

# How to write TI Disks with OmniFlop on Windows 2000, XP, Vista

Paolo Bagnaresi, May 6<sup>th</sup>, 2009

## OmniFlop – Where to find it

Download: <http://www.shlock.co.uk/Utils/OmniFlop.zip>  
Home page: <http://www.shlock.co.uk/Utils/OmniFlop/OmniFlop.htm>  
Manual: <http://www.shlock.co.uk/Utils/OmniFlop/User%20Guide.htm>

## A caveat

At this early stage, OmniFlop is not TI aware and it doesn't know how to format a TI disk. So, in case of disk write, you have to provide the properly formatted floppy disk. Jason Watton, of Sherlock Consulting Limited, author of OmniFlop is currently working on making OmniFlop fully TI aware. In the meantime, we can read/write all TI disks, excluding the 36 sector/track format (HD disks, usually 1440 KB/disk). Not too bad, as a start from scratch.

As with TI99-PC, Single Density is supported only if the hardware of the floppy disk controller of your motherboard supports it. And, as usual, a PC comes in different flavours. So your PC may not handle Single Density at all, or it may be able to fully handle it, or only partially handle it. In case of partial handling, it may read but not write or format Single Density, may only read and write but not format, and so on.

At this early stage, please avoid floppies that need double stepping. Also, please stick to 3.5" floppies only and avoid the 5.25" type. 3.5" floppies are quite reliable and don't need double stepping. Double Stepping will be taken care of in the near future, so don't despair. You will be able to use/process those boxes of 5.25" floppies you kept from the 80's.

## Let's begin

Here we suppose you have already installed your OmniFlop.sys driver in Windows Device Manager. If you haven't done so yet, you must do it now, before trying to read/write any TI disk. If you don't, you will be wasting your time.

OmniFlop will also require you to get a license (to register). The registration process is entirely free of charge. No money will be asked, Jason just wants to know how many copies are installed and operating in the entire world. Please choose to register online, which is entirely automatic and takes only a few seconds. Avoid the e-mail method, that needs Jason to read and process each e-mail manually: it will take days! In any case, you will be provided a license by an e-mail from Jason, so make sure the e-mail address you submit is a valid one.

Don't try to register in advance. No need to. You will be asked to register while operating OmniFlop for the first time. At times, you will be requested to register more than once. Just do it, it's always free.

### **Get going**

Insert the floppy you want to read/write into the floppy drive and then launch OmniFlop.exe, from the folder where you have unpacked OmniFlop.zip. If the floppy must be written to, you have to insert a floppy that must be already formatted, as needed by the disk image file you're about to write. This means that sectors/track, number of tracks, number of sides must match.

You get to this image:

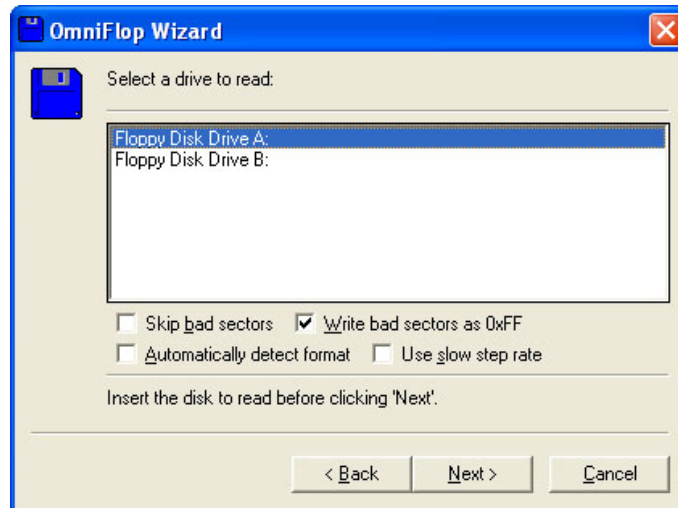


Click on Next. You get here:



Suppose you want to read a TI floppy: click on "Read Disk" and then on "Next".

If you choose “Write disk”, the rest of the procedure will be just the same. But in case of “Write disk”, make sure you change the extension of ‘\*.img’ or ‘\*.dsk’ file to be written to disk to ‘\*.fea’. In this way you will avoid a lot of fuss later on (when we will have to choose the writing format).



Select the floppy disk drive (A: or B:).

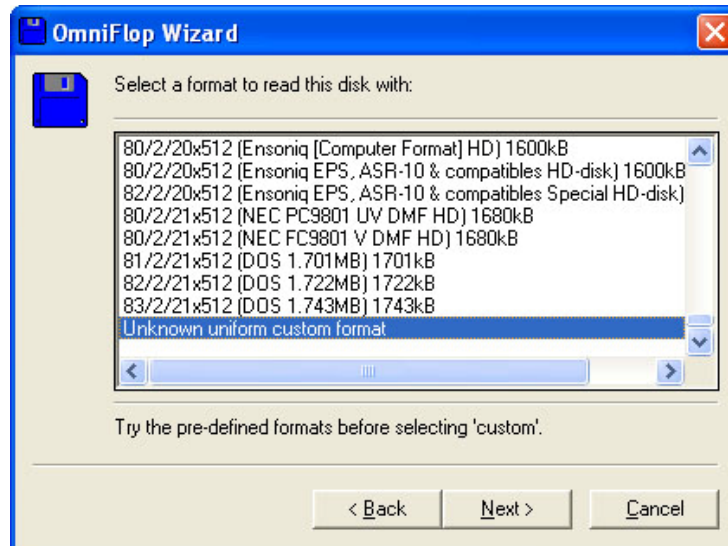
**Disable:**

- Skip bad sectors
- Automatically detect format
- Use slow step rate

**Enable:**

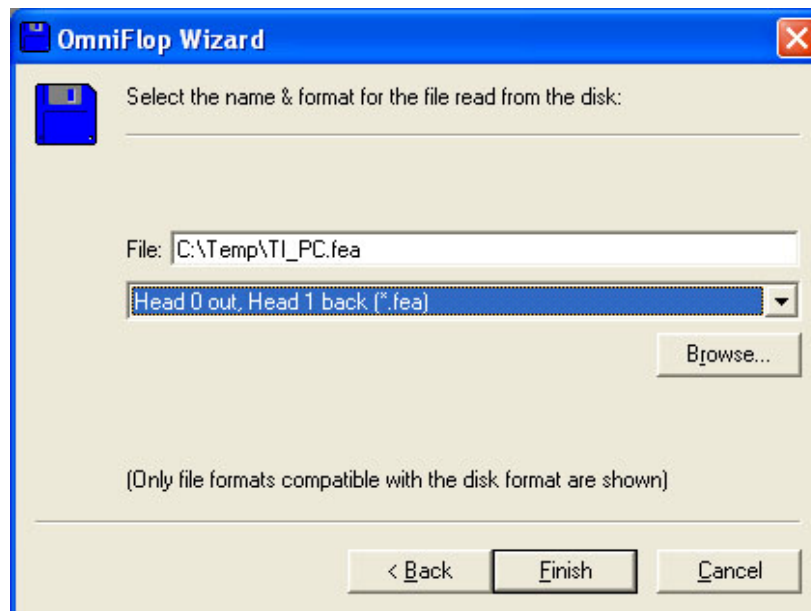
- Write bad sector as 0xFF

Click on “Next”



Select “Unknown uniform custom format”

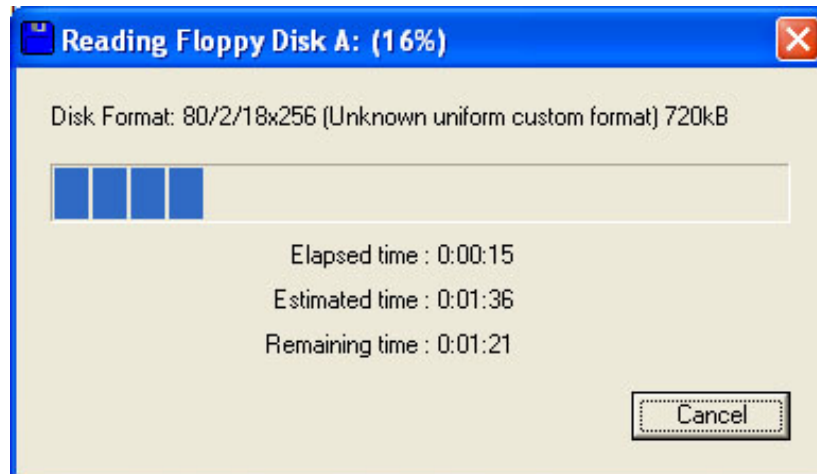
Click on Next



Now you choose “Head zero out, Head 1 back (\*.fea)” as a format. Select the folder and filename you want for this new TI disk you’re about to read. It’s “C:\Temp\TI\_PC.fea” in our example.

**Click on Finish**

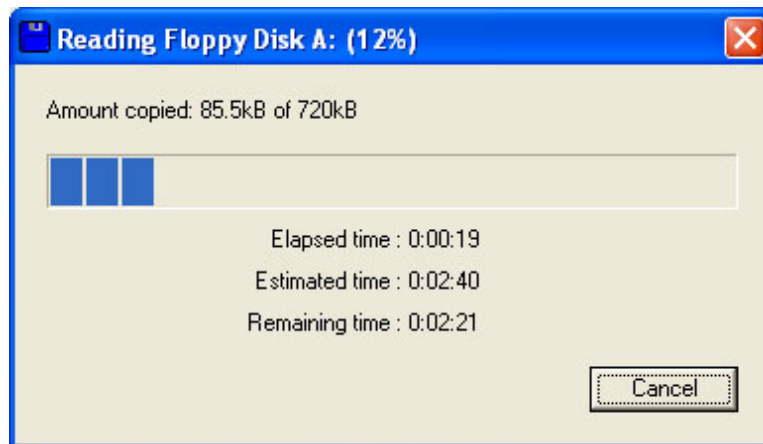
The floppy drive will start spinning and you’ll hear the clicking sound of the drive head moving across the different tracks. During the operation, Omni Flop will display the floppy format, example:



80/2/18x256

This means: 80 tracks, 2 sides, 18 sectors per track, 256 bytes per sector.

The display will alternate with this one:



At the end of the process, you will see this message:



## Notes

- 1) \*.fea Format

The “Head zero out, Head 1 back (\*.fea)” format is important only for Double Side disks. If you will be using only Single Side TI disks, a “Standard disk image (\*.img)” format will be just fine. The “\*.fea” format makes sure the reading on the second side of the floppy starts from the innermost track, as it happens with any disk controller for TI.

You can avoid renaming the extension of your file to be written as ‘\*.fea’, but then you will have to fight with OmniFlop, that will try to match the extension of the chosen format with the actual extension of the file you are about to write. It is possible to avoid renaming the TI disk image file ‘\*.fea’, though. Do as follows:

- 1) Browse for the file name
- 2) Choose the format, “Head zero out, Head 1 back (\*.fea)”. You will see the extension of the chosen filename will be automatically changed to ‘\*.fea’.
- 3) Now carefully edit the filename extension back to the real extension (\*.img or \*.dsk).
- 4) Click on **Finish**

## **2) Test a Disk Write with enough files**

When writing a disk, it is easy to see if you are using the right procedure with OmniFlop. Use a disk image file containing a number of files exceeding the number of sectors that there are in a single track. For instance, if you want to see if a Single Density disk is written properly, try with a disk image file that has more than 9 files in it. For Double Density, use disk image file that has more than 18 files in it.

Once the disk has been written, a simple disk catalog will show you if you have chosen the right writing method. The method is good if you can see all the filenames of the disk image file. None must be missing. If some file is missing, or your catalog shows garbage, chances are that you did not follow the “Head zero out, Head 1 back (\*.fea)” format (see above).

If you do not use the the “Head zero out, Head 1 back (\*.fea)” format, OmniFlop will place all the consecutive sectors coming from disk image file in both sides of each track. First on side 1 and then on side 2 of track zero. After both sides of a track zero are filled, OmniFlop will move the next inner track (track 1), doing the same thing (side 1 and then side 2). All the remaining tracks will be filled the same way. Obviously, this is no good for a TI disk and will create a useless TI disk.

## **3) The best way to format a Single Side TI floppy for OmniFlop**

If you are formatting a Single Side TI disk to be used with OmniFlop, you should format it first as a Double Side PC disk (512 bytes/sector) on your PC, making sure to format every existing track. Then, format it as Single Side TI disk. This double format procedure should make OmniFlop understand that the sectors belonging to the second side have nothing to do with the sectors belonging to the first side

(they are 512 byte/sector versus the 256 byte/sector standard in a TI disk). This simple trick should allow a correct disk write with OmniFlop.

#### **4) Matching a TI floppy with the correct disk image file**

When writing a TI floppy with OmniFlop the floppy must be already formatted as needed by the disk image file you're about to write. This means that sectors/track, number of tracks, number of sides must match. For instance, use a DS/DD 80 tracks 720 KB TI formatted diskette, if a 720 KB DSDD 80 track TI disk image file has to be written.

As another example, if a DS/DD 40 Tracks 360 KB disk image file has to be written to a TI Disk, a SS/DD 80 track 360 KB TI formatted floppy won't be good, because the disk image file doesn't match the formatted floppy.

TI99-PC has a nice feature that allows you to easily change the disk parameters of an existing Disk Image File. It's option 1, 7 (Split a large image file...). This option can be used to change format size too.