

Class Descriptions

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Travis Evers

Collision Shapes

Collision Shape

Collision Shape (abstract)

```
CollisionShape _collisionShapePointer {get; set;}
```

```
void onDestroy()
```

```
void dispose()
```

```
void dispose(bool)
```

```
void onDrawGizmo()
```

All class descriptions in this section implement the collision shape class

Box Shape

Box Shape

```
CollisionShape _collisionShapePointer {get; set;}
```

```
Unity3d.Vector3 _extents {get; set;}
```

```
Unity3d.Vector3 _localScaling {get; set;}
```

```
void onDestroy()
```

```
void dispose()
```

```
void dispose(bool)
```

```
void onDrawGizmo()
```

```
CollisionShape CopyCollisonShape()
```

Sphere Shape

Sphere Shape

```
CollisionShape _collisionShapePointer {get; set;}
```

```
Unity3d.Vector3 _radius {get; set;}
```

```
Unity3d.Vector3 _localScaling {get; set;}
```

```
void onDestroy()
```

```
void dispose()
```

```
void dispose(bool)
```

```
void onDrawGizmo()
```

```
CollisionShape CopyCollisonShape()
```

Capsule Shape

Capsule Shape

```
CollisionShape _collisionShapePointer {get; set;}  
Unity3d.Vector3 _radius {get; set;}  
Unity3d.Vector3 _height {get; set;}  
Unity3d.Vector3 _localScaling {get; set;}  
Enum (CapsuleAxis) _upAxis {get; set;}
```

```
void onDestroy()  
void dispose()  
void dispose(bool)  
void onDrawGizmo()  
CollisionShape CopyCollisonShape()
```

Cone Shape

Cone Shape

```
CollisionShape _collisionShapePointer {get; set;}
```

```
Unity3d.Vector3 _radius {get; set;}
```

```
Unity3d.Vector3 _height {get; set;}
```

```
Unity3d.Vector3 _localScaling {get; set;}
```

```
void onDestroy()
```

```
void dispose()
```

```
void dispose(bool)
```

```
void onDrawGizmo()
```

```
CollisionShape CopyCollisonShape()
```

Cylinder Shape

Cylinder Shape

```
CollisionShape _collisionShapePointer {get; set;}  
Unity3d.Vector3 _halfExtent{get; set;}  
Unity3d.Vector3 _localScaling {get; set;}  
Enum (CylinderAxis) _upAxis {get; set;}
```

```
void onDestroy()  
void dispose()  
void dispose(bool)  
void onDrawGizmo()  
CollisionShape CopyCollisonShape()
```


Compound Shape

Compound Shape

```
CollisionShape[] _colliders {get; set;}  
Unity3d.Vector3 _localScaling {get; set;}
```

```
void onDestroy()  
void dispose()  
void dispose(bool)  
void onDrawGizmo()  
void addCollider(CollisionShape)
```

BvH Triangle Mesh Shape

BvH Triangle Mesh Shape

```
Mesh _hullMesh {get; set;}  
Unity3d.Vector3 _localScaling {get; set;}  
CollisionShape _collisionShapePointer {get; set;}  
  
void onDestroy()  
void dispose()  
void dispose(bool)  
void onDrawGizmo()
```

Convex Hull Shape

Convex Hull Shape

```
Mesh _hullMesh {get; set;}
Unity3d.Vector3 _localScaling {get; set;}
CollisionShape _collisionShapePointer {get; set;}

void onDestroy()
void dispose()
void dispose(bool)
void onDrawGizmo()
```

Convex Triangle Mesh Shape

Convex Triangle Mesh Shape

```
Mesh _hullMesh {get; set;}  
Unity3d.Vector3 _localScaling {get; set;}  
CollisionShape _collisionShapePointer {get; set;}  
  
void onDestroy()  
void dispose()  
void dispose(bool)  
void onDrawGizmo()
```

Multi Sphere Shape

Multi Sphere Shape

```
SphereShape[] _spheres {get; set;}  
Unity3d.Vector3 _localScaling {get; set;}  
CollisionShape _collisionShapePointer {get; set;}  
  
void onDestroy()  
void dispose()  
void dispose(bool)  
void onDrawGizmo()  
void addSphere(SphereShape)
```

Mesh

Mesh

Primitive Mesh

Public Virtual Unity.Mesh Build()

User Mesh Settings

User Mesh Settings (extends primitive mesh settings)

```
Unity.Mesh _userMesh {get; set;}  
Bool _autoWorldVertices  
Bool _recalculatedNormals  
Bool _addBackFaceTriangles
```

```
Bool _recalculatedTriangles  
Bool _optimize
```

```
Public Virtual Unity.Mesh Build()
```


Box Mesh Settings

Box Mesh (extends Primitive Mesh)

```
Unity.Vector3 _extents {get; set;}
```

```
Public Virtual Unity.Mesh Build()
```

Cone Mesh Settings

Cone Mesh (extends Primitive Mesh)

Float _height {get; set;}

Float _radius {get; set;}

Int _nSides {get; set;}

Public Virtual Unity.Mesh Build()

Capsule Mesh Settings

Capsule Mesh (extends Primitive Mesh)

Float `_height` {get; set;}

Float `_radius` {get; set;}

Int `_nSides` {get; set;}

CapsuleAxis `_upAxis` {get; set;}

Unity.Vector3 `_halfExtents` {get; set;}

Public Virtual Unity.Mesh Build()

Cylinder Mesh Settings

Cylinder Mesh (extends Primitive Mesh)

```
Float _height {get; set;}
```

```
Float _radius {get; set;}
```

```
Int _nSides {get; set;}
```

```
CapsuleAxis _upAxis {get; set;}
```

```
Unity.Vector3 _halfExtents {get; set;}
```

```
Public Virtual Unity.Mesh Build()
```

Sphere Mesh Settings

Cylinder Mesh (extends Primitive Mesh)

```
Float _radius {get; set;}
```

```
Int _numLongitudeLines {get; set;}
```

```
Int _numLatitudeLines {get; set;}
```

```
Public Virtual Unity.Mesh Build()
```

Plane Mesh Settings

plane Mesh (extends Primitive Mesh)

float _length {get; set;}

Float _width {get; set;}

Int _resX {get; set;}

Int _resZ {get; set;}

Public Virtual Unity.Mesh Build()

Generic Mesh Settings

Generic Mesh

```
Unity.Vector3 _extents {get; set;}  
Float _radius {get; set;}  
Float _height {get; set;}  
Float _length {get; set;}  
Float _width {get; set;}  
Int _numLongitudeLines {get; set;}  
Int _numLatitudeLines {get; set;}  
<enum>PrimitiveMeshOptions _type  
{get; set;}
```

```
Int _nSides {get; set;}  
Int _resX {get; set;}  
Int _resZ {get; set;}  
Unity.Mesh _userMesh {get; set;}  
Bool _autoWorldVerticies {get; set;}  
Float _autoWorldThreshold {get; set;}  
Bool _recalculateNormals {get; set;}  
Bool _addBackTriangles {get; set;}  
Bool _optimize {get; set;}
```

```
Public Virtual Unity.Mesh Build()
```

Generic Mesh Settings For Editor

Generic Mesh Settings For Editor Mesh (Generic Primitive Mesh)

```
Bool _immediateUpdate {get; set;}  
GenericMeshSettingsForEditor _instance {get;}
```


Procedural Primitives

Procedural Primitives

Unity.Mesh CreateMeshPlane(float, float, int, int)

Unity.Mesh CreateMeshCube(float)

Unity.Mesh CreateMeshBox(float, float, float)

Unity.Mesh CreateMeshCapsule(float float, int, capsuleAxis)

Unity.Mesh CreateMeshCylinder(float,float, int)

Unity.Mesh CreateMeshPyrmamid(float, float)

Unity.Mesh CreateMeshCone(float, float, float, int)

Unity.Mesh MeshCreateTube(float, int, float, float, float, float)

Unity.Mesh CreateMeshTorus(float, float, int, int)

Unity.Mesh CreateMeshSphere(float, int, int)

Unity.Mesh BuildMeshFromData(float[], int[])

Void AutoWorldVertices(mesh, float)

Void AddBackTriangles(mesh)

Void ApplyMeshPostProcessing(mesh, float, bool, bool, bool, bool)

Collision Object

Collision Object

Collision Object (abstract)

```
Bool _started {get; set;}  
Bullet.CollisoinObject _collisionObject {get; set;}  
CollisonShape _collisonShape {get; set;}  
Bool _active {get; set;}  
Bullet.CollisionFlags _collisionFlags {get; set;}
```

```
Void Awake()  
Void AddObjectToWorld()  
Void RemoveObjectFromWorld()  
Void Start()  
Void onEnable()  
Void onDisable()  
Void onDestroy()  
Void dispose()  
Void dispose(bool)
```

```
Bullet.CollisionFilterGroup _groupBelong {get; set;}  
Bullet.CollisionFilterGroup _collisionMask {get; set;}  
Unity3D.Vector3 _position {get; set;}  
Unity3D.Quaternion _rotation {get; set;}  
CollisionCallbackHandler _handler {get;}
```

```
Bool buildCollisonObject()  
Void removeOnCollisonCallbackEventHandler()  
Void AddOnCollisionCallBackEventHandler
```

Collision Call Back Handler

Collision Call Back Handler (Interface)

Void OnVisitPersitentManifold (Bullet.PersitentManifold)
Void OnFinishedVisitingMainfold()

Rigid Body

Rigid Body implements Collision Object

<code>Bullet.RigidBody {get; set;}</code> <code>Bullet.Math.Vector3 _localInertia {get;}</code> <code>Float _friction {get; set;}</code> <code>Float _rollingFriction {get; set;}</code> <code>Float _linearDampening {get; set;}</code> <code>Float _angularDampening {get; set;}</code> <code>Float _restitution {get; set;}</code> <code>Float _linearSleepingThreshold {get; set;}</code> <code>Float _angularSleepingThreshold {get; set;}</code> <code>Bool _dynamic {get; set;}</code>	<code>Bool _additionalDampening {get; set;}</code> <code>Float _additionalDampeningFactor {get; set;}</code> <code>Float _additionalLinearDampening {get; set;}</code> <code>Float _additionalLinearAngularDampening {get; set;}</code> <code>Unity3d.Vector3 _linearFactor {get; set;}</code> <code>Unity3d.Vector3 _angularFactor {get; set;}</code> <code>Float mass {get; set;}</code> <code>Unity3d.Vector3 _linearVelocity {get; set;}</code> <code>Unity3d.Vector3 _angularVelocity {get; set;}</code>
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```
bool configureRigidBody(rigidBody, vec3, collisionShape, motionState)
Bool buildCollisionObject()
Void Awake()
Void onDisable()
Void addBulletObject()
```

```
Void removeBulletObject()
Void dispose(bool)
Void addImpulse(vec3)
addImpulseAtPos(vec3)
AddTorqueImpulse(vec3)
AddForce(vec3)
AddForceAtPos(vec3)
AddTorque(vec3)
```

Constraints

Typed Constraint

Typed Constraint

```
Bool _startCalled
Unity.Vec3 _localConstraintPoint {get; set;}
Unity.Vec3 _localConstraintAxisX {get; set;}
Unity.Vec3 _localContstraintAxisY {get;Set;}
Float _breakingImpulseThreshold {get;set;}
Bool _disableCollisionBetweenConstraintBodies
```

```
ConstraintType _constraintType{get;set;}
Bullet.RigidBody _rigidBody {get; set;}
Bullet.RigidBody _otherRigidBodies {get;set;}
Float _debugDrawSize {get; set;}
TypeConstraint _constraintPointer
Bool _inWorld
```

```
Void DrawTransformGizom (Transform, Vex3, vec3, vec3)
Bool CreateFrame(vec3, vec3, vec3, Bullet.Matrix, string)
Bool CreateFrameA2B(vec3, vec3, vec3, Bullet.Matrix,
Bullet.Matrix, string)
Void OnDrawGizmosSelected()
Void AddToBulletWorld()
Void RemoveFromBulletWorld()
Void Start()
Void OnDestroy()
Void OnEnable()
Void OnEnable()
Void OnDisable()
Void Dispose()
```

```
Bool BuildConstraint()
```

Fixed Constraint

Fixed Constraint

String HelpMessage

Bool BuildConstraint()

Ball Socket Constraint

Ball Socket Constraint

String HelpMessage

Bool BuildConstraint()

Cone Twist Constraint

Cone Twist Constraint

String HelpMessage

Float _swingSpanRadias1 {get; set;}

Float _swingSpanRadians2 {get;set;}

Float _twistRadians {get; set;}

Float _softness {get; set;}

Float _biasFactor {get; set;}

Float _relaxationFactor {get;set;}

Bool BuildConstraint()

Hinged Constraint

Hinged Constraint

```
String HelpMessage  
Bool _enableMotor {get; set;}  
Float _targetMotorAngularVelocity {get;  
set;}  
Float _maxMotorImpulse {get; set;}  
Bool _setLimit {get; set;}  
Float _lowLimitAngleRadians {get;set;}
```

```
Float _highLimitAnagleRadians {get;set;}  
Float _limitSoftness{get;set;}  
Float _limitBiasFactor {get; set;}
```

```
Float GetAngle()  
Bool BuildConstraint()
```

Slider Constraint

Ball Socket Constraint

String HelpMessage

Float _lowerLinearLimit {get;set;}

Float _upperLinearLimit{get;set;}

Float _lowerAngularLimitRadians {get;set;}

Float _upperAngularLimitRadians {get;set;}

Bool BuildConstraint()

B6DOF Constraint

B6DOF Constraint

String HelpMessage

Float _lowerLinearLimit {get;set;}

Float _upperLinearLimit{get;set;}

Float _lowerAngularLimitRadians {get;set;}

Float _upperAngularLimitRadians {get;set;}

Vec3 _motorLinearTargetVelocity{get;set;}

Vec3 _motorLinearMaxMotorForce {get;set;}

Bool BuildConstraint()

Update Manager

Bullet Update Manager

Bullet Update Manager

```
Enum _worldType {get; set;}
Enum _collisionType {get; set;}
Enum _broadPhaseType {get; set;}
Unity3D.Vector3 _gravity {get; set;}
Int _maxPartialSteps {get; set;}
Int _FPS {get; set;}
Float _frameTime
Bullet.SequentialImpulseConstraintSolver _solver {get;}
HashSet<CollisionCallbackHandler> _listeners
Int _frameCount
```

```
Bullet.DiscreteDynamicWorld _world {get; set;}
CollisionMethod _collisionMethod {get; set;}
BroadPhaseMethod _broadPhaseMethod {get; set;}
List<Enumerator> _finishedFixedUpdates
Float _prevStepTime
```

```
Void Awake()
Void onDestroy()
Void dispose()
Bool addAction(Bullet.IAction)
RemoveAction(Bullet.Action)
Bool AddCollisionObject(CollisionObject)
Void RegisterCallBack(CollisionCallbackHandler)
Void RemoveCallBack(CollisionCallbackHandler)
```

```
Void RemoveCollisionObject(CollisionObject)
Bool AddRigidBody(RigidBody)
Void RemoveRigidBody(RigidBody)
Void InitializeWorlds()
Void Update()
Void FixedUpdate()
Void onPhysicsStep(BulletPhysicsWorld)
```

Collision Method

Collision Method (Abstract)

Bullet.CollisonConfiguration get()

Default Collision Method

Default Collision Method (Abstract)

Bullet.CollisonConfiguration get()

Broad Phase Method*

Broad Phase Method (abstract)

Bullet.BroadPhaseInterface get()

Broad Phase Dynamic AABB

Broad Phase Dynamic AABB

Bullet.BroadPhaseInterface get()

Broad Phase Axis 3 Sweep

Broad Phase Axis 3 Sweep

```
Vector3 _min {get; set;}
```

```
Vector3 _max {get; set;}
```

```
Bullet.BroadPhaseInterface get()
```

Broad Phase Axis 3 Sweep 32 Bit

Broad Phase Axis 3 Sweep 32 bit

Vector3 _min {get; set;}

Vector3 _max {get; set;}

Bullet.BroadPhaseInterface get()

Broad Phase Simple

Broad Phase Simple

Bullet.BroadPhaseInterface get()

Ghosting

Ghost Object

Ghost Object

Bullet.BroadPhaseInterface get()

Editor

Box Shape Editor

Box Shape Editor

BoxShape _shape

Void OnEnable()

Void OnInspectorGUI()

BvH Triangle Mesh Shape Editor

BvH Triangle Mesh Shape Editor

BvhTriangleMeshShape _shape

Void OnEnable()

Void OnInspectorGUI()

Capsule Shape Editor

Capsule Shape Editor

CapsuleShape _shape

Void OnEnable()

Void OnInspectorGUI()

Cone Shape Editor

Capsule Shape Editor

ConeShape _shape

Void OnEnable()

Void OnInspectorGUI()

Convex Hull Shape Editor

Capsule Shape Editor

ConvexHullShape _shape

Void OnEnable()

Void OnInspectorGUI()

Cone Shape Editor

Cone Shape Editor

ConeShape _shape

Void OnEnable()

Void OnInspectorGUI()

Sphere Shape Editor

Sphere Shape Editor

SphereShape _shape

Void OnEnable()

Void OnInspectorGUI()

Compound Shape Editor

Compound Shape Editor

CompoundShape _shape

Void OnEnable()

Void OnInspectorGUI()

Void GetSerializedProperties()

MultiSphere Shape Editor

MultiSphere Shape Editor

MultiSphereShape _shape

Void OnEnable()

Void OnInspectorGUI()

Void GetSerializedProperties()

Primitive Editor

Primitive Editor

Primitive _target
GUIStyle _versionStyle
Texture2D _editorLogo{get;}
GUIContent _gcSize

Void OnEnable()
Void OnInspectorGUI()
Void CreateCube()
Void CreateSphere()
Void CreateCylinder()
Void CreateCapsule()
Void CreateCone()
Void CreateConvexHull()
Void CreateConvexTriMesh()

Void PostCreateObject()
Vec3 GetCameraRayCastPosition()
Ray GetCenterRay()
Ray GetScreenRay()
Bool InspectorButton (string,int, int, Color, string)
Object LoadAsset(Object, string)

Primitive Component Order Sorter

Primitive Component Order Sorter

Type[] _typesOrder

Int GetIndex(Component)

Int Compare(Component, Component)

Void SortComponents()

Void SortComponents(GameObject)

Rigid Body Editor

Rigid Body Editor

Rigidbody _rigidBody

Void OnEnable()

Void OnInspectorGUI()

Editor Interface

Editor Interface

DebugType DrawDebug(DebugType, Object)

Layout

Layout

```
Vec3 DrawVector3(string, vec3, Object)
Vec3 DrawVector3(string, vec3, string, Object)
Float DrawFloat(string, value, Object)
Float DrawFloat(string float, string, Object)
Bool DrawToggle(string, bool , Object)
Bool DrawToggle(string, bool, string, Object)
```

Editor Helper

Editor Helper

GUIStyle _versionStyle

String _version

Texture2D _editorLogo {get;}

Void DrawLogoandVersion()

Vec3 GetCameraRaycastPositon()

Ray GetCenterRay()

Ray GetScreenRay(Camera, Vec2)

Object LoadAsset(Object, string path)

Bool InspectorButton(string, int, int , color, string)

Bool InspectorButton(string, int, int, Color)

Physics World Editor

Physics World Editor

```
GameObject CreatNew()  
Void OnInspectorGUI()
```

Soft Body Physics

Soft Body Config

Soft Body Config

Float _dynamicFriction {get;set;}	Float _velocityCorrection {get;set;}
Float _dampening {get;set;}	Float _timescale {get;set;}
Float _volumeConversion {get;set;}	Float _rigidContactHardness{get;set;}
Float _pressure {get;set;}	Float _kineticHardness {get;set;}
Float _anchorHardness {get;set;}	Float _softcontactHardness {get;set;}
Bullet.CollisionFlags _collisions {get;set;}	Int _clusterIterations {get;set;}
Float _maxVolume {get;set;}	Bullet.AeroModel _aeroModel {get;set;}
Float _poseMatching {get;set;}	Float drag {get;set;}
Int _posIterations {get;set;}	Float lift{get;set;}
Int _driftIterations {get;set;}	
Int VellIterations {get;set;}	

Void CopyToBulletConfig(Bullet.SoftBody.Config)

Soft Body Material

Soft Body Material

```
Float _linearStiffness {get;set;}
Float _angularStiffness {get;set;}
Float _volumeStiffness {get;set;}
Bullet.SoftBody.MaterialFlags _flags {get;set;}

Void SetMaterial(Bullet.SoftBody.Material)
```

Soft Body Setting

Soft Body Setting

<code>Float _totalMass{get;set;}</code> <code>Unity.Vector3 _scale {get;set;}</code> <code>Bool _shapeMatching {get;set;}</code> <code>Bool _pressureForces {get;set;}</code> <code>Bool _generateCluster {get;set;}</code> <code>Int _bendConstraintDistance {get;set;}</code>	<code>Bool _allNodeBendable {get;set;}</code> <code>Bool _randomBendConstraint{get;set;}</code> <code>SoftBodyConfig _config {get;set;}</code> <code>SoftBodyMaterial _material{get;set;}</code>
<code>Void ConfigureSoftBody(SoftBody)</code> <code>Void ResetToPreset(enum.SoftBodyPreset)</code>	

Soft Body

Soft Body

```
SoftBodySetting _settings {get;set;}
```

```
Unity.Vector3[] _vertices
```

```
Unity.Vector3[] _normal
```

```
Int[] _triangles
```

```
void Awake()
```

```
Void AddObjectToWorld()
```

```
RemoveObjectFromWorld()
```

```
Bool BuildCollisonObject()
```

```
Void BuidlSoftBody()
```

```
Void Dispose(bool)
```

```
Void DumpData()
```

```
Void update()
```

```
Void updateMesh()
```

Soft Body With Mesh

Soft Body with Mesh : Soft Body

```
BP_UserMeshSettings _meshSettings {get;set;}  
MeshFilter _meshFilter {get;}
```

```
GameObject CreateNew(Unity.Vector3,Unity.Quaternion, Mesh, bool, SoftBodySettingPreset)
```

Rope Settings

Rope Settings

```
Int _points {get;set;}
Unity.Vector3 _startPoint {get;set;}
Unity.Vector3 _endpoint {get;set;}
Float _width {get;set;}
Color _startColor {get;set;}
Color _endColor {get;Set;}
```


Rope Anchor

Rope Anchor

BP_RigidBody {get;set;}

Float _anchorNodePoint {get;set;}

Soft Body Rope

Soft Body Rope : Soft Body

```
RopeAnchor[] _anchors {get;set;}  
Int _vertexCount {get;set;}  
LineRenderer _renderer {get;}
```

```
GameObject CreateNew(Unity.Vector3,Unity.Quaternion, Mesh, bool, SoftBodySettingPreset)
```