N-Physics

Components and Tools for Unity Physics

N-PHYSICS

UNITY EXTENSION

Rigidbody Components

Center Of Mass Position
Inertia Tensor Override
Density
Directional Drag
Initial Velocity
Initial Angular Velocity
Magnetic Force

Editor Tools

Rigidbody Inspector
Center Pivot On Colliders

Helpers Components

Center Of Mass Locator
Collision Events
Collision Ignore Setup
Rigidbody Gizmos
Speed O Meter
Spring Renderer
Trajectory Display
Trigger Events

Gravity Components

Gravity Vector
Gravity Controls

Characters Components

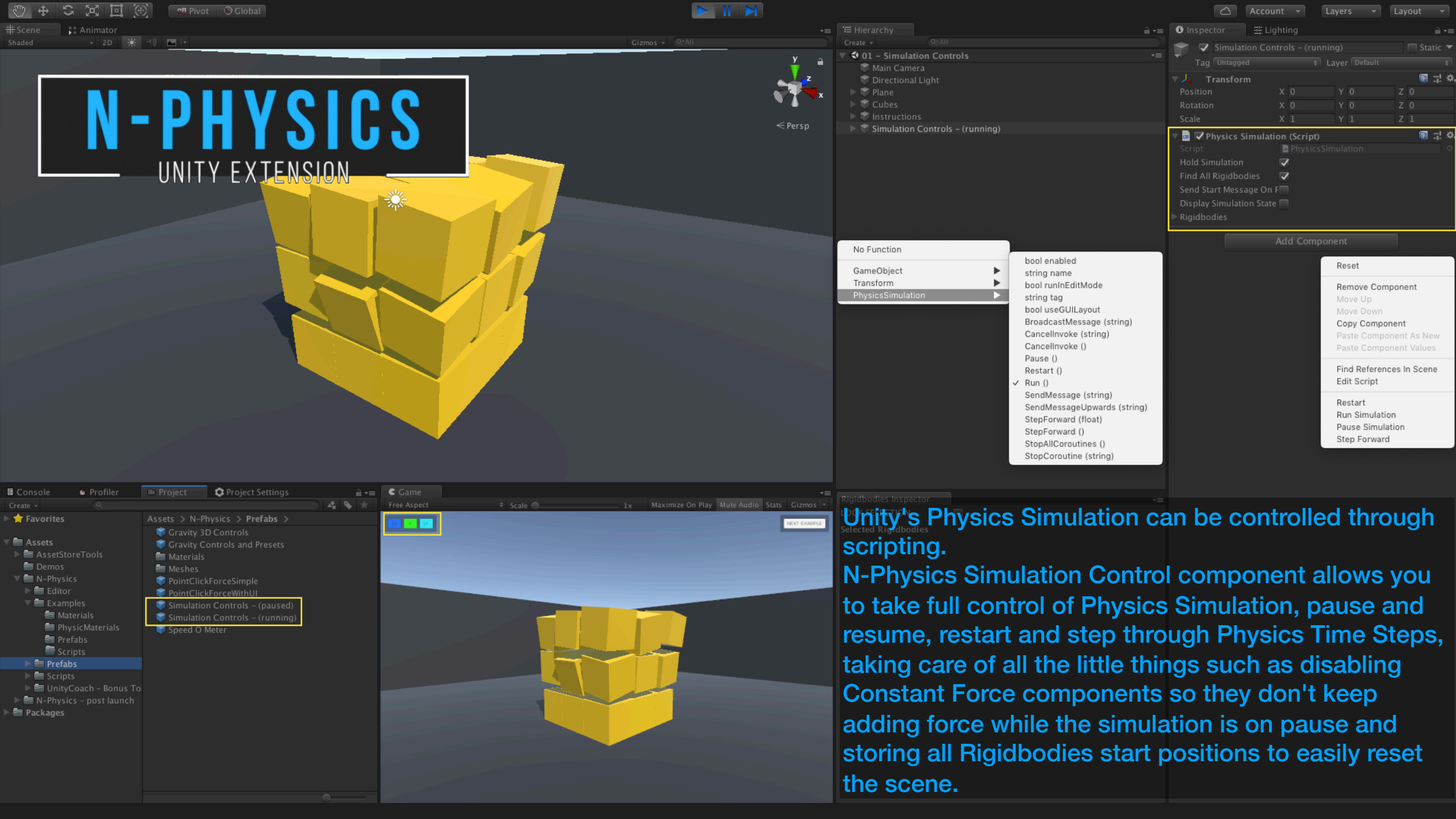
Ragdoll Switch

Interaction Components

Physics Simulation Controls
Point Click Force

Medium Components

Drag Modifier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UNITY EXTENSION
Persp
Hierarchy
01 - Simulation Controls
Main Camera
Directional Light
Plane
Cubes
Instructions
Simulation Controls - (running)
Inspector
Lighting
Simulation Controls - (running)
Static
Tag
Untagged
Layer
Default
Transform
Position
Rotation
Scale
Physics Simulation (Script)
Script
PhysicsSimulation
Hold Simulation
Find All Rigidbodies
Send Start Message On F
Display Simulation State
Rigidbodies
Add Component
No Function
GameObject
Transform
PhysicsSimulation
bool enabled
string name
bool runInEditMode
string tag
bool useGUILayout
BroadcastMessage (string)
CancelInvoke (string)
CancelInvoke ()
Pause ()
Restart ()
Run ()
SendMessage (string)
SendMessageUpwards (string)
StepForward (float)
StepForward ()
StopAllCoroutines ()
StopCoroutine (string)
Reset
Remove Component
Move Up
Move Down
Copy Component
Paste Component As New
Paste Component Values
Find References In Scene
Edit Script
Restart
Run Simulation
Pause Simulation
Step Forward
Console
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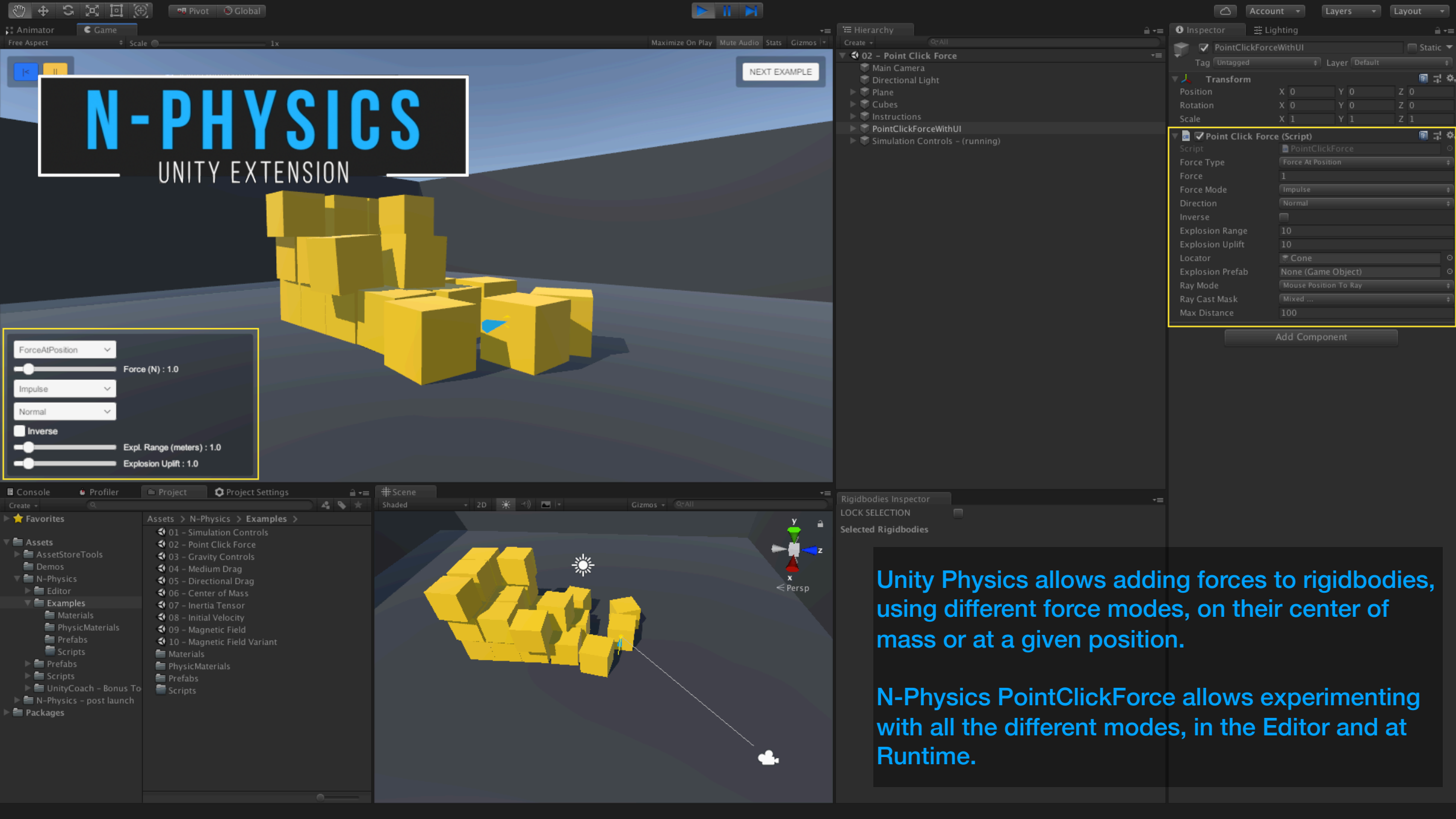
Gravity 3D Controls
Gravity Controls and Presets
Materials
Meshes
PointClickForceSimple
PointClickForceWithUI
Simulation Controls - (paused)
Simulation Controls - (running)
Speed O Meter
Game
Free Aspect
Scale
Maximize On Play
Mute Audio
Stats
Gizmos
Rigidbodies Inspector
Selected Rigidbodies
Unity's Physics Simulation can be controlled through scripting.
N-Physics Simulation Control component allows you to take full control of Physics Simulation, pause and resume, restart and step through Physics Time Steps, taking care of all the little things such as disabling Constant Force components so they don't keep adding force while the simulation is on pause and storing all Rigidbodies start positions to easily reset the scene.



Unity Physics allows adding forces to rigidbodies, using different force modes, on their center of mass or at a given position.

N-Physics PointClickForce allows experimenting with all the different modes, in the Editor and at Runtime.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UNITY EXTENSION
NEXT EXAMPLE
Gravity
X
Y
Z
NO GRAVITY
DEFAULT GRAVITY
MOON GRAVITY
MARS GRAVITY
JUPITER GRAVITY
ForceAtPosition
Force (N) : 1.0
Impulse
Normal
Inverse
Expl. Range (meters) : 1.0
Explosion Uplift : 1.0
Hierarchy
03 - Gravity Controls
Main Camera
Directional Light
Plane
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Instructions
Simulation Controls - (running)
Gravity Controls and Presets
PointClickForceWithUI
Inspector
Lighting
Gravity Controls and Presets
Static
Transform
Position
Rotation
Scale
Gravity Controls (Script)
Script
GravityControls
Reset On Awake
Initial Gravity
On Gravity X Changed (Single)
On Gravity Y Changed (Single)
On Gravity Z Changed (Single)
On Gravity Changed (Vector3)
List is Empty
Add Component
Rigidbodies Inspector
LOCK SELECTION
Selected Rigidbodies
Console
Profiler
Project
Project Settings
Scene
Assets > N-Physics > Examples
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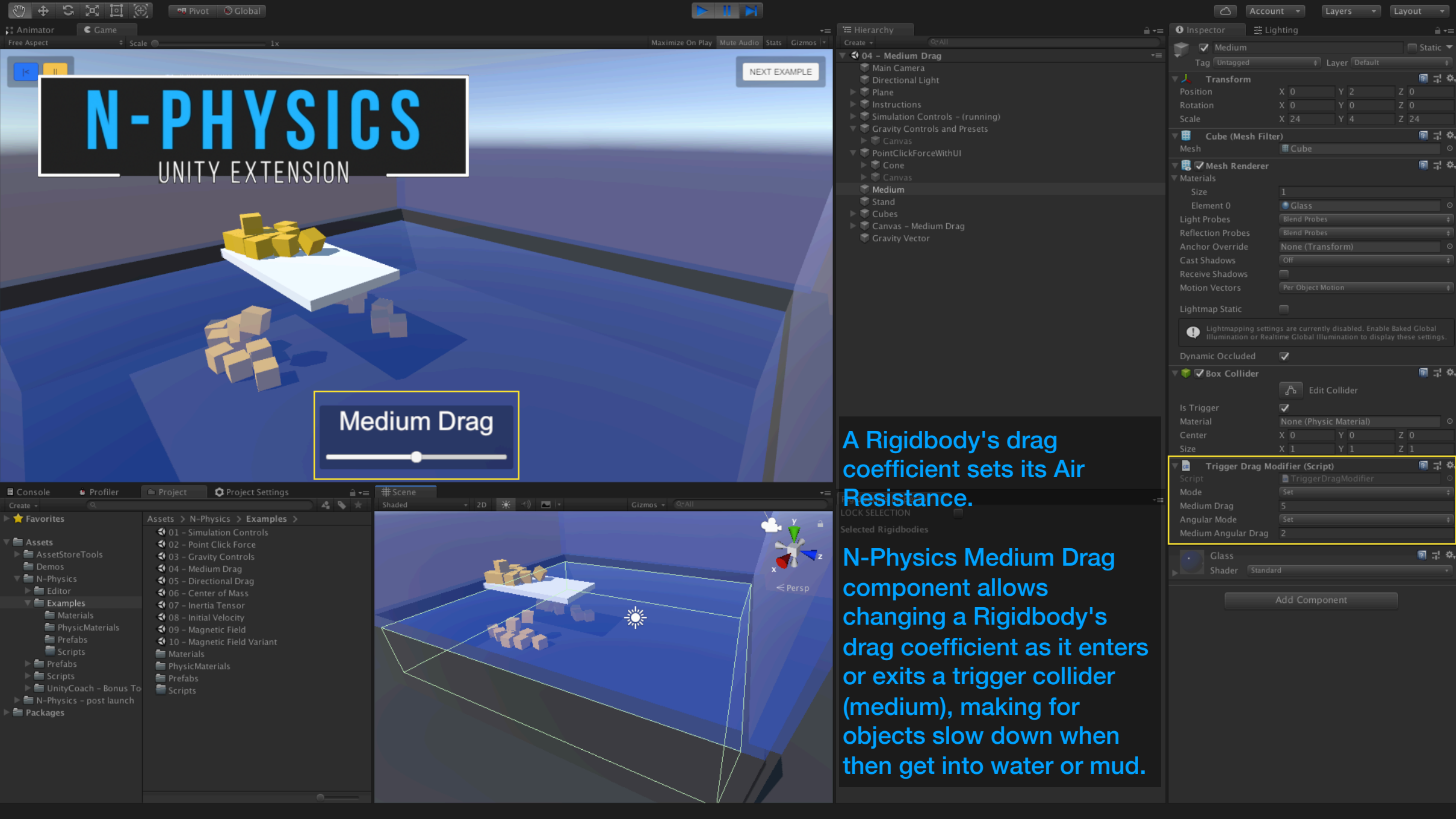
Persp
N-Physics Gravity Controls and Gravity Vector components allows setting a different gravity per scene and easily adjust Gravity using UI sliders.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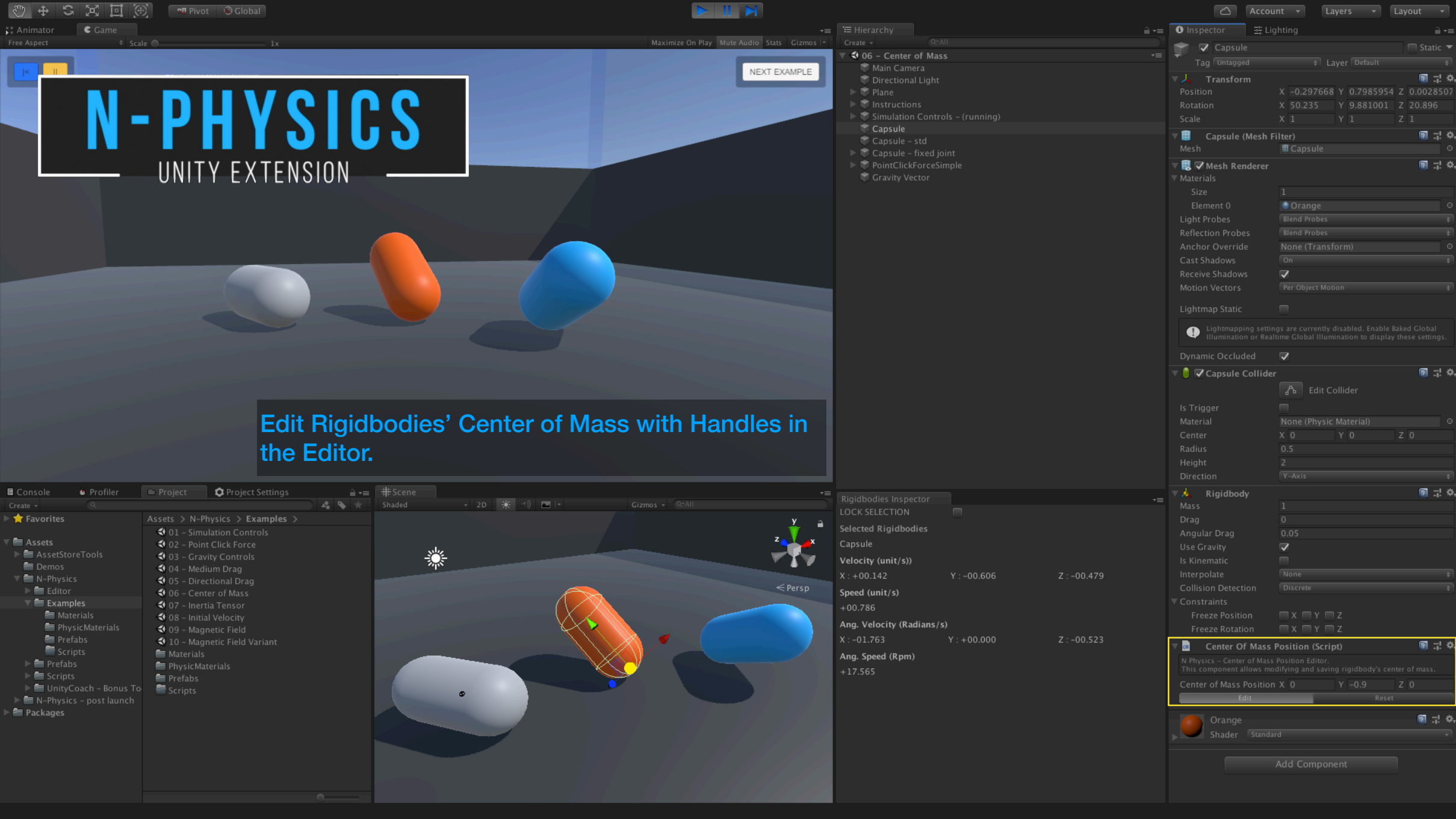
UNITY EXTENSION
NEXT EXAMPLE
Medium Drag
A Rigidbody's drag coefficient sets its Air Resistance.
N-Physics Medium Drag component allows changing a Rigidbody's drag coefficient as it enters or exits a trigger collider (medium), making for objects slow down when then get into water or mud.


N-PHYSICS
UNITY EXTENSION
NEXT EXAMPLE
Gravity
X
Y
Z
NO GRAVITY
DEFAULT GRAVITY
MOON GRAVITY
MARS GRAVITY
JUPITER GRAVITY
A Rigidbody's drag coefficient is uniform. It doesn't account for the object's shape. An object falling flat and the same falling sideways will fall at the same speed and land at the same time.
N-Physics DirectionalDrag component allows drag values to be set per axis, making for planing behaviour.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NEXT EXAMPLE
Edit Rigidbodies' Center of Mass with Handles in the Editor.
Hierarchy
06 - Center of Mass
Main Camera
Directional Light
Plane
Instructions
Simulation Controls - (running)
Capsule
Capsule - std
Capsule - fixed joint
PointClickForceSimple
Gravity Vector
Inspector
Lighting
Capsule
Transform
Position
Rotation
Scale
Capsule (Mesh Filter)
Mesh Renderer
Capsule Collider
Rigidbody
Center Of Mass Position (Script)
N Physics - Center of Mass Position Editor.
This component allows modifying and saving rigidbody's center of mass.
Edit
Reset
Add Component
Rigidbodies Inspector
Selected Rigidbodies
Capsule
Velocity (unit/s))
Speed (unit/s)
Ang. Velocity (Radians/s)
Ang. Speed (Rpm)
Console
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08 - Initial Velocity
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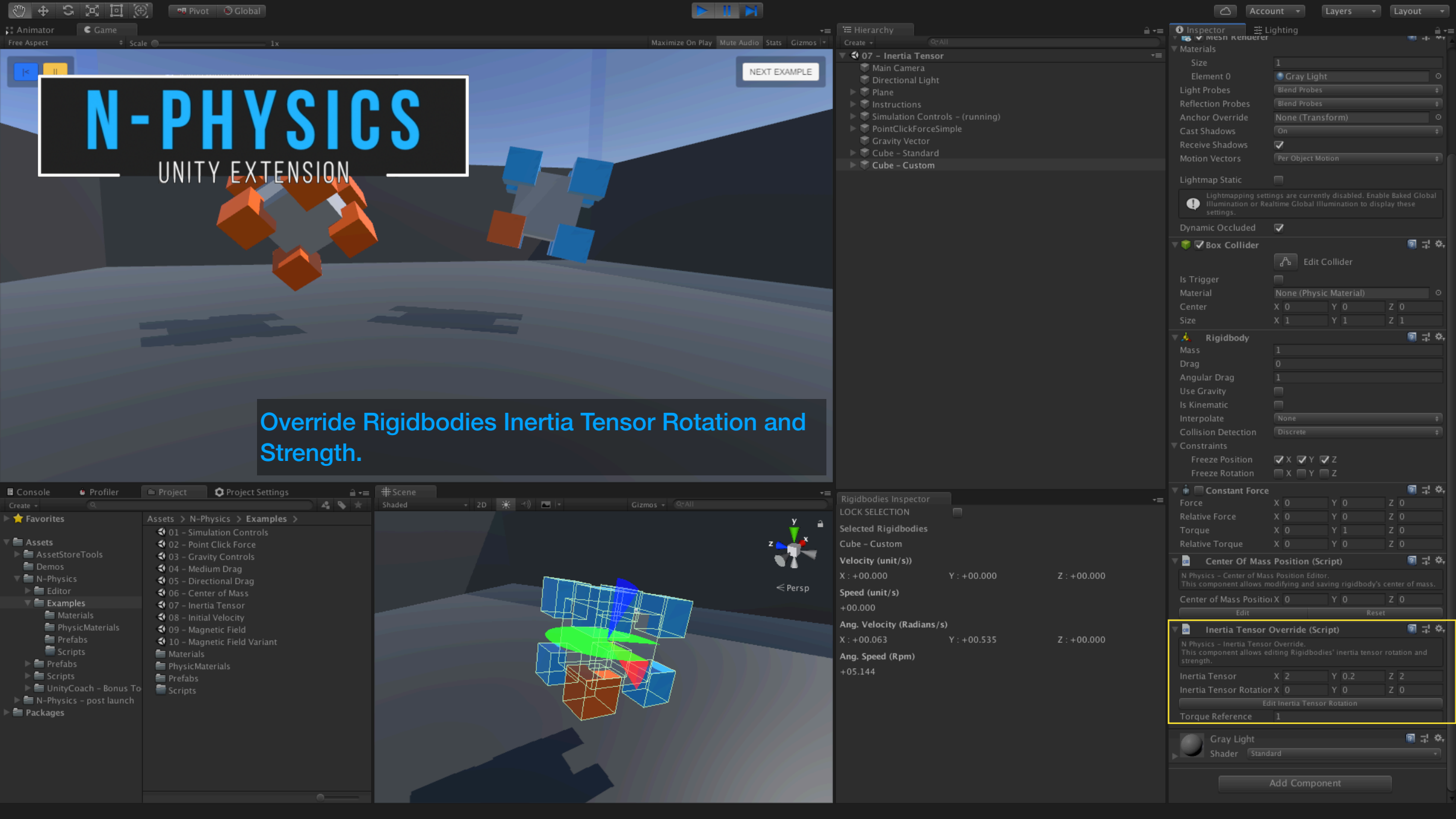
10 - Magnetic Field Variant
Persp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NEXT EXAMPLE
Override Rigidbodies Inertia Tensor Rotation and Strength.
Hierarchy
07 - Inertia Tensor
Main Camera
Directional Light
Plane
Instructions
Simulation Controls - (running)
PointClickForceSimple
Gravity Vector
Cube - Standard
Cube - Custom
Inspector
Lighting
Box Collider
Edit Collider
Rigidbody
Constant Force
Center Of Mass Position (Script)
Inertia Tensor Override (Script)
N Physics - Inertia Tensor Override.
This component allows editing Rigidbodies' inertia tensor rotation and strength.
Edit Inertia Tensor Rotation
Gray Light
Shader
Standard
Add Component
Rigidbodies Inspector
LOCK SELECTION
Selected Rigidbodies
Cube - Custom
Velocity (unit/s))
Speed (unit/s)
Ang. Velocity (Radians/s)
Ang. Speed (Rpm)
Console
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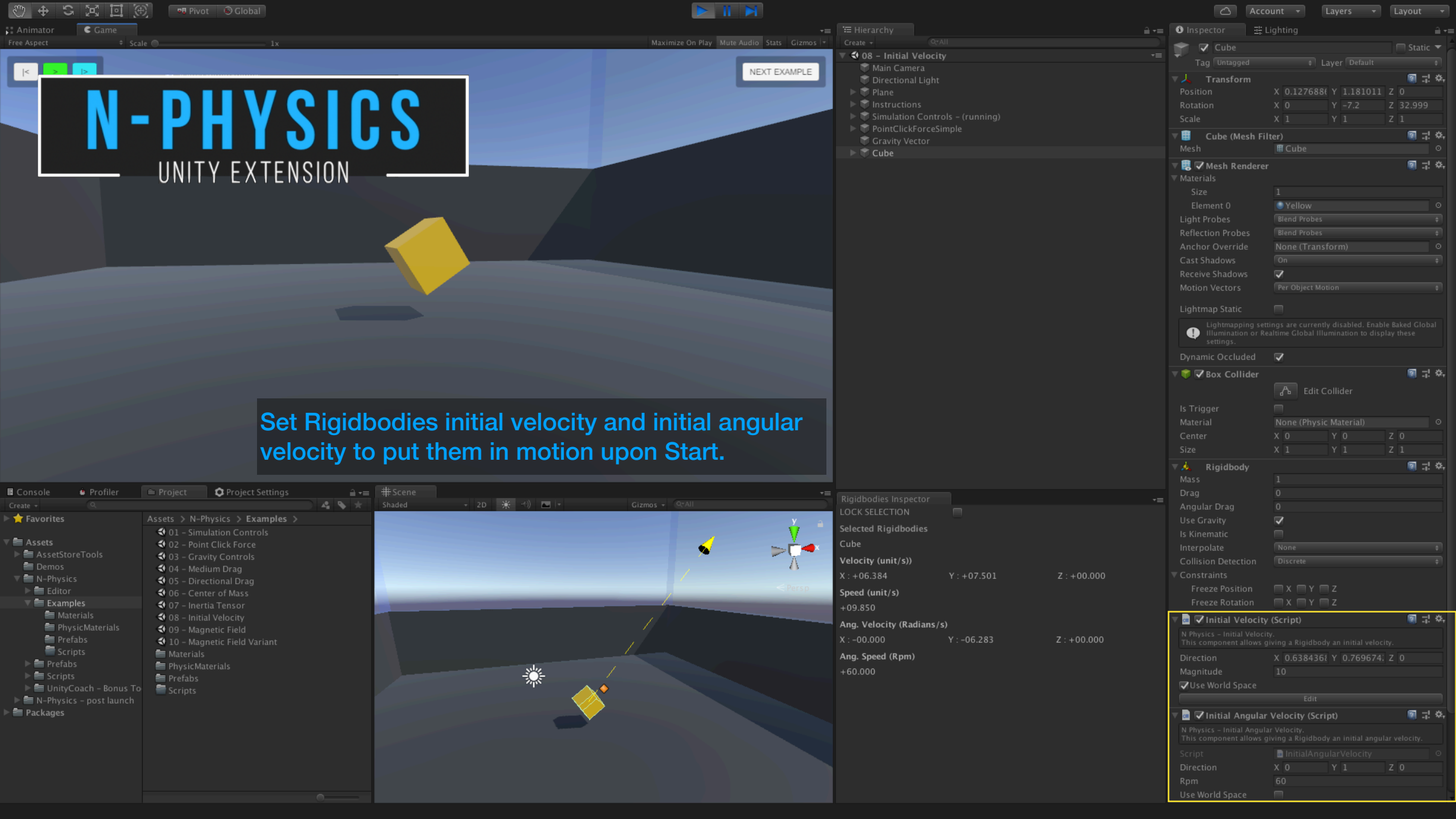
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UNITY EXTENSION
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Set Rigidbodies initial velocity and initial angular velocity to put them in motion upon Start.
Hierarchy
08 - Initial Velocity
Main Camera
Directional Light
Plane
Instructions
Simulation Controls - (running)
PointClickForceSimple
Gravity Vector
Cube
Inspector
Lighting
Cube
Static
Tag Untagged
Layer Default
Transform
Position X 0.1276886 Y 1.181011 Z 0
Rotation X 0 Y -7.2 Z 32.999
Scale X 1 Y 1 Z 1
Cube (Mesh Filter)
Mesh Cube
Mesh Renderer
Materials
Size 1
Element 0 Yellow
Light Probes Blend Probes
Reflection Probes Blend Probes
Anchor Override None (Transform)
Cast Shadows On
Receive Shadows
Motion Vectors Per Object Motion
Lightmap Static
Lightmapping settings are currently disabled. Enable Baked Global Illumination or Realtime Global Illumination to display these settings.
Dynamic Occluded
Box Collider
Edit Collider
Is Trigger
Material None (Physic Material)
Center X 0 Y 0 Z 0
Size X 1 Y 1 Z 1
Rigidbody
Mass 1
Drag 0
Angular Drag 0
Use Gravity
Is Kinematic
Interpolate None
Collision Detection Discrete
Constraints
Freeze Position X Y Z
Freeze Rotation X Y Z
Initial Velocity (Script)
N Physics - Initial Velocity.
This component allows giving a Rigidbody an initial velocity.
Direction X 0.6384366 Y 0.7696744 Z 0
Magnitude 10
Use World Space
Edit
Initial Angular Velocity (Script)
N Physics - Initial Angular Velocity.
This component allows giving a Rigidbody an initial angular velocity.
Script InitialAngularVelocity
Direction X 0 Y 1 Z 0
Rpm 60
Use World Space
Rigidbodies Inspector
LOCK SELECTION
Selected Rigidbodies
Cube
Velocity (unit/s))
X : +06.384 Y : +07.501 Z : +00.000
Speed (unit/s)
+09.850
Ang. Velocity (Radians/s)
X : -00.000 Y : -06.283 Z : +00.000
Ang. Speed (Rpm)
+60.000
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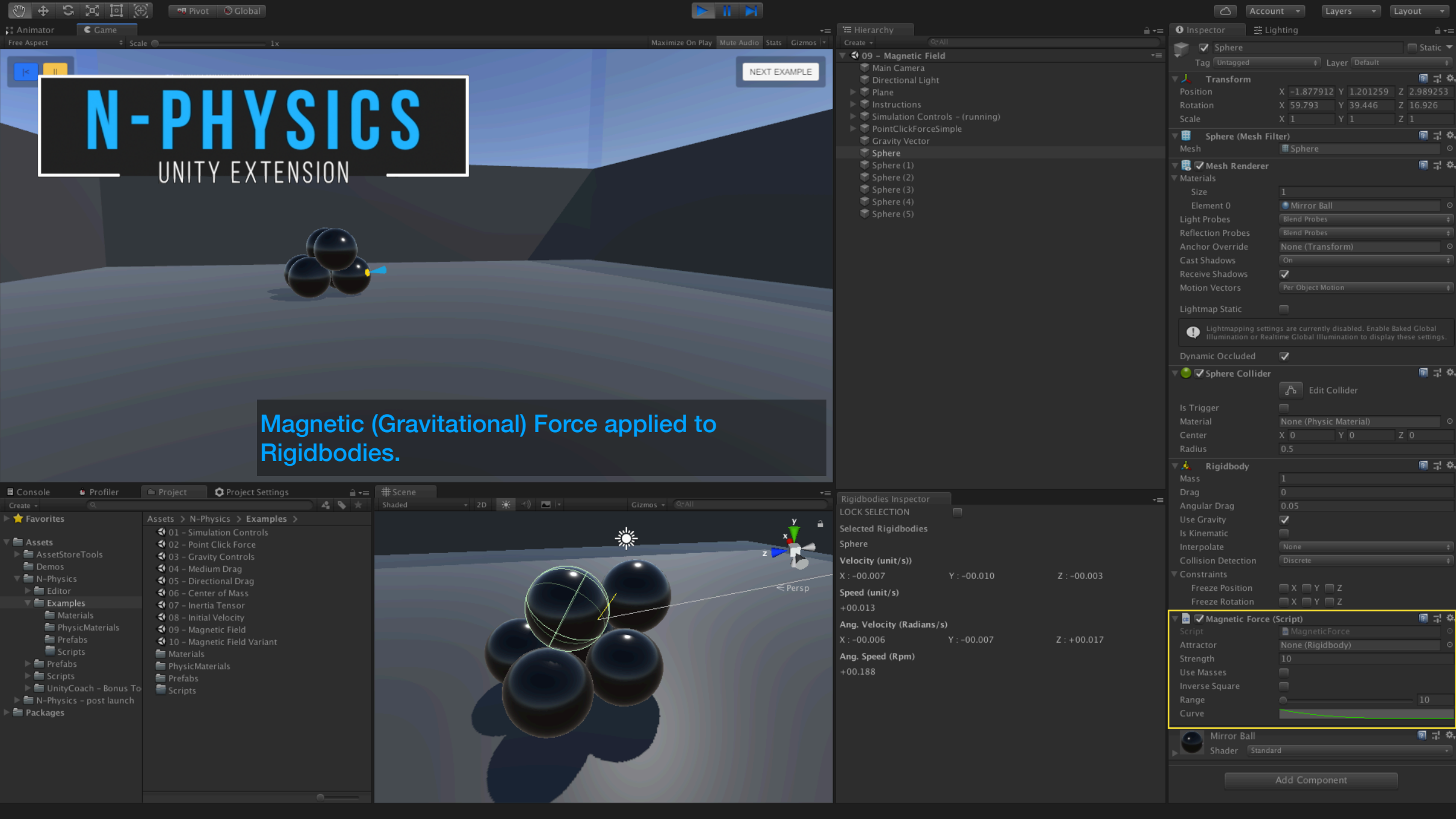
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UNITY EXTENSION
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Magnetic (Gravitational) Force applied to Rigidbodies.
Hierarchy
09 - Magnetic Field
Main Camera
Directional Light
Plane
Instructions
Simulation Controls - (running)
PointClickForceSimple
Gravity Vector
Sphere
Sphere (1)
Sphere (2)
Sphere (3)
Sphere (4)
Sphere (5)
Inspector
Lighting
Transform
Position
Rotation
Scale
Sphere (Mesh Filter)
Mesh Renderer
Sphere Collider
Rigidbody
Magnetic Force (Script)
Attractor
Strength
Use Masses
Inverse Square
Range
Curve
Mirror Ball
Add Component
Rigidbodies Inspector
LOCK SELECTION
Selected Rigidbodies
Velocity (unit/s))
Speed (unit/s)
Ang. Velocity (Radians/s)
Ang. Speed (Rpm)
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Spring Renderer, renders a SpringJoint using a LineRenderer.
Hierarchy
10 - Magnetic Field - Spring Renderer
Main Camera
Directional Light
Plane
Instructions
Simulation Controls - (running)
PointClickForceSimple
Gravity Vector
Sphere
Sphere (1)
Sphere (2)
Sphere (3)
Sphere (4)
Sphere (5)
SpringRenderer
Inspector
Lighting
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Position
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Scale
Line Renderer
Cast Shadows
Receive Shadows
Dynamic Occludee
Motion Vectors
Renderer Priority
Materials
Size
Element 0
Orange
Lightmap Parameters
Use World Space
Loop
Simplify Preview
Tolerance
Simplify
Positions
Width
Color
Corner Vertices
End Cap Vertices
Alignment
Texture Mode
Shadow Bias
Generate Lighting Data
Sorting Layer
Order in Layer
Light Probes
Reflection Probes
Spring Renderer (Script)
Script
SpringRenderer
Spring Joint
Sphere (Spring Joint)
Shader
Standard
Add Component
Rigidbodies Inspector
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09 - Magnetic Field
10 - Magnetic Field - Spring Renderer
Persp

N-PHYSICS
UNITY EXTENSION

Rigidbodies Inspector
allows reading velocity values