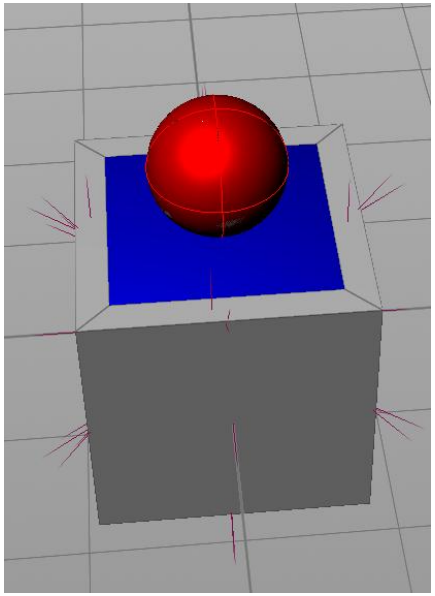
Bullet Solver

- default solver in Houdini
- more powerful in H13 – convex and concave options!
- works well with low res geometry that are not tightly packed

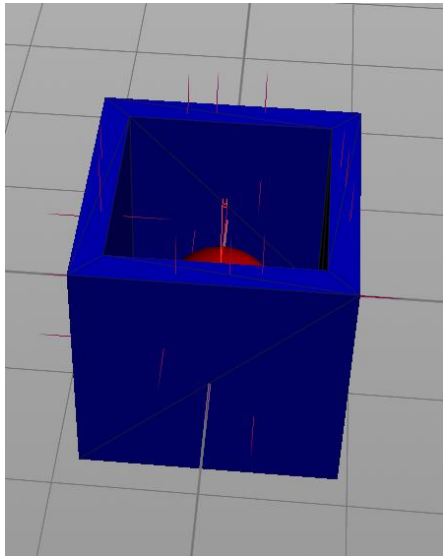
Today examine some essential parameters

- Tip: left to right matters in dops
- Tip: turn off **convex hull** when necessary

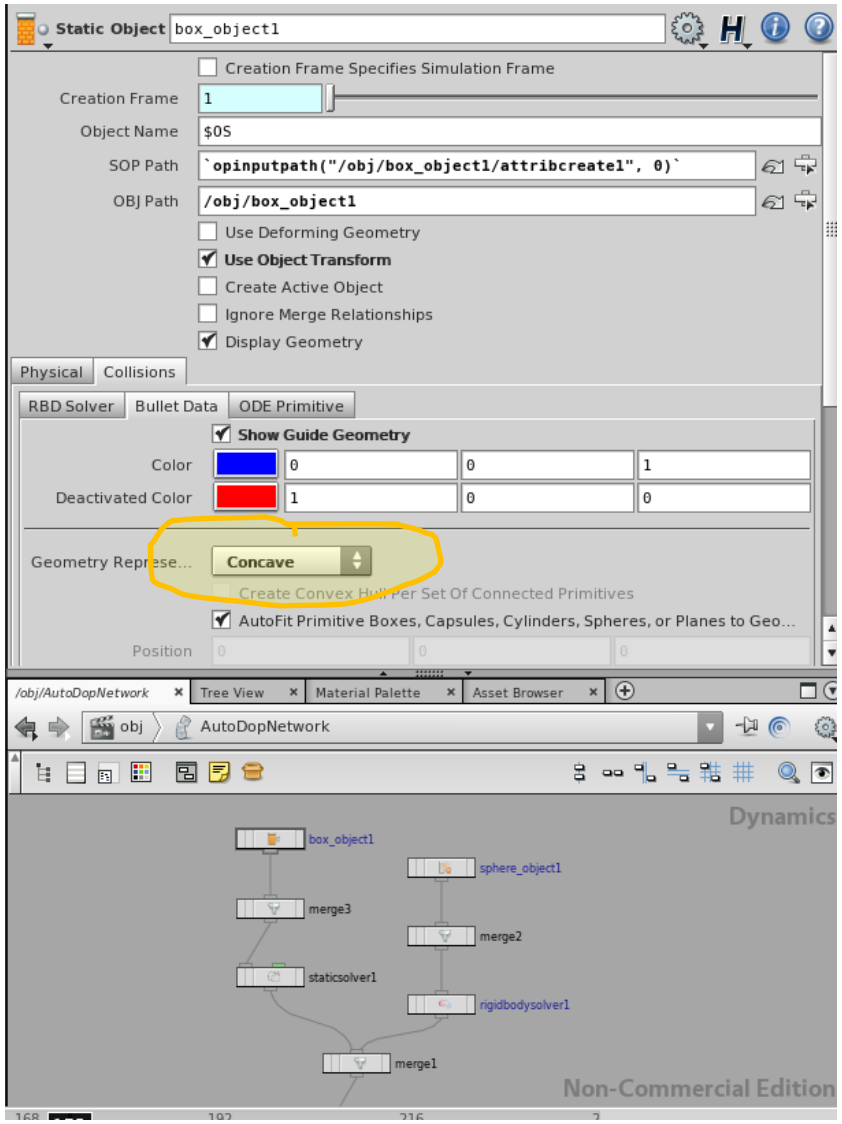
Example of ball falling into a box (sidefx forum post)

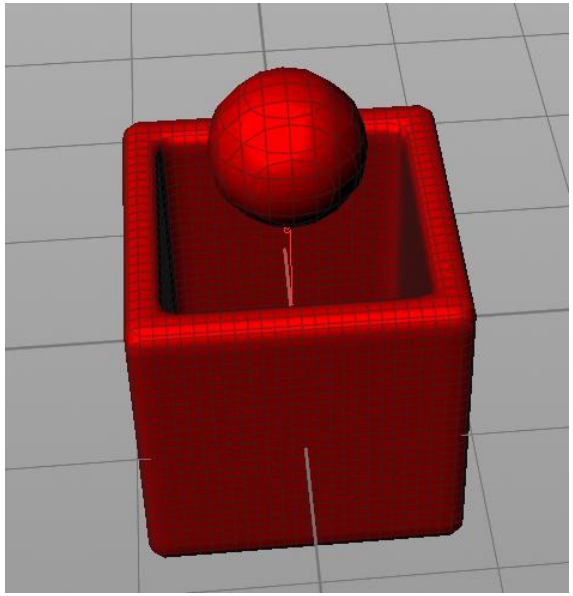


above: default convex hull
below: concave

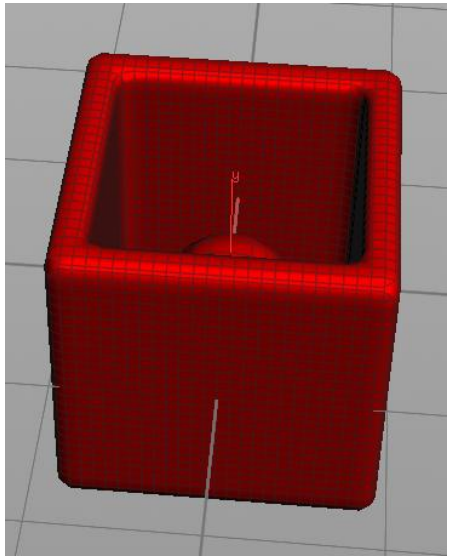


In version 13 … on the object node under Collisions/Bullet Data change the selection to **Concave**

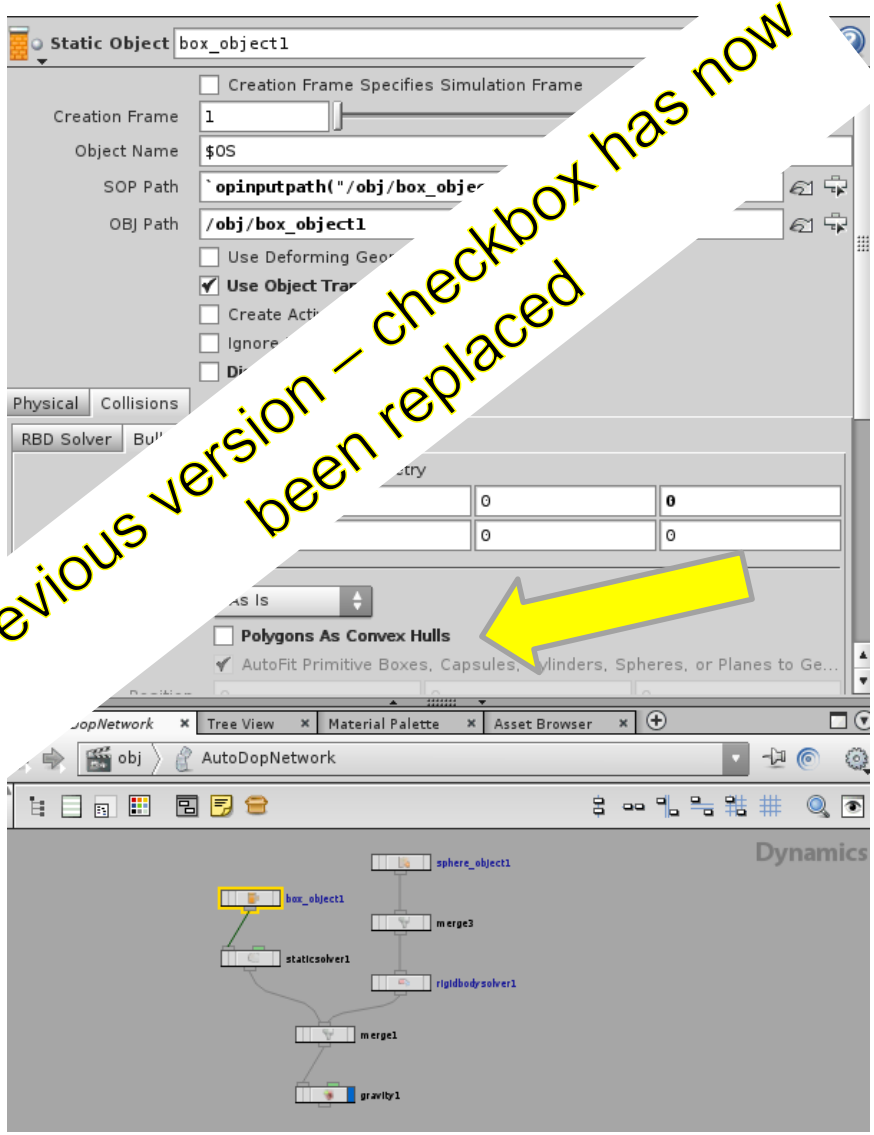




above: checked
below: unchecked



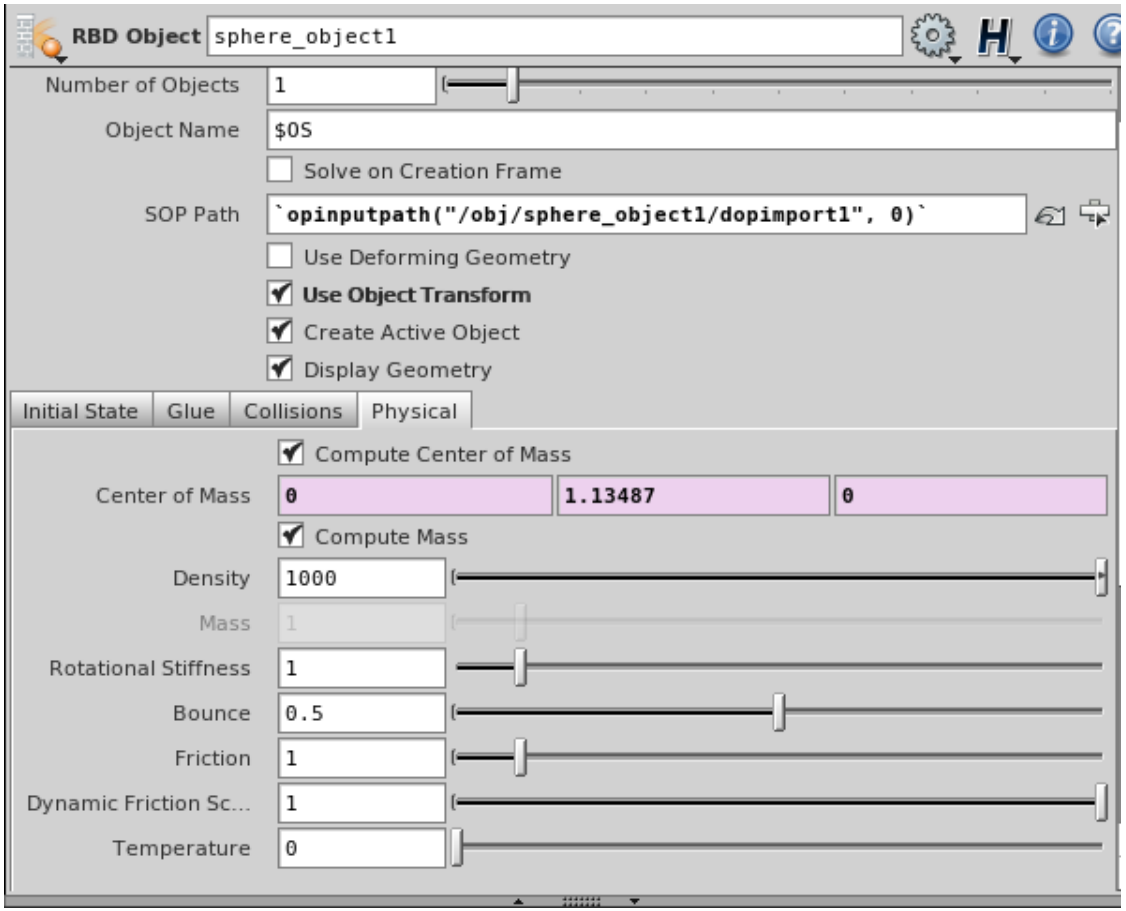
In version 12.5… this used to be the checkbox
Polygons as Convex Hulls



Masterclass on Bullet 12.5 and 13.0 a must watch first covers:

- Pre-fractured and Dynamically Fractured RBDs
- Modifying Bullet Simulations
- Adding and Modifying Glue Constraint Networks
- Adding Force Constraints
- Interaction with Other Solvers: FLIP, Cloth
- Bullet Limitations in H12.1
- Bullet Building Destruction Example

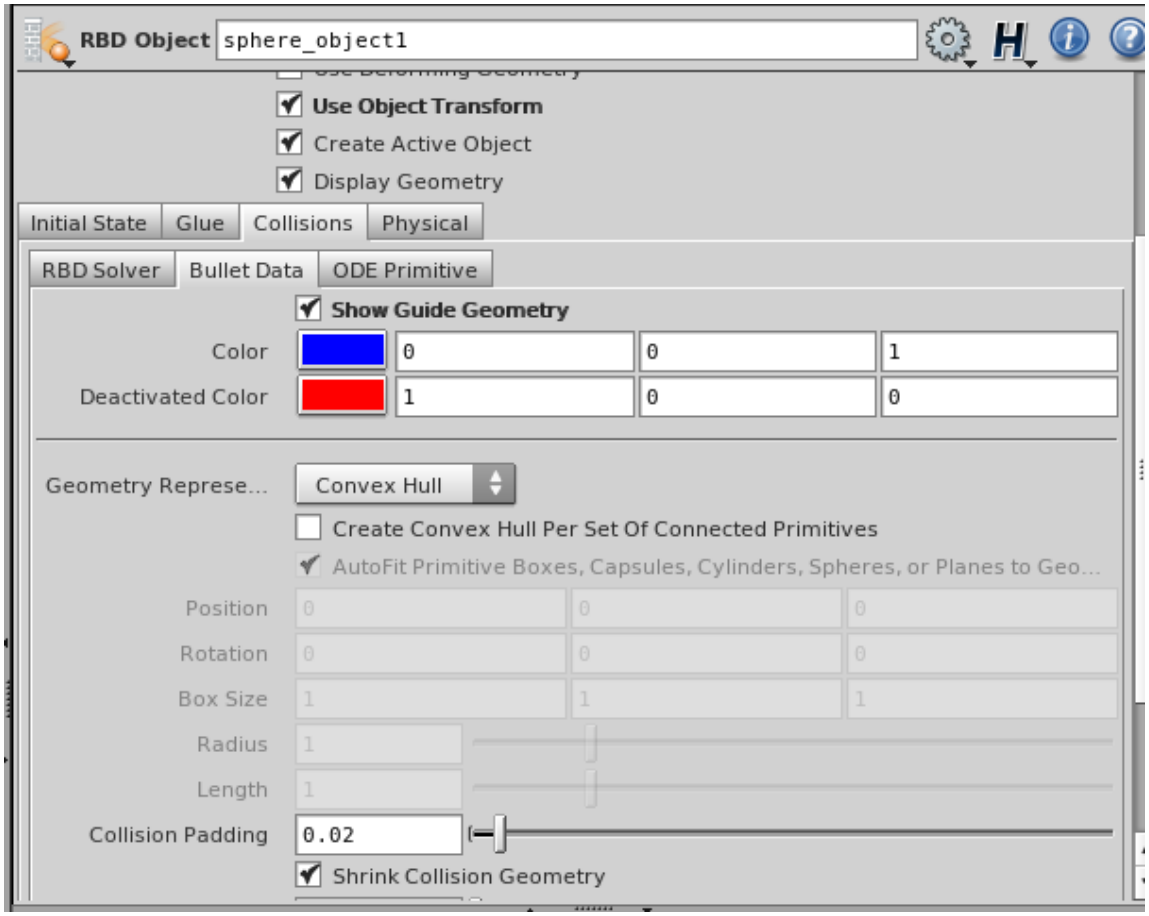
things to know about the bullet solver



on the RBD object

Physical tab

this defines how they react when collisions happen



Collisions/Bullet Data

Collisions tab contains parameters for collisions (used to be “As is” in H12.5)
Now in H13 for this example:
Convex Hull works or **Sphere**

Select option as appropriate

Collision Padding – default is .02
0 is most accurate but you may see popping of resting geometry

Solver clarification

Often you will see:

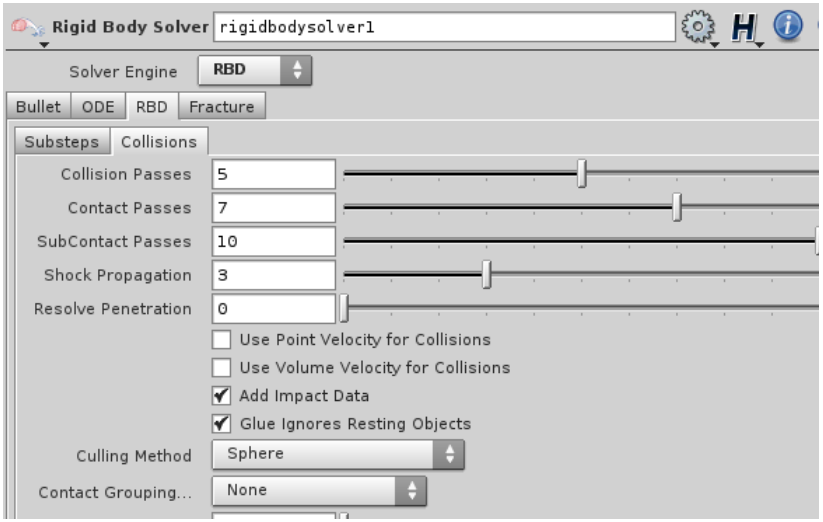
rbdsovler node – many tutorials etc.

rigidbodysolver node – you can select

If you dive inside the rigidbodysolver, you will see that it is simply a selection of the different types of solvers
So if you want bullet (popular now) just bring down the bulletsolver node

When building your own – don’t hesitate to look at the shelf tools to confirm proper usage

Hungry Hippo Example



On the RBD solver, there are two checkboxes to be aware of with regard to collisions

Use Point Velocity for Collisions
Use Volume Velocity for Collisions

In this case, one needed to be checked (either – first is better, second works too) so the collision calculation was correct

As it turns out, bullet was a better choice.

- Start on Exercise 1