

# Computer Basics

Learn proper shut-down, system requirements and some "basic" hardware/software functions on your machine control.

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# How to Properly Shut Down Mach3 Control

If not properly shut down, the parameters/settings may become corrupted and the control software will no longer work properly. Damage to the computer components may occur as well if not properly shutdown.

Note: wait times in the procedure are approximate and indicate that time is needed for the completion of the previous step before going to the next. Ensure the previous step has completed before continuing.

The image illustrates a five-step procedure for shutting down Mach3 control software:

- #1 Close Software:** A screenshot of the Mach3 software interface with a red box around the 'Shut down software' button. To the right is a 'Are You sure?' dialog box with the 'Yes' button highlighted in green.
- #2 Wait 15 sec:** A circular timer icon showing 15 seconds.
- #3 Shut down PC:** A screenshot of the Windows Start menu with a red box around the 'Start' button. A red arrow points from the 'Start' button to the 'Shut Down' option in the Start menu, which is also highlighted with a red box.
- #4 Wait 15 sec:** A circular timer icon showing 15 seconds.
- #4 Turn off power:** A photograph of a red and yellow power switch.

Keywords: shutdown, power off, turn off

# Remote Support System Requirements (LogMeIn, AeroAdmin)

## LogMeIn

- [Firewall Configuration](#)
  - TCP 443
  - Programs
    - %programfiles%\LogMeIn\x64
      - LogMeIn.exe
      - LogMeInSystray.exe
      - LogMeInRC.exe
      - LMIGuardian.exe
      - raabout.exe
      - ramaint.exe
  - [Whitelisted Domains](#)

## AeroAdmin

- [Firewall Configuration](#)
  - TCP 443, TCP 8080, TCP 80
  - Whitelisted Domains
    - auth10.aeroadmin.com
    - ...
    - auth20.aeroadmin.com

# Connecting 2 Hard Drives on CNC Control Hard Drive Not Recognized

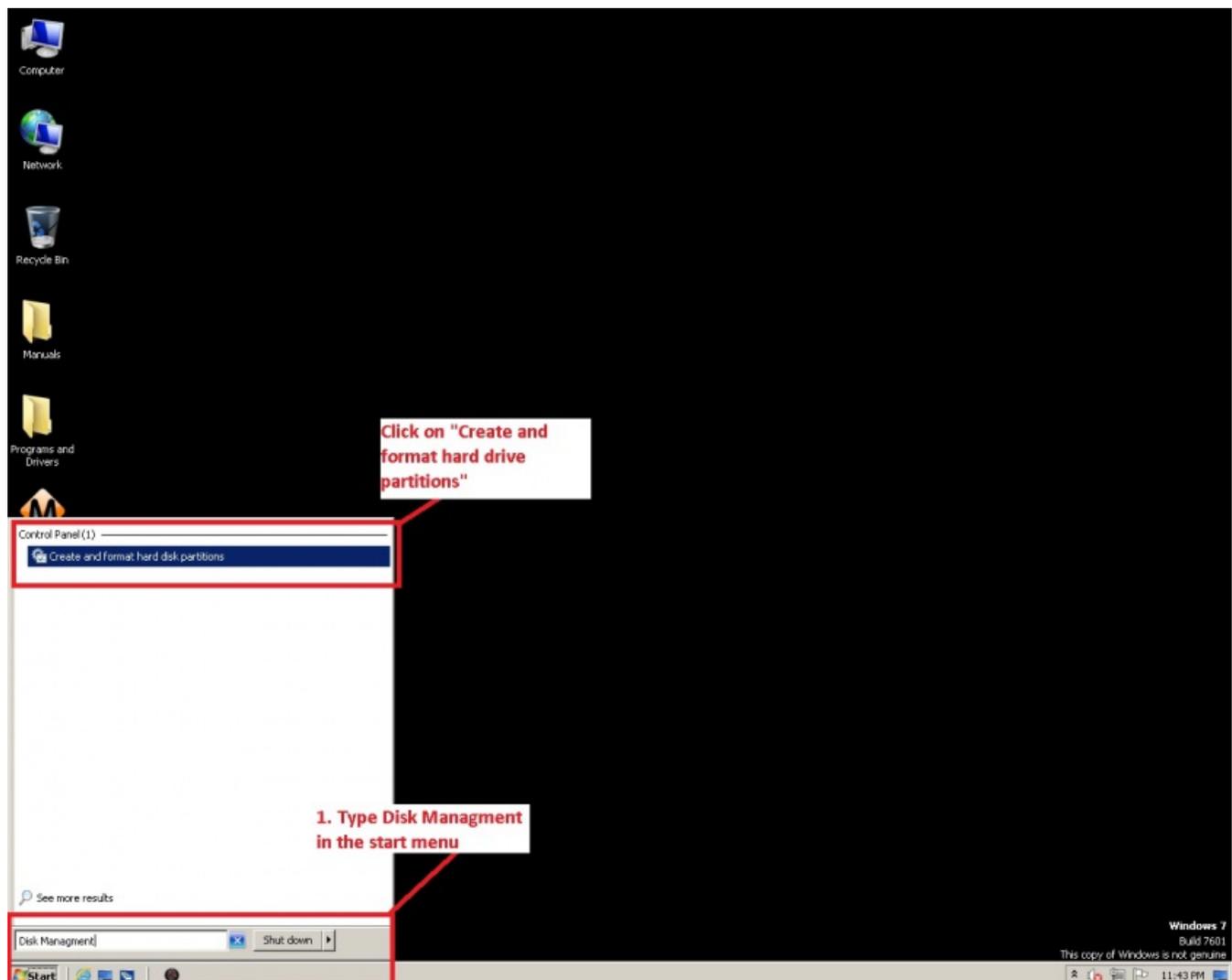
## Description of the problem:

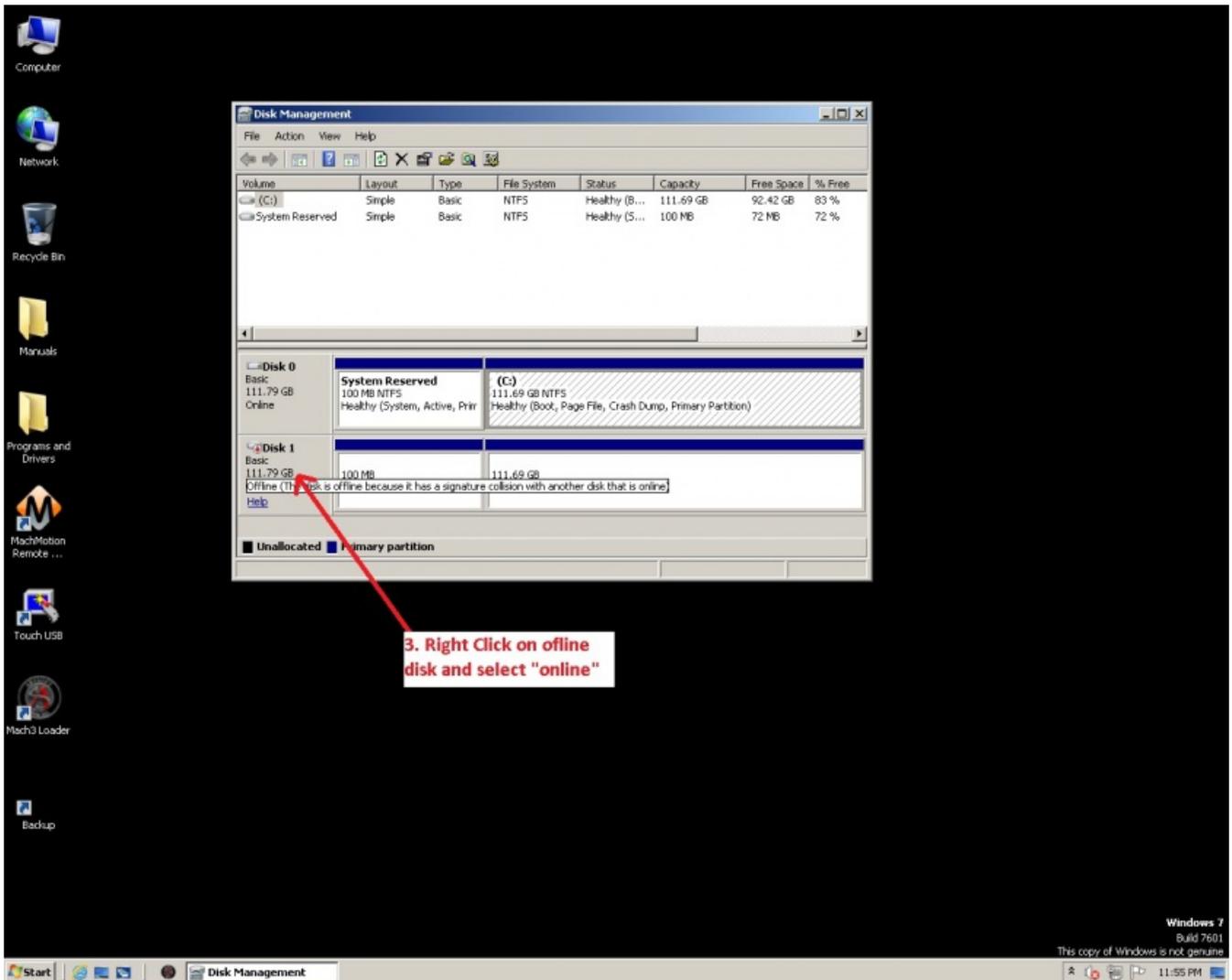
When plugging in a replacement hard drive from MachMotion the new hard drive is not recognized.

## Solution:

Because we ghost every drive they all have the same signature id. If you plug 2 hard drives in they will have a conflict and the second one will not show up for use. To fix this:

1. Type Disk Manager in the start menu
2. Click on Create and format hard drive partitions
3. Right click on the area that is showing the error and select "online"
4. Your hard drive should work now.





Keywords: 7620

# Control PC Beeping

## **Description of the problem:**

Control is beeping.

## **Solution:**

If a control is beeping it is probably due to a hardware failure in the memory or motherboard.

To test:

1. Unplug all cables other than power and monitor
2. Turn and hold the key for 10 seconds
3. Unplug the control and wait 30 minutes

If the control is still beeping it could be due to metal dust shorting something out internally.

1. Remove the computer from the control enclosure
2. Open it up
3. Blow it out with clean, dry air
4. Try turning it on again

If the control still does not start there is a failure.

Keywords: 7621

# How to Reset the PC Power Supply

## Description of the problem:

The PC fan isn't running, all power appears to be off (even though it is plugged in), and there is a possibility that the power supply was shorted out.

## Solution:

Reset the power supply by following these instructions:

1. Unplug the control power
2. Turn and hold the key for 10 seconds



3. Wait for 10 minutes
4. Connect power and turn the key to power on the control
5. If the control doesn't power on, continue below

The next step is to remove the power supply from the PC (search Knowledge Base for instructions to remove PC)

1. After removing the power supply, we want to bench test it with only the power cord plugged in
2. Hold the power button down for 20 seconds and release
3. Wait for 10 seconds and then press the power button to power on the supply
4. If the power supply still doesn't power up, it is presumed to be inoperable

Keywords: 7640

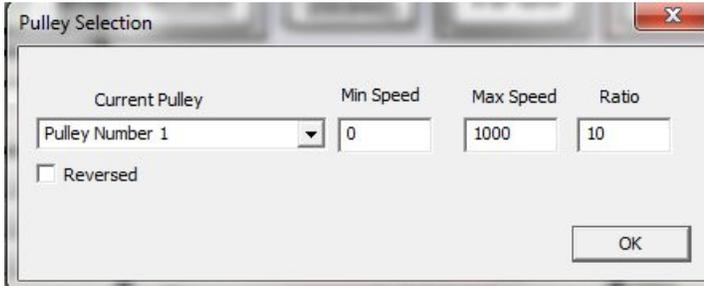
# Spindle Pulley Setup

## Description of the problem:

You're trying to setup the spindle and the speed isn't correct.

## Solution:

Spindle speed setting is located in **Config -> Spindle Pulleys...**



(Setting the ratio can be disregarded)

For the Apollo III/Interpreter 1000:

0V always correlates to 0 RPM. The max configured RPM sets the speed that correlates to an analog output of 10V. The min RPM sets the minimum spindle speed that can be commanded. If a spindle speed less than the programmed min is commanded a status message will appear saying that the commanded spindle speed is less than the minimum and the speed will be bumped up to the minimum RPM.

For the Apollo I:

It scales the voltage between the min and max. So min spindle speed will always be 0V and max will be 10V.

Keywords: 7644

# Plugin and Firmware Versions and Update Instructions

## **Mach4: 10284**

**Mach4 Build: 3804**

**MachMotion Build: 10400**

\*May require new MachMotion license if updating from previous build.

### **MachMotion**

Plugin: 1.0.10284.0

### **HiCON:**

Plugin: 2.02.06

Firmware: 3.67

FPGA: 8ACE

## **Mach3**

### **HiCON**

Plugin: 1.36.6

Firmware: 2.42

FPGA: 8ACE

### **DSPMC**

Plugin: 4.0.19

Firmware: 8.24

FPGA: E104

### **PoKeys**

Plugin: 1.0.0.1

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## **For the Interpreter 1000**

Below are the steps that you would need to follow using the VSI Device Manager (\*See notes below):

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1. Close Mach or any application that communicates with the DSPMC. Also stop all dspMacros (if there are any).

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2. Program the new firmware version 8.00 (or greater) to the DSPMC and wait for it to complete. If any error, retry programming without power cycle. Once success go to next step.

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3. CYCLE THE POWER ON YOUR DSPMC (unplug the power for 5 seconds). Using Soft-Reboot may not be reliable in this situation, and could brick your unit.

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4. Program FPGA version E104. Use the "FPGA Slow Prog" button at the bottom of the window. The DSPMC CPU LED will blink rapidly for the programming process. Wait for the process to finish (the CPU LED should be in slow blink indicating that it is currently in normal operation mode).

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5. Update your plugin in the Mach3 plugins folder.

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NOTE: Check your plugin config. Depending on your last plugin version, the encoder and I/O polarity may be reversed by this new update, so you may need to reconfigure them in mach3.

NOTE: Also check the Control Output in the DSPMC plugin for each axis (should be DAC) as they may be switched to something else if updating from a very old plugin version.

NOTE: You may need to update VSI device manager as well. Particularly if the FPGA buttons are inactive.

Keywords: 7654

# Latest Plugin and Firmware Versions and Update Instructions (Mach4)

## **HiCON**

Plugin: 2.01.46  
Firmware: 3.45  
FPGA: 8ACE

## **DSPMC (Tube Bender)**

Plugin: 2.01.46  
Firmware: 8.25  
FPGA: E104

## **PoKeys**

Software Version: 4.1.64

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## **For the Interpreter 1000**

Below are the steps that you would need to follow using the VSI Device Manager:

- 
1. Close Mach4 or any application that communicates with the DSPMC.  
Also stop all dspMacros (if there are any).

---

  2. Program the new firmware version 8.00 (or greater) to the DSPMC and wait for it to complete. If any error, retry programming without power cycle. Once success go to next step.

---

  3. CYCLE THE POWER ON YOUR DSPMC (unplug the power for 5 seconds). Using Soft-Reboot may not be reliable in this situation, and could brick your unit.

---

  4. Program FPGA version E104. Use the "FPGA Slow Prog" button at the bottom of the window. The DSPMC CPU LED will blink rapidly for the programming process. Wait for the process to finish (the CPU LED should be in slow blink indicating that it is currently in normal operation mode).
-

5. Update your plugin in the Mach4 plugins folder.

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NOTE: Check your plugin config. Depending on your last plugin version, the encoder and I/O polarity may be reversed by this new update, so you may need to reconfigure them in Mach4.

Also check the Control Output in the DSPMC plugin for each axis (should be DAC) as they may be switched to something else if updating from a very old plugin version.

Keywords: 15347

# Bios Issue PC start up failure

A computer may have trouble starting up and loading into windows for a variety of reasons. Here are a few things to try:

NOTE: this does not apply to the x15-200 controls (Dell all-in-one units) or the 2000 series controls.



2000 Series

X15-200

1. Bad Monitor. Could be the computer is booting up, but the monitor is bad. You can plug another monitor into the back of the computer to test and see if it shows anything. If it does, likely bad control monitor or cable.
2. For older systems (gigabyte motherboards) the following procedure may work. If it is an advantech system, this will not work:  
Attached zip file has 3 files: A PDF of the instructions, and the 2 files to put on a blank USB drive to start the PC with.  
Download the zip file and follow the instructions in the PDF for repairing bios related issues on a PC with windows 7 and Gigabyte motherboard
3. The control may fail to boot if external devices are connected such as a USB drive. Try removing them and booting again. Removing keyboard, mouse, touchscreen, and such type connections are worth trying as well. Disconnect power to the control (remove power, not just do a shutdown in windows to turn it off), wait 30 minutes, then test.
4. Bad power supply. The computer may have a power supply inside it that has failed. You can check to see if the fan is running on the power supply by removing the computer (See removal note below). MachMotion recommends sending the control to us for power supply replacement. You can replace it yourself or use a local PC repair shop (a big box retailer support center is not recommended), however, support will be extremely limited in this case.
5. Bad Memory. Typically there will be some faint beeps from the computer if there is a memory error. See cleaning control step below for more info. You can replace the memory or have a local computer repair shop replace it. Due to variances, MachMotion is unable to determine the memory you need. Please compare with existing memory and replace with exact or comparable memory.
6. Bad hard-drive. The hard-drive may have failed or be corrupted. MachMotion recommends sending to

us for replacement. You can replace it yourself or use a local PC repair shop (a big box retailer support center is not recommended), however, support will be extremely limited in this case and will likely need support for re-installing and configuring software with a charge of \$125/hr)

7. Control may need to be cleaned. Environmental conditions can cause collection of dust and other materials that cause problems. Cleaning the control may help. See removing control note below. Blowing out the control with an air-can approved for electronics is recommended. Ensure power supply and CPU fans due not spin (will act like a generator and induce voltage that can destroy electrical components). Remove the memory and gently clean contacts with a non-abrasive cloth and re-install.

**i** NOTE: For most of the controls, there is a CPU fan and fans for the control enclosure. These should be inspected and tested to ensure smooth and full operation. Replace as needed.

**i** REMOVING CONTROL: The computer is attached to the monitor. Remove cables from back of computer and unscrew the monitor mounting screws from the front and the monitor and computer will come out as one unit from the front

**i** NOTE: For controls more than 7 years old, it is unlikely that MachMotion can repair / upgrade your control. Please contact us for control replacement options.

keywords: pc won't start, stuck in boot sequence, windows doesn't load, computer not booting up, boot up issues, pc not booting

# Windows Memory Error - Advantech

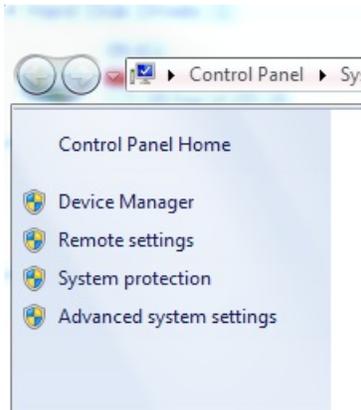
## Problem:

Windows prompts user with a memory error.

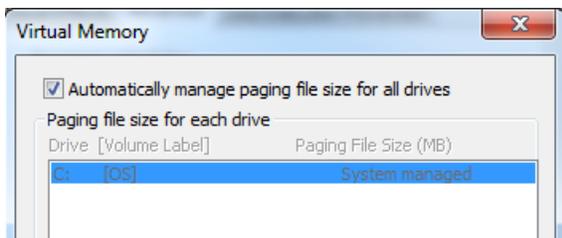
## Solution:

Windows setting on Advantech brand motherboard systems was not set appropriately. Follow the steps below to allow Windows to better manage virtual memory.

1. Open the menu by clicking on the [Start] button, right clicking **Computer**, and then clicking **Properties**.
2. In the left pane, click [Advanced system settings]



3. On the **Advanced** tab, under **Performance**, click [Settings...]
4. On the **Advanced** tab, under **Virtual memory**, click [Change...]
5. Select the **Automatically manage paging file size for all drives** check box to enable the function



6. Click [OK] to close out of all menus
7. Restart computer for change to take effect

# Screen Path Layout Opposite / Mirrored

If the toolpath is flipped, opposite, mirrored the following information and options may help:

1. We use cartesian coordinates, as "viewed" from the cutting device: <http://www.cncexpo.com/Cartesian.aspx> (see note below)
2. It may just be the "positioning" of the monitor. You will need to reposition the monitor or leave it as is.
3. You may need to adjust the positioning of your CAM software
4. Swap the X and Y motors in software (ensure slave axis configuration is changed as well if applicable).

**Note:** If you have a mill where the head is fixed position and the table moves up/down and left/right then when the table goes to the right the drill bit is actually moving to the left of the part so this would be a negative move when the table goes to the right. When the table moves away from you the part is getting cut in the negative direction so it would be a negative move.

Keywords: 15361

# Machsupport and Forums

We are a reseller of the mach software. We support that software for those who purchase our control for their CNC machine which it does not sound like you have.

You can download and purchase the mach software from:

<http://www.machsupport.com/software/downloads-updates/>

They have an active support community as well for other questions:

<http://www.machsupport.com/help-learning/artsoft-mach-support-forums/>

If you need a retrofit solution or new control for your machine we would appreciate your consideration.

Keywords: 15447

# Windows Stop Code 0x00000024 - Blue Screen

```
A problem has been detected and windows has been shutdown to prevent damage to
your computer.

If this is the first time you've seen this stop error screen, restart your
computer, If this screen appears again, follow these steps:

Disable or uninstall any anti-virus, disk defragmentation or backup utilities.
Check your hard drive configuration, and check for any updated drivers. Run
CHKDSK /F to check for hard drive corruption, and the restart your computer.

Technical information:

*** STOP: 0x00000024 (0x0000000000190494,0xFFFFFA8004DAAE40,0xFFFFFFFFC0000102,0
x0000000000000000)
```

This error is generally related to the filesystem. Either the NTFS driver (ntfs.sys) is corrupt or it encountered some other problem attempting to read from the filesystem.

From "[Troubleshooting Stop error problems for IT Pros](https://support.microsoft.com/en-us/troubleshooting/stop-error-problems-for-it-pros)" (support.microsoft.com)

## // Mitigation

This Stop error is commonly caused by corruption in the NTFS file system or bad blocks (sectors) on the hard disk. Corrupted drivers for hard disks (SATA or IDE) can also adversely affect the system's ability to read and write to disk.

1. Run any hardware diagnostics that are provided by the manufacturer of the storage subsystem.
2. Use the scan disk tool to verify that there are no file system errors. To do this, right-click the drive that you want to scan, select **Properties**, select **Tools**, and then select the **Check now** button.

## Potential Sources of the Problem

- Losing power to the computer without shutting down Windows first.
- Previous Windows crashes (usually hardware-related).
- Hard drive failure.

## Potential Solutions

- Boot to a live OS (e.g. USB drive or optical disc) and run a filesystem checker.

- [Hiren's Boot CD](http://answers.microsoft.com) (answers.microsoft.com)
- [Windows Installation DVD](http://uwisc.edu) (uwisc.edu; University of Wisconsin IT)
  - *Screenshots are for Vista, but the process is the same for Windows 7.*

## Resources

- [Run Check Disk from a Command Line to Check for and fix Disk Errors](http://technet.microsoft.com) (technet.microsoft.com)
- [200 Ways to Revive a Hard Drive](http://hirensbootcd.org) (hirensbootcd.org)