

# orxBODY\_JOINT structure

## Summary

### Revolute Joint

```
[RevoluteJoint]  
Type = revolute;  
ParentAnchor = [Vector]  
ChildAnchor = [Vector]  
Collide = true|false  
Rotation = [Float]  
MinRotation = [Float]  
MaxRotation = [Float]  
MotorSpeed = [Float]  
MaxMotorTorque = [Float]
```

### Prismatic Joint

```
[PrismaticJoint]  
Type = prismatic;  
ParentAnchor = [Vector]  
ChildAnchor = [Vector]  
Collide = true|false  
Rotation = [Float]  
TranslationAxis = [Vector]  
MinTranslation = [Float]  
MaxTranslation = [Float]  
MotorSpeed = [Float]  
MaxMotorForce = [Float]
```

### Spring Joint

```
[SpringJoint]  
Type = spring  
ParentAnchor = [Vector]  
ChildAnchor = [Vector]  
Collide = true|false  
Length = [Float]  
Frequency = [Float]  
Damping = [Float]
```

### Rope Joint

```
[RopeJoint]
Type = rope
ParentAnchor = [Vector]
ChildAnchor = [Vector]
Collide = true|false
Length = [Float]
```

## Pulley Joint

```
[PulleyJoint]
Type = pulley
ParentAnchor = [Vector]
ChildAnchor = [Vector]
Collide = true|false
ParentGroundAnchor = [Vector]
ChildGroundAnchor = [Vector]
ParentLength = [Float]
MaxParentLength = [Float]
ChildLength = [Float]
MaxChildLength = [Float]
LengthRatio = [Float]
```

## Suspension Joint

```
[SuspensionJoint]
Type = suspension;
ParentAnchor = [Vector]
ChildAnchor = [Vector]
Collide = true|false
TranslationAxis = [Vector]
MinTranslation = [Float]
MaxTranslation = [Float]
MotorSpeed = [Float]
MaxMotorForce = [Float]
```

## Weld Joint

```
[WeldJoint]
Type = weld;
ParentAnchor = [Vector]
ChildAnchor = [Vector]
Collide = true|false
Rotation = [Float]
```

## Friction Joint

```
[FrictionJoint]  
Type = friction;  
ParentAnchor = [Vector]  
ChildAnchor = [Vector]  
Collide = true|false  
MaxForce = [Float]  
MaxTorque = [Float]
```

## Gear Joint

```
[GearJoint]  
Type = gear  
ParentAnchor = [Vector]  
ChildAnchor = [Vector]  
Collide = true|false  
ParentJoint = [String]  
ChildJoint = [String]  
JointRatio = [Float]
```

## Details

### Common

Here's a list of common properties for the joints. Note that not all of the joints support these properties.

- **Type**: Defines the type of the joint. Available types are: revolute, prismatic, spring, rope, pulley, suspension, weld, friction and gear.
- **ParentAnchor**: The position the parent object is joined at, defined in local parent's space.
- **ChildAnchor**: The position the child object is joined at, defined in local child's space.
- **Collide**: Defines if collision between parent and child object is allowed.
- **Rotation**: Default rotation between parent and child bodies, in degrees. If none is provided, the current rotation difference between both bodies will be used.
- **MotorSpeed**: Only used if MaxMotorTorque is also defined. In degrees / seconds.
- **MaxMotorTorque**: Only used if MotorSpeed is also defined.

### Revolute Joint

- **MinRotation**: Only used if MaxRotation is also defined.
- **MaxRotation**: Only used if MinRotation is also defined.

### Prismatic joint

- **TranslationAxis**: Should be normalized.
- **MinTranslation**: In meters, only used if **MaxTranslation** is also defined.
- **MaxTranslation**: In meters, only used if **MinTranslation** is also defined.

## Spring Joint

- **Length**: In meters. If not defined, the current distance between parent and child bodies will be used.
- **Frequency**: In hertz.
- **Damping**: Between 0 (min) and 1 (max)

## Rope Joint

- **Length**: In meters. If not defined, the current distance between parent and child bodies will be used.

## Pulley Joint

- **ParentGroundAnchor**
- **ChildGroundAnchor**
- **ParentLength**: In meters. If not defined, the current distance between parent and its ground anchor will be used;
- **MaxParentLength**: In meters. If not defined  $\text{ParentLength} + \text{LengthRatio} * \text{ChildLength}$  will be used;
- **ChildLength**: In meters. If not defined, the current distance between child and its ground anchor will be used;
- **MaxChildLength**: In meters. If not defined  $\text{ParentLength} + \text{LengthRatio} * \text{ChildLength}$  will be used;
- **LengthRatio**

## Suspension Joint

- **TranslationAxis**: Should be normalized;
- **MinTranslation**: In meters; Only used if **MaxTranslation** is also defined;
- **MaxTranslation**: In meters; Only used if **MinTranslation** is also defined;

## Weld Joint

Does not have any properties except those defined in the summary.

## Friction Joint

- **Collide = true|false**: Allows collision between joint's parent and child bodies. Defaults to

- false;
- MaxForce:
- MaxTorque:

## Gear Joint

- ParentJoint: Should be a revolute or prismatic joint already existing on the parent.
- ChildJoint: Should be a revolute or prismatic joint already existing on the child.
- JointRatio

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