



Rotater

A macOS application for rotating user specified 3D points and lines in real time with stereo viewing options. Versions are available for all Mac platforms dating back to Mac OS 9 on 68K.

Current Version

Rotater 6.2.0

Requires a Mac running macOS 11 (Big Sur) or later (M series or Intel processor)

Web site: <https://treefish.com/rotater>

Email: craig@treefish.com (email if you want to be notified of new releases)

Controls

Mouse or Trackpad

Click and drag to rotate

Release to maintain rotation

Click to stop rotation (or press space bar to toggle rotation)

Use zoom gesture (pinch) on the trackpad to zoom in and out

Scroll wheel or Trackpad scroll

Scroll to rotate left-right or up-down

Flick scroll to do a decaying spin

Keyboard Actions

| | |
|--------------|--|
| [space bar] | Start and stop previous rotation |
| [arrow keys] | Rotate left-right or up-down 1 degree at a time |
| + or = | Zoom in to the object (make it appear larger) |
| - or _ | Zoom out from the object (make it appear smaller) |
| , | Make the lines thinner |
| . | Make the lines thicker |
| < | Make the points smaller |
| > | Make the points larger |
| c | Toggle centering of the object Use this if the object is way off to one side |
| h | Toggle handedness (chirality) of the object Use this if the object appears mirror imaged |
| x y z | Specify which positive coordinate in the input file is up |
| X Y Z | Specify which positive coordinate in the input file is down |
| t | Toggle between trackball and ZX rotation modes |
| s | Switch between mono and stereo modes |
| 1 | Decrease stereo separation angle (only in stereo mode) |
| 2 | Increase stereo separation angle (only in stereo mode) |
| f | Toggle display of frames per second (FPS) |
| b | Toggle background color between black and white |
| w | Toggle wireframe mode Shows the detailed makeup of the object's skeleton |
| m | Show window size |
| r | Reset object rotation angles |
| R | Reset all settings to shipped settings Use this if you really mess up the settings Not saved unless you save default settings as well |
| D | Save default settings for opening all future files (point size; line width; axis direction; handedness; centering; background color; stereo mode and angle; window size) |
| i | Toggle showing or hiding a brief version of this table over the object being displayed |

Note: caps lock is ignored

Dual Stereo Mode

Adjust the window size and zoom level to get two distinct objects

Cross your eyes until you see three objects - the middle object should appear in 3D

Use the 1 and 2 keys to adjust the angle difference between the objects until it looks right

You want a positive angle of about 1-5 degrees for cross eyed stereo

RG and RB Stereo Modes

Use Red-Green or Red-Blue glasses

Use the 1 and 2 keys to adjust the angle difference between the objects until it looks right

You want an angle of about 1-5 degrees for these stereo modes

The angle may need to be negative depending on which eye has which color lens

Input File

Rotater can open any file type, but it only makes sense to open text files with properly formatted lines containing coordinate and command data as defined below.

If the file has a ".rot" extension, it will open in Rotater when double-clicked.

To open other file types:

- Use the Rotater -> File menu -> Open... menu item

- Drop the file on the Rotater icon in the Finder or the Dock

- Right click on the file and select Open With -> Rotater

You can have a file open in Rotater and a text editor at the same time. If you change and save the file in the text editor, the Rotater image will automatically update to reflect the saved changes.

File Format

The input file consists of sets of four numbers on each line with the numbers separated by almost anything. All the typical line endings are supported (Mac, Unix, Windows).

If the four numbers are:

$x\ y\ z\ c$

x = x coordinate (real)

y = y coordinate (real)

z = z coordinate (real)

c = colour and/or drawing method (integer)

if $c = 0$: move to the position (x,y,z) in 3D space without drawing anything

if $c > 0$: draw a line from the previous position to (x,y,z) using colour c

if $c < 0$: draw a point at (x,y,z) using colour $-c$

where the colors are defined as:

1 = red

2 = green

3 = blue

4 = yellow

5 = purple

6 = cyan

7+ = white

Lines with only 3 numbers are plotted as white points

Lines with only 2 numbers are plotted as white points with $z = 0$

Comment lines begin with the # character and are ignored

Text after the # character on a line is ignored

Text after the first four numbers on a line is ignored

Completely blank lines are ignored

The coordinates are automatically scaled to fit in the window and rotation is about $(0,0,0)$ unless center object is on, in which case, the object is rotated about its geometric center.

File example

This line is ignored as it starts with a #
1 # 2 3 4 This line is ignored as it only has one number before the #
0.5 2.3 -1 0 # moves location to point (0.5, 2.3, -1) without drawing
3,5,6,2 # draws green line from (0.5, 2.3, -1) to (3, 5, 6)
7x8x9x1 # draws a red line from (3, 5, 6) to (7, 8, 9)
5, -5, 2, -3 # draws a blue point at (5, -5, 2)
1 2 3 # draws a white point at (1, 2, 3)
1 2 # draws a white point at (1, 2, 0)
0 0 0 4 # draws a yellow line from (1, 2, 0) to (0, 0, 0)

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