

## Myths of Fragmentation

### ***Myth #1: The built-in defragmenter that comes with Windows® is good enough for most situations because it can be scheduled.***

Dealing with the issue of fragmentation is a core level concern for every system's performance and reliability levels. Preventing slows, hangs, crashes and shorter hardware life cannot, unfortunately, be handled with a freebie utility even if it can be "scheduled". Here's why:

- Systems accumulate fragmentation continually. When the computer is busiest (relied upon the most), the rate of fragmentation is highest. Most people don't realize how much performance is lost to fragmentation and how fast it can occur. To maintain efficiency, fragmentation must be eliminated as it happens. Only a defragmenter that works in real-time can accomplish this.
- Scheduling requires administrator planning. It's a nuisance on one system, on multiple machines it can be a real drain of management resources.
- Scheduled defrag times are often not long enough to get the job done.

### ***Myth #2: Active defragmentation is a resource hog and must be scheduled off production times.***

This was very true with regard to manual defragmenters. They had to run at high priority or risk getting continually bounced off the job. In fact, these defragmenters often got very little done unless allowed to take over the computer. When the built-in defragmenter became schedulable, not much changed. The defrag algorithm was slow and resource heavy. Built-in defragmenters were really designed for emergency defragmentation, not as a standard performance tool.

Ever since first released in 1994, Diskeeper has been a "Set It and Forget It"®, schedulable defragmenter that backed off system resources needed by computer operations. Times have changed and a typical computer's I/Os per second (IOPS) has accelerated a hundred fold. Because this drove the rate of fragmentation accumulation way up, Diskeeper Corporation saw the need for a true real-time defragmenter and developed a new technology, InvisiTasking®. This innovative breakthrough separates usable system resources into five areas capable of being accessed separately. As a result, robust, fast defrag can occur even during peak workload times—and even on the busiest and largest mission-critical servers.

### ***Myth #3: Fragmentation is not a problem unless more than 20% of the files on the disk are fragmented.***

The files most likely to be fragmented are precisely the ones relied upon the most. In reality, these frequently accessed files are likely fragmented into hundreds or even thousands of pieces. And they got that way very quickly. This degree of fragmentation can cost you 90% or more of your computer's performance when accessing the files you use most. Ever wonder why some Word docs take forever to load? Defragmented, they load in a flash. Work goes faster, backups, boot-ups and anti-virus scans are much improved.

#### **Myth #4: You can wear out your hard drive if you defragment too often.**

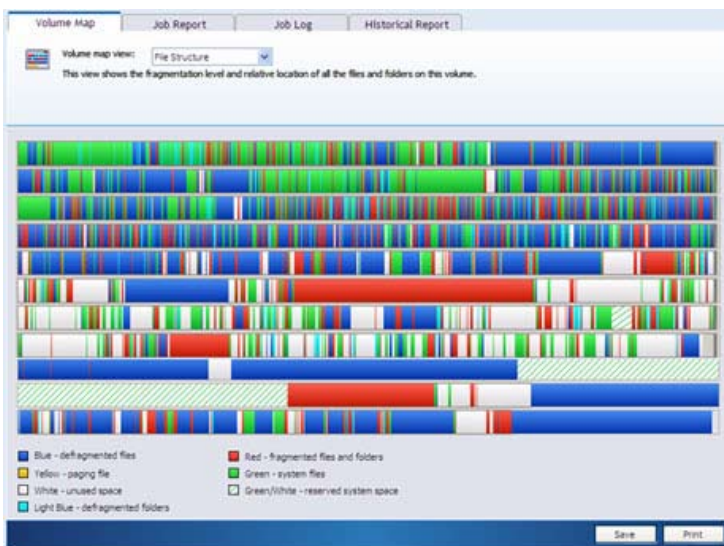
Exactly the opposite is true. When you eliminate fragmentation you greatly reduce the number of disk accesses needed to bring up a file or write to it. Even with the I/O required to defragment a file, the total I/O is much less than working with a fragmented file.

For example, if you have a file that is fragmented into 50 pieces and you access it twice a day for a week, that's a total of 700 disk accesses (50 X 2 X 7). Defragmenting the file may cost 100 disk accesses (50 reads + 50 writes), but thereafter only one disk access will be required to use the file. That's 14 disk accesses over the course of a week (2 X 7), plus 100 for the defrag process = 114 total. 700 accesses for the fragmented file versus 114 for the defragged file is quite a difference. But in a real world scenario, this difference would be multiplied hundreds of times for a true picture of performance gain.

#### **Myth #5: I don't need to defragment a new system right out of the box.**

Some people still think that a new just-out-of-the-box computer is performing at its peak ability. Nothing could be further from the truth. Without installing and running Diskeeper on that machine, they will never know how responsive that machine could have been.

Here's a screen of a disk analysis from a hard disk used for demonstration:



#### **Color Legend:**

- Blue** = defragmented files
- Red** = fragmented files
- Yellow** = paging file
- Solid Green** = system files
- White** = unused space
- White with Green lines** = reserved system space
- Light Blue** = folders

You can see that it's got lots of fragmented files and lots of fragmented free space. In fact, it's got over 1148 fragmented files in 5460 fragments. We simply installed the operating system to a brand new disk. Then we installed Diskeeper so we could get the picture you see above.

It's a common misconception that a system with a freshly-installed operating system is in its best possible condition. It isn't.

A freshly-installed operating system starts off with its files so badly fragmented that a simple defragmentation can decrease the boot time from 153.9 seconds to 111.8 seconds. That's a 27.4% reduction in elapsed time.

What's the first thing you do when you get that nifty new machine home? That's right, you install your favorite applications. If you don't defragment FIRST, your favorite applications ALSO end up on your system in a fragmented state.