

THE COMPUTER CORNER

No. 113. The Virtues of Speed Disk

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You have probably read before in my column that I consider the Norton Utilities (Symantec Corporation) as the single most important piece of third party software a Windows user can buy. That opinion still holds, whether you are using Windows 3.1, 95, 98, ME, 2000, XP, or whatever. It finds problems and fixes them, taming the unruly, bloated, complicated Windows environment into something that most users can work with. Enough said about Windows. Anyway, the Norton Utilities are included in their suite, Norton Systemworks. Version 2004 is the latest release as of this writing (Oct 2003).

One of the Norton Utilities is Speed Disk, which takes the place of the Defrag program that comes with Windows. As an aside, Norton programmers (presumably under contract to Microsoft) wrote the Defrag program itself, but Defrag is much smaller and less capable than Speed Disk. I proved the origin of the Defrag program by examining its code in Windows 98se, which indeed contains the signature of the Norton Utilities group. Actually, Peter Norton himself made his reputation (and started his company) with his invention of Speed Disk, way back in the early years of computing.

Speed Disk does indeed defragment your drive, putting pieces of a file together in contiguous blocks of data. That makes your computer work faster and more efficiently, as I have written about before. But it does something else; too, that insures the integrity of your data. Something that is really not documented anywhere. At least, I have not been able to discover any documentation in the "white papers" and other documents on the Symantec web site. Before I tell you exactly what else Speed Disk does, let me give you a bit of background.

As you are aware, data is written to a hard drive's platters by a tiny electromagnetic "head", which flies over the platter's surface. Electrical pulses, sent to the head, creates a magnetic field, which in turn, can alter the magnetic properties of a tiny section of the platter called a domain. To simplify a bit, if that tiny section is pulsed with the magnetic field of the head, it becomes a one. If it is not pulsed, it remains a zero. The pattern of ones and zeros is how the data is stored. For example, the capital letter "A" shown between the quotes in this sentence is stored in my computer as a pattern of eight binary digits: 01000001, while the lower case letter "a" is a different pattern of eight digits: 01100001. The point here is not what the patterns are, but rather that the platter has to be magnetized or demagnetized to "write" the data in whatever pattern is desired. And, those patterns of magnetic domains are the only way that data is stored on your hard drive.

The rub is that storing data on a hard or floppy drive by writing magnetic domains with an electromagnetic head is not permanent. That is, when a one is written, at some interval of time (months to years), the magnetic domains will bleed down (get weaker) and the computer will no longer recognize that spot as a one. To avoid this and the associated possible loss of data, one needs some program that will read all of your data and rewrite it again, so as to refresh the magnetic domains and make them strong again. You know about this. You have probably done something similar yourself. If you rub a steel screwdriver on a permanent magnet, the screwdriver becomes magnetic itself and will nicely hold steel screws in place while you turn it. But that induced magnetic property will not last. After a few hours or days, it will become too

weak to be of much use, and you have to rub the screwdriver on a magnet again, to refresh its magnetic holding power.

This is where Speed Disk comes in. Through careful observation, I have noticed that it does something unusual at certain intervals, when run repeatedly. I don't know whether those intervals are timed in terms of elapsed days or hours, or whether they are timed in terms of the number of times Speed Disk has been run. But, in my case it seems to happen about every 5th or 6th time that I run the program. What it does is to pick up essentially all the data, lets say packed into the first quarter of the drive, and move it to the end of the drive. Then, after another 5 or 6 Speed Disk sessions, it picks up all the data and moves it back to the beginning of the drive.

Why is this important? When it moves all the data from one part of the drive to another, it is writing all the data anew, thus refreshing the magnetic domains (albeit in a new spot on the platter). It is as if all those programs had been freshly installed, or all those word processing files had been newly written. All the magnetic domains are at their peak strength. The screwdriver has just been rubbed on a powerful permanent magnet.

The Norton programmers were very clever to have done this. If they had not, the magnetic domains of that program you installed 4 years ago might be getting dangerously weak by now. Indeed, some of the ones might have been read as zeros already, and the resulting corrupted file might have ceased to work properly. But, quietly in the background, Speed Disk prevents this while defragging your hard drive. At some (unknown) interval, it refreshes all your magnetic domains, without fuss or muss. And you didn't even know it was being done! Thank you, Symantec. Happy Computing!