



Storage Technology Division

***IBM Feature Tool
Usage Instructions***

To support World Wide Web release of IBMFTOOL v1.10

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What is the IBM Feature Tool?

IBM has a long track record of innovation in the hard disk drive industry, starting with the development of the first disk drive in 1958. Many technologies common today in disk drives were first introduced on IBM disk drives, pursuing goals of providing highest performance and capacity in highly reliable mechanisms within industry standard form factors.

The IBM Feature Tool is a utility, which allows the user control over some of the parameters of today's high performance ATA hard disk drives.

The features, which this release of the Feature Tool supports, are,

1. Change the Acoustic Level of the hard drive. This function is generally referred to as Automatic Acoustic Management (AAM) and is available on the IBM DTLA (Deskstar 40GV and Deskstar 75GXP) and newer IBM ATA Hard disk drives.

The acoustic level of the drive can be modified to better suite the environment in which it is functioning. The drive performance and acoustic level may increase with increased acoustic management.

2. Changing the Capacity of the disk drive.

3. Change the Ultra DMA Mode that the drive is set to function at or to disable UDMA altogether.

Modern ATA drives are currently designed to function at bus speed up to 100 MB/sec. The bus speed associated with each Ultra DMA Mode is as follows.

UDMA Mode 0	-	ATA 16 (16.7 MB/sec)
UDMA Mode 1	-	ATA 25 (25 MB/sec)
UDMA Mode 2	-	ATA 33 (33 MB/sec)
UDMA Mode 3	-	ATA 48 (48 MB/sec)
UDMA Mode 4	-	ATA 66 (66 MB/sec)
UDMA Mode 5	-	ATA 100 (100 MB/sec)

Some older (Legacy) motherboard and Plug-in ATA adapters may not support the higher bus speeds and installing one of these newer ATA hard disk drives could cause a malfunction of your system. To resolve this incompatibility it may be required to reduce the bus speed that the drive is operating at to one which is more compatible with the Motherboard/Plug-in adapter.

Creating a Feature Tool Diskette

Windows 9x & NT

The IBM Feature Tool set-up program (**ibmftool-install.exe**) includes IBM DOS2000 and the IBM Feature Tool. Running the set-up program creates an IBM DOS2000 bootable diskette that contains the IBM Feature Tool. In order to run the set-up program you will need to have access to a system that is running any of the following operating systems, Windows'95, Windows'98, Windows Millennium, Windows NT, or Windows 2000 and a formatted 1.44-MB diskette.

It is recommended that before starting the set-up program, all open Windows applications should be closed.

The following represents two examples of how the IBMFeature tool diskette can be created.

Method A.

1. Insert a formatted diskette into the Floppy drive, (**A:** or **B:**).
2. Using Windows Explorer, locate the program **ibmftool-install.exe** downloaded from the Internet.
3. To start diskette creation double-click on the program icon and follow the on screen instructions. **Note:** you have the option to select your country location and keyboard layout, the default for these options is United States.

Method B.

1. Click Start, then select Run.
2. Click the Browse button to locate the **ibmftool-install.exe** set-up program.
3. Click on the filename, then click Open.
4. Click OK to run the **ibmftool-install.exe** set-up program.
5. Insert a formatted 1.44-MB diskette into the required floppy drive (A or B if your system has 2 floppy drives), select the target floppy on the set-up screen then click next to continue.
6. Follow the on screen instructions.

Linux

The IBM Feature Tool image file (e.g. **ibmftool-install-img.bin**) includes IBM PC DOS2000 and the IBMFTOOL Utility

Running the Linux Disk Dump (DD) utility creates an IBM PC DOS 2000 bootable diskette that contains the IBMFTOOL Utility.

A formatted 1.44-MB diskette is required to create the IBMFtool diskette.

To create the bootable IBMFtool diskette under Linux:

1. Download the Feature Tool image file (**ibmftool-install-img.bin**) into a known directory on your PC.
2. Insert a formatted 1.44-MB diskette into your floppy disk drive.
3. Make sure that the floppy disk is unmounted.
4. Change directory to where you saved the image file.
5. Run the Disk Dump (DD) utility with the following parameters:
DD if=ibmftool-install-img.bin of=/dev/fd0 bs=8k
6. The bootable IBMFtool diskette will now be created, Note this could take a couple of minutes.
7. Once the creation of the bootable diskette is complete you may need to edit the Autoexec.bat file to map the keyboard for your country.

e.g. Change UK to US in the following line to go from a UK (United Kingdom) keyboard layout to a US (United States) layout.

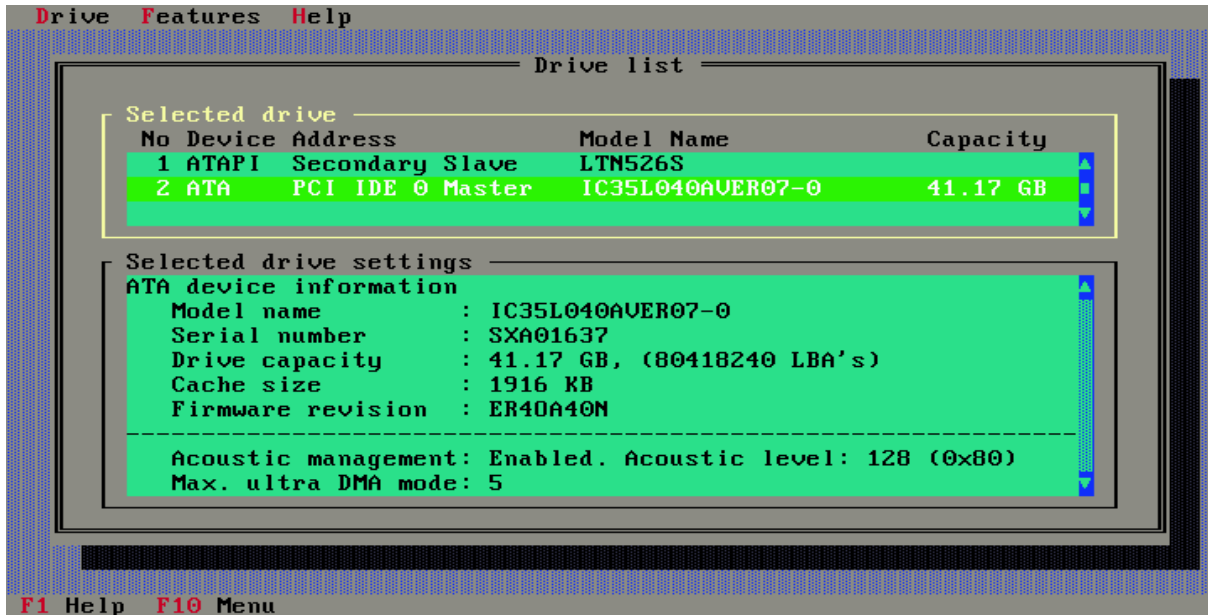
KEYB UK,A:\DOS\KEYBOARD.SYS

Running the IBMFTOOL

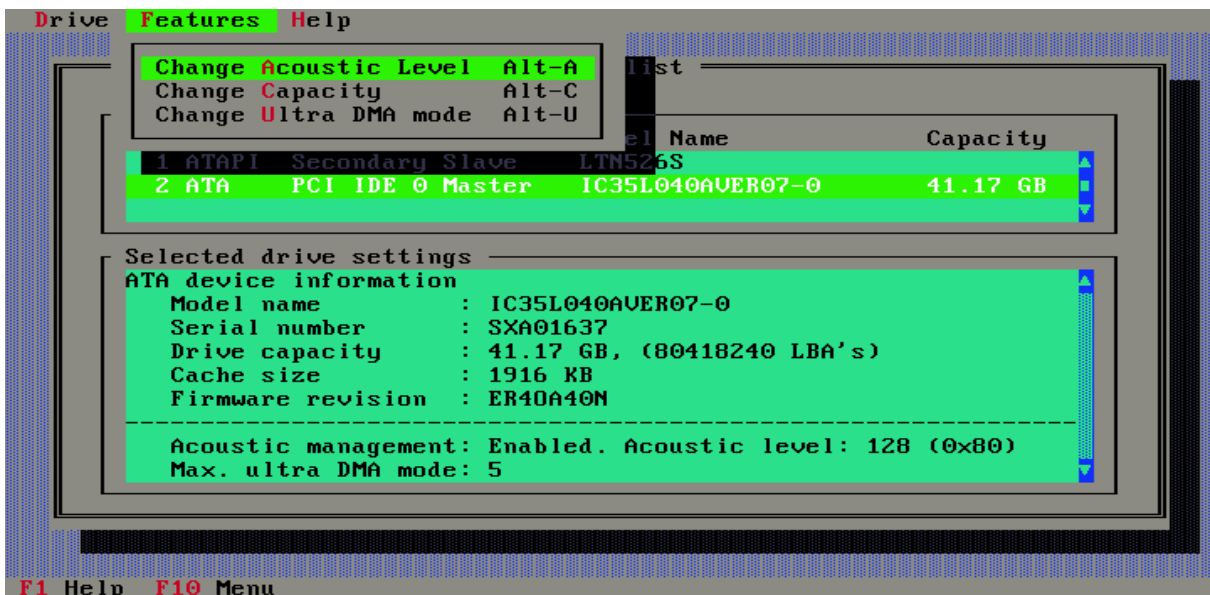
Place the prepared floppy disk in the system containing the drive to be modified and boot the system either by a) power cycling, b) pressing the reset button or c) pressing the <Ctrl><Alt> keys.

When the system boots the IBMFTOOL program will load automatically and present you with a License Agreement, which you must accept to proceed.

You will then be presented with the drive list screen as shown below. This screen lists all the ATA devices installed in the system and provides additional details for each such as serial number, firmware level, capacity, current acoustic mode level and the Ultra DMA mode to which the drive is currently set.



To navigate this screen the mouse can be used or alternatively use the cursor keys and the tab key. To modify a drive feature first select the drive using the mouse or cursor keys then select the pull down "Features" menu. This can be achieved with the mouse or <Alt-F> key combination. You will see a screen as shown below with the following options,



From the pull-down menu select the drive feature to be modified, for more detail on how to change each feature select from the links below.

[Acoustic Level](#), [Drive capacity](#) or [Ultra DMA mode](#).

NOTE : The IBMFTOOL is designed for use with IBM Hard Disk Drives only.

Navigation shortcut's,

Several options for navigating through this utility, the easiest being the use of a mouse. For each selectable option in the different menus a highlighted character is provided which when used with the Alt key gives a quick selection option. The list below represents some of the Alt + (Highlighted key) combinations available in the program.

Esc. Return to previous menu from any sub-menu

F1 or Alt+H - **Help**

F10 - Menu options

Alt+A - Change drive Acoustic level

Alt+O - OK / Enter

Alt+C - Cancel

Alt+T - Select Test option

Alt+C - Change drive Capacity options

Alt+C - Cancel

Alt+O - Capacity options

M - Select Maximum capacity

3 - Select 32GB capacity

8 - Select 8GB capacity

Alt+D - Drive pull down menu

Alt+ F - Features pull down menu

Alt+U - Change Ultra DMA Mode

Alt+C - Cancel

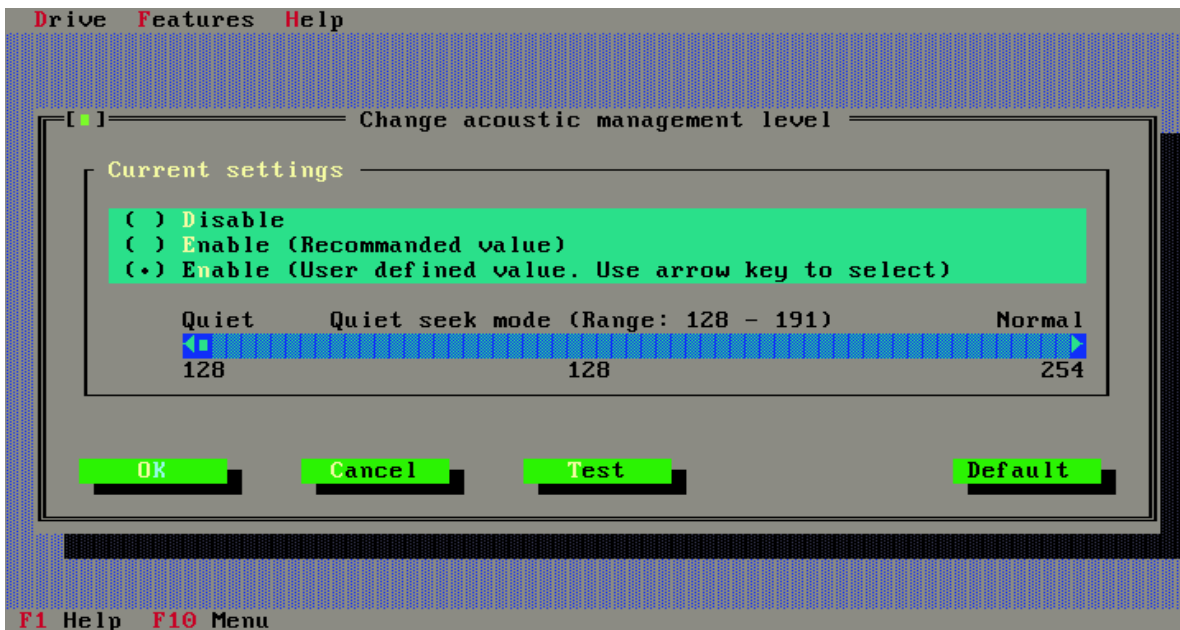
Alt+O - OK

Alt+X - Exit IBMFTOOL.

Automatic Acoustic Management

Automatic Acoustic Management (AAM) is available on the IBM DTLA (Deskstar 40GV and Deskstar 75GXP) and newer IBM ATA Hard disk drives. Changing the acoustic mode setting of the drive allows the user to make the acoustic level of the drive more suited for the working environment. The acoustic management level of the drive can be changed from the lowest setting (Quiet Seek Mode) to the maximum performance level (Normal Seek Mode). The drive performance and acoustic level may increase with increasing acoustic management level setting.

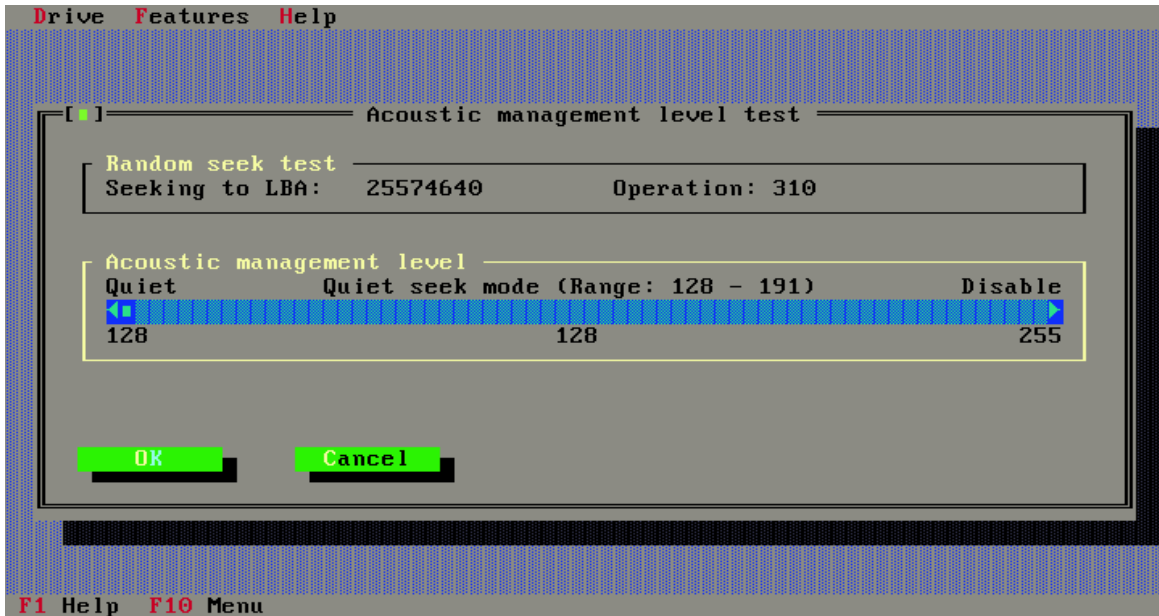
As can be seen from the screen below you have three options for automatic acoustic management, it can be **disabled**, set to the **recommended** value (normal) or **user defined**.



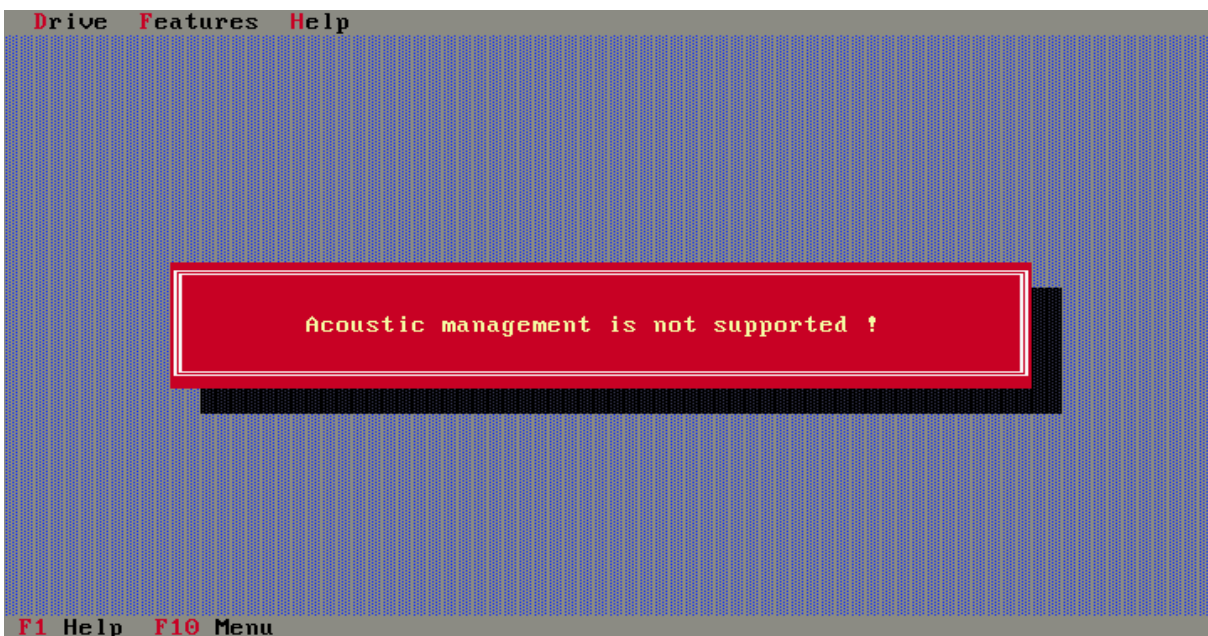
When the user-defined option is selected, sliding the marker along the thermometer sets the acoustic value, this is achieved by using either the mouse or the cursor keys. The value displayed in the middle of the thermometer is the current acoustic level setting, this will be seen to change as the slider is moved from the **quiet** end of the scale to the **normal** end. The text above the thermometer displays the range of values that comprise either the "quiet seek mode" or the "normal seek mode".

The **Test** option allows you to assess the effect changing the automatic acoustic management level will have prior to making the change permanent. To use this option select Test (**Alt + T**) or tab to the Test button and press enter. The following screen will be displayed.

Use the cursor keys to slide the marker along the thermometer scale as you do this you will see the seek rate change (i.e. the speed at which the LBA values change). When you are happy with your setting select the **OK** button to set that value and return to the change screen above. You can now select **OK** again the actually change the setting in the drive.



If the drive selected doesn't support the option you are trying to change you will see a screen which is similar to that shown below.

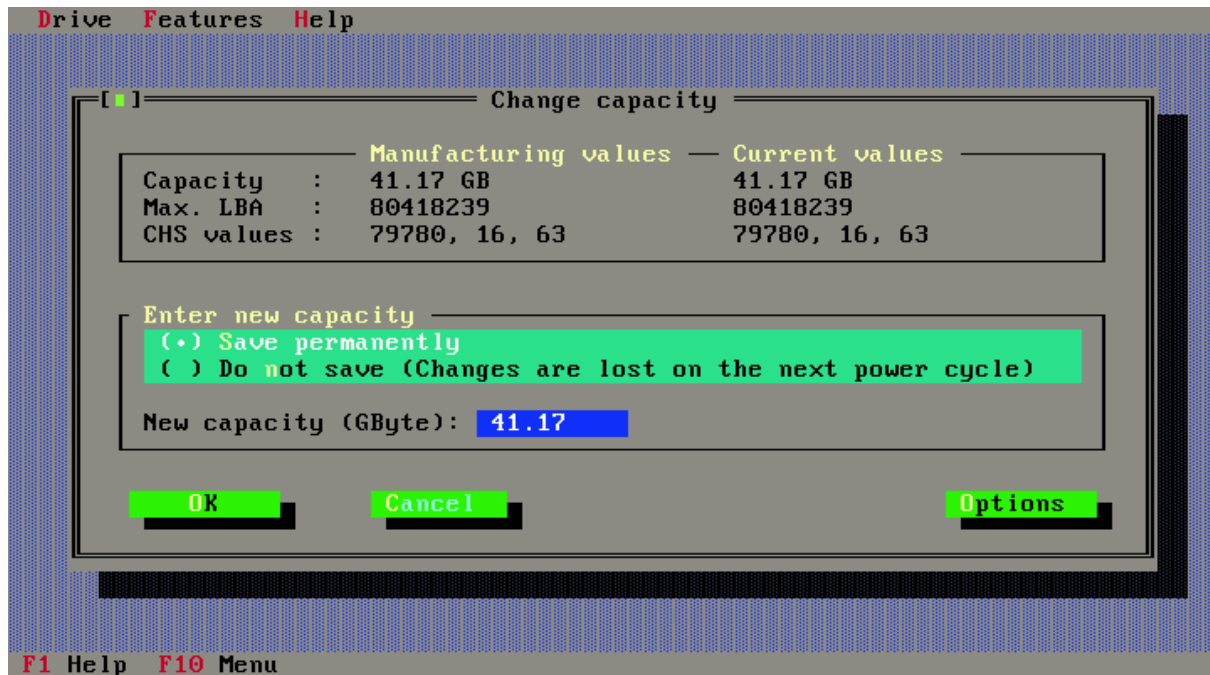


Device Capacity

This feature allows you to change the capacity of the selected drive. Two options are available

1. Change the capacity and make this change permanent
2. Make a temporary change, change will be lost when the drive (system) is power cycled.

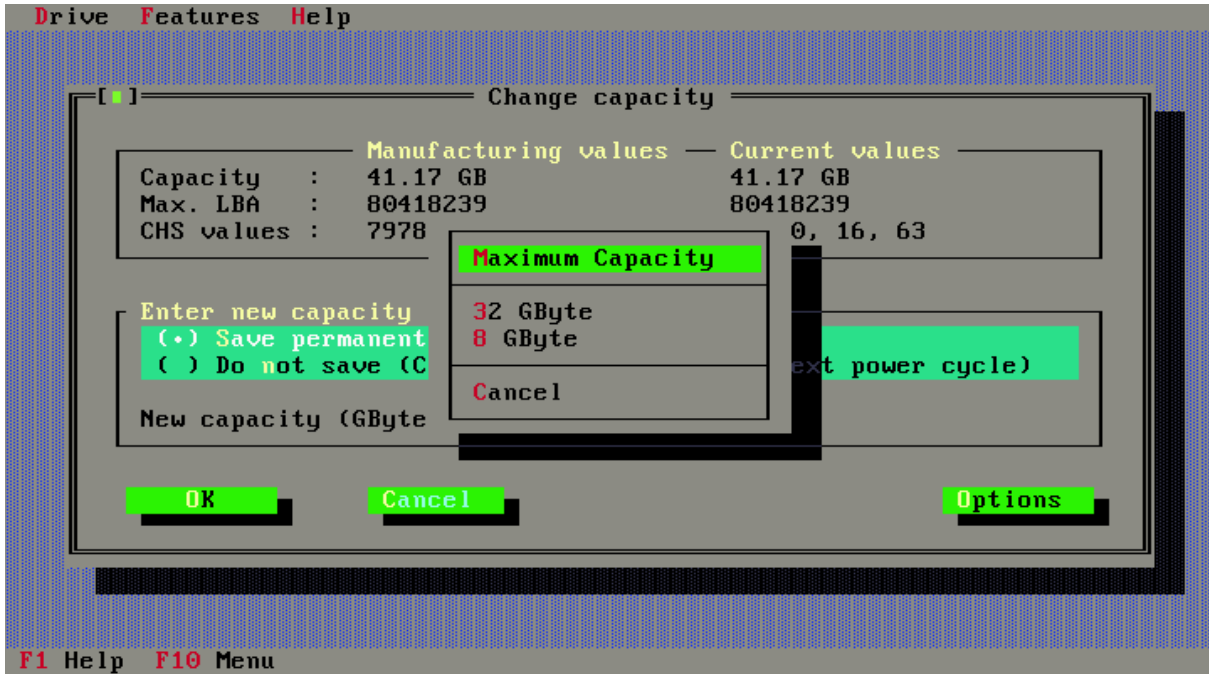
To make a change to the drive capacity you firstly need to decide if the change is to be temporary or permanent, then tab to the new capacity change box. Type in the new capacity value for the drive (to do this you need to either delete the indicated value and type in the new value **OR** press the **Insert** key and overtype the given value). Select **OK** to confirm your change.



Some of the older Motherboards BIOS's don't support the larger capacity ATA drives, which are now available. The **Options** button provides a quick means of changing the drive capacity to just below the known boundary limits of 8GB and 32GB, it also provides a quick means of resetting the drive to its maximum capacity.

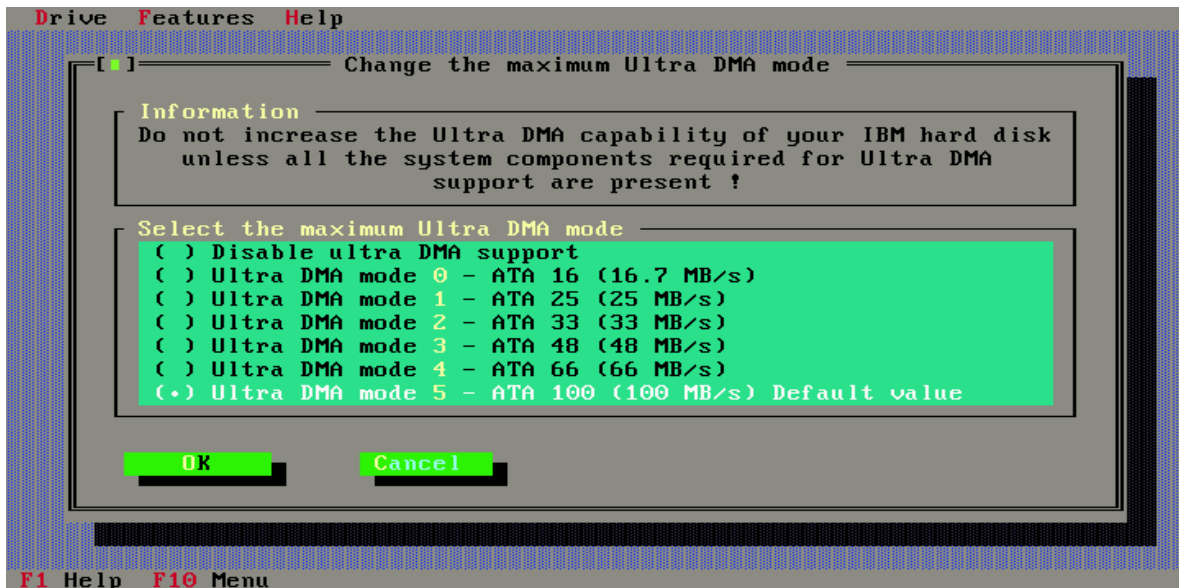
The screen shot on the next page shows the available options, as before these options can be selected by use of the cursor keys or via the hot-keys (**Alt** +).

Pre-defined capacities

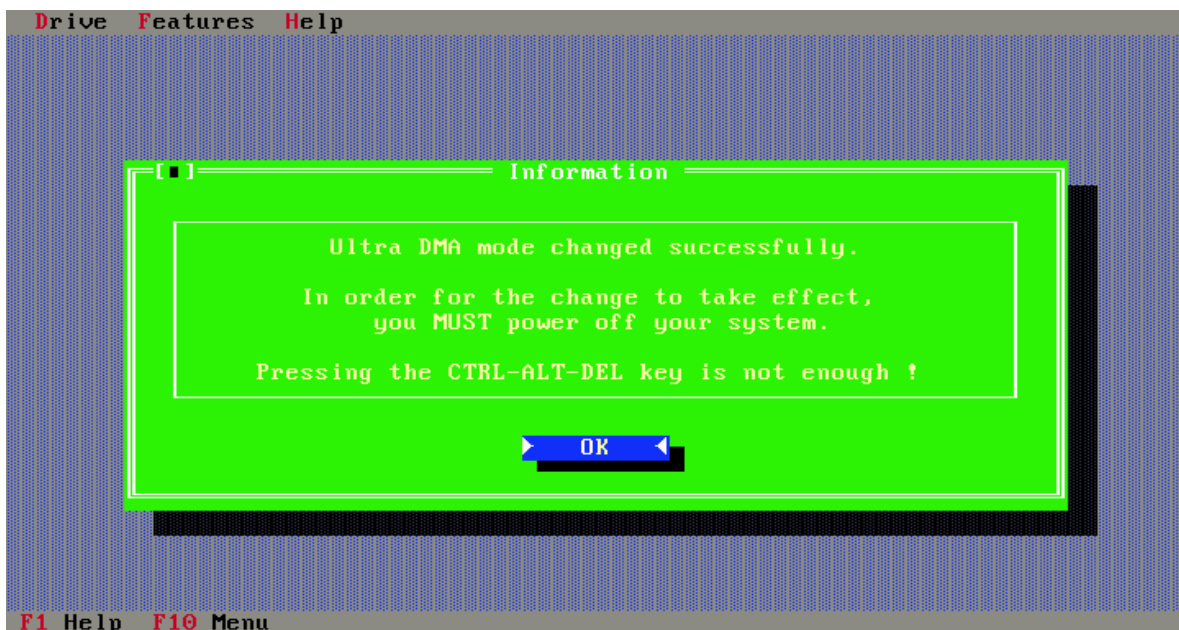


Ultra DMA Mode

When the change Ultra DMA Mode option is selected from the drop-down menu or by use of the hot-keys (**Alt + U**) you will be presented with a screen as shown below. The number of UDMA option settings which you will be presented with is determined by the maximum UDMA mode that the selected drive supports, e.g. if your drive is only capable of supporting up to Mode 4 (66 MB/sec) then you will only see UDMA modes 0 to 4 listed.



The current UDMA Mode setting of the selected drive will be highlighted, to change to a new setting use the cursor up/down keys to select the desired value, then tab to the **OK** button and press enter. When the change has been effected you will see the following screen, please follow the indicated instruction to complete the mode change.



NOTE : This utility supports changing the UDMA setting of IBM drives only and only those drives on which the UDMA is a changeable parameter. The following IBM Hard disk drives support changeable UDMA modes, IBM DPTA (Deskstar 34GXP & 37GP) and IBM DJSA (Travelstar 20GN, 30GT & 32GH) and newer IBM ATA Hard Disk Drives.

If you attempt to change the UDMA setting of a hard disk drive that doesn't support changing of this feature or on a non-IBM drive the following screen will be displayed.



IBMFTOOL - Hardware Support and Restrictions

The IBMFTOOL supports IBM manufactured ATA hard disk drives attached to IBM compatible PC's systems. This utility also supports IBM hard disk drives which are installed in systems via PCI-to-ATA adapters from Promise Technologies (UDMA/33, UDMA/66 and UDMA/100), CMD and Highpoint (HPT336 and HPT370) also motherboards which utilises the Promise and Highpoint Chipsets.

Use with Non-IBM Products

This tool is provided for use only with IBM hard disk drives, however some of the supported parameters of other manufacturer hard disk drives e.g. drive capacity may be changed. IBM doesn't support the use of this tool to change any parameters on non-IBM drives and should a user do this it is done at their own risk.