

## Before the Installation

### Windows Versions and Platforms Supported

Two versions of Diskkeeper are available:

**Diskkeeper for Windows NT Server** is supported on version 4.0 of the Windows Server operating system. It can also be installed on Windows NT 4.0 Workstations.

**Diskkeeper for Windows NT/95/98 Workstation** is supported on version 4.0 of Windows NT Workstation, Windows 95 and Windows 98. Note that Service Pack 3 or higher is required on Windows NT, and OEM Service Release 2 (OSR2) or higher is required on Windows 95 systems.

An earlier version, Diskkeeper 1.0, is available on request for Windows NT 3.5 and 3.51 systems running with Service Packs 0 through 4.

Diskkeeper runs on the following Windows computer platforms:

- § Intel x86 platform (including Pentium and compatible CPUs from other manufacturers) running Windows 95, Windows 98, or Windows NT 4.0 Server or Workstation
- § Compaq Alpha platform running Windows NT 4.0 Server or Workstation

### File Systems Supported

Diskkeeper supports these file systems:

Operating System	File Systems
Windows NT	NTFS and FAT16
Windows 95/98	FAT16 and FAT32

Note that the 12-bit FAT file system is not supported. (The 12-bit FAT file system is used on FAT volumes smaller than 16 megabytes in size, such as floppy disks). Also, Windows NT NTFS volumes formatted with a cluster size larger than 4 kilobytes are not supported.

### Disks Supported

Diskkeeper supports a wide range of SCSI and IDE disks, including:

- § Primary Partitions
- § Extended Partitions
- § Logical Drives
- § Volume Sets
- § RAID Arrays

### Resource Requirements

The disk space requirements for Diskkeeper depend on several factors. The x86 version of Diskkeeper needs only about 1 MB of disk space, and about 10 MB of free space to allow for temporary files during the installation. Further, your system may require a new or updated version of DCOM (less than 3 MB) and/or MMC (less than 6 MB). Internet Explorer version 4.0 or above must also be installed on the system.

On Alpha systems allow for 50% more disk space than for the x86 platform.

### Additional Software Requirements

On Windows NT 4.0 computers, Service Pack 3 is required for Diskkeeper to operate properly.

Diskkeeper relies on both the Distributed Component Object Model (DCOM) and the Microsoft Management Console (MMC).

DCOM is used for communication between the various components that make up Diskkeeper. For example, when a Diskkeeper defragmentation operation is scheduled to begin, the Diskkeeper controller module uses DCOM to send a message to the defragmentation engine to begin the defragmentation process.

The MMC provides a single point of control for system utilities such as Diskkeeper. The MMC is used as a central location for a variety of Microsoft and third-party administrative tools.

**Note:** Internet Explorer 4.01 or higher must also be installed on your computer for MMC operation.

In most cases, Windows 95 systems are not running either DCOM or the MMC by default. On Windows 98 and Windows NT systems, DCOM is installed by default when the operating system is installed, but the MMC is an additional installation. The Diskkeeper setup process will automatically install DCOM and/or the MMC on your computer, if needed.

## Installation Overview

Diskeeper is installed by the **SETUP.EXE** program supplied on the Diskeeper CD-ROM. The **SETUP.EXE** program:

- Confirms that you have Administrator privileges.
- Determines which version of Windows you are running.
- Checks for sufficient space on the disk for the installation.
- Detects and removes any previously installed Diskeeper software and asks if you want to keep the previous settings.
- Installs DCOM, MMC, and/or Internet Explorer, if necessary.
- Copies the Diskeeper files to the destination directories, updates the Windows registry, starts the Diskeeper service, and creates a new Program Group for Diskeeper.
- If installing on Windows NT, allows you to change certain default settings for Diskeeper.

## Installation Procedure

**Windows NT Note:** If you have previously installed Diskeeper Lite on your computer, Executive Software recommends that you uninstall it before proceeding with the installation of Diskeeper. If, however, you decide to leave Diskeeper Lite on your system, be aware that uninstalling Diskeeper Lite after the installation will remove certain Windows NT registry entries used by Diskeeper, and you will need to re-install Diskeeper. Use the Add/Remove Programs applet in Control Panel to uninstall Diskeeper Lite.

**Note:** To install Diskeeper on a Windows NT system, you must be logged into an account that is a member of the Administrators group, and Windows NT 4.0 must have Service Pack 3 (or higher) installed.

[Click here](#) for more information.

## Installation Procedure Steps

- 1 Insert the Diskeeper CD-ROM into the CD-ROM drive on your computer.
- 2 The Windows AutoPlay feature automatically determines the computer platform you are using and begins installing the correct version of Diskeeper. If you have disabled the AutoPlay feature, perform these steps:
  - a) From the Windows Explorer, expand the directory folders on the Diskeeper CD-ROM. You will see directory folders for these platforms:
    - X86**—for the Intel PC platform (includes Pentium)
    - Alpha**—for the Compaq Alpha platform
  - b) Double-click **SETUP.EXE** in the directory folder representing your computer platform. This causes the Diskeeper Setup Window to be displayed.
- 3 Click **Next** when the welcome message appears.
- 4 If Internet Explorer 4.01 or higher is not installed on your computer, the Diskeeper Setup program is paused and you are directed to a Web site where the latest version of Internet Explorer is available for downloading. Microsoft Management Console (MMC), which is the interface for Diskeeper, requires Internet Explorer.
- 5 If the MMC is not installed on your computer, the Diskeeper Setup program is paused and the MMC Setup program is started automatically. After the MMC files are installed, the Diskeeper Setup program resumes.
- 6 The Setup program checks to confirm DCOM is installed on your computer. If it is not, the Diskeeper Setup program exits and the DCOM Setup program is begun. After a short period of copying files, the DCOM installation is complete.
- 7 Diskeeper detects and removes any previously installed Diskeeper software and asks if you want to keep the previous settings.
- 8 As an option, you can change the destination location for the Diskeeper files. By default, Diskeeper is installed in one of the following locations on your Windows system volume, depending on the version installed:

\Program Files\Executive Software\Diskeeper\DiskeeperSvr  
\Program Files\Executive Software\Diskeeper\DiskeeperWks

To choose another disk volume or directory, click **Browse**. If you choose another volume or directory, click **OK** to accept the new destination location. Any valid local disk volume and directory name is acceptable. If the directory you specify does not exist, a new directory will be created by the Setup utility.

- 9 After accepting or editing the path name, click **Next**.
- 10 You are next given the option to change the program group in which Diskeeper will reside in your Windows Start menu.
- 11 You are then presented with the opportunity to register Diskeeper online.
- 12 On Windows NT only: Accept or modify the [Frag Guard](#) default settings and click **OK**.
- 13 After Setup is complete, you must restart your computer, before running Diskeeper.
- 14 To run Diskeeper, click the Windows **Start** button and select **Programs**, **Executive Software**, and then **Diskeeper**.

## After the Installation

### Registering Diskeeper

After the Diskeeper installation is complete, you are given the option to register your Diskeeper purchase. You can register Diskeeper online, or FAX the registration card included in the Diskeeper package to Executive Software. Both methods provide a fast, efficient way to register Diskeeper.

Be sure to register your Diskeeper purchase to receive the free 90 days of telephone support included with Diskeeper.

### Setting Access Control on Windows 95/98 Systems

In some cases, the Diskeeper setup program will inform you that it is necessary for you to change the access control settings on Windows 95/98 systems. If such a message is displayed during the installation, follow these steps to set the access control:

- 1 From the Windows Control Panel, double-click "Network".
- 2 Click the Access Control tab.
- 3 Enable "User-level access control."
- 4 Specify the correct domain, if necessary.

### A Note about Installing Windows NT Service Packs

Since Diskeeper utilizes mechanisms built into Windows NT 4.0 that allow the safe movement of files on a disk that is actively being accessed by users, there is no need to upgrade Diskeeper each time you install a new Windows NT Service Pack upgrade. However, Microsoft recommends uninstalling Diskeeper before you install a Windows NT Service Pack, and then reinstalling Diskeeper. This ensures that Diskeeper registry entries are not modified by the Service Pack upgrade.

### A Note about Repairing Your Windows NT System

Performing an emergency repair of a Windows NT system can possibly change or disable certain system information or services. For this reason, it may be necessary to reinstall Diskeeper after repairing your Windows NT system.

### About the Diskeeper Service

Diskeeper is primarily designed as a "Set It and Forget It" disk defragmenter. In order to accomplish this goal, it creates a Windows service. The service allows Diskeeper to run in the background while other applications are running. As long as your computer is up and running, Diskeeper can defragment your disks whether you are logged on to your computer or not.

After installation, the Diskeeper service starts automatically each time your computer is booted. The Diskeeper service runs all the time, whether or not defragmentation is occurring. This service consumes negligible system resources, and in most cases will never need to be disabled.

### Setting Up the Application Event Log under Windows NT

Diskeeper for Windows NT messages are placed in the Windows NT Application Event Log. By default, this log is 512 kilobytes in size, and is set to overwrite events older than 7 days old. Diskeeper may quickly fill the log file if these default settings are used. To prevent this, perform these steps to change the size and overwriting characteristics of the Application Event Log:

- 1 From the Windows NT **Start** button, choose Programs, then the Administrative Tools Program Group.
- 2 In the Administrative Tools Program Group, choose the Event Viewer.
- 3 In the Event Viewer, open the **Log** menu and choose the Log Settings option.
- 4 In the **Event Log Settings** dialog box, perform these steps:
  - Set the **Change Setting to Application Log**.
  - Set the **Maximum Log Size** to **2048 kilobytes**.
  - Enable the **Overwrite Events as Needed** option.
  - Click **OK** to return to the **Event Viewer Log**.

Diskeeper for Windows NT allows you to specify what information is written to the Windows NT Application Event Log. [Click here](#) for more information about logging Diskeeper events.

### Event Logging under Windows 95/98

Diskeeper for Windows 95/98 provides the option of logging Diskeeper events into a text file. When Diskeeper logs an event, the event and its message are appended to the Diskeeper log file. These events are written as a text file, which can then be viewed with Notepad, or your choice of text editor programs.

The Diskeeper log file is named **DkEventLog.txt** and it is stored by default in the directory folder where Diskeeper is installed. The file is limited to 1 MB in size. When it reaches this size, the log is purged completely and the event log is started from scratch. [Click here](#) for more information about logging Diskeeper events.

## Installing Diskeeper using SMS

Diskeeper can be installed as a distributed installation using Microsoft's System Management Server (SMS).

[Click here](#) for step by step instructions on how to install Diskeeper using SMS.

**Note:** By default, when using SMS, Diskeeper will install to \Program Files\Executive Software\Diskeeper\DiskeeperWks. To install on a different volume or in a different directory, perform one of these two actions:

- § Share the directory where the Diskeeper installable files reside, then log into the target machine and run **SETUP.EXE** from the target machine as described in the Diskeeper documentation; or,
- § Edit the **SETUP.ISS** file and change the line `szDir=Files\Executive Software\Diskeeper\DiskeeperWks` to point to the volume and directory where you want to install Diskeeper.

## Steps for Installing Diskeeper using SMS

- 1 Insert the Diskeeper distribution media into the appropriate drive on your computer. Using the Windows NT Explorer, you will see these subdirectory folders:
  - X86**—for the Intel PC platform (includes Pentium and compatible CPUs from other manufacturers)
  - Alpha**—for the Digital Alpha platform
- 2 Select the appropriate directory for the platform upon which you want to remotely install Diskeeper.
- 3 Copy the selected Diskeeper files into a directory that can be accessed by all the servers which will be distributing the Diskeeper package.
- 4 From the SMS Administrator, open the **Packages** window. Press CTRL+N to create a new package.
- 5 Click **Import** and import the Product Definition File, **Diskeeper.pdf**, from the appropriate Diskeeper source directory.
- 6 Click **Workstations**.
- 7 Click the ellipsis (...) button next to the Source Directory window.
- 8 Select the directory into which you copied the Diskeeper files and click **OK**.
- 9 Click **Close**, then click **OK** to create the package.
- 10 Drag the package to the target machine(s) in the **Sites** window of the SMS Administrator.
- 11 In the **Job Details** window, select **Install** as the Workstation command.
- 12 Click **OK** to close the **Job Details** window.
- 13 As an option, enter any comments you want in the **Comments** dialog box.
- 14 Click **OK** to send the package to the target machine(s).

## Uninstalling Diskeeper

Follow these steps to remove Diskeeper from your computer:

- 1 From **Control Panel**, double-click **Add/Remove Programs**.
- 2 Click the **Install/Uninstall** tab.
- 3 Highlight the **Diskeeper** entry.
- 4 Click **Add/Remove**. This removes the Diskeeper program files and registry entries from your computer. In most cases, the Diskeeper installation directory will not be removed.
- 5 Manually delete the Diskeeper installation directory if it exists.



## Analyzing Fragmentation

Diskeeper can perform a comprehensive analysis of the fragmentation on your disk volumes. The analysis is shown in either a graphic display or a text report view. The graphic display shows different-colored areas representing system files, paging files, fragmented files, contiguous files, directories, and free space. The report view shows useful information about the extent of fragmentation on a volume.

[Click here](#) to see an example of the graphic fragmentation analysis display.

[Click here](#) to see an example of the analysis report view.

After installing Diskeeper, you are ready to start Diskeeper and begin defragmenting your disk volumes. In order to see the actual gains from defragmentation, analyze the condition of your volumes *before* you begin defragmenting them. By reviewing the graphic display and analysis report both *before* and *after* running Diskeeper, you will be able to see the actual reduction of file fragmentation.

## Seeing Results

Especially when using Diskeeper for the first time, you may want to see the results of defragmenting your disk volumes. Diskeeper provides several methods by which you can do this.

In order to see the effectiveness of Diskeeper, it is important to first analyze the fragmentation on your volumes *before* defragmenting them. This is easily done by highlighting the volume you want to analyze, then clicking the **Analyze** button in the Diskeeper snap-in. Then, after running the analysis, save the analysis results using the **Save** button in the Analysis Report display.

After saving the analysis results, defragment your volumes by highlighting the volume you want to defragment then clicking the **Defragment** button in the Diskeeper snap-in. Running Diskeeper in the higher-priority "Manual Defragmentation" mode ensures your volumes are defragmented quickly. Note, however, when Diskeeper is run in the high-priority "Manual Defragmentation" mode, other applications can be impacted. For this reason, Executive Software recommends running manual defragmentation operations only at off-peak times, particularly on busy servers, or running the defragmentation operation at a lower priority. [Click here](#) for more information about changing the Diskeeper priority.

Once the defragmentation is complete, re-analyze your volumes as you did before defragmenting them. (Remember to save the results to a different file name than the "before" results, to avoid overwriting the earlier analysis results.)

Also, Diskeeper can display a pop-up summary screen each time it is run indicating the general state of fragmentation on your volume. This optional screen can be enabled or disabled from the **Action** menu. By default, the summary screen is enabled.

By comparing the "before and after" analysis results, you can see the effectiveness of Diskeeper. Now, if you set and start scheduled "Set It and Forget It" defragmentation jobs for your volumes, Diskeeper can maintain the defragmented state of your volumes automatically in the background, with no further intervention from you!

## Manual Defragmentation Mode

Diskeeper is designed to be operated in several ways – the Manual Defragmentation and [Set It and Forget It](#) modes, which run while your disk volumes are on-line and available to other applications and users, and (on Windows NT systems) the [Boot-Time Defragmentation](#) mode. The Boot-Time Defragmentation mode runs only when you restart your Windows NT computer.

The Manual Defragmentation mode allows you to directly control Diskeeper operation. You have direct control over which volumes are defragmented, when defragmentation is started and stopped, and the priority at which Manual Defragmentation jobs run.

There are several ways by which to manually start Diskeeper, but the most direct method is to simply highlight the volume you want to defragment and click the **Defragment** button in the Diskeeper snap-in display. Alternatively, highlight a volume, then choose the **Defragment** option in the **Action** menu. You can run more than one manual defragmentation job at the same time.

To stop a manual Diskeeper job, first highlight the volume you want to stop defragmenting, then either click the **Stop** button or select the Stop option from the **Action** menu.

If you exit from Diskeeper (or even log off your computer) while a manual defragmentation job is running, the job will continue running until it is complete.

By default, manual defragmentation jobs are run at "Normal" priority, the mid-level Windows priority. Because of this, the performance of tasks running on your computer other than the defragmentation job can be impacted. As an option, you can change the priority at which Diskeeper runs for manual defragmentation jobs. To do this, select the Priority option from the **Action** menu. Lowering the priority of Diskeeper jobs can help speed the performance of other tasks on your system running at the same time, but can cause Diskeeper to take longer to defragment your volumes.

[Click here](#) for more information about setting the Diskeeper priority.

## Set It and Forget It Mode

Diskeeper is designed to be operated in several ways—the Set It and Forget It and [Manual Defragmentation](#) modes, which run while your disk volumes are on-line and available to other applications and users, and (on Windows NT systems) the [Boot-Time Defragmentation](#) mode. The Boot-Time Defragmentation mode runs only when you restart your Windows NT computer.

The Set It and Forget It mode allows Diskeeper to run automatically in the background while users and other processes are active on the system.

To run Diskeeper in the Set It and Forget It mode, first create a schedule specifying the times Diskeeper either will or will not be allowed to run on a specific disk volume, then start the scheduled defragmentation job. After a defragmentation schedule is created for a volume, Diskeeper will follow that schedule until you explicitly stop it. The defragmentation job will run as scheduled, whether you are logged onto the computer or not. Also, multiple Set It and Forget It defragmentation jobs can be run at the same time on separate volumes.

To stop a Set It and Forget It Diskeeper job run, first highlight the disk you want to stop defragmenting, then either click the **Stop** button or select the Stop option from the **Action** menu. Or, you can open the Set It and Forget It option from the **Action** menu, highlight the disk volume for which you want to stop the schedule, then click **Stop**.

If you exit from Diskeeper (or even log off your computer) while a Set It and Forget It job is running, the job will continue running until the current scheduled run is complete. It will then be re-scheduled to run at the next specified run time.

By default, Set It and Forget It defragmentation jobs are run at the lowest Windows priority. Because of this, Set It and Forget It jobs should have a minimal impact on other tasks that are running at the same time. As an option, you can change the priority at which Diskeeper runs for Set It and Forget It jobs. To do this, select the Priority option from the **Action** menu. Raising the priority of Diskeeper jobs can slow the performance of other tasks on your system running at the same time, but can enable Diskeeper to defragment your volumes more quickly.

[Click here](#) for more information about setting the Diskeeper priority.

## Boot-Time Defragmentation Mode

**Windows NT Note:** The Boot-Time defragmentation option is only available under Windows NT. [Click here](#) for information about defragmenting directories on Windows 95/98 computers.

Diskeeper is designed to be operated in three ways — the "Boot-Time Defragmentation" mode, which runs only when you restart your computer; as well as the [Set It and Forget It](#) and [Manual Defragmentation](#) modes, which run while your disk volumes are on-line and available to other applications and users.

**Important Note:** The Boot-Time Defragmentation Mode performs low-level disk operations. Executive Software strongly recommends you have a current backup of your disk volume before running any Boot-Time operations. This provides an additional level of safety in the event of a disk drive failure.

Running during boot-time, the Boot-Time Defragmentation feature:

- Defragments and consolidates directories into a single location
- Defragments paging files

This is done at boot-time, since directories and paging files are objects that cannot be defragmented safely while the volume is being accessed by other applications or users.

By its nature, Windows allows directories to be written into random locations. This, in effect, breaks up the available pieces of free space on the volume. By grouping all the directories into a single location on a volume, larger areas of contiguous free space become available. As a result, new files are more likely to be written to the volume in a contiguous manner. This also helps make Diskeeper more effective when it is run in either the Set It and Forget It or Manual Defragmentation modes. The same holds true for fragmented paging files. By defragmenting paging files, larger areas of contiguous free space become available for new or modified files.

Note, however, that there are two directories that Windows NT expects to find in a particular physical location on the volume. For this reason, the Diskeeper Boot-Time Defragmentation operation excludes these two directories and does not move them. The directories are \Recycler and \Recycled. Because these two directories cannot be moved, the Boot-Time Defragmentation will likely still leave one or two directories that are not consolidated with the rest of your directories.

The Boot-Time Defragmentation feature relies on finding enough contiguous free space into which all the directories or the paging file will fit. For this reason, you should run Diskeeper in one of its online modes before running the Boot-Time Defragmentation feature.

In most cases, you should run the Diskeeper Boot-Time Defragmentation shortly after the first time you use Diskeeper on a volume (Diskeeper should run at least once to create a contiguous free space to move the directories or paging file into), or after any operation (such as installing a new application) that creates multiple directories. By moving all the directories together, you create more contiguous free space for file defragmentation. After running the Boot-Time Defragmentation, use either the Set It and Forget It or Manual Defragmentation modes to keep the volume defragmented.

[Click here](#) for information about setting Boot-Time Defragmentation of a volume.

## **Defragmenting Directories on Windows 95/98 Computers**

The Windows 95 and Windows 98 operating systems allow directories to be defragmented and moved online. On computers running these operating systems, Diskkeeper treats directories much the same as it does files – it defragments them, and if necessary, moves them (to create more contiguous free space).

Since directories can be moved and defragmented online under Windows 95/98, there is no need to consolidate the directories into a single location on the disk volume (as Diskkeeper does under Windows NT with the Boot-Time Defragmentation feature). While defragmenting directories can improve the performance of your computer, consolidating them into a single location provides no additional performance benefit.

## Diskeeper Overview

- § Two versions of Diskeeper are available—one for Windows NT Server, and one for Windows NT Workstation and Windows 95/98. The Windows NT Server version defragments local and network disk volumes, while the other version defragments local volumes only. For more information on Windows versions supported, [click here](#).
- § Diskeeper for Windows NT Server can be installed and run on Windows NT Workstations, allowing you to control defragmentation of the disk volumes on all the computers in your network from a single computer, either Server or Workstation.
- § On Windows NT systems, the new Diskeeper Frag Guard feature can be activated to prevent MFT and paging file fragmentation online and to provide an automatic boot-time defragmentation option.
- § Diskeeper relies on both the Distributed Component Object Model (DCOM) and the Microsoft Management Console (MMC), both of which are available for Windows 95 and Windows 98. DCOM is built into Windows NT. [Click here](#) for more information about DCOM and the MMC. **Note:** Internet Explorer 4.01 or higher must also be installed on your computer for MMC operation.
- § With Diskeeper, you can analyze the fragmentation on a volume (with a graphic display or text report view), as well as defragment the volume.
- § More than one analysis or defragmentation operation can be performed at a time. You can analyze or defragment disk volumes independently of each other.
- § When running Diskeeper in the on-line mode, you can run other tasks while defragmentation is occurring.
- § When Diskeeper runs at higher priority levels, performance of other active processes will usually be affected.
- § When Diskeeper runs at lower priority levels, defragmentation may take longer, since Diskeeper "backs off" for higher-priority processes, including screen savers.
- § In the on-line mode, Diskeeper runs as a Windows Service and it optionally logs useful defragmentation information into either the Windows NT Application Event Log (under Windows NT) or to a text file (under Windows 95/98).
- § Diskeeper can be uninstalled in the standard manner using the Add/Remove Programs applet in the Windows Control Panel. [Click here](#) for information about uninstalling Diskeeper.
- § In its on-line, Set It and Forget It and Manual Defragmentation modes, Diskeeper does not defragment files on NTFS volumes with a cluster size greater than 4K (4096 bytes) in size. This is due to limits built into Windows NT.
- § You must be logged into an account that is a member of the Administrators group to run Diskeeper on Windows NT Server and Windows NT Workstation systems.

## Theory of Operation

As used in reference to Windows operating systems, disk fragmentation means two things:

- a condition in which pieces of individual files on a disk volume are not contiguous, but rather are broken up and scattered around the volume; and
- a condition in which the free space on a volume consists of little pieces of space here and there rather than a few large free spaces.

The effects of excessive fragmentation are twofold as well:

- file access takes longer because a file must be collected in pieces here and there, requiring several disk accesses instead of just one; and
- file creations take longer because space for the file must be allocated in little pieces here and there instead of just one contiguous allocation.

Before the introduction of Diskkeeper, there was no method for completely correcting the problems of file and free space fragmentation on Windows NT computers or in a mixed Windows network.

In designing Diskkeeper, the following goals were established:

- The product must be completely [safe](#) to use.
- It must improve Windows system [performance](#). It is not designed to make the disk look "pretty" — it's designed to improve disk performance and, as a result, overall system performance.
- It should [process live disks](#) without interfering with user access to files.
- It should run [without operator intervention](#).
- It must defragment all possible files and consolidate free space into the smallest possible number of large spaces.



## Executive Software

Executive Software, founded by its Chairman and CEO Craig Jensen, was incorporated in 1981. In 1986, Diskkeeper for VAX/VMS was introduced, establishing Executive Software as the leader in defragmentation products for the corporate marketplace.

A fundamental aspect of the company's corporate purpose has been to help Data Center Managers solve performance problems. Superior technical capability coupled with meticulous market research fueled rapid growth for Executive Software, and resulted in a high degree of customer satisfaction.

Executive Software has grown from five people in 1986 to over a hundred today, with headquarters in California and branch offices throughout the world. The expansion of the company and the popularity of its products demonstrate a successful implementation of the company's purpose and the degree of technical and administrative capability that backs it up.

### Click here to visit Executive Software's Web site:

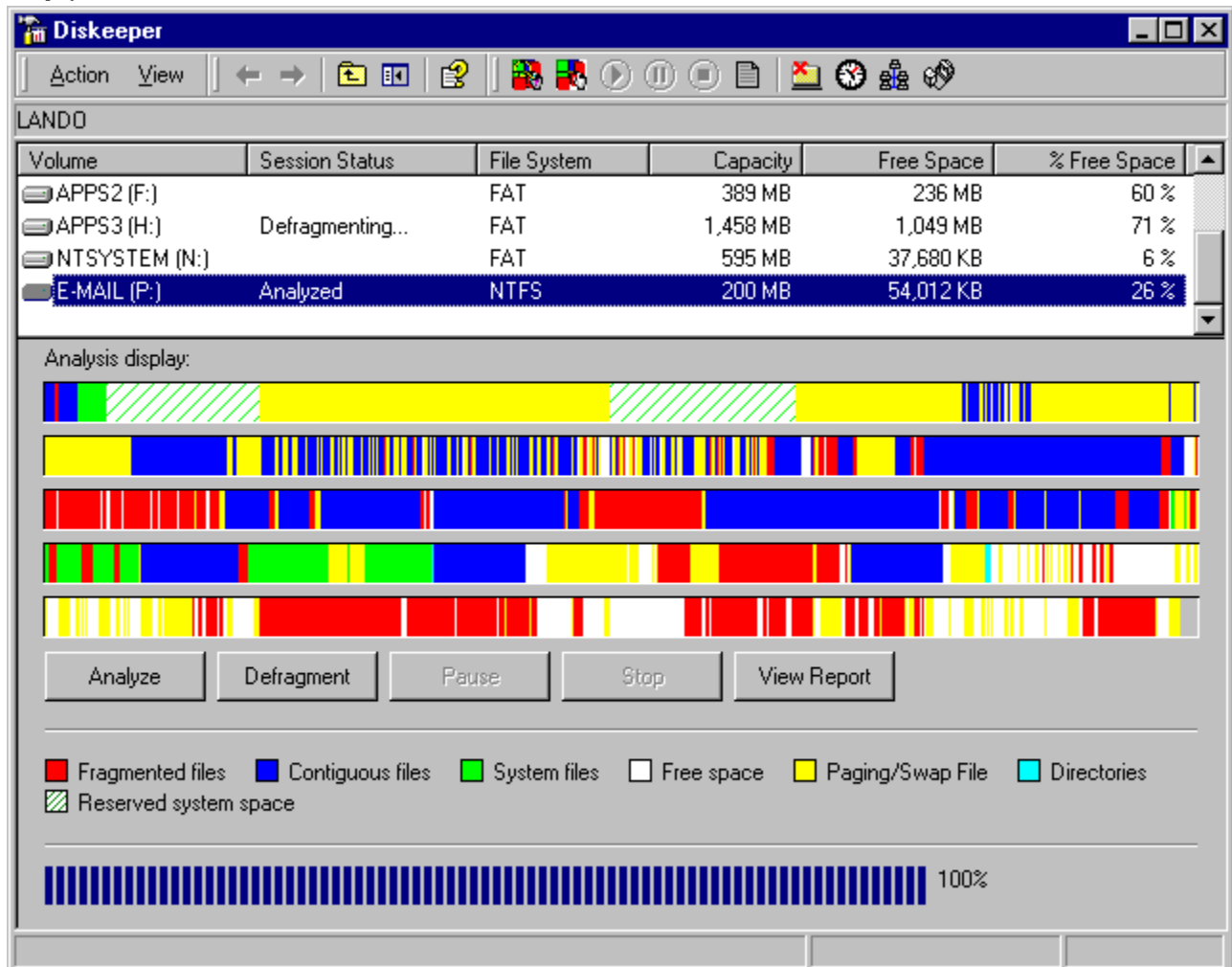
{button Visit Executive Software,EF(^Connect.exe',"http://www.execsoft.com",1)}

Note: It is necessary for you to have a default Web browser or navigator defined on your computer before clicking on the button.

## Using the Diskeeper Snap-In Interface

















The Diskeeper snap-in interface contains pull-down menus and a toolbar. Many of the functions offered are the same on the menus and toolbar.

This example shows a typical Diskeeper display. Click on various parts of the display below to see descriptions about that section of the display.



## Action Menu Options

The Diskkeeper **Action** menu provides these options:

-  Analyze
-  Defragment
-  Pause
-  Stop
-  View Report
-  Set It and Forget It
-  Exclusion List
-  Priority
-  Event Logging
-  Boot-Time Defragmentation (Windows NT only)
-  Frag Guard (Windows NT only)
-  Select Computer (Windows NT Server version only)
-  Refresh
-  Orientation
-  About
-  Help

## View Menu Options

The Diskkeeper View menu provides these options:

### Show Summary After Analysis

Use the **Show Summary After Analysis** option in the View menu to alternately enable and disable a summary screen displayed after a fragmentation analysis.

This summary screen explains the condition of the analyzed disk volume, and makes recommendations based on the condition found.

Note that the summary screen includes information about the amount of free space available on the volume for defragmentation. This figure is based on the space available to Diskkeeper, but on NTFS volumes this is not necessarily the total free space on the volume. A certain percentage of the total volume is reserved for the Master File Table (MFT) on NTFS volumes, and this space cannot be used by Diskkeeper for defragmenting files. Because of this, the figure shown in the Diskkeeper post-analysis summary on NTFS volumes will not match the total free space figure displayed in the Diskkeeper text display (or other utilities like Disk Properties in Windows Explorer).

### Show Summary After Defragmentation

Use the **Show Summary After Defragmentation** option in the View menu to alternately enable and disable a summary screen displayed after a disk volume is defragmented.

This summary screen explains the condition of the volume after defragmentation, and describes any situations found which might prevent Diskkeeper from completely defragmenting the volume.

The information presented in the summary is based on an analysis made before and after the defragmentation run.

Note that the summary screen includes information about the amount of free space available on the volume for defragmentation. This figure is based on the space available to Diskkeeper, but on NTFS volumes this is not necessarily the total free space on the volume. A certain percentage of the total volume is reserved for the Master File Table (MFT) on NTFS volumes, and this space cannot be used by Diskkeeper for defragmenting files. Because of this, the figure shown in the Diskkeeper post-defragmentation summary on NTFS volumes will not match the total free space figure displayed in the Diskkeeper text display (or other utilities like Disk Properties in Windows NT Explorer).


### Show Orientation on Launch

Use the **Show Orientation on Launch** option in the View menu to alternately enable and disable the Diskkeeper orientation screen each time Diskkeeper is started.

The Diskkeeper orientation screen presents a "quick start" explanation of Diskkeeper operation.


## Analyze



Click **Analyze**  in the Diskkeeper toolbar or the Analyze option in the **Action** menu to begin the analysis of the selected disk volume.

## Defragment



Click **Defragment**  in the Diskkeeper toolbar or the Defragment option in the **Action** menu to start the "Manual Defragmentation" of the selected volume.

## Resume



Click **Resume** in the Diskkeeper toolbar or the Resume option in the **Action** menu to re-start a paused Diskkeeper analysis or defragmentation option.

## Pause



Click **Pause** in the Diskkeeper toolbar or the Pause option in the **Action** menu to temporarily pause a fragmentation analysis or the "Manual Defragmentation" of the selected volume.



## Stop



Click **Stop** in the Diskkeeper toolbar or the Stop option in the **Action** menu to stop a fragmentation analysis or the "Manual Defragmentation" of the selected volume.

## View Report



Click **View Report** in the Diskkeeper toolbar or the View Report option in the **Action** menu to display a text report of either a fragmentation analysis or the defragmentation of a disk volume. The text report of a Diskkeeper defragmentation job can only be shown after the job has completed.

[Click here](#) to see an example of the fragmentation analysis text report.


## Exclusion List



Click **Exclusion List** in the Diskkeeper toolbar or the Exclusion List option in the **Action** menu to create a list of files or directories you want to be excluded from being defragmented.

[Click here](#) to see an example of the **File Exclusion List** dialog box.

## Disk Volume Scheduler Button

Click **Disk Volume Scheduler**  in the Diskkeeper toolbar or from the Set It and Forget It option in the **Action** menu to create a defragmentation schedule for one or more specific disk volumes.

**Windows NT Note:** With the Windows NT Server version of Diskkeeper, you can create defragmentation schedules for any computer on your network that is also running Diskkeeper.

[Click here](#) to see an example of the Set It and Forget It **Disk Volume Scheduler** dialog box.

Use a defragmentation schedule to specify times when "Set It and Forget It" defragmentation jobs will be forced to run, or times they will not be allowed to run.

Schedules only affect "Set It and Forget It" defragmentation jobs. Any active defragmentation job previously started on a volume will complete. After any previously started jobs complete, the new schedule takes effect.

When you use the Disk Volume Scheduler, always select one or more volumes in the Volume List box *before* clicking on any of the other Disk Volume Scheduler controls. To select more than one volume to schedule, hold the <Ctrl> key while clicking on the volumes listed in the Schedule box that you want to schedule. Or, you can hold the <Shift> key to select a continuous list of volumes in the Schedule box.

Note that to set or alter a run schedule on remote computers on your network (with Diskkeeper for Windows NT Server), you must have sufficient permissions to edit a file in the Diskkeeper directory on the remote computer. See [Troubleshooting Network Connections](#) for more information.

## Network Scheduler Button

**Windows NT Note:** This option is only available in the Windows NT Server version of Diskkeeper.



Click **Network Scheduler** in the Diskkeeper toolbar or from the Set It and Forget It option in the **Action** menu to create a defragmentation schedule for all the disk volumes on one or more specific computers, workgroups, or domains on your network.

[Click here](#) to see an example of the Set It and Forget It **Network Scheduler** dialog box.

Use a defragmentation schedule to specify times when "Set It and Forget It" defragmentation jobs will be forced to run, or times they will not be allowed to run.

Schedules only affect "Set It and Forget It" defragmentation jobs. Any active defragmentation job previously started on a volume will complete. After any previously started jobs complete, the new schedule takes effect.

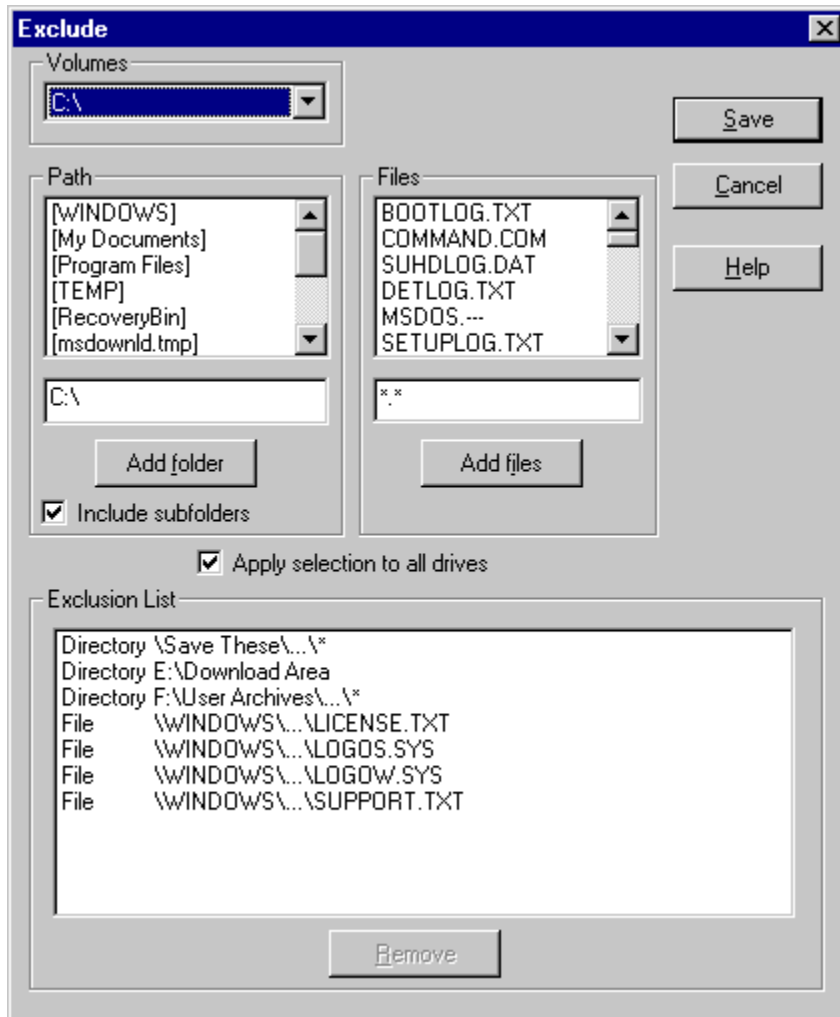
When you use the Network Scheduler, always select one or more computers, workgroups, or domains in the [Computer List](#) box *before* clicking any of the other Network Scheduling controls. To select more than one item to schedule, hold the <Ctrl> key while clicking on the computers, workgroups, or domains listed in the Computer List box that you want to schedule. Or, you can hold the <Shift> key to select a continuous list of items in the Computer List box.

Note that to set or alter a run schedule on remote computers on your network (with Diskkeeper for Windows NT Server), you must have sufficient permissions to edit a file in the Diskkeeper directory on the remote computer. See [Troubleshooting Network Connections](#) for more information.

Also note that you cannot use the Network Scheduler to schedule defragmentation on the computer you are currently connected to. Use the [Disk Volume Scheduler](#) to create a schedule for any computer you are currently connected to.

## Setting an Exclusion List

Diskeeper exclusion lists allow you to specify files and directories that will not be allowed to be processed by Diskeeper. For example, you might not want to defragment temporary files that will soon be deleted. When you choose the **Exclusion List** button or menu option, the window shown below appears. Click on the various options shown in the example below for more information about that option.



## Files

Use this section of the Exclusion List window to choose specific files (by name) to be excluded from defragmentation. Choose the name of the file to be excluded, then click [Add Files](#) to add the file to the exclusion list.

**Note:** Wildcard file specifications such as \* or ? are not allowed.

## Path

Use this section of the Exclusion List window to choose specific directories to be excluded from defragmentation.

Select a directory by highlighting it, check the [Include subfolders](#) box if desired, and then click [Add folder](#) to add the directory to the exclusion list.



## Volumes

Use this section of the **Exclude** dialog box to choose the disk volume from which you want to exclude files or directories.

## Add Files Button

Click **Add files** to add the selected file(s) to the Diskeeper exclusion list.

## Add Folder Button

Click **Add folder** to add the selected directory path to the Diskeeper exclusion list.

## **Exclusion List Box**

This text box shows the files and folders that will be excluded from defragmentation.

## Remove Button

Click **Remove** to remove specific files or folders from the Diskeeper exclusion list. To remove an item from the list, highlight the item by clicking on it in the [Exclusion List Box](#) and click **Remove**.

## File List

This section of the **Exclude** dialog box lists the files matching the specification shown in the File Name edit box.

## Directory Folder List

This section of the **Exclude** dialog box lists the directory folders in the selected volume.

## Save Button

Click **Save** to save the exclusion list and return to Diskeeper.



## Cancel Button

Click **Cancel** to cancel any changes you have made to the Diskeeper exclusion list and return to the opening Diskeeper screen.

## Help Button

Click **Help** for context-sensitive help about the Diskeeper file exclusion list option.

## Scheduling Diskkeeper

Diskkeeper provides a variety of scheduling options. You can specify separate defragmentation schedules for individual disk volumes, or you can create a single schedule for more than one volume.


A defragmentation schedule specifies the times or days of the week that Diskkeeper will (or will not) be allowed to run.

With the Windows NT Server version of Diskkeeper, you can create defragmentation schedules for other computers on your network (if they are also licensed to run Diskkeeper). Diskkeeper for Windows NT Server even allows you to create defragmentation schedules for all the volumes on individual computers on your network.

[Click here](#) for information about creating defragmentation schedules for individual volumes.

[Click here](#) for information about creating defragmentation schedules for all the volumes on your network with the Windows NT Server version of Diskkeeper.

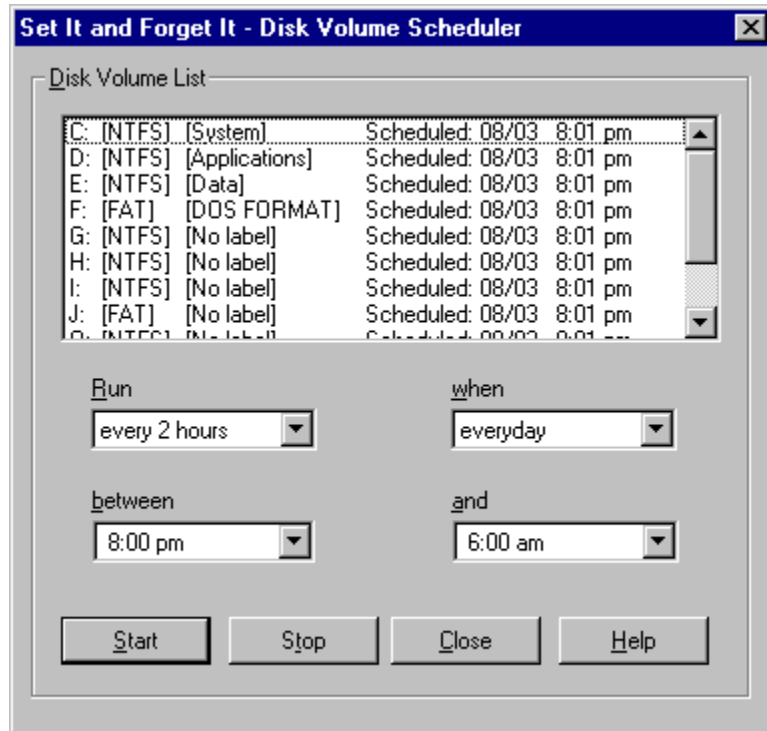
## Disk Volume Scheduler

Click **Disk Volume Scheduler**  in the Diskkeeper toolbar, or select Set It and Forget It from the **Action** menu, to create a schedule of times when “Set It and Forget It” defragmentation jobs will be forced to run, or times they will not be allowed to run.

Schedules only affect “Set It and Forget It” defragmentation jobs. Any active defragmentation job previously started on a disk volume will complete. After it completes, the new schedule takes effect.


When you use the Disk Volume Scheduler, always select one or more volumes in the Volume List box before clicking any of the other Disk Volume Scheduler controls. To select more than one volume to schedule, hold the CTRL key while clicking on the volumes listed in the Schedule box that you want to schedule. Or, you can hold the SHIFT key to select a continuous list of volumes in the Disk Volume List.

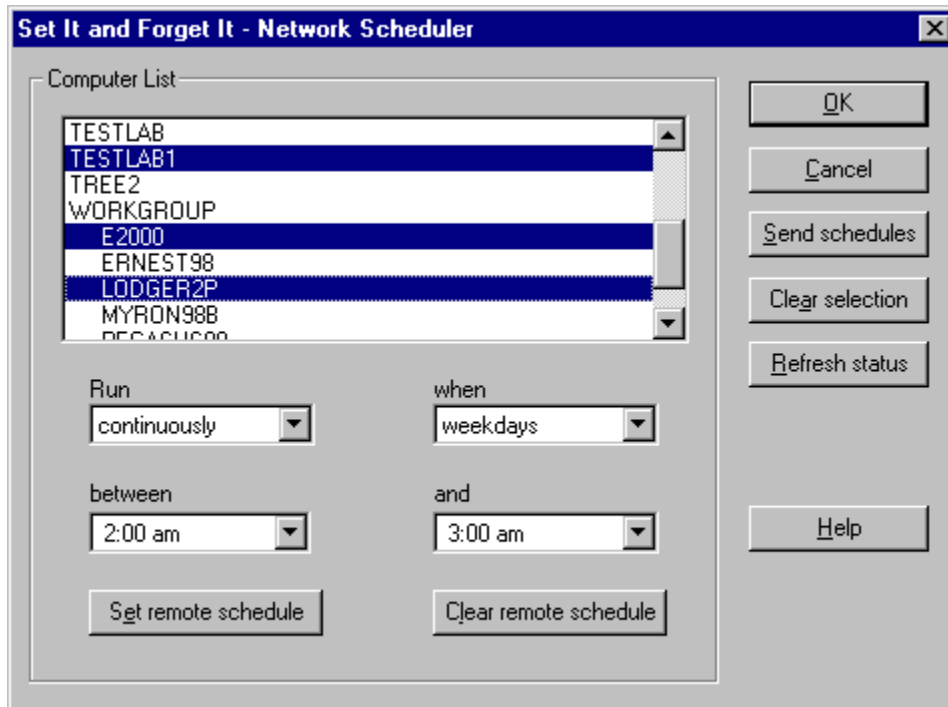
Click on the various options shown in the example below for more information about that option.



## Network Scheduler

**Windows NT Note:** This option is only available in the Windows NT Server version of Diskeeper.

When you click **Network Scheduler**  or select Network Scheduler from the Set It and Forget It option in the **Action** menu, the window shown below is displayed. Click on the various options shown in the example below for more information about that option.



The scheduling of remote computers is accomplished by the Network Scheduler, a feature exclusive to Diskeeper. This feature allows you to easily set the same "Set It and Forget It" schedule for **all** the disk volumes on one or more computers at a time.

To fully use this feature, it is important to understand the method by which Diskeeper creates and controls defragmentation schedules on remote computers. When you create a schedule for a computer, Diskeeper stores all the necessary scheduling information in a control file (Diskeep.ctf) on the computer for which the schedule was created. Then, the Diskeeper Service periodically checks the control file to determine whether to start the Diskeeper defragmentation engine on that computer.

The Network Scheduler is a unique feature of Diskeeper (Windows NT Server version). With the Network Scheduler you don't have to connect individually to each computer you want to schedule, and then specify the schedule(s) for each disk volume on that computer. This action would update the Diskeeper control file on each computer. Not an easy task if you have a few hundred (or thousand) computers on your network!

In the Server version of Diskeeper, the Network Scheduling Engine performs the work of updating the Diskeeper control files on one or more remote computers, without the need for you to individually connect to each computer. This is the sequence of events:

- § First, the scheduling information for any selected computers is stored on the local computer from where you are creating schedules. This information is stored in the \NetScheduler folder under the folder where you installed Diskeeper. Individual files are written to this folder for each computer on which you schedule Diskeeper to run.
- § Next, the Network Scheduling Engine is started, running as a separate process. The Network Scheduling Engine checks all of the machine-specific scheduling information files on the local computer each time the engine is started. If any of the files are new or changed since the last time the engine was run, it connects to each respective computer and sends the new or changed information to the Diskeeper control file on the remote computer(s).
- § Then, when the Diskeeper Service on each of the individual remote computers checks its control file, it begins running as specified by the schedule. The Diskeeper Service checks its control file once a minute.

Note that you cannot use the Network Scheduler to schedule defragmentation on the computer you are currently connected to. Use the [Disk Volume Scheduler](#) to create a schedule for any computer you are currently connected to.

## Disk Volume List

Use this section of the Disk Volume Scheduler display to specify one or more disk volumes for which you want to establish a defragmentation schedule.

Always select the disk volume(s) for which you are specifying a schedule *before* clicking on any of the other Disk Volume Scheduler controls.

Any defragmentation job previously started on a volume will complete the current run through the volume before the new run schedule takes effect.

The **Disk Volume List** section of the **Disk Volume Scheduler** dialog box lists the volumes detected on the computer you are currently connected to, and shows the volumes that are actively being defragmented or that are scheduled for defragmentation by Diskkeeper. This display also shows the scheduled time for the next defragmentation run for each scheduled volume.

## Run

Use this section of the Disk Volume Scheduler display to specify how often Diskkeeper should run on the selected volumes. You can specify any of these run frequencies:

- One Time
- Continuously
- Every 2 hours
- Every 4 hours
- Every 8 hours
- Every 12 hours
- Every 24 hours
- Every 48 hours
- Every 72 hours

## When

Use this section of the Disk Volume Scheduler display to specify days the Diskeeper job will (or will not) be allowed to run on the selected volumes. You can specify any of these time periods to control when Diskeeper is allowed to run:

Everyday	Except Everyday
Weekends	Except Weekends
Weekdays	Except Weekdays
Mondays	Except Mondays
Tuesdays	Except Tuesdays
Wednesdays	Except Wednesdays
Thursdays	Except Thursdays
Fridays	Except Fridays
Saturdays	Except Saturdays
Sundays	Except Sundays



## Between

Use this section of the Disk Volume Scheduler display to specify the beginning of a time period the Diskkeeper job will (or will not) be allowed to run on the selected volumes. You can specify any of these time periods to specify the beginning of a Diskkeeper schedule period:

All Day

12:00 midnight through 11:00 P.M. in one hour increments

## And Button

Use this section of the Disk Volume Scheduler display to specify the end of a time period the Diskkeeper job will or will not be allowed to run on the selected volumes. You can specify any of these time periods to specify the end of a time period Diskkeeper will (or will not) be allowed to run:

12:00 midnight through 11:00 P.M. in one hour increments

## Start Button

Click **Start** to accept the specified run schedule for the selected volumes. You must click **Start** for each schedule you specify.

Any defragmentation job previously started on a volume will complete the current run through the volume before the new schedule takes effect.

## Stop button

Click **Stop** to stop a scheduled Diskkeeper defragmentation job and clear the schedule for the selected volumes.

## Close Button

Click **Close** to leave the Disk Volume Scheduler window.


Click [Start](#) *before* clicking **Close** to accept a schedule you have specified.

Do not click **Start** if you don't want to accept the schedule you have set.

## Help Button

Click **Help** to view help information about using the Diskeeper in the "Set It and Forget It" mode.

## Help

Click **Help**  or select the Help option in the **Action** menu to activate the Diskkeeper Help system.

## Computer List

The **Computer List** section of the **Network Scheduler** dialog box lists the computers, workgroups, and domains detected on your network, and shows the scheduling status of each.

Use this section of the Network Scheduler display to specify one or more computers, workgroups, or domains for which you want to establish the same defragmentation schedule on all volumes.

Double-click any domain or workgroup shown in the Computer List to display the computers within that group. (Keep in mind, however, that you can also schedule entire domains or workgroups.) To select more than one item to schedule, hold the <Ctrl> key while clicking on the computers, workgroups, or domains listed in the Computer List box that you want to schedule. Or, you can hold the <Shift> key to select a continuous list of items in the Computer List box.

Always select the computer(s) for which you are specifying a schedule *before* clicking on any of the other Set It and Forget It dialog boxes.



## Run

Use this section of the Network Scheduler display to specify how often Diskeeper should run on all the volumes on the selected computers. You can specify any of these run frequencies:

- One Time
- Continuously
- Every 2 hours
- Every 4 hours
- Every 8 hours
- Every 12 hours
- Every 24 hours
- Every 48 hours
- Every 72 hours

## When

Use this section of the Network Scheduler display to specify days the Diskkeeper job will (or will not) be allowed to run on the selected computers. You can specify any of these time periods to control when Diskkeeper is allowed to run:

Everyday	Except Everyday
Weekends	Except Weekends
Weekdays	Except Weekdays
Mondays	Except Mondays
Tuesdays	Except Tuesdays
Wednesdays	Except Wednesdays
Thursdays	Except Thursdays
Fridays	Except Fridays
Saturdays	Except Saturdays
Sundays	Except Sundays

## **Between**

Use this section of the Network Scheduler display to specify the beginning of a time period the Diskeeper job will (or will not) be allowed to run on the selected computers. You can specify any of these time periods to specify the beginning of a Diskeeper schedule period:

All Day

12:00 midnight through 11:00 P.M. in one hour increments

## **And Button**

Use this section of the Set It and Forget It display to specify the end of a time period the Diskeeper job will or will not be allowed to run on the selected volume. You can specify any of these time periods to specify the end of a time period Diskeeper will (or will not) be allowed to run:

12:00 midnight through 11:00 P.M. in one hour increments

## Set Remote Schedule

Use this option to set the specified schedule on the selected computer(s). When you click **Set remote schedule**, the scheduling information is written to the local computer in the \NetScheduler folder under the folder where you installed Diskeeper. Individual files are written to this folder for each computer on which you schedule Diskeeper to run.

After clicking this option, you must click [OK](#) or [Send schedules](#) to start the Diskeeper Network Scheduling Engine, and to begin sending the schedule information to the remote computers. [OK](#) starts the engine and closes the dialog box. **Send schedules** does the same, but does not close the dialog box. Once the engine starts, it checks the individual scheduling information files on the local computer, determines which ones are new or have changed, then sequentially connects to each respective computer and updates the Diskeeper control file on each computer.

As the Network Scheduling Engine runs, a status window is displayed, showing computer currently being scheduled and the progress of the connection. You can click **Cancel** in the status window at any time to stop the Scheduling Engine, but keep in mind that the schedules on any computers that were "Ready" when the Network Scheduling Engine was started will not be updated until the next time the engine is started.

## Clear Remote Schedule

Use this option to clear a schedule you have previously set on the selected domains, workgroups, or computers, after you have clicked either [OK](#) or [Send schedules](#).

Much like setting a schedule, clearing a schedule also involves writing scheduling information to disk on your local computer. This information is essentially a schedule set to not run. Once this information has been stored on the local computer (as indicated by the "Ready" status), send it to the remote computers by clicking either **OK** or **Send schedules**.

## OK Button

Click **OK** after clicking [Set remote schedule](#) to start the Diskeeper Network Scheduling Engine, and to begin sending the schedule information to the remote computers. This option starts the Network Scheduling Engine and closes the **Network Scheduler** dialog box.

## Cancel Button

Click **Cancel** to close the **Network Scheduler** dialog box without making any changes to the schedules on your remote computers.



## Send Schedules

Click **Send schedules** after clicking [Set remote schedule](#) to start the Diskkeeper Network Scheduling Engine, and to begin sending the schedule information to the remote computers. This option starts the Network Scheduling Engine, but does not close the **Network Scheduler** dialog box.

Any defragmentation job previously started on any volume of any selected computers will complete the current run through the volume before the new run schedule takes effect.

## Clear Selection

Use this option to clear a schedule on the selected domains, workgroups, or computers, before you have clicked either [OK](#) or [Send schedules](#).

## Refresh Status

Use this option to display the latest status of the network schedules and connections on your network.

If you use [Send schedules](#) to start the Network Scheduling Engine, click **Refresh status** after the Diskeeper Scheduling Engine stops, to update the status information in the [Computer List](#) box.

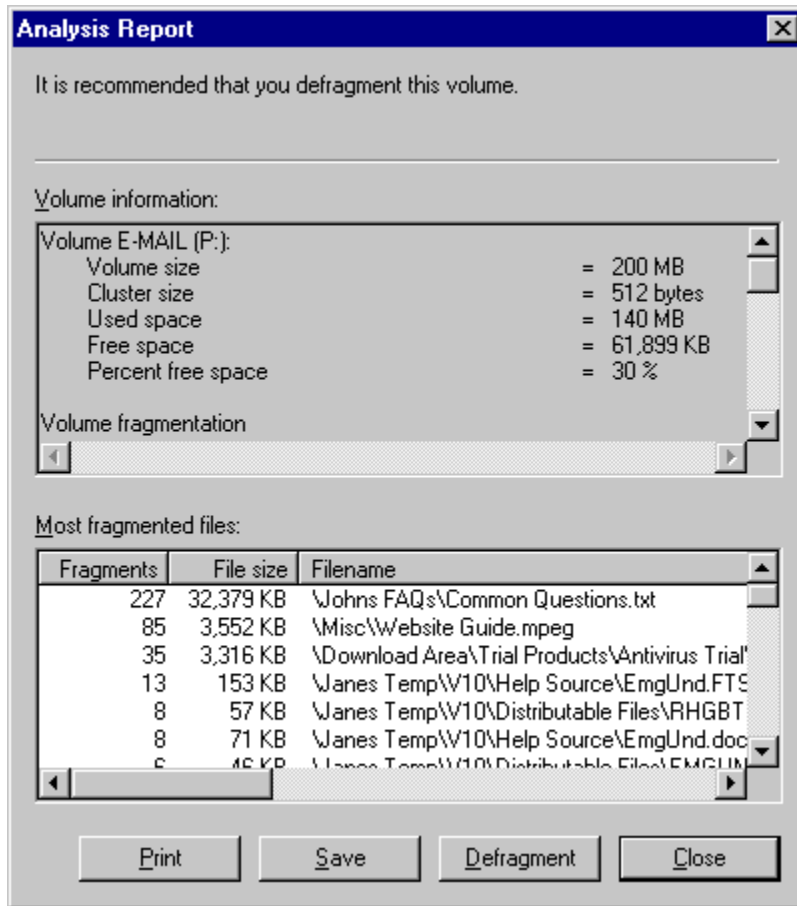
## Help Button

Click **Help** to view context-sensitive help information about using the Diskeeper Network Scheduler.

## Analysis Report Display

A wide variety of useful information about your disk volume is shown in the Diskkeeper Analysis Report display.

This example shows a typical analysis report. Click on the various options shown in the example below for more information about that option.



Note that most of the information shown in the Diskkeeper Analysis Report can also be recorded in the Diskkeeper Event Log. [Click here](#) for more information about logging information to the Diskkeeper Event Log.

## Close Button

Click **Close** to close the Analysis Report window and return to the main Diskeeper display.

## Save Button

Click **Save** to save the text results of a fragmentation analysis. Use this option after running the fragmentation analysis.

By default, the analysis file is saved as a file named **VolumeX.txt** (where *X* represents the volume letter) in the directory where Diskkeeper is installed. When you click **Save**, you are given the opportunity to change the file name and directory location.

This option is useful for comparing the condition of a disk volume before and after defragmenting the volume with Diskkeeper. Be sure to save the analysis before running Diskkeeper, so you can see the benefits of running Diskkeeper.

Note that if you are saving "before and after defragmentation" analysis files, you should use unique names for the files. This prevents the "before" analysis file from being overwritten by the "after" analysis file.

## Print Button

Click **Print** to print the text fragmentation analysis information. This option sends the fragmentation analysis information to whatever printer is designated as your default printer.

This option is useful for comparing the condition of a volume before and after defragmenting the volume with Diskkeeper. See the [Save](#) help topic for information about saving the fragmentation analysis results.



## Defragment Button

Click **Defragment** in the Analysis Report window to close the window and to defragment the selected disk volume.

## Graphic Fragmentation Display

This section of the Diskkeeper display shows a graphic representation of the fragmentation of your disk volume. The colors of the display indicate the type and condition of the data on your volume.

- Green areas show system files. On Windows NT systems, green areas particularly show the Master File Table (MFT) but also several other file system files. System files like these cannot be moved safely online by Diskkeeper (or any other defragmenter). Keep in mind, however, these are not the files that make up the Windows NT operating system (which Diskkeeper can successfully defragment)—they make up the NTFS file system. The green areas of the display appear only on NTFS volumes.
- Green-striped areas (on Windows NT systems only) show space on the volume reserved for expansion of the MFT. This space is reserved when a volume is formatted, and cannot be used by applications, including Diskkeeper. Windows NT will, however, write files to this area when the volume becomes extremely full and no other free space is available. Windows NT provides the capability for Diskkeeper to move files out of this reserved area, but does not allow Diskkeeper to move files into it. These areas appear only on NTFS volumes.
- Yellow areas show the paging file (for Windows NT) or the swap file (for Windows 95/98) if it exists on the volume.
- Light blue areas show the directories on the volume.
- Red areas show fragmented files.
- Dark blue areas show contiguous (non-fragmented) files.
- Gray areas show free space on the volume.

## Save Analysis

To save the text results of a fragmentation analysis, first click **View Report**  and then click **Save** in the report view display.

By default, the analysis file is saved as a file named **DriveX.any** (where *X* represents the drive letter) in the directory where Diskeeper is installed. When this option is chosen, you are given the opportunity to change the file name and directory location.

This option is useful for comparing the condition of a volume before and after defragmenting the volume with Diskeeper. Be sure to save the analysis before running Diskeeper, so you can see the benefits of running Diskeeper.

Note that if you are saving "before and after defragmentation" analysis files, you should use unique names for the files. This prevents the "before" analysis file from being overwritten by the "after" file.

## Refresh

Use the **Refresh** option in the **Action** menu to update the disk volumes shown in the Diskkeeper snap-in volume list. This is useful for times when volumes come on-line after you have started Diskkeeper.

## Orientation

Use the **Orientation** option in the **Action** menu to see a brief "quick start" explanation of Diskeeper operation.

## Priority

Use the **Priority** option in the **Action** menu to select the [priority](#) at which Diskkeeper defragmentation jobs run. You can set the priority independently for both "Set It and Forget It" and "Manual Defragmentation" jobs.

The default priority for scheduled "Set It and Forget It" defragmentation jobs is "Lowest", while Manual Defragmentation jobs run at "Normal" priority. The priority for either type of defragmentation job can be changed with the Priority option.

Running at Lowest priority minimizes the system performance impact when Diskkeeper is defragmenting a disk volume. However, defragmentation jobs running at Lowest priority can take substantially longer to complete than those running at higher priorities, since Diskkeeper "backs off" for any process running at a higher priority (even screen savers).

For this reason, you may have occasions where you want to run Diskkeeper to complete a defragmentation job more quickly. In these instances, use the higher priority options. Keep in mind, though, that the performance of other applications running on your computer will probably be impacted when Diskkeeper is run at higher priorities.

## Event Logging

Diskeeper allows you to record information about its activity in a log file. Use the **Event Logging** option in the **Action** menu to alternately enable and disable the logging of various events to the Diskeeper Event Log. The logging method varies, depending on the version of Windows you are using.

### Under Windows NT

A log of Diskeeper activity is stored in the Windows NT Application Event Log file.

When Diskeeper logs an event, the event and its message are appended to the Windows NT Application Event Log file, along with the date, time, user, and other identifying information. These events can then be viewed with the Windows NT Event Viewer by choosing the Application option in the Event Viewer Log menu. This can be done on either local computers or remote computers on your network.

The Event Viewer is found in the Windows NT Administrative Tools group.

[Click here](#) for information on how to set up the Application Log under Windows NT.

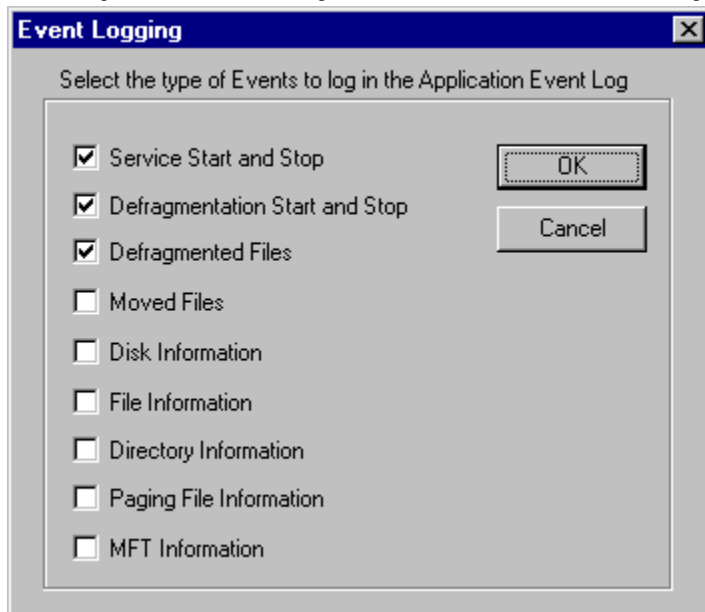
### Under Windows 95/98

A log of Diskeeper activity is stored in a text file.

When Diskeeper logs an event, the event and its message are appended to the Diskeeper log file. These events are written as a text file, which can then be viewed with Notepad, or your choice of text editor programs.

The Diskeeper log file is named **DkEventLog.txt** and it is stored by default in the directory folder where Diskeeper was installed. The file is limited to 1 MB in size. Once it reaches this size, the log file is overwritten with new logging information.

The Diskeeper Event Logging option displays this dialog box listing events for which logging can be enabled or disabled. Click on the various options shown in the example below for more information about that option.



## Setting Up the Windows NT Application Event Log

Diskkeeper messages are placed in the Windows NT Application Event Log. By default, this log is 512 kilobytes in size, and is set to overwrite events older than 7 days old. Diskkeeper may quickly fill the log file if these default settings are used. To prevent this, perform these steps to change the size and overwriting characteristics of the Application Event Log:

- 1 From the Windows NT **Start** button, choose **Programs**, then the **Administrative Tools** Program Group.
- 2 In the Administrative Tools Program Group, choose the Event Viewer.
- 3 In the Event Viewer, open the Log menu and choose the Log Settings option.
- 4 In the **Event Log Settings** dialog box, perform these steps:
  - § Set the Change Setting to Application Log.
  - § Set the Maximum Log Size to 2048 kilobytes.
  - § Enable the Overwrite Events as Needed option.
  - § Click **OK** to return to the Event Viewer Log.



## **Service Start and Stop**

When this option is enabled, an entry is made to the Event Log each time the Diskeeper service starts or stops. This option is enabled by default.

## **Defragmentation Start and Stop**

When this option is enabled, an entry is made to the Event Log whenever a defragmentation run starts or stops. This option is enabled by default.

## **Defragmented Files**

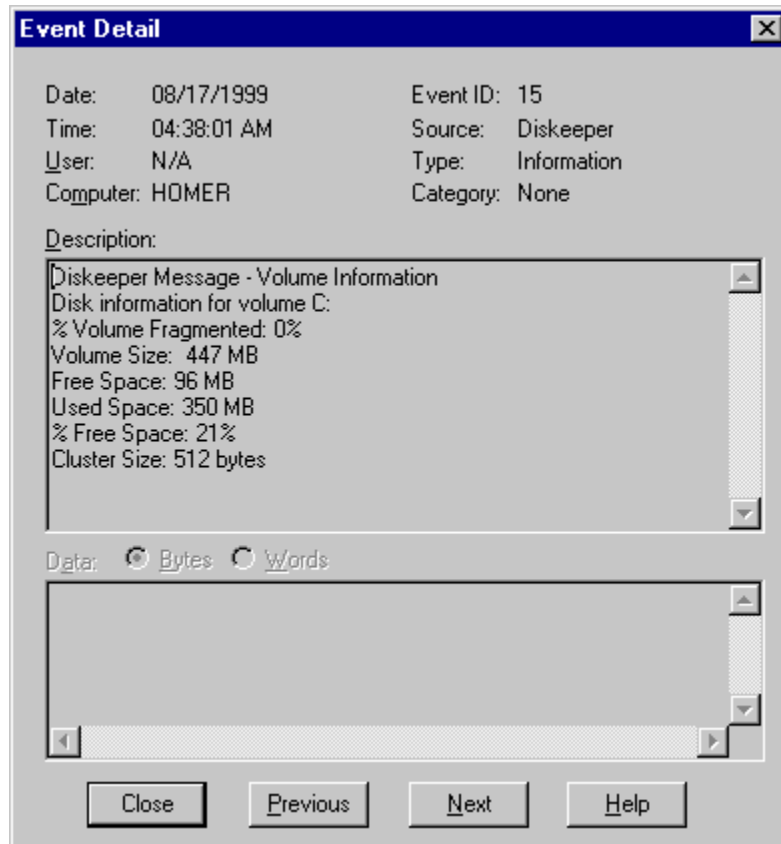
When this option is enabled, an entry is made to the Event Log listing each file that is defragmented by Diskkeeper. Note that enabling this option can cause the Event Log to fill rather quickly, especially if Diskkeeper defragments a high number of fragmented files. (This will be particularly likely when Diskkeeper is first run on a disk volume).

## **Moved Files**

When this option is enabled, an entry is made to the Event Log each time a file is moved for reasons other than to defragment the file. This would include cases where files are moved in order to create more contiguous free space. Here again, enabling this option can cause the Event Log to fill quickly. This option is not enabled by default.

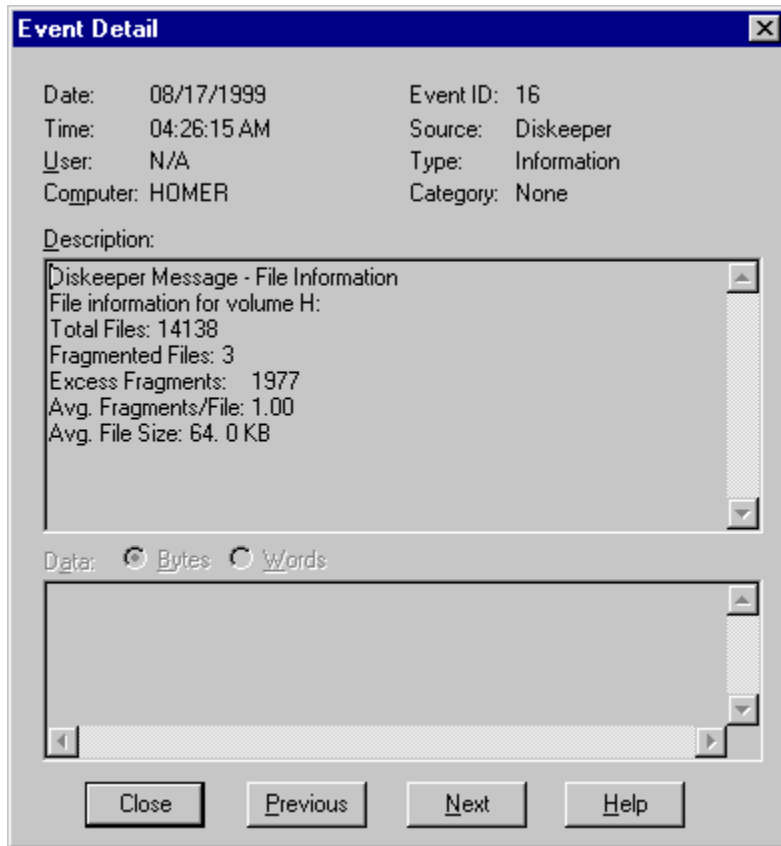
## Disk Information

When this option is enabled, an entry is made to the Event Log at the end of each defragmentation run showing general information about the disk volume that was defragmented. This appears in the Windows NT Event Viewer as Diskkeeper Event 15. When you double-click Diskkeeper Event 15 in the Event Viewer, information similar to this example is displayed. This option is not enabled by default.



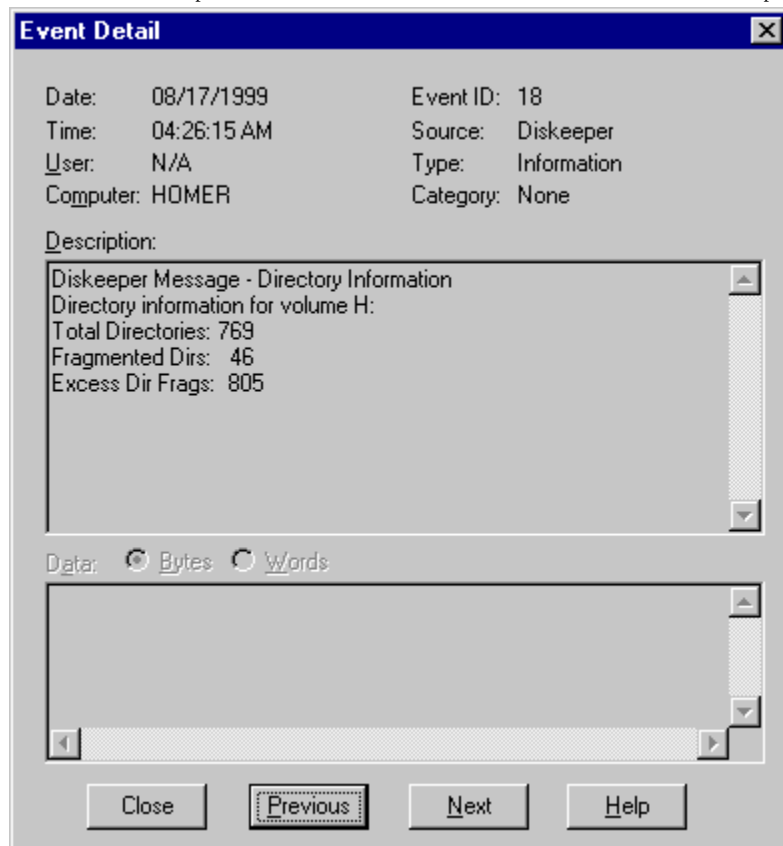
## File Information

When this option is enabled, an entry is made to the Event Log at the end of each defragmentation run showing information about the files on the disk volume that was defragmented. This appears in the Windows NT Event Viewer as Diskkeeper Event 16. When you double-click Diskkeeper Event 16 in the Event Viewer, information similar to this example is displayed. This option is not enabled by default.



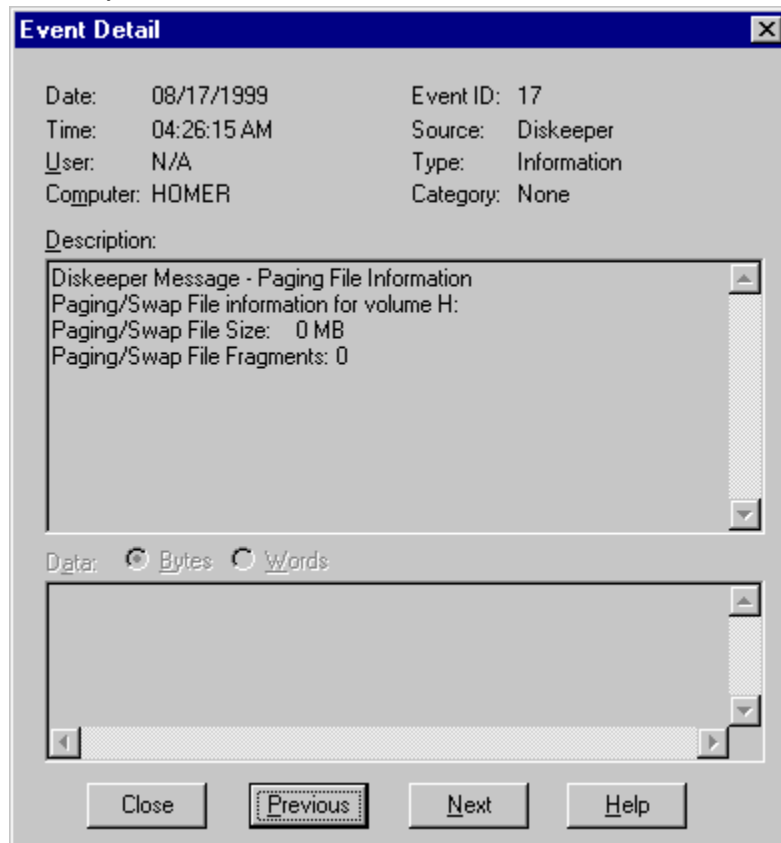
## Directory Information

When this option is enabled, an entry is made to the Event Log at the end of each defragmentation run showing information about the directories on the disk volume that was defragmented. This appears in the Windows NT Event Viewer as Diskkeeper Event 18. When you double-click Diskkeeper Event 18 in the Event Viewer, information similar to this example is displayed. This option is not enabled by default.



## Paging File Information

When this option is enabled, an entry is made to the Event Log at the end of each defragmentation run showing information about the paging file on the disk volume that was defragmented (if it exists on the volume). This appears in the Windows NT Event Viewer as Diskkeeper Event 17. When you double-click Diskkeeper Event 17 in the Event Viewer, information similar to this example is displayed. This option is not enabled by default.





## MFT Information

When this option is enabled, an entry is made to the Event Log at the end of each defragmentation run showing information about the Master File Table (MFT) on the disk volume that was defragmented. (Keep in mind, since only NTFS volumes have an MFT, this information will only apply to NTFS volumes.) The entry appears in the Windows NT Event Viewer as Diskkeeper Event 19. When you double-click Diskkeeper Event 19 in the Event Viewer, information similar to this example is displayed. This option is not enabled by default.



## Show Summary After Analysis

Use the **Show Summary After Analysis** option in the View menu to alternately enable and disable a summary screen displayed after a fragmentation analysis.

This summary screen explains the condition of the analyzed disk volume, and makes recommendations based on the condition found.

Note that the summary screen includes information about the amount of free space available on the volume for defragmentation. This figure is based on the space available to Diskkeeper, but on NTFS volumes this is not necessarily the total free space on the volume. A certain percentage of the total volume is reserved for the Master File Table (MFT) on NTFS volumes, and this space cannot be used by Diskkeeper for defragmenting files. Because of this, the figure shown in the Diskkeeper post-analysis summary on NTFS volumes will not match the total free space figure displayed in the Diskkeeper text display (or other utilities like Disk Properties in Windows Explorer).

## Show Summary After Defragmentation

Use the **Show Summary After Defragmentation** option in the View menu to alternately enable and disable a summary screen displayed after a disk volume is defragmented.

This summary screen explains the condition of the volume after defragmentation, and describes any situations found which might prevent Diskkeeper from completely defragmenting the volume.

The information presented in the summary is based on an analysis made before and after the defragmentation run.

Note that the summary screen includes information about the amount of free space available on the volume for defragmentation. This figure is based on the space available to Diskkeeper, but on NTFS volumes this is not necessarily the total free space on the volume. A certain percentage of the total volume is reserved for the Master File Table (MFT) on NTFS volumes, and this space cannot be used by Diskkeeper for defragmenting files. Because of this, the figure shown in the Diskkeeper post-defragmentation summary on NTFS volumes will not match the total free space figure displayed in the Diskkeeper text display (or other utilities like Disk Properties in Windows NT Explorer).

## Show Orientation on Launch

Use the **Show Orientation on Launch** option in the View menu to alternately enable and disable the Diskeeper orientation screen each time Diskeeper is started.

The Diskeeper orientation screen presents a "quick start" explanation of Diskeeper operation.

## Set It and Forget It

The Set It and Forget It option in the **Action** menu contains these options:



Disk Volume Scheduler



Network Scheduler (Diskkeeper for Windows NT Server version only)

## Select Computer

**Please note:** This option is only available in the Windows NT Server version of Diskkeeper.

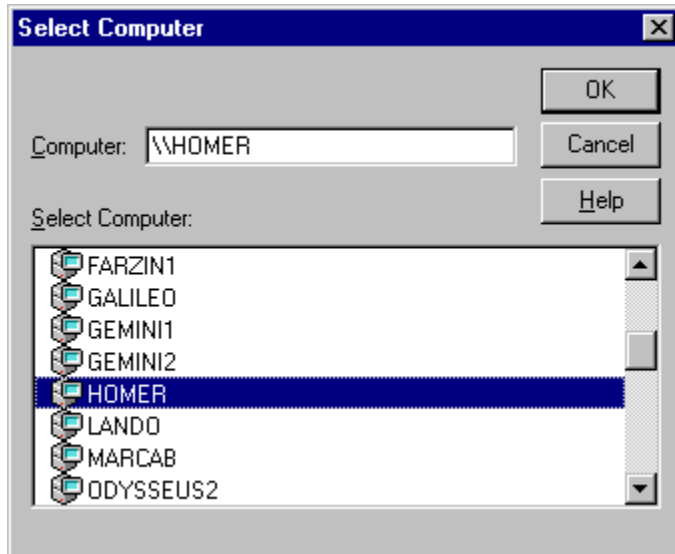
Diskkeeper for Windows NT Server can analyze fragmentation and control the defragmentation of disk volumes on computers connected to your network or volumes on your local computer. You must specifically select a computer before using Diskkeeper on a remote computer.

Click **Select Computer**  or choose Select Computer from the **Action** menu to select a remote computer.

By default, the Diskkeeper Server version connects to the local computer when it is started. After starting Diskkeeper, you can change which computer you are connected to by clicking the **Select Computer** button on the toolbar or by choosing the Select Computer option on the **Action** menu to control Diskkeeper on other computers connected to your network.

Diskkeeper for Windows 95/98/NT Workstation or Diskkeeper for Windows NT Server must also be installed on the remote computer.

When the **Select Computer** button is clicked or Select Computer option is invoked, the **Select Computer** dialog box is displayed. Click on the different areas of the dialog box sample shown below for information about that section of the **Select Computer** dialog box.




Choose the computer on which you want to run Diskkeeper, then click **OK**. After the computer is connected, the name of the computer being controlled is displayed at the top of the Diskkeeper snap-in.

After selecting the computer on which to run Diskkeeper, start analyzing or defragmenting any of the volumes on that computer in the same manner as running Diskkeeper on a local computer.

Note that after restarting your Windows NT system, you may need to wait several minutes for the Windows NT Browser to detect the available network computers before the listing of available computers on your network appears in the **Select Computer** dialog box.

[Error messages](#) are displayed if Diskkeeper fails to connect to a network computer.

## Disk Volume Scheduler Option

Click **Disk Volume Scheduler**  or select Disk Volume Scheduler from the Set It and Forget It option on the **Action** menu to create a defragmentation schedule for one or more specific disk volumes.

[Click here](#) to see an example of the Set It and Forget It **Disk Volume Scheduler** dialog box.

Use a defragmentation schedule to specify times when "Set It and Forget It" defragmentation jobs will be forced to run, or times they will not be allowed to run.


Schedules only affect "Set It and Forget It" defragmentation jobs. Any defragmentation job previously started on a volume will be stopped safely when a new run schedule is specified.

When you choose the Disk Volume Scheduler option, always select the volume in the [Disk Volume List](#) box *before* clicking on any of the other Disk Volume Scheduler controls.

If you are using Diskeeper for Windows NT Server, note that to set or alter a run schedule on remote computers on your network, you must have sufficient permissions to edit a file in the Diskeeper directory on the remote computer. See [Troubleshooting Network Connections](#) for more information.

## Network Scheduler Option

**Windows NT Note:** This option is only available in the Windows NT Server version of Diskkeeper.

Click **Network Scheduler**  or select Network Scheduler from the Set It and Forget It option on the **Action** menu to create a defragmentation schedule for all the disk volumes on one or more specific computers, workgroups, or domains on your network.

[Click here](#) to see an example of the Set It and Forget It **Network Scheduler** dialog box.

Use a defragmentation schedule to specify times when "Set It and Forget It" defragmentation jobs will be forced to run, or times they will not be allowed to run.

Schedules only affect "Set It and Forget It" defragmentation jobs. Any active defragmentation job previously started on a volume will complete. After any previously started jobs complete, the new schedule takes effect.

When you use the Network Scheduler, always select one or more computers, workgroups, or domains in the [Computer List](#) box *before* clicking any of the other Network Scheduling controls. To select more than one item to schedule, hold the <Ctrl> key while clicking on the computers, workgroups, or domains listed in the Computer List box that you want to schedule. Or, you can hold the <Shift> key to select a continuous list of items in the Computer List box.

Note that to set or alter a run schedule on remote computers on your network (with Diskkeeper for Windows NT Server), you must have sufficient permissions to edit a file in the Diskkeeper directory on the remote computer. See [Troubleshooting Network Connections](#) for more information.



## Computer

This section of the **Select Computer** dialog box displays the name of the computer you are connecting to.

To connect to a remote computer, double-click on the computer name shown in the [Select Computer](#) section of the **Select Computer** dialog box. Or, if you know the name of the remote computer you want to connect to, simply type the name of the remote computer in the Computer edit box.

## Help Button

Click **Help** for context-sensitive help about the Diskeeper Select Computer option.

## **OK Button**

Click **OK** after selecting the computer to which you want to connect.

## Cancel Button

Click **Cancel** to cancel any changes you have made to the Diskeeper network connection and return to the opening Diskeeper screen. If no computer has been specified previously, Diskeeper will connect to the local computer.

## Select Computer Section

When the **Select Computer** dialog box is first opened, this section displays the domains and workgroups detected on your network.

Double-click on any of the domain or workgroup names listed to expand the display and show the individual computers within the domain or workgroup.

Double-click an individual computer name to connect to that computer. Alternatively, click on the individual computer name and click **OK**.

## Troubleshooting Network Connections

**Windows NT Note:** This information only applies to the Windows NT Server version of Diskkeeper.

[Network Error Messages](#)

[Editing Exclusion Lists](#)

[Creating or Altering Defragmentation Schedules Across a Network](#)

## Network Error Messages

If Diskeeper encounters any error while searching the network for computers, a pop-up error message is displayed. After choosing the **OK** button in this message box, a list of the computers it did find is displayed. This list will minimally be the local computer.

The following circumstances can prevent Diskeeper from connecting to a network computer, thus causing the error message to be displayed:

- Diskeeper is not installed on the remote computer.
- The Diskeeper service has not been started on the remote computer.
- The Diskeeper main menu is open on the remote computer.
- There is a problem within the Windows NT network.
- You are not logged onto an account that has Administrator privileges on the remote computer.

Also, if your computer does not have a network card installed or the network is not started, a message box is displayed stating that the network is not present or not started.

## Editing Exclusion Lists

To edit exclusion lists on remote computers on your network, you must have sufficient permissions to edit a file in the Diskkeeper directory on the remote computer. If you do not have sufficient permissions, an error message is displayed stating that access is denied to the exclusion list. If you cannot edit an exclusion list that you think you have permission to use, there are two likely possibilities:

- You logged on with a username that the target computer recognizes and a password that it does not recognize. A common example is to log on to your computer as Administrator and then try to edit an exclusion list on a computer that has its own Administrator account established with a different password.
- Your computer and the remote computer do not share the same network protocol that is running on the target computer.



## Creating or Altering Defragmentation Schedules Across a Network

To create or alter run schedules on remote computers on your network, you must have sufficient permissions to edit a file in the Diskkeeper directory on the remote computer. If you do not have sufficient permissions, an error message is displayed stating that access is denied to the run schedule. If you cannot create or alter a run schedule that you think you have permission to use, there are two likely possibilities:

- You logged on with a username that the target computer recognizes and a password that it does not recognize. A common example is to log on to your computer as Administrator and then try to edit an exclusion list on a computer that has its own Administrator account established with a different password.
- Your computer is not running a protocol that is running on the target computer.

## Empty List of Available Computers

In some instances, when you choose the Connect option in the Network menu, the list of available computers in the **Network Connections** dialog box may be blank. This can occur shortly after restarting your Windows NT computer.

Note that after restarting your Windows NT computer, you may need to wait several minutes for the Windows NT Browser to detect the available network computers before the tree view of available computers on your network appears, then use the [Refresh](#) option in the View menu to update the tree view display. If the list of computers still does not contain computers you expect to see, there are several possible causes:

- One or more of the remote computers is not running.
- One or more of the remote computers is configured to be hidden from computer browsers.
- Your Browser service may not be started.
- One or more of the remote computers is in a domain that is not in the list of domains to be browsed. Use the Network applet in the Windows NT Control Panel to reconfigure the Browser service.

## Boot-Time Defragmentation

**Windows NT Note:** This option is only available in the Windows NT Workstation and Windows NT Server versions of Diskkeeper.

Use the Boot-Time Defragmentation option in the **Action** menu to:

- § Defragment the directories on a disk volume and consolidate them into a single location.
- § Defragment the paging file (if one exists on the volume).
- § Defragment the master file table (MFT).

Boot-time defragmentation opens up larger areas of contiguous free space for new file creation and modification.

[Click here](#) to see an example of the **Boot-Time Defragmentation** dialog box.

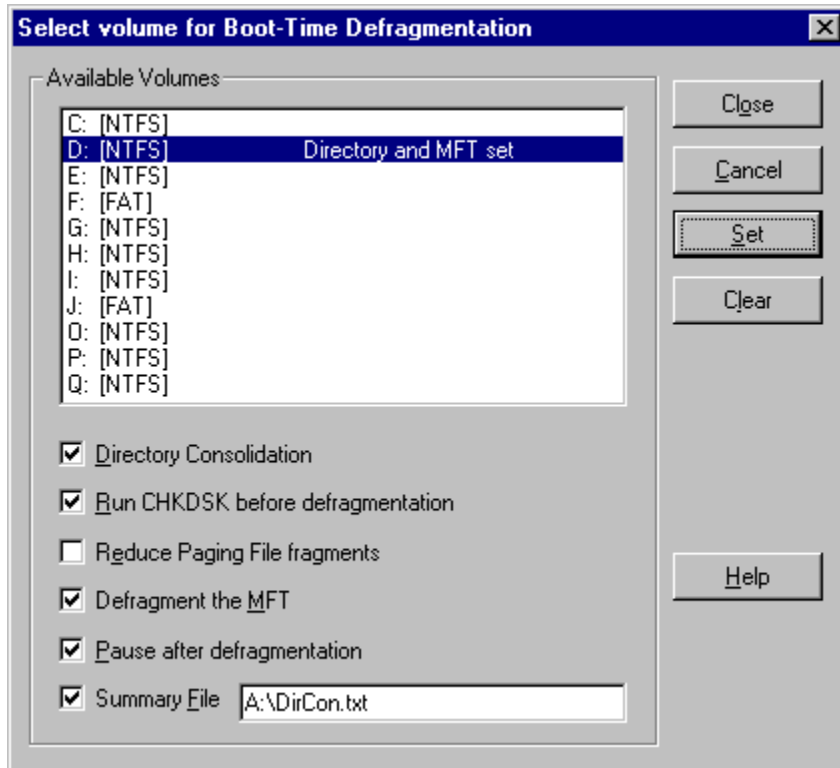
Several points about Boot-Time Defragmentation:

- 1 The Boot-Time Defragmentation feature relies on having a contiguous free space in which to move the directories and/or paging file on your disk volume. Therefore, it is important to run Diskkeeper in either the Set It and Forget It or Manual Defragmentation mode before running the Boot-Time Defragmentation.
- 2 Boot-Time Defragmentation moves the directories and/or paging file to the first available free space into which they will fit. This can be any location on the volume.
- 3 Boot-Time Defragmentation is a one-time operation. After it runs on a volume, it is not automatically reset to run again. You must set it each time you want it to run on a volume.

## Boot-Time Defragmentation Dialog Box

**Windows NT Note:** Boot-Time defragmentation is only available in the Windows NT Workstation and Windows NT Server versions of Diskkeeper. [Click here](#) for information about defragmenting directories on Windows 95/98 computers.

This example shows the **Boot-Time Defragmentation** dialog box. Click on the various options shown in the example below for more information about that option.



## Available Volumes

Use this section of the dialog box to specify the disk volume(s) upon which you want to defragment the directories and/or the paging file. You can select more than one volume at a time, but be aware that the volumes will be processed one at a time, and your computer will be restarted automatically after each volume is processed. This will substantially increase the time needed to complete the operation.

Always select at least one volume *before* choosing any of the other options in the **Defragmentation** dialog box.

## Directory Consolidation

Check this box to defragment and consolidate the directories on the selected disk volumes the next time you restart your computer.

Note that the selected volumes must have enough contiguous free space to accommodate the directories. If that condition is not met when you check this box, a warning message is displayed and the option is disabled. For this reason, it is recommended that you first run Diskkeeper in the Manual Defragmentation mode on the selected volumes before using the Directory Consolidation option.

## Run CHKDSK Before Defragmentation

Use this control to specify whether Windows NT CHKDSK is run (using the /F qualifier) before the Boot-Time Defragmentation operation. Running CHKDSK adds time to the operation, but it can correct disk errors that otherwise would hamper effective defragmentation.

**Note:** Enabling the CHKDSK option will cause CHKDSK to run on each selected volume before the Boot-Time Defragmentation process. The time increase can be considerable and Executive Software therefore recommends performing boot-time defragmentation on one volume at a time. This particularly applies to large disk volumes.

## **Reduce Paging File Fragments**

Check this box to defragment the Windows NT paging file in the selected disk volume the next time you restart your computer.

Note that the selected volumes must have enough contiguous free space to accommodate the paging file. If that condition is not met when you check this box, a warning message is displayed and the option is disabled. For this reason, it is recommended that you first run Diskkeeper in the Manual Defragmentation mode on the selected volumes before using the Reduce Paging File fragments option.



## Pause After Defragmentation

When enabled, this option causes the Boot-Time Defragmentation operation to pause after completion. It remains in this paused state until you manually re-start your computer (by either pressing the **Reset** button or turning off the power switch). If this option is not enabled, the Boot-Time Defragmentation operation pauses 15 seconds (to allow you to read any messages on the monitor screen), then automatically restarts your computer.

## Summary File

Use the **Summary File** option to cause a text file to be written that summarizes the Boot-Time Defragmentation operation.

When this option is enabled, a default volume, directory, and file name are shown in the dialog box similar to this:

A screenshot of a dialog box titled "Summary File". It contains a checked checkbox on the left and a text input field on the right. The text input field contains the text "A:\DirCon.txt".

<input checked="" type="checkbox"/>	Summary File	A:\DirCon.txt
-------------------------------------	--------------	---------------

By default, the summary file is written to your floppy drive (A:). This dialog box can be edited to specify another volume, directory path, and filename. However, the summary file cannot be written to the disk volume upon which you are running the Boot-Time Defragmentation.

## Close Button

Click **Close** after clicking **Set** to save any settings you have made and close the dialog box.

## Cancel

Click **Cancel** to close the dialog box without making any changes.

## Set

Click **Set** to enable the Boot-Time Defragmentation of one or more selected disk volumes. When a volume has been set, it will be noted in the Available Disk Volumes box. Also use the **Set** button to change the characteristics of a previously set Boot-Time Defragmentation (such as enabling/disabling the [Summary File](#) option).

The next time the computer is restarted, the Boot-Time Defragmentation operation will be run on any volumes that are set.

You must set a volume each time you want to run the Boot-Time Defragmentation — volumes do not remain set after the operation has been run.

## **Clear Button**

Click **Clear** to "un-set" any disk volume(s) that have been previously set for Boot-Time Defragmentation.

## Help Button

Click **Help** to view context-sensitive help about using the Boot-Time Defragmentation feature.







## About

Use the **About** option in the Diskeeper **Action** menu to view the version number and other really interesting information about Diskeeper.



## Volume Information

This section of the text report view displays a wide variety of information about the disk volume and how fragmented it is. It includes these sections

-  Volume
-  Volume fragmentation
-  File fragmentation
-  Paging file fragmentation
-  Directory fragmentation
-  Master File Table (MFT) fragmentation

## Volume Section


The **Volume** section of the text report view includes this information about your disk volume:


- » Volume size
- » Cluster size
- » Used space
- » Free space
- » Percent free space

## Volume Fragmentation Section

The **Volume Fragmentation** section of the text report view includes this information about the overall percentage of fragmentation your on disk volume:

 Total fragmentation

 File fragmentation

 Free space fragmentation


## File Fragmentation Section


The **File Fragmentation** section of the text report view includes this information about the file fragmentation on your disk volume:

- » Total files
- » Average file size
- » Total fragmented files
- » Total excess fragments
- » Average fragments per file

## Paging File Fragmentation Section




The **Paging file Fragmentation** section of the text report view includes this information about the fragmentation of the paging file on your disk volume:

 Paging file size

 Total fragments





## Directory Fragmentation Section

The **Directory Fragmentation** section of the text report view includes this information about the directory fragmentation on your disk volume:

-  Total directories
-  Fragmented directories
-  Excess directory fragments

## Master File Table (MFT) Fragmentation Section

The **Master File Table Fragmentation** section of the text report view includes this information about the MFT fragmentation on your disk volume:

-  Total MFT size
-  MFT record count
-  Percent MFT in use
-  Total MFT fragments

## Volume Size

This section of the text report view or the Windows NT Event Log entry shows the total amount of space on the disk volume. This includes files and free space, as well as disk space used by the operating system (such as directory files and the Master File Table) but not reported in "Used Space".



## Cluster Size

This section of the text report view or the Windows NT Event Log entry shows the cluster size for the volume. A disk cluster represents a number of disk sectors treated as a single unit. The entire disk is divided into clusters, each one a minimum increment of storage.

## Used Space

This section of the text report view or the Windows NT Event Log entry shows the total amount of disk space (in kilobytes) currently occupied by files. This does not include zero-length files, or certain files used by the operating system (such as directory files and the Master File Table).

## Free Space

This section of the text report view or the Windows NT Event Log entry shows the total amount of free space on the disk volume.

## Percent Free Space

This section of the text report view or the Windows NT Event Log entry shows the percentage of space on the disk volume that is free. This includes the free space in the area reserved for the Master File Table (MFT) on NTFS volumes.

## Total Fragmentation

This section of the text report view or the Windows NT Event Log entry shows the overall percentage of fragmentation on the disk volume.

The Total fragmentation figure gives you an overall view of the fragmentation on your volume, by taking both the file fragmentation level and the free space fragmentation level into account. These two values are weighted depending on the ratio of free space to used space on the disk. The formula is:

(percentage of used clusters on the disk times the file fragmentation value) plus (the percentage of free clusters on the disk times the free space fragmentation value).

**Example:**

Total clusters: 100

Used clusters: 80

Free clusters: 20

Number of free spaces: 2

Total number of files: 10

Fragmented files: 5

Percent of used clusters = 80%

Percent of free clusters = 20%

File fragmentation =  $5/10 = 50\%$

Free space fragmentation =  $2/20 = 10\%$

Total fragmentation =  $(80\% \times 50) + (20\% \times 10) = 42\%$

## **File Fragmentation**

This section of the text report view or the Windows NT Event Log entry shows the percentage of file fragmentation on the disk volume.

File fragmentation is the percentage of total file clusters that belong to files that are fragmented. On a volume where 200 out of 1000 clusters represent fragmented files, the File fragmentation figure is 20%.

## Free Space Fragmentation

This section of the text report view or the Windows NT Event Log entry shows the percentage of free space fragmentation on the disk volume.

If there is only one block of free space, a value of 0% free space fragmentation is assumed. If there is more than one free space block, the fragmentation level is weighed based on the size of each block in relationship to the disk. A portion of the free clusters in a given free space are calculated as fragmented. This value is based on the size of the block in relationship to the disk.

Percentage of clusters in block categorized as fragmented	Percentage of disk space the block of free space consumes
10%	15% or greater
30%	10% or greater
60%	5% or greater
90%	less than 5%

### Example 1:

Total clusters: 100

Free space **a**: 20 clusters

Free space **b**: 9 clusters

Free space **c**: 4 clusters

Free space **d**: 1 cluster

In this example, the disk volume has a total of 34 free space clusters in 4 blocks. Free space block **a** is greater than 15% of the volume, and 10% of its clusters (2 clusters) are categorized as fragmented. Free space block **b** is greater than 5% of the volume, and 60% (5.4 clusters) of its clusters are categorized as fragmented. Both **c** and **d** are assumed to have 90% fragmentation, resulting in an additional 5.0 fragmented clusters. Thus, there are a total of 11.9 fragmented free space clusters out of 34 total free space clusters. This is calculated as a total free space fragmentation of 35%.

### Example 2:

Total clusters: 100

Free space **a**: 30 clusters

Free space **b**: 26 clusters

Free space **c**: 10 clusters

This volume has a total of 66 free space clusters in 3 blocks. Blocks **a** and **b** are greater than 15% of the volume, for a total of 5.6 fragmented free space clusters. Block **c** is 10% or greater, for an additional 3 fragmented free space clusters. Thus, there are 8.6 fragmented free space clusters out of 66 total free space clusters, for a total free space fragmentation of 13%. If free block **c** did not exist and there were only 2 larger blocks, the value would drop to 10%.

### Example 3:

Total clusters: 100

Free space **a**: 30 clusters

Free space **b**: 5 clusters

Free space **c**: 4 clusters

Free space **d**: 2 clusters

Free space **e**: 3 clusters

Free space **f**: 2 clusters

In this example, the disk volume has a total of 46 free space clusters in 6 blocks. Free space block **a** is greater than 15% of the volume, and 10% of its clusters (3 clusters) are categorized as fragmented. Free space block **b** is equal to 5% of the volume, and 60% of its clusters (3 clusters) are categorized as fragmented. Free space blocks **c** through **f** are each less than 5% of the volume, and 90% (9.9 clusters) of their clusters are categorized as fragmented. Thus, there are 15.9 fragmented free space clusters, out of 46 total free space clusters. This is calculated as a total free space fragmentation of 36%.

## Total Files

This section of the text report view or the Windows NT Event Log entry shows the total number of files on the disk volume. This number does not include zero-length files or (in most cases) files less than one cluster in size on NTFS volumes. Files less than one cluster in size *may* be included, depending on the file size and the cluster size.



## **Average File Size**

This section of the text report view or the Windows NT Event Log entry display shows the average size of all the files on the disk volume. This number does not include any zero-length files or paging files.

## **Total Fragmented Files**

This section of the text report view or the Windows NT Event Log entry shows the total number of fragmented files on the disk volume.

## **Total Excess Fragments**

This section of the text report view or the Windows NT Event Log entry shows the total number of file fragments on the disk volume. Contiguous files are not counted in this total, but each additional piece of any fragmented file is counted.

## **Average Fragments per File**

This section of the text report view or the Windows NT Event Log entry shows the average number of fragments per file on the disk volume. This is a good index of how fragmented the files on the volume are.

If the average fragments per file figure is 1.00, the files are contiguous. If the figure is 1.10, then 10% of the files, on average, are in two pieces. 1.20 means 20%, 1.30 means 30%, etc. A figure of 2.00 means the files average two fragments each. 1.00 is the best figure attainable, indicating that all files or nearly all files are contiguous.

## **Paging/Swap File Size**

This section of the text report view or the Windows NT Event Log entry shows the size of the paging file (or swap file) on the disk volume. This section will display zero when no paging file is present.

## **Total Paging File Fragments**

This section of the text report view or the Windows NT Event Log entry shows the number of fragments the paging file is broken into (if it exists on the disk volume).

## **Total Directories**

This section of the text report view or the Windows NT Event Log entry shows the total number of directories present on the disk volume.

## **Fragmented Directories**

This section of the text report view or the Windows NT Event Log entry shows the number of fragmented directories on the disk volume.



## **Excess Directory Fragments**

This section of the text report view or the Windows NT Event Log entry shows the total number of directory fragments on the disk volume. Contiguous directories are not counted in this total, but each additional piece of any fragmented directory is counted.

## **Total MFT Size**

This section of the text report view or the Windows NT Event Log entry shows the size of the Master File Table (MFT).

Since the MFT is only used on NTFS volumes, this section is not displayed for FAT volumes in the text analysis display, and appears as zeros in the Windows NT Event Log entry.

## **MFT Record Count**

This section of the text report view or the Windows NT Event Log entry shows the number of individual file records found in the Master File Table (MFT). This figure will not necessarily correspond with the number of files presently on the volume, since the file records remain in the MFT, even after a file is deleted.

Since the MFT is only used on NTFS volumes, this section is not displayed on FAT volumes.

## **Percent of MFT In Use**

This section of the text report view or the Windows NT Event Log entry shows the percentage of the Master File Table (MFT) in use. The MFT grows as the number of files on the volume increases, but is not reduced in size when files are deleted from the volume. Since the MFT is only used on NTFS volumes, this section is not displayed on FAT volumes.

## **Total MFT Fragments**

This section of the text report view or the Windows NT Event Log entry shows the number of fragments the Master File Table (MFT) is broken into.

Since the MFT is only used on NTFS volumes, this section is not displayed on FAT volumes.

## Most Fragmented Files

This section of the text report view or the Windows NT Event Log entry shows the following information about the 50 most fragmented files on the disk volume:

### **Fragments**

Shows the number of fragments associated with the most fragmented files on your disk volume.

### **File Size**

Shows the size of the most fragmented files on your disk volume.

### **File Name**

Shows the names of the most fragmented files on your volume.

If these files are ones that users access frequently, the impact to your system performance may be greater than indicated by the Average Fragments per File figure.

## Fragments

Shows the number of fragments associated with the most fragmented files on your disk volume.

## **File Size**

Shows the size of the most fragmented files on your disk volume.



## **File Name**

Shows the names of the most fragmented files on your volume.

## Number of Defragmented Files

This section of the Diskeeper Event Log shows the total number of files that were defragmented during a Diskeeper defragmentation run.

## **Number of Fragments Eliminated**

This section of the Diskeeper Event Log shows the total number of fragments that were eliminated during a Diskeeper defragmentation run.

## What is Diskeeper?

Running under the Windows NT or Windows 95/98 operating systems, Diskeeper finds files that are not stored on the disk volume in a single location, but instead are scattered in pieces all over the volume. Files in such a condition are referred to as *fragmented* files. As Diskeeper finds such files, it moves the pieces of each file safely, so each file is in a single, contiguous space on the volume.

Diskeeper can do this automatically in the background, while users are actively accessing data on the same volume. Or, for those times when you want to defragment a volume *now*, Diskeeper provides a manual, high-priority defragmentation option.

## **Using the Diskeeper Help Internet Access**

The Diskeeper Help system gives you the ability to jump directly from the running Help system to the Internet. This assumes, of course, that you have Internet access and a default Web browser on your system. When you click a text hotspot or button that links to the Internet, your Web browser or navigator is automatically started.

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## Frequently Asked Questions

The following topics list several questions often asked about Diskkeeper.

-  Why won't my volume defragment completely?
-  Why doesn't Diskkeeper move directories while Windows NT is running?
-  Why doesn't Diskkeeper defragment paging files while Windows NT is running?
-  Why doesn't Diskkeeper defragment the Windows NT Master File Table?
-  Why doesn't Diskkeeper completely consolidate the free space on my volume?
-  Why don't my files get moved to the beginning of the volume?
-  Why don't some of my NTFS volumes appear in the Diskkeeper Volume list?
-  How do I determine how often to run Diskkeeper on my volume?
-  Why don't my defragmentation jobs all start at the same time?
-  Why doesn't the free space reported in the posts-analysis (or defragmentation) pop- up match what the Diskkeeper text display shows?
-  Why didn't the Boot-Time Defragmentation move my directories?
-  Should I use Diskkeeper on RAID arrays?

Click here to visit Executive Software's Web site for the latest Frequently Asked Questions:

{button Visit Executive Software,EF(`Connect.exe',"http://www.execsoft.com",1)}

Note: It is necessary for you to have the default Web browser or navigator defined on your computer before clicking on the button.

## Why won't my volume defragment completely?

This can be the result of several situations:

- n If your disk volume is extremely full, there may not be sufficient free space to effectively defragment the files. In this case, we recommend temporarily moving some of the files off the volume, particularly large files. This temporary measure often allows Diskkeeper the "working room" it needs to complete the defragmentation process. Also, this allows Diskkeeper to defragment the free space on the volume, increasing the possibility that the temporarily-moved files can be moved back to the volume in a contiguous (or at least less fragmented) condition.
- n Another cause of incomplete defragmentation is a fragmented paging file. [Click here](#) for more information on how to remedy this.
- n A volume that has (at one time or another) been filled to capacity may have a severely fragmented Master File Table (MFT). There is a White Paper entitled *The Effects of Fragmentation on Windows NT File System Performance* available from the Executive Software Web site that describes the causes and effects of MFT fragmentation. To view or download this White Paper, start your Web browser or navigator and [click here](#).
- n Another situation that can prevent complete defragmentation of a volume is the existence of a large number of directories on the volume. See [Why doesn't Diskkeeper move directories while Windows NT is running?](#) for more information.
- n Yet another cause for incomplete defragmentation can be a security access situation. It is necessary for both SYSTEM and ADMINISTRATOR to have full control over a file (or the directory folder it is in) in order for Diskkeeper to have access to move the file. This is because the Diskkeeper service runs under the Administrator account, and System access is necessary to defragment files safely. This is a security feature that is governed by the Windows NT C2 security requirements.



## Why doesn't Diskkeeper move directories while Windows NT is running?

By its very design, Windows NT does not allow directories on a disk volume to be moved online (when the computer is running and the operating system is fully started). This is due to data integrity issues related to the way Windows NT maintains directory information while the operating system is active. In its online mode, Diskkeeper runs while other processes are active on the system, and therefore does not attempt to move directories online. However, Diskkeeper does provide a method by which you can defragment and consolidate the directories on your volume at boot-time. See [Boot-Time Defragmentation](#) for more information.

Note that on Windows 95/98 computers, Diskkeeper can move and defragment directories safely. [Click here](#) for more information about directory defragmentation on Windows 95/98.

## **Why doesn't Diskkeeper defragment the Windows NT Master File Table online?**

The Master File Table (MFT) is the area on an NTFS disk volume where Windows NT keeps all the information necessary for the operating system to retrieve files from the volume. The MFT also contains information such as the file creation, modification, and backup dates and times. In essence, the MFT contains everything Windows NT needs to know about the files on the volume.

Since the MFT is held open for exclusive use, Diskkeeper does not move any pieces of this critical system file while Windows NT is running, but is able to do so safely at boot-time. For more information, see [Boot-Time Defragmentation](#).

## Why doesn't Diskkeeper defragment paging files while Windows NT is running?

Diskkeeper does not defragment active paging files, since paging files must be open for exclusive use by Windows NT at all times. However, a paging file can be defragmented on Windows NT systems during boot-time, before Windows NT has started up. See [Defragmenting Paging Files](#) for information about handling paging file fragmentation.

## How can I handle paging file fragmentation?

The paging file is open for exclusive use by the Windows NT operating system. Diskkeeper cannot safely defragment any file that is open for exclusive use. However, Diskkeeper can defragment the paging file on Windows NT systems during boot-time, before Windows NT has started up. See [Defragmenting Paging files](#) for information about handling paging file fragmentation.

## Why doesn't Diskkeeper completely consolidate the free space on my volume?

There are several factors that can prevent the free space on a disk volume from being defragmented:

- ⁂ A fragmented paging file. For more information, see [Why doesn't Diskkeeper defragment paging files while Windows NT is running?](#)
- ⁂ A large number of directories on the volume. For more information, see [Why doesn't Diskkeeper move directories while Windows NT is running?](#)
- ⁂ On NTFS volumes, a portion of the free space on a volume is reserved by Windows NT for the Master File Table (MFT). For more information, see [Why don't my files get moved to the beginning of the volume?](#)

It is important to know that having all of the free space in a single, contiguous piece provides very little (if any) performance benefit. Free space fragmented into hundreds of pieces will impact disk performance, but free space that's in a few pieces should not have any effect on the performance of your disk.

## **Why don't my files get moved to the beginning of the volume?**

On NTFS volumes, Windows NT reserves a portion of the free space on a volume for the Master File Table (MFT). This free space is usually most noticeable at the physical "beginning" of the volume (easily seen using the graphic fragmentation analysis display), but space is also reserved for use by the MFT in other areas of the volume.

Since Windows NT reserves this free space for exclusive use, Diskkeeper will not move files into these areas of the volume. However, Diskkeeper will move files out of this reserved area.

## Why don't some of my NTFS volumes appear in the Diskkeeper Volume List?

It is necessary for both SYSTEM and ADMINISTRATOR to have full control over a file (or the directory folder it is in) in order for Diskkeeper to have access to move the file. This is because the Diskkeeper service runs under the Administrator account, and System access is necessary to defragment files safely. This is a security feature that is governed by the Windows NT C2 security requirements.

If the root-level directory folder does not have SYSTEM and ADMINISTRATOR set for full control (as seen in the Permissions section under the **Security** tab in the **Properties** dialog box) Diskkeeper will not display the disk volume in the Volume list under some circumstances.

## How do I determine how often to run Diskkeeper on my volume?

There are no set rules on how often you should defragment your disk volumes. There are many variables that control this, including the level of file activity on your volume, the size and types of files used on the volume, and the amount of free space available on the volume.

However, there are some general guidelines.

- Disks on busy file servers should be defragmented more often than those on single-user workstations. You may need to run Diskkeeper on a server volume as often as every two to four hours to maintain the optimum performance from your Windows NT system. On a workstation volume though, you may only need to run Diskkeeper daily.
- To determine how often to run Diskkeeper on *your* volumes, you can use the logging function of Diskkeeper to monitor the number of files moved during each Diskkeeper run. See [Event Logging](#) for information about logging the names of files that get moved by Diskkeeper.
- In general, if Diskkeeper is moving fewer than 50 files per run, you are running Diskkeeper frequently enough. Diskkeeper is maintaining the performance of your Windows NT system at an optimum level. If the number of files moved during each run is more than 50 or so, or is increasing, schedule Diskkeeper to run more frequently.



## **Why don't my defragmentation jobs all start at the same time?**

Diskeeper is designed to defragment more than one disk volume at a time. However, when the defragmentation of two or more volumes is scheduled to begin at the same time, Diskeeper will start each job separately, in one-minute intervals. For this reason, you will notice the start times for each Diskeeper job run in the Application Event Log can vary by several minutes. This is no cause for alarm.

## **Why doesn't free space reported in the post-analysis (or defragmentation) pop-up match what the Diskkeeper text display shows?**

Several of the post-analysis and post-defragmentation summary screens include information about the amount of free space available on the disk volume for defragmentation. This figure is based on the space available to Diskkeeper, but on NTFS volumes this is not necessarily the total free space on the volume. A certain percentage of the total volume is reserved for the Master File Table (MFT) on NTFS volumes, and this space cannot be used by Diskkeeper for defragmenting files. Because of this, the figure shown in the Diskkeeper post-analysis and post-defragmentation summaries on NTFS volumes will not match the total free space figure displayed in the Diskkeeper text display (or other utilities like Disk Properties in Windows NT Explorer).

## **Why didn't the Boot-Time Defragmentation move my directories?**

The Boot-Time Defragmentation feature requires enough contiguous free space to contain the directories on the disk volume. For this reason, you should run Diskkeeper in one of its online modes before running the Boot-Time Consolidation.

Also, keep in mind that there are two directories that cannot be moved safely, even at boot-time. The directories are \Recycler and \Recycled. Because these two directories cannot be moved, the Boot-Time Consolidation operation will likely still leave one or two directories that are not consolidated with the rest of your directories.

## New Features!

- § The Windows NT version of Diskkeeper 5.0 introduces Frag Guard—a feature that adds the capability to defragment both the MFT and the paging file—and to keep them defragmented, using both boot-time and online defragmentation techniques.
- § Diskkeeper is now available for four separate operating system platforms — Windows NT Server, Windows NT Workstation, Windows 95 and Windows 98. The Windows NT Server version of Diskkeeper can control defragmentation operations on client systems running any of these four operating systems.
- § Diskkeeper now utilizes the Microsoft Management Console (MMC) as a central point of control for administrative tools on Windows systems.
- § Diskkeeper now uses the Distributed Component Object Model (DCOM) as its communication method between the various parts of Diskkeeper, such as the defragmentation engines and the scheduling mechanism.

## Safety

Diskeeper is designed with SAFETY as the highest priority.

To ensure the safe movement of files on Windows NT systems, Diskeeper uses mechanisms built into Windows NT 4.0 that were developed and implemented by Executive Software, and fully incorporated into Windows NT by Microsoft. On Windows 95 and Windows 98 systems, Diskeeper uses similar mechanisms used by Microsoft and others.

By using these built-in mechanisms, Diskeeper maintains [cache coherency](#), file security and permissions information, and file content integrity no matter how fragmented the files on the disk are.

The foremost design goal for Diskeeper for Windows NT was to make sure that no data is ever lost. To accomplish this goal Diskeeper uses the following criteria for accessing files:

- „ the contents of data files are never modified under any circumstances
- „ only one file is processed at a time, not the whole disk volume
- „ each processing pass is independent of the other passes
- „ no information is stored on any other device or in a "scratch space"
- „ Diskeeper accesses a file in such a way that no user access can conflict with Diskeeper during the critical portion of the relocation process
- „ file relocation is aborted if any error is encountered, leaving the file in its original state

Diskeeper was designed to err on the side of caution. In other words, it only moves a file on the volume when it is absolutely certain that no data will be lost, including file attributes. The only change to file attribute-type information is the physical location of the file on the volume. None of the file dates are changed and no other fields in the file record header are used to store Diskeeper information.

Diskeeper never defragments or moves files that are specifically stored at a specific physical location on the volume.

If anything causes your computer to crash while Diskeeper is running, or if you abort the Diskeeper defragmentation run in the middle of the file relocation process, no data is ever at risk.

**Windows 95/98 Note:** Stopping or pausing a Diskeeper job through its menus or toolbars is completely safe. Note, however, that in the event of a system crash or other non-standard termination of the Diskeeper process while it is running, it is possible for free space and file information to be stored incorrectly. Executive Software strongly recommends running the Windows Scandisk error checking utility immediately when Diskeeper is stopped abnormally. Scandisk will correct any potential file errors.

## Process Live Disks

It is not acceptable to force users off the disk while performing routine defragmentation. To do so would be a case of the cure being worse than the disease. Access to fragmented files is better than no access at all.

The best solution is to defragment on-line with users active on the same disk. Diskeeper was designed with this in mind. During most of the time Diskeeper is processing a file in its on-line mode, Diskeeper shares the file with any other users that may access the same file. The last step of processing the file, however, involves locking the file for a very brief period, a matter of milliseconds. If another user requests a file that Diskeeper has locked, that request is suspended for the brief period until Diskeeper releases the file. Then the request is serviced. There is never an interruption of either process as a result of this delay.

This solution allows Diskeeper to defragment open files safely, whether they are open for read operations or for write operations.

**Windows NT Note:** Due to the Windows NT design, directories and paging files cannot be moved safely on live disks. Therefore, Diskeeper performs these operations at the only safe time, while the computer is starting up.

## Performance

When running in the "Set It and Forget It" mode, Diskeeper is designed to run in the background, without adversely affecting performance of your computer. Steps have been taken to assure that by default, Diskeeper overhead has the lowest possible impact on system performance. Diskeeper can be run at the lowest possible priority, using only otherwise unused CPU cycles. Diskeeper was designed in such a way to ensure it will not interfere with other processes on your computer.

However, for cases where you want to defragment disk volumes more quickly, Diskeeper allows you to increase the defragmentation priority. [Click here](#) for more information about setting the priority for a Diskeeper defragmentation job.

## **No Operator Intervention**

In keeping with the design goals, once Diskeeper has been started in the "Set It and Forget It" mode, it runs automatically in the background, without the need for operator intervention. It runs indefinitely, unless told otherwise by you.



## **Efficiency**

In its automatic, "Set It and Forget It" mode, Diskeeper is very efficient, using only otherwise unused CPU cycles to perform its work.

One key design criterion was for the defragmentation process to use fewer resources than using the disk volume in a fragmented condition. This criterion has been met in Diskeeper.

## Recording What Diskeeper Does

Diskeeper provides a vast amount of information that you save to disk in one of two ways: You can save the text results of an analysis of your disk volume, or you can record defragmentation results and other volume information in the Diskeeper Event Log.

[Click here](#) for information about saving the text results of an analysis.

[Click here](#) for information about recording Diskeeper information in the Diskeeper Event Log.

## Defragmenting a Disk Volume

Diskeeper can defragment your disk volumes in two ways: You can run Diskeeper manually, or run it in the scheduled, Set It and Forget It mode.

[Click here](#) for information about running Diskeeper in the Manual Defragmentation mode.

[Click here](#) for information about running Diskeeper in the Set It and Forget It mode.

## Defragmenting Across a Network

The Windows NT Server version of Diskkeeper allows you to defragment disk volumes on all the computers in your network (assuming, of course that Diskkeeper is installed on the remote computers). There is no need for you to run around to every computer on the network—you can do it all from your desk.

[Click here](#) for information about scheduling Diskkeeper to run on all the computers on your network

## Defragmenting Directories

### **Under Windows NT:**

By its very design, Windows NT does not allow directories on a disk volume to be moved online (when the computer is running and the operating system is fully started). This is due to data integrity issues related to the way Windows NT maintains directory information while Windows NT is active. In its online mode, Diskkeeper runs while other processes are active on the system, and therefore does not attempt to move directories. However, Diskkeeper does provide a method by which you can defragment and consolidate the directories on your volume at boot-time.

[Click here](#) for more information about the Diskkeeper Boot-Time Defragmentation feature.

### **Under Windows 95/98**

The Windows 95 and Windows 98 operating systems (and Windows 2000, when it is released) allow directories to be defragmented and moved online. On computers running these operating systems, Diskkeeper treats directories much the same as it does files—it defragments them, and if necessary, moves them (to create more contiguous free space).

Since directories can be moved and defragmented online under Windows 95/98, there is no need to consolidate the directories into a single location on the disk volume (as Diskkeeper does under Windows NT with the Boot-Time Defragmentation feature). While defragmenting directories can improve the performance of your computer, consolidating them into a single location provides no additional performance benefit.

## Defragmenting Paging Files

By its very design, Windows NT does not allow a paging file on a disk volume to be defragmented online (when the computer is running and the operating system is fully started). This is due to data integrity issues related to the way Windows NT maintains the paging file. In its online mode, Diskkeeper runs while other processes are active on the system, and therefore does not attempt to move the paging file. However, Diskkeeper does provide a method by which you can defragment the paging file on your volume at boot-time.

[Click here](#) for more information about the Diskkeeper Boot-Time Defragmentation feature.

## Getting the Most from Diskkeeper

Diskkeeper provides a variety of features, all of which are designed to help you get the best performance from your computer. While there are no "hard and fast" rules governing the use of Diskkeeper, here are some general guidelines about using these features that will help you get the most from Diskkeeper.

- When you first install Diskkeeper, analyze all the disk volumes on your computer. This gives you good information about the extent of fragmentation on your computer. For more information, see [Analyzing Fragmentation](#).
- After you have analyzed your volumes, defragment them by running Diskkeeper in its Manual Defragmentation mode. This provides the fastest, highest-priority method for defragmenting the files and free space on your volume. For more information, see [Manual Defragmentation Mode](#).
- If you are running the Windows NT version of Diskkeeper, you should next prepare for Boot-Time Defragmentation to consolidate the disk directories that are scattered all over your volumes and to defragment MFTs and paging files. To do this, use the Diskkeeper Boot-Time Defragmentation feature. Since directories or paging files cannot be moved while your computer is fully up and running, the Boot-Time Defragmentation operation defragments the paging file and/or consolidates the directories on your volumes while your computer is booting.  
It is recommended you run the Boot-Time Defragmentation operation on one disk volume at a time, because it can be time consuming and the computer cannot be used for any other purpose while the boot-time program is running. It is important to defragment your volumes before running the Boot-Time Defragmentation in order to create a contiguous free space for your directories and/or paging files to be moved into. For more information, see [Boot-Time Defragmentation](#).
- When your directories have been defragmented, schedule Diskkeeper to run in the background in Set It and Forget It mode. Running in the Set It and Forget It mode, Diskkeeper works in the background, keeping your disks in prime condition. For more information, see [Set It and Forget It Mode](#).
- Finally, set up Frag Guard to keep the MFT(s) and paging file(s) defragmented on your Windows NT computer. For more information, see [Frag Guard](#).

## U.S. Technical Support

Registered users are entitled to 90 days of free telephone support, as well as special upgrade pricing, from Executive Software. Our free U.S. technical support is available Monday through Friday during the first 90 days from 7:00 A.M. to 5:30 P.M. Pacific time. If you have not yet registered your Diskeeper for Windows NT purchase, use the registration card in your Diskeeper box and do so now. Or, register your purchase on-line via our Web site at:

**<http://www.execsoft.com>**

Click here to visit Executive Software's Web site:

{button Visit Executive Software,EF('Connect.exe',"http://www.execsoft.com",1)}

Most technical support questions can be answered from the Technical Support section of our Web site at the address shown above.

You may also contact our technical support team via the Internet at:

**[tech\\_support@executive.com](mailto:tech_support@executive.com)**

or via FAX at:

**818-545-9241**

Executive Software also makes available unlimited technical support assistance via its support forum on CompuServe. GO EXECISOFT to access this forum.

If you are within your 90 day free support period, or have purchased telephone support, you can call:

**818-547-2050**

When your 90 day free support period has expired, you may purchase the support plan which best suits your needs. Executive Software offers 24-hour, 7-day support plans. Contact Executive Software to find out which support options are best for you.

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## Glossary



### A

[access](#)

[administrator](#)

[Alpha](#)

[applet](#)

[application](#)

[AutoPlay](#)

### B

[background processing](#)

[binary](#)

[bit](#)

[boot](#)

[boot-time](#)

[browser](#)

[byte](#)

### C

[cache](#)

[cache coherency](#)

[cache memory](#)

[CD-ROM](#)

[central processing unit \(CPU\)](#)

[chip](#)

[CHKDSK](#)

[client](#)

[cluster](#)

[COM](#)

[component](#)

[contiguous](#)

[control file](#)

[controller](#)

[CPU](#)

## **D**

[data](#)

[database](#)

[datum](#)

[DCOM](#)

[defragmentation](#)

[device](#)

[digit](#)

[directory](#)

[directory consolidation](#)

[disk drive](#)

[Diskeeper](#)

[diskette](#)

[domain](#)

[drive](#)

[drive letter](#)

## **E**

[event logging](#)

[Event Viewer](#)

[extended partition](#)

## **F**

[FAT](#)

[FAT file system](#)

[field](#)

[file](#)

[file allocation table \(FAT\)](#)

[file system](#)

[floppy disk](#)

[formatting](#)

[fragmentation](#)

## **G**

[graphical user interface](#)

[GUI](#)

## **H**

[hard disk](#)

[hardware](#)

## **I**

[IDE](#)

[integrated circuit](#)

[Intel](#)

[interface](#)

[Internet](#)

[Internet Explorer](#)

## **J**

[job](#)

## **K**

No Glossary entries.

## **L**

[log file](#)

[logical drive](#)

## **M**

[master file table](#)

[media](#)

[medium](#)

[memory](#)

[MFT](#)

[Microsoft](#)

[MMC](#)

[MS-DOS](#)

[multitasking](#)

## **N**

[network](#)

[network scheduling engine](#)

[NTFS](#)

## **O**

[OEM](#)

[operating system](#)

[OSR2](#)

## **P**

[page file, paging file](#)

[partition](#)

[Pentium](#)

[peripheral device](#)

[permission](#)

[platform](#)

[platter](#)

[primary partition](#)

[priority](#)

[process](#)

[processor](#)

[program](#)

## **Q**

No Glossary entries.

## **R**

[RAID](#)

[record](#)

[registry](#)

[resource](#)

## **S**

[SCSI](#)

[server](#)

[service](#)

[Service Pack](#)

[Set It and Forget It](#)

[SMS](#)

[snap-in](#)

[software](#)

[system](#)

[system administrator](#)

[system file](#)

## **T**

[task](#)

[trialware](#)

## **U**

[utility](#)

## **V**

[volume](#)

[volume set](#)

## **W**

[Windows](#)

[Windows 95](#)

[Windows 98](#)

[Windows NT](#)

[workgroup](#)

[workstation](#)

## **X**

**x86**

## **Y**

No Glossary entries.

## **Z**

No Glossary entries.

**access**

To store [data](#) on, or retrieve data from, a [disk drive](#) or other [peripheral device](#). See also [file](#).

## Alpha

Alpha is both a high-speed [processor](#) and a computer system developed by Digital Equipment Corporation and now produced by Compaq Computer Corporation. The Alpha processor is a RISC (Reduced Instruction Set Computer,) which has a small set of simple instructions, rather than a large set of complex instructions. This has the advantage of much higher processor speeds, because the processor is much simpler and smaller. The tradeoff is that some of the work that would otherwise be done by the processor now has to be done by software.

## **applet**

A small [application](#) program that is usually built into an [operating system](#) or a larger application program. For example, the built-in writing and drawing programs that come with [Windows](#) are sometimes called "applets."

## **application**

A computer program , which causes a computer system to perform some useful work for the user.



## **AutoPlay**

A feature of some [Windows](#) applications on [CD-ROM](#) to execute automatically when placed in the CD-ROM drive, or when present in the drive at start-up.

## **background processing**

The execution of certain operations during momentary lulls in the primary (foreground) [process](#). An example of a background process is printing while a word processor is waiting for keystrokes.

## binary

From Latin “bini,” meaning two by two and “ary,” meaning of, or pertaining to. Computers use the binary number system, which is a way of counting in which only two digits (0 and 1) are used. Contrast with the familiar decimal number system, in which we count with 10 digits (0 through 9.)

## bit

Short for [binary digit](#). The smallest unit of information handled by a computer. Like a light switch, a bit is either on or off, which corresponds to a numerical value of one or zero. Larger numbers are expressed by groups of bits. See also [byte](#).

**boot**

Refers to the initial start-up of a computer, such as when you turn on the computer's power. From the word "bootstrap," indicating the computer "lifts itself by its bootstraps"; that is, it gets itself going.

## **boot-time**

The time during which a computer boots; that is, the computer is starting up and the operating system has not yet taken over control of the computer.

## byte

A group of eight [bits](#), which can represent a number from zero through 255, a letter of the alphabet, or a variety of other things.

## CD-ROM

Compact Disk Read-Only Memory. A stiff plastic disk commonly used by [software](#) manufacturers to distribute software to customers. As the name implies, the original contents of a CD-ROM cannot be changed.



## **central processing unit (CPU)**

The part of the computer hardware that controls the computer's overall operation and performs computations. Most modern CPUs are built into a single [integrated circuit](#) (chip.) See also [Alpha](#), [Pentium](#), [x86](#).

## chip

See [integrated circuit](#).

## CHKDSK

A program that checks the integrity of a disk and corrects disk errors such as lost [clusters](#).

## **client**

In a computer [network](#), a computer that uses the services of another computer, called a [server](#). For example, a client can “ask” a server to provide it with needed data, or to print a file for the client. See also [server](#), [workstation](#).

## cluster

Smallest addressable unit of space on a disk. A one-byte file will actually use a cluster of disk space. The minimum size of a cluster depends on the size of the disk [volume](#). The [FAT file system](#) allows a maximum of 65,536 clusters per volume (16 bits,) which means that the cluster size on a 64-megabyte disk volume is one kilobyte, while a 128-megabyte volume uses two-kilobyte clusters. Thus, the FAT file system can be very wasteful of disk space on large volumes. The [NTFS](#) file system does not suffer from this limitation.

**contiguous**

Adjacent; placed one after the other. A contiguous file is not fragmented; that is, it takes up a single “chunk” of disk space. See also [fragmentation](#), [defragmentation](#).

## **control file**

A file (Diskeep.ctl) used by [Diskeeper](#) to keep track of and control scheduled defragmentation of disk volumes. See also [Set It and Forget It](#).

## **controller**

A specialized electronic circuit, which serves as an [interface](#) between a [device](#), such as a [disk drive](#), and a computer. See also [IDE](#), [SCSI](#).



## **CPU**

Short for central processing unit.

**data**

Information, as processed by a computer. Plural of the Latin word [datum](#), meaning an item of information.

**database**

A collection of related information about a subject, organized in a useful manner that provides a base or foundation for procedures such as retrieving information, drawing conclusions, and making decisions.

## **datum**

Singular of [data](#).

## **defragmentation**

The reduction or elimination of [fragmentation](#), by making files and/or free disk space more [contiguous](#).

**device**

A machine, such as a printer or a [disk drive](#).

## **digit**

From Latin “digitus,” meaning finger. Any of the numbers 0 through 9 in the decimal number system, called a digit because people originally used their fingers for counting. Computers use a [binary](#) number system, which uses only two digits (0 and 1.)

## directory

A [file](#) that contains a catalog of files and other directories stored on a disk, which allows you to organize your files into groups, making them easier to find.



## directory consolidation

A [Diskkeeper](#) feature which, at [boot-time](#), gathers (almost) all [directory](#) entries on a disk [volume](#) into a single area on the disk, instead of scattered in many places. The only exceptions are the \Recycler and \Recycled directories, which [Windows NT](#) expects to find at a fixed location on the volume. Directory consolidation makes [defragmentation](#) more effective than it would otherwise be. Directory consolidation requires sufficient contiguous free space into which the directories can be moved.

**disk drive**

A [device](#) containing one or more disks, treated as a unit by a computer.

## Diskeeper

A [software](#) product that increases [system](#) performance through disk [defragmentation](#). It eliminates [resource](#)-wasting [file fragmentation](#) safely, by consolidating fragmented files and free space. Diskeeper for [Windows NT](#) is available both in [workstation](#) and [server](#) versions.

## **diskette**

See [floppy disk](#).

## **domain**

In Windows NT, a group of workstations and servers, defined by an administrator, that share a common directory database and allow a user to log onto any resource in the domain with a single user ID and password. Each domain in a network has a unique name.

## **drive**

See [disk drive](#).

## drive letter

In [Windows](#) and [MS-DOS operating systems](#) , the naming convention for *disk drives*, consisting of a letter, followed by a colon. Drives A: and B: are normally reserved for [floppy disk](#) drives and C: typically indicates the first [hard drive](#). See also [volume](#).

## event logging

The process of recording audit information when certain events occur, such as [services](#) starting and stopping, users logging on and off and accessing [resources](#). Under Windows NT, logged events can be viewed with the [Event Viewer utility](#) (in Administrative Tools.) Under Windows 95/98, Diskkeeper logs events to a text file that can be viewed with a variety of text editor programs such as Notepad.



## Event Viewer

A [Windows NT utility](#), which permits the viewing of logged events. See also [event logging](#).

## **extended partition**

A type of [partition](#) that permits the limitation of four partitions per [disk drive](#) to be overcome. A disk drive may be partitioned into a maximum of four [primary partitions](#), or three primary partitions plus an extended partition. One or more [logical drives](#) may be created within an extended partition.

## FAT

See [file allocation table](#).

## FAT file system

The [file system](#) used by [MS-DOS](#) and adapted for [Windows](#) to store information on disks, which makes use of a [file allocation table](#). There are three types of FAT file system. The FAT12 (12-bit) is used on FAT volumes smaller than 16 megabytes in size, such as [floppy disks](#)—it is not supported by [Diskkeeper](#). FAT16 can be found on Windows 95/98/NT. [Windows 98](#) and the later [OSR2](#) version of [Windows 95](#) also support FAT32; [Windows NT](#) does not.

**field**

A subdivision of a [record](#) in a [file](#). For example, a record in a customer file may contain a name field, an address field and a phone number field.

**file**

A complete, named collection of [data](#), such as a [program](#) , a set of data used by a program, or a user-created document. See also [record](#), [field](#).

## **file allocation table (FAT)**

A table or list maintained by some [operating systems](#), to keep track of how [files](#) are stored on a disk.

## **file system**

The method used by an [operating system](#), of naming, accessing and organizing [files](#) and [directories](#) on a disk. See also [NTFS](#), [FAT file system](#).



## **floppy disk**

A removable storage [medium](#), consisting of a small magnetic disk made of flexible plastic, housed in a square protective envelope or cartridge. Originally, floppy disks really were "floppy," because they were enclosed in a paper envelope. Also called a [diskette](#), which is a better name for the more recent design that uses a stiff plastic cartridge. Contrast with [hard disk](#).

## **formatting**

A method of preparing a disk surface for use by placing certain magnetic patterns on it, which are used by the [file system](#) in storing and retrieving [data](#).

## **fragmentation**

The word *fragmentation* means “the state of being fragmented.” The word *fragment* means “a detached, isolated or incomplete part.” It is derived from the Latin “fragmentum,” which in turn is derived from “frangere,” meaning “break.” So, *fragmentation* means that something is broken into parts that are detached, isolated or incomplete.

## **graphical user interface (GUI)**

Pronounced “gooey.” A user [interface](#), as used in the [Windows operating systems](#), which uses a mouse and graphic displays to interact with the user, with the purpose to make the computer system easier to use than other operating systems, such as [MS-DOS](#).

**hard disk**

One or more rigid metal platters, coated with magnetic material. Contrast with [floppy disk](#), or [diskette](#), which is made of plastic. Also used to refer to the physical unit that makes up a [disk drive](#).

## **hardware**

The physical parts of a computer [system](#) , including [devices](#) such as printers and [disk drives](#). Contrast with [software](#).

## IDE

Integrated Device Electronics. One of two common types of [interfaces](#) between a [disk drive](#) and a computer, where the [controller](#) is built into the disk drive or into the computer's main board, which eliminates the need for a separate controller card in the computer. See also [SCSI](#).

## **integrated circuit**

Also called a [chip](#). A collection of electronic parts with a specific purpose, built into a single physical package. See also [central processing unit](#).



## Intel

Manufacturer of [processor chips](#), known especially for the [Pentium](#) and [x86 processors](#).

## **interface**

The connection and interaction between [hardware](#), [software](#) and/or the user. For example, a disk [controller](#) provides a physical interface between a computer and a [disk drive](#). The keyboard, mouse and display are an interface between a computer and the user.

## **job**

A request to have the computer or its [peripherals](#) perform some activity. In relation to [Diskeeper](#), it is a request to have a disk [defragmented](#).

## log file

A [file](#) that keeps track of certain events as they occur. The [Windows NT operating system](#) maintains several log files that can be viewed with the [Event Viewer](#). See also [Event Logging](#).

## logical drive

That portion of the space on a [disk drive](#) that is considered by the [software](#) to be a single unit. In this context, logical means “conceptual.” because there is no direct relationship between the name and a physical object. See also [partition](#), [volume](#).

## **master file table (MFT)**

On an [NTFS partition](#), the master file table is a [file](#), which contains information about all other files in that partition. This includes the name of each file, its physical location on the disk, and other information.

## **media**

A collective word for the physical material on which computer-based information is stored, such as a [CD-ROM](#) or [floppy disk](#). Media is the plural of [medium](#), but like [data](#) is often used in the singular form.

## **medium**

Singular of [media](#).



## **memory**

The computer's temporary working storage, where program instructions and data are kept, permitting the CPU to process the instructions.

## **MFT**

See [master file table](#).

## Microsoft

A computer [software](#) company, with its head office in the state of Washington; creators of the [MS-DOS](#) and [Windows operating systems](#).

## MS-DOS

Microsoft Disk Operating System. An [operating system](#) designed for a small computer with a single user running one [application program](#) at a time.

## **multitasking**

A feature of an [operating system](#), where the computer can work on more than one [task](#) at a time. See also [background processing](#).

**network**

A group of computers that are connected together and capable of exchanging [data](#) with each other. See also [server](#), [client](#).

## **network scheduling engine**

A [process](#), generated by [Diskeeper](#), which performs the work of updating the Diskeeper [control files](#) on one or more remote computers, without the need for you to individually connect to each computer.

## NTFS

New Technology File System. A [file system](#) designed specifically for use with [Windows NT](#).



## **operating system**

A collection of programs, which performs system functions and controls the running of application programs and the allocation of resources.

## **page file, paging file**

An area of a disk that is set aside to hold [data](#) intended to reside in the computer's [memory](#). Portions of the paging file are copied to memory as needed. This mechanism requires a much smaller amount of physical memory than would be required if the entire [program](#) were to be loaded into memory all at once.

## **partition**

A subdivision of the space on a [disk drive](#) that is treated as though it were a separate physical unit. A computer with only one hard disk drive can have a single partition, often called drive C:, or it can have several partitions, such as drive C:, drive D:, and drive E:. See also [volume](#), [drive letter](#), [primary partition](#), [extended partition](#), [logical drive](#).

## **Pentium**

The name of a type of [processor](#), introduced by [Intel](#) in 1993. It is the successor to the 80486 and equivalent to the 80586 chip in the [x86](#) series.

## **peripheral device**

(Related to *periphery*, roughly meaning “on the outside.”) A device, such as a disk drive or printer, keyboard or mouse, connected to and used by a computer.

## **permission**

The ability of a user on a computer system to access or modify [files](#), especially those that he or she did not create. Permissions exist for security reasons, to prevent unauthorized access to sensitive information. The [system administrator](#) assigns permissions, or “who has access to what.”

## **platform**

The environment, in which a computer system operates, either based on the computer's [CPU](#) or its [operating system](#). For example: the [x86](#) platform, or the [Windows NT](#) platform.

## **platter**

A [disk drive](#) consists of one or more platters, each of which can receive magnetic recordings on both sides. The platter spins like a phonograph record on a turntable.



## **preemptive multitasking**

Also called *time-slice multitasking*. A form of [multitasking](#) in which the [operating system](#) periodically interrupts the execution of a [program](#) and passes control of the [system](#) to another waiting program. Preemptive multitasking prevents any one program from monopolizing the system.

## **primary partition**

In [Windows](#) and [MS-DOS operating systems](#), the disk space on a [disk drive](#) may be divided into a maximum of four primary partitions; or three primary partitions plus an [extended partition](#), which in turn can contain one or more [logical drives](#).

## priority

On a [Windows NT](#) system, several [programs](#) can appear to be running at once, even though the [CPU](#) can only process one instruction at a time. With the help of the [operating system](#), the CPU processes a few instructions from one program, then a few instructions of the next program, and so on, over and over. Without priority assignments, each program would be given about the same amount of time in each “time slot”, but by assigning priorities, the more important programs can be given longer time intervals than the less important ones, allowing them to complete faster.

## **process**

A [program](#), along with the system [resources](#) the program requires to run. A process represents a unit of resource ownership and work to be done. The [operating system](#) creates processes to keep track of resources and to ensure the proper scheduling of [tasks](#).

## **processor**

See [central processing unit](#).

**program**

A set of instructions that tell a computer what to do. Synonym: [software](#).

## **RAID**

Redundant Array of Independent Disks. A method of combining several [disk drives](#) to make one large volume. Typically used on a [network file server](#) to achieve faster [access](#), greater protection against disk failure, or both.

## **record**

A collection of related [data](#) items, treated as a unit. For example, in a [file](#) containing information about a company's customers, one record would consist of the particulars (name, address, phone number, etc.) of one customer. See also [field](#).



## registry

A [database](#) that contains information about current [hardware](#) settings, installed [software](#), user preferences and associations between [file](#) types, and [applications](#) that [access](#) those files.

**resource**

Any part of a computer system, such as a [disk drive](#), printer, or [memory](#), which can be used by a [program](#).

## SCSI

Small Computer System Interface. One of two common methods of [interfacing disk drives](#) and other [devices](#) to computers. See also [IDE](#).

**server**

On a computer network, a computer that makes resources available to other computers (clients or workstations). For example, all the computers on a network can be set up to share a single high-speed printer, which is connected to the server. Usually, the server is faster and more powerful than the client computers connected to it.

## **service**

A [process](#) that performs a specific system function and often provides an application programming interface (API) for other processes to call. [Diskeeper](#) uses a [Windows](#) service, which allows Diskeeper to run in the [background](#) while other [applications](#) are running.

## Set It and Forget It

A term that was created by Executive Software and is a registered trademark and hallmark of the company. A "Set It and Forget It" product can operate transparently (unseen by the user) and in the [background](#) (concurrent with other [applications](#)). Once a schedule is set up for its operation, it thereafter performs its functions at predetermined times, without further intervention or attention from the user or [administrator](#).

## **software**

A generic term for computer [programs](#), taken collectively. Contrast with [hardware](#). Software can be categorized into [application](#) software and [system](#) software.

## SMS

System Management Server. A [software](#) product from [Microsoft](#), which permits the [system administrator](#) on a [Windows NT network](#) to do such things as install and run new software on different computers on the network, all from a single location.



## **system**

The collection of one or more computers and [peripheral devices](#). Sometimes used as a synonym for [operating system](#), or the combination of [hardware](#) and [software](#), as a logical unit.

## **system administrator**

The person in charge of maintaining a multi-user computer [system](#).

## system file

In general, a [file](#) that is part of, or [accessed](#) by, the [operating system](#). [Diskeeper](#)'s graphic analysis display shows certain system files in green, particularly the [master file table \(MFT\)](#) and several other files that cannot be moved safely by Diskeeper (or any other defragmenter), except at boot-time. These are not the files that make up the [Windows NT operating system](#) , but the files that make up the [NTFS file system](#).

**task**

A program or portion thereof that is run as an independent entity.

## **utility**

A program that provides basic services or functions.

## **volume set**

In [Windows NT](#), a single [logical drive](#), which is composed of up to 32 areas of free space on one or more [disk drives](#). Volume sets can be used to combine small areas of free space on one or more disk drives into a larger logical drive, or to create a single large logical drive out of two or more small disks.

## Windows

An [operating system](#) introduced by [Microsoft](#) in 1983, with a [graphical user interface](#) and which runs on [MS-DOS](#) based computers. See also [Windows NT](#), [Windows 95](#), [Windows 98](#).

## Windows NT

An [operating system](#) released by [Microsoft](#) in 1993 (NT stands for New Technology). It has a similar [graphical user interface](#) to [Windows](#) , but it does not run over [MS-DOS](#) and has been designed specifically for computer [network](#) environments.



## **workgroup**

In [Windows NT](#), a workgroup consists of one or more computers that do not participate in a [domain](#) and are therefore responsible for their own security and administration.

## **workstation**

A computer that has been set up for use by an individual typically connected to a [network](#). The term is also used to indicate a [client](#) computer, in contrast with a [server](#).

## **x86**

Symbol to represent a series of [CPUs](#), manufactured by [Intel](#) and others, including model numbers 8086, 80286, 80386, 80486 and 80586 ([Pentium](#).) All of the CPUs in this series have certain characteristics in common, which permits [software](#) to be written that will run on any of them.

## cache

From the French word *cacher*, meaning “to hide.” A temporary storage facility designed to speed things up by providing information to software that would otherwise have to be obtained from a slower [medium](#). Caches exist for Web browsers, [disk drives](#) and [CPUs](#). See also [cache memory](#).

## **cache coherency**

A condition where the data contained in the cache memories in a computer with multiple processors is kept consistent at all times.

## cache memory

In computers, a cache is a small amount of very fast [memory](#) that is placed close to (or inside) the [CPU chip](#) , in order to improve performance. The cache memory holds copies of recently accessed [data](#). Because computer programs often run the same instructions repeatedly, many times the CPU will find the data it needs in the cache and therefore will run faster because it does not need to access the computer's main memory.

## Service Pack

A collection of [software](#) used to issue corrections and updates to software between major releases.

## European Technical Support

Registered users are entitled to 90 days of free telephone support, as well as special upgrade pricing, from Executive Software. Our free European technical support is available Monday through Friday during the first 90 days from 8:30 to 17:30 GMT. If you have not yet registered your Diskkeeper for Windows NT purchase, use the registration card in your Diskkeeper box and do so now. Or, register your purchase on-line via our Web site at:

**<http://www.execsoft.co.uk>**

Click here to visit Executive Software's Web site:

{button Visit Executive Software,EF('Connect.exe','http://www.execsoft.co.uk',1)}

Most technical support questions can be answered from the Technical Support section of our Web site at the address shown above.

You may also contact our technical support team via the Internet at:

**[tech.support@execsoft.co.uk](mailto:tech.support@execsoft.co.uk)**

or via FAX at:

**+44 (0) 1342 327390**

Executive Software also makes available unlimited technical support assistance via its support forum on CompuServe. GO EXECISOFT to access this forum.

If you are within your 90 day free support period, or have purchased telephone support, you can call:

**+44 (0) 1342 327477**

When your 90 day free support period has expired, you may purchase the support plan which best suits your needs. Executive Software offers 24-hour, 7-day support plans. Contact Executive Software to find out which support options are best for you.

Executive Software's address is:

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**England**



## **Should I use Diskeeper on RAID arrays?**

Definitely. Diskeeper supports all levels of software- and hardware-based RAID arrays.

RAID arrays are often used to increase system performance. In a RAID array of four disk drives, for example, a file can be accessed up to four times as fast as on a single drive. This is because the file is spread between the four drives, and all four drives can be accessed at the same time. Because of this, the file can be retrieved much more rapidly. However, these file parts can become fragmented on the individual drives, just like the files on a single disk drive, which reduces the speed advantage gained by RAID. In fact, the effects of fragmentation can be more obvious in a RAID array than in a single disk drive.

Diskeeper defragments RAID arrays just as it would single disk drives. Diskeeper sees the RAID environment just as the file system does. That is, Diskeeper defragments the virtual drive. Diskeeper improves the speed and performance of a RAID environment by eliminating wasteful and unnecessary I/Os from being issued by the file system. In our four-drive array example, it would defragment the pieces of the file on each separate drive as though they were separate files. Diskeeper moves pieces of a file as directed by the RAID controller.

## DCOM and the MMC

DCOM is used for communication between the various components that make up Diskkeeper. For example, when a Diskkeeper defragmentation operation is scheduled to begin, the Diskkeeper controller module uses DCOM to send a message to the defragmentation engine to begin the defragmentation process.

The MMC provides a single point of control for system utilities such as Diskkeeper. The MMC is used as a central location for a variety of Microsoft and third-party administrative tools.

**Note:** Internet Explorer 4.01 or higher must also be installed on your computer for MMC operation.

In most cases, Windows 95 systems are not running either DCOM or the MMC by default. On Windows 98 systems, DCOM is installed by default when the operating system is installed, but the MMC is an additional installation. The Diskkeeper for Windows 95/98 setup process automatically installs DCOM and the MMC on your computer if it determines either are not already installed.

## Session Status

This section of the Diskkeeper snap-in display shows the status of any Diskkeeper analysis or defragmentation operations on each disk volume shown.

## Capacity

This section of the Diskeeper snap-in display shows the total capacity of each disk volume shown.

## Console Tree

This section of the Diskeeper snap-in display shows the MMC Console Tree, and any snap-ins currently loaded.

## **File System**

This section of the Diskkeeper snap-in display shows the respective file system of each disk volume shown.

## Free Space

This section of the Diskeeper snap-in display shows the total amount of free space available on each disk volume shown.

## Percent Free Space

This section of the Diskkeeper snap-in display shows the percent of free space available on each disk volume shown.



## **Volume Size**

This section of the text report view or the Windows NT Event Log entry shows the total size of the disk volume.

## **Progress Meter**

This section of the Diskeeper display shows the progress of the analysis or defragmentation currently running on your disk volume.

## **browser**

A software program, such as Microsoft's [Internet Explorer](#), designed to locate and view Web pages on the [Internet](#). In addition to displaying text, modern browsers also can display pictures and play sounds.

## COM

Acronym for Component Object Model, a specification developed by Microsoft for building software [components](#) that can be made into programs or add functionality to existing programs running on Microsoft [Windows](#) platforms.

## **component**

A small modular program that performs a specific function and is designed to work interactively with other components and applications. See also [applet](#), [COM](#), [DCOM](#).

## DCOM

Acronym for Distributed Component Object Model, a version of Component Object Model ([COM](#)) software developed by Microsoft to support objects distributed across a [network](#). For example, the [Set It and Forget It](#) feature of [Diskkeeper](#) uses DCOM to start a scheduled [defragmentation](#).

## Internet

A global [network](#) that links millions of computers. One popular section of the Internet is the World Wide Web, which allows computer users to view text and pictures with the aid of a browser, such as [Internet Explorer](#). Email (electronic mail) is another popular part of the Internet, which allows computer users to send and receive written messages.

## Internet Explorer

A software package developed by Microsoft for browsing Web pages on the [Internet](#), but increasingly used with other applications. Version 5.0 of [Diskeeper](#) requires Internet Explorer 4.01 or later.



## MMC

Microsoft Management Console. MMC can be used to create, save and open administrative tools (called [snap-ins](#)), such as [Diskkeeper](#). MMC provides a common user interface for system tools, as well as a system for managing hardware, software and network components.

## **OEM**

Acronym for original equipment manufacturer. The term is misleading because an OEM typically buys computers from another manufacturer, customizes them for a particular application, and then sells them under the OEM's own brand name.

## OSR2

Acronym for [OEM](#) Service Release 2, a version of [Windows 95](#) released in late 1996, which features an improved [file system](#), called FAT32, while the original version of Windows 95 used FAT16.

**snap-in**

A program, such as [Diskeeper](#), that can be used with the Microsoft Management Console ([MMC](#)). For more information, see the Microsoft MMC Help facility.

## **trialware**

A free [software](#) package from Executive Software, such as [Diskeeper](#), that has the same functionality as the official version of the software, but works for a limited time period, after which it expires. Trialware allows the user to try the software before making a buying decision.

## **volume**

A subdivision of the space on a [disk drive](#) that is treated as though it were a separate physical unit, or a combination of physical disks treated as a single unit. A computer with only one hard disk drive can have a single volume, often called drive C:, or it can have several volumes, such as drive C:, drive D:, and drive E:. See also [drive letter](#), [logical drive](#), [partition](#).

## Windows 95

A version of [Windows](#) released in 1995. New features in Windows 95 with regard to its predecessor, Windows 3.1, include a new user interface and support for 32-bit applications. See also [OSR2](#).

## Windows 98

Successor to the [Windows 95](#) operating system, Windows 98 features support for the FAT32 [file system](#), greater [Internet](#) integration, and supports recent hardware developments.



## **Percent of Volume Fragmented**

This section of the text report view or the Windows NT Event Log entry shows the percentage of the disk volume that contains fragmented data. For example, a figure of 33% indicates one-third of the space on the volume contains fragmented files. This figure is a good overall indication of the state of fragmentation on the volume.

## Frag Guard

Frag Guard is a breakthrough new feature in the Windows NT version of Diskkeeper. Frag Guard and the Diskkeeper Boot-Time defragmentation feature combine to defragment two critical areas of Windows NT disk volumes—the Master File Table (MFT) and the paging file—and to keep them defragmented automatically.

Frag Guard has an online mechanism that prevents MFT and paging file fragmentation, greatly reducing the need for boot-time defragmentation runs. This mechanism also monitors the fragmentation levels of the MFT and paging file, and automatically sets a boot-time defragmentation operation to run when either of these levels exceeds a threshold that you set. The boot-time defragmentation will only occur during a time period you specify.

When enabled, Frag Guard ensures the MFT and paging file can grow in a contiguous manner. If either the MFT or paging file do become fragmented, the Diskkeeper Boot-Time feature is called upon to restore the MFT and paging file to a defragmented condition.

On any disk volume that has a fragmented MFT or paging file, first run a full Boot-Time Defragmentation of the volume to "clear the way" for Frag Guard to function fully.

The dialog box that controls the Frag Guard settings is displayed during setup, but can also be accessed later from the **Action** menu. Click on the various parts of the display below to see a description about that section of the display.

**Diskkeeper Frag Guard**

**Paging File Frag Guard**

☐ Enable ☒ Disable

**MFT Frag Guard**

☐ Disable on ALL volumes

☐ Enable on ALL volumes

☒ Enable individually on each volume:

C: D: E: G:

Set Clear

**Automatic Boot-Time:**

☐ Never ☒ Only:

When MFT exceeds 10 fragments

When paging file exceeds 3 fragments

Allow restart everyday between 1:00 am and 3:00 am

☒ Notification ☐ Confirmation

OK Cancel Help

## **Paging File Frag Guard**

When Paging File Frag Guard is enabled, Diskeeper will monitor the paging file and attempt to keep it defragmented while the computer is online.

## **MFT Frag Guard**

When MFT Frag Guard is enabled, Diskeeper will monitor the MFTs on the selected disk volumes and attempt to keep them defragmented while the computer is online.

## **Automatic Boot-Time**

When enabled, this feature will cause your computer to restart and defragment the MFT or paging file when the number of fragments reaches the threshold level you have set. However, it will not log you off the computer, except when you give it permission to do so at the time.

## **OK Button**

Click **OK** to accept the current settings in the Diskeeper **Frag Guard** dialog box.

## Cancel Button

Click **Cancel** to exit the Diskeeper **Frag Guard** dialog box and ignore any changes to existing settings.

## **Enable**

When this option is selected, Diskkeeper reserves a portion of contiguous disk space for the paging file to expand into, provided there is enough free space to do so. The amount of free space reserved is based on the minimum and maximum sizes you have set for the paging file, as well as how much of the paging file is in use. When Frag Guard detects the need for additional space for the paging file, this reserved space is made available for the paging file to expand into. This minimizes paging file fragmentation.



## **Disable**

When this option is selected, Diskeeper will not attempt to keep the paging file defragmented online. However, you can still defragment the paging file at boot-time.

## **Disable on ALL Volumes**

When this option is selected, Diskeeper will not attempt to keep the MFT defragmented online. However, you still have the option to defragment the MFT at boot-time.

## **Enable on ALL Volumes**

When this option is selected, Diskeeper minimizes MFT fragmentation online, on all local NTFS volumes. It does this by ensuring the MFT is contiguous, and by extending it as needed when new files are written to the disk volume.

## Enable Individually on Each Volume

This option allows you to select certain NTFS disk volumes for online Frag Guard processing of the MFT, while excluding others. To select one or more disk volumes for online Frag Guard processing, highlight the appropriate drive letter(s) in the list box and click **Set**.

## List of NTFS Volumes

This box contains a list of all NTFS volumes that are visible to Diskkeeper. This box is activated by selecting the **Enable individually on each volume** option above it. To enable MFT Frag Guard on a volume, select it and click **Set**. To disable a previously enabled volume, select it and then click **Clear**.

## Set Button

Click **Set** to activate MFT Frag Guard on the selected disk volume(s).

## Clear Button

Click **Clear** to disable MFT Frag Guard on the selected disk volume(s).

## Never

Select this option if you want to disable the Automatic Boot-Time defragmentation feature. Boot-time defragmentation of the MFT and/or paging file defragmentation can still be done manually, using the Boot-Time Defragmentation option in the Diskkeeper **Action** menu.



## **Only**

Select this option if you want Diskeeper to restart automatically, during the designated time period, if the MFT or paging file fragmentation reaches or exceeds the specified level.

## **Allow Restart**

Enter the day(s) of the week when automatic restarting of the computer is allowed.

## **Between**

Select the starting time when automatic restarting of your computer is allowed.

**And**

Select the ending time of the time period when automatic restarting of your computer is allowed.

## **Notification**

When this option is selected, you are notified when the computer is scheduled for an automatic restart. The notification screen is displayed and asks you to log off.

All users must log off the computer. If at the scheduled restart time any user is still logged on, another message box is displayed, informing the user that the automatic restart could not be done and will be rescheduled for the next available time period.

## Confirmation

When this option is selected, a dialog box is displayed (regardless of whether anyone is logged in) one hour before an automatic restart is scheduled to occur. You will be notified that an automatic restart has been scheduled. Click **OK** to restart your computer immediately or click **Cancel** to skip the scheduled restart. If at the end of the one hour confirmation period neither button has been clicked, the automatic restart of the computer will be rescheduled for the next available time period.

## Help Button

Click **Help** in the Diskeeper **Frag Guard** dialog box to view the **Frag Guard** dialog Box Help screen, which has hotspots that you can click on to view an explanation of the various buttons and areas.

## **Defragment the MFT**

Check this box to defragment the Windows NT master file table (MFT) in the selected disk volume the next time you restart your computer.

Note that the selected volumes must have enough contiguous free space to accommodate the MFT. For this reason, it is recommended that you first run Diskkeeper in the Manual Defragmentation mode on the selected volumes before using the Defragment the MFT option.



## **Include Subfolders**

Select this check box if you want to exclude not only the selected folder, but also the contents of its subfolders.

## **Apply Selection to All Drives**

Select this check box if a file or folder with the same path name occurs on more than one volume and you want to exclude it from fragmentation on each of these volumes. For example, if you select this option and then add folder C:\Temp to the exclusion list, folders D:\Temp, E:\Temp, and so on, will also be excluded.

You can tell whether this option was selected when a folder or file was added, by checking the contents of the Exclusion List box. If a path name is displayed without a preceding drive letter, the exclusion applies to all volumes.

## Analyzing Fragmentation

Diskeeper can perform a comprehensive analysis of the fragmentation on your disk volumes. The analysis is shown in either a graphic display or a text report view. The graphic display shows different-colored areas representing system files, paging files, fragmented files, contiguous files, directories, and free space. The report view shows useful information about the extent of fragmentation on a volume.

[Click here](#) to see an example of the graphic fragmentation analysis display.

[Click here](#) to see an example of the analysis report view.

After installing Diskeeper, you are ready to start Diskeeper and begin defragmenting your disk volumes. In order to see the actual gains from defragmentation, analyze the condition of your volumes *before* you begin defragmenting them. By reviewing the graphic display and analysis report both *before* and *after* running Diskeeper, you will be able to see the actual reduction of file fragmentation.

