



Rhino Tips 'n Tricks List

app: Rhino 3.0
date: March 2004
by: Dave Schultze
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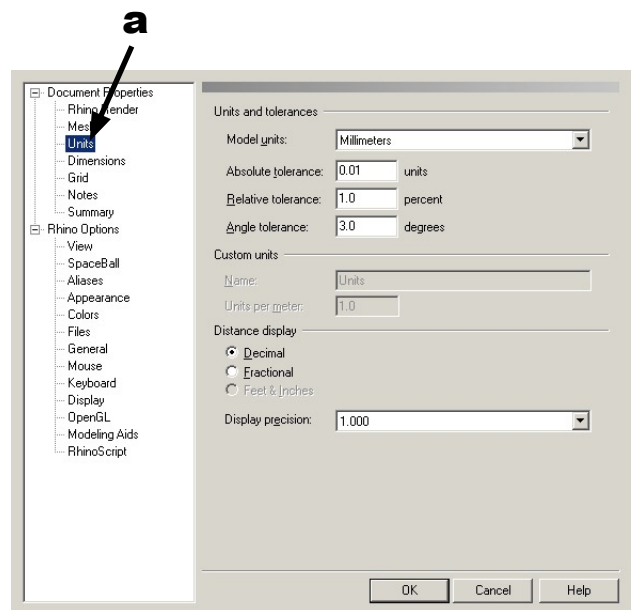
1 What Up

Even though Rhino can be customized in various ways, it is worthwhile to learn the following basic settings and work habits.

2 Options

Most of the option settings work fine in default, but be sure to check the following items two items.

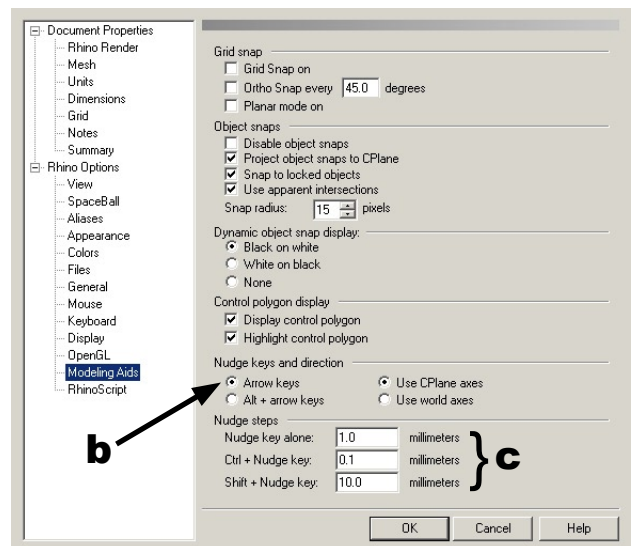
- a** Set your units before you start to avoid later scaling problems



- b** The 'Nudge keys" are a huge timesaver, but are not turned on by default, oddly enough These allow you to move **any** object (including edit points and groups) a specific distance away. Actually, three specific distances away.

Using the four arrow keys on your keyboard, you make exact movements for detailed editing -- or copying work-in-progress to a new location for "experimental changes."

- c** Set the three options to something easy to remember, such as these three which are factors of ten and work similar to other programs.





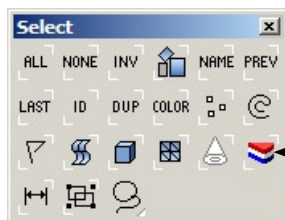
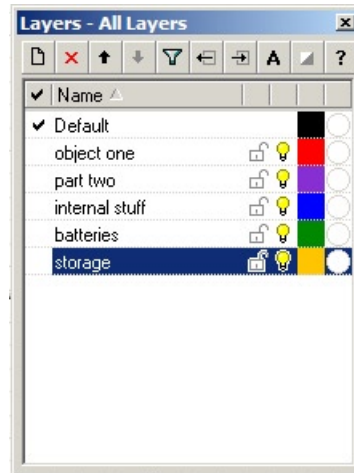
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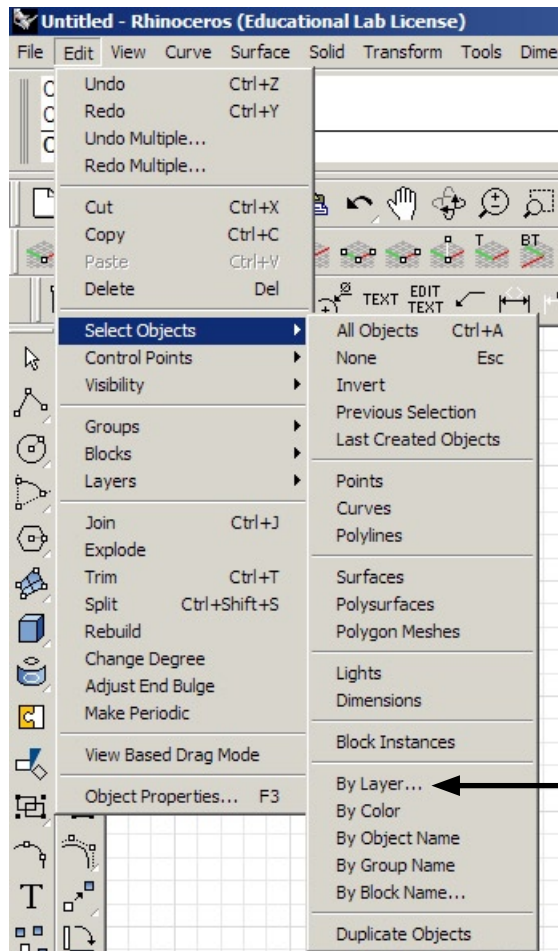
3 Layers

Its not necessary to set up layers before you start, but just thinking about their organization will help you navigate through large files much more efficiently.

- a** Experience has shown that its usually better to make a layer for individual components vs. separating them for curves, surfaces, and solids. This way, the entire component can be turned off -- or locked -- when you are working on other areas and the screen is getting crowded. Later, if the curves are in the way, you can either hide them or move them to the storage layer.
- b** Make a storage layer for back-up objects, like the surface before it was trimmed or all the curves used in a complicated loft, in case you need to go back later and re-build it. Just keep it turned off!
- c** Learn all the layer selection options. You can turn all layers quickly on or off, and most importantly, move objects form one layer to another. I recommend keeping this window open and docked at all times.
- d** Don't forget you can select all the objects on one layer using the select command, which also has a gajillon other ways to select stuff. Learn them!



You can also use the very powerful **select window**. Keep it opened and docked.





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4 General Tips

- a** Use curves to construct **everything** whenever possible. Using the primitive solids (sphere, cube, ellipsoid) will only cause later problems. But, solids are OK for punching and boolean operations.
- b** Viewport toggle : work in full perspective for best “feedback” and switch with CTRL+TAB
- c** Viewport shading & focal length : use wide angle of 25-35 mm and a shaded viewport (in the perspective viewport.) You want to create as much of a 3D experience as possible, since you can only view your design in 2D. Do lots of rotating and get familiar with your design from all angles so there will be no surprises when you prototype. Type **turntable** in the command line for a cool surprise.
- d** Use the grey shading in the perspective viewport. Why? It allows you to focus on the design and form -- and not be swayed by the pretty colors. If it looks cool in grey, it will only get better in color.
- e** F10 and F11 : toggle your control points on/off for quick editing. Works for curves or (untrimmed) surfaces.
- f** Copy and paste : work on variations inside the same file. (Use **CTRL+C** and **CTRL+V**)
- g** Centerlines : set up and lock on their own layer, used for symmetrical operations (mirror, lathe)
- h** Guidelines : set up and lock, for approximate sizing and to reduce later scaling problems
- i** Fillet last : keeps geometry cleaner & smaller and allows you to go backwards easier. Nice!

5 Problem Solving

- a** *My curves are nutty! During editing, they somehow got twisted and now jump around.*

This is due to object snap settings.

FIX #1 You can **avoid** it : force entities and edits to stay on one plane with **planar** or **project**



FIX #2 You can **flatten** it : under **transform** → **project to c-plane**

- b** *Where is the shelling command? How do I make something hollow?*

There is no shelling command. You must offset each surface of your polysurface individually and then edit, trim, and fillet. The best method is to offset all the original curves and simplify/rebuild them if they get too complicated. Then do the same surface command as the exterior for the new interior.

- c** *My surface looks weird and/or spiky in the shaded viewport. I've got triangles connected to things that shouldn't be connected.*

- Fix #1:** Are your adjoining surfaces joined? Select and **join** them.
- Fix #2:** It could be your viewport “mesh resolution.” Switch to smoother and slower.
- Fix #3:** If you did lots of trimming, your edges may need **re-building**. Select and **explode** the polysurface or solid Go to **analyze**→**edge tools**→**rebuild edges**. With everything still selected, **join**.

