

Prevention of Hard Disk Failures and Delete Protection

Prevention of Hard Disk Failures

Hard drives are the main data storage areas of a computer. There are many delicate electrical and magnetic instruments in a hard drive. For the purpose of maintaining these hard drives, it is important to understand their working. The hard drives contain a read/write head and a spindle motor. This head receives electrical impulses from the CPU and writes the information onto the hard disk clusters through a magnetic field. Any kind of tampering with this equipment or with the computer in general can damage the head and cause it to crash. This damages the drive permanently.

To prevent such type of damages, do the following:

1. Ensure that computers are packed neatly while transporting them from one location to another.
2. Avoid installing your computer in a movable panel.
3. Keep it away from dust and moisture.
4. Electrical disturbances in the form of spikes and surges can cause interference to the electromagnetic field around a read/write head. Keep your computer away from such disturbances.
5. Switch off the computer and unplug in case of lightning or other natural disaster.
6. Always shut down the computer after selecting shut down from the start menu. Improper shut down can damage the hard disks since the hard disk floats on a cushion of air below the head. Accidental or abrupt shut down can cause the two to collide. This can be fatal for a hard drive. Run scan disk utility for countering this problem.
7. Another major cause of disk failure is cluttered file system. This happens as new files saved onto the disks are often arranged in incongruous sectors. The problem can be solved by running the Defrag application. The normal life span of a hard disk is believed to be 5 years to 20,000 working hours. Protection of hard disks is not always possible. In these cases, you can save your data to an external flash drive. Also, maintain regular data backups and replace drives regularly. Since hard disks suffer maximum threats from read/write heads, ensure that these are in excellent condition always.
8. Sudden temperature and humidity changes can spoil the hard drive beyond repair. The head may suffer from condensation and this leads to data loss. If disks have been redundant for a long time, high temperatures may lead to sudden evaporation of disk surface material. Much software is available to ensure drive safety. Many advanced packages like Stellar Shield - Hard Drive Data Protection Software, Stellar Backup- Backup Files and Folders in a Click and Stellar Smart Monitor Hard Drive Performance are available to prevent hard disk failure and minimize the impact of crashes.

In case of disk failure, never try to run any repair utility without professional guidance. In any case, always shut down the system if you feel confused or lost. Use the appropriate disk recovery software. If there are strange noises in your hard disk or if there is any evidence of physical damage, immediately pack your hard drive and send it to the nearest data recovery lab. Remove any stray piece of hardware and immediately uninstall any corrupt hardware or applications.

The above precautions can help you to extract maximum output from the hard drive as well ensure data protection. Advanced file system and increasing need for space puts constant pressure on hard drives. You should ensure correct fragmentation for reducing this. Hard disk losses can be even more

costly than data losses. Hence, preventing them from failure can alone ensure complete data protection.

MS Windows Delete Protection

Microsoft has included an Undelete command in MS-DOS 5.0 and later versions. With this feature, you can recover files (even entire directories /folders) accidentally deleted by you or by any other 16-bit application or program. It offers three levels of protection, as described below.

Delete Sentry

It provides the highest level of protection by creating a hidden directory named sentry to record copies of deleted files. When you delete a file, Undelete moves the file from its current location to the Sentry directory without changing the record of the file's location in the **file allocation table** (FAT). When you undelete the file, this directory is used to copy back the file to its original directory. Sentry can use up to 7% of your disk space to store deleted files. If this limit is exceeded, it will remove the oldest files to make room for the newly deleted files.

Delete Tracker

It provides protection by using a hidden file named PC-Tracker.del. This command just stores the location of deleted files. It allows you to recover the file if you have not written over it, i.e., if their location on the disk has not been taken over by other files. It requires very less disk space unlike Sentry.

Standard Undelete command

This is available from the DOS prompt. It allows you to recover the file if you have not written over it. It does not require any disk space.

The steps to use Undelete command, in case of an accidental deletion, are:

1. Immediately shut down Windows, and reboot in MS-DOS mode.
2. Use the Undelete tool

For example, if you know the name of the directory you want to recover files into, just run:

```
UNDELETE C:\YOUR_DIRECTORY_NAME\*.*
```

This will undelete all files in the given directory.

Note: Files/folders erased by a Win32 (32-bit) application may not be undeleted this way. You have to use the built-in Recycle Bin or some other third-party file/folder restoring tool.

Exercise:

1: What is disk failure and how to prevent from failure?

2: What is the use of undelete command?