

Newskeeper

Volume 4 • Issue 1



Why
You Need to
Upgrade
to the New *with InvisiTasking™*
Diskeeper® 2008

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STORY**

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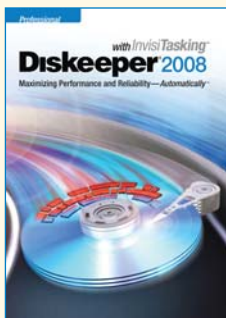
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Diskeeper Corporation Products

Innovators in Performance and Reliability Technologies



Diskeeper
Maximizing
Performance
and Reliability—
Automatically™

Undelete®
Worry-free data
protection and
instant file recovery



For more information on our products, call us at 800-829-6468 code 3205 or go to www.diskeeper.com/newsk213

About Diskeeper Corporation

Innovators in Performance and Reliability Technologies™

Diskeeper Corporation, formerly Executive Software®, was founded on July 22, 1981. During this time, the company has logged many technical achievements in the VMS and Windows® industries with products like Diskeeper.

With over 28 million licenses sold, large corporations and home users alike rely on Diskeeper software to provide unparalleled performance and reliability to their laptops, desktops and servers. Diskeeper Corporation further provides up-to-the-minute data protection and instant file recovery with Undelete. A variety of system management tools, trialware and free utilities are available at www.diskeeper.com.

Diskeeper 2008

Features performance testing whitepaper

“UNDER THE HOOD”

Diskeeper 2008 introduces substantial improvements to the core of the product—the defragmentation engines. The engines are defined as the processes that make the decisions of how/what/where/when with respect to file and free space defragmentation.

To properly evaluate Diskeeper 2008 (especially in comparison to Diskeeper 2007) it is vital to look “under the hood” and evaluate the higher performing engines up close. The best way to do this is by testing the software specifically in the complicated environments which the new improvements are designed to solve.

This paper will describe the defragmentation engine improvements and will present development testing results and summaries regarding those results. Specific experiments were executed with set purposes. In many cases the processes are easily reproducible, but in a few of the cases, due to the specific requirements (such as evaluating the in-progress performance), the results were acquired by proprietary Diskeeper Corporation development tools.

I. Enhanced VSS-Compatibility

Overview

Windows 2003, Windows Vista™ and Windows 2008 include a popular new data backup service called Volume Shadow Copy Service (VSS). This service supports the mechanisms to create point-in-time copies (snapshots) of data known as shadow copies. The Microsoft® Windows provided “writer” employs a copy-on-write method, storing only data believed to have changed. However, due to the operational behavior of this feature, the typical 4KB cluster size (default on volumes less than 2TB) can cause unnecessary data snapshot activity in VSS, resulting in excessive data storage.

The brief explanation is that VSS operates at a 16KB cluster level, and on volumes that use cluster sizes less than 16KB (e.g., 4KB), VSS will think that non-VSS-aware defragmentation

is actually a change to data. This is due to an “incompatibility” with VSS and the Windows “MoveFile” API (FSCTL_MOVE_FILE) that can cause an unnecessary increase to data storage requirements and the possible purging of valid VSS data.

This situation can become increasingly relevant for customers employing Microsoft Data Protection Manager (DPM), as this also incurs increased network traffic as the shadow copies are transferred to the DPM server.

To support Microsoft’s VSS implementation Diskeeper 2008 introduces the new VSS-compatibility mode. This option significantly reduces the excess overhead that defragmentation can cause to VSS.

Test Procedure

The purpose of the tests is to isolate the impact of defragmentation to the System Volume Information folder (hidden folder in which VSS data is stored). The tests are not designed to evaluate or report on speed or thoroughness of defragmentation by the tested products.

1. Fragment (files and free space) a 10 GB non-boot volume using a proprietary Diskeeper Corporation utility. This can also be accomplished by copying numerous files of varying size to the volume and randomly deleting some of them.
2. The process used in these tests created roughly 80,000 fragmented files into about 330,000 fragments.
3. Install Diskeeper making sure to disable Automatic Defragmentation.
4. Enable VSS on the test volume.
5. Change security on “System Volume information” (per Microsoft Support Article ID 309531) in order to view VSS storage space used.
6. Using Diskeeper 2008, analyze the volume before defragmentation, and save the Job Report to text file.

continued on next page

7. Record "System Volume Information" folder contents before defragmentation to note space used by VSS.
8. Image the volume using a disk imaging program.
9. Run Defragmentation program (Diskeeper 2008).
10. Analyze the volume after defragmentation, and save the Job Report to text file.
11. Record "System Volume Information" folder contents after defragmentation.
12. Restore drive image and repeat test with Windows Disk Defragmenter.

Testing Note

In order to compare Volume Shadow Copy compatibility, significant free space must be afforded or Windows Disk Defragmenter will not defragment sufficiently to properly compare the impact to System Volume Information.

Results

Note: The purpose of VSS-compatible defragmentation is to minimize impact on the VSS storage area. This is represented in the results as a lower percentage increase in size (lower is better).

On Windows Vista Ultimate (Test A)

System Volume Information:

Before Defragmentation = 307,200 KB

After Diskeeper 2008 = 716,800 KB or an increase of 233%

After Windows Disk Defragmenter (WDD) = 1,024,000 KB or an increase of 333%

On Windows Vista Ultimate (Test B – 49% free space)

System Volume Information:

Before Defragmentation = 512,000 KB

After Diskeeper 2008 = 921,600 KB or an increase of 180%

After Windows Disk Defragmenter (WDD) = 3,174,400 KB or an increase of 620% (and 64 remaining excess fragments)

On Windows 2003 Server

System Volume Information:

Before Defragmentation = 307,200 KB

After Diskeeper 2008 = 409,600 KB or an increase of 133%

After Windows Disk Defragmenter (WDD) = 716,800 KB or an increase of 233%

Summary and Additional Information

Diskeeper 2008's new VSS-Compatible mode affords greatly reduced impact to stored shadow copies. As noted, it does not completely eliminate activity. However, the fragmentation levels depicted in the test typically require a period of time to accumulate and the increases to the System Volume Information, although minimized, would mostly occur only on the first use. *Regular (e.g., Real-Time) defragmentation in VSS-Compatible mode will effectively mitigate unnecessary growth, providing a tenable long-term defragmentation solution for VSS enabled systems.*

It should also be noted that VSS-Compatible mode might result in less-thorough defragmentation as it focuses on file defragmentation and minimizes free space consolidation efforts. Limited availability of free space can also hinder the thoroughness of this option. Therefore it is recommended that sufficient free space be kept available on VSS-enabled volumes.

If satisfactory results are not achieved initially with the VSS-Compatible mode (e.g., free space consolidation), it can be disabled temporarily and, after thorough defragmentation, re-enabled for Real-Time defragmentation maintenance.

II. Defragmentation Improvements

Overview

A key enhancement to Diskeeper 2008 includes substantial improvements made to Diskeeper's ability to handle severe cases of highly fragmented files and situations where the free space available on a volume dips very low. This includes the severe cases of 500,000 fragments on a volume with 8% free space to the equally ridiculous extremes of 3 million fragments on a volume with 5% space or, 3,000 fragments on a volume with .00625% available free space.

Diskeeper 2008 also introduces improvements to the approach Diskeeper takes when defragmenting a volume. Rather than using a rote or one-size-fits-all approach, Diskeeper 2008 inspects a volume and makes intelligent decisions as to what unique defragmentation approach to take to restore performance as efficiently and effectively as possible. The results of this technology are evident in in-progress evaluations of the defragmentation effort.

To effectively test these improvements, multiple and varied tests are used.

Test Procedure and Results

Test Case 1 (50 GB Volume):

Percent free space = 3.7%

Fragmented Files/Directories = 10,475

Total Excess Fragments = 263,746

In-Progress Measurements	# Fragments	# Fragment Reduced
1	263,746	85,179
2	178,567	1,684
3	176,883	31
4	176,852	31,669
5	145,183	18,895
6	126,288	23,721
7	102,567	35,381
8	67,186	18,724
9	48,462	11,138
10	37,324	10,593
11	27,297	5,734
12	21,563	7,166
13	14,769	2,891
14	11,878	5,440
15	6,862	2,438
16	4,424	3,310
17	1,456	826
18	630	598
19	62	62
Analysis	0	

Using special development methods, point in time analysis data was captured to track the elimination of fragments during the course of automatic defragmentation.

Test case 2 (50 GB Volume):

- Percent free space = 3 %
- Total fragmented files = 26,666
- Total excess fragments = 89,561

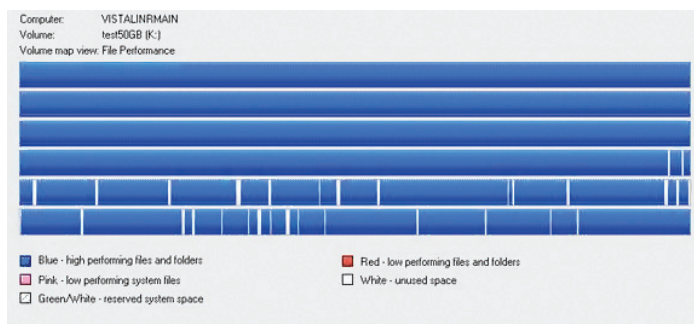
Testing Note

With development focus on automated defragmentation, new functionality implemented in Diskeeper “manual defragmentation” is limited. For evaluation purposes it is recommended to evaluate the software as it would be implemented in production; i.e., in automatic mode.

The following is a progress report after three successive manual defragmentation runs and then completion of Automatic Defragmentation.

In-Progress	# Fragments	# Fragment Reduced
Manual – 1	89,561	27,127
Manual – 2	62,434	18
Manual – 3	62,416	15
Analysis	62,401	
Auto Defrag	588 (in 2 large 10GB files)	

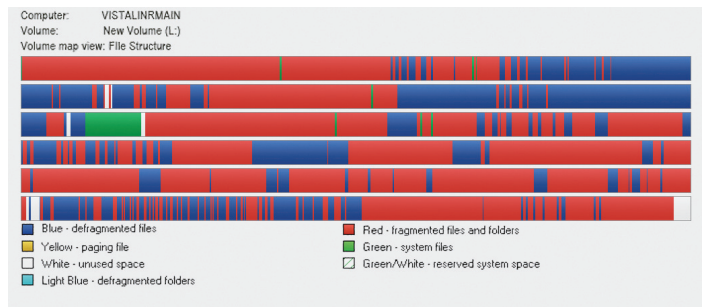
The volume bitmap (performance view) after Automatic Defragmentation is shown below. The remaining fragments (588) for the very large 10GB files do not show as a performance problem.



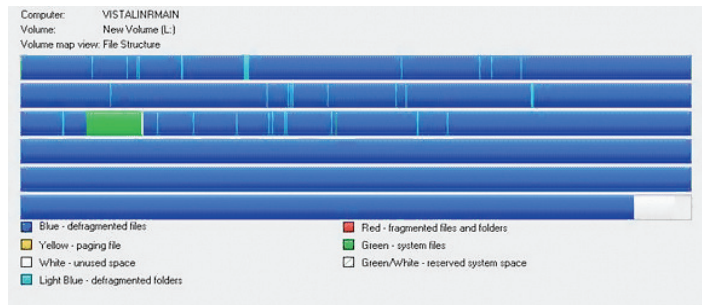
Test case 3 (2 GB Volume):

- Percent free space = 0 % (Less than 1% – rounded down)
- Total files = 23,881
- Average file size = 120 KB
- Total fragmented files = 15,178
- Total excess fragments = 64,498
- Average fragments per file = 3.70

Volume bitmap before defrag:



Volume bitmap after auto defrag:



Diskeeper 2008 Benchmarking

The following tests demonstrate both in-progress defragmentation enhancements as well as the improvements to defragmentation in extreme environments.

Test Environment

Motherboard: Intel Desktop Board D945GTP

Memory: 1.00GB DIMM in memory slot 1

Video: MSI NX7600GS 256MB DDR2

Operating Systems: Windows Vista

CPU: Intel Pentium D 3.20GHz Processor

Storage:

ST380815AS 80GB SATA Drive

ST3250620AS 250GB SATA Drive

ST3750640AS 750GB SATA Drive

~ Drive Configuration ~

System Volume – C: ~ Capacity: 80.00GB ~ on ST380815AS 80GB SATA Drive

Test Volume – J: ~ Capacity: 50.00GB ~ on ST3250620AS 250GB SATA Drive (4KB cluster size)

PQDI Load Volume – E: ~ Capacity: 100.00MB ~ on ST3750640AS 750GB SATA Drive

.PQI Storage Volume – F: ~ Capacity: 600.00GB ~ on ST3750640AS 750GB SATA Drive

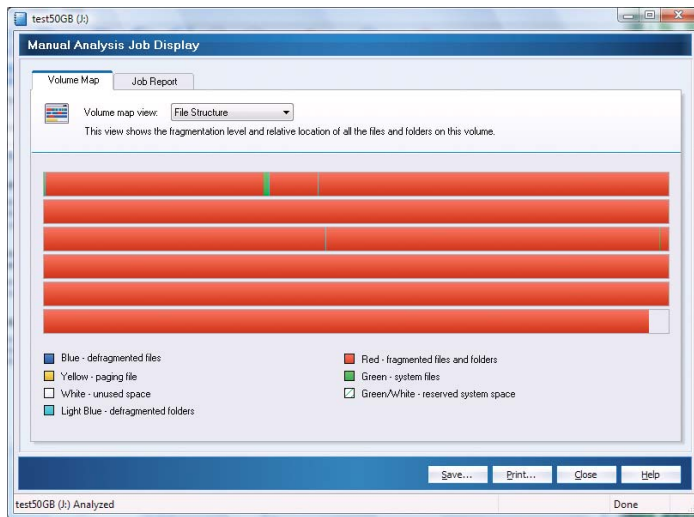
.GHO Storage Volume – G: ~ Capacity: 600.00GB ~ on ST3750640AS 750GB SATA Drive

While Diskeeper 2007 provides excellent results in most environments, Diskeeper 2008 was specifically designed to excel under more stringent circumstances. Using the hardware and configuration listed above and the severely fragmented *continued on next page*

environments depicted below, comparisons were carried out to substantiate Diskeeper 2008's advancements in severely fragmented environments and to showcase logic improvements that allow it to seamlessly adapt to unique and varied volume conditions.

The following are the before and after fragmentation reports (volume images & analysis report summary) that coincide with the benchmarking tests performed. They include: Prior to Defragmentation, Post-Diskeeper 2007 Automatic Defragmentation and Post-Diskeeper 2008 Automatic Defragmentation (the defragmentation was run to completion). The tests were carried out on Test Volume J: after the 50GB volume (51,200MB) was filled with fragmented files, leaving only 3% free space (1,901MB).

Before Defragmentation:



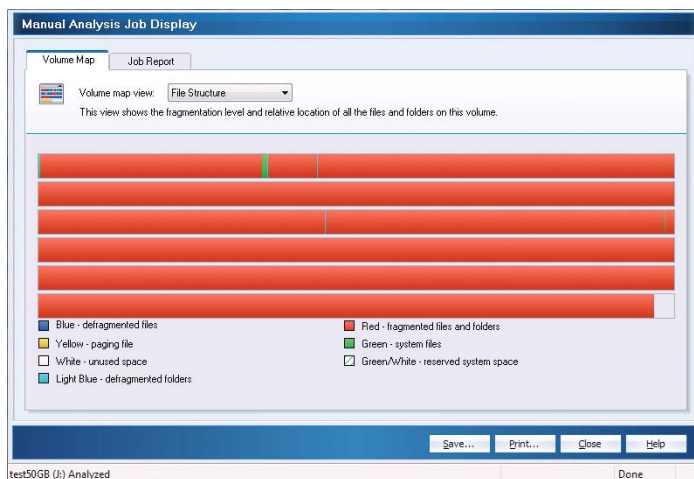
Fragmentation percentage

Volume fragmentation = 96%
Data fragmentation = 99%

File fragmentation

Total files = 10,490
Average file size = 4,804 KB
Total fragmented files = 10,475
Total excess fragments = 263,341
Average fragments per file = 26.10

After Diskeeper 2007 Defragmentation:



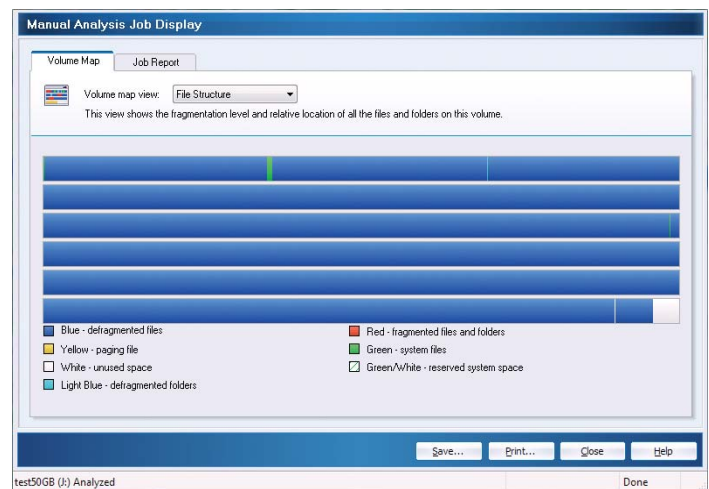
Fragmentation percentage

Volume fragmentation = 96%
Data fragmentation = 99%

File fragmentation

Total files = 10,493
Average file size = 4,803 KB
Total fragmented files = 10,476
Total excess fragments = 232,906
Average fragments per file = 23.19

After Defragmentation – with Diskeeper 2008:



Fragmentation percentage

Volume fragmentation = 0%
Data fragmentation = 0%

File fragmentation

Total files = 10,492
Average file size = 4,803 KB
Total fragmented files = 0
Total excess fragments = 0
Average fragments per file = 1.00

**Download
trialware
today and
experience new
Diskeeper 2008
for yourself!**

at www.diskeeper.com/newsk214

Why Upgrade

to Diskeeper 2008

Diskeeper 2008 is not “just another upgrade.”

For the first time in its history—and the first time in the history of any software program—Diskeeper is completely automatic with no intrusion on system resources. **No scheduling is needed and no human intervention is required.** Just install Diskeeper and defragmentation begins immediately and undetectably. **Systems run faster and more reliably—period.**

Here is why you should deploy Diskeeper 2008 on every system you manage:

Diskeeper runs undetectably to restore performance and reliability: Coined from the words “invisible” and “multi-tasking,” Diskeeper 2008’s InvisiTasking™ monitors resource consumption on a Windows system and injects Diskeeper processing into the unused portions—and only into the unused portions. Diskeeper will never slow down systems during defragmentation—EVER.

InvisiTasking is so good that it is all but impossible to detect whether Diskeeper is running. That means no more scheduling chores for you because Diskeeper can run at any time with no performance hit whatsoever. (You may be skeptical at first that InvisiTasking has virtually no impact on system overhead. For this reason, you can schedule times when Diskeeper is prevented from running. Eventually, we’re sure you’ll be convinced and this type of lock-out scheduling will be forgotten.)

Immediate real-time defrag: defragmentation is virtually immediate and on the

fly with no drain on system resources—providing a constant level of maximum performance and reliability. Diskeeper works only when needed, only when system resources are available, to keep systems fragmentation-free.

NEW Frag Shield™ 2.0—the first and only technology to prevent system file fragmentation—gets even better. No more need to run a manual and resource-intensive process to get the performance benefits. The Frag Shield MFT fragmentation prevention technology is **now fully automatic** and rewritten to operate invisibly using InvisiTasking technology.

Terabyte Volume Engine™ 2.0 (TVE) provides fast, safe and thorough real-time defragmentation of large volumes (over 60GB) containing millions of files. **TVE provides the only unobtrusive way ever designed to allow thorough free space consolidation on busy 24/7 servers providing optimum performance with no overhead and dramatically reduced cost of ownership.** (Available in EnterpriseServer.)

NEW Volume Shadow Copy Service

Compatibility Mode—only Diskeeper 2008’s new VSS-Compatible Mode affords you the ability to leverage the data protection of VSS and the performance and reliability of automatic defragmentation.

Native 64-bit support for Windows operating systems.

Diskeeper 2008 goes beyond mere disk defragmentation. With its intelligent combination of proprietary technologies, Diskeeper enhances file system performance and reliability automatically.

With Diskeeper 2008 deployed on every system you manage, you will experience:

- **Maximum system performance and reliability at all times**
- **Increased uptime**
- **Reduced maintenance chores and Help Desk traffic**
- **Boosted user productivity**
- **Extended machine life**

Visit our website now!

www.diskeeper.com/newsk215

Download trialware and see for yourself how Diskeeper will benefit you and every system you manage.

Diskeeper 2008

Customer Upgrade Successes



I'd absolutely recommend Diskeeper. It's done a phenomenal job of maintaining system performance on our server and workstations. Setting Diskeeper to automatically defragment and optimize hard drive space has actually improved responsiveness on every computer, regardless of system size or age. Using FragShield has helped identify, correct, and prevent page file and MFT problems. This also makes a marked difference in performance.

Several other factors make Diskeeper a great tool:

- Because it runs silently in the background using only idle resources, users never see Diskeeper doing its job. They only see the benefits in improved performance.
- Diskeeper's automatic functionality also means that as an administrator, I "set it and forget it." Diskeeper does its work with no intervention from me, so I spend significantly less time on computer performance management.
- **Our recent upgrade to Diskeeper 2008 went quickly and smoothly. The web-based upgrade tool worked flawlessly.**
- **Because Diskeeper does such a great job of disk optimization, our overall storage usage decreased. This negated the need for expensive server and storage upgrades.**

We are a client server environment, running Windows Server™ 2003 and Windows XP Professional workstations. We run a multi-location WAN using broadband internet and VPN connectivity with wireless and satellite backup. Applications we use

include the Microsoft Office suite of tools, plus specialized software such as Microsoft Visio® and Adobe Acrobat. In addition, we run an industry-specific database application called Firehouse, which is served via our WAN to all of our locations (stations). We also use our server and WAN to deliver full motion, interactive computer-based training.

Diskeeper is easy to use, efficient, and trouble free. It functions without glitches or trade-offs, making our IT systems faster and more stable. Diskeeper has given us a tremendous return on investment by reducing our overall IT maintenance and expansion costs. I won't deploy another computer without Diskeeper.

—**Doug Lawson**
Greater Round Lake Fire Protection



Years of IT experience have made me cynical about most applications, but Diskeeper keeps on delivering. It's either one of the best applications I've used, or the best magic trick I've seen. I'm leaning toward the former.

I've been using Diskeeper for about a year and a half now. I have nothing but good things to say about it. Diskeeper has taken the worry out of my life when it comes to keeping my HDD defragged.

I just upgraded to the latest version of Diskeeper... figuring it gets better with each release. And I have recommended it to several of my colleagues who have all purchased Diskeeper.

Prior to using Diskeeper I was always running at an average fragmentation level of

25%. I have a lot of files (over 100GBs worth) and am constantly adding/deleting files and programs day-to-day. With a busy schedule it's hard to remember or take the time to defrag my machine; plus, when I did run defrag, I had to make sure I ran it at night before going to bed as it would kill my machine's performance when it was running.

With Diskeeper, I don't have to worry about any of that. It runs in realtime, is always keeping my machine defragged and doesn't slow down my machine at all. Now I average a fragmentation level of about 1% and don't even think about fragmentation on my HDD now that I have Diskeeper installed. You install it once and then forget about it and your fragmentation problems.

What could be better than that?

Thanks for a great product.

—**Michael Fleishman**
Oxford, CT



I was using Diskeeper 2 generations since v10, so this upgrade is great. **I noticed a great increase in defrag speed and better background integration. Bottom line, since it works better and I don't have to do anything to it on a daily or weekly basis,** I really like the new Diskeeper product.

—**Bruce Ashton, CPA**



I have been "evangelizing" your product since the first versions came out in the early '90s... so in many ways I feel like I have really grown along with Diskeeper.

There are a rare number of products still out there that have grown "better with age" rather than merely grown bigger.

I was impressed with the degree of automation now in effect and with how small an impact Diskeeper has on normal system performance in terms of being able to run in the background and effectively maintain disk health on a multitude of disk systems. I purposely tested this on systems with multiple disk arrays, RAID, USB drives, SATA and IDE drives... and really, I could not believe that Diskeeper was doing anything.

However, after auditing each disk, each was shown to be nearly perfectly defragmented, in perfect health; and at no point was I, as the user or administrator asked to intervene, restart or do anything. Amazing. **Truly a mature and impressive product.** The performance improvement over the native MS Windows defragmenting tools (though much improved in its own right, since it has made use of your technology) is sub-

stantial, and the ease of use and reporting tools are especially desirable for administrators to use.

I keep working with clients who have hard drive problems and failures due in part to totally overworked hard drives... and needless failures, in my opinion. The total cost to businesses that allow this to occur is substantial, taking into account the downtime and loss of critical data, which often cannot be recovered fully, as backups are notoriously "old" or as I refer to them "absurdly latent." Time

after time, I have introduced clients to Diskeeper, demonstrating the product, allowing them to "Trial Test" in order to prove to themselves that it really is that easy, and that as an end user, you really can "set it and forget it."

Thank you for the opportunity to preview, test and review your latest version. As always it's a pleasure working with Diskeeper and its great representatives.

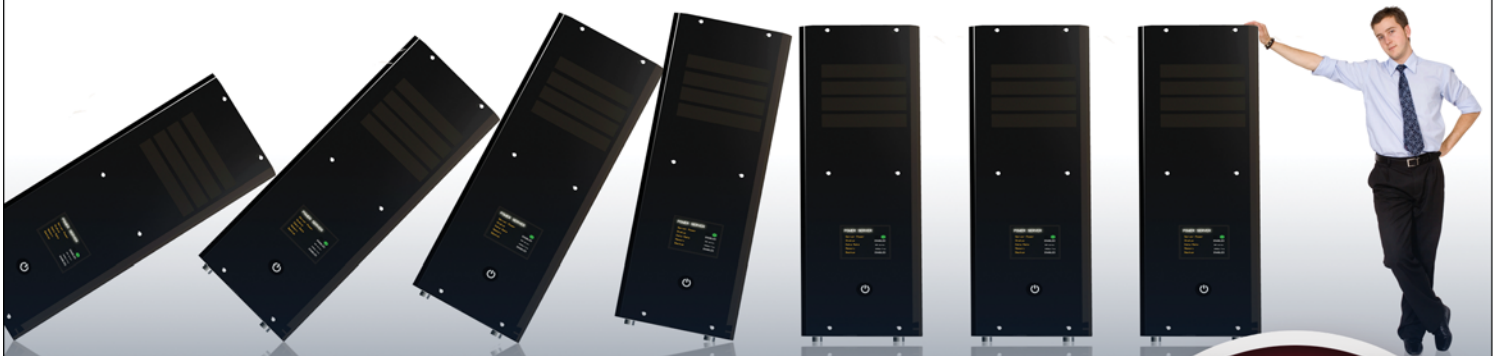
—Robert Kirbo
Zen Services

Experience the Success
These Customers Have.

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Diskeeper 2008 Trialware Today!**

www.diskeeper.com/newsk216

Fragmentation Cripples the Performance and Speed of Your **ENTIRE NETWORK**



The Disk Performance Analyzer for Networks™ is a free utility that detects and reports severe fragmentation-related performance loss on your networked systems.

The Performance Analyzer provides single-point analysis of each system's disk performance. It identifies performance bottlenecks that might otherwise go undetected—turning machines into

sluggish, maintenance-hogging headaches.

Download this free utility and find out today how fragmentation is severely affecting the performance of your systems. With Disk Performance Analyzer for Networks, you can zero in on the machines that need attention and handle them before they turn into help desk problems.

**Download
this free utility
today!**

**Find out the
fragmentation level
of every machine
at your site!**

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Reliable Data Protection with Undelete

**Recover lost files instantly!
Even “saved-over” versions
of Microsoft Office® files!**

How many users have called your Help Desk in a panic saying they've lost or overwritten a critically important file? The Windows server recycle bin doesn't protect files deleted by network clients. Restoring files from backup takes forever, and may not get the latest version of the file. And neither backup nor “snapshots” can help if a user has saved over the version he or she needs.

Now there is a solution—new Undelete 5! Undelete 5 replaces the recycle bin with a Recovery Bin that captures and protects all deleted files, no matter how they were deleted. Undelete works in real time, so it always has the latest version of the file—and in the case of Microsoft Word, Excel® and PowerPoint® files, it can even recover earlier “saved-over” versions.

Best yet, recovering files with Undelete 5 is instant—all it takes is a few clicks of the mouse. Undelete 5 even gives

you the option of letting users recover their own files from server Recovery Bins!

- **Undelete 5 Server Edition** captures and protects deleted files on your servers.
- **Undelete 5 Client** allows network users to recover their deleted files from the server.
- **Undelete 5 Professional Edition** provides local file protection plus Client functionality.

“We are very happy with the product and its extreme ease of use. It's true that I can generally get lost files from my backup tapes, but using Undelete is much faster and easier. Undelete also lets me restore lost files that haven't been backed up to tape, but were either modified incorrectly or deleted.”

—Jeff Vargason,
Barr Nunn Transportation, Inc.



Diskeeper Corporation International News

Diskeeper Corporation recently marked a milestone launching Diskeeper 2008, the latest version of its award-winning defragmenter, to the international market completely localized in eight languages. This follows the company's recent alliance with four partner companies throughout the Asian-pacific rim.

“Diskeeper 2008 is truly revolutionizing the industry,” exclaims Michael Leong, CEO of QCOM Group, Diskeeper's Singaporean partner. “It's our honor to represent and expand their presence throughout South East Asia.”

Our Alliances Team is currently hard at work, setting up another international office for Diskeeper Corporation in China. The opening is slated for February 2008. Look for more news on the grand opening in the next Newskeeper customer magazine!

If you have questions or are interested in purchasing from any of our international partners, please give us a call right away. We can answer all your questions and put you in touch with resellers in the areas where your foreign offices are located. Running Diskeeper worldwide truly gives you the maximum benefits of performance and reliability for your networks.

**Give us a call today!
800-829-6468**

Ask for New Territories Sales

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The Diskeeper Corporation Maintenance Agreement— KEEP YOUR SOFTWARE CURRENT AUTOMATICALLY

*Receive
upgrades
automatically
when new
software
versions are
released*

Would you like to always have the most current version of your software at the best possible price—even at a savings of up to 50%*?

Diskeeper Corporation Maintenance Programs are available for volume licenses of our products.

With a one- or two-year Diskeeper maintenance agreement, you're guaranteed to get new versions of Diskeeper at no additional cost. Purchasing maintenance for your volume license gives you a dramatic cost savings of up to 50% compared to an upgrade purchase. Maintenance can pay for itself with only one upgrade!

Maintenance Program Benefits:

Free updates and upgrades provided automatically.

Cost Savings: our one- or two-year maintenance program is up to 50% less than the cost for buying upgrades.

Easy Budget Management: our renewable maintenance programs make it easy to budget for future expenses. Furthermore, no additional costs are incurred for upgrades as they are covered under the maintenance program.

Convenient Website Downloads: the quick and easy way to access updates from our site.

Efficiency: have the latest and greatest versions of the software, which always includes the newest features and enhancements.

With a maintenance agreement on your volume license software, you will be among the first to automatically receive your free upgrade to your product during the agreement period. This way, you always stay up-to-date on your software, have the newest technology available and enjoy the benefits.

A maintenance agreement also provides the advantage of being able to budget your software costs for the next 1-2 years (depending on contract length).

If you have any questions regarding the Diskeeper Corporation Maintenance Program, please contact your favorite reseller, or a Diskeeper Corporation sales representative at 800-829-6468 code 3206.

*savings depends on product purchased and volume license level of software.



Diskeeper Wins Redmond Editor's Choice Award



Diskeeper was chosen by the editors of Redmond Magazine to join their ranks of "products you just can't live without."

A select group of their contributing writers and editors decided on a list of products they've come to rely on most to produce quality work that is delivered on time.

Diskeeper was featured on the list named "**Slickest Time-Saving Tool: Tools that take years off your time in the office**" along with four other products.

We would like to congratulate our crack Technical Development team and thank *Redmond* editors for their award!

Read the full January 2008 issue article at <http://redmondmagazine.com>

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It's more affordable
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