DISKTEST PRO
v1.1 Windows 32bits

TEALTECH

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Warning - Read this first

This program is intended to analyze, repair or modify floppy disks and obviously will   if the user says to do it. No confirmation box will appear to prevent a mistake. This program assume you know what you are doing. Well, you should know what you are doing if you want to use it. If this program is not used with care you may loose data. If you use this program to format floppy disks, you will loose any data on it, just as if you used the system's Format command. **Disktest PRO** is intended to be used by pro's or desperate people...

   The author of this program is not responsible of anything that occurs on any computer before, during and after the use of this program. You should read this help file before using this program.

What's This

    Disktest PRO is a *Windows* (32Bits) program to analyze, repair or **modify 3.5" Double Sided High Density** floppy disks on **first floppy drive** (**A:**). It won't work on Windows 3.x, other drive or with other type of floppy disk.

    With *Disktest PRO* you can test floppy disks, search for bad sectors, repair bad sectors, format, quick format, recover data on bad sectors, make backups, mark/unmark bad sectors. Data recovered is **100% reliable**. You can also format individual parts of the disk even with bad sectors on system area. All tasks can be viewed in an interface that lets the user see what is going on and where on the disk.

Minimum Requirements

Disktest PRO does not need to be installed but it requires a version of *Windows* that is **32bits** like Windows **9x/NT4** or later.

Hard disk space depends on how you use the program. A minimum of **500KB** for the program and help file and also **1.4MB** for each "Save" operation you make. The Save files are placed on the same folder as the program.

For memory, **8MB** should be enough but 16MB recommended.

For CPU speed, there is no minimum but all functions should run well (smoothly) above **120MHz**.

To display correctly on the screen you may have to adjust brightness or contrast in your monitor. Some monitors display poorly the images and just appears too dark. Increase brightness in that case.

About the author

   Disktest PRO is a **FREE** Windows 32Bits program made in *Visual Basic 6* **by Manuel Augusto Santos** from Medas-Gondomar-**Portugal**. This is a FREE program, witch means that you can use it on any computer without paying anything.

That's me!

   You can copy it and pass to friends but the author prefers that you pass only the Internet address from where you got it. No support is provided but you can contact me at augusto@popcorn.net
The author speaks English, Portuguese and French.

Want Source Code

   If you find this program useful or nice and wonder how it was done you can have the source code for something equivalent to **five (5$) U.S. dollars**. You will get the full source code ready to be compiled by **e-mail** (this is about 650KB in ZIP format), with all the pictures included. You can contact me by e-mail at **augusto@popcorn.net** to discuss details.
   The source code is 100% *Visual Basic* 6 code. The boot sector of floppy disks witch is obviously in machine code, is also constructed in VB6. The pictures included (but not needed as they are inside the VB project) are all in .BMP or .GIF format.
   You can have the Source Code for a small amount of money but cannot use it for profit or to promote it in any way. You can   modify the Source Code only for using it on your computer. ***Disktest PRO*** source code can only be used as a reference for other work, not as a base program to future releases. If you want modifications to be made on the original program, ask for them by e-mail, maybe if there are enough requests I will consider making available a new release.

Disktest PRO doesn't run my computer

Probably due to one of two things:

1. You don't have **Windows 9x/NT4** or better. Try the program on a computer with a decent version of Windows.
2. You don't have installed the **Visual Basic 6 Runtime files**. You can get them at Microsoft or on most shareware/freeware site. The reason to do this is that the size of the program would be more than 1MB!
3. If you have problems with .DLL files please install Visual Basic 6 runtime files.

The Visual Basic 6 runtimes are available on many shareware/freeware download sites, the size is about 1MB and are FREE.

Where's the Menu?

   There's no menu, you can access all the functions within the main screen. You can click on TEALTECH for the "About..." box and
EXIT to exit immediately from the program. To get Help from the program (this file) you can click on
DISKTEST PRO.
   To change floppy disks or to show the floppy disk you inserted when the program starts, just click on the picture of the floppy disk (▣)on the right of the Exit button.
   There is no conventional Minimize or Maximize and there is no way to resize the main screen to the size you want. But you can change the aspect of the main screen by clicking on one of the symbols displayed on the left of "**DISKTEST PRO**".

   Central View - ▫ - shows small Surface but big Central. Used when you don't want to view details of the floppy surface.

Surface View - ▫ - shows small Central but big Surface. Used when you want to see details on the disk surface (individual sectors) and for repetitive actions (controls on Central wont change for a long time)

Small View - ▫ - shows only details of the surface and Central for background operation and repetitive actions.

   Full View - ▫ - shows all details, this is the maximum window size.

Disk Surface

The Disk Surface shows the floppy disk sector by sector or track by track if you are using Central View or Small View. A 3.5" DSHD floppy disk is organized in **80 Tracks**, **2 Sides** with **18 sectors** in each part.

In Surface View or Full View you can see all sectors in the floppy disk. In Central View or Small view you see only each Track/Side. In this case the 18 sectors are grouped and only the most important sector status is displayed.

In 3.5" DSHD floppy disks, the first sector is the BOOT sector, next 9 sectors for first copy of FAT (file allocation table), next 9 for second copy of FAT, next 14 for ROOT directory entries. All the 2847 sectors left are for Data.

On the left part of the main window, just below "**TEALTECH**" you can see a small box of information for the boxes that represents each disk sector. Two type of information are shown. First, inside the box, you have the sector type. Then, on the box border you have the sector status.

The sector type can be:	The sector status can be:
- *Boot*	- *Normal/not tested*
- *FAT1*	- *Good sector (tested)*
- *FAT2*	- *Bad sector*
- *DIR*	- *Reading*
- *Empty*	- *Writing/formatting*
- *Data*	- *Verifying*
- *Bad sector*	- *Editing position*

There can be any combination of sector type / sector status. When some test is in progress, the sector colors change according with the result of the test. In Small View or Central View, only a summary of 18 sectors (Track/Side) will be displayed.

To show where the test is taking place, on the right side of the main window you can find the current testing position:

Current Track, Current Side, Current Sector and Current Absolute Sector (1-2880).

Timing

Timing is important. Sometimes, Windows takes a long time to read even small amounts of information from the floppy disk. why? Just because Windows tries to read the track. That includes bad sectors. So, when a track has a bad sector, more tries on reading sectors will be produced. Then, the system will realize that it cannot read the track as a block and tries to read smaller amounts of sectors. This method is fast on good disks but takes a long time when the disk has really bad sectors.

Disktest PRO helps detecting efficiency falloffs with a peak detection screen. On right side of the main window, there will be displayed a wave generated with the time that each operation takes to perform. When the wave is high, it means the operation took more time to complete than the others, possibly showing where Windows takes more time to read.

Some operations will also take several minutes to complete. Five clocks will help knowing how much time you have to wait:

- *Current System Time*: center
- *Elapsed Time*   : bottom left
- *Time Left*   : top right
- *Total Work Time*   : bottom right
- *Finish Time*   : top left

Using Functions

    Each operation that starts, will use the reading parameter displayed on the bottom left corner of the main window. ▓▓▓▓▓ This parameter which can be 1, 3, 9 or 18 represents the amount of sectors tested each time. If you choose 18, the operation will go fast, but status retrieved from the operation will be set for all the 18 sectors. If you choose 1, the operation will go slow but the status will be exactly the one the sector has.

    Formatting is only possible in 18 sector at a time. Quick Format and Recover/Load disk functions will not use this parameter. The main screen view also affects this parameter, as in Small View or Central View (small surface), only 18 sectors at a time is possible.

 To select an operation, click on the corresponding button. The specific parameters will be displayed on the left. This action does NOT start anything. There are four main operations:

        - **Scan**, to detect bad sectors
        - **Format**, to initialize the floppy disk
        - **Recover**, to save or load a floppy disk to/from hard drive
        - **Edit**, for more specific operations on the disk surface.

See Functions for more details.

Remember that if you want modifications to occur on your disk, it must be set on Not Protected mode (slide the tab on the floppy disk so that it covers the hole).

Start Button

    To start any operation you have to select it then move the mouse on top of the central button, it will slide in and then click it. Before clicking this area says what you are about to do. The test will start immediately after you click it and the text changes to a red STOP. To cancel the test, just click it one more time.

    You can abort and start again all tests without worry.

Scan Surface

Scan Surface will test each sector to find if there are any defective sector. Although the main purpose of the function is scanning, data may be written on disk depending on the options you set. Don't worry, the only data written is the one already on disk. To Scan you have to set the following options:

- *Number of Sectors* to read each time (1, 3, 9 or 18 at a time) which is only available on Surface or Full View.
- *Read/Write/Verify*. These are the operations performed on the floppy disk. They can be in one of these combinations:
  - Read
  - Read/Write/(Read)
  - Read/Write/(Read)/Verify
  - Read/Verify
  - Verify

A second Read operation is always performed if a Write operation is performed.
- *Repair/Check/User*. Sets options to pre-determined settings. Repair sets options optimally to repair disks, that is : Read Sectors, Mark bad sector, Leave bad as bad and copy good sectors to memory. Check sets options optimally to search for bad sectors, that is : Read sectors, write data written back to disk, Read again to se if a write operations is successful, verify (a task performed by the floppy hardware), Depth scan to determine the bad sector and copy good sectors to memory. User option is used to combine in any form all the options.
- *Mark Bad*. Mark sectors as Bad (with no data, no system sector). The space used is no longer available for files.
- *Jump Bad*. Sectors Marked as bad are not tested.
- *Depth Scan.* When bad sector found, the number of sectors tested are reduced by one unit until its founds the only sector which produced the error.
- *Auto Copy.* When good sector are read, the data is copied to memory so that it can be used is Recover - Save Disk. Sometimes a good reading is hard to get, so setting this options will help reduce time when recovering data.

Format Disk

Format is a way to initialize the floppy disk. Hardware provides this function. It erase completely all information on your disk. There is no way to recover a single character. This function is provided to you with the Full option. The Quick option only erases the floppy file system. All information is still on the disk except the data that enables you to get it. Only track 0 (first track) is used, so this is not a way to analyze or repair a disk.

- ***Full***. Use Full to format the disk. All information is deleted. Use this also to try to repair a very defective disk but take very special care when formatting on old bad sectors. These may   appear as good but can return to bad after use.
- ***Quick***. Use Quick to quickly clean the disk of all information.
- ***Mark Bad.*** Mark sectors as bad as they are tested or leave them as bad.
- ***Jump Bad.*** Do not format sectors *already* marked as bad (full format only).

If you have track 0 bad, in Windows you have a damaged disk that worth's nothing. With Disktest PRO you can try Edit mode to format/overwrite this track many times. If even this way the track remains bad, then consider that the disk may indeed be damaged…

Recover Disk

Recover permits the user to save the entire floppy disk information to the disk or to load it back to the floppy disk. When saving, an attempt is made to read all sectors with valuable data. This is a typical thing to do when you have a bad sector where you have also data. The sector is read until a good read is made. This operation can take a long time and a limit is imposed by the field Next Jump. The procedure to follow is to save the floppy to hard disk and then load it back to a clean, safe floppy.

- *Save*. Use Save to save the floppy information to hard disk (the image file will be in the program folder)
- *Load*. Use Load to write image information back to floppy disk. The destination disk must be compatible with the one saved. A clean, free disk is always compatible.
- *Next Jump*. This is the number of times of bad readings you are able to wait. Sometimes it is very hard to get a good reading but I already got a good reading after 5000 readings. So if the information is worth the time increase this value.
- *Mark Bad*. Set ON if you want to mark bad sectors on the destination disk.
- *Only Data*. Set ON to perform readings only on the data. Empty sectors and Bad Sectors are not read.
- *Depth Scan*. When ON on a bad read, an attempt is made with smaller parts of the disk track depending on the number of sectors it is already reading.
- *File*. This is the name of the file that will be created on the hard disk. You have to change it in order to make multiple images since the previous file is overwritten.

Edit Disk

   Use this function to manually search for bad sectors, to format parts of the disk, to mark bad or unmark only where you want it. Use the cursor keys to move around. Format, Overwrite, Mark and Unmark are only available when you click the main operation button and act as a one time operation that may be repeated if you click it again. All others, when **on**, are performed constantly.

   - *Mark*. Automatically mark bad a bad reading.
   - *Copy*. Copy good readings to memory for later use in Recover
   - *Read*. Read disk sectors. The sector will be read repeatedly.
   - *Write*. Write information back. Only works if a good reading is made.
   - *Verify*. Verify sector repeatedly
   - *Format*. Format sectors. Only a block of 18 sectors is formatted in the cursor position. Data is lost. Good way to recover bad sectors but also a way to set the track as bad if the recovery is not possible.
   - *Overwrite*. Overwrite sectors with not useful information. Data is Lost. Good way to recover individual bad sectors (depending on the number of sectors tested).
   - *Mark Bad*. Mark sectors bad even if they're not. It is a good procedure to mark the entire track as bad to optimize the reading time (Windows tries to read the entire track).
   - *Unmark*. Unmark Bad sectors. Useful if there are good sectors marked as bad. Take care because you can get a good reading one time and a bad after some use.

Cannot read from specified device

"Cannot read from specified device". If you get this message, probably you have a bad sector on data.
- Use Scan to know where it is. Set Auto Copy, Depth Scan and Jump Bad. Unset Mark Bad.
- Scan the disk.
- Now you have two options depending on the value of the information.
- If the information is valuable use Recover to "Save" the disk. insure the bad sector gets a good read. Get a clean and safe disk. Use Load.
- If the information is not valuable, delete the files first or use Quick Format. Run again Scan or use Edit to mark the sector as bad. Preferably set the entire Track as bad.

Abort Retry Ignore

Abort, Retry, Ignore. This the DOS equivalent to "<u>Cannot read from specified device</u>".

The disk "is not formatted"...but I just put information on it!

This is a problem in the system area.
 - Use "Recover - Save" to save the floppy. Insure don't get any bad reading.
 - Get a clean disk. Use Load.

It took a very long time to read a small file from the floppy

Probably Windows is trying to read an entire Track but it has bad sectors.
 - Use Scan. Set 18 sectors reading.
 - See the Wave on the lower right corner. See if it has a reasonably straight line. If not then mark bad the Track that is causing it or just simply set all track bad when they have one or more bad sectors.

Not enough space on the disk

You can get more space setting bad sectors as empty sectors. But this not a secure action. If you are sure there's no problem, use Edit. Position the cursor on the bad sector, click on Unmark.

I would like to make backups

- Use Recover - Save to backup
- Change disks, change File name
- Use Recover - Load to restore

The disk has some problems...sometimes

If the disk has problems with bad sectors but not always you can:
 - Backup the files (copy them to hard disk) or use Recover - Save.
 - Use Scan. Set Read, Write, Verify or just click Check. Set Mark Bad.
 - If you're not sure of the result, use Format - Full and run the Scan test again.

I have problems with a disk the is not 3.5" Double Sided High Density

well...bad luck. This software only works with 3.5DSHD floppy disks on drive A:

My 3.5DSHD disks are on drive B

well...bad luck. This software only works with 3.5DSHD floppy disks on drive A:

I can use bad sectors to send hidden information

Yes you can. Using Edit - Mark to draw the text with bad sectors as weird as it may seem. But you can also do other strange things. Like using disks with track 0 bad. Windows says the disk is not formatted but the space is available. You have *only* to program Reading/Writing yourself. This program source code is a good start, see "I want Source Code"