
Third-Party Windows Defrag Tools

The defraggers supplied as part of Windows are adequate, but third-party tools perform much better, giving significantly better results and better reporting. We discuss the products available and how they score over the built-in versions.

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Why would anyone spend good money on a Windows defragger? After all, three of the four current versions of Windows come with perfectly good defragging tools built in. So why buy another program that does the same job? However, if you have users running Windows NT you will have no choice in the matter. Although NT manages NTFS volumes in a way that keeps fragmentation to a minimum, these volumes do still become fragmented over time. Given that Windows NT has no defragging tool of its own, you will be obliged to buy a third-party product if you want to keep your users' drives in peak condition.

But even if your users are running Windows 95, 98 or 2000, there are good reasons for purchasing an alternative defragger. These versions of Windows do come with their own defragging tools, but these are very much cut-down affairs and they lack the many useful features that a good third-party product can provide. We will look at those features in a moment.

What's Available

The market leader among third-party Windows defraggers is Executive Software's Diskeeper 5.0 - and with good reason. This is a very sophisticated product, with many features that will appeal to support staff and system managers.

Diskeeper 5.0 (Figure 1) comes in two flavours. The workstation version can be used with all current 32-bit versions of Windows (a 16-bit release is also available), and can defrag FAT16, FAT32 and NTFS volumes. It costs around US\$45 per user, with discounts for large purchases. The defragger built into Windows 2000 is a cut-down version of this product. There is also a server version, which can be used by administrators to run defragging sessions across a network. It costs about US\$260, and runs under NT 4.0 Workstation, NT 4.0 Server, Windows 2000 Professional and Windows 2000 Server.

For users running Windows NT, another good choice of defragger is the stand-alone version of Norton Speed Disk. This is a descendant of Norton's original DOS-based defragger, which was also the basis of the defragging tools built into Windows 95 and 98. Like Diskeeper, Speed Disk comes in workstation and server editions. The former is available for site-wide licensing, at a cost of about US\$33 per user. The server version costs US\$249. Both versions can defrag FAT16 and NTFS volumes, but not drives formatted under FAT32. At present, Speed Disk does not run under Windows 2000, although a future version will.

For users running Windows 95/98, a slimmed-down version of Speed Disk can be found in the Norton Utilities pack (Figure 2). This lacks some of the functions of the standalone version, but is still a lot better than Windows' built-in defragger. At around US\$50 per user, it would not be worth buying Norton Utilities just to get Speed Disk, but if you own the utility pack anyway it is worth considering installing the defragger.

One other possibility is McAfee's Disk Tune, which is part of McAfee Office. Again, you probably wouldn't buy the whole product for Disk Tune alone (it is about the same price as Norton Utilities), but you might wish to use the defragger if you already own the utilities.

In most cases, Diskeeper will probably be the best all-round choice. As well as

letting you use the same product with all versions of Windows, it is also the most sophisticated of the tools mentioned here. As we'll see later, the standalone version of Speed Disk has a couple of benefits not provided by Diskeeper, and is also more economical, but it has the disadvantage of only running under NT. Free trial versions of both Diskeeper and Speed Disk are available for downloading - see box.

Benefits Over Built-In Defraggers

So what are the benefits of a third-party defragger? To answer that question, it helps to understand the limitations of the defraggers built into Windows. Let's look at each of these in turn.

Reporting

To start with, the Windows defraggers are hopeless at reporting fragmentation levels. In Windows 95, you get a raw percentage figure, which in turn leads to a recommendation which is often woefully inaccurate. Windows 98 does not even try to issue an accurate fragmentation report. To illustrate this, my main desktop computer is three years old. During its entire life, Windows 95 has consistently reported a fragmentation level below 2% and has always advised me that defragging is unnecessary. Yet, when I first ran Diskeeper on the same machine, it told me that fragmentation stood at 48%. I immediately defragged the drive and noticed a substantial improvement in performance.

Third-party defraggers are not only more accurate, the information they give can be much more useful in helping you decide your defragging strategy. Amongst other details, they give you two key indicators: the total number of "excess" fragments (for any given file, the number of excess fragments is the total number of fragments minus one) and the average number of distinct fragments per file. These are often better guides to fragmentation levels than the simple figure for percentage of fragmented files.

Going further, both Diskeeper and Speed Disk tell you which specific files are badly fragmented (Figure 3). This can be helpful in deciding how urgently you need to defrag the drive. If the list contains vital files that you access all the time, this might persuade you to defrag sooner rather than later. If the files are ones that you rarely use, you might decide that a defragging session can be safely postponed.

Logging

As well as providing sparse information on existing fragmentation levels, the Windows defraggers give no feedback on the effectiveness of a defragging session. By contrast, most third-party defraggers keep a detailed log of the defragging process. This can be very helpful when it comes to planning future defragging sessions.

For example, Diskeeper can be configured to log every event that takes place during defragging (Figure 4). These events include each instance of a file being consolidated or a fragment being moved. If the log shows a high degree of activity for a given drive, and if similar levels of activity are repeated in subsequent sessions, the defragging frequency probably needs to be increased. Conversely, if the log shows very little activity, you might decide to schedule less frequent defragging sessions.

Of course, you won't want to spend all your time poring over defragging logs. Nevertheless, the information which they provide can be very useful. For example, if a given drive seems prone to high fragmentation levels, you might decide to move the most volatile files to a drive with more free space, as this could reduce fragmentation in the future. The logs and the other reports which these products provide can help you make that sort of decision.

Scheduling

Another disadvantage of the built-in Windows defraggers is that they are very much on-demand tools. It is up to the user to decide when to run them, and most users have no great incentive to do so. By contrast, Diskeeper and the NT version of Speed Disk allow a support person or administrator to schedule unattended defragging sessions to run in the background, without any action on the part of

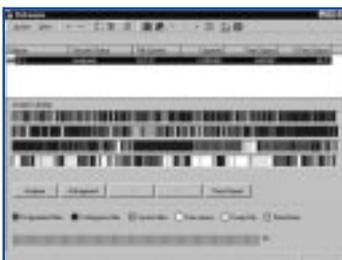


Figure 1 - Executive Software's Diskeeper.

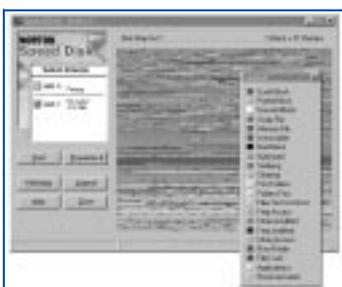


Figure 2 - Norton Speed Disk.

the user. These background sessions are reasonably unobtrusive. It would be an exaggeration to say that the user is unaware of them, but they rarely prevent the user from carrying on with their normal work.

You can schedule a defragging run for particular times of the day, either on a daily, weekly or monthly basis. Ideally, you will be able to schedule a session for when the computer is likely to be unused. With Diskeeper, you can also exclude certain times from the schedule, which is useful if you want to avoid defragging on particularly busy days of the week. Speed Disk goes one step further. When the scheduled time arrives, the program will first check the existing fragmentation level. If this is below a pre-defined threshold, the program refrains from starting the session, thus keeping the impact on the user to a minimum.

If you have installed the server version of Diskeeper or Speed Disk, you can schedule defragging sessions remotely across the network. In fact, you can run any of the programs' functions in this way. For example, you can run an analysis of a particular PC's drives, see the results on your own screen, and then launch a defragging session straight away - all without involving the user.

For this to work, you need to be running the server version of the defragger on your own workstation. By definition, this means that the workstation must be running under NT (for Speed Disk) or either NT or Windows 2000 (for Diskeeper). You also need to have deployed the workstation version of the same product on the user's computer. In the case of Speed Disk, this can be a special "command line" version which has no user interface and so can only run in the background. Unfortunately, neither product lets you work at a group level. If you want to schedule identical defragging sessions for a group of users, you will have to do so for each user in turn.

The version of Speed Disk that comes with Norton Utilities lacks scheduling features, but it is possible to leave it running in the background, ready to launch a defragging session when the computer is idle for so many minutes. It can also be used in conjunction with Norton System Doctor (which is another component of Norton Utilities). This can be configured to monitor the fragmentation level and to launch Speed Disk when this exceeds a given figure.

Priorities

If you have ever used the Windows 95/98 defragger you will be familiar with that infuriating message: "Drive's contents changed. Restarting." Even if you are convinced that no other processes are running, the defragger always seems to think that another program is writing to the drive. When this happens - and have you noticed how it is always when the session is at least 95% complete? - the defragger cheerfully starts the whole run again.

This is not a problem with the third-party defraggers. Neither Diskeeper nor Speed Disk will complain if you use another program during the defragging process, even if those programs write to the disk. It's true that the defragging session will take longer if another program is running, but the point is that it will continue to run without restarting.

With both defraggers, you can adjust the priority of the defragging process in relation to other disk activities. By default, Diskeeper gives itself the highest priority in its on-demand mode. This makes other applications appear somewhat sluggish but ensures that the defragging will finish as quickly as possible. For pre-scheduled defragging sessions, Diskeeper takes the lowest priority. In these cases, you will notice only a slight drop in performance in your foreground applications.

With the NT version of Speed Disk, defragging normally has a low priority. With this setting, the program will refrain from reading or writing to disk unless no other disk activity is taking place. You can change the setting to medium, or to high, in which case the defragging will run as fast as possible at the expense of other tasks.

Disk Tune also has a priority setting. Its default value is "Responsive system", which means that other applications take priority over defragging. The Windows 95/98 version of Speed Disk does not have different priority settings and behaves like the built-in defragger in this respect.



Figure 3 - Diskeeper's fragmentation report includes a list of the most fragmented files.



Figure 4 - A detailed defragging log.

The Defragging Process

Although the features I have described so far are important in their own ways, what really matters is the internal working of the defragging process. This is an area where the various products differ quite significantly. When running under Windows 95/98, Diskeeper will defrag the entire drive, including directories, free space and the Windows swap file.

Under NT or 2000, however, it will not consolidate the directories, as these cannot be moved while the system is running. Nor does it defrag the paging file (swap file) or the Master File Table (MFT) during normal operation. Instead, Diskeeper offers a special "boot time" defragging mode, in which the above items are defragged while the system is loading. This cannot be scheduled on a regular basis, but has to be manually initiated each time.

Diskeeper also has a feature called Frag Guard, which aims to prevent the paging file and MFT from becoming fragmented in the first place. It does this by adding some slack space after these two items, to give them room to grow. When this space is exhausted, it initiates a boot-time defragging run for the next time the system is started.

Speed Disk, on the other hand, has no difficulty in defragging the MFT and paging file during a normal defragging session. This is a major advantage over Diskeeper, especially in the case of servers which run round the clock and are rarely rebooted. Speed Disk also scores over Diskeeper in the way that it optimises the actual files on the drive. By default, the files which have been accessed most frequently are placed near the outermost tracks, closest to the drive head, while those which have recently been modified are placed before the consolidated free space, thus allowing room for growth. You can fine-tune this behaviour, for example, by nominating specific files to be placed at the front of the drive.

This feature should lead to a noticeable improvement in performance, especially compared to Diskeeper, which lacks a comparable facility. Both Disk Tune and the Windows 95/98 version of Speed Disk offer similar features.

Conclusion

Defragging is not the most exciting of topics, but it is an important one for any support person wanting to keep their users' drives in optimum condition. The tools that come with Windows 95, 98 and 2000 are just about adequate, but if you want to do the job properly you should seriously consider deploying one of the third-party products described in this article.

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(Diskeeper)
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