Technical Information Document

COE Servers

Document Title:	Unable to create a partition bigger than 2 TB (Tera Bytes)
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Product and Version:	Windows 2003, Windows 2003 64 bits, All systems

Symptoms / Facts

- In Disk Management, the disk 0 appears with the system partition “C:\” and two “unallocated” spaces covering the rest of disk.
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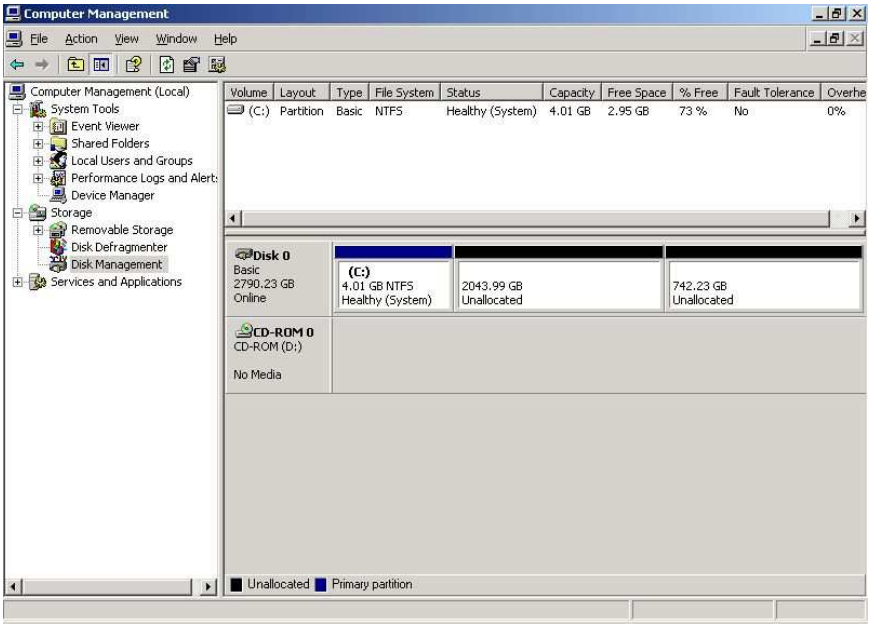
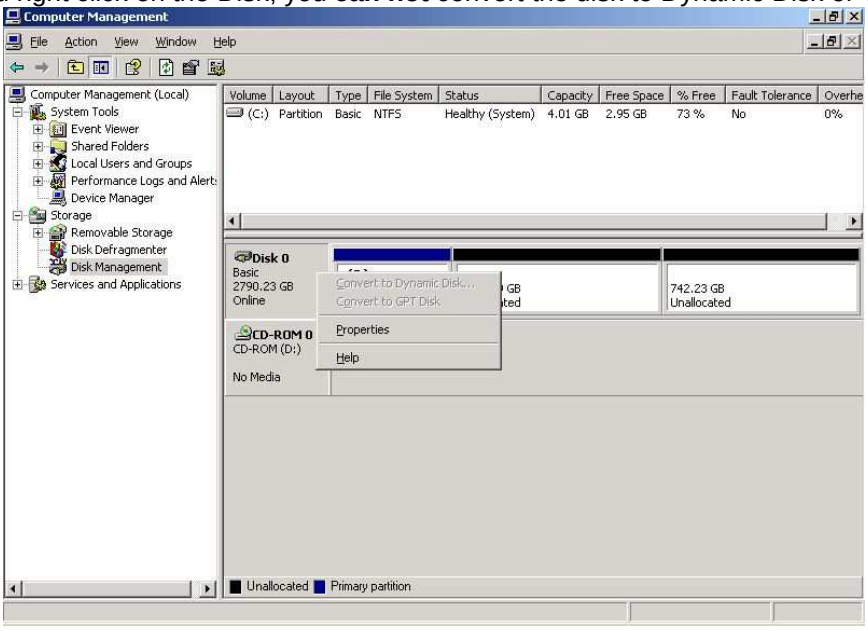
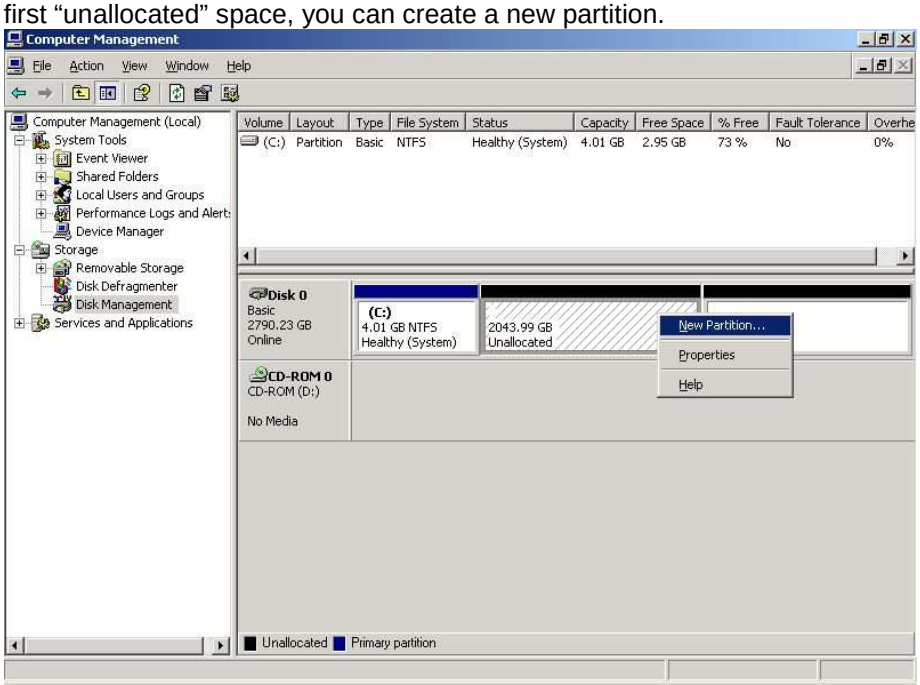


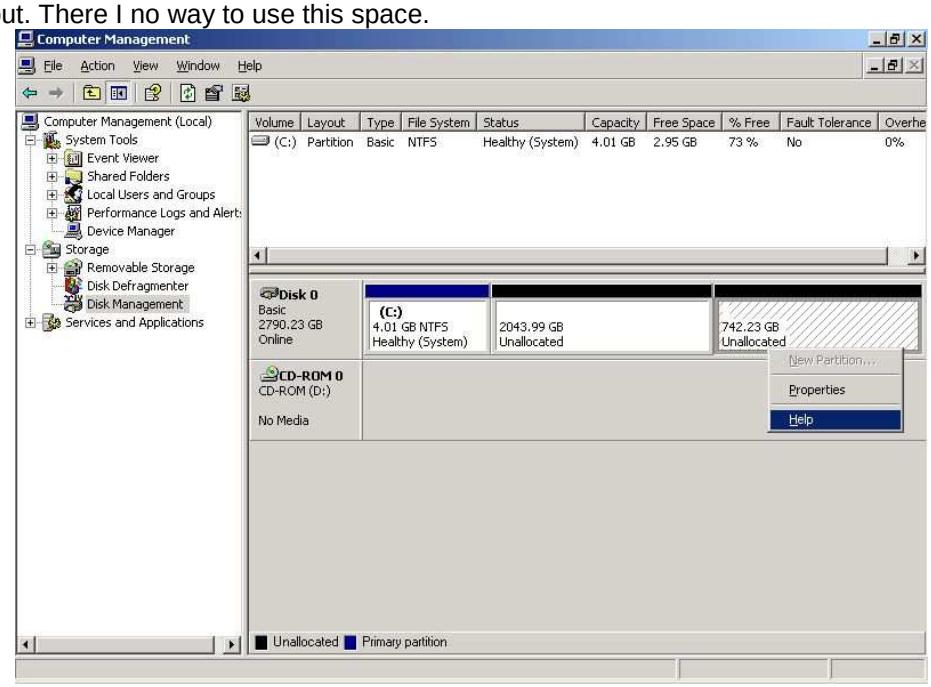
- When you right click on the Disk, you **can not** convert the disk to Dynamic Disk or GPT disk.



- On the first “unallocated” space, you can create a new partition.



- On the second “unallocated” space, you can not create any partition. The “new partition” entry is gray out. There I no way to use this space.



Cause

- The hard disk is in partition style “Master Boot Record” MBR. In order to create a volume bigger than 2TB, it should be a GPT disk.

- You can use the following methods to determine whether a drive is configured as a GPT or an MBR disk:
  - In the Disk Management console, on the View menu, point to Top, and then click Disk List. The upper pane displays a list of disk drives that specifies the partition style in the last column.

  - In the Disk Management console, right-click the drive to display conversion options.

  - If the drive is configured as an unpartitioned GPT disk, the Convert to MBR Disk option appears. If the drive is partitioned, this option is unavailable.

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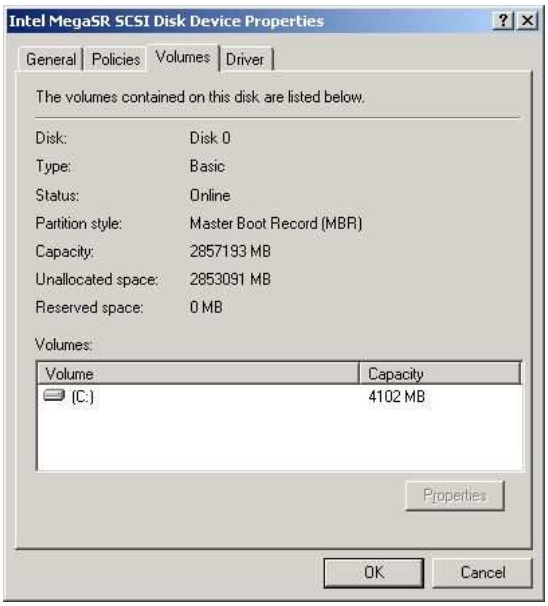
  - In the Disk Management console, right-click the driver, click Properties, and then click the Volume tab to display the partition style and other information.

  - In Device Manager, right-click the drive and, on the Volume tab, click Populate to display the partition style and other information.

  - Launch the DiskPart utility and enter the command list disk. The disk list indicates GPT or MBR in the last column of the command output. Right click on disk, properties and volumes information.

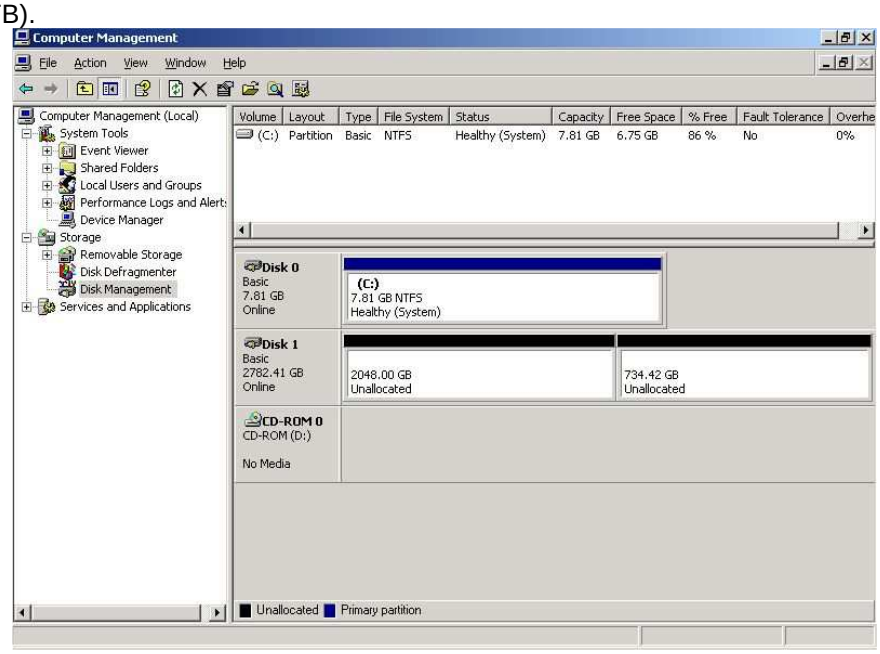


Solutions / Fixes

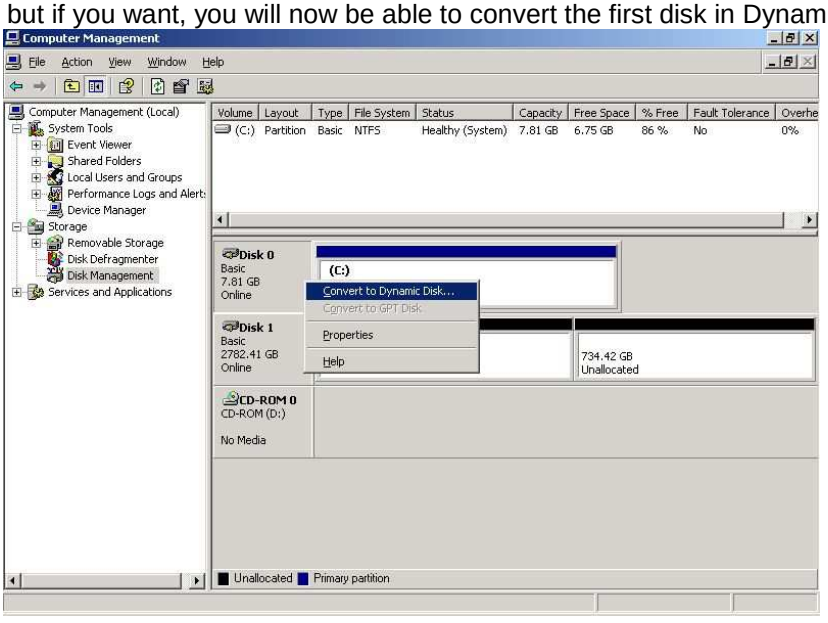
You must create 2 Logical Drives using the RAID controller interface.
The first logical drive must be a MBR disk (mandatory by the Windows Operating System).
The second logical drive will be converted in GPT disk for data partition.

Note:
After that, GPT disk and MBR disk could be converted to dynamic mode.

- In the example bellow, the first logical drive has 8 GB and the second logical drive has the rest of the disk (more than 2,5 TB).



- It's not mandatory but if you want, you will now be able to convert the first disk in Dynamic mode.



- The second hard disk could be converting to GPT disk.
You can convert only empty, unpartitioned disks (raw drives or empty MBR drives) to the GPT format. To convert a volume that contains data, you must first manually delete the partition.

You can use the following methods to create GPT disks:

• In the Disk Management console, right-click the MBR drive you want to convert to GPT and click Convert to GPT Disk. If the drive is not empty or contains partitions, this option is unavailable.

-OR-

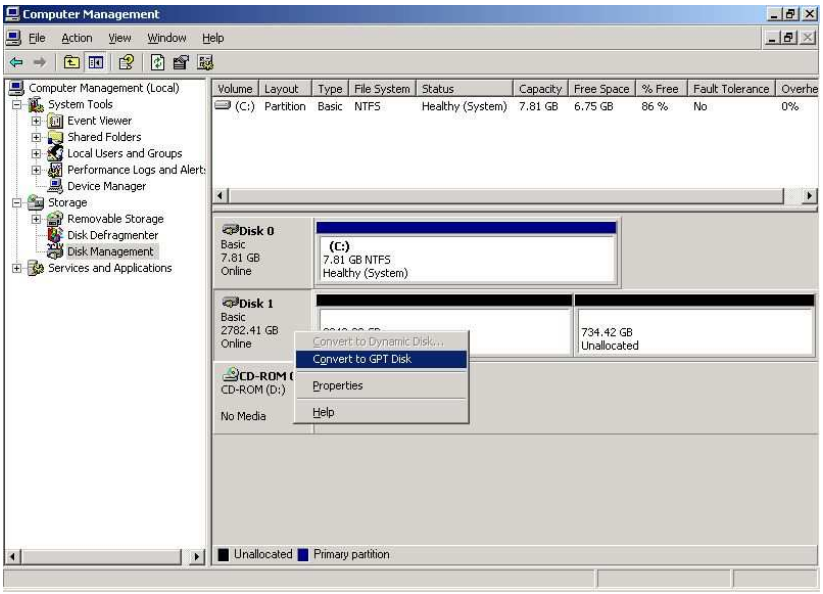
• In the DISKPART utility, select the drive you want to convert and enter the following command: CONVERT GPT

For raw disks, you can use two additional methods:

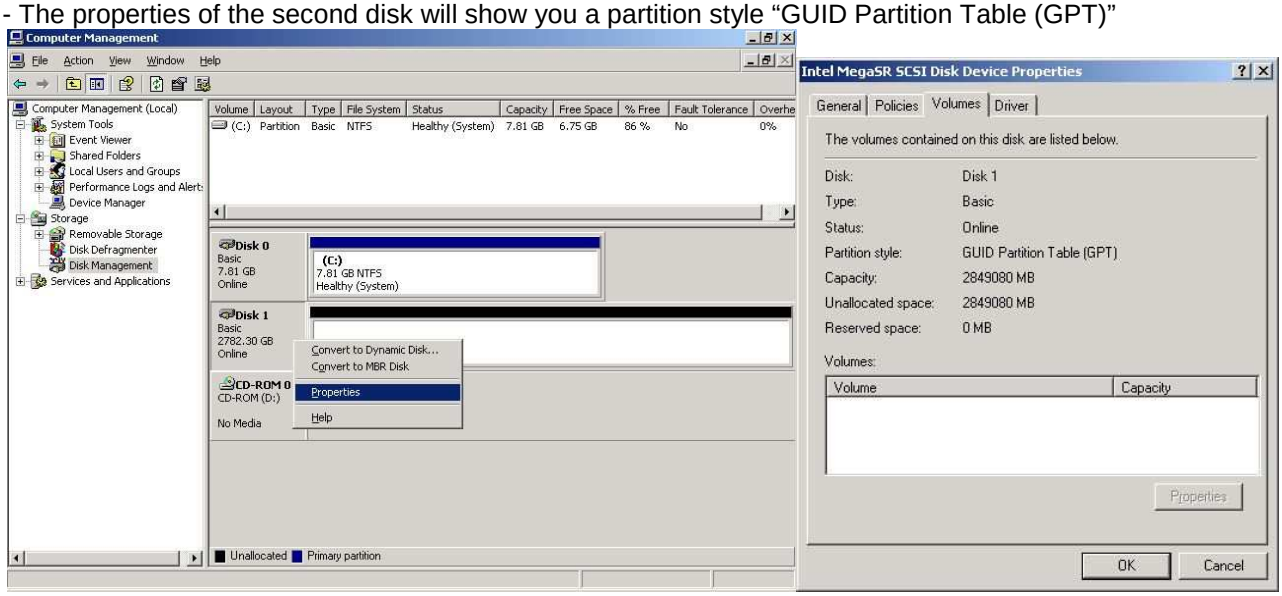
• After installing a new raw disk, open the Disk Management console to launch a wizard that you can use to configure the new disk. The wizard includes options to initialize the disk as MBR or GPT.

-OR-

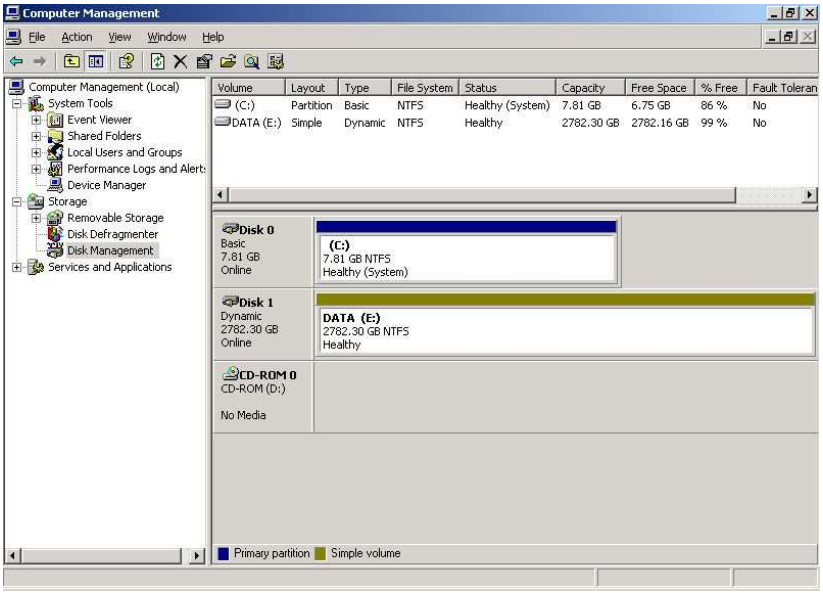
• Initialize the new disk later by using the Initialize Disk option in the Disk Management console.



- The properties of the second disk will show you a partition style “GUID Partition Table (GPT)”



- Now, you will be able to create a volume bigger than 2TB. And if you want, you can convert the disk in Dynamic mode.



Note:

• A GPT disk uses the GUID partition table (GPT) disk partitioning system. A GPT disk offers these benefits:

  • Allows up to 128 primary partitions. (MBR disks can support up to four primary partitions and an infinite number of partitions inside an extended partition.)

  • Allows a much larger volume size - greater than 2 TB, which is the limit for MBR disks.

  • Provides greater reliability due to replication and cyclical redundancy check (CRC) protection of the partition table.

  • Can be used as a storage volume on all x64-based platforms, including platforms running Microsoft Windows XP Professional x64 Edition. Windows Server 2003 SP1 also enables support for GPT in x86 versions of the Windows Server 2003 family.

• Installing a Windows x64 Edition operating system on a GPT disk is not supported. Attempting to do so yields an error. Although Setup allows you to choose a GPT disk partition on the partition selection screen during Text Mode Setup, doing so displays an error message. To assist users in avoiding this error, the partition selection screen clearly indicates whether the partition is configured as an MBR drive or a GPT drive.

• Unlike Windows support for the Intel Itanium platform, Windows x64 Edition and Windows Server 2003 SP1 operating systems support the use of GPT drives only as data volumes. Because the x64 and x86 architectures do not provide support for an EFI boot partition, you cannot use a GPT drive to boot an x64-based computer or an x86-based computer with a legacy BIOS. Therefore, computers running these operating systems must be equipped with more than one physical drive to allow the use of the GPT disk format.

• On Intel Itanium platforms, Windows supports the use of GPT drives as boot drives or data volumes.

See also

The following table depicts storage types and partition styles in Windows XP Professional and Windows Server 2003 operating systems:

Operating system	Basic volumes	Dynamic simple, spanned, and striped volumes	Dynamic mirrored and RAID-5 volumes	MBR boot volume	MBR data volume	GPT boot volume	GPT data volume
Windows XP Home Edition	X			X	X		
Windows XP Professional	X	X		X	X		
Windows Server 2003, Standard Edition	X	X	X	X	X		
Windows Server 2003, Enterprise Edition	X	X	X	X	X		
Windows Server 2003, Datacenter Edition	X	X	X	X	X		
Windows Server 2003, Standard Edition with Service Pack 1 (SP1)	X	X	X	X	X		X
Windows Server 2003, Enterprise Edition with Service Pack 1 (SP1)	X	X	X	X	X		X
Windows Server 2003, Datacenter Edition with Service Pack 1 (SP1)	X	X	X	X	X		X
Windows XP 64-bit Edition (Itanium)	X	X			X	X	X
Windows Server 2003, Enterprise Edition for Itanium-based Systems	X	X	X		X	X	X
Windows Server 2003, Datacenter Edition for Itanium-based Systems	X	X	X		X	X	X
Windows XP Professional x64 Edition	X	X		X	X		X
Windows Server 2003, Standard x64 Edition	X	X	X	X	X		X
Windows Server 2003, Enterprise x64 Edition	X	X	X	X	X		X
Windows Server 2003, Datacenter x64 Edition	X	X	X	X	X		X

You can also find this table on the following link:
http://technet2.microsoft.com/WindowsServer/en/library/4b35160a-4e27-4258-9e8b-e2088f8a757a1033.mspx

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Applies to: Windows 2003, Windows 2003 64 bits, All systems