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## Hard drive data recovery

### Hard Drive Crash? The Essential Data Recovery Report

By Greg Duffield

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Your worst nightmare just became a horrifying reality. You keep hearing that little voice in your head mockingly shout “**you should have backed that stuff up**” The voice keeps echoing throughout your head as you perform a quick inventory all of the important information that you just lost.....your client database, a years worth of e-mail, your entire inventory database, even your family photos.

Even worse, you’ve got a deposition in two-weeks and key information needed to help win the case were also lost. You quickly call a service technician and have them come over to check the computer out, only to hear the worst news of all....your data has been lost. When a hard drive crashes, it’s **too late** to worry about what you “should have done.”

#### What is hard drive data recovery:

Today data recovery is a multi-million dollar industry. The number of data recovery firms out there seems to exceed the number of fast food restaurants for the entire planet. These companies specialize in helping their clients retrieve data on anything from hard drives to flash-roms.

In the following report, we will discuss what data recovery really is; the different types, the costs, and what you can realistically expect when it comes to getting your hard drive data recovered.

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## What To Do In The Event Of Data Loss?

Around **44%** of all data loss is caused by hardware failure. It's important to make sure that you immediately shut your system down if you suspect that hard drive has crashed.

Don't even try to go through the shutdown procedure, just pull the plug from the wall. Do not try to run off the shelf data recovery software or drive utilities.

Many times these applications will assume the drive is functioning properly and will increase the risk of permanent data loss.

## Types Of Hard Drive Failure.

When we discuss *hard drive data recovery* in this report, we will primarily focus on issues surrounding hard drive failures; since these types of failures are most common. There are really two primary forms of failure in a hard drive, logical and physical. Logical failures are usually a result of file-system corruption. This can occur due to a virus, accidental deletion of key files or registry components, and in some cases even electro-static discharge. In most cases where a logical failure has occurred, the drive is still recognized by the system BIOS, but it will not boot. In most cases, your data should still be intact on the drive, even though it may appear to be inaccessible.

If the system BIOS does not detect the presence of the hard drive, then chances are a physical failure has occurred. Physical failures can result from a wide variety of causes.

There are really two sub-categories for physical hard drive failures; mechanical and electronic. Mechanical failures usually result from a failure of the spindle motor. Spindle motor failure can result from excessive heat due to a bearing failure. The increased heat resulting from the bearing failure will expand the drive shaft and therefore seize the spindle motor. Suddenly, your drive will become inoperative. Occasionally, you will get a warning that something bad is about to happen. You may hear a loud whining, a grinding noise, even high-pitched screeches. If anything like this starts to occur, **BACK UP YOUR DATA IMMEDIATELY.**

Another physical issue that sometimes rears its ugly head is an electronic failure. If you look at a hard drive you will notice a circuit board on the bottom. This board is basically the brains of the drive, and it is where the computer interfaces to the hard drive. An electrical failure can occur unexpectedly at any time. Even brand new hard drives are not totally immune to having electrical failures. Sometimes it's just a faulty component, sometimes it's improper installation (i.e. electro-static discharge, grounding out the board, damaging circuitry during installation). It's important to also keep your system clean and well ventilated, since excessive heat can damage the electrical components on the drive. If you have a system that is in a somewhat contained area, you may look at adding an additional 80mm fan to cool the internal components of the system, especially the hard drive. No other component of a computer works as much as the hard drive, and therefore it is vitally important not to overlook it when cooling issues arise. A simple step

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like this can help against needing hard drive data recovery services...

## How Is My Hard Drive Data Recovered?

One of the most often asked questions that customers ask is, "how do you get my data back?" Well, it's really not black magic or rocket science. It's just a matter of having the right tools and the knowledge necessary to know what to do, much like a surgeon performing heart by-pass surgery. Many prominent data recovery facilities have a large array of hardware, software and tools for recovering data.

Generally speaking when a hard drive is received by a data recovery firm, the first thing they do is evaluate it, and determine what recovery solution will be necessary. If the drive failure is a logical issue as mentioned earlier, then a scan of the drive will be performed to try and repair the file system corruption. Sometimes a partition can be repaired and the drive restored to the status that it was before the failure. If this is not possible, then a very low-level scan will be performed that essentially searches every sector of the hard drive for files. Once the files are located, they can then be copied to the media of choice, i.e. a CD-ROM, DVD-ROM or another hard drive. Logical recoveries can take up an enormous amount of time, especially if the drive is on the verge of physical failure. It's not uncommon to allow for one day of scanning and a day for recovering the found files.

If the drive has suffered a physical failure, then the recovery procedure is quite a bit more challenging. As mentioned above, there are really two sub-categories of physical failure; mechanical and electronic. An important element in recovering data from a physical failure is having the necessary parts to get the drive functioning again. Unfortunately with hard drives if you have a 20GB Maxtor Hard Drive for example, then you will need another identical 20GB Maxtor Hard Drive for salvaging parts. In cases where the electronic circuit board has failed on the hard drive, then you have to have the exact same circuit board on hand in order to retrieve the necessary circuit components for replacement. Many times you cannot even exchange circuit board for circuit board. These repairs generally require soldering skills and a thorough knowledge of electronics to be successfully completed. You will most likely hear "**Class100 Clean Room**" thrown around a lot when talking to data recovery professionals. Simply stated, a Class100 Clean Room maintains exceptional air purity, and contains less than 100 airborne particles larger than 0.5 microns in each cubic foot of air. This is vital in protecting sensitive internal components of hard drives. Anytime a hard drive is having an invasive procedure performed on it, a Class100 clean room or better is needed.

The time frame for recovery is generally 5-10 business days for physical issues and 2-4 days for logical issues. Sometimes if components are not readily available, then it may take weeks to complete the recovery. Some firms offer expedite service and you definitely pay for this added attention.

## What About Hard Drive Data Recovery Software

This is one area where you really do get what you pay for. Try to stay away from

software in the \$20-\$60 range, since these utilities are generally very limited in what they can do. Also make sure that you **NEVER** and just to emphasize, **NEVER EVER** get data recovery software that writes anything at all to the damaged disk. You run the risk of overwriting data that may otherwise have been recoverable, but will be lost forever. If you are fairly computer savvy, then there are a few good data recovery software solutions available.

### **What To Look For When Shopping For Data Recovery**

There's an old saying, "you get what you pay for." In most cases this is true. However, just because a company with a fancy website quotes you \$3,500 for data recovery, does not mean that they are any better than a company that quotes you \$1,500. Also, try to stay away from companies that want to charge \$50-\$300 for evaluating your drive. There has been a movement in the data recovery industry over the last couple of years to offer a number of free services. Most reputable data recovery companies will evaluate standard IDE drives free of charge; so don't let the word "free" this or "free" that stop you. The hard drive data recovery market is quickly becoming saturated, and a company does not necessarily cheapen itself or lack expertise by offering free evaluations.

You will find as you shop around for data recovery that prices vary greatly. You will get quotes that range from \$300 to \$5,000 for standard hard drive recoveries. It's not uncommon to literally get quotes that have at least a \$1,500 high/low spread. We shopped one prominent data recovery company where we gave them specific indicators of a physical hard drive failure. We were eventually quoted a price range of \$600 to \$2,900 for the recovery. Many times this is a bait and switch type tactic. They get you to send in the drive with the low-end \$600 price, then they let you know it's going to cost \$2,100 for the recovery. You end up being well under the \$2,900 high-end price, but well over what other reputable companies would charge. Since most customers won't go through the pain of having the drive sent back, only to have to send it out to another company, these bait and switch companies end up making huge profits off of unsuspecting customers.

Try to find a company that will give you an up front cost for either a logical or physical recovery. Most companies will be able to tell you within a couple hundred dollars the cost of a recovery. However, don't misunderstand a company that gives you a price for two different procedures. For example, some companies will give you a price if the failure is logical and a price if the problem ends up being physical. We called one firm and were told that if the drive had a logical failure the price would be \$400 and if it ended up being a physical issue the price would be \$1,600. This is not a high/low spread as mentioned in the earlier example, this is simply quoting a price for two different types of recoveries.

On average you can expect to pay anywhere from \$400 to \$600 for logical recoveries, and \$1,200 to \$2,000 for physical recoveries on standard IDE hard drives. If you have RAID drives, SCSI, etc. depending on the configuration prices can be as high as \$15,000.

Remember, backup backup backup backup backup!!

## Can My Data Be Recovered?

In most cases the answer to this question is yes. On average, the success rate for data recovery professionals is about 75-85%. However, there are times when the data is just lost, either due to extensive damage to the platter or unavailability of replacement parts.

## How Do I Get Started?

If you have a hard drive that has crashed, the most important thing you can do is contact a data recovery professional immediately. Make sure you aren't being charged an evaluation fee if you have a standard IDE hard drive. Most companies only charge evaluation fees for complex RAID and network server drives.

You will find links to various data recovery firms on this page. We do not support or endorse any of them, but they are listed for your convenience. It is important to do your homework, call and talk with the companies. When you find one that you feel comfortable with, give them a chance. Your hardest job, may be finding data recovery firms that actually have someone available to answer the phones. Ask questions and be sure to have the following information available:

- Size of the drive
- Operating system (i.e. Windows 98, Windows XP, etc.)
- Situation of failure (what happened just before the drive stopped working)
- Is the drive recognized by the computer's BIOS or not

Good luck in getting your hard drive data recovered, and make sure you always backup your important information on a daily basis. For more information visit: <http://www.acsdata.com>

Greg Duffield is the founder of ACS Data Recovery. ACS specializes in providing hard drive data recovery services for clients around the world.

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**Charlie - Carmel, Indiana US**

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