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Collisions

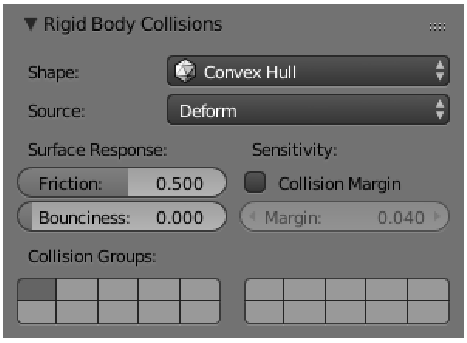
Reference

Panel:

Physics ‣ Rigid Body ‣ Collisions

TODO

Update image



▼ Rigid Body Collisions

Shape: Convex Hull

Source: Deform

Surface Response:

Friction: 0.500

Bounciness: 0.000

Sensitivity:

□ Collision Margin

Margin: 0.040

Collision Groups:

Rigid Body Collisions panel.

Shape

Determines the collision shape of the object; these can be broken into two categories: primitive shapes and mesh based shapes.

Primitive shapes (*Box*, *Sphere*, *Capsule*, *Cylinder*, and *Cone*) are best in terms of memory and performance but do not necessarily reflect the actual shape of the object. They are calculated based on the object's bounding box. The center of gravity is always in the geometric center of the shape. Primitive shapes can be shown in the 3D Viewport by enabling Bounds.

Mesh based shapes (*Convex Hull* and *Mesh*) are calculated based on the geometry of the object so they are a better representation of the objec The center of gravity for these shapes is the object origin.

Box:

Box-like shapes (e.g. cubes), including planes (e.g. ground planes). The size per axis is calculated from the bounding box.

Sphere:

Sphere-like shapes. The radius is the largest axis of the bounding box.

Capsule:

This points up the Z axis.

Cylinder:

This points up the Z axis. The height is taken from the Z axis, while the radius is the larger of the X or Y axes.

Cone:

This points up the Z axis. The height is taken from the Z axis, while the radius is the larger of the X or Y axes.

Convex Hull:

A mesh-like surface encompassing (e.g. shrink-wrapped over) all vertices (best results with fewer vertices). A convex approximation of the object, which has good performance and stability.

Mesh:

Mesh consisting of triangles only, allowing for more detailed interactions than convex hulls. Allows simulating concave objects, but is rather slow and unstable.

Compound Parent:

Takes the collision shapes from the object's children and combines them. This makes it possible to create concave shapes from primitive shapes. This usually results in a faster simulation than the *Mesh* collision shape while also being generally more stable.

Source

Source of the mesh used to create the collision shape.

Base:

The base mesh of the object.

The base mesh of the object.

Deform:

Includes any deformations added to the mesh (shape keys, deform modifiers).

Final:

Includes all deformations and modifiers.

Deforming

Mesh shapes can deform during simulation.

Surface Response

Friction

Resistance of object to movement. Specifies how much velocity is lost when objects collide with each other.

Bounciness

Tendency of object to bounce after colliding with another (0 to 1) (rigid to perfectly elastic). Specifies how much objects can bounce after collisio

Sensitivity

The collision margin is used to improve the performance and stability of rigid bodies. Depending on the shape, it behaves differently: some shapes embed while others have a visible gap around them.

The margin is *embedded* for these shapes:

- Sphere
- Box
- Capsule
- Cylinder
- Convex Hull: Only allows for uniform scale when embedded.

The margin is *not embedded* for these shapes:

- Cone
- Active Triangle Mesh
- Passive Triangle Mesh: Can be set to 0 most of the time.

Margin

Threshold of distance near the surface where collisions are still considered (best results when nonzero).

Collections

Allows rigid body collisions allocate on different groups (maximum 20).