

Why do hard drives fail?

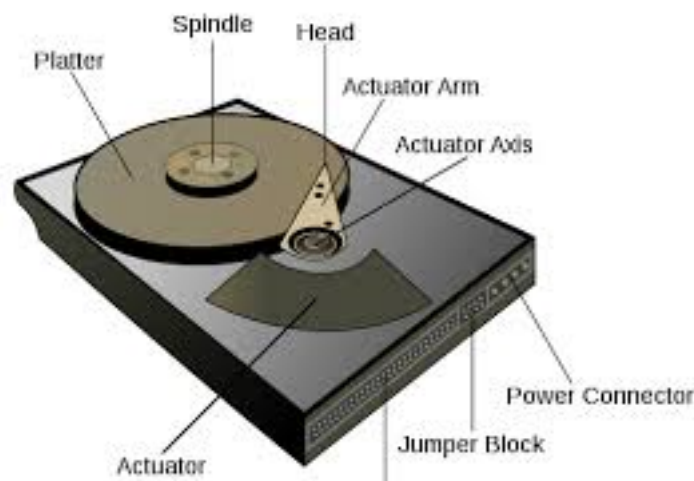
Posted on Oct 24, Posted by [Paul](#) Category [FAQ](#)

A hard drive is one of the few moving parts in your computer. Most components inside your computer are electronic with no moving parts. Whilst any computer is subject to electrical stresses (such as a power spikes), hard disks are subject to both electrical and mechanical stresses, which can each cause hard disk problems. This means that your hard disk is one of the most likely things to fail inside your computer.

Below is an overview of your hard disk and what symptoms may indicate hard disk problems.

What's inside your hard disk?

Hard disks store your data magnetically on metal platters. Your hard disk contain several platters that spin at high speed and heads that move rapidly back and forth to read data from and write data to the platters. The heads “float” a very short distance above the platters (so close that it looks like they are touching)



What are the types of hard drive failure or corruption?

Because hard disks are mechanical, they are subject to wearing out as all mechanical devices are. Approximately 60% of hard drive failures occur through mechanical failure, with 40% of failures generally are from misuse or accidental.

Hard disk failure or corruption may occur if any of the following happens:

- Your computer is bumped or dropped while it is powered on causing the heads to crash onto the platter surface
- The motor which spins the platters fails due to worn bearings or other components

- Extreme heat while running causes the hard disk electronic circuit board to fail
- There is a sudden power failure while the disk is writing
- A virus, malware, spyware or Trojan had deleted or corrupted your files.

There are two main categories of hard drive failure- physical and logical.

Physical failures are mostly likely due to a failure of the electric motor or the drive itself, but they can also happen because of a head crash (when the heads come in contact with the platters and damage the surface, usually as a result of being treated roughly or being dropped.)

Logical failures come from damage to the file system stored on the hard disk. Logical failure can happen if you have a virus / Trojan / malware or spyware, if you have accidentally deleted or moved some system files or the system driver for your hard drive has become corrupted. The computer will see the drive, but it probably won't boot into your operating system (Windows or Mac OSX for example), and if it does, your applications probably won't run or will freeze.

What are the warning signs of hard drive failure?

All computers can have different problems, but symptoms that could be a warning sign of a hard drive that has failed or is failing are:

- Grinding or scratching noises while the computer is running
- The computer powers on, but will not boot into your Operating System
- Freezing or error messages during the boot process
- The computer runs slowly or freezes and you have to do a hard reset
- Files are missing
- Saving and opening documents slow down considerably
- You receive a disk read or write error from your operating system
- If your hard disk is equipped with S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology), there will be entries in the S.M.A.R.T monitoring software that can warn you of problem

Can I get my data back off failed hard drive?

Depending on the type of damage, there are several techniques we can do to diagnose and attempt recovery of your data.

If you suspect your hard drive is possibly failing, you should seek professional help as soon as possible. We don't recommend that you try and recover data yourself, because attempting this without experience in data recovery, you will likely overwrite your data or cause more damage.

In order to prevent data loss in the case of hard drive failure, you should run backups regularly. There are many backup utilities available that can automate this process so it doesn't have to be a chore or something that you might forget to do. You should also periodically do a test restore of your data to ensure that your backups are working correctly.

If you have any questions in regards to this article, need assistance diagnosing a possible hard drive failure or setup of backup software, please contact our friendly team who are always happy to help.

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