



**Sherlock Consulting Limited**

# OmniFlop Floppy Disk Driver & Wizard

## User Guide

<b>Document Type</b>	User Guide - Uncontrolled
<b>Document Version</b>	2.01f
<b>Document Reference</b>	User Guide.doc
<b>Date</b>	10 January 2006
<b>Author</b>	Jason Watton
<b>Status</b>	Release
<b>Total Number of Pages</b>	35

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# 1. Introduction

## 1.1 Product Overview

OmniFlop is a utility suite for accessing non-standard floppy disk formats in a standard PC. This is useful for archiving and resurrecting ancient data formats and floppy disks.

## 1.2 Purpose

This document is the User Guide for the OmniFlop utility suite.

## 1.3 Scope

This guide covers installation of the OmniFlop floppy disk driver and use of the OmniFlop Wizard application.

## 1.4 Readership

This document is targeted at any person involved in using the OmniFlop utility.

## 1.5 References

Ref	Title	Author

## 1.6 Acknowledgements

This document is a first edition.

The product and this document owe credit to:

Jason Watton for authorship.  
 Chris Richardson (<http://www.8bs.com>) for testing, encouragement, and support.  
 Jonathan Graham Harston for extensive and unique information about alien disk formats.  
 The Stairway To Hell website (<http://www.stairwaytohell.com>).  
 alchresearch on The Stairway To Hell forum, and at <http://www.alchemistresearch.com>  
 Robert Schmidt and "The BBC Lives!" (<http://bbc.nvg.org>).  
 The BBC Micro community via the BBC Micro Mailing List.  
 Peter Edwards for offering me a beer (or was it Sam?).  
 Paulo Gomes for telling me about compatibility with Shima Seiki sewing machines.  
 Tim Felgate, Darren Atkinson, and Markus Dimdal for reporting the vital format statistics.  
 Others who have tried, tested, and used previous versions of OmniDisk and OmniFlop.  
 Those rightly disgruntled by being missed off this list - tell me (I'm sorry).

All of the above have the right to be identified where appropriate as authors of their respective works.

## 1.7 Glossary

Definitions in the text are shown ***italicized and bold***. Use of terms recently defined elsewhere or a direct quote from elsewhere in the text are shown *italicized*. Bold and underlining are used for emphasis.

<b>API</b>	Application Programmer's Interface, a set of functions and declarations which provide the programmer of an application to use an object.
<b>BIT</b>	Built-In Test
<b>CAN</b>	Controller Area Network
<b>Hex</b>	Hexadecimal

<b>RESIO</b>	Red Earth Systems I/O system - a range of simple modules for developers to control electronic I/O from a PC.
<b>Rx</b>	Receiver/Reception
<b>Tx</b>	Transmitter/Transmission
<b><math>\mu C</math></b>	Micro-controller.
<b><math>\mu P</math></b>	Microprocessor.
<b>USB</b>	Universal Serial Bus - an electrical and signaling standard plus protocol for device communications.

## 1.8 History

The following versions of OmniFlop have been released:

Date	Details
31st Dec 2004	<b>v0.01 Beta Release:</b> Supports: <ul style="list-style-type: none"> <li>• 5¼" 360kB drive: Standard DOS formats only</li> <li>• 3½" 720kB drive: Standard DOS formats only</li> <li>• 5¼" 1.2MB drive: Extended formats (see below)</li> <li>• 3½" 1.44MB drive: Extended formats (see below)</li> <li>• 3½" 2.88MB drive: Standard DOS formats only</li> <li>• Standard x86 system architecture: Extended formats (see below)</li> <li>• NEC 98 system architecture: DOS formats only</li> <li>• 5¼" 360kB drive: DOS 160kB</li> <li>• 5¼" 360kB drive: DOS 180kB</li> <li>• 5¼" 360kB drive: DOS 320kB</li> <li>• 5¼" 360kB drive: DOS 320kB x1024</li> <li>• 5¼" 360kB drive: DOS 360kB</li> <li>• 3½" 720kB drive: DOS 720kB</li> <li>• 5¼" 1.2MB drive: DOS 160kB</li> <li>• 5¼" 1.2MB drive: DOS 180kB</li> <li>• 5¼" 1.2MB drive: DOS 320kB</li> <li>• 5¼" 1.2MB drive: DOS 320kB x1024</li> <li>• 5¼" 1.2MB drive: DOS 360kB</li> <li>• 5¼" 1.2MB drive: DOS 720kB</li> <li>• 5¼" 1.2MB drive: DOS 1.2MB</li> <li>• 5¼" 1.2MB drive: (Extended) BBC DFS 40 (100kB/200kB) [Chris Richardson]</li> <li>• 5¼" 1.2MB drive: (Extended) BBC DFS 80 (200kB/400kB) [Chris Richardson]</li> <li>• 5¼" 1.2MB drive: (Extended) BBC DDOS 360kB (1-side) [Chris Richardson]</li> <li>• 5¼" 1.2MB drive: (Extended) BBC DDOS 720kB [Chris Richardson]</li> <li>• 3½" 1.44MB drive: (Extended) BBC DFS 40 (100kB/200kB) [Chris Richardson]</li> <li>• 3½" 1.44MB drive: (Extended) BBC DFS 80 (200kB/400kB) [Chris Richardson]</li> <li>• 3½" 1.44MB drive: (Extended) BBC DDOS 360kB (1-side) [Chris Richardson]</li> <li>• 3½" 1.44MB drive: (Extended) BBC DDOS 720kB [Chris Richardson]</li> <li>• 3½" 1.44MB drive: DOS 720kB</li> <li>• 3½" 1.44MB drive: DOS 1.44MB</li> <li>• 3½" 2.88MB drive: DOS 720kB</li> <li>• 3½" 2.88MB drive: DOS 1.44MB</li> <li>• 3½" 2.88MB drive: DOS 2.88MB</li> </ul>
2nd Jan 2005	<b>v0.02:</b> <ul style="list-style-type: none"> <li>• Extended formats disabled by default</li> </ul>
2nd Jan 2005	<b>v0.03 Beta Release:</b> <ul style="list-style-type: none"> <li>• Simple Analysis (Test) support added for all drive types.</li> <li>• Enhanced error reporting in Wizard.</li> </ul>
11th Jan 2005	<b>v0.04 Beta Release:</b> <ul style="list-style-type: none"> <li>• Enhanced Analysis algorithm - changed to distinguish between formats and sub-formats (e.g. 720kB/640kB) and check tracking.</li> </ul>

	<ul style="list-style-type: none"> <li>• Analysis support for NEC98 x86 system architecture (all drive types).</li> <li>• All drive types: Custom format added for readable unrecognised formats.</li> <li>• Read/Write of custom (unrecognized) formats added.</li> <li>• 'Test' function tries to match format &amp; advises of type of read/write to use.</li> <li>• Format option added but <u>not implemented</u>.</li> <li>• Pre-defined formats extended - now covers: <ul style="list-style-type: none"> <li>• (Extended) BBC DFS 40 (100kB single sided/200kB double sided)</li> <li>• DOS 160kB</li> <li>• DOS 180kB</li> <li>• (Extended) BBC DFS 80 (200kB single sided/400kB double sided)</li> <li>• DOS 320kB</li> <li>• DOS 320kB (1024 bytes/sector)</li> <li>• (Extended) BBC DDOS 360kB (single sided)</li> <li>• DOS 360kB</li> <li>• (Extended) BBC ADFS L 640kB</li> <li>• (Extended) CP/M-80 / PDOS 640kB</li> <li>• (Extended) BBC DDOS 720kB</li> <li>• Spectrum +3 CP/M 720kB</li> <li>• Atari ST DSDD 720kB</li> <li>• Amstrad CP/M 720kB</li> <li>• DOS 720kB</li> <li>• (Extended) BBC ADFS D, D+, E, E+ 800kB [Chris Richardson]</li> <li>• (Extended) Spectrum Miles Gordon Tech +D/Disciple 800kB [Andy J.Davis, Thomas Heck]</li> <li>• (Extended) DOS 800kB</li> <li>• DOS 1.2MB</li> <li>• (Extended) BBC ADFS F, F+ 1600kB [Chris Richardson]</li> <li>• DOS 1.44MB</li> <li>• DOS 2.88MB</li> </ul> </li> <li>• User Guide updated to include Windows 2000 installation.</li> </ul>
12th Feb 2005	<p><b>v1.00 Release:</b></p> <ul style="list-style-type: none"> <li>• Format option implemented for all pre-defined formats.</li> <li>• Pre-defined formats amended for GPL (format) and GSL (read/write).</li> <li>• Licensing added (levels All, Format, BBC, Other, Custom).</li> <li>• User selections stored between runs for use as default.</li> <li>• Added to pre-defined formats: <ul style="list-style-type: none"> <li>• (Extended) BBC ADFS S 160kB [Chris Richardson]</li> <li>• (Extended) BBC ADFS M 320kB [Chris Richardson]</li> <li>• (Extended) BBC Master 512 DOS Plus 800kB [Chris Richardson]</li> <li>• (Extended) BBC Z80 CP/M Acorn 400kB [Chris Richardson]</li> <li>• (Extended) ZX Spectrum TR-DOS 640kB [Art]</li> </ul> </li> <li>• Corrected pre-defined formats: <ul style="list-style-type: none"> <li>• DOS 360kB (3.5" 1.44MB FDD)</li> </ul> </li> </ul>
27th Mar 2005	<p><b>v1.01 Limited release:</b></p> <ul style="list-style-type: none"> <li>• Over-sampling added (to cope with 82-track formats).</li> <li>• Under-tracked format detection corrected (e.g. 35-track).</li> </ul>
4th Apr 2005	<p><b>v1.02 Release:</b></p> <ul style="list-style-type: none"> <li>• Deflect attempts to mount drive when non-standard format is present.</li> <li>• Added/changed pre-defined formats: <ul style="list-style-type: none"> <li>• (Extended) 3.5" BBC ADFS L 640kB [Chris Richardson]</li> <li>• (Extended) 5.25" BBC ADFS L 640kB [Tim Felgate, Mark Ferns]</li> <li>• (Extended) Tandy CoCo RSDOS single-sided 157.5kB [Darren Atkinson]</li> <li>• (Extended) Tandy CoCo RSDOS double-sided 315kB [Darren Atkinson]</li> </ul> </li> </ul>
22nd Apr 2005	<p><b>v1.03 Release:</b></p> <ul style="list-style-type: none"> <li>• Remove licensing from all confirmed formats and functions (i.e. Format) to date.</li> </ul>
9th Sep 2005	<p><b>v2.00a Release:</b></p> <ul style="list-style-type: none"> <li>• Redesign of user interface to reduce errors.</li> </ul>

	<ul style="list-style-type: none"> <li>• Reading/writing formats first always tries pre-defined formats, as per v0.03.</li> <li>• User chooses from all possible matching formats before reading/writing the disk.</li> <li>• Addition of Diagnostics Page.</li> <li>• Addition of Licensing Page.</li> <li>• Added formats: <ul style="list-style-type: none"> <li>• SJ Research MDFS [Mark Ferns]</li> <li>• Akai S900 DD [Markus Dimdal]</li> <li>• DEC Rainbow [Paul Hughes]</li> <li>• Akai MPC 60 MK II [Dale Henriques]</li> <li>• Master 512 DOS [Chris Richardson]</li> <li>• Sinclair QL QDOS [Ali Booker]</li> <li>• Philips P2000C CP/M [Jason Watton]</li> <li>• Stride PDOS [Jason Watton]</li> <li>• ZEISS Spectrophotometer Specord M400 [Milan Kubasek]</li> <li>• Shima Seiki knitting machine DS DD [Paulo Gomes, Kathy Newey]</li> <li>• ABB/Asea Robot [Daniel C. Hayden]</li> <li>• BBC Master 512 DOS [Chris Richardson]</li> <li>• IBM 360kB Torch Graduate [Chris Richardson]</li> <li>• Akai MPC 60 MK II [Dale Henriques]</li> <li>• Akai S1000 HD [Markus Dimdal]</li> <li>• Akai S3000 HD [Markus Dimdal]</li> <li>• Akai S950 HD [Markus Dimdal]</li> <li>• Ensoniq ASR-10 HD [Markus Dimdal]</li> <li>• Ensoniq EPS 16+ [Matt Savard]</li> <li>• Spectrum 128 Beta 128 [Walter G Hertlein]</li> <li>• NEC PC9801 UV, NEC FC9801 V DMF HD [Christopher J.M. Robertson]</li> </ul> </li> </ul>
14th Sep 2005	<b>v2.00b Release:</b> <ul style="list-style-type: none"> <li>• Added further diagnostic options.</li> </ul>
14th Sep 2005	<b>v2.00c Release:</b> <ul style="list-style-type: none"> <li>• Added 'Disk map' diagnostic option.</li> </ul>
20th Sep 2005	<b>v2.00d Release:</b> <ul style="list-style-type: none"> <li>• Added 'Test BIOS drive types'.</li> <li>• Enhanced 'Get disk map' and 'Test disk'.</li> </ul>
26th Sep 2005	<b>v2.01a Release:</b> <ul style="list-style-type: none"> <li>• Enhancements in preparation for use with external 3rd-party programs.</li> <li>• Added version check on driver.</li> <li>• Added support for SFManager.</li> </ul>
27th Sep 2005	<b>v2.01a Release (documentation update):</b> <ul style="list-style-type: none"> <li>• Format naming standardised.</li> <li>• Format lists updated in Wizard and documentation.</li> <li>• Minor GUI changes to Wizard.</li> <li>• Added support for Awave Studio.</li> </ul>
30th Sep 2005	<b>v2.01b Release:</b> <ul style="list-style-type: none"> <li>• Added 1.722MB DOS format.</li> <li>• Added Electroglas Wafer Probers CP/M format.</li> <li>• Added support for 3rd-party Electroglas format.</li> <li>• Corrected e-mail use of '?' in automated e-mailing.</li> <li>• Enhanced OmniFlop Disk Map (*.ofm) format.</li> </ul>
17th Oct 2005	<b>v2.01c Release:</b> <ul style="list-style-type: none"> <li>• Further enhancements to disk mapping.</li> <li>• Head settle time corrected on some seeks.</li> </ul>
19th Oct 2005	<b>v2.01d Release:</b> <ul style="list-style-type: none"> <li>• Further enhancements to disk mapping.</li> <li>• Head settle time corrected on some seeks.</li> <li>• Added ZX Spectrum BetaDisk 40S format [Roberto Jose]</li> <li>• Added ZX Spectrum BetaDisk 40D format [Roberto Jose]</li> <li>• Added ZX Spectrum BetaDisk 80S format [Roberto Jose]</li> </ul>

	<ul style="list-style-type: none"> <li>• Added ZX Spectrum BetaDisk 80D format [Roberto Jose]</li> <li>• Added DOS 1.232MB format [pstaszkow]</li> <li>• Split current Tandy CoCo RS-DOS format into separate 48TPI and 96TPI formats.</li> <li>• Amended Tandy CoCo RSDOS single-sided 48TPI 157.5kB [Darren Atkinson]</li> <li>• Amended Tandy CoCo RSDOS double-sided 48TPI 315kB [Darren Atkinson]</li> <li>• Added Tandy CoCo RSDOS single-sided 96TPI 157.5kB [Darren Atkinson, Benoit Bleau]</li> <li>• Added Tandy CoCo RSDOS double-sided 96TPI 315kB [Darren Atkinson, Benoit Bleau]</li> <li>• RadioShack CoCo OS9/Nitros9 single-sided 40-track 48TPI (180kB) [Benoit Bleau]</li> <li>• RadioShack CoCo OS9/Nitros9 double-sided 40-track 48TPI (180kB) [Benoit Bleau]</li> <li>• RadioShack CoCo OS9/Nitros9 single-sided 40-track 96TPI (180kB) [Benoit Bleau]</li> <li>• RadioShack CoCo OS9/Nitros9 double-sided 40-track 96TPI (180kB) [Benoit Bleau]</li> <li>• RadioShack CoCo OS9/Nitros9 single-sided 80-track (360kB) [Benoit Bleau]</li> <li>• RadioShack CoCo OS9/Nitros9 double-sided 80-track (360kB) [Benoit Bleau]</li> <li>• Reset default File Format if format changes.</li> <li>• Refresh the list of File Formats with those most commonly used.</li> <li>• Correct the File Formats offered for a generic single-sided format.</li> <li>• Added support for 3rd-party CoCo format.</li> </ul>
1st Dec 2005	<b>v2.01e Release:</b> <ul style="list-style-type: none"> <li>• Added support for Rubber Chicken Software Co. software (Ensoniq MID-Disk Tools, Ensoniq Disk Tools, Ensoniq ASR-X Tools, Translator).</li> <li>• Added warning to 'Get a license' to use the program first.</li> <li>• Added file format '*.adf' for single-sided Acorn ADFS.</li> <li>• Added initial warning about disabling anti-virus software.</li> </ul>
10th Jan 2006	<b>v2.01f Release:</b> <ul style="list-style-type: none"> <li>• Added EMu Emax 800kB [Garth Hjelte]</li> <li>• Added EMu EOS 1440kB [Garth Hjelte]</li> <li>• Added EMu ESi [Garth Hjelte]</li> <li>• Added Oberheim DPX [Garth Hjelte]</li> <li>• Added Prophet 2002 [Garth Hjelte]</li> <li>• Added Ensoniq Mirage [Claude Climer]</li> <li>• Added Korg DSS-1 [Claude Climer]</li> <li>• Added Spectrum Opus Discovery [Simon Owen]</li> <li>• Added Korg T-series (T1, T2, T2EX, T3, T3EX) format [Dominic Guss]</li> <li>• Added Atari ST 820kB format [David Williams]</li> </ul>
	<b>v2.01g Pre-release:</b> <ul style="list-style-type: none"> <li>• Added Dynacord [Garth Hjelte]</li> </ul>

### 1.9 Disclaimer of Warranty

THIS SOFTWARE IS DISTRIBUTED "AS IS" AND WITHOUT WARRANTIES AS TO PERFORMANCE OF MERCHANTABILITY OR ANY OTHER WARRANTIES WHETHER EXPRESSED OR IMPLIED. BECAUSE OF THE VARIOUS HARDWARE AND SOFTWARE ENVIRONMENTS INTO WHICH THIS PROGRAM MAY BE PUT, NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS OFFERED. GOOD DATA PROCESSING PROCEDURE DICTATES THAT ANY PROGRAM BE THOROUGHLY TESTED WITH NON-CRITICAL DATA BEFORE RELYING ON IT. THE USER MUST ASSUME THE ENTIRE RISK OF USING THE PROGRAM. ANY LIABILITY OF THE SELLER WILL BE LIMITED EXCLUSIVELY TO PRODUCT REPLACEMENT OR REFUND OF PURCHASE PRICE.

## 2. Installation

### 2.1 System Requirements

- a) An IBM-PC compatible 386 or better with a **built-in NEC-compatible floppy disk controller**. You can use the Diagnostic options of OmniFlopp to see if this holds for your system.
- b) Windows 2000 SR1 or later, or Windows XP.

Windows 95, Windows 98, and Windows Me users should use **OmniDisk** at <http://www.shlock.co.uk/Utils/OmniDisk> instead of OmniFlopp.

#### 2.1.1 External Floppy Drives

**The OmniFlopp driver is unlikely to work with external drives**, e.g. USB external floppy drives. These do not afford the access to the floppy disk controller that the OmniFlopp driver requires.

USB has a rigidly-defined protocol for floppies. To read/write strange formats requires an NEC  $\mu$ PD765-compatible FDC (Floppy Disk Controller) *plus* access to it - a floppy drive at the end of a USB cable rarely provides the necessary functions. However, it could if the manufacturer of the drive made it so...

The tweakable parameters offered by the USB drives simply aren't enough to read/write/format alien formats - for example, there's no command to select 'double density' (MFM) or 'single density' (FM)... As an aside, the Microsoft floppy driver didn't support MFM/FM switching either, which is probably why 'new' USB floppy drives simply don't offer this option.

Basically, USB floppy drives were made to allow you to access 'standard' DOS-format disks with limited 'customisation'. Get an internal floppy drive - they're also lot cheaper!

#### 2.1.2 Disk Drive Calibration & Compatibility

If you are trying to read, write, or format a disk made on another system (especially a non-PC system), then by all accounts the odds are stacked against you. However, with OmniFlopp, the odds are reduced from 'impossible' to 'possible'.

**No two floppy disk drives are identical.**

Floppy disk drives are mechanical. They are created, then calibrated, then used. Over time and with wear-and-tear their calibration may wander and their tolerance to disks formatted on other drives will vary.

**Just because you've got a drive of the correct size for your disk doesn't mean that drive can read or write it.**

To test the function of OmniFlopp with your drive and machine you should:

- Make sure your floppy drive can format, read, and write disks using the Windows 'format' function and Windows Explorer.
- Get hold of a known, reliable floppy disk of the correct density. 3.5" HD disks have two holes in the top edge (one for write-protect); 3.5" DD disks have only one hole (the write-protect).
- Format the disk to the correct format using OmniFlopp.
- Write an image onto the disk using 'Write disk'. The image does not need to be of the correct format - just an image of known data content.
- Read the disk back in using 'Read disk'. Check the data read in matches the data written.

If this sequence works, then OmniFlopp and your hardware are compatible for the format you have selected. If you then have problems reading a disk from another system then this is almost always down to physical



tolerances in the hardware of the floppy disk drives - see <http://www accurite.com/FloppyPrimer.html>. I cannot fix your hardware problems with software.

Note that it took the author three 5.25" drives to find a drive capable of reliably reading an (aging) format of 5.25" disks. 5.25" drives are far less tolerant of each other than 3.5" drives.

## 2.2 Components

The distribution of OmniFlop (<http://www.shlock.co.uk/Utils/OmniFlop>) consists of 4 files:

<i>OmniFlop.inf</i> <i>OmniFlop.sys</i>	The OmniFlop floppy disk driver. This replaces the standard Microsoft-supplied generic floppy disk driver, and extends its capabilities (accessing FAT12/FAT16/DOS/Windows floppy disks is still possible).
<i>OmniFlop.exe</i>	The OmniFlop Wizard. This application provides access to the enhanced services of the driver.
<i>OmniFlop.pdf</i>	This user guide in Adobe pdf format.

The package is distributed as a WinZip archive containing all 4 files.

External registration is sometimes required - see 2.5.

## 2.3 Installation

The files in 2.2 must be extracted from their archive and copied to a directory, preferably on a hard disk. Then installation must be performed in the order described below.

**You must install the latest driver that came with the Wizard** if you want to use non-DOS formats. Inconsistencies will cause problems. From version 2.01 a check is made that the driver is compatible.

**To re-install or update the driver**, it is recommended that you first 'Roll-back' the driver to the Microsoft default, to avoid leaving a trail of versions behind. See section 2.4 first, before you follow the installation sequence below.

### 2.3.1 Driver

The driver is a fully-compliant WDM driver for Windows NT, 2000, and XP.

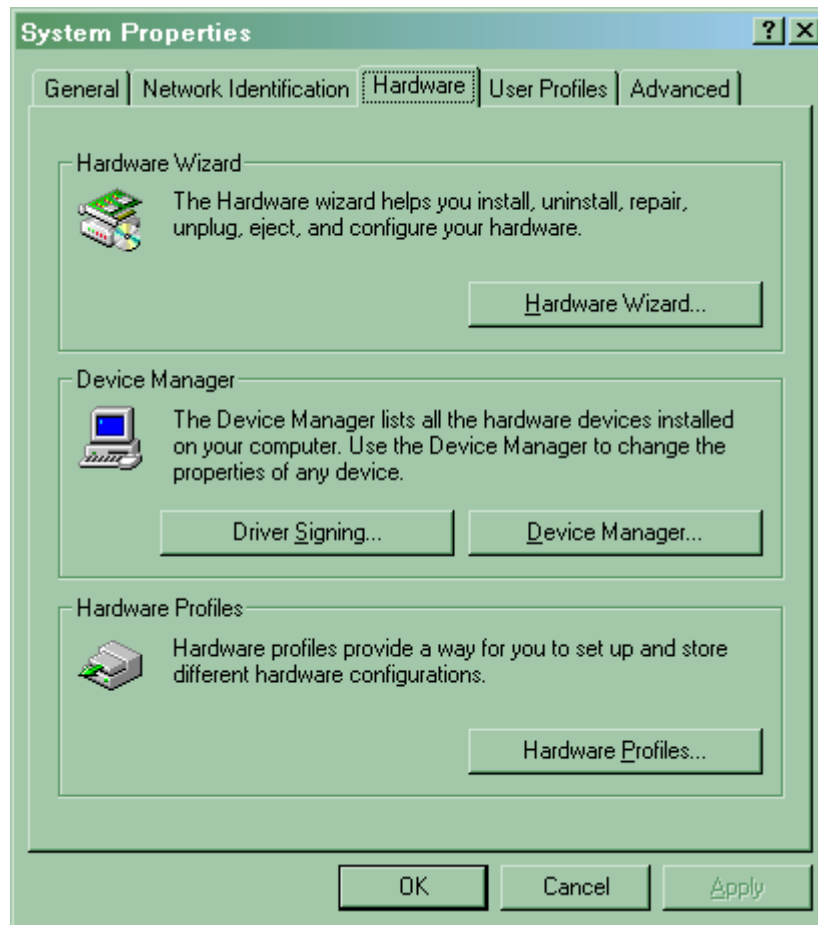
**You do not have to install the driver.** Without the driver installed, the OmniFlop wizard will read and write the (standard) DOS formats that Windows knows natively. With the driver installed, the OmniFlop wizard will read and write an extended list of formats not usually accessible from within Windows. If you only want to access standard DOS-format floppies, skip this section and proceed with 2.3.2.

**Note that Windows will usually opt for using the Microsoft driver.** Worse, **Windows XP will strenuously resist installing the driver.** This is because it has not been authorised by Micro\$oft: no money has been paid for them to 'rubber stamp' it as 'Windows Compliant'. **Do not worry** about the number of warnings or cautions encountered when installing the driver – it's because Micro\$oft hasn't been paid.

However, at the same time, it would be remiss not to warn of the danger of changing this system component of Windows (part of the reason Windows complains so much). This software, as is usual with all software, comes with a disclaimer of warranty (see 1.9). Both Windows 2000 and Windows XP are capable of reverting to the Microsoft driver, if you wish – the installation is not permanent! There are currently no reported faults known to exist in this software.

#### 2.3.1.1 Windows 2000

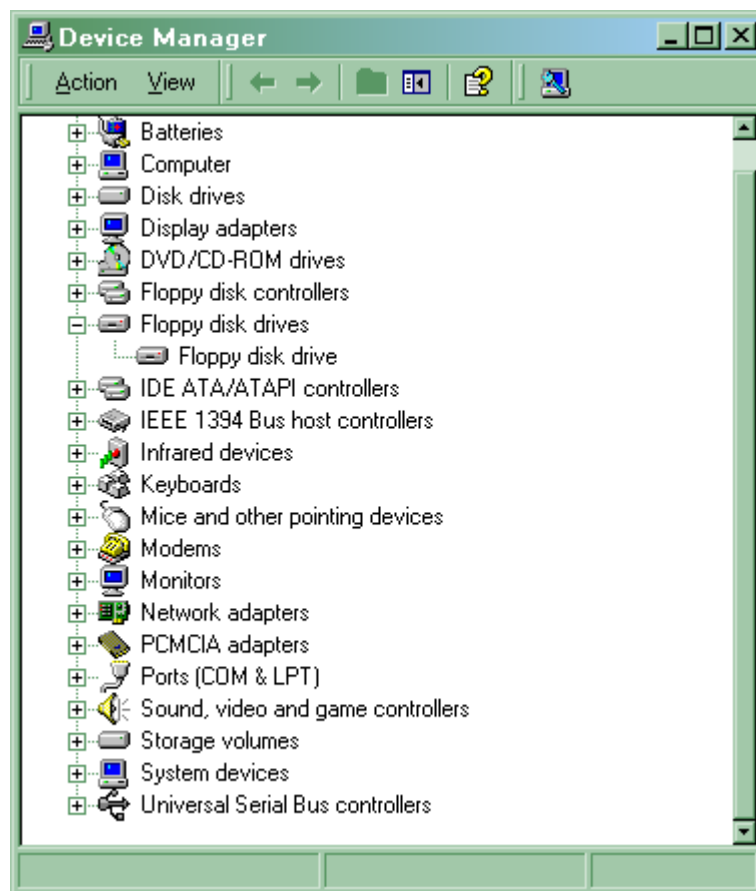
Right-click the 'My Computer' icon on the desktop and select 'Properties'. Alternatively, navigate to the Control Panel (click the 'Start' button and select 'Settings' and 'Control Panel') then select 'System' to give the System Properties.



**Figure 1. Win2000: System Properties**

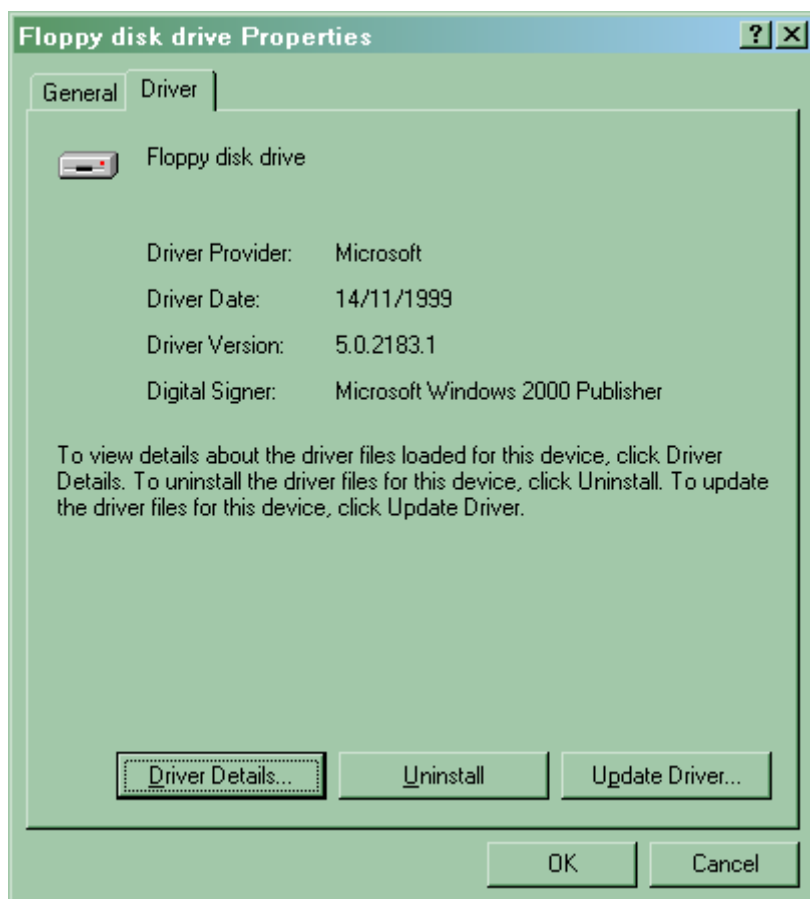
Select the 'Hardware' tab and click on 'Device Manager'.

In Device Manager, click the '+' by 'Floppy disk drives' and double-click the 'Floppy disk drive':



**Figure 2. Win2000: Device Manager**

Click the 'Driver' tab:



**Figure 3. Win2000: Floppy Disk Drive Properties**

Click 'Update Driver'. The Upgrade Device Driver Wizard starts:



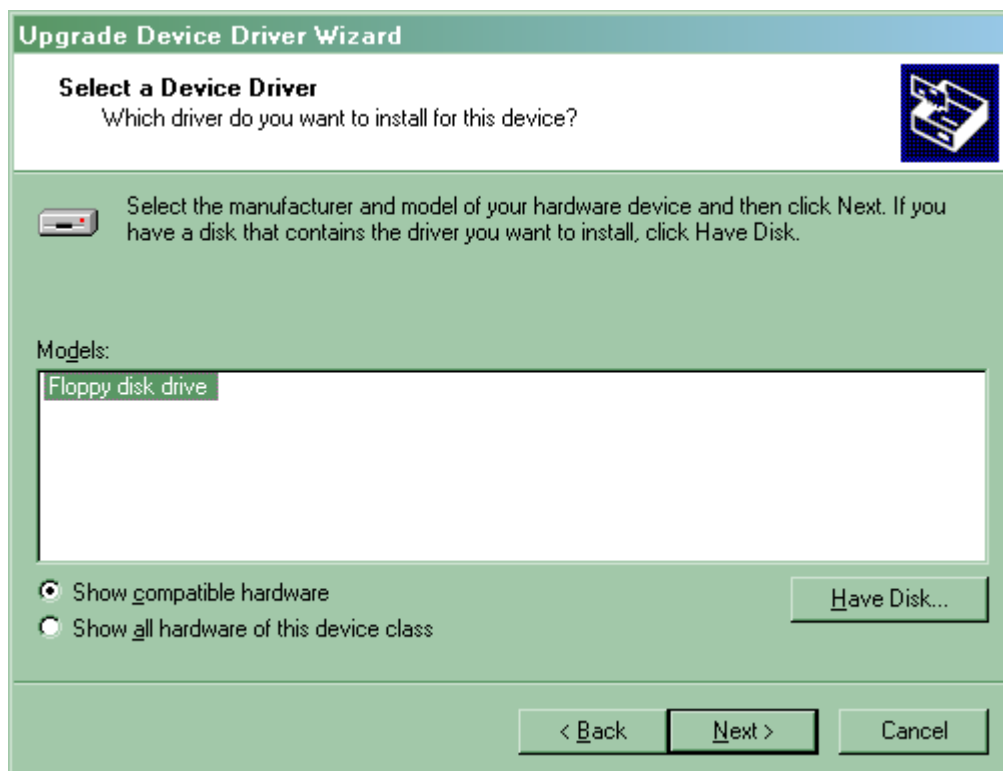
**Figure 4. Win2000: Upgrade Device Driver Wizard**

Click 'Next'.



**Figure 5. Win2000: Auto/Manual Driver Search**

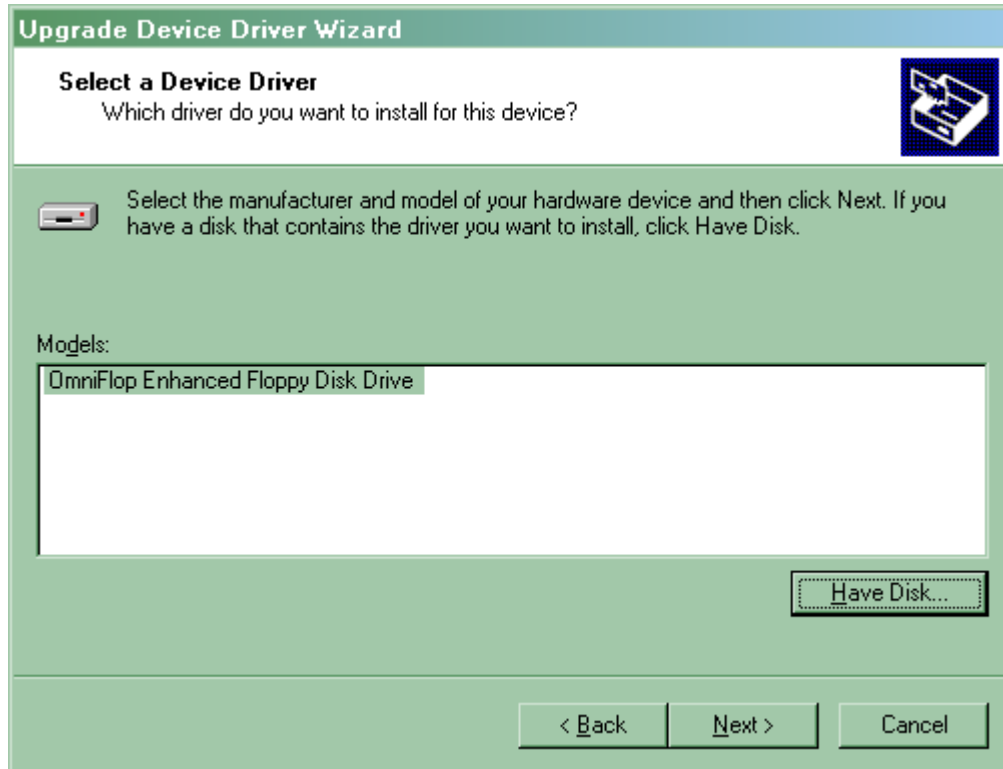
Select 'Display a list of the known drivers', and click 'Next'.



**Figure 6. Win2000: Driver Selection(1)**

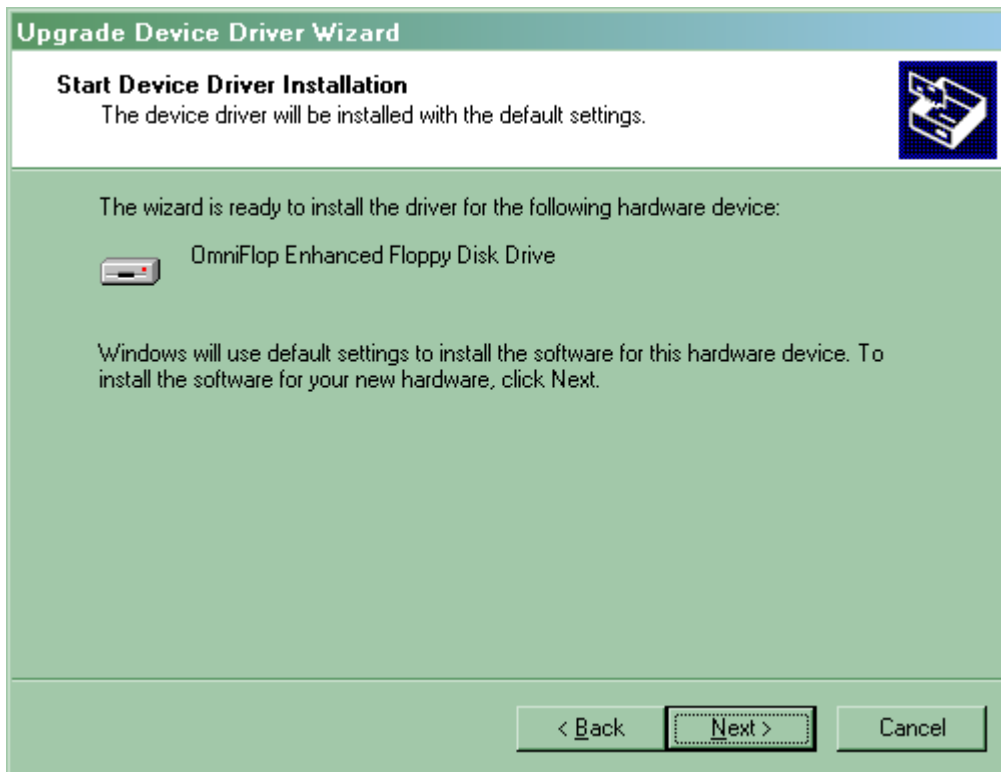
**Note:** If the "OmniFlop Enhanced Floppy Disk Drive" is listed, a previous version already exists on your machine. If you choose this, the last installed version will be re-installed. If you want to use an *updated* version, do not be tempted to select the previously installed version shown here.

Click 'Have Disk' and 'Browse' to where OmniFlop has been installed. OK the selection and you will get an updated display:



**Figure 7. Win2000: Driver Selection(2)**

Click 'Next'.



**Figure 8. Win2000: Ready To Install**

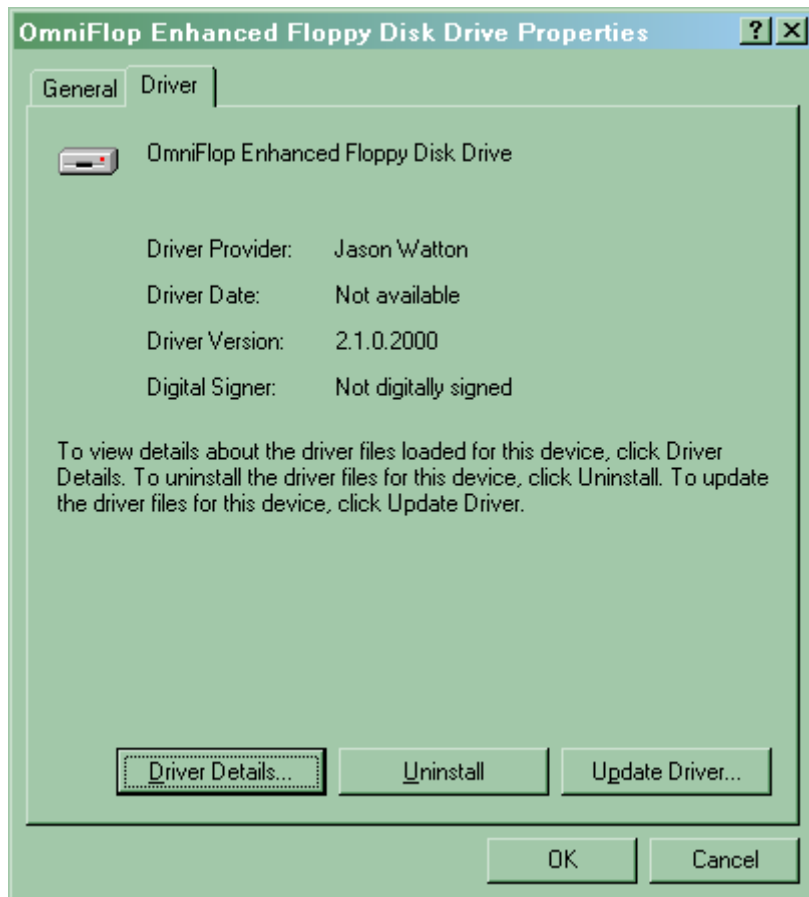
Click 'Next'.

You should get (after a brief delay):



**Figure 9. Win2000: Success**

'Finish' the wizard, and the properties for the Floppy disk drive should now show:



**Figure 10. Win2000: Floppy Disk Drive Properties – Using OmniFlop**

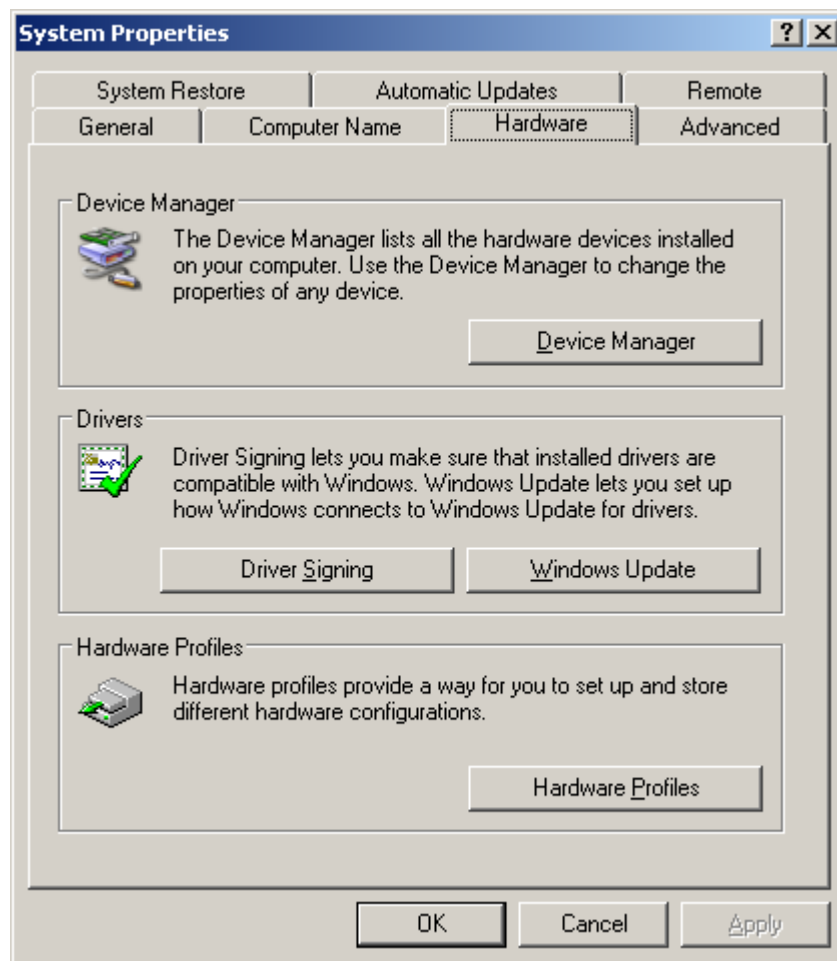
**Note:** The version may be later than shown here. Make sure you are using the version of the driver supplied with the Wizard you want to use.

The driver is now installed.

#### 2.3.1.2 Windows XP

Right-click the 'My Computer' icon on the desktop and select 'Properties'. Alternatively, navigate to the Control Panel (click the 'Start' button and select 'Settings' and 'Control Panel') then select 'System' to give the System Properties.

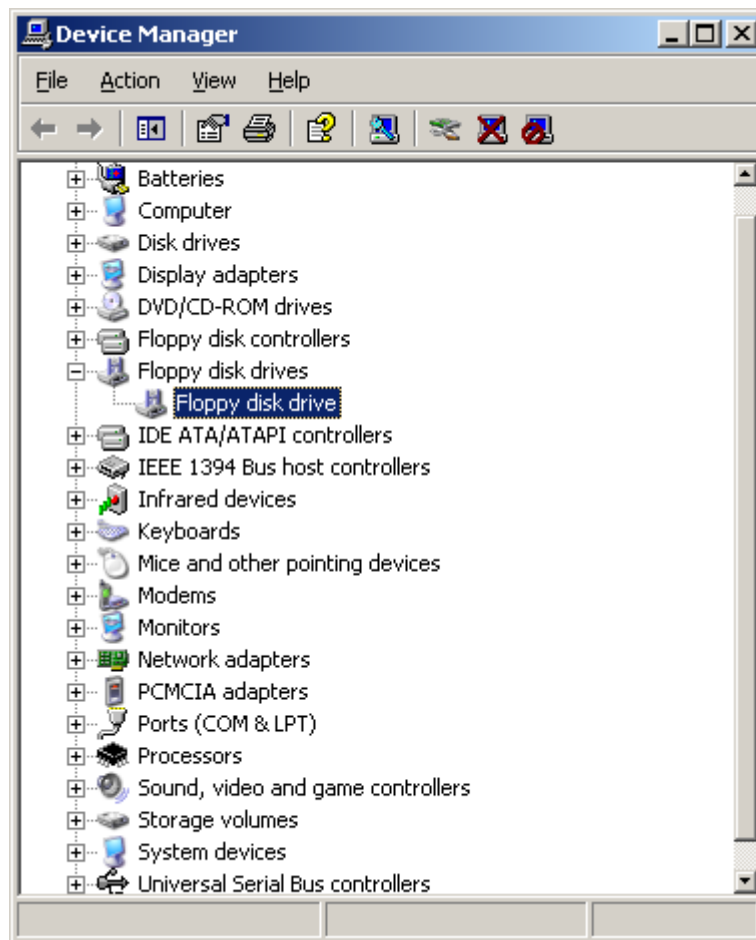




**Figure 11. System Properties (XP)**

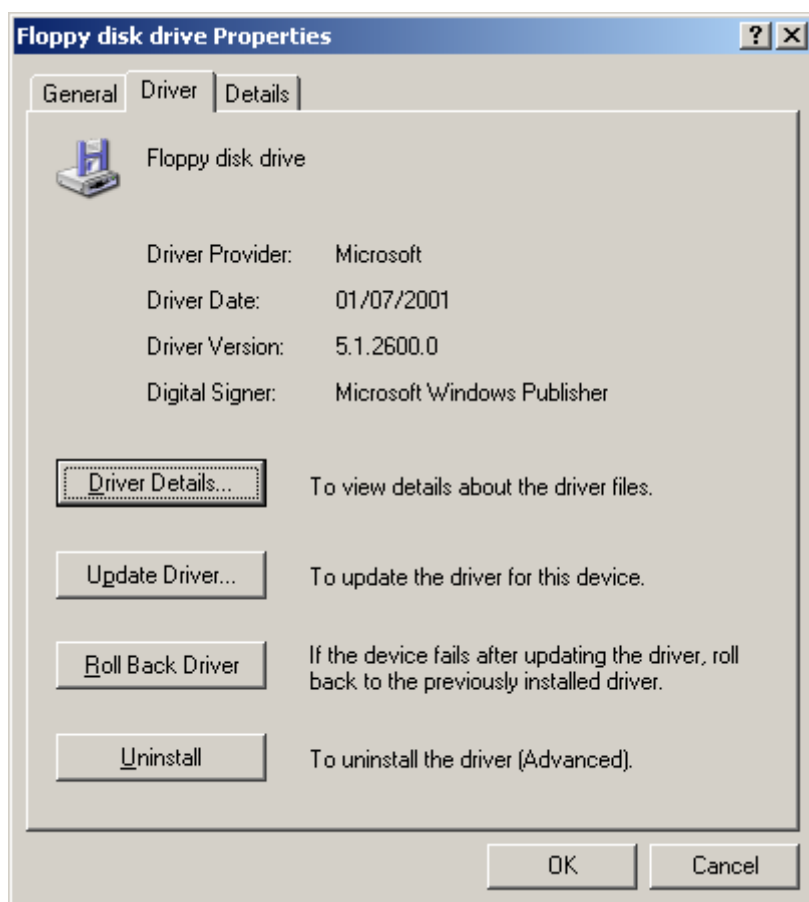
Select the 'Hardware' tab and click on 'Device Manager'.

In Device Manager, click the '+' by 'Floppy disk drives' and double-click the 'Floppy disk drive':



**Figure 12. Device Manager**

Click the 'Driver' tab:



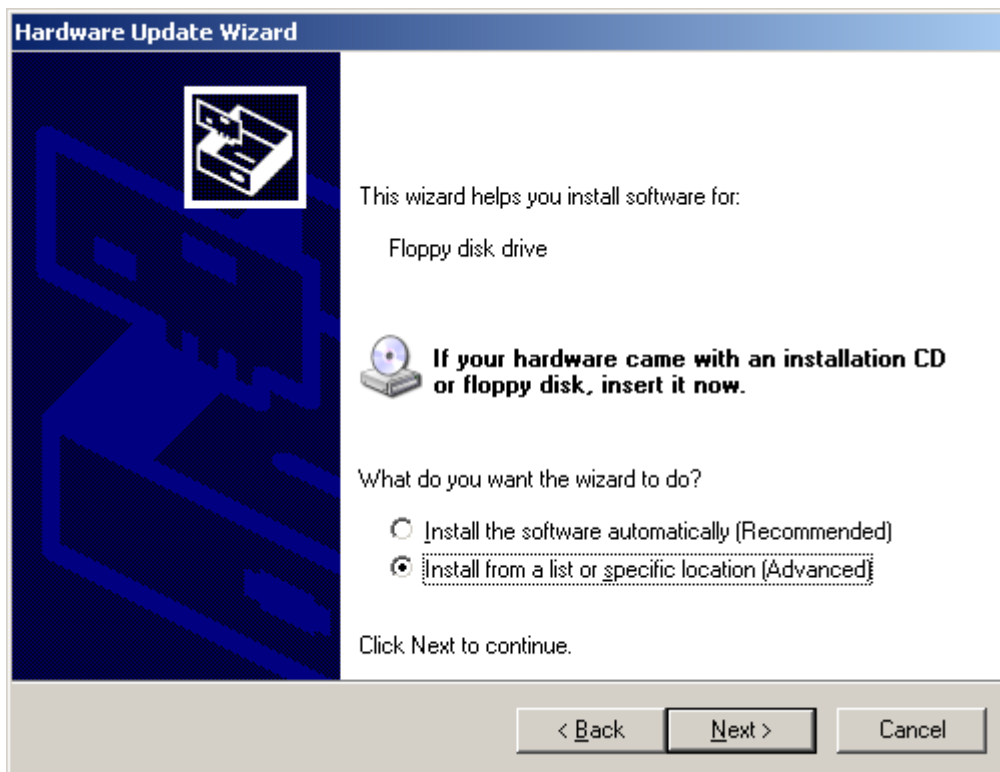
**Figure 13. Floppy Disk Drive Properties**

Click 'Update Driver'. The Hardware Update Wizard starts, and may produce as a first screen:

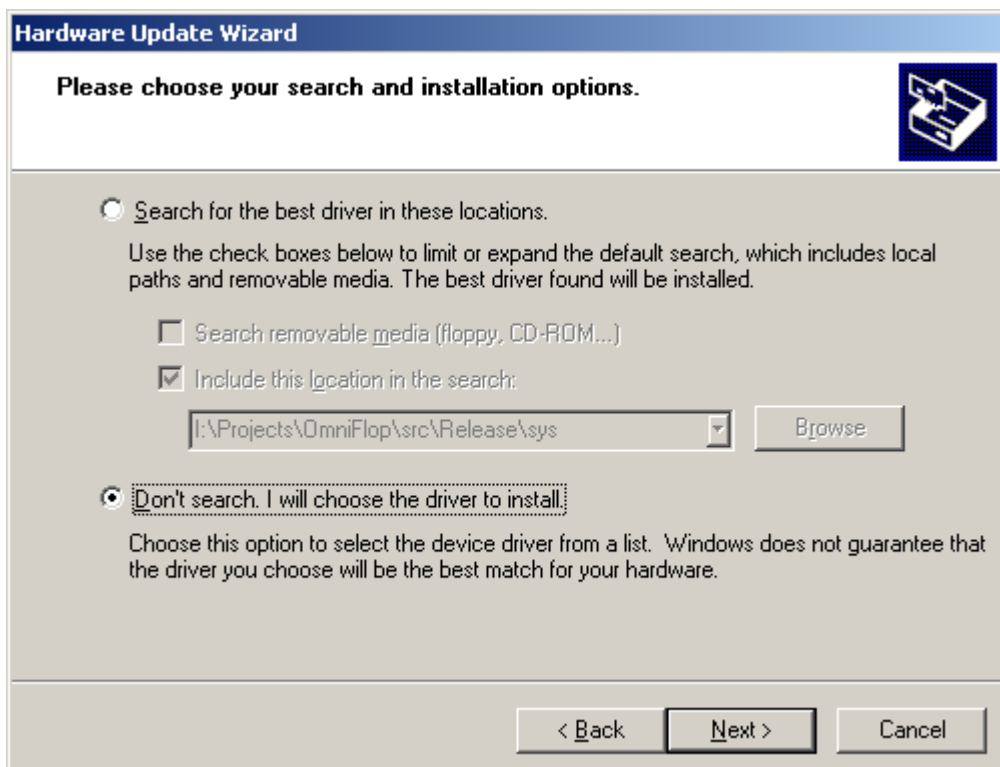


**Figure 14. Hardware Update Wizard – Talk to Microsoft**

Select 'No'. The driver is not published nor vetted by Microsoft (another money-making scheme by the big, bad Corporation). Click 'Next'.

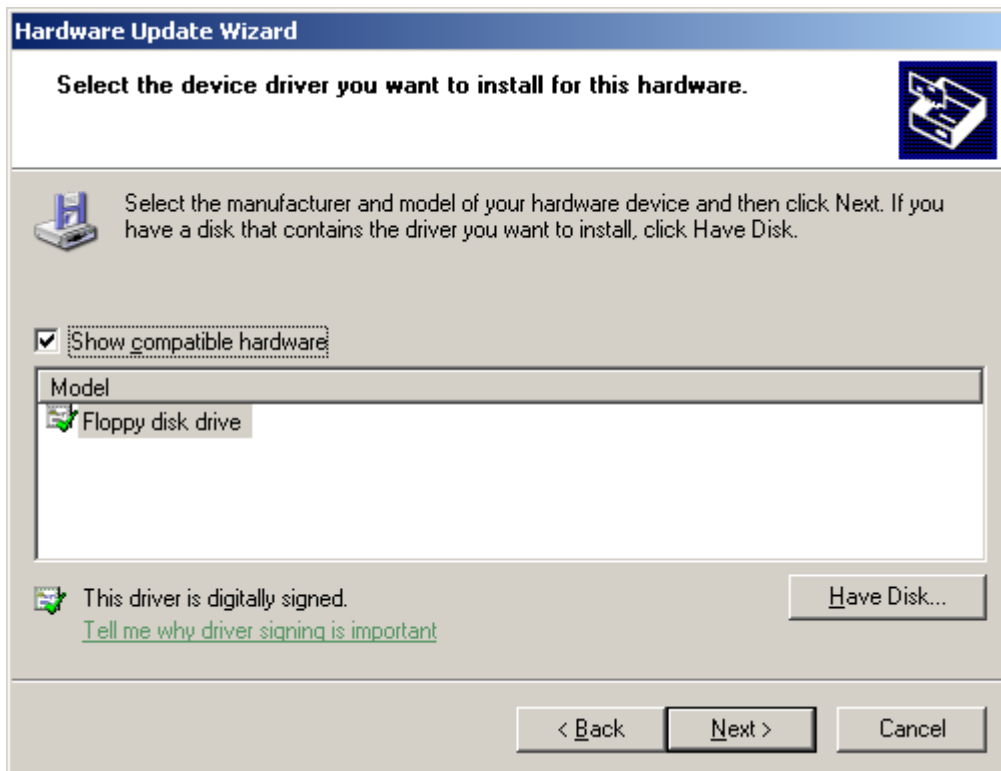
**Figure 15. Hardware Update Wizard – Auto/Manual**

Select 'Install from a specific location', and click 'Next'.

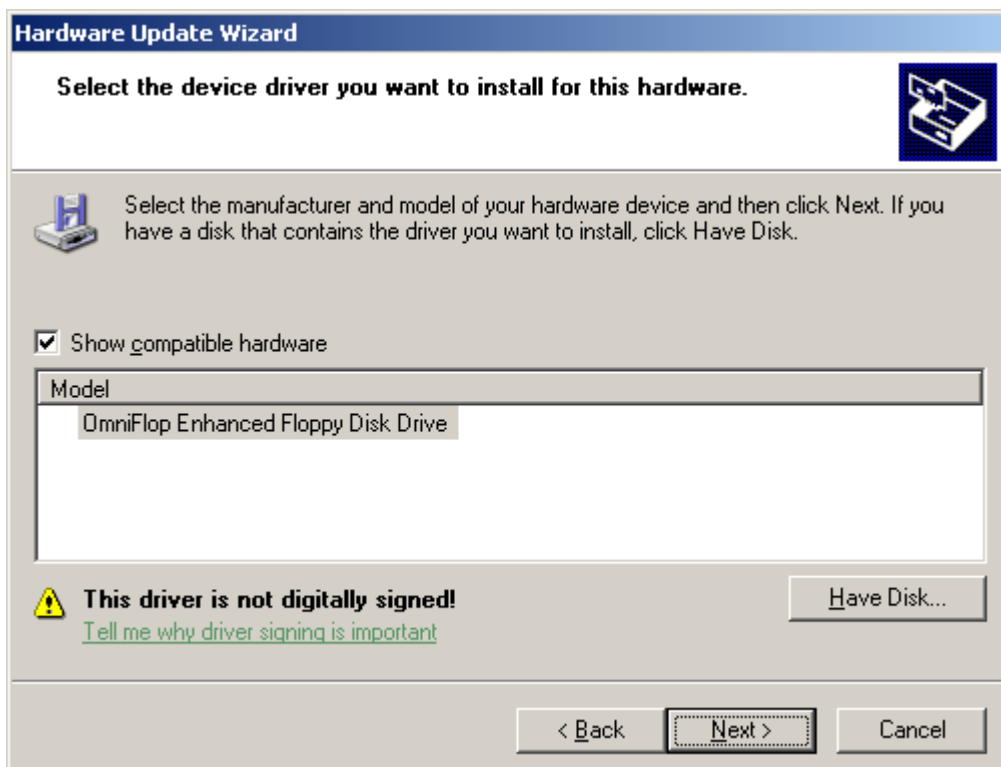


**Figure 16. Hardware Update Wizard – Search Options**

Select 'I will choose the driver to install', and click 'Next'.

**Figure 17. Hardware Update Wizard – Initial Options**

Click 'Have Disk' and 'Browse' to where OmniFlop has been installed. OK the selection and you will get the display with a little warning:



### Figure 18. Hardware Update Wizard – New Driver

Don't worry about the warning – this is an indication that Micro\$oft has not been paid to rubber-stamp the driver.

Click 'Next' and things get worse:



Figure 19. Hardware Update Wizard – Scare Tactics

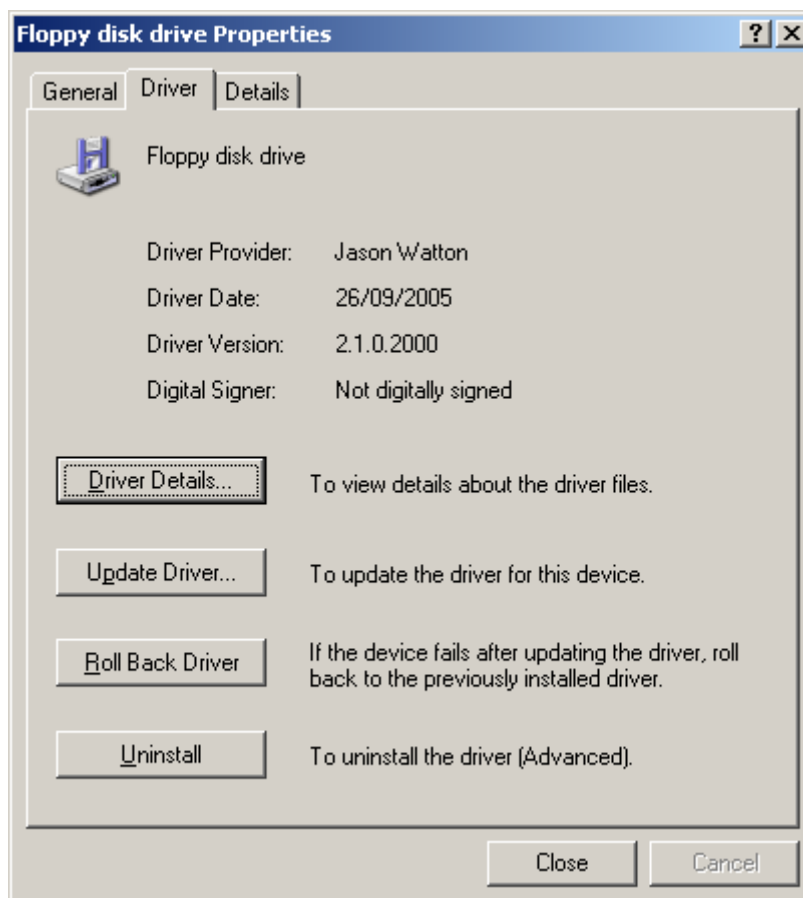
This is blatant harassment of the end user to scare them away from installing drivers which haven't earned Micro\$oft any money. Alarming though this is, ignore the bold text and severe warnings of gloom and anarchy and click 'Continue Anyway' – unless you want to pay the money for getting Micro\$oft to rubber-stamp it, that is.

You should get (after a brief delay):



**Figure 20. Hardware Update Wizard – Success**

'Finish' the wizard, and the properties for the Floppy disk drive should now show:



**Figure 21. Floppy Disk Drive Properties – Using OmniFlop**

**Note:** The version may be later than shown here. Make sure you are using the version of the driver supplied with the Wizard you want to use.

The driver is now installed.

### 2.3.2 Application

The application may be run directly from floppy disk or copied to the hard disk of the host PC. No other installation is required.

## 2.4 Removal

### 2.4.1 Driver

#### 2.4.1.1 Windows 2000

Follow the actions in section 2.3.1.1 up to Figure 6. There should be two driver options currently available to choose from: "Floppy disk drive" and "OmniFlop Enhanced Floppy Disk Drive". Choose "Floppy disk drive" , click 'Next', and continue from Figure 8.

#### 2.4.1.2 Windows XP

Follow the actions in section 2.3.1.2 up to Figure 13 to get the Floppy Disk Drive properties – it should actually look like Figure 21. Then press 'Roll Back Driver' and accept the roll-back. When the disk activity stops, the display should look like Figure 13, i.e. Microsoft all the way.

### 2.4.2 Application

Simply delete the folder containing the executable file. No further removal is required.

## 2.5 Registration and Licensing

Certain formats and functions of OmniFlop require you to get a license from the author.

**Licenses are free and do not require any enrolment or subscriptions.**

**Any information supplied for registration will only be used for registration and to aid in the support and development of the product.**

Licenses can be obtained using e-mail ([jason.watton@lycos.co.uk](mailto:jason.watton@lycos.co.uk)) or using the contacts at the download web site (<http://www.shlock.co.uk>).

**If there are problems obtaining a license**, check <http://www.shlock.co.uk/Utils/OmniFlop> for details of service. There are times when licensing is unavailable.

### 2.5.1 Justification

The decision to enforce licences was taken for the following reasons:

- To halt and prevent unlawful commercial exploitation of the utility.
- To halt and prevent impersonation of authorship.
- To provide feedback to the author. Free unrestrained distribution has provided no feedback on the number of users, what it was being used for, how successful it was, or how unsuccessful it was. The only feedback has been via those requiring support in using it (thanks be to them). Feedback is especially important for formats that were theoretical but unproven (and remain so without feedback).



### 2.5.2 Licensing Strategy

Licensing is applied as follows:

1. Testing Disks requires no licence.
2. Reading and Writing the Microsoft-supported (DOS) formats requires no licence.
3. Reading and Writing the (established) BBC Acorn DFS, DDOS and ADFS formats requires no licence.
4. Reading and Writing non-BBC and non-Microsoft formats sometimes requires an 'Other' licence. This happens if there has been insufficient feedback to confirm their effectiveness. Some formats (e.g. Tandy CoCo) do not require a license as they have been confirmed as correct.
5. Reading and Writing unknown (custom) formats requires a 'Custom' licence. This is to restrain commercial exploitation.
6. Licenses are available to allow use of the OmniFlop driver with external (3rd party) programs. The licensing is used to monitor the support liability for external programs.

The right to refuse licences is reserved.

### 2.5.3 Getting a License

**Using the program does not normally require a license. If you need a license, you will be told.**

To get a license you should simply attempt the function you wish to use.

However, there are situations where you want to obtain a license up-front, i.e. before attempting the function. This includes licensing other software to use the OmniFlop driver - a license is used to enable other software to access the driver directly. To get a license in this case use the 'Get a License' option from the front screen. The program will prompt with instructions, but when you ask for the license **you must specify**:

- The program name, i.e. OmniFlop
- The version number, e.g. v2.01a
- The Registration Code, e.g. BBCgT51xf@3. This is unique to you and a license cannot be issued without it. The code may contain codes which are normally untypeable or characters that you cannot easily recognise - e.g. 'I' and 'l', '0' and 'O' - so you should cut & paste the code directly into an e-mail. From v2.01 onwards an e-mail will automatically be generated for this purpose.
- The format you are trying to use. *This is point of the license* - to provide support for as many formats as possible. Your help in testing - and using - them is crucial.

If you require multiple licences it saves time and effort if you note down all the details for those you require before asking for the licences.

### 3. User Guide

This section describes use of the OmniFlop Wizard.

#### 3.1 Supported Formats & Discoverers

The OmniFlop driver recognises formats in two different ways:

1. From a list of pre-defined 'known' formats. These can be physically read, written, and formatted.
2. By physically analysing a pre-formatted floppy disk. This results in an 'unknown' format which can still be read or written. **This means OmniFlop can read and write formats even if it doesn't know them.**

**The driver must be installed to read, write, and format extended and unknown formats.** If an analysis finds a format on a disk which is already known then OmniFlop switches to using the parameters of that format.

The formats known to be recognised by OmniFlop are currently (with discoverers):

OmniFlop driver required?	Format Name	Discoverer
NO	8" DOS 256kB	
NO	5¼" DOS 160kB	
NO	5¼" DOS 180kB	
NO	5¼" DOS 320kB	
NO	5¼" DOS 320kB (1024-byte sectors)	
NO	5¼" DOS 360kB	
NO	5¼" DOS 640kB	
NO	5¼" DOS 720kB	
NO	5¼" DOS 1.2MB	
NO	5¼" DOS 1.23MB (1024-byte sectors)	
YES	3½" DOS 160kB	
YES	3½" DOS 180kB	
YES	3½" DOS 320kB	
YES	3½" DOS 320kB (1024-byte sectors)	
YES	3½" DOS 360kB	
NO	3½" DOS 640kB	
NO	3½" DOS 720kB	
NO	3½" DOS 1.2MB	
NO	3½" DOS 1.23MB (1024-byte sectors)	
NO	3½" DOS 1.44MB	
NO	3½" DOS 2.88MB	
NO	3½" DOS 20.8MB	
NO	3½" DOS 120MB	
NO	3½" DOS 128MB	
NO	3½" DOS 230MB	
YES	DOS 800kB	
YES	DOS 1.458MB	Vitaliy Vorobyov
YES	DOS 1.476MB	Vitaliy Vorobyov
YES	DOS 1.494MB	Vitaliy Vorobyov
YES	DOS 1.215MB	Vitaliy Vorobyov
YES	DOS 1.232MB	pstaszko
YES	DOS 1.230MB	Vitaliy Vorobyov
YES	DOS 1.245MB	Vitaliy Vorobyov

YES	DOS 1.722MB	Stephane Roth
YES	CP/M-80 640kB (various machines, e.g. P2000C)	Jason Watton
YES	ABB/Asea Robot	Daniel C Hayden
YES	3½" Acorn BBC Master 512 DOS 360kB	Chris Richardson
NO	3½" Acorn BBC Master 512 DOS 720kB	Chris Richardson
NO	5¼" Acorn BBC Master 512 DOS 720kB	Chris Richardson
YES	3½" Acorn ADFS L 640kB	Chris Richardson
YES	5¼" Acorn ADFS L 640kB	Tim Felgate, Jon Ripley, Mark Ferns
YES	Acorn ADFS M 320kB	Jonathan G Harston, Chris Richardson
YES	Acorn ADFS S 160kB	Jonathan G Harston, Chris Richardson
YES	Acorn ADFS D, D+, E, E+ 800kB	Jon Ripley, Chris Richardson
YES	Acorn ADFS F, F+ 1600kB	Jon Ripley, Chris Richardson
YES	Acorn BBC SJ Research MDFS	Mark Ferns
YES	Acorn BBC DFS 40-track single-sided (100kB)	Chris Richardson, Rob Nicholds
YES	Acorn BBC DFS 40-track double-sided (200kB)	Chris Richardson
YES	Acorn BBC DFS 80-track single-sided (200kB)	Chris Richardson, Rob Nicholds
YES	Acorn BBC DFS 80-track double-sided (400kB)	Chris Richardson
YES	Acorn BBC Z80 CP/M 400kB	Chris Richardson
YES	Acorn BBC Master 512 DOS Plus 800kB	Chris Richardson
YES	Acorn BBC DDOS 80-track single-sided 360kB	Jason Watton
YES	Acorn BBC DDOS 80-track double-sided 720kB	Jason Watton
YES	AKAI MPC 60 MK II	Dale Henriques
YES	AKAI S-900 (800kB, 1440kB)	Markus Dimdal
YES	AKAI S-950 (800kB, 1440kB, 1600kB)	Markus Dimdal
YES	Akai S-1000 (800kB, 1600kB)	Markus Dimdal
YES	Akai S-3000 (800kB, 1600kB)	Markus Dimdal
NO	5¼" Amstrad CP/M 720kB	Andy J Davis, Thomas Heck
NO	3½" Amstrad CP/M 720kB	Andy J Davis, Thomas Heck
NO	3½" Apple Macintosh 1.44MB high-density, HFS Volume	Jon Ripley
NO	5¼" Atari ST DSDD 720kB	Jon Ripley
NO	3½" Atari ST DSDD 720kB	Jon Ripley
YES	Atari STE 738kB	John Davis
YES	Atari STE 800kB	John Davis
YES	Atari STE 810kB	John Davis
YES	Atari ST 820kB	David Williams
YES	BMI3030A	Edward Winterberger
YES	cbm1581	Wolfgang Moser
YES	cmdfd1m	Wolfgang Moser
YES	cmdfd2m	Wolfgang Moser
YES	cmdfd4m	Wolfgang Moser
YES	DEC Rainbow 100	Paul Hughes
YES	Electroglass Wafer Probers CP/M	Phil Wiens
YES	EMu Emax 800kB	Garth Hjelte
NO	EMu EOS 1440kB	Garth Hjelte
NO	EMu ESi 1440kB	Garth Hjelte
NO	5¼" Ensoniq ASR-10 Computer Format DD	Markus Dimdal
NO	3½" Ensoniq ASR-10 Computer Format DD	Markus Dimdal
NO	3½" Ensoniq ASR-10 Computer Format HD 1.44MB	Markus Dimdal
YES	Ensoniq ASR-10 (720kB, 800kB, 820kB, 1440kB, 1600kB, 1640kB)	Markus Dimdal
YES	Ensoniq EPS (720kB, 800kB, 820kB, 1440kB, 1600kB, 1640kB)	Matt Savard, Markus Dimdal, H Mandingo, Masahiro Koide
YES	Ensoniq KS32 (720kB, 800kB, 820kB, 1440kB, 1600kB, 1640kB)	Markus Dimdal

YES	Ensoniq KT (720kB, 800kB, 820kB, 1440kB, 1600kB, 1640kB)	Markus Dimdal
YES	Ensoniq Mirage	Claude Climer
YES	Ensoniq SQ1 (720kB, 800kB, 820kB, 1440kB, 1600kB, 1640kB)	Markus Dimdal
YES	Ensoniq SQ2 (720kB, 800kB, 820kB, 1440kB, 1600kB, 1640kB)	Markus Dimdal
YES	Ensoniq SQ80 (720kB, 800kB, 820kB, 1440kB, 1600kB, 1640kB)	Markus Dimdal
YES	Ensoniq TS12 (1540kB)	Dominic
YES	Ensoniq VFX-SD (720kB, 800kB, 820kB, 1440kB, 1600kB, 1640kB)	Markus Dimdal
YES	3½" IBM 360kB Torch Graduate	Chris Richardson
YES	Korg DSS-1	Claude Climer
YES	Korg T-series (T1, T2, T2EX, T3, T3EX)	Dominic Guss
YES	LynxDOS 800kB	Pete Todd
YES	Moog TMC Blowmould control	Richard Koppack
YES	NEC PC9801 UV DMF HD	Christopher J M Robertson
YES	NEC FC9801 V DMF HD	Christopher J M Robertson
YES	Oberheim DPX	Garth Hjelte
NO	Peavey SP	Chris Short, Scott Peer, Garth Hjelte
YES	Prophet 2002	Garth Hjelte
YES	RadioShack CoCo OS9/Nitros9 single-sided 40-track 48TPI (180kB)	Benoit Bleau
YES	RadioShack CoCo OS9/Nitros9 double-sided 40-track 48TPI (180kB)	Benoit Bleau
YES	RadioShack CoCo OS9/Nitros9 single-sided 40-track 96TPI (180kB)	Benoit Bleau
YES	RadioShack CoCo OS9/Nitros9 double-sided 40-track 96TPI (180kB)	Benoit Bleau
YES	RadioShack CoCo OS9/Nitros9 single-sided 80-track (360kB)	Benoit Bleau
YES	RadioShack CoCo OS9/Nitros9 double-sided 80-track (360kB)	Benoit Bleau
NO	5¼" Roland S-5XX series 720kB	Markus Dimdal
NO	3½" Roland S-5XX series 720kB	Markus Dimdal
NO	3½" Roland S-7XX series 1.44MB	Markus Dimdal
YES	Shima Seiki DS DD	Paulo Gomes, Kathy Newey
YES	Sinclair ZX Spectrum BetaDisk 40S 160kB	Roberto Jose
YES	Sinclair ZX Spectrum BetaDisk 40D 320kB	Walter G Hertlein, Roberto Jose
YES	Sinclair ZX Spectrum BetaDisk 80S 320kB	Roberto Jose
YES	Sinclair ZX Spectrum BetaDisk 80D 640kB	Roberto Jose
YES	Sinclair ZX Spectrum TR-DOS 640kB	Art
NO	5¼" Sinclair Spectrum +3 CP/M 720kB	Andy J Davis, Thomas Heck
NO	3½" Sinclair Spectrum +3 CP/M 720kB	Andy J Davis, Thomas Heck
YES	Sinclair Spectrum Miles Gordon Tech +D/Disciple 800kB	Andy J Davis, Thomas Heck
YES	Sinclair Spectrum Opus Discovery 180kB	Simon Owen
YES	Sinclair QL QDOS	Ali Booker
YES	Stride PDOS 640kB	Jason Watton
YES	Tandy CoCo RSDOS single-sided 48TPI (157.5kB)	Darren Atkinson
YES	Tandy CoCo RSDOS double-sided 48TPI (315kB)	Darren Atkinson
YES	Tandy CoCo RSDOS single-sided 96TPI (157.5kB)	Darren Atkinson, Benoit Bleau
YES	Tandy CoCo RSDOS double-sided 96TPI (315kB)	Darren Atkinson, Benoit Bleau
YES	ZEISS Spectrophotometer Specord M400	Milan Kubasek

YES	<b>Any uniform format readable by the NEC <math>\mu</math>PD765/7265/72065/72066 floppy disk controller</b> – this includes formats from the Intel 8271 and WDC1770 floppy disk controllers.	
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Note that some formats do not require the installation of the OmniFlop driver. Installation of the OmniFlop driver adds all formats listed above. Variable (copy-protected) formats are being worked on but are not yet available.

If you try OmniFlop with a format not listed above and send the 'Test' results to the contact in 'About' then you will get a credit for the format in future releases, as shown in some cases above.

**Note: The OmniFlop analysis means the format does not need to be known for it to be read or written.** (The OmniFlop driver must be installed for this facility).

### 3.2 Formatting Disks

As of v1.00 of OmniFlop, the utility (with the driver installed) is capable of physically formatting the pre-defined formats listed above. However, the disks produced will have no **file system** (logical format) written to them - to be used, they must still have a disk image of the correct format written to them.

**OmniFlop does not format 'blank disks' of the correct format, just disks to the correct physical format, so that images (blank or otherwise) may be written to them.**

You must sort out the logical format (catalogue/file system/FAT/bad sector area/data content), usually by writing to the disk (after formatting) a disk image of the correct format.

### 3.3 Running OmniFlop

Double-click the 'OmniFlop.exe' application from Windows Explorer.

A shortcut icon to the application may be placed on the desktop or Start menu if desired.

The Wizard is designed to be as self-explanatory as possible, and leads you through the process of using an alien format disk step-by-step. However, some notes and further explanation are offered below.

### 3.4 Welcome Page

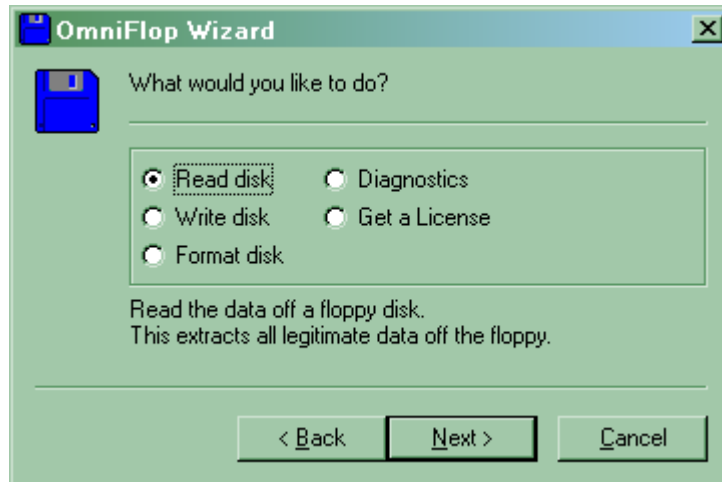


Use 'About' to see details of the version of the application.

Use 'Test installation' to see if the OmniFlop driver is installed and providing extended format support. You do not need this driver if you are simply using standard DOS formats supported natively by Windows.

'Cancel' at any time will exit the wizard.

### 3.5 Function Selection



If the format of the disk has been registered with OmniFlop (see 'Supported Formats' in 3.1) then use 'Read', 'Write', or 'Format' to read, write, or format a disk.

If you are unsure of the format of the disk, or whether OmniFlop 'knows' it, select 'Diagnostics' and choose 'Test disk'. If the result is an "Unknown custom" format, then you should register it for full support by OmniFlop. While support is being added, though, you can still read or write the format using the 'Read disk' or 'Write disk' options although you will need a special license - see 2.5.

The 'Get a License' option is for licensing particular formats for use with the Wizard (usually untested, rare, or deduced formats), or for enabling support of other software that uses the OmniFlop driver. Licenses are free and are only there to provide feedback to the author.

## 4. Support

OmniFlop is designed to work with the majority of PCs using a 'standard' Floppy Disk Controller and in most cases works immediately without any changes to the host system. However, floppy disks are physical media using magnetism to store binary data - trying to read that 20-year old floppy in a modern PC with an unrelated drive from 10 years ago is fraught with opportunities for things to go wrong. **Start with a floppy disk and drive that works** - i.e. a 1.44MB or 1.2MB DOS-formatted floppy.

Generally, if you have a problem, **make sure you've got the latest version of the driver and wizard installed.**

### 4.1 Things to Check

#### 4.1.1 Hardware

If your hardware does not work properly then OmniFlop won't work properly. Make sure your hardware works - under Windows, you should be able to format disks (to Windows'/DOS' FAT12), write them, fill them up, read them, and delete files off them - this must all work **without error**. Then try this disk with OmniFlop. Make sure you have a decent floppy drive, and disk, that actually works before trying to get support for one that doesn't.

Your hardware includes the **media** - i.e. the floppy disk. If the disk is old, damaged, dirty, or losing its magnetic coating, then the disk will be at best unreliable, at worst unreadable. **Use decent, known good, media**, at least initially for testing. Once you know the system works, you can then try those disks from 20 years ago.

#### 4.1.2 Single Density Support

Note that there are cases of PCs with chipsets that do not support **Single Density** operation. However, it is not as common as portrayed out on the Internet - those who it didn't work for are vocal about it, while those it did work for remain silent ("How can you say it works for *most* PCs when it doesn't work on *mine*...?"). The PCs known about so far that do **not** support Single Density are:

- Dell Latitude XPi P133ST laptop - no Single-Density support **at all**.
- Dell Dimension XPS T500 - possibly **read only** 5¼" Single Density. [Paul Jenkinson]
- Olivetti PCs - no Single-Density support **at all**. [Mark Ferns]
- Advansys card - reported to **read only** Single Density. [Mark Ferns]
- Platinum PackardBell P3 500MHz - **read-only** Single Density. [Colin McDougall]

If you find more, or wish to clarify which particular machines are afflicted, please contact support.

#### 4.1.3 Software

If your hardware works properly then under Windows there is an added complication: **other software**. Other software running at the same time as OmniFlop may interfere with OmniFlop's operation; OmniFlop needs exclusive access to the floppy disk while it runs. As a first step, check:

- There is no Anti-Virus software running or enabled. If you are not willing to turn it off completely while you try OmniFlop, make sure you at least '**Disable scanning of removable media**'.
- Windows Explorer is not open. A refresh/update of Windows Explorer can cause it to access the floppy disk.
- No other software that accesses the floppy drive is running.

If none of these help, reboot Windows into Safe Mode. To do this, as your PC reboots, before it starts Windows, press 'F8' many, many times, like a lunatic, even if the PC starts beeping at you. This should give

you the Windows Options Menu - select "Safe Mode" and hit 'Enter'. Try OmniFlop once Safe Mode is up and running.

If you want to prove that your hardware is OK then reboot your PC into DOS and use a DOS-based program such as OmniDisk (<http://www.shlock.co.uk/Utils/OmniDisk>) to SAMPLE a disk. If this does not detect anything, then your hardware (PC) and the disk you are trying to read simply aren't compatible. Try another PC, or disk, or both.

## 4.2 The Ideal Test Environment

The best environment, at least for testing OmniFlop, is:

- Windows 2000 SP4.
- 3½" 1.44MB High-Density internal Floppy Disk Drive.
- BIOS set up for 3½" 1.44MB High-Density Floppy Disk Drive.
- 3½" 1.44MB [2.0MB unformatted] High-Density floppy disk (for High-Density formats). Not a double-density floppy disk!
- 3½" 720kB [1.0MB unformatted] Double-Density floppy disk (for double or single-density formats). Not a high-density floppy disk! It doesn't have the HD hole in the top, and it doesn't have tape over it!
- OmniFlop v2.01 or later downloaded.
- Windows running in Safe Mode.
- **All Anti-Virus software disabled or not installed.**
- Re-install Floppy Disk Controller.
- Install OmniFlop in place of Microsoft Floppy Disk Drive.
- Try 'Test installation', then 'Test disk' (Diagnostics), then 'Read disk'.
- If all else fails, try 'Get disk map' (Diagnostics) and send it to support.

To steal a sound-bite from *TextPad* [<http://www.textpad.com>]: OmniFlop is designed to work *with* Windows, not *against* Anti-Virus software.

If the above setup works, then you have a basic level of functionality to work from.

If you use a 5¼" drive then be prepared for a struggle. It is especially hard to get the PC to accept the format from an alien system on 5¼" disks, but it is possible.

## 4.3 The driver "does not contain any information about your hardware"

You are trying to install the driver as a Floppy Disk **Controller**. The driver is a replacement for the Floppy Disk **Drive**.

## 4.4 The media in the drive cannot be read

OmniFlop requires exclusive access to the floppy disk drive to work. If another application retains access to the floppy disk drive then OmniFlop cannot access the drive. Usually this is symptomatic of an anti-virus program.

Check none of the following are running at the same time as OmniFlop:

- Anti-virus software with 'removable media scanning' enabled.
- Windows Explorer
- Any other software, especially any likely to be 'watching' or 'using' the floppy disk drive.

Also check "Nothing was found" below.



#### 4.5 It won't work with my [external USB] floppy disk drive

Correct - it won't. See 2.1.1.

#### 4.6 How do I install a 5¼" [internal] floppy disk drive?

1. You may need conversion cables from a 34-way IDC (3.5" floppy drive) plug to a 34-way edge connector (5.25" floppy drive) socket. Less probably you may also need a 5.25" power plug to 3.5" power socket for the power cable, but this is extremely unlikely. This allows the 5.25" drive to offer the same physical connectors as a 3.5" drive.
2. Follow the same procedure as for a 3.5" drive (see 4.7) but set the BIOS to the appropriate type of drive - usually 5.25" 1.2MB (for a high-density drive) or 5.25" 360kB (40-track double-density), or 5.25" 720kB (80-track double-density). **If the appropriate type of drive isn't available**, there is no harm in trying a 3.5" equivalent - e.g. 3.5" 1.44MB for a 5.25" 1.2MB, 3.5" 720kB for a 5.25" 720kB.

#### 4.7 How do I install a 3½" [internal] floppy disk drive?

1. Open up the PC case and plug it in. A power cable needs to be connected plus the data cable, which is a 34-way flat IDC (grey) cable, similar to, but not the same as, the two hard disk drive (50-way) cables. One side may be marked with a red stripe - this indicates pin 1, and should be matched with the markings on the floppy disk drive.
2. Turn on the PC and as it reboots go into the BIOS. This is usually by pressing 'Del', 'F1', or 'F2' as the PC boots. Be quick about it - once Windows starts booting, you've missed your opportunity.
3. Search through the pages of configuration for 'Floppy disk drive'. Change the setting from 'Not installed' to the appropriate type of drive you've got - usually 3.5" 1.44MB.
4. Reboot the PC into Windows.
5. Get hold of two floppy disks: one pre-formatted by another PC, the other a spare simply for reformatting.
6. Reformat the spare floppy disk using Windows and check you can put files on it and read them back. This checks your BIOS is set up OK and the drive works.
7. Try the pre-formatted floppy disk and make sure you can read files off it, and, if possible, write files to it and read them back. This checks the calibration of the drive is reasonable.

#### 4.8 How do use a 3" [single-sided] floppy disk drive?

1. You'll need a custom-built cable. There are people who've already done this as part of the Spectrum Disk Preservation Project at <http://www.worldofspectrum.org/sdp/>.
2. Install the drive like a 5¼" floppy drive - see 4.6.
3. Set the drive type in the BIOS to 5¼" 360kB.

#### 4.9 Nothing was found

1. Has the disk been "over-formatted"? Imation, for example, pre-format disks with 81 tracks. OmniFlop will detect the 81st track and try and accommodate it into the format (**this changed in v2.00**). If your format on tracks 0 to 79 is not the same as the one laid down on track 80 then OmniFlop will detect that the format is not consistent and you will get "Nothing was found". Try another disk. OmniFlop v2.00 and later give more options for this scenario.
2. Check the latest driver is installed correctly. From the OmniFlop first screen, click 'Test installation'. For any drives you have installed, a long list of supported formats should be displayed, followed by a summary saying for each installed drive "Extended formats supported". From v2.01 of the wizard, a check is made on the driver version, but for versions previous to this you may be using an old driver which doesn't have all facilities.
3. Check no other applications (e.g. anti-virus software) are running.
4. Try another floppy disk drive.
5. Try another PC. If it works there then you need to "spot the difference".
6. Go to 'Diagnostics' and choose 'Get Disk map'. Send the file produced to support.



