

File Archival and Clean up

Disk Defragmenter is a compact, manual system tool that supports FAT 16, FAT 32, and NTFS (which supports compressed and encrypted files). It includes an analysis program that illustrates the extent of disk fragmentation, with the Analysis Display illustrating the condition of the disk before defragmenting, and the Defragmentation Display showing the condition of the disk after defragmentation. For the individual user, Disk Defragmenter is more than adequate for the job of maintaining high-level disk performance.

Using Disk Defragmenter

Disk Defragmenter's easy-to-use interface offers two disk management options: Analyze and Defragment.

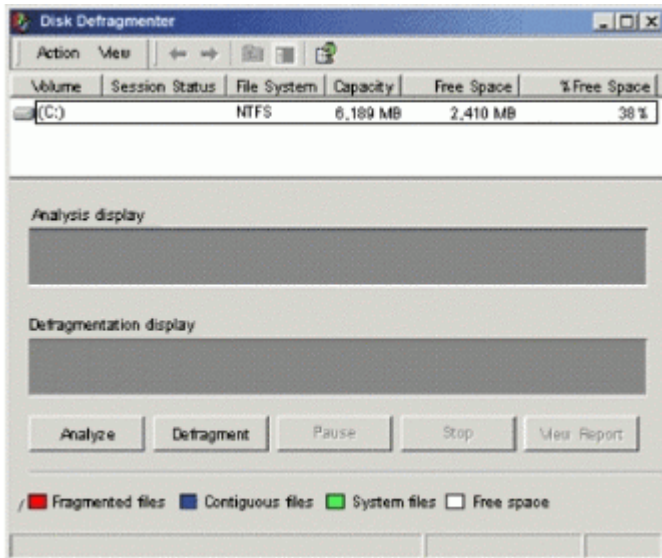


Figure 1: Analyze and Defragment options
See full-sized image.

Analyze and Defragment

Analyze is a diagnostic tool that examines the condition of the disk you've selected, and let's you know if you need to defragment your disk(s). After using Analyze in the example illustrated below, it turns out that defragmentation of volume (C:) is not necessary. If it was necessary to defragment the disk, the message box would indicate so, and you would only need to press the Defragment button and the defragmentation process would begin automatically.

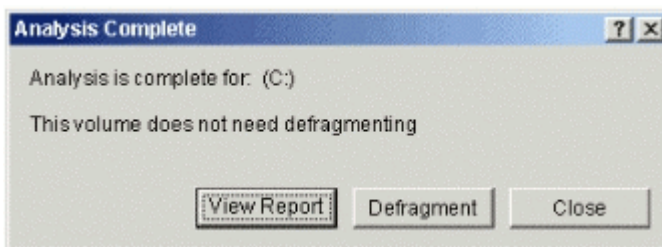


Figure 2: Analysis Message Box
See full-sized image.

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It is important to understand that this color-coded map represents an "approximation" of the disk's condition. In reality, each pixel-wide line (72 pixels = 1 inch) usually represents thousands of clusters, some of which may contain a mix of fragmented files, contiguous files, free space, and system files. Considering this, an algorithm determines what color to display based on the predominance of the particular file elements comprising the section of the disk represented by each pixel-wide line. And, because it's an approximation, the Disk Defragmenter display can illustrate a somewhat skewed representation of the condition of the disk.

For example, if a pixel-wide line on the display represents 1000 clusters, 51 percent of which are contiguous, and 49 percent are free, Disk Defragmenter would color that segment of the display blue for contiguous. The effect would be to hide the free space, and have the amount of available free space appear to be much less on the display map than is actually reported by Windows Explorer. However, after you successfully defragment the disk, the color display will present a more accurate representation of the condition of the disk, and the amount of free space represented will be more accurate.

Defragmenting Requires Sufficient Space on Your Disk

If the disk that you intend to defragment is already highly fragmented, there may be insufficient free space on that disk to effectively run the defragmentation process. This is because a complete copy of the defragmented file is made in the new, defragmented location before the original clusters are marked free.

After defragmenting a disk, Disk Defragmenter may still report: "It is recommended that you defragment this disk." This indicates that there is too little free space to effectively perform the defragmentation routine. If this occurs, do one of the following:

- Temporarily move a few large files off the disk.
- Delete files that are no longer needed.

Calculating Required Free Space

As noted above, in the section describing the Master File Table, one-eighth of a disk is allocated to the MFT zone. Although this area is marked as free space, it is reserved by Windows 2000 for the exclusive use of the MFT. When defragmenting, the Disk Defragmenter cannot take advantage of this space by moving files into the MFT zone. So when calculating the amount of free space available for defragmentation, you must subtract about 12 percent from the free space reported by Windows Explorer. It is recommended that you maintain about 30 percent of any NTFS-formatted disk as free space to ensure that you have sufficient room for effective defragmentation.