200 ways to revive a hard drive

We based one of our most popular pop quiz challenges on a situation every tech support person has faced or will face at least once: **a failed hard drive**. In that particular case, a Compaq Prolinea 4/66 user was getting errors like "disk 0 error" and "invalid drive specification." Here were the other facts in the case:

?? The data wasn't backed up.
?? The problem came out of nowhere.
?? The user had accessed Setup and tried to manually enter the settings for the drive type when "Auto" didn't work.
?? There was no startup disk made by this machine.

Reviving a drive like that one—even if only long enough to copy its data before you throw the drive in the garbage—is a tough challenge. When I asked TechRepublic members how they would troubleshoot a situation like this one, we received over 200 solutions, and we heard from a number of TechRepublic members who wanted to know "what everybody else suggested." So we decided to publish this collection of over 200 ways to revive a hard drive.

In editing this document, we tried as much as possible to preserve the voices of the TechRepublic members who submitted these solutions. Of course, as the legal blurb at the end of the document declares, we can't promise that *any* of these tips will work in every setting. But we thought you'd enjoy reading what your fellow IT professionals had to say on this subject. Enjoy!

How to revive a hard drive

Freeze it

From: Travis Standen

One trick I have learned as a technician, when the problem is data-read errors off the platters themselves, is to **freeze** the hard drive overnight. It makes the data more 'readable,' but for a one-shot deal. If this data is critical, and you have a replacement hard drive (which, if it's a drive failure, you probably do), then you can hook up your frozen hard drive and immediately fetch the data off before it warms up.

From: Thedeedj

If the problem is heat related, I put the drive in the **freezer** for about 15 minutes to cool it down... sometimes this gets the drive up long enough to copy any critical files...

From: ltguy1

Put the drive in a waterproof sealed bag, put it in the fridge for an hour or so, then have another go.

From: Kelly Reid

Well, I won't start playing with your specific situation, too many steps or possible solutions where everything starts "If that last thing didn't work try..."

But I'll give you one for free that was a nice hero moment for me. Had a drive where it sounded like the drive motor was engaging but not getting anywhere, so we stuck it in the office **freezer** for an hour! I'll be darned if it didn't work. The drive was up long enough to get the data ghosted to another drive and we turfed it, even though it sounded fine at that point. I can't really take credit for it though—I had heard it in some geek bull session but I thought it was some jedi-geek urban myth. Goes to show you that you know you're really screwed when you say something to the effect of "Okay, hold on tight, I'm gonna try something I saw in a cartoon once but I'm pretty sure I can do it"

From: mpicpu

If this drive isn't spinning up, putting it in the **freezer** for about an hour will usually get the drive spinning again so you can copy needed files before the drive warms up again. The first thing you want to do is run a disk utility like Norton disk doctor or wddiag (if it's a western digital drive) to verify whether the drive is working mechanically or not. If it is a master boot record problem, sometimes running Fdisk/mbr will correct the problem. It could also be a virus, and a program like F-prot will look at the drive as a physical unit. As an A+ PC technician I have seen this problem many times. Usually if the drive is not making a clicking sound I am successful in recovering the data.

From: Scott Greving

I've run into this scenario numerous times. One time it involved the main Novell SYS volume on our HP File Server. I was really sweating as the server would not boot. I took the drive out and put it in a **freezer** for 30 minutes. I then reinstalled it into the file server and Presto! I was up and running. Needless to say I quickly mirrored the drive onto another and got rid of the bad drive.

In stand alone client systems, the method I've had the most luck with reviving drives from death has been removing the drive, firmly tapping the top of its case several times, and then re-installing it making sure all cables are secure. I've had a better than 60 percent success rate with this method.

From: jphillips

If the drive is spinning and you are experiencing these kinds of errors, my experience has been that you are out of luck.

If the drive is not spinning, I have been able to remove it from the computer and 'spin' the drive on a flat smooth surface (much like spin the bottle). This will usually free the drive and when placed back in the machine, it will boot. You should immediately back up you data after a successful boot, because the problem will return.

The next 'fix' was actually given to me by a Compaq technician several years ago. I had a drive that would not spin and he told me to put the drive in a plastic bag in the **freezer** overnight and then install back in the computer. Believe it or not, the drive booted. I have only tried this the one time.

From: John Turcotte

In the past, when a drive has failed after it has been running for a short period, I have removed it from the machine and placed it in a **freezer** for a couple of hours, then hooked it up again. It sometimes will run long enough to remove the data to another safe storage medium.

From: David Furlow

One of the methods I have used before (sometimes even successfully) is to actually remove the drive from the PC, place it in the **freezer** for a day, then quickly put it back in the machine and try to access it. Why does this work? Who knows, but I heard about this tactic years ago, and it has saved my behind on a couple of occasions. (Of course, if it comes back up, back up the data immediately.... Guess that should go without saying.)

From: Keri D.

Hard drive revival:

A technique I have learned is if you bring the temperature of the hard drive down to the freezing point by putting it in a **freezer** first and then taking it back out, somehow the condensation from bringing it back to room temperature helps revive it for about 20 minutes. It can be repeated about 5-6 times tops. Long enough to get out any important files that need to be backed up. It has been proven to work a number of times.

From: Christopher Post

How do you bring a hard drive back to life?

My situation:
Half of a volume set goes south on a WinNT server, no good backup and an angry boss screaming about the data being mission critical.

My solution:
** A bit unorthodox but, it has saved my butt! **
?? Turn off the server.
?? Take out the failing hard drive and wrap a static bag around it.
?? Throw it in the **freezer** conveniently located in the break room.
?? Pray for 1 1/2 to 2 hours.

?? Leaving the hard drive in the bag, quickly plug the drive back into the server. (Just plug the in cables and go.)

?? Cross fingers, turn it on, and move all data off the drive as fast as you can! Then add a tape drive and start backing the dumb thing up!

My so-called logic:
Metal contracts when it is cold.... so the platters shrink and increase the clearance for the read/write heads.

From: Chris Poole

Put the drive in the **freezer** for about a week and then you can usually get one last read off the drive.

From: Cheyenne Robert Alspach

Here are some drive recovery tricks that have worked for me, in the order that I do them. Try booting the drive and copying the data off after every step.

1. Hold the drive upside down, making gravity change the head geometry ever so slightly. Vertical is also another option.

2. Slightly rap the drive with your knuckle, (but nowhere near hard enough to damage the drive).

3. Try the drive in another machine, (slight drive voltage change assumed to be the miracle worker here).

4. Rap the drive just SLIGHTLY harder than you did above in 2.

5. **Freeze** the hard drive in the freezer for two hours, and place in a plastic zip lock bag to prevent condensation from forming on the drive when you plug it back into the system, (head geometry, electrical resistance lowered, electrical contact points adjusted, etc., assumed to be the miracle here).

6. After the drive warms up to room temperature or better, rap it even harder with your knuckle this time.

7. Repeat all of above steps on next day, as sometimes I've gotten data off drive simply by trying again.

From: James McLaughlin

Hmmm sounds like a toughy to me. Back in the old days when I first started teching, if we ran into a problem like this, there were only a few ways to deal with it. I will go over these options now:

QUESTION: What do you think you can do about this, Mr. Tech?

First Answe—r—Nothing, your computer is too old, and the data on there is not really of that much importance. If you really want it back, you can get a hold of a company called "Total Recall" out of Denver and get charged thousands of dollars to get your files back. Besides, with Y2K, this machine ain't gonna run anyway, and prices are so low right now, there is no reason why you should not upgrade now.

2) Well, I can take it back to the shop and pretend like I know what I am doing for 3-6 hours. Then I will call you the for the next week and a half giving you excuses as to why I am not able to get your information off of that hard drive. Of course, I won't charge you anything, but I will expect compensation for all the time I wasted on your hard drive.

3) I could take the hard drive out of your machine, plug into my Secondary IDE controller, and boot up. Hopefully, I can see your hard drive and have the ability to copy all of your files to a temp folder on my machine called "Your Name." After I collect all information, I would run IBM's WIPE on the drive and then a thorough scandisk, just to see if the cause was sunspot related or not. If......this was not working, then extreme temperatures always have a way of talking older hard drives into giving us what we want. I would then wrap the HD in a Ziplock bag and slam it in the **freezer** for 12 hours. Pull it out the next day and very quickly plug it into my machine, copying what I can as quickly as possible until the drive dies again, repeating until all files are copied and safe. If.....that don't work, move onto the extreme heat. A Shrink wrap gun works best, but a hairdryer will do the trick if that is all you have. Wrap one end of the HD in a towel and use the shrink wrap gun or dryer to heat the hard drive. Very quickly plug it in and copy files until finished. Repeat until all necessary files are copied and you are done.

You may not think it works, but when you are down to that as your last option...it does.

From: Lichtenwalner Allen L TSgt

Solution:
?? Carefully remove it from the computer.
?? Place it in the **freezer** for 24 hours, then put it back in the comput er. You should have approximately 30 minutes of good spin time left before a fina–l—and much more permanen–t—shut down.
  This problem often arises from a catastrophic hard disk crash—bearings are usually the culprit, coupled with badly worn read/write heads. I've used this technique on many computers throughout the last fifteen years as "resident expert" and saved virtually all important data.

  If you're in a pinch for time, such as critical data needed for a briefing in twenty minutes, you can opt for the more drastic cooling technique—a C02 fire extinguisher...

From: Jeff Smoley

Here is a solution for really dead drives: ones that won't spin or ones that make those funny grinding noises:

Put the drive in the fridge for a few hours. This can shrink up something inside that might let it run long enough to get critical data. If not, try the **freezer** for a few more.

This actually has worked for me in the past.

From: Neal Menkus

Things we have done in the past that worked:
1. Remove the drive, grab it, and shake the hell out of it: "What could it hurt? It's not working anyway...."
2. Place the drive in a **freezer** for about 10 minutes.
3. Open the drive case in a laminar flow-hood, and give it a spin. (Once it was closed up and reinstalled, it worked long enough to suck the data off of it.)
4. Swap the logic board with one on another drive of the same type.

Numbers 1, 2, and 3 worked with older Seagate (which we no longer purchase) drives, which were prone to "stiction" problems. Number 4 worked following an electrical surge (lightning strike), since the data on the platters were still there and OK.

From: Clifford Liles

Depending on the drive failure I have had success with some rather extreme solutions to data recovery.

Symptom: Invalid Drive Specifications
Treatment: Basic   Check your cmos battery
                                  Check your IDE cable and connections
                                  Check your jumper settings
                                  Remove all other IDE connections but the drive in question

                 Advanced   Try disk manager software
                                  Try data recovery software
                                  Use a bios upgrade card ($39) and allow it to setup the drive
                                  Look up the drive specifications on the manufacturer's Web site and plug
                                  them in manually.
                                  Turn Off or On Write Precomp—32bit disk access

Symptom: Drive does not spin up: "Sticktion"
Treatment: Basics   Lightly tap the side of the drive case with a screwdrive–r—no power
                                  Lightly tap the side of the drive case with a screwdriver——power on

                 Advanced   Cold soak the drive: **Freeze** in a zip-lock bag
                                                             Spray drive case with inverted can of canned air
                                  Lightly slap the drive on a desk top: (mild frustration)
                                  Repeated **hammering** of the drive on a desk top: (last resort—total
                                  frustration only)

Symptom: Invalid media type
Treatment: Basics   Boot with a FAT32 Windows 95 boot disk
                                  Sys the drive

                 Advanced   fdisk /mbr
                                  Check for a virus from a known clean boot disk

These are but a few techniques for the doomed platters. These techniques can be used in conjunction with one another to arrive at the desired solution. Lather, rinse, and repeat if necessary.

From: Daniel Philpott

Here is the solutions checklist for this problem:

Tools needed:
?? Bootable CD or locked floppy dis–k—Formatted with an OS that can see the file system of the hard drive. DOS is usually the preferred OS for this function with NTFSDOS from Sysinternals for NTFS reads and DOS utilities for diagnostics/repair.
?? It should have the ability to boot to and/or see CD-ROM drives, read FAT, FAT32, NTFS, or other common file systems, run common network card drivers and see the network, have disk diagnostic and/or repair utilities, and have antivirus scanning software with current definitions.
?? OnTrack Data Adviso–r—A free download from www.OnTrack.com Hard Drive (large capacity)— Formatted for a FAT file system (or whatever is your common file system) and preferably with BeOS as the boot operating system.
?? Computer Repair Tool Ki–t—Standard repair tools.
?? **Freezer**——The one in your kitchen will do quite nicely.

1. The first task to recovering a drive is not at all technical—It is social. Prepare your user for the worst but also explain what the realistic chances of recovery are. Then start collecting information that you will need. Here is what you need to know before starting:
?? What is the goal of recovery, returning to the previous state or recovering the data?
?? Which is most important?
?? What is the client willing to spend on recovery?
?? What OS (NT, 95, Linux) and DOS (FAT, NTFS, FAT32) was the system running?
?? Where is the computer located?

2. Check the environment: The last question from step 1 is often forgotten and can lead to extensive troubleshooting of a simple problem. Look for an environmental problem that may cause problems for the hard drive. Are there magnets on the computer case close to the hard drive? Is there a fan or heater near the computer? Is a transformer, electrical junction box, or high energy device near the computer (on a floor above or in a nearby wall)? All of these will produce a magnetic (or electromagnetic) field that can cause problems. Equipment that may vibrate the computer even at a very low frequency can cause hard drive heads to skip and jump or even scratch the platters.

3. Turn off the computer, remove the cover, and get ready to the turn the computer on. Then put your ear right next to the drive and power the system on. If you hear any kind of grinding, scratching, or rattling from the drive, turn the computer off as quickly as possible and go to the next step. Otherwise go on to step 5.

4. If the disk has made noise that indicates some sort of mechanical stress, then the problem is the domain of data recovery experts. This is where the client has to make a decision. Do they want to send the drive to a data recovery service, or do they want to destroy the disk in an attempt to recover some data? If the client has information that absolutely needs to be recovered, then send it to the professionals. Remember, you cannot service a hard drive unless you are working in a clean room.

If they are willing to destroy the disk and try to get some data off the drive, there is a quick hack available. Place the drive in a static-free bag, then place the drive and static-free bag into a ziplock bag to seal out moisture. Place this into a **freezer** turned to as low as possible for 24 hours. After 24 hours, pull the drive out and immediately put it into a computer (the faster the better) that boots to a floppy and has another hard drive to transfer data to. If the drive wasn't damaged too much previously, you should be able to pull some data off before the metal of the drive heats up and starts destroying the data storage platters. You can repeat the process only if you shut down almost immediately and go through the 24 hour freeze process again. Chances are that the first time attempt will be the only chance to recover data.

5. If the drive boots to an operating system and you can get to either a network or backup medium, then start copying the most important data off first. Once that data is off, you can back up less important data. The best bet is to listen to your client to find out what absolutely must be recovered.

6. If the client wants to restore the drive to its previous state and continue operating, then you need to do two things to see if this is feasible.
?? First, run a virus scan on the drive. Update the virus definitions then scan every file on the computer.
?? Second, boot to a floppy-disk-based hard drive utility and run a low-level
bad sector discovery utility.
If both tests pass and the computer boots to the operating system, then your job is done and you are eligible for a pat on the back. Otherwise, continue.

7. If the drive does not boot, then try booting to a bootable CD or a bootable locked floppy disk. If you can see the file system, continue to step 8.

If you can not see the file system, then assess your tools. If you have Hard Drive Mechanic from Higher Ground Diagnostics or Tiramisu from OnTrack, then you can use these to diagnose and recover data. Otherwise, boot to the Data Advisor disk to find out whether data can be recovered. They will recover it or suggest a recovery plan or even require the disk be sent to a data recovery center like OnTrack. The client needs to make the choice as to whether the expense of this solution is worth the recovery of the data.

8. If you can see the file system, then priority actions are:

?? Copy the most important data off the drive
?? Copy the rest of the data off the drive
?? Determine if the drive can be recovered (scan with virus checker and disk utilities)
?? Repair the operating system

The best way of doing this is to install your spare hard drive in the computer and boot to either it or the CD/floppy bootable. Copy the important data off first, copy the less important data off next, and then do your diagnostics. If your diagnostics look like the drive is repairable, then go right ahead and repair it.

The reason I suggest BeOS be the boot OS on the hard drive is that it has the ability to mount more file systems than I even knew existed before using it. If you need to access an exotic file system, BeOS 4.5 is almost sure to have a driver available for it. However, the FAT (or FAT16) is the most commonly readable file system around, so generally you will want to transfer data to this file system.

If it becomes apparent that the file system is intact and not infected with a virus (or has had a boot sector virus removed), then you may need to replace the Master Boot Record (MBR) of the drive. Simple. Boot to a DOS disk that has the fdisk utility and run an 'fdisk /MBR' to replace the MBR. Remember, balance the time it takes to restore the operating system against the time it takes to recover data, get a new drive, and install a fresh operating system.

Normally, disk recovery is simply a matter of recovering the data. Returning a drive to its previous state is a goal but may simply be more costly than recovering the data and replacing the drive. How much effort to expend on the process is entirely up to you and the client.

Drop it

From: Bob Matott

Besides the typical use of sys C: to transfer back the system files deleted during "housecleaning" by typical users, I've gotten lucky by turning the drive upside down and setting it on top of the power supply (which seemed to remove "a static charge" that had built up).

Also have used various Disk Manager packages to "talk" to drives with FAT/NTFS corruptions just to recover the data. If drives are being reformatted from an operating system that doesn't want to "fully go away" (can name a few!), the disk manager software has also worked in this scenario many times to get rid of the old and allow you to reformat with the new.

Of course, there's always the "**drop it from 4-5" onto a flat hard surface**" or "**smack the side of the case with the flat of your hand**" approaches. Believe it or not, both techniques have worked. Rumor has it that sometimes the heads "stick" to the platters during parking/cooldown.

From: Kenneth Lillemo

Sometimes a hard drive that has been running since nearly forever won't spin up after being shutdown for a while. This can be caused by the heads sticking to the platter. As a LAST resort, I will **drop the drive onto a firm surface from approximately eight inches**. Inevitably, this will solve the problem and the drive is useable long enough to remove the data. My Sys admin spouse gives me a funny look every time I do it but can't argue with the results.

From: Peter Tello

If the low level diagnostics fail, I declare it officially dead. At that point, I have nothing to lose, so I pull it out and over a thin carpet, **drop it 6" squarely on all 4 sides, repeating this 2 or 3 times**. I have approximately a 50 percent successful boot-up rate, usually enough to copy the data off and save my behind for not having it backed up in the first place.

From: TDC Tech

This is a one-time fix—long enough to revive HD to get data.
- ?? Take the HD out of the computer and **squarely drop it on the closed side of the drive** (to your bench) with perhaps **a little slam**.
- ?? This seems to free up the bearings long enough to copy data off of the hard drive. I have quite a bit of luck, **but 90 percent of the time it only works once**.

Hit it

From: Karen_Roman

1. Check CMOS settings to make sure the drive setting are what they should be—the CMOS battery could be dead or the user may have changed the settings. A bad hard drive could cause the Autodetect to misread settings.
2. Boot from a floppy disk and run fdisk/mbr to restore the backup copy of the master boot record.
3. Image the drive with drive copy program to a new drive.
4. It's possible the HDD controller is bad. Try the drive in another machine.
5. Boot from a floppy attach to a network drive or have a secondary drive installed and if you can access the data copy it off to there.
6. The drive could have a stiction problem. **Tap it gently on the sides, preferably with a rubber mallet**.

From: Alan Gates

As "unscientific" as this sounds, I have found that rapping the drive case a couple of times sometimes allows the drive to come up. I have had several experiences in the past like this. Sometimes the drive is having trouble "spinning up." Obviously, the drive is on its last legs but a rap on the drive case will sometimes free it to spin up. This will allow the system to boot so the data can be backed up before the drive goes into the trash...

From: Bob Barker

I have found on more than a few occasions that older disks can develop a sticking problem. I believe it is a combination of weak motor and surface-to-surface tension between the disk and heads. This problem usually shows up on older disks that have been running a few years (usually 24 hours a day) and then shut down for service or other reasons.

?? When you try to start up again, the disk will not spin and you get disk errors trying to boot. After checking for the usual problems (power, cables, jumpers, etc.) and finding that the drive was in fact not spinning, I have had great success jarring the disk with my palm (of my hand, not my PDA). I some times have to be a little more violent to get it to start but I have never had to use a hammer.

?? I would be careful using this method if the data on the disk must be recovered at any cost which I would then send to On-Track or some other expensive data recovery company.

?? I have found this problem mostly with older servers, but a few weeks ago I ran into the same thing on a two-year-old Compaq IDE drive that was only used a few hours a day.

From: Randy Forston

If the hard drive isn't making noise and when you place your hand on it (not on the PC Board side, but on the metal casing), you don't feel any vibration from the drive, you may have a sticking problem (some older drives with a variety of drive lube no longer used have this problem).

If the above describes the symptoms you're seeing, try rapping around the drive case with the plastic handle of a screwdriver.

This will quite often remedy the stiction and allow the drive to come back up as normal.

From: philn

Hi there,

A few things can be performed on a crashed drive before declaring it DEAD:

1. Touch the drive (or listen to it) to feel whether it's spinning. Some drives gradually suffer from spin-up problem but otherwise work fine once spinning. If it doesn't spin at power up, gently **knock on the side the drive once or twice to jump start it**. This works best if you knock on the drive approx. one or two seconds after power is applied. Repeat the procedure a few times and add a little more force if necessary. Remember that too much force can permanently damage the drive, but again, you have nothing too lose at this point.

2. If drive spins normally and stays spinning, try listening for irregular sounds emitting from the drive. A series of 'clicking' sound usually signifies multiple bad sectors including the boot sector that can prevent drive from booting. If drive 'Auto Detect' is enabled, make sure that its signature is shown at boot screen. If not, drive is certainly suffered from major hardware failure.

3. Check system's CPU to make sure it's not overheating (CPU can run warm, but should not be hot) due to a failed cooling fan, etc. Overheating the CPU can cause the system to be unbootable or cause the system to reboot itself frequently.

4. You could use another system to test the problematic drive to make sure that the controller is not at fault. Try both "Auto" and "User Type" (where you manually enter the drive's parameters) settings.

5. Try booting with a floppy and run 'fdisk' to view drive information. Some drives suddenly lost all of their data possibly due to corrupted FAT, but otherwise, continue to work fine once initialized and formatted. In many cases, FAT can be restored by executing Norton Utilities from floppy.

If all failed and data from drive must be retrieved, you can try swapping its hardware (drive's main board) with similar working drive. Though this procedure can void drive warranty, but your data is more important, right? Or else, you try services that can save your data from dead drive for a fee.

From: Lyle Giese

Put CMOS back to auto for HD and see if it sees an HD at all. Put in a bootable floppy—can you see the HD? (Don't forget to write protect the floppy in case this was a virus.) Now try EZ-Drive. Some versions (I have several on hand with different advanced options) show what parameters the hard drive is set to in CMOS and what parameters the drive was formatted with. The second set is important. Sometimes the BIOS doesn't auto correctly.

Listen to the HD. If it powers up normally by sound (no strong thumping sound) and the platters seem to spin up, you still have a chance. If the drive spins up and then down or if it emits a strong thumping sound, the hard drive is toast and only a professional recovery company with a clean room can help.

If the HD doesn't spin up at all, **occasionally you can gently slam it down to get stuck platters unstuck and it will spin up long enough to back up your data**. The HD is toast physically at this point, and it needs to be replaced before trying the slam technique. There were also a few older HDs that had the flywheel exposed, and you could nudge it slightly and they would spin up long enough to back up the data. Again **these are last resort techniques** and you ARE planning on replacing the HD anyway.

From here, one of several software products are available to assist you as long as the drive spins up physically to assist the technician. Most of these products can read drives with damaged FAT tables or missing sectors.

And it could be just a simple matter of losing the Active attribute for the partition! Also, viruses can cause this by blasting the partition table, and some of the professional revival products can assist from here. Good luck!

From: Christopher Tolmie

??   If the drive is not spinning up on power-on, I'll lightly **rap on the side of the drive enclosure** with the handle of a screwdriver while listening for the platters to begin to spool-up.

??   If it doesn't spin up, I'll increase the pressure of each rap until it does start spinning. I've gone to the extreme of picking up an externally mounted full height 5.25" disk drive and **slamming it continuously on the desk while it was starting up**.

??   I did this for over six months until the drive finally died completely, but I did extend its life and it never had corrupt data on it. Of course, it was all backed up. If the drive won't spin, then you aren't going to recover the data.

??   You can you a third-party utility like RESCUE that reads the drive directly using its own operating system and saving individual files and directories to another drive. I've recovered entire drives this way!—it is time consuming but it works. When all else fails, send it to the professionals.

??   Search the Web to find different companies that specialize in rebuilding the drive, but expect to spend mucho dinero.

From: Craig Shipaila

Before you do the following, make sure that the controller is not the problem or a cable on backwards, etc., by taking the drive out of the computer and putting into another one to see if it's the computer causing the problem. If the other items have been checked, then do (what we call) **the slam test**.

If the drive is dead the only thing you can really do is:
1. Find out if the person needs any important info that you might be able to get off of computer.
1a. If person has data they cannot live without and the drive is not running, take the drive out of the computer and **slam it down to the desktop to get the motor running**. Nine out of 10 times, this will get the motor running long enough to get data. If needed you can also send the drive into a White Room to have them get the info.

From: Joseph Bruno

Actually, the solution isn't mine. We had several Dell PCs and the C drive went out on one (with no current backup, of course). The Dell tech came out with a new drive but the warranty didn't include data recovery for which they wanted a $5,000 deposit and offered no guarantees.

I asked the tech if there was anything we could do on our own to get the drive to spin up so we could get a backup. "Well", he replied, "there is one thing I've done that sometimes unsticks the drive." **He then took the drive out and slammed it flat down on the desk as hard as he could**. After putting it back in the drive, it spun up. I was advised to back up the data before shutting down the system as "the slam" doesn't always work and seldom works a second time.

Fortunately, once was enough in this case. The data was backed up to a portable tape drive and the C drive was replaced and restored.

From: Sam Espana

I have used several ways to solve the same issue. The reason is the fact that a hard drive is a hard drive is a hard drive, or is it? The answer is NO. If a hard drive is failing it's usually because it is legacy equipment that often doesn't even support LBA mode. But, sometimes it isn't even the hard drive that's causing the problem. Say what? That's right.

By in large, I first approach this situation by asking the user how much hard drive space he/she used to have. Usually the answer is over 512 megabytes. But, again, you'll be surprised.

Secondly, I ask the user if this is the first time this situation has occurred and whether or not he/she knows if we are dealing with a new or old computer.

Armed with the above answers. I usually solve this problem by performing a combination of the tasks described below.

1) Test the motherboard BIOS/CMOS battery. Often, the hard drive is just fine. But, the internal battery is dead. Some computers like a few Packard Bells I have dealt with have LBA and 32-bit mode turned off by default. Those settings may have been enabled during assembly, but now that the battery is dead they are set back to factory settings (when the user turns his/her computer off) rendering the hard drive inaccessible. Solution: Change the internal battery and enable CMOS LBA/32-bit mode.

2) Ask if the computer has been moved recently. Often, when computers are moved, data cables are detached from hard drives and/or motherboards. Obviously, without a data or power cable, a hard drive will never work. Solution: Reattach cables and be prepare to actually replace them.

3) Worst case scenario. It is the hard drive that does not seem to respond. Then, replace the hard drive with a new Master drive and install the faulty drive as a Slave drive. Make sure you install the same Operating System used by the Slave on the Master. Then, proceed to probe the Slave drive. Ideally, at this point you should use diagnostics tools such as Micro-Scope from Micro2000. If you have experience, you should not close the computer box making sure that the Slave drive is within reach. Twice, I have been able to restart a hard drive after **gently banging on it** (once as Slave and once as a Master.) Don't miss the boat. Even if you happen to restart the faulty Slave drive, you must copy your info to the Master so that you are not placed in the same situation again because the next time you may not be as lucky. The above procedure works whether the drive is an IDE or SCSI drive. However, when using SCSI hard drive, you may have to test the SCSI card as well. I am leaving now to fix a drive that belongs to a RAID pack because it seems to be out of the scope of this drive quiz.

From: Earle Pearce

When a drive is really gone—cannot be read at all—due to a physical failure, I employ a trick that has yet to fail me.

1. Install the replacement as an additional drive.
2. Remove the bad drive and smite it firmly on both edges (**bang it on something solid**)!
3. Reinstall it, reboot, and it will work long enough to get the data copied to the replacement drive.
4. I haven't had the opportunity to check this step yet but I think it should work. If it's the boot drive that's bad, mirror the boot partition to the replacement drive, then break the mirror, remove the bad drive rejumper, and boot to the new one.

The rest of the solutions

From: Scott Wittell, MCP A+

I had to laugh when I saw this easy fix, and it does work. We were able to bring back a failed drive in an older HP server running NetWare 4.11. First step is to remove the drive from the machine. Second, hold the drive flat in your palms. Third, shake the drive a few times in an up-and-down motion, like you're trying to hammer a nail. Don't let the drive hit the floor though. I've used this technique on numerous occasions, works every time.

From: Colle Davis

The Hair Dryer Method

For the last resort (when the drive really did die, it-is-not-even-spinning type crashes), there is a possible solution that comes from the early days of hard drives. Back then you were not supposed to turn them off—I don't know why but IBM said never turn them off unless you are standing there.

One of our main computers was housed in a closet where I could not hear it well and had a power supply failure that apparently took days to complete. I happened to open the closet for some other reason and discovered a warm box and immediately went through the shut down sequence to take it off line for a new power source.

Several days later, the unit was shut down again for a long weekend of downtime on a routine maintenance schedule and upon restarting the system the hard drive would not work. I am pretty good at backing up everything but could not find the backup disk anywhere. Panic. I am the author of a newsletter that goes to hundreds of subscribers everyday, and the mailing list was on the dead drive. I replaced the drive and reloaded everything but was going through sobbing spells as I looked for solutions to recover the lost data. Data recovery companies wanted over five thousand dollars to try to recover the data.

A client of mine told me he once possessed an old 286 that required a hair dryer to get it running every time he turned it on. The fellow who had built it for him was an IBM technician and gave him the hair dryer idea because that is what IBM used to do to restart the drives in down machines. So on the bench machine with the drive out where the dryer could get to it and still be hooked up, I began the process. Lo and behold, it worked. While it was running, I downloaded all the missing data and immediately uploaded it to the new drive. Don't laugh, I got my outcome and can now say I recovered a fully dead hard drive with my wife's hair dryer.

From: John B.
As for me, I have had good success with this method (about 50-50).

I take the drive, and suspend it 4" over a plastic carpet tool (one of those things you see in an office to help the chair wheels go). I then let it "fall" while still holding it, twice on each long edge, then once flat on top and bottom. You want firm, but not too hard raps on the plastic. I find that the carpet underneath seems to cushion the blow just enough. This appears to work on drives with stuck read-write heads most of the time. If the center bearing is locked up, nothing short of a miracle will bring it back. In any case, have a second drive ready to receive your files when you attempt to restart.

From: Tony

A. Dead system—System "A"
B. Known working system—System "B"

C. I am assuming that the system board is posting and responding in the correct manner. And that no Jumpers have been moved on any of the equipment.

Step 1. Verify power to Hard Drive (HD), Multi-tester (VDC), or another system plug. If power (See step #2) If no power, swap/replace plugs/power supply.

Step 2. Swap hard drive from A to B and boot. If boot, then HD is good. (See step #3) If No-boot, then replace HD.

Step 3. REMOVE...DISABLE if onboard.... all un-needed devices from System A...modem, sound card...etc.
NOTE: Label HD ribbon cables A and B before removal from systems. "A" for System "A" and "B" for System "B")

Step 4. Remove from system A and B the HD, and ribbon cable that connects it to the motherboard...(MB)

Step 5. Swap drive and cables from B to A and connect to MB. If boot then controller on MB "A" is good (See step #6.) If No-boot then MB controller is bad.... replace MB.

Step 6. Return HD's and cables to original systems, Remove HD ribbon cables from both systems, swap B for A and boot...If boot then ribbon cable on A is bad...replace. If No-boot then... Balance your check book, and get out the sale pages...you've got bigger problems!!

From: Eddie N.

The two techniques that I have used to get a failed hard drive to come back to life is to Sys the drive from a boot disk and/or to use the fdisk/mbr command form a boot disk. I have used these together and independent of each other.

From: Paul W.

Dead disk drives?

There's a bunch of steps I would take if the drive weren't being recognized by either the auto setup or manual entry.
1) Check your Master/Slave/Standalone jumper settings and make sure they are correct and don't conflict with another device on the same IDE channel.
2) Check for bent pins on the connectors.
3) Try a known good cable—Floppy and IDE cables often seem to go down the gurgler at the worst possible time for some unknown reason.
4) Try a known good drive on your IDE channel and check the channel. If it doesn't respond:
??   Try another IDE port (if there's two)
??   Disable onboard IDE and try another I/O card (one that's known to be good of course)
5) Try the disk in another PC.
6) Here's where it starts getting tricky. By now you must be reasonably convinced you have a bad case of galloping disk rot. On some drives (not all), if you have an identical same model drive, you can swap over the logic board. This will let you know if it is the embedded controller on the logic board. With luck, your disk will roar into life and you can suck the data off onto somewhere safe.
7) If your disk is making a hideous noise like a peg-legged man with a vacuum cleaner on a wooden floor (whirrr, clunk, whirrr, clunk....), then it is likely you have a dropped head. This is where you have start making decisions about how much your data is worth, because to go any further is going to cost big time and may require factory technicians to try and repair the disk in a clean-room environment. If your data

was that important, then it would have been backed up. (Of course it would have been, they all respond in loud voices)

8) **She's dead, Jim. How fast can you type?**

In a nutshell, this is my summary of the death cycle of a hard disk.

From: Daniel F.

Get an identical Hard Drive and swap out the Logic Unit (Electronic Board). Set your CMOS to auto-detect. You're good to go!!!

From: Miles H.

- ?? Check cables are on and are the correct way round.
- ?? Check jumpers to ensure the disk has the correct setting (depending on otherisks or CD-ROM used on the same controller, if any).
- ?? Check Bios setting for Model of PC is current. Download latest version if necessary.
- ?? Boot from DOS floppy, use FDISK to check if disk can be seen. If the disk is there, then I would suggest using GHOST or similar to copy the image from disk to disk.
- ?? If the disk was not apparently running, I would swap the disk out and install it into a PC that was working.
- ?? The options here would be to have the 'faulty' disk as the master or slave depending on your situation.
- ?? If installed and works as master, ghost the image to the network.
- ?? If installed as slave, boot the PC and use ghost to copy from disk to disk or to Network.
- ?? If disk was still in a state of absolute failure, I would suggest contacting the disk manufacturer to ask their advice.
- ?? They may have some low-level disk checking/repairing software.
- ?? I would also install a new disk into the original PC with O/S on and ask the user to ensure all data is put onto the network (if possible).
- ?? If all else fails, then you'd have to chalk it up as experience and hopefully someone would learn to ensure sufficient backup procedure were implemented.
- ?? Therefore, the next time this happened it would not matter. You would be able to reinstall the O/S and Applications (manually or automate) and restore data back to the user (if held locally).

From: Lawrence Shipinski

Easy, go to Maxtor's Web site or Seagate Web site and download the utility software. It's free. Please back up whatever you can first!

From: Jake G.

Well, I'm kind of new to this, but I'll throw my hat in the ring.

First, I would try flashing the CMOS. If the battery is built into the system board (I bet it is), then find the CMOS jumper, pull it——or move it from pins 1-2 to 2-3——then kick the power on for a few seconds. Power down; put the CMOS jumper where it started. If the battery is removable, then pull the battery and flash the CMOS.

Try rebooting.

If that doesn't work, put the Quick Restore disks in, reboot, and exit to DOS when you get the chance (I don't remember the exact steps to that). Now, depending on how this QR was put together, you may have

to change to a virtual –drive—possibly N: and then the TOOLS directory. You may be able to do this straight from the A: or C: prompt. Run the command FDISK /MBR and reboot.

If it still doesn't work,then I would have to check into a disk utility you can run from a bootable floppy (assuming you can even get that far). Don't have a whole bunch of experience with those. The next step after that is to just swallow hard and kiss that data bye-bye. You could replace the hard drive but why keep a relic like that around when you could buy another one five times as good for the same money the Prolenia cost you when it was new?

From: Gordon G., IT Manager

The following is the normal procedure used at my company (before sending the hard drive to a data recovery agency).

1. Return the BIOS to the original state. If "auto" for hard drive then "auto," otherwise to "user defined" with LBA enabled for Microsoft's operating systems.
2. If the system still doesn't boot off the hard drive, then boot off a write-protected bootable floppy using the same operating system and version as what is on the C: drive.
3. If there is no hardware error during the boot process, see if the c: drive can be accessed at all. If it can be accessed and files and directories can be viewed, now is a good time to back up files if the physical condition of the hard drive is suspect.
4. Check the hard drive with an antivirus program. Sometimes computer viruses damage the boot sector. A good antivirus program will identify the problem and may even correct the situation.
5. If there is no virus found on the c: drive, then run "sys c:" to restore the boot files to the hard drive. Only run the sys command if you are sure the BIOS settings are the same for the hard drive as before the problem was reported. One way to check this is to look at the file and directory structure of the drive. If you see garbage, then the settings are probably not the same (or the FAT was corrupted). Reboot the system after running sys.
6. If the drive boots, you're almost done. If not, then reboot off the diskette and scan the drive for errors. Reinstall the operating system without formatting the drive.
7. If the drive makes any unusual sounds or doesn't spin, then your best option is to send the drive to a data recovery agency. Attempting to recover data from a physically damaged disk usually results in further damage to the drive and little chance of recovering any data later. The best question to ask here is "What is your time and data worth?"
8. In step 6, I said that if the drive boots you're almost done. What's left? Make that recovery diskette, make a backup of the drive and thoroughly scan the hard drive for any physical errors. Perform the scan last, since the drive may fail during a scan if there are any physical problems with the drive mechanism.

From: Traci N Thrash

I hope you have good luck on your data recovery. Usually, the first thing I do is to pray, then scold the user GENTLY for not making backups. I hope they never ask to see MY backups.

1. Pull the disk. Put it in a known working machine. This gets you out of the malfunctioning environment and into a controlled space, YOUR workbench.
2. Try "Auto config" to set the drive type.
3. If "Auto config" does not find the correct drive type, you have two options:
?? Read the actual specs off the drive label (this may or may not work, depending upon whether the set-up tech used them or not).
?? Use a disk utility to read the specs off of the drive.
4. If this does not work, is the drive spinning?
?? If not, try to "shock" it by setting it flat upon the table top, applying power, and rapping it on the side a couple of times with a plastic-faced hammer or handle of a screwdriver. Don't be afraid to rap it pretty

good, these little guys are pretty sturdy nowadays, and worst case...you already have a broken drive! (Often you will hear the drive spin up immediately.) Time to BACK UP (Grab the data and run).

?? If it is spinning, power it down and clean the connector with the cleaner of your choice. I like pre-moistened alcohol prep pads from a medical supply. Put the cables back on and try again.

5. Sometimes, it helps to remove the PC board from the drive and reinstall it. (Connector problem again.)
6. Disk utilities like SpinRite, Disk First Aid, or Disk Rescue are useful (but only if the drive is actually spinning.)

In every case, back up the data the minute you see anything that even looks like a directory. Have a drive ready to put it on. I like to have a disk drive connected to my test machine and put everything there ASAP. You might be advised to use the "new" drive that will go into the user's machine. Don't put the "bad" drive back unless you just like to make service calls over again. These steps have made me a hero more than once on my 17 years as a PC tech and/or salesman. Hope they work for you.
From: Geoff G.

Here's my solution to the quiz "How do you bring a hard drive back to life?"

In order to make the best use of a drive that may be failing, one could take
the following steps:

1. Check the system to see if the drive will detect and boot up successfully. If so, skip to step 5 for backup/data retrieval procedures.
2. If the drive is not detecting properly on the system, check to see if the problem can be solved in the systems bios, by either manually reconfiguring the drive, or by autodetecting it. If this works, skip to 5.
3. If the drive simply will not work in that system, try putting it in another system that is working properly with a similar hard drive (the same drive type and/or size if possible). If the drive works in this system, but not in the original system, then perhaps the old system has more serious problems such as a bad IDE controller.
4. Try booting up on the drive. If it will not boot properly, try FDISK or some other partition viewer to see if it has valid partitions defined. If no valid partitions are defined, or if partitions are unformatted, then the data may be lost. Try redefining to the exact same partitions that were known to exist before the problems were encountered. If you have a working drive at this point, but no data, then it is likely that data is gone. If irreplaceable data was lost, you can try bringing the drive to a hardware shop for professional data retrieval.
5. If any of these attempts to revive the drive has succeeded, then immediately bring the system up and back up any important files to another drive or to removable media. Run scandisk and/or any other drive checking utilities. If serious problems are found with the drive, or if you have suspicion that the drive will continue having more problems like this, then prepare to replace the drive. While you still have a working system, make a complete backup if possible. Perhaps the entire drive image can still be retrieved and copied onto the new drive, and no system re-install will be necessary.

From: Chris Heizmann

I. If the drive works intermittently and won't boot to Windows:

1) Create a boot disk on a different machine if available (format c: /s).
2) Use the boot disk to start the machine in DOS.
3) Switch to drive c:\.
4) Copy all data files to floppy (more than one disk will be needed).

II. If the drive does not work at all.

?? 1) Open up the case.
?? 2) Locate and remove the Hard Disk Drive.
?? 3) Tap on the side of the hard drive with a screwdriver a few times (not too hard).
?? 4) Re-install the drive and start the PC.
?? 5) If the PC boots to Windows, backup all data files via MSbackup.
6) If the PC won't boot to Windows, follow the above instructions.

From: David A. Hunt

?? First establish the correct drive characteristics (cylinders, sectors, kapazität usw.) from the drive or from internet if not printed on the casing.
?? Check all cables and connections (Power, EIDE, or SCSI).
?? Turn on the Power and correct the BIOS.
?? Watch for failures such as controller failure during bios check.
?? Listen for unpleasant noises (after head crash).
?? If the PC won't boot from disk, use a boot disk in the floppy and establish if drive C is available.
?? If not, try Fdisk and see if a drive is visible (if not, it's starting to look bad...).
?? If visible and reachable, copy any important data to floppy disk (if possible) or another drive if available.
?? Revive the boot block, and try booting from the drive again.
?? If the drive wasn't visible, then remove the drive and try to revive it in another PC.
?? Sometimes removing the drive and gently shaking it can help to revive it if the user hasn't been using his PC on a regular basis, especially in older PCs.
   Anyway, this a problem one can spend hours with, it just depends on how important the data was. Only cowards work with a backup!!!!

From: Mauri Presser

?? Check the CMOS setup for drive settings.
?? If an auto detect drive option is there, use it.
?? Save the settings and reboot.
?? Listen to see if the drive is spinning by putting your ear close to the drive (hopefully the drive is not so loud that you do not need to get close to it to hear it).
?? If it does not spin, shut down the computer.
?? Check to make sure pin one of the cable is on pin one of the drive (you might have seen a steady drive activity LED lit up if it was backwards).
?? If one was on one, then physically remove the drive and FIRMLY holding on to it, twist your wrist in an attempt to break the "sticktion" (bearings stuck) free.
?? Hook the drive back up and power up to a boot floppy.
?? If it spins up now, try FDISK or other third-party software to see if it recognizes the partition(s).
?? If not, try Norton Disk Doctor or equivalent to try and recover the partition.
?? If it does see the partition (or if you recovered it) try and read the files.
?? If not, back to Norton Disk Doctor.
?? If this does not work, it's time for Ontrack or other data recovery service (if the client will pay!). Good hunting!!

From: Karl DeGraff

The most successful methods I have used are:

1. Find a computer with the exact same operating system (Win 95, Win 98, etc.) that you can use as a surrogate host. This works best if the secondary IDE channel is unused, allowing the private use of that channel by the ailing drive, and usually eliminating the need of changing jumpers.
2. Go to the drive's manufacturer's Web site (or use a drive parameters database) to get the actual physical drive parameters.
3. Set the surrogate computer's BIOS parameters to expect the ailing drive and turn it off. Auto is the best initial setting. Make sure the second IDE channel is enabled and power management is off, at least for the hard drives.
4. Cable the ailing drive to the surrogate computer's secondary IDE channel using a reasonably long IDE cable (see reason for long cable below).
5. If the drive does not spin during power up when it should (note that some SCSI drives have delayed spin ups), take the drive, hold it in the fingertips of both hands (spider on a mirror style), and rotate the drive's casing around the disk platters inside suddenly (the reason for the long IDE cable). The most effective motion is to prepare by rotating slowly to a starting position where your fingers are turned "up toward" your chest as far as is comfortable for you wrists, then suddenly rotate "down out" from your chest as far as is comfortable, and then immediately snap back to the original position. This technique works by moving the casing with respect to the platters based on the principle of inertia and will often allow a drive with "frozen" bearings to spin up one more time. Do not expect this technique to work twice!
6. If the drive does not spin up, see a drive/data recovery lab that has the ability to disassemble the drive to get at the platters and recover the data from them by using specialized clean room equipment. When performed by a qualified lab, this process is quite successful, but very expensive—backups are much cheaper! Choose the right lab, you usually only get one shot...
7. If the computer recognizes the drive, proceed on to recovering the data by any means you desire. Note that since the drive is not the boot drive and host operating system, all of the boot and operating system information are accessibl–e—no "in use" files!
8. If the computer does not recognize the drive, especially if set to Auto, go to the BIOS and set the drive parameters to the manufacturer specified values and reboot. If still no recognition, try adjusting the values for sector translation. There are several options for the primary translation type (Normal, LBA, Large, etc.), but please note that there may be other settings that also effect drive communications. These other settings usually have values of Yes/No. Some of these other settings are "large drive" (note there are many different names for this setting), "enhanced mode," and "block mode." The important thing is to try different combinations of any of the settings that effect hard drive communications for the second IDE channel. Hint, make a list of all of the possible combinations and check off each one as you try it.
9. Most important, try not to let anything (e.g., operating system or "fix-it" programs) mess with the disk contents until you have exhausted all other avenues of access. These programs are great, but should be reserved as the first line of defense against software corruption and the last resort for hardware corruption. If your problem is a hardware issue, these programs will usually "finish the job" in terms of denying you the possibility of recovering you data. Only use them AFTER the hardware problem has been corrected.

From: Dan Miley

I've had this happen before, and one thing that worked for me involved the following:

The Hard Disk Assembly (HDA) is usually separate from the IDE controller board. If the controller board is the bad part, the data is still good, you just cannot get to it. The symptoms for this are: Disk not spinning up at all, "drive not found," or "no boot disk available" type messages.

I've swapped the data module (HDA) from the bad drive controller to a good replacement drive. Usually it's just 4-6 screws and a couple small cables. Use static care procedures as always when working with computer parts.

If the data is good, send the new HDA and bad board back to be fixed, put the good drive (with original data) back in, reboot, and away you go.

From: Jack Ho

?? First of all, get yourself a Win95/98 startup disk and an emergency boot disk from your favorite virus-scanning software and disk-repairing programs.

?? Second, note the number of drives in the system and reboot the machine. When it boots up, make sure you can hear the all drives spin up. If the spinning sounds are confusing, you may have to open up the case.

?? If any of the drives didn't spin, turn off the PC and take the computer case off. Carefully unplug the drive cables and power cables and reconnect them. Then power up the system. If the drives still do not spin, swap the power cables and try again. If they still do not spin, then you know for sure those drives are dead. To retrieve data from these drives, you may have to take them to a nearby data recovery center and be prepared to spend some bucks. If they spin after you swap the cables, then you've got power problems, and you need to replace the power supply on the system.

?? If the drive is spinning but the system does not recognize it, such as "invalid drive specification" or "disk 0" errors, cold boot the machine and enter CMOS setup. Make sure the disk controller (whether it is IDE or SCSI) is enabled. Set it to AutoDetect if it is an IDE drive. Set the correct SCSI options (by entering the appropriate SCSI utility) if it is a SCSI drive. Since the system was working before, I assume the SCSI IDs and master/slave parameters are correct. After the correct options are set, reboot the system. For an IDE drive, if the system still does not recognize it, manually enter the drive parameters in the CMOS set up and reboot again. If the system has a CD-ROM drive, note if it was being recognized by the system. If the system does not recognize both hard drives and CD-ROM drives, take the computer case off and replace the IDE cables (or SCSI cables if they are SCSI drives). Note any broken pins when you replace the cables. If there are any broken pins, you may have to replace the drives or motherboard.

?? After you've replaced the cables, if the drives are still not being recognized, the drives may be bad. If you have a spare working drive, plug it in. If it works, then you know the other drives are bad: either a severe virus has contaminated the drives such that the drive parameters are overwritten, or there are physical errors with the drives. If the system does not even recognize your spare working drive, then the disk controller is bad and needs to be replaced.

?? If the system recognizes the drive but does not boot up your OS, cold boot your system from a bootable virus ERD and do a complete scan of the failed drive. Repair any corrupted master boot records if possible. If the virus-scanning disk does not find any virus, cold boot the system with a bootable ERD from your favorite disk repairing software such as Norton Disk Doctor. If this still does not help, but you are able to access the data from a floppy boot disk, you can recover the system by backing up all your data and reinstalling the OS on the hard drive. If the failed drive can't be accessed from a boot floppy and is not repairable by any "disk doctor" programs, take it to a data recovery center.

From: Robert K. Kuhn

Since you did not state what kind of hard drive this is (MFM, RLL, SCSI, ESDI, IDE/EIDE), I'm going to assume IDE/EIDE.

An "Invalid Drive Type" error usually means that the wrong drive type has been selected in CMOS. I am also going to assume that the BIOS/CMOS supports this hard drive size (some older BIOS's required a

third party software patch; drives that were 500 MB and larger for instance...). If Auto Detect does not work or if the BIOS/CMOS setup does not have an Auto Detect feature, then I would do as follows:

1. Verify that the drive is spinning up and that all the cables are hooked up properly.

2. I would then verify that the drive itself is configured/jumpered correctly (master/slave/single drive). Most of your current IDE/EIDE drives have the jumper setting on the drive itself, which makes it nice. Though some of the older ones do not, which forces you to call their tech support or search their Web site for jumper configuration.

3. If I had access to another computer, I would either try swapping out the cable to see if I had a bad cable or I would just simply install the "bad" drive into the other computer and see if the BIOS/CMOS detects the drive. If it does not, then chances are very good that the drive is kaput. However, if the other computer does see the drive and I am able to boot up with it, then I have to assume that there's a problem with the other computer's IDE/EIDE controller. One last attempt would be to find the geometry of the drive (cylinders, heads, sectors) and add them in manually. If it booted fine with the other computer, the geometry can be copied from there. Otherwise, a call to the vendor or a search on their Web site would be order. If the hard drive controller is found to be bad, depending on the motherboard (going with the assumption that it has an onboard controller with both a primary and secondary controller), I would check the CMOS to make sure that the IDE controller(s) were enabled. Sometimes you can boot from the secondary IDE/EIDE controller, so I would try that too. If it boots, great! Time for a new motherboard or perhaps just purchase a new controller and disabling the onboard controller. But I would seriously consider getting a new motherboard when budget allows.

4. If I only had the one computer, then I would have to search for a known good hard drive (and cable) that the BIOS supports. Then if it too does not boot, then I would have to guess it's something with the controller/motherboard. If it does boot, then I would have lean towards a bad drive.

5. Sometimes with an "Invalid Drive Type", you can actually boot with a floppy (assuming that the drive is not an NTFS, HPFS, LINUX, Novell NetWare or some other format....) and then access the hard drive. If this can be done, this might be one way to back up any data. You can set up the "bad" drive as "slave" and then with a new drive formatted with whatever format is needed, copy over whatever data that can be read on the "bad" drive.

Back in the good old days, when we had a drive that went beyond the 1024 cylinders (which is 99.99 percent of all the IDE/EDIE drives made since 1992 and on), we had to "trick" the BIOS/CMOS. This was done by taking the cylinders, dividing the number in half, and then doubling the heads:

Example: 1138 cylinders, 8 heads, 63 sectors–s—this would translate to 569 cylinders, 16 heads and 63 sectors.

I would try this trick as perhaps my last resort. But this was used/done on 386/486 machines back in the late 1980s to early 1990s.

One last attempt, and I doubt that it will work but it's worth a shot, would be to get Symantec's Ghost or PowerQuest's Drive Image. A trial copy can be downloaded from their site. See if a drive-to-drive image can be made (from the old "bad" drive to the "new" replacement drive). However, Ghost and Drive Image must be able to read the "bad" drive's partition. One could look into a sector-by-sector copying tool. Back in the late 80s, I had one but for the life of me can't remember who wrote it. But I remember it was shareware. Gibson research, perhaps (the makers of SpinWrite, an excellent utility for it's time...)

If the data is that important (mission critical), a drive recovery center would have to deal with it. But be prepared to pay for it! We've had to use a local data recovery center (Hard Disks Only) and Gibson

Research in the past to rebuild a bad drive. Not cheap but would have cost us more had we not been able to recover the data. Gibson Research is perhaps the best out of the two we've dealt with.

Some other things to consider include that a bad power supply can also cause a hard drive not to boot (not allowing it to spin up to full RPM), the amperage required to spin the motor is more than what the motherboard draws/needs even if it has a full bus. Also, I've even seen some ISA, PCI, and AGP cards cause conflicts with onboard IDE/EIDE controllers (usually in the form of IRQ and/or memory address). Though these are usually funky-specialized boards, I have seen it happen.

Again, I am assuming that the drive is an IDE/EIDE. If it's an MFM, RLL, ESDI or SCSI, then the tactics would differ slightly as each are set up and controlled differently. But since IDE/EIDE is perhaps the popular and most used drive, I am going to assume that is the drive.

From: Jim Davison

Since you did not state IDE/SCSI, I will assume IDE. I will also assume that drive is not using a bios modifier like those used to make older motherboards support larger drives. (I have seen situations where users tried to enter drive specks in setup for SCSI drives).

I would use the following steps even considering that you state the user had "Tried" to manually enter the settings in setup and also tried auto. The user may not know what they are doing. I also would not trust the error codes. I would assume the error codes are only letting us know there is a problem but would not trust the codes to give an accurate description of what the problem is.

1. In setup, Try IDE Auto Detect to see if the bios can even see the drive.
If yes, then I would use that setting and everything should be OK.
If yes, and the drive still does not boot, I would use fdisk/mbr in case the Master boot record was destroyed.
If no, then I would go to step 2.

2. Open the box and check all power and data cables.
(I have seen Molex type power connectors lose a connection intermittently even if they are plugged in tightly) you need to wiggle them around. (I have also seen one case where the data cable came loose when the computer was moved).
If cables were the problem, then you should be okay now.
If you still have a problem, go to step 3.

3. Other Drives are bad and interfering with the boot disk
In case anything else is sharing the IDE bus with the drive, e.g., a CD-ROM, then disconnect anything that is also connected to the IDE bus and recheck the Master/Slave settings if necessary and try again.

4. Possibly a faster way to check if the problem is the drive or something else
Remove the drive and plug it into another computer and see if the other computer can detect the drive. If yes, then the problem is a cable, motherboard, etc. on the computer, so go to step 5.

5. CMOS or Flash problem
Put the drive or at least a drive back on the computer with the problem. Go to setup and reload the bios from defaults and then redo the settings and save. Then try the IDE auto detect. If this does not work and your system has flash upgrades, then reload the flash. Might as well check for upgrades before refreshing. After refreshing, then again reload the defaults and save settings. Reboot into setup and try the auto detects again.
If the BIOS can now see the drive but the drive still does not boot, then you may need to reload the OS or at least replace the necessary drivers.

If the thing still is not working, then it is most likely a defective drive and you will need to decide how badly you need the data on the drive. If you need the data, then I would send the drive to a data recovery lab that can extract the data from a dead drive and save the data to a tape, CD, HD, etc. This can be expensive but may be worth it.

From: Ron Charity

A trick I was told that sometimes works is to remove the drive from the PC (leave power and data connected), lean it on its side and attempt reboots.

From: Phil Murphy

First thing I would do is to check the BIOS to make the sure the disk is set to Auto and doesn't have any settings in it. Then I would reboot the computer using the Win95/98 Setup disk and run fdisk to check to make sure that there are partitions visible. If there are no partitions visible, then I would have to assume that the data on the drive has departed. Next, if I do see a partition, then I will exit fdisk and go right the C drive. I would run a directory on it to see if all of the files are intact. If they have strange names and numbers, then the drive has suffered a serious malfunction and the data is not retrievable. If the directory appears to be in good shape, then I would use Drive Image to make a image file of the hard drive and move it to either a zip disk or a CD-ROM, for the next time this happens.

From: Shawn Cole

?? Get a second Hard Drive larger than the current broke or fairly non-functioning one.
?? Make Disk #1 OLD Drive Slave and the new one Master because you want the new one to become your Primary Boot Drive.
?? Format and FDISK the New Drive into one or two partitions. I do two for personal reasons, Format c: so it's bootable.
?? Go buy a program called LOST & FOUND V1.0 from www.necx.com under software, disk utilities from the company POWERQUESTCORPORATION found at http://necxdirect.necx.com/cgi-bin/auth/manuinfo_q?key=POWERQUEST+CORPORATIO for a price of $55.95 and follow the instructions in the book to the letter.
?? Restart machine with the L&F disk in and follow the on screen prompts, and it will COPY all the data you choose. When it's complete, it will give you a report of success and/or failure on particular files.

And as long as the hard drive is not physically destroyed, you will be able to copy over all the recoverable data . The nice thing about this is it COPIES only—no writing to the messed-up drive. I used this very successfully on a drive that the FAT became corrupt on and would not ID or boot up on.

From: Tomer Har Nesher

Hi, I have three ideas:
1) Install the hard drive on other machine that is running same OS. If the disk partition is FAT or FAT32, you can start the machine by using WIN98 system diskette without install the hard drive on other machine.
2) We found some problems with hard drive that happen after few minutes of work. In this case, you should disconnect the hard drive from power (by turning off the machine) for few minutes, then turn it on and back up immediately until it will be warm again and you'll not be able to read the data. Do it until you'll have all files copied.
3) If you have same drive (SAME MODEL), you can replace the unreachable disk's main board and trying to read the data.

From: NETSPECS

There is no one way to this matter to the disk drive quiz. So I am going to give it a try. I have had this problem in the past, actually a few times.

?? I checked to see if there are any viruses that affected the Fat table of the drive, and then I used a hard drive that was sys'ed and set the other one as slave. I was able to read the partition and copy the data over. If that didn't work use ex: Norton disk doctor or any other disk examiner and see if that was able to correct the problem. Run it off the first hard drive.

?? One other way it could be done is if you knew that the controller board on the hard drive was bad is to replace that board with a exact one off of another PC and go back into setup and use auto to reconfigure. I have only used this method once and it worked.

From: Darren Brown

Hmmm....gotta hate those hard drive problems.....

"The sounds of the game"
Let's take a look at the hard drive itself. Is it plugged in properly? Just ask the customer a polite question about it possibly being moved or bumped. Loose cables are the most common problem in a case like this. If it is plugged in properly, just try to boot it again after checking the connections. Sometimes a connector did come out a bit on one side and you put it back properly without noticing.

"Put the right spin on things"
Next, is the drive spinning when you turn the computer on? If it isn't, check the power cable to the drive. If that was fine, tap the drive lightly on the side to see if it spins up. Sometimes that works (if it does, back it up and order a new drive immediately!). I encountered a drive that acted like this a year ago. If you kept tapping it, it kept spinning. So, for three hours, I sat there tapping this drive until I got all the company's accounting data off of it. Sometimes you have to make sacrifices for your customers.

"Something SCSI this way comes"
This may seem stupid, but is the drive a SCSI drive? Again, check the cables and the termination. Boot up and check the SCSI bios to see if it is set up properly.

"Back to the Bios"
If the drive is spinning and the cables are properly seated, check the "Detect IDE Hard drives" in the bios. For some reason, on some of the older motherboards, it will pick up a drive that "AUTO" won't pick up.

"Swap meet"
The old "swap" maneuver. Is there another drive in the company that is exactly the same? Back up that drive and remove it from the other computer. Remove the logic board on that one and transplant in onto the drive that isn't detecting. Boot up. If it detects, get the data off of it and return the logic board to the other drive. Double check that the drive you took the logic board still works! (Warning! Not for the faint of heart! May result in two defective drives!)

"Third Party!!!"
Get out the big guns. Tiramisu from Ontrack or DrivePro from Microhouse are great tools to get into spinning drives. DrivePro to set up the drive in the bios, and Tiramisu to retrieve the data.

"Never believe everything you hear!"
One thing to remember, listen to the problem the customer has, but find your own solution! I fell into that trap once "I tried this and that," and yet, after a couple of hours of painful work, I tried the customer's solutions, too. Sure enough, the customer may have tried those solutions, but he didn't do them properly.

These are presented in no particular order. You will do things differently depending on the situation (usually check the bios first and see the problem for yourself, then try to boot it up without doing anything to the machine. Based on the sounds the drive makes, or doesn't, this will give you a place to start your problem-solving skills). Also, if the drive does detect, but has bad sectors, try Scandisk (thorough option) or Norton Utilities Disk Doctor. A bad sector can make a bad day too. And a rule of thumb for bad sectors, even one grown bad sector means there is a problem, and should be replaced. Manufacturers may argue this, but in the field, you don't want to take anything for chance.

I really hope these help you out.

From: Rod Lee

My solution is as follows: Send the faulty drive and a new (fully tested and compatible) drive to the newly-formed TechRepublic support company where, for a very reasonable fee, the industry-leading expert technicians will solve the problem for me and copy all data onto the new disk!

As well as fixing the immediate problem, a new system will be installed whereby if data is not backed up within a specified period, or if the disk exhibits any pre-crash symptoms (whatever they might be!), the disk will be halted and all access to the disk will be prohibited without a special password known only to TechRepublic and myself. Thus, for another reasonable fee, I will be able to go to the customer's premises and save the day, thereby being accorded the status of "Hero" for recovering from a catastrophic system crash (and maybe even getting a cash bonus to boot)!

From: Michael Dal Lago

Maybe try the following;
?? Boot from a bootable disk that every good IT tech has and carries. Now you should carry bootable Windows 98 disks with files like Fdisk, Format, Chkdsk, and other diagnostics files. Now if you have an NT system with NTFS, you can boot with OS2 bootable diskettes; with will read NTFS.
?? If the BIOS still sees the HD but you cannot access it, your Master Boot Record may be defective. If this is so you may be able to recover it with the following command (Fdisk/mbr). This should recover the master boot record so you can read the drive.
?? After that, you may be able to run DOS base backup software. Make sure that you realize long file names are not supported by DOS.
?? If you wish to copy files to a different one, maybe you can use XCOPY32 to copy LFNs.

Of course, if the user was not backing up the system before this would be a good time to buy backup software since you will be in the store for the new HD. You may also use software like GHOST to make a image of the HD when it is running and install this image and ghost software to a bootable CD. When the system does crash, which will happen no matter what you do, remember to always plan for the worse. If you make the CD bootable, you can recover from a crash just by booting from the CD.

Another suggestion I would have is have an Application disk that contains all the applications and a different one for data. Keep a good daily backup of the data disk and maybe a backup of the application drive when major changes are performed.

From: John Dalnes

Already had this one this week. User deleted command.com and wouldn't boot. Tomorrow's presentation on the drive. Installed as secondary master in another machine and transferred data to the server. Reformatted and back online the next day.

From: John Callison

1. Run diagnostic, check post, check for error messages. These could indicate controller failure, etc.
2. Try hard drive as slave in another computer.
3. If the above does not get me access to the data, contact manufacturer and overnight drive to them. They may be able to fix the drive enough to get the data off of it or repair it without erasing the data.
4. Sell them a new hard drive and a tape back up or jaz drive, etc. It is best to max out the sales to them at this point as expensive lessons are usually the best learned.
5. If they call again with the same problem, no backups etc., give them the number of your competition.

From: Jim Burns

Check or swap the power supply to see if it's putting out the proper voltage. This can give a disk failure message during bootup.

From: Bailey, Vince

I would try fdisk /mbr to try and restore the master boot record to the drive.

From: William Perry

I would remove the hard drive, set it as a slave and install it in another computer as a slave. Copy data to another location. Run scan disk and defrag if drive will run at all. Reinstall in original computer and try it. If still fails, go to step 2.

2. I would remove the hard drive, set it as a slave, and install it in another computer as a slave. Copy data to another location. Reformat the drive, install a copy of startup files, then all other files if they do not contain errors (try opening them on the host computer).

3. If the above fails, install a new hard drive and salvage as much data and files as possible.

From: Robert Hird

Try the hard drive as a secondary IDE in another computer, (e.g.: your own, seeing as you are so nice). After booting, burn the info on CD, and run the disk utilities from your computer.

From: Bill E. Garity

I would try to use Fdisk /MBR—perhaps the master boot record is corrupted.

From: Sprynet

?? If the drive 0 cannot be accessed at all, not even by the Setup program, it could be that the cables inside the machine are not properly connected, or cracked suddenly (heat always dries the plastic wire cover and sometimes it breaks).
?? If I don't hear the hard disk noise when I turn on the machine, it can also be that the hard disk is not receiving any power. In this case I would also check the power cable and the connections.
?? If all is well connected and receiving power, the I/O controller (onboard or on a separate card) may be damaged. I would try to connect the ribbon to the other existing port(s). I sometimes connect the hard drive to another computer too.
?? If the I/O controller is fine, the hard disk is receiving power, then I boot from a diskette. **I always keep DOS diskettes in all versions (5.0, 6.0, 6.22)**.
?? Try to access C:\>

?? If it doesn't work, I try the setup program again. Auto configure will not work? I use USER and type in the parameters written on the hard disk (of course I have to open the machine to find out). If it still doesn't wor–k—if when I enter C:\ the computer returns "Bad command ..." or "Invalid drive...," or anything for that matter, I will try Norton utilities or another third-party hard disk utility.

?? If it is a Western Digital, I will try EZDrive tools. If nothing works, I tell the client to be more serious about backing up next time.

From: Dan Nicolay

1. Complete hard drive failure (catastrophic hardware failure within drive) (clunking, etc.–)—send out to a lab if data is critical.
2. Can attempt to manually configure drive in bios——open case and get heads, cylinders, etc., if bios won't auto detect.
If that fails...
3. Place drive in another system, attempt auto detect, etc. If the drive is detectable, but not bootable, solution will depend on whether it's home system, whether it has network access, etc. By far the easiest solution is making a Ghost image (Symantec) and use Ghost Explorer to extract essential files. Gives you a backup and allows you to extract files that frequently aren't even accessible on a corrupt drive in a DOS or Windows session when attempting data recovery.

A Ghost image can either be sent to another drive in a system or using a boot disk or with network protocols (copied to a network drive). With the "ghost" image, you can check the drive and start over if the failure is not drive hardware related.

From: C L Gillies

1. Try going into setup cmos and correcting the hard drive settings (primary master) from Auto to User/LBA, whatever it was supposed to be; exit and save settings.
2. If this does not work, order Symantec's Ghost and make a clone.
Hope this works. Of course, you could try reinstalling the operating system after formatting but you'd lose all data without a backup.

From: Dave Adams

?? The first thing I would do is ask the user what system he/she normally booted to.
?? Then I would cold boot the PC, go into CMOS, and autodetect the hard drive.
?? If it did not detect, I would open the unit, verify the connections and try again.
?? If it still did not autodetect, I would try my spare test hard drive.
?? If my spare worked, I would test the user's original hard drive in another computer.
?? Assuming I got the hard drive autodetecting in the CMOS, I would then verify boot order in CMOS, usually A, then CD, then C.
?? I would next cold boot to a virus scan diskette and verify the hard drive could be accessed and free of viruses. The diskette I use automatically removes any viruses detected.
?? If I get to this point, I would again try to cold boot to the hard drive. Obviously, there would be some type of error message or symptom at this point to let me know better where I was in resolving this issue.
?? If I received "missing operating system" on a Windows 95 machine, I would attempt to transfer the operating system from the appropriate media. If it was a Windows 98 machine, I would use a Windows 98 boot disk to boot to an A: prompt and then use the Scanreg command, view the log, and use an file that was dated long enough ago to hopefully restore the registry.
?? If it was an NT machine, hopefully the user had a NT Emergency Boot Disk specific to that unit and I would use it and go the "Repair" route.

?? After this, I would check with tech support, because I would not want to overlook something that could help me avoid reloading her original hard drive, as quite a few users **never back up their data**.

?? If tech support came up with a solution, I would be sure to add it to my notebook so next time I could resolve the issue more quickly, efficiently, and professionally.

From: Brad Lewandowski
Well, since you said you were going to replace the drive, I see the options as these:

?? Boot from a floppy with a full set of DOS utilities, double checking BIOS settings, fdisk, etc....

?? Use InterInk and Intersvr and start a xfer

?? Yank the drive out, change it to a slave, stick it in a functioning computer and xcopy/Ghost

?? Maybe the MBR is bad, try copying one over with Sys command...

?? God forbid you should send the drive to a 'Data Recovery' place...

From: P. Christensen

?? Go to bios and ask the machine to automatically detect the hard drive. Sometimes it loses the hard drive due to a virus or faulty battery.

?? If the machine finds the hard drive, go in and do a virus scan. If the battery made the bios lose the info, you shouldn't shut off the machine until the hard drive data files are backed up. Monkey B virus will alter the boot sector and make the hard drive disappear.

?? Sometimes you have to be sure that in bios the machine will boot to A and then C and then make sure it has recognized the C drive in bios and then do a virus scan.

From: Murray Voight
?? You need to be able to boot into the system.

?? First get a generic boot disk that will allow this.

?? If you're able to boot up, then see if you can access the C drive through DOS.

?? If you can access the C drive, then you should be able to access the files on the C drive.

?? If you can't access the files, then try running a scandisk from the boot floppy.

?? If you can't access the BIOS or the C drive through a boot disk, then the next step you need to do is shut down the computer and pull out the hard drive.

?? Once you have the hard drive out you need to douse it in lighter fluid and immediately expose the non-functioning hard drive to an open flame.

?? Although the last step is of great controversy, it will bring great satisfaction to know humans will always have the last word.

From: Howard J. Castello

Boot from floppy drive and then try running fdisk/mbr.

From: Andrzej Bednarz
The answer to the hard drive question is more complex than you may think, but the bottom line is that you really need to know how damaged is your hard drive or rather how much functionality is left in the hard drive.

?? First, I would try to approach the problem by distinguishing if it is a hardware or software issue. If the problem is software-related, for example, the operating system is corrupted, the hard drive can be attached as a "slave" and the important data copied to the "master" bootable drive. Many times that approach can be used even for hardware-related problems, for example, when the hard drive is getting flaky, but it's not broken yet.

?? It is a lot easier to prepare yourself for the broken hard drive, but to really motivate yourself for any preventive steps, you'd have to answer the question: would I be still OK if my hard drive crashes today? Also, how much time do I want to spent for a data and/or system recovery?

?? Over years, I was developing many different methods of data recovery and backup, therefore the following is the fastest and probably the most reliable method of doing so. First of all, install the OS with all the associated programs and utilities including MS Office, Internet browsers, etc.

?? When you test everything and you're sure that everything is the way you want, you can take an image of your hard drive by using Norton Ghost.

?? For the files that you create from now on until next computer crash, create a folder called "data" and in that folder subdirectories for MS Office, PhotoShop, etc.

?? From now on, all you have to do is to backup your "data" directory to the CD and copy the Ghost image to the second CD, and if you need to restore your system, it would take you anywhere from 5 to 20 min to have everything back where it was.

?? If your hard drive snapshot image is bigger than 650 MB, choose option to compress the image during the process. If after compression the image is still bigger than 650 MB, you can split the image on as many chunks as you need, for example 20 chunks to backup 13-GB hard drive without compression.

From: Mike Fogarty

I have a really quick, no real science approach to this problem. Assuming that the drive will still spin, there is a quick, however with some risk involved, solution.

In past situations, I have successfully accessed a damaged drive by "replacing the drive."

This method involves the EXACT SAME DRIVE as the one in question.

Step 1 With all power off, remove the hard drive in question and place it on the side where it can be easily accessed.
Step 2 Install the "NEW" drive (a drive of the same type, and manufacturer).
Step 3 Start the system up and get it to recognize the new drive. It is important to only start a command line session. Remember that we are only trying to copy some files here—this is an emergency maneuver. Also, the drive must be formatted the same as the drive we are questioning here.
Step 4 With the system RUNNING (be careful, this is the risky part I told you about, do it in this sequence), VERY QUICKLY detach the power umbilical from the running drive. Then detach the data ribbon cable from the running drive.
Step 5 VERY CAREFULLY reach for our drive in question and attach the data ribbon cable to it. Next, VERY QUICKLY place all four contacts simultaneously in contact with the drives power connection.
Step 6 Now enter at the keyboard some command—I use the DIR command. You should see the list of files for the questionable drive that you have HOT PLUGGED into this system. You should now be able to access the files needed to get you over the hump!

What has happened?

The system "thinks" it has the bootable drive you started it with and will allow you to use the device with the exception of booting with it, of course! This approach works quite well on drives that have sector one physically trashed.

From: Tron

My business is built on 100 percent On-Site Service. I carry most everything in my van that a 'shop' would have. I have a power inverter for AC power and two network-ready systems at my disposal for backing up customer data or to use as a loaner. Anything to get the customer back in business.

First: I boot from a floppy and run a program called "IDEID" that will identify the drive. I then compare these results with what is in the BIOS. I also will see if the BIOS can automatically and correctly identify the drive. If not, I use the user-defined fields.

Second: A.) I boot from a floppy and do a virus scan on drive C:. If C is there.

B.) If C is not ther—e—I carry a few older hard drives with various boot managers on them. I'll make my drive master and boot from it letting my boot manager load. This would allow me to see their drive if I used the right boot manager.

C.) If no boot manager is being used, and C is not present, I use Norton's "NDD/REBUILD" to recover the dos partitions. NOTE: ALWAYS MAKE THE UNDO DISK!

D.) If C is now seen, step B may need to be repeated.

Third: With C back, I'll identify the version of Dos/Win9X on the system—I carry boot files for all versions back to MS-DOS 3.3.

Fourth: Boot off of C if possible, "SYS C:" if it is not possible, Reboot!

Fifth: I use Drive Image to Dupe to an image on a 8.4 GB (remember the 8.4 GB limit!) drive that I carry with me. I let the customer put in a password so they feel secure in my not looking at their data. The above is predicated on the fact that the drive will spin up. If it doesn't, I sometimes have luck in placing the drive upside-down. Sometimes, I'll quickly spin my wrist when I turn the power on. The upside-down mostly worked on the ST1120A/ST3120A drives (Seagate 120M). I have no definitive answer as to why. The ST138R had a problem with what I call "STICTION." This is my opinion, Seagate! I theorize that the armature would get stuck between the poles of the magnetic fields. In any case, those days are mostly gone.

This is usually the extent that I go to. After this, the customer must decide if the data on the drive is worth the cost of the recovery. I end by selling the customer a new drive and restoring their data from the image. This is usually on a second visit since I don't make it a habit of stocking drives for sale in my van.

From: Peter Becker

This has worked about 6-8 times over the last 5 years...
I have found the drive is not spinning...
If this is the problem, just remove it and rotate the drive quickly and immediately reverse direction.
You may have to repeat 2-3 times. It works for a while...
This appears to be more of a problem with old Laptops.

From: Bill Rankin

1. First some background info is needed:

A. Does the BIOS recognize/see the HD? (Correct drive settings? Disk Manager in use?)
B. What is the OS? (Win 95/NT/Linux/etc.?)
C. What is the partition type? (Fat16/32/NTFS/etc.?)

2. If A. is yes, and C. is Fat16/32, try a boot diskette (Win95/98). A command prompt, a couple of utilities, and a working parallel port will get your data off safely.

3. If A. is yes, and C. is NTFS; try a new hard drive as C:, load a new NT/NTFS system, and access the "dead" NTFS drive as the D:. Sometimes the hard drive's onboard controller can fail, yet be chained to another's board a là master/slave mode. Copy the data off ASAP and ditch the old drive to avoid the temptation to keep it as spare storage.

4. If A is no, try another computer—the BIOS/motherboard/CPU/memory/IO controller may be dead or malfunctioning. Troubleshoot the computer later when you have time.

5. If all else fails, attempt a drive recovery with Hard Drive Mechanic, or similar drive utility. If successful, copy the data off ASAP.

6. If the data is EXTREMELY valuable, and if you have a certified clean room/booth (or a professional service), transfer the disk platters into a exact duplicate working drive. This is a very costly option due to the requirements of a certified clean room/booth.

7. Last, but not least, PREACH TAPE BACKUPS!

LEGALESE: These techniques have been used by me to recover failed hard drives. Use of any of these techniques does not in any way bind me, nor any companies associated with me, liable for your attempts, actions, or losses as your circumstances may be dissimilar or conditions not covered by the aforesaid instructions. Be sure to get technical advise from a reliable source familiar with your situation.

From: Jon Torbert

Well, things are a little ambiguous here. Do we know that we are working on the Compaq Prolinea 4/66? Since it didn't specify, I will keep this somewhat general.

?? The first step would be to boot off of a DOS startup disk and see if you can access drive C. If you can, then you at least know that you can manually save some crucial files on the machine. If the C drive is not accessible, then you need to go into the CMOS settings and see if the proper drive parameters are entered. If it is a newer machine, you can sometimes find a section in CMOS that will query the hard drive and determine the proper settings.

?? If there is no such section, then you need to open up the computer and see if the drive settings, like heads, cylinders, sectors/track, etc, are listed on the drive.

?? If none are found, get the drive make and model number and go to the company's Web site and get the parameters. Now go back into CMOS and enter the proper settings for your HD. Hopefully this will solve the problem since it was mentioned that the person had been in trying to input the setting themselves.

?? If the drive still won't boot, and you are getting a "non system disk" error, I have found that sometimes you can copy the sys.com program onto your startup disk (I keep a generic boot disk around with various files like fdisk, format.com, sys.com, etc on it.) and at the A: prompt type sys c: which transfers the system files to the HD.

?? If you are instead getting Invalid drive specification errors, you probably aren't able to access the HD at all, even at a DOS prompt. If this is the case, you probably need to try reviving the drive with a program like Norton Disk Doctor. You have probably lost partition info or your File Allocation Table (FAT.) These are things that Norton DD can sometimes fix. If none of these things works, it is probably a lost cause. Write it off to experience. Everyone gets this fatal wake up call every once in a while to remind them about backing up crucial data.

From: Ronald E Rietz

1.) Examine all connections inside and outside the PC to ensure they are secure. Remove and label the suspect drive. Make sure all fans are operating correctly. Obtain a replacement hard drive and install the operating system and Web browsing capabilities. Retain the box in which your replacement drive was shipped in case you need to ship your suspect drive away to a media recovery firm. Visit the Web site of the hard drive vendor and download the latest version of the vendor's diagnostic program as well as information regarding drive's geometry and jumper options. Determine the keyboard strokes to get into setup mode as well as setting up disk drives for auto detect, etc. Have an ample supply of blank formatted diskettes readily available. Make sure you have space available to copy any needed files from the suspect drive. Make a boot diskette. FDISK, FORMAT, EDIT, SCANDISK, CD-ROM drivers, and the hard drive vendors diagnostic programs should all be on the diskette.

2.) Install the suspect drive as a slave. Carefully handle the suspect drive as to not bump it around at all. It may be in a _very_ fragile state at this time. Close the PC's case or otherwise ensure that there is positive air flow across the suspect drive.

3.) Take a break, think about how you will do the following carefully and as fast as possible to avoid possibly damaging the drive further.

4.) Turn on the monitor, insert your diskette from step one. Turn on the PC and go into setup. Determine whether or not the setup program auto-detects the suspect drive. If auto-detect is OK, the disk drive's controller is OK and proceed to the next step. If auto-detect is not OK, the hard drives controller card(s) are faulty. Try substituting a different controller card from another drive of the same type, if available. Assuming the controller is faulty and swapping the external controller card does not fix the trouble, you have a choice of sending the drive off to have the controller card repaired in a clean room or to abandon your data.

5.) If the auto-detection was OK, let the PC boot with your diskette. Use FDISK and see if it detects the suspect drive as a partition. If FDISK does not see the drive, you have an internal problem, quite possibly a damaged read/write head or an internal IC. You now have a choice of sending the drive off to be repaired in a clean room or abandoning your data.

6.) If FDISK detected the partition, you may have a damaged file structure. Boot the PC with your diskette and then do something simple like a DIR. You are not ready to even think about writing anything to the suspect drive at this time! If you can not do a DIR, you may be able to recover the drive with Norton or your own favorite program. Keep and label recovery diskettes (don't reuse them), you might need to backtrack.

7.) If you can do a DIR, try booting up your machine normally. It may be possible to copy directories and files across to your new drive. Give priority to the user's data such as mail files, data files, settings, and similar. You probably want to try copying the registry files as well.

8.) After you have copied the user's data, try SCANDISK with the thorough option. Always save the files and always make recovery diskettes. The saved files may just need to be examined and renamed.

9.) If there are any bad spots on the suspect disk, try repairing them with the vendor's diagnostic tools.

10.) After you are satisfied you have recovered all of the data from the suspect drive, do a low level format with the vendor's diagnostic program. Do an FDISK and an operating system format and then reuse the drive as you wish. A second hard drive in a system makes a reasonable place to do quick backups as well as for swap files, temporary files, temporary internet files, and the like.

From: Tom Hayes

Recently we had a user with a Tecra 520 CDT lose his hard drive. It could have been a surge or some other problem but the electronics of the drive wouldn't work. We simply ordered a new identical drive and exchanged the electronics board connected to the drive, and we were able to access the drive to recover the 250-MB mail file the user had to have recovered.

From: Raymond S Cross

Not all hard drive problems are hard drive problems. I had a situation like this just recently. Computer booted with a 'fixed disk 0 failure'. Turns out the drive itself was okay—it was a motherboard problem, possibly a bad IDE connector. I had recently put in a new motherboard, so I swapped the old one back in and the hard disk worked fine!

From: hhewel

I would have a spare fdisked and formatted hard drive running whatever O/S was needed, install it into the down computer as the new master drive, change the jumper on down drive to slave, reboot, run CMOS, setup auto hard drive detect, and setup drives, reboot, and retrieve info on the bad hard drive using new temp drive. Once new hard drive comes in, fdisk, format, install O/S and software.

From: Coy Thorp

First thing I would do is eliminate possible problem areas.
?? I'd switch the drive to the secondary IDE chain and see if it auto configs. If not, I'd try it in another machine if that is possible (it is possible in my lab).
?? Hopefully, I'd be able to get a drive letter and boot up to recover data.
?? If neither of these work (and you're usually lucky if they do), then it's time to boot to a virus scan floppy and scan the boot sector for viruses.
?? If there are none, then I'd move to a third-party utility, like NDD, and give that a whirl. If all of those fail, then I send it out to a data recovery center and drop 1,200 bucks of my company's money to recover data that the developer should have backed up in the first place.

From: Jeffery Aronson

After the routine checks of CMOS and drive settings etc., the most important step would be to clone the drive first as it is. I would recommend a program such as ghost, but there are others available. After completing the drive clone, work with the drive that you cloned and not the original drive. You can use a program called On The Wire or Drive Wizard. These programs will attempt to rebuild the various different aspects of the drive, FAT tables, Directory Structures, Files Structure etc. In most cases, you can at least get enough of the drive back to get to that important data, and never risk the original drive.

From:Tim Danner

?? Make sure you put the drive type back to Auto in the CMOS. Then listen to hear if the drive is even spinning up. If the drive isn't spinning up, you can try the old tap technique to try and wake up the drive. If you are able to wake the drive, have the user backup important files immediately. Then replace.
?? If the dive is spinning but it still isn't seen by the POST, then you need to try and locate a drive of the same make and model. Swapping the controllers on the two drives may allow you to access the data.
?? If neither of these techniques help, then I usually tell the user to have a good cry, and then start over. But this time make sure you backup important files on a regular basis.

From: Steve Summers

I would suspect a bad disk controller first. Before I replaced it, though, if I was lucky enough to get the drive to come up, I would immediately run scan disk and scan the surface area. If everything checked out, I would replace the drive controller and see if the problem went away on the same problematic drive.

From: Chris

The way I would approach this is to use one of several disk-cloning programs such as Drive Copy or Norton Ghost. Both of these programs create boot disks that you can use to "rescue" a failing or error prone hard drive. You boot with this disk and then select either copying a partition to another partition (on another drive) or simply clone the entire hard drive. This process is very fast (depending on the machine) and very reliable. It copies all files and even preserved FAT setup and partitions when cloning a hard drive.

Another excellent tool to have in your arsenal is the Norton Boot Disks that will have the Dos versions of Norton scan disk and disk doctor as well as the Unerase and Unformat. These tools can restore lost files and correct and identify many more problems than just Microsoft scandisk even when using the 'scandisk /all' command.

Also, try replacing the IDE cable(s) to eliminate the possibility that there is a bad cable. If the error still happens, then the hard drive has probably failed. There is a remote chance that using MaxBlast or a similar hard drive utility from its manufacturer will at least identify and hopefully repair the problem. Otherwise...remember hindsight is always 20/20. Especially after you lose data...

From: Salman Siddiqui

There would be a couple of points to check before going into recovery mode:

1. Is LBA mode on or off? Toggling it and setting drive type to auto may help.
2. Was a Disk Manager type program in use? If it was, refreshing the MBR with the Disk Manager may do the trick.

If first has been tried and answer to the second question is no, I would use a low level disk editor to discover the bounds of the partitions, first and last cylinder. Remaining data, number of heads, and sectors per track can be worked out easily.

From: Thomas Bounds

Of the many different solutions that could solve this problem, I will start with the easiest.
?? First, does the drive even power up? (Do you hear the platters spinning?) If not, check all connections. Otherwise, you have just acquired another paperweight (since you will have to resort to snail mail until you can get online again).
?? If you do hear the platters spinning, I would resort to trying the simple options in BIOS such as LBA mode on or off and HDD Block mode. Change them to their opposite state and try to reboot now. There are aftermarket utilities that can detect the logical parameters of a drive such as DrivePro by Microhouse. This handy (old) tool has gotten me out of many jams in the 486 HDD world. It will tell you the parameters that the drive was set up for so that you may manually enter them into the HDD config. section of BIOS. This is also handy if you happen to be the (not so) proud owner of a drive with an overlay installed. If that is the case, you will probably want to use the overlay install disk to repair or replace the overlay.
?? The problem could be related to the HDD controller. Try replacing it. I could rant for a long time on other solutions, but I don't have time to get into it that deep.

From: William Maxwell

Hard drive failures can result from a number of causes.
?? First line of business is to talk with the client: Was the machine recently moved? Were any boards recently installed? A cable may have come loose during one of these operations. Check external causes, e.g. loose and/or oxidized connectors. Don't discard the possibility of little rodents——I've seen flat cable gnawed through by these little critters.
?? Don't forget to check the power cable to the drive——no juice, no data.
?? There's always a possibility that the on-board controller is shot, so to eliminate that factor I would remove the drive, jumper it to be drive 1 and install it in a known good machine.
?? That done, I turn to a setup program called EZDrive by Micro House International. With it you can read and configure drive setup data, backup and restore track 0 or copy an entire partition.

?? Summing up: First of all, be a good listener. Observe carefully, use good tools and be creative. I got a call from a client who had been away for three weeks and had gotten back to find his machine wouldn't boot up. When I listened to his machine as it was turned on, I noticed that the drive motor wasn't spinning. Since we live in a very high humidity climate (the Amazon Rain Forest), I had an idea of what had happened. I politely asked him if he would get me a glass of water, as it was quite hot that day. As soon as he left the room I gave his drive a smart rap on the back with my knuckles. The motor immediately started spinning and by the time he came back with refreshments, Windows 95 was up and running. I emphasized the need to maintain regular backups and to purchase a good de-humidifier. I also suggested that next time he was away, he have his wife run the computer for a couple hours a day. He never pressed me as to how I got the machine running, and I thought it prudent not to offer that information.

From:Mark Householder

How about stiction? Remove the hard drive and give it a couple of firm twists while holding it in the palm of your hand. This will free the drive from the combination of static and friction that has caused the problem.
Re-install the physical drive and it should boot. Back-up the data and replace the drive ASAP.

From: 2K Designs

If you are going to replace the hard drive, then use ghost software and copy the hard drive you want to the other hard drive. Then once it is copied, try reinstalling windows. That will usually copy any files that could be causing the problem. If not, then reformat the hard drive, then reinstall Windows. If that doesn't cure it, then you will need to do a deltree, and erase Windows, reformat, then run windows again.
This always works for me..

From: Michael O'Quin

Listen for the disk to see if it is spinning. If not, take the drive out of the system and rap it on the side. Hook it back up and see if it spins. This is for an IDE drive.

From: James D. Patton Jr.

I'd add another HDD as master and the questionable drive as slave.
?? Boot off the good drive and try accessing the bad one.
?? If the bad drive is accessible then I'd install whatever O/S the user had previously on the bad drive. Once the O/S is installed, go to the bad drive to recover any data needed.
If the bad drive wasn't able to be seen as master, then I'd try once more to access the drive using SETUP to add the drive specs according the manufacturer.
?? If this still doesn't work, then they are out of luck.
?? They can pay a good chunk of change and have the data recovered from a company that deals with that sort of thing, and buy another HDD and start all over again.

P.S. I'd also put a password on the setup to make sure that any new drives won't be changed accidentally—ssince users never make mistakes. It's always the software or hardware to blame.

From: Dave Cason

Use IDEINFO or equiv. to check what the hard drive prams. were actually set to.
–P.S. Or if you're bored, swap motherboards. Heck, a few years ago for fun we swapped platters on Seagate ST-251 and it worked! (grin) If it's sticktion, grab the drive & crack it! There's lots of ways you can play!

From: Tony DeVos

First we must determine if this is a setup issue or a hard drive issue.
- ?? Is the floppy drive properly recognized and working? Connect another hard drive to this system to verify the setup is okay.
- ?? If the setup is working, then we must look at the hard drive itself.
- ?? When powered up, does the drive spin?
- ?? Does it just sit there and "click, click, click?" If it spins, it could be controller failure.
- ?? Can you obtain another controller for this drive and swap it? Try it again.
- ?? If the drive does not spin, it could be a symptom of "stiction."

If it is "stiction," you will most likely be able to assist the drive to spin up to allow it to boot and then backup the data. The way you help the drive to spin up is simple.
- ?? Remove all mounting hardware that is securing the drive to the system.
- ?? With the drive held in your hand horizontally with both power and ribbon cables attached, turn on the system and rotate the drive with a flick of your wrist.
- ?? Keep the drive on the same horizontal plane as you flick your wrist twisting the drive as you would spin a top to make it spin. If the problem was stiction, the drive should now be spinning and you on your way to retrieving the data.

If the drive is just sitting there "clicking, clicking, clicking," good luck! Please remember the only 100 percent way to keep your data safe is BACKUP, BACKUP, BACKUP. Use the tools provided in your operating system to scandisk regularly or obtain a disk utility program like Norton Utilities to take the best car of your hard drive possible. However, hard drives are sometimes like light bulbs—when you turn them on, turning off the power may mark the last time they will ever work!

From: Karl Andrzejewski

- ?? Boot with a Windows 98 startup disk.
- ?? Get the CD-ROM support.
- ?? Try reinstalling the OS. If this fails, boot to DOS, bring along my ZIP dive, fire it up in DOS Guest mode.
- ?? Copy any critical files to the ZIP, format the hard drive.
- ?? Reinstall the OS backup system and boot files and let the user know they should keep their sausage fingers on the TV remote and off of the computer.

From: Brad Marin

First find the disc parameters and enter them into the bios. il the disc is accessible at that point, I would copy the needed files to another drive. If the FAT is damaged I would run tiramisu and hope for the best.

From: Larry L. McNeese

I have in the past found that if you can find another hard drive of the same make and model, you can remove the circuit board from the dead hard drive and replace it with the one from the good hard drive. Many times the board is the problem, and it has saved the files and me several times. Of course, when you get the files off you need, scrape the bad drive and replace it with a new hard drive. I am taking in consideration that the tech doing this knows how to properly set up a drive—v ery important.

From: Jeff Wilson

After going through the usual hoops, checking the BIOS setting, and booting with a boot disk.

With the current pricing on hard drives, I don't fight with drives any more, I pull out my copy of Lost and Found by Power Quest and let it detect the drive.

?? If it does, I will then install a drive equal to or greater than the old drive as master and set the old drive as slave.

?? I reboot and rerun (LF) and let it backup the drive.

?? If the drive is three years or less old, then the manufacturer will cover the warranty and we are all happy. This all assumes that the new master was seen by the BIOS. This works 95 percent of the time for me—game over, other than some diagnostics.

?? If not, then I would reboot with the new drive by itself and see if it is detected.

?? If not, I would install an IDE card and disable the onboard IDE, reboot and run (LF). This will work 99.9 percent of the time and allows me to back up all of the data on the old drive.

With the data backed up to the new drive and the old drive still as slave, it should now be able to boot the system. If it boots, I would check to see if the slave is visible. If it is, then double check to see if all the important data was backed up.

For grins, I would now try to boot the old drive from the IDE card. If it boots, then a possible motherboard problem and would take some more time.

From: Bruce D. Meyer

Simple,

?? Move the defunct hard drive to secondary slave, or master or whatever is unused—but don't hook the IDE cable up yet.

?? (Precaution) Install a new hard drive as primary master set it to 'ACTIVE.' With fdisk, format, install Windows, power down, hook IDE cable up to the defunct HD, reboot, set BIOS to show the drive, and then copy all the files (data files only please!) over from the defunct HD to the new one. Power down, remove HD, change bios to reflect no HD there, and you're done.

?? Alternatives are using ARCO RAID IDE controllers to back the data up from one drive (Primary/defunct) to Mirror/NEW)) and then remove Arco raid (Duplidisk) and install new Hard drive as primary master.

?? Also, you can use EZ Drive, GHOST, or one of several other software methods to copy or mirror the hard drive. If you have bad sectors on the original, you'll quite likely have bad data on the new drive where the bad sectors were on the old.

?? If the old drive won't spin up, or can't be recognized in BIOS whatsoever, power down and up (Power completely off each time) relentlessly until is it detected (BIOS set to AUTO for that drive). You will possibly get lucky once in 30 boots.

?? Once up, do your work, because it may be the last time it comes on. Also, try letting the computer cool down for several hours, remove the drive to get it out of a warm case, and let it cool down. Then try it cold.

?? (Thermal deficiency may cause it to fail when hot.) In the same vein, if it is cool, then let it just sit there with power on it for thirty minutes, then just reboot for about 30 times (Don't power down.) This may work too.

Of course, let's do first things last.

?? Replace your IDE cable, remove the other IDE cable from the motherboard. I have seen CD-ROMs fail that rendered sound cards, network cards, and OS's brain-dead.

?? Simply removing the CD ROM from the IDE cable was all it took to prove this point, and fix the computer. (Hey! HD is fine!—it's the CD that is tying up the IDE bus and IRQ/DMA controller!) No data loss.

I probably missed some of the better tricks, but generally, that should solve what is solvable.

From: Joel Yalung

- ?? Check to see if the primary hard drive ribbon is correctly attached or connected to the Motherboard and Hard drive.
- ?? Make sure it's not loose.
- ?? Or check the ribbon itself—make sure it still good.
- ?? This usually solves the "invalid drive specification" and "BIOS Auto HD detection not finding the HD."

From: Troy Schlueter

Do the normal ritual of making sure power and IDE cables are tight, and changing the IDE cable.
Is the drive spinning? If not, then:
- ?? Remove the drive and connect it back up outside the case.
- ?? Power up the box and give the drive a quick twist to see if it will spin up.
- ?? Try the drive on a known good working machine as a slave, if you can get it up in the cmos.
- ?? If you still have no response, find a functioning drive that is identical (same make/model) and swap the circuit boards.

This usually does the trick, unless the original drive has a physical error. (i.e. bad motor or platters)

Last resort—send out to a data recovery business.

From: stan

Depends on why it's dead. On older drives, it was quite common for the heads to stick to the platter. It would not have the torque to start, so it couldn't work.
- ?? Best method in that case was to put a long extension on the power cable, leave the data line off ,and with the drive between your palms, quickly rotate the drive and at the same time power on. Try both clockwise and counter clockwise. One should work if it's a "stiction" issue.
- ?? If the drive spins and has a problem with the logic board, it's sometimes possible to swap the electronics without opening up the disk cavity, but that's a last resort.

From: Michael Wagoner

Tough question and in some aspects it depends on what operating system the machine was running. Obvious checks are:

?? Make sure all the cables are properly and firmly attached.

?? You might want to swap out the ribbon cable and/or change it to the secondary controller connection.

?? Pull the power plug off it and plug in a different plug. Can you hear the hard drive spin up?

?? If you (were smart enough and) brought along a different hard drive, does the machine recognize THAT hard drive? Does it spin it up? Does it start it?

Assuming all of the above is intact and you've narrowed the problem down to that ONE particular hard drive as having the problem (and that ONE hard drive DOES spin up), I'll tackle it from the perspective that the machine was running either Win95 or Win98 (the steps for both are similar).

?? I would bring a startup disk from a Win98 machine to start with (make sure you have the correct startup disk type FAT 16 for machines fdisked that way FAT 32 for machines fdisked that way If the 'owner doesn't know which it was, chances are high it was FAT 16, especially on older machines).

?? The reason for this is simple—it allows you to start up the machine with CD-ROM support (this is assuming that the machine has a CD-ROM). At bootup, I would access the CMOS settings and set the machine to try to recognize the hard drive automatically—once again, the next steps would depend on whether the CMOS was able to identify the hard drive or not.

?? Assuming it did recognize the hard drive, I would boot the machine (without the boot disk) and check what error messages I got (if any).

?? If it did not recognize the hard drive, I would try to manually input the hard drive settings (some CMOS's allow this, others make it a bit harder to do).

?? Now try to boot without the boot disk.

Assuming that one of the above methods at least got the hard drive recognized, but at boot up there is some other error regarding the hard drive, I'd stick in the boot disk and boot with it.

Next question is at this point can/does the machine "see" the hard drive. I've had both cases, some where it did, some where it didn't. If it sees the hard drive, can I see my information? If yes, can I access the information? Usually one of those two questions is a no.

If you can access the hard drive (the system sees the hard drive, sees your directories) but not access the information (when you try to enter into a directory or call up a file you get an error message) chances are you have a messed up FAT table.

?? You can try to fdisk /mbr from your boot disk, it will re-write the FAT table.

?? Now pull out the boot up disk and try to reboot again. Any luck? If so you may be in business, if not you're hosed.

I've tried, with mixed success, using Powerquest's Lost and Found program to try to retrieve data from a hard drive. It's hit and miss enough that it will depend on budget and how "important" the information is before I try to recover it. We just had a hard drive crash that we sent out to have the information retrieved, at $125 an hour it was expensive to recover.

Those are my solutions, for what they are worth.

From: richarr

This has happened here several times.

?? I install the new hard drive, make it a bootable partition, and install the operating system.

?? Then place the old drive on the secondary disk position and copy the contents to the new drive.

??   Usually into a folder called OLD DRIVE. This provides a directory tree map for where to place the files.

??   Then after reinstalling all the software, original files can be placed back into the proper place on the new drive.

Very rarely does this procedure not work for me.

From: KC Freels

??   Try putting the drive in another machine. It may come up there.

??   Put it in as a second drive and boot from a working drive.

??   Try and access it then. Failing that, try using a program like Ghost and image the drive onto another one. If this works, you're really lucky.

??   If the motor is stuck, or the drive isn't spinning right, open the top of the drive (it's dead anyway) and spin the platters using the spindle.

??   Sometimes this will get the drive spinning and usable one last time.

??   It will never work again though, so this is a last resort.

From: David Chambers

This is a common situation. And, it has turned out to be a simple resolution (most of the time). I'm the Network Manager at the San Diego Blood Bank. The non-profit status of our organization makes purchasing new, up-to-date equipment quite a challenge. Consequently, the largest percentage of my 220 desktops are legacy 486/66 boxes. Their relative age brings about hard-drive failures on a monthly basis.

I've been able to extract the data from these drives using a boot disk, and one of two backup methods.

1. Use a portable backup tape drive that runs from the parallel port (Trakker).

2. Use DOS Client and a boot floppy to get the box on the LAN then map a drive with NET USE and XCOPY the important files to the LAN.

Of course, the boot floppy method works for about 75 percent of the failures. If the boot floppy fails, I try using FDISK/mbr to rebuild the Master Boot Record. This is successful 5-10 percent of the time. Since the user mentioned in the quiz had messed around with the BIOS, it's possible the settings are wrong and even more probable that the jumper on the drive is misconfigured because, although the user "didn't do anything," that new CD-ROM they installed is on the same controller as the hard drive. The disappointing part of making a hard drive spin back to life exists in the 10-15 percent that are actual physical failures that will require depot level repair to extract any data. A very expensive process.

From: Ron Masters

Hard Drive Dies.
Oh, you've got to love these kinds of situations, don't you?

Well, this may sound strange, but it's worked for me before. (That is, if booting off a floppy still won't gain you access...and there are strange sounds coming from the drive...)

1. Shut down the power and remove the case cover to gain access to the drive. Remove the drive from the case, but leave it connected to power and ribbon cable. (If the ribbon connector cable isn't long enough, attach one that is.)

2. Now, hold the drive in your hands and kick on the power (use an assistant if you'd like). As soon as the power comes on, twist the hard drive quick and fast in your hands. (Kind of like steering a car hard right).

This sudden "torqueing" is sometimes enough to "break" a drive free, allowing it to spin...usually for one last time. (Have a Zip or second drive already ready to gain access to the files.)

3. A slight variation on this (once again with long power and ribbon cables) is to set the drive down on a flat surface (non-conductive please!) so that it can be "spun" while flat.

Why does this work? Well, in this situation, my guess is that the lubrication of the drive has failed, and the torque overcomes the initial spin-up of the drive.

From: co

??   I would open the box and ensure that all of the connections are still are where they are supposed to be, including the controller card, if it has one.
??   I would ask the client what operating system they were using, so that I cold make a startup from another box.
??   I would try to copy the sys files to the hard drive by booting to the floppy.
??   If that doesn't work, I would boot to one of the hard disk utilities available for the brand of hard drive in the client's box (maxblast, ontrack, etc., also norton disk doctor), and get to a dos prompt, to copy the needed files.
??   As a last resort, I would consult the Internet.

From: Jim Davison

The symptoms you describe would lead me to believe that the drive lost power or died. Maybe the Molex power connector worked loose.

I would use the following steps even considering that you state the user had "tried" to manually enter the settings in setup and also tried auto. The user may not know what they are doing.

1. Try IDE Auto Detect to see if the bios can even see the drive.
If yes, then I would use that setting and everything should be OK.
If yes and the drive still does not boot, I would use fdisk/mbr in case the Master boot record was destroyed.
If no then I would go to step 2.

2. Open the box and check all power and data cables. I have seen Molex type power connectors lose a connection intermittently I have also seen one case where the data cable came loose when the computer was moved.
If cables were the problem, then you should be okay now. If you still have a problem go to step 3.

3. Remove the drive and plug it into another computer and see if the other computer can detect the drive. If yes then the problem is a cable, motherboard, etc. on the computer and needs to be replaced. If the thing still is not working, then it is most likely a defective drive and you will need to decide how badly you need the data on the drive. If you need the data then I would send the drive to a data recovery lab that can extract the data from a dead drive and save the data to a tape, CD, HD etc. This can be expensive but may be worth it.

From: ppotts

Boot the PC from a DOS Boot Disk. Make sure that the boot disk has the following files on it:

FDISK.EXE
SYS.COM

1. Boot the computer and see if you can see the drive. If you can, then COMMAND.COM may be damaged or missing or the boot files may be corrupt. Run SYS C: to make the hard drive again bootable.

2. If you still can't see the hard drive then, run the following command, FDISK /MBR. The FDISK utility updates the master boot record only if one does not exist. Even repartitioning a hard drive with FDISK does not necessarily rewrite this information. However, this switch allows you to write the master boot record to the hard drive without damaging the existing partition table information. You should not use this command if you are using special partition software (not partitioned with FDISK), if you have a dual-boot disk (such as NT and Windows 95/98) or if you have more than 4 partitions on your drive.

From:Gary Moon

You have to troubleshoot from the hardware up:
1. Swap the IDE cable to eliminate that as a cause. Also, check any jumper settings, and remove any other drives from that cable.
2. Set the drive type back to Auto. If drive ID isn't taking place, then you can't communicate with the drive anyway.
3. If you can't hear the platters spin up or the heads doing their "positioning dance," and it's a few years old, it might have a "sticktion" problem caused by the lubricant on the platters sticking to the heads. With the PC off, give the hard drive a couple of sharp taps on the side with the handle of a screwdriver! Then power it up again.
4. If all the hardware seems to be functional, you'll have to see if you can get at the data.
5. Many Compaq PCs have an 8-MB system partition that launches the system diagnostics when you press F10 (or another combination) on boot up. See if you can access this partition. If so, your hard drive is not completely lost.
6. Depending on the manufacturer and model, the drive might require a special boot-time driver to access the full capacity of the drive. Two examples are Ontrack Disk Manager, or Maxtor's EZ-Drive. This driver usually resides in the root directory of the system drive or the MBR, and if it is lost, the system won't be able to correctly see the drive partitions. On some later 486s and early Pentiums, even though they can read the drive information into the BIOS, they still cannot properly translate the CHS information. This can lead you to believe that the computer can use the full capacity of the drive, while in fact, it cannot. Try re-installing a translation driver using original software, if the drive came with it. This should not require any formatting of the drive or loss of information.
7. Run FDISK and view the partition information. If FDISK cannot access the drive, then the hardware is still messed up, and you need to back up a couple of steps until that is corrected.
8. Try switching the drive into a new machine you KNOW will support its capacity natively.
9. If none of these steps works, and you are certain the drives hardware is functional, then get a data recovery software such as Tiramisu, or as a last resort, try fdisk/mbr.

From: John Bragdon

I have tried only a couple of steps on my own:

1. If you are a "computer person" you would have brought a bootable floppy with you. Boot off the floppy and hopefully you can read the c: drive then.
2. Opening up the box and slapping the hard drive can revive the hard drive if the servomotor is "frozen."
3. I have turned the data cable around and powered on, and after about two seconds, turned the box off and then put the cable on correctly. Powered on the box and the system found the hard drive.
4. I have used the utility Speed Stor in the passed to tell the CMOS about the hard drive if the CMOS could not be read from the system. Of course you have to know the head and sector size.

From: Lou Schweichler

This procedure assumes you do not hear any "grinding noises" or other evidence of a physical damage, i.e. worn-out bearings, dragging read heads, etc. If you do, then the HDD is "toast" and you might as well offer your customer your condolences as the HDD has just headed to the big computer in the sky and it's cheaper these days to replace the HDD then to repair it.

First, Check the CMOS settings and verify they agree with those preprinted on the HDrive's Label, If not preprinted on the label, either use a program like EZ-Drive to obtain the correct values or remove the hard drive and connect it to a known newer motherboard and use that board's CMOS setup utility to detect the proper values. Try rebooting to the C:\ prompt on the new board. If successful, reinstall the hard drive to the original board. Then ensure the CMOS settings on the original board agree. Adjust as necessary. Try rebooting. If the your lucky your finished. If not try the second step.

Second, if the first step didn't solve the problem, then the FAT Table may be corrupted. Use a utility like EZ-Drive, which usually can be downloaded from any of the Major HDrive OEM's Web site, to switch to a backup version of the FAT (file allocation table). Usually there is a backup of the FAT on the HDD, but switching to it requires the use of a HDD utility like EZ-Drive. Follow the instructions for the Advance Options to switch FATs, then reboot. If reboot to the C:\ prompt is successful, AND you can access your data files, Run SCANDISK from the DOS prompt to verify the integrity of the FAT. Then do a cursory search of the HDD for any documents you may have recently created. If you can get a good DIR listing of them, you're done—smoke' em if you got em!. If not, then try third step.

Third, this step will result in the total and absolute loss of all data on the hard drive and should only be used as a last resort. You can use the DOS commands, "FDISK, FORMAT C: /S", to reformat the HDD and reinstall the operating system. Better yet, using a HDD utility like EZ-Drive accomplishes this in about one tenth the time. Make sure you have a bootable floppy disk that includes any special device drivers and programs to access your peripheral equipment (like the CD-ROM) so you can complete the OS installation. If your computer system came with a restoration disk, you could reinstall the COMPLETE OPERATING SYSTEM AND ALL SOFTWARE. Alternatively, once the HDD has been reformatted and the HDD set up, you should now be able to reinstall the complete operating system, (WIN31, WIN95, WIN98, MAC, LINUX etc.) and all your application software from the original distribution CDs or Disks.

From: Brett Edmonson

?? First I would make sure all cables are connected and make sure it is getting power.
?? Then I would check the setting in the BIOS, and make sure AUTO doesn't work. If not, I would confirm the settings of the hard drive to the settings in the BIOS.
?? Then I would see if FDISK sees the hard drive from a Win98 boot disk (which has FDISK on it).
?? Then I would proceed to use the utility Hard Drive Mechanic, if it does not see it, IT IS DEAD!

From: Chris Karo

?? First I would check the HD and write down all the numbers. Name of manufacturer, Model #, serial#, Hds, Sectors, landing zone, etc
?? Second, I would enter into setup mode and check the settings for HD1 and or HD2, if any. Check advances settings to see if LBA or any other settings have been changed.
?? If I have another PC that's the same, I would compare all CMOS settings.
?? If not, go online to the manufacturer site support and find the model. Print out all settings for the CMOS and any jumpers that may be on the drive.
?? Check the power supply plug for the 5.5 (+ or -) voltage. Set the CMOS and jumpers accordingly. Boot the machine.
?? If the drive still does not come up, boot to a MS-DOS 6.2 Boot disk. C: dir.

?? If I can see the files and directories, I can then either slave a driveor put another master on a 2nd controller, and then copy data to the drive or to a formatted a:\disk.

From:Bryan J. Lykins

This solution comes from the "been there, done that—multiple times."

?? First, get physical access to being able to see the disk drive and then use some type of diagnostic utility (off a boot floppy) to see if the drive is even recognized.
?? If there are no lights on the controller and the diagnostics do not identify a valid drive, then you can usually recover quite easily.
?? Get yourself another identical disk (with no important data on it) and swap the controllers. I have used this method to recover 3 different disks.
?? If the controller lights come on and the diagnostic program recognizes your drive, but the disk is still not accessible, then most likely it is "frozen" internally. There have been several drives that have had this problem in the past. (Specifically, there were some IBM 2- and 4-GB drives, Maxtor 760 -MB, and Seagate 2 GB).
?? Anyway, since we are not going to keep this troublesome drive, remove it from the machine and gently tap the side with a screwdriver.
?? Put it back in and see if the motor will start the drive spinning. If it does—get the data backed up immediately and then either get rid of the disk or use it as a non-critical storage area.
?? Once a drive has this problem, the solution has been known to work multiple times and the problem usually re-occurs after a reboot/shutdown sequence.

From: TJR2

Invalid drive specification.

If drive is IDE:

1) Use the CMOS IDE auto detection. Try to use both LBA mode and normal mode. Reboot and see what (if any) failure comes up.
2) Boot from a floppy (this is critical that the user knows what version of OS he/she is running: 95, 95b, 98, 98b, etc.). Use FDISK after this to see if the drive is present. If so, SYS the drive and reboot (crossing eyes, fingers, and toes).
3) Tear into the computer and make sure the cabling is correct. For good measure, reseat the HDD cable (both ends) and power cable. Turn system on briefly to ensure the HDD is spinning up.
4) Try using the secondary controller on the motherboard (being sure to make the CMOS change as well).
5) Try a different IDE cable.
6) If none of the above steps work, it must be 4th down and time to "punt." If the data is irreplaceable and critical, call Onsite for a quote on data recovery.

If drive is SCSI:

1) Use the controller utilities to see if the card settings are correct.

Unfortunately I am not experienced in SCSI drives and would not be able to apply anything more than what is listed.

From: Gary Gillaspie

Depending on the operating system, I would use a boot disk with FDISK on it. Boot the PC, and run FDISK /MBR, which would fix the boot sector so you would then be able to look at the hard drive after a reboot. A 2nd option is to use the hard drive manufacturer's disk utilities from a floppy that MAY BE able to repair without losing data.

From: KASHIF SALIM BAWANY

Solutions:
(1) Boot computer from a bootable disk, load CD-ROM drivers. Then run ndd's (Norton Disk Doctor) revive option, this will revive the mbr (master boot record) and all the data.
(2) Make the faulty drive slave drive on a system running Win95/98. Try to backup data as much as possible, then shutdown the system and then make the faulty drive as primary drive and boot from a floppy drive and run fdisk.
(3) If it doesn't work, then boot the system with faulty drive as primary drive with a dos/windows bootable disk, then run hard disk manager (e.g. Seagate's DM).

From: Jack Levin

The first thing I do is see if the drive is spinning. Many times the drive just gets stuck and a small tap will get the drive spinning again. If that is the case and the drive does come back after some mechanical agitation, I "Ghost" the drive to a new replacement as fast as I can.

If the drive is spinning but still not accessible, I have had luck making it a slave drive with a known working master. Sometimes that helps. Once I get access, I copy as fast as I can because I know every minute is borrowed time.

When the FAT has become corrupt, I have tried third party recovery tools with little success. If the FAT backup is no good, I am at a loss (short of sending it out to a data recovery service).

From: Howard Adkins

Check the parameters in the CMOS and verify they are correct. If they are, I would attempt to boot off of a floppy to see if I could get to the hard drive, sometimes the MBR is bad but you can still boot to a floppy an copy the info to disk

From: Ted Senn

Iff (If and only if) the drive doesn't spin up, the bearings are possibly dry. In this case, I take the drive out and give it a hard rotation and quick stop parallel with the platters, reinstall, and get out the chicken bones. This will sometimes allow the drive to spin up long enough to get the data off. At the same time try to sell the owner on the idea of a backup device.

From: Raymond V.Hall

1. Review documentation regarding the installation—drive type, cylinder, sectors, etc.—and identify the drive by physical inspection. Reseat all cables and power connectors. Dust out the interior of the PC.

2. Secure current info and drivers from manufacturers www site.

3. Use floppy disk to start the PC and determine if drive maintenance can be performed. Is the data available? Is the drive not booting or not operating? Scan for viruses.

4. While virus scanning and perhaps using scan disk, review the documentation, instructions, and Readme files about the drive.

5. Especially with an older PC, check the battery and replace if necessary.

6. Use setup to confirm accurate drive settings.

7. Apply any patches, switches, jumpers etc. noted in the current documentation.

8. Thank the user for showing patience.

From: David P. Pedersen

?? First, you would give the offending computer user a short sermon about benefits of always backing up that important data.
?? Second step would be to remove the offending "dead" drive from the computer.
?? Third step would be to put it out of its misery with your shotgun if you have one and if not simply give it a good whack with your sledgehammer.
?? Fourth step: go down to the local computer store and have them install a new one for you with backup this time! I am sure glad people call me about computer problems because, as you can see, I am one good "Repair Man." Thanks.

From: John C. Britt Jr.

Remove the ailing drive from the box, install it in another machine as a secondary drive, and then back up the necessary files.

From: Kampstra Richard Contractor AMC CSS/SAS

If there is any way you can read the disk at all, check out Tiramisu for shareware data recovery tools that are the best. They have a version for every type of operating system. WinNT, FAT16, FAT32, etc. Check http://www.simtel.net/simtel.net/msdos/diskutil.html for the software.

I have used their tools in the past to recover data from disks. Some disks are just impossible because the electronics on the drive have failed. In this case, the only hope would be to swap the circuit card on the drive with a known good one.

From: Brad Gorecki

To remedy this situation, I would verify that the drive will still spin. If that is the case, I would use a product called Recover 98. As long as the drive is spinning, I can get the data off. After verifying BIOS settings and making sure the PC will at least detect the drive, slave the new drive off the bad one. Run this software package and transfer the data to the drive. This software works on deleted files as well as formatted drives. I believe this would be the easiest solution.

From: Bob Matott

One additional thought for the rare problem—swap the circuit board from a known working identical drive onto the bad one. Sometimes the electronics do take a "hit."

From: Craig Connelly

1. Check the old CMOS on board battery. Replace if necessary.
2. Get the drive specs and go to the manufacturer's site and get the info on the drive.
3. Try to use a boot disk from a well-known Utility software package.

4. Use a Data Recovery program if the drive will spin up. Get the data off the drive.
5. Fdisk/MBR the drive and see if it will then accept a new OS install.
6. Don't waste too much time on the issue. Data is only as good as your last backup.
Figure out how the cost benefit of trying to bring the drive back to life and just getting a new drive.
"Save early, Save often."

From: Pahl Jeff TSgt AFMIA/MISO

For FAT file systems.
1st boot from floppy and try to access C:.
If that doesn't work, run Fdisk /MBR. Sometimes replacing the master boot record will fix a non-booting drive.

From:Matthew Harvey

Had this happen last year. Tried running the drive as a slave in another machine (could be the controller, you know) but that didn't do the trick. So we sent it away to a recovery shop. They charge $100 to look at it, send you a list of all the files they could find and recover, and then they want $1,500 to send you those files on a CD-R. We balked at the charge and said, "No thanks, just send us back our hard drive." They did. Of course, in order to read the disk and list the files for us, they had to make a repair to the drive. When it was returned to us I was able to slave it in another machine and copy all of its contents—just finished before their jury-rigged repair failed on us. Full data recovery for $100—not a bad deal, huh?

From: Spike

There are many different ways to approach this. It should depend on the O/S involved.
?? In a Win95 situation, the first thing is to check the BIOS configuration and make sure that the user didn't inadvertently turn off the HDD.
?? If this checks out okay, open the PC and check to make sure the cable is secure...or replace it to rule this out.
?? If still no go, boot from a floppy (DOS or Win95 Startup Disk will do) and sys the drive using the sys c:\ command.
?? Often this will work with Win95.
?? If the drive boots (even just to a prompt) run a virus scan. Many viruses hide themselves in the boot record and will actually copy the boot record to a different part of the drive...thus, not allowing the O/S to find it. If no viruses are found...run a scandisk (from the floppy or from Safe Mode) and make sure there isn't too much corruption.
?? Corruption or not...it's time to back up your important files and format the drive. This may be all that's needed to restore a drive to a functional state.
?? If after the format there are still problems...trash the drive. Don't take any chances with a flaky hard drive.
?? If the suspect drive is a Winnt drive...there are not a whole lot of options. Follow the steps above to the point of rebooting the system.
?? In the case of NT (if it is not BIOS related), you will generally get a ntoskrnl error and the system will halt. Otherwise...the BSOD is always a possibility.
?? To lessen the chances of losing all of your data, boot with a clean diskette (Dos or Win95) and run a setup from the NT floppies.
?? Choose the option to repair the existing install, selecting all of the options of what to repair.
?? If this works, the worst thing that will happen is you will have to reinstall your applications to re-register them in the system registry (which will be replaced).
?? In the event that the drive will not boot at all, take the drive to another machine and slave it to an existing hard drive (preferably with NT as you won't see the NTFS partitions otherwise).

?? Boot the second machine and see if the drive is visible from explorer...if it is...lucky you!
?? Back it up pronto.
?? If you cannot see the drive because it has an NTFS partition and the machine you're using is Win95...there is a utility available called NTFSDos.
?? Get this...it's an invaluable resource for NT techs. It allows you to boot from a DOS floppy and see the NTFS partitions from the command prompt. You can then copy or backup necessary files prior to a re-format.
?? If the drive is still dead in the water after all of this...chances are it's going to stay that way but I haven't come across too many drives I couldn't re-animate. :-)

From: Jamey Copeland

Make sure the drive's data ribbon cable is connected securely at both the drive and the controller. If the cable is damaged, try a new one. Enter the CMOS setup and make sure that all the parameters entered for the drive are correct.
Boot from a floppy disk and try accessing the hard drive. If that is possible, then it is probably because boot files are missing or corrupt. If that is the case, use a third party software fix kit.

Try Sysing the c drive if it is visible from dos.

Check the power connector.

Replace the hard drive...hehe.

From: George Rosser

?? The first thing I would try would be to make a boot disk from another machine and boot up the machine and see if it can read the drive.

?? If that didn't work, check the settings for the drive and the size of the drive if the user has been playing around with the system. It is possible they changed the LDA or other settings.

?? If all else fails, look at the user and tell them that they just learned a lesson the hard way tell the user that they should invest in a tape backup or similar item when the new drive is purchased...

From: Milciades Marrocchi

One thing I did successfully was to replace the HD electronics. The complete board is sometimes standard in many models of the same brand. If the problem is there, then chances are that you will get it to work. Replacing the external electronics of a HD is simple.

Another one I had was a disk that would not start spinning. We fixed it (and don't ask me why) by giving it some hits with the tips of our fingers (while powered on). At one point, it started spinning and we could get out its data.

From: Marco Antonio

I like to use shiramitzu. It´s a powerful software provided (free) by ontrack (www.ontrack.com), I found it when I had some hd´s with their boot sector erased by Chernobyl virus and this software allowed safe backup of the files in it.

From: Lawrence Taylor-Duncan

1. Look up manufacturer, model number etc. on drive. At same time, check jumper settings on drive correctly set to MASTER. If there's a slave drive check its settings, too.

2. Search for model in the Microhouse Technical Library using your trusty laptop (call yourself a tech? OF COURSE you have a copy of this in your arsenal...).

3. Write down manual settings from Microhouse database (# cylinders, etc.). If you need jumper settings above, they're there too! If no Microhouse Library available, try manufacturer's Web site, (this all assuming this setup data is not stamped on drive).

4. Enter data in CMOS

5. Save and re-boot.

Time to completio–n—10-15 minutes.

IF NO SUCCESS

6. Check CMOS to insure on-board controller not disabled. Disconnect slave. Check ribbon cable is not bad. Check ribbon cable is in correct IDE slot. Check that IRQ 14 has not been used for manually setting another peripheral (if so, reclaim IRQ for controller).

IF NO SUCCESS

7. Controller may be bad. Install drive in alternate computer with good controller to test, or try 2nd controller slot using IRQ 15.

IF NO SUCCESS

8. Boot sector or partition table possibly bad in drive. Could use Norton Utility to debug if you like living dangerously. Other alternatives include sending drive to OnTrack for data recovery (expensive), or re-FDISK and start all over (free, but data gone).

From: Curtis Coons

Run Norton's recovery disks. This is done from DOS.

From: Mike Metcalfe

The process of restoring a drive is fairly straightforward. It relies on just a few facts:
1. The drive data is in BIOS correctly.
2. The data cable is in good condition.
3. The IDE port on the main board is functioning.
4. The drive powers on, i.e. you can hear it spin up.

Having been a field engineer for a number of years, this is one of the worst situations we face. The customer is frantic about the possibility of losing some or all of his data. He never thought that this would (or could) happen to him. He has made no effort to back up his data but now wants you to perform some magic that will save the day (and his data).

Onsite retrieval of data is at best a risk that poses undesirable consequences for both the customer and the technician. Your first action is to be as honest with the customer as you can be. Tell him in no uncertain terms that you may not be able to save anything. This does two things: first it allows the customer to prepare himself for the worst outcome (no data), and secondly it allows you to proceed with

more confidence in that you are not going to be held responsible for the data that was (or still may be) on the hard drive.

The technical stuff is basic. You should be carrying with you a working boot disk. I like to use my Windows 95/98 setup disk, the one that gives me several options on how to proceed after the initial boot process. I first look at the drive (physically) and get as much information off of the case as I can. Usually it will include how many cylinders, heads and sectors the drive has. I then go to Setup and input this information in the BIOS. Saving that information I boot to my trusty boot disk and hopefully get an A: prompt.

Using Fdisk I look at the drive and see if it still has a DOS partition. If it does then I switch to the C: prompt (if it comes up, I then breath a sigh of relief) and look at the directory tree. This only means that I can see the FAT (File Allocation Table), I still may not be able to actually get data off of the drive. Remember that while you are working in DOS, your file names are in the 8.3 format and any information transferred in that environment will be rendered difficult if not impossible to use. So let's say that we have been blessed with a good Directory Tree and we can see the desired information buried somewhere on the platters. Knowing I will most certainly replace the drive, I need to attempt to get the data off of it in its most usable form, which will be in a Windows long filename format.

At this point, I'm excited enough about becoming the local computer hero that I pull the drive out and hook it up as a secondary drive to a working system. I then boot the second system and see if it will recognize the drive. It does, and I happily transfer the data to a directory on a good drive where I can either burn a CD for the customer or restore it to the new drive when it becomes available.

If you have no second drive available to install the failing disk drive into you are now going to have to make a tough decision. This premise is far too vague for actual fieldwork but we will say that the customer has no idea where his data resides on the drive (the usual case). Being familiar with the 8.3 format you then ask him what the last 3 letters of the filename was. He states .doc or .wpd or some other format. You do a file search such as "dir *.wpd/s" which will then search the drive and its subdirectories for the data. You then can move the data off of the drive to a floppy and even though you may have to rename all of the files back to whatever they were originally named, you have the praise and honor of being the guru of the moment.

At best you can hope to get some data for the customer, at worst you now have a working knowledge of the system and its integrity (i.e. controllers, peripheral cards, etc.) You also have the opportunity to discuss valid backup options with the customer. But that is another story.

From: Joe Blackledge

Recently I had a machine that would lock up at various times. This was a critical PC attached to a piece of measuring equipment. There was a lot of time invested in writing the measurement programs stored on the hard drive. Of course, the programs were not backed up.

I discovered that if it was cold (had been off for some time), it would run for about 10 minutes. To make a long story short, it was a heat-related problem with the hard drive. The warmer the machine got, the shorter the period of time the hard drive would work.

I opened the case up, took the hard drive out, stretched the cables out and replugged them so the drive was outside the machine. I found two large zip-lock bags and filled them with ice. I laid the drive on one of them and placed the other on top. I waited about 30 minutes for it to get real cool. I connected a zip drive to the parallel port and booted the machine. I had plenty of time to make a complete backup to the zip disks. I actually let it run for a couple more hours just to see if it would keep working. When I shut it down, it was still working fine. I installed a new hard drive, restored the data from the zip disks and made a lot of people happy.

From: cpruszko

1. Try the "auto" settings in the BIOS again
2. If that does not work, use a DOS formatted boot disk, boot the system to the a: drive, type "C:" to see if you can access the hard drive. If this works, back up valuable files then re-install Windows.
3. If that does not work, you can take off the cover and reseat the cables and try again.
4. If that does not work, you will have to go to a third party utility or reformat the drive and re-install Windows.

From: Joe Dougherty

The quiz scenario didn't mention the operating system in use, so I'll assume the user has Windows 95/98 installed on the system.

One simple and valuable tool to have up front is some kind of boot disk, either a Windows startup boot disk from the original software package, or a recent DOS boot or setup disk. I keep a set of DOS 6.22 setup diskettes in my toolkit, since the first disk has an extremely important tool: fdisk. (We run a completely NT shop at my company.)

My first inclination would be to open the system and peek at the cabling. PC ribbon cables are notorious for wiggling free from drive connectors, or, even worse, not being installed securely in the first place. Even the mild vibrations from a power supply fan or even moving a CPU case just a few feet could possibly work the cable off the connector enough to give errors. Eliminate that right off the bat.

The next thing to do would be to reboot the system, get into the CMOS or BIOS settings, and reset the BIOS for an automatic setup of the drive (this also assumes IDE drives). Many modern BIOS setups have a utility that scans and sets IDE drive settings. This would be helpful to get the hardware synched up properly. Make sure the system correctly detects the drive. This should be apparent on the information screens that appear when the system reboots.

If the hardware still can't detect the operating system, one of two things might be wrong. Either the Master Boot Record on the hard disk is corrupt or damaged, or the system is attempting to boot to a partition that isn't bootable. This is where fdisk helps (no matter what operating system you use).

At this point, I would reboot the system using the DOS boot diskette. The Microsoft DOS 6.X setup diskette allows you to boot to the first setup screen, then press F3 to exit to a prompt. Fdisk is located on that first setup diskette. From the A: prompt, start fdisk and have a look at what the current partition settings are.

The first thing to look for is to see if there are multiple partitions, and if so, which one is active. If the C: partition is not labeled active, use fdisk to set it to active and try rebooting.

If that fails, the Master Boot Record on the boot partition may be corrupted. Reboot to the DOS diskette, and at the A: prompt, invoke the fdisk command using the /MBR switch. This won't start fdisk, but it will rewrite the Master Boot Record and may allow you to boot the system back to the hard disk partition. I've done this a number of times on systems running Windows 95/98, Windows NT, Linux, and OS/2.

From: edward.fearon

So your hard drive has failed, eh?

And it's got that all important invoice/CV/document that you cannot afford to lose...

"It was working last time I used it" and "I never touched it" drift into the conversation.

In the case when a HD has failed, it can be due to a number of factors (so many that I wont indulge you). However, one that I find that regularly is the fact that the drive will not spin up (listen for spin up and spin down sounds). This can be a common problem particularly after a cold spell, or after a weekend when the machine has been stuck in your spare room in the cold. I have it on good authority that often this is caused by the lubricants on the spindles getting thicker due to a temp drop... and the HD motor not having enough inertia to overcome the (now thicker) lube.

Well, you may just be able to recover most of the HD, or perhaps even just that one file if you...

1) Take out the hard disk of the System Unit... get your local Techie Guru to do it for you if you aren't happy...
2) And give it gentle twists along its horizontal axis.
3) Plug it in and try again... if it works, go to step 9 ASAP.
4) Switch on the monitor.
5) Rest the HD on the top back end of the monitor (forget it if you have a TFT!), where the HD will gently warm up over the next 4-8 hours.
6) Put that disk back into the machine while it's hot/warm.
7) Cross your fingers.
8) Switch on the power.
9) If it works start ripping off the data as fast as you possibly can, if not put it on a radiator, and leave for a while (then go to step 3).
10) If under warranty send it off, or if not buy a new one!

And if that fails...

PANIC!

Or call a professional Hard Drive Recovery Service!!!

From: Dan Calloway

I would take the following approach when trying to revive a hard drive that doesn't boot up and where there is no startup disk that had previously been made: There are really three different tasks involved here. (1) To get your data off the hard disk; (2) you must make the disk hardware respond to the system; and (3) you may want to make the disk bootable again and perhaps keep it in service. Here are the steps involved:

(1) Boot from the floppy drive with whatever drivers and system files your system uses, then try to read drive C. The first and most important piece of data on the hard disk is the MBR and the partition table. There are a number of programs that will read an MBR. One such program is a DOS program called Fdisk. Norton Utilities is another.

(2) If you can read drive C, backup the contents of the disk and then either reformat the disk and reload the data. If you can't read see drive C, then start Fdisk or some other MBR reader to see if the system acknowledges the existence of the hard drive.

(3) If the drive isn't recognized, then check for loose connections and check the drive's configuration in CMOS. Is the drive too hot or cold? Is it spinning at all? Remove and reseat the controller. A controller swap might possibly make the drive respond where it wouldn't before.

(4) If drive C is recognized, then examine the partition table located in the MBR with Fdisk or Norton Utilities, to see if the partitions are well-defined (they should be for a drive that worked previously).

(5) If the partitions don't exist on the MBR, then the response is to rebuild or restore the data to the disk. You may have to rebuild the MBR from a previously backed up copy of it or, if you haven't backed up the MBR, steal an identical MBR from another PC by backing up the MBR from a working machine onto a floppy diskette and restore the MBR of the troubled PC.

(6) Reformat the first track of the disk with an autoconfigure controller. If you can low-level format the disk, then use HDTEST or some other selective low-level formatter to reformat the first track. If this doesn't work, then there is probably a physical problem with the drive at cylinder 0 head 0. Take another hard drive with identical characteristics and partition layout and boot from it. Then park the good drive, disconnect the power leads from it before disconnecting the data cables, connect the bad drive up to the system via power and data cables and unpark it.

(7) Next finish up by examining the DBR or DOS boot record. This is the first sector in the DOS partition. It contains a small program that loads the hidden files and boots the operating system. You can repair the DBR by further examining the data structure inside the DBR called the BIOS Parameter Block or DPB. It describes the disk, how many FATs are on the disk, how large the clusters are, what the total number of sectors on the disk are, and so on. You can reconstruct the DPB from a program called DISKLOOK or Norton Disk Doctor. You can write the good data from a working disk to the non-working disk using these utilities to revive the drive.

(8) Once the data has been extracted from the drive, throw the bad hard drive away.

From: Frank Luna

Upon reading the error, this appears not to be an issue with the drive but the controller or the logic in the auto drive setup. If so, this should work.

Place the drive in a different machine and check all jumpers. Boot from a floppy disk and pray that a drive overlay (disk manager, Ontrack, EZdrive) was not used to setup the drive.

From: C.K. Smith

This is not an easy one to answer. All of it can depend on the problem at hand (what type of hard drive) and the error messages received. Sometimes, certain brands of hard drives (such as Compaq and CTX) have no "raising the dead". If there is no internal clock, and the hard drive doesn't realize it is there ... well ... except for replacing the CMOS chip, say "ADIOS"!

From: Steven Troester

A lot of time a drive failure is not the physical drive, but the drive's circuit board. I've successfully revived dead drives by finding (sometimes purchasing) an identical drive and carefully swapping the circuit boards.

From: marian1

The situation you suggest best describes inability of BIOS to determine the type of your primary hard drive. Its parameters can be determined from the h/d manufacturer's sticker and entered manually in SETUP under USER or MANUAL entry, depending on your BIOS. The parameters can also be downloaded from Technical Support site of the manufacturer as pdf file and read using Acrobat.

From: Jim Augherton

I would go into setup and make sure that the hard drive is configured properly. Already had it happen.

From: Tim Payne

Sometimes you need to run a check on a disk but you can't get it to load NT to run it. For example, you get an inaccessible boot device. One way to run the check is as follows:

?? Take a set of Windows NT Setup Boot floppies and begin a new install.
?? If you don't have a set of boot floppies, you can make a set from the Windows NT CD. Run Winnt32/ox from the i386 directory.
?? Do not upgrade but choose 'N' for a new install. When prompted for a directory name, choose WINNT2 by simply adding a '2' to the suggested location, which is the current location of your crashed NT. Choose
?? "Leave the Current File System intact" when given the partition choices.

By installing to the same partition you will be given the chance to do a complete scan. Do the thorough scan and when it's complete, you will see a message that indicates that changes were made and to press 'F8' to restart your computer and begin the setup.

Remove your floppy and/or your CD-ROM. When your machine reboots you will see your familiar boot menu and the process continuing normally. What's left is to log in to your regular installation. There will be no WINNT2 directory or changes to your boot.ini but simply your repaired NT installation. If this does not work, or CHKDSK cannot be run the MFT may be corrupt. Here is the solution to that one.

1. If you have a second boot of NT on another partition you may be able to boot into this to do the repair. Otherwise mount the disk on separate system running Windows NT, assigning it a known drive letter.

2. Execute Dskprobe.exe from the NT4 resource kit.

3. From the Drives menu, select Logical Volume.

4. From within the 'Open Logical Volume' window, double click on the drive letter of the corrupted volume.

5. Remove the check from 'Read Only' check box and select the 'Set Active' button. This establishes a handle to this volume.

NTFS maintains an exact copy of the first records of the MFT in the MFT mirror. The next few steps copy the first four records from the MFT mirror to the MFT, fixing the MFT.

6. Select 'Read' from the 'Sectors' menu.

7. In the 'Read Sectors' window, if 'Starting Sectors' does not already read "0", type in the number "0" and select the 'Read' button.

8. Select 'NTFS BootSector' from the View menu.

9. From within the NTFS information window, select the 'Go' button next to 'Clusters to MFT' field. The Sector "X" for 1 that is displayed in the Title Bar is the cluster number that begins the MFT, WRITE THAT "X" NUMBER DOWN.

10. Once again repeat 6 and 7 to return to the BootSector 11. Next, from within the NTFS information window, select the 'Go' button next to 'Clusters to MFT Mirr' field.

You have just selected the spot where the copy of the first few records of the MFT exists, you will copy and paste from here:

11. Select 'Read' from the Sectors menu.

12. In the Read Sectors window, type "8" in the Number of Sectors field and select the 'Read' button. (We are gathering the sectors to write into the original MFT location.) What we're trying to get is 4 1024-byte MFT records, and that means 8 512-byte sectors.

13. Select 'Write' from the Sectors menu.

14. Type in the "X" number that you WROTE DOWN above into the starting sector to write data field and select the Write It button, reply to the message: Are you sure you want to permanently overwrite the data in... with the Yes button.

15. Quit Disk Probe.

16. Open Disk Administrator, select the partition you just fixed.

17. Right click and select 'Assign Drive Letter.'

18. Select Do Not Assign A Drive Letter radio button and select OK, selecting Yes in the Confirm window that appears. This dismounts the partition.

19. Do steps 17 and 18 again, but this time re-assigning the drive letter. This re-mounts the partition. You should no longer get a message box indicating the drive is broken at this point. If you do, then some part of this rescue process went wrong.

20. Run chkdsk X: /f from the Command Prompt. If you get errors fixed, run chkdsk X: /f again and again until no errors are found and reported fixed.

From: Thomas W Lawrence

?? First replace the IDE cable to your hard drive
?? If that don't work, second, you could make this drive a slave install a new hard drive and try copying the drive to the new drive or...
?? One could access the drive by using Western Digital E-Z Bios. This disk comes with most Western Digital hard drives and comes with a software program to copy the one hard drive to the other.
?? You could install a new drive and using the software from this disk, copy the entire drive to the new drive.
?? I have done this several times and it worked.

From: rob.hardman

I have used the following techniques very successfully for a number of years:

1. Put the hard drive in the fridge for about 1 hour. Sounds crazy, but this works if the drive suffering from a heat-related problem.

2. Get hold of an identical working drive, make, and model. Swap the PCB from the working drive to the faulty one. If the PCB was the problem, the faulty drive will now be accessible again.

3. If the PCB was not the problem, then the HDA is. Chances are if it is not accessible, then the boot sector/partition info has been trashed. You can use Norton Disk Doctor to directly edit and repair these areas. Having done this, you can use Disk Clone or Norton Ghost (with ignore errors switch) to then selectively copy the readable sectors off to another disk.

4. If all the above fails, the drive has probably suffered a head crash and the heads or the disk platters are physically damaged. In this case, you need to engage a specialist data recovery service. They will remanufacture the drive by replacing the damaged parts and recovering the readable sectors off the damaged platters.

From: David Forster

?? The first thing is to find out what was the last thing the client was doing before the crash.
?? Sometimes, the clue gives a starting point.
?? The next is to suspect a virus and boot with a clean disk from my arsenal. If no virus is found, then check the drive parameters to be sure they are correct in the CMOS.
?? Then boot to the A drive with fdisk on it, run "fdisk /mbr to reset the "master boot record" onto the drive. If the drive was set up with EZ or Ontrack, then possibly their utility could be used to bring back the drive.
?? Also, most manufacturers have good diagnostic programs available at their respective Web sites. I.E.; MUD from Maxtor; Wdiag from Western Digital, etc. Third party vendors also have various utilities to bring back a drive; Symantec (Norton), and Ontrack, to name a couple.

From: tal

1. I will enter into the machine BIOS and see whether it will identify the HD. If not, I will open the machine and look to see if the data cord is connected and the power supply is connected and give them a little push again (sometimes it misplaces)
2. Then I will try again to reboot it and check again within the BIOS (if it will not work or the user tried to install a new hard drive when it happened, I will look at the SCSI termination if this is a SCSI HD. If it is a EIDE, I will look at the jumpers settings of the EIDE drives because some HD will not work with the jumper sets as primary with other drives on the same channel [primary or secondary] so the jumper should go out). Then again I will reboot the machine and if it will not work or be recognized inside the BIOS, my last resort will be to take out the drive plant it in a different machine and see if the 2nd machine will work with it.

From: Sami.Hanninen

Hello, here's my suggestion:

1. Diagnose if the fault is in the drive or in the machine by plugging the drive to another computer (preferably identical). If you don't have one, go to a computer store and ask them to try it out.
2. If the fault is in the drive, try changing the controller to identical one (from an identical disk)——that is sometimes possible, sometimes no–t—be careful in this step. With controller, I mean the controller in the bottom of the drive, not the computer's.
3. If that didn't help, plug the drive to a computer which recognizes the parameters of the drive correctly and try a disk reviving tool like Norton Disk doctor (if your partitions are format that it understands) or some other that understands your partition format.
4. If the partitions do not exist anymore, at least not visibly to the computer and nothing else helps, it's best to send your drive to a company that restores your data—if it's important enough. Because this kind of restoring costs a lot.

From: Anirudh Singhania

The data cable connected to your hard disk is not functioning properly, or your hard disk has crashed. The only circumstance when the computer cannot detect your hdd from the bios setup very directly means hdd failure or data cable failure.

From: Adil M. Niazy [adil_niazy

If the PC can't detect the hard disk type from the setup, then we definitely have a hardware problem. Any of the following may solve the problem.
1. Open the case and check that the power and controller cables are connected properly.
2. Try a working hard disk to test that the controller, cable, and power are okay.
3. If you have a similar working hard disk, try changing the PCB (IDE board) on the back of the hard disk with working one.

From: James Fylan

Whenever I've come across a drive that's got that funky dying tick-tick rhythm on power up, I call upon the ancient and mystical powers of gumbyism and smack it repeatedly about the upper housing with a blunt object. It may be dumb but if the drive is caught early enough, the 'gumby mallet of might' will often give you enough time to whip that data off....

From:Meng Ling Lee

I will try the following:

1. Disconnect disk drive and reconnect again.
2. Make sure the disk connection and the power are connected properly.
3. Check the jumper setting on the disk drive and the disk controller.
4. Access Setup and run 'Auto Detect' to detect the disk drive type.
5. Listen to the disk drive when it is booting.
6. Notice the disk drive LED when it is booting.
7. Boot from floppy disk and run 'FDISK' to display the disk drive capacity.
8. Make sure the disk drive is the primary and set "Active."
9. If the file system is FAT32, try to display the content of the drive by type in "DIR C:"
10. Try to transfer system to the disk drive by type in "SYS C:"
11. Move the disk drive other machine, and repeat steps 1-10.
12. Repeat steps 1-10 with other working disk drive to confirm the problem.

From: Walt Lonnborg

First, check to see if a nonboot floppy was left in drive A: The CMOS may be set to read the floppy drive first and will give an error trying to read a nonboot floppy.

Check controller cable connections and power cable connections. Check to see if the power cable is loose or the flat ribbon controller cable is loose at the drive or the controller/motherboard connection.

Check to make sure the cable red line side is plugged to pin 1 at the Hard Drive and the controller/motherboard.

Check the jumpers on all drives for master/slave settings.

Turn on the computer. Hit the Del or other key combination to get into the CMOS setup utility. Make note of the Standard settings for the drives. Verify them with the settings required for the drive. You may

autodetect the drive if there are no settings for it. Older computers require you set these settings manually.

Reboot the machine and check the settings. If the BIOS has lost these settings you need to replace the motherboard battery.

If it autodetects the drive, try a reboot. If you can read the drive backup everything you can. You can backup files from a DOS prompt. You don't have to get Windows running to backup essential data.

If the reboot doesn't work: Set the CMOS to boot from an appropriate operating system diskette A: or CD and reboot.

If you can read the drive backup everything you can. Use fdisk /mbr to rebuild the boot record. Try to reboot. If reboot still doesn't work, reinstall the operating system.

From:Ian Steele

A common problem with incorrect CMOS settings is that the C: drive will not boot. Providing the CMOS settings are valid (that is that they do not specify a bigger drive then what the drive is), then the system should be able to see the drive if you are booting from a diskette.

If you can see the drive from a diskette, then you are very close to recovery. Adding another hard drive and xcopying the data will save the data. You can then set the old drive specs to AUTO in the CMOS and then run FDISK/Format and restore the drive. It is a good idea to reboot off the C: drive when you have formatted the drive to verify that the drive is okay—it should be if the original problem was a loss of CMOS settings.

If the C: drive was a NTFS partition then of course the booting off the diskette will not see the drive. In this case using a shareware program NTSF4DOS or something like that will allow you to read the drive and copy it to another drive.

From: Eric Springler

These are some of the things that I would do...

a) Check the cmos settings to be sure that they are correct for the drive.
b) Ask if the user wrote to the disk while the cmos settings were wrong. If they were, then try and use those settings to retrieve some of the data. Sometimes data can be written to the disk and retrieved even if the cmos settings are incorrect.
c) Boot off of a floppy disk with a recent virus scanner. It could be a simple virus.
d) If it's just a case of the disk not being bootable, do and FDISK /MBR to the drive, or do a SYS C: off of a different Win98/95 boot disk. If it's NT, do a repair of boot/system files. It asks for a repair disk, but you can use any old repair disc for that.
e) Stick the drive in another Win9X box (if it was a fat16/32 drive) and run norton disk doctor (tm) on it. Sometimes Norton will recover enough of the directory listings for you to retrieve some of the data
f) If none of these work, put 3 hard drives in a machine: 1) NT Workstation (or 95), 2) Bad Drive, 3) exact model and size drive as the bad drive. Format drive 3, and do a sector-by-sector copy of 2 onto 3 with something like Diskprobe.
g) Put the drive in a working Windows NT machine and drive RecoverNT.

That's about all that I can think of right now.

From: Gary Stevens

Welcome to the wonderful of crashed computers.

To revive or attempt to revive a failed hard drive I would recommend the following steps:

1. Ascertain what the user was doing before it stopped.
2. Ask what they did to try and fix it.
3. Check the CMOS settings. Battery may have failed thereby dropping the configuration.
4. Boot from a GOOD floppy at DOS level, if possible. If it boots, see what is available on the hard drive with   a NO CHANGE examination.
5. Check the files, if available, with a NO CHANGE integrity disk process, like Norton's.
6. If data can be recovered then do so before taking any other steps.
I would then clone or copy the hard drive contents to another drive or location.
7. Remove the hard drive and test in another computer to confirm it is not a general I/O communication failure.
8. Rebuild the system based on diagnosis.

If all else fails, then take it to someone who really knows what they're doing, sit down in the sun, and enjoy a Budwiser.

From: Jerry Pacheco

?? Check to see if the drive spins up; if not, replace drive.
?? If drive spins up, check cmos settings.
?? If cmos settings are okay, check fdisk to see if partition is still accessible.
?? If fdisk doesn't show partition, create partition and format drive (importance of backing up data).
?? If fdisk shows partition, check to see if you can access drive from prompt.
?? If you can access drive, run sys.com to make drive bootable. Reboot from drive.
?? If you can't access drive, run scandisk or norton utilities from floppy.
?? If scandisk or norton fixes problem, reboot from drive.
?? If scandisk or norton doesn't find errors, re-partition and reformat drive.
?? If you encounter errors while formatting the drive, replace drive.

From: ICAN WORKS

THESE TRICKS HAVE WORKED FOR ME SEVERAL TIMES WHEN CMOS LOST THE C DRIVE OR COULD NOT READ IT

INVALID DRIVE SPECIFICATION
(1) POWER OFF.
(2) DISCONNECT C DRIVE.
(3) POWER ON, DISABLE OR REMOVE ALL FIXED HARD DRIVES IN CMOS
  RUN AUTO DETECT, (NONE DETECTED) GOOD!
(4) SHUT DOWN, RECONNECT HARD DRIVE, REBOOT.
IF C DRIVE TEST ON BOOT MENU DOES NOT APPEAR ENTER SETUP, RUN AUTO DETECT, THIS TRICK USUALLY WORKS ON THE 386 & 486 MODELS.

UTILITIES ON FLOPPY

THIS TRICK WAS AN ACCIDENT AFTER A LONG DAY, BUT IT WORKED (NOTE THIS METHOD WAS ONLY EVER USED AND TESTED ON 486S) IN FRUSTRATION OF TRYING TO FIND THAT DARN HARD DRIVE, I DUG OUT A BRAND NEW DATA CABLE, INSTALLED THE CABLE AND REBOOTED.

C DRIVE ERRORS ALL OVER THE BOOT SCREEN, WHEN I INVESTIGATED MY HANDIWORK I HAD DISCOVERED MY ERROR AS I HAD REVERSED DATA CABLE AT THE IDE SLOT. I QUICKLY CORRECTED THE MISTAKE AND REBOOTED THINKING "NOW I REALLY DID IT????"
THE SYSTEM REBOOTED FINE, RAN SCANDISK, ALL SYSTEMS OKAY. OS BOOTED UP GREAT.

JUST AN HOUR OR SO AGO, A TECH GURU TOLD ME OF HIS SIMPLE METHOD. I HAVE NOT TESTED THIS ONE YET. HE SAYS REMOVE DATA CABLE FROM HARD DRIVE, RUN FINE SCREWDRIVER OVER CONTACTS OF HARD DRIVE TO SHORT OUT OR, AS HE SAYS, DISCHARGE THE COMPONENT, RECONNECT, REBOOT, AND IT SHOULD WORK. WELL IF IT DOESN'T, IT WAS GOING INTO THE GARBAGE ANYWAY.

From: Doug Carpenter

1. Check the CMOS battery, your problem may be simple. It could also be an intermittent short on the system board or a failing battery. It holds the system info until you shut down, maybe for as long as five minutes, then fails. What's the clock say?
2. Make sure a disk manager isn't installed on the drive. If that's at least a possibility (greater than 2.1GB on old 486 computer?), try using the usual drive parameters for a disk manager: 1024, 16, 63
3. Maybe the master boot record was lost. Try fdisk/mbr. Make sure you're using the correct operating system version.
4. Boot from a clean floppy and try to change to C: If you can see the drive, you may have a virus.
5. Can you hear the drive spinning up? Can you see a hard drive access LED visibly working? Maybe it's spinning up slowly, press pause or reset to allow time for the hard drive to get up to speed, see if the problem disappears.
6. Check for a bad cable connection or power connection. They should be seated firmly. Are they oriented correctly? Maybe someone else worked on the machine. Is the ribbon cable made for cable select? Is it set that way? Check the jumpers.
7. If all else fails, put another drive in and see if it works okay.
8. If you get it running, check for viruses just for fun.

From: Letehumy Rajavalu, GSSB

Reboot the PC, get to the CMOS setup and set the drive type to "auto" again to confirm if the hard disk is detected.

Else, get back to the CMOS setup again and try to set the correct drive type based on the capacity of the hard disk which can be found on the hard disk itself if you open up the CPU casing.

From: Brent Hunter

Very simple, I think?!

While the drive is running, you should be able to get all the information off the drive, unless it has "bad sectors, etc."

My usual task list involves using "GHOST" to get the data of the hard drive. But sometimes this doesn't work, because of bad sectors, or the drive timing out while trying to sort itself out. My next solution is to use XCOPY32 under a Windows 98 dos prompt. This enables you to use more and interesting switches. Ninety-nine percent of the time, this gets the data off a failing drive.

My syntax is a follows:

XCOPY32 x:*.* y:\ /E /H /C

x: = source drive (i.e. failing drive)
y: = target drive

/E = copies all directories and subdirectories including empty ones.
/H = copies hidden and system files (i.e. SYSTEM.DAT & USER.DAT are Windows registry files with the Hidden and System attributes).
/C = this switch is the trick. Even if the drive times out and then starts up again, XCOPY32 will continue copying the data over.

From: Skip Berryhill

You didn't say, but often, when a hard drive won't boot, you can boot on a floppy disc with FDISK on it, log onto the hard drive, and execute some commands (DIR, COPY, and the like).

If they work okay, you can use the following from the floppy: FDISK /MBR and re-write the Master Boot Record of the physical drive.

Next, remove the floppy and reboot. It will usually be alright. If it operates properly, all it means is that the MBR was somehow corrupted. Nothing majo–r—it was re-written by the FDISK /MBR command.

The /MBR switch was undocumented for a long time.

From: Phil Adams

??   Get the new hard drive and setup as the master the old drive as the slave.
??   After running scandisk, you should be able to xcopy everything to the new drive.
??   Worse case, install the OS to the new drive then copy the user files over.

From: Robert P Mulhearn, Jr

Use Steve Gibson's spinrite on a quarterly basis to keep track of HD condition and recover bad drives as long as they are recognized by OS.

From: Kevin Flateau

First of all, is the drive alive?
When you turn on the machine shortly after a quick ticking noise (watch the memory count on the screen), then you'll hear the floppy do a quick click and the light on the front will go on, then you'll hear some short clicking from the hard drive and its name will appear on the screen. If you don't hear anything and the period after the floppy and before the notification of hard disk failure is more than 20-30 seconds, then your drive has most likely run out of gas. If it did make a noise (hum type) odds are the drive is still alive so let's try to wake it up.

This is my methodology for firing that sucker up to breathing again.
1. Identify the drive and its parameters. You'll probably need to take it out of the case. On the outside is a label with a model number, cylinders, heads, sectors, and landing zone (usually not necessary). The model number may be necessary to seek out the parameters of the drive if they are not readily available. The PC Pocket reference manual has an extensive list of older drives. Newer drives are labeled with specs.
2. With the parameters in hand, boot the machine and enter the bios. Go to the Drive 0 settings and enter the cylinders, heads, and sectors in there appropriate areas.
3. Hit escape, F10, and answer "Y" to the "Save?" question.

From: Shadow

THE SITUATION:
You get a call from a user at work, a consulting client, or a neighbor who's found out you're "a computer person." (Sometimes they all call on the same day, don't they?)

Maybe you're lucky. When you get there, the machine boots just fine. The user says, "That computer doesn't like me." You tell the user to back up important files while the system is running because you're going to order a new hard drive so this doesn't happen again.

But then there are the times you aren't lucky. You get messages like "disk 0 error" and "invalid drive specification." I recently got those errors trying to revive the hard drive of a Compaq Prolinea 4/66.

It doesn't matter what the box is, though.

The circumstances are all too familiar:
The data isn't backed up.
The problem came out of nowhere.
The user had accessed Setup and tried to manually enter the settings for the drive type when "Auto" didn't work.
There was no startup disk made by this machine.
Reviving a drive like this one—even if only long enough to copy its data before you put it in File 13—is a tough challenge. How would you approach it?

THE SOLUTION:

Before going on-site I would be sure to have my various boot disks available (DOS6.22, Win9x, WinNT and AntiVirus) containing the usual disk and file utilities, a spare hard drive and a small hammer.

When I arrive on-site, I would first reset the CMOS settings to factory default. There can sometimes be corruption of the CMOS and can cause drives to seem to have "failed". Then I would go over the CMOS settings and make the appropriate changes for that particular system, including setting the primary HD to AUTO. If this fails, then I would boot to floppy and determine if FDISK can see the drive. If not, then it's time to open the case. With the PC turned off, I would first check the drive cables to verify a solid connection to both power and data cables,and install my spare drive (to save data with). With the case still open, I would power-on the machine and listen carefully for the drive to spin up. If I cannot hear the drive spinning up, then I would remove the drive (with power off of course). Then with the drive in my hand and still connected, I would power up the PC again, feeling for the centrifugal force the drive would create from the spinning platters. If there is no torsion effect felt, then this would mean that the platters are not spinning and that the heads may be '"stuck."

This is where the hammer comes in. Power up the PC again and LIGHTLY tap the drive case edge once or twice with the hammer handle. This will usually unstick the heads from the platter and allow me to copy the data (or whole drive depending on the situation) to the spare drive for safekeeping until the user can purchase a new drive.

If this also fails, then once again the hammer comes into play...this time to allow the user to beat the crap out of the old drive and relieve the frustration of having lost everything because they thought "backups are for sissies."

From: Carla Maslakowski

Boot PC into setup and restore drive settings. CMOS battery must be dead which is why setup lost settings. Replace CMOS battery in this PC and drive should keep settings.

From: Todd Layland

Pull the jumper on the motherboard that will reset the settings (bios, password, etc.) of the system. If it boots, you know it was a config setting that screwed up. If it doesn't, well HD are cheap.

From: Dale

First things...first:
- ?? I would flush CMOS and then look at the drive and write down the correct drive settings for Cylinder, Heads, and Sector.
- ?? I would manually enter this data if auto detect could not figure it out.
- ?? If unable to boot after manually setting up the drive, I would check settings in CMOS and then boot from a floppy (THAT I WOULD HAVE BROUGHT WITH ME!) that contained sys.com, fdisk.exe.
- ?? After a successful boot to a floppy, I would do an FDISK/MBR and then reboot the system and let it fallback to a backup MBR.
- ?? If that failed, I would boot to a floppy and do a sys c: then reboot.
- ?? If unable to access the drive after the mentioned steps, I would boot from floppy, change to C: and attempt to recover as much as possible to floppies.

From: Ken Beckett

I would take the drive out of the PC it is in and take it to another PC put on the secondary IDE. I would look up the drive parameters and enter those parameters in the bios. Start the PC and hope to get the drive to run as a secondary drive.

From: NetMarkC

I've lost my "C: drive before and was able to get it back by removing and reinstalling the CMOS battery.

From: dmo

Find out from user which OS he was running on the hard drive. Install a new drive as Primary and the damaged drive as secondary. Install the same OS on the Primary drive and you should be able to see all or most of the data on the second drive. Copy all data from secondary to the Primary drive.

From: David Knapp

Oops, didn't read the question close enough. In order to revive a hard drive that won't boot, I do the following.
- ?? Boot to floppy that has the basics on it—fdisk, edit, sys, format, command.com. Fdisk to see if the drive is being recognized by the system.
- ?? If the drive shows up and has a valid partition, then try to access it from dos.
- ?? If you can't access it from dos, I would basically give up, but you can try to sys it too. Depends on the problem.

From: DKauschjr

- ?? I would first go into the bios and attempt to redetect the hard drive.
- ?? If I was unable to get the bios to detect it, I would then go to the drive manufacturer's Web site and get the manual settings for the drive.

?? Next I would get a boot disk from another machine nearby and do a format /s on the drive to bring the operating system back up.

?? After fixing the machine, I would then lock the bios and then proceed to flog the user with rubber bands and paper clips for even looking at that enter setup option.

From: David Knapp

We have about 4 standard ghost images that we base most of our machines (Dell) on. We have a boot disk that has NetWare drivers for all the network cards we use. We boot the floppy, login, and re-image the machine once the new HD has arrived. Then we configure networking, printers, capture batch file, and install custom software. If they want their data backed up, then they should keep it on a server.

From: LByer1

Reboot the machine hitting delete key entering into the cmos setup.

Then click on the restore default values to allow hard disk to reboot by itself again.

From: Chris Draper

When you support any number of users, hard drive failures are an unfortunate fact of life. I have had users cry in front of me when I have had to tell them that all of their data has gone to "data heaven." Recovering data from corrupt or failed drives is more of an art that a science.

?? Far and above, the best thing to try first is the old FDISK /MBR command.

?? This will rebuild the master boot record. Although not always successful, it has recovered many drives that were not at all readable. However, drives that have experienced head crashes refuse to spin up and need much more attention.

?? In these cases, method is critical. Set up the machine with a second hard drive.

?? Boot to dos and try to copy the data off the drive using XCOPY. This way if you do run into bad sectors or a crashed head you can simply stop the copy by hitting [Ctrl]C.

?? I have even been able to get some drives to spin up by "gently" tapping on them with a screwdriver while they were powered up.

?? Please keep in mind that this is a last resort technique.

?? I have even frozen a few drives to less than 40 degrees below zero. This will sometimes allow them to spin for long enough to get some data from the drive.

From: Avraham Schkloven

Firstly, I check all my cables (data, electric). Is the disk spinning does it make those little noses at startup? If NOT, I try a little tap with the back of a screwdriver. If it comes to life and boots, I make backups and replace the disk. If not, well all disks die—it's just a matter of when.

If the disk is spinning at startup:

Be aware that many older viruses effect the boot sector and fats of hard drives and give errors "invalid drive specification." a good DOS antivirus should be used.

Then I try to reset the setup to the proper numbers and boot from a floppy disk with the proper operating system. On this disk is FDISK. I personally use a program call RESQDISK from Invircible Anti Virus. It has saved my skin many times in rebuilding the boot sector and fats (one could try the FDISK /MBR command).

Norton DISK EDITOR for DOS fits on a floppy and once you boot from a floppy you use it to dump the content of the C drive off to another drive.

If available I use a new hard drive. Making the bad drive the slave and the new drive master and try dumping the disk. This works only after access has been restored.

Unfortunately, some patients do not survive.

From: KrisMHorn

At times, the hard drive has lost its Master Boot Record (MBR). Sometimes it will work to type fdisk/mbr at the dos prompt (usually from a system bootable floppy).

Other times, you may want to use the old handy command, SYS a: c: (Re-creating the system files on the C drive).

Usually, if these don't work, your drive can be sent to a data recovery center (if the data is just so critical that they can't live without it.) Usually, this costs hundreds of dollars.... And you would still have to replace the hard drive in order to obtain the data back from the recovery center.

From: Denford L. Owens

I use DrivePro by ForeFront Direct. It analyzes problem areas, can find and repair MBRs as well as repair them.

From: David Crocker

?? I always start by booting from a floppy and seeing if I can access data on the failed hard drive.
?? If you can, I then do a sys.com to c: and reboot.
?? Once you are back to a c prompt, back up all the crucial data and start over by installing a new hard drive.
?? Since this does not always work, more drastic measures have to be taken. I use several different utilities that may be useful.
?? If dealing with a windows operating system, I first try scandisk. Obviously if you cannot see the c: prompt, then this does not work.
?? I would use Norton's Disk Doctor first, then would try using Spindoctor.
?? I only use this program as a last resort because I have lost the drive in some rare instances.
?? Your data is usually still on the failed drive, the problem is the boot sector.
?? If these programs do not work to restore the boot sector then, I would try and use Drivecopy to get the data to a good drive and start from there.
?? As we all know sometimes all your best efforts are in vain.
Good luck with your test drive.

From: FS296

If the drive just does not boot to C and it appear that it is spinning and responds to C prompt commands, I would slave it to another drive and drop and drag files to safe location, i.e. external hard drive, Zip drive.

From: Norton Seron

1. Disconnect CD-ROM drive and/or 2nd HDD.
2. Remove HDD and read label regarding "jumper" position for master (without slave) if necessary.
3. Check power cable plugged into HDD properly.

4. Check data cable plugged in properly on HDD and Motherboard.
5. Reboot PC and verify that problem is still present.
6. Replace HDD data cable.
7. Change power lead for another lead (test for voltage with multimeter).
8. See 5.
9. Connect different HDD to PC and see if bios can pick it up.
10. See 5.
11. Check CMOS chip is plugged in firmly.
12. If any of the above result in function, then boot onto system floppy and "fdisk/mbr" to fix master boot record and then fdisk to check partition, followed by DOS scandisk and surface scan to check for bad sectors on HDD. If bad sectors are found, then back up needed data and replace and reinstall HDD and OS and APPS.

From: Gilbert Betancourt

Here's one solution I am using out in the field. I see many brands out there. The most popular in my area are Quantum Big foot, Western Digital, and Seagate .

I carry about 2 logic boards of each brand (popular in my area) and when I see init problems not relating to crashed heads, or burnt motors...

I just replace the board and backup the data for the customer. In many occasions, I sell them the logic board by itself... send board back to factory to get exchanged for a reasonable price....

Out of all my customer hard drive problems, 70 percent are taken care of this way.

Hope this might get some techs out there thinking about implementing something similar.

From: Dave Rutherford

You need to first figure what is not (or is) happening. If the drives are just not spinning, you might be in luck. Otherwise, you had better be carrying the 'toolkit' (mostly software these days).

Drives not spinning? Open the box, and check the cards and cables. Does the floppy "seek." If it should and should not, check the power +12v is required mostly for motors...

Nothing loose, then pull and reseat everything—esp. the memory. Watch it, make sure you are grounded... you left the system plugged in right? No plug, no ground.

Still nothing? Here's one Seagate tech support told me in the early 80's... it still works like a charm. Pull the hard disk from the chassis and plug the power and data back in. Then holding the drive in the left, with the CABLE end towards you, BUMP IT with the HEEL of your right hand. ONCE medium hard (this will unseat magnetics, release brake mechanisms, and even pull heads stuck in soft platter coatings.... I've looked).

Still no go, try one more bump WHEN you first turn the power on.... Sometimes stuck heads need the motor to move before they will spin.

LAST ATTEMPT to spin, pull the cover (This will not destroy data recovery service offerings. Just make sure nobody smokes around you and it's fairly clean.) off the drive. CAREFULLY with power on, push the platter to spin it.

Finally, do you have another drive same model? You can swap logic boards...just don't leave it that way. The read/write electronics are balanced to the heads inside the drive. This MAY work if you have a bad motor chip, etc.

Now you can send the drive to the service for data recovery and the big bill.

IF IT'S NOT A SPIN PROBLEM, use a drive id software (many available) to check how the drive SAYS it's set... even though the bios does not get this report does not mean the drive is dead to this question...! No answer, you can use some software (like Disk Mangler——commercial) to rewrite track 0. THIS IS dangerous, so know what you are doing. I practiced on bad drives that I had first.

Other things not quite right, swap the PLACEMENT of RAM in the system... surprised? Shouldn't be. Ram is used for just about anything, right from the start. Check the POWER. Use a good meter.

From: David C. Projansky

With all troubleshooting, you have to have a logical approach and be able to eliminate problems. When I get a call from end users that a hard drive has failed I first ask several questions that will help determine the course of my actions.
1. I first ask what were they doing before the failure, i.e. did the PC perform and illegal operation in an application and have to be rebooted? Did the user just turn the PC on and nothing would happen? Is the hard drive making any kind of unusual sounds?
2. I've found most supposed hard drive failures are really operating system problems, and can easily be repaired without taking the case apart. I usually like to turn the PC and pay close attention to any error messages that come up. Since I always have a Win95 boot disk with me, I usually boot to DOS so I can at least attempt to recover any data by copying data files onto floppy disks.
3. Then I usually reinstall Win95. In worst cases, I have to fdisk the hard drive a reinstall the OS and all applications.
4. On the other hand, I've had disk drive fail because of bad cables (a good indication of this is if the BIOS can't detect the hard drive), power supply problems, and bad power cables.

It's important to work logically and try to eliminate the easy stuff before you have to replace a hard drive.

From: Steve Schoenecker

After questioning the user to eliminate the upgrade/jumper issues or other changes such as playing with encryption/privacy utilities, etc.

?? I'd boot from a clean floppy (watch closely for indication of an overlay program which might say "to boot from a floppy, hold the spacebar down." This can really eat your lunch!) and then run a dos-based virus scanner such as FPROT or something like that just to be sure.
  If the drive is not detected or can't be accessed at all:

?? Look inside and see if the drive configuration specs are on the drive or look them up... make sure power is connected securely data cable etc. Make sure drive is spinning up, verify cmos settings for HD type, and boot order, etc. Visually verify which devices are on which IDE channel etc.
?? If I fix the cmos settings, then the system boots okay but not after being turned off...suspect cmos battery...drive is probably okay–good idea to backup important stuff at this point anyway!
?? If I cant get to c: drive, I'd probably run fdisk and look at the drive information to see if it thinks that the drive had partitions defined, how many, what size etc. I've seen the fdisk table scrambled mess because of a virus... I have fixed this problem a couple of times... OS2 fdisk utility can help here sometimes... (more of a last resort) best to get important data (if I get it running) and then start over with fdisk/format/reinstall....

?? I think I would isolate it on the bus and set the cmos and jumper settings accordingly just in case the other device is disrupting everything
?? At some point I would probably replace the drive with a drive known to work normally, and run it to eliminate other system, problems cable problems, etc.
?? If another drive works but not this one, and I still cant access the drive at all....punt.
?? If critical, consider sending to a data recovery specialist.
  If drive is detected but won't boot:

?? Start the system and watch to see how far it gets. If possible boot to c:\ prompt.. if not, boot from floppy.
?? If I can access the stuff on the drive, I'd back up. If drive is accessible but won't boot, I'd check the version of OS then sys the c: drive with an appropriate boot disk. If this doesn't work, maybe fdisk /mbr will help.
?? If the OS dies while loading drivers etc.. look there...

Hope I haven't forgotten anything obvious... each one is different and I usually win! I have a couple of dead drives in a box... I'd love to hear some new tricks to try on them!

From: MICHAEL W. BROWN

Order a new identical drive and swap the controllers.

From: hotmail

Unfortunate the box does matter!
1) Open the box and check for HD's model; go to manufacturer's Web page; find out the details (Heads, Cylinders, sectors per track) and use those at setup, configuring manually the HD's params; download specific software (EZdrive, etc.) for the HD's model.
2) Check for OS the user is running.
3) If OS is MS-based (excluding NT), then get a boot disk under Win95b/98; start the machine and use the program you've downloaded or if the HD is old, try to use NDD (only if OS is MSDOS or Win95 do not try to use it if there is a possibility to have VFAT32 installed).
4) Usually most of us do carry with them some startup diskettes with an antivirus, so USE IT FOR BOOT (I myself use an emergency Boot Disk made with the help of McAfee AntiVirus since it's very usual to run up to a virus).
5) If all the above are pretty hard to do, then try to install the new HD, and OS; connect the old HD as a secondary master (or primary slave if that's easier) and start the computer booting from new HD and try to access the old one.
6) If the old one is inaccessible then be sure that the drive was installed through BIOS without using any overlay driver to expand BIOS's addressable HD capacity; If there was, try to get from Web the latest update of that driver and install it temporarily (Use a boot diskette rather then installing at Primary Master's Boot Sector) and boot from that diskette.
7) Hopefully you've been able to access HD. If not there may be some tools in the manufacturer's soft you've downloaded; otherwise ... try to stay calm!!! and proceed with some Web searching. There are some good tools to access the partition and try to fix it manually (If you Dare) using a disk editor to repair boot partition. Well it 's much more complicated sometimes but you may try it at your own risk. Or you may just say " Hmmmm..... Told you so... Sorry there is no way out... you should keep backups!" (an easy solution :->)

From: Doug Wood

I have found that if you cannot hear the drive spinning by putting your ear next to it, try removing the drive from the computer and twisting the drive rapidly in your hand in the plane of the drive. This will sometimes unstick a bad bearing and allow the drive to spin up.

From: Bill Chomik

What I do in this situation is as follows.

- I always have a spare hard drive with me. I hook this drive up to the computer in question making it the primary drive. The drive that doesn't work, I change the jumper to become a secondary master and attach it to the same ribbon in the computer.
- The computer is then booted up with the good hard drive. In a lot of cases, I then have no problem accessing the bad drive. All necessary files can then be backed up to tape, or copied to the good drive.
- Once this is done, a new drive is put in as the primary drive. The O/S is then loaded on with all other necessary software. The spare drive is then connected as the secondary master and booted up again. All files that were recovered are then copied back to the new drive.
- If the above doesn't work where the bad drive cannot be accessed, any and all loses are accounted for. The old drive is thrown away and replaced with a new drive. The person who doesn't take the responsibility for backing up his data has to learn to live with the consequences of these actions. A lot of times, I'm the one that ends up getting blamed, but you learn to take this with a grain of salt and brush it off.

From: Billy Dunn

The first thing I do is boot on a boot disk and fdisk/mbr if the computer can see the hard drive but can't boot after you sys C:.

From: Ben Hardman

Lets see...
- First, I would see if I could see the disk in the BIOS.
- If the HD is visible in the bios, I would try something like fdisk/mbr.
- I would view the partition info and see if it was showing the correct partition info.
- Assuming all of that is correct, I would try running microscope diagnostics and see what kind of errors it is producing—whether it be a seek error or an actual damage to the drive.
- I would first get another drive preferably the exact same model drive.
- I would try and run Symantec Ghost on it and write a script file telling it to ignore bad sectors and continue copying anyway.
- It may not be able to recover all files but this sometimes works. If that still did not work to recover the data portion of the drive...
- I would probably take the new drive that I ordered and take the controller off of it and put it on the failing drive. Many HD situations is not actually a failure in the surface of the HD but in the controller failing due to the fact of the IC chips and many surface mount resistors and capacitors which many times are already failing somewhat before leaving the manufacturer.
- They allow functionality for sometimes several years but you are tossing a coin with each boot of the machine.
- But I digress, back to the controller... After switching controllers see if the drive is visible and the data is in tact. If that does not work verify the drive is spinning up.
- If the drive is not spinning sometimes you can open the drive up and take a pencil eraser and give the platter a little push and the drive will spin up. Of course, this is a last resort option because you will void any warranty that is on the drive.
- I have even gone as far as taking a bad drive whose drive head was bad and removed the platters and put them in a new drive's platters place.

?? I had to do this with a UNIX server once because the company had not backed up any data on its servers drive.

From: Zlito

?? I always try to reset the defaults in the setup first.
?? Then reboot see if the computer holds the info to see if the on-board battery is dead. It's simple to replace and could save a lot of time.
?? If not, maybe a voltage surge hit the cmos and cleared it. This could take some time to find the settings the manufacturer used.
?? Or find out if the hard drive had an overlay on it—older proprietary systems used them a lot. If so, try reinstalling the overlay and see if that brings back c:\. If not, leave it with me for a week and I will have it working at full steam.

From: Sasha Baer

I have just had this exact problem. I had a drive with an NTFS partition and a FAT partition. The NTFS partition was my boot partition. Anyway, the sorry story was that my girlfriend hit the power cord accidentally while doing the vacuuming and the resetting of the computer caused the boot sector and the MFT to corrupt.
After much searching, I found a helpful article (http://support.microsoft.com/support/kb/articles/q153/9/73.asp) on the MS site describing how to repair the boot sector.
I built a new NT machine and went through this process. I could then mount the partition but it still showed up as unknown in Disk Administrator.
I looked for ages on the net and the only thing I found (over and over) was a program called RecoverNT. I downloaded this and went through the instructions. It said to format the drive (that is for my symptoms) and it then searched the entire drive cluster by cluster to find the files.
The only real annoying this is that the demo copy only allows for 3 files to be restored and it costs US$250+ to buy). Even though it's expensive, I must say it does a great job, both for NTFS and FAT. Unfortunately for me, I still was not able to recover my PST file and Tracker DB–both of which must be corrupt badly as they were open at the time).

From:Jim Claypool

Start with the basics:

?? Reseat the IDE cable at all connection points, checking for bent pins.
?? Use a different power connector to the hard disk and make sure it is the only device connected to that branch.
?? Clear the BIOS settings.

If the above three did not bring it back:
?? I'd look at next trying a different IDE cable.
?? If that didn't help, try slaving the drive to another hard disk.
The big problem in the way you described the failure is that there is no communications between the hard disk and the IDE interface. However, if your new master drive does not autotype (even when by itself), look into getting that old drive onto a different IDE interface (like a different machine).

New master did autotype but still can't see the old drive? During power up, use the fat end of a screwdriver to gently tap the outside of the suspect hard disk. Sometimes the arm gets stuck and a gentle tap will free it.

From: Salvatore Valela

I saw this problem once before. The monkey b virus will take a piece of your boot sector and move it at an unspecified location on the hard drive. I would run a virus checker software program to see if you have a virus.

From: Kim Chappell

I came across a situation where the computer would not boot from the hard drive. The drive was making a horrible whining noise, and I was getting messages like "invalid media" or something similar. The user had all of her e-mail stored in a PST file on the hard drive and had never backed it up.
She was frantic. This is what I did:
?? I got another hard drive, loaded it up with Windows 95, and put it in the station.
?? I made the original drive a slave and then booted up with the new drive.
?? I then had no problem seeing the files on the old drive.
?? Apparently only the boot sector was corrupted. I was lucky (so was the user).
?? I copied the PST file, and whatever else the user needed, over to the new drive. Worked like a charm.

From: mhicks

A common problem with older hard disk drives in particular, such as those found in '486 class machines, is termed "stiction," a condition in which the lubricants that the manufacturer coated the drive platter surfaces with have gummed up, eventually causing the drive spindle motor to no longer be able to spin up the drive at power-up time. The problem may manifest itself intermittently at first, allowing the user to get started today, by switching the computer's power off and on again. But finally the day comes when no amount of power switch jiggling will help.

Here's a trick that just may allow you to get the drive started, and recover the data the user refused to back up, even after weeks of obvious notice that the drive had every imminent intention of going belly up.
?? Remove the computer case "skin," and dismount the hard drive mechanism from its mounting.
?? Hold the drive in your hand, still connected, and turn on the computer's power switch.
?? You will be able to hear and feel that the drive refuses to spin up. Most drives have logic that delays the spindle motor start-up about a second, in order to allow the drive electronics to stabilize, and reduce total inrush, or starting current, to the system power supply.
?? Turn the power off again, and this time, about a second after you turn the power back on again, move the drive in a quick, forceful, circular motion.
?? The object here is to impart some force to the spindle platter, as a sort of mechanical "jump-start," so that the force of your manual motion, added to the drive motor's normal start-up torque, will be sufficient to overcome the extra dragging stiction of the gummy lubricants, allowing the spindle to start up.

If this fails the first time, try again.
?? Use both clockwise, and counter-clockwise attempts, since you probably have no way of knowing what the actual direction of spin is.
?? You'll know immediately when you succeed by the feel of the vibration of the spindle motor starting, and the sound.
?? Now, back up that irreplaceable data, make that new drive sale, and restore. Smile modestly when acknowledging your wizardry.

From: Arve Alsvik

The procedure I suggest is absolutely a last resort thing to do.

I've would have tried to replace the hard drives controller-card. The card sitting on top of the disk. Usually it can be removed. And most likely malfunctioning controller card is the reason for the hard drive crash. But it have to be replaced with another card from the same type of hard disk. In a corporate environment this would be easy, but alas, it may be more difficult in a home situation.

Anyway: This is my only suggestion.

From: John_A_Cook

??   The first thing I would do is pull in a BIOS upgrade from the PC manufacturer and flash the system.
??   You said that the user got into the Setup and changed the settings. If an upgrade for the BIOS does not find the drive and auto detect the it, then get out the tools and open the machine up to have a look at it's guts.
??   Remove the HDD and get the info off of it and manually enter it into the settings.

From: TorA.Rysstad

The most important thing to do in this situation is to protect the data on the drive. And in my experience; the more one try to "look" for data on the disk, the more it might get destroyed.

Try to listen to the hard drive. Are there any weird sounds emitting from it? I have two "sound categories." The first is identified by sort of "buzzing" sound or perhaps a loud "ploink" sound. The second category: no sound at all, or the drive seems to running at full speed, even if the PC is "frozen." The first might indicate a physical damage. That might be hard to solve, but that does not imply that everything is lost. I often find almost everything on the disk like this:

??   Take the damaged hard drive out of the client's PC.

??   Take particular care not to bump the drive. There is a chance that the heads are not parked properly. You don't need more damage to the disk than there already are!

??   Put the damaged disk in another PC.

Usually with modern disks you can auto-sense the needed specs (Heads, Cylinders, etc.), but sometimes you'll need to type this manually. And of some reason the hard drive manufactures has not considered it important enough to print this information on the label. This has puzzled me more than one time... But you can find all you need on the Internet. The Compaq that was mentioned was (I think) originally equipped with a Seagate disk. Their disk Support can be found on
http://www.seagate.com/support/disc/discsupt.shtml

Remember that you will probably have to change the jumper setting. MAKE SURE THE DAMAGED DISK IS SET TO BE SLAVE!!

Copy the needed files from the damaged disk

Try to copy the files you need from the damaged disk. DO NOT try to run Scandisk or Norton Disk Doctor etc!! These programs might make things worse! Do every thing to get the files you need first! Afterwards you might consider attempts to revive the disk. Then Scandisk will be very helpful.
But remember, if the disk has crashed once, then you should not trust the disk.

If you cannot find anything on the disk, then I have found that Norton Utilities is amazingly effective. But there are alternatives available at http://hotfiles.zdnet.com/

Revive is a simple small program. Try it! I've tried it a couple of times, and it really works!! BTW: The Prolinea should not be thrown away just yet! If there is a network card in it, then it can be used as a intranet server. Install Linux and Apache Web server on it, maybe even FrontPage extensions, and voila, you'll have a splendid intranet server, or a test bench for testing Web-ideas! Just remember that:

?? A computer this old might not be able to support very large disks (> 1.2 GB)
?? Update the BIOS. The Prolinea has Flashable BIOS. So updating the BIOS is very simple. Take a look here:
http://www.compaq.com/support/files/desktops/us/10_22.html
Install Linux without graphical interface. The 486 processor will not offer the power needed to run KDE or GNOME in a satisfying way. You will also save allot of disk space. If you can find a old 540Mb disk then that can be more than enough!

If you install NT 3.51 Server, then this computer might be used as a separate printer server. It should be able to serve approx. 30-40 people without any trouble. But you should have 32_MB RAM and approx. 500-MB free space if the users are printing large files, like PowerPoint presentations, etc.