERY LIFE

Battery life is a big question mark for a laptop like this. Displays use quite a bit of power, and the Yoga Book 9i has to power twice as many displays as the average laptop. Still, I thought the battery life was very reasonable. The Yoga Book 9i packs a large 80 Watt-hour battery into its slender frame, which is a big help in powering those double displays.

To benchmark the battery life, we play a 4K copy of *Tears of Steel* on repeat in the Movies & TV app on Windows 11 with Airplane Mode enabled until the laptop suspends itself. This is a best-case scenario for any laptop since local video playback is so

Battery Life
Minutes

Lenovo Yoga Book 9i Core Ultra 7 155U	535
Lenovo ThinkPad X1 Fold 16 R75B Core i7-1250U	718
HP Spectre x360 14 Core Ultra 7 155U	718
HP Pavilion Plus Core i7-1355U	678
Dell Inspiron 14 Plus Core Ultra 7 155H	1,021

LONGER BARS INDICATE BETTER PERFORMANCE

efficient, and real battery life in day-to-day use is always going to be less than this. I ran our standard benchmark with the video playing on the top display and the keyboard magnetically attached to the bottom display.

We set the screen to 250 nits of brightness for our battery benchmarks, and it's worth noting that the Yoga Book 9i's OLED displays have a bit of an advantage, as they use less power to display the black bars around the video. The Lenovo Yoga Book 9i ran for an average of nearly 9 hours—535 minutes—in this benchmark. That's less than the other laptops we're comparing it to here, but it still feels like an incredibly long time for a laptop with two displays.

I also ran a battery rundown benchmark with the laptop playing two copies of the video, one on each display. In this configuration, the laptop ran for 7 hours and 16 minutes—that's 436 minutes. That isn't bad either, considering the laptop is powering two displays.

The Lenovo nails the execution of what a machine like this can be with current hardware.

These numbers do mean the laptop probably won't deliver all-workday battery life in real use. Still, this laptop is best used at a desk, and it's easy to plug in and charge. Even when I was using it away from an outlet, I felt like I had plenty of battery power until the next time I could plug it in.

BOTTOM LINE

The Lenovo Yoga Book 9i is a great machine. It delivers multiple monitors on the go, and it does so with a smart, thoughtful design. Lenovo has nailed the execution of what a machine like this can be with current hardware. I took this laptop on a trip and loved being able to set up multiple monitors at any table I could find. The screens are beautiful, and the total package is very flexible. The price is very reasonable at $1,999, too—yes, it's more expensive than

the average laptop, but you're getting twice as many OLED displays.

This system nails the execution of what a laptop with this form factor can be. It isn't for everyone: Some people will want thicker workstations or gaming laptops that can deliver higher performance under load. Many people will prefer a classic clamshell laptop design where the bottom of the laptop is a physical keyboard you don't have to attach.

But if you're drawn to this design or you just want a second display on the go without hauling around a portable external monitor (fave.co/3rOxecA), this laptop is definitely for you. The question isn't whether this laptop is any good—it's a great machine. The only question is whether you want this type of design or something more traditional. 🔴

Lenovo Yoga Book 9i

★★★★⯪

PROS
- Two beautiful displays.
- A smart bundled accessory package.
- Reasonable performance and battery life.

CONS
- Keyboard can be a little awkward to use in clamshell mode.
- Skimpy port selection (not even a headphone jack!).

BOTTOM LINE
The Lenovo Yoga Book 9i is a masterfully executed dual-screen laptop that excels at providing a multiple-monitor experience on the go. This design comes with some tradeoffs, but they're more than worth it if you want a dual-screen system.

From $1,999

If you are anywhere in your journey with substance use disorder,

I want you to stop,
look around
and open your heart.

Revel in the abundance
of your existence.
See how small
substance use disorder
can be when sat next
to all that you are
or ever could be.

Fill your existence
with beauty, purpose
and a life of service.

And your substance
use disorder—
your history of
addiction,
the things you
may have done
that you are not
proud of—will one day
be small enough
to deal with
while allowing you
space to live this life
of joy.

Hold on.

We are not the sum
of our scars but rather
a beautiful mosaic of the
life they hold together.

—Joseph
   Washington, DC
   In recovery from
   substance use
   disorder

Learn how
substance use
recovery can

StartWithHope.com

7 ANTIVIRUS MYTHS THAT ARE DEAD WRONG

NOT EVERYTHING YOU HEAR ABOUT ANTIVIRUS SOFTWARE IS TRUE. **BY CHRIS HOFFMAN**

Antivirus software is an essential piece of protection on any Windows PC. On an internet where malware is only becoming more and more profitable for organized crime, you don't want to be without a good antivirus program (fave. co/3CnDHuk).
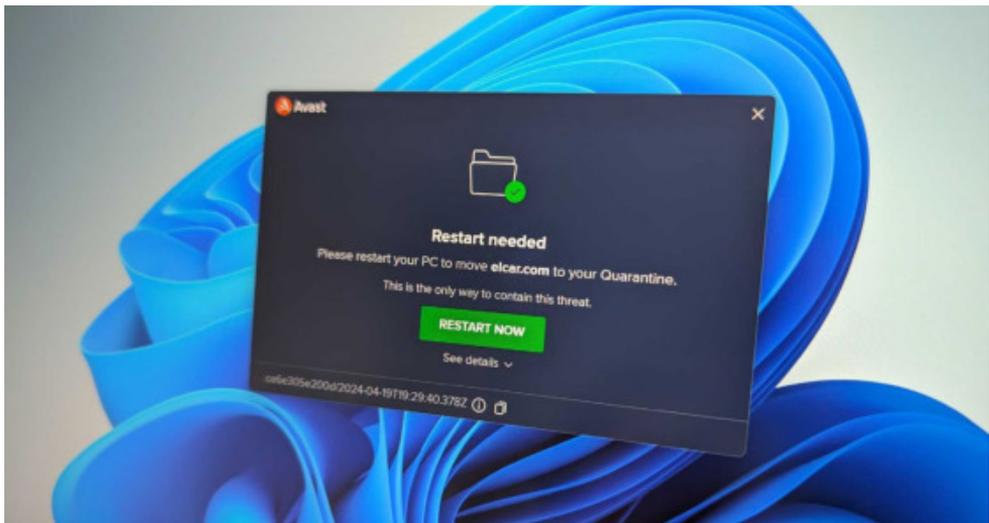
But there are a lot of myths floating around out there about antivirus software. Let's bust them.

MYTH: YOU *NEED* TO INSTALL ANTIVIRUS ON WINDOWS

You don't have to install antivirus software on Windows because Windows already comes with antivirus software (fave.co/3x2jAFf). In fact, Windows has had built-in antivirus software since Windows 8, and it's still included in Windows 10 and Windows 11 today. The built-in Microsoft Defender antivirus is part of the Windows Security suite of tools (fave.co/3tXSvPP). It's as basic as it comes, but it's completely free and runs automatically in the background, even if you never think about or install antivirus software.

Now, you may prefer another form of antivirus protection—some software has extra tools, protection features, and options, and different ones use different detection engines. But the good news is that every Windows PC has a baseline antivirus package. We're long past the days of Windows 7, Windows Vista, and Windows XP nagging you to install antivirus software when you set up a new PC.

There are a lot of inaccurate myths floating around about antivirus software.
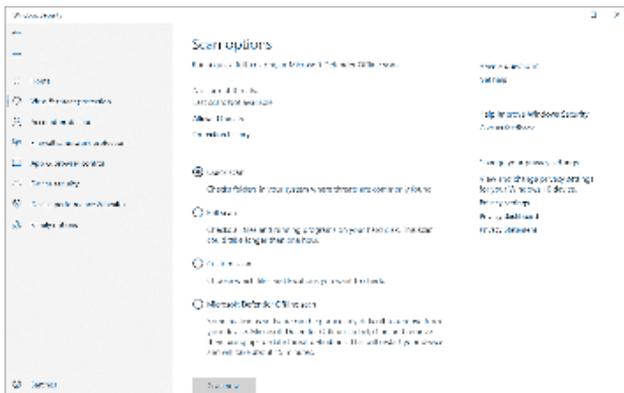
Microsoft Defender provides four different types of scans, including one to ferret out rootkits and other challenging threats.

Microsoft's antivirus gets out of the way when it needs to, disabling its automatic background scanning features if you choose to install a third-party antivirus. You just don't have to think about it.

MYTH: ONLY WINDOWS IS VULNERABLE TO MALWARE

Malware (fave.co/4bbTiPN), including viruses, Trojans, worms, rootkits, ransomware (fave. co/4bcSs5x), and all kinds of other appalling things, is a problem on all platforms.

Yes, even Linux is vulnerable to malware threats—just check out the recent XZ Utils backdoor saga (fave.co/4bBfQJP) that nearly saw a rootkit slipped into a critical piece of open-source software. Or consider the Linux distribution Ubuntu labeling a malicious app that stole people's cryptocurrency (fave. co/4bzTS9J) as "safe." Linux malware often

targets server software (fave. co/3WumVaG), as Linux is so much more popular in data centers than on the desktop.

I'm not trying to single out Linux here. The reality is that malicious software is a problem on all platforms—even Linux. No platform is above the fray.

People may say that Macs don't need antivirus, but Apple actually has an antivirus-style system built into macOS. It's named XProtect (fave. co/4dxIVaK). Various companies also make antivirus programs for Macs (fave. co/4bxwPwp).

MYTH: ANTIVIRUS WILL SLOW DOWN YOUR PC DRAMATICALLY

Antivirus software runs in the background, scanning files when you download them and before you open them. Before an application launches, your antivirus gives it a quick check and warns you if it appears to be malicious.

Now, obviously this will use some system resources. Your PC is doing a bit of extra work. But we're not in the '90s or early '00s anymore. Back then, PCs were much slower. Antivirus software just felt so heavy to use, and you could *feel* it slowing down your PC at times. I remember it well! But that was long ago.

Modern antivirus applications shouldn't slow your PC down in a noticeable way. If it takes 2 percent longer to launch an application, will you notice? Not really. Those shouldn't be constant slowdowns, either—they should occur when you launch an application and the antivirus is checking it out, not all the time while you do things on your PC. Plus, unless you've gone out of your way to disable its background scanning (I recommend against it!), Microsoft's Defender antivirus is already running in the background on your PC, scanning for malware. When we benchmark PCs here at PCWorld (fave. co/4cjKcl4), we leave the standard Defender antivirus running. So even if you chose to swap out the built-in Defender antivirus option for another, you'd just be trading one form of antivirus protection for another—not adding an extra performance cost on top.

In some cases, antivirus software may slow down a workload: If you're compiling software, for example, and you have a folder where a large number of files are being created, you may want to simply exclude such a folder from your antivirus's scanning. That's the most you should need to do.

When antiviruses perform their heavy full-system scans, that will definitely slow things down further while they're running. But those scans are usually scheduled to happen while you're not using your PC. You shouldn't notice them at all.

MYTH: YOU HAVE TO RUN ANTIVIRUS SOFTWARE MANUALLY

There's no need to regularly open your antivirus program, click the Scan button, and wait for the results. Your antivirus is automatically scanning in the background to protect you, checking files when you download and launch them. It's also performing this type of comprehensive system scan on a schedule—in the background—when you aren't using your PC. Your antivirus program will let you know if it finds a problem.
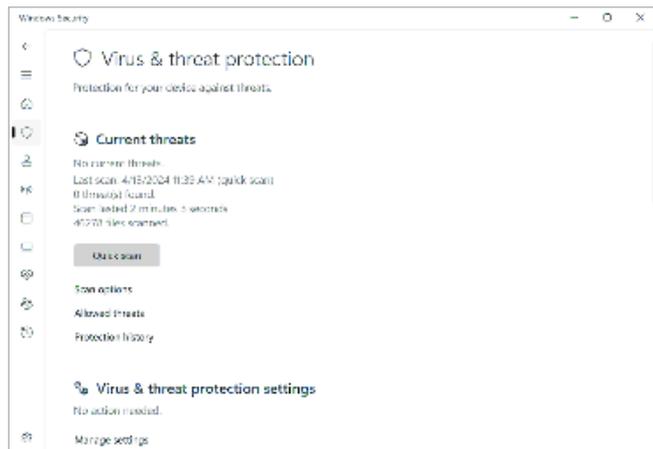
Windows Security is always running in the background on a modern Windows PC—unless you install another antivirus program.

Save yourself the trouble and avoid the time-consuming manual scans—unless you're concerned that your system might have malware and you want to check all the files on your PC's storage right now. Scanning like this is just one of many outdated security practices you no longer need to follow (fave. co/3UDTnoB).

MYTH: ANTIVIRUS WILL PROTECT YOU FROM ALL THREATS

Antivirus software isn't completely perfect. Now, I know this is sort of an obvious statement. But I've seen many people act like antivirus will provide perfect protection and run into trouble.

You should think of your antivirus software as a last line of defense. If all your normal security precautions fail, or if an application you use has a dangerous zero-day flaw (fave.co/41hlnQw) that lets an attacker gain access to your PC, your antivirus program is there to pick up the slack and stop malware from running.

But it's not perfect. Antivirus software catches malware in several ways. For example, it looks for known-to-be-dangerous application files—programs seen before that the antivirus knows is bad—and it also uses heuristics to guess whether a newly seen file is dangerous. Neither method will catch everything. And Windows Security doesn't even try to protect users from phishing email

attacks or surfing potentially dangerous websites (though many premium antivirus suites do offer this).

While antivirus is an important layer of protection, it's not a good idea to rely totally on it. In particular, it's an extremely bad idea to pirate software and games—if you're running pirated application files, cracks, key generators, and similar sketchy things, you're exposing yourself to a lot of potentially dangerous things (fave.co/3JTuOia). Antivirus software isn't guaranteed to protect you from all of them.

MYTH: YOU DON'T NEED ANTIVIRUS IF YOU'RE CAREFUL

On the other hand, some people think antivirus is only necessary for less-experienced computer users without ideal security practices. The idea is that if you're careful and smart, you can skip the antivirus and get back that little bit of performance.

But this isn't really true. Malware isn't just something you get infected with when you're not careful. Attackers can exploit zero days in applications you use, and you could be infected simply by viewing a compromised web page. All it would take is the right flaw in your web browser.

Also, take a look at Steam: Its developer accounts have recently been compromised and used to serve malware through Steam game updates (fave.co/3USqKoR) and mod

The Downfall mod for *Slay the Spire* was compromised and used to spread malware through Steam's software update system.

updates (fave.co/3QDx7d4). Hopefully Steam's update system won't deliver malware to your PC, but it illustrates that it doesn't just matter how careful you are. A solid antivirus program can provide a good layer of protection against attacks like this.

MYTH: ANTIVIRUS WILL COMPLETELY PROTECT YOU

Antivirus isn't all you need to protect yourself—and your PC—online. It's an important part of the puzzle, but you need more than that.

Scam websites and phishing emails are dangerous on every device—not just Windows PCs, but also smartphones. You still need to browse carefully, keep an eye out for scammy-seeming emails (fave.

co/3Qxl5Bc), avoid downloading dangerous junk, and not get tricked into giving passwords, payment info, and other personal details to bad websites. Antivirus programs and web browsers do have phishing protection—but, like antivirus scanners, it isn't perfect.

A good password manager (fave.co/3IRkfRz) is particularly important. Using strong, unique passwords everywhere is critically important. But, unless you have a photographic memory, you're probably not going to remember dozens (or hundreds) of strong unique passwords for all your accounts. That makes a good password manager the solution to keep your accounts secure.

By the way, even if you do install another antivirus program on your Windows 11 or Windows 10 PC, you don't have to pay for one. There are great free antivirus ones you can install (fave.co/3Pxg4c7) if you're not looking to pay for one of PCWorld's favorite antivirus programs (fave.co/3CnDHuk). However, the premium versions tend to protect against more types of threats (such as malicious links, webcam hacks, and privacy monitoring) and offer additional features (like VPNs and parental controls). ⏻

" Early detection allowed us to take control of the situation and make a plan together."

If you're noticing changes, it could be Alzheimer's. Talk about visiting a doctor together.

ALZ.org/TimeToTalk

PASSKEYS EXP

HOW TO EMBRACE A
FUTURE TODAY

PASSKEYS ARE INCREASINGLY REPLACING TRADITIONAL PASSWORDS. THIS MAKES LOGGING ON TO THE INTERNET MUCH MORE CONVENIENT AND SECURE. YOU CAN CREATE YOUR FIRST PASSKEY IN JUST ONE MINUTE.
BY PETER STELZEL-MORAWIETZ

LAINED:
A PASSWORDLESS

You may be asking yourself, "Logging in without any passwords, how's that supposed to work?" After all, user names and passwords are so much a part of everyday life that it's hard to imagine the world might work without them.

Yes, you can log in without a password, and it's even more convenient, faster, and more secure than before. This time it's not just an advertising promise—a fundamental change is actually underway.

That's good, because the status quo is downright sobering: Billions of personal accounts have been hacked worldwide. In Germany, almost one in three people have had their online accounts spied on, according to a representative survey commissioned by the consumer advice center.

There are many reasons for this, some due to the carelessness of users. After all, not everyone wants to assign a unique and secure password to all of their 100 or so accounts—despite all the well-intentioned advice. The consequences are well known.

However, the situation is not as hopeless as it seemed for a long time. You can log in to more and more internet services, from Amazon to WhatsApp, using the new passkeys. Not only are they easier and more convenient to manage, they are also much more secure. You no longer have to remember anything, so you can't forget anything, and you don't even need new equipment. You can get started straight away with your PC or smartphone.

PC AND SMARTPHONE ARE ALL YOU NEED TO LOG IN SECURELY

We focus on the practical use of passkeys and only explain the technology behind them to the extent that it helps you understand them and have the necessary trust in them. Passkeys are a further development of the established Fido 2 security standard with asymmetric encryption.

When you set up a passkey to log in to an online service, your PC or mobile phone generates a key pair. The public key is sent to the website and stored there, the private key is secret and remains in
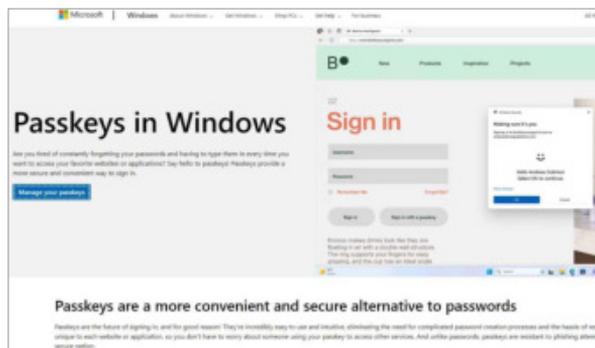
Microsoft not only advises using passkeys to increase security and convenience when logging in, but also offers the option of not using passwords at all.

the crypto chip of your device—that is, in the Trusted Platform Module (TPM) on a computer.
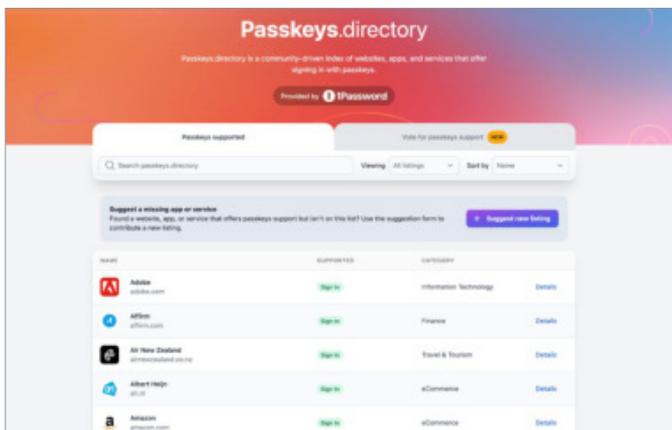
If you use a smartphone, the private key is also securely synchronized in the cloud of the operating system, either Apple or Google. This is one of several advantages of the smartphone, which we will come back to in a moment.

Passkeys.directory has a list of providers with passwordless logins.

Once a passkey has been set up, the next time you visit the website (or app), you simply tell it that you want to log in. The online service then sends your device a so-called challenge: a task that can only be solved with the help of your private key stored in your device and that you authorize using your fingerprint, face scan, or PIN. Only the digitally signed solution to the challenge is sent back, not the private key itself.

As this process also takes the original domain into account, it provides reliable protection against phishing. Even if a website is a deceptively genuine imitation, the passkey refuses the log-in.

SERVICES WITH PASSKEY SUPPORT

There is no official directory of all providers with passwordless login. Lists are provided by Passkeys.io (fave.co/3WBrKPn), Passkeys Directory (fave.co/3pJDAsu), and Keeper (fave.co/3URxpzF), among others. New providers with Passkey support may not be included at first. Important services are listed below.

- 1Password
- Adobe
- Amazon
- Apple
- Bitwarden (passwords)
- Dashlane (passwords)
- Ebay
- GitHub (software)
- Google
- Kayak (traveling)
- Keepass XC (passwords)
- Keeper (passwords)
- Linkedin
- Microsoft

- Mozilla (Firefox)
- Nintendo
- Nvidia
- PayPal
- Shopify (e-commerce)
- Sony PlayStation
- Synology
- TikTok
- Uber (taxi)
- Whatsapp
- X (Twitter)
- Yahoo
- Zoho (Office)
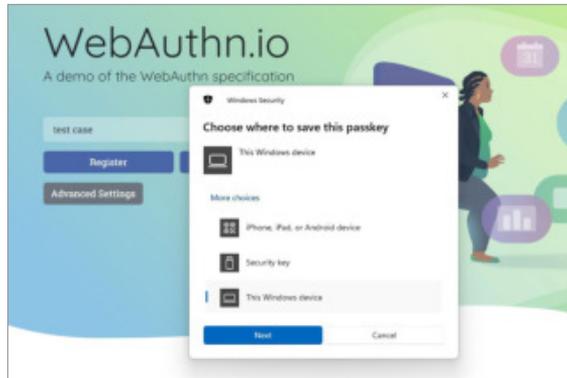
A Hello-enabled camera or a fingerprint sensor on the laptop or PC make logging in via Passkeys particularly convenient.

HERE WE GO: TRY OUT PASSKEYS

If you only want to use Passkeys on your PC at home, you can store your private keys exclusively on your computer. The requirements are straightforward: A compatible browser such as Chrome, Edge, or, more recently, Firefox (from version 122) is all you need.

First create a login PIN for Windows Hello in the Windows settings under Accounts > Login options. This is hardware-bound, so unlike a password, it's only valid for this one computer. If available, you can also set up fingerprint or face recognition for greater convenience.

For our passkey-in-a-minute promise, open the test page fave.co/3JW54BP in your browser. In the *example_ username* field, enter a name of your choice, click on Register,

and authenticate yourself via Windows Hello in the next step.

You may need to confirm the "This device" option, followed by the messages "Master key saved" and "Success! Now try to authenticate"—all in less than 60 seconds.

Take this request literally and log in without a password using the passkey you have just created. To do this, click on the Authenticate button and authenticate yourself again: "You're logged in!"

As your WebAuthn test account is automatically deleted after one day, you do not need to do anything else.

LOG IN TO YOUR PC WITH A SMARTPHONE

Smartphones are more practical than PCs when it comes to passwordless logins, for several reasons:

• Firstly, your phone stores the passkeys in the mobile operating system's password manager just as securely.

• Secondly, as we will show in a moment, it also enables the new login procedure on the PC.

• Thirdly, you usually have it with you.

• Fourthly, the Android (from version 9) and iOS (from version 16) operating systems synchronize the passkeys automatically and in encrypted form in the cloud

If the mobile device breaks or is lost, you have a backup right away. Synchronization is not yet available for Windows. You can read more about the backup strategy for passkeys in the box at the bottom of this page.

To create a passkey via your smartphone, open the test page fave. co/3JW54BP on your PC again, assign a user name, click Register, and then click the option "iPhone, iPad or Android device." Confirm with Next and hold the phone camera on the QR code on the PC monitor. Now confirm the passkey option shown on the smartphone and follow the next steps.

Android and iOS differ only slightly here. Depending on the device configuration, you may still need to enter the unlock PIN before authenticating with a fingerprint or face scan. You already know the rest.

Logging in is even quicker and more convenient if you allow this step to be skipped on your smartphone after the QR scan. In the future, all you need to do to log in on the PC is select the linked mobile device and authorize the login using a finger or face scan. Authentication takes place via Bluetooth (from version 5.0). If your computer fails to fulfill this requirement, a USB Bluetooth dongle for around $10 will help.

You can log in to the actual online accounts later in the same way using a passkey. The challenge request runs in the background, the solution is sent back digitally signed in a matter of seconds—and you are securely logged in.

Aim your phone's camera at the QR code to complete the registration process.

Microsoft requires its own Authenticator app on the smartphone.
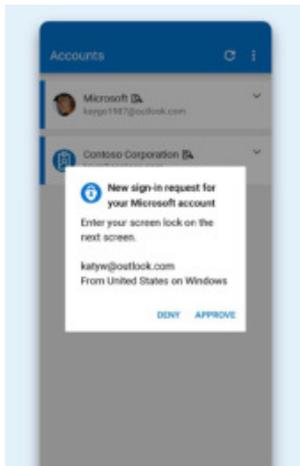
LOGGING IN WITHOUT A PASSWORD IN PRACTICE

You now know how passkeys work. To familiarize yourself with the concept, we recommend only switching one or two accounts to begin with. The box above lists important providers that support the method.

Most of these services currently still allow the parallel use of passkey and password. This makes logging in convenient for you, but insecure passwords still pose a risk.

Microsoft at least offers the option of removing the password completely in the personal settings under Security > Advanced security options > Passwordless account. With NAS manufacturer Synology, you actually have to choose between a password and a passkey.

To create a passkey, first log in to the service of your choice in the PC browser. The setup option can usually be found in the account configuration under Security. The next steps differ from provider to provider, in terms of both the terminology and the setup itself. In some cases, you may also encounter unexpected things such as additional apps and other hurdles.

For example, the Google passkey was initially linked to Windows Hello and thus to the PC during testing. Only afterward was it possible to create another passkey on a "different device" via the passkey management—that is, on the smartphone as desired.

Microsoft, on the other hand, first requires you to install its own Authenticator app on the smartphone; only then can you switch to the operating system's password manager. These examples show how important it is to familiarize yourself with passkeys. However, if you know that it works, you can get there by trying it out or using a Google search.

Tip: Passkeys are also suitable for particularly security-relevant applications, such as payments, which should be protected by a second factor. You can quickly authorize, say, PayPal transactions with your fingerprint without having to enter a short code or do anything else first.

CONCLUSION

Cloud synchronization of passkeys offers an advantage over conventional hardware-based Fido 2 authentication in that you don't

have to set up passwordless login for every device. At the same time, management with the smartphone ensures a backup of all private keys and thus the possibility of restoring them if the hardware breaks down or is lost. If you only use the passkeys on your computer at home, you can in principle also save them on your PC.

However, please do not forget to create a restore option just in case (see box below). The passkeys can be managed on the Windows PC in the Settings app under Accounts > Passkeys, or on the smartphone in the password managers from Apple or Google, also under Settings.

PROTECTION FROM GETTING LOCKED OUT

If you forget a conventional online password, you can simply create a new one using the option by the same name: so convenient, but also so insecure. But what happens if the hardware with the stored private keys is defective or lost? After all, only you have these keys—which is the central component of this security concept.

So take precautions to avoid locking yourself out. If you follow our advice and use your smartphone to store your passkeys instead of your PC,

there is hardly any danger. This is because Apple and Google automatically synchronize the passkeys in encrypted form in the cloud. If your mobile phone is lost or defective, you can then quickly restore the keys on a replacement device.

Things are more difficult on a Windows PC: Although Microsoft also wants to implement synchronization, it has so far only been implemented in Insider pre-release versions of the operating system.

A Fido 2 stick with a crypto chip (fave. co/3ymAJtz), which is available from around $30, is also suitable as a backup. However, you must also save your passkeys on the stick beforehand (!) using the "Security key" option.

Many online services also offer additional options for two-factor authentication and recovery. Remember to set these up beforehand. ⏻

A Fido 2 stick like this is one of several backup options for passkeys. However, the most convenient option is synchronization with the smartphone in the cloud.

CHECK IN ON YOUR FRIENDS
EVEN THE "STRONG" ONES

It's okay to not be okay.
Learn how to reach out to a friend about
their mental health at SeizeTheAwkward.org.

SEIZE THE AWKWARD

ad COUNCIL

American Foundation for Suicide Prevention

JED
The Jed Foundation

P&T
PETE & THOMAS
FOUNDATION

How to digitize VHS tapes the cheap way

Preserve your old video tapes with an inexpensive capture card and free software.

BY **JARED NEWMAN**

Good news, everyone: My bar mitzvah videos from the mid-1990s are now digitized for the ages.

While I have no intention of actually watching them—*oy, the embarrassment*—I recently received the original tapes from my parents and felt like they were worth preserving in a more enduring form than VHS. I was able to do it for cheap thanks to my USB capture card, which I originally bought to take screenshots of streaming devices for my TechHive column on cord cutting (fave.co/3QDz7SJ), but which continues to have all kinds of other neat uses.

Below, I'll walk through how to digitize your own VHS tapes or camcorder footage using the same methods, plus a few extra tricks that might make a USB capture card worth considering.

IMAGE: GORODENKOFF/SHUTTERSTOCK

The USB capture card is a thumb-size device with an HDMI input on one side and a USB plug on the other.

THE HARDWARE

The USB capture card is a thumb-size device with an HDMI input on one side and a USB plug on the other. Connect the capture card to your computer's USB port, then hook up any device with HDMI output, and you can record that device's video using a free program called OBS, fave.co/3WA6NEq (more on that shortly).

Amazon is filled with capture cards from no-name brands for under $20. While the particular one I purchased is no longer available, this one (fave.co/3wiUPVi) looks pretty similar: It's able to capture video at 1080p up to 30 frames per second, or 720p at 60 frames per second. It uses a USB-C connector, but also has a USB-A adapter. (Alternatively, this one works the other way around, fave.co/44C97gg.)

You'll also need a VHS player, otherwise known as a VCR. If you don't have one

collecting dust in a closet—or don't know anyone else who does—consider looking for one at a thrift store such as Goodwill, searching on Facebook Marketplace, or buying one on eBay (fave.co/3HzWN4k).

Of course, most VHS players don't have HDMI output—including the one I pilfered from my father-in-law's house for this project—so you'll also need a composite-to-HDMI adapter. I grabbed one on Amazon for $10 (fave.co/3UWGCXz).

The setup, in the end, looks like this:
VHS Player> Composite video out> Composite adapter> HDMI out> USB Capture Card> PC.

I'm using a Windows desktop, but this setup should work just as well with a Mac or Linux machine, or a Chromebook capable of running Linux apps (fave.co/44Dkapx).

THE SOFTWARE

The other half of the equation is a free program called Open Broadcaster Software Studio (fave.co/3WA6NEq), or OBS. It's often used to stream video game console footage on sites like Twitch and YouTube, but you can also use it to record from pretty much any HDMI video source. Once you've installed OBS and hooked up the USB capture card, you can record video with a handful of steps:
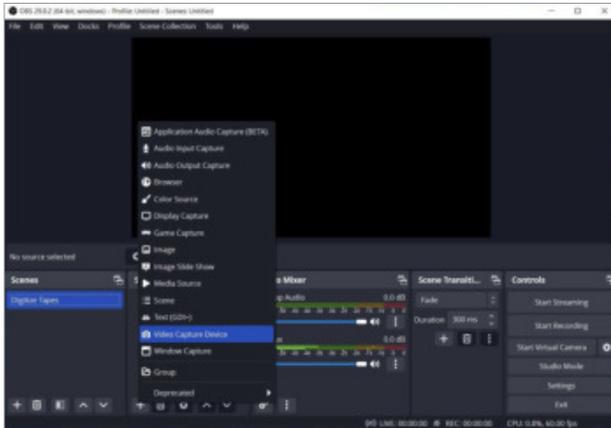
Setting up a video capture device in OBS.

- Under Sources, click the plus sign (+), then select Video Capture Device.
- Give the source a name, like Capture Card, and click OK.
- Select "USB 3.0 capture"—that's your capture card—under the Device heading.
- To preserve the VHS aspect ratio, change Resolution/FPS Type to Custom and set the Resolution to 640×480, then click OK.
- Under Audio Mixer, make sure that the Desktop Audio and Mic/Aux sliders are either set to zero or muted.
- If you want to preview the tape player audio before recording, click the three dots (⋮) under Capture Card in the Audio Mixer section, select Advanced Audio Properties, and set Audio

Monitoring to Monitoring and Output for the Capture Card.

At this point, OBS should display your video when you press play on the VCR, but only in a small corner of the preview window. To fix this issue, drag the corner of the video so it fills the screen, and then move the video into the center of the preview window.

Now you can press play on your VHS player, and click Start Recording in OBS. Wait until the video has finished and click Stop Recording, and OBS will produce a video file in the MKV format, appearing in your computer's video folder by default. You can then trim it down with any video-editing software (I used the free Solveig AV1 Trimmer for Windows, fave.co/4by3li8) or
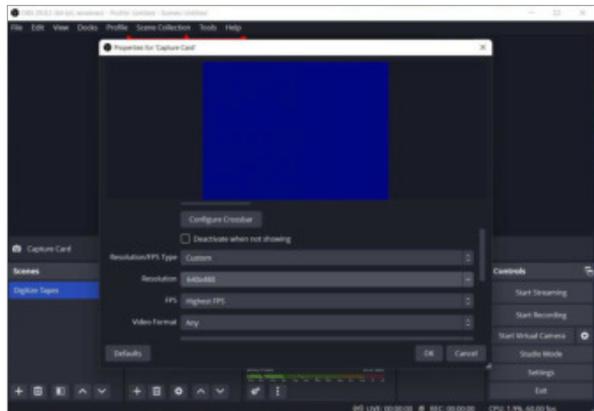
Selecting the capture card resolution in OBS.
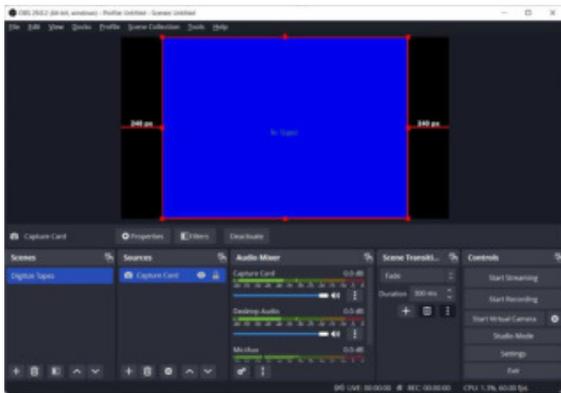
Resizing the player window in OBS.

use a program like DVD Styler (fave. co/4buYpdz) to burn the video to DVD.

MORE OBS AND CAPTURE CARD TRICKS

A capture card and OBS aren't the only ways to digitize a VHS tape. You can also purchase products like Vidbox (fave.co/3QEOs5E) or Roxio VHS to DVD (fave.co/3Kgx97n) for this specific purpose, or pay a professional (fave. co/44C9CHa) to convert tapes in bulk.

But if you already have a VCR, buying the necessary adapters will only cost you about $30, roughly half the price of those other solutions. And in the long run, the cobbled-together solution is a worthier investment. Once you get the hang of OBS, it becomes a way to record pretty much anything. Some examples:

Record from streaming devices: Plug a Roku or Fire TV Stick into your

capture card, and you can record video from streaming sources such as Netflix or Disney+. You can also right-click the preview window and select Screenshot (Source) to capture a still image. This is how I illustrate most of my streaming device reviews over at TechHive.

Record your desktop: Click the plus-sign button under Sources in OBS and select Display Capture (to record your entire screen) or Window Capture (to record just one application). This won't work with DRM video sources such as Netflix.

Record yourself: Add your webcam as a source from the Video Capture Device menu to include video of yourself. You can then overlay it onto other video sources to record yourself providing color commentary.

Note that you can use OBS's Scenes menu to toggle between different setups, each with its own layout and capture device. That way, you can have a scene for digitizing VHS tapes, another for recording from streaming players, and another that overlays your webcam, all without having to set up everything from scratch each time.

OBS can take some time to learn—I'm still discovering many of its intricacies myself—but there's a reason that Twitch and YouTube streamers swear by it (fave.co/3WAuGf1): With a little practice, the potential use cases are practically endless. ⏻

9 must-know Microsoft OneDrive tips: Get more from Windows cloud storage

Microsoft's OneDrive offers some surprising functions and backs up important data automatically. **BY PETER STELZEL-MORAWIETZ**
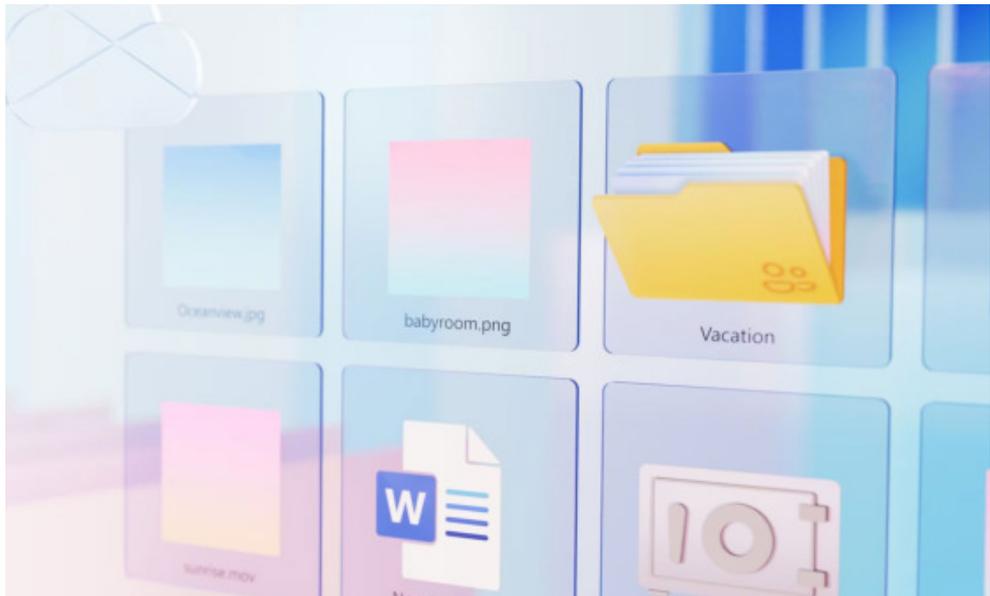
Cloud or online storage is practical for many reasons: Provided you have an internet connection, you can access your data from anywhere, regardless of the end device.

Synchronization ensures that content is always up to date wherever you are. Photos, screenshots, and other files can be backed up automatically, files can be shared, browser settings and passwords can be synchronized, as can system and app settings, at least with Microsoft OneDrive.

Unlike Dropbox or Google Drive, OneDrive is deeply integrated into the operating system and even runs on the computer with Windows 11.

Here we present the Microsoft cloud in detail, provide tips, and explain the differences in functionality between the various Microsoft subscriptions.

SET UP ONEDRIVE, EVEN WITH A LOCAL WINDOWS ACCOUNT

You can use OneDrive cloud storage in the browser or via the Windows app. It is pre-installed in Windows 11 and available to install for Windows 10 (fave. co/3QGBvba). The version in the Microsoft Store is outdated.

If you log in to Windows 11 with your Microsoft account anyway, OneDrive is ready to go straight away. But you can also use OneDrive with a local Windows account. To do this, either log in with your Microsoft account in the browser (fave.co/3JSny46), or start the OneDrive app and log in.

With this login option, you can choose whether the account link should be restricted to apps or not. The decision does not change your Windows login; a local account remains local.

When setting up the app, you can change the storage location for the local copy of the cloud content, including to a different hard drive or partition. You can also specify which folders the Windows backup tool should save.

Our recommendation: If you do not have a subscription for additional storage space, deactivate all folders here first or click on "I will do it later." Also reject the upgrade options that appear, for the time being.

If you also want to install OneDrive on your smartphone, it is advisable to switch on the "Activate camera backup" option in the mobile app. This automatically saves all recordings in the cloud and synchronizes them to your PC. The default setting is to back up photos and screenshots; WhatsApp images and videos can be added.

Practical: Similar to Dropbox and Google Drive, OneDrive saves the photos on your smartphone in the cloud and automatically synchronizes them to your PC.

Three tips for getting started:
1. Once you have set up OneDrive on your desktop and then take the first screenshot, the app offers the option of automatically backing up all others to the cloud.
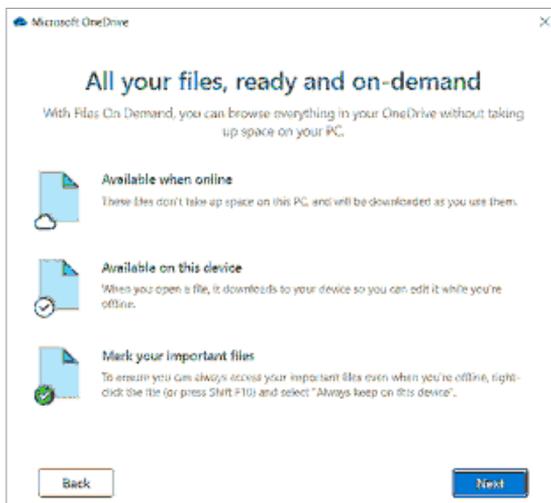
During the setup of OneDrive, though this looks like general advertising, it is important: the references to different status icons for files and folders.

2. We recommend that you always start OneDrive from your PC, as this speeds up data synchronization. To do this, open the Task Manager and click on the Autostart tab at the top (Windows 10) or Autostart apps on the left (Windows 11). Right-click on OneDrive to activate Autostart.

3. You can change and customize all OneDrive options later in the app's Settings, including logging out of your Microsoft account.

TRIPLE YOUR FREE STORAGE AND USE PREMIUM FUNCTIONS

If you have had a Hotmail, Live, or Outlook account for a long time, you still have access to the 15GB of cloud storage that was originally provided free of charge. All other users only have 5GB free of charge. However, this can also be extended to 15GB via making recommendations to friends and acquaintances. Long-term users even get 25GB thanks to the "loyalty bonus."

This is how it works: Log in with your account in the browser (fave. co/3JSny46) and click on the cogwheel symbol (Settings) in the top right-hand corner.

You can send invitation links via Options > Referral bonus > Earn more. Each accepted invitation gives you an extra 500MB, up to a maximum of 10GB in total.

The individual functions of OneDrive also depend on whether you are logged in to Microsoft for free or have a paid subscription. The options here are the basic version for $20 per year or Microsoft 365 with all Office functions and 1TB of storage space.

According to Microsoft, some functions only exist in the paid subscriptions. But this is not true here. For example, "folder backup on the PC" of images, documents, desktop, and others is indeed possible via the Windows Backup app.

As already mentioned, the mobile app also uploads smartphone photos to the cloud. Even searching for files by date and

keywords is not restricted as Microsoft claims, as long as you add the local backup in the Windows indexing options.

Editing documents on the go on your smartphone requires more steps: You first have to download the files to your mobile device, edit them there, and then upload them again. Password-protected file shares cannot be created directly in OneDrive, but the additional effort required to create a protected zip archive with 7-Zip is minimal.

Microsoft's notes on version history suggest that changes to OneDrive files can only be reset with paid subscriptions. However, you can always call up and download any version of documents in the browser and undo changes.

Finally, the personal vault—that is the area that provides special protection for sensitive content via fingerprint, facial recognition, SMS code, or another second factor—is limited to three files for free use.

However, as it is the sheer number and not the amount of data that matters, 7-Zip can also help here: Right-clicking in the OneDrive folder on all the files to be protected creates an archive that you can then move to the vault. If you don't use the premium functions on a daily basis, the workarounds will definitely help.

DIFFERENCES IN STORAGE AND FUNCTIONS

First of all, OneDrive refers to Microsoft's cloud storage. Anyone who sets up a free online account receives 5GB of storage space in the cloud. This free storage can be tripled to a total of 15GB by referring friends and acquaintances.

Microsoft also offers paid subscriptions: Microsoft 365 Basic with 100GB of storage costs $20 per year, Microsoft 365 Single with 1TB costs $70, and Microsoft 365 Family with up to six accounts and one 1TB of storage per user costs $100.

Beyond the storage sizes and Office functions of Microsoft 365, the variants also differ considerably when it comes to OneDrive functions. These include the vault area, which is specially protected by two-factor authorization, ransomware detection,

Storage space, Office applications, security functions, collaboration, and more: Microsoft subscriptions differ considerably when it comes to OneDrive functions.

sharing and restoring files, working with mobile apps, version history, and much more. See Microsoft's summary (fave. co/4bg5yPc) of the individual functions for the subscriptions—details are available via the "Expand all" link. So much for the theory, because you can actually use functions for free that Microsoft theoretically only provides for the paid subscriptions.

EDIT CLOUD FILES ON THE WINDOWS PC OFFLINE, TOO

For space reasons, Microsoft does not store all cloud content on the PC hard drive by default. But which data is stored only in the cloud and which data does Windows also store locally?

The Explorer shows all files in the OneDrive folder, but the differences only become clear on closer inspection: a blue cloud next to files or folders stands for "online only," a green tick on a white background for "also available locally," and the tick in the green circle for "always keep on this device." Microsoft describes the differences in detail along with the wide range of icons (fave. co/3WzQNT5).

You can change the status of individual files and directories in Explorer via the context menu at "OneDrive > ellipsis (…)." If your hard drive is large enough, you can store all cloud content locally in parallel. This gives
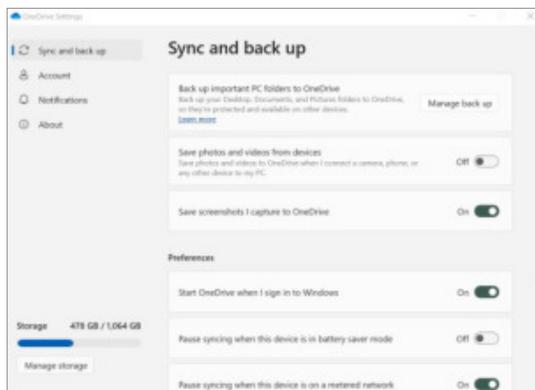
This option in the OneDrive settings ensures that all cloud content is stored locally and is therefore also available without an internet connection.

you access to all files on your PC, even without an internet connection, and interim changes are automatically synchronized to the cloud later.

To make a complete local copy, right-click on the OneDrive icon in the taskbar on your PC and continue with "Settings > Synchronize and back up > Advanced settings." Scroll down and click on the "Download all files > Continue" button under "Files on demand." Depending on the amount of data, the download may take some time.

RECYCLE BIN, ONEDRIVE FOR BUSINESS, PHOTO EDITING, AND MORE

As mentioned at the beginning, you can use OneDrive on your PC via the browser or—the recommended option—the app. This is because the Windows tool offers the usual

file management of the File Explorer, including drag and drop and, if set, offline access to files.

When deleting files, the app also informs you that the process will remove the files from all linked devices, unlike the browser. Furthermore, the content is also moved to the Windows recycle bin when deleted via the app and only to the online recycle bin when deleted in the browser.

Finally, further tips and tools:

• In addition to the (private) OneDrive app described in the article, you can easily use OneDrive for Business in parallel on the same PC. In the first app, you log in with your private account (free or Microsoft 365), in the business app with your school, university, or company account.

The RaiDrive tool assigns real drive letters to cloud storage such as Dropbox, Google Drive, and OneDrive on the Windows computer.

• Secondly, you can edit photos stored on OneDrive directly in the browser and add filters.

• Thirdly, the OneDrive drive appears in Windows Explorer, but there is no drive letter. If this is important for further processing of the data with other tools, Raidrive (fave.co/ 46lPlp8) will add a letter.
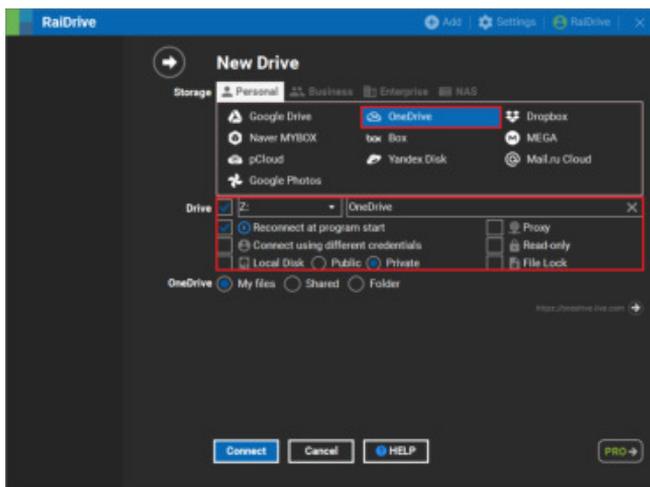
MICROSOFT 365: OFFICE AND 1 TERABYTE OF STORAGE

Especially in conjunction with the Microsoft 365 Single or Family subscriptions, OneDrive is far more than just cloud storage and is also hardly more expensive than the competition.

While Dropbox and Google charge just under $100 per year for 2TB of cloud storage, or 2,000GB, Microsoft 365 Single costs a little more with 1TB of storage space for just under $70 proportionally, but offers the complete Office package with Word, Excel, PowerPoint, Outlook, and so on, as well as protection against ransomware.

The one-off purchase of Microsoft Office alone would cost $300. Microsoft 365 Family is the right option for families: For just under $100 per year, it offers six people 1TB of cloud storage each and the Office functions. ⏻

How to use your smartphone as a Windows 11 PC webcam

Windows 11 now allows the wireless connection of Android smartphones for use as a webcam. BY **THOMAS JOOS**

Although it was already possible in the past to use smartphones as a webcam (fave.co/3wC07LB) on a Windows PC, this was cumbersome, not very stable, and hardly useful.

Now Windows 11 has been updated to allow Android smartphones to be used as a webcam wirelessly via Bluetooth much more easily and effectively. The Windows Smartphone Link app is used for this purpose. No third-party app or cable connection is required.

This does not yet work with iPhones. However, iPhone owners can use the iOS app EpocCam (fave.co/44H64DB) in this case. This also turns iPhones into webcams under Windows and macOS. To use it, you need the app on your smartphone and a client under Windows or macOS. Here, the user also has the option of extensively customizing the image.

IMAGE: FIZKES/SHUTTERSTOCK

Connecting Android to the Smartphone Link app included in Windows 11 is easier and offers even more functions. This includes displaying messages, starting phone calls, and close collaboration between the PC and Android smartphone. In principle, the connection also works with iPhones, but you cannot use the Apple devices as a webcam, as described above.

ADVANTAGES OF USING SMARTPHONES AS A WEBCAM

The advantages are that the smartphone can also be used when using several computers and the quality of the smartphone camera is in many cases higher than that of the webcams built into notebooks or monitors.

If you are working with a laptop connected to a monitor, you can even leave the notebook closed as you do not need the built-in webcam.
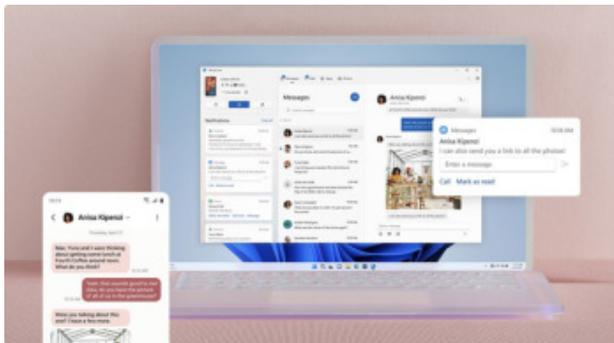
You'll need to install Windows 11's Moment 5 update 5 to use Android smartphones as a webcam.

Of course, it makes sense to use the smartphone in an upright position—for example, on a charging station. However, there are also special holders that can be used to attach smartphones to a monitor or tablet (fave.co/3UCC3Ad).

HIGH-QUALITY WEBCAM COMPLETELY FREE OF CHARGE WITH WINDOWS 11

As a result, users receive a high-quality webcam for their Windows 11 computer free of charge. If you would still prefer to use an external webcam, you can find a list of high-quality webcams in our comparison: "The best webcams" (fave.co/3LZ3Gjk).

The Windows 11 Moment 5 update 5 (fave.co/3WHBZSi) is required so that you can use Android smartphones as a webcam. The Windows app Smartphone Link must be version 1.24012 or newer. This can be seen in the app settings. On the Android smartphone, you also need the "Link to Windows" app (fave. co/3WG6RCK).

After this update, Windows 11 can work better with Android and transfer the camera image to Windows 11 via Bluetooth. Microsoft presents the possibilities in more detail in a blog post (fave.co/3R6y7XF).

New features include the ability to switch between the

front and rear camera in the app, pause the stream and use smartphone effects. You can also make calls via the Smartphone Link app, display notifications, and even read text messages from your smartphone. The current battery charge status is also displayed in the app.

You have to scan the provided QR code to connect your phone.

Once the smartphone has been successfully connected to Windows 11, the notifications and text messages from the smartphone are also available in Windows.

At least Android 9 is required to use the app, which should not be a problem with current devices. If you still have an older Android smartphone, you can also connect it.

## USE THE WINDOWS SMARTPHONE LINK FOR THE CONNECTION

For a successful connection, you must activate the option "Allow this PC to access your mobile devices" under Bluetooth and devices > Mobile devices. Via Manage devices > Add device, Windows 11 creates a QR code with which Android devices can be connected in order to be able to use the camera in future.

For this to work, a Cross Device Experience Host Update is required, which Windows 11 receives via the Store. You can then use the cameras of the Android smartphone under Windows 11.

The smartphone can then be used as a webcam in the same way as other webcams. You can also make further settings in the smartphone camera control window. With the right settings, the image quality is often higher than with conventional webcams, especially when using modern smartphones. ⏻
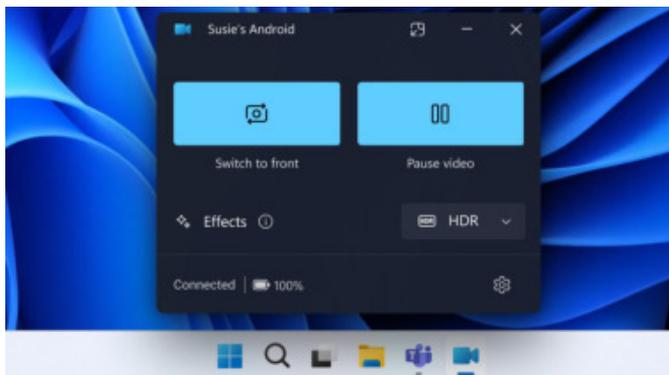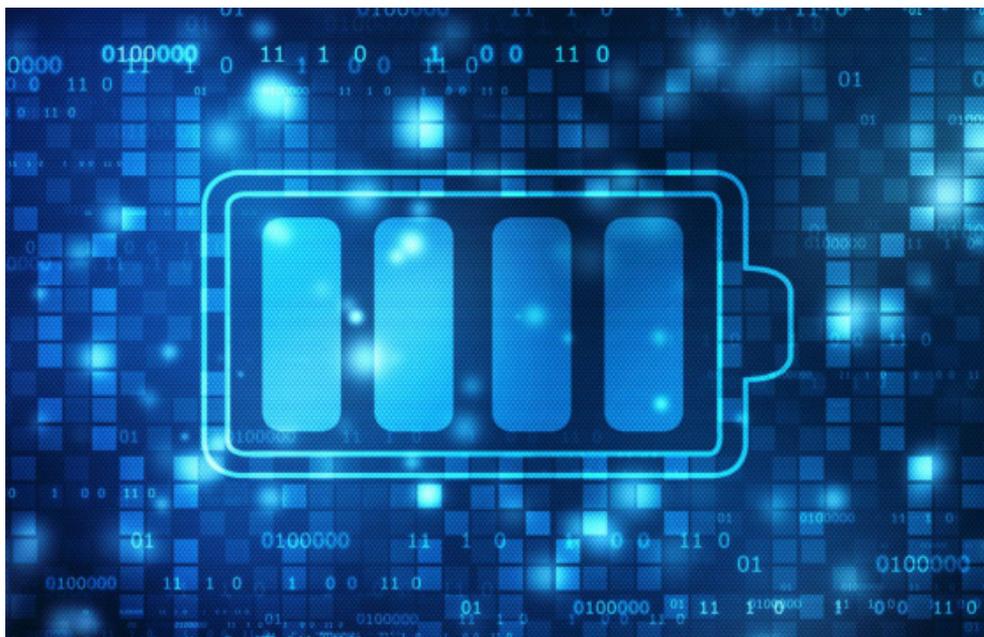

You can change the settings in the smartphone camera control window.

This free, ancient Windows app will watch your laptop battery

BatteryInfoView gives you the laptop battery information you didn't know you wanted.
BY MARK HACHMAN

O ne thing that always annoys me about Windows is that I never really feel like I know how long my laptop battery has before it runs out—and, conversely, how long it will be before it's fully charged. An ancient utility holds both secrets.

When a group of PCWorld editors were brainstorming new article ideas, I suddenly remembered NirSoft's BatteryInfoView (fave. co/4dB0WVv), a freeware utility I hadn't honestly thought about since before the pandemic. A few years of working at home, plugged in, meant that I hadn't any need for a battery utility.

BatteryInfoView is about as basic as it comes. It was developed, according to the developer's web page, in 2011, and hasn't

IMAGE: BLACKBOARD/SHUTTERSTOCK

really been updated in the last three years. It's an alternative—and some might argue a better one—to the Battery Report feature (fave.co/3j1YK1E) within Windows 10 and 11 that most people use to check their laptop's battery. I use Battery Report regularly for battery rundown tests where I can set a task and walk away, discovering later how long the battery lasted.

BatteryInfoView will tell you right up front, however, how long you have before you need to plug in. As I said, it's a utilitarian interface, and some of the most useful features are tossed in among the rest: battery health, for example, will tell you the relative health of your battery. Over time, as you use your laptop and then plug in—over and over—your battery will wear down and it simply won't recharge back to its original state. BatteryInfoView will tell you this, as well as the number of charge and discharge cycles.

More importantly, the utility will track your usage. It will then guess how long you have before your battery runs down on your current activity, and how long you would have if you had begun the task on a full charge. Likewise, it will also tell you how long it will take to fully charge your laptop if you're plugged in. You can even switch the view (press F8) and the app will log your battery's charge every minute, so that you can export it to Excel and create your own graph. Will BatteryInfoView do this for you? No. As I said, it's pretty basic.

It might be nice if some of this information lived in the Taskbar. (Lenovo's Vantage software actually puts this info in the Taskbar, and for the life of me I don't understand why every other laptop maker doesn't follow suit.) It would be even nicer if laptop makers allowed you to easily swap out a laptop battery and replace it with a new one, prolonging the life of your laptop.

But they don't, and we'll have to live with it for now. Add BatteryInfoView to your PC, though, and you'll have a better idea of how long your laptop battery will last. ⏻
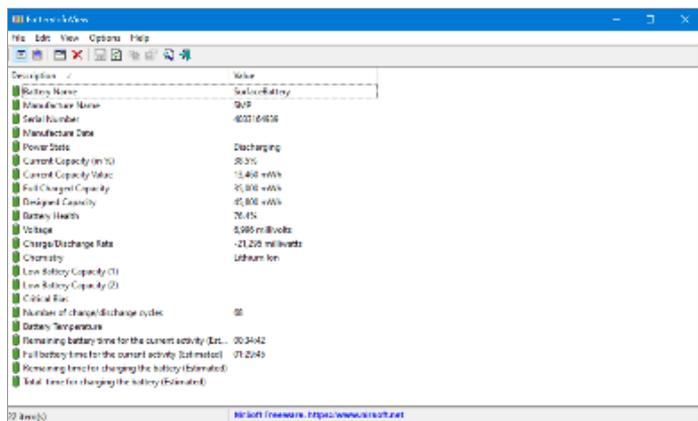
NirSoft's BatteryInfoView displays a number of useful characteristics of your laptop battery, without making any fuss.

Tech Spotlight

A video showcase of the latest trends

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The Full Nerd Episode 300, AMA & Celebration!

⋯⋯➤ Put on your party hats! It's our Full Nerd podcast's 300th episode celebration, complete with cake and special guests.