

A+ TECH can help you develop a secure and reliable backup system – so long as you take all the necessary precautions.

It is each client's responsibility to make sure that critical workstations and servers are left running overnight so that backup routines are able to run.

For offices with alternating backups and/or offsite backups of any kind, it is critical that such media remains offsite and is alternated on a daily or weekly basis – depending on your schedule.

REMEMBER! YOUR BACKUPS SHOULD BE TESTED REGULARLY!

If you need detailed instructions for testing your backups, please contact us at your convenience.

If you prefer to have us test the integrity of your backups, please let us know.

Be aware that restoring and confirming the integrity of a single backup file can take 1-3 hours or more – depending on the size of the file.

A+ TECH cannot be held responsible for data loss.

ALTERNATING OFFSITE BACKUP PROCEDURES

DISCONNECTING EXISTING DRIVE

- 1) Look for an icon with a green arrow on lower right corner of desktop that displays "safely remove hardware" when you run your cursor over the icon.
- 2) Click on the icon and it will show some or all USB devices connected to your SERVER/PC.
- 3) Select the device best describing the external hard drive such as "USB Mass Storage Device", then click on the "Stop" button.
- 4) The "Stop a Device..." window will pop up; select the device "USB Mass Storage" and click "ok".
- 5) You will see a pop-up message "Safe to Remove Hardware".
- 6) At this point, remove the power cable from the external hard drive first, then the USB cable.

CONNECTING REPLACEMENT DRIVE

- 1) Connect the power cable to the replacement hard drive and wait 30 seconds.
- 2) Once the hard drive has powered up, connect the USB cable.
- 3) The Server/PC will indicate that a new device has been connected and run through an "Autoplay" sequence cataloging all the data on that hard drive. You can cancel and close the window showing all the data on the external hard drive and the external hard drive is now ready for use.

CAUTIONARY NOTES:

- 1) This routine is standard for most external hard drives, but settings/terms may vary between different devices and/or operating systems.
- 2) Do not move an external hard drive while it is "on" or running in any way. This can cause the "head reader/writer" to bounce or crash against the platter – causing damage to the platter and possible loss of data.
- 3) Do not leave an external hard drive in extreme heat or cold – do not leave it in a vehicle for an extended period of time. The vibration of driving, stop and go traffic and even idling can cause internal parts to rub or vibrate against other parts – resulting in damage or loss of data.

Emergency situations:

Just as it is critical to have an emergency evacuation plan in the event there is a fire at your company, it is equally important to have a contingency plan to backup your data when a server fails. How you react in the first couple of minutes is critical. When a data storage media failure occurs, many system administrators take it upon themselves to fix the problem, believing that is what they are getting paid for. Unfortunately, the tools they have available often consist of off-the-shelf utilities that really will not do the job. Often times, out of frustration, administrators will then take the ill-advised step of opening hard drives or trying to re-initialize RAID arrays. In the majority of cases, rather than solving the problem, such actions only worsen it. Bottom line: a hasty approach to data recovery, such as that just described, diminishes the likelihood of even a trained professional being able to salvage the data with any success, thereafter.

Frequently, when storage media units arrive at our lab they are unrecoverable because well intentioned administrators attempted a job beyond the scope of his or her training. You greatly increase the chances of recovering critical data from an outage when you leave the recovery work to the experts. If your building caught on fire, you certainly would not try to become a firefighter, you would evacuate the premises. Because of the unpredictable nature of media failure, it makes sense to have a data-recovery plan in place and thoroughly understood by all. A good recovery program includes knowing how and from where to access alternative sources of information, through pre-existing and diligently tested procedures.

The first rule is never to attempt data recovery by yourself. This can lead to irretrievable data loss and make it more difficult or even impossible for our data-recovery engineers to recover your critical data. It is always best to let those who are trained to recover data do their job.

Instead of trying to fix the problem, call Montrose Data Protection & Recovery Solutions (MDPRS) and we will quickly drive to your location, remove the damaged media or take the entire computer to reduce risk of further damage to your media.

Here are some steps to take that will increase your chances of a successful recovery:

Don't Panic.

Turn off the power.

Do not re-install any software.

Do not restart the machine as damage could spread or data could be overwritten.

Remove the hard drive (if a RAID array be sure to number them accordingly)

Do not open the hard disk, or try to repair it yourself

Do not try to reconfigure or re-initialize the RAID array.

Preventive measures:

Avoid extreme hot temperatures:

Do not expose your hard drive to extremely hot or cold temperatures. Excessive heat can shorten the lifetime of a drive, defray the performance of the system, and ultimately damage its electronic components.

Stable, Clean, and Safe environment:

Do not place a computer on unstable or moveable objects. During operation computer hard drives can be damaged by any abrupt or sudden movement. It's important to find a stable area where there is not a lot of activity. This is good insurance against any sudden jolts. MAGNETS AND STATIC ARE HARMFUL TO DATA and can easily erase or corrupt the data on your hard drives, floppy disks and other media. NOTE: CDs do not last forever! Cheap CDs may last from 5-10 years if handled and stored correctly – more expensive CDs with 50-100 year lifespans are available, but can just as easily be damaged. For these reasons, you should reburn your CDs and dispose of old CDs every 3-5 years and/or make sure the same data is stored on your hard drives. No media is 100% reliable.

Vanishing of Deleted Data:

If you accidentally delete data or it simply vanishes, do not create new files, move files around, or save any old files. By doing so, you could make the recovery of lost data impossible. Although we recommend that you don't, if you should decide to use a file utility program please do not install it on the same hard drive where you lost the data.

When you experience media failure:

Clicking, Grinding, or Metal Scraping Noises:

If your hard drive is making a clicking, buzzing, or other strange sounds - power off your system. By powering off, you avoid causing more damage to the drive or data. Call Montrose Data Protection & Recovery Solutions (MDPRS) immediately so we can assess the problem for you and walk you through your options.

Remain Calm and Cool:

Do not panic, this can only cloud your judgment. It is a good idea to walk away, count to 10 and then try to regroup your thoughts. Carefully review your options for recovering data. Try to avoid the "blame" game as it will only frustrate you further.

Write it Down and Review:

Make a list of all the irreplaceable and critical files you need recovered and check if other restorable backups exist.

It's Time to Contact the Experienced Pros:

A professional technician can quickly identify a failed component that may be the cause of your hard drive failure or computer outage. An experienced professional will never hinder your chances for data recovery by opening up the hard drive.

Steps to a simple recovery – if you're lucky:

The number one rule to follow when you have lost data is to not write anything more to the affected hard drive! This rule stands true for any situation...

If you have deleted a partition by accident, do not create another partition, just leave it blank.

If you have deleted files from the recycling bin that you realize you need, do not (if possible) save anything to the drive. The reason for this is that hard drives do not actually erase anything, not data or partitions. When you erase a file from the operating system, it is just marked on the drive as having been deleted. When the system needs to store more data on the drive, it will consider files on the drive marked 'deleted' as being empty space, and cheerfully copy over them. If that happens then you're in big trouble.

The same rule applies twice over for partitions; since partition information just presents the operating system with a way of addressing the space available on the drive. If you wipe out a partition everything from it will seem to be gone. So if there is no partition information, no data can be read by the operating system. This does not mean that your data is not there however, only that you can't see it. Data-recovery programs have no such handicap.

The first and best thing to do in a data-loss situation is to make sure no more data is written to the drive. Obviously, if you have just the one partition and it's fried, you can't boot normally to the operating system. The best option in this situation is to transfer the drive to another computer, preferably one using the same file-system as your damaged partition (i.e. the same operating system, or a newer version).

Transferring the HDD to another computer has the dual benefit of preventing the drive from being written to accidentally, and potentially allowing you to retrieve information from the disk just by using Windows Explorer to look through file structures.

If you have damaged or erased essential operating system files, but the partition information is still intact Windows will not boot. The HDD can still be read from a different operating system which is one way out of the doom and gloom.

Analog signals	Signals which come directly from the read/write heads, before digitalization. No analogue signals indicate that data has not been stored on the media, or the data has been removed using a strong magnetic field such as a Degausser.
Areal Density	The number of bits of data that can be recorded onto the surface of a disk or platter usually measured in square inches.
ASCII	American Standard Code of Information Interchange. A 7-bit code standard for representation of characters, numbers, symbols and control characters, for use in data communication and data storage.
AT/ATA	Name of standard interface and protocol for hard drives. See also IDE. Advanced Technology Attachment is generally used as a synonym for EIDE, as is UltraATA.
Backup	The process of creating a copy of programs or files for later retrieval.
Backup copy	A copy of a program or file that is stored separately from the original. If the original files or media are lost, the backup copy may be used for recovery.
Bad block	A bad block is the result of a media flaw or damaged format markings which causes the data held on a block (usually the size of a sector) to be unreliable.
BIOS	Basic Input Output System. A chip within the PC that offers basic input and output services to all attached devices.
Bit	An abbreviation for a binary digit. The basic information unit within a computer. A bit can take on one of two values, normally represented by '0' and '1'. See also byte.
Bit density	Expressed as bits per inch (BPI), the number of bits that can be written onto one inch of track on a disk surface.
BOD	Beginning Of Data. Electronic or magnetic sign, a part of the low-level format on tape. BOD signals the start of data.
BOM	Beginning Of Media. Electronic or magnetic sign, a part of the low-level format on tape. BOM signals the beginning of media.
Boot	To start or restart your computer; loading the operating system.
Boot Record	A file system table of the FAT and NTFS file systems, containing information about one partition. (Often referred to as Boot sector, Boot block, or Boot Track)
Buffer	Temporary data storage. Example: An area used to make up for a difference in data transfer rates and/or data processing rates between sender and receiver. A printer buffer copies data from the computer and holds it until the printer is ready to print.
Buffer Under-run	A buffer under-run occurs when the system cannot keep up a steady stream of data to the CD recording software. CD recorders have individual buffers that are constantly filled with data in the event of a system slowdown or interruption. The buffer under-run traces the data if the CD recorder buffer is emptied before the system can recover.
Bus	The path that carries data between the computer (microprocessor) and peripheral devices. An IDE interface cable and a SCSI cable are both examples of a bus.
Byte	8-bit information unit, able to hold information of one character/digit magnitude.
Cache	Specialized RAM used specifically to optimize data transfers between system components with different performance capabilities.
Capacity	The amount of information, measured in bytes that can be stored on a hard drive. Also known as storage capacity.
CD	Compact Disk. Optical storage device for storing data and sound. Also see platter.
CDRW	Stands for re-writable compact disk (CD). Media can be written and erased on average 1000 times before malfunction. Up to 500MB can be stored on the standard 74 minute CD-74.
Clean room	An environmentally controlled, dust-free environment in which hard drives are assembled or opened for internal inspection or servicing.
Cluster	A cluster is defined as an allocation unit. It is a group of sectors. Most file systems group sectors together and handle the group as one unit. The cluster size (number of sectors per cluster) varies with the storage media and is fixed at time of format. At least one cluster is allocated to each file, regardless of the file's size, that is stored in the DOS environment.

Computer crash	Popular expression, applied to almost any computer or hard disk problem. See also disk crash.
Computer Virus	A dangerous computer program with the characteristic feature of being able to generate copies of itself, and thereby spread throughout the computer system. Additionally, most computer viruses have a destructive payload that is activated under certain conditions.
Corrupt copy	Sometimes while transferring data from a damaged disk, the damaged disk releases the expected amount of raw data but in a seemingly random order. Such a copy is worthless. The problem is due to a physically damaged disk, which causes errors in the location/addressing information.
CRC	Stands for Cyclic Redundancy Check. The CRC is used to verify the integrity of a data block. In a standard set-up, two CRC bytes are used for each user data block and they are computed from the user data by digital logic chips. Polynomials and binary coefficients make up the mathematical model of CRC bytes, which are read and compared to new CRC bytes from the read block whenever data is being read back to the system. Errors are detected by a mathematically equivalent division of the read block, (including its CRC), by a binominal and a result of zero means there are no errors.
Cylinder	On a disk, all tracks with the same radius are referred to as a cylinder.
Data block	A series of data elements handled as one unit. Typically a data block stored on disk is 512 bytes long (synonymous with sector). On tape the block size is normally greater and varies.
Data compression	Reducing the size of a file or data in general. Several compression techniques are used to save time and space during transfer/communication and storage.
Data Destruction	Removal/destruction of information stored on a storage medium.
Data Recovery	The salvaging of data stored on damaged media, such as magnetic disks and tapes. MDPRS specializes in data recovery service and our engineers can often restore a surprisingly high percentage of the data on damaged media.
Database	A database is an electronic filing collection of information that is organized so that it can easily be accessed, managed, and updated.
Decode	Transforming encoded information into information that is readable to a program or a user.
Dedicated servo	A type of technology where timing or positioning signals are located on dedicated disk containing no user data. The information that the actuator needs in order to fine-tune the position of the read/write heads are provided by these signals.
Defect Management	A general methodology of eliminating data errors on a recording surface by mapping out known defects on the media. The defective areas are rendered inaccessible, so that when information is written to the disk it is stored to non-defective locations on the disk. See G-List and P-List.
Degausser	Equipment employing a strong magnetic field to perform data erasure.
Deleted file	When a file is deleted using the operating system command or Delete-key, it is only the reference to the file that is deleted. The space previously occupied by the file content will be free to use by any new file. It is possible to recover the deleted file until a new file has occupied the space.
Directory	A group of related files are stored under a common name, the directory name. This is similar to how grouped documents are stored between dividers when filed in a ring binder.
Disk	Used synonymously with hard disk. Can be used for any storage media where the actual media is a circular disc - hard or soft kernel, magnetic or optical technology. Circular platters. The actual media. See platter.
Disk crash	As a popular expression this term is used for almost any problem with the computer or the hard disk. More correctly it should be used synonymously with head crash.
Drive	Often used synonymously with disk. For removable media, the term is used about the fixed housing unit. Examples: floppy drive, tape drive.
Driver	(Software) Small, specialized program that typically handles the exchange of information with specific units/equipment like one type of printer (printer driver). (Hardware) Component, adapter, amplifier. Used for components needing high efficiency, supplying power to motors, etc.
Drop damage	See shock damage.
DVD	Digital Versatile Disk. A data storage media with platters similar to a CD. The storage capacity is much higher than for a CD. DVD is used for storing video, sound, and data.
ECC	Stands for Error Correction Code. The extra parity bits in transmitted date are incorporated in order to

	detect errors that can be corrected by the user.
Embedded servo	A technique in which the space between sectors (intersector gaps) on each data surface of a disc are used to provide servo-positioning information. This method uses the same head to read both servo and data information, allowing all surfaces to be used for data storage.
Encryption	Modifying data, a file for example, to prevent unauthorized access to the information.
EOD	End Of Data. Electronic or magnetic sign, a part of the low-level format on tapes. EOD signals the end of data.
EOM	End Of Media. Electronic or magnetic sign, a part of the low-level format on tapes. EOM signals the physical end of the tape.
FAT	File Allocation Table. A file system table used by the FAT-file systems. It contains information about where on the disk the content of the files are stored.
FAT16	Older version of the FAT file system, based on 16-bit integers, has a limitation with respect to the size of partitions it can handle.
FAT32	Newer version of the FAT file system, based on 32-bit integers. The file system is able to handle partitions of 2 TB size and uses the storage capacity more efficiently than FAT16.
Fdisk	A software utility used to partition a hard drive. This utility is included with DOS and Windows 95 operating systems.
File	Data stored as a named unit on a data storage medium. Examples: a program, document, database.
File system	A system for organizing and cataloging files on a data storage media, comparable to the index in a book. Examples: FAT16, FAT32, NTFS, HPFS, S51K, ext2, AFS.
Firmware	Permanent instructions and data programmed directly into the circuitry of read-only memory for controlling the operation of the computer.
Floppy disk (FD)	Low capacity storage media with soft kernel/base, hence the name floppy.
Floppy interface	Interface where the floppy drive is connected to the computer. Some tape drives also connect to this interface.
Fly height	Distance between the read/write head and the media surface while the motor is rotating (hard drive).
Format	Structure or composition of a file (file format) or the logical layout of a data storage unit.
Formatted Capacity	The actual capacity available to store data in a mass storage device. The formatted capacity is the gross capacity minus the capacity taken up by the overhead data required for formatting the media.
Fragmented	In parts. A fragmented file does not have its content stored sequentially on the media. The file's content may be stored in small segments scattered over an area of the disk. The file system keeps track of where the data is stored and the user does not normally notice a file is fragmented. Fragmentation is common on hard drives, but usually data is stored sequentially on tapes.
Free space	Free space in a storage device. The space that in any given time does not belong to any file or the file system itself (system information). New files will be stored in the free space area.
Gigabyte(GB)	Expression used to describe storage capacity or amount of data. One gigabyte is about 1000 millions of bytes/characters (1024^3).
G-List	Growing Defect List. List of blocks/sector of a disk that has become defective during the lifetime of the disk. The list is updated by the drive itself and stored internally on the disk. The information in this list may indicate the current state of the drive. Many entries in the G-List may indicate an early stat of a head crash.
Hard disk (HD)	Medium for permanent storage of data. Magnetic platters, electronics, and mechanics make up a hard disk. The platters are fixed to a spindle. On each side of a platter there is a read/write head. Each platter is divided into tracks, which is also divided into sectors. A characteristic of hard disks is that the platters and the mechanics are in an airtight enclosure, and the read/write heads do not touch the platters as long as the platters are rotating. See fly height.
Hard drive	See hard disk.
Hard Error	An error that is repeatable every time the same area on a disk is accessed.
Hardware	The physical components that computer systems are comprised of, like hard disks, cpus, expansion cards, etc.

HDA	Head Disk Assembly. For today's drives this corresponds to the hard disk without the PCB.
Head	Often referred to as the read/write head.
Head crash	A head crash is the damage caused by the heads coming in contact with the magnetic surface of the media (platters). The crash causes damage to the read heads and scratches in the magnetic coating. Data that was stored in the scratched area cannot be recovered. Shavings and dust from one head crash may cause crashes on the other surfaces.
Header	Introductory, preliminary information. Example: system information (file name, type of file, file length etc.), may be stored just before or at the start of a file. The use of headers is typical for tape file systems, and the format of larger files like databases.
IDE	Integrated Drive Electronics. Standard interface and protocol for hard disks. The disk controller is an integrated part of the hard disk unit.
High-level formatting	Disc formatting performed by the operating system's format program (for example, the DOS FORMAT program). Among other things, the formatting program creates the root directory, file allocation tables, and other basic configurations.
Image	A cloned copy of a storage device.
Interface	Defined/standard transition/link - hardware or software. Rules for communicating with a unit. Example: See SCSI. (User interface) The 'face' of the computer. The part of the operating system that the user communicates with directly.
Invalid files	Artificial files, incorrectly created by automatic recovery utilities like Chkdsk, Scandisk, Vrepair, Norton Disk Doctor, and many others. The content of such files do not normally have any value. This is because it may contain only a fragment of the data of the original file, or it may contain fragments of several files.
Jumper	A jumper is an electrically conductive component that you place over pairs of pins to connect them electronically. For example, a jumper is one way to designate a hard drive as master or slave.
Kilobyte (KB)	Expression used to describe storage capacity or amount of data. One kilobyte is 1024 bytes/characters.
Landing Zone	The designated radial zone of the disk, usually at the inner part of the disk, where the heads are stored to avoid contact with the data cylinders when power to the drive is off.
Linear density	See bit density.
Logical damage	Damage to file system or file data (file content).
Logical recovery	The recovery work performed on a copy of the raw data from the damaged unit. The intention is to repair damages to the file system or files, and to make the files available to the customer.
Logical storage unit	A storage unit made up by one or several parts of a physical unit, or several physical units, or a combination. A logical storage unit acts as one independent unit. Examples: partition, volume.
Low Level Format	This is the first step in preparing a drive to store information after physical installation is complete. The process familiarizes the drive with the controller.
Low temperature	Unpacking drives at or below 10° C involves a risk of condensation damage to the hard disk. A hard disk that holds a temperature of 4° C should be allowed to stabilize for 13 hours before unpacking.
Master	The first drive in a dual drive combination. A master drive by itself (with no slave) is called a single drive. See slave.
Master Boot Record (MBR)	The first sector of a hard disk in a PC. It contains the Partition Table.
Megabyte (MB)	Expression used to describe storage capacity or amount of data. One megabyte is about one million of bytes/characters (1024 ²).
Megahertz (MHz)	A measurement of frequency in millions of cycles per second.
Mirror	Same as clone copy.
Mirror copy	Identical copy. Block by block copy of all blocks in a storage medium.
Mirroring	Creating an exact mirror data copy.
MTBF (Mean Time Between Failures)	Average time (expressed in hours) that a component works without failure. Also, the length of time a user may reasonably expect a device or system to work before an incapacitating fault occurs.

Multi-media	A simultaneous presentation of data in more than one form, such as sound or picture.
Multi-user	A system that enables more than one user to access the same data at the same time.
No physical damage	No physical damage in the drive itself was identified during physical analysis. All raw data from the drive may be copied to other storage mediums without loss.
NTFS	The file system designed for the operating system Windows NT. This file system is more advanced than the FAT file system used by the earlier Windows operating systems, with regards to data structures, filenames, security, and access control.
Off track	Used when the read/write head is unable to follow the right track. In hard disks this may be a result of a shock (shock damage). In tape context this may be due to mechanical problems with the tape drive.
Operating system	The operating system is the most basic program in a computer. All computers have an operating system along with other things used for starting the computer and running other programs (application programs). The operating system performs important tasks like receiving input from the keyboard and mouse, sending information to the screen, keeping track of files and directories on the disk, as well as controlling the various units such as disks, printers, etc. An operating system also offers a user interface, giving the user the possibility to control the computer. Examples of operating systems are: Windows98, XPpro, Windows NT/2000, Novell Netware, Mac OS, UNIX, Linux.
Overwritten data	This refers to data, which has been physically overwritten by other data. Data that is physically overwritten by other data cannot be recovered.
Park Area	A designated safe non-data landing area designated for the resting of read/write head when drive power is turned off and not in use.
Partition	Logical storage unit. One hard disk can be divided into one or more partitions. Each partition is regarded as one logical storage unit, and normally contains one file system. In the Windows operating systems (95/98/NT/2000) each partition is assigned one station letter (C:, D: etc). For the user it looks like there are several hard disks in the computer. The term partition may also be used in tape context, but the interpretation differs slightly. It may have two partitions on tape. one will contain the file data and the other the system information.
Partitioning	The purpose of partitioning is to create a logical file structure for the operating system to access and to divide a portion of the disk drive to be used by more than one disk operating system. Large disk drives can be divided into areas for the file allocation table (FAT) to access when in use. If it is damaged, you may require professional partition recovery.
Partition Table	A file system table. It contains information of how many and which types of partitions are on the disk.
PCB	Printed Circuit Board. Used for the electronics board on the hard drive.
Physical damage	Damage to the physical unit. For a hard drive this may be damage to the electronics, the mechanics or the media itself.
Physical recovery	The work performed directly on the damaged unit. The intention is to transfer as much data as possible to a functional storage unit.
Platter	The actual storage media in the different types of disks. In a hard drive the platter has a core of glass or aluminum covered with a thin layer of Ferric oxide or a Cobalt alloy (Co-Ni, Co-Cr, Co-Ni-W). This layer is protected by a layer of a very hard material (overcoat), and a thin layer of lubricant. A CD is a plastic disc in which the data is impressed. It has a metallic, reflecting backside.
P-List	Primary Defect List. List of defective sectors in a hard drive. The defective sectors may not be used for storing data. The P-List is generated during fabrication. The disk itself stores it internally.
Port	A connection or socket on the motherboard or controller card.
RAID	Redundant Array of Independent (or Inexpensive) Disks. A collection of 2 or more disks that work together to increase performance and safety. The disks form one logical storage unit. The most used RAID levels are: RAID 0: striping only, RAID 1: mirroring only, RAID 5: striping with error correction information on all disks.
RAM	Random Access Memory. Memory that allows any storage location to be accessed randomly, as opposed to tape drives, which are sequential access devices. Chips in the computer used for temporary storage of data.
Raw data	Raw data is un-interpreted data from a storage medium. The maximum amount of raw data that can be copied from a storage medium equals the capacity of the medium. As raw data, the data is handled without considering the information stored within the data. When handling raw data one does not know how much of that disk is actually in use or free. There will not be access to directories or files until the data is interpreted from a file system.

Read/write head	Element use to create and access the information stored magnetically on the platters/tape. A drive with several disk surfaces or platters will have a separate head for each data surface.
Reading problems	Due to small damages in the magnetic coating of the platters, one or several sectors or groups of sectors may be damaged beyond rescue. This may be a result of rough handling of the disk during transport or installation. See shock damage.
RLL	This stands for Run Length Limited and it is a method used on some hard disks to encode data into magnetic pulses. RLL stores up to 50 percent more data per disk than older MFM (Modified Frequency Modulation methods, but needs more processing time.
ROM	Read Only Memory. A storage media that can be read only - not written to (except for the first time).
SATA	Serial ATA is an evolutionary replacement for the Parallel ATA physical storage interface.
SCSI	Small Computer Systems Interface. A standard interface for connecting external units like disks, tape drives, CD players, scanners etc to a computer. Usually pronounced as "scuzzy."
Sector	Smallest data unit accessible on disk. Normally 512 bytes. See block.
Server	A computer used primarily to store data and providing access to shared resources. Usually it contains a network operating system.
Session	A session on tape corresponds to a partition or volume on hard disk.
Shock damage	Shock to a hard drive may cause the platters to become displaced, or damage to heads or the magnetic coating of the platters. Dropping a hard drive may also damage the mechanics within the drive such as the motor. As a consequence, the drive is unable to position the heads correctly along the recorded signals. A shock may later lead to a head crash.
Slave	The second drive in a dual drive combination. See master.
Soft Error	An error that occurs occasionally when attempting to read/write the same location. A non-repeatable error.
Software	General expression used to describe a collection of instructions enabling a computer to solve one or several tasks.
Spindle motor	The motor within a hard drive that rotates the platters.
Stiction	The word is a contraction of Static Friction. It is used when the read/write head sticks to the platter's lubricated coating.
Storage medium	Collective description of all types of media used for data storage. Examples: hard disk, floppy disk, MO, streamer tape, DAT, DLT, CD.
Strap	See jumper.
Stripe set	Collection of disks that together, through striping, makes up one unit.
Striping	Spreading data over several disks on a bit, byte, or cylinder level. The intention is to improve performance by letting the positions and read/write operations overlap in time.
Super Block	The first block of an UNIX-file system. It contains for instance the configuration of the file system.
Surface	The top or the bottom side of a platter coated with a magnetic material required for recording data. A platter may use one or both surfaces to store data.
System information	Typically used for the internal information of the file system itself. The file system keeps track of the names of the files, their size, and where the file is stored. This information is stored to the media in addition to the file content.
Tape	Magnetic tape, in cartridge, or reel. The tape has a magnetic surface where data may be stored. Tape is often used as backup media. Examples are: DAT, Streamer tape, DLT.
Terra byte(TB)	Expression used to describe data storage capacity or amount of data. One terra byte corresponds to 1024 ⁴ bytes/characters.
Time taken to make a copy	It takes about 1 hour to make a copy of a new, healthy drive of 8GB. To copy a damaged disk takes much longer. Copying the data in a file context is also slower than making a plain image copy. During the process of analysis and recovery we may generate 3-5 copies of all data.
Track	(Disk) Concentric circles where the data is stored, divided into sectors. (Tape) The tracks of the tape prepared for storage of data, divided into blocks. See format.

Ultra ATA/100 or Ultra DMA/100/133	These are extensions of the current Ultra ATA/66 interface. This new high-speed interface has the capability of 100 Mbytes/sec transfer rate and maximized disk performance under the current PCI local bus environment.
Unalignment	See off track.
Unicode	A 16-bit code standard for uniform representation of all the character systems in the world, digits, symbols, and control sequences to use when storing data.
Volume	Logical storage unit. May also be called a partition.
Volume set	Collection of disks or partitions that together form one logical storage unit.
Water damage	A data storage unit that has been exposed to water and has sustained some damage. A data storage unit that has been exposed to water must be kept wet until delivered to us.
Winchester disks	This is a former code name for an early IBM hard disk model that is sometimes still used to refer to hard drives in general. to us.