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How to Upgrade Your Laptop's Hard Drive to an SSD

By
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There's no better way to speed up and upgrade a laptop than to replace its mechanical drive with an SSD (Solid State Drive). It's a no-brainer, but if the thought of reinstalling Windows 10 and all of your programs and then tweaking all of their settings gives you the chills, don't worry. In an hour or two, you can easily be up and running with a clone of your current system -- except now your laptop will have blazing performance.

Here's how to do it.

Before You Begin: Check Upgradability

The process of upgrading your laptop to SSD is fairly simple if you have easy access to your hard drive via a removable panel on the bottom of the laptop. If you have an Ultrabook or your laptop doesn't have that kind of easy upgrade access (e.g., the bottom panel is sealed), it's a whole different ballgame, and you'll need to consult your laptop manual for instructions on getting to that drive and finding the right replacement drive. Otherwise, this tutorial will help those of you with the removable panel through preparing your laptop, cloning your system, and making the big swap.

Find the right SSD form factor and interface. The other thing you'll want to check before you go out and buy a replacement SSD is your drive's form factor; you need to make sure the drive will fit in the laptop. Most laptops have 2.5-inch drives, but ultraportable notebooks may use the 1.8-inch disk size. Also, even 2.5-inch drives can have different thicknesses-- 7 mm or 9.5 mm-- and different interfaces (SATA or IDE, usually in laptops from 2008 or before). Laptops most widely use 2.5-inch SATA drives , but you should check your laptop manual or specifications to make sure you buy the right size SSD with the proper interface. Alternatively, you may be able to find this information by visiting Crucial's Advisor Tool or looking at your current drive's label: Open the access panel and look on the drive itself to see if it says 2.5-inch and SATA and what thickness you need. Generally, 7mm, 2.5-inch SATA SSDs will fit even in the 9.5mm slots and some come with spacers for a tighter fit.

What You'll Need

An SSD, of course. In addition to getting a drive with the right form factor and interface, you'll want to get an SSD with at least enough room for the Windows partition and any system recovery partitions. A 250GB Samsung SSD is currently about $89 on Amazon and a 500GB version is about $120. For most people, the 250GB drive should be fine, but the 500GB one offers more flexibility, for only a little more investment.

An external enclosure or adapter to connect that SSD to your laptop. For this how-to, we used a StarTech SATA external hard drive enclosure , although there's an updated USB 3.0 version you might prefer ($24 on Amazon). Either way, the enclosure comes in handy not just for connecting the SSD for the cloning process, but also afterward to turn your current drive, once it's replaced by the SSD, into an external one for backups and other storage.

Small Phillips screwdriver.

Separate external hard drive (optional). You might need this if you have large folders, such as photos and videos, that might not fit on your SSD, and also to create a full system backup at the start.

Prepare Your Current Drive for Cloning

First we need to do a little prep work on your current drive.

1. Make a full backup of your system. Create a system image backup in Windows 10 by going to the Control Panel (hit the Win+X keyboard shortcut and select Control Panel), then go to "Save backup copies of your files with File History" (under System and Security). In the left menu, go to "System Image Backup" to create a system image on an external drive or network location.
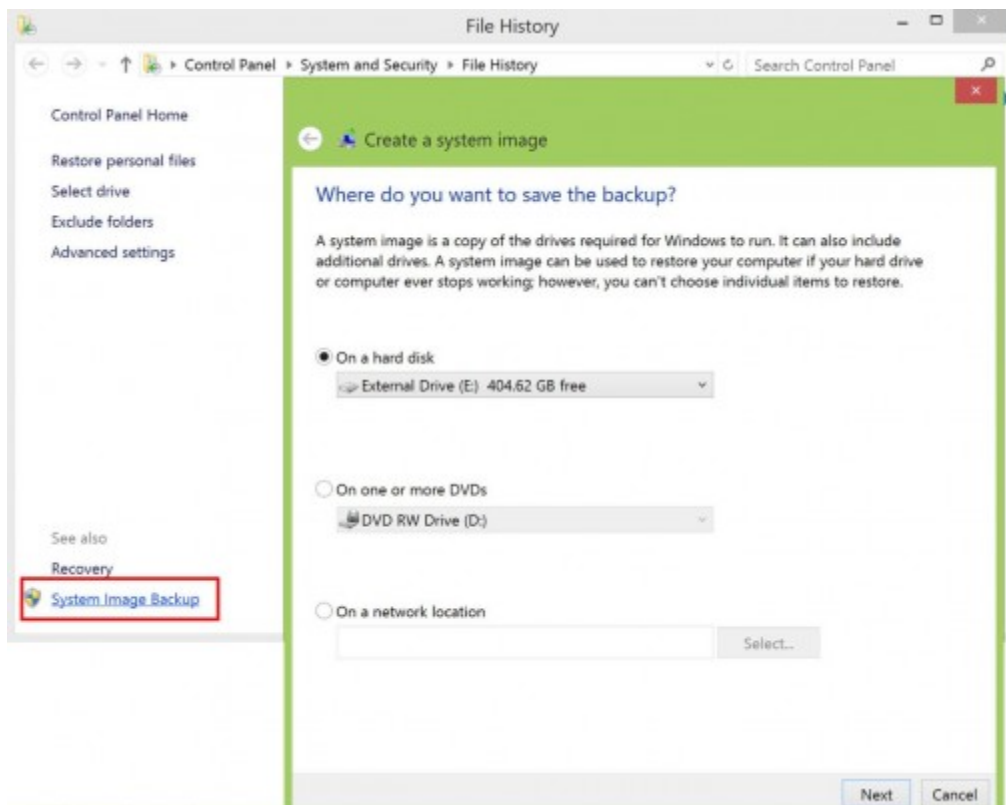
2. Move large folders that don't need to be kept on the SSD. Chances are your hard drive is larger than the SSD you are transferring to (for example, moving from a 500GB HDD with lots of media files to a 120GB SSD). If this is the case, move larger folders--such as those containing your photos, videos, games, and personal documents--to an external drive or other location to make enough space on your drive for cloning to the smaller SSD.

3. Clean up your drive for additional space. This is also the time to uninstall programs you aren't using anymore and delete unnecessary files that you don't want carried over to your SSD. Make one last uncluttering sweep with freeware CCleaner, which deletes old temp files and other space hogs, or at the very least run Windows' disk cleanup (in Windows search -- look for "disk cleanup," then choose "Free up disk space on this PC").

Connect the SSD

Now we'll get the SSD set up for the cloning process.

1. Physically connect the SSD. Place the SSD in the enclosure or connect it to the USB-to-SATA adapter, and then connect it to your laptop with the USB cable.

2. Initialize the SSD. If the SSD doesn't show up on your computer with a new drive letter, head to Windows' Disk Management tool. Bring up Windows search again and look for "disk management," then choose "Create and format hard disk partitions." In Disk Management, you should see the SSD as a new disk under your current one. If it says "Not initialized," right-click on the drive and choose "Initialize disk."
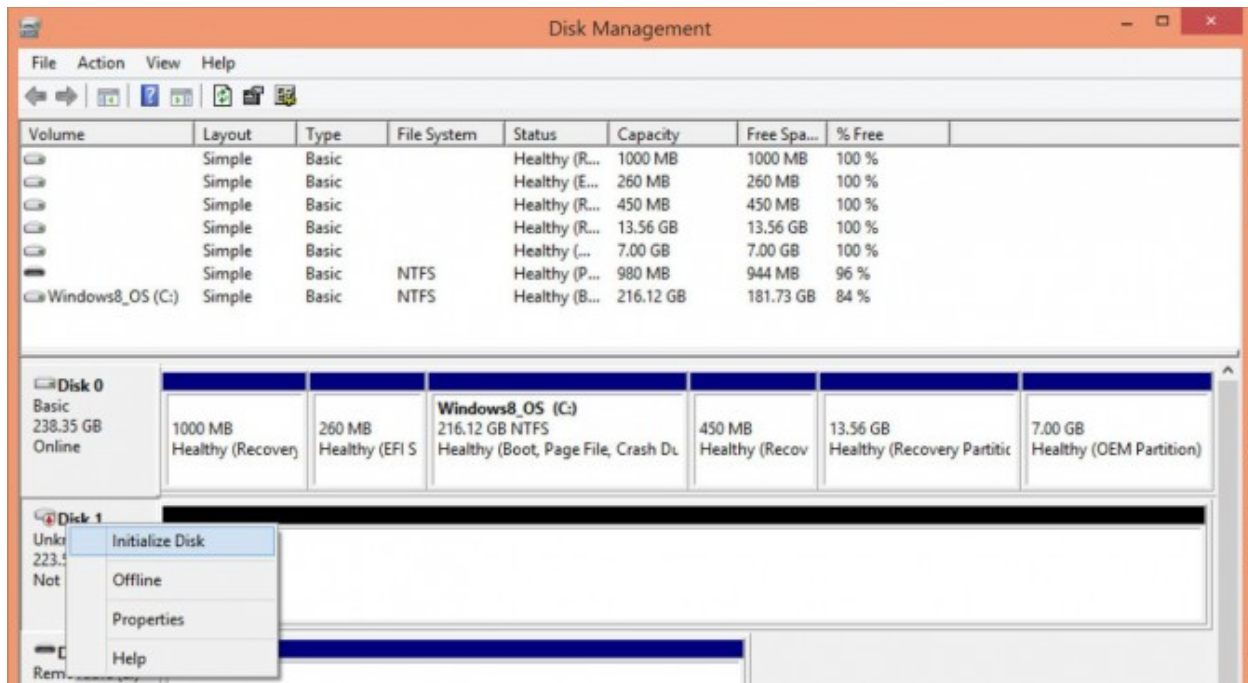
3. Resize the current drive partition to be the same size or smaller than the SSD. While you're in Disk Management, check to see if your current disk's primary partition (usually, C:, the one that has Windows and your installed programs) is larger than the SSD. If not, you'll need to shrink the partition so that it and the other system recovery partitions are smaller than the SSD. Right-click on the OS partition and choose "Shrink…"
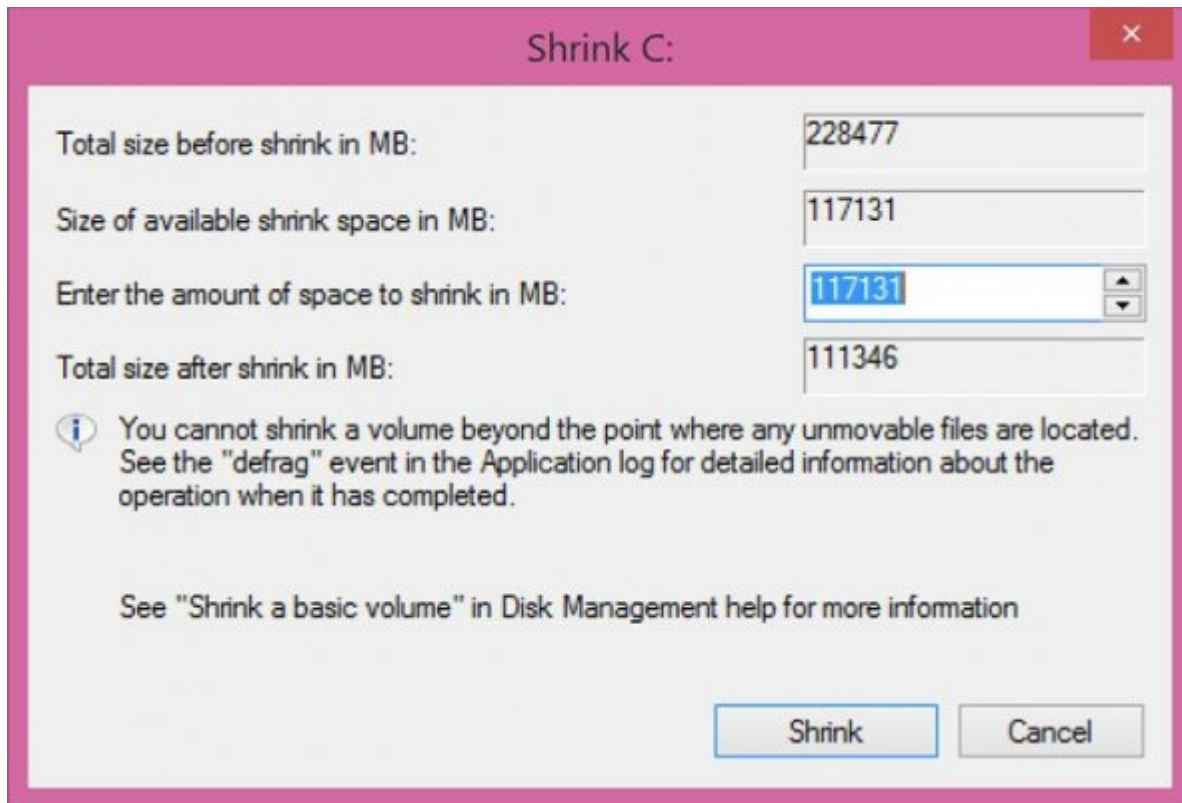
In the next window, leave the defaults and click "Shrink." This will resize the primary partition so it's smaller and leave the rest of the space as unallocated. Don't worry; during the cloning process, the cloning software will properly resize and allocate extra space to the main partition on your SSD.

At this time, you should restart your computer to make sure that the partition works before cloning.

Clone Your Hard Drive

Finally, it's time to clone your drive to the SSD.

1. Install disk cloning software. For this tutorial, we're using [EaseUS Todo Backup Free](#), which is free for personal use, has a user-friendly interface, and also optimizes the migration to an SSD.

2. Select the source and destination drives in the cloning software. In EaseUS Todo Backup, select the "Clone" option from the main menu. Follow the wizard to select your source disk (your HDD) and your destination (the SSD).
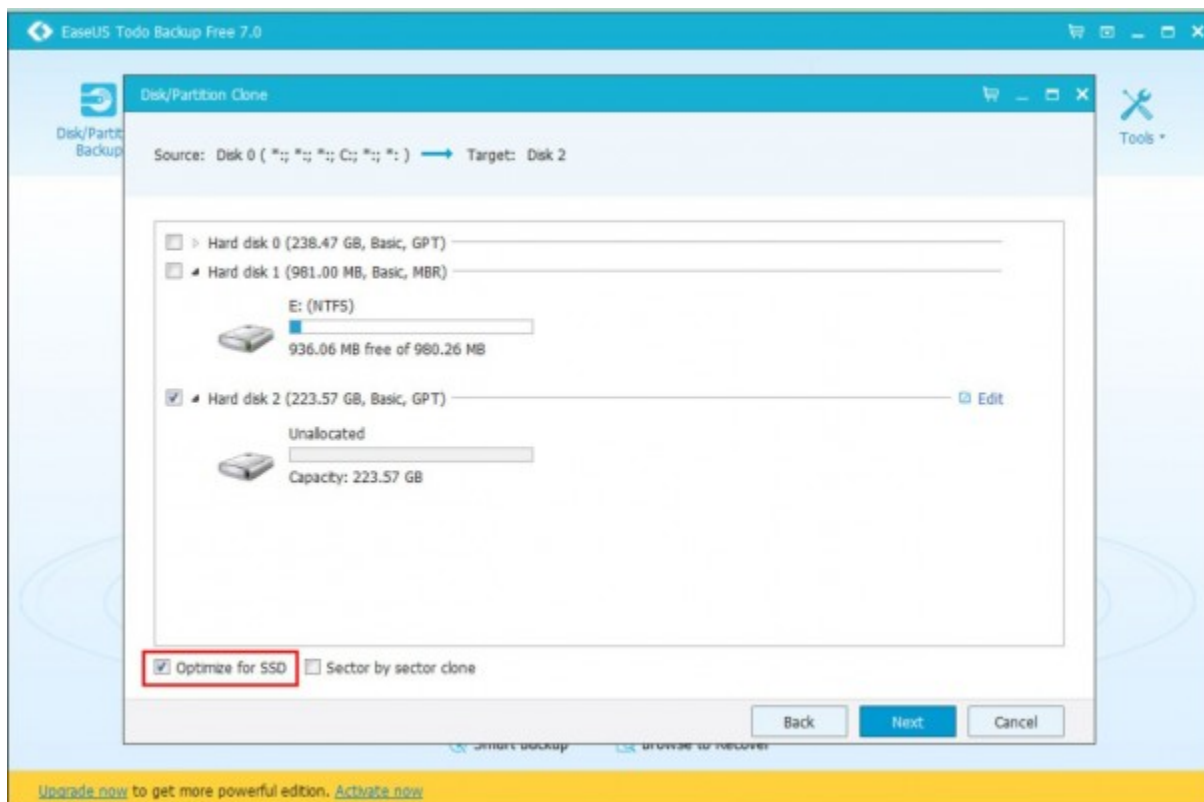
Note in particular that you should tick the "Optimize for SSD" option when you select the destination drive. This makes sure the sectors are aligned on your SSD and improves your chances of booting from the SSD after the cloning process. (EaseUS [notes](#) that it's not necessary to tick the "sector by sector" option, which copies every sector over, even if they're empty or bad.)

3. Review the layout and start cloning. In the next screen, you'll be able to compare the source drive with your SSD. As you see below, EaseUS automatically adjusts for different-sized drives by using the unallocated space on your current drive (which we created in step 3 of the last section).
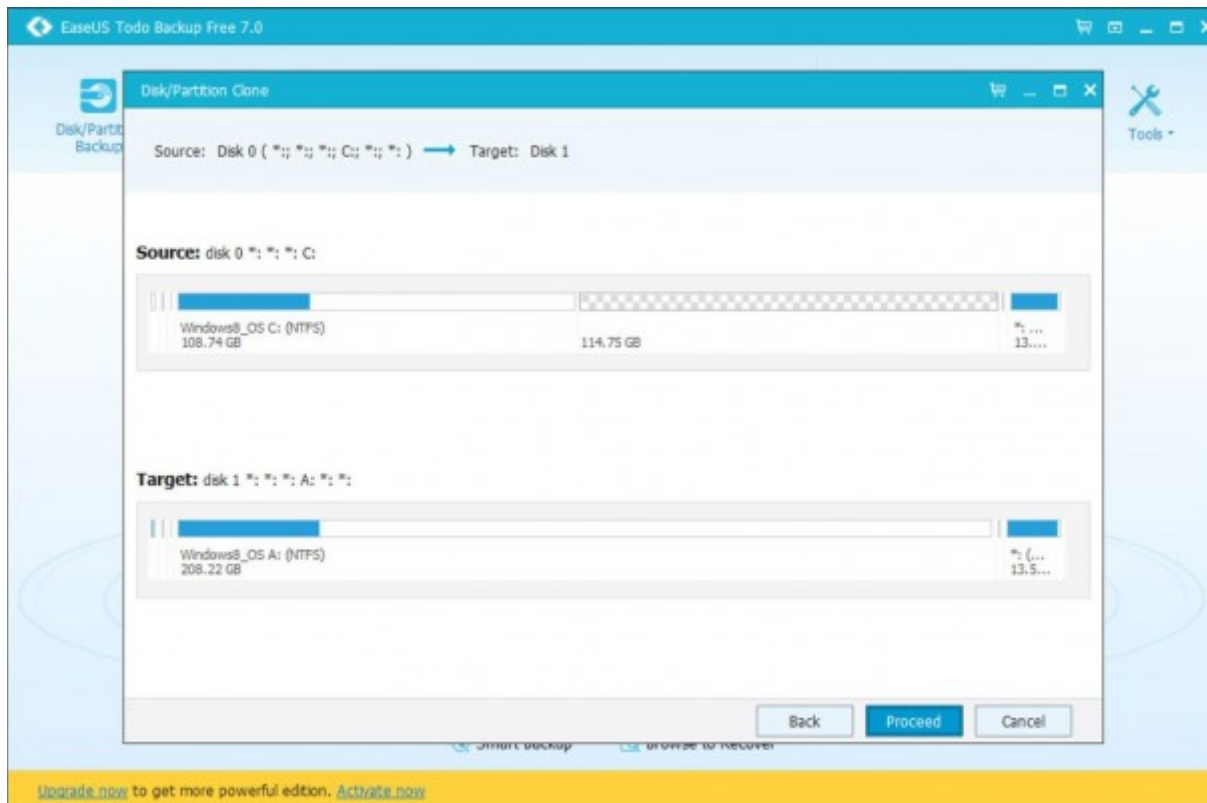
Click "Proceed" then choose "Shut down computer when the operation completed." This took us about 45 minutes to complete, but your mileage may vary.

Physically Swap Your Current Drive with the SSD

Now let's remove the old drive and install the SSD.

1. Turn the computer off and remove the back panel. Turn your laptop off and then disconnect both the power cable and any other connected cables -- including the SSD. Then unscrew the back panel and remove it to get access to your hard drive.

2. Look for any screws securing your drive to the laptop. You'll need to unscrew those before you can remove the drive.

**3. Lift the old drive up about 30 or 45 degrees and pull it out.**

4. In its place, install the SSD and put the back panel on. Install the SSD by doing the reverse of how you removed the HDD: Slide the drive in at an angle and push it firmly into place so it's fully connected to the interface. Then secure it with the screw you removed in the last step and, finally, screw the back panel covering the drive back on.

Boot Up with the SSD

The moment of truth: Turn your laptop on. If your laptop boots as normal and you see all of your programs and settings just the way they were before (except much faster), all went well.

For one final test to see everything went as planned, let's make sure Windows recognizes your drive as an SSD. Hit Win+S to search for "defrag" and select "Defragment and optimize your drives." In the Optimize Drives window, your drive should be listed as a Solid State Drive. Mission complete!
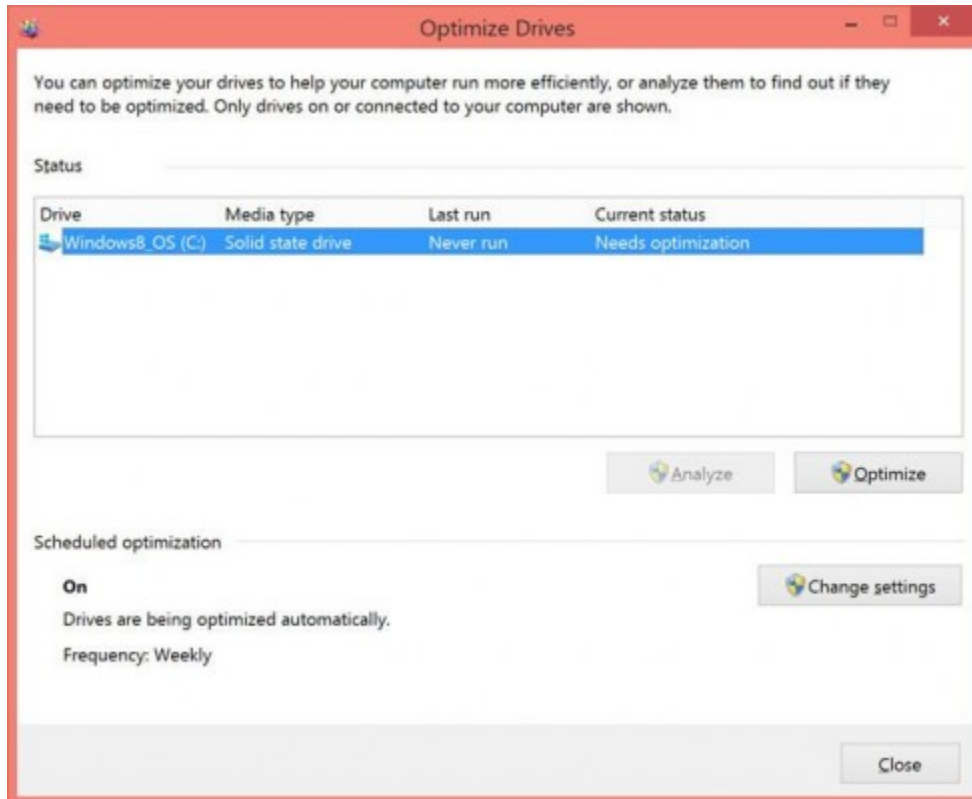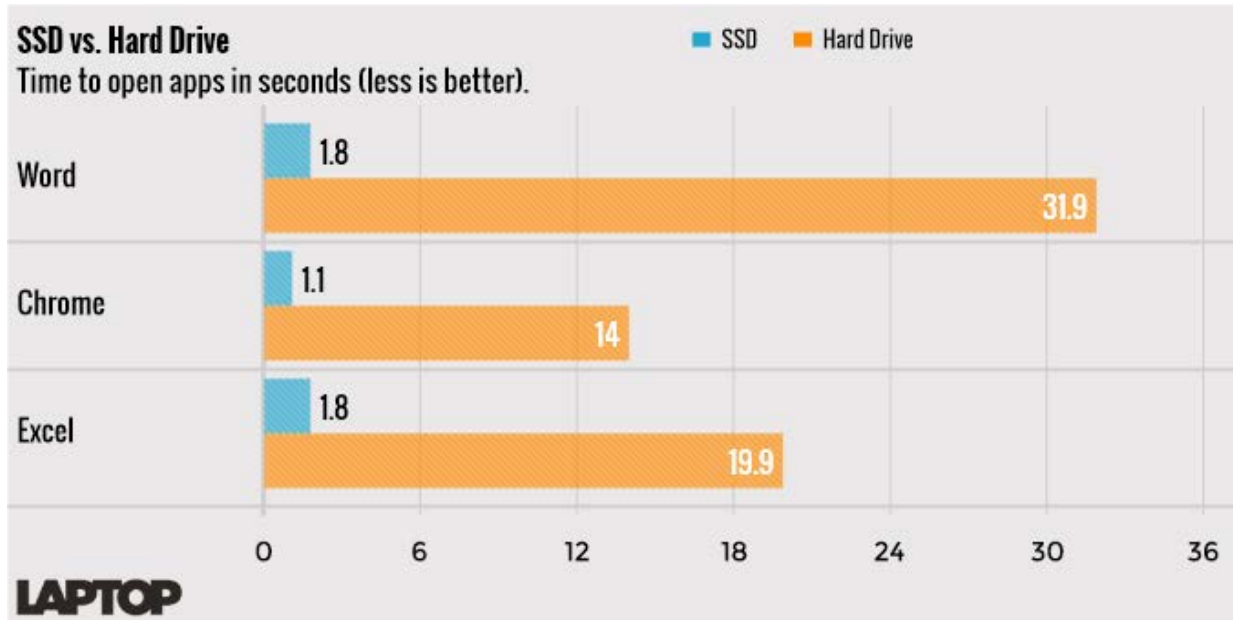

(By the way, SSDs should not be defragmented. Windows 10 knows this. If it detects your drive as an SSD, instead of defragmenting the drive, it will optimize it for the TRIM command, which improves the performance of your SSD. By default, your drive will be automatically optimized.)

You can now put your old drive in the enclosure and wipe it in Disk Management, perhaps moving your media files to this drive. Just make sure your automated backup system (you have one, right?) covers both your new internal drive and connected external ones.

Another way you can tell the migration worked? You're now booting up, launching programs, and multitasking so much faster than before.

Speed Tests: No Contest

To see just how much switching from an HDD to an SSD would affect performance, we timed how long a Dell Inspiron 15 5000 with 8GB of RAM took to open a Word document with one page of text, a blank Excel spreadsheet and a new instance of Google Chrome. (We ran each test multiple times and took the average.)

SSD vs. Hard Drive
Time to open apps in seconds (less is better).

■ SSD ■ Hard Drive

App	SSD	Hard Drive
Word	1.8	31.9
Chrome	1.1	14
Excel	1.8	19.9

0   6   12   18   24   30   36

LAPTOP

The 1TB, 5,400 rpm Seagate HDD that came with the Inspiron took 31.9 seconds to open the Word document, 19.9 seconds to open the Excel spreadsheet and 14 seconds to open Chrome.

With a 250GB Samsung 850 EVO SSD installed, the laptop opened both Word and Excel in 1.8 seconds and Chrome in 1.1 seconds.

Additional contributions by Andrew E. Freedman

Source: https://www.laptopmag.com/articles/ssd-upgrade-tutorial