

## THE COMPUTER CORNER

### No. 179: Spinrite

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I don't often tout pay-for programs, but Spinrite is one that deserves it. It is mature – it has been around for 25 years, having first been released in 1988. Now revised to Version 6, it is still the only program of its kind in the world. And, it still is a valuable tool to prevent data loss, or to recover data once it has been lost. If you have ever had a hard drive crash with subsequent loss of data, Spinrite may be your answer to both prevention and cure. I consider it as important as antivirus software.

Here is what it does when you run it. It first lifts a bunch of your data (4096 bits) from a region on the hard drive and stores it in memory. It then puts a data pattern on the drive in place of your data – using a specially designed pattern that is the most difficult for the drive to read and write. If the drive can write and read these weakest possible magnetic signals from the platter, it can read anything, including your data. It does this data “scrubbing” repeatedly. If all goes well after a number of repeats, it drops your data back on the platter and moves on to the next region. Again, it only puts the data back if the region is absolutely safe. At the very least, this has the benefit of rewriting your data to the platter and thus refreshing the magnetic domains anew.

What if things do not go well when reading an area? What if Spinrite discovers a weak or failing area and it cannot initially read all 4096 bits? It stores what it can and reads the sector many more times than the drive normally reads it (up to several thousand times). It also deliberately repositions the heads during these repetitive reads to slightly one side or the other of the defective tracks. This most often allows it to recapture all of the data perfectly. Finally, even if it cannot recapture all the data, Spinrite uses the data it has and some advanced statistical tools to reconstruct as much of the data as is possible. It then informs the hard drive of the defective region, has the hard drive mark it as such and has the hard drive pull out a new region from its hidden, unused sectors (yes, hard drives have blank areas that are not revealed to the user). Spinrite then puts the recovered data on the platter in that new, perfect sector and the data is safe. It then moves on to the next sector.

In this way, Spinrite corrects defects as they grow (and they do!). Running the program every few months can prevent data loss and even hard drive crashes. Spinrite can also be run on a drive that has already crashed, and may well allow you to recover some or even all of your precious data (letters, photos, etc.). At \$89, it is well worth it. Oh yes, it will work with any file system installed (NTFS, FAT, Novell, Linux) and can even be used on Apple and TIVO hard drives if they are temporarily installed in an Intel/AMD PC. Amazingly, the program download is only 170 kb (it is written in assembly language, the language of *real* programmers). Assembly language takes a fraction of the space of any other language, and it is really lightning fast, since it is “assembled” into the pure binary language understood directly by the electronic chips in your machine.

Spinrite runs from DOS or similar operating systems, but it incorporates FreeDOS so you don't need to do any fancy tricks to run it. When you first run the downloaded program, it will permit you to create a bootable Spinrite floppy drive or CD-ROM or even a thumb drive from which you can start the main program.

One caveat. With today's large hard drives, Spinrite can take a long time to finish its refresh and repair process. Plan on at least a day. Best, start it just before you are leaving on a weekend trip, so it will be done when you get home.

Get it at <http://grc.com>. Happy computing!