

Welcome to Disk Manager 2000!

Disk Manager 2000 is a Windows-based installation program that overcomes the limitations of system BIOS and operating systems and makes adding a new hard drive to your system easy. Disk Manager 2000 will analyze your computer system and create a Custom Installation Manual that provides step-by-step instructions to guide you through the disk drive installation.

To use Disk Manager 2000, follow these steps BEFORE attaching your new hard drive:

1. Download the Disk Manager 2000 installation program (dm_2000.exe) into a temporary directory on your PC.
2. Click **Start**, then select **Run**.
3. Click the Browse button to locate the dm_2000.exe installation application.
4. Click on the filename, then click **Open**.
5. Click **OK** to run the dm_2000.exe installation application.
6. The install application will copy the necessary Disk Manager 2000 files to your hard disk drive. Disk Manager 2000 will then:
 - ask you how you wish to set up your new drive
 - create a Custom Installation Manual for jumpering and attaching your drive
 - prepare your new hard drive for use

Disk Manager 2000 requires Microsoft Windows 95/98/Me, Windows 2000, or Windows NT 4.0. **Disk Manager** is included within Disk Manager 2000 to provide extra support for users who don't already have a working Windows environment. From within Disk Manager 2000 a bootable diskette can be created containing Disk Manager and some other IBM utilities.

Disk Manager® is a DOS-based program, meaning it does not require Windows. Therefore, all end-users installing a new disk drive, including those with high-speed Pentium chips, can benefit from this program. In addition to solving BIOS limitations for older systems, Disk Manager facilitates extremely fast partitioning and formatting for both old and new systems and is the perfect solution for single drive installations.

To create a bootable Disk Manager diskette:

1. Download the Disk Manager diskette creator program (dm955.exe) into a temporary directory on your PC.
2. Click **Start**, then select **Run**.
3. Click the Browse button to locate the dm955.exe diskette creator program.
4. Click on the filename, then click **Open**.
5. Click **OK** to run the dm955.exe diskette creator program.
6. Insert a formatted 1.44 MB diskette when prompted.

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BIOS LIMITATIONS

Included here are brief explanations of a number of drive capacity limitations that exist in the computer industry. The use of Disk Manager or Disk Manager and their Dynamic Drive Overlay offers a solution to each of these problems.

32 GB limit

If your drive is larger than 32 GB, the capacity may exceed the limits of your system BIOS. Some Award 4.5x BIOS versions cannot support ATA drives larger than 32 GB.

If you have added a new drive and your system locks up at boot time (right after turning power on) or during System Setup, there may be several causes. Verify that the data cable is properly attached to your drive, that pin 1 is correct, and that the cable is not installed off a row of pins. If your new drive is larger than 32GB and your machine has an Award 4.5x BIOS, see the [Ontrack Data International solution for 33GB BIOS lock-up](#).

8.4 Gigabyte limit

If your drive is larger than 8.4 gigabytes, the capacity may exceed the limits of your system BIOS and operating system. Many system BIOS cannot support ATA drives this large. DOS and Windows operating systems limit the drive capacity to 8.4 Gigabytes per physical drive and 2 Gigabytes per partition. Because of these limitations, a 32-bit file allocation table (FAT32) is required to achieve full capacity of your drive beyond 8.4 Gigabytes. To achieve full capacity of your drive, you need a Windows operating system that supports FAT32 and BIOS support for drives greater than 8.4 Gigabytes, from one of the following:

- A third-party device driver, such as DDO
- An intelligent ATA Host Adapter
- A system BIOS upgrade.

6322 Cylinder (3.27 GB) Limitation

Some computers have a BIOS that does not accommodate a cylinder value over 6322. If you are in CMOS Setup attempting to set the cylinder value higher than 6322 (for a 3.27 GB+ drive) and your computer hangs, your computer may have a BIOS with this limitation. To by-pass this limitation, you have two options:

- Set the cylinder value to 1024 or less and use Ontrack's DDO to provide support for the whole drive.
- Contact your computer manufacturer for a BIOS upgrade, if one is available.

4096 Cylinder (2.1 GB) Limitation

Some computers have a BIOS that does not accommodate the "13th bit". The 13th bit is needed to provide support for a drive having 4096 or more cylinders. The chart below displays the corresponding cylinder values in decimal, hex, and binary values.

<u>DECIMAL</u>	<u>HEX</u>	<u>BINARY</u>	<u>SIZE</u>
1023 =	3FF =	10 bits =	528 MB
2047 =	7FF =	11 bits =	1.0 GB
4095 =	FFF =	12 bits =	2.1 GB
8191 =	1FFF =	13 bits =	4.2 GB
16383 =	3FFF =	14 bits =	8.4 GB

If you have added a new drive and your system locks up at boot time (right after turning power on) or during System Setup, there may be several causes. Verify that the data cable is properly attached to your drive, that pin 1 is correct, and that the cable is not installed off a row of pins. If your new drive is larger than 2.1GB and your System Setup (CMOS) is set to "AUTO", you may have a BIOS with a 4096 or greater cylinder limitation. Power off your system, remove your new drive, and follow the instructions that Disk Manager provides. When configuring System Setup (CMOS), DO NOT USE "AUTO". Rather, choose one of the following:

- USER DEFINABLE set to 1024 cyls 16 hds 63 sects
- Drive type 1.

Another option is to contact your computer manufacturer to get a BIOS upgrade that will support more than 4096 cylinders.

528 MB Limitation

Using the traditional IDE interface limits the system to a maximum drive capacity of 528 MB. This limitation is due to Int 13h (BIOS) and IDE field sizes for the CHS (Cylinder, Head, and Sector) entries.

Because the system must perform a translation between the CHS parameters that are recognized by the drive and those established in the Int 13h code, parameters are limited to the smaller field sizes that BIOS and the IDE register set allow. The chart below displays the BIOS, IDE and limiting field size.

	BIOS	IDE	Limit
Sectors per Track	63	255	63
Number of Heads	255	16	16
Number of Cylinders	1024	65536	1024
Maximum Capacity	8.4 GB	139.9 GB	528 MB

The maximum system drive capacity in a combined BIOS/IDE setup is determined by the limiting field size -- 528 MB. Currently, computers are being shipped with a BIOS that implements Extended Int 13h or "Logical Block Addressing" (LBA), both of which are solutions to the 528 MB limitation.

Invalid BIOS information

Some computers have a BIOS that may display invalid information in the CMOS setup. This issue may show up in one of two ways:

- The CMOS will display the drive parameters and capacity correctly. However, it is not translating the drive correctly.
- The CMOS will display invalid drive parameters. However, the BIOS is translating the drive correctly.

Ensure your drive is translated to its full capacity by checking the actual drive size when you create partitions on the drive.