

Physics Tools

1.0.0

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Chapter 1

Namespace Index

1.1 Package List

Here are the packages with brief descriptions (if available):

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Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

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Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

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Chapter 4

Namespace Documentation

4.1 PhysicsTools Namespace Reference

4.2 PhysicsTools.Collisions Namespace Reference

Classes

- class [CollisionIgnorer](#)
A simple class that allows provides the neccesary methods and helpers to temporarily ignore collisions between a set of Colliders and a Collider.
- class [CollisionTracker](#)
A simple component that keeps track of collisions using OnCollisionEnter and OnCollisionExit.

4.3 PhysicsTools.Rigidbodyes Namespace Reference

Classes

- class [WeightlessRigidbodyFollower](#)
A component that can be attached to the same GameObject as a Rigidbody that allows it to weightlessly follow some Transform.

4.4 PhysicsTools.Transformations Namespace Reference

Classes

- class [TransformVelocityTracker](#)
A simple component that tracks velocity and angular velocity for a Transform that it is attached to.

4.5 PhysicsTools.Utility Namespace Reference

Classes

- class **RigidbodyUtility**
A public static class that provides useful Rigidbody utilities.

Chapter 5

Class Documentation

5.1 PhysicsTools.Collisions.CollisionIgnorer Class Reference

A simple class that allows provides the necessary methods and helpers to temporarily ignore collisions between a set of Colliders and a Collider.

Classes

- class [Entry](#)

An entry for a temporarily ignore collision rule.

Public Member Functions

- [CollisionIgnorer](#) (List< Collider > pColliders)
Creates a [CollisionIgnorer](#) that provides easy methods for temporarily ignoring collisions between a collider and pColliders.
- void **Update** ()
Updates the collision ignorer allowing it to timeout any temporarily ignored collisions.
- void [IgnoreCollider](#) (Collider pCollider)
Ignore collisions between all colliders associated with this component and pCollider indefinitely.
- void [IgnoreColliders](#) (IEnumerable< Collider > pColliders)
Ignore collisions between all colliders associated with this component and all colliders in the pColliders enumerable indefinitely.
- void [IgnoreColliderFor](#) (Collider pCollider, float pSeconds)
Ignores collisions between all colliders associated with this component and pCollider for pSeconds.
- void [UnignoreColliderIn](#) (Collider pCollider, float pSeconds)
Unignores collisions between all colliders associated with this component and pCollider in pSeconds.
- void [UnignoreCollider](#) (Collider pCollider)
Unignores collisions between all colliders associated with this component and pCollider.
- void [UnignoreColliders](#) (IEnumerable< Collider > pColliders)
Unignores collisions between all colliders associated with this component and all pColliders in the enumerable.
- void [UnignoreEntry](#) ([Entry](#) pEntry)
Undoes the collision ignore entry.
- void [UnignoreIndex](#) (int pIndex)
Undoes the ignore collision registered in entry index pIndex.

- void **UnignoreAll** ()
Undo all temporarily ignored collisions.
- void **IgnoreRigidbody** (Rigidbody pRigidbody)
Ignores collisions between all colliders associated with this component and the Rigidbody, pRigidbody, indefinitely.
- void **IgnoreRigidbodyFor** (Rigidbody pRigidbody, float pSeconds)
Ignores collisions between all colliders associated with this component and the Rigidbody, pRigidbody, for pSeconds.
- void **UnignoreRigidbodyIn** (Rigidbody pRigidbody, float pSeconds)
Unignores collisions between all colliders associated with this component and the Rigidbody, pRigidbody, in pSeconds.
- void **UnignoreRigidbody** (Rigidbody pRigidbody)
Unignores collisions between all colliders associated with this component and the Rigidbody, pRigidbody.

5.1.1 Detailed Description

A simple class that allows provides the necessary methods and helpers to temporarily ignore collisions between a set of Colliders and a Collider.

Author: Mathew Aloisio

5.1.2 Constructor & Destructor Documentation

5.1.2.1 CollisionIgnorer()

```
PhysicsTools.Collisions.CollisionIgnorer.CollisionIgnorer (
    List< Collider > pColliders )
```

Creates a **CollisionIgnorer** that provides easy methods for temporarily ignoring collisions between a collider and pColliders.

Parameters

<i>pColliders</i>	A List of colliders whose collision with other colliders is being controlled by this class instance.
-------------------	--

5.1.3 Member Function Documentation

5.1.3.1 IgnoreCollider()

```
void PhysicsTools.Collisions.CollisionIgnorer.IgnoreCollider (
    Collider pCollider )
```

Ignore collisions between all colliders associated with this component and pCollider indefinitely.

Parameters

<i>pCollider</i>	
------------------	--

5.1.3.2 IgnoreColliderFor()

```
void PhysicsTools.Collisions.CollisionIgnorer.IgnoreColliderFor (
    Collider pCollider,
    float pSeconds )
```

Ignores collisions between all colliders associated with this component and pCollider for pSeconds.

Parameters

<i>pCollider</i>	
<i>pSeconds</i>	

5.1.3.3 IgnoreColliders()

```
void PhysicsTools.Collisions.CollisionIgnorer.IgnoreColliders (
    IEnumerable< Collider > pColliders )
```

Ignore collisions between all colliders associated with this component and all colliders in the pColliders enumerable indefinitely.

Parameters

<i>pColliders</i>	
-------------------	--

5.1.3.4 IgnoreRigidbody()

```
void PhysicsTools.Collisions.CollisionIgnorer.IgnoreRigidbody (
    Rigidbody pRigidbody )
```

Ignores collisions between all colliders associated with this component and the Rigidbody, pRigidbody, indefinitely.

Parameters

<i>pRigidbody</i>	
-------------------	--

5.1.3.5 IgnoreRigidbodyFor()

```
void PhysicsTools.Collisions.CollisionIgnorer.IgnoreRigidbodyFor (
    Rigidbody pRigidbody,
    float pSeconds )
```

Ignores collisions between all colliders associated with this component and the Rigidbody, *pRigidbody*, for *pSeconds*.

Parameters

<i>pRigidbody</i>	
<i>pSeconds</i>	The number of seconds to ignore collisions for.

5.1.3.6 UnignoreCollider()

```
void PhysicsTools.Collisions.CollisionIgnorer.UnignoreCollider (
    Collider pCollider )
```

Unignores collisions between all colliders associated with this component and *pCollider*.

Parameters

<i>pCollider</i>	
------------------	--

5.1.3.7 UnignoreColliderIn()

```
void PhysicsTools.Collisions.CollisionIgnorer.UnignoreColliderIn (
    Collider pCollider,
    float pSeconds )
```

Unignores collisions between all colliders associated with this component and *pCollider* in *pSeconds*.

Parameters

<i>pCollider</i>	
<i>pSeconds</i>	

5.1.3.8 UnignoreColliders()

```
void PhysicsTools.Collisions.CollisionIgnorer.UnignoreColliders (
    IEnumerable< Collider > pColliders )
```


Unignores collisions between all colliders associated with this component and all pColliders in the enumerable.

Parameters

<i>pColliders</i>	
-------------------	--

5.1.3.9 UnignoreEntry()

```
void PhysicsTools.Collisions.CollisionIgnorer.UnignoreEntry (
    Entry pEntry )
```

Undoes the collision ignore entry.

Parameters

<i>pEntry</i>	
---------------	--

5.1.3.10 UnignoreIndex()

```
void PhysicsTools.Collisions.CollisionIgnorer.UnignoreIndex (
    int pIndex )
```

Undoes the ignore collision registered in entry index pIndex.

Parameters

<i>pIndex</i>	
---------------	--

5.1.3.11 UnignoreRigidbody()

```
void PhysicsTools.Collisions.CollisionIgnorer.UnignoreRigidbody (
    Rigidbody pRigidbody )
```

Unggnores collisions between all colliders associated with this component and the Rigidbody, pRigidbody.

Parameters

<i>pRigidbody</i>	
-------------------	--

5.1.3.12 UnignoreRigidbodyIn()

```
void PhysicsTools.Collisions.CollisionIgnorer.UnignoreRigidbodyIn (
    Rigidbody pRigidbody,
    float pSeconds )
```

Unignores collisions between all colliders associated with this component and the Rigidbody, pRigidbody, in pSeconds.

Parameters

<i>pRigidbody</i>	
<i>pSeconds</i>	The number of seconds to unignore collisions in.

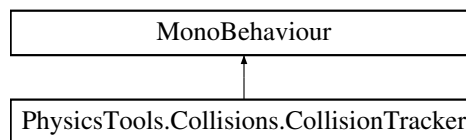
The documentation for this class was generated from the following file:

- CollisionIgnorer.cs

5.2 PhysicsTools.Collisions.CollisionTracker Class Reference

A simple component that keeps track of collisions using OnCollisionEnter and OnCollisionExit.

Inheritance diagram for PhysicsTools.Collisions.CollisionTracker:



Public Member Functions

- bool [IsCollidingWith](#) (Collider pCollider)
Returns true when the tracker is tracking a collision with the specified collider, pCollider, otherwise false.
- bool [IsCollidingWith](#) (Rigidbody pRigidbody, bool pAllowNestedRigidbody)
Returns true if the tracker is colliding with any colliders of pRigidbody, otherwise false.
- Collider [GetCollidingWith](#) (int pIndex)
Returns the Collider in the given 'colliding with' index.

Properties

- int **CollidingWithCount** [get]
Returns the number of Colliders currently colliding with the relevant Rigidbody.

5.2.1 Detailed Description

A simple component that keeps track of collisions using OnCollisionEnter and OnCollisionExit.

Author: Mathew Aloisio

5.2.2 Member Function Documentation

5.2.2.1 GetCollidingWith()

```
Collider PhysicsTools.Collisions.CollisionTracker.GetCollidingWith (
    int pIndex )
```

Returns the Collider in the given 'colliding with' index.

Parameters

<i>pIndex</i>	
---------------	--

Returns

The collider in the given 'colliding with' index.

5.2.2.2 IsCollidingWith() [1/2]

```
bool PhysicsTools.Collisions.CollisionTracker.IsCollidingWith (
    Collider pCollider )
```

Returns true when the tracker is tracking a collision with the specified collider, *pCollider*, otherwise false.

Parameters

<i>pCollider</i>	
------------------	--

Returns

5.2.2.3 IsCollidingWith() [2/2]

```
bool PhysicsTools.Collisions.CollisionTracker.IsCollidingWith (
    Rigidbody pRigidbody,
    bool pAllowNestedRigidbodies )
```

Returns true if the tracker is colliding with any colliders of *pRigidbody*, otherwise false.

Parameters

<i>pRigidbody</i>	
<i>pAllowNestedRigidbody</i>	Should nested Rigidbody colliders be included?

Returns

true if the tracker is colliding with any colliders of pRigidbody, otherwise false.

The documentation for this class was generated from the following file:

- CollisionTracker.cs

5.3 PhysicsTools.Collisions.CollisionIgnorer.Entry Class Reference

An entry for a temporarily ignore collision rule.

Public Attributes

- Collider **collider**
The Collider associated with the entry.
- float **expireTime**
The time the entry is set to expire.

5.3.1 Detailed Description

An entry for a temporarily ignore collision rule.

The documentation for this class was generated from the following file:

- CollisionIgnorer.cs

5.4 PhysicsTools.Transformations.TransformVelocityTracker.RotationVelocityTimePair Struct Reference

Public Attributes

- Quaternion **rotationVelocity**
- float **time**

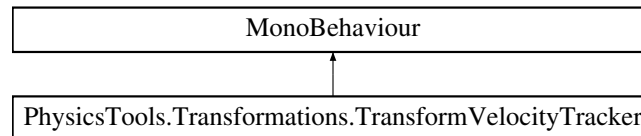
The documentation for this struct was generated from the following file:

- TransformVelocityTracker.cs

5.5 PhysicsTools.Transformations.TransformVelocityTracker Class Reference

A simple component that tracks velocity and angular velocity for a Transform that it is attached to.

Inheritance diagram for PhysicsTools.Transformations.TransformVelocityTracker:



Classes

- struct [RotationVelocityTimePair](#)
- struct [VelocityTimePair](#)

Public Member Functions

- void [SetSampleVelocityEnabled](#) (bool pEnabled)
Sets the 'sampleVelocity' field of this component. Useful for use with Unity editor events.
- void [SetSampleRotationVelocityEnabled](#) (bool pEnabled)
Sets the 'sampleRotationVelocity' field of this component. Useful for use with Unity editor events.
- void [SetMoveSampleTime](#) (float pTime)
Sets the 'moveSampleTime' field of this component. Useful for use with Unity editor events.
- void [SetRotateSampleTime](#) (float pTime)
Sets the 'rotateSampleTime' field of this component. Useful for use with Unity editor events.

Public Attributes

- bool **sampleVelocity** = true
Is velocity sampling enabled for this component?
- float **moveSampleTime** = 0.4f
All velocity samples up to velocitySampleTime seconds old will be used in average velocity calculations.
- bool **sampleRotationVelocity** = true
Is rotation velocity sampling enabled for this component?
- float **rotateSampleTime** = 0.1f
All angular/rotational velocity samples up to angularVelocitySampleTime seconds old will be used in average angular/rotational velocity calculations.

Properties

- Vector3 **PositionLastFrame** [get]
The position of the Grabber's transform last frame.
- Quaternion **RotationLastFrame** [get]
The rotation of the Grabber's transform last frame.
- Vector3 **AverageVelocity** [get]
Returns the average velocity of the Transform in units per second over the last moveSampleTime seconds.
- int **AverageVelocityEntries** [get]
Returns the number of velocity entries used in the last 'AverageVelocity' calculation.
- Vector3 **VelocityLastFrame** [get]
The velocity in units per second last frame.
- Quaternion **AverageRotationVelocity** [get]
Returns the average rotation velocity of the Transform in units per second over the last rotateSampleTime seconds.
- int **AverageRotationVelocityEntries** [get]
Returns the number of rotation velocity entries used in the last 'AverageRotationVelocity' calculation.
- Quaternion **RotationVelocityLastFrame** [get]
The rotational velocity last frame represented as a Quaternion.

5.5.1 Detailed Description

A simple component that tracks velocity and angular velocity for a Transform that it is attached to.

Author: Mathew Aloisio

5.5.2 Member Function Documentation

5.5.2.1 SetMoveSampleTime()

```
void PhysicsTools.Transformations.TransformVelocityTracker.SetMoveSampleTime (
    float pTime )
```

Sets the 'moveSampleTime' field of this component. Useful for use with Unity editor events.

Parameters

<i>pTime</i>	
--------------	--

5.5.2.2 SetRotateSampleTime()

```
void PhysicsTools.Transformations.TransformVelocityTracker.SetRotateSampleTime (
    float pTime )
```

Sets the 'rotateSampleTime' field of this component. Useful for use with Unity editor events.

Parameters

<i>pTime</i>	
--------------	--

5.5.2.3 SetSampleRotationVelocityEnabled()

```
void PhysicsTools.Transformations.TransformVelocityTracker.SetSampleRotationVelocityEnabled (
    bool pEnabled )
```

Sets the 'sampleRotationVelocity' field of this component. Useful for use with Unity editor events.

Parameters

<i>pEnabled</i>	
-----------------	--

5.5.2.4 SetSampleVelocityEnabled()

```
void PhysicsTools.Transformations.TransformVelocityTracker.SetSampleVelocityEnabled (
    bool pEnabled )
```

Sets the 'sampleVelocity' field of this component. Useful for use with Unity editor events.

Parameters

<i>pEnabled</i>	
-----------------	--

The documentation for this class was generated from the following file:

- TransformVelocityTracker.cs

5.6 PhysicsTools.Transformations.TransformVelocityTracker.Velocity↵ TimePair Struct Reference

Public Attributes

- Vector3 **velocity**
- float **time**

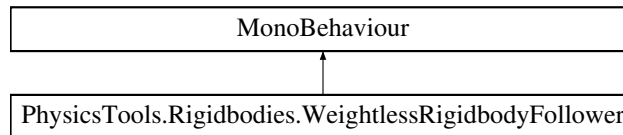
The documentation for this struct was generated from the following file:

- TransformVelocityTracker.cs

5.7 PhysicsTools.Rigidbodyes.WeightlessRigidbodyFollower Class Reference

A component that can be attached to the same GameObject as a Rigidbody that allows it to weightlessly follow some Transform.

Inheritance diagram for PhysicsTools.Rigidbodyes.WeightlessRigidbodyFollower:



Public Attributes

- Transform **follow**
- Transform **follow1**
- float **followPositionStrength** = 30
- float **followRotationStrength** = 30
- float **maxVelocity** = 5

5.7.1 Detailed Description

A component that can be attached to the same GameObject as a Rigidbody that allows it to weightlessly follow some Transform.

Author: Mathew Aloisio

The documentation for this class was generated from the following file:

- `WeightlessRigidbodyFollower.cs`

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