

10 ways to keep hard drives from failing

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Hardware prices have dropped considerably over the last decade, but it's irresponsible not to care for the hardware installed on machines. This is especially true for hard drives. Hard drives are precious commodities that hold the data employees use to do their jobs, so they should be given the best of care. Inevitably, those drives will die. But you can take steps to prevent a premature hard disk death. Let's examine 10 such steps to care for the health of your drives.

1: Run chkdsk

Hard disks are eventually going to contain errors. These errors can come in the shape of physical problems, software issues, partition table issues, and more. The Windows chkdsk program will attempt to handle any problems, such as bad sectors, lost clusters, cross-linked files, and/or directory errors. These errors can quickly lead to an unbootable drive, which will lead to downtime for the end user. The best way I have found to take advantage of chkdsk is to have it run at next boot with the command `chkdsk X: /f` where X is the drive you want to check. This command will inform you the disk is locked and will ask you if you want to run chkdsk the next time the system restarts. Select Y to allow this action.

2: Add a monitor

Plenty of applications out there will monitor the health of your drives. These monitors offer a host of features that run the gamut. In my opinion, one of the best choices is the [Acronis Drive Monitor](#), a free tool that will monitor everything from hard drive temperature to percentage of free space (and everything in between). ADM can be set up to send out email alerts if something is amiss on the drive being monitored. Getting these alerts is a simple way to remain proactive in the fight against drive failure.

3: Separate OS install from user data

With the Linux operating system, I almost always separate the user's home directories (~/) from the OS installation onto different drives. Doing this ensures the drive the OS is installed upon will enjoy less reading/writing because so much of the I/O will happen on the user's home drive. Doing this will easily extend the life of the drive the OS is installed on, as well as allow you to transfer the user data easily should an OS drive fail.

4: Be careful about the surrounding environment

Although this seems like it should go without saying, it often doesn't. On a daily basis, I see PCs stuck in tiny cabinets with zero circulation. Obviously, those machines always run hot, thus shortening the lifespan of the internal components. Instead of shoving those machines into tight, unventilated spaces, give them plenty of breathing room. If you must cram a machine into a tight space, at least give it ventilation and even add a fan to pull out that stale, warm air generated by the PC. There's a reason why so much time and money have gone into PC cooling and why we have things like liquid cooling and powerful cooling systems for data centers.

5: Watch out for static

Here's another issue that should go without saying. Static electricity is the enemy of computer components. When you handle them, make sure you ground yourself first. This is especially true in the winter months or in areas of drier air. If you seem to get shocked every time you touch something, that's a good sign that you must use extra caution when handling those drives. This also goes for where you set those drives down. I have

actually witnessed users placing drives on stereo speakers, TVs, and other appliances/devices that can give off an electromagnetic wave. Granted, most of these appliances have magnets that are not strong enough to erase a drive. But it's a chance no one should take.

6: Defragment that drive

A fragmented drive is a drive being pushed to work harder than it should. All hard drives should be used in their most efficient states to avoid excess wear and tear. This includes defragmenting. To be on the safe side, set your PC(s) to automatically defrag on a weekly basis. This works to extend the life of your drive by keeping the file structure more compact, so the read heads are not moving as much or as often.

7: Go with a solid state drive

Solid state drives are, for all intents and purposes, just large flash drives, so they have no moving parts. Without moving parts, the life of the drive (as a whole) is naturally going to be longer than it would if the drive included read heads, platters, and bearings. Although these drives will cost more up front, they will save you money in the long run by offering a longer lifespan. That means less likelihood of drive failure, which will cause downtime as data is recovered and transferred.

8: Take advantage of power save

On nearly every OS, you can configure your hard drive to spin down after a given time. In some older iterations of operating systems, drives would spin 24/7 -- which would drastically reduce the lifespan of a drive. By default, Windows 7 uses the Balanced Power Savings plan, which will turn off the hard drive after 20 minutes of inactivity. Even if you change that by a few minutes, you are adding life to your hard drive. Just make sure you don't shrink that number to the point where your drive is going to sleep frequently throughout the day. If you are prone to take five- to 10-minute breaks often, consider lowering that time to no less than 15 minutes. When the drive goes to sleep, the drive is not spinning. When the drive is not spinning, entropy is not working on that drive as quickly.

9: Tighten those screws

Loose mounting screws (which secure the hard drive to the PC chassis) can cause excessive vibrations. Those vibrations can damage to the platters of a standard hard disk. If you hear vibrations coming from within your PC, open it and make sure the screws securing the drive to the mounting platform are tight. If they aren't, tighten them. Keeping your hardware nice and tight will help extend the life of that hardware.

10: Back up

Eventually, that drive will fail. No matter how careful you are, no matter how many steps you take to prevent failure, the drive will, in the end, die a painful death. If you have solid backups, at least the transition from one drive to another will be painless. And by using a backup solution such as Acronis Universal Restore, you can transfer a machine image from one piece of hardware to another piece of hardware with very little issue.