

Win3D Help Index

This short help file contain some information about Win3D, a function evaluator for Windows. You probably don't have to read this help file thoroughly to use Win3D, but it's here if you want to see it.

The topics covered are:

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Win3D version 0.99

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Erik Liljencrantz Datakonsult AB

Installation and setup

Just dearchive the distribution file in an appropriate directory using applicable archiver (pkunzip, zoo x, lharc x). The following files are included:

- **README**, a short textfile to get you started.
- **WIN3D.EXE**, the MS Windows application. It has been tested under Windows 3.0 and 3.1. Fatal errors may occur when objects are moved out of the screen, but otherwise, it's a reasonably safe program...
- **WIN3D.HLP**, this help file.
- **BWCC.DLL**, the Borland Windows Custom Control library.

The **BWCC.DLL** must reside either in

- the same directory as the executable
- Windows startup or system directory
- a directory included in the PATH

(If you have TPW or BC30 the DLL is already installed on your harddisk).

Features

- 1) Win3D is a fully featured MDI application supporting multiple windows and multiple instances.
- 2) Use the mouse to rotate the 3D space in real time (well, as fast as possible). The Mouse usage page describes the mouse handling.
- 3) Use the toggling Go/Pause button to auto rotate the 3D space around all three axis.
- 4) The status window currently only display memory statistics in a crude manner.
- 5) The function button present in Win3D's graph windows present a non modal dialog box for entering functions of two variables. All features in the function dialog are implemented, including
 - Enter any function, including abs, sin, cos, sqrt and more. Rectangular examples:
 - x^2+y^2 (interpreted as $x*x+y*y$)
 - $\sin(x)+\cos(y)$
 - $\text{sqrt}(1-x^2-y^2)$
 - Polar examples:
 - 1
 - $\sin(v)$

Do experiment... Some functions may generate division by zero and worse. Points producing a computation error are set to zero and you are informed about it.

 - String or solid modelling in variable resolution
 - Adjustable ranges for all variables
- 6) Two test windows are included:
 - Boxes are three simple string boxes in random colors, rotating and moving.
 - UA are two hand made solid characters rotating. You may see some of the deficiencies of the solid modelling algorithm in this test.
- 7) The preference dialog contain a single preference: Select a large or a small function dialog.

Mouse usage

Use the mouse to move and rotate the 3D space. The mouse provides 2 degrees of freedom, but 6 degrees are needed for total control, therefore the mouse buttons are used:

- Press the left button to move in X-Y directions, then press the right button (both buttons down) to move in X-Z directions.
- Press the right button to rotate around 2 axis, then press the left button (both buttons down) to rotate around the third axis.

This may seem awkward, but try it instead of reading this text...

Interesting functions

Rectangular examples:

x^2+y^2 (interpreted as $x*x+y*y$)

x^2-y^2

$x*x*x+y^2$ (sorry, x^3 isn't supported...)

$\text{sqrt}(1-x^2-y^2)$

$\sin(x)+\cos(y)$ with varying X- and Y-ranges

$\sin(x^2+y^2)$

Polar examples:

1

v

$\sin(v)$

$\text{sqr}(\cos(w))$

Do experiment... Some functions may generate division by zero and other nasty effects when rotating them...

Registration

Win3D is almost free as distributed. I only require You to send me a [postcard](#) if You like it (or an email if there are no nice cards from Your neighbourhood). Please send the postcard to

Erik "3D" Liljencrantz
Westmanstreet 25
S-113 25 STOCKHOLM
SWEDEN
Email: d88-eli@nada.kth.se

If You are interested in the source code to Win3D You are asked to send \$35 (or 200 Swedish crowns) to the same address (an international bank cheque is fine) and I will return the latest version to You on a 3½" disk (or by electronic means if you provide a nice Internet address).

By paying the requested amount You are entitled to use, modify or extract parts of the source code for your own use. If You redistribute a program derived from parts of Win3D this message should be included:

Parts of this program are copyrighted by
Erik Liljencrantz Datakonsult AB

and I'll be very happy to find Your program somewhere!

Future extensions

Lot's of things remain to be done on the program, if I just can find the time... Just a couple of things:

- Ability to save and retrieve the contents of the function dialog and the rotation of the graph
- Cut and paste bitmaps and resolution independent vector images (WMF) to the clipboard
- Improved solid rendering
- Speed optimizations (currently all transformations are performed using floating point numbers and a 4x4-matrix, which is slow but flexible and easy to enhance)
- Better errorhandling when things are dragged out of the display (trap division by zero)
- General 3D editing features, especially text labels
- Plotting of data files or data from a spreadsheet
- Illumination effects for solid rendering
- Use 256 or 32K colors when available

The list goes on and on, but I'm nevertheless interested in Your suggestions.

A word at the end...

Well, I don't believe you have to read the help texts thoroughly to use this program, just go on and try it out. If you like 3D graphics you are likely to waste a couple of hours in front of the screen... Please waste a couple of box on me too, and maybe I'll find the time to improve the program as lots of things remain to be done. I do like ideas and new suggestions too!

Sincerely,

Erik "3D" Liljencrantz
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BTW, this program started out as a DOS-based version, running in 640*350 to allow fast video page flipping. It's *MUCH* faster and include several fonts and other general 3D painting stuff, but the function evaluator doesn't support polar coordinates and solid models. You may request it...

Win3D is written by:

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The letters UA are (ofcourse) the initials
of a very special *girl* I know!

If You have a numeric coprocessor installed, Win3D will run much faster. It's developed on a 486 system (i.e. the coprocessor is integrated into the CPU).

