

Round-It

A plugin for Cinema 4D

Introduction

This plugin will round off the position, rotation or scale values of objects in the scene. You can choose which objects to round, the precision with which they are rounded, and the rounding mode.

Requirements

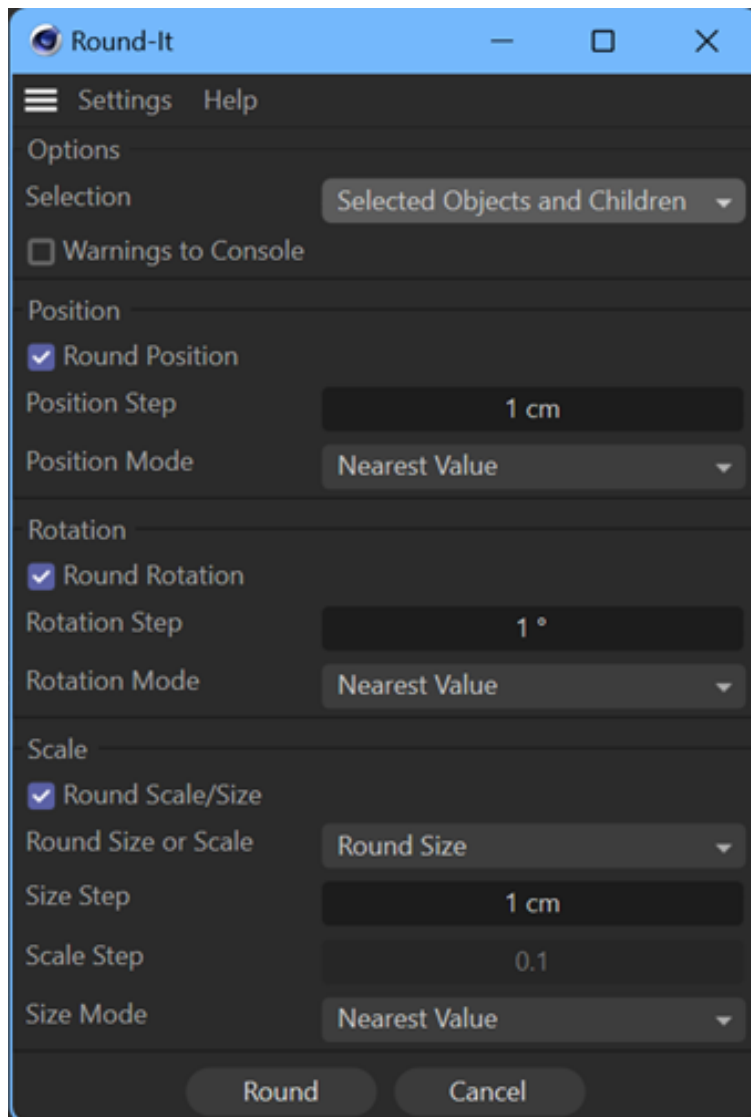
Round-It requires Cinema 4D R2024, currently PC only.

Installation

Install Round-It as with any other plugin, such as into the plugins folder in the user data folder.

Usage

This is the plugin interface:



To use Round-It, there are four things to decide before rounding the object values.

1. Select the objects to round.

You have three options here:

i. Selected Objects and Children

In the object manager, select the objects to be rounded. You don't need to select of the child objects of the objects you selected. The selected objects, and any child objects they may have (and their child objects too, if any) will be rounded. If you select both an object and one of its child objects by mistake, that doesn't matter – the operation will still only be performed once, starting with the parent object.

ii. Selected Objects Only

This is similar to the previous mode, but only the actual selected object(s) will be rounded; their child objects will be unaffected, unless you have also selected them, in which case they (but not any child objects they may have) will also be rounded.

iii. All Objects

With this option, you don't have to select anything. All objects in the scene will be rounded. Be careful with this, because if you have a camera or lights in the scene, rounding them may affect the scene composition.

2. Select the parameters to round.

By default, Round-It will round position, rotation and scale/size. You can choose which of these to round by turning off or on the three checkboxes labelled 'Round Position', 'Round Rotation' and 'Round Scale/Size'. All three checkboxes are checked (i.e. on) by default.

You can then choose to round either the object scale or its size; the default is size. Every object has a scale, even Null objects, but only point objects (that is, editable polygon objects or splines) have a size. You can see this by looking at the size in the Coordinates manager of a light or camera object - the size is always zero and can't be changed.

The problem is that internally objects don't have a 'size' setting that can be changed directly, unlike scale. The 'size' reported by the Coordinates manager is actually the object's bounding box - the smallest box which encloses all the object's points. Therefore the only way to change the size of a point object is to move all the points so that the bounding box is the required size. There is another parameter in the Coordinates manager - 'Size+'. This is the bounding box of the object plus all of its child objects. It's important to note that the size of individual objects can be rounded, but this won't mean that 'Size+' is also rounded; you can round one but necessarily the other. Round-It rounds the size of individual point objects and 'Size+' is ignored.

From all this, we can conclude that the scale of any object can be rounded but that only the size of editable point objects can be rounded. If the size of an object isn't being rounded in your scene, you can turn on the option 'Warnings to Console' which will print a warning to the console (Extensions menu→Console→Default tab) indicating that either the object is not a point object or its points cannot be changed.

The final thing to note is that if the object's axis is centred in the object, after rounding the size it will still be centred, but if it was not centred then after rounding the axis may be slightly offset from its original position. This won't be an issue in most cases but if it is, the axis position will need to be adjusted manually.

3. Select the step values.

Taking position rounding as an example, the default step setting is 1 scene unit. What does this mean?

Suppose you have an object whose X-axis position is 15.4. With the default mode ('Nearest Value') this will be rounded down to 15.0. A position of 15.8 would be rounded up to 16.0. In

most cases this will probably be exactly what you want. However...perhaps you have a scene full of very small objects close together, so that they have X-axis values such as 2.356, 2.271, 2.463 and so on. When rounded with a step of 1.0, they will all have the X-axis value of 2.0, which might not be what you want at all. In those circumstances you could set the step to 0.1. In that case, the rounding would be to the nearest 0.1 step, so they would have X-axis values of 2.4, 2.3 and 2.5 respectively.

This can work with larger values, too. With larger objects at greater distances from one another, you could set the step to 10.0; this will round the values to the nearest step of 10. So for example, 156.6 would become 157.0 if the step is the default 1.0, but 160.0 if the step is 10.0.

Note that the scale step is already set to 0.1 by default. This is because a change in scale from (say) 1.55 to 2.0 (the result if the step was 1.0) is a very large size increase, but 1.55 to 1.6 (with a step of 0.1) is a much smaller size change.

4. Select the mode.

You can set the rounding mode for the three parameter types independently. The options are:

- i. **Nearest Value**
This is the usual method of rounding, where the number is rounded to the nearest step value. For example, 8.4 would be rounded down to 8.0 while 8.6 would be rounded up to 9.0 (assuming a step value of 1.0).
Note that values exactly in between the upper and lower steps are always rounded up (so 8.5 would become 9.0).
- ii. **Lowest Value**
Numbers are always rounded down, so both 8.4 and 8.6 would become 8.0.
- iii. **Highest Value**
Numbers are always rounded up, so both 8.4 and 8.6 would become 9.0.

Round them!

When all options are set, just click the 'Round' button to process the objects, or 'Cancel' to stop and close the plugin window.

Other settings

There are two menus in the window. These are:

Settings menu

- i. **Reload Settings:** any saved settings are loaded automatically when the plugin is invoked. This menu entry can be used to reload those saved settings manually. If there are no saved settings to load, you will see a message to that effect and the current settings will not be changed.
- ii. **Save Settings:** this will save the current settings to the plugin preferences. From now on when the plugin is invoked from the Extensions menu, or the menu entry 'Reload Settings' is clicked, these settings will be loaded in place of the default settings.
- iii. **Reset Settings:** this menu entry will reset the plugin to its default settings. If you want the default settings to be used every time the plugin is invoked, be sure to use the 'Save Settings' menu entry to save them.

Help menu

- i. About...: shows the current version of the plugin.
- ii. Show Help File (.PDF)...: brings up this help file.

Acknowledgements

Round-it is based on an idea by Bjorn Cogxgoc on Plugin Cafe.

Plugin icon from Icon8 <https://icons8.com>

Conclusion

That's all there is to this very simple plugin. If you find any bugs or have suggestions for improvement, you can contact me at my website <https://www.microbion.co.uk/html/contact.htm>

Steve Pedler

October 2023