

USING CHKDSK

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Chkdsk (an acronym for *check disk*) is a Microsoft® utility designed to check the integrity of the data on a computer's hard disk drive as well as find and fix errors which could muddle such data. On computers using Windows® XP and 2000, *chkdsk* is essentially a replacement for *scandisk* which was used on Windows® '95, '98 and ME versions. Running *chkdsk* on computers with the Windows® Vista operating system is somewhat different but essentially provides the same benefits.

Running *chkdsk* on your Windows® XP or 2000 system can most often repair numerous minor Windows® problems you may have experienced and/or encountered. Many people regularly run *chkdsk* as a part of their overall computer maintenance plan.

There are several different methods that can be used to run *chkdsk* on a Windows® XP or 2000 machine but the most basic is as follows:

1. Click the Start button then select Run
2. In the Run window's *Open* box, type `cmd` or `command`
3. Click OK and an MS-DOS-style black screen will appear in a new window
4. Run *chkdsk* by typing one of the the following commands where the cursor is blinking:
 - a. `chkdsk c: /f /r` and then press <Enter> (see Notes below)
 - OR
 - b. `chkdsk c: /f` and then press <Enter> (see Notes below)
5. With either command, a message will appear that says: "*chkdsk cannot run because the volume is in use by another process. Would you like to schedule this volume to be checked the next time the system restarts? <y/n>*"
6. Type `y` (for "yes") and then press <Enter>
7. A message will appear that will say: "*This volume will be checked the next time the system restarts*"
8. Type `exit` and then press <Enter> to close the MS-DOS-style black screen window
9. Reboot (restart) the computer as you normally would and *chkdsk* will automatically begin running after your reboot (restart). While *chkdsk* is running, you will see a light blue window with a dark blue band at the top and bottom. *Chkdsk* will display the specific stage it is checking as well as the percentage of completion of the stage. You cannot do anything else on your computer while *chkdsk* is running. When *chkdsk* is finished, it will automatically reboot (restart) your computer.

For more information about *chkdsk*, visit the Microsoft® site at:

<http://www.microsoft.com/resources/documentation/windows/xp/all/proddocs/en-us/chkdsk.msp>

Notes:

Typing `chkdsk c: /f` (as in 4b above) will only fix errors that are encountered, while typing `chkdsk c: /f /r` (as in 4a above) will both fix errors and recover lost data. Running *chkdsk* with both the `/f` and `/r` options (as in 4a above) can often take a considerable amount of time—depending upon the size of your hard drive and the amount of data stored on it. For example, a 60GB hard drive with half the drive filled with data will take about an hour and fifteen minutes when you use both the `/f` and `/r` options. Be prepared to take a long lunch because waiting for *chkdsk* to finish is somewhat akin to watching paint dry.

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While running chkdsk with only the /f option (as in 4b above) is faster, it will only fix errors, not recover any lost data. However, using only the /f option on a similar 60GB hard drive with half the drive filled with data will only take about twenty minutes.

At the command prompt type CHKDSK without parameters to check the current disk.

Windows 2000 and Windows XP chkdsk syntax

CHKDSK [volume[[path]filename]] [/F] [/V] [/R] [/X] [/I] [/C] [/L[:size]]

volume	Specifies the drive letter (followed by a colon), mount point, or volume name.
filename	FAT only: Specifies the files to check for fragmentation.
/F	Fixes errors on the disk.
/V	On FAT/FAT32: Displays the full path and name of every file on the disk.
/R	Locates bad sectors and recovers readable information (implies /F).
/L:size	NTFS only: Changes the log file size to the specified number of kilobytes. If size is not specified, displays current size.
/X	Forces the volume to dismount first if necessary. All opened handles to the volume would then be invalid (implies /F).
/I	NTFS only: Performs a less vigorous check of index entries.
/C	NTFS only: Skips checking of cycles within the folder structure.

The /I or /C switch reduces the amount of time required to run Chkdsk by skipping certain checks of the volume.

Microsoft Windows 2000 and Windows XP users who have NTFS should also consider using the CHKNTFS command.

Windows 2000 and Windows XP recovery console chkdsk syntax

Note: The below options are only available in the recovery console.

Checks a disk and displays a status report.

chkdsk [drive:] [/p] | [/r]

[drive:]	Specifies the drive to check.
/p	Check even if the drive is not flagged dirty, bad.
/r	Locates bad sectors and recovers readable information (implies /p).

Chkdsk may be used without any parameters, in which case the current drive is checked with no switches. You can specify the listed switches.

Chkdsk requires the Autochk.exe file. Chkdsk automatically locates Autochk.exe in the startup (boot) directory. If it cannot be found in the startup directory, chkdsk attempts to locate the Windows 2000 Setup CD. If the installation CD cannot be found, chkdsk prompts for the location of Autochk.exe.

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Examples

chkdsk = Will display all information described above and also report any crossed linked files.

chkdsk /f = Will fix any crossed linked files; however, do not run this command while you are in Windows95 or Windows 3.x

Testing your backups is an important part of protecting your data. But simply proving that you can restore a backup does not guarantee the integrity of the data.

File or folder level corruption can occur gradually, and by the time Windows produces an error message it is often too late to completely fix the problem. By the time Windows generates an error, you'll have been backing up corrupt data for some time.

The trick to protecting your data's integrity is to occasionally test the disk volume to make sure that corruption is not occurring. If you do detect some corruption, it may not be too bad, since you detected the problem early on, rather than waiting until the problem got to the point that it triggered a Windows error.

There are three reasons why chkdsk is a good tool for detecting file and folder corruption:

1. It can run as a part of the Windows operating system, so there's no need to shut down your server to run it (unless you're repairing a volume).
2. It is a command-line utility, so it can be scripted to run when you want it to.
3. It won't make any changes to the volume that it is scanning unless you specifically tell it to.

There are three steps to configuring Windows to periodically run chkdsk against a volume. Step #1 is to open a Command Prompt window and run chkdsk manually, i.e., enter the chkdsk command followed by the drive letter that you want to scan... chkdsk C:). The reason you should initially run chkdsk manually is because, depending on the size of the volume you're scanning, chkdsk could take hours (or even days) to complete. Chkdsk could also place an extra strain on a hard disk that is already performing at or near its maximum capacity. Because of these factors, I recommend running chkdsk manually the first time so you can see how it will affect your server.

Step #2 is to schedule chkdsk to run automatically. This is easier than it sounds. Microsoft provides the AT command as an interface to the Schedule service. This allows you to run a command at a specific date and time. Keep in mind that, for the AT command to work, the Schedule service must be running.

The full syntax of the AT command is as follows:

```
AT [\computername] [ [id] [/DELETE] | /DELETE [/YES]]  
AT [\computername] time [/INTERACTIVE]  
  [ /EVERY:date[,...] | /NEXT:date[,...]] "command"
```

\\computername - specifies a remote computer. Commands are scheduled on the local computer if this parameter is omitted.

Id - is an identification number assigned to a scheduled command.

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/delete - cancels a scheduled command. If id is omitted, all the scheduled commands on the computer are canceled.

/yes - used with cancel all jobs command when no further confirmation is desired.

Time - specifies the time when command is to run.

/interactive - allows the job to interact with the desktop of the user who is logged on at the time the job runs.

/every:date[,...] - runs the command on each specified day(s) of the week or month. If date is omitted, the current day of the month is assumed.

/next:date[,...] - runs the specified command on the next occurrence of the day (for example, next Thursday). If date is omitted, the current day of the month is assumed.

"command" - is the Windows NT command, or batch program to be run.

To see how this works, imagine that you wanted to run the CHKDSK C: command every Friday at 3:00 AM on a machine named Server1. To do so, you would use the following command:

```
AT \\Server1 3:00 /Interactive /every:Friday chkdsk C:
```