Hard drive failure troubleshooting checklist

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Much of the content in this checklist originally appeared in Faithe Wempen's TechRepublic article, "Troubleshoot hard drive failures in seven easy steps." For more information on troubleshooting hard drive problems, check out Faithe's article and the additional resources listed at the end of this document.

Having a reliable set of troubleshooting guidelines can increase your odds of recovering from a hard drive failure. This checklist walks you through a proven hard drive troubleshooting process.

By Bill Detwiler, MCP

Physical connections

Item	Further action
Cables	
☐ Power cable secured to hard drive	Securely reconnect cable
☐ IDE or SCSI Ribbon cable secured to hard drive	Securely reconnect cable
☐ IDE or SCSI Ribbon cable secured to hard drive controller (motherboard or expansion card)	Securely reconnect cable
☐ Proper ribbon cable used (UltraDMA 66, UltraDMA 33, SCSI, etc.)	Install proper ribbon cable
☐ Ribbon cable properly matched to Pin 1 on hard drive	Match red trip on ribbon cable to Pin 1 on hard drive
☐ Ribbon cable properly matched to Pin 1 on controller	Match red trip on ribbon cable to Pin 1 on controller
☐ Cable connected to hard drive activity LED	Connect LED cable to hard drive (AT/LPX system) or motherboard (ATX systems)
Jumper settings (IDE only)	
☐ Single Note: The drive is the only one on that ribbon cable and IDE subsystem.	Properly set jumper
☐ Master (MS), Slave (SL), or Cable Select (SL) Note: The drive is one of two on that ribbon and IDE subsystem--one drive should be the MS and the other SL. CS relies on the drive's position to determine its Master/Slave status--not a common setting.	Properly set jumper
SCSI Termination and ID (SCSI hard drives only)	
☐ SCSI connection properly terminated with a jumper setting or SCSI cable cap/plug	Terminate SCSI cable with hard drive jumper setting or SCSI cable cap/plug
☐ Proper SCSI ID assigned to hard drive with wheel, button or jumper setting	Assign hard drive appropriate SCSI ID using hard drive wheel, button, or jumper setting

BIOS Setup (IDE only)

Item	Further action
☐ BIOS automatically detects hard drive and reports correct drive specifications (Modern BIOS only)	Have BIOS attempt to detect the drive by setting its primary channel to Auto
☐ Correct hard drive specifications are manually entered into BIOS (Legacy BIOS only: before ATA-3 standard)	Manually enter correct hard drive specifications

Viruses

Item	Further action
☐ Scanned hard drive with bootable, write-protected antivirus disk--created with updated antivirus software on working machine	If the drive is not partitioned and formatted, the boot disk might not be able to check the drive's data area, but might be able to check the boot partition. Let the virus scan proceed as far as possible.

Valid partition

Item	Further action
☐ FDISK or other partition management utility recognizes the drive and reports an active FAT, FAT32, or NTFS partition Note: Windows 9x/Me don't support and won't recognize NTFS partitions	If the drive has a partition problem, try to retrieve the data with a data-recovery program or give up on the data, delete the partition and re-create it using FDISK or other partition management utility

Formatting

Item	Further action
☐ OS recognizes hard drive and contents are viewable from a startup disk, command prompt, or the Recovery Console (Windows 2000 and XP)	If OS presents an invalid media type error message, you can try to retrieve the data with a data-recovery program or give up on the data and reformat the drive

Physical and logical drive errors

Item	Further action
☐ OS recognizes hard drive and reads some, but not all data; OS returns read or write errors when accessing hard drive; Some programs fail to function properly	Scan the hard drive for physical and logical errors with a disk-checking program (Windows 9x/Me/2000 come with ScanDisk, Windows XP comes with Check Disk, DOS comes with the CHKDSK command-line utility); Allow the disk-checking program to fix any found errors

Windows 2000 and XP Disk Management

Item	Further action
☐ Disk Management reports the hard drive is offline or has a status other than Healthy	Right-click drive and choose Reactivate Drive

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Additional resources

- Sign up for the Desktops newsletter, delivered on Mondays, Tuesdays and Fridays
- Sign up for the TechRepublic White Papers newsletter, delivered on Wednesdays
- See all of TechRepublic's newsletter offerings
- Troubleshooting PC Hardware Essential Guide (TechRepublic)
- The Hard Disk Information Tool (TechRepublic)

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