

# Defragmentation

Windows comes with a collection of house cleaning tools, including ScanDisk, Disk Defragmenter and Disk Cleanup, to help keep your disk in peak working order. Why should you bother with the housework? A couple of reasons. First, disks are hard working, mechanical devices and, like all mechanical devices, prone to failure. A little preventative maintenance can warn you of potential problems and fix minor glitches before they can do damage to your data.

Second, the way files are organised on your drive has a perceptible impact on the performance of your computer. If your files are stored neatly, end-to-end, without *fragmentation*, reading and writing to the disk is speedier.

## What is file fragmentation?

When you first install your operating system and programs on your hard disk, they are written to the disk, for the most part, in one contiguous block without any gaps. The exceptions are certain system files that must be stored in specific locations. Over time, as you create and then delete documents or uninstall programs, once-filled locations are left empty and you end up with files dotted all over the disk. Sometimes when you install a program or create a data file, the file ends up chopped up into chunks and stored in multiple locations on the disk. This is called *fragmentation*.

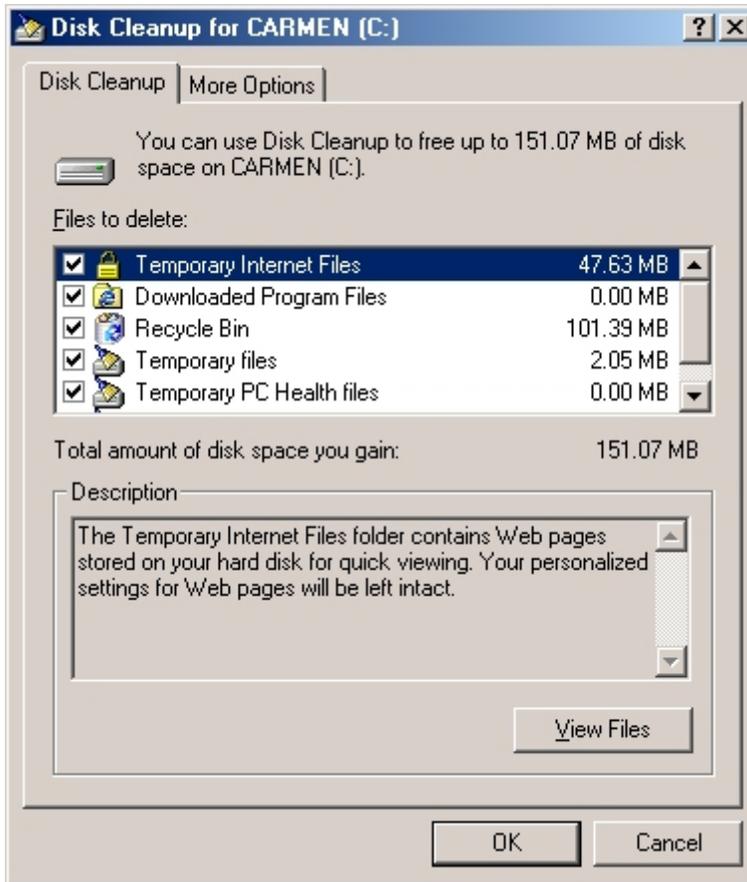
## The fragmentation penalty

Although this all happens quickly, it makes a lot of work for your hard disk. Its read/write head, which moves across the drive platter from location to location transferring data, has to zip all over the place when saving or opening a single highly fragmented file. If a file is unfragmented, the disk head moves to one location, reads the file in one sequential swoop, and that's it.

A file stored in, say, four fragments, can easily take twice as long to open as the same file unfragmented, although the actual performance hit you take is affected by other factors, including the total size of the file.

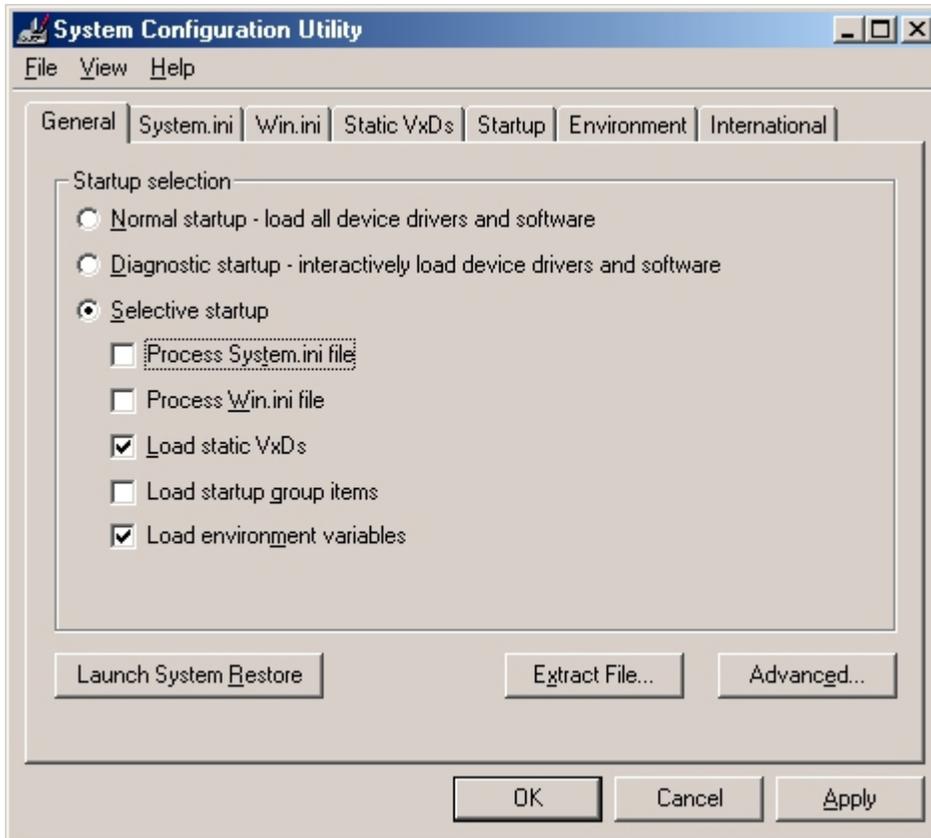
## Step-by-step: Efficient defragging

Defrag works most efficiently when your drive has ample space for its operations. If you run Defrag with a drive that's chockablock, it must work like mad simply to clear enough space to start writing files. So it pays to delete all unnecessary files before you start defragging. Uninstall unwanted programs, archive old data, delete unwanted backups, and then run Disk Cleanup (Start → Programs → Accessories → System Tools → Disk Cleanup).

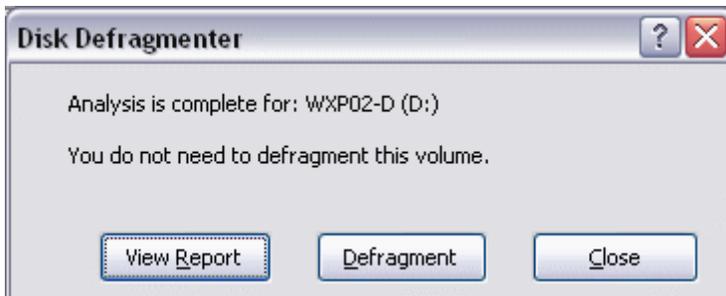
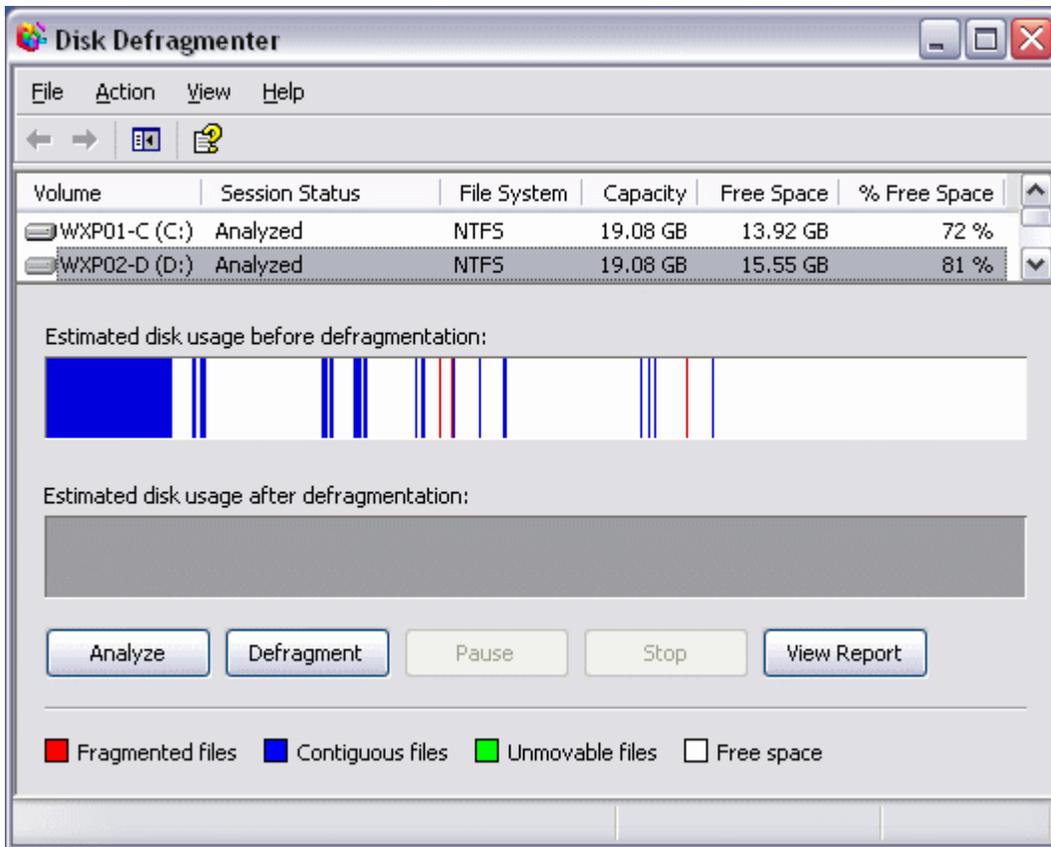


2. Defrag also works best when completely uninterrupted. Background programs such as Task Scheduler and anti-virus software can cause Defrag to stop and restart repeatedly. To avoid such interruptions, do a clean boot before running Defrag:

- a. Click Start → Run, type *msconfig* in the Open box and click OK to open the System Configuration Utility.
- b. On the General tab, click Selective Startup and remove the ticks beside Process System.ini File, Process Win.ini File and Load Startup Group Items. (On some versions of Windows you may also see Config.sys, Autoexec.bat and Winstart.bat options – remove the ticks beside these as well).
- c. Click OK and allow your computer to restart.



1. Once you've cleaned out unnecessary files and stopped background programs from loading, you're ready to defrag:
  - a. Click Start → Programs → Accessories → System Tools → Disk Defragmenter.
  - b. Select the drive you wish to defrag.
  - c. Click Settings and make sure there's a tick beside the two options in the section When Defragmenting My Hard Drive, then click OK twice to begin.
  - d. After Defrag has finished, open the System Configuration Utility once more, click Normal Startup on the General tab, click OK and reboot.



## Analysis Report

Analysis is complete for: WXP02-D (D:)  
You do not need to defragment this volume.

### Volume information:

File fragmentation	
Total files	= 84,934
Average file size	= 49 KB
Total fragmented files	= 3,851
Total excess fragments	= 4,180
Average fragments per file	= 1.04
Pagefile fragmentation	

### Most fragmented files:

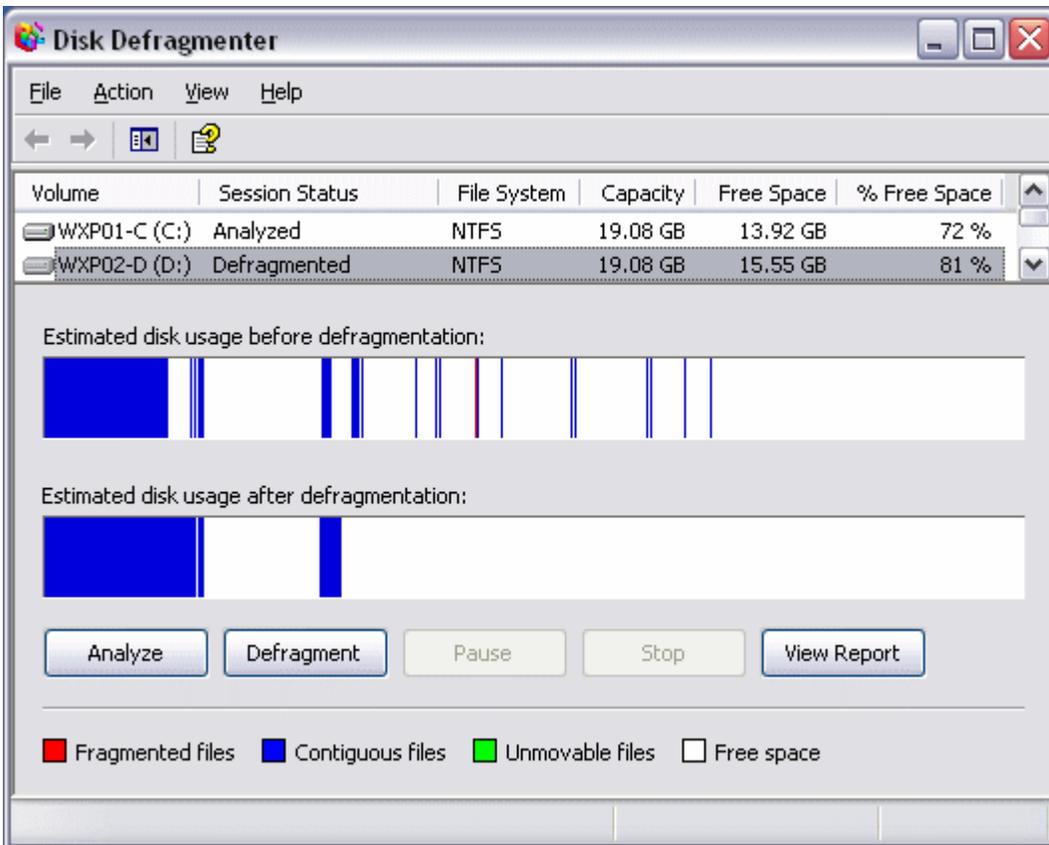
Fragments	File Size	File Name
76	304 KB	{The Elder Geek Data\Front Page Published},..
75	300 KB	{The Elder Geek Data\Front Page Published},..
71	296 KB	{The Elder Geek Data\Front Page Published},..
70	292 KB	{The Elder Geek Data\Front Page Published},..
68	296 KB	{The Elder Geek Data\Front Page Published},..
47	188 KB	{The Elder Geek Data\Front Page Published},..
47	188 KB	{The Elder Geek Data\Front Page Published},..
46	188 KB	{The Elder Geek Data\Front Page Published},..

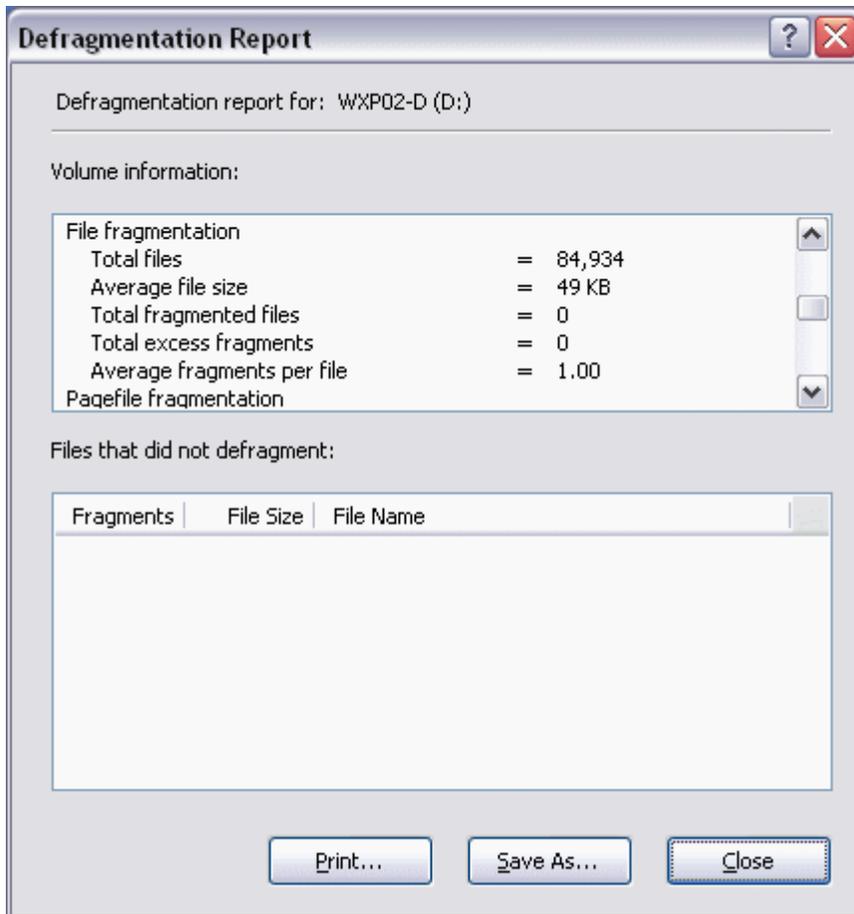
Print...

Save As...

Defragment

Close





## Other Defrag Utilities

### PerfectDisk 8

- Defragments files and free space in one pass
- CPU and I/O throttling
- Requires as little as 5% free space
- Single File Defrag
- Perfect Management™ provides complete integration with Active Directory
- Perfect-Time™ threshold capabilities for enhanced automation
- Full-featured command line options (local and network) to accommodate unique environments
- 32-bit, x64 and Itanium platforms
- 64 MB RAM (128MB recommended)
- 20 MB Disk Space
- FAT16, FAT32 and NTFS
- All levels of RAID and SAN are supported



The Number One Automatic Defragmenter™



## Diskeeper 2007 Home Edition

Diskeeper 2007 handles fragmentation on the go, as it occurs, in real time ensuring that your system is kept at top performance levels 100% of the time - automatically! Simply install Diskeeper 2007 and let the software do the rest.



## O&O Defrag Professional Edition 8.0

**New:**World-exclusive Defrag Screensaver included  
Blazing system starts  
Up to 100% more speed  
Complete automation with O&O OneButtonDefrag  
Special support for notebooks  
Screensaver mode  
Automatic background defragmentation  
Support for removable drives  
Easy to use even without previous experience  
Five different Defrag methods



Spark