Troubleshooting Tips

Hitachi is fully committed to supporting our hard drive products. Troubleshooting the drive is an important step in ensuring you receive the best service available. Simply replacing a hard drive that has not truly failed will not resolve your issue in a timely manner.

The following guide includes some suggestions you can use when you have problems with your drive. We include links to areas on our website which discuss specific topics.

The Basics

Troubleshooting a hard drive problem may seem like a daunting task; however, many problems can be resolved using a few basic steps. We recommend that you start with the following steps as they can resolve many problems.

1) **Re-boot your computer.** This is the most basic step in troubleshooting any problem with a computer, but it solves a lot of problems. If the problem just started and you have not rebooted yet, this is a good step to try.

2) **Check your cables.** A hard drive uses both a data and power cable. Both of these cables are susceptible to failure. Not every cable failure results in the drive not being detected by the system. They can show up as intermittent data errors, poor performance, corrupted partitions, etc. Therefore, try replacing the cable with a known good cable. Or, if you do not have another cable, try reseating *all* of the connectors on the data cable as well as the power connector on the drive.

3) **Check for broken pins/connectors.** Check the drive for physical damage including broken pins. Physical damage is not covered under Hitachi's terms of warranty; so, you will need to contact your point of purchase to investigate any return possibilities.

4) **Noises?** An intermittent clicking drive does not always indicate a physical failure of the drive. The drive will click when the heads load or unload from the head ramp assembly, this is a normal noise.   The constant clicking sound is usually caused by one of two things: Either the drive is in the process of failing or there is a communication problem.
The easiest way to test an ATA/IDE drive is to try connecting only the power cable to the drive. If the drive continues to click, you know it has failed and will need to be replaced. If the clicking stops, you should then try another

communication cable. Please note that this step will not work with a Serial ATA (SATA) drive since the drive will not spin up without the data cable attached.

5) **Reset any changes you have recently made to your system.** Configuration changes can cause problems. If the problems started after the change, try rolling back the changes to see if it resolves the problem. This includes software updates to your system, as well as adding new hardware drivers.

6) **Possible virus?** Try running an antivirus or spyware software on your system to see if you are infected. Viruses and spyware can corrupt data on the drive. They can stop applications from running and even prevent the system from booting up.

7) **Is the drive spinning?** In most systems, you should be able to hear the drive spin up. This is not possible in laptops as the sound of the fans may be louder than the drive. If you have direct access to the drive, you can also lightly touch the drive to see if you can feel any vibration. If the drive is not vibrating or making any noise, try attaching the drive to another system or using different data and power cables.

8) **Do you receive an error on boot up?** If you receive an error when you boot up the system, it does not mean the drive itself is bad. Most of these codes can be researched online for possible causes and resolutions. For example, a Blue Screen of Death (BSOD) error means that Windows can not continue running in the current state. You will receive a stop code in the format '0x0000007A'. You can research these codes on Microsoft's website for additional information.

9) **Run our Drive Fitness Test (DFT).** We have a utility called Drive Fitness Test (DFT) that is specifically designed to verify the integrity of Hitachi Global Storage Technologies hard drives. We recommend running the 'advanced test' as it performs a more complete test of the drive. This option should help to determine whether your drive has a physical problem or if the problem is software related. This utility can be downloaded from the following URL:

http://www.hitachigst.com/hdd/support/download.htm#DFT

DFT will provide you with a result code which can be used to determine the nature of your problem. You can look up these codes in the DFT User Guide or you can contact the Technical Support Center at 888-426-5214. If the drive is not recognized by DFT, then proceed to the 'Check for Configuration Issues' section.

Check for Configuration Issues

The steps below may help you narrow the scope of the issue:

1) **If the drive is attached to an ATA/IDE controller, check your jumper settings.** These controllers allow up to two devices on a single cable so you will

need to have the drive jumpered correctly in order for the system to properly detect it. Please see the following link to verify that the drive jumpers are configured correctly:

http://www.hgst.com/hdd/support/jumpers.htm

For information on how the cables are setup and which drive is Master or Slave, please see the following website:

http://www.hitachigst.com/hdd/support/cabling/deskstar.htm

2) **Check the ATA/SATA ports in the BIOS to make sure they are enabled and set to auto.** Some system/motherboard manufacturers disable unused ports in the BIOS by default. You will need to enter the BIOS setup area in order to verify their current state. For information on how to do this, please consult your motherboard manual or system manufacturer or see the documentation that come with your system. In addition, you may need to load a driver for your controller card**.** For more information, please see our FAQ online at:

   http://www.hitachigst.com/hdd/support/qcheck.htm#a12

Try removing all of the other drives from the system. It is possible that another device is conflicting with the installation of the new drive. To eliminate this possibility, we suggest removing any other non-critical devices in your system.

3) **Try the drive in another system (If possible).** This step is the most useful when your hard drive is not detected by your system's BIOS. If the alternate system detects the drive, then the problem lies with your system and not the drive.

4) **Try another drive in the current system (If possible).** This step is similar to the previous step. If you install a different drive in this system and it works fine, then your configuration is ok and you can start working with the drive itself. Drives can become corrupted due to viruses or excessive CRC errors due to bad cabling, etc.

5) **Re-run our Drive Fitness Test (DFT).** We recommend running the 'advanced test' as it performs a more complete test of the drive. This option should help to determine whether your drive has a physical problem or if the problem is software related. This utility can be downloaded from the following URL:

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You can look up these codes in the DFT User Guide or you can contact the Technical Support Center at 888-426-5214.

6) **Update your system.** Updates are provided by manufacturers to fix a variety of bugs and incompatibilities. We recommend updating your system BIOS, the firmware on any controller cards and the operating system drivers for your controller cards.

Specific Issues

Now that we have eliminated many of the common causes and checked our configuration to make sure everything is set up correctly, we can look at some more specific issues.

My drive is detected by the system BIOS, but it is showing up as the wrong capacity.

Hard drives use addressing methods to find data. As the capacities grew at an incredible rate, several capacity limitations have been encountered. Some common ones are 2GBs, 8.4GBs, 32GBs and 137GBs. To work around these limitations, see your specific section below:

1) The drive capacity is only detected at 137GBs. This situation occurs when either your hardware or your operating system does not support 48-bit addressing. For steps to work around this issue, please see our FAQ at:

http://www.hitachigst.com/hdd/support/qcheck.htm#a1

2) The drive is detected at 2GB, 8.4GB, or 32GBs. This situation can occur for a number of reasons.
   a) Check the jumper settings. If any of the jumpers are in a horizontal position, then you may have accidentally clipped the drive down to this capacity. This setting is primarily used for older systems that lock up when trying to access a drive over 32GBs. You will want to use the 16 head logical settings instead. Please see our jumper setting page below for the correct settings:

   http://www.hgst.com/hdd/support/jumpers.htm

   b) Some software programs can actually reduce the capacity of a drive. You can use our Feature Tool utility to view the current capacity of your drive. If the drive capacity is reduced, you can use the Hitachi Feature Tool to reset it to its maximum capacity. You can get our Feature Tool utility at:

   http://www.hgst.com/hdd/support/download.htm#FeatureTool

   c) Obtain a BIOS upgrade from your motherboard manufacturer.
   d) Purchase an enhanced 3rd party controller card and connect your drive to it instead of your motherboard.

e) Obtain a third party drive overlay program.

3) Contact our technical support center for further assistance. You can find contact information at:

http://www.hitachigst.com/hdd/support/sources/tsc.htm

How do I partition and format my drive?

The method you use to partition and format your drive depends on the operating system you plan to install on your system. For advice on how to setup your drive, please see our partitioning and formatting guide online at:

http://www.hgst.com/tech/techlib.nsf/techdocs/E6F6028A3A58BEA286256D6A0060452D

Why did I receive the message "Format did not complete" or "The disk may be damaged" when formatting my drive in Windows XP with Service Pack 2 installed?

Some motherboards do not support UDMA mode 6 (133MB/sec) transfer rates. Upon installing or upgrading to Service Pack 2, you may receive this error. If you are experiencing this issue, please see our FAQ on this issue at:

http://www.hitachigst.com/hdd/support/qcheck.htm#a11

My drive has bad sectors. Do I need to replace it?

A bad sector occurs when the operating system or utility is unable to access a sector on a drive. However, it does not necessarily mean that the drive is bad. In fact, the sector may not be physically damaged at all. For example, bad cabling can result in Cyclic Redundancy Check (CRC) errors which can be reported as bad sectors when in fact it is a communication error. Viruses can also corrupt data which can cause read errors as well.

We have a utility called Drive Fitness Test (DFT) that is specifically designed to test the integrity of Hitachi Global Storage Technologies hard drives. We recommend running the advanced test as it performs a complete test of the drive. This utility should help to determine whether your drive has a physical problem or if the problem is more of a software related issue. This program can be downloaded from the following URL:

http://www.hitachigst.com/hdd/support/download.htm

Why do I get the error message "Missing NTLDR" after I use Disk Manager?

You can receive this error for a number of reasons. Please see our knowledge base article which discusses this issue at:

http://www.hitachigst.com/hddt/knowtree.nsf/0/523a39d7a6619e2886256fb800602e21?OpenDocument

Why does the BIOS detect my SATA drive, but my operating system does not detect it? Some operating systems, including Windows XP and 2000, do not have native support for SATA controllers. Therefore, you need to load a driver for your specific SATA controller ports during the installation process. For more information about this issue, please see our FAQ on this subject at:

http://www.hitachigst.com/hdd/support/hddfaqs.htm#a1

Contact us.

If nothing in this guide has helped you to solve your issue, please feel free to contact our Technical Support Center for further assistance.

http://www.hitachigst.com/hdd/support/sources/tsc.htm