

# Computer hard drive data recovery



PREVENTING DATA LOSS

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# **1. WHAT IS THE COMPUTER HARD DRIVE?**

Virtually all desktop computers and most other types of computers have a hard drive or hard disk drive. Some have more than one. Any device, from video recorders to cell phones, may have hard drives. These devices have one important task. They store the information on your computer. All of the changes in your computer on a daily basis, even a minute by minute basis, are stored on the hard drive. This is a permanent form of storage.

For anyone that knows what it feels like to lose data, though, you may be wondering why the hard drive failed you? How can something that is supposed to be permanent actually cause you to still lose information? Before we can explain this, it is important to consider how this drive works.

A hard drive is able to remember things even after the power has been turned off on it, whether on purpose or by accident, power failure or other failure.

## **THE BASICS OF HARD DRIVES**

The hard drive is called "hard" as a way of comparing it to the floppy disks that were once used. You may have used them during the early days of household computers. They have a hard platter. This platter holds the magnetic medium. This is different than other forms of storage. For example, in a VCR tape, you have a film or floppies have a plastic film.

The data stored on these hard drives can be easily erased and then rewritten over. They can remember the data for years to come, too. They can also monitor changes in the computer.

Hard drives are mechanical devices and unlike a tape or a CD, they are actively writing and rewriting data. They are subject to all types of rapid breakdown, which could lead to the lost information and data.

## **FILE SYSTEMS IN HARD DRIVES**

Think of your hard drive and operating system as a file system, similar to one you may have in a file drawer in your office. The file system is the method that the operating system uses to arrange both data and free space on the hard drive. This system allows for data to be written and read on the hard drive when necessary. To keep things organized, the system uses partitions (like the file folders) which creates areas of free space. Generally, everything is placed where it should be. The problem comes when for some reason, data is put in the wrong location or it is placed over the top of something else that is there.

Imagine that the file system is organized by folders but only one file can be placed within that folder. If something else is placed there, the original item may be lost. In addition, if the data is placed in just any folder, the company may not remember where it is placed. This often causes a lost file.

The File System is organized. There are several types of systems including these:

- File Allocation Table or FAT
- NT File System or NTFS
- CD File System or CDFS

Each of these file systems have a specific way of recording the files that are stored on your computer. Each file is stored on the hard disk, in most situations. The file system being used has a unique way of categorizing and organizing this, through an entry method that contains the details of the location of the file. It notes the region of the hard drive that the file was

stored. Understanding this location is what helps any type of data recovery system to work, to pull up any lost data you may have from a damaged hard drive.

So, if the hard drive saves the data for you, and does such a good job of tracking changes, how in the world does data get lost?

Many things can lead to a loss of data, and as you will learn, you may not be able to prevent all of them from happening. However, what you can do is improve the effectiveness of your system to avoid any amount of trouble you can.

## **WHY IS DATA LOST?**

You may have heard that your hard drive data is not safe. This is true. There are many reasons why things can go wrong and that data can be lost, altered or damaged. The biggest problem for data protection is the human. People use hard drives so much that they expose them to a wide range of problems on a regular basis.

While it is an outstanding advantage that hard drives are so easily erased and alerted, this benefit also works against them.

Here are the top hard drive failures and data loss causes. First, let us talk about the actual failure methods:

### **1. Firmware**

### **Corruption:**

One problem occurs when the firmware is corrupted. The firmware is the found within the hard disk and it controls the hard drive. When a failure happens, the operating system does not interact with the hard drive, leading to the data loss. Often, repairing the firmware in this case can improve the problem.

## **2. Mechanical**

### **Failure:**

When the internal hard drive components fail to work properly, this is a mechanical failure. This could be any of the intricate pieces of the hard drive including the read/write head, the spindle motor, the disk platters and so on. When any of these pieces of data stops working, the hard drive cannot be reached and therefore data you are trying to find is unable to be located. Often, the best indication of this occurring is a clicking or scrapping sound coming from your hard drive.

## **3. Logical**

### **Damage:**

Here, the problem is not with the components that make up the hard drive but rather the logical portions of it. Common problems include invalid file allocation table entries and the entire file system being corrupted. This type of problem is often seen when you cannot access the data on your computer. Or you may encounter error messages while trying to access the data.

## **4. Electrical**

### **Failures:**

There could be problems with your hard drive circuit board, which would lead to electrical failures. If there is a power failure to your computer system, this could do damage to the logical board of the hard drive. This makes much of the hard drive undetectable. You may notice this problem if the hard drive does not spin (you should hear this) when it is turned on. If the hard drive does not spin as it should, due to the electrical shorting, the drive is not recognized by the computer's operating system.

Why does this happen? There are many reasons:

- You may have saved two files to the same location, overwriting the first copy.
- You may have deleted a file mistakenly.
- An electrical storm caused a surge through your computer.

- You lost power without warning (or saving) your data first.
- Your spill coffee on the computer.
- The hard drive falls, breaking.
- Poor maintenance simply leaves the hard drive vulnerable to any of these conditions.

Generally, if you cannot locate or access a file that you need, the first reaction is to panic. But, before you do that, there are several things you can do to improve the situation. In many of these situations, the data that you think is lost can actually be located and saved.





## **2. HOW DOES DATA RECOVERY WORK?**

To understand how data recovery works, let's explore what happens when you delete a file in your hard drive file system.

First, when a file is deleted, it is taken off the list of files that you, the user, sees. The File System makes a notation of this. It will note that the region where the file was located can now be used to store another file as needed. In other words, the file is not necessarily wiped out. In fact, the file continues to exist on the hard drive. But, instead of being labeled as a usable file for you, it is now labeled as "free space."

It is important to know how this process works, since data recovery methods often are geared towards using this system to retrieve any lost files you may be searching for. Look at this example.

Consider an example of the paper file folders that we used before. You have a drawer full of file folders, labeled as needed and storing documents for you. You decide you no longer need to use File A. You do not pull the file from the filing system, but leave it there, so that down the road you can use the folder for something else. In this example, you have not pulled out the documents contained in File A. Rather, you plan to do this later, when you need to replace the contents in File A with some new content down the road. But, you note that the file is no longer important and you can use it for something else.

This is the same that happens with the File System in your hard drive. The actual document or file is not pulled from the registry. Rather, it is written over when it becomes necessary to do so. The data remains in

deleted in that you cannot easily find it. But, the data is still on your computer but now is labeled as free space on your computer.

The only time the data will be lost, in this situation, is when there is a new piece of data written over that location. Keep in mind this is not as simply as naming a file. In other words, your hard drive and operating system control which area of the hard drive will be used for any file you save. It is not the same as the filing system located under "My Documents" in your documents, for example.

## **WHAT THIS MEANS FOR DATA RECOVERY**

Data recovery is made easier because of this system. Let's explain.

Let us say that this system was not in place. If you deleted a file accidentally, it would be instantly lost for good. No amount of searching would find it. But, this is not what happens. You have some time in which the data lost to you can be retrieved.

When the data is freshly lost, your chances of finding it are greater than if you wait some time before finding it. Data recovery specialists, programs (and sometimes you) can locate the data that has been lost simply by scanning through the free space on a computer, pinpointing the location and retrieving it.

It is important to note that not all lost data can be retrieved. If there was a permanent error or the hard drive was extremely damaged, it may be impossible to access these files at all, let alone looking at the free space located there.

## **LOCATING FILES ON YOUR OWN**

It would be great if the free space of your hard drive was easy to access and scan with the naked eye, but that rarely, if ever, is possible. It is often best to use a professional service, or even a top quality program to help you to retrieve this lost data. There are a few things that you can do to try and locate your damaged files, though.

One of the simplest of things that you can do if you have lost data on your computer is to run a scan of your computer. For example, perhaps you saved a file and just can't figure out where you put it. Alternatively, you saved it from a download, made changes to it, but no longer can find it. These are instances when you can do some of the legwork yourself.

Here is an easy method to scan your computer, if you have lost a Word document or something similar, on a Windows operating system.

- Open up the start menu of your computer.
- Locate the "search" icon listed there. If it is not located there, you should be able to find it under your list of programs.
- Input the file name of the document and allow the search to find it for you.
- If you do not know the actual file name, you can enter just some words from the file name and the search should perform well.
- In some search functions, you can enter unique words from within the file as well, and it will scan all files on your computer to locate it.
- A list of files that seem to relate to your search will show up. Choose the appropriate one, open and then resave the file as you wish to save it.

You can use this method to search for just about anything you need including:

- Pictures
- Music
- Videos
- Documents including word processing documents and spreadsheets
- Other types of files and file folders
- Computers and people

The process is effective for most basic needs. It can take some time to work through, though since most computers have thousands of files in them.

This process will work if the file is simply lost. If the file has been corrupted but you can find it, this search will not work for you.

Another option you may have is to look through all of your files on your computer. You can access much of this through the "open" feature on the document or program you wish to locate the information. Be sure to be very careful with doing this type of search yourself. It can lead to a number of problems if you make changes to files that are working to organize and control your computer.

A specific tip: If you have downloaded something from the Internet or your email, it may end up in your "temporary file folder" which is located in your files. This file can be hard to navigate but you are likely to find these files located in this position.

## **WHEN YOU NEED MORE HELP**

The above mentioned method of file and data recovery is simplistic. It will not work for all methods of data recovery you may need at some time. If this method does not work, you should pursue additional help.

Professional computer specialists can work with you at home, such as through an Internet connection. You can also take your computer in to them to have them investigate the problem. There are various types of programs you can download and run on your computer to find the missing information.

Do you need extra help? In these situations, you do:

- You cannot find the files otherwise.
- You are receiving an error message when you try to open the file.
- Your computer has had damage to it.
- You need to find something more than just a file, such as a lost program.
- You are concerned with further damaging your File System.

In any of these situations, it is best work with a professional to get the data restored.

Carbonite is an online backup service you should checkout. This online backup service will store our valuable data off site at their location in a secure datacenter. This is one of the cheapest and most secure options for you to fully backup your data.

# **3. DATA RECOVERY SOFTWARE GUIDE**

One of the options for getting help with your data recovery is to use software. If you do a quick search on Google, you will find hundreds if not thousands of programs to select from. As with buying any type of software, you should always consider what your options are and buy only when you learn which the best product is.

Software is very subjective. Some forms work with only specific conditions while other programs cost more and seem to provide different services. Most people who are buying data recovery software do not know a whole lot about the components that make up File Systems and operating systems. This is when it becomes confusing and frustrating to find solutions. How do you know what to buy?

Earlier we mentioned several of the problems that cause lost data. Some of these are able to be repaired through data recovery software, while others may need professional help.

Generally speaking, data that is lost can be recovered quickly if the hard drive has crashed, has been damaged, or has been effected by natural disaster. This includes overwriting problems, virus losses, natural disaster loss, power surges, physical damage to the computer or to the hard drive and similar types of problems.

When selecting a software program, first consider what it can do for you. The following is a checklist to help you to choose only those programs that can help you to get your data backup.

## **1. How do you want the device to be accessed?**

Some software programs can be downloaded to your computer and

used in that form. Other programs allow access to your computer through an Internet connection. The software then works through this connection to fix any problems for you. Some people are not willing to use programs that allow them to be vulnerable to an internet connection while others are leery about downloading spyware or viruses from the program.

## **2. What caused the lost data?**

This is often an important component since some software programs are tailored only to specific causes. Here is a list of commonly caused issues that you should specifically select programs for:

- a. Clicking errors
- b. Corrupted files
- c. Corrupted drives
- d. Deleted data
- e. Accidental dropping of the hard drive
- f. Driver won't mount
- g. Hard drive failure
- h. Fire damage
- i. Natural disaster damage
- j. Other physical damage
- k. Power loss
- l. Power surge
- m. Reformatting
- n. Computer crash
- o. Upgrade failure or damage
- p. Virus
- q. Water damage

## **3. What type of operating system does the computer have?**

Many programs are tailored to specific operating systems, including Windows, Macs, Linux and so on. Select software that is capable of working with your operating system or is specialized for that operating system, for the best possible results.

4. **What details are there?**

For example, what type of application is lost? What type of drive is being affected? Be sure the proper software is selected based on these key factors.

5. **What type of device is it?**

Believe it or not, more devices than personal computers struggle with these data loss failures. Smartphones, laptops, mobile phones, digital cameras, hard drives and servers are some of the options you can select from.

Once you have ensured that the data recovery software will work for your specific data loss needs, you have taken the first step towards fixing the problem. Still, you may have several different options to select from in these programs.

**EXAMPLE**

You may find that a software program will list the features and functions that it performs. Here is an example of what one of these programs may offer:

- Will recover files from an emptied recycle bin
- Will restore files after a partitioning error
- Disk recovery after a hard disk crash
- File recovery after a mistaken formatting
- File recovery after reinstalling Windows
- Recovery from external hard drives including USB, Zip, Floppy Disks, camera code, or other media.



This example shows that this particular software product can help in some situations and for various needs. Most of these software programs will specifically list what it can do for you. Unfortunately, many leave out what they cannot do well, leaving you to figure out if it can help you. For this reason, you should investigate the product thoroughly and look for a software program that specifically states it can help you with the problem you are experiencing with your system.

## **DO SOME HOMEWORK**

More than just looking at the features and options offered by the data recovery software, you should also spend some time learning about what others think about the product.

Reviews of software programs are incredibly helpful. They outline not only what experts think about the product and what the manufacturer states about it, but also what the experience real users have had with the software.

The following is a list of websites where you can access key reviews on the products you need for data recovery.

- **TopTenReviews:**

The company, [TopTenReviews](#) offers a number of reviews of these data recovery products. The company clearly explains why they believe these programs are the best options available. It is an easy to use guide, too.

- **Recovery**

**Review:**

This company, [Recovery Review](#), provides excellent reviews of the software available. They show screen shots and give you the specifics of the product. This is a definite user website for finding data recovery software reviews.

- **CNET:**

[CNET](#) is one of the top review websites for electronic, computer and software products. It is well respected.

With these reviews, there are several things to look for. The more information you can gather, the better your purchase results will be.

Look at the data recovery features the product offers including if it offers:

- Recovery of compressed files
- Recovery of encrypted files
- Recovery of networks
- Creating image files
- Email recovery services

Look at the locations it will recover files from. Most software programs will offer most of these, but not all.

- Recycle bin recovery
- Damaged file recovery
- Formatting and F Disk recovery
- Virus caused loss recovery
- Power failure recovery
- Restoring data from unbootable hard drives
- Partition damage or deletion recovery

And, of course, be sure it works with the file system your system has and the drive that you have lost data on.

Look closely at reviews from third parties or actual users. Ask yourself, if they are rating this product lowly, why? Is it because they did not

follow the steps to using it nor do they have valid complaints? It is important remove the emotion from such research.

Users can often give you an excellent view into how effective the product was for them. They can tell you a number of things that are helpful.

- Was the program simple to use?
- Did the download also download spyware onto their computer?
- How long did it take to restore the file or lost data?
- What result did they have? More so, did they have a result?
- Did they have trouble paying for the service or downloading it to their computers?

After comparing all of your options from these reviews, you should be able to make a decision on which software program is right for your particular needs.

## **COSTS RANGES**

Keep in mind that the cost of software for data recovery will range widely. It can range from as low as \$50 up to several hundred dollars, depending on what it offers.

Some programs offer various features and add on services that could increase the price of the software, too. For example, some software programs can remain active on your computer, ensuring errors are fixed as they happen or being readily available to find lost data for you at any time. Other services may run just one time. Membership fees and upgrade fees can be tacked on over time, too.

Be sure you check out the manufacturer of the software, too. Just like buying a pair of jeans, the difference from one program to the next may just be the name brand attached to it. Still, buying from a trusted manufacturer may make you feel better about buying the product.

## **THE IMPORTANCE OF HELP**

Before moving on, it is important to state that any data recovery software product you download or buy should come with extensive help. Help and instructions may be necessary in some types of data loss. For example, if the problem was not what you thought it was, how do you try a second option? Or, what if one recovery option fails? What should you try next? With help files and documents, you can choose your next move wisely.

Most software programs will come with some type of documentation to help back them up. They may also provide a range of Frequently Asked Questions or FAQ for those to help you through the process. Look for these features:

- Is there any type of document that can be printed off or viewed online that can detail the process of using the software?
- Is there a troubleshooting guide for instances when you have trouble? Problems may happen during the download process or even when the software is being used.
- Does the software offer any type of detailed website where information and resources can be found and used by someone who purchases the software?
- What about a customer contact number? For those situations when the program does not work, does the software offer any help to you? Most will offer a customer service tool that can

answer your questions but the better companies will provide a phone number so you can talk to a real person about the program.

Also, what type of guarantee is offered with the program? Most software programs do not offer extensive warranties or guarantees since there are so many situations in which there is no help possible. However, if you purchase a program but never download it, you may be able to get your money back. It is important to read the Terms of Service before using any of these services. A guarantee should also promise that no spyware, malware or viruses will be downloaded with the product. In other words, you want to ensure that the software is not going to track any of your activity online. Look for a specific statement in the Terms of Use or on the company's website promising this!

## **WHY GO WITH SOFTWARE ANYWAY?**

Data recovery software is quite helpful when it comes to retrieving data. It is also one of the best tools for doing this quickly since you can use the software right at home (and even download it within minutes.) Here are a few more benefits of using data recovery software over other recovery options.

- The process is automated. You do not have to spend hours trying to look through files yourself. This is the other option in some cases. More so, because it is an automated process, you do not have to pay a professional data recovery specialist to do the work for you.
- As with the top reason, another reason to use software to get the data recovered is that the software is far less expensive than trying to hire a professional. You will pay hundreds of dollars for someone to do the work for you. However, it is just \$50 or so to download the software and to restore the data.

- You also do not have to wait days or weeks for the process to be done, which is common if you have to take the computer in to your professional. They may have a long list of people in front of you. Most people do not want to wait hours let along days to get their hands on their lost data.

- You may be able to repair many of the damaged files and corruptions without having any real knowledge of how to do this. These software programs go into your system, pinpoint what they are looking for and restore it for you. You do not have to have any type of working knowledge of the process to see this through.

- Most data recovery software programs work on all types of problems and they are ideal for both internal and external drives. More so, they can address issues that are too complex for most people to handle. If you do not know how your data was lost, purchase a top quality data recovery program and use it.

- The programs are very easy to use, too. You simply will download it to your computer and it will give you step-by-step directions. In some situations, you can purchase a hard copy that can be sent to your. In either case, once the software is downloaded, it asks simple questions and begins the work for you.

## **TOP PROGRAMS TO CONSIDER**

Without any affiliation with these products, here are some programs offering data recovery that you may wish to consider for your needs. Of course, it is very important to shop for products that fit your needs first, not just choosing any recommended here.

1. DT Utilities Digital Rescue: This is an easy product to use, with good features and the lowest price point.

2. Recover My Files: A bit more expensive, this program is still very user friendly with comprehensive features for data recovery.

3. Data Recovery Wizard: A good product priced in the middle of the road. It offers recovery of compressed files, encrypted files and create image files.

4. Disk Doctors Windows Data Recovery: This is a much more expensive product and should be purchased for those with needs that are more extensive. It tackles email lost data and works with systems that are more extensive.

5. Handy Recovery: Easy to use and well priced. It does not offer as many features and its search capabilities are slightly lower, but this software program still will benefit most users.

These are just a few of the many data recovery software programs available to you. Look at the features, the way it works and the types of data that can be restored.

Once you have selected the right product, you just need to purchase it and download it onto your computer. This process can take some time, depending on the speed of your Internet connection.

If your computer is not working properly, or you are having extensive problems with your computer, you should not download software to it. In this case, it is best to work with a professional to recovery any lost data, if it is possible to do so. There are few benefits to downloading new software if what is already on your computer is not working. Some software programs can help, if they run through a website with little to no required downloading.

On the other hand, you may not be interested in having to deal with this type of situation. If you feel that just getting a professional to do the work for you is the best route to take to restore your data, go for it.





## **4. WORKING WITH A PROFESSIONAL**

There are situations when working with a professional in data recovery is simply the only way to go. It is not always possible to local files on your own, or through the aid of software. There are situations when the contents you are looking to recover are too valuable to risk further damaging the files, too.

In these situations, hiring a professional to help you to uncover the lost data is the right way to go. These professionals are readily available to work with you, in several different ways.

#1: Hire a professional to work with you over the Internet.

#2: Hire a local professional to handle the data recovery by coming to your home or you taking your computer or hard drive to them.

#3: Send your computer or hard drive to the service.

In any of these situations, your likelihood of having the data recovered is high. It is never possible to guarantee that data can be retrieved but in many instances, if it is possible, these data recovery services are the best way to go to find it.

Professional data recovery can cost more than software. Professionals may charge by the hour or by the project, depending on the complexity of the situation. Since every case is different, it is always best to ask for a quote upfront and then agree on the pricing prior to the project getting started. If you are concerned that the company is not giving you a fair price, consider comparison-shopping with several companies, requesting quotes from several. Some allow you to obtain a quote through an email online.

## **POTENTIAL DATA RECOVERY SERVICES OFFERED**

Each company is different. Large and small independent data recovery professionals often provide a list of the services they do offer. The following are some of the services you are likely to find available to you.

- **Hard Drive Data Recovery:**

Hard drive data loss, usually from a hard drive failure, is one of the most commonly offered and needed services. This service often encompasses most of the situations we have discussed thus far. Technicians can work to alleviate the problem especially in situations when you cannot get into the hard drive any other way.

- **Server RAID or NAS Data Recovery:**

When RAID server problems occurs in the storage system, there are services that can unravel these problems for you. A common problem here is a simple outage. In these situations, it is best to work with a professional service rather than trying to make these repairs on your own. Look for a Certified RAID recovery specialist. These services are often stated on the company's website.

- **Tape Media Data Recovery:**

Often, companies use tape media as back up to other services they have. In addition, when those tape systems become a problem, finding a data recovery specialist is critical. They can often handle any problem labeled as "inaccessible." Check what types of services the company offers including such storage elements as DAT and DLT.

- **Portable Device Recovery:**

Portable devices are holding more and more of the important data of our lives, both business and personal. Items like USB, MP3, iPods and other portable devices are consistently used to store information

and they too can wind up with a loss of data. Imagine having an all important conference call stored on a Smartphone, for example. Some data recovery specialists handle these types of circumstances. If you have an electronic digital device with any type of storage on it, it is best to use a professional service to access or repair that data.

- **Laptops and Notebooks:**

Like personal computers, these systems have a hard drive where data can be lost. Failures and outages are common problems, but most hard drives can be accessed. It is not hard to drop the laptop or to allow it to be exposed to the elements, all situations that could cause data to be permanently lost. Most professional data recovery companies offer laptop and notebook services. More are offer netbook solutions as well.

- **Database, SQL and Exchange Data Recovery:**

For those who use these services, the most common problem is damage from a server failure or actual physical damage to the disk. The hard drive itself could be broken. These types of problems are significant and hard to repair yourself. Call a professional who can access locked files or suspect backup files. Data lost on these may be such things are backup data that is unrecognizable by the data engines or deleted records.

As you can see, the extensiveness of these professional services is definitely helpful. You can call a professional for any reason you have lost data.

## **IS WORKING ONLINE OKAY?**

Many times, the fastest and most convenient method of getting data recovery from a professional company is with an Internet connection. In short, they can log into your computer from wherever they are located. This

can be a benefit since it allows you to communicate with these professionals quickly to get the problem solved.

Keep in mind the importance of working with a professional company that you trust. You should go through the same review process listed in the last chapter for software. In other words, make sure you look for the right company, with the services appropriate for your particular need and one that is rated highly.

By far the most important consideration when working over the Internet should be that the company works over a secure server. Ask them about this. Most companies detail the security they offer to you on their website.

In addition, some companies will allow you to chat with professional data specialists over the Internet through their website. This works much like any other type of instant messaging. These professionals can help you to understand what the problem is, offer some basic advice and even a quote for the data recovery needs. This is a simple and fast way to start the process.

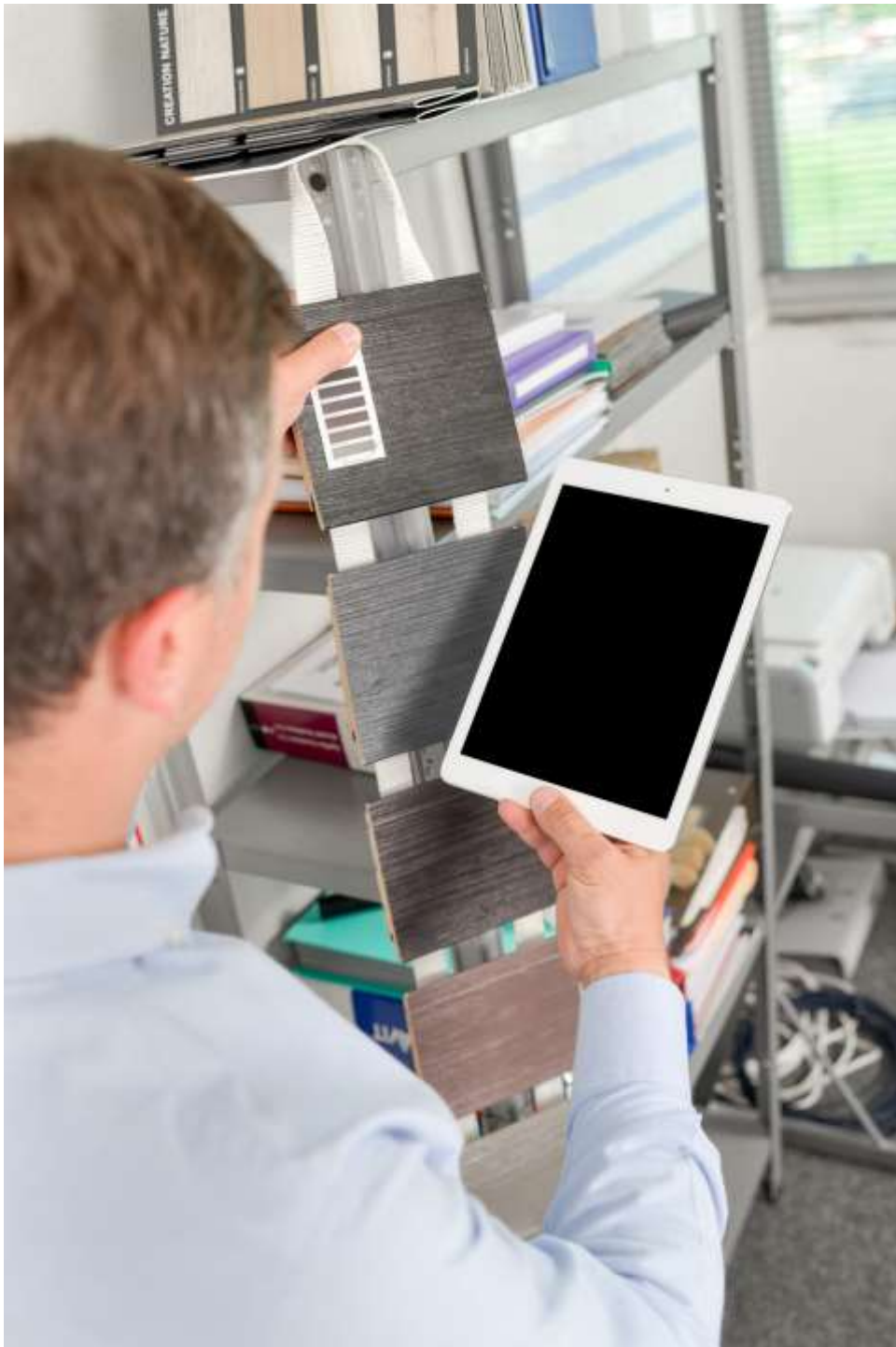
## **DO YOU NEED THEM?**

If you are spent some time using software or trying to locate the data you have lost on your own, without luck, call a professional. Here are some instances when you need their services.

1. You have failed to restore the lost data yourself.
2. Your hard drive is in a fragile state.
3. You cannot get into the hard drive at all.
4. You have a more complex problem that any of the above solutions have yet to help.
5. You need advice on what could be wrong.

Getting a quote for service is often the best first step. Not only do you learn what it will cost you to have the process completed, but it can also give you an idea of what could have been done to protect yourself from the problem in the first place.

We will provide more on that in just a few minutes.



## **5. REPAIR TIPS TO USE FIRST**

There are some situations in which repairing your hard drive is something you can do on your own. The following is a guide to some of the methods of quick repair you can try first.

### **RECOVERING IMAGES AND REPAIRING FILES**

If you have lost images or sounds from recordings, cameras or computers, these can often be found. Use a program to access those files specifically designed for use in this way. In other words, get a photo recovery service or software program.

### **REPAIR WORD AND EXCEL FILES**

You may be able to recover some of these files. Microsoft has a built in file repair tool that you can use. To locate it, follow these steps:

- Go to File
- Click Open
- Select the damaged file from the list that pops up
- Click the area on the right side of the Open button  
(located at the bottom of the window that opened)
- Click "open and repair" from the drop down menu.

Another problem with Word and Excel is with the installation. If you have installed it, but when you open the program, it fails to work properly,

you may need to repair the installation. You do not have to uninstall it, though. Rather, use the repair utility that Microsoft provides for you. Here is how to use it:

- Open the control panel, which is usually located under your start menu.
- Then, click "add or remove programs" (In Windows XP) or "uninstalled a program" in Vista.
- Locate the Word, Excel or Microsoft office program listed here. It may be called any of these names.
- Click on the "change" button.
- Here, it gives you the option of uninstalling the program or to repair it. Choose repair.
- It will take you through a series of prompts to ask you which programs you wish to repair.

Word and Excel files are the most commonly lost or error prone files since humans often name and label them. These steps can help with most errors.

## **LOST, MISSING OR DELETED FILES**

One of the most common reasons people need data recovery services is to help them to recover files they have lost or accidentally deleted. One of the first things you should do is to realize that you could make it worse. First, do not run any type of software that is designed to save files to the hard drive. Or, if the files are saved on any other device, such as a USB flash drive or memory card, do not use those drives or run any files which may save to it.

The reason for this is simple: you could inadvertently overwrite the missing or deleted file. Instead, here are some tips to help you to get to the file.

1. Check your recycle bin first.
2. Another option is to use the "when was it modified option?" located under your Start menu, and under "Search". If you have Vista, follow this process: "Start" "Search" then click the down arrow next to "Advanced Search." Select the "dated modified" from the "Date" drop down menu.
3. Use the "undelete utility."

This will not work in all situations. For example, if the hard drive has been reformatted, it will not work. In these situations, or when the above tips do not work, it is best to use data recovery tools from a specialist or software program to further help you search.

## **LOST PASSWORD HELP**

There are many reasons why you may lose your password. Often, computer programs allow us to "save" or "remember" the password and we rely on that feature. Then, one day, something changes and we need to verify it. Unfortunately, you have no idea what the password was.

Do you have a BIOS password? This is a good way to help protect your computer from other users (this feature does not allow anyone to use your computer unless they type in the password first.) However, what happens when you lose this password? Before you become frustrated, here is a tip for recovering this password.

To reset the BIOS password, located the small electrical switch that is located on the motherboard. This is often called the "jumper." You probably should spend some time checking your computer's owner manual before attempting to do this for the first time. It is critical you identify the jumper properly.



If you want to get past the Windows XP log on password, you can do so fairly easily. If you have forgotten this password, restart your computer. During the start up process, just before Windows starts, press the F8 key. Then, check the Advanced Options Menu where you can select "Safe Mode." This will bring up a screen with a variety of icons, usually one for each of the users on the computer. Next, you should log into the "administrator" account. You can usually do this by leaving the password field for the account blank. This will allow Windows to run. Once open, locate the Control Panel and select the icon "User Accounts." You can then reset the password for the account quickly. Unfortunately, this will not work for Windows Vista since Microsoft repaired this breach before the operating system was released.

## **RECOVER WINDOWS FUNCTIONALITY**

There are times when the amount of supposed data loss is incredibly, including the loss of functionality with Windows. This often shows itself at the worst times, but there can be some help for you. If you have turned on your computer then saw a few bits of information run across your screen and that is it, no Windows logo being displayed, you may panic. The blank screen that follows is quite worrisome.

You may not have to reinstall Windows to return your system to health. Here are a few steps that can help you through this process.

1. Restart the operating system in Safe Mode. To do this, as the computer turns on and begins to run, hit the "F8" key.
2. The configuration screen will look like a black screen with white lettering (in most cases.) Click on "Last Known Good Configuration" in the menu. Press Enter to access it. This will allow all of the settings to reload from the last, successful launch of Windows.
3. That may get the Windows operating system up and running. If not, you can follow the same steps and open the "Advanced Options Menu" after hitting F8 during rebooting. Then,

enter Safe Mode again. Not all of your operations will work in Safe Mode, but this is a good thing since if Windows loads that means one of the services or drivers not initialized during the start up process is to blame.

4. Locate the problem using the Windows System Configuration Utility. There is a wizard and guide to using it, located under Microsoft's Help and Support Pages online.

A similar problem will occur when Windows is working, but not working properly. You notice a change but you do not know what caused it. The best option here is to restore Windows to an earlier setting. The Windows System Resort will pull back your system to a previous setting, therefore fixing the problem you may have had.

To restore your system, you will need to choose a restore point, or a point where you wish to take your system back. As you will see in the next chapter, it is always good to back up your data. This would have created a restore point for you. If you have not done this yet, you can see restore the system using one of the restore points created by Windows. Note, you should always create restore points yourself whenever possible.

To do this, follow these steps:

1. Turn on the computer and click the Start menu. Then, choose "All Programs."
2. Under All Programs, you will find "accessories" and then "System Tools." Under the System Tools menu, you will find the "System Restore" link.
3. Then, click "Restore my computer to an earlier time." Then, click the "Next" button.
4. This pops open what looks like a calendar. Any of the dates that are bolded are points where you can restore your computer to since Windows has created them. If none are listed, click the previous month's calendar and select a date from that point.

5. Click the "next" button and follow the prompts to restore the computer. This process can take some time, and you may lose some settings. However, it should help to get Windows running properly.

After your system is restored from either of these situations, back it up.

## **PRODUCT KEY LOCATION**

There are times when you need to access the product key to a software program or other application. Product keys are critical in any situation where you need to reinstall the software onto your system. The product key is often lost, though, since it is usually on a piece of paper that comes with the disk. Many people mistakenly throw them away. This could be costly.

Unfortunately, you will not be able to get the product key information from the software program on your computer. Very few programs will allow you to access this information directly.

If you do lose the product key, but you have registered the product at the time of purchase (or any time thereafter), you can call customer service of the product manufacturer and request the product key. This is usually no problem if you have registered.

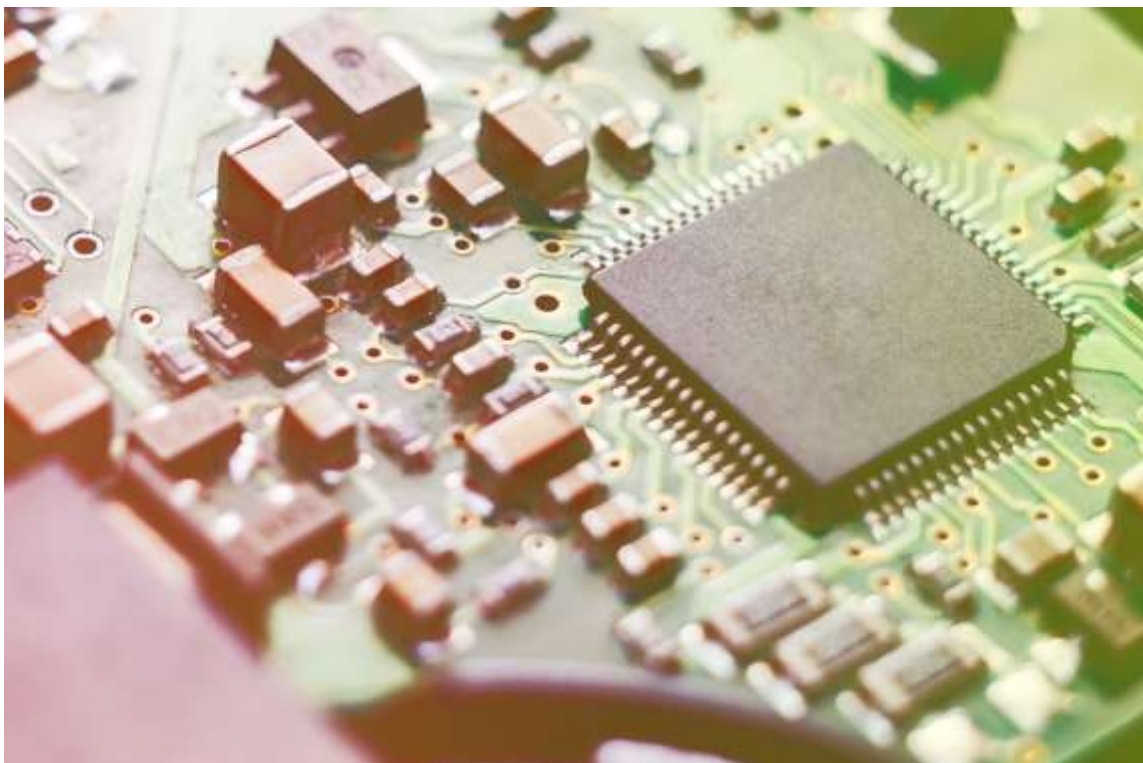
If you did not register the product key, things get a bit more difficult. Some companies will allow you to get the product key (or a new one) if you can show proof that you purchased the item. This may be the original installation disk or a receipt of purchase. Even if you have this information, you will likely have to take various steps to prove that the product was purchased by you.

A tip for you to avoid this problem: When you purchase and install any type of new software to your computer, use a black permanent marker and write the product key directly on the top of the installation CD. This way, you will have it with you at any time.

## **SUMMING UP**

Data recovery software tools can help you to locate much of what you need, as can professionals, even if these tools listed here do not work for you.

These tips can help you to restore much of your lost data from your computer or hard drive. There are no guarantees that you will be able to pull this information from your computer, though. It is often a better option to protect your data beforehand, on a regular basis, so that you never have to be worried about losing it completely.



# **6. PREVENTING DATA LOSS FOR NEXT TIME**

Sure, at this point, you have data that is lost and the last thing you want to hear is that you could have prevented losing that data in the first place. There is nothing like an all important file that goes missing to be a good reason to get your data storage and back up in check again. In this chapter, we look at the various ways you can prevent any data loss in the first place.

There are various methods you can use to prevent data loss from occurring again. Let's take a look at some of them.

## **USING A SECOND HARD DRIVE**

One of the best ways to prevent losing your data from your computer is to protect it from the evil viruses and problems that commonly lead to the data loss in the first place. You can do this through using a second hard drive.

Let's say you are using a word processing program to write up a report for your college professor. When you save that report, it will likely save under your "My Documents" location in the file folder system. This seems like a good place to save the information but it can be treacherous, especially if this is the only place that you are saving data. There are several reasons why this is not the right place to put all of your saved files: software failures and virus problems.

In both of these situations, and others that affect your operating system, having your data in these files simply locks them away from you. In

some situations, the only thing that can be done is to reformat the hard drive which also means reinstalling the operating system. As you can assume, this also means anything on the hard drive prior to the reformatting will be gone.

The best option, then, is to install a second hard drive on your computer. The good news is this is not a costly solution. Now does this help if it is located within your computer?

- A virus attacks your operating system and files. Anything on your initial hard drive is wiped out, but the secondary hard drive is untouched.
- The operating system fails or the hard drive fails itself. The second hard drive is still working and protecting your data.
- The files on your hard drive are corrupted. The second hard drive is not affected by the corruption.

If you end up with a situation where the hard drive, operating system and even the computer itself fails, you can remove the second hard drive and put it into your new computer. As you can see, having a second, internally installed hard drive is one of the best solutions.

Some may not want to buy or install an internal hard drive. If you are unfamiliar with working on computer hardware, this is not a problem. You can instead purchase and use an external hard drive. Most of these external hard drives can be installed to your computer (or removed) quickly, usually through a USB port.

When buying an external hard drive, it is best to look for one that will have scheduled backups planned for it. You can also find hard drives that allow you to back them up quickly, with a one-touch sensor.

When buying an external hard drive, be sure to consider the size you need. A larger size can help to ensure all of your data is easily stored on the

hard drive. And, like any other type of computer hard drive, you do need to maintain it as external hard drives can be overwritten accidentally as well.

## **BEWARE OF DISK BACKUP**

Five to eight years ago, it was common to insert a floppy disk into your computer (or even a CD version) and allow the data on your computer to be copied to it, as a form of backup. You can still do this, but before you count on this method, it is important to note that some computer manufacturers are not including floppy drives on computers anymore. This may be an add on feature, though expensive, that can be added.

## **TRY THIS BACKUP**

One of the best ways that you can backup your data is to use a company's product that is well known and trusted. One of the best on the market right now is Netgear's NAS line. NAS, or Network Attached Storage, is an award-winning device that many businesses and personal users take advantage of.

There are actually several products here, all of which can be quite beneficial to the right people. In short, these products are storage systems. You can store your data here, share it with others and protect it from any type of data loss or from other people. This system also allows you to centralize files, from various locations. The files can then be shared from one computer to the next and even can be accessed offsite.

There are several products to choose from:

- **ReadyNAS Pro Pioneer Edition:**

This is a great choice for those who are looking for top quality at home storage. For home users, this is a very fast system and it is highly reliable.

- **ReadyNAS**

**Pro:**

This is a good option for both the small business and the at home user. It is a smaller version than the Pioneer Edition.

- **ReadyNAS**

**NVX:**

This system is the company's fastest. It is probably the best option for those looking for ultra protection and efficiency. This very capable device offers a four bay storage system.

You can find out more about Netgear's line at their website:

[www.Netgear.com](http://www.Netgear.com).

## **PREVENTION METHODS**

Having backup storage as we mentioned previously is incredibly important. It is the single most important method to protecting your data from any type of loss. Having two copies, one on your hard drive and one on a second storage device is optimal. It protects you from not only losing your data but also paying large fees to have that data located and restored for you.

In addition, there are several things you can do to improve your computer's ability to protect data. Not only are you protecting your data from being lost, but also the computer as a whole. For example, a surge to your computer could burn more than just the data, potentially requiring a replacement of your entire computer.

The following are some tips to help you to avoid any of these costly problems.



## **BACKUP YOUR FILES**

We have talked about how to backup your data, now you just need to do so. There are two options here. First, you could elect to use a manual system. Here, you would need to log into your system and tell the device to backup your data. For example, in some cases, after you finish a project you may want to back up your data. Therefore, you manually execute the backup method. This may be as simple as turning on the external hard drive (or connecting it) and requesting it to backup the data.

The second option is to set up automatic backups. Some systems will allow you to backup daily, such as after the day's business has been completed. Other systems will back up whenever you want them to. You simply set up a schedule for the system and it will follow this schedule for you, each schedule time activating and backup your data.

It is understood that using an automatic system is the best route to go so that you avoid the human error of forgetting to backup or running out of time to do so. Many external hard drives make this process very simply and you do not have to pay much extra for this type of service.

Once the data has been backed up, consider the importance of storing it. If you have a very important piece of data, you may want to store it in a fire safe box, for protection.

## **AVOID THE SURGE**

How is your computer plugged into an electrical outlet? Is it plugged right into the outlet on the wall? If so, you are setting your computer up for incredibly risk. Should your home be struck by lightning, or you experience a power surge of another type, the result will be devastating to your entire system.

You can avoid this potential damage by using a power surge protector. You can pick up a computer surge protective outlet inexpensively. You simply plug that into your outlet and then plug each of your computer related electrical supplies into the surge protector. If there is a surge, the protector stops it from traveling to your computer directly, helping you to avoid any type of failure with the system.

## **USE GOOD ONLINE PROTECTION**

The web is full of potentially worrisome events that could cause a data loss. One of the most potent is the virus. Should a virus infect your computer, this could lead to a loss of data or even worse difficulty using your computer at all.

Here is what you can do to protect yourself:

- Use virus protection. Virus protection should scan your computer often to remove anything that may have gotten into the system. In addition, it should be used as a shield, to prevent anything from getting through. The sooner it is able to stop the data from getting in, the less likely there will be damage.
- Be careful opening emails and especially email attachments from people online. Unless you know them, and trust them, this could cause a number of problems for your computer's safety.
- Be careful when downloading anything to your computer. You know that it is safe, but even then, you could overwrite data on your computer. For example, the document being sent to you uses your name as its file name. You download it, but you already have a file name with your name. This data could overwrite whatever is currently at that location. A good way to avoid this problem is to ensure that documents downloaded are automatically downloaded to

a different folder on your system, rather than the same one you store data on.

By doing these things, it will help protect your computer from data loss and damage from those who would try to damage your system, or those who may inadvertently cause a problem for you.

## **BE A GOOD USER**

Most of the problems with data loss come from humans themselves. If you make end user mistakes, this could lead to the data loss you are worried about. You can do a few simple things, though that would help to avoid these problems:

1. Use word processing features and versions that track changes for you.
2. When editing a document, be sure that you take steps to avoid data loss. For example, open the document, then, click "Save As" on the document and change the name. This way, the original of the file is still safe on your computer if you need to further change it.
3. Use F12 to save a file as a different name. This is the same as using the "save as" feature, but in a simpler process.
4. Keep your files organized. This way, you can easily find whatever you need when you need it.

## **STILL WORRIED?**

If even after all of these methods of protecting your computer you are still worried about your data, there is one more thing you can do. Keep a hard copy of the data you need to save the most. Yes, you will need to input the data back into your computer should there be an event, but at least you have the contents to work with!

Your data is incredibly important to you. Take whatever steps you need to retrieve it, but perhaps the most important thing you can do for it is to protect it in the first place. It is not expensive, nor does it take a long time. However, it can be one of the key benefits to protecting your data long term.

If you have any questions about how to protect your computer, your hard drive, or other forms of data, contact your manufacturer and inquire. You can also use any of the data recovery specialists to help you to find the right solution for your particular needs. Be sure to do this so that the next time you find yourself with lost data, you will know just where to look to find it!

One last source I would like to mention again is Carbonite. This online backup service will store our valuable data off site at their location in a secure datacenter. This is one of the cheapest and most secure options for you to fully backup your data.