

No. 98. Managing Your Hard Drive – Partition Magic

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Today's new computers come with 20, 30 or 40 Gb hard drives or larger. If you purchased one with the operating system already installed, you may find several 8 Gb partitions (logical drive C:, D: could be 8 Gb with a 4 Gb drive left over as E:, in a 20 Gb physical drive). On the other hand, if you had a slightly older system and later upgraded to a 20 Gb hard drive, you might have as many as five logical drives (C:, D:, E:, F: and G:), each about 2 Gb in size. Worst of all, there may be unallocated space on your hard drive – wasted space that is not available for your use or for use by your operating system. So, what is this all about? How can you manage it all? What are the rules of the game? How can you change stuff to your advantage and preferences?

First, let us consider the “rules of the game”. For a number of reasons, there are limits to the size of the partitions (logical drives) that can exist on today's (or yesterday's) computers. Furthermore, the limitations vary with the operating system (DOS, Win 95a, Win 95b, Win 98, Win 98 SE, Win ME, Win NT, Win 2000 and now, Win XP). Moreover, the limitations vary with the logical drive. The boot drive (C:) may have different limitations than the others in a system (D:, E:, and so on). For example, the C: drive (boot drive) in a Win 98 SE (SE = Second Edition) machine can be no larger than 8 Gb, but a second logical drive (D:) in that same machine can be as large as 2 Tb (a Terabyte = 2,048 gigabytes), so long as a FAT32 file system is used. The file system (FAT16 or just FAT, FAT32, NTFS) is yet another complicating factor – each has its own limitations as well. So it is all complicated, and the rules change depending upon: 1. The age of the computer (because of its BIOS limitations). 2. The size of the hard drive. 3. Whether the drive considered is bootable or not. 4. The operating system in use. 5. The file system in use. That is 25 possible combinations, more than the average person wants to deal with. It is more than I want to deal with!

Whenever there is a need, someone will attempt to meet it. That is what Partition Magic has done. I first wrote about it in this column back in June 1997 (No. 43: A Leash for Windows 95). Since that time, it has become a standard in the industry. It is constantly being improved, and Version 7 is the latest and greatest. There is nothing on the market that can touch it in power, safety and versatility. Next to the Norton utility suite (now called Norton Systemworks), it is the second most important software package you can buy.

Partition Magic is an application program, just like Microsoft Word or Netscape Navigator. You can run it from Windows (any flavor) from START, RUN and then Partition Magic for Windows (a DOS version comes with it, too, in case there is “trouble in River City” and you cannot get into Windows). It comes up with a graphic map of the partitions in your system, and allows you to manipulate them in almost any way. You can merge partitions (without losing the data!), split them, or convert from FAT to FAT32 and vice versa (without losing data!) and more. It sports wizards, too, that will analyze your system and suggest steps to improve efficiency and space. Then, with your permission, it will go ahead and make the necessary changes. You do not need to know very much about computers to tune your system for maximum power. Most important, it is appropriately conservative and safe. Although it reminds you to back up your data, you can trust it. I have never lost data while using it, nor have I ever heard of anyone who did.

Make no mistake. If you manipulate partitions using the standard way (FDISK.EXE), it will erase all the partition's data, without fail and with absolutely no hope of recovery (unless you have the

FBI's labs at your disposal). Furthermore, after applying FDISK to a drive, you must then do a high level FORMAT of the drive before it is ready to hold data. Partition Magic does all this automatically, and existing data is not destroyed. Goodbye, FDISK, cross my path no more! Partition Magic's system requirements are modest, too. It will work on a 486 machine with 32 Mb of RAM running Win 95 or 98. It comes on CD-ROM, so you must have a CD-ROM drive in your machine to install it.

Here is an example of its use. My 500 MHz Pentium III machine was getting a little tight – one partition was down to only 20% free space. I invoked Partition Magic (PM) to see what I could do. Voila, I had 1.7 Gb of unallocated space – room on the hard drive that had never been assigned a drive letter and was therefore unavailable for use under any circumstances. I asked PM to create a new partition, a new logical drive with the designation G:. It did so, then rebooted. When Win 98 SE started again, PM popped up and reminded me that drive letters had changed. Because I had added a new G: partition, my CD-R drive had changed from G: to H:, and my CD-RW drive had changed from H: to I:. PM wanted to know if I would like it to fix all software to reflect the changes. I, of course, accepted the generous offer. A component of PM called Drive Mapper then went through every single software reference on the machine, including the Windows Registry, and made the changes. It did this in a very logical way – first changing all references from H: to I:, and then in a second pass, from G: to H:. It took about 5 minutes. Then it suggested another reboot to invoke all the changes. Again, I accepted the suggestion. On rebooting, everything was fine, and there was an additional 1.7 Gb of space to use. Amazing! To do this using FDISK and changing drive letters by hand would have taken a minimum of several days of work, plus untold hours after that fixing bugs resulting from the drive letter changes. PM did the job in well under 30 minutes, including the time needed for reboots.

As an aside, Drive Mapper used to be a separate program by a separate company. Powerquest Corporation (which owns Partition Magic), saw the utility of Drive Mapper so they bought the company and incorporated the software into PM. Very nice indeed.

Finally, PM also includes another utility, PQ Boot, which permits you to have multiple operating systems on your machine. I have DOS and Win 98 SE on mine. You can have DOS, any version or release of Windows (including XP), Linux and several other operating systems on a single machine. At boot time, you simply select which one you want to use from a menu. A nice touch! That way, for example, you could install XP and play with it while still having your old Win 98 SE there if you need it. If you keep all your creations on a drive other than C:, you can even access the data with the different operating systems. The best of all possible worlds. Happy computing!