

How to turn an old laptop's SSD into a USB drive.

If you have an old SSD in your laptop from an upgrade or from a discontinued PC, turning it into an external hard drive is a practical way to extend the lifespan of your existing hardware.

When upgrading a laptop, many people have a 256GB NVMe SSD that they don't need right away. It sits in a drawer for a while. Meanwhile, they have to constantly buy USB flash drives to use or whenever they need portable storage. The solution is to put that NVMe drive in an enclosure and use it like a USB drive.

Now, it's the fastest portable hard drive you can own, and you only pay for the external enclosure. If you have an old SSD sitting in your laptop from an upgrade or from a discontinued PC, turning it into an external drive is a practical way to extend the lifespan of your existing hardware.

Choosing the right container is the most important thing.

USB speed, chipset quality, and heat dissipation design are all important.



Not all NVMe enclosures are created equal, and your choice will determine the actual speeds you get from your drive . A cheap enclosure with a slow chipset will throttling SSD performance, negating the purpose of using NVMe in the first place.

The first thing to check is the connection protocol. Most inexpensive hard drive enclosures use USB 3.2 Gen 2, with a maximum speed of 10Gbps—about 1,250 MB/s in practice. USB 3.2 Gen 2x2 doubles that speed to 20Gbps, but even that creates a bottleneck since PCIe 3.0 x4 drives can reach speeds of 3,500 MB/s.

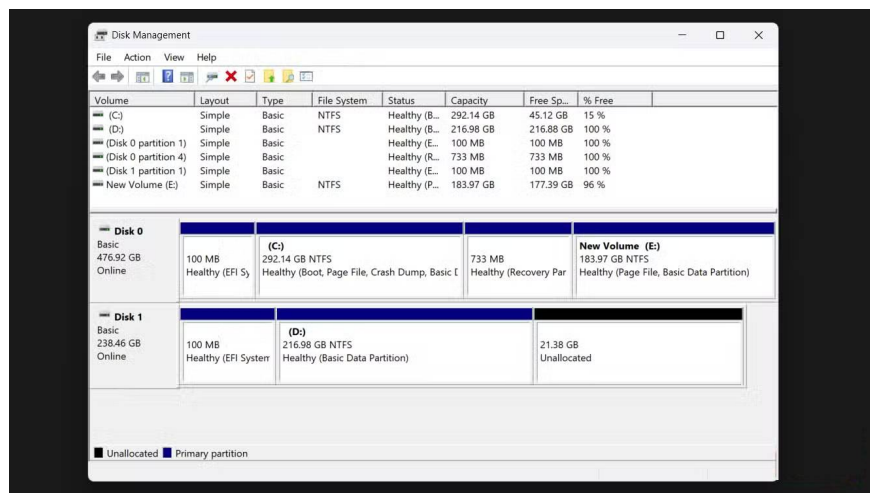
If you want to use your SSD at maximum speed, consider Thunderbolt 3 or USB 4 drive enclosures. These support 40Gbps and allow PCIe 3.0 drives to operate comfortably. The downside is that Thunderbolt drive enclosures are more expensive, and your computer needs a compatible port. For the use case in this example, 10Gbps is sufficient, as the author primarily transfers files and plays games, not edits 8K video. Bottlenecks still exist, but you rarely notice them in practice.

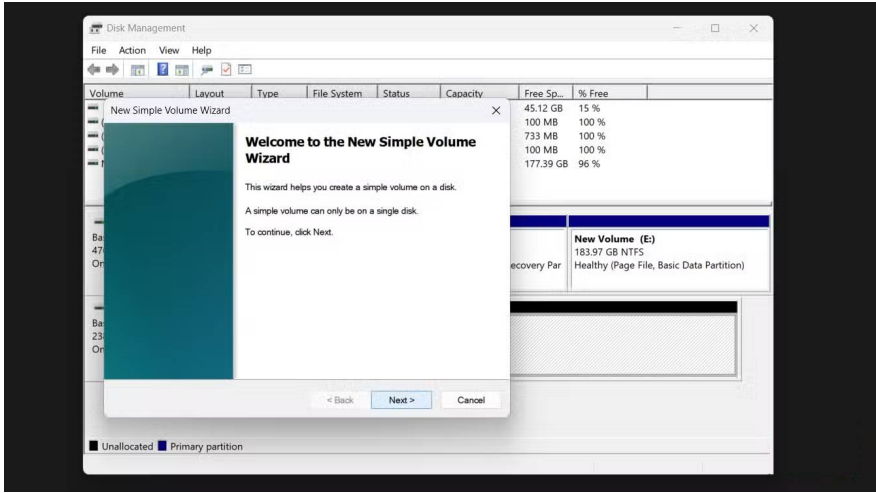
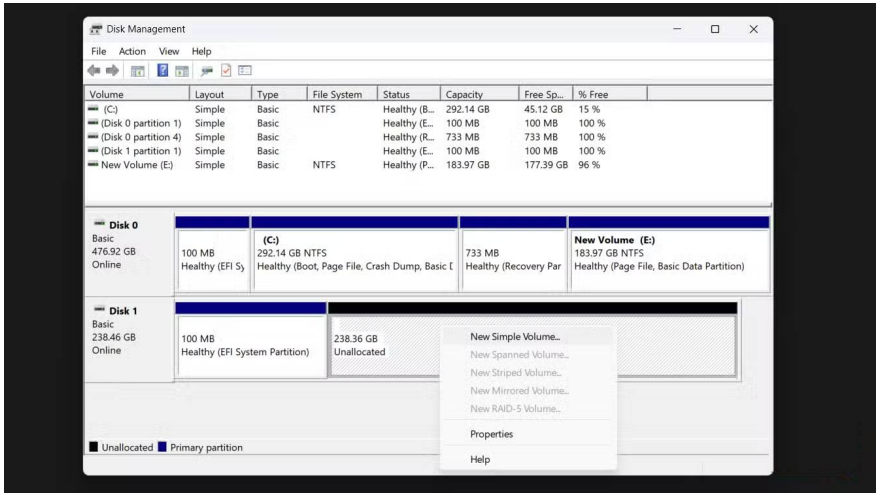
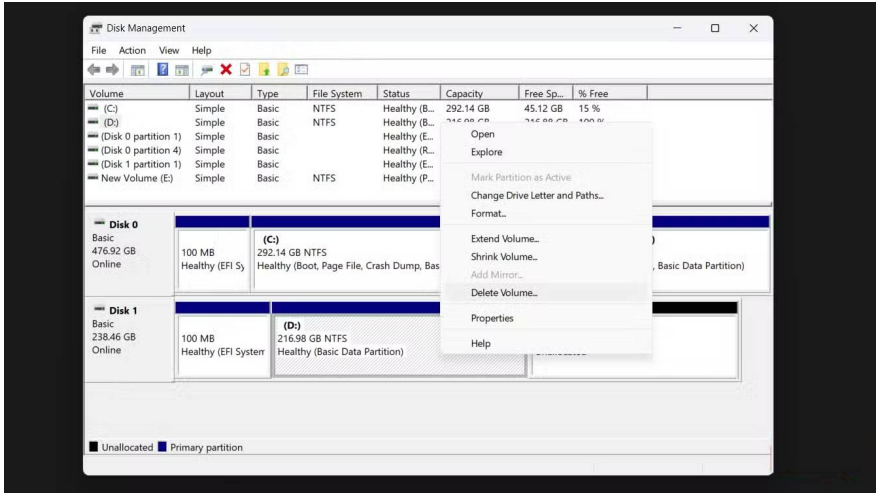
Regarding temperature, NVMe drives will heat up under high load. Look for aluminum enclosures with heatsinks or a heat dissipation design. Plastic enclosures are lighter, but they are less efficient at dissipating heat, which can reduce SSD performance during continuous data writing. Make sure the enclosure supports your drive size. The most common size is 2280 (22mm wide, 80mm long), but laptops sometimes come in 2242 or 2230 sizes. Many enclosures support various lengths with adjustable feet.

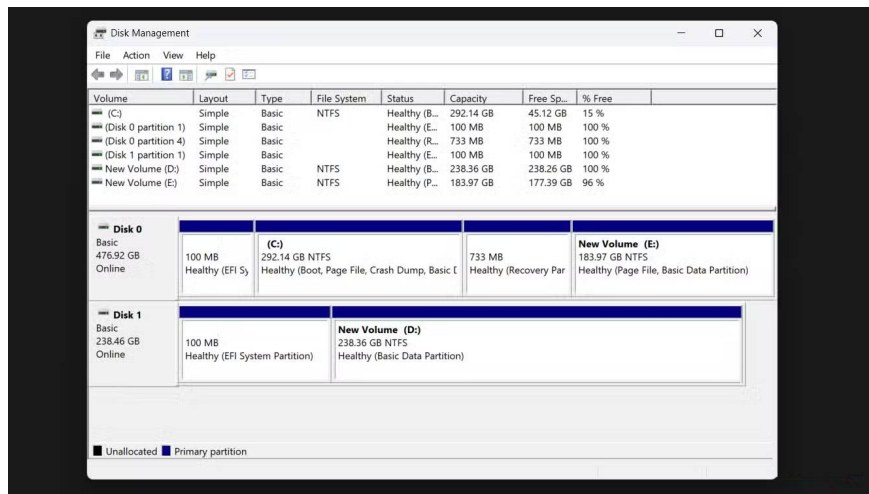
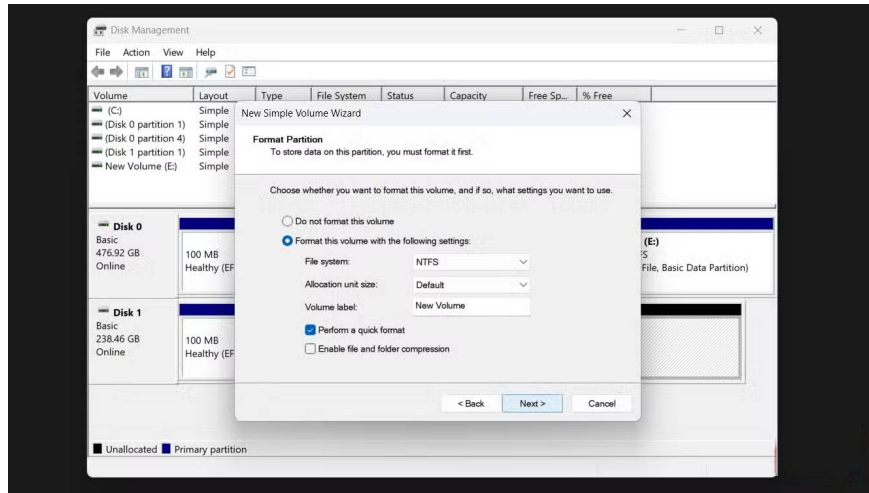
Another thing to check is whether the enclosure supports NVMe SSDs. Some cheaper options only work with SATA M.2 drives, using the same physical connector but a different protocol. If you have an NVMe drive, it won't work in an enclosure that only supports SATA. A 10Gbps aluminum enclosure costing around \$30 can meet all your needs without complicating things.

Assemble and format the drive.

Delete the old Windows partitions and start over.







Installing the drive only takes about 1 minute. Most hard drive enclosures require no tools; you simply slide the SSD into the M.2 slot, secure it with a small pad or rubber stopper, and close the enclosure. Plug in the USB cable, and your computer will recognize it.

If your drive is from a laptop with Windows installed, formatting isn't simply a matter of right-clicking and selecting Format. Older operating system drives contain EFI system partitions, recovery partitions, and other remnants that a quick format won't remove. These take up available space and can cause confusion later. Before removing the SSD, copy everything to your laptop's new SSD to preserve your files and Windows installation. This means the old drive will still have all those system partitions when you install it in the hard drive enclosure.

To start over, open Disk Management in Windows . Right-click on each partition on the drive and select **Delete Volume** until only unallocated space remains. Then, right-click on that empty space and create a new, simple partition. This will give you a clean partition with full capacity.

Warning : Back up your data and thoroughly check the destination drive before deleting partitions to avoid unintentional data loss.

For file systems, you have three main options. NTFS works well on Windows, but is only readable on Mac without third-party software. APFS is Mac-specific. exFAT is a practical choice if you move files between different operating systems – it supports large files and works natively on Windows, macOS, and Linux.

However, some older Linux setups may require drivers. If you format your drive to exFAT, then the drive will show up on any device you plug it into without any compatibility issues.

Practical ways to use your new high-speed hard drive.

Gaming, video editing, and mobile Linux in your pocket.



Once an SSD is ready, you'll find many uses beyond basic file transfer. The speed advantage over traditional USB flash drives opens up possibilities previously impossible.

The portable Steam library is one of the best uses. NVMe SSDs have high input/output operations per second (IOPS), which is more important than raw sequential speed for gaming. Games constantly load small files for textures, sounds, and assets. Standard flash drives would bottleneck when handling this workload, but NVMe handles it without issue. You can install games directly onto the external hard drive and play them on any computer without reinstalling.

Video editors will appreciate using an SSD as a temporary drive. DaVinci Resolve and Adobe Premiere constantly write temporary files during editing and rendering. A fast temporary drive helps keep the timeline smooth and reduces export times. NVMe's consistent write speeds, even when encountering USB bottlenecks, still outperform most internal hard drives.

You can also use this drive to carry a complete Linux installation. Set up a persistent live environment on NVMe, and you'll have a portable operating system that boots quickly on multiple systems. It's useful for troubleshooting, security, or simply having your own workspace wherever you go. You can primarily use it for transferring large files and as a backup target. But knowing that you can run games directly gives you a flexibility that a regular flash drive can't match.

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