

Bruce Claremont, November 2009

## Adventures in Consulting: Partition Problems

*Relevant links appear at the end of the article.*

We're developing new DEC Alpha emulation software and needed a test bed for performance and quality assurance testing. Sitting on the shelf is a two year old dual-core Supermicro system running the 32-bit edition of Windows Server 2003 that we use for PDP-11 and HP1000 emulator work. It's ideal for our needs, other than we need the 64-bit edition of Server 2003 to test the Alpha emulator.

This won't take long. I'll just partition the boot drive and install Server 2003 x64. I grab my trusty edition of Partition Magic V8.0 and try to install it on Server 2003 x32. No go; the software will not install for Server versions and no amount of trickery with compatibility mode fixes the issue.



Fine. This won't take much longer. I fall back on open source tools, downloading and burning the latest version of the System Rescue CD v1.3.2 which contains the Gnome Partition Editor, Gparted. I boot the Rescue CD and fire up Gparted. It sees the boot partition and allows me to shrink it; however, at the end of the shrink process I notice a warning icon. Drilling down reveals the warning "NTFS volume size is bigger than the device size". I am not sure what to make of this warning, but carry on regardless.

I reboot the system and get the Windows Server 2003 logo screen. Hooray! About 10 seconds after this a blue screen of death flicks by so fast it's almost subliminal and the system reboots. This cycle continues. Trying to boot in Safe Mode or Last Known Good Configuration work no better. Not good.

A search on the Internet reveals that resizing a Windows boot partition with Gparted can cause boot problems. The fix is to boot the Windows installation CD and take the Recovery option. This shouldn't take too much longer. I boot the Windows CD and select the Recover option. Windows responds that it can't find any disks on the system. What?! I boot the CD again and take the Install option. Same results; it can't find the disk drive.

Rebooting the Rescue CD and rerunning Gparted shows the corrupted partition, but the Gparted Check function is unable to fix it. This is now taking too long. I decide to load Knoppix and try the QtParted partition tool. I download, burn and boot Knoppix 6.0.1, only to discover it no longer contains QtParted. I go digging through my CD collection and locate System Rescue CD v0.2.17 which contains a copy of QtParted. I boot this and run QtParted. It sees the partition and reports the same problem, but is unable to correct it.

Okay, now I'm irritated and I don't care how long this takes. More searching on the net finally turns up a thread on Computing.net that's pretty close to my problem. It leads me to a Parted Magic v4.5, yet another open source partition tool. I download the ISO, burn it and boot it. Under System Tools, I find the TestDisk utility and run it. A reasonably simple interface walks

me through locating and fixing the corrupt partition. I boot again and Windows comes up without any drama. I ran chkdsk against the partition just to be safe.

Additional research turned up a thread in the Gparted forum that revealed the likely cause of the problem. Shrinking the boot partition with Gparted resulted in mismatch between the logical size of the NTFS file system as stored in the Partition Boot Record (PBR) and the physical size of the partition containing the file system as stored in the Master Boot Record (MBR). This fubar'd Windows. Parted Magic knew how to fix this issue. Gparted and QtParted did not.

With the system again working properly I proceed with the installation of Windows 2003 Server x64 in a separate partition. Again, the installation process fails to find a disk. Further Internet research reveals that neither the x32 or x64 installation kits recognize SATA drives. The installation media does not include the appropriate SATA drivers. I downloaded the drivers to a floppy from the Supermicro site and used the F6 option during the Windows installation startup to add them to the installation process. Once the appropriate drivers were available, the installation proceeded normally.

So, another day blown, several CDs burned, several lessons learned. Such is the life of an IT professional.

### **Links:**

Computing.net Thread: <http://www.computing.net/answers/windows-vista/partition-screwup-cant-mount-drive/2013.html>

Gparted: <http://gparted.sourceforge.net/>

Gparted forum Thread: <http://gparted-forum.surf4.info/viewtopic.php?id=13633>

Knoppix: <http://www.knoppix.org/>

Parted Magic: <http://partedmagic.com/>

QtParted: <http://qtparted.sourceforge.net/>

System Recover CD: <http://www.sysresccd.org/>