

# Realflow Waterwheel Tutorial

## Description:

I decided to create this tutorial, because many people asked me on youtube how i made the wheel running with the fluids motion.

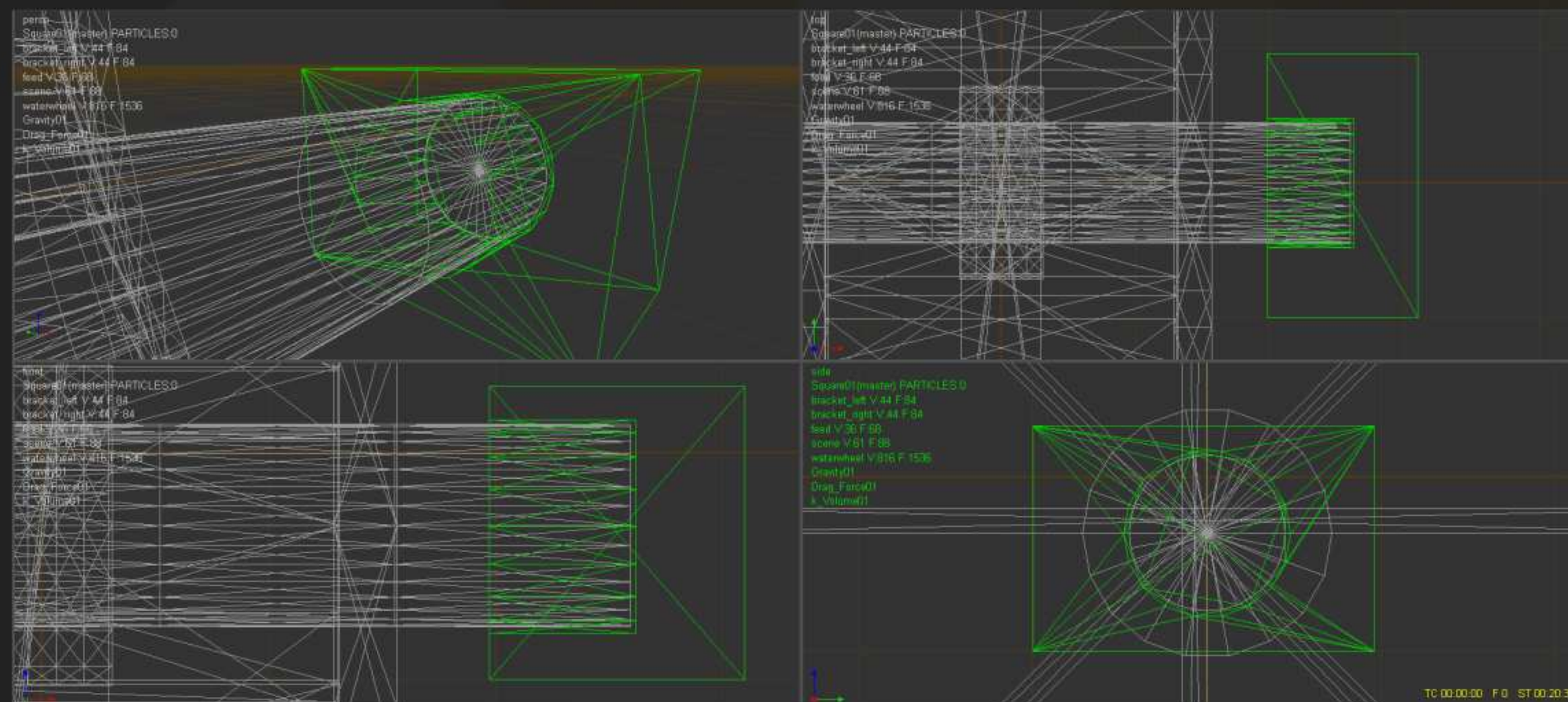
There is no scripting needed and the tutorial should also work with Realflow 4 & 5.

Go to [www.geminus3d.com/tutorials](http://www.geminus3d.com/tutorials) and download the obj`s of the waterwheel i used or create one on your own. You can also download the complete scene on our homepage, if you want to analyze the scene. Let`s get started:

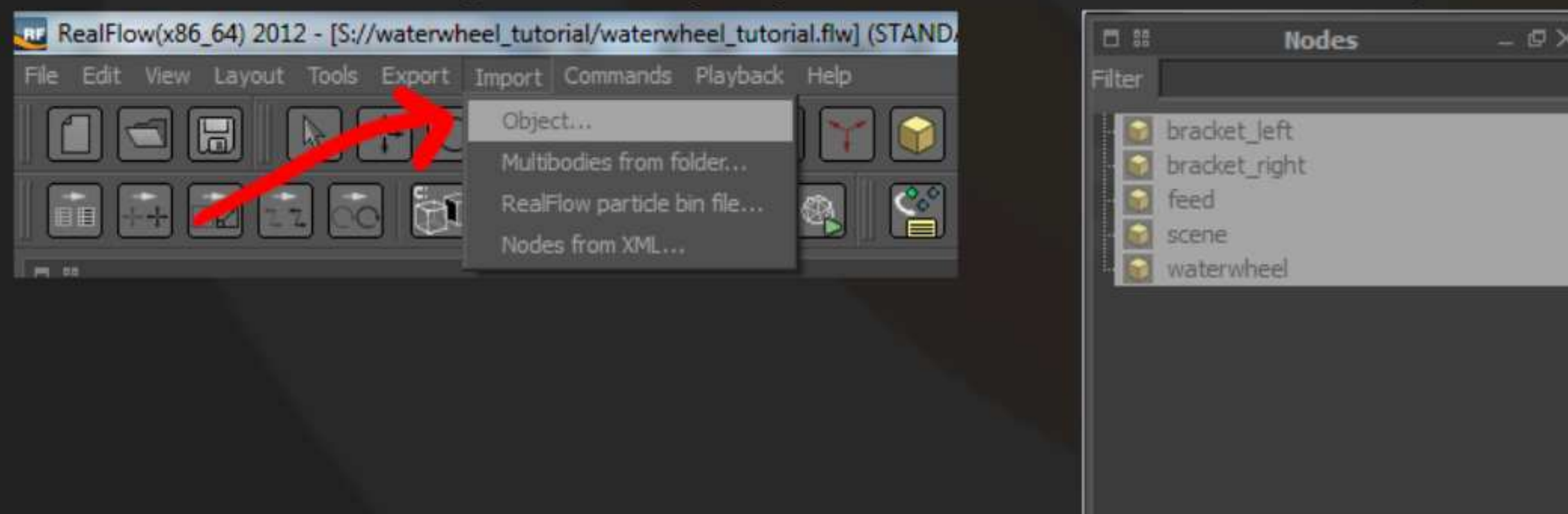
Here`s a screenshot, how i modelled the connection between the brackets and the waterwheel:

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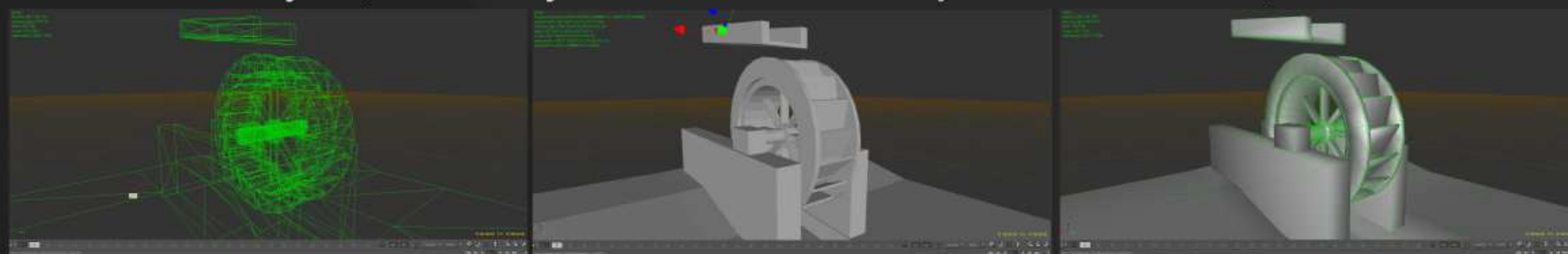
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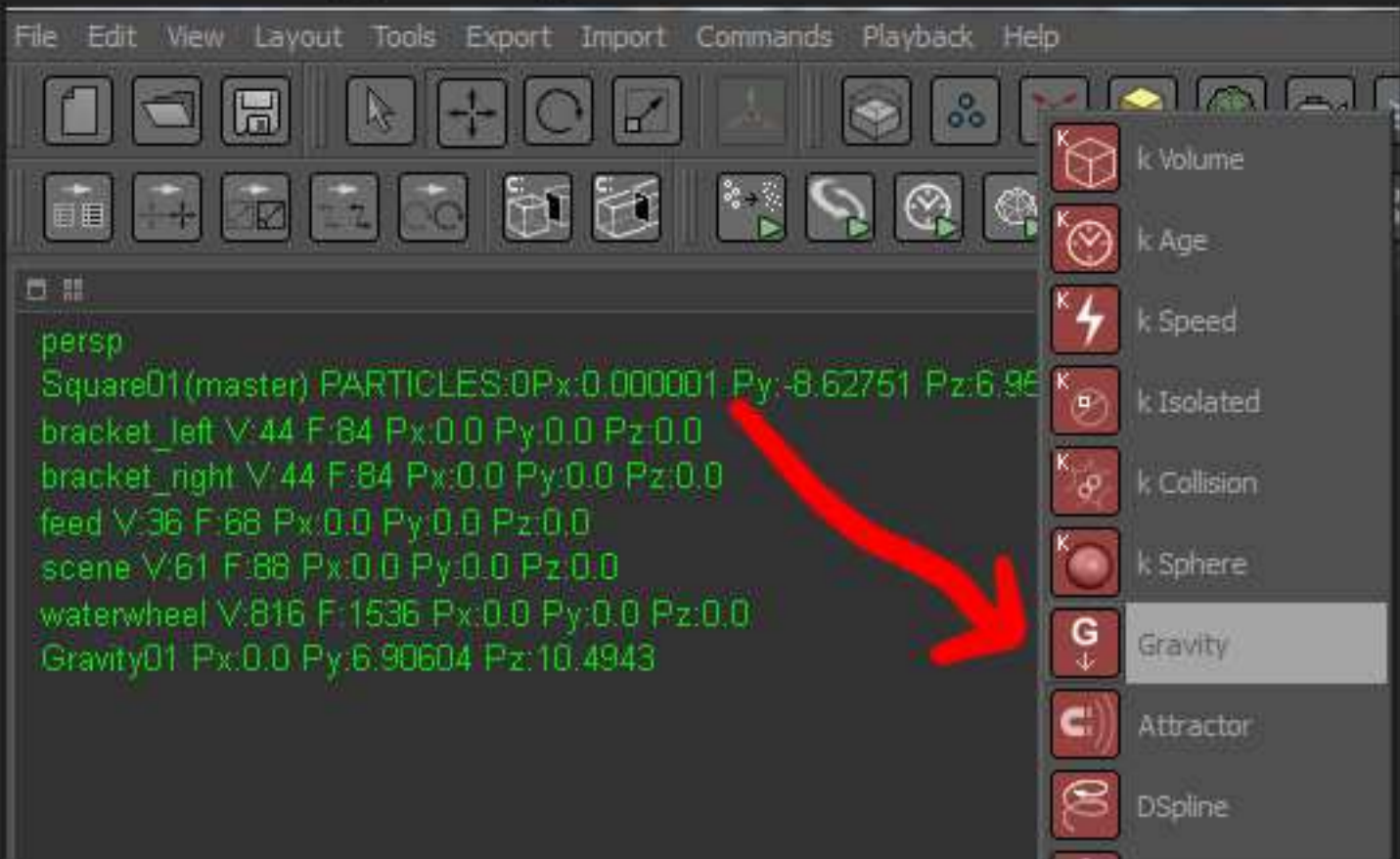
1. First we have to import the obj`s. you can download these at <http://www.geminus3d.com/tutorials>.



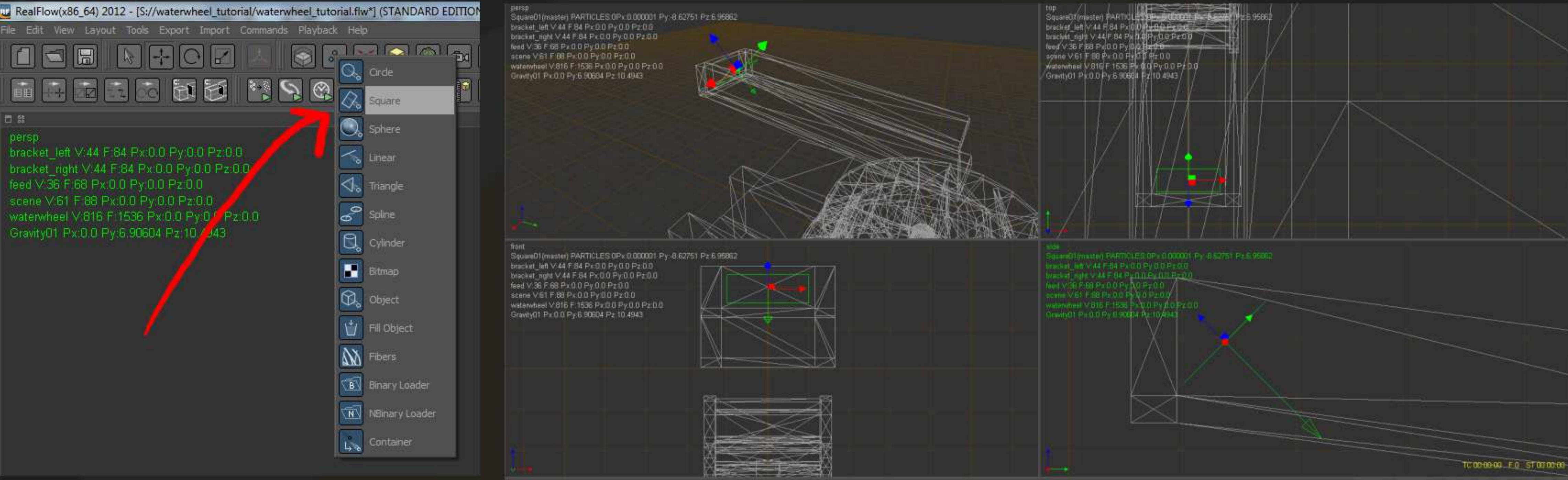
2. With the keys 8, 9 and 0 you can set the viewport to wireframe, flat shaded or smooth shaded.



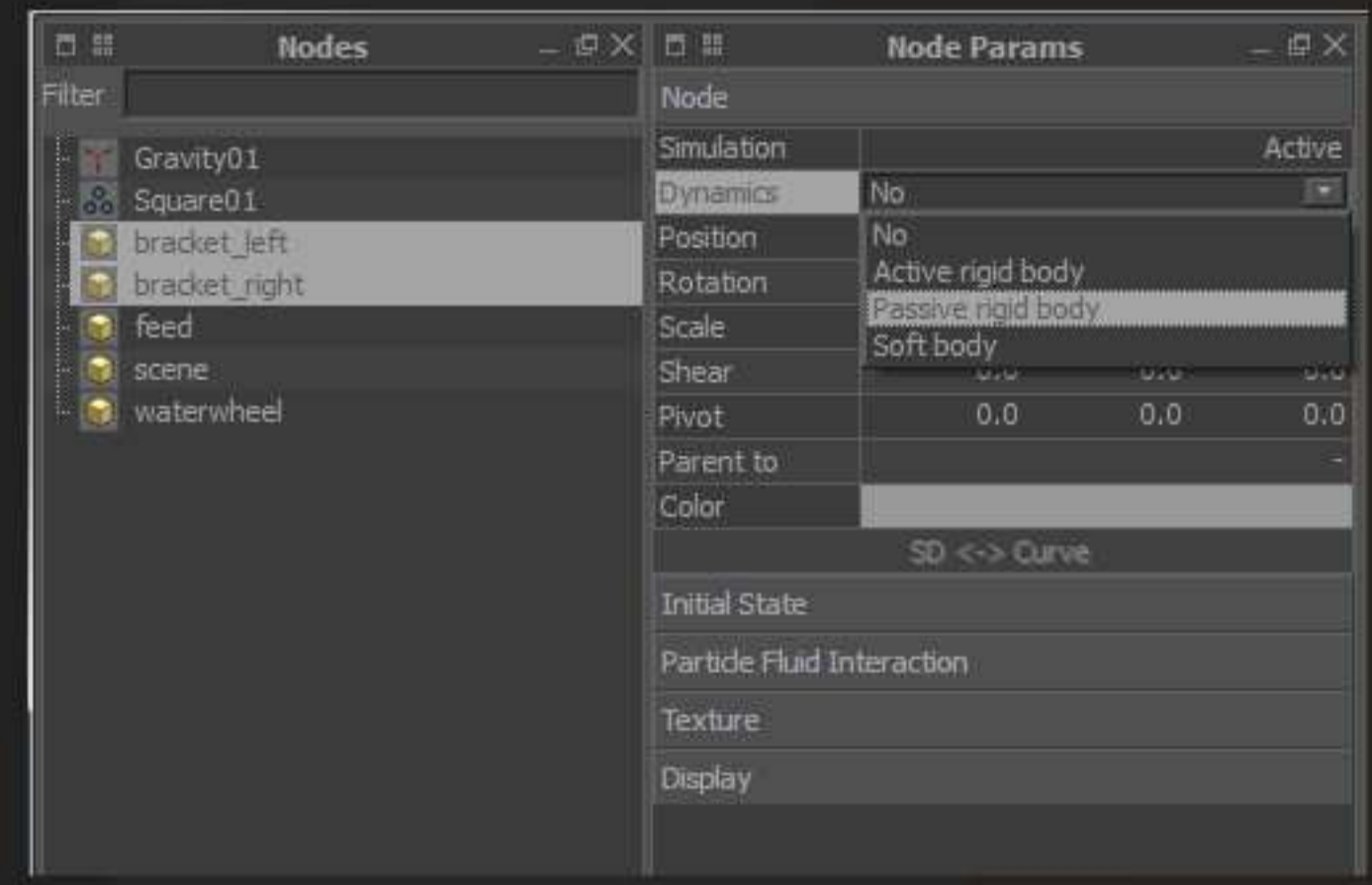
3. Add a gravity daemon from the daemon menu and leave all setting by default.



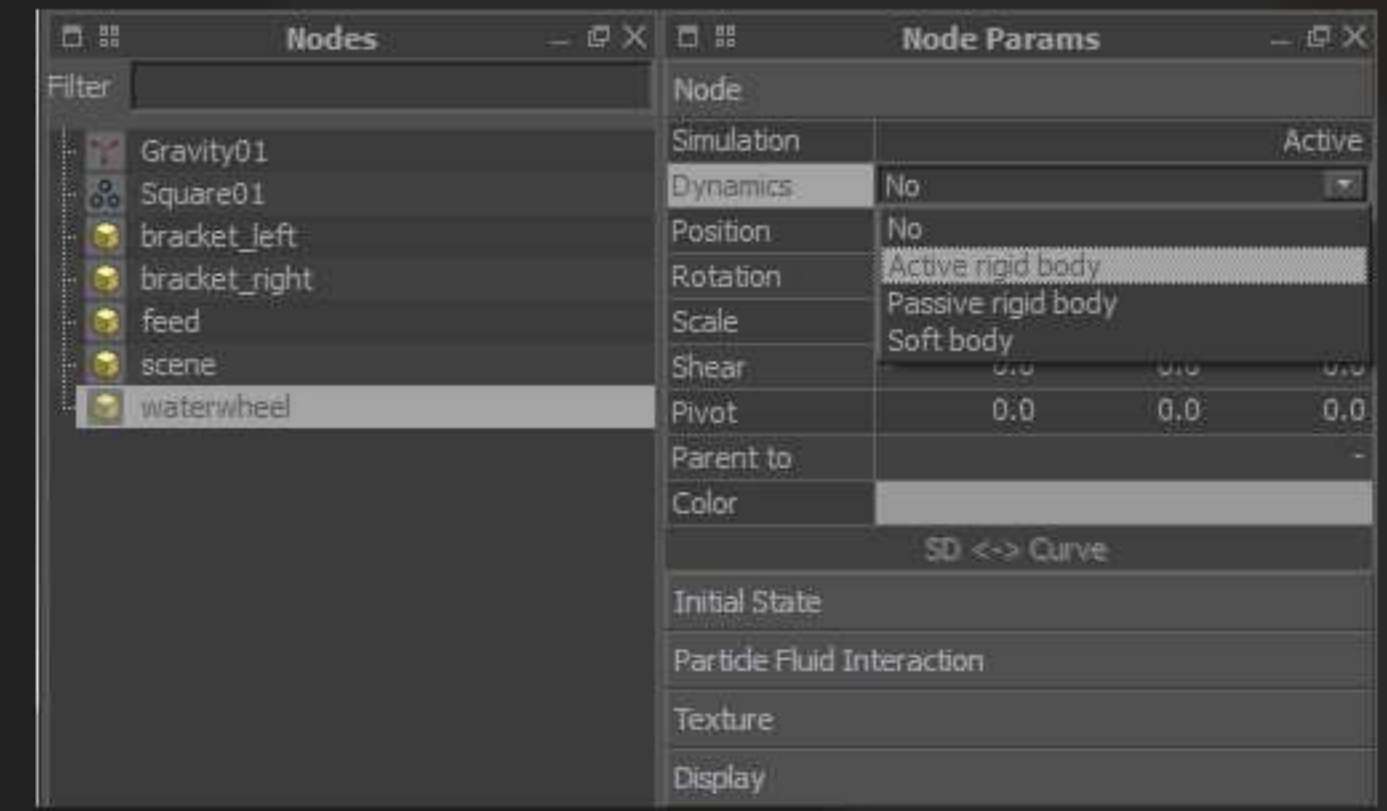
04. Add a Square Emitter and move it (w-key) to the beginning of the feed, scale it (e-key) in the x-axis to 2.0 and rotate it (r-key) in the y-axis to 45°.



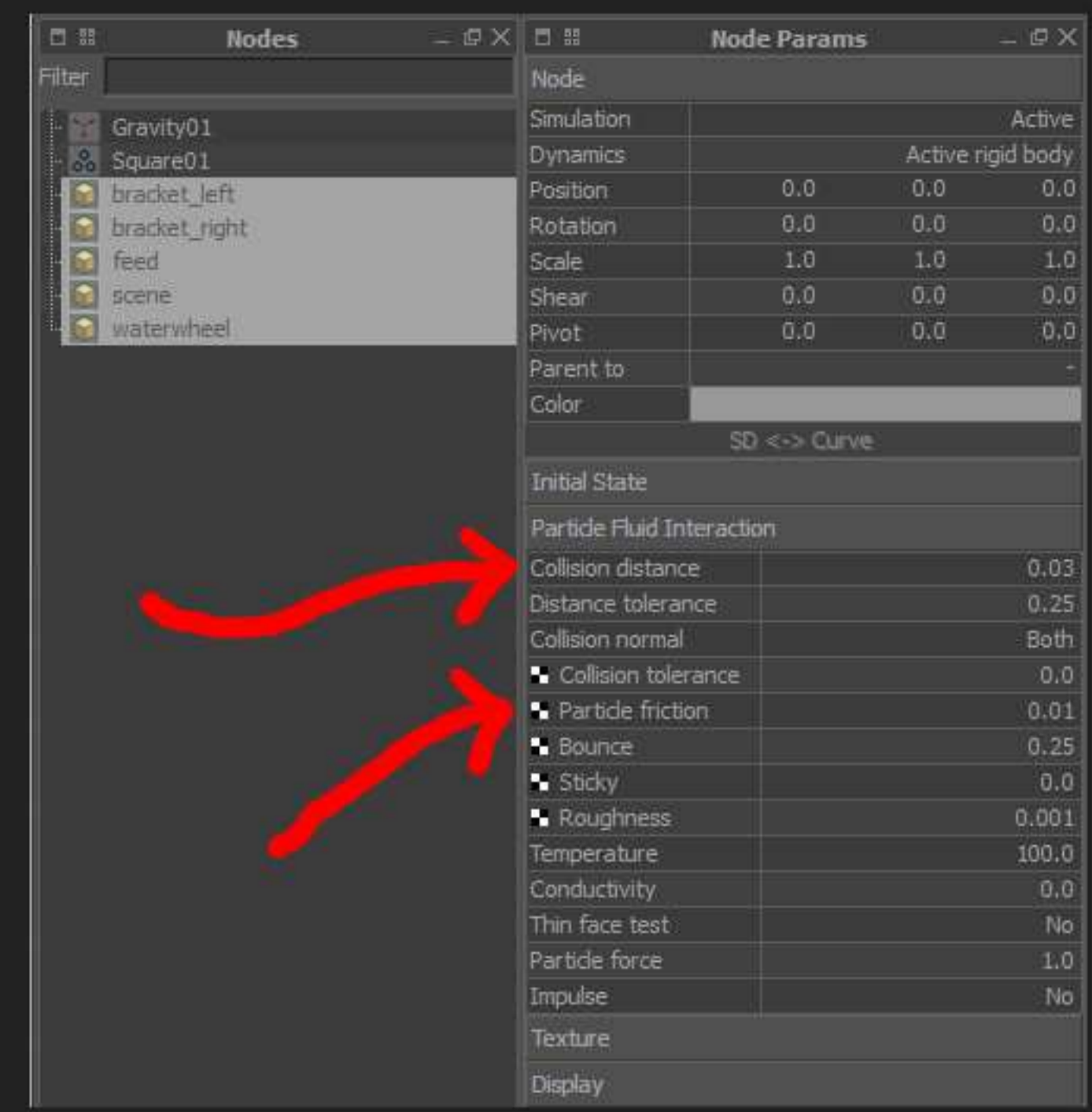
05. Select the 2 brackets and set the dynamics to "passive rigid body". This will make the brackets collide with the wheel.



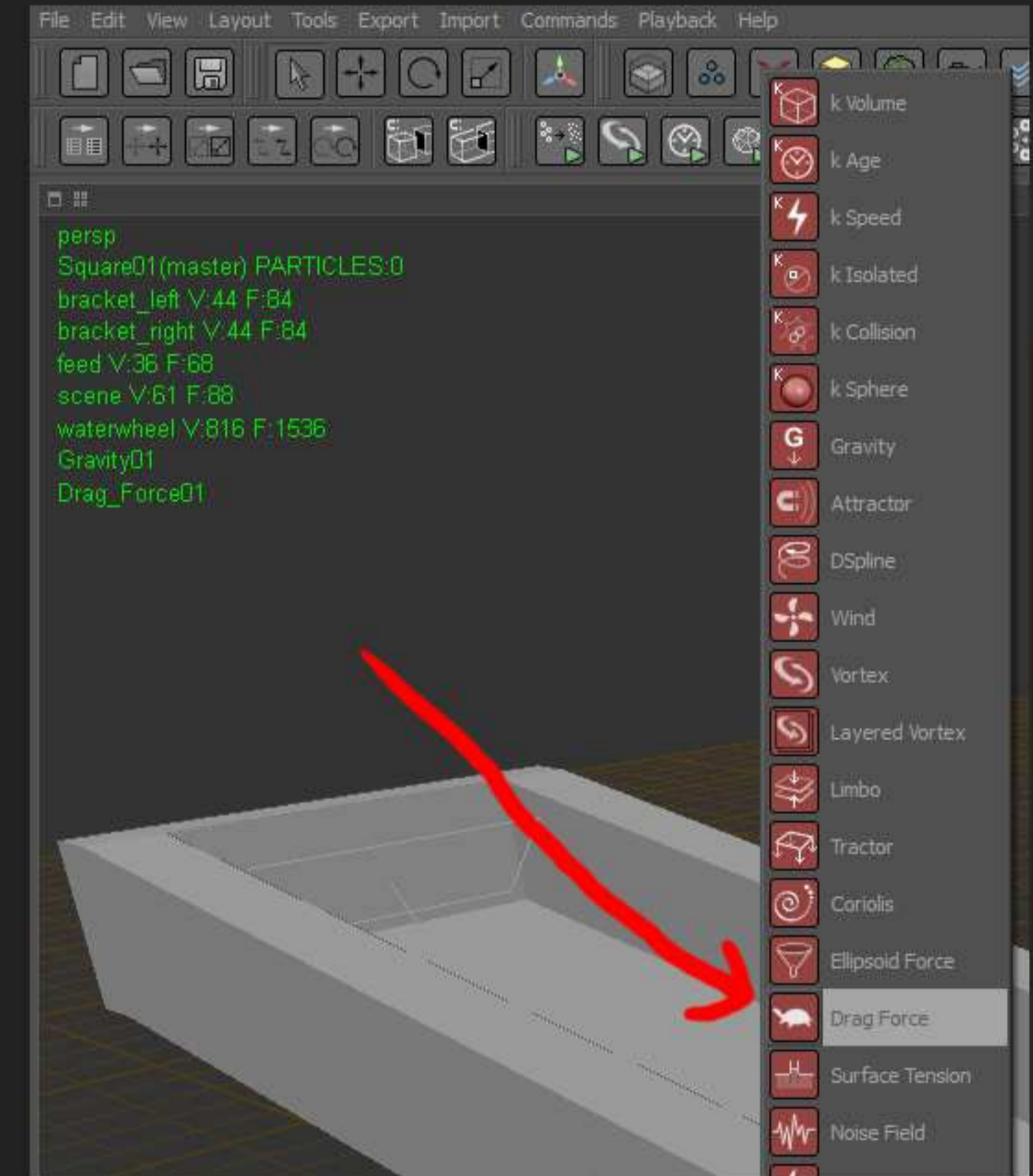
06. Select the waterwheel and set the dynamics to "Active rigid body". Leave all settings by default. If you change the mass, the wheel will rotate faster or slower, also depending on your object's friction.



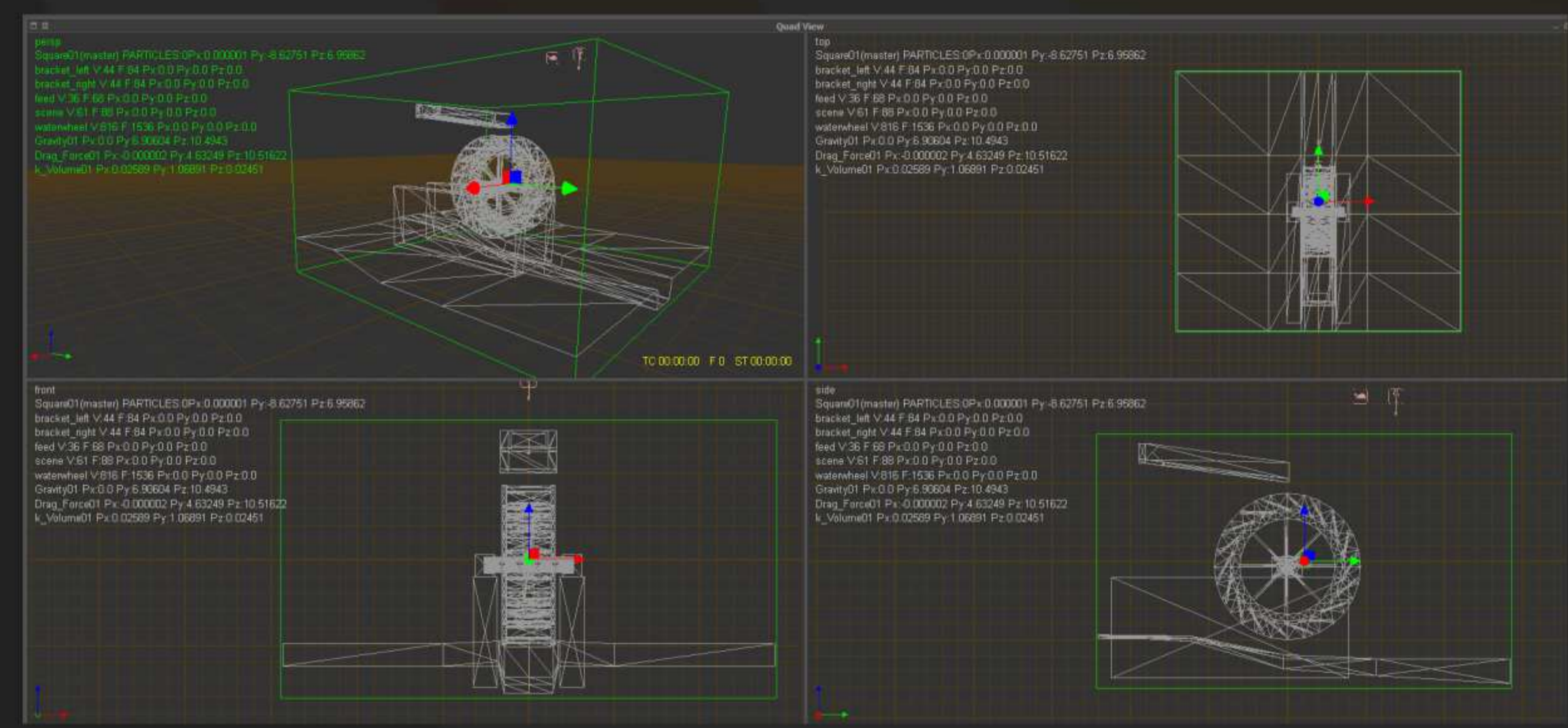
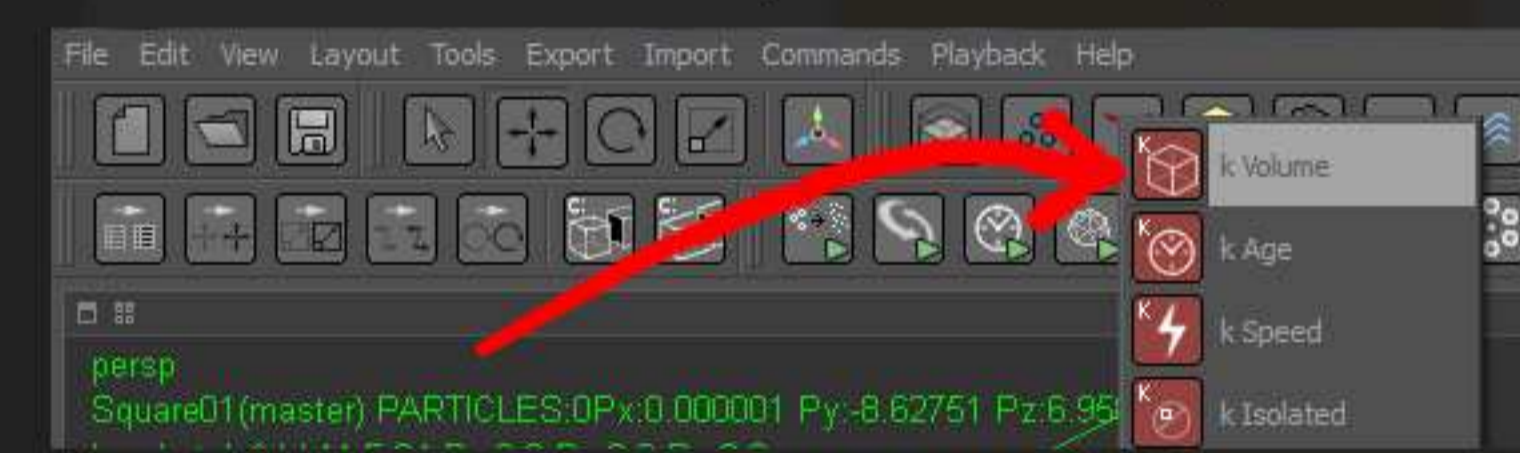
07. Select all the geometry. In the Particle Fluid Interaction Tab change the collision distance to 0.03 and the Particle friction to 0.01



08. From the daemons menu add a drag force and leave the parameters by default.



09. From the daemons menu add a kVolume and scale it up until it fits your scene. All the particles outside the box will automatically be killed by this daemon.



10. Hit the simulate-button and watch the wheel rotating with "waterpower".

**Advanced:**

You can make the liquid look more realistic when you increase the resolution in the emitter's Particle tab. You can also change the fluid's behaviour with the viscosity and surface tension settings. Just click the F1-button on a parameter and you will get an explanation. With the waterwheel's mass and object friction you can affect the wheel's rotation-strength.

If you still have questions you can sent me an e-mail to [sven@geminus3d.com](mailto:sven@geminus3d.com)