

Collision Objects

6th Week, 2021



UNREAL
ENGINE



Collision Components (1)

- › Two types of components that can affect and be affected by collision:
 - Meshes
 - Shape objects
- › **Meshes**
 - As simple as a cube, or as complex as a high-resolution character with tens of thousands of vertices
 - The types of meshes that can have collision are as follows:
 - › Static Meshes
 - › Skeletal Meshes
 - › Procedural Meshes
 - › And so on



Collision Components (2)

› Shape objects

- Simple meshes represented in wireframe mode that are used to behave as collision objects by causing and receiving collision events
- Essentially invisible meshes
- Their three types are as follows:
 - › Box Collision (Box Component in C++)
 - › Sphere Collision (Sphere Component in C++)
 - › Capsule Collision (Capsule Component in C++)



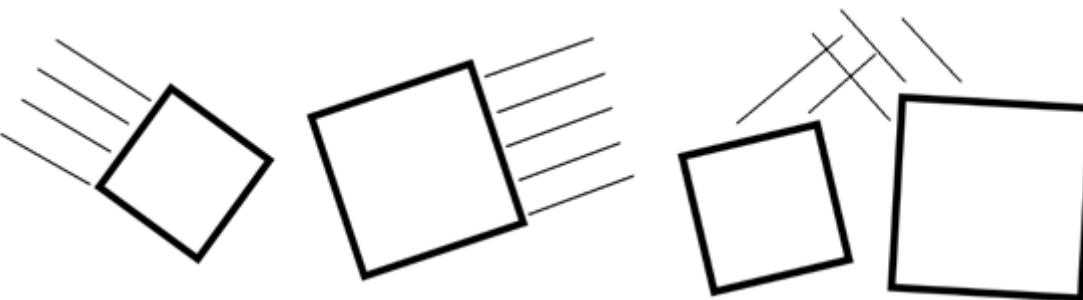
Collision Events (1)

- › Two objects colliding into one another
 - The **Overlap** event
 - › They overlap each other, as if the other weren't there.
 - The **Block** event
 - › They collide and prevent each other from continuing their course.
- › In the previous chapter,
 - How to change an object's response to a specific **Trace** channel
 - An object's response can be either **Block**, **Overlap**, or **Ignore**.

Collision Events (2)

› Block

- Two objects will only block each other if both of them have their response to the other object set to **Block**:
 - › Both objects will have their **OnHit** events called.
 - › If one of the objects is simulating physics, that object must have its **SimulationGeneratesHitEvents** property set to **true**.
 - › Both objects will physically stop each other from continuing with their course.

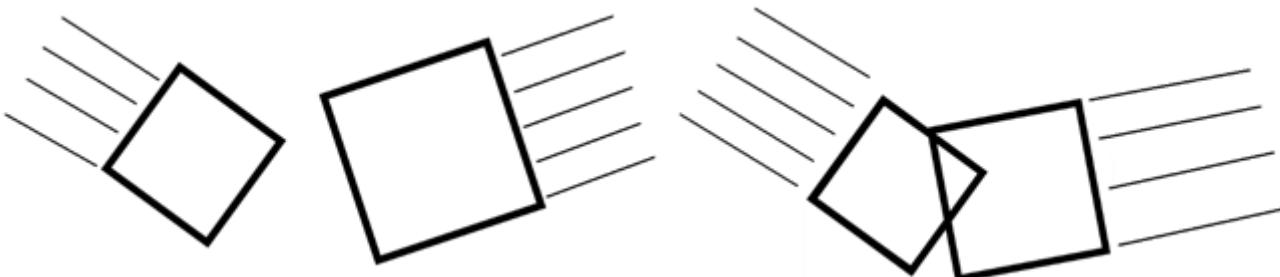


< Object A and Object B blocking each other >

Collision Events (3)

› Overlap

- Two objects will overlap each other if they don't block each other and neither of them is ignoring the other:
 - › If both objects have the **GenerateOverlapEvents** property set to true, they will have their **OnBeginOverlap** and **OnEndOverlap** events called.
 - › If at least one of them doesn't have this property set to **true**, neither of them will call these events.
 - › The objects act as if the other object doesn't exist.



< Object A and Object B overlapping each other >



Collision Events (4)

› Ignore

- Two objects will ignore each other if at least one of them is ignoring the other:
 - › There will be no events called on either object.
 - › Similar to the **Overlap** response, the objects will act as if the other object doesn't exist and will overlap each other.



Collision Events (5)

- › Consider that you have two objects – Object A and Object B:
 - If Object A has set its response to Object B to **Block** and Object B has set its response to Object A to **Block**, they will **Block** each other.
 - If Object A has set its response to Object B to **Block** and Object B has set its response to Object A to **Overlap**, they will **Overlap** each other.
 - If Object A has set its response to Object B to **Ignore** and Object B has set its response to Object A to **Overlap**, they will **Ignore** each other.

Object B		Block	Overlap	Ignore
Object A	Block	Block	Overlap	Ignore
Block	Overlap	Overlap	Ignore	Ignore
Overlap	Ignore	Ignore	Ignore	Ignore
Ignore	Ignore	Ignore	Ignore	Ignore



Collision Events (6)

› Physics

- All collisions related to physics simulation
- The physically simulated response of the collision within the game, which can be either:
 - › Both objects continuing their trajectories as if the other object wasn't there (no physical collision).
 - › Both objects colliding and changing their trajectories, usually with at least one of them continuing its movement, that is, blocking each other's paths.



Collision Events (7)

› Query

- Query can be divided into two aspects of collision:
 - › The events related to the collision of the objects that are called by the game and that you can use to create additional logic.
 - The **OnHit** event
 - The **OnBeginOverlap** event
 - The **OnEndOverlap** event
 - › The physical response of the collision within the game.
 - Both objects continuing their movement as if the other object wasn't there (no physical collision)
 - Both objects colliding and blocking each other's path

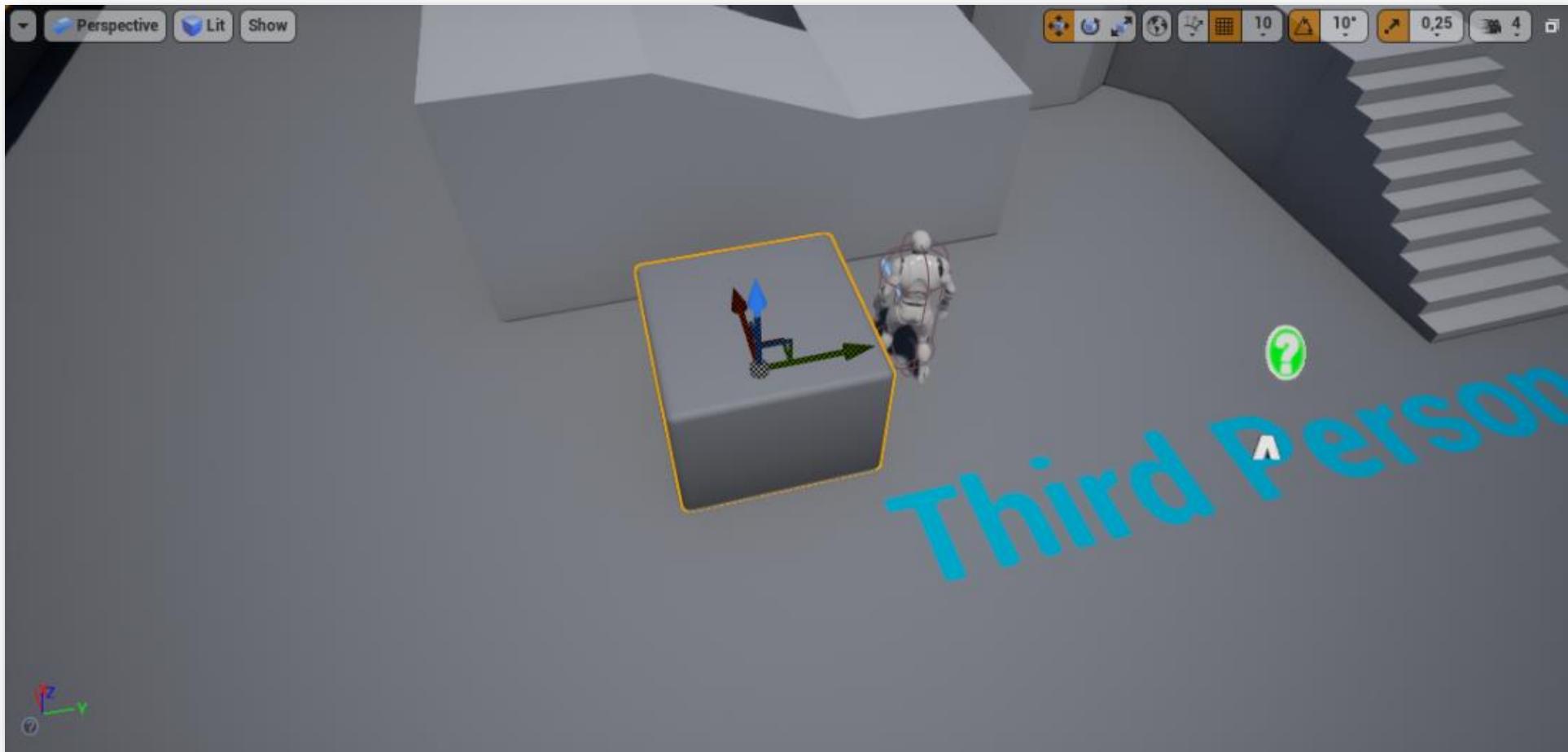


Collision Channels

- › In the previous chapter,
 - **Trace Channels** (Visibility and Camera)
 - How to make our own custom channel
- › **Object Channels**
 - While Trace Channel are only used for Line Traces, Object Channels are used for object collision.
 - You can specify a “purpose” for each Object Channel, much like with Trace Channels, such as Pawn, Static Object, Physics Object, Projectile, and so on.
 - You can then specify how you want each Object Type to respond to all the other Object Types by blocking, overlapping, or ignoring object of that type.

Collision Properties (1)

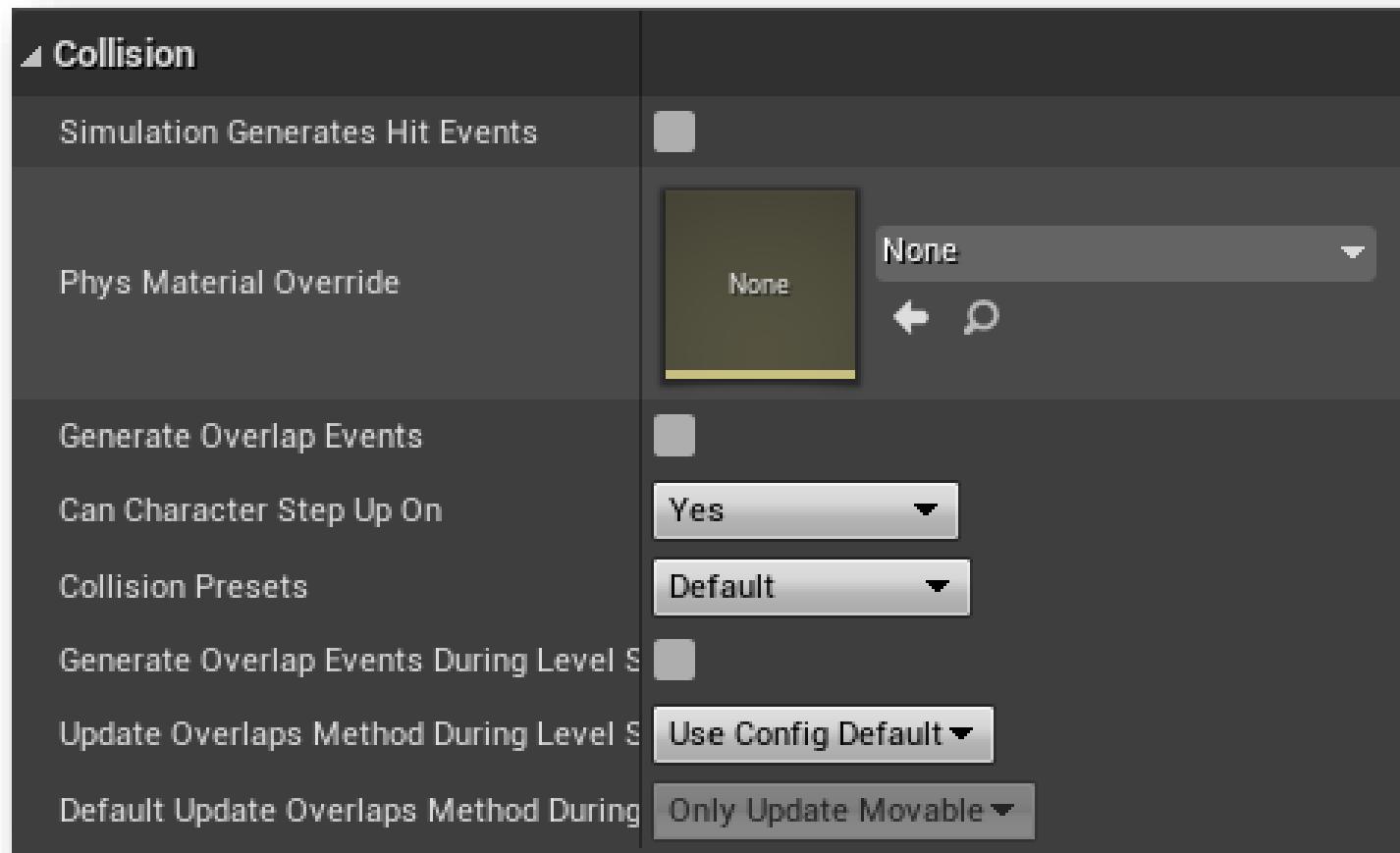
- › The cube can be seen in the following screenshot:





Collision Properties (2)

- With the level open in the editor, select the cube and go to the **Collision** section of its Details Panel:





Collision Properties (3)

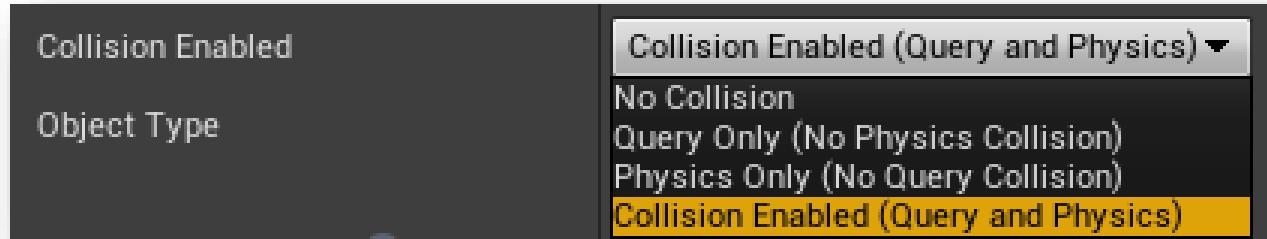
› Changes in Collision Presets

The screenshot shows the 'Collision Presets' panel in the Unreal Engine interface. At the top right, there is a dropdown menu set to 'Collision Enabled (Query and Physics)'. Below it, another dropdown is set to 'WorldStatic'. The main area contains a table of collision responses for different object types. The columns represent 'Ignore', 'Overlap', and 'Block' settings. Most entries have 'Block' checked, except for 'WorldStatic' which has 'Ignore' checked.

	Ignore	Overlap	Block
Collision Responses (7)			
Trace Responses			
Visibility	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Camera	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
EnemySight	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Object Responses			
WorldStatic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
WorldDynamic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pawn	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
PhysicsBody	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vehicle	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Destructible	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Collision Properties (4)

› Collision Enabled for Query and Physics:



› Object Type:

- **World Static**: An object that doesn't move.
- **World Dynamic**: An object that may move.
- **Pawn**: Used for Pawns that can be controlled and moved around the level.
- **Physics Body**: Used for objects that simulate physics
- **Vehicle**: Used for Vehicle objects
- **Destructible**: Used for destructible meshes



Collision Properties (5)

› Collision Presets

- **No Collision**: Used for objects that aren't affected by collision whatsoever
- **Block All**: Used for objects that are static and block all other objects
- **Overlap All**: Used for objects that are static and overlap all other objects
- **Block All Dynamics**: Similar to the **Block All** preset, but for dynamic objects that may change their transform during game play
- **Overlap All Dynamics**: Similar to the **Overlap All** preset, but for dynamic objects that may change their transform during game play

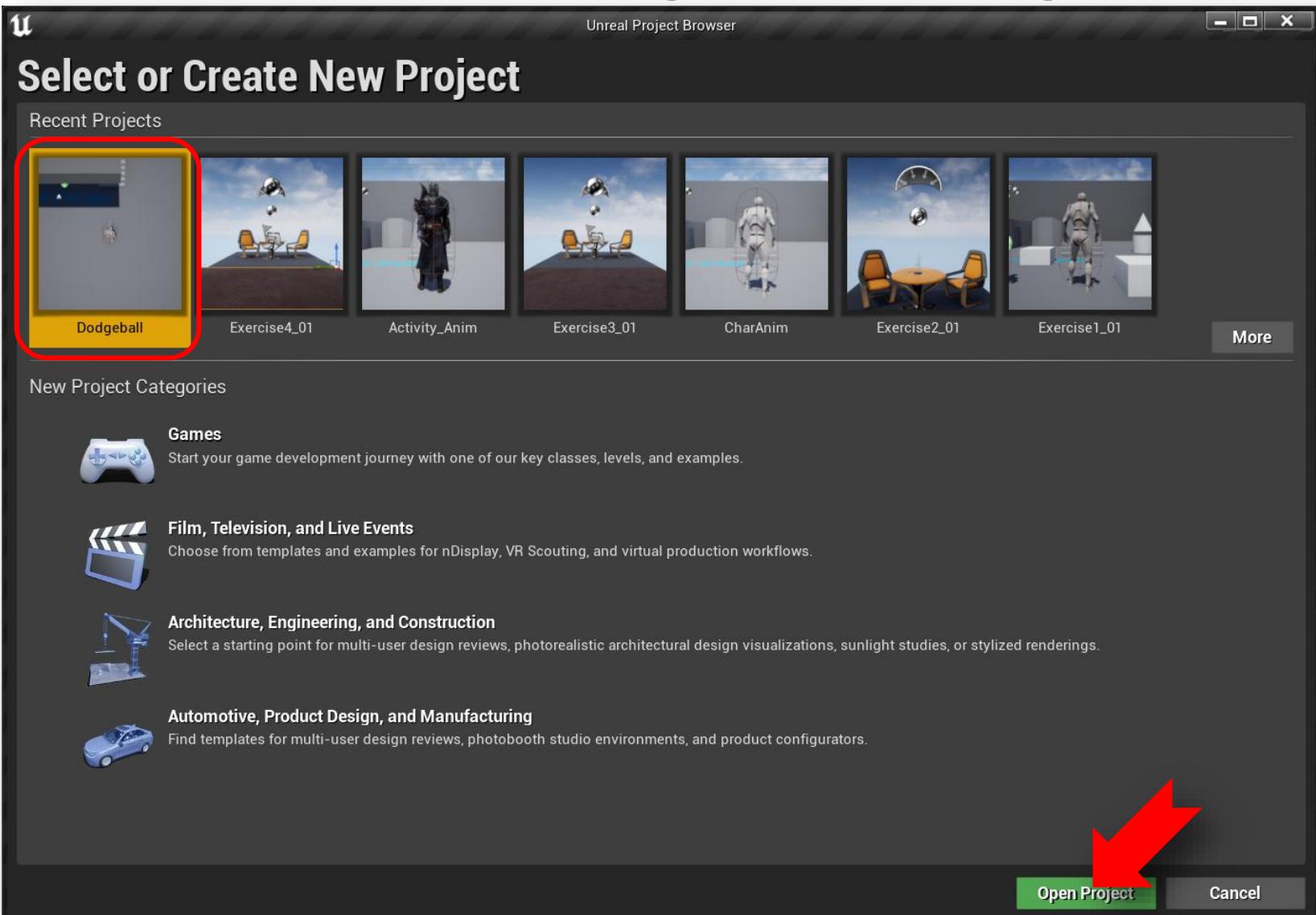


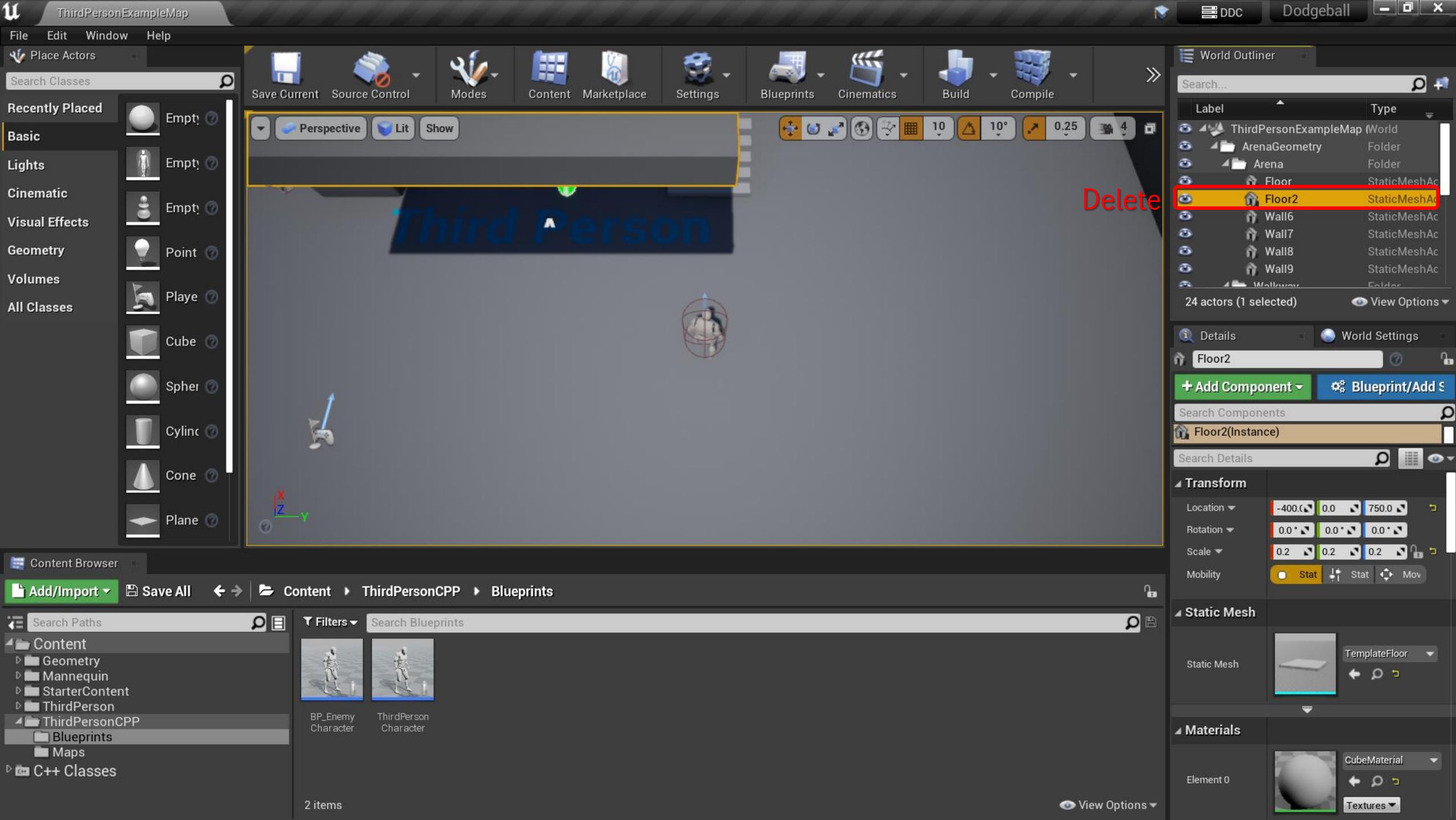
Collision Properties (6)

- › Collision Presets (cont')
 - **Pawn**: Used for pawns and characters
 - **Physics Actor**: Used for objects that simulate physics



Exercise 6.01: Creating The Dodgeball Class





ThirdPersonExampleMap

File Edit Window Help

P History
S Search
R Undo Delete Actors Ctrl+Z
R Redo (Nothing to redo) Ctrl+Y
U Undo History
B Basic Edit
L Light Cut Ctrl+X
C Cine Copy Ctrl+C
V Visual Paste Ctrl+V
G Geom Duplicate Ctrl+H
V Volume Delete Delete
A All Configuration
P Project Preferences...
P Plugins

Save Current Source Control Modes Content Marketplace Settings Blueprints Cinematics Build Compile >

Perspective Lit Show

10 10° 0.25 4

Third Person

Cube Spher Cylind Cone Plane

Change the settings of the currently loaded project.

Content Browser

Add/Import Save All Content ThirdPersonCPP Blueprints

Content Geometry Mannequin StarterContent ThirdPerson ThirdPersonCPP Blueprints Maps C++ Classes

Search Paths Filters Search Blueprints

BP_Enemy Character ThirdPerson Character

2 items View Options

World Outliner

Search... Label Type

ThirdPersonExampleMap (World)
ArenaGeometry (Folder)
Arena (Folder)
Floor (StaticMeshActor)
Wall6 (StaticMeshActor)
Wall7 (StaticMeshActor)
Wall8 (StaticMeshActor)
Wall9 (StaticMeshActor)
Walkway (Folder)
Human StaticMesh (StaticMeshActor)

23 actors View Options

Details World Settings

Select an object to view details.

Project Settings

Asset Manager
Asset Tools

Engine

AI System
Animation
Audio
Chaos Solver
Collision
Console
Cooker
Crowd Manager
Data Driven CVars
Debug Camera Controller
Gameplay Debugger
Garbage Collection
General Settings
Hierarchical LOD
Input
Landscape

Search Details  

Engine - Collision

Set up and modify collision settings.

 These settings are saved in DefaultEngine.ini, which is currently writable.

Object Channels

You can have up to 18 custom channels including object and trace channels. This is the list of object types for your project. If you delete an object type that is being used by the game, any uses of that type will revert to WorldStatic.

Name	Default Response

New Object Channel...  

Trace Channels

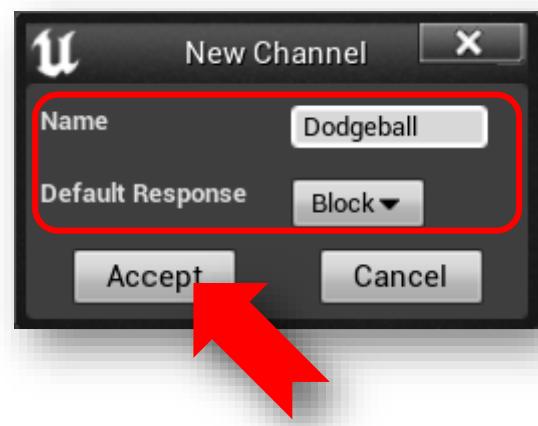
You can have up to 18 custom channels including object and trace channels. This is the list of trace channels for your project. If you delete a trace channel that is being used by the game, the behavior of the trace is undefined.

Name	Default Response
EnemySight	Block

New Trace Channel...  

Preset





Project Settings

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Asset Tools

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Animation

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Chaos Solver

Collision

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Crowd Manager

Data Driven CVars

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Garbage Collection

General Settings

Hierarchical LOD

Input

Landscape

Search Details

Export... Import...

These settings are saved in DefaultEngine.ini, which is currently writable.

Object Channels

You can have up to 18 custom channels including object and trace channels. This is the list of object types for your project. If you delete an object type that is being used by the game, any uses of that type will revert to WorldStatic.

New Object Channel... Edit... Delete...

Name	Default Response
Dodgeball	Block

Trace Channels

You can have up to 18 custom channels including object and trace channels. This is the list of trace channels for your project. If you delete a trace channel that is being used by the game, the behavior of the trace is undefined.

New Trace Channel... Edit... Delete...

Name	Default Response
EnemySight	Block

Preset

Project Settings

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Debug Camera Controller

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General Settings

Hierarchical LOD

Input

Landscape

Search Details

You can have up to 18 custom channels including object and trace channels. This is the list of trace channels for your project. If you delete a trace channel that is being used by the game, the behavior of the trace is undefined.

New Trace Channel... Edit... Delete...

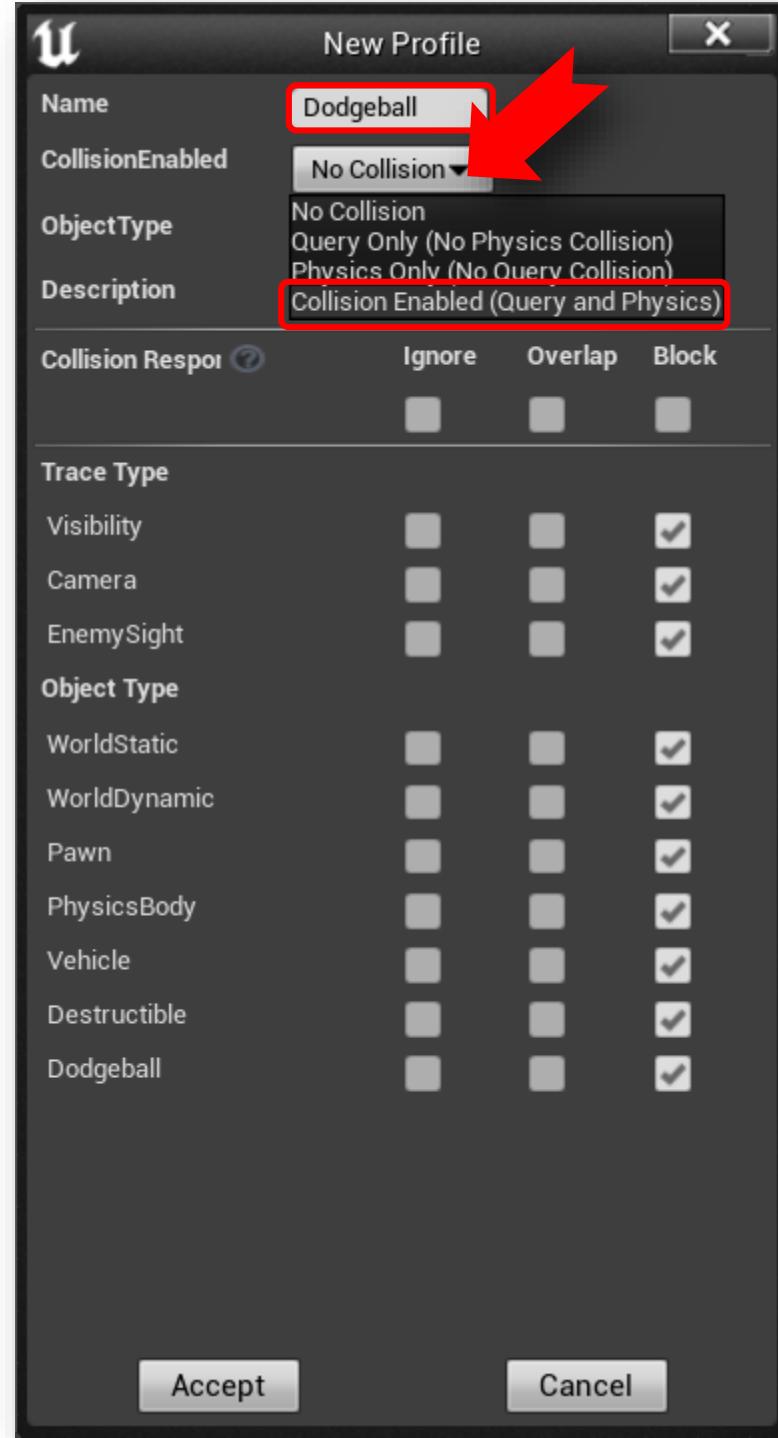
Name	Default Response
EnemySight	Block

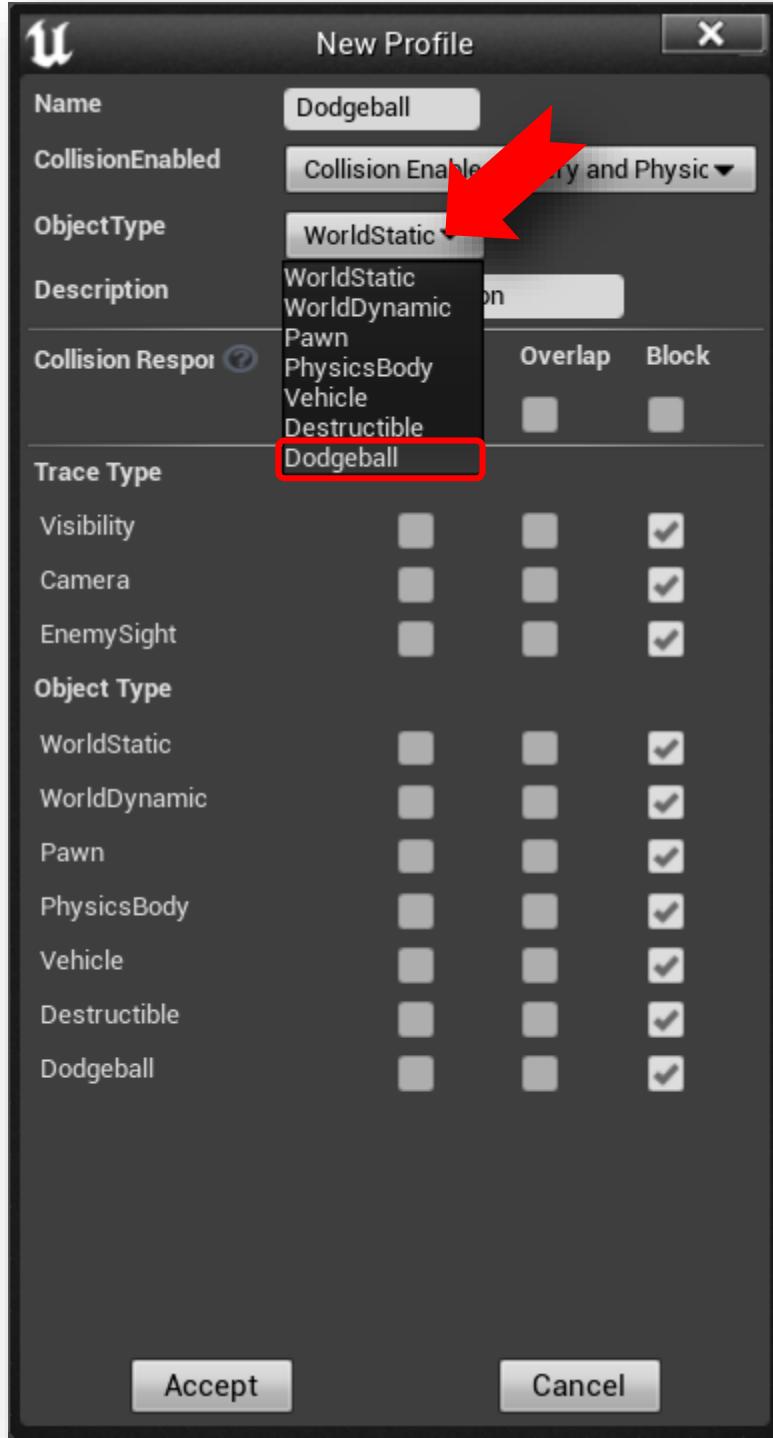
Preset

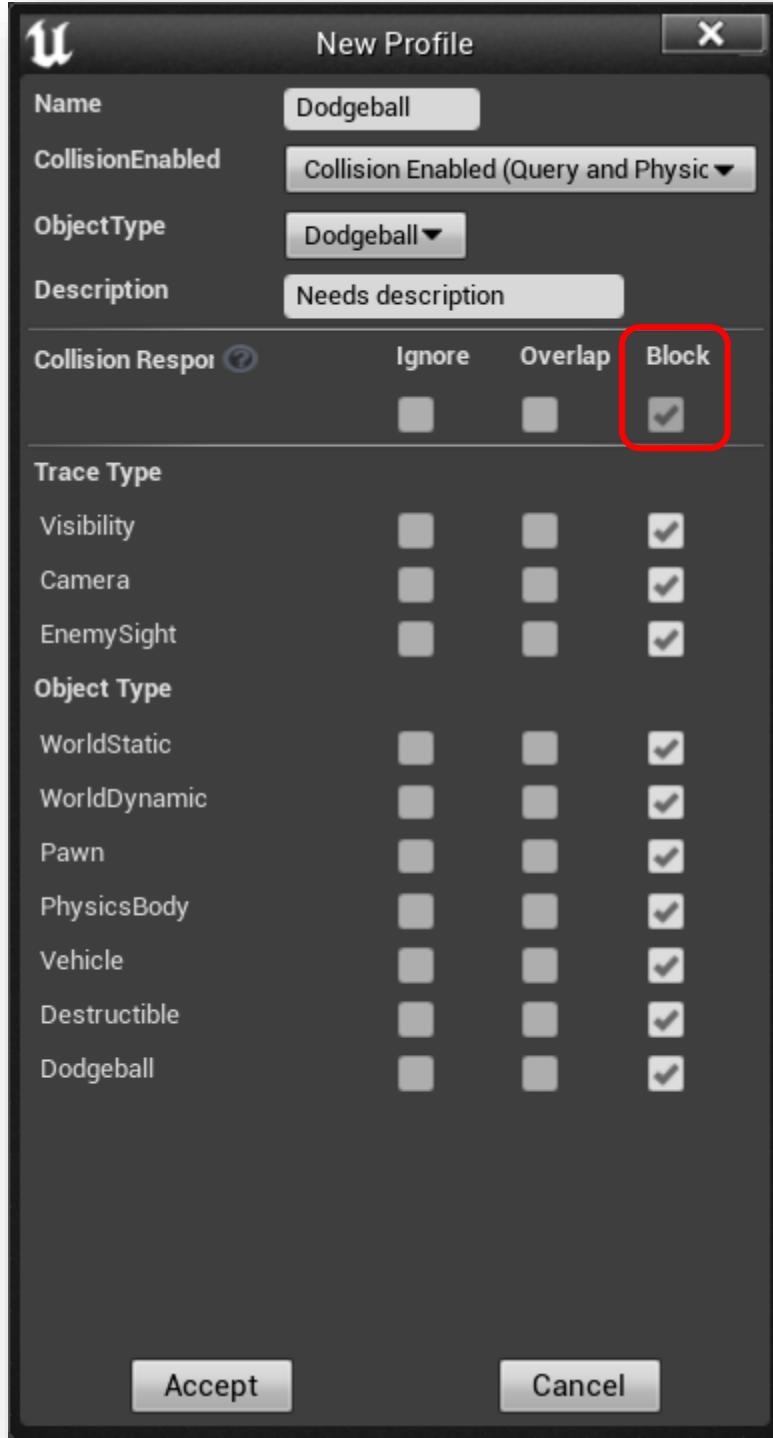
You can modify any of your project profiles. Please note that if you modify profile, it can change collision behavior. Please be careful when you change currently existing (used) collision profiles.

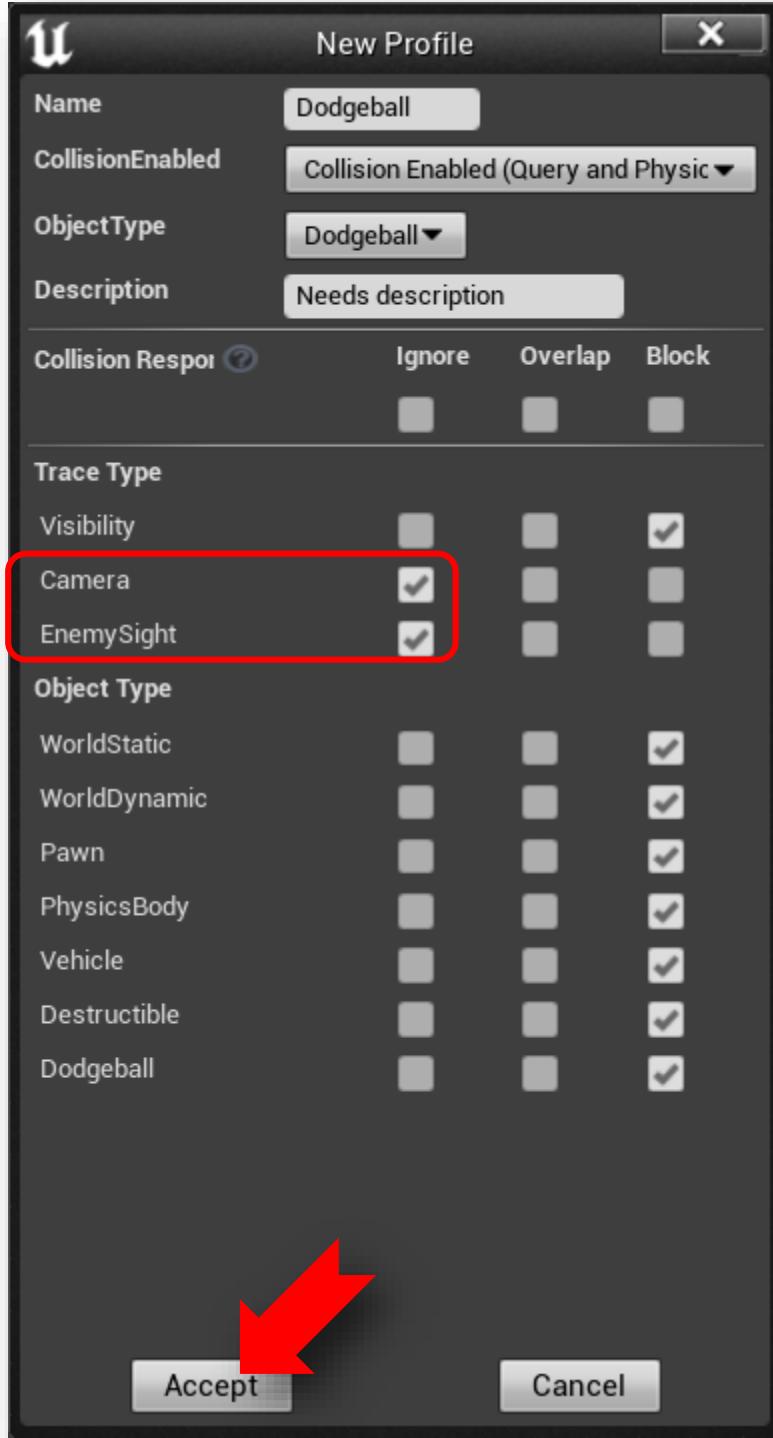
New  Edit... Delete...

Name	Collision	Object Type	Description
NoCollision	No Collision	WorldStatic	No collision
BlockAll	Collision Enabled (Query aWorldStatic)	WorldStatic	WorldStatic object that blocks all actors by default.
OverlapAll	Query Only (No Physics CWorldStatic)	WorldStatic	WorldStatic object that overlaps all actors by default.
BlockAllDynamic	Collision Enabled (Query aWorldDynamic)	WorldDynamic	WorldDynamic object that blocks all actors by default.
OverlapAllDynamic	Query Only (No Physics CWorldDynamic)	WorldDynamic	WorldDynamic object that overlaps all actors by default.
IgnoreOnlyPawn	Query Only (No Physics CPawn)	WorldDynamic	WorldDynamic object that ignores Pawn and Vehicle.
OverlapOnlyPawn	Query Only (No Physics CPawn)	WorldDynamic	WorldDynamic object that overlaps Pawn, Camera, and Vehicle.
Pawn	Collision Enabled (Query aPawn)	Pawn	Pawn object. Can be used for capsule of any player or NPC.
Spectator	Query Only (No Physics CPawn)	Pawn	Pawn object that ignores all other actors except WorldStatic.
CharacterMesh	Query Only (No Physics CPawn)	CharacterMesh	Pawn object that is used for Character Mesh. All other objects ignore it.
PhysicsActor	Collision Enabled (Query aPhysicsBody)	PhysicsActor	Simulating actors
Destructible	Collision Enabled (Query aDestructible)	Destructible	Destructible actors









 Project Settings

Asset Manager Asset Tools

Engine

- AI System
- Animation
- Audio
- Chaos Solver
- Collision
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- Cooker
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- Data Driven CVars
- Debug Camera Controller
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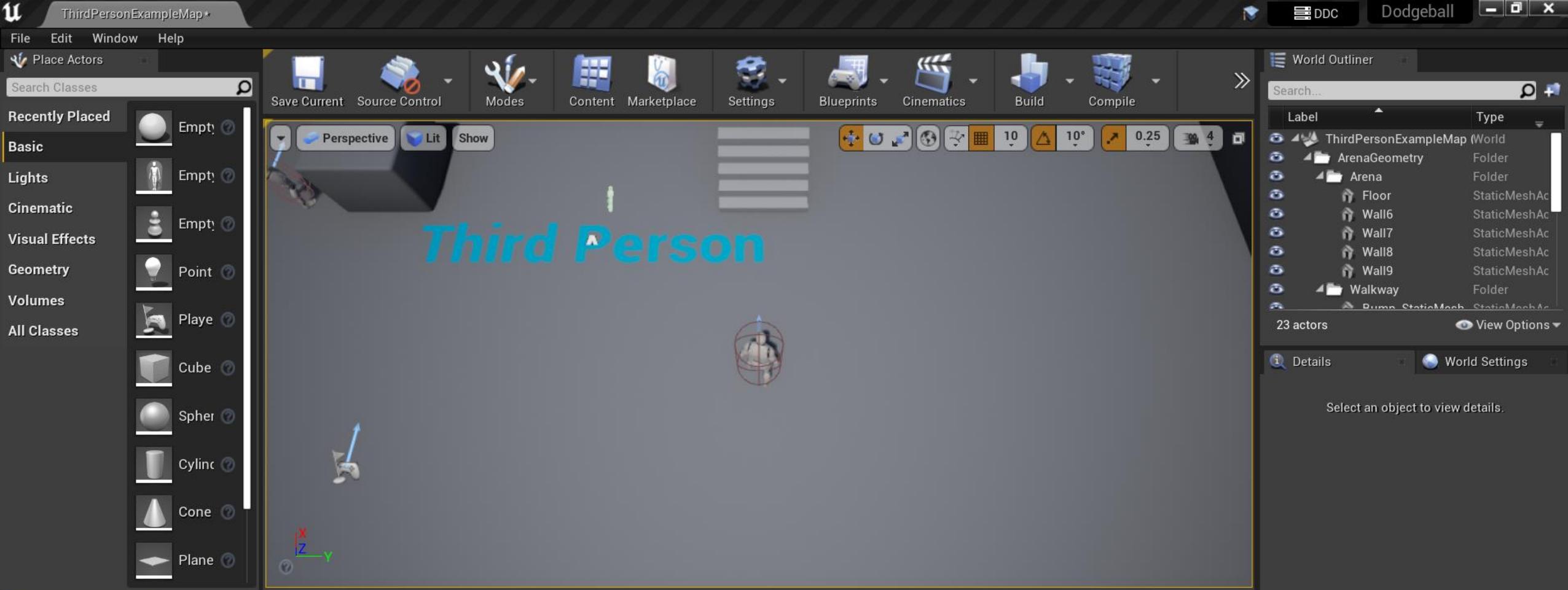
Search Details

You can modify any of your project profiles. Please note that if you modify profile, it can change collision behavior. Please be careful when you change currently existing (used) collision profiles.

New... Edit... Delete...

	Name	Collision	Object Type	Description
	NoCollision	No Collision	WorldStatic	No collision
	BlockAll	Collision Enabled (Query aWorldStatic)	WorldStatic object that blocks all actors by default.	
	OverlapAll	Query Only (No Physics CWorldStatic)	WorldStatic object that overlaps all actors by default.	
	BlockAllDynamic	Collision Enabled (Query aWorldDynamic)	WorldDynamic object that blocks all actors by default.	
	OverlapAllDynamic	Query Only (No Physics CWorldDynamic)	WorldDynamic object that overlaps all actors by default.	
	IgnoreOnlyPawn	Query Only (No Physics CWorldDynamic)	WorldDynamic object that ignores Pawn and Vehicle.	
	OverlapOnlyPawn	Query Only (No Physics CWorldDynamic)	WorldDynamic object that overlaps Pawn, Camera, and Actor.	
	Pawn	Collision Enabled (Query aPawn)	Pawn object. Can be used for capsule of any player or NPC.	
	Spectator	Query Only (No Physics CPawn)	Pawn object that ignores all other actors except WorldStatic.	
	CharacterMesh	Query Only (No Physics CPawn)	Pawn object that is used for Character Mesh. All other components are disabled.	
	PhysicsActor	Collision Enabled (Query aPhysicsBody)	Simulating actors	
	Destructible	Collision Enabled (Query aDestructible)	Destructible actors	
	InvisibleWall	Collision Enabled (Query aWorldStatic)	WorldStatic object that is invisible.	
	InvisibleWallDynamic	Collision Enabled (Query aWorldDynamic)	WorldDynamic object that is invisible.	
	Trigger	Query Only (No Physics CWorldDynamic)	WorldDynamic object that is used for trigger. All other components are disabled.	
	Ragdoll	Collision Enabled (Query aPhysicsBody)	Simulating Skeletal Mesh Component. All other components are disabled.	
	Vehicle	Collision Enabled (Query aVehicle)	Vehicle object that blocks Vehicle, WorldStatic, and WorldDynamic objects.	
	UI	Query Only (No Physics CWorldDynamic)	WorldStatic object that overlaps all actors by default.	
	Dodgeball	Collision Enabled (Query aDodgeball)	Needs description	





The screenshot shows the Content Browser interface. The top bar includes "Add/Import", "Save All", and navigation buttons. The left sidebar shows the Content tree with sections like Content, Geometry, Mannequin, StarterContent, ThirdPerson, and ThirdPersonCPP. The "C++ Classes" section is highlighted with a red box. The main area shows a search bar "Search Dodgeball" and a "Filters" dropdown. Below are icons for Dodgeball Character, Dodgeball GameMode, and Enemy Character. A context menu is open over the Dodgeball GameMode icon, with options: "New Folder", "New C++ Class...", and "New Blueprint Class...". A tooltip says "Create a new class in /Classes_Game/Dodgeball." The bottom status bar shows "3 items" and "View Options".

Right-Click



Choose Parent Class

This will add a C++ header and source code file to your game project.

Show All Classes

None

An empty C++ class with a default constructor and destructor.

Character

A character is a type of Pawn that includes the ability to walk around.

Pawn

A Pawn is an actor that can be 'possessed' and receive input from a controller.

Actor

An Actor is an object that can be placed or spawned in the world.

Actor Component

An ActorComponent is a reusable component that can be added to any actor.

Selected Class

Actor

Selected Class Source

Actor.h



Next >

Create Class

Cancel



Name Your New Actor

Enter a name for your new class. Class names may only contain alphanumeric characters, and may not contain a space.

When you click the "Create" button below, a header (.h) file and a source (.cpp) file will be made using this name.

Name	DodgeballProjectile	Dodgeball (Runtime) ▾	Public	Private
Path	C:/Users/sunje/Desktop/Unreal/Dodgeball/Source/Dodgeball/	Choose Folder		
Header File	C:/Users/sunje/Desktop/Unreal/Dodgeball/Source/Dodgeball/DodgeballProjectile.h			
Source File	C:/Users/sunje/Desktop/Unreal/Dodgeball/Source/Dodgeball/DodgeballProjectile.cpp			



< Back

Create Class

Cancel

서브
템플릿
도구
상자

DodgeballProjectile.cpp ✘ DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp EnemyCharacter.h

```
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3 #include "DodgeballProjectile.h"
4
5 // Sets default values
6 ADodgeballProjectile::ADodgeballProjectile()
7 {
8     // Set this actor to call Tick() every frame. You can turn this off to improve performance if you don't need it.
9     PrimaryActorTick.bCanEverTick = true;
10 }
11
12
13 // Called when the game starts or when spawned
14 void ADodgeballProjectile::BeginPlay()
15 {
16     Super::BeginPlay();
17 }
18
19
20 // Called every frame
21 void ADodgeballProjectile::Tick(float DeltaTime)
22 {
23     Super::Tick(DeltaTime);
24 }
25
26
27
28
```

솔루션 탐색기 🔍 Live Share 🔍

솔루션 탐색기 검색(Ctrl+.)

- 솔루션 'Dodgeball' (2/2개 프로젝트)
 - Engine
 - UE4
 - Games
 - Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Visualizers
 - UE4.natvis

100 % 🔍 문제가 검색되지 않음 🔍 출: 1 문자: 1 혼합 CRLF

솔루션 탐색기 Git 변경 내용 🔍 소스 제어에 추가 🔍

준비

↑ 소스 제어에 추가 🔍

Live Share

DodgeballProjectile.cpp DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp EnemyCharacter.h

```
// Fill out your copyright notice in the Description page of Project Settings.

#pragma once

#include "CoreMinimal.h"
#include "GameFramework/Actor.h"
#include "DodgeballProjectile.generated.h"

UCLASS()
class DODGEBALL_API ADodgeballProjectile : public AActor
{
    GENERATED_BODY()

public:
    // Sets default values for this actor's properties
    ADodgeballProjectile();

protected:
    // Called when the game starts or when spawned
    virtual void BeginPlay() override;

public:
    // Called every frame
    virtual void Tick(float DeltaTime) override;
};

}
```

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+.)

솔루션 탐색기 'Dodgeball' (2/2개 프로젝트)

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파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Live Share

DodgeballProjectile.cpp DodgeballProjectile.h* DefaultEngine.ini EnemyCharacter.cpp EnemyCharacter.h

```
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3 #pragma once
4
5 #include "CoreMinimal.h"
6 #include "GameFramework/Actor.h"
7 #include "DodgeballProjectile.generated.h"
8
9 UCLASS()
10 class DODGEBALL_API ADodgeballProjectile : public AActor
11 {
12     GENERATED_BODY()
13
14     private:
15         UPROPERTY(VisibleAnywhere, BlueprintReadOnly, Category = Dodgeball, meta = (AllowPrivateAccess = "true"))
16         class USphereComponent* SphereComponent;
17
18     public:
19         // Sets default values for this actor's properties
20         ADodgeballProjectile();
21
22     protected:
23         // Called when the game starts or when spawned
24         virtual void BeginPlay() override;
25
26     public:
27         // Called every frame
28         virtual void Tick(float DeltaTime) override;
29     };
30
31 }
```

Ctrl+S

슬루션 탐색기

슬루션 탐색기 검색(Ctrl+.)

슬루션 탐색기 'Dodgeball' (2/2개 프로젝트)

- Engine
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 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject
 - Visualizers
 - UE4.natvis

준비

문제가 검색되지 않음

출: 16 문자: 42 열: 45 템 CRLF

소스 제어에 추가

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Develop Win64 로컬 Windows 디버거 Live Share

DodgeballProjectile.cpp* DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp EnemyCharacter.h

Dodgeball // Fill out your copyright notice in the Description page of Project Settings.

#include "DodgeballProjectile.h"
[#include "Components/SphereComponent.h"]
// Sets default values
ADodgeballProjectile::ADodgeballProjectile()
{
 // Set this actor to call Tick() every frame. You can turn this off to improve performance if you don't need it.
 PrimaryActorTick.bCanEverTick = true;

 SphereComponent = CreateDefaultSubobject<USphereComponent>(TEXT("Sphere Collision"));
 SphereComponent->SetSphereRadius(35.f);
 SphereComponent->SetCollisionProfileName(FName("Dodgeball"));
 SphereComponent->SetSimulatePhysics(true);
 //Simulation generates Hit events
 SphereComponent->SetNotifyRigidBodyCollision(true);
}

// Called when the game starts or when spawned
void ADodgeballProjectile::BeginPlay()
{
 Super::BeginPlay();
}

// Called every frame
void ADodgeballProjectile::Tick(float DeltaTime)
{
 Super::Tick(DeltaTime);
}

Ctrl+S

100 % 문제가 검색되지 않음 줄: 18 문자: 53 열: 56 혼합 CRLF

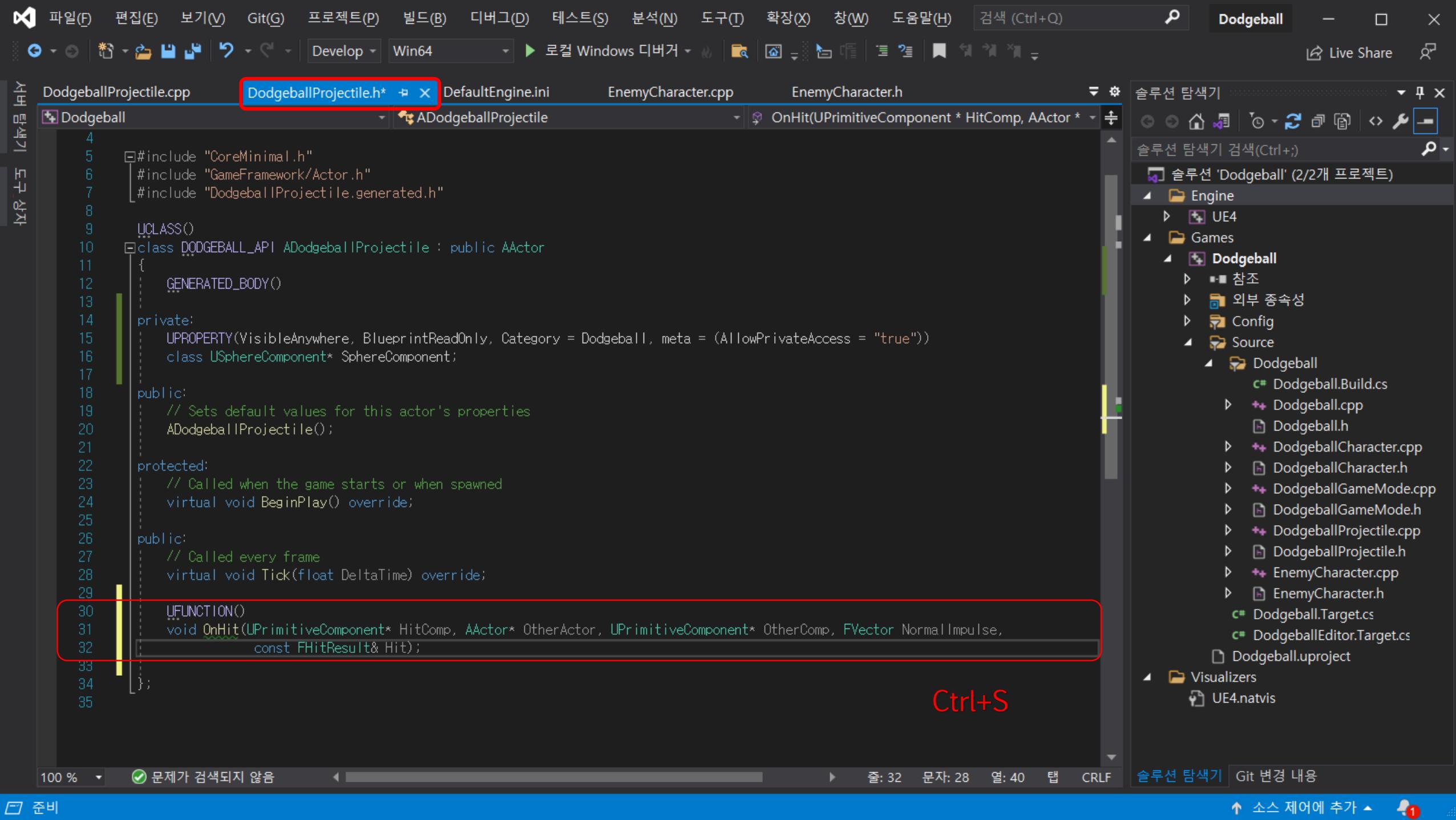
솔루션 탐색기

솔루션 탐색기 검색(Ctrl+.)

솔루션 'Dodgeball' (2/2개 프로젝트)

Engine UE4 Games Dodgeball 참조 외부 종속성 Config Source Dodgeball Dodgeball.Build.cs Dodgeball.cpp Dodgeball.h DodgeballCharacter.cpp DodgeballCharacter.h DodgeballGameMode.cpp DodgeballGameMode.h DodgeballProjectile.cpp DodgeballProjectile.h EnemyCharacter.cpp EnemyCharacter.h Dodgeball.Target.cs DodgeballEditor.Target.cs Dodgeball.uproject Visualizers UE4.natvis

저장되었습니다. ↑ 소스 제어에 추가 ↗



파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Live Share

DodgeballProjectile.cpp* DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp EnemyCharacter.h

Dodgeball

```
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3
4 #include "DodgeballProjectile.h"
5 #include "Components/SphereComponent.h"
6 #include "DodgeballCharacter.h"
7
8 // Sets default values
9 ADodgeballProjectile::ADodgeballProjectile()
10 {
11     // Set this actor to call Tick() every frame. You can turn this off to improve performance if you don't need it.
12     PrimaryActorTick.bCanEverTick = true;
13
14     SphereComponent = CreateDefaultSubobject(TEXT("Sphere Collision"));
15     SphereComponent->SetSphereRadius(35.f);
16     SphereComponent->SetCollisionProfileName(FName("Dodgeball"));
17     SphereComponent->SetSimulatePhysics(true);
18     //Simulation generates Hit events
19     SphereComponent->SetNotifyRigidBodyCollision(true);
20
21     // Listen to the OnComponentHit event by binding it to our function
22     SphereComponent->OnComponentHit.AddDynamic(this, &ADodgeballProjectile::OnHit);
23
24     // Set this Sphere Component as the root component,
25     // otherwise collision won't behave properly
26     RootComponent = SphereComponent;
27 }
28
29 // Called when the game starts or when spawned
30 void ADodgeballProjectile::BeginPlay()
31 {
32     Super::BeginPlay();
33 }
34
35
```

슬루션 탐색기

슬루션 탐색기 검색(Ctrl+.)

- 슬루션 'Dodgeball' (2/2개 프로젝트)
 - Engine
 - UE4
 - Games
 - Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject
 - Visualizers
 - UE4.natvis

준비

문제가 검색되지 않음

줄: 47 문자: 13 열: 19 혼합 CRLF

슬루션 탐색기 Git 변경 내용

↑ 소스 제어에 추가 ▲

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Live Share

DodgeballProjectile.cpp* DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp EnemyCharacter.h

```
19     SphereComponent->SetNotifyRigidBodyCollision(true);  
20  
21     // Listen to the OnComponentHit event by binding it to our function  
22     SphereComponent->OnComponentHit.AddDynamic(this, &ADodgeballProjectile::OnHit);  
23  
24     // Set this Sphere Component as the root component,  
25     // otherwise collision won't behave properly  
26     RootComponent = SphereComponent;  
27 }  
28  
29     // Called when the game starts or when spawned  
30 void ADodgeballProjectile::BeginPlay()  
31 {  
32     Super::BeginPlay();  
33 }  
34  
35  
36     // Called every frame  
37 void ADodgeballProjectile::Tick(float DeltaTime)  
38 {  
39     Super::Tick(DeltaTime);  
40 }  
41  
42  
43 void ADodgeballProjectile::OnHit(UPrimitiveComponent* HitComp, AActor* OtherActor, UPrimitiveComponent* OtherComp,  
44 FVector NormalImpulse, const FHitResult& Hit)  
45 {  
46     if (Cast<ADodgeballCharacter>(OtherActor) != nullptr) {  
47         Destroy();  
48     }  
49 }
```

Ctrl+S

슬루션 탐색기

슬루션 탐색기 검색(Ctrl+Shift+F)

슬루션 탐색기 'Dodgeball' (2/2개 프로젝트)

- Engine
- Games
- Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject
 - Visualizers
 - UE4.natvis

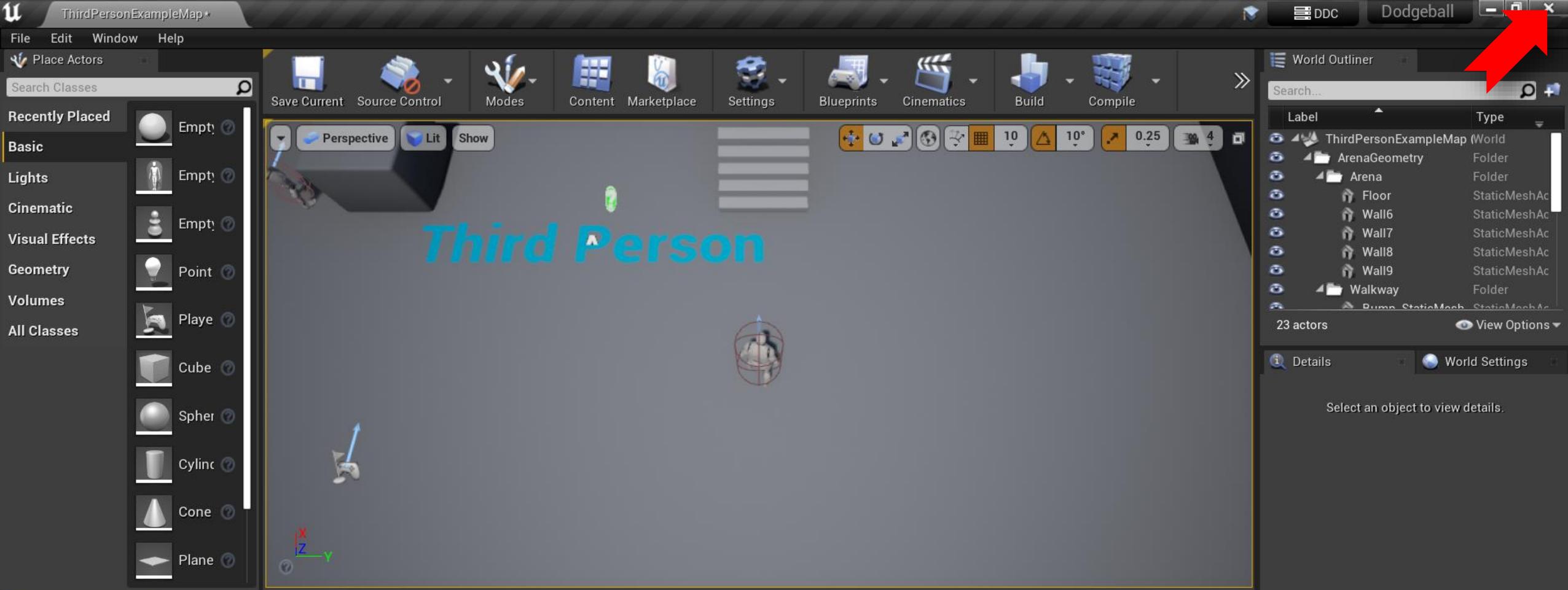
준비

문제가 검색되지 않음

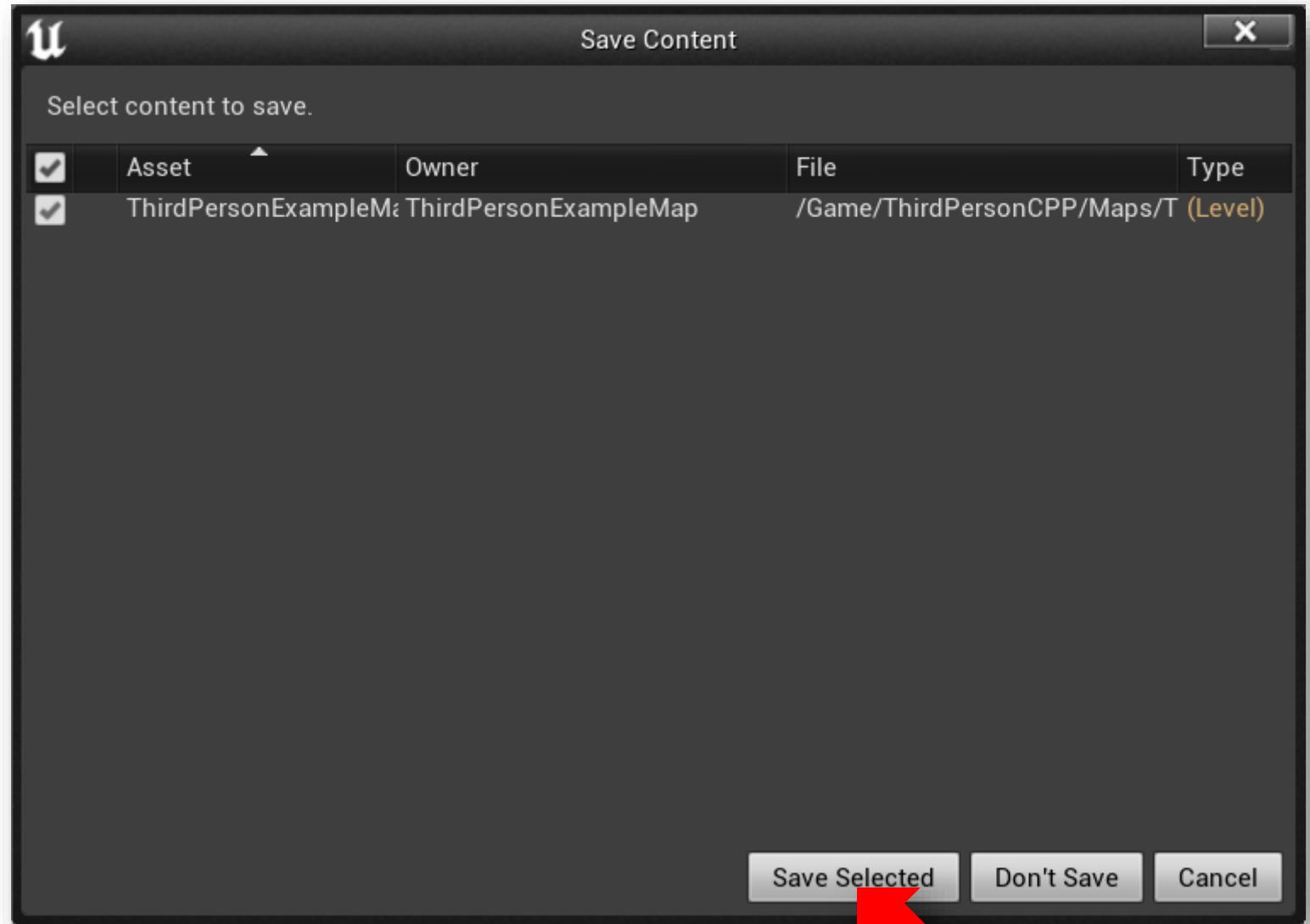
줄: 47 문자: 13 열: 19 혼합 CRLF

슬루션 탐색기 Git 변경 내용

↑ 소스 제어에 추가 ▲



The Content Browser is open at the bottom of the screen. The top bar shows "Add/Import", "Save All", and "C++ Classes" for the project "Dodgeball". The left sidebar shows the "Content" tree with folders for Geometry, Mannequin, StarterContent, ThirdPerson, and sub-folders for ThirdPersonCPP, Blueprints, and Maps. The "C++ Classes" tab is selected, showing "Dodgeball" as the active class. The main area displays four assets: "Dodgeball Character" (a mannequin), "Dodgeball GameMode" (a game controller icon), "Dodgeball Projectile" (a white sphere), and "Enemy Character" (a mannequin). A search bar at the top of the browser says "Search Dodgeball". The bottom right of the browser says "View Options".



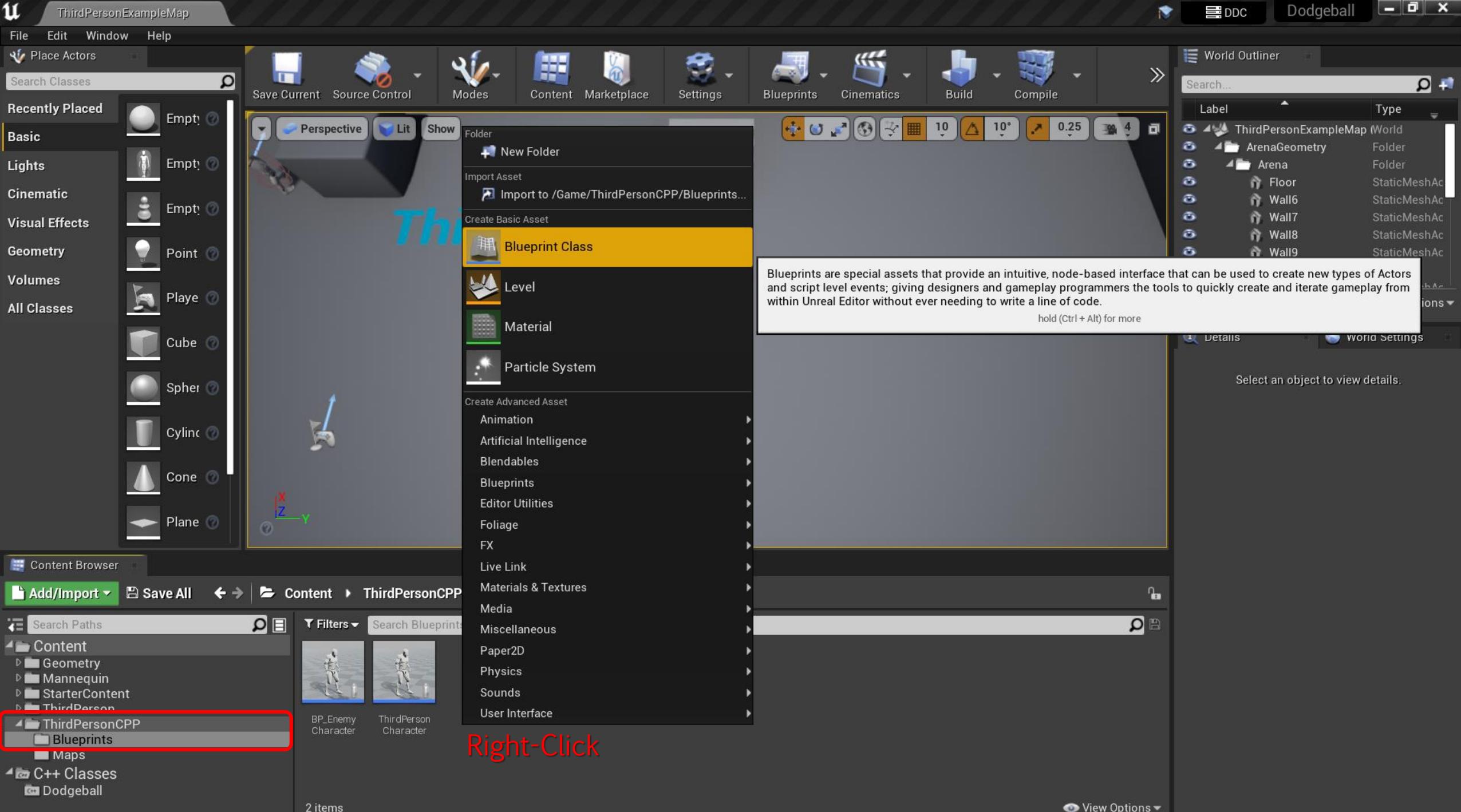
DodgeballProjectile.cpp DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.h

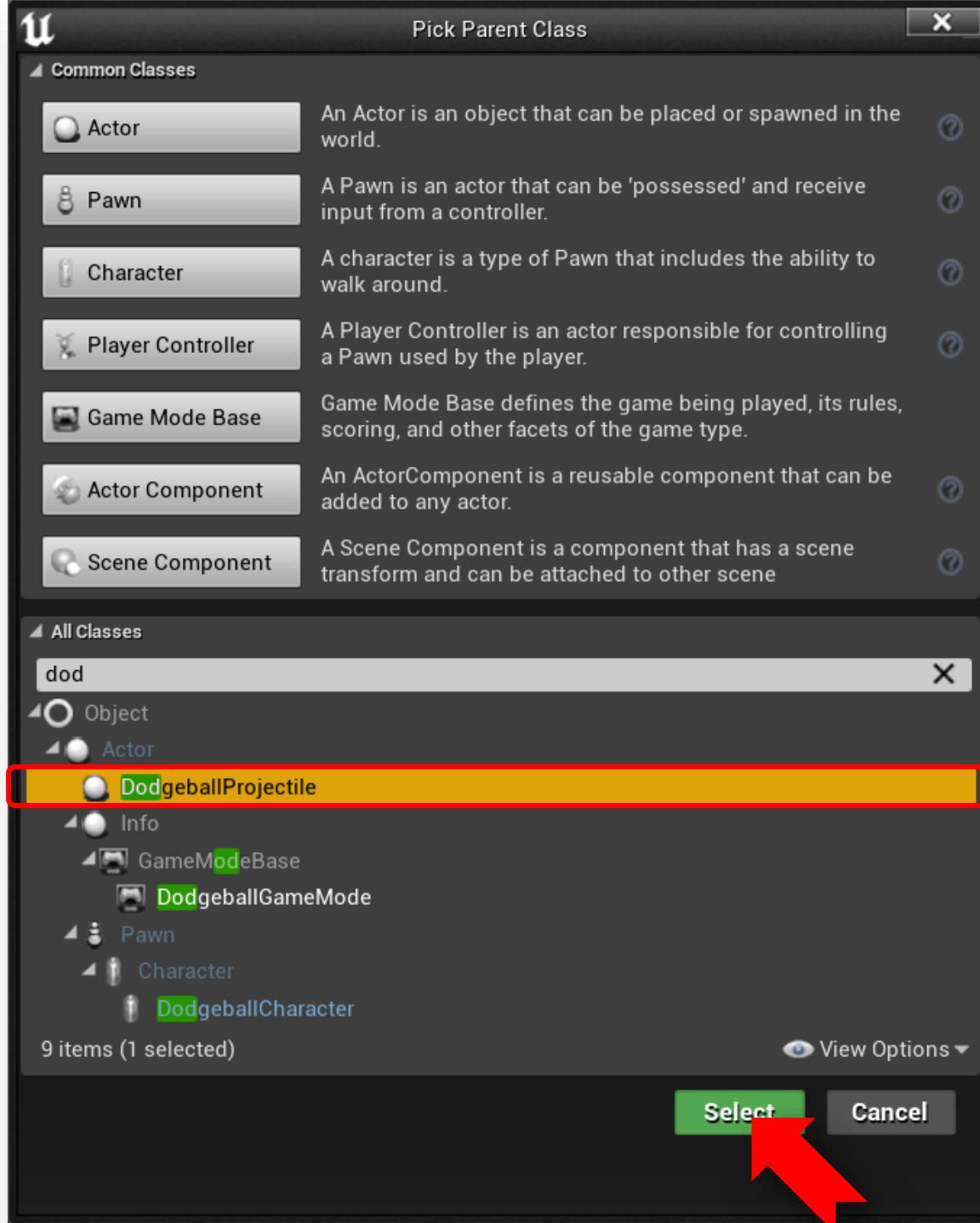
```
19     SphereComponent->SetNotifyRigidBodyCollision(true);
20
21     // Listen to the OnComponentHit event by binding it to our function
22     SphereComponent->OnComponentHit.AddDynamic(this, &ADodgeballProjectile::OnHit);
23
24     // Set this Sphere Component as the root component,
25     // otherwise collision won't behave properly
26     RootComponent = SphereComponent;
27 }
28
29 // Called when the game starts or when spawned
30 void ADodgeballProjectile::BeginPlay()
31 {
32     Super::BeginPlay();
33 }
34
35
36 // Called every frame
37 void ADodgeballProjectile::Tick(float DeltaTime)
38 {
39     Super::Tick(DeltaTime);
40 }
41
42
43 void ADodgeballProjectile::OnHit(UPrimitiveComponent* HitComp, AActor* OtherActor, UPrimitiveComponent* OtherComp,
44                                 FVector NormalImpulse, const FHitResult& Hit)
45 {
46     if (Cast<ADodgeballCharacter>(OtherActor) != nullptr) {
47         Destroy();
48     }
49 }
```

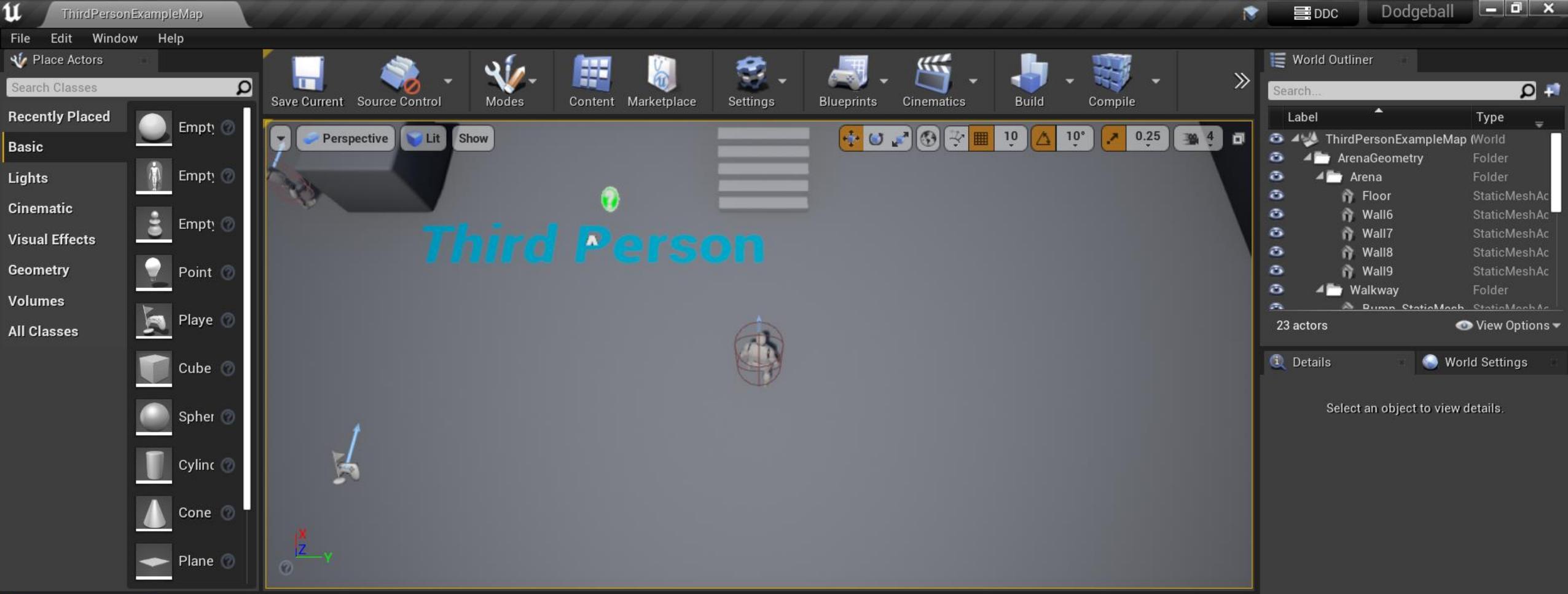
솔루션 탐색기

솔루션 탐색기 검색(Ctrl+Shift+F)

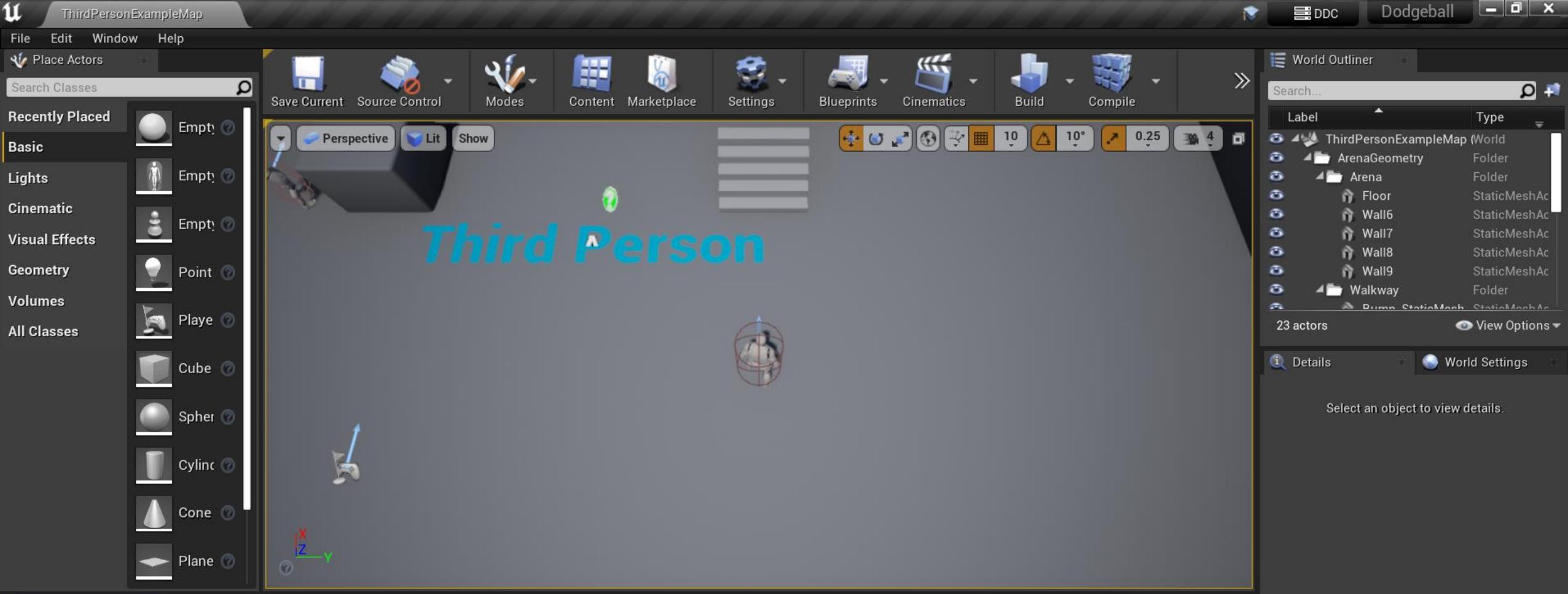
- 솔루션 'Dodgeball' (2/2개 프로젝트)
 - Engine
 - UE4
 - Games
 - Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject
 - Visualizers
 - UE4.natvis







The screenshot shows the Content Browser interface. The top bar includes "Add/Import", "Save All", and navigation buttons. The path is set to "Content > ThirdPersonCPP > Blueprints". The left sidebar shows the project structure with "Content" expanded, showing "Geometry", "Mannequin", "StarterContent", "ThirdPerson", and "ThirdPersonCPP" (which is selected). Inside "ThirdPersonCPP", there are "Blueprints" and "Maps". The bottom sidebar shows "C++ Classes" and "Dodgeball". The main area displays a search results list for "Blueprints". It shows three items: "BP_EnemyCharacter" (selected and highlighted with a red dashed border), "NewBlueprint" (highlighted with a red dashed border), and "ThirdPersonCharacter". A search bar at the top of the list area contains the text "Search Blueprints". The status bar at the bottom left says "3 items (1 selected)".



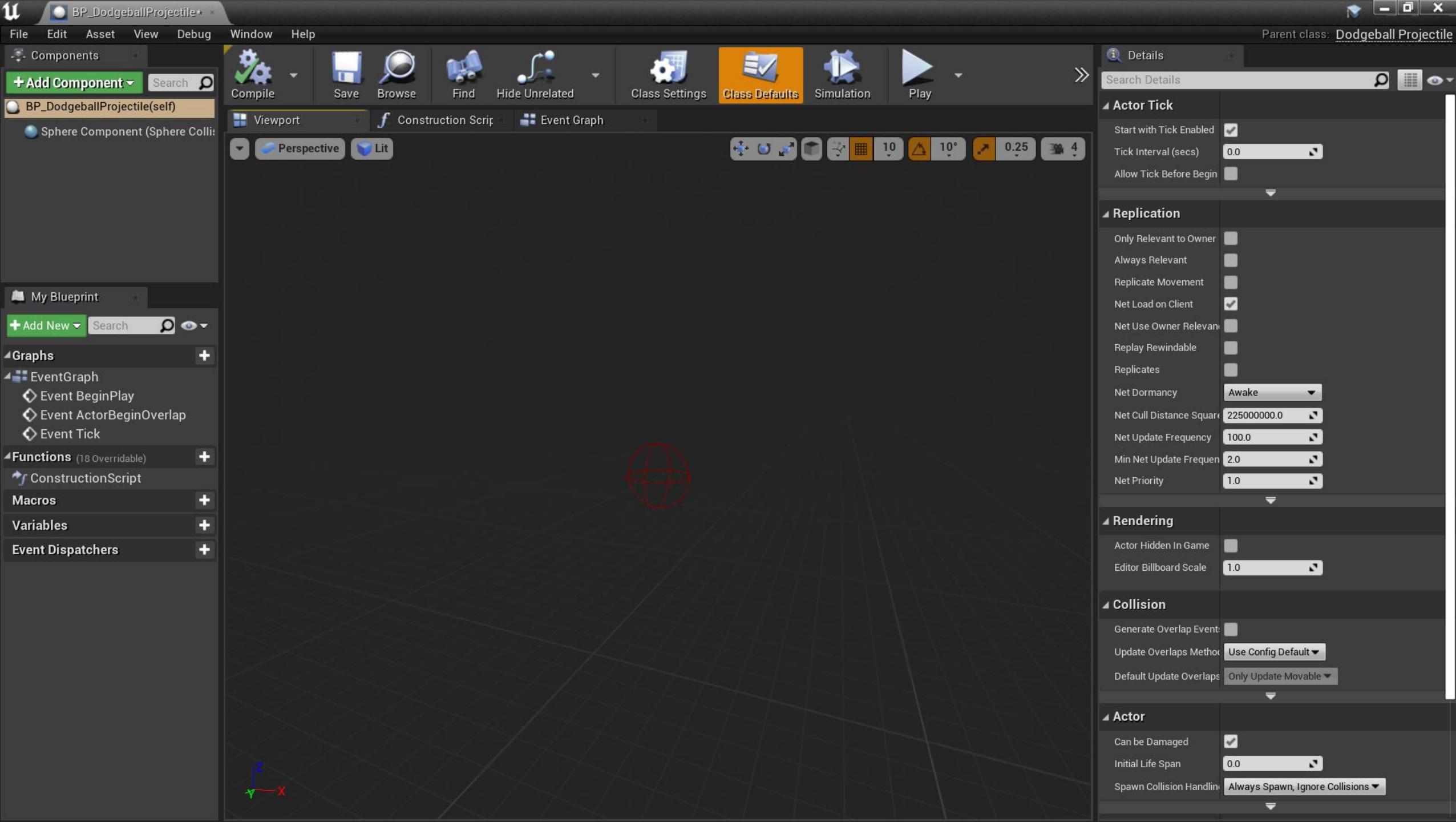
Add/Import Save All Content > ThirdPersonCPP > Blueprints

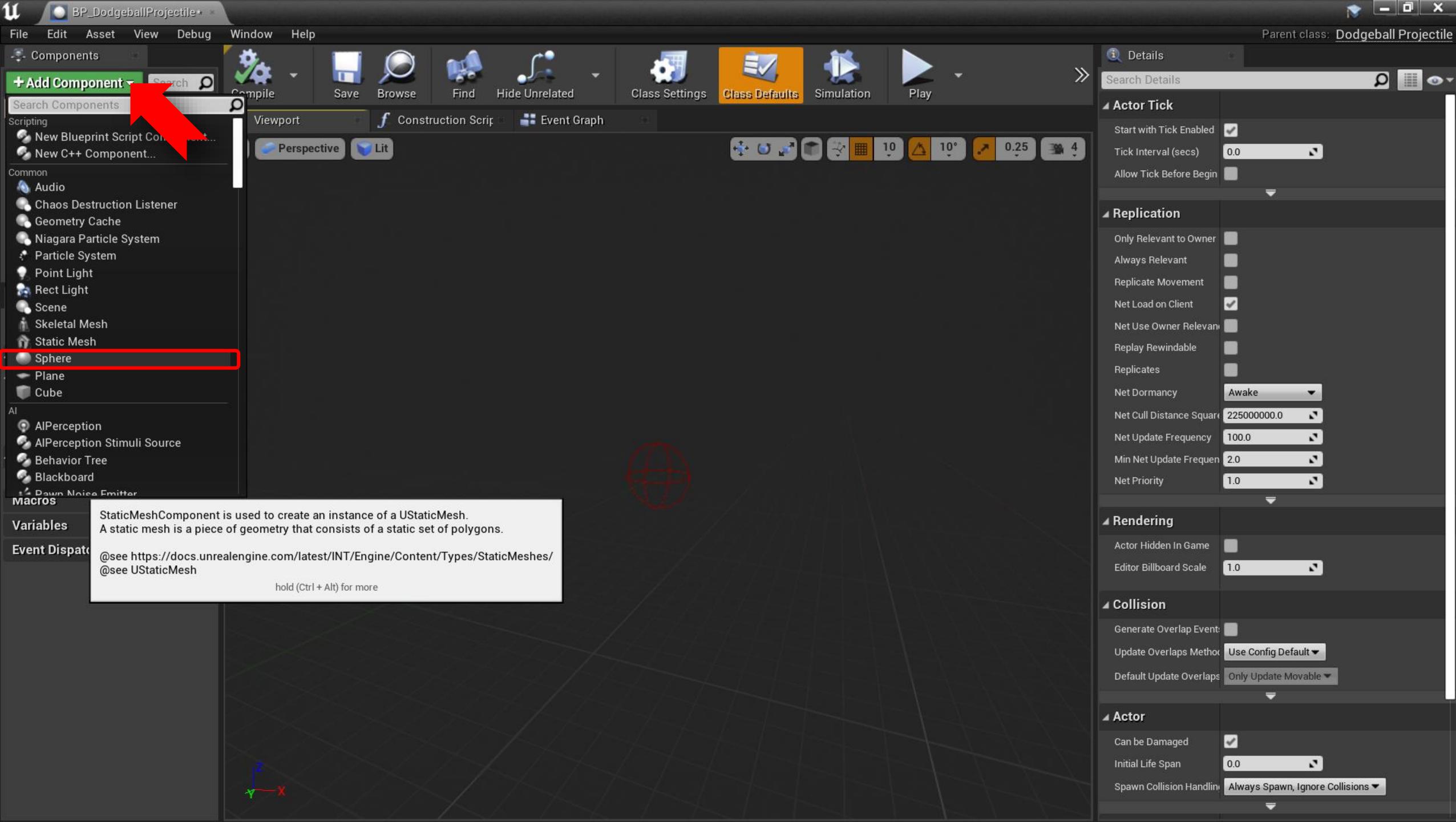
Filters Search Blueprint

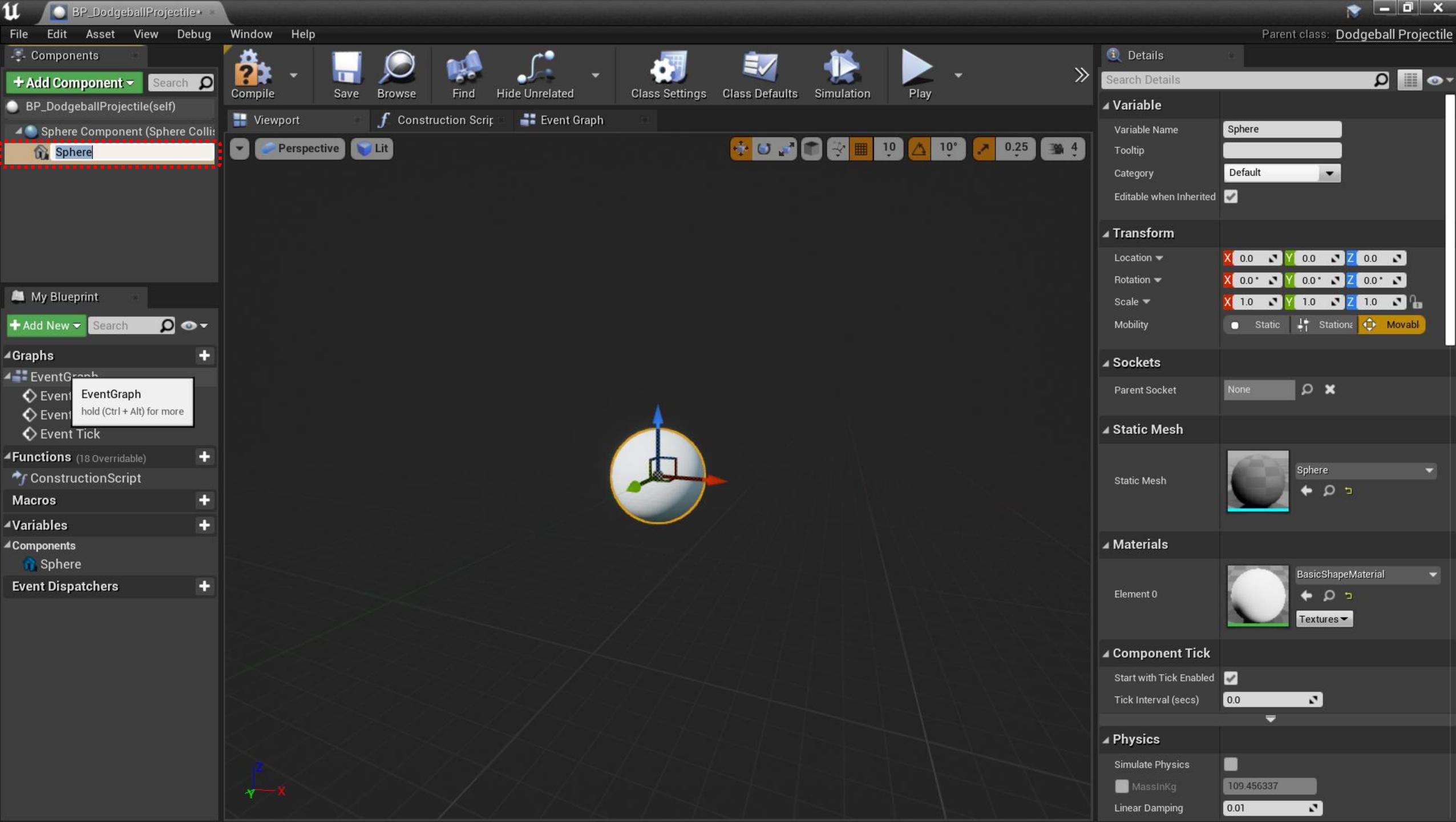
Content Geometry Mannequin StarterContent ThirdPerson ThirdPersonCPP Blueprints Maps

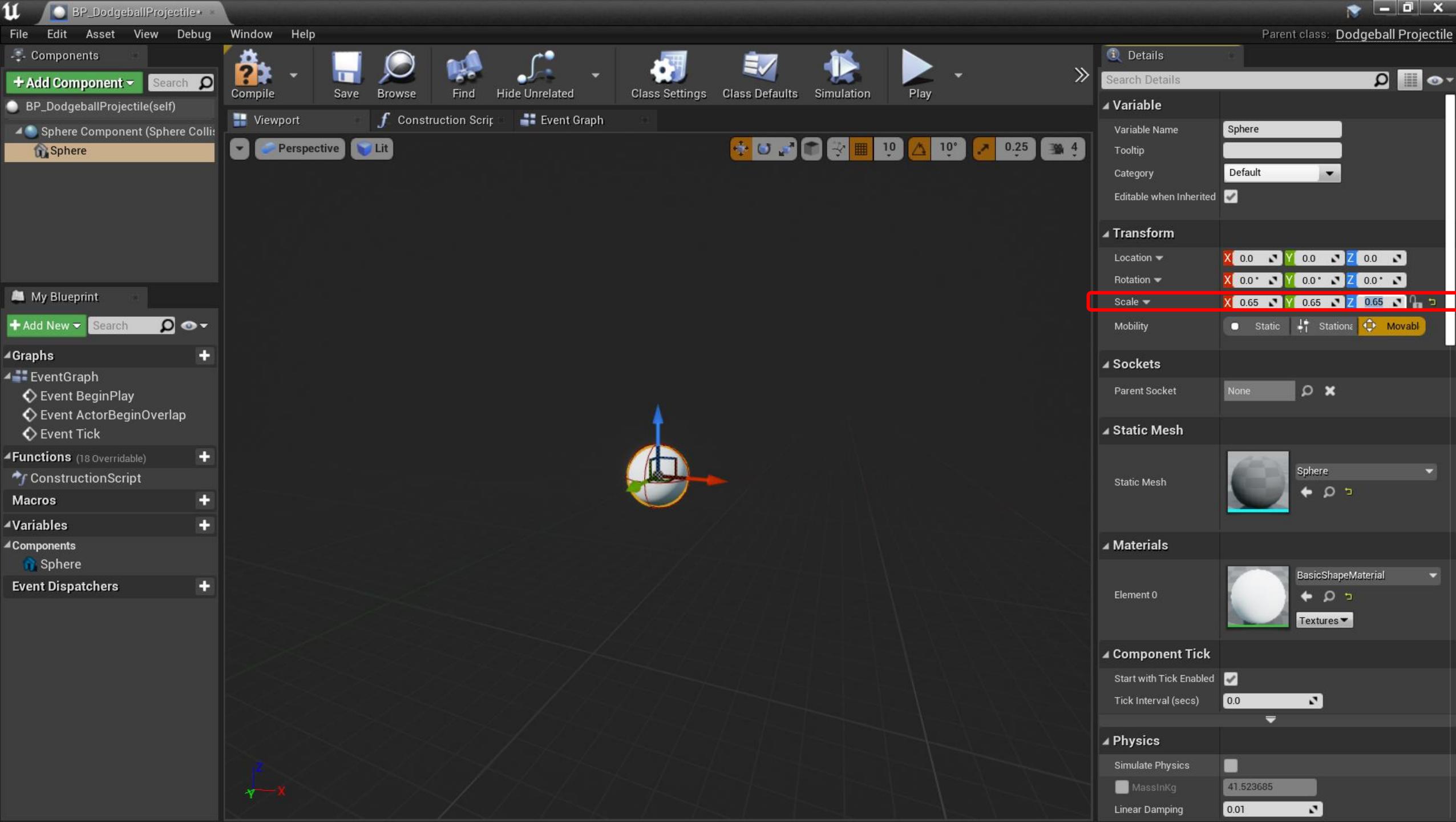
C++ Classes Dodgeball

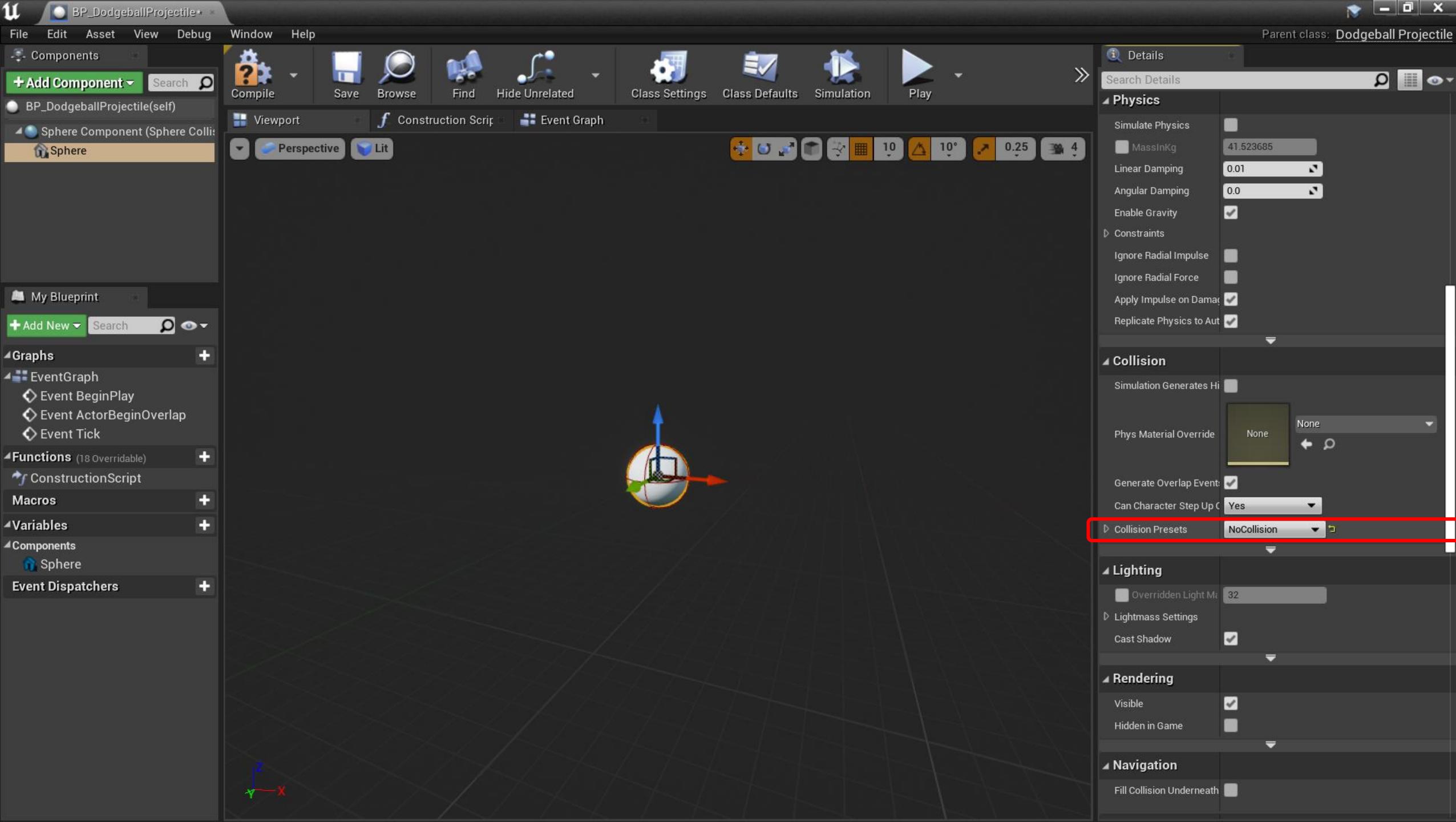
3 items (1 selected) View Options

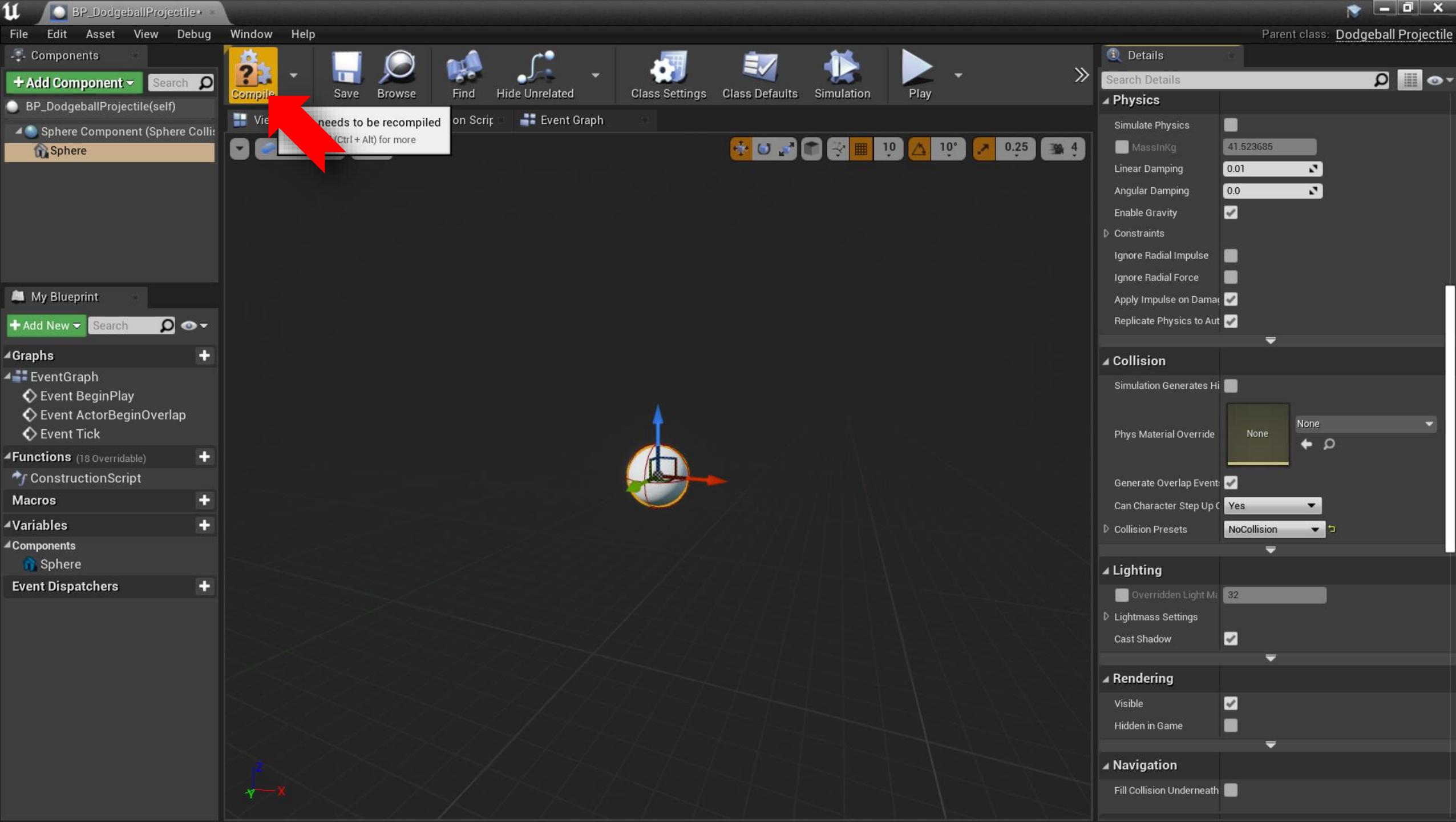


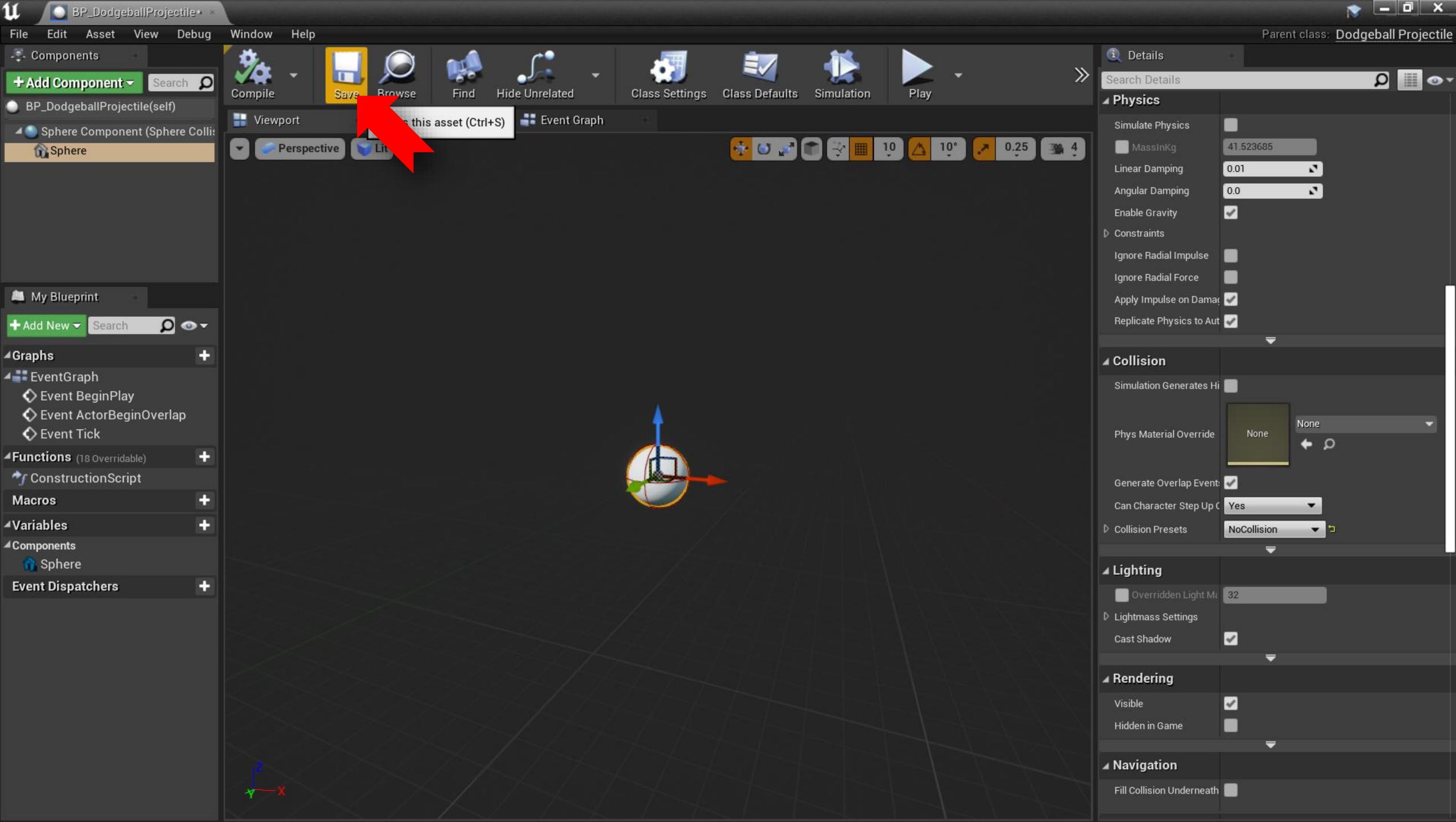


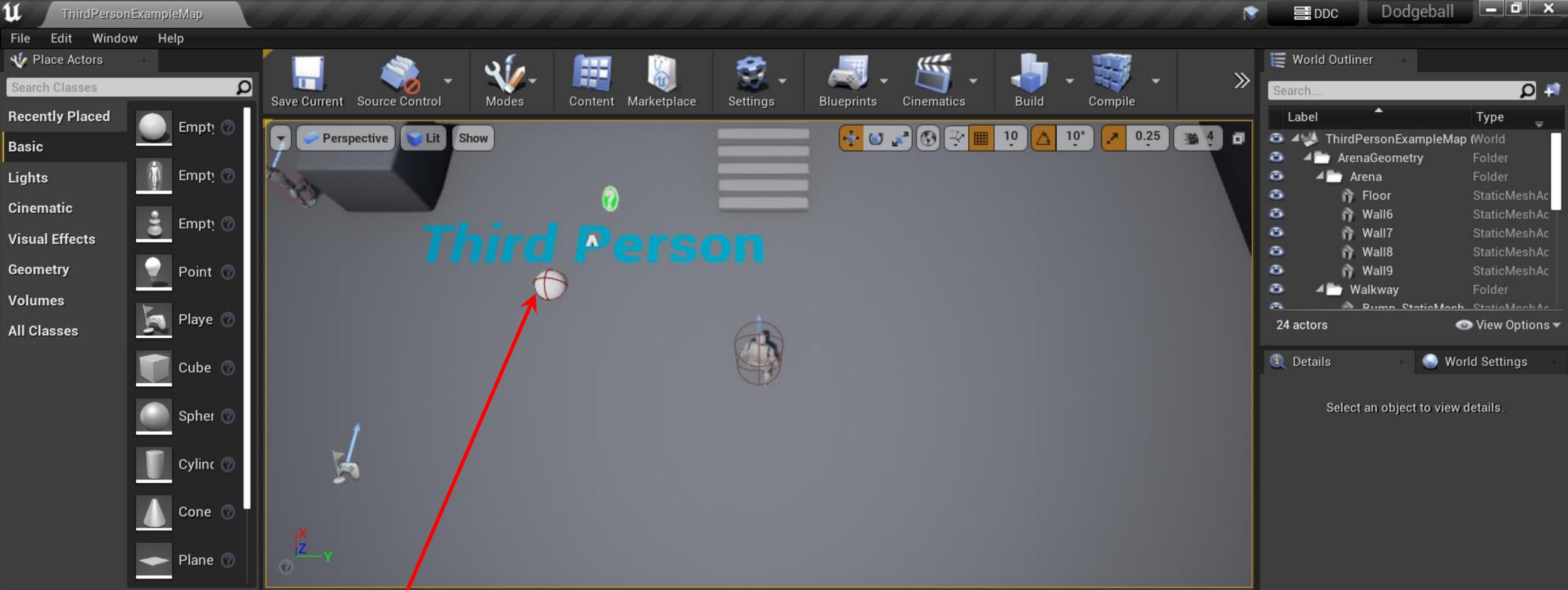




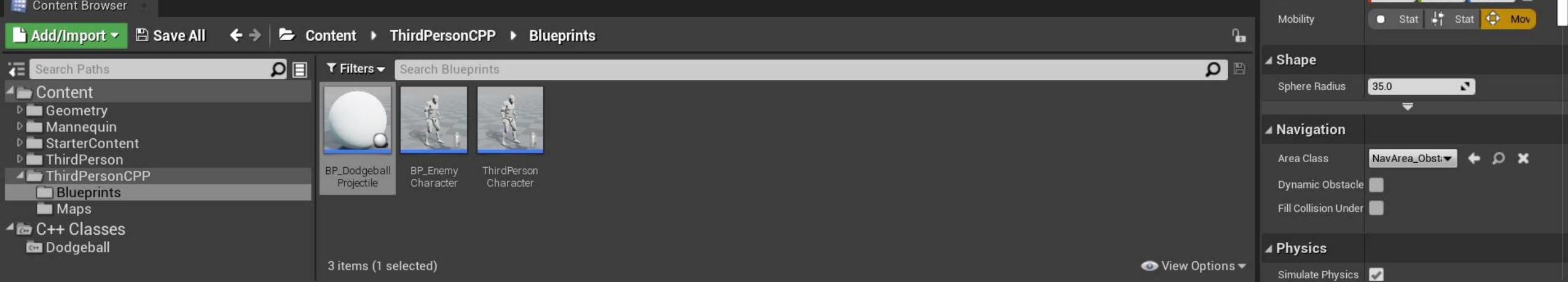
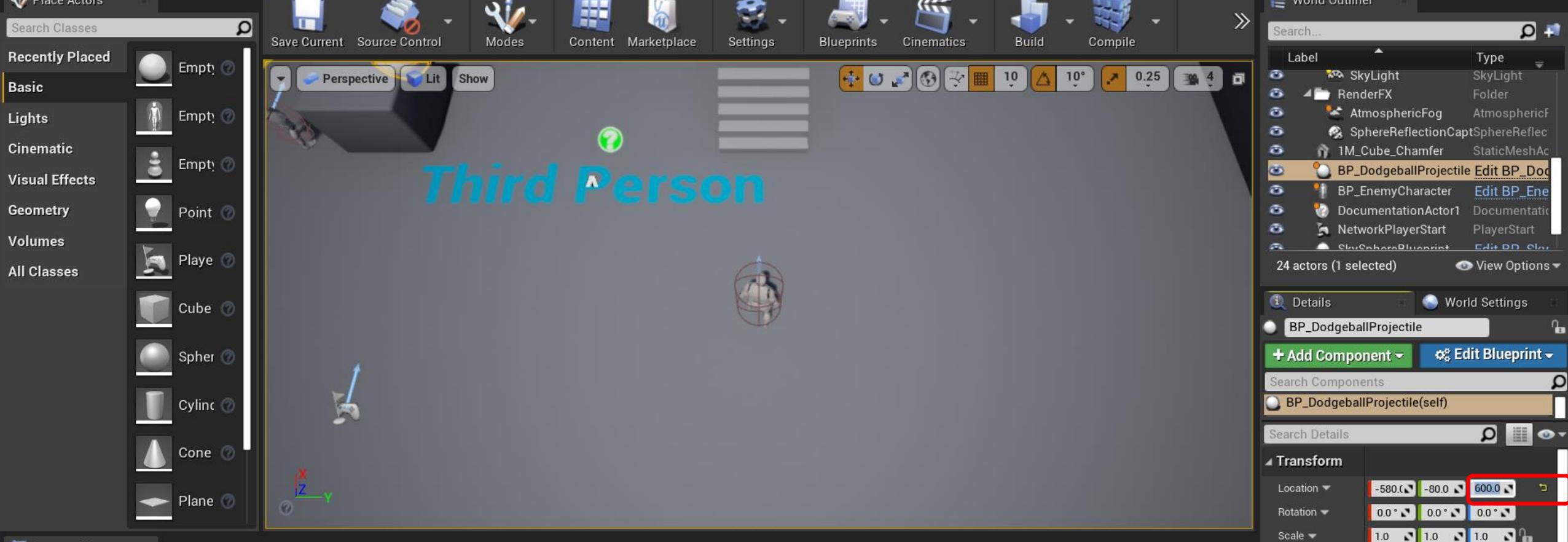
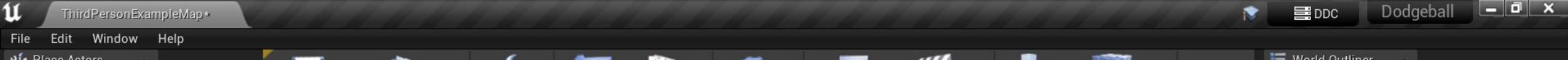


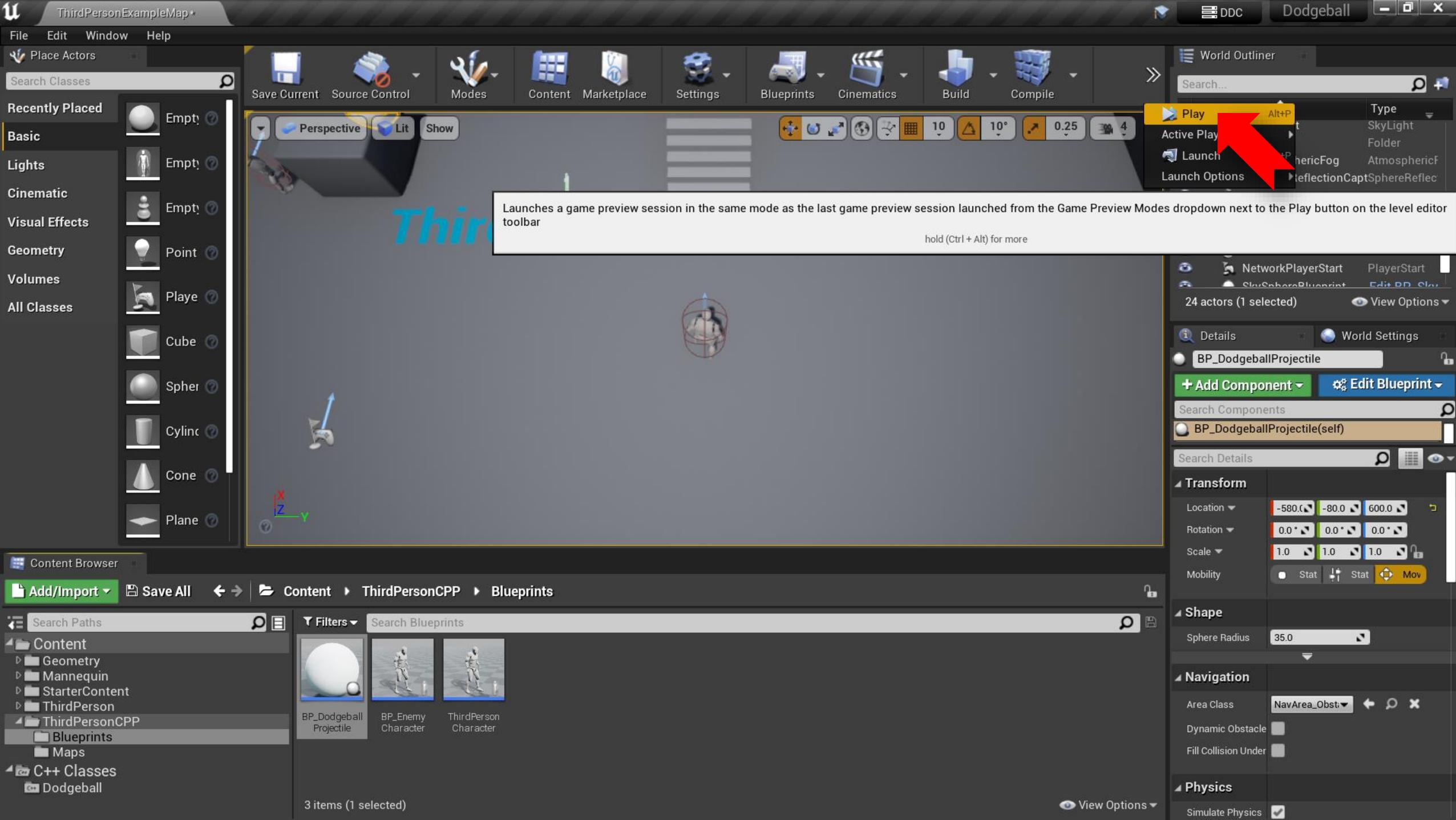


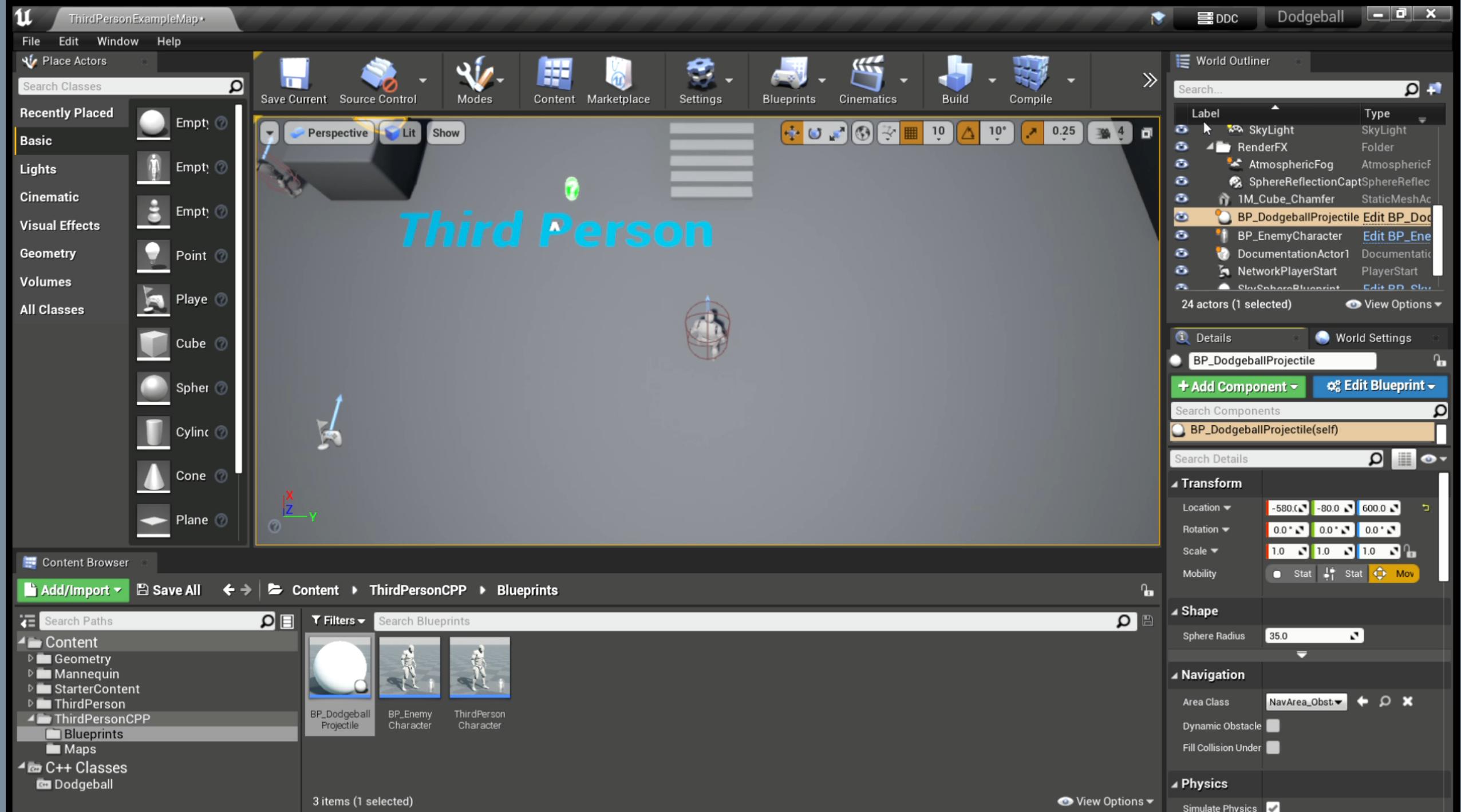




The screenshot shows the "Content Browser" panel of the Unreal Engine 4 Editor. The top bar includes "Add/Import", "Save All", and navigation buttons. The main area displays the "Content" tree and a list of selected items. The "Filters" dropdown is set to "Search Blueprints". The "Content" tree shows "Content" (Geometry, Mannequin, StarterContent, ThirdPerson, ThirdPersonCPP (Blueprints, Maps)). The "Blueprints" folder under "ThirdPersonCPP" contains three items: "BP_Dodgeball Projectile", "BP_Enemy Character", and "ThirdPerson Character". The status bar at the bottom indicates "3 items (1 selected)".





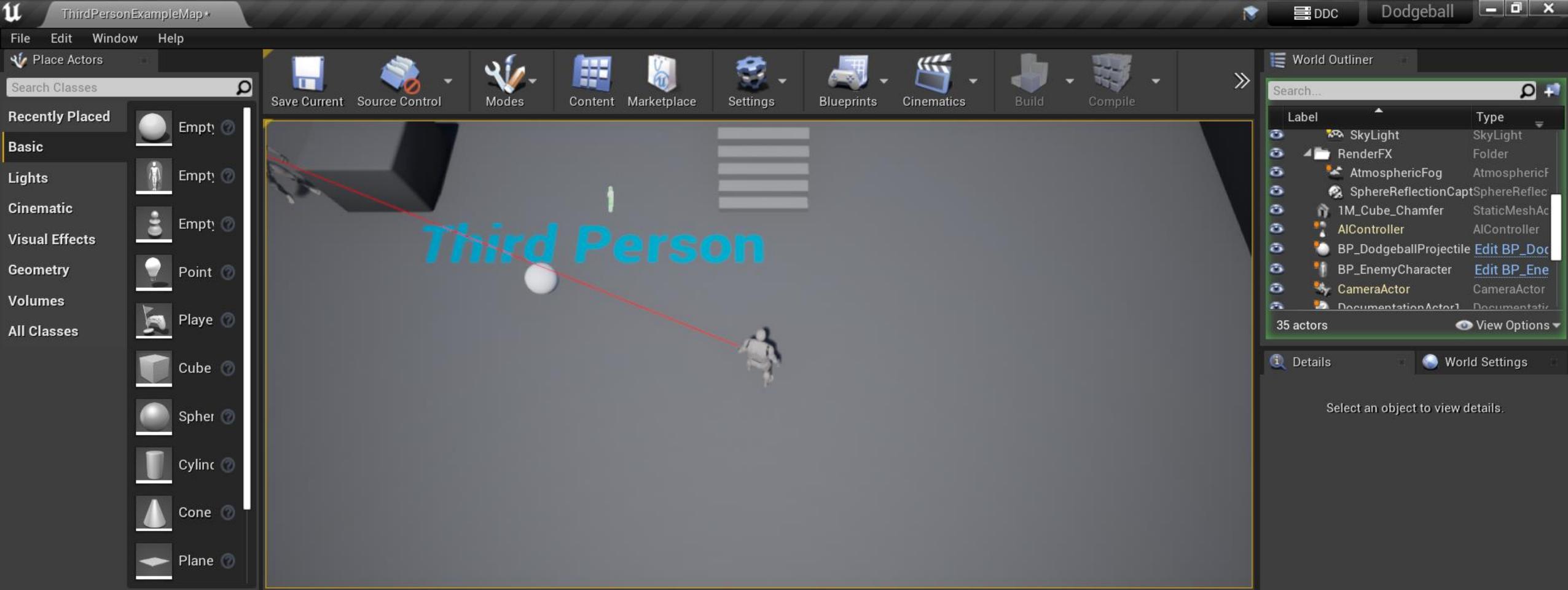




Physical Materials

› How an object behaves while simulating physics

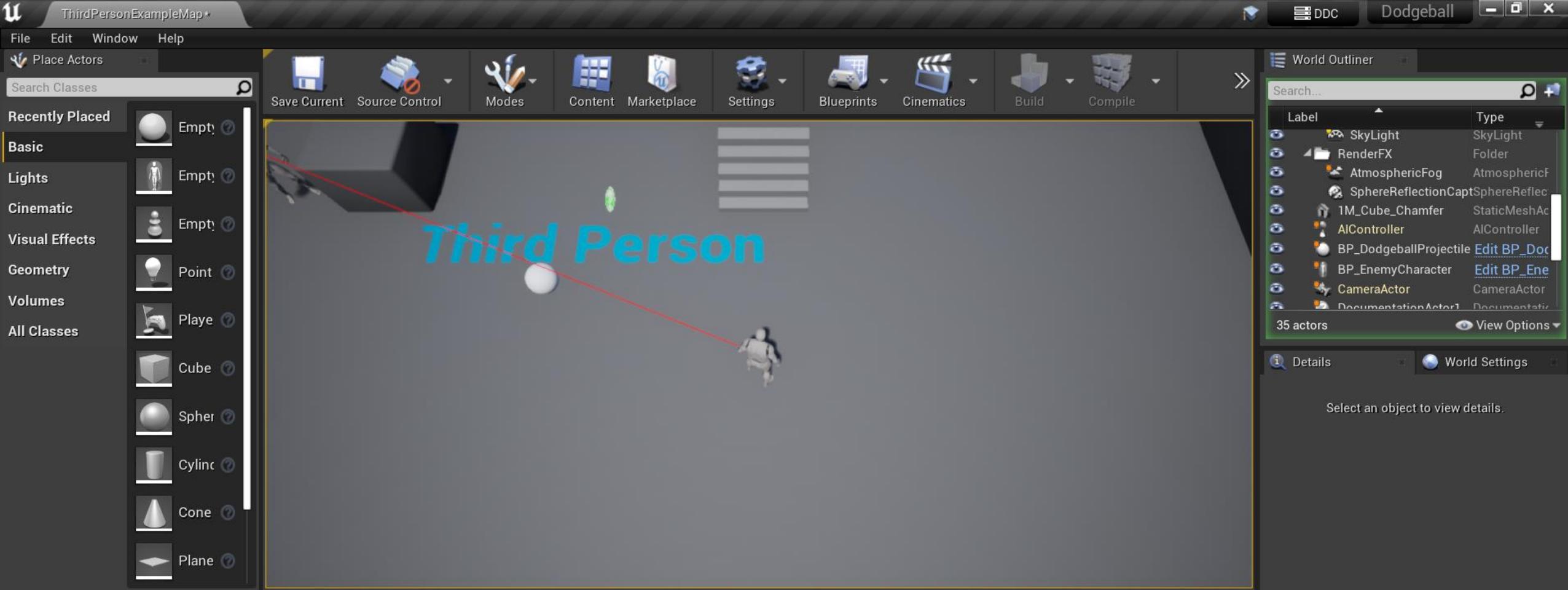
The screenshot shows the Unreal Engine Content Browser interface. A context menu is open in the center of the screen, with the option "New Folder" highlighted by a yellow box and a red arrow pointing to it from the bottom-left. The menu also includes options like "Add Feature or Content Pack...", "Folder", "Import Asset", "Import to /Game...", "Create Basic Asset" (with sub-options for Blueprint Class, Level, Material, and Particle System), and "Create Advanced Asset" (with sub-options for Animation, Artificial Intelligence, Blendables, Blueprints, and Content). The main Content Browser area displays a scene with a large blue sphere labeled "Third Person" and a small character model. The left sidebar lists categories such as Cinematic, Visual Effects, Geometry, Volumes, All Classes, Content Browser, Add/Import (which has a red arrow pointing to it from the bottom-left), and a search bar. The bottom navigation bar includes tabs for Content, Geometry, Mannequin, StarterContent, ThirdPerson, and ThirdPersonCPP.



The Content Browser panel at the bottom of the screen displays the project structure under the "Content" category. The tree view shows the following hierarchy:

- Content
 - Geometry
 - Mannequin
 - StarterContent
 - ThirdPerson
 - ThirdPersonCPP
 - Blueprints
 - Maps
- C++ Classes
 - Dodgeball

The "NewFolder" item is highlighted with a red dashed box. The main content area shows five folder icons labeled "Geometry", "Mannequin", "StarterContent", "ThirdPerson", and "ThirdPerson CPP". The status bar at the bottom indicates "6 items (1 selected)" and "View Options".



The screenshot shows the Content Browser at the bottom of the interface. It has tabs for "Content", "C++ Classes", and "Dodgeball". The "Content" tab is active, displaying a tree view of project assets under "Content". A folder named "Physics" is highlighted with a red box. The Content Browser also features a search bar and filter options. Below the tree view, there are several grayed-out asset thumbnails and the text "6 items (1 selected)".

ThirdPersonExampleMap • DDC Dodgeball

File Edit Window Help

Place Actors

Search Classes

Recently Placed

Basic

Lights

Cinematic

Visual Effects

Geometry

Volumes

All Classes

Content Browser

Add/Import Save All Content Physics

Content Paths Filters Search

Content Geometry Mannequin Physics StarterContent ThirdPerson ThirdPersonCPP Blueprints Maps C++ Classes Dodgeball

Save Current Source Control Modes Content Marketplace Settings Blueprints Cinematics Build Compile

World Outliner

Search...

Label Type

- SkyLight SkyLight
- RenderFX Folder
- AtmosphericFog AtmosphericF
- SphereReflectionCapt SphereReflectionCapt
- 1M_Cube_Chamfer StaticMeshActor
- AIController AIController
- BP_DodgeballProjectile Edit BP_DodgeballProjectile
- BP_EnemyCharacter Edit BP_EnemyCharacter
- CameraActor CameraActor
- DocumentationActor DocumentationActor

35 actors View Options

Details World Settings

Select an object to view details.

Right-Click

Chaos Physical Material

Chaos Solver

Geometry Collection

Geometry Collection Cache

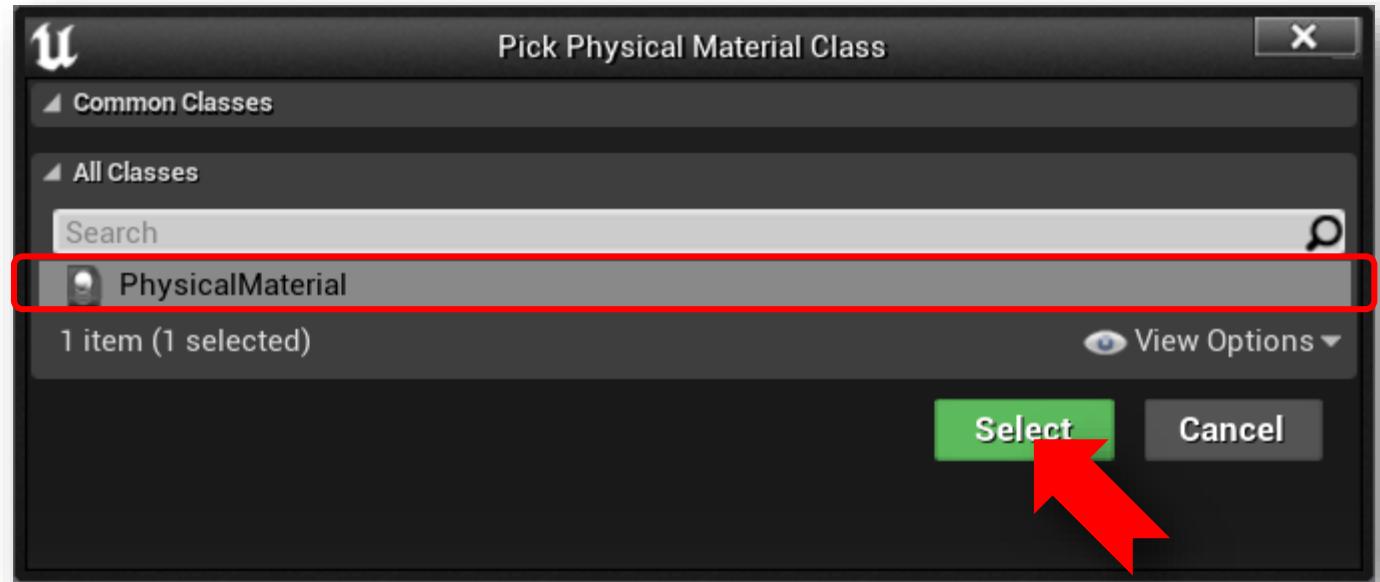
Physical Material

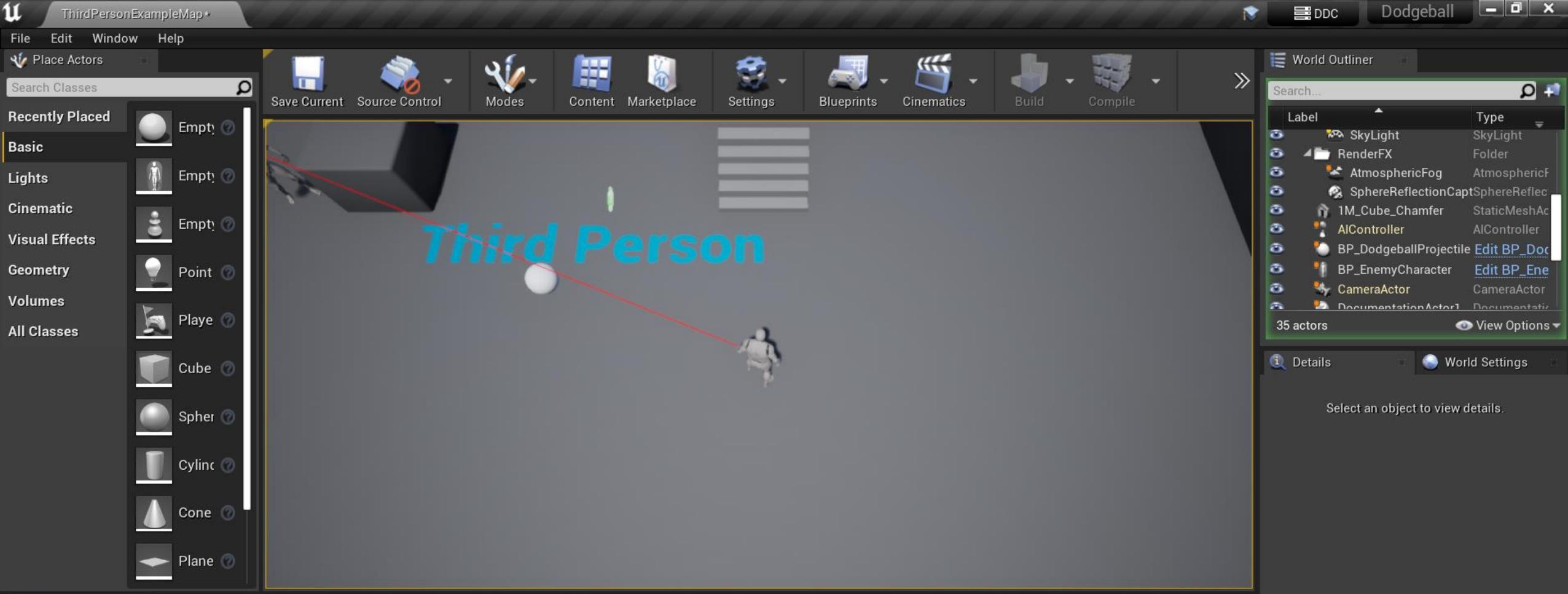
Physical Material Mask

Physics Asset

Physical materials are used to define the response of a physical object when interacting dynamically with the world.
hold (Ctrl + Alt) for more

View Options





The Content Browser is open at the bottom of the screen, showing the "Physics" folder under "Content". Inside the Physics folder, there is a single item named "PhysicalMaterial". The "PhysicalMaterial" icon is highlighted with a red dashed border. The browser also includes search fields for "Search Paths" and "Search Physics", and a "Filters" dropdown.

Add/Import Save All Content Physics

Content

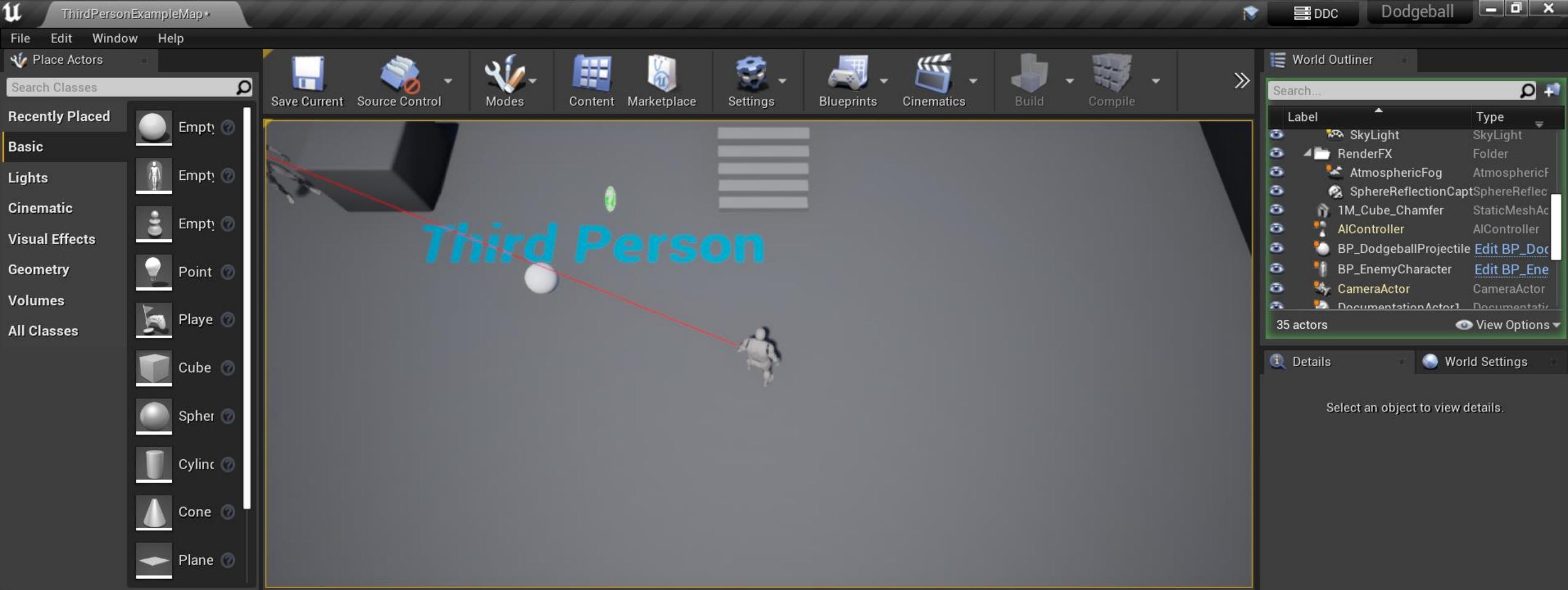
- Geometry
- Mannequin
- Physics
- StarterContent
- ThirdPerson
- ThirdPersonCPP
 - Blueprints
 - Maps

C++ Classes

Dodgeball

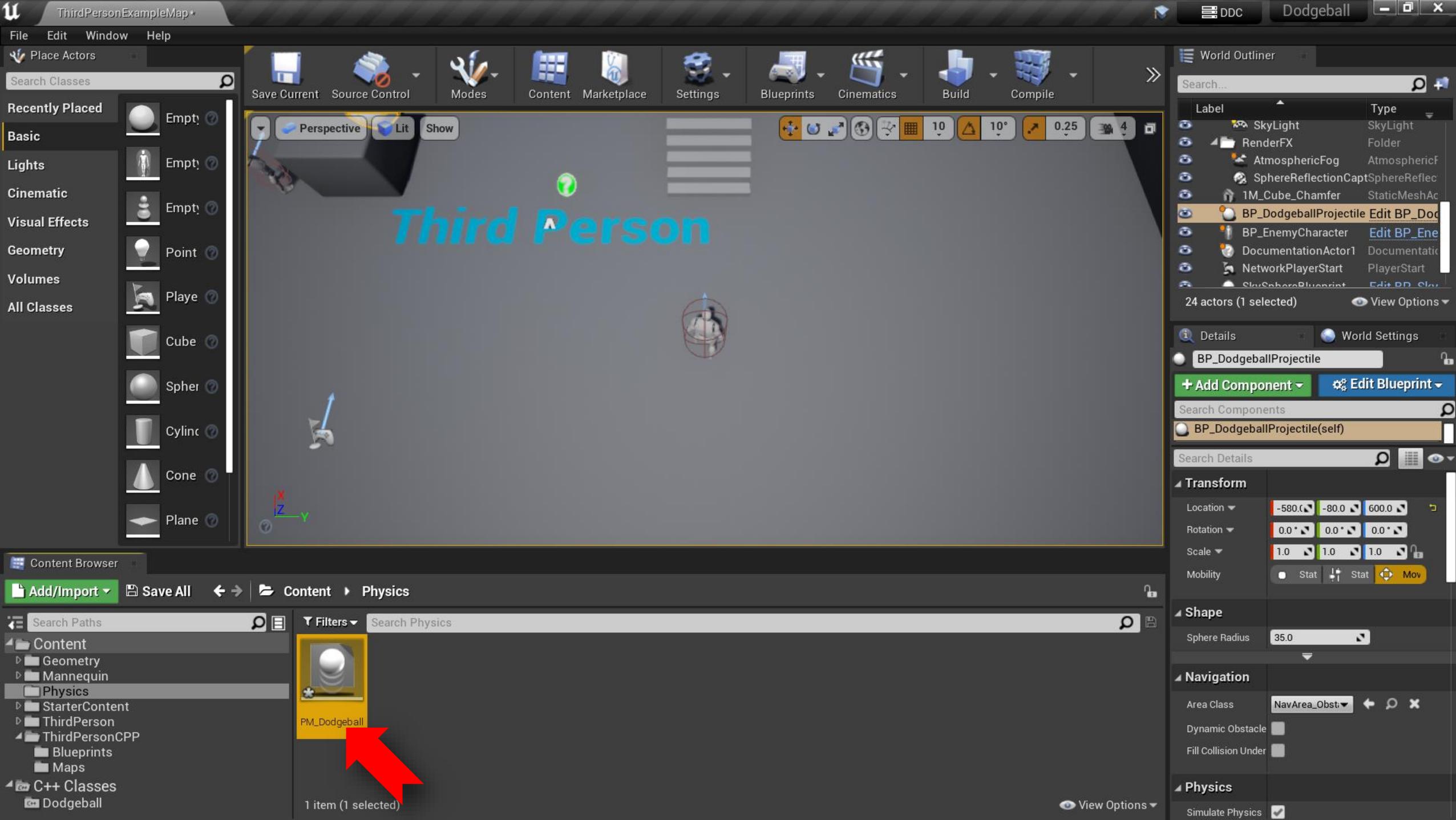
1 item (1 selected)

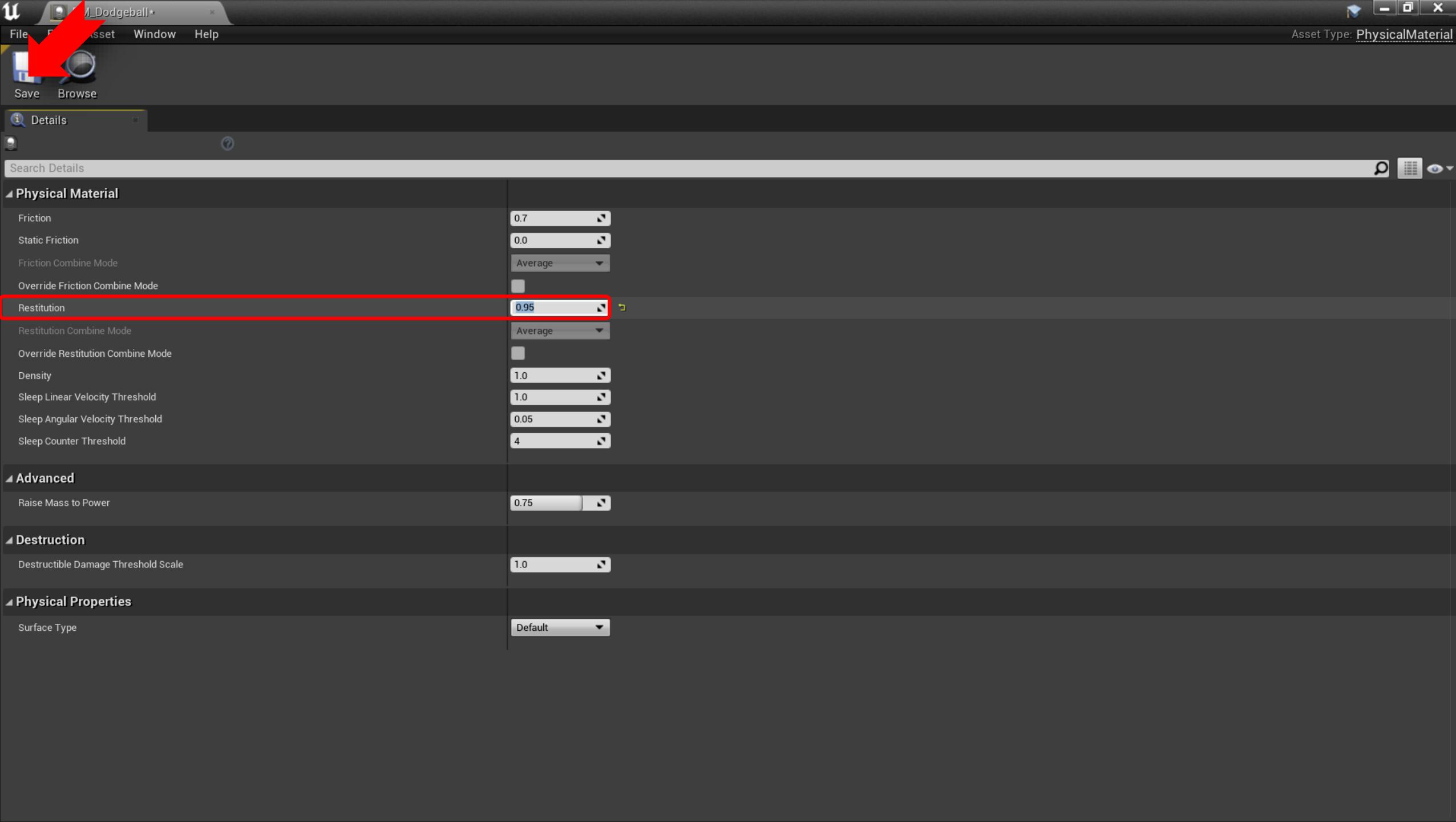
View Options

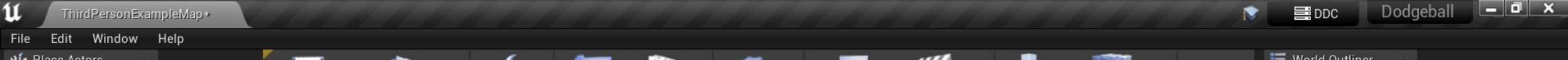


The screenshot shows the Content Browser interface. The left pane displays a file tree with Content, Physics, ThirdPersonCPP, and C++ Classes sections. The Physics section contains the "PM_Dodgeball" asset, which is highlighted with a red box. The right pane shows a list of assets under the Physics category, with "PM_Dodgeball" at the top. The bottom status bar indicates "1 item (1 selected)".

Label	Type
SkyLight	SkyLight
RenderFX	Folder
AtmosphericFog	AtmosphericFog
SphereReflectionCapt	SphereReflectionCapt
1M_Cube_Chamfer	StaticMeshActor
AIController	AIController
BP_DodgeballProjectile	Edit BP_DodgeballProjectile
BP_EnemyCharacter	Edit BP_EnemyCharacter
CameraActor	CameraActor
DocumentationActor1	DocumentationActor1







Add/Import ▾ Save All ↻ ↽ Content ➔ ThirdPersonCPP ➔ Blueprints

Filters ▾ Search Blueprints

Content

- Geometry
- Mannequin
- Physics
- StarterContent
- ThirdPerson
- ThirdPersonCPP
 - Blueprints
 - Maps

C++ Classes

Dodgeball

BP_DodgeballProjectile

BP_EnemyCharacter

ThirdPersonCharacter

3 items (1 selected)

View Options ▾

World Outliner

Search...

Label	Type
SkyLight	SkyLight
RenderFX	Folder
AtmosphericFog	AtmosphericF
SphereReflectionCaptSphereReflec	
1M_Cube_Chamfer	StaticMeshAc
BP_DodgeballProjectile	Edit BP_Doc
BP_EnemyCharacter	Edit BP_Ene
DocumentationActor	Documentation
NetworkPlayerStart	PlayerStart
SkySphereBlueprint	Edit BD cl...

24 actors (1 selected) View Options ▾

Details World Settings

BP_DodgeballProjectile

+ Add Component ▾ Edit Blueprint ▾

Search Components

BP_DodgeballProjectile(self)

Search Details

Transform

Location	-580.0	-80.0	600.0
Rotation	0.0 °	0.0 °	0.0 °
Scale	1.0	1.0	1.0
Mobility	Stat	Stat	Mov

Shape

Sphere Radius 35.0

Navigation

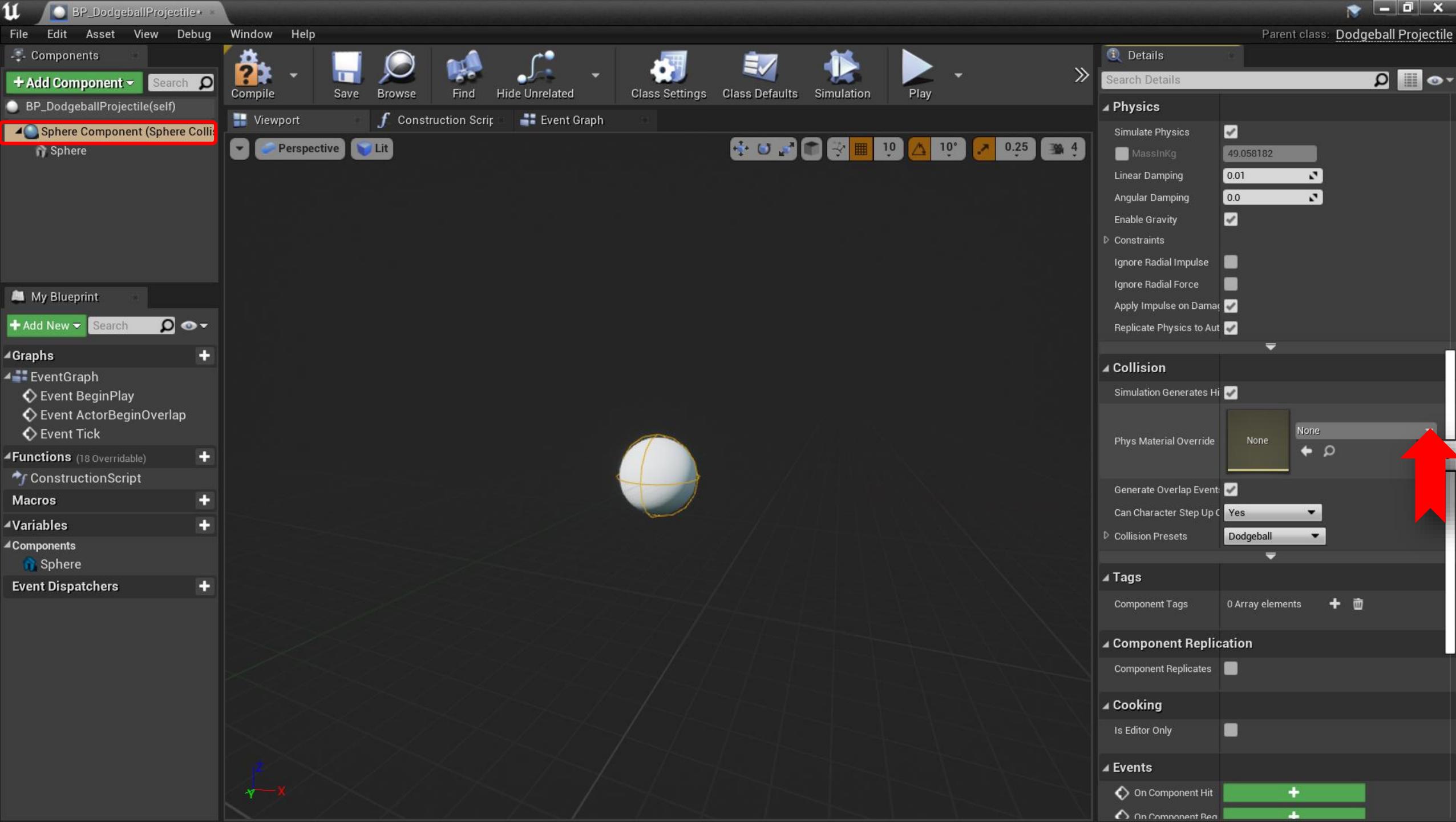
Area Class NavArea_Obst

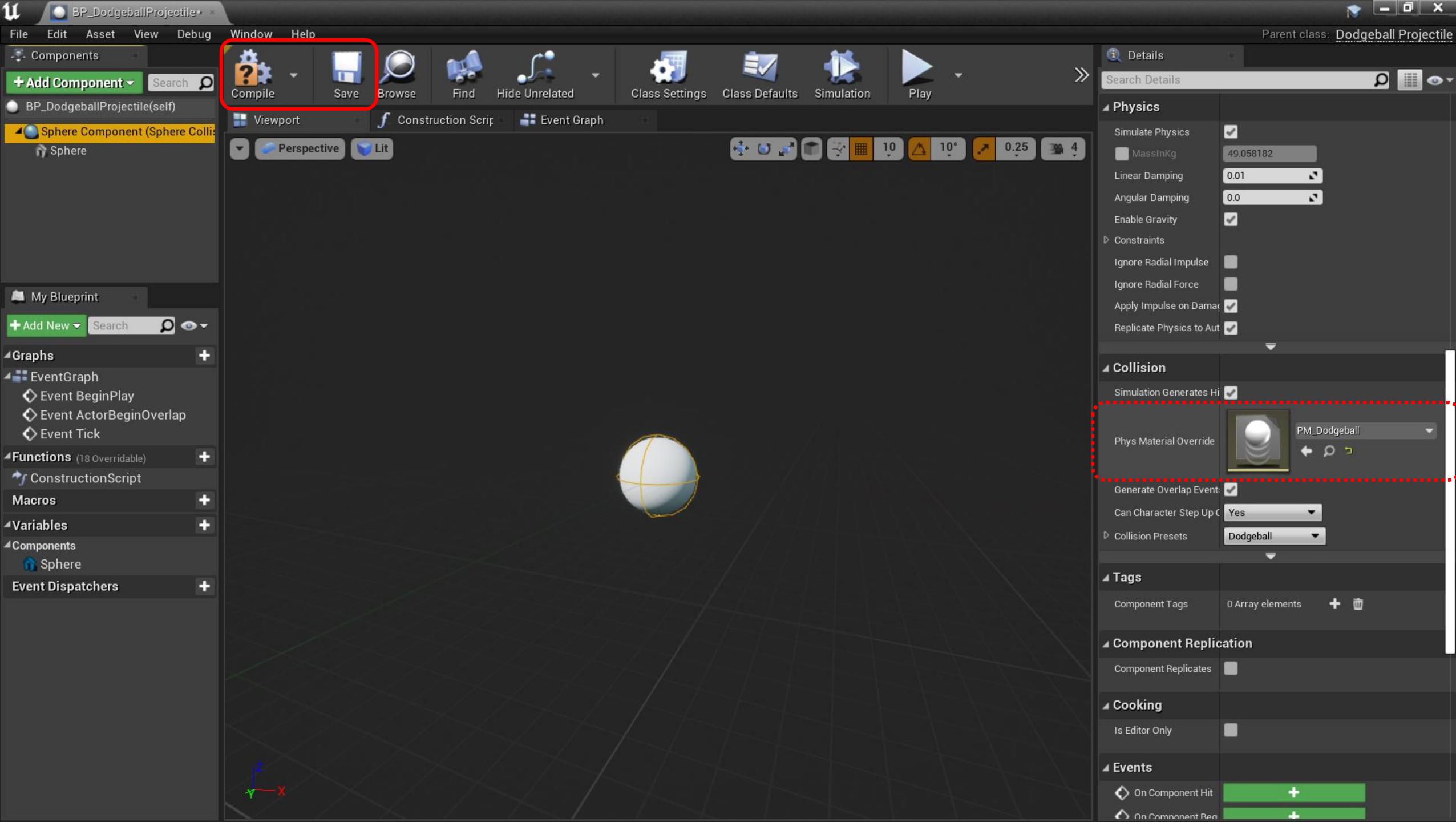
Dynamic Obstacle

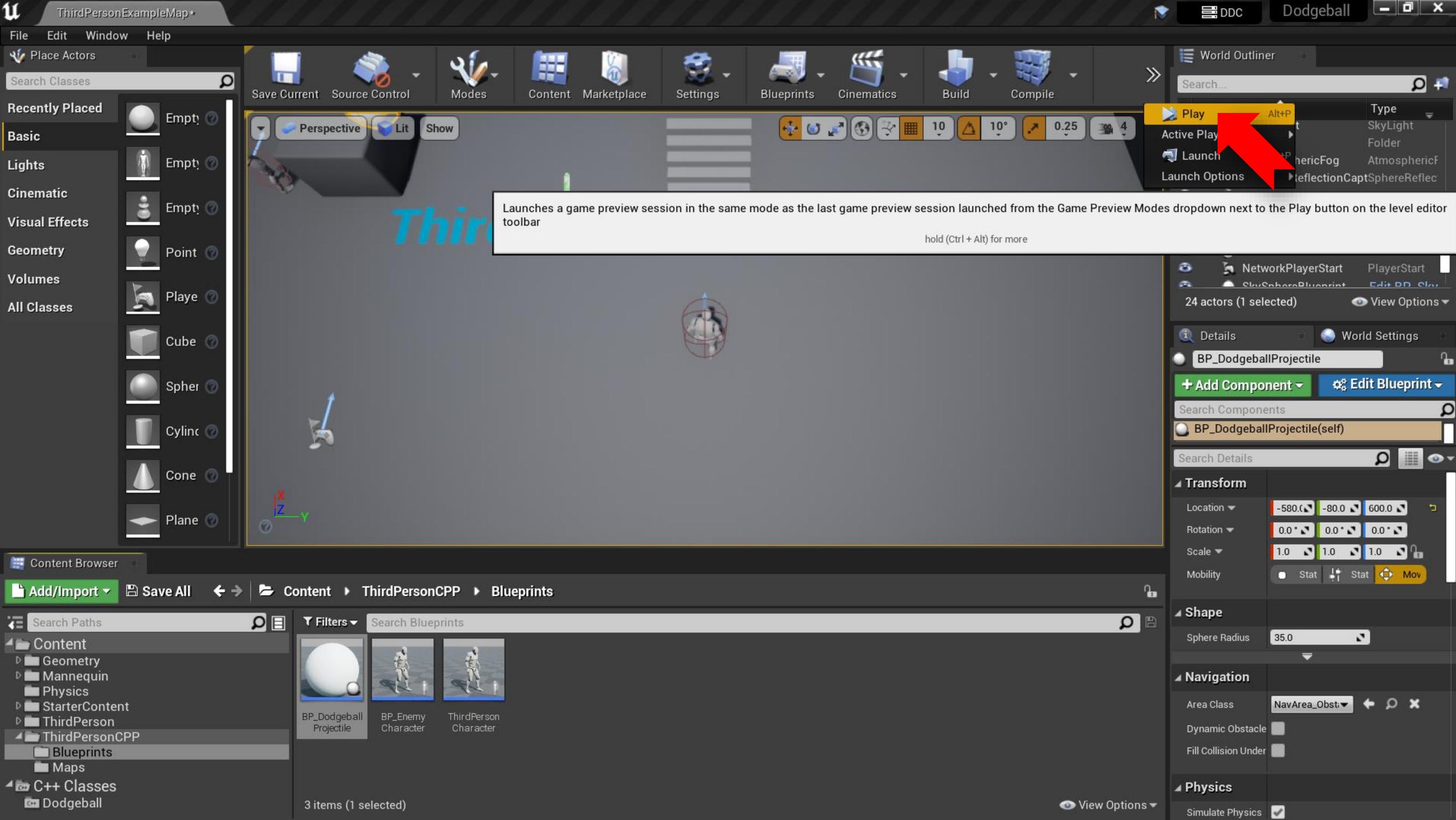
Fill Collision Under

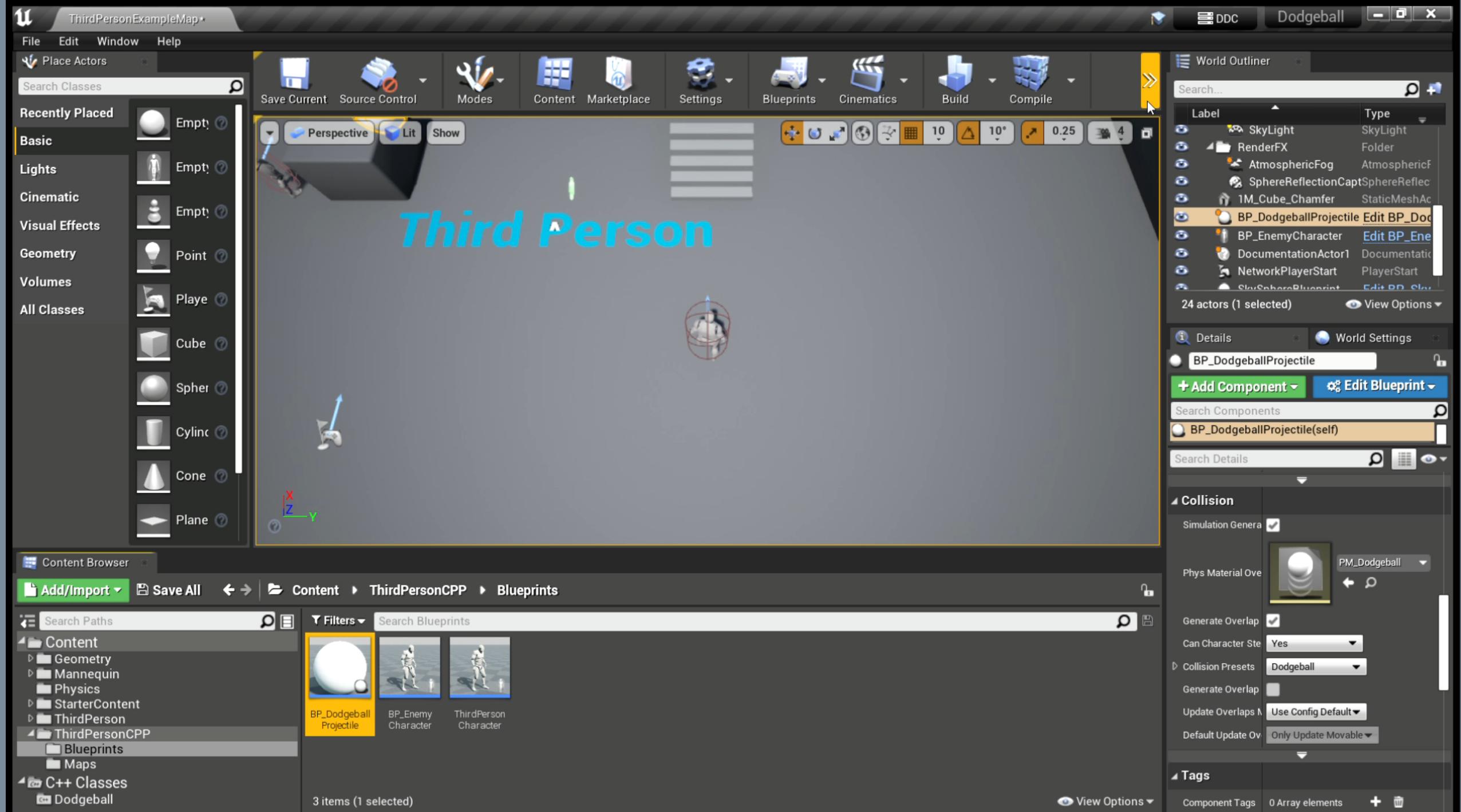
Physics

Simulate Physics





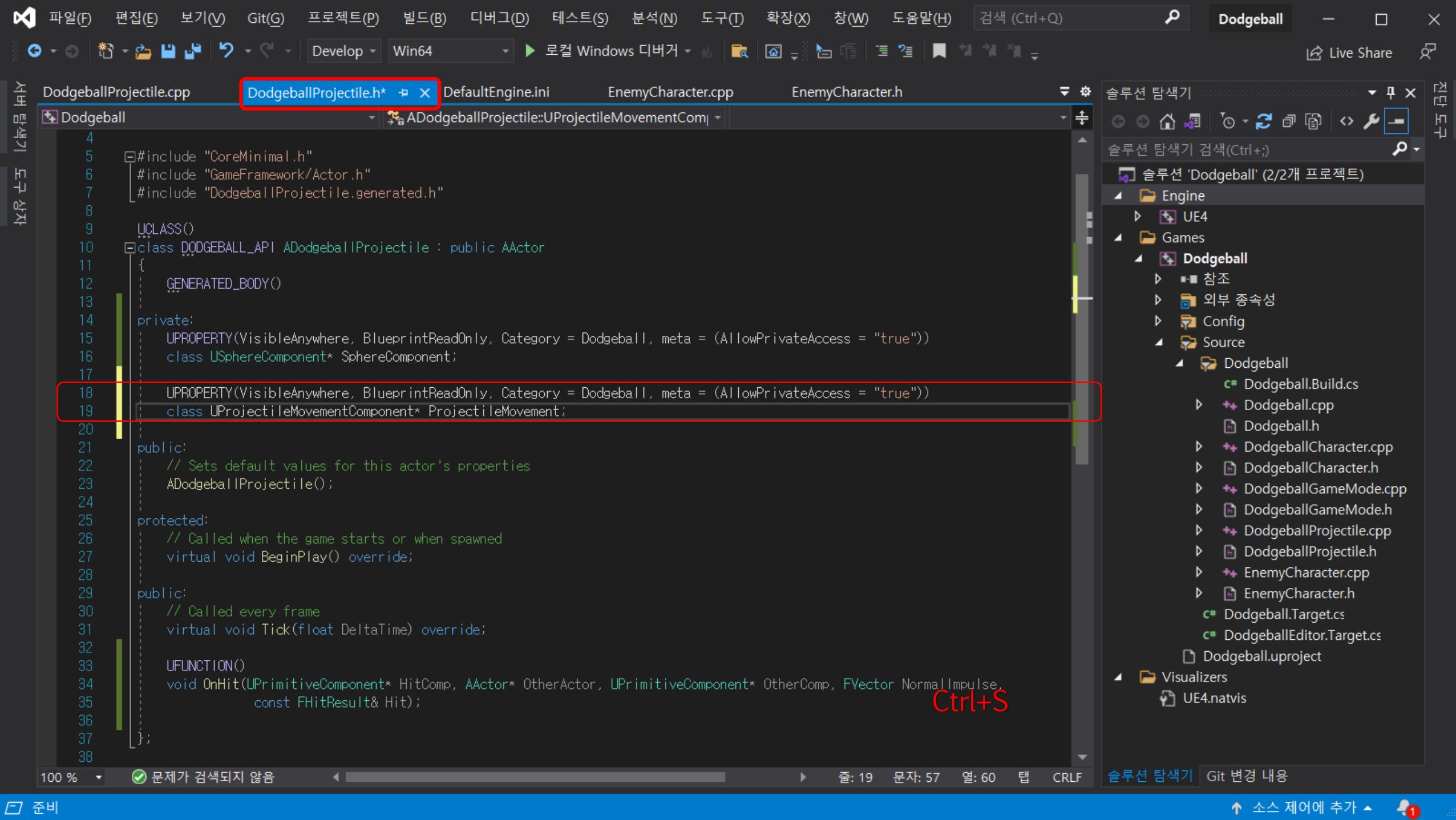






Exercise 6.02: Adding a Projectile Movement Component to Dodgeball Projectile

The screenshot shows the Unreal Engine 4 Editor interface. The top bar includes the Unreal Engine logo, project name "ThirdPersonExampleMap", and tabs for "DDC" and "Dodgeball". The menu bar has options like File, Edit, Window, Help, Place Actors, Search Classes, and Recently Placed. A toolbar below the menu contains icons for Save Current (highlighted with a red arrow), Source Control, Modes, Content, Marketplace, Settings, Blueprints, Cinematics, Build, and Compile. The main workspace displays a 3D scene with a character model and a cube. A large blue watermark "Third Person" is overlaid on the scene. The World Outliner panel on the right lists actors in the scene, including "BP_DodgeballProjectile" which is selected. The Details panel shows the selected actor's properties, currently set to "Edit Blueprint". The bottom navigation bar includes buttons for Content Browser, Add/Import, Save All, and Content Browser filters.



파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Develop Win64 로컬 Windows 디버거 Live Share

DodgeballProjectile.cpp* DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp EnemyCharacter.h

Dodgeball // Fill out your copyright notice in the Description page of Project Settings.

#include "DodgeballProjectile.h"
#include "Components/SphereComponent.h"
#include "DodgeballCharacter.h"
#include "GameFramework/ProjectileMovementComponent.h"

// Sets default values
ADodgeballProjectile::ADodgeballProjectile()
{
 // Set this actor to call Tick() every frame. You can turn this off to improve performance if you don't need it.
 PrimaryActorTick.bCanEverTick = true;

 SphereComponent = CreateDefaultSubobject<USphereComponent>(TEXT("Sphere Collision"));
 SphereComponent->SetSphereRadius(35.f);
 SphereComponent->SetCollisionProfileName(FName("Dodgeball"));
 SphereComponent->SetSimulatePhysics(true);
 //Simulation generates Hit events
 SphereComponent->SetNotifyRigidBodyCollision(true);

 // Listen to the OnComponentHit event by binding it to our function
 SphereComponent->OnComponentHit.AddDynamic(this, &ADodgeballProjectile::OnHit);

 // Set this Sphere Component as the root component,
 // otherwise collision won't behave properly
 RootComponent = SphereComponent;

 ProjectileMovement = CreateDefaultSubobject<UProjectileMovementComponent>(TEXT("Projectile Movement"));
 ProjectileMovement->InitialSpeed = 1500.f;
}

// Called when the game starts or when spawned
void ADodgeballProjectile::BeginPlay()

Ctrl+S

100 % 문제가 검색되지 않음 줄: 30 문자: 44 열: 47 혼합 CRLF

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+Shift+F)

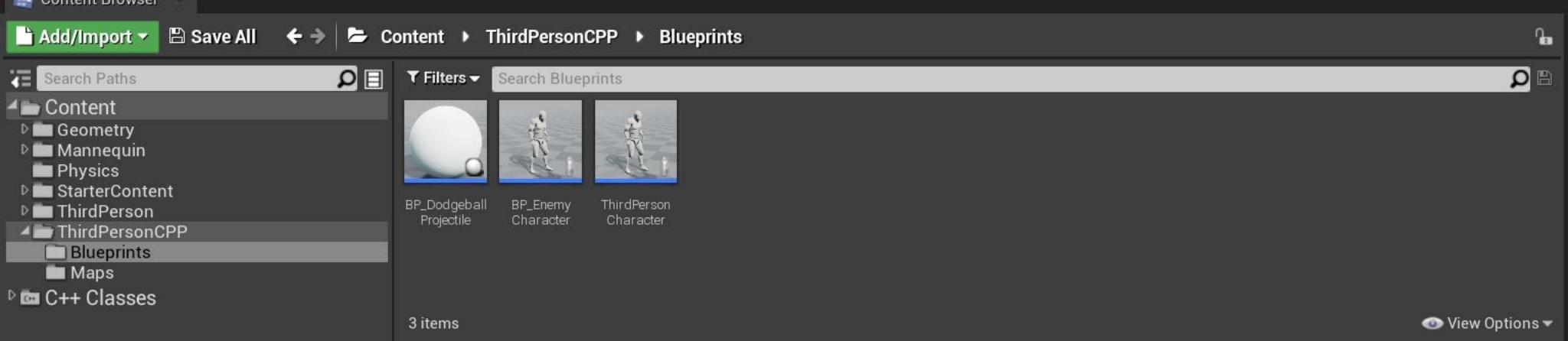
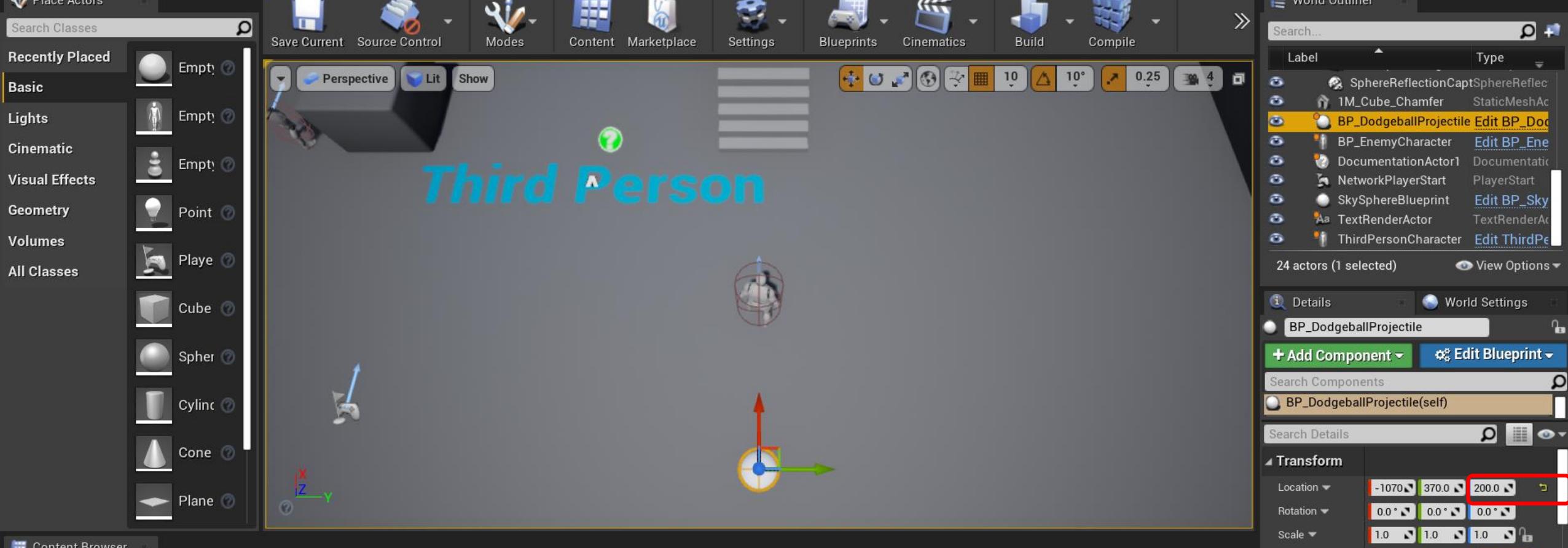
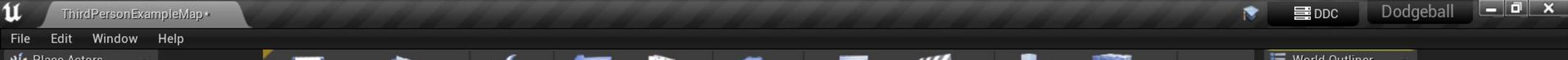
솔루션 'Dodgeball' (2/2개 프로젝트)
Engine UE4
Games
Dodgeball
참조 외부 종속성 Config Source
Dodgeball Build.cs Dodgeball.cpp Dodgeball.h DodgeballCharacter.cpp DodgeballCharacter.h DodgeballGameMode.cpp DodgeballGameMode.h DodgeballProjectile.cpp DodgeballProjectile.h EnemyCharacter.cpp EnemyCharacter.h Dodgeball.Target.cs DodgeballEditor.Target.cs Dodgeball.uproject
Visualizers UE4.natvis

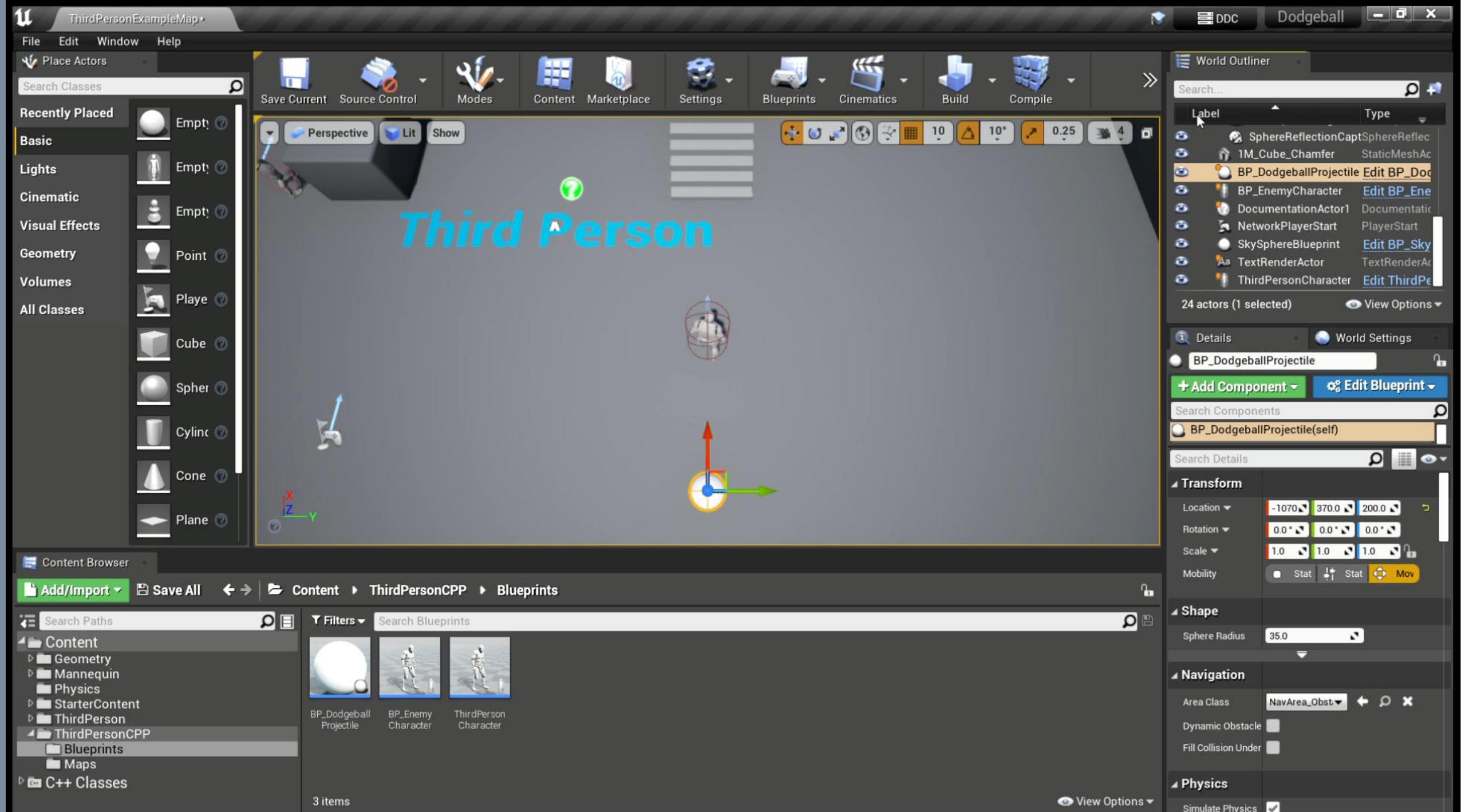
솔루션 탐색기 Git 변경 내용

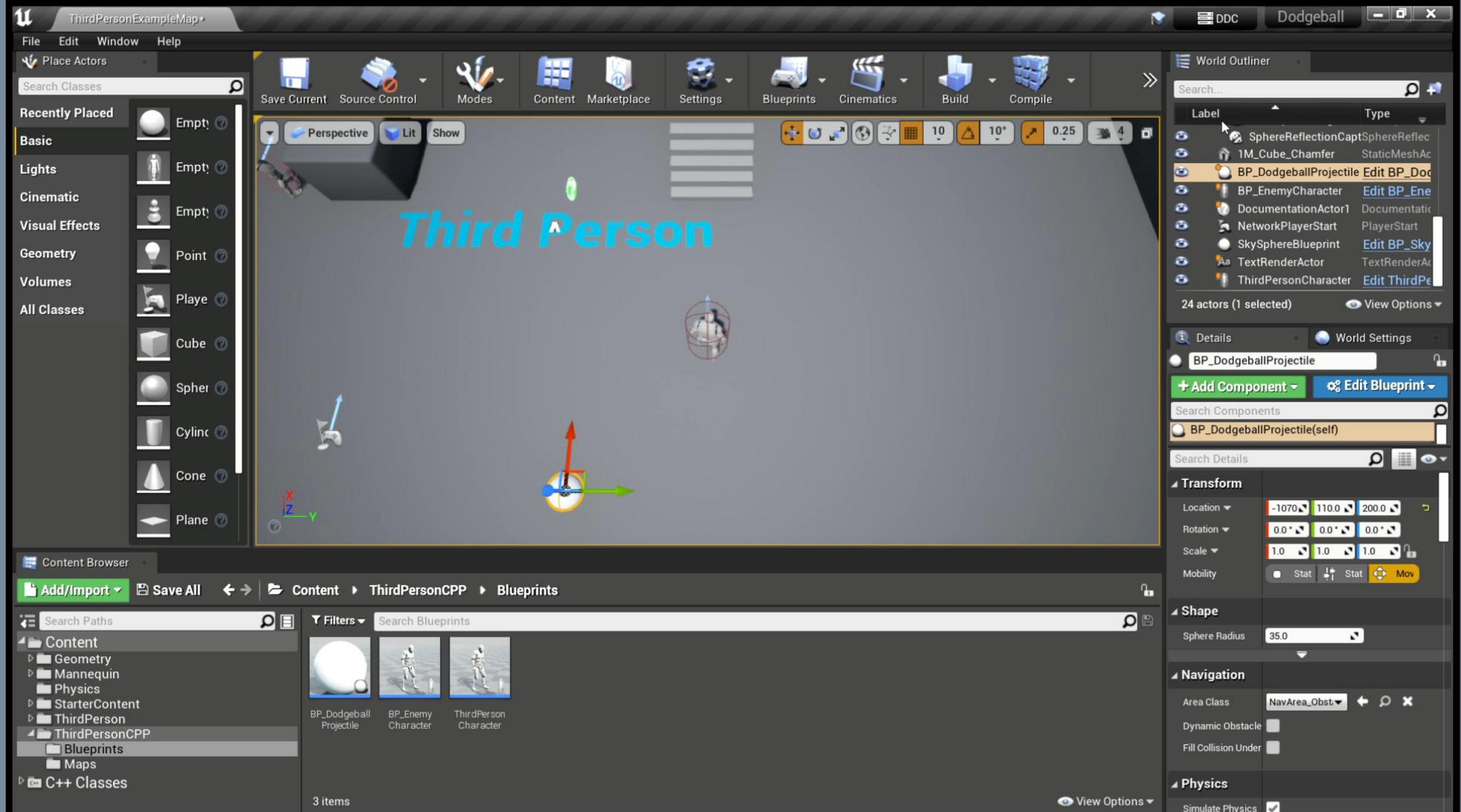
저장되었습니다. ↑ 소스 제어에 추가 ↗ 1

The screenshot shows the Microsoft Visual Studio IDE interface with the following details:

- Top Bar:** Includes tabs for 파일(F), 편집(E), 보기(V), Git(G), 프로젝트(P), 빌드(B), 디버그(D), 테스트(S), 분석(N), 도구(I), 확장(X), 창(W), 도움말(H), 검색 (Ctrl+Q), and Dodgeball.
- Toolbar:** Contains icons for file operations like New, Open, Save, Print, and Find.
- Project Explorer:** Shows the current project structure:
 - Engine
 - Games
 - Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject
 - Visualizers
 - UE4.natvis
 - Solution Explorer:** Shows the solution 'Dodgeball' with two projects: 'Engine' and 'Games'. The 'Games' project contains the 'Dodgeball' folder with its source files.
 - Code Editor:** Displays the content of the file 'ADodgeballProjectile.cpp'. A red arrow points to the tab bar where 'Windows 디버거' is selected.
 - Status Bar:** Shows the status '저장되었습니다.' (Saved), file size '100 %', and other settings like 줄: 30, 문자: 44, 열: 47, 혼합, CRLF.
 - Bottom Bar:** Includes tabs for '솔루션 탐색기' and 'Git 변경 내용'.









Timers

- › Our **EnemyCharacter** will be throwing dodge balls every few seconds.
 - This delay, or wait time, can be achieved through timers.
- › A **Timer**
 - To call a function after a certain amount of time



Spawning Actors (1)

- › To call the **SpawnActor** function, available from the **World** object

```
GetWorld( ) -> SpawnActor<NameOfC++Class> (ClassReference,  
                                                SpawnLocation, SpawnRotation)
```

- **UClass*** property: a C++ class or a Blueprint class
 - › **NameOfC++Class:StaticClass()** function
 - › **TSubclassOf** property: a way for you to reference a Blueprint class
- Either an **FTrasnform** property or the **FVector** and **FRotator** properties
- An optional **FActorSpawnParameter** property
 - › To specify more properties specific to the spawning process



Spawning Actors (2)

- › **SpawnActor** function
 - To create an instance of the object and then place it in the world
- › **SpawnActorDeferred** function
 - To create an instance of the object and only place it in the world when you call the actor's **FinishSpawning** function



Exercise 6.03: Adding Projectile-Throwing Logic to The EnemyCharacter

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball Live Share

DodgeballProjectile.cpp DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp EnemyCharacter.h* LookAtActor(AActor * TargetActor)

```
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3 #pragma once
4
5 #include "CoreMinimal.h"
6 #include "GameFramework/Character.h"
7 #include "EnemyCharacter.generated.h"
8
9 UCLASS()
10 class DODGEBALL_API AEnemyCharacter : public ACharacter
11 {
12     GENERATED_BODY()
13
14 private:
15
16     UPROPERTY(VisibleAnywhere, BlueprintReadOnly, Category = LookAt, meta = (AllowPrivateAccess = "true"))
17     class USceneComponent* SightSource;
18
19 public:
20     // Sets default values for this character's properties
21     AEnemyCharacter();
22
23 protected:
24     // Called when the game starts or when spawned
25     virtual void BeginPlay() override;
26
27     // Change the rotation of the character to face the given actor
28     bool LookAtActor(AActor* TargetActor);
29 }
```

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+)

- 솔루션 'Dodgeball' (2/2개 프로젝트)
 - Engine
 - UE4
 - Games
 - Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(T) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Live Share

DodgeballProjectile.cpp DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp* ✘ EnemyCharacter.h

47
48 bool AEnemyCharacter::LookAtActor(AActor* TargetActor)
49 {
50 if (TargetActor == nullptr)
51 return false;
52
53 if (CanSeeActor(TargetActor))
54 {
55 FVector Start = GetActorLocation();
56 FVector End = TargetActor->GetActorLocation();
57
58 // Calculate the necessary rotation for the Start point to face the End point
59 FRotator LookAtRotation = UKismetMathLibrary::FindLookAtRotation(Start, End);
60
61 // Set the enemy's rotation to that rotation
62 SetActorRotation(LookAtRotation);
63 return true;
64 }
65
66 return false;
67 }
68
69 bool AEnemyCharacter::CanSeeActor(const AActor* TargetActor) const
70 {
71 if (TargetActor == nullptr)
72 return false;
73
74 // Store the results of the Line Trace
75 FHitResult Hit;
76
77 // Where the Line Trace starts and ends
78 FVector Start = SightSource->GetComponentLocation();
79 FVector End = TargetActor->GetActorLocation();
80
81 // The trace channel we want to compare against

Ctrl+S

100 % 문제가 검색되지 않음 줄: 9 문자: 1 혼합 CRLF

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+Shift+F)

솔루션 'Dodgeball' (2/2개 프로젝트)

- Engine
- Games
- Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject
 - Visualizers
 - UE4.natvis

Git 변경 내용

준비 ↑ 소스 제어에 추가 ▲

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Develop Win64 로컬 Windows 디버거 Live Share

DodgeballProjectile.cpp DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp EnemyCharacter.h*

8
9 UCLASS()
10 class DODGEBALL_API AEnemyCharacter : public ACharacter
11 {
12 GENERATED_BODY()
13 ...
14 private:
15 UPROPERTY(VisibleAnywhere, BlueprintReadOnly, Category = LookAt, meta = (AllowPrivateAccess = "true"))
16 class USceneComponent* SightSource;
17 ...
18 public:
19 // Sets default values for this character's properties
20 AEnemyCharacter();
21 ...
22 protected:
23 // Called when the game starts or when spawned
24 virtual void BeginPlay() override;
25 ...
26 // Change the rotation of the character to face the given actor
27 bool LookAtActor(AActor* TargetActor);
28 ...
29 // Can we see the given actor
30 bool CanSeeActor(const AActor* TargetActor) const;
31 ...
32 // Whether the enemy can see the player this frame
33 bool bCanSeePlayer = false;
34 // Whether the enemy could see the player last frame
35 bool bPreviousCanSeePlayer = false;
36 ...
37 public:
38 // Called every frame
39 virtual void Tick(float DeltaTime) override;
40 ...
41 // Called to bind functionality to input
42 ...

Ctrl+S

100 % 문제가 검색되지 않음 줄: 36 문자: 37 열: 40 탭 CRLF

준비 솔루션 탐색기 Git 변경 내용

Live Share

솔루션 탐색기 검색(Ctrl+Shift+F)

솔루션 탐색기 Dodgeball (2/2개 프로젝트)

Engine UE4

Games Dodgeball

참조 외부 종속성 Config Source

Dodgeball

Dodgeball.Build.cs Dodgeball.cpp Dodgeball.h DodgeballCharacter.cpp DodgeballCharacter.h DodgeballGameMode.cpp DodgeballGameMode.h DodgeballProjectile.cpp DodgeballProjectile.h EnemyCharacter.cpp EnemyCharacter.h Dodgeball.Target.cs DodgeballEditor.Target.cs Dodgeball.uproject

Visualizers UE4.natvis

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Develop Win64 로컬 Windows 디버거 Live Share

DodgeballProjectile.cpp DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp* ✘ EnemyCharacter.h

```
27 // Called every frame
28 void AEnemyCharacter::Tick(float DeltaTime)
29 {
30     Super::Tick(DeltaTime);
31
32     // Fetch the character currently being controlled by the player
33     ACharacter* PlayerCharacter = UGameplayStatics::GetPlayerCharacter(this, 0);
34
35     // Look at the player character every frame
36     bCanSeePlayer = LookAtActor(PlayerCharacter);
37
38     if (bCanSeePlayer != bPreviousCanSeePlayer)
39     {
40         if (bCanSeePlayer)
41         {
42             //Start throwing dodgeballs
43         }
44         else
45         {
46             //Stop throwing dodgeballs
47         }
48     }
49
50     bPreviousCanSeePlayer = bCanSeePlayer;
51 }
52
53 // Called to bind functionality to input
54 //void AEnemyCharacter::SetupPlayerInputComponent(UInputComponent* PlayerInputComponent)
55 //{
56 //    Super::SetupPlayerInputComponent(PlayerInputComponent);
57 //}
58
59
60
61 }
```

Ctrl+S

100% 문제가 검색되지 않음 줄: 53 문자: 40 열: 43 혼합 CRLF

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+Shift+F)

- 솔루션 'Dodgeball' (2/2개 프로젝트)
 - Engine
 - UE4
 - Games
 - Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject
 - Visualizers
 - UE4.natvis

솔루션 탐색기 Git 변경 내용

저장되었습니다. ↑ 소스 제어에 추가 ↗

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(T) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball Live Share

DodgeballProjectile.cpp DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp EnemyCharacter.h* ThrowDodgeball()

```
22 protected:  
23     // Called when the game starts or when spawned  
24     virtual void BeginPlay() override;  
25  
26     // Change the rotation of the character to face the given actor  
27     bool LookAtActor(AActor* TargetActor);  
28  
29     // Can we see the given actor  
30     bool CanSeeActor(const AActor* TargetActor) const;  
31  
32     // Whether the enemy can see the player this frame  
33     bool bCanSeePlayer = false;  
34     // Whether the enemy could see the player last frame  
35     bool bPreviousCanSeePlayer = false;  
36  
37     FTimerHandle ThrowTimerHandle;  
38  
39     float ThrowingInterval = 2.f;  
40     float ThrowingDelay = 0.5f;  
41  
42     void ThrowDodgeball();  
43  
44 public:  
45     // Called every frame  
46     virtual void Tick(float DeltaTime) override;  
47  
48     // Called to bind functionality to input  
49     //virtual void SetupPlayerInputComponent(class UInputComponent* PlayerInputComponent) override;  
50  
51 };
```

Ctrl+S

100 % 문제가 검색되지 않음 줄: 43 문자: 24 열: 27 탭 CRLF

솔루션 탐색기 솔루션 탐색기 검색(Ctrl+;) Dodgeball (2/2개 프로젝트)
Engine UE4 Games Dodgeball 참조 외부 종속성 Config Source Dodgeball Dodgeball.Build.cs Dodgeball.cpp Dodgeball.h DodgeballCharacter.cpp DodgeballCharacter.h DodgeballGameMode.cpp DodgeballGameMode.h DodgeballProjectile.cpp DodgeballProjectile.h DodgeballEditor.Target.cs Dodgeball.Target.cs DodgeballEditor.Target.cs Dodgeball.uproject Visualizers UE4.natvis

준비 ↑ 소스 제어에 추가 ↗ 1

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Develop Win64 로컬 Windows 디버거 Live Share

DodgeballProjectile.cpp DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp* ✘ EnemyCharacter.h

```
// Fill out your copyright notice in the Description page of Project Settings.  
  
#include "EnemyCharacter.h"  
#include "Engine/World.h"  
#include "DrawDebugHelpers.h"  
#include "Kismet/KismetMathLibrary.h"  
#include "Kismet/GameplayStatics.h"  
#include "TimerManager.h"  
  
// Sets default values  
AEnemyCharacter::AEnemyCharacter()  
{  
    // Set this character to call Tick() every frame. You can turn this off to improve performance if you don't need it.  
    PrimaryActorTick.bCanEverTick = true;  
  
    SightSource = CreateDefaultSubobject<USceneComponent>(TEXT("Sight Source"));  
    SightSource->SetupAttachment(RootComponent);  
}  
  
// Called when the game starts or when spawned  
void AEnemyCharacter::BeginPlay()  
{  
    Super::BeginPlay();  
}  
  
// Called every frame  
void AEnemyCharacter::Tick(float DeltaTime)  
{  
    Super::Tick(DeltaTime);  
  
    // Fetch the character currently being controlled by the player  
    ACharacter* PlayerCharacter = UGameplayStatics::GetPlayerCharacter(this, 0);
```

100 % 문제가 검색되지 않음 줄: 51 문자: 56 열: 65 혼합 CRLF

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+;) 솔루션 'Dodgeball' (2/2개 프로젝트)

- Engine
- UE4
- Games
- Dodgeball
- 참조
- 외부 종속성
- Config
- Source
- Dodgeball
- Dodgeball.Build.cs
- Dodgeball.cpp
- Dodgeball.h
- DodgeballCharacter.cpp
- DodgeballCharacter.h
- DodgeballGameMode.cpp
- DodgeballGameMode.h
- DodgeballProjectile.cpp
- DodgeballProjectile.h
- EnemyCharacter.cpp
- EnemyCharacter.h
- Dodgeball.Target.cs
- DodgeballEditor.Target.cs
- Dodgeball.uproject

Visualizers

UE4.natvis

저장되었습니다. ↑ 소스 제어에 추가 ↗

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Develop Win64 로컬 Windows 디버거 Live Share

DodgeballProjectile.cpp DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp* × EnemyCharacter.h

28 // Called every frame
29 void AEnemyCharacter::Tick(float DeltaTime)
30 {
31 Super::Tick(DeltaTime);
32
33 // Fetch the character currently being controlled by the player
34 ACharacter* PlayerCharacter = UGameplayStatics::GetPlayerCharacter(this, 0);
35
36 // Look at the player character every frame
37 bCanSeePlayer = LookAtActor(PlayerCharacter);
38
39 if (bCanSeePlayer != bPreviousCanSeePlayer)
40 {
41 if (bCanSeePlayer)
42 {
43 //Start throwing dodgeballs
44 GetWorldTimerManager().SetTimer(ThrowTimerHandle, this, &AEnemyCharacter::ThrowDodgeball,
45 ThrowingInterval, true, ThrowingDelay);
46 }
47 else
48 {
49 //Stop throwing dodgeballs
50 GetWorldTimerManager().ClearTimer(ThrowTimerHandle);
51 }
52 }
53
54 bPreviousCanSeePlayer = bCanSeePlayer;
55 }
56
57 // Called to bind functionality to input
58 void AEnemyCharacter::SetupPlayerInputComponent(UInputComponent* PlayerInputComponent)
59 {
60 Super::SetupPlayerInputComponent(PlayerInputComponent);
61 }

Ctrl+S

100% 문제가 검색되지 않음 줄: 51 문자: 56 열: 65 혼합 CRLF

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+Shift+F)

솔루션 'Dodgeball' (2/2개 프로젝트)

- Engine
- Games
- Dodgeball
- 참조
- 외부 종속성
- Config
- Source
- Dodgeball
- Dodgeball.Build.cs
- Dodgeball.cpp
- Dodgeball.h
- DodgeballCharacter.cpp
- DodgeballCharacter.h
- DodgeballGameMode.cpp
- DodgeballGameMode.h
- DodgeballProjectile.cpp
- DodgeballProjectile.h
- EnemyCharacter.cpp
- EnemyCharacter.h
- Dodgeball.Target.cs
- DodgeballEditor.Target.cs
- Dodgeball.uproject

Visualizers

UE4.natvis

저장되었습니다.

↑ 소스 제어에 추가 ▲

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Develop Win64 로컬 Windows 디버거 Live Share

DodgeballProjectile.cpp DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp EnemyCharacter.h*

22 protected:
23 // Called when the game starts or when spawned
24 virtual void BeginPlay() override;
25
26 // Change the rotation of the character to face the given actor
27 bool LookAtActor(AActor* TargetActor);
28
29 // Can we see the given actor
30 bool CanSeeActor(const AActor* TargetActor) const;
31
32 // Whether the enemy can see the player this frame
33 bool bCanSeePlayer = false;
34 // Whether the enemy could see the player last frame
35 bool bPreviousCanSeePlayer = false;
36
37 FTimerHandle ThrowTimerHandle;
38
39 float ThrowingInterval = 2.f;
40 float ThrowingDelay = 0.5f;
41
42 void ThrowDodgeball();
43
44 // The class used to spawn a dodgeball object
45 UPROPERTY(EditDefaultsOnly, BlueprintReadOnly, Category = Dodgeball)
46 TSubclassOf<class ADodgeballProjectile> DodgeballIClass;
47
48 public:
49 // Called every frame
50 virtual void Tick(float DeltaTime) override;
51
52 // Called to bind functionality to input
53 //virtual void SetupPlayerInputComponent(class UInputComponent* PlayerInputComponent) override;
54
55
56 };

Ctrl+S

100 % 문제가 검색되지 않음 줄: 47 문자: 57 열: 60 탭 CRLF

솔루션 탐색기 솔루션 탐색기 검색(Ctrl+;) 솔루션 'Dodgeball' (2/2개 프로젝트)
Engine UE4 Games Dodgeball 참조 외부 종속성 Config Source Dodgeball Dodgeball.Build.cs Dodgeball.cpp Dodgeball.h DodgeballCharacter.cpp DodgeballCharacter.h DodgeballGameMode.cpp DodgeballGameMode.h DodgeballProjectile.cpp DodgeballProjectile.h EnemyCharacter.cpp EnemyCharacter.h Dodgeball.Target.cs DodgeballEditor.Target.cs Dodgeball.uproject Visualizers UE4.natvis

준비 ↑ 소스 제어에 추가 ▲ 1

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Develop Win64 로컬 Windows 디버거 Live Share

DodgeballProjectile.cpp DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp* ✘ EnemyCharacter.h

// Fill out your copyright notice in the Description page of Project Settings.

#include "EnemyCharacter.h"
#include "Engine/World.h"
#include "DrawDebugHelpers.h"
#include "Kismet/KismetMathLibrary.h"
#include "Kismet/GameplayStatics.h"
#include "TimerManager.h"
#include "DodgeballProjectile.h"

// Sets default values
AEnemyCharacter::AEnemyCharacter()
{
 // Set this character to call Tick() every frame. You can turn this off to improve performance if you don't need it.
 PrimaryActorTick.bCanEverTick = true;

 SightSource = CreateDefaultSubobject<USceneComponent>(TEXT("Sight Source"));
 SightSource->SetupAttachment(RootComponent);
}

// Called when the game starts or when spawned
void AEnemyCharacter::BeginPlay()
{
 Super::BeginPlay();
}

// Called every frame
void AEnemyCharacter::Tick(float DeltaTime)
{
 Super::Tick(DeltaTime);

 // Fetch the character currently being controlled by the player

100 % 문제가 검색되지 않음 출: 134 문자: 98 열: 101 혼합 CRLF

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+;) 솔루션 'Dodgeball' (2/2개 프로젝트)

Engine UE4 Games Dodgeball 참조 외부 종속성 Config Source Dodgeball Dodgeball.Build.cs Dodgeball.cpp Dodgeball.h DodgeballCharacter.cpp DodgeballCharacter.h DodgeballGameMode.cpp DodgeballGameMode.h DodgeballProjectile.cpp DodgeballProjectile.h EnemyCharacter.cpp EnemyCharacter.h Dodgeball.Target.cs DodgeballEditor.Target.cs Dodgeball.uproject Visualizers UE4.natvis

저장되었습니다. ↑ 소스 제어에 추가 ↗

Live Share

DodgeballProjectile.cpp* DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp* EnemyCharacter.h

Dodgeball

```
33 // Called when the game starts or when spawned
34 void ADodgeballProjectile::BeginPlay()
35 {
36     Super::BeginPlay();
37
38     SetLifeSpan(5.f);
39 }
40
41 // Called every frame
42 void ADodgeballProjectile::Tick(float DeltaTime)
43 {
44     Super::Tick(DeltaTime);
45
46 }
47
48 void ADodgeballProjectile::OnHit(UPrimitiveComponent* HitComp, AActor* OtherActor, UPrimitiveComponent* OtherComp,
49                                 FVector NormalImpulse, const FHitResult& Hit)
50 {
51     if (Cast<ADodgeballCharacter>(OtherActor) != nullptr) {
52         Destroy();
53     }
54 }
55
56 }
```

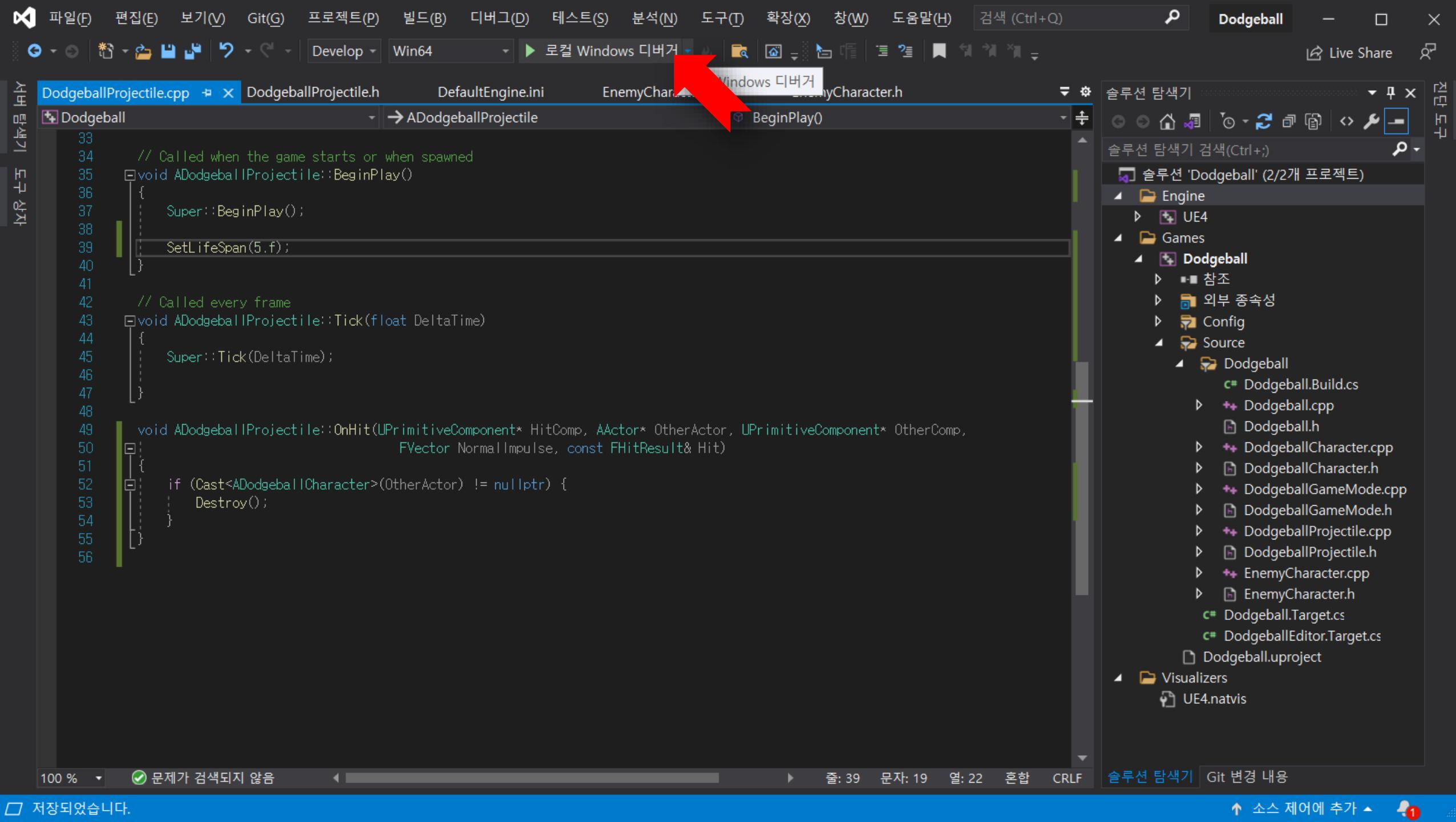
Ctrl+S

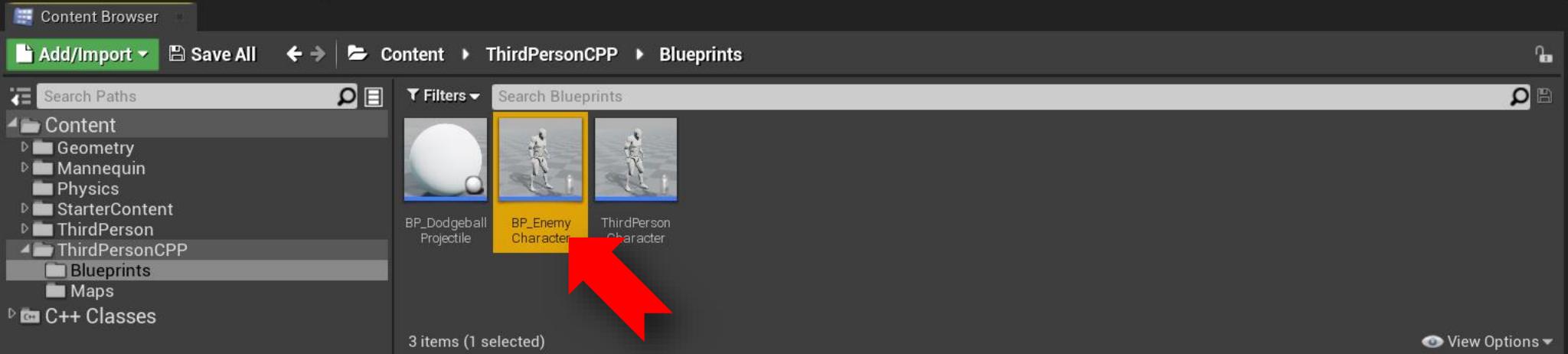
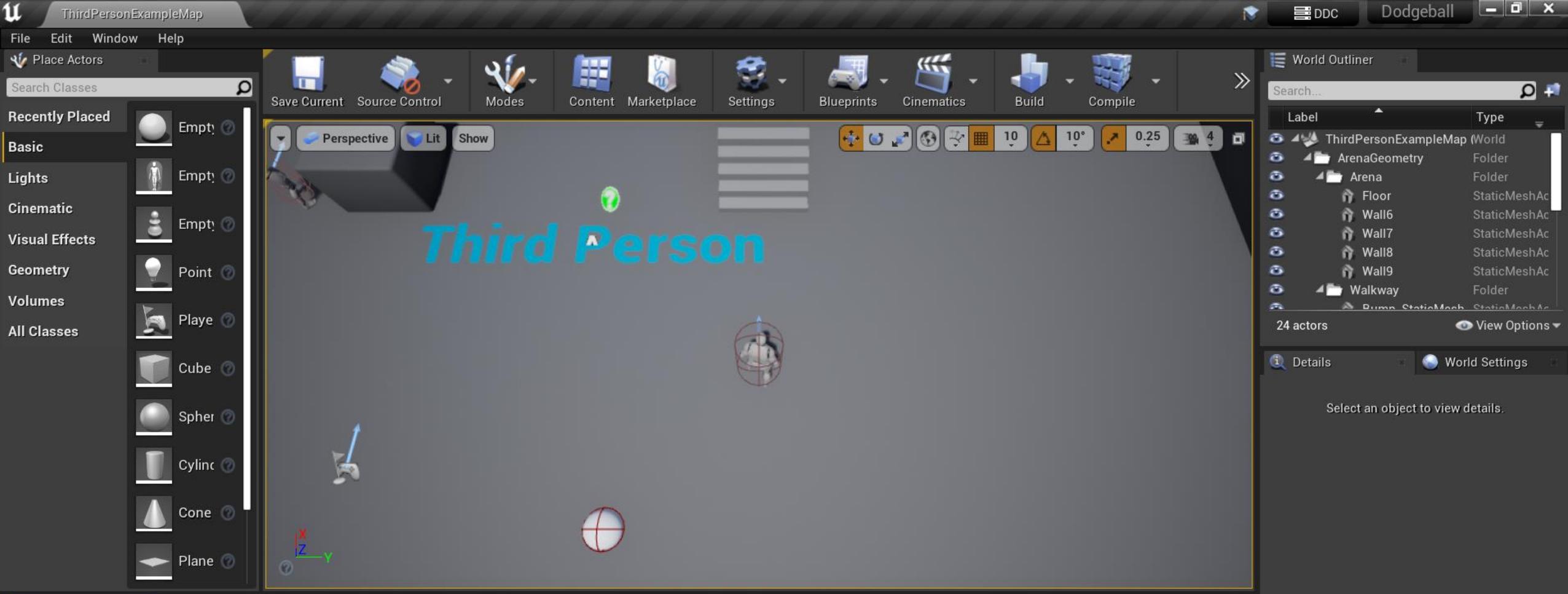
솔루션 탐색기

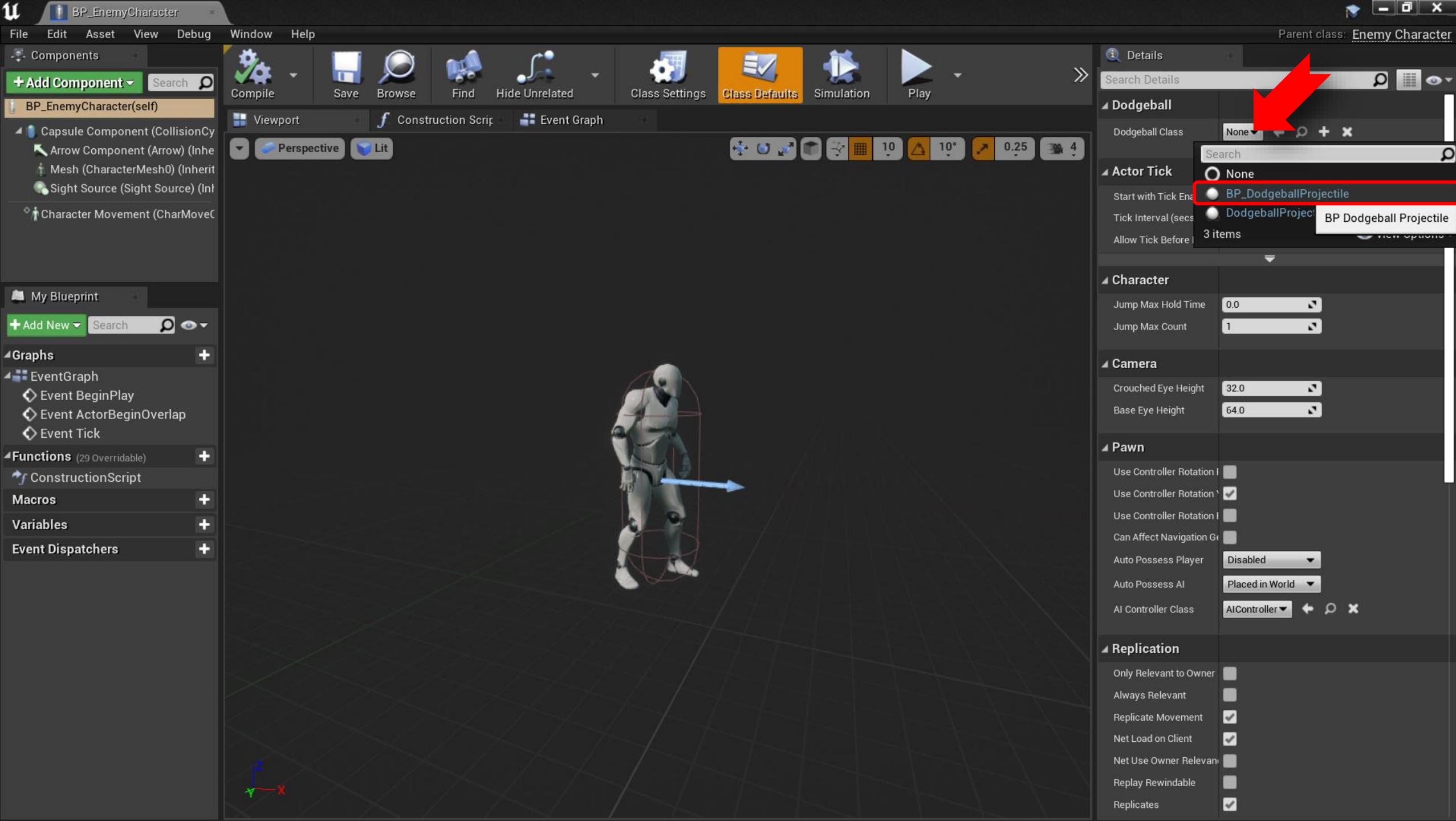
솔루션 탐색기 검색(Ctrl+)

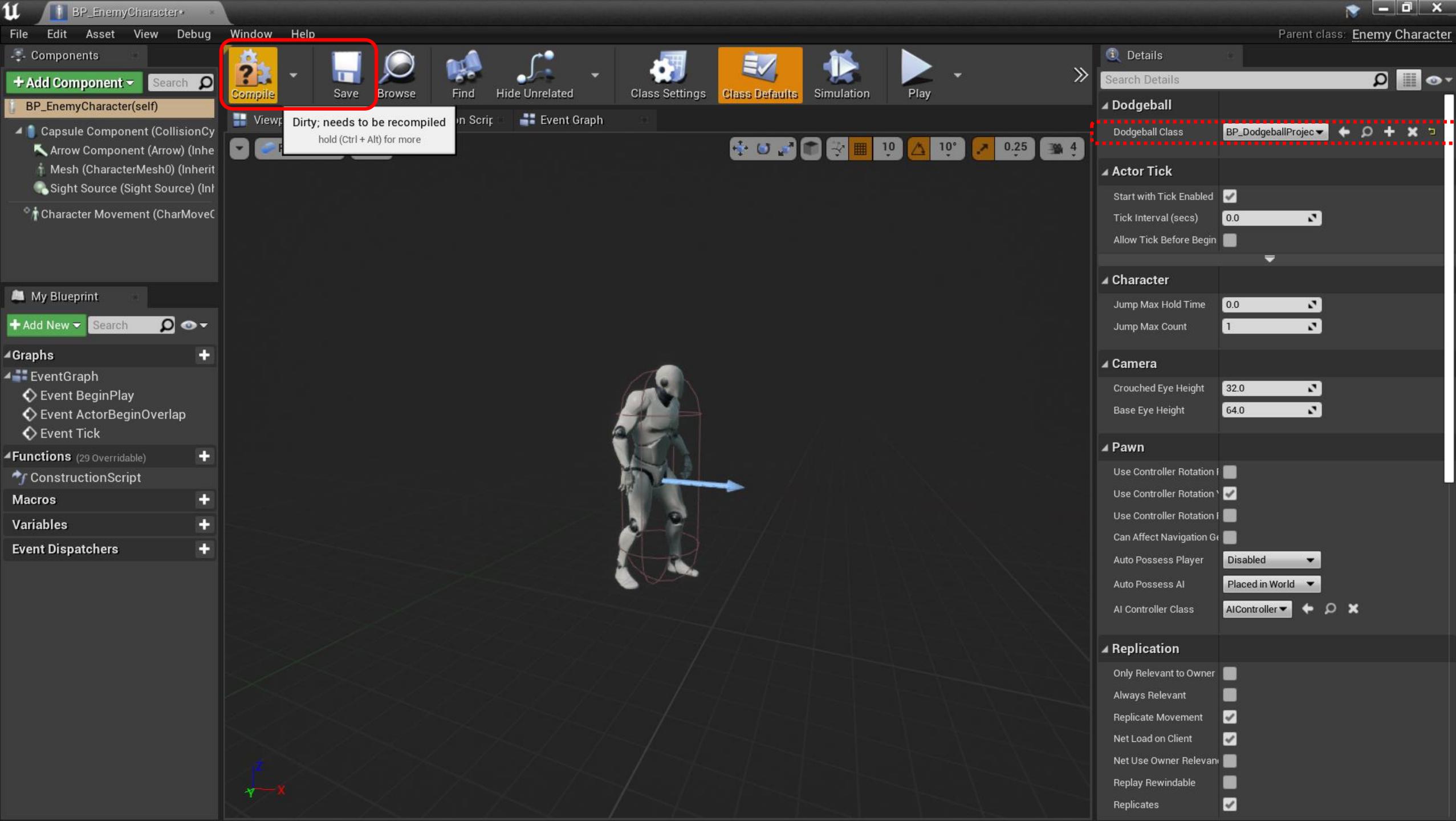
솔루션 'Dodgeball' (2/2개 프로젝트)

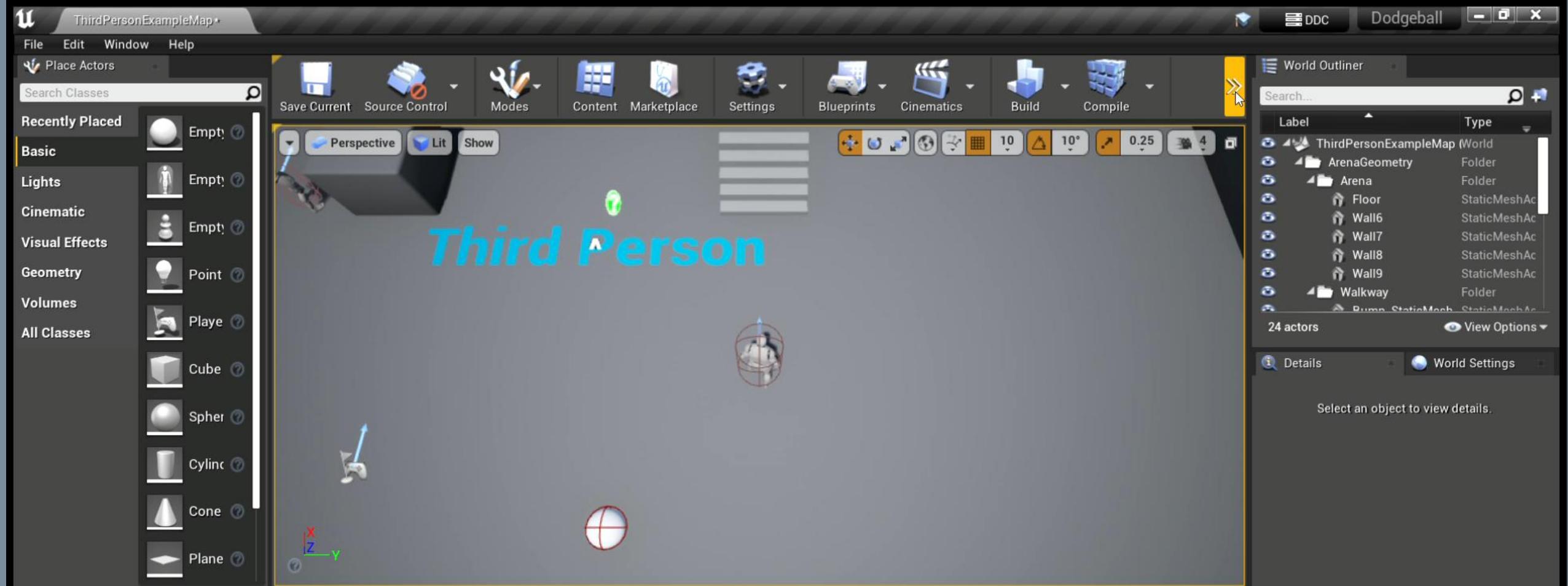
- Engine
- UE4
- Games
- Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject
 - Visualizers
 - UE4.natvis











The Content Browser panel is open, showing the file structure and asset preview. The path is "Content > ThirdPersonCPP > Blueprints". The browser lists three items:

- BP_Dodgeball Projectile
- BP_Enemy Character
- ThirdPerson Character

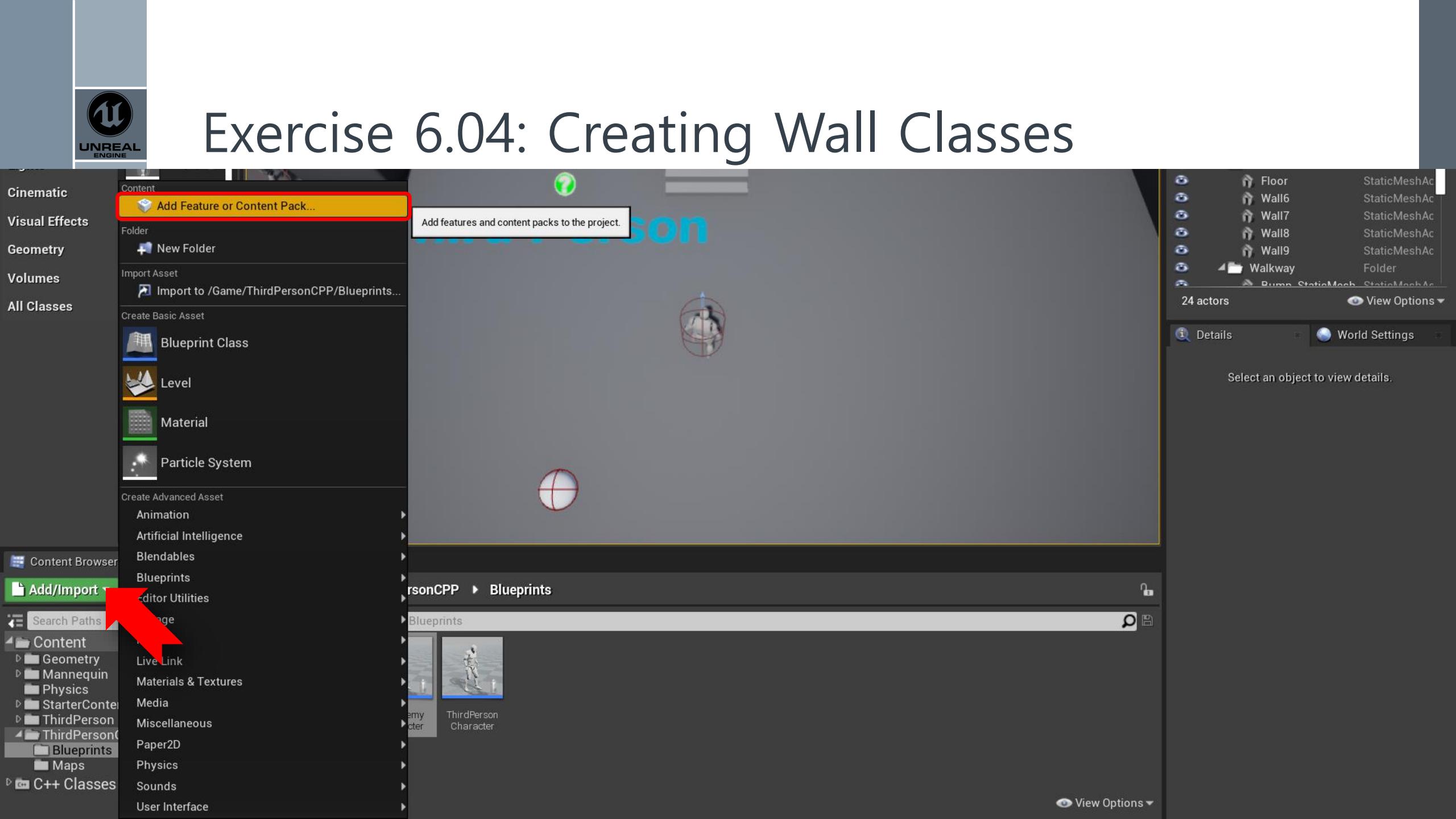
At the bottom, it says "3 items (1 selected)".



Walls

- › Creating the **Wall** classes – two types of walls:
 - A normal wall, which will block the enemy's line of sight, the player character, and the dodge ball
 - A ghost wall, which will only block the player character, and ignore the enemy's line of sight and the dodge ball

Exercise 6.04: Creating Wall Classes



[Blueprint Feature](#)[C++ Feature](#)[Content Packs](#)

Search



First Person



Flying



Puzzle



Rolling



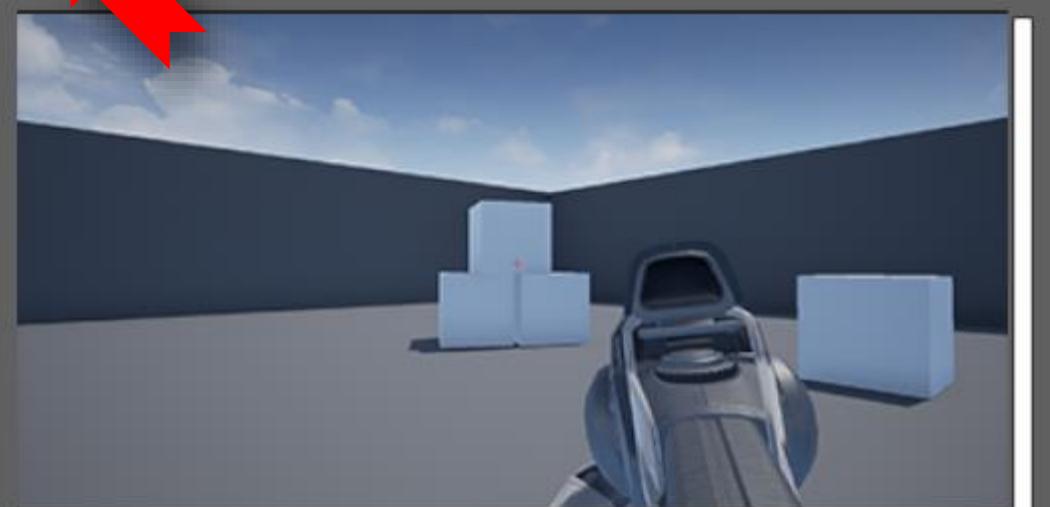
Third Person



Top Down

Twin Stick
ShooterHandheld
ARSide
Scroller2D Side
Scroller

Vehicle

Virtual
RealityVehicle
Advanced

First Person

This pack features a player character (represented by a pair of arms) which is viewed from first person perspective. The character can be moved around the level using keyboard, controller or virtual joystick on a touch device. Additionally the player can look around using mouse, controller or virtual joystick on a touch device. The character is also equipped with a gun that, using mouse, controller or virtual joystick on a touch device will fire an 'instant hit' weapon that will interact with the level.

An example map is also included.

[+ Add to Project](#)

[Blueprint Feature](#)[C++ Feature](#)[Content Packs](#)

Search

Mobile
Starter
ContentStarter
Content

Starter Content

A collection of miscellaneous assets to include in your unreal project.
Several static mesh props such as a table, a chair, a door, lamp etc.

A number of textures, bricks, clay, wood and so forth.

Basic mesh shapes a sphere, tube, torus etc.

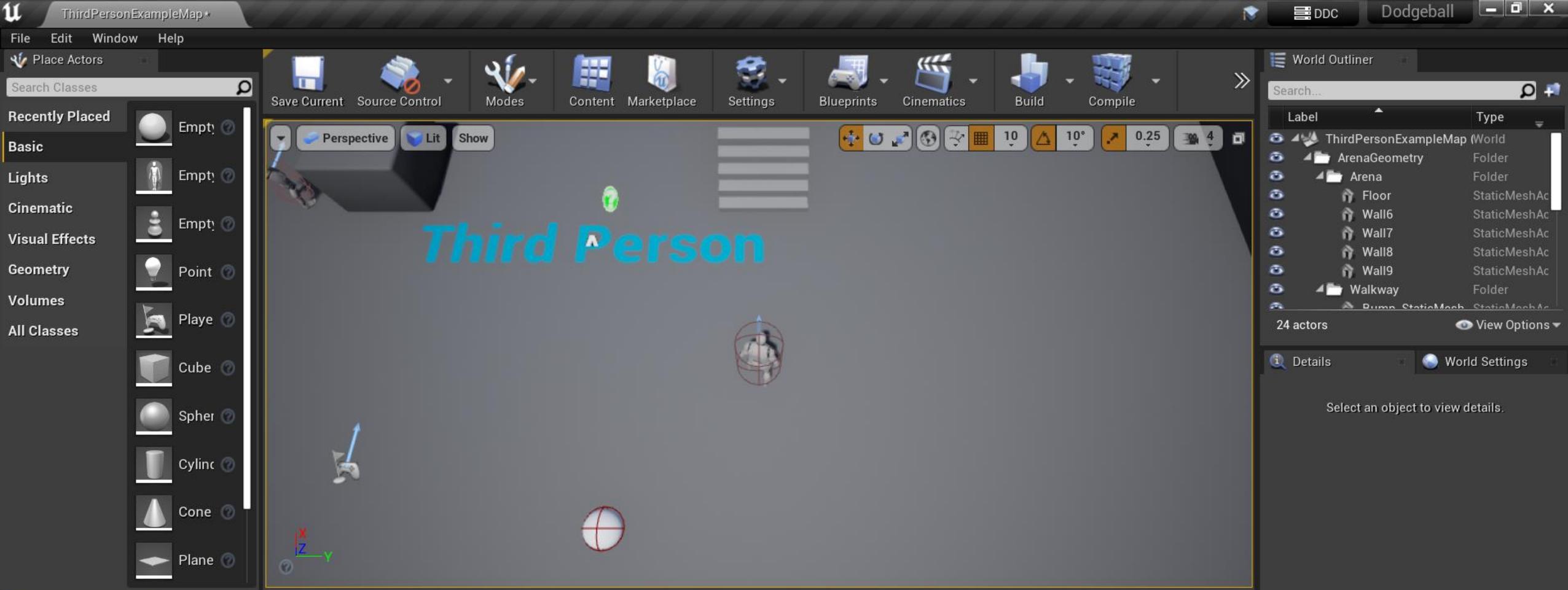
Sample audio - an explosion, sparks, birds etc.

Particles such as fire, dust and explosion.

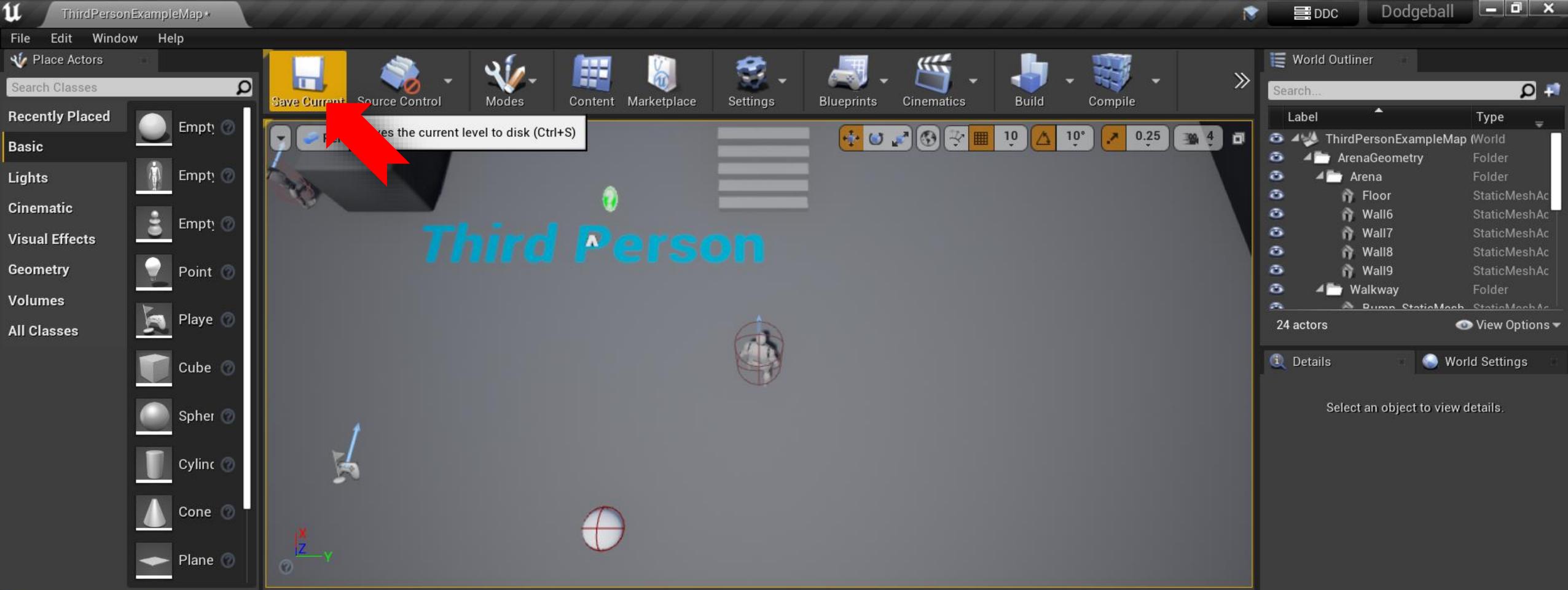
Some walls, floors and windows.

Some sample blueprints.

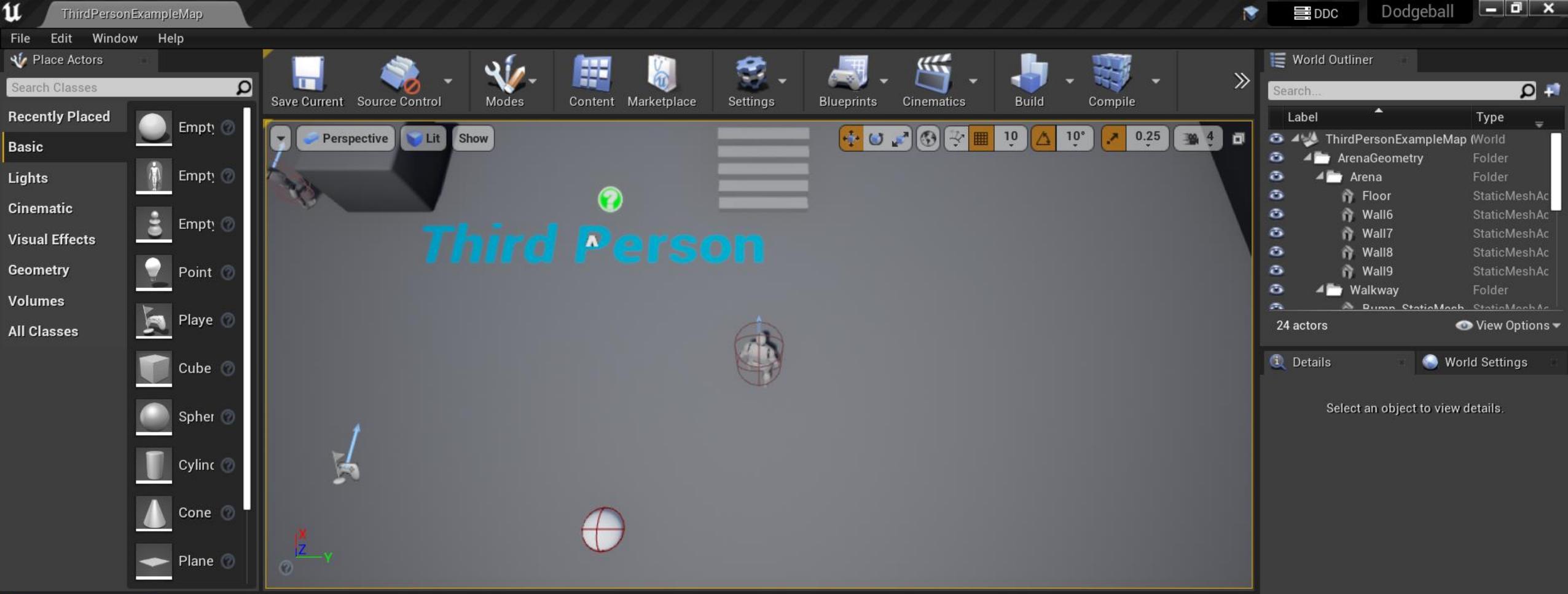
[+ Add to Project](#)



This screenshot shows the Content Browser panel. The left sidebar lists "Content" (Geometry, Mannequin, Physics, StarterContent) and "StarterContent" (Architecture, Audio, Blueprints, HDRI, Maps, Materials, Particles). The main area displays a grid of 11 architecture assets: "Floor_400x400", "Pillar_50x500", "SM_Asset_Platform", "Wall_400x200", "Wall_400x300", "Wall_400x400", "Wall_500x500", "Wall_Door_400x300", "Wall_Door_400x400", "Wall_Window_400x300", and "Wall_Window_400x400". Below the grid, it says "11 items (1 selected)". The bottom right has a "View Options" dropdown. The top bar of this panel includes "Add/Import", "Save All", and the path "Content > StarterContent > Architecture".



A screenshot of the Content Browser. The top navigation bar shows Add/Import, Save All, and a Content browser icon. The main area shows the file structure under StarterContent: Content, Geometry, Mannequin, Physics, StarterContent (selected), Architecture, Audio, Blueprints, HDRI, Maps, Materials, and Particles. Under StarterContent/Architecture, there are ten items listed: Floor_400x400, Pillar_50x500, SM_Asset_Platform, Wall_400x200, Wall_400x300, Wall_400x400, Wall_500x500, Wall_Door_400x300, Wall_Door_400x400, Wall_Window_400x300, and Wall_Window_400x400. Below the list is a note '11 items (1 selected)'. At the bottom right is a 'View Options' button.





Choose Parent Class

This will add a C++ header and source code file to your game project.

Show All Classes

None

An empty C++ class with a default constructor and destructor.

Character

A character is a type of Pawn that includes the ability to walk around.

Pawn

A Pawn is an actor that can be 'possessed' and receive input from a controller.

Actor

An Actor is an object that can be placed or spawned in the world.

Actor Component

An ActorComponent is a reusable component that can be added to any actor.

Selected Class

Actor

Selected Class Source

Actor.h



Next >

Create Class

Cancel



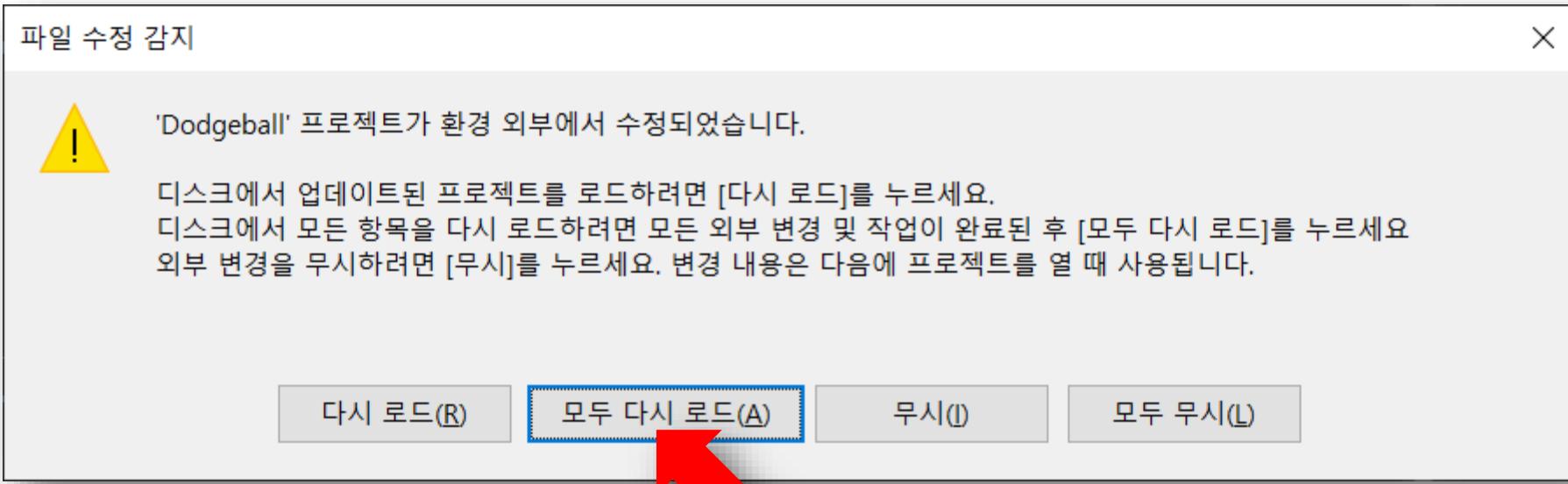
Name Your New Actor

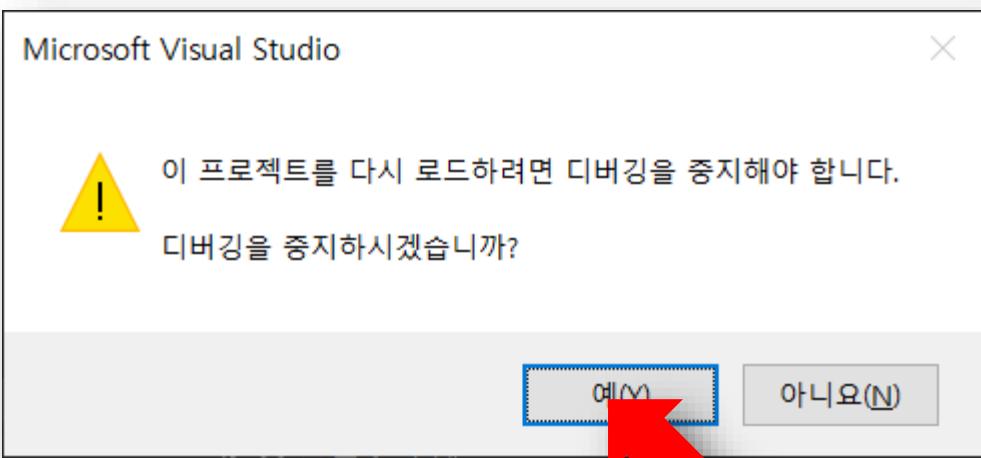
Enter a name for your new class. Class names may only contain alphanumeric characters, and may not contain a space.

When you click the "Create" button below, a header (.h) file and a source (.cpp) file will be made using this name.

Name	<input style="border: 2px solid red; width: 400px; height: 30px;" type="text" value="Wall"/>	Dodgeball (Runtime)	Public	Private
Path	<input style="width: 400px; height: 30px;" type="text" value="C:/Users/sunje/Desktop/Unreal/Dodgeball/Source/Dodgeball/"/>			<input style="border: 1px solid #ccc; padding: 2px 10px;" type="button" value="Choose Folder"/>
Header File	C:/Users/sunje/Desktop/Unreal/Dodgeball/Source/Dodgeball/Wall.h			
Source File	C:/Users/sunje/Desktop/Unreal/Dodgeball/Source/Dodgeball/Wall.cpp			







The screenshot shows the Microsoft Visual Studio IDE interface with the following details:

- Top Bar:** 파일(F), 편집(E), 보기(V), Git(G), 프로젝트(P), 빌드(B), 디버그(D), 테스트(S), 분석(N), 도구(I), 확장(X), 창(W), 도움말(H), 검색 (Ctrl+Q), Dodgeball.
- Toolbar:** Back, Forward, Home, Refresh, etc.
- Project Selector:** Develop, Win64, 로컬 Windows 디버거.
- Solution Explorer:** Shows the project structure:
 - 솔루션 탐색기
 - 솔루션 탐색기 검색(Ctrl+Shift+F)
 - 솔루션 'Dodgeball' (2/2개 프로젝트)
 - Engine
 - UE4
 - Games
 - Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - Wall.cpp
 - Wall.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject
 - Visualizers
 - UE4.natvis
- Code Editor:** DodgeballProjectile.cpp, DodgeballProjectile.h, DefaultEngine.ini, EnemyCharacter.cpp, EnemyCharacter.h, Wall.h. The file Wall.h is currently selected and has a red border around its tab. A red box highlights the code block from line 16 to line 17. The text "Ctrl+S" is overlaid in red at the bottom right of the code area.
- Status Bar:** 100%, 문제가 검색되지 않음, 줄: 17, 문자: 35, 열: 38, 탭, CRLF.
- Bottom Bar:** 준비, Live Share.

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Develop Win64 로컬 Windows 디버거 Live Share

Wall.cpp* Wall.h DodgeballProjectile.cpp DodgeballProjectile.h DefaultEngine.ini EnemyCharacter.cpp

Dodgeball AWall AWall()

```
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3 #include "Wall.h"
4
5 // Sets default values
6 AWall::AWall()
7 {
8     // Set this actor to call Tick() every frame. You can turn this off to improve performance if you don't need it.
9     PrimaryActorTick.bCanEverTick = true;
10
11     RootScene = CreateDefaultSubobject<USceneComponent>(TEXT("Root"));
12     RootComponent = RootScene;
13 }
14
15 // Called when the game starts or when spawned
16 void AWall::BeginPlay()
17 {
18     Super::BeginPlay();
19 }
20
21 // Called every frame
22 void AWall::Tick(float DeltaTime)
23 {
24     Super::Tick(DeltaTime);
25 }
26
27 }
28
29
30
```

Ctrl+S

100% 문제가 검색되지 않음 출: 13 문자: 28 열: 31 혼합 CRLF

솔루션 탐색기 솔루션 탐색기 검색(Ctrl+;) Dodgeball (2/2개 프로젝트)

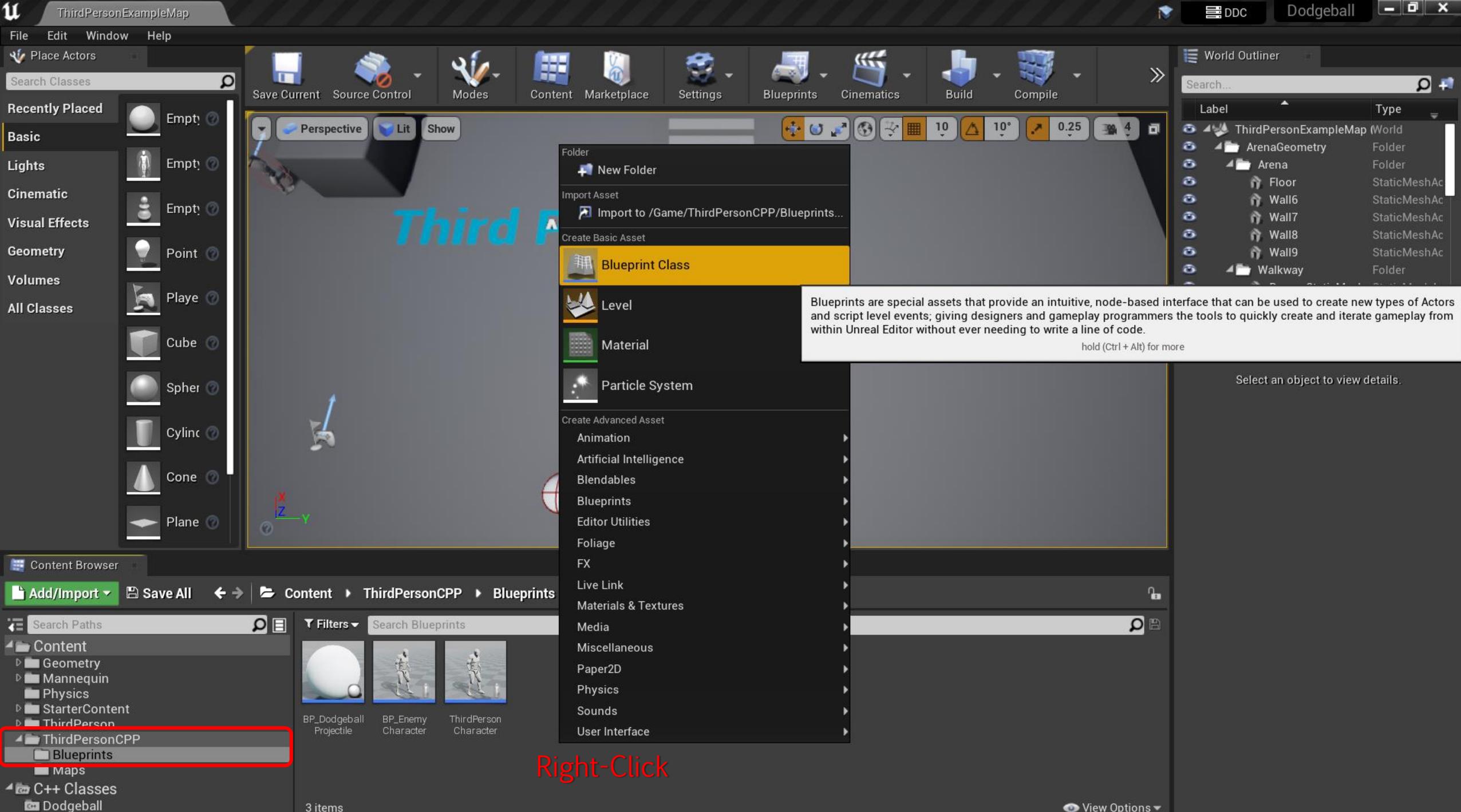
- Engine
- UE4
- Games
- Dodgeball
- 참조
- 외부 종속성
- Config
- Source
- Dodgeball
- Dodgeball.Build.cs
- Dodgeball.cpp
- Dodgeball.h
- DodgeballCharacter.cpp
- DodgeballCharacter.h
- DodgeballGameMode.cpp
- DodgeballGameMode.h
- DodgeballProjectile.cpp
- DodgeballProjectile.h
- EnemyCharacter.cpp
- EnemyCharacter.h
- Wall.cpp
- Wall.h
- Dodgeball.Target.cs
- DodgeballEditor.Target.cs
- Dodgeball.uproject
- Visualizers
- UE4.natvis

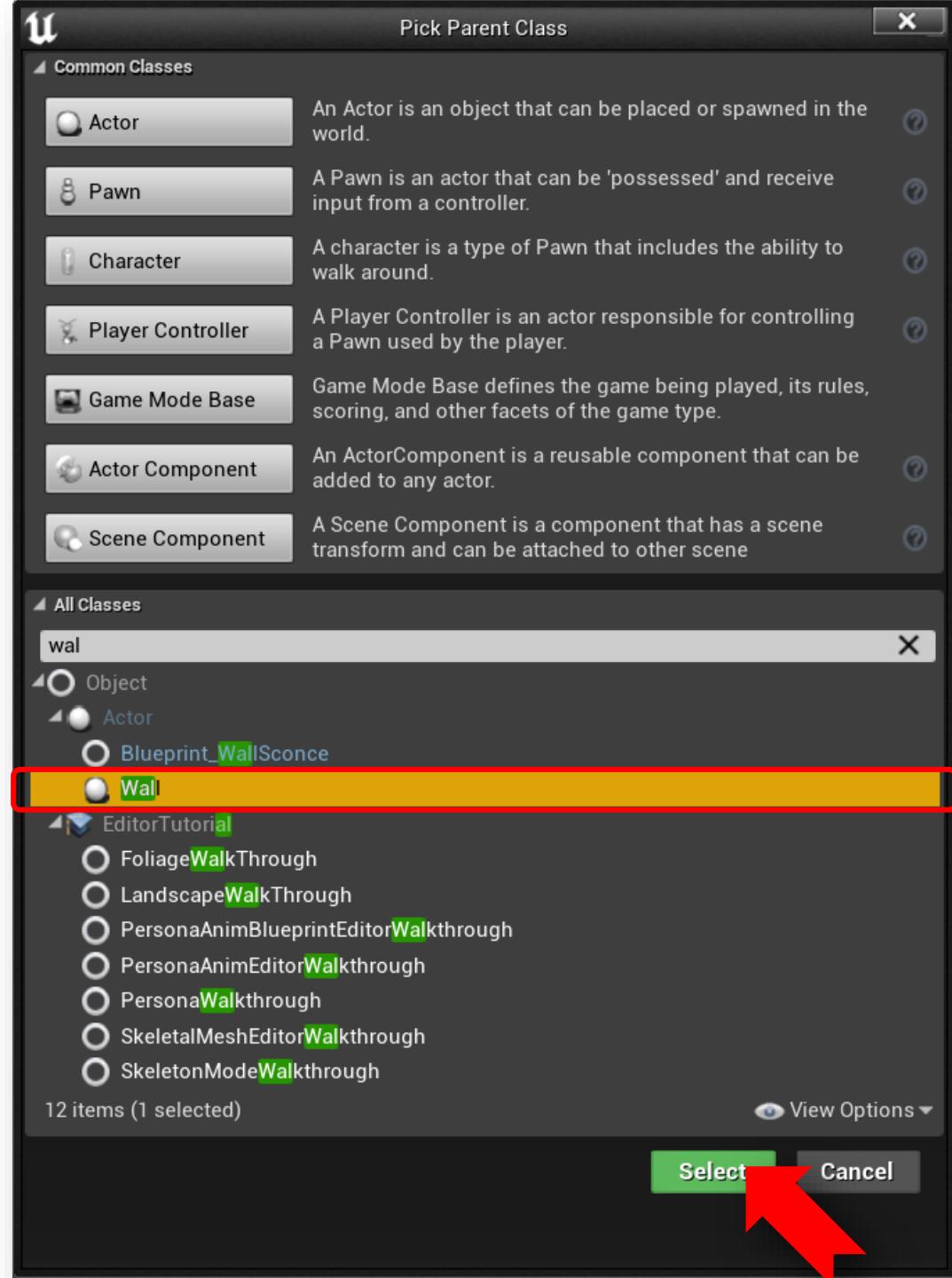
솔루션 탐색기 Git 변경 내용

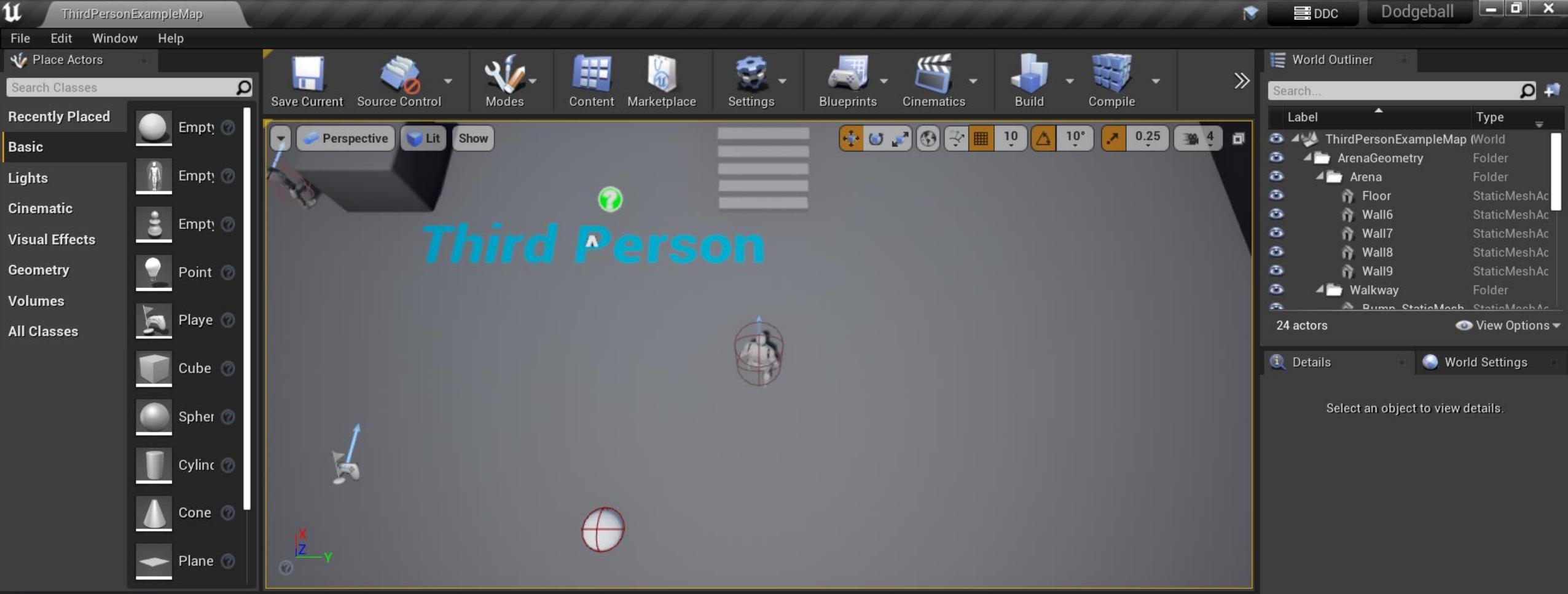
준비 ↑ 소스 제어에 추가 ▲ 1

The screenshot shows the Microsoft Visual Studio interface with the following details:

- Top Bar:** 파일(F), 편집(E), 보기(V), Git(G), 프로젝트(P), 빌드(B), 디버그(D), 테스트(S), 분석(N), 도구(T), 확장(X), 창(W), 도움말(H), 검색 (Ctrl+Q), Dodgeball.
- Left Sidebar:** 서버, 템플릿, 도구 상자.
- Central Area:** A code editor window for "Wall.cpp" showing C++ code for a game actor. The code includes methods for `BeginPlay` and `Tick`. The file is part of the "Dodgeball" project.
- Build Menu (Open):** 솔루션 빌드(B) (highlighted with a red arrow), 솔루션 다시 빌드, 솔루션 정리(C), 솔루션의 전체 프로그램 데이터베이스 파일 빌드, 솔루션에서 코드 분석 실행(Y), Dodgeball 빌드(U), Dodgeball 다시 빌드(E), Dodgeball 정리(N), Dodgeball에서 코드 분석 실행(A), 프로젝트만(I), 일괄 빌드(T)..., 구성 관리자(O)..., 컴파일(M), 파일에서 코드 분석 실행(F).
- Right Side:** Solution Explorer showing the project structure: Dodgeball (包含了 Engine 和 Games 目录), Games (包含了 Dodgeball), Dodgeball (包含了 참조, 외부 종속성, Config, Source, Dodgeball, Dodgeball.Build.cs, Dodgeball.cpp, Dodgeball.h, DodgeballCharacter.cpp, DodgeballCharacter.h, DodgeballGameMode.cpp, DodgeballGameMode.h, DodgeballProjectile.cpp, DodgeballProjectile.h, EnemyCharacter.cpp, EnemyCharacter.h, Wall.cpp, Wall.h, Dodgeball.Target.cs, DodgeballEditor.Target.cs), Dodgeball.uproject, Visualizers, UE4.natvis.
- Bottom Status Bar:** 100%, 문제가 검색되지 않음, 줄: 13, 문자: 28, 열: 31, 혼합, CRLF, 솔루션 탐색기, Git 변경 내용.
- Bottom Right:** Live Share icon.







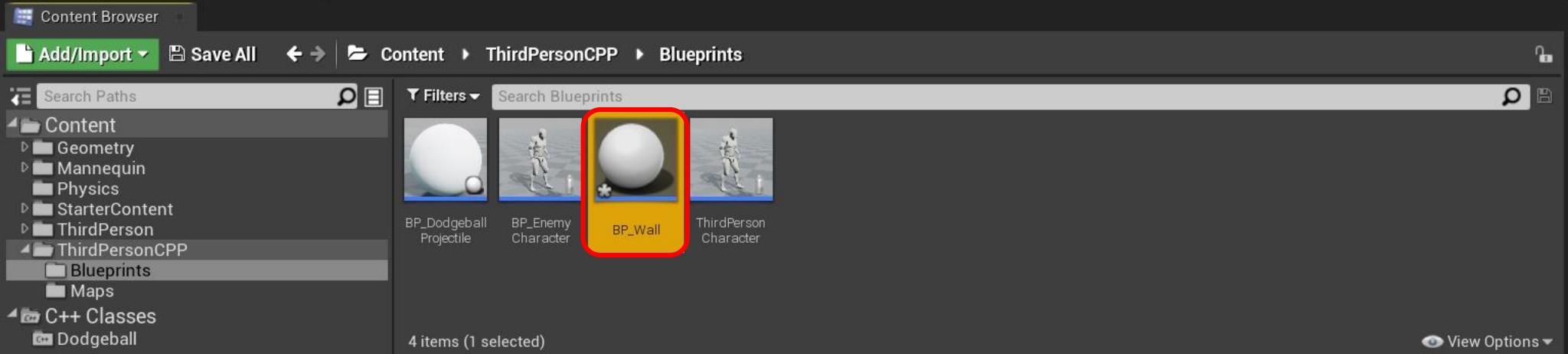
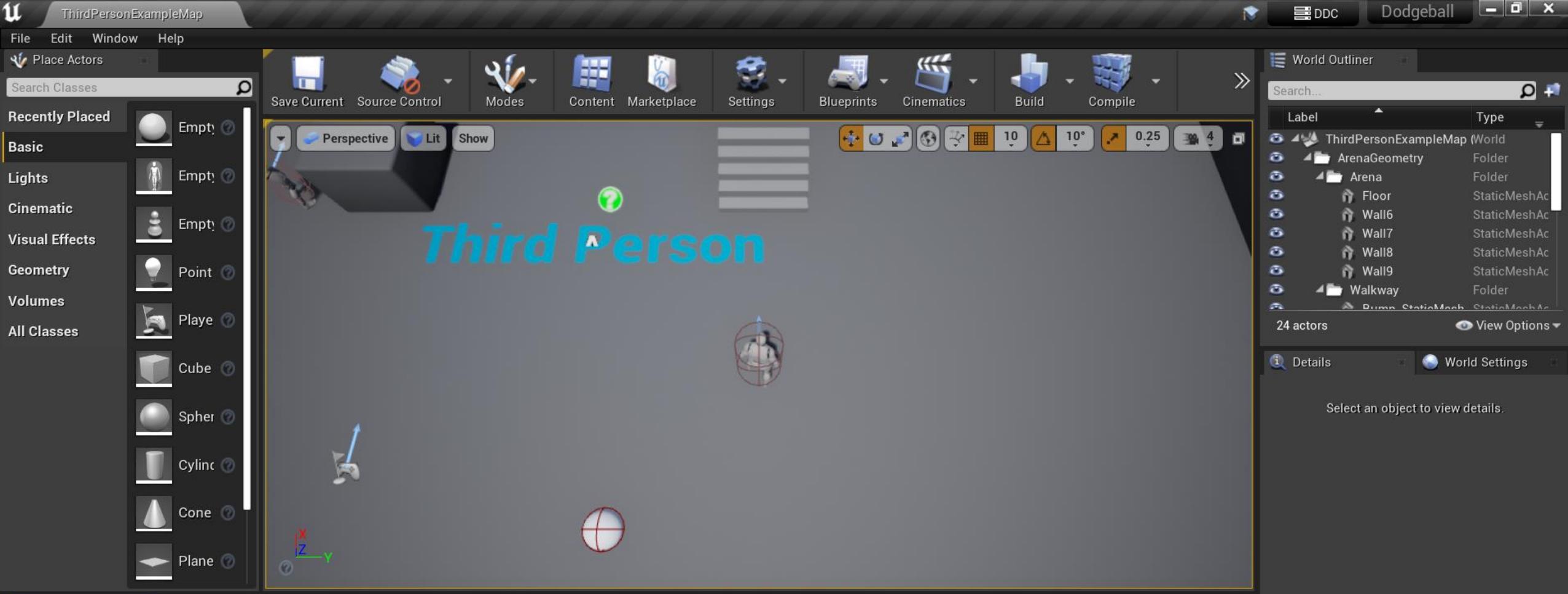
The screenshot shows the Content Browser interface. The top bar includes "Add/Import", "Save All", and navigation buttons. The path is set to "Content > ThirdPersonCPP > Blueprints". The left sidebar shows the file tree:

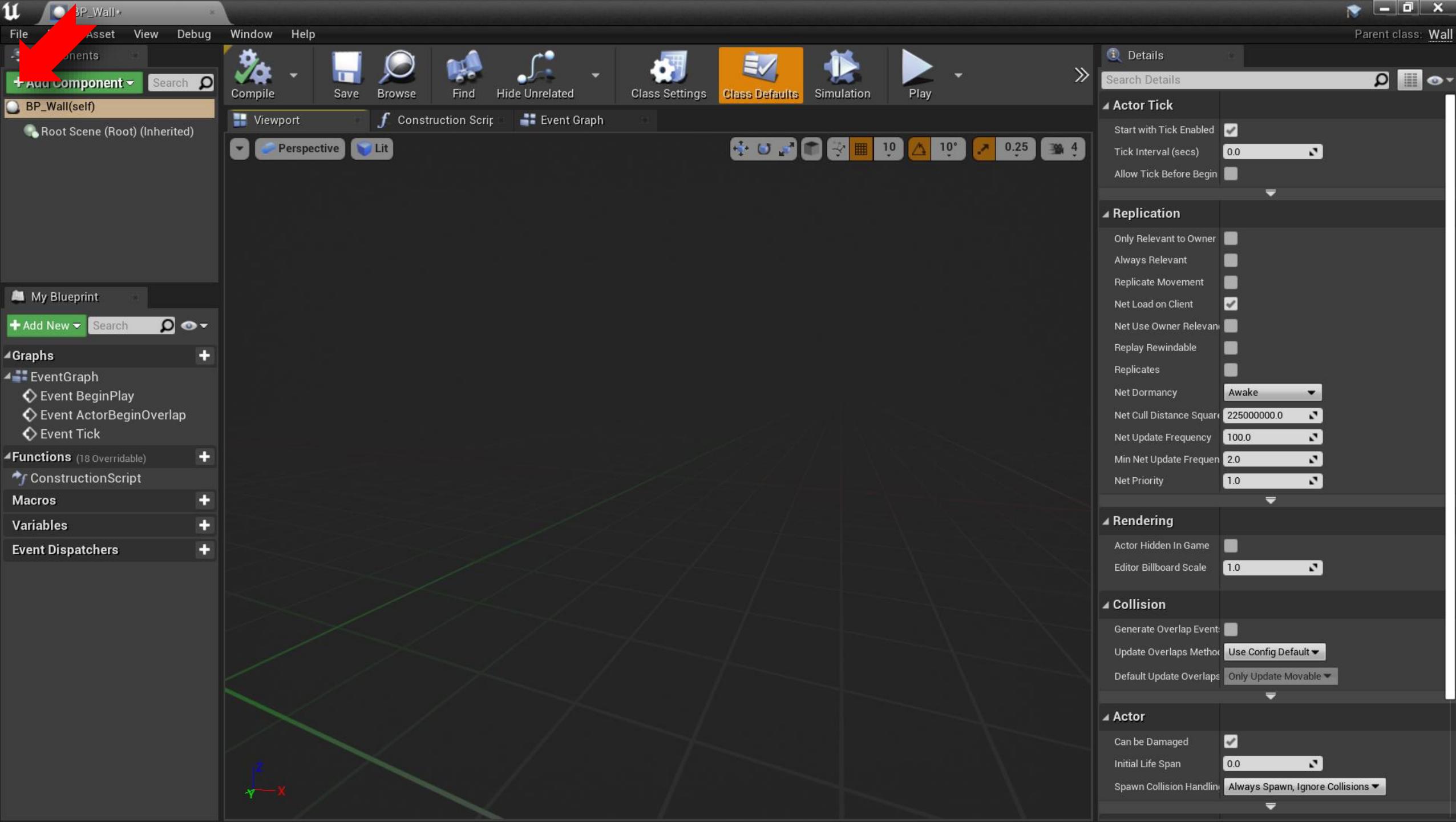
- Content
 - Geometry
 - Mannequin
 - Physics
 - StarterContent
 - ThirdPerson
 - ThirdPersonCPP
 - Blueprints
 - Maps
- C++ Classes
 - Dodgeball

The main area shows the "Blueprints" folder contents:

- BP_Dodgeball Projectile
- BP_Enemy Character
- NewBlueprint
- ThirdPerson Character

A red dashed box highlights the "NewBlueprint" entry. The status bar at the bottom indicates "4 items (1 selected)" and "View Options".





BP_Wall*

File Edit Asset View Debug Window Help

Components + Add Component Search

Compile Save Browse Find Hide Unrelated Class Settings Class Defaults Simulation Play

Search Components Scripting New Blueprint Script Component... New C++ Component...

Common Audio Chaos Destruction Listener Geometry Cache Niagara Particle System Particle System Point Light Rect Light Scene Skeletal Mesh Static Mesh Sphere Plane Cube

AI AIPerception AIPerception Stimuli Source Behavior Tree Blackboard Pawn Noise Emitter

Macros

Variables Event Dispatchers

Viewport Construction Script Event Graph Perspective Lit

10 10° 0.25 4

Details Search Details Actor Tick Start with Tick Enabled (checked) Tick Interval (secs) 0.0 Allow Tick Before Begin

Replication Only Relevant to Owner Always Relevant Replicate Movement Net Load on Client Net Use Owner Relevant Replay Rewindable Replicates Net Dormancy Awake Net Cull Distance Square 225000000.0 Net Update Frequency 100.0 Min Net Update Frequency 2.0 Net Priority 1.0

Rendering Actor Hidden In Game Editor Billboard Scale 1.0

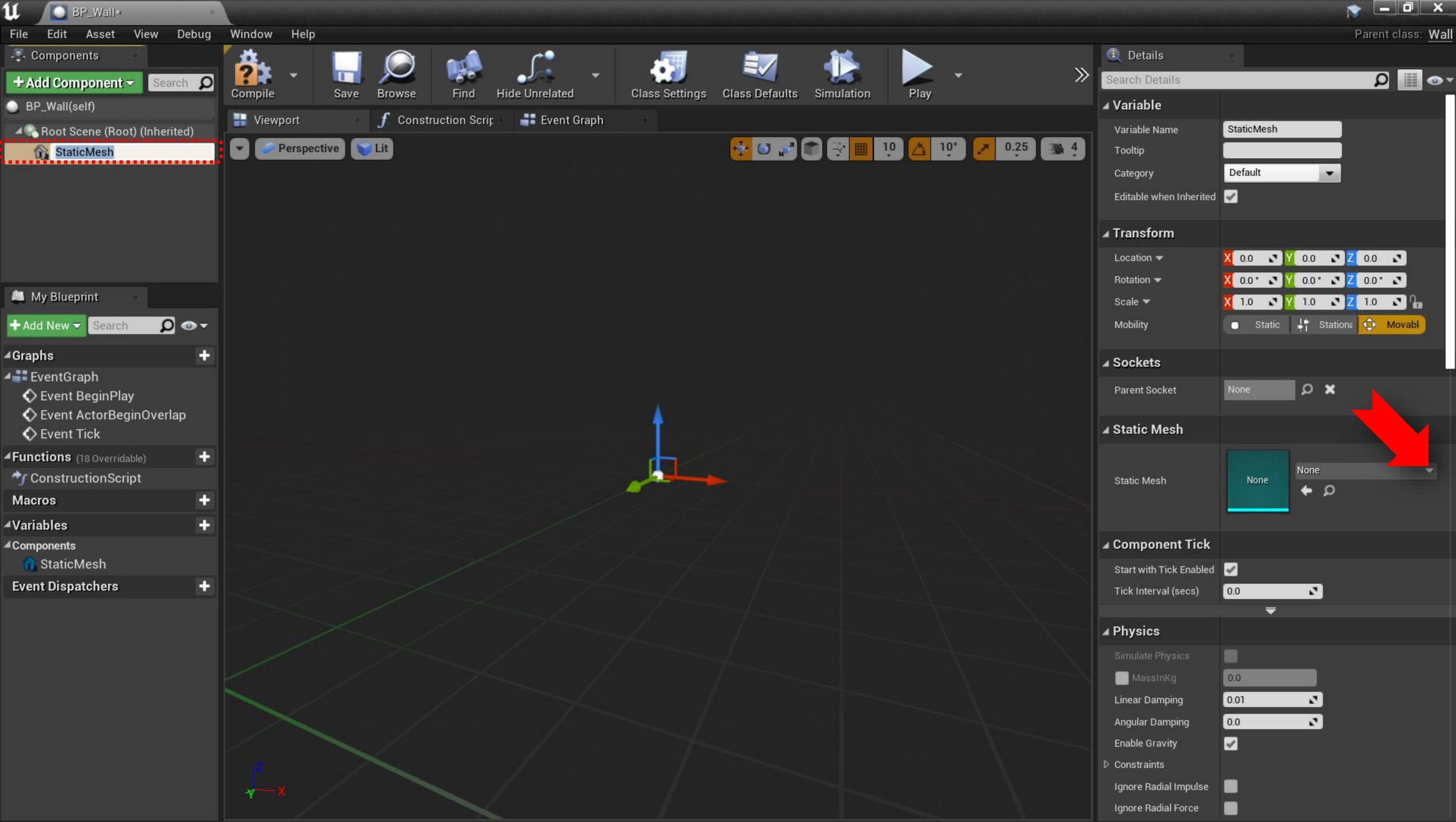
Collision Generate Overlap Event Update Overlaps Method Use Config Default Default Update Overlaps Only Update Movable

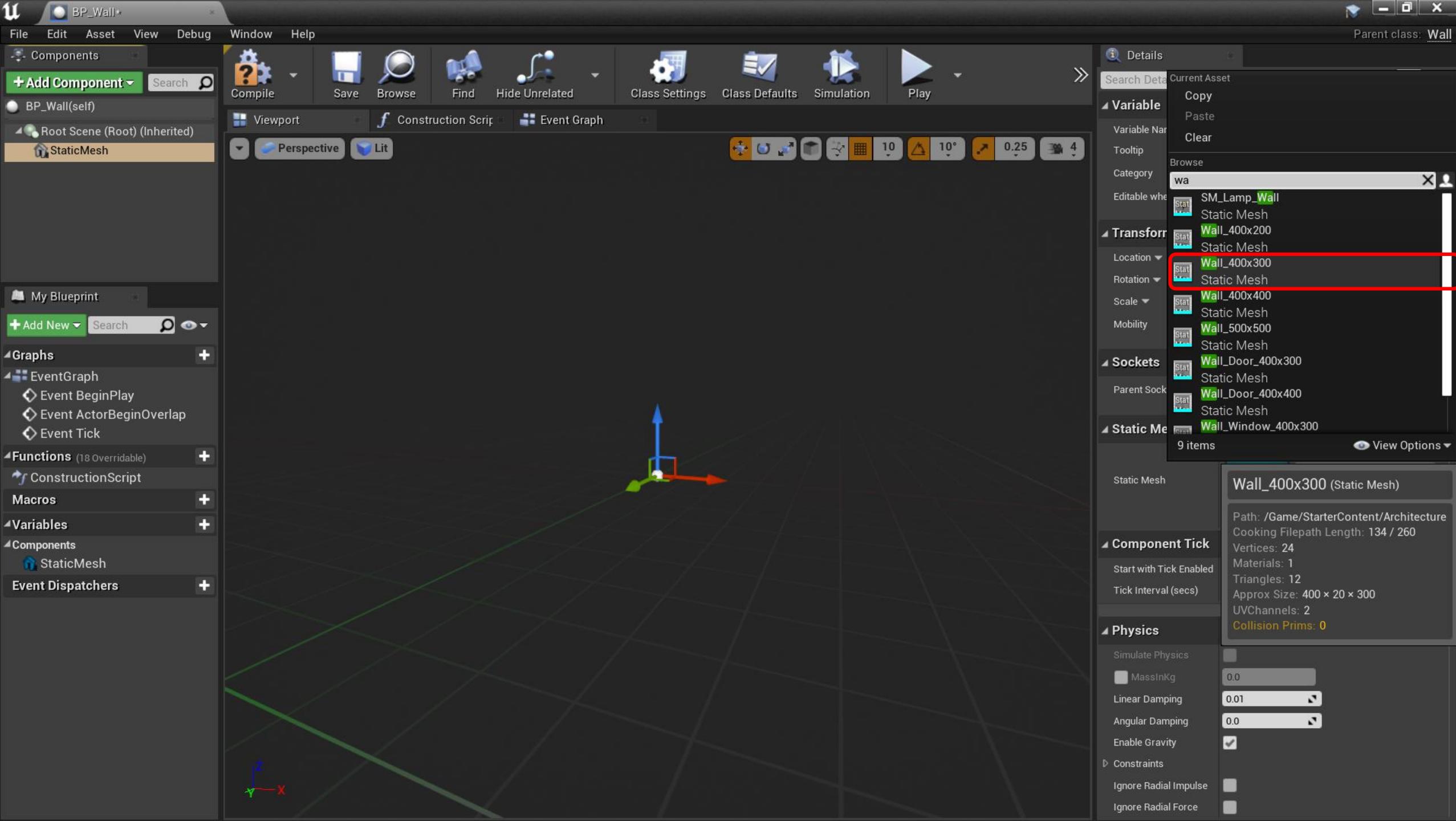
Actor Can be Damaged Initial Life Span 0.0 Spawn Collision Handling Always Spawn, Ignore Collisions

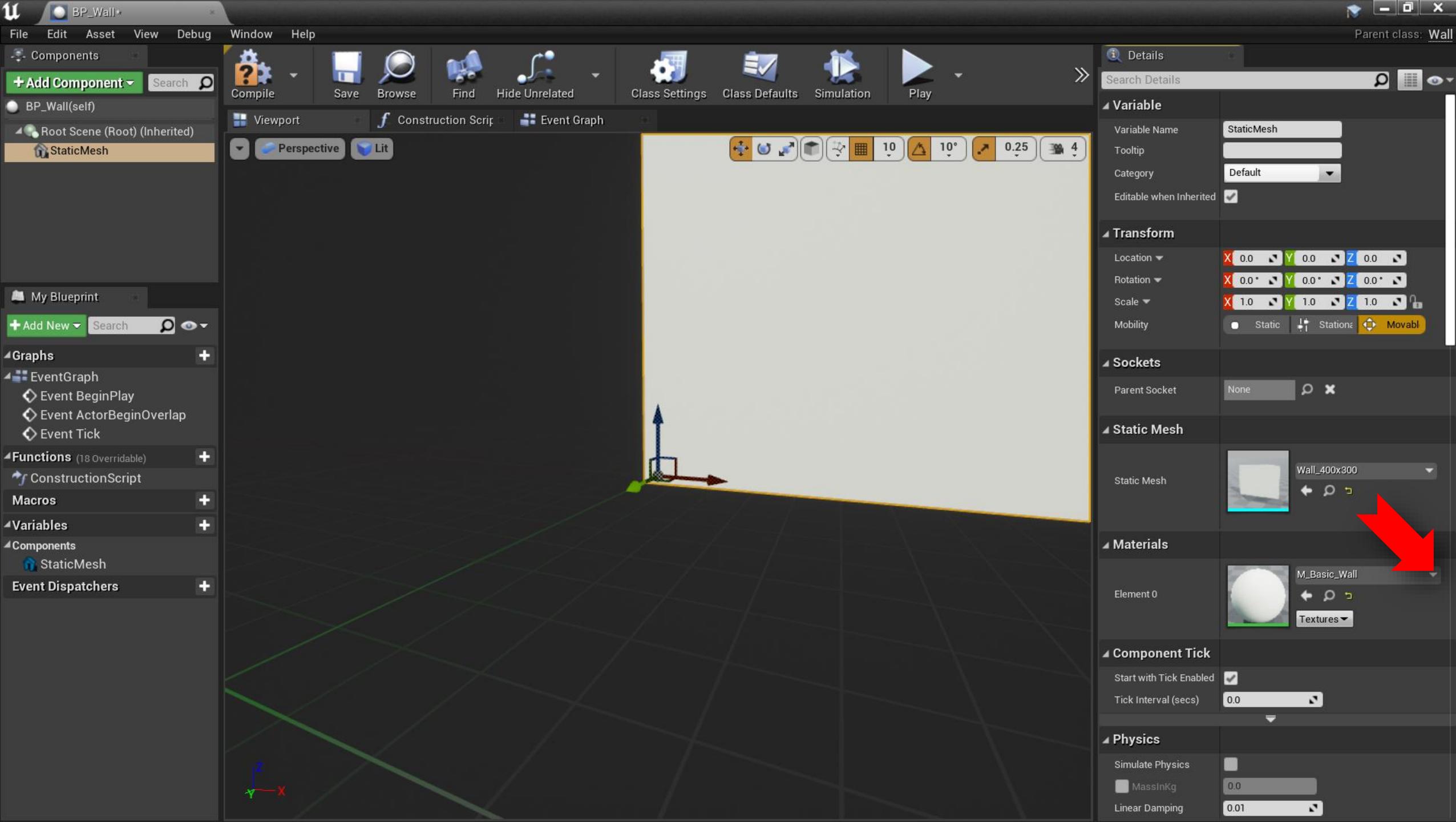
Parent class: Wall

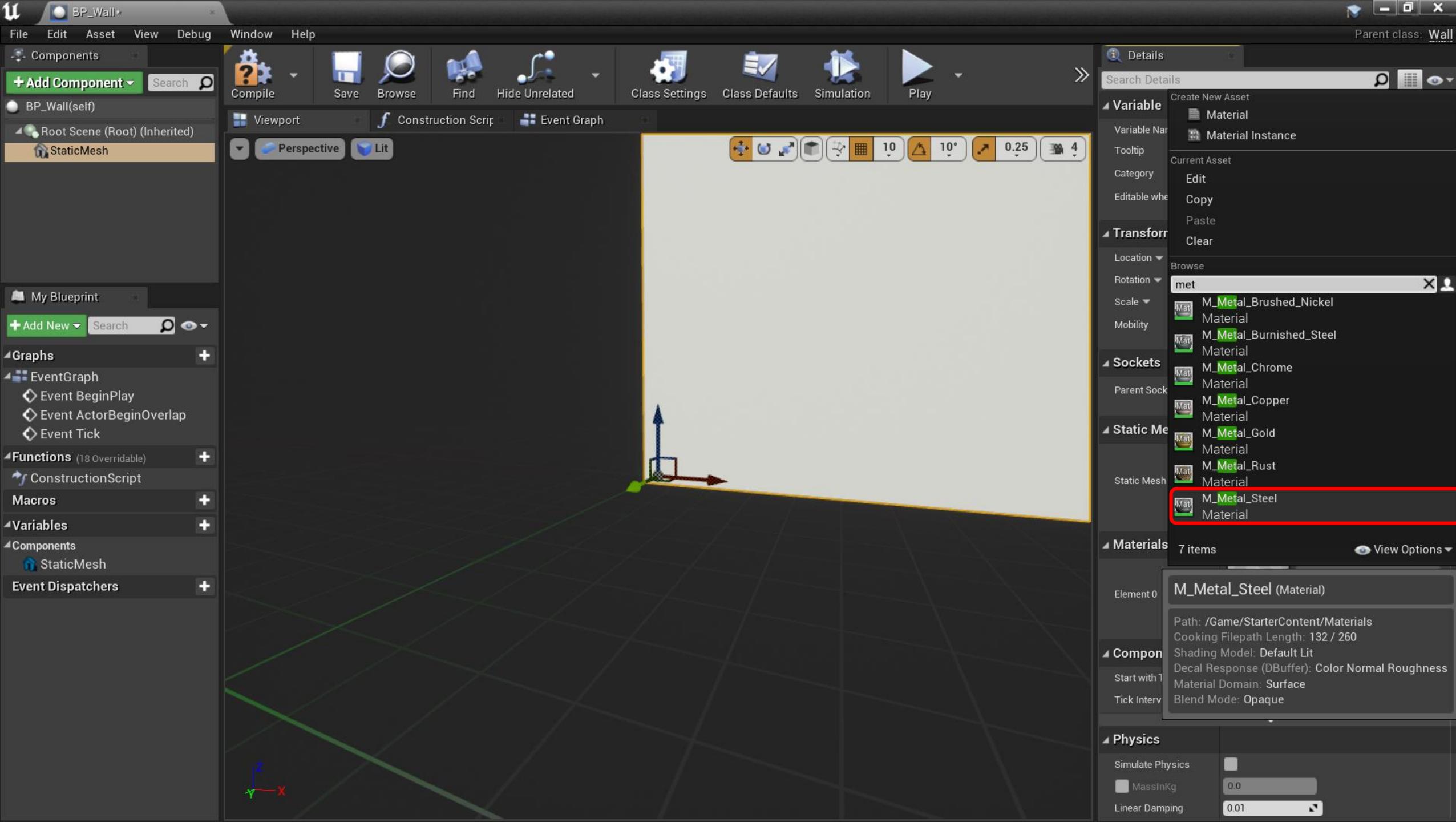
StaticMeshComponent is used to create an instance of a UStaticMesh.
A static mesh is a piece of geometry that consists of a static set of polygons.
@see <https://docs.unrealengine.com/latest/INT/Engine/Content/Types/StaticMeshes/>
@see UStaticMesh

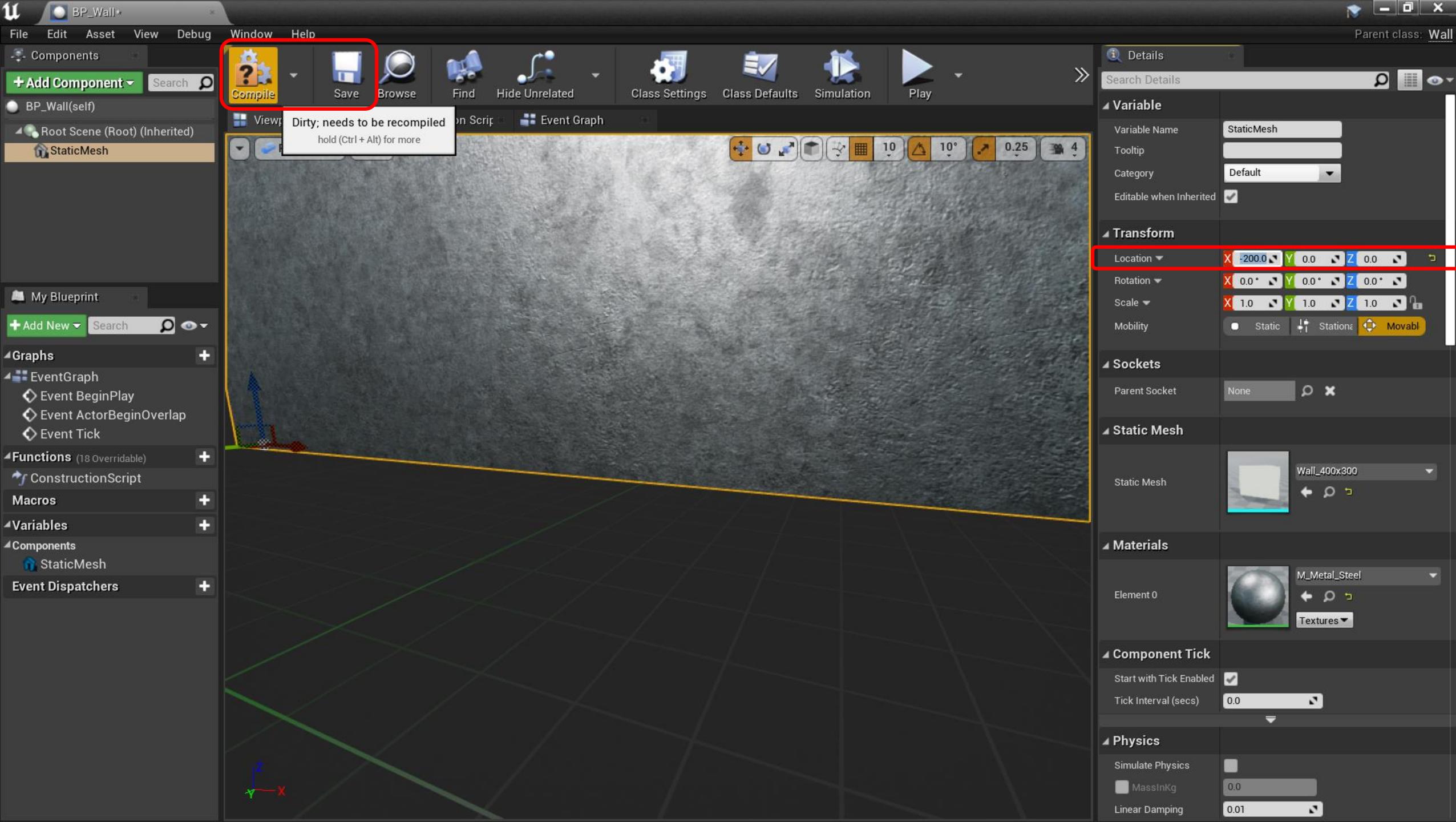
hold (Ctrl + Alt) for more

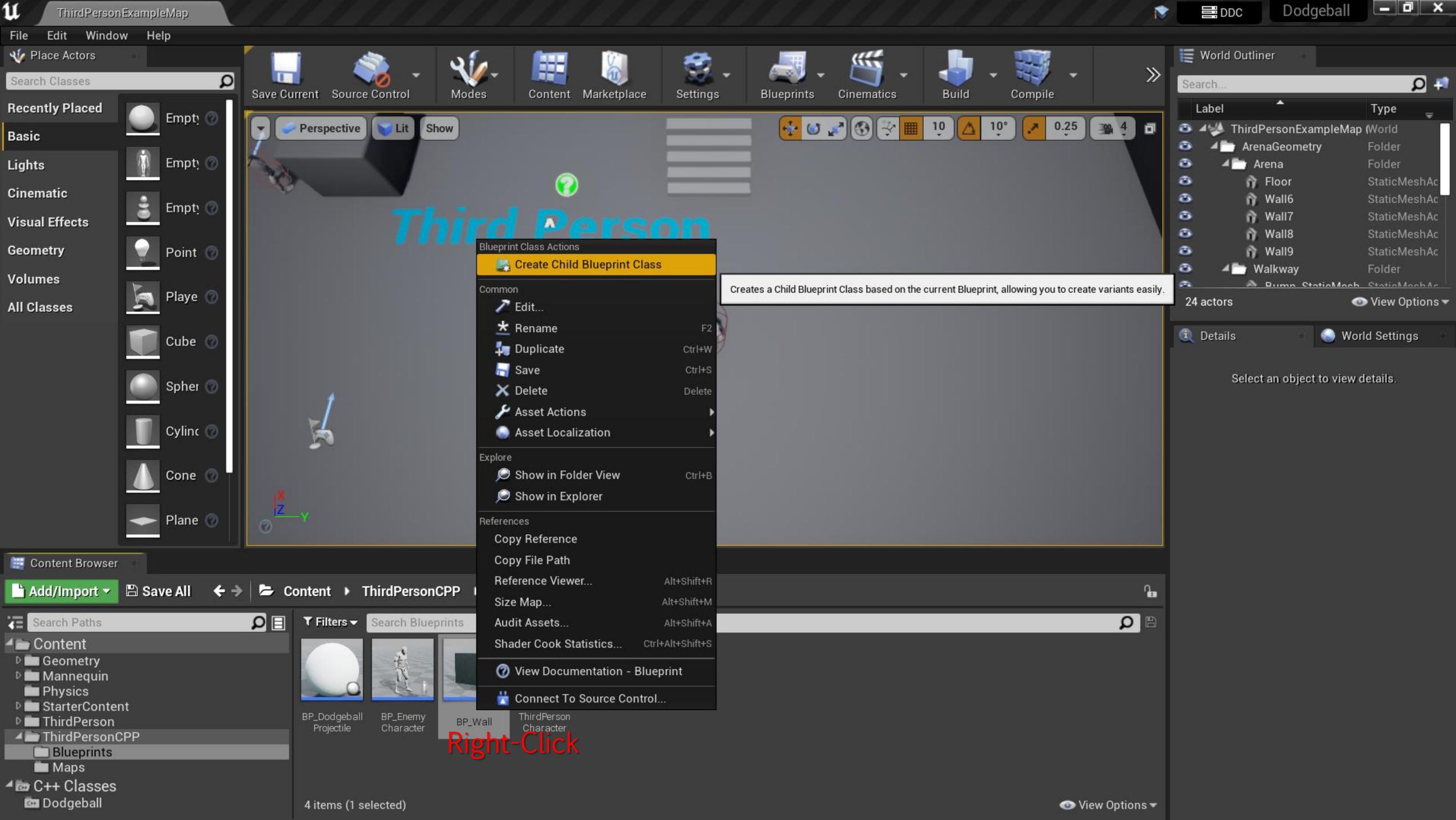


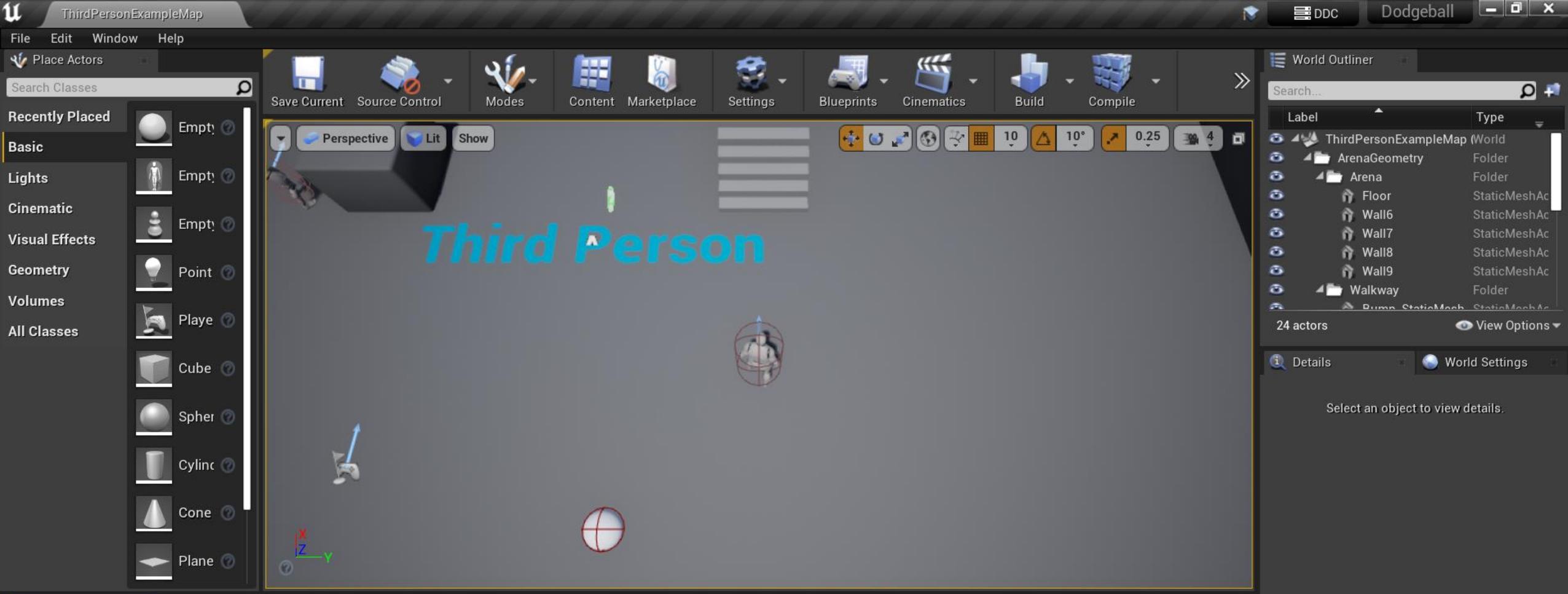








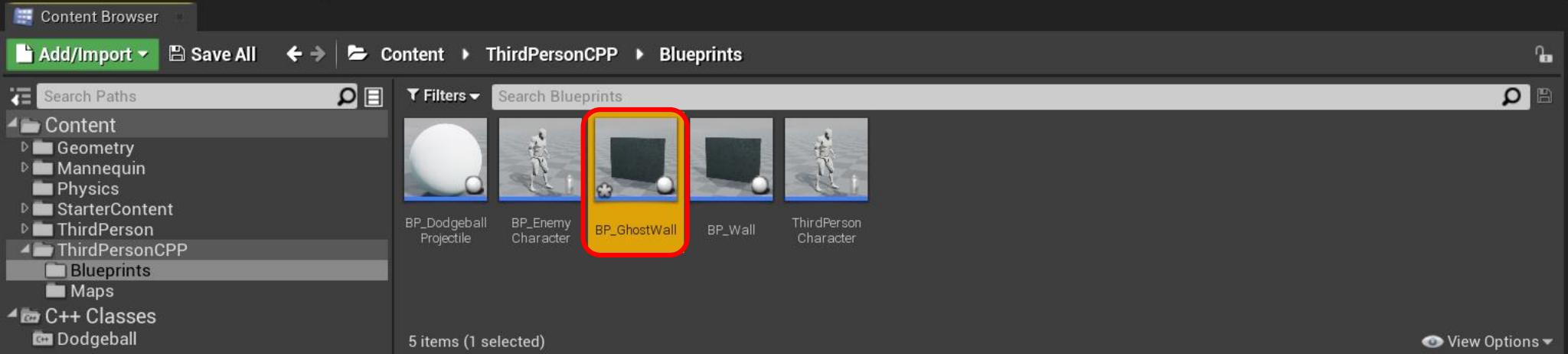
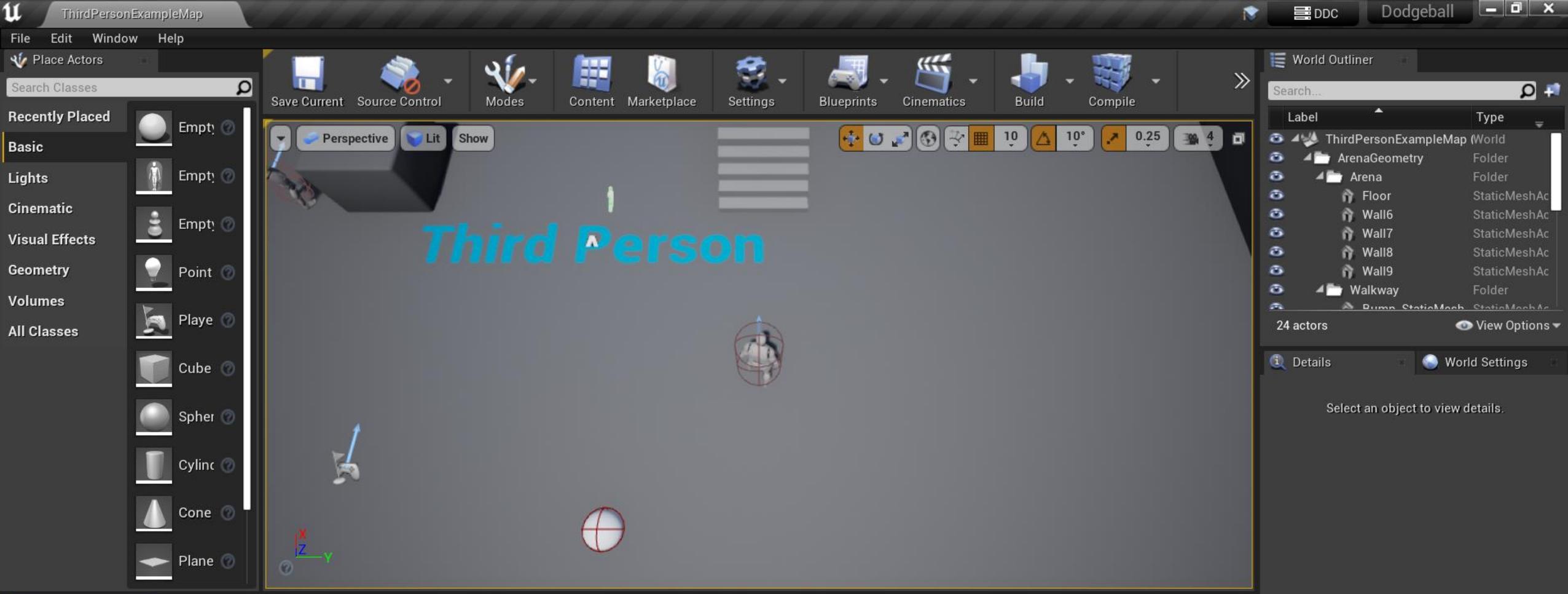


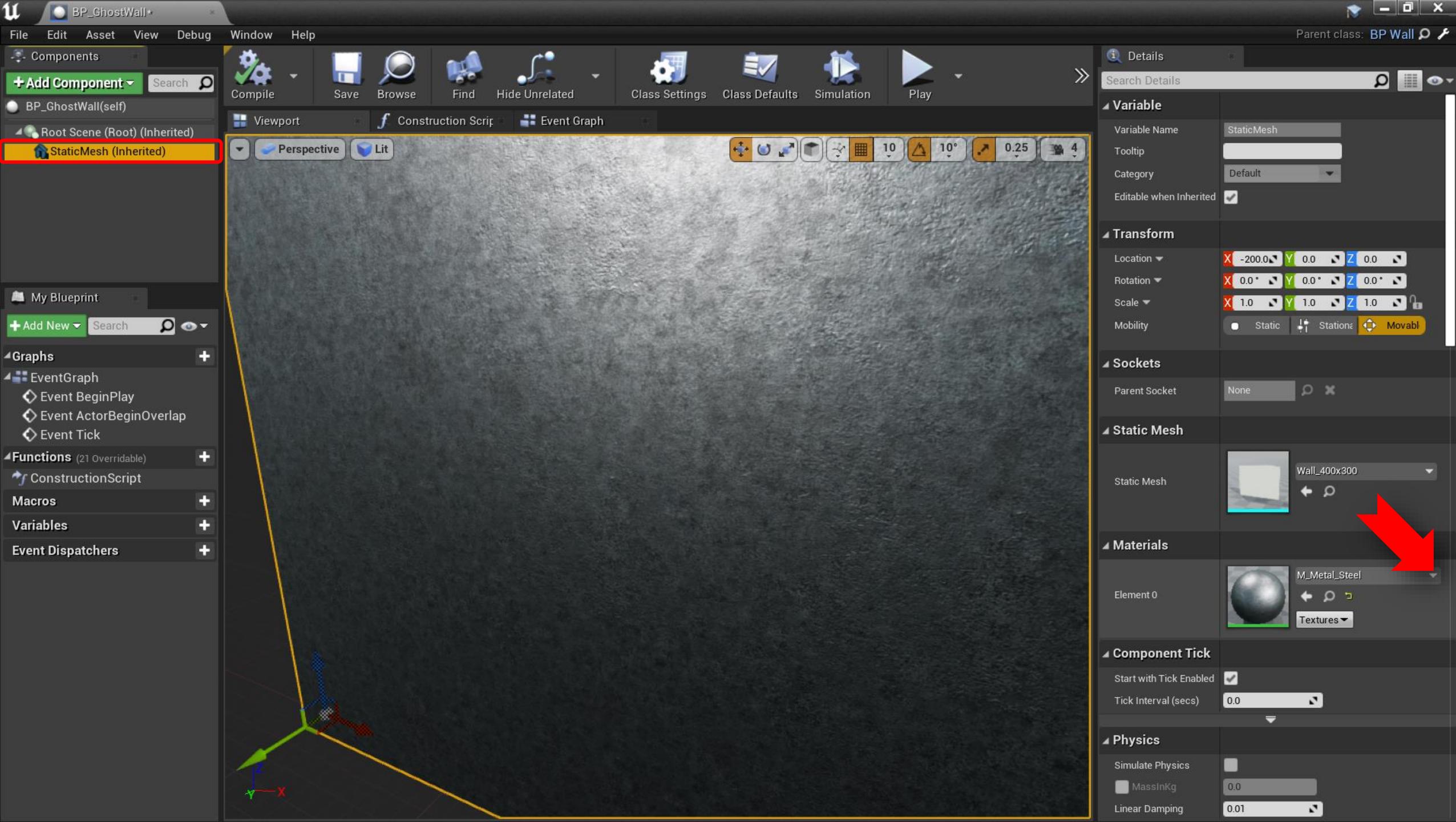


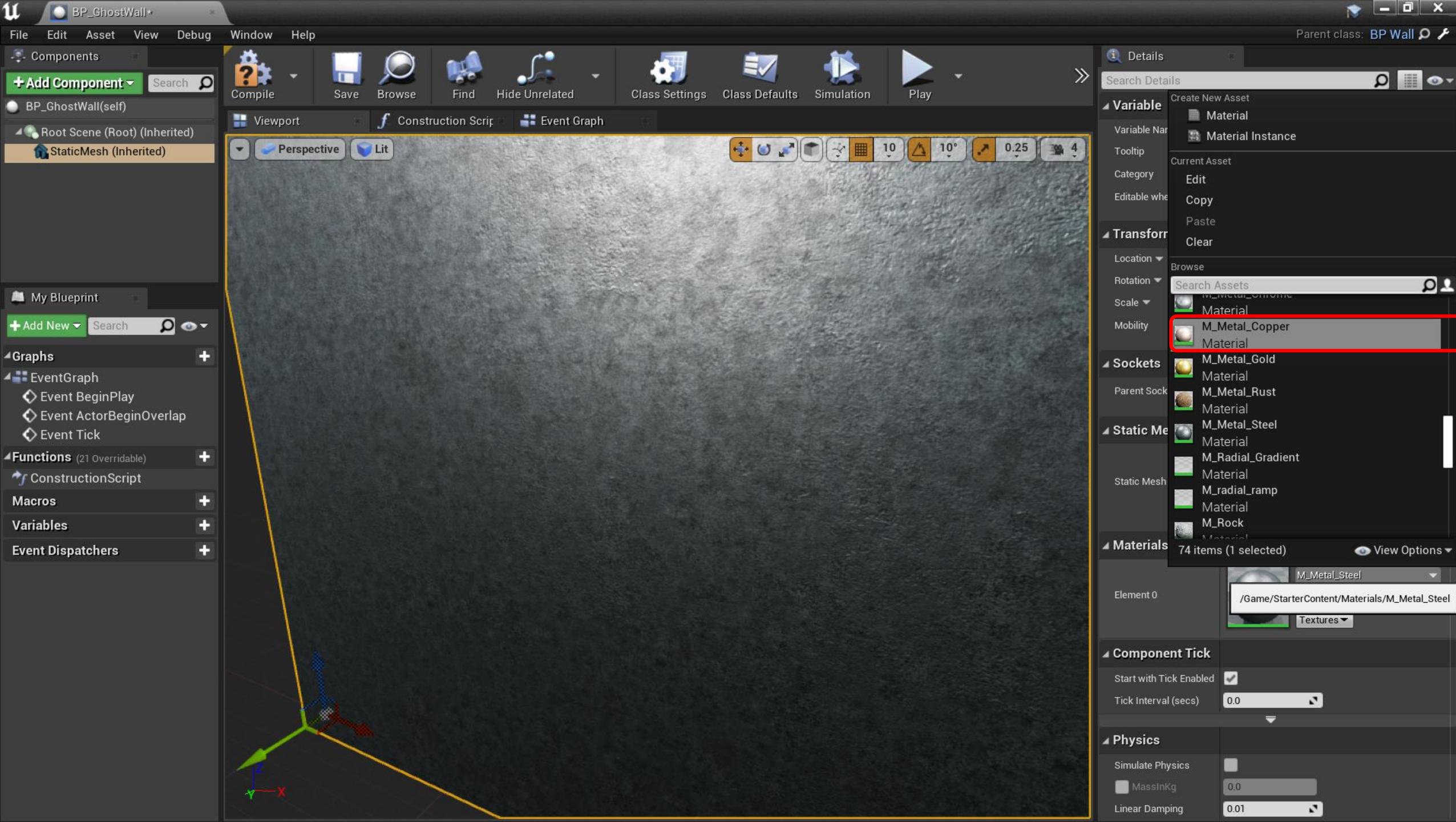
The Content Browser at the bottom shows the "Blueprints" section under "ThirdPersonCPP". The list includes:

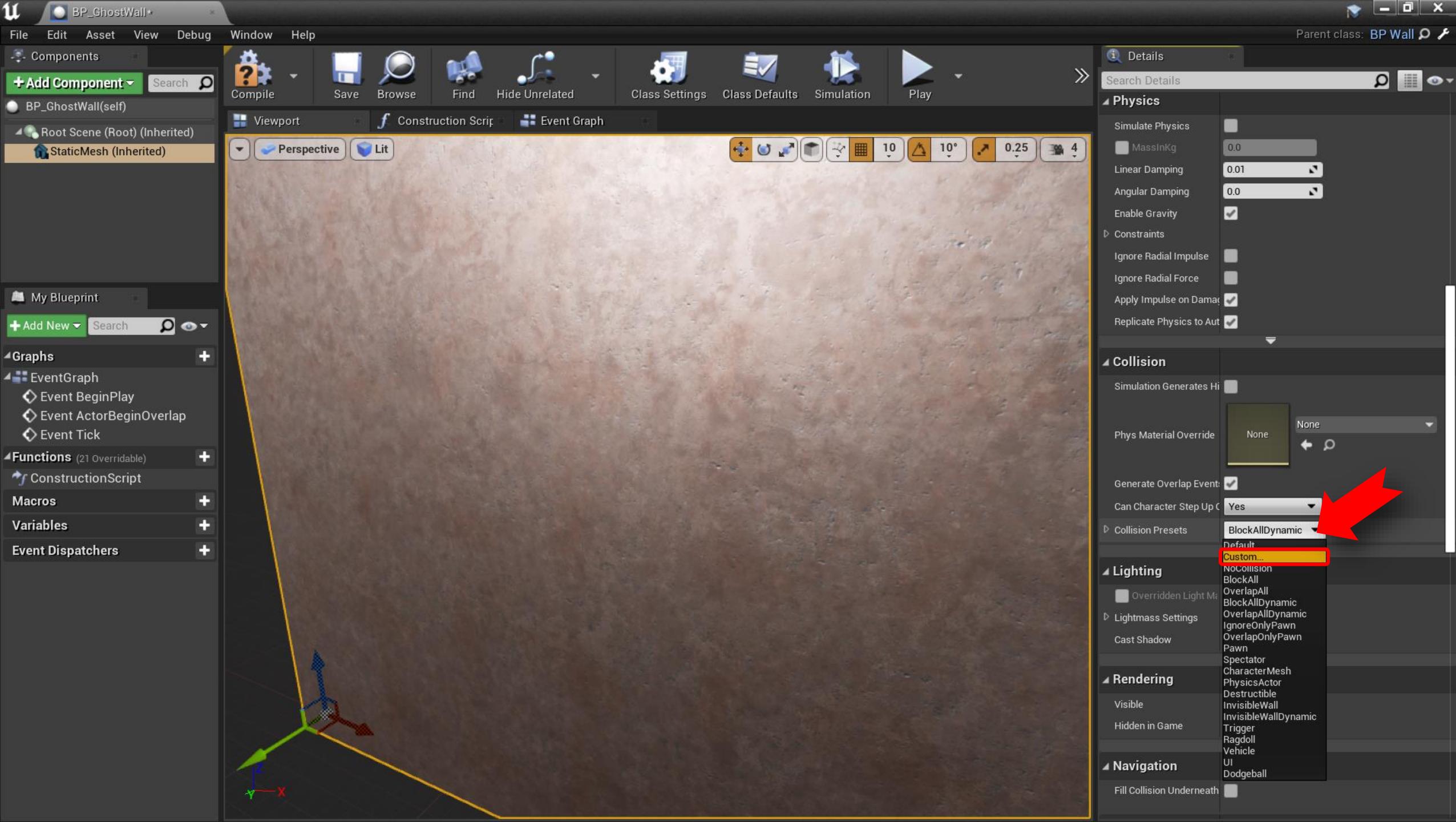
- BP_Dodgeball Projectile
- BP_Enemy Character
- BP_Wall
- 3P_Wall_Child (selected, highlighted with a red dashed box)
- ThirdPerson Character

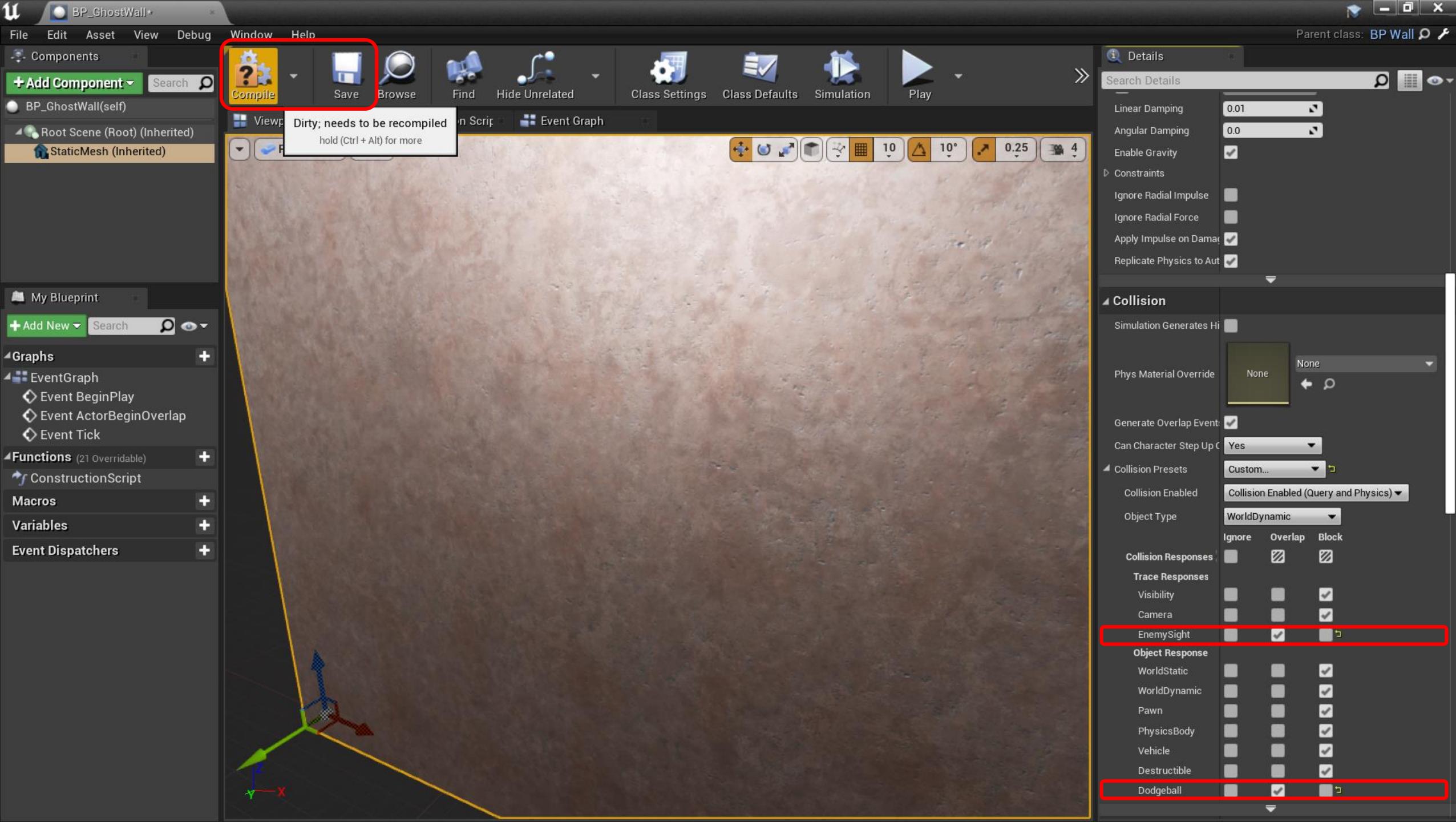
The status bar at the bottom left indicates "5 items (1 selected)".

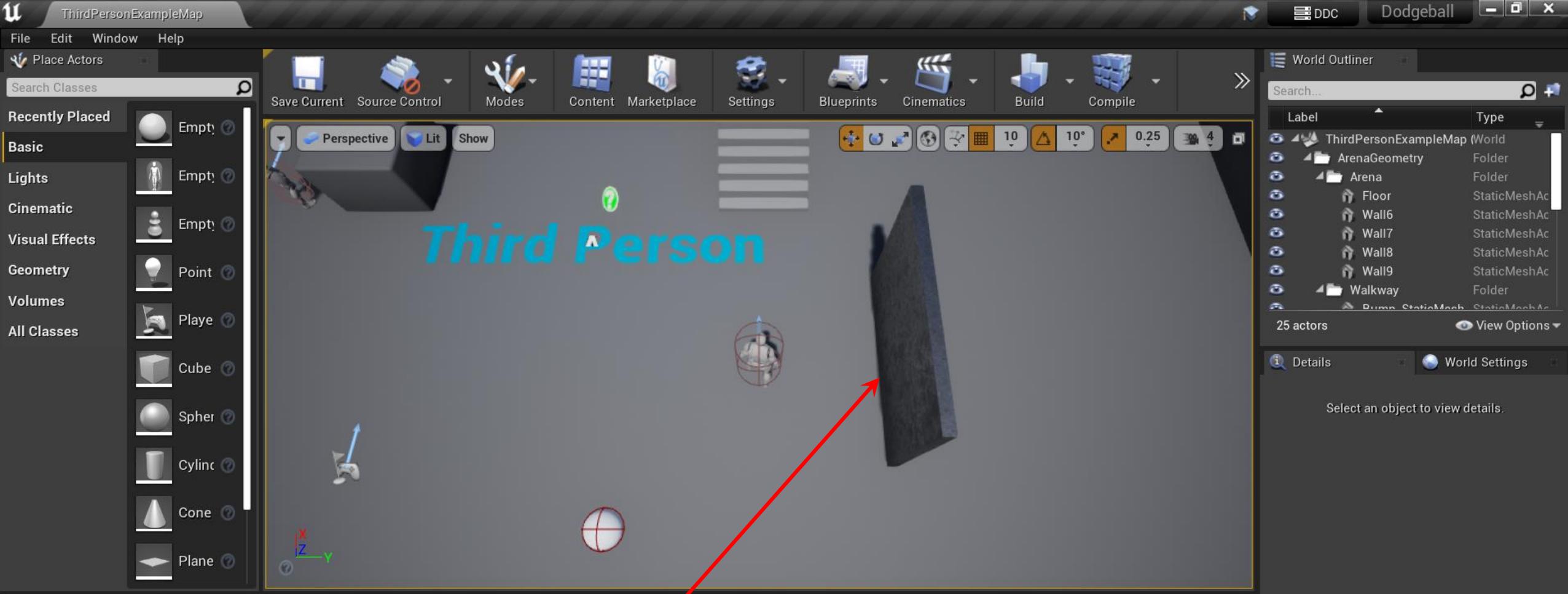












The screenshot shows the Content Browser interface. The top bar includes "Add/Import", "Save All", and navigation buttons. The left sidebar shows the project structure under "Content": Geometry, Mannequin, Physics, StarterContent, ThirdPerson, ThirdPersonCPP (selected), and C++ Classes (Dodgeball). The main area displays blueprints in the "Blueprints" folder of "ThirdPersonCPP": BP_DodgeballProjectile, BP_EnemyCharacter, BP_GhostWall, BP_Wall (selected), and ThirdPersonCharacter. A red arrow points from the Content Browser at the bottom to the selected BP_Wall blueprint in the list. The status bar at the bottom indicates "5 items (1 selected)" and "View Options".

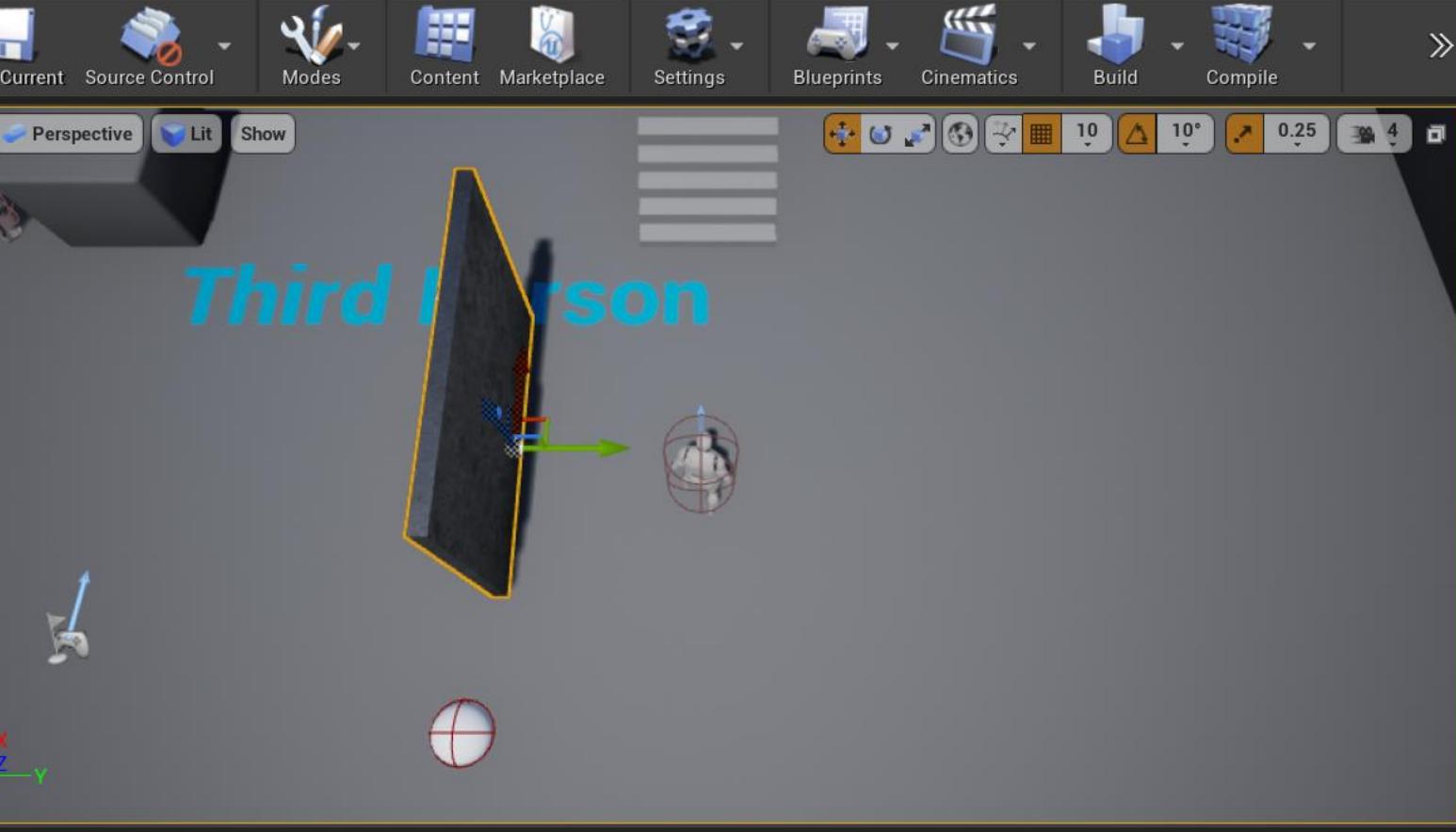


File Edit Window Help

Place Actors

Search Classes

Recently Placed
Basic
Lights
Cinematic
Visual Effects
Geometry
Volumes
All Classes



Label	Type
AtmosphericFog	AtmosphericF
SphereReflectionCapt	SphereReflec
1M_Cube_Chamfer	StaticMeshAc
BP_DodgeballProjectile	Edit BP_Doc
BP_EnemyCharacter	Edit BP_Ene
BP_Wall	Edit BP_Wal
DocumentationActor1	Documentation
NetworkPlayerStart	PlayerStart
SkySphereBlueprint	Edit BP_Sky

25 actors (1 selected)

View Options

Details	World Settings
BP_Wall	
+ Add Component	Edit Blueprint

Search Components

BP_Wall(self)

Search Details

Transform

Location -710.0 120.0 130.0

Rotation 0.0 0.0 0.0

Scale 1.0 1.0 1.0

Mobility Stat Stat Mov

Rendering

Visible checked

Actor Hidden In Game unchecked

Tags

Component Tags 0 Array elements + -

Activation

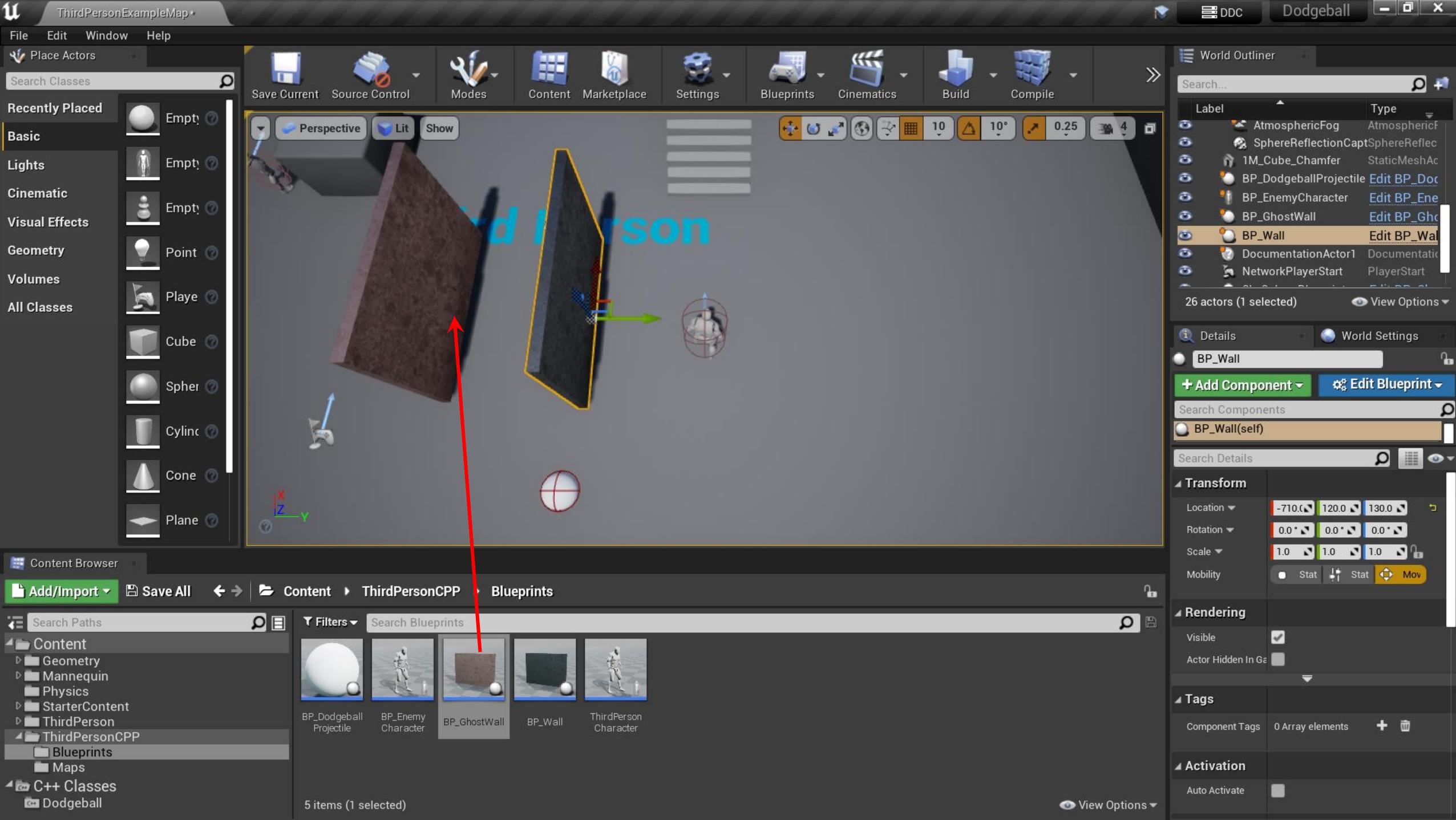
Auto Activate unchecked

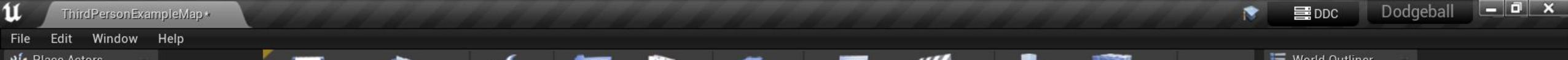
Add/Import Save All Content > ThirdPersonCPP > Blueprints

Content
Geometry
Mannequin
Physics
StarterContent
ThirdPerson
ThirdPersonCPP
Blueprints
Maps

5 items (1 selected) View Options

C++ Classes
Dodgeball





File Edit Window Help

Place Actors

Search Classes



Recently Placed



Basic

Lights

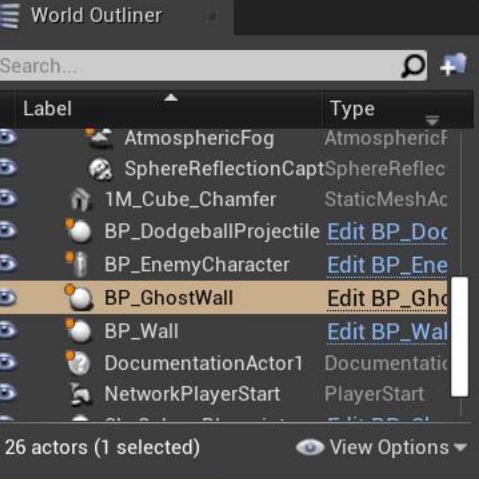
Cinematic

Visual Effects

Geometry

Volumes

All Classes



Details

BP_GhostWall

+ Add Component ▾

Edit Blueprint ▾

Search Components

BP_GhostWall(self)

Search Details

Transform

Location ▾ -910.0 130.0 100.0

Rotation ▾ 0.0 0.0 90.0

Scale ▾ 1.0 1.0 1.0

Mobility

Rendering

Visible

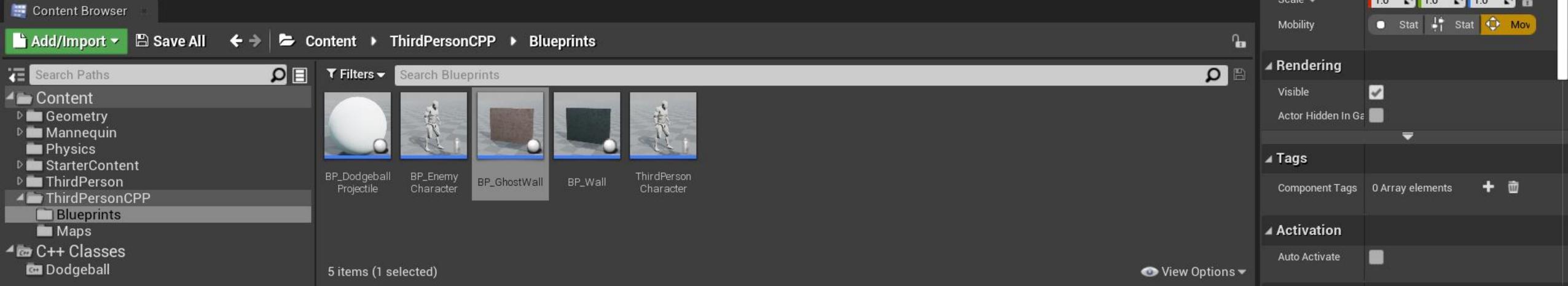
Actor Hidden In Game

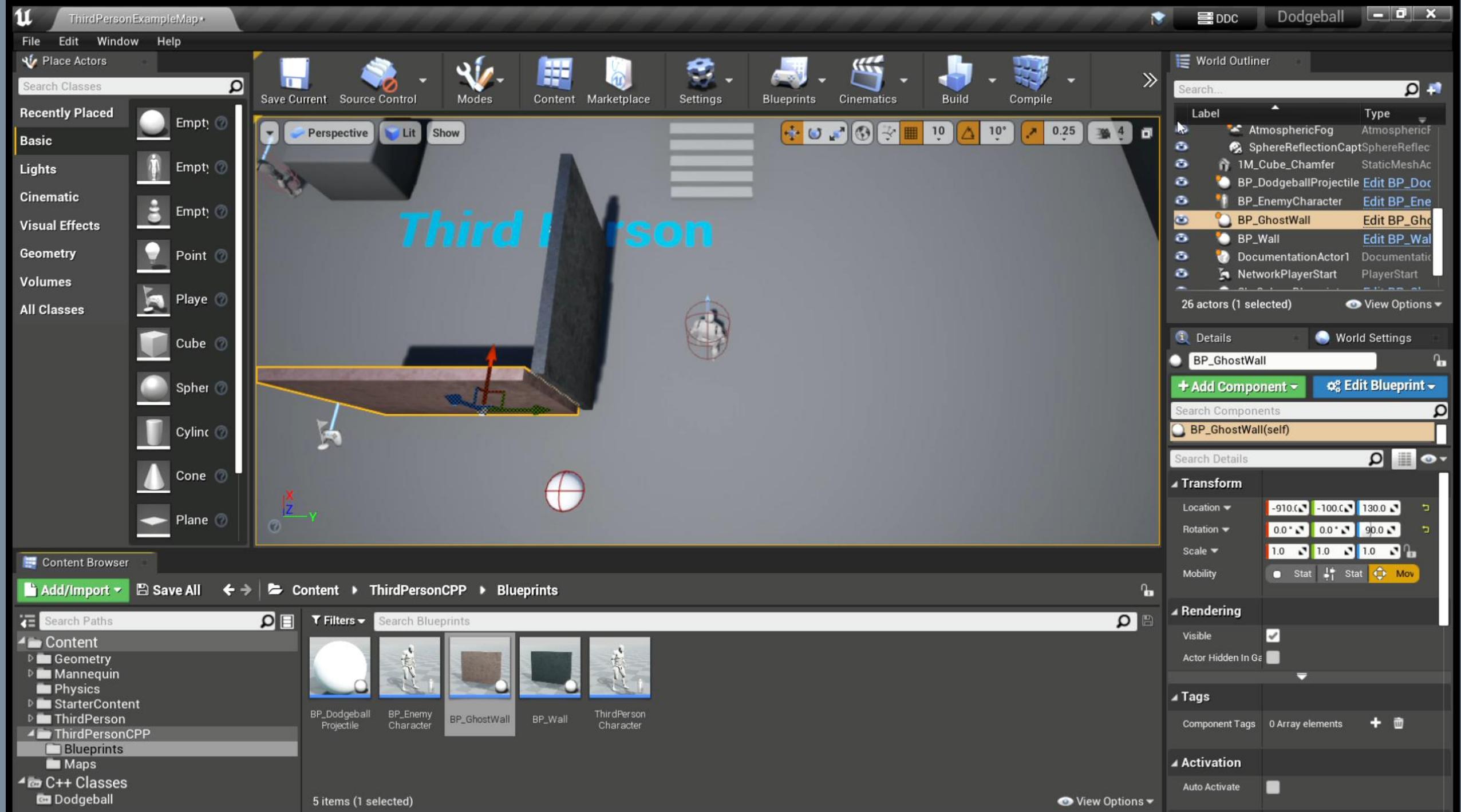
Tags

Component Tags 0 Array elements + -

Activation

Auto Activate







Victory Box

- › Creating the **VictoryBox** actor
 - Responsible for ending the game when the player character enters it
- › We'll be using the **Overlap** event.



Exercise 6.05: Creating the VictoryBox Class

The screenshot shows the Unreal Engine Editor interface. The left sidebar lists various asset types: Cinematic, Visual Effects, Geometry, Volumes, and All Classes. The 'All Classes' section is currently selected and highlighted with a red box. In the center, the Content Browser shows a folder structure under 'C++ Classes' for 'Dodgeball'. A right-click context menu is open over the 'Dodgeball' folder, with the 'New C++ Class...' option highlighted. A tooltip below the menu says 'Create a new class in /Classes_Game/Dodgeball.' On the right, the Details panel is open for the selected 'BP_GhostWall' actor, showing its Transform, Rendering, Tags, and Activation properties. The top center of the screen displays the text 'Third Person'.

Cinematic
Visual Effects
Geometry
Volumes
All Classes

Content Browser

Add/Import Save All C++ Classes Dodgeball

Content Paths Filters Search Dodgeball

Dodgeball Character Dodgeball GameMode Dodgeball Projectile Enemy Character Wall

New Folder

New C++ Class...

Create a new class in /Classes_Game/Dodgeball.

Right-Click

BP_DodgeballProjectile Edit BP_Doc
BP_EnemyCharacter Edit BP_Ene
BP_GhostWall Edit BP_Gho
BP_Wall Edit BP_Wal
DocumentationActor1 Documentation
NetworkPlayerStart PlayerStart
26 actors (1 selected) View Options

Details World Settings

+ Add Component Edit Blueprint

Search Components

BP_GhostWall(self)

Search Details

Transform

Location -910.0 -100.0 130.0
Rotation 0.0 0.0 90.0
Scale 1.0 1.0 1.0
Mobility Stat Mov

Rendering

Visible Actor Hidden In Ga

Tags

Component Tags 0 Array elements + -

Activation Auto Activate



Choose Parent Class

This will add a C++ header and source code file to your game project.

Show All Classes

None

An empty C++ class with a default constructor and destructor.

Character

A character is a type of Pawn that includes the ability to walk around.

Pawn

A Pawn is an actor that can be 'possessed' and receive input from a controller.

Actor

An Actor is an object that can be placed or spawned in the world.

Actor Component

An ActorComponent is a reusable component that can be added to any actor.

Selected Class

Actor

Selected Class Source

Actor.h



Next >

Create Class

Cancel



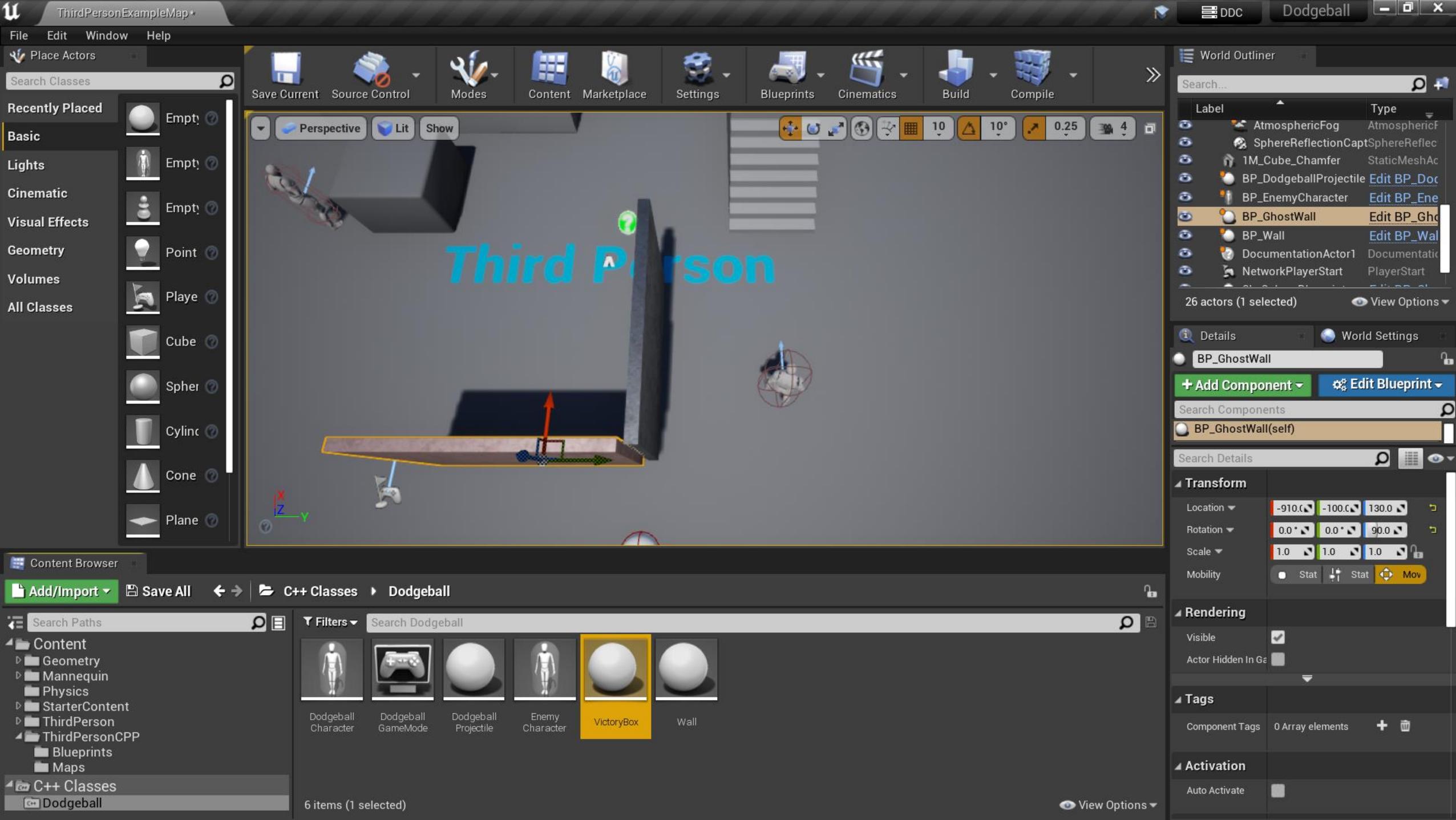
Name Your New Actor

Enter a name for your new class. Class names may only contain alphanumeric characters, and may not contain a space.

When you click the "Create" button below, a header (.h) file and a source (.cpp) file will be made using this name.

Name	<input type="text" value="VictoryBox"/>	Dodgeball (Runtime) ▼	Public	Private
Path	C:/Users/sunje/Desktop/Unreal/Dodgeball/Source/Dodgeball/			Choose Folder
Header File	C:/Users/sunje/Desktop/Unreal/Dodgeball/Source/Dodgeball/VictoryBox.h			
Source File	C:/Users/sunje/Desktop/Unreal/Dodgeball/Source/Dodgeball/VictoryBox.cpp			


[Back](#)[Create Class](#)[Cancel](#)



파일 수정 감지

×



'Dodgeball' 프로젝트가 환경 외부에서 수정되었습니다.

디스크에서 업데이트된 프로젝트를 로드하려면 [다시 로드]를 누르세요.

디스크에서 모든 항목을 다시 로드하려면 모든 외부 변경 및 작업이 완료된 후 [모두 다시 로드]를 누르세요.
외부 변경을 무시하려면 [무시]를 누르세요. 변경 내용은 다음에 프로젝트를 열 때 사용됩니다.

다시 로드(R)

모두 다시 로드(A)

무시(I)

모두 무시(L)

Live Share

VictoryBox.cpp Dodgeball

VictoryBox.h* Wall.cpp Wall.h DodgeballProjectile.cpp DodgeballProjectile.h

```
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3 #pragma once
4
5 #include "CoreMinimal.h"
6 #include "GameFramework/Actor.h"
7 #include "VictoryBox.generated.h"
8
9 UCLASS()
10 class DODGEBALL_API AVictoryBox : public AActor
11 {
12     GENERATED_BODY()
13
14     private:
15
16         UPROPERTY(VisibleAnywhere, BlueprintReadOnly, Category = VictoryBox, meta = (AllowPrivateAccess = "true"))
17         class USceneComponent* RootScene;
18
19     public:
20         // Sets default values for this actor's properties
21         AVictoryBox();
22
23     protected:
24         // Called when the game starts or when spawned
25         virtual void BeginPlay() override;
26
27     public:
28         // Called every frame
29         virtual void Tick(float DeltaTime) override;
30     };
31 }
32
```

Ctrl+S

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+)

- 솔루션 'Dodgeball' (2/2개 프로젝트)
 - Engine
 - UE4
 - Games
 - Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - VictoryBox.cpp
 - VictoryBox.h
 - Wall.cpp
 - Wall.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject

Live Share

VictoryBox.cpp* ✘ ✗ VictoryBox.h Wall.cpp Wall.h DodgeballProjectile.cpp DodgeballProjectile.h

Dodgeball

```
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3 #include "VictoryBox.h"
4
5 // Sets default values
6 AVictoryBox::AVictoryBox()
7 {
8     // Set this actor to call Tick() every frame. You can turn this off to improve performance if you don't need it.
9     PrimaryActorTick.bCanEverTick = true;
10
11     RootScene = CreateDefaultSubobject<USceneComponent>(TEXT("Root"));
12     RootComponent = RootScene;
13 }
14
15
16 // Called when the game starts or when spawned
17 void AVictoryBox::BeginPlay()
18 {
19     Super::BeginPlay();
20 }
21
22
23 // Called every frame
24 void AVictoryBox::Tick(float DeltaTime)
25 {
26     Super::Tick(DeltaTime);
27 }
28
29
30
31 
```

Ctrl+S

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+)

- 솔루션 'Dodgeball' (2/2개 프로젝트)
 - Engine
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 - Dodgeball
 - 참조
 - 외부 종속성
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 - Dodgeball.h
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 - DodgeballCharacter.h
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 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - VictoryBox.cpp
 - VictoryBox.h
 - Wall.cpp
 - Wall.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject



파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Live Share

VictoryBox.cpp VictoryBox.h* Wall.cpp Wall.h DodgeballProjectile.cpp DodgeballProjectile.h

```
// Fill out your copyright notice in the Description page of Project Settings.

#pragma once

#include "CoreMinimal.h"
#include "GameFramework/Actor.h"
#include "VictoryBox.generated.h"

UCLASS()
class DODGEBALL_API AVictoryBox : public AActor
{
    GENERATED_BODY()

private:
    UPROPERTY(VisibleAnywhere, BlueprintReadOnly, Category = VictoryBox, meta = (AllowPrivateAccess = "true"))
    class USceneComponent* RootScene;

    UPROPERTY(VisibleAnywhere, BlueprintReadOnly, Category = VictoryBox, meta = (AllowPrivateAccess = "true"))
    class UBoxComponent* CollisionBox;

public:
    // Sets default values for this actor's properties
    AVictoryBox();

protected:
    // Called when the game starts or when spawned
    virtual void BeginPlay() override;

public:
    // Called every frame
    virtual void Tick(float DeltaTime) override;
};

}
```

Ctrl+S

서버
템플릿
도구
상자

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+Shift+F)

- 솔루션 'Dodgeball' (2/2개 프로젝트)
 - Engine
 - UE4
 - Games
 - Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - VictoryBox.cpp
 - VictoryBox.h
 - Wall.cpp
 - Wall.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject

100 % 문제가 검색되지 않음 줄: 20 문자: 36 열: 39 탭 CRLF

저장되었습니다. ↑ 소스 제어에 추가 ↗ 1

```
VictoryBox.cpp* ✘ X VictoryBox.h Wall.cpp Wall.h DodgeballProjectile.cpp

Dodgeball
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3
4 #include "VictoryBox.h"
5 #include "Components/BoxComponent.h"
6
7 // Sets default values
8 AVictoryBox::AVictoryBox()
9 {
10     // Set this actor to call Tick() every frame. You can turn this off to improve
11     PrimaryActorTick.bCanEverTick = true;
12
13     RootScene = CreateDefaultSubobject<USceneComponent>(TEXT("Root"));
14     RootComponent = RootScene;
15
16     CollisionBox = CreateDefaultSubobject<UBoxComponent>(TEXT("Collision Box"));
17     CollisionBox->SetupAttachment(RootComponent);
18     CollisionBox->SetBoxExtent(FVector(60.0f, 60.0f, 60.0f));
19     CollisionBox->SetRelativeLocation(FVector(0.0f, 0.0f, 120.0f));
20
21 }
22
23 // Called when the game starts or when spawned
24 void AVictoryBox::BeginPlay()
25 {
26     Super::BeginPlay();
27 }
28
29
30 // Called every frame
31 void AVictoryBox::Tick(float DeltaTime)
32 {
33     Super::Tick(DeltaTime);
34 }
35 }
```

The screenshot shows the Visual Studio Solution Explorer with the following project structure:

- 솔루션 탐색기 검색(Ctrl+):
- 솔루션 'Dodgeball' (2/2개 프로젝트)
- Engine
- UE4
- Games
- Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - VictoryBox.cpp
 - VictoryBox.h
 - Wall.cpp
 - Wall.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodqeball.uproject



파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Develop Win64 로컬 Windows 디버거 Live Share

VictoryBox.cpp VictoryBox.h* × Wall.cpp Wall.h DodgeballProjectile.cpp DodgeballProjectile.h

Dodgeball

```
#include "CoreMinimal.h"
#include "GameFramework/Actor.h"
#include "VictoryBox.generated.h"

UCLASS()
class DODGEBALL_API AVictoryBox : public AActor
{
    GENERATED_BODY()

private:
    UPROPERTY(VisibleAnywhere, BlueprintReadOnly, Category = VictoryBox, meta = (AllowPrivateAccess = "true"))
    class USceneComponent* RootScene;

    UPROPERTY(VisibleAnywhere, BlueprintReadOnly, Category = VictoryBox, meta = (AllowPrivateAccess = "true"))
    class UBoxComponent* CollisionBox;

public:
    // Sets default values for this actor's properties
    AVictoryBox();

protected:
    // Called when the game starts or when spawned
    virtual void BeginPlay() override;

public:
    // Called every frame
    virtual void Tick(float DeltaTime) override;

    UFUNCTION()
    void OnBeginOverlap(UPrimitiveComponent* OverlappedComp, AActor* OtherActor, UPrimitiveComponent* OtherComp,
                        int32 OtherBodyIndex, bool bFromSweep, const FHitResult& SweepResult);
};

}
```

Ctrl+S

솔루션 탐색기

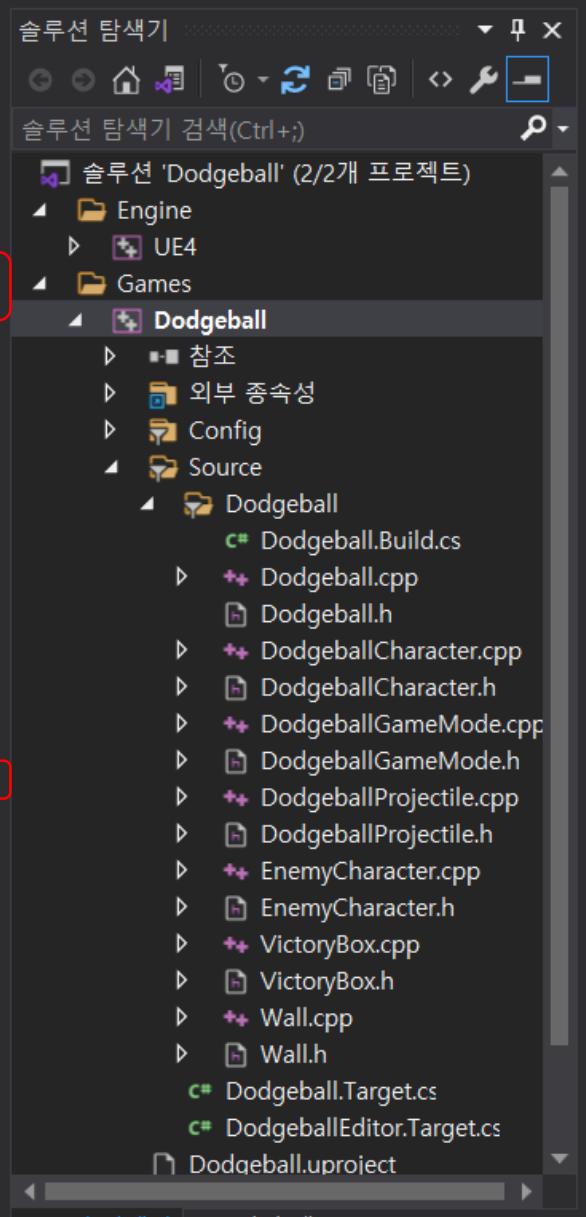
솔루션 탐색기 검색(Ctrl+)

- 솔루션 'Dodgeball' (2/2개 프로젝트)
 - Engine
 - UE4
 - Games
 - Dodgeball
 - 참조
 - 외부 종속성
 - Config
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 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - VictoryBox.cpp
 - VictoryBox.h
 - Wall.cpp
 - Wall.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodgeball.uproject

100 % 문제가 검색되지 않음 줄: 36 문자: 77 열: 95 탭 CRLF

저장되었습니다. ↑ 소스 제어에 추가 ↗

```
VictoryBox.cpp* ✘ x VictoryBox.h Wall.cpp Wall.h DodgeballProjectile.cpp DodgeballProjectile.h
Dodgeball → AVictoryBox → OnBeginOverlap(UPrimitiveComponent * Overlap)
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3
4 #include "VictoryBox.h"
5 #include "Components/BoxComponent.h"
6 #include "DodgeballCharacter.h"
7 #include "Kismet/KismetSystemLibrary.h"
8
9 // Sets default values
10 AVictoryBox::AVictoryBox()
11 {
12     // Set this actor to call Tick() every frame. You can turn this off to improve performance if you don't need it.
13     PrimaryActorTick.bCanEverTick = true;
14
15     RootScene = CreateDefaultSubobject<USceneComponent>(TEXT("Root"));
16     RootComponent = RootScene;
17
18     CollisionBox = CreateDefaultSubobject<UBoxComponent>(TEXT("Collision Box"));
19     CollisionBox->SetupAttachment(RootComponent);
20     CollisionBox->SetBoxExtent(FVector(60.0f, 60.0f, 60.0f));
21     CollisionBox->SetRelativeLocation(FVector(0.0f, 0.0f, 120.0f));
22     CollisionBox->OnComponentBeginOverlap.AddDynamic(this, &AVictoryBox::OnBeginOverlap);
23 }
24
25 // Called when the game starts or when spawned
26 void AVictoryBox::BeginPlay()
27 {
28     Super::BeginPlay();
29 }
30
31
32 // Called every frame
33 void AVictoryBox::Tick(float DeltaTime)
34 {
35     Super::Tick(DeltaTime);
```



```
VictoryBox.cpp* ✘ ✘ VictoryBox.h           Wall.cpp          Wall.h           DodgeballProjectile.cpp      DodgeballProjectile.h
Dodgeball
```

17 | CollisionBox = CreateDefaultSubobject<UBoxComponent>(TEXT("Collision Box"));
18 | CollisionBox->SetupAttachment(RootComponent);
19 | CollisionBox->SetBoxExtent(FVector(60.0f, 60.0f, 60.0f));
20 | CollisionBox->SetRelativeLocation(FVector(0.0f, 0.0f, 120.0f));
21 | CollisionBox->OnComponentBeginOverlap.AddDynamic(this, &AVictoryBox::OnBeginOverlap);
22 |
23 }
24
25 // Called when the game starts or when spawned
26 void AVictoryBox::BeginPlay()
27 {
28 Super::BeginPlay();
29 }
30
31 // Called every frame
32 void AVictoryBox::Tick(float DeltaTime)
33 {
34 Super::Tick(DeltaTime);
35 }
36
37 }
38
39 void AVictoryBox::OnBeginOverlap(UPrimitiveComponent* OverlappedComp, AActor* OtherActor, UPrimitiveComponent* OtherComp,
40 int32 OtherBodyIndex, bool bFromSweep, const FHitResult& SweepResult)
41 {
42 if (Cast<ADodgeballCharacter>(OtherActor)) {
43 UKismetSystemLibrary::QuitGame(GetWorld(), nullptr, EQuitPreference::Quit, true);
44 }
45 }

100 %  문제가 검색되지 않음

줄: 43 문자: 84 열: 90 혼합 CRLF

솔루션 탐색기 Git 변경 내용



파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(T) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball

Live Share

VictoryBox.cpp VictoryBox.h Wall.cpp Dodgeball

17
18 CollisionBox = CreateDefaultSubCollisionBox();
19 CollisionBox->SetupAttachment(FTransform());
20 CollisionBox->SetBoxExtent(FVector(100, 100, 100));
21 CollisionBox->SetRelativeLocation(FVector(-50, -50, 0));
22 CollisionBox->OnComponentBeginOverlap(...);
23 }
24
25 // Called when the game starts or when a player enters the trigger
26 void AVictoryBox::BeginPlay()
27 {
28 Super::BeginPlay();
29 }
30
31 // Called every frame
32 void AVictoryBox::Tick(float DeltaTime)
33 {
34 Super::Tick(DeltaTime);
35 }
36
37 void AVictoryBox::OnBeginOverlap(UPrimitiveComponent* OverlappedComp, AActor* OtherActor, UPrimitiveComponent* OtherComp,
38 int32 OtherBodyIndex, bool bFromSweep, const FHitResult& SweepResult)
39 {
40 if (Cast<ADodgeballCharacter>(OtherActor)) {
41 UKismetSystemLibrary::QuitGame(GetWorld(), nullptr, EQuitPreference::Quit, true);
42 }
43 }
44
45 }
46

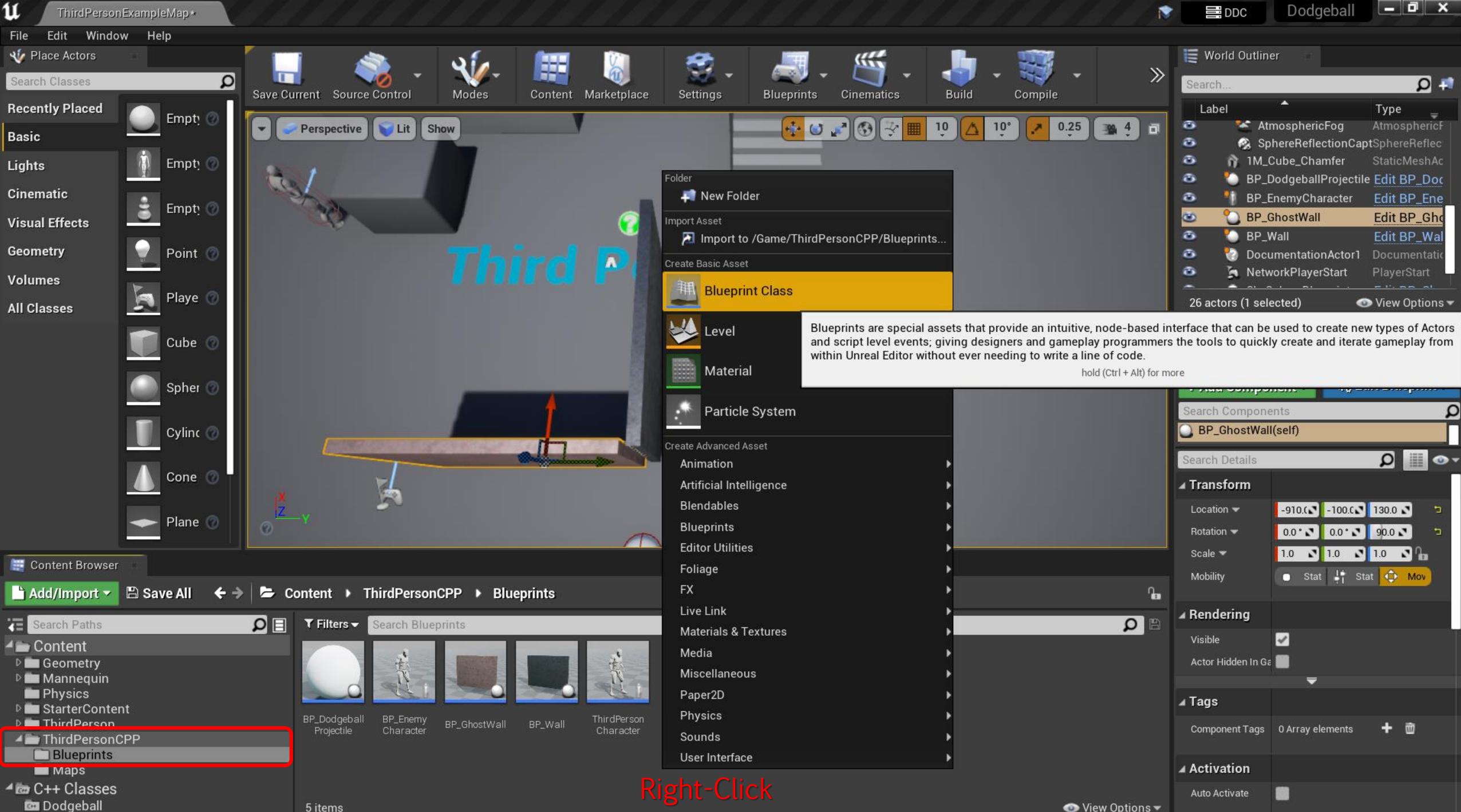
솔루션 빌드(B) 솔루션 다시 빌드 솔루션 정리(C) 솔루션의 전체 프로그램 데이터베이스 파일 빌드 솔루션에서 코드 분석 실행(Y) Dodgeball 빌드(U) Dodgeball 다시 빌드(E) Dodgeball 정리(N) Dodgeball에서 코드 분석 실행(A) 프로젝트만(I) 일괄 빌드(T)... 구성 관리자(O)... 컴파일(M) 파일에서 코드 분석 실행(F)

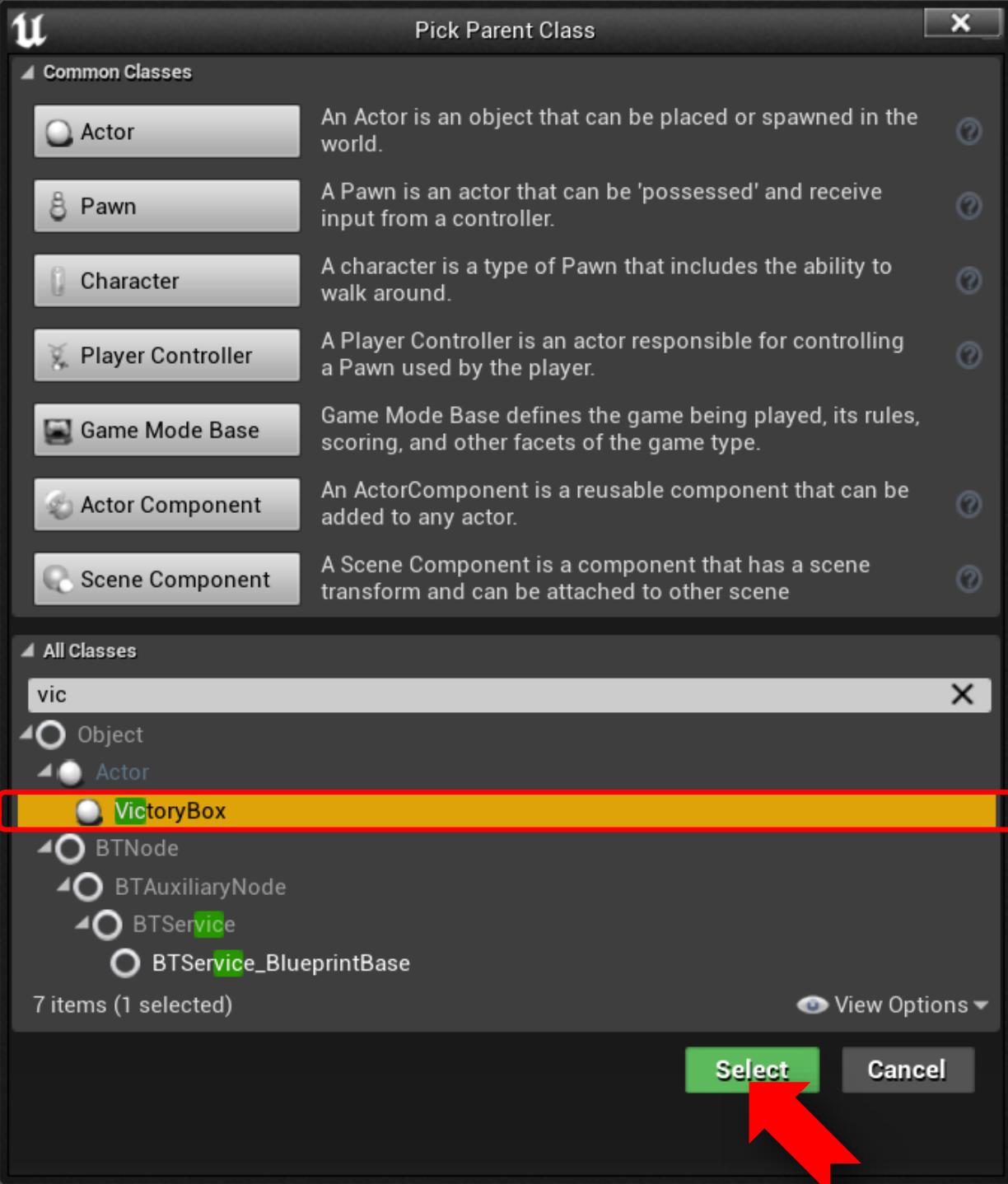
Ctrl+Shift+B Alt+F11 Ctrl+B Ctrl+F7 Ctrl+Shift+Alt+F7

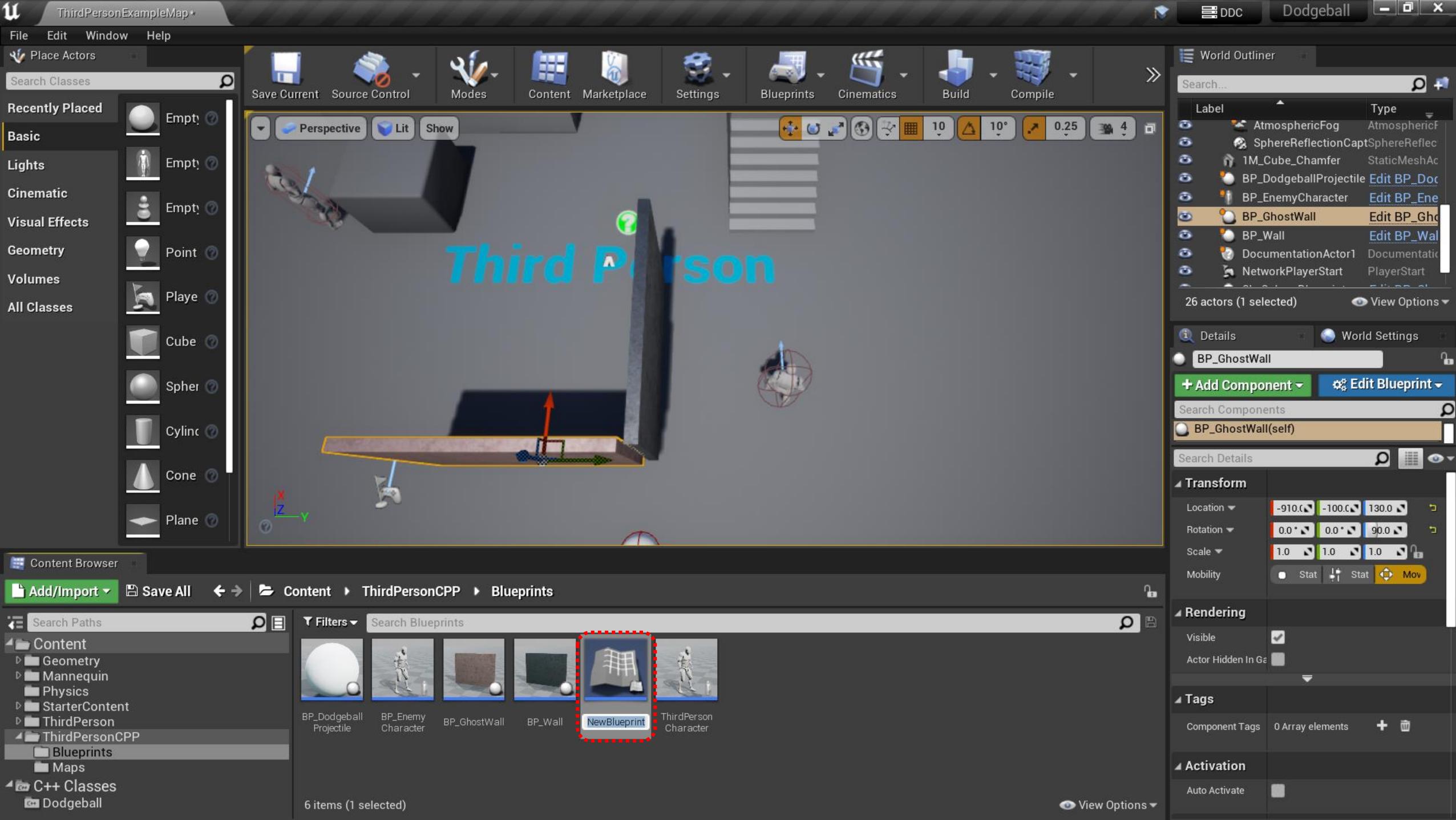
솔루션 탐색기 솔루션 탐색기 검색(Ctrl+) 솔루션 'Dodgeball' (2/2개 프로젝트) Engine UE4 Games Dodgeball 참조 외부 종속성 Config Source Dodgeball Dodgeball.Build.cs Dodgeball.cpp Dodgeball.h DodgeballCharacter.cpp DodgeballCharacter.h DodgeballGameMode.cpp DodgeballGameMode.h DodgeballProjectile.cpp DodgeballProjectile.h EnemyCharacter.cpp EnemyCharacter.h VictoryBox.cpp VictoryBox.h Wall.cpp Wall.h Dodgeball.Target.cs DodgeballEditor.Target.cs Dodgeball.uproject

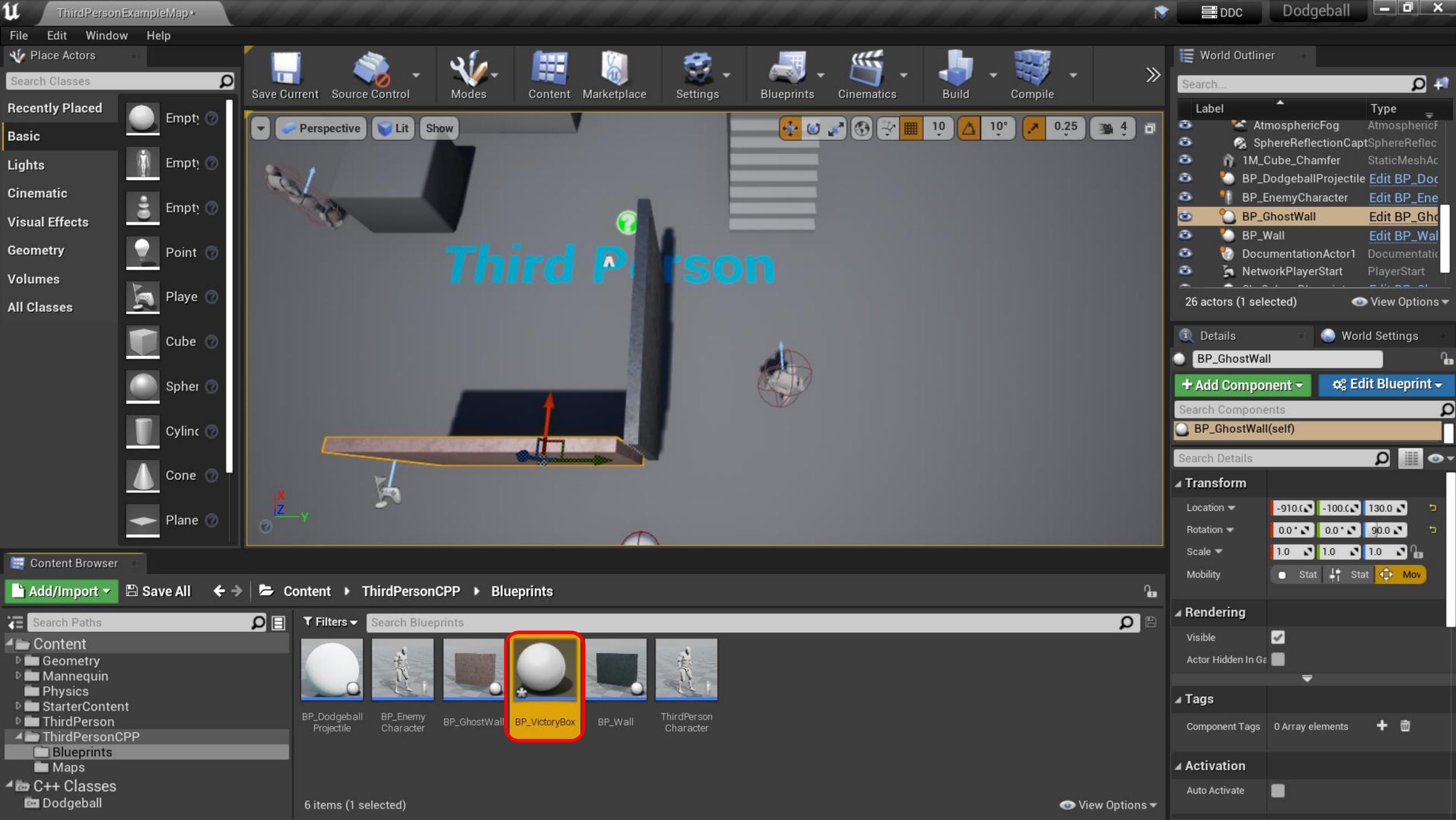
100% 문제가 검색되지 않음 줄: 43 문자: 84 열: 90 혼합 CRLF

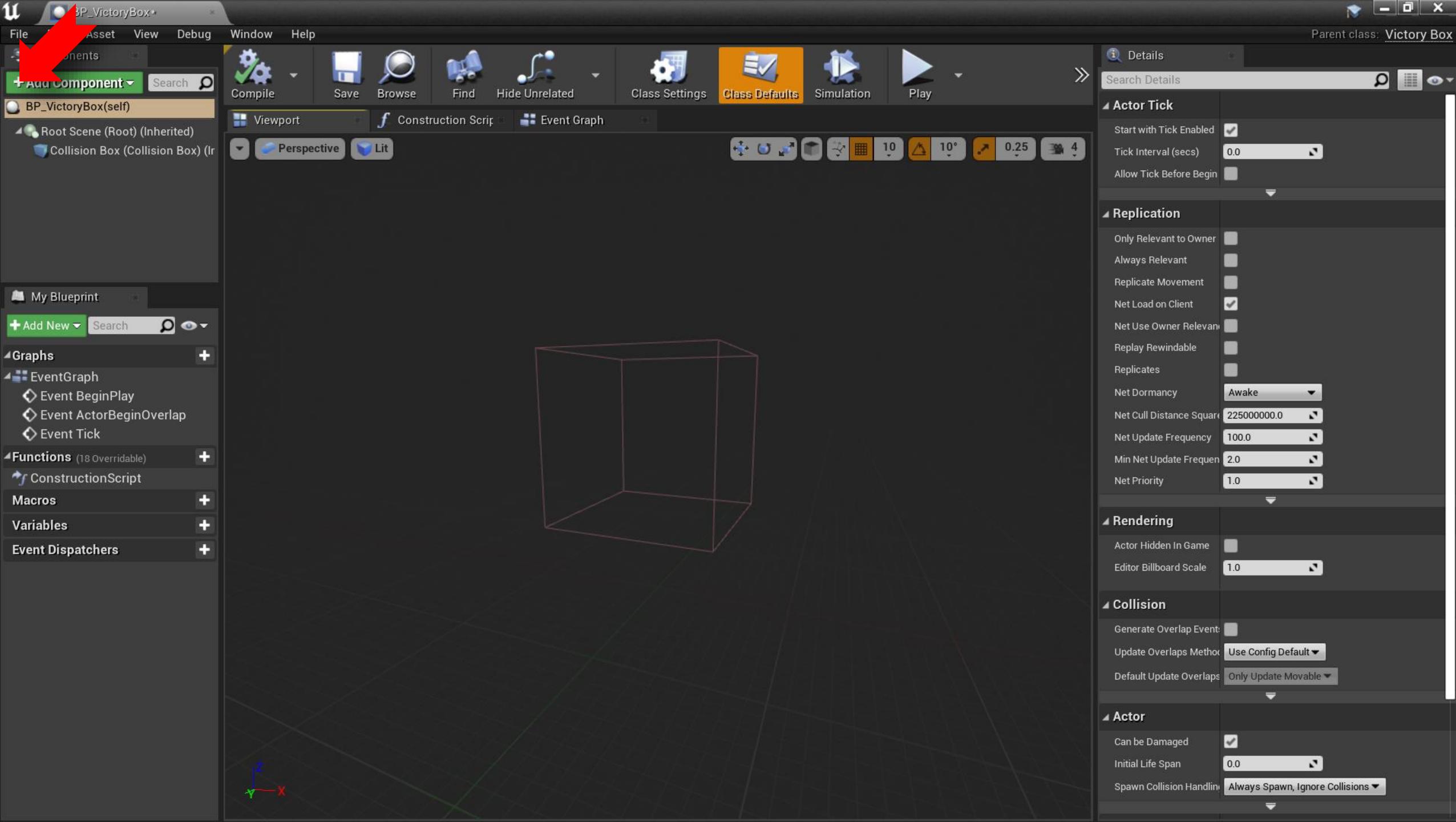
저장되었습니다. ↑ 소스 제어에 추가 ↗ 1

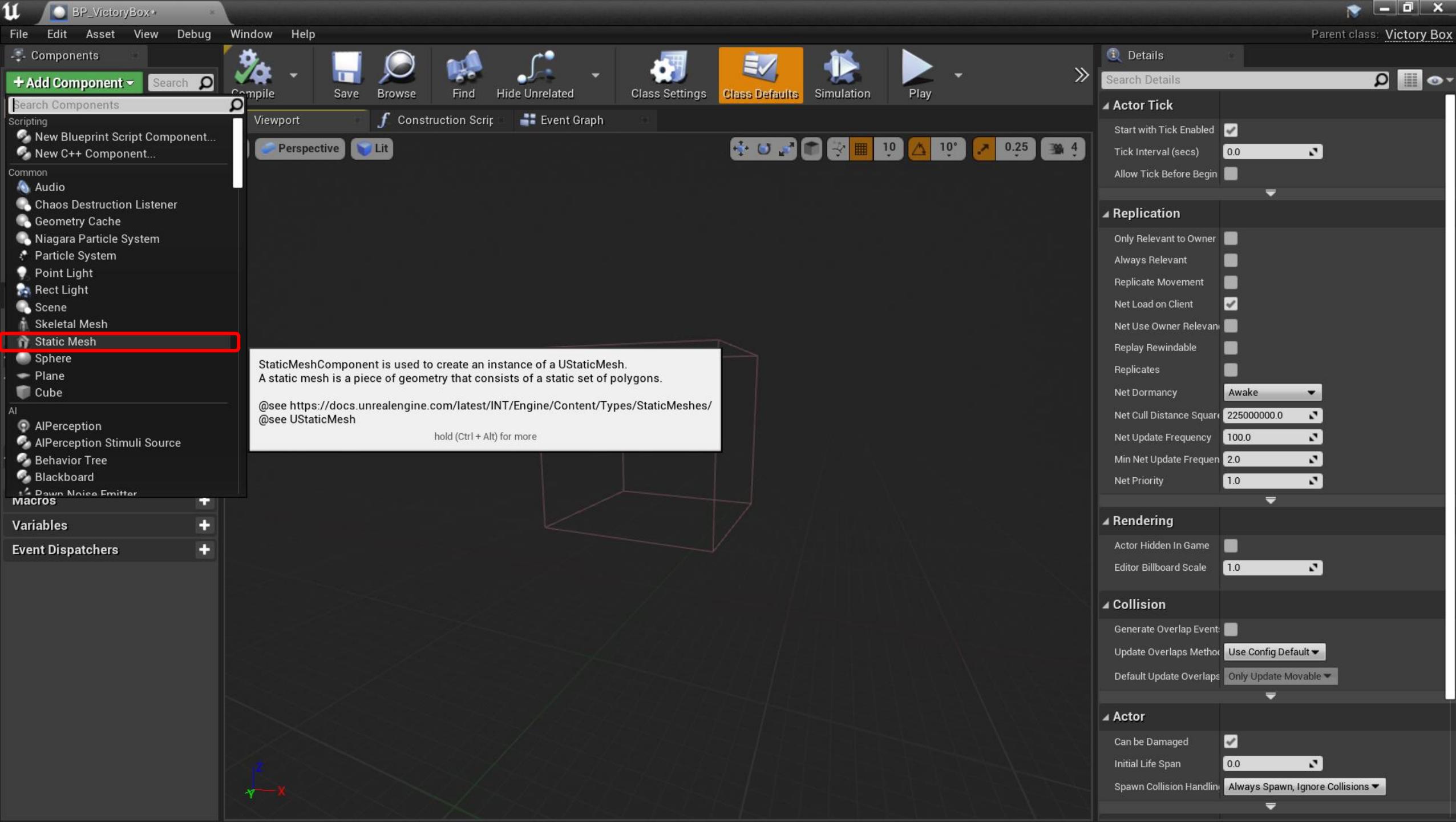


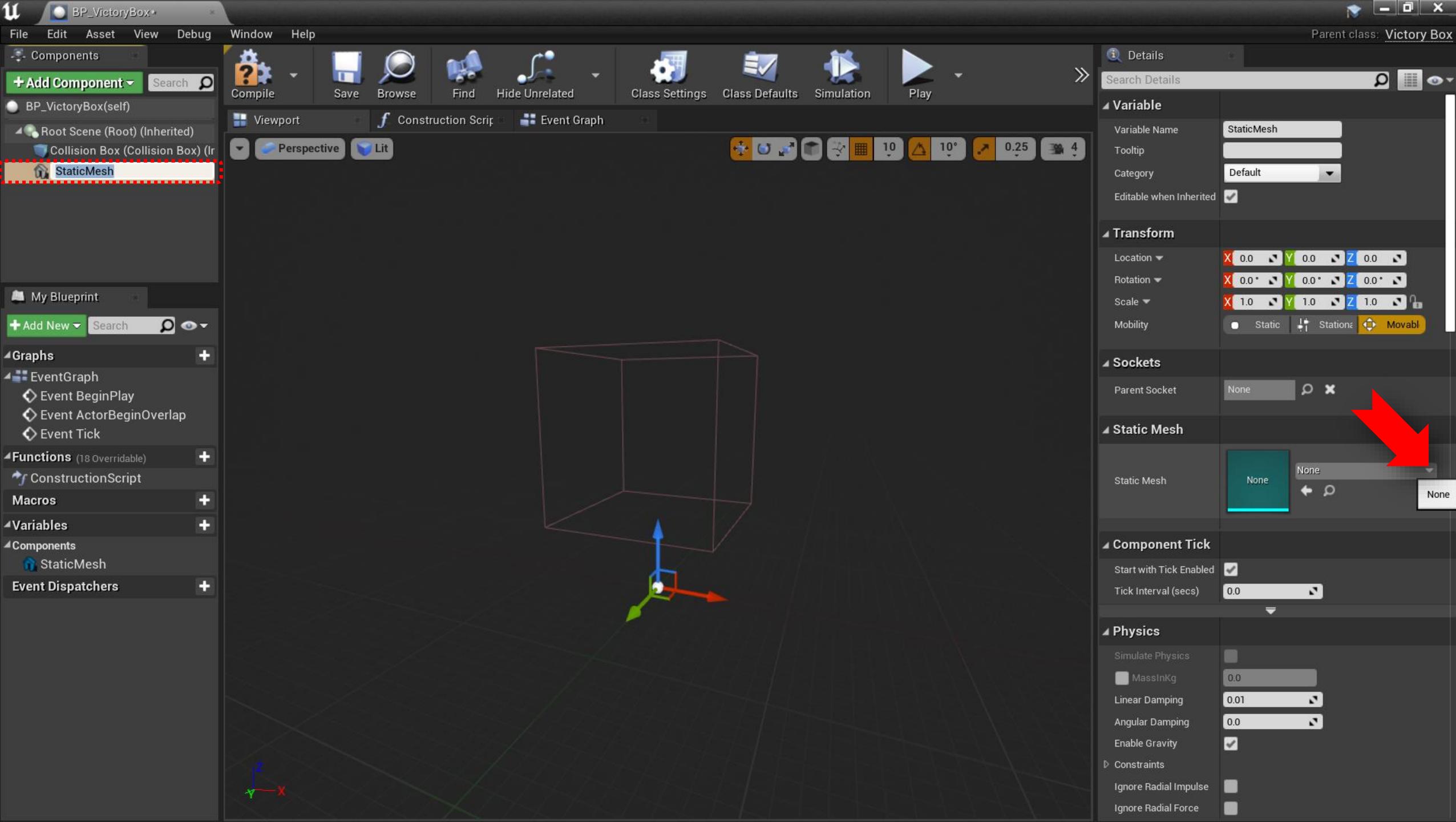


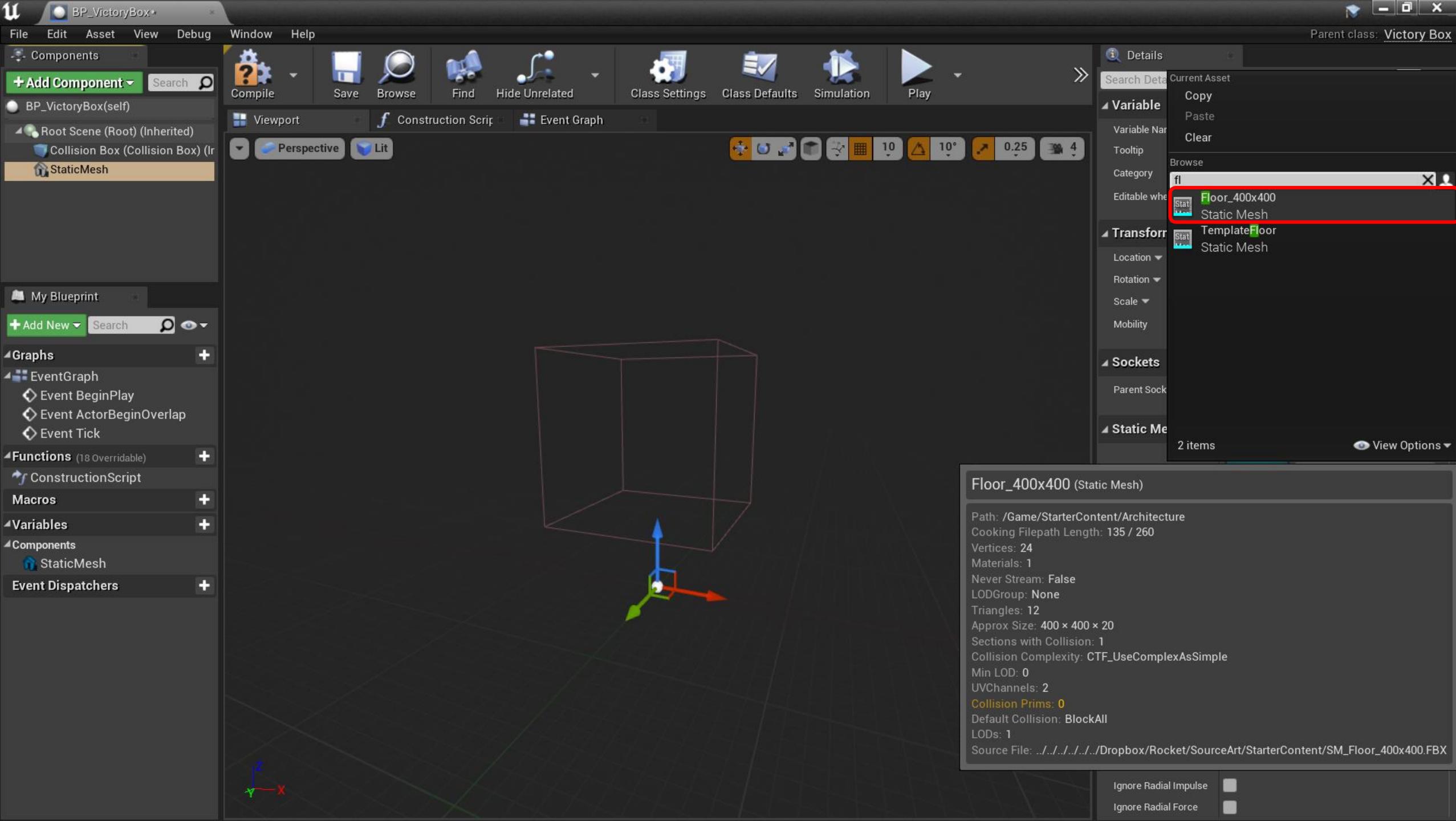


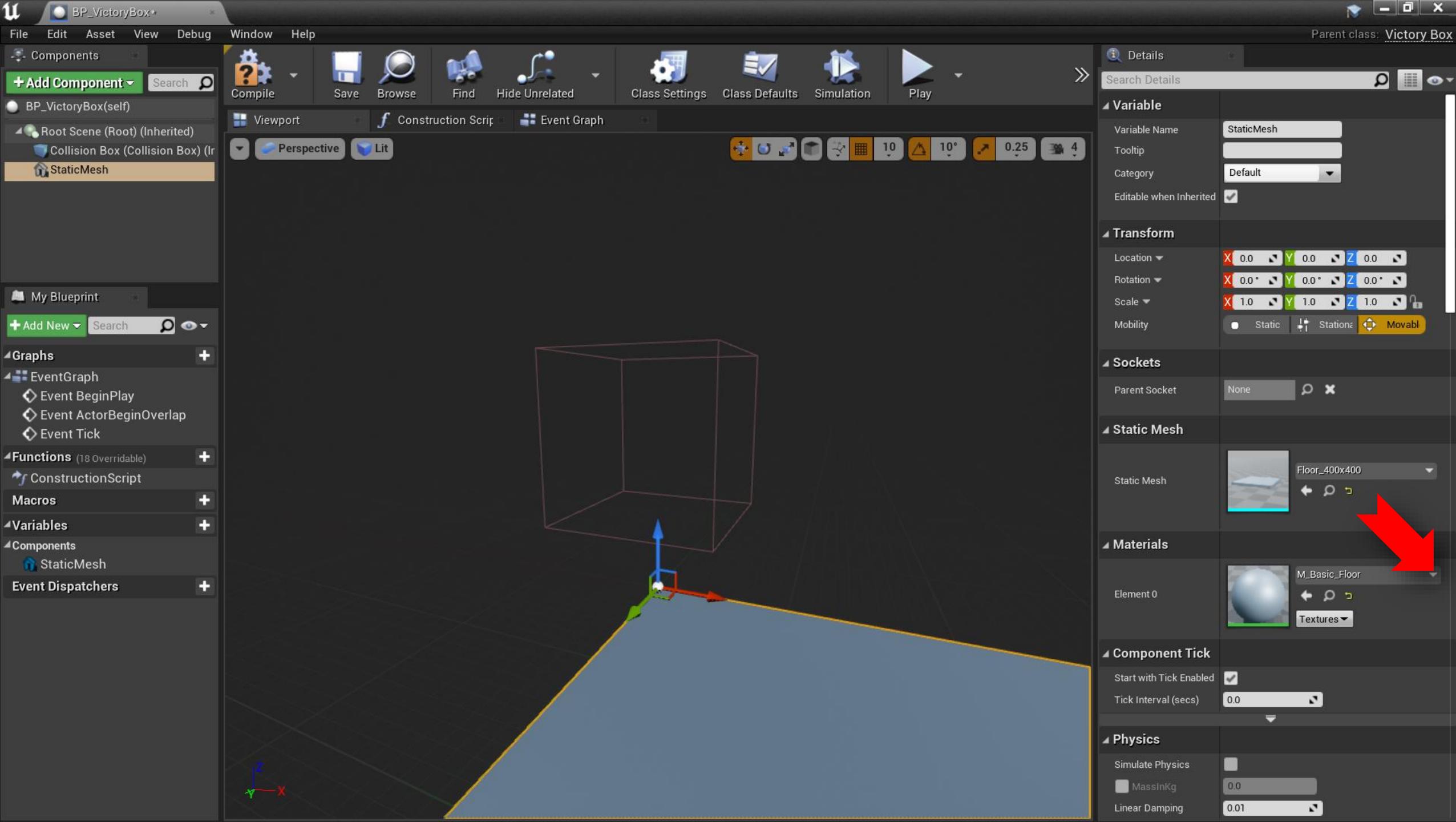


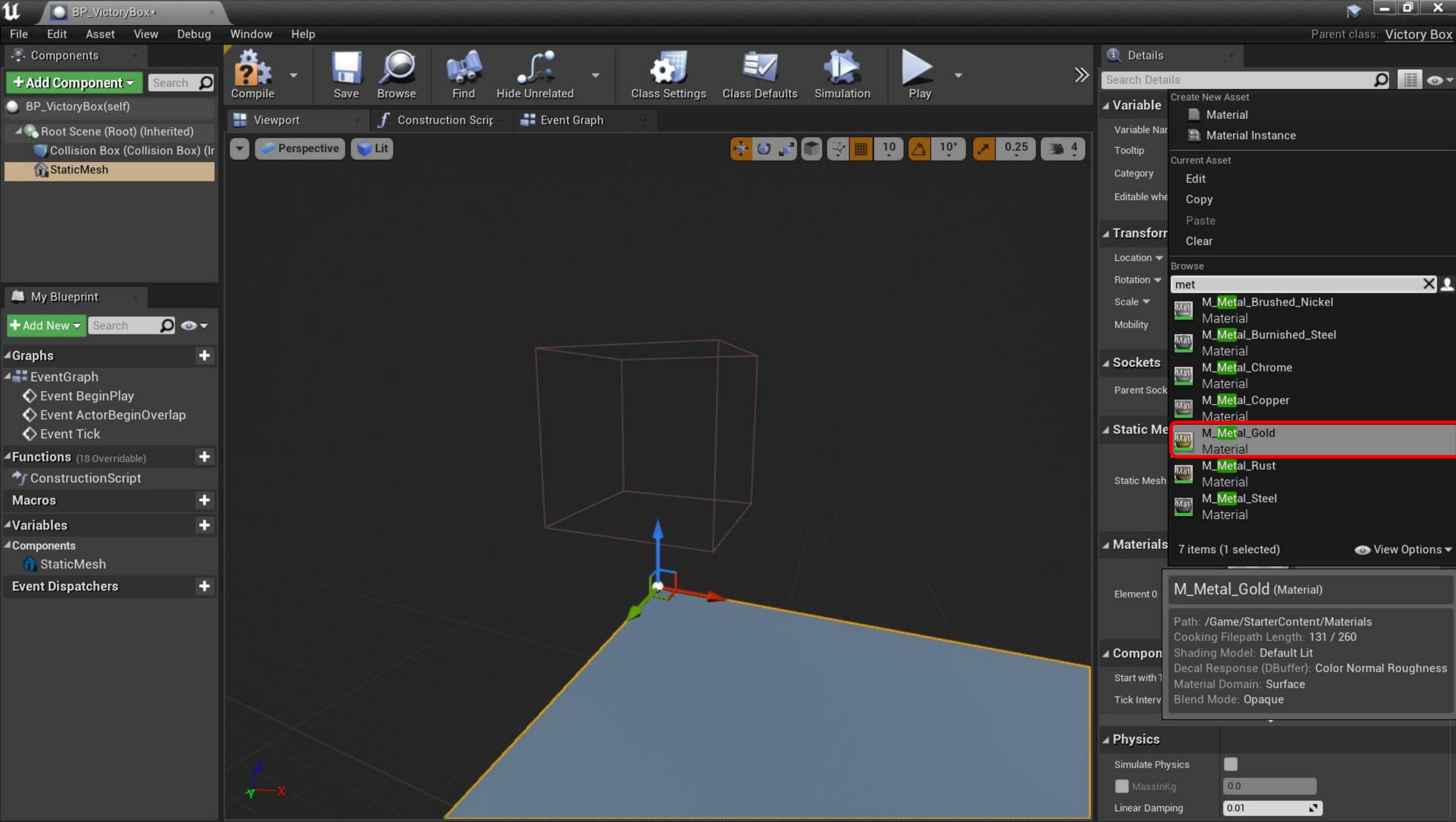


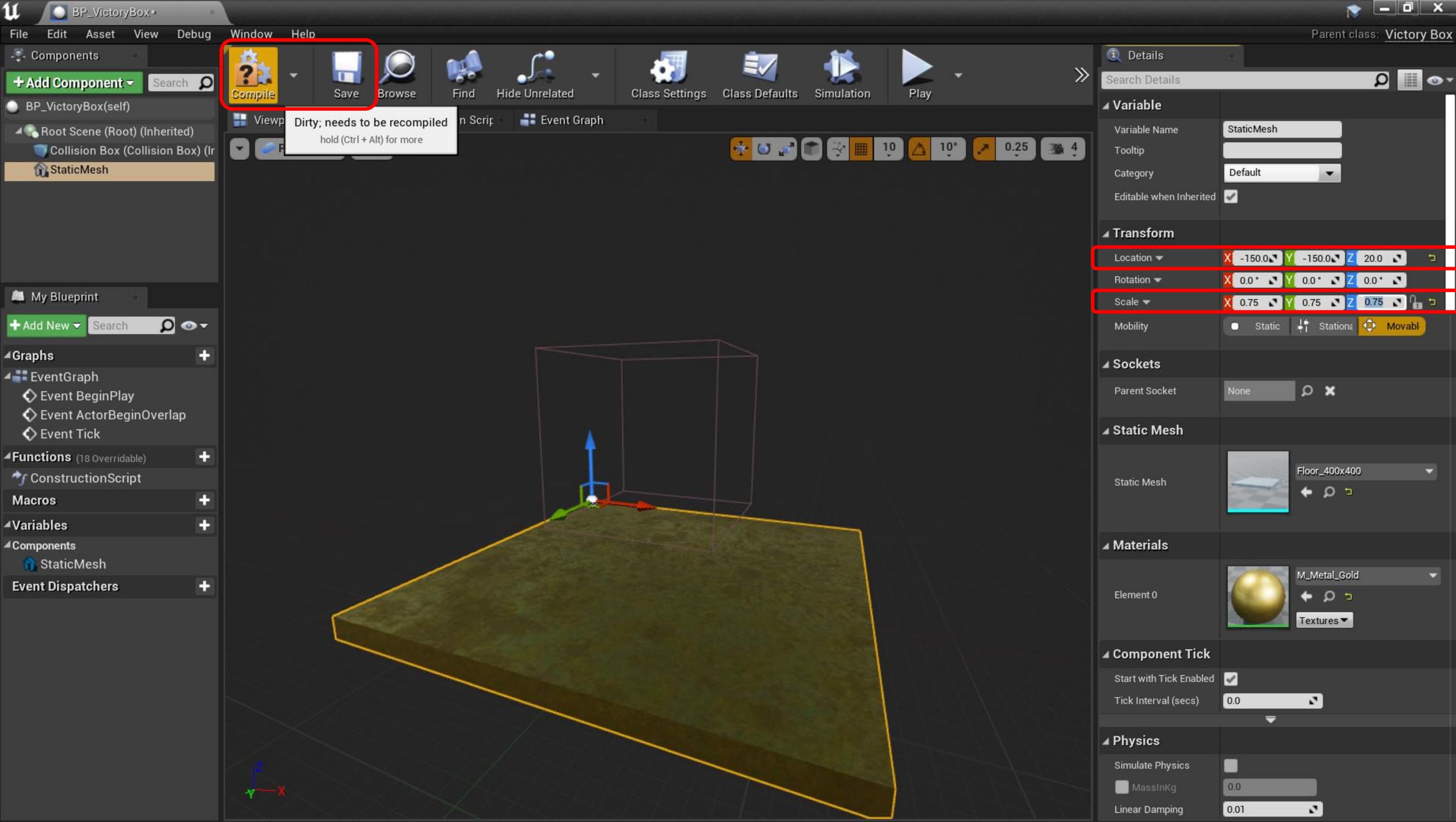


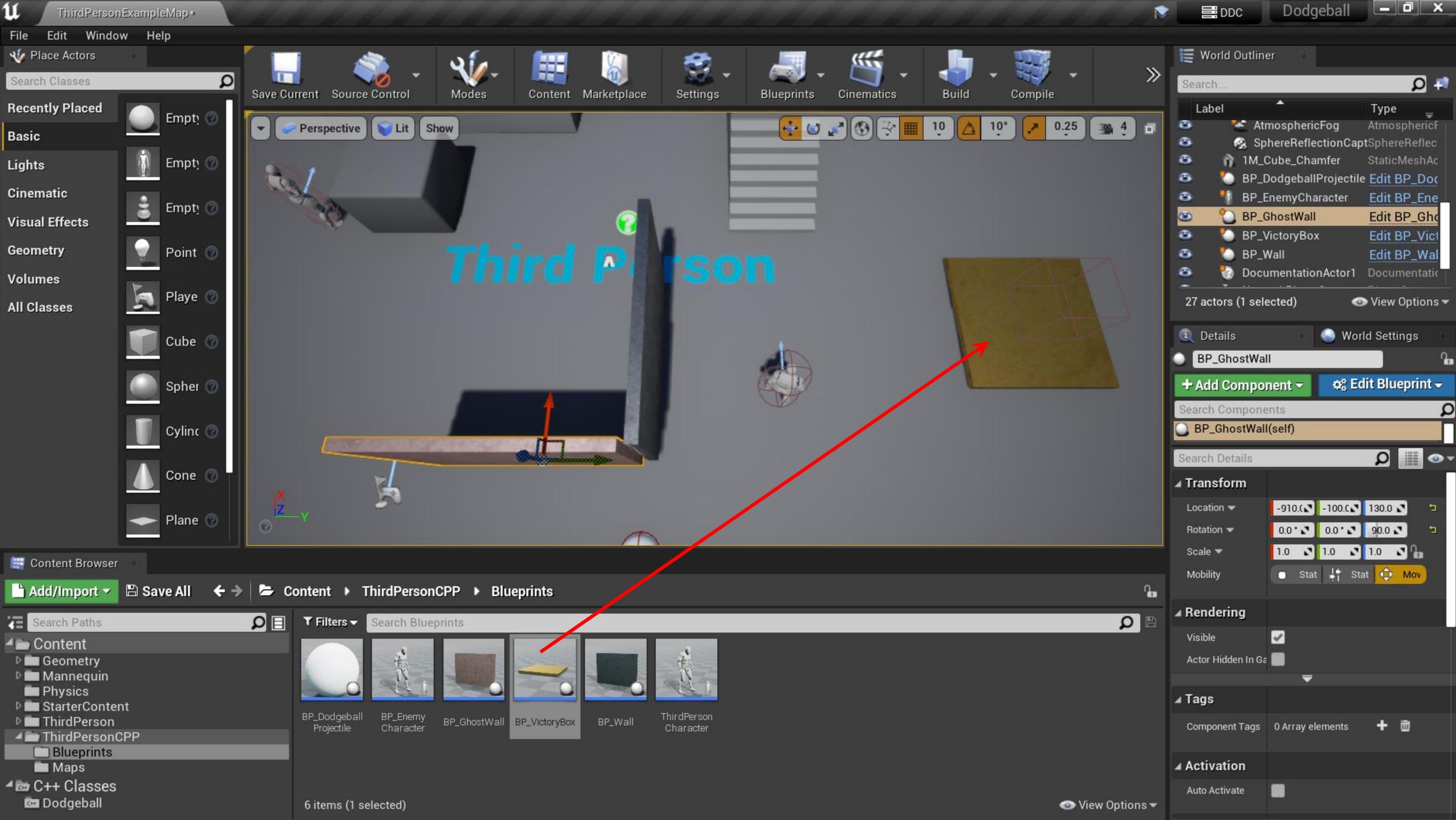


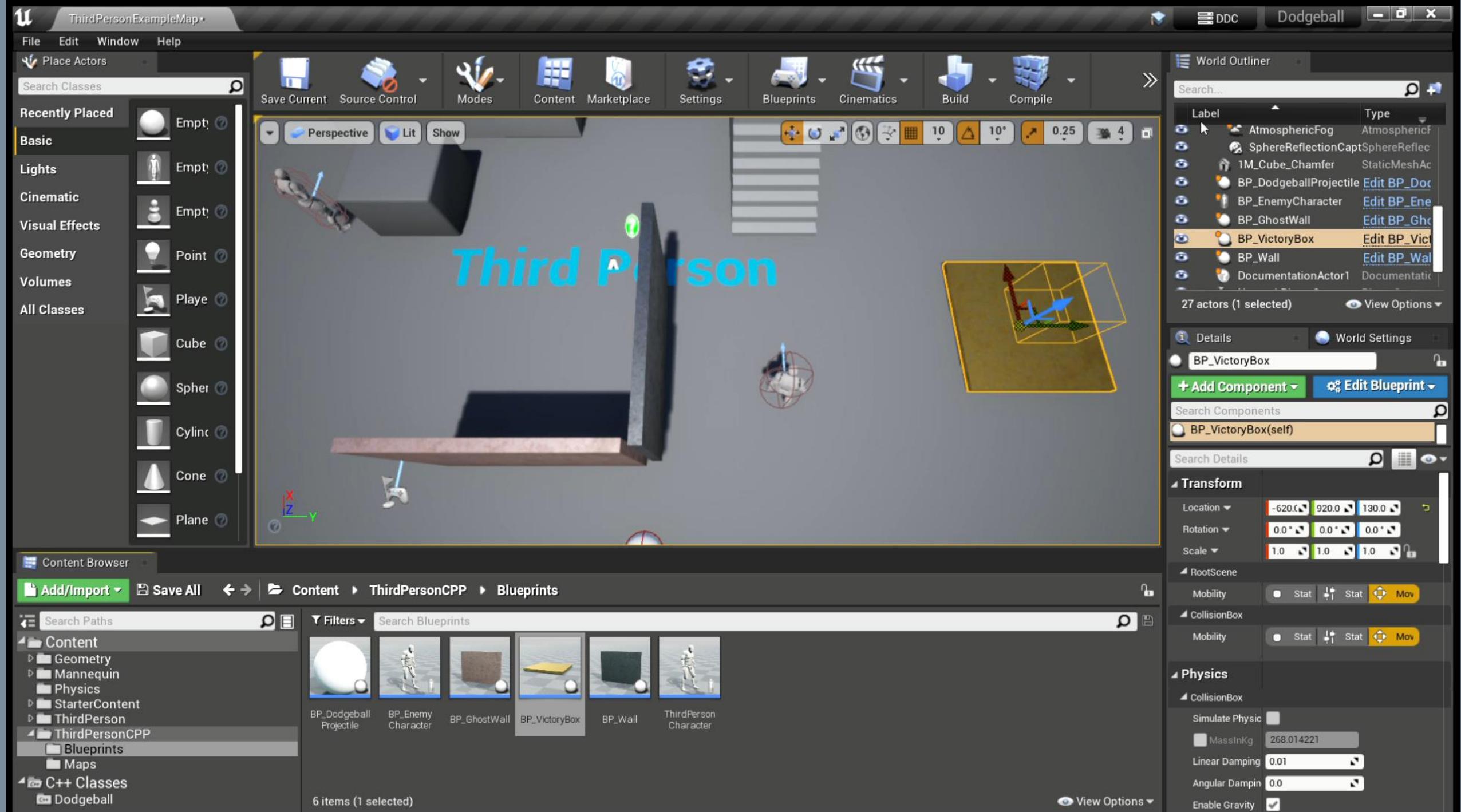














Exercise 6.06: Adding the ProjectileMovementComponent Getter Function In DodgeballProjectile

The screenshot shows the Unreal Engine Editor interface. The top menu bar includes File, 편집(E), 보기(V), Git(G), 프로젝트(P), 빌드(B), 디버그(D), 테스트(S), 분석(N), 도구(I), 확장(X), 창(W), 도움말(H), 검색 (Ctrl+Q), and Dodgeball. The toolbar below has various icons for file operations. The main window displays the code editor with several tabs: VictoryBox.cpp, VictoryBox.h, Wall.cpp, Wall.h, DodgeballProjectile.cpp, and DodgeballProjectile.h*. The DodgeballProjectile.h* tab is active and highlighted with a red box. The code editor shows the following C++ code:

```
20 public:
21     // Sets default values for this actor's properties
22     ADodgeballProjectile();
23
24 protected:
25     // Called when the game starts or when spawned
26     virtual void BeginPlay() override;
27
28 public:
29     // Called every frame
30     virtual void Tick(float DeltaTime) override;
31
32 UFUNCTION()
33 void OnHit(UPrimitiveComponent* HitComp, AActor* OtherActor, UPrimitiveComponent* OtherComp, FVector NormalImpulse,
34             const FHitResult& Hit);
35
36 FORCEINLINE UProjectileMovementComponent* GetProjectileMovement() const
37 {
38     return ProjectileMovement;
39 }
40
41
42 };
```

The 'GetProjectileMovement()' function is highlighted with a red box. The entire function block from line 36 to line 42 is also highlighted with a larger red box. In the bottom right corner of the code editor, there is a red arrow pointing to the text 'Ctrl+S'. To the right of the code editor is the Solution Explorer, which lists the project structure under the 'Dodgeball' folder.

The screenshot shows the Visual Studio IDE interface with the following details:

- Top Bar:** 파일(F), 편집(E), 보기(V), Git(G), 프로젝트(P), 빌드(B), 디버그(D), 테스트(S), 분석(N), 도구(T), 확장(X), 창(W), 도움말(H), 검색 (Ctrl+Q), Dodgeball.
- Solution Explorer:** Shows files like VictoryBox.cpp, VictoryBox.h, and Wall.cpp under the Dodgeball project.
- Code Editor:** Displays C++ code for a projectile class, specifically the Dodgeball class.
- Contextual Menu (Open with Red Arrow):** The 'Solution Build' option is highlighted with a red arrow. Other options include 'Solution Rebuild', 'Solution Clean', 'Solution Reanalyze', 'Solution Full Build', 'Solution Code Analysis Execute', 'Project Only', 'Build', 'Rebuild', 'Clean', 'Analyze', 'Code Analysis Execute', 'File Build...', 'Configuration Manager...', 'Compile File...', and 'File Code Analysis Execute...'.
- Toolbars:** Standard toolbar icons for file operations like Open, Save, Print, etc.
- Status Bar:** 100%, 문제가 검색되지 않음 (No issues found), 줄: 38, 문자: 2, 열: 5, 탭, CRLF, 솔루션 탐색기, Git 변경 내용.
- Bottom Status Bar:** 저장되었습니다. (Saved), ↑ 소스 제어에 추가 ↑ (Add to Source Control ↑), 1 (Notification icon).



Activity 6.01: Replacing the SpawnActor Function with SpawnActorDeferred In EnemyCharacter

The screenshot shows the Unreal Engine Editor interface. The top menu bar includes File, 편집(E), 보기(V), Git(G), 프로젝트(P), 빌드(B), 디버그(D), 테스트(S), 분석(N), 도구(I), 확장(X), 창(W), 도움말(H), 검색 (Ctrl+Q), and Dodgeball. Below the menu is a toolbar with various icons. The title bar shows 'Dodgeball' and 'Win64'. The main workspace displays the 'EnemyCharacter.cpp' file, which contains C++ code for an enemy character. The code includes includes for EnemyCharacter.h, Engine/World.h, DrawDebugHelpers.h, Kismet/KismetMathLibrary.h, Kismet/GameplayStatics.h, TimerManager.h, DodgeballProjectile.h, and GameFramework/ProjectileMovementComponent.h. It defines the AEnemyCharacter class and its BeginPlay() and Tick() methods. The right side of the interface features a Solution Explorer window showing the project structure for 'Dodgeball' (2/2개 프로젝트) under 'Games/Dodgeball', including files like Dodgeball.Build.cs, Dodgeball.cpp, Dodgeball.h, DodgeballCharacter.cpp, DodgeballCharacter.h, DodgeballGameMode.cpp, DodgeballGameMode.h, DodgeballProjectile.cpp, DodgeballProjectile.h, EnemyCharacter.cpp, EnemyCharacter.h, VictoryBox.cpp, VictoryBox.h, and Wall.cpp.

```
1 // Fill out your copyright notice in the Description page of Project Settings.
2
3
4 #include "EnemyCharacter.h"
5 #include "Engine/World.h"
6 #include "DrawDebugHelpers.h"
7 #include "Kismet/KismetMathLibrary.h"
8 #include "Kismet/GameplayStatics.h"
9 #include "TimerManager.h"
10 #include "DodgeballProjectile.h"
11 #include "GameFramework/ProjectileMovementComponent.h"
12
13 // Sets default values
14 AEnemyCharacter::AEnemyCharacter()
15 {
16     // Set this character to call Tick() every frame. You can turn this off to improve performance if you don't need it.
17     PrimaryActorTick.bCanEverTick = true;
18
19     SightSource = CreateDefaultSubobject<USceneComponent>(TEXT("Sight Source"));
20     SightSource->SetupAttachment(RootComponent);
21 }
22
23 // Called when the game starts or when spawned
24 void AEnemyCharacter::BeginPlay()
25 {
26     Super::BeginPlay();
27 }
```

파일(F) 편집(E) 보기(V) Git(G) 프로젝트(P) 빌드(B) 디버그(D) 테스트(S) 분석(N) 도구(I) 확장(X) 창(W) 도움말(H) 검색 (Ctrl+Q) Dodgeball — □ ×

Develop Win64 로컬 Windows 디버거 Live Share

VictoryBox.cpp VictoryBox.h Wall.h DodgeballProjectile.cpp DodgeballProjectile.h EnemyCharacter.cpp* ✎ ✎

Dodgeball

```
// Sweep Trace logic (not used, only for demonstration)
/*
// Rotation of the shape used in the Sweep Trace
FQuat Rotation = FQuat::Identity;
// Shape of the object used in the Sweep Trace
FCollisionShape Shape = FCollisionShape::MakeBox(FVector(20.f, 20.f, 20.f));
GetWorld()->SweepSingleByChannel(Hit, Start, End, Rotation, Channel, Shape);
*/
// Show the Line Trace inside the game
DrawDebugLine(GetWorld(), Start, End, FColor::Red);

return !Hit.bBlockingHit;

void AEnemyCharacter::ThrowDodgeball()
{
    if (DodgeballClass == nullptr) {
        return;
    }

    FVector ForwardVector = GetActorForwardVector();
    float SpawnDistance = 40.f;
    FVector SpawnLocation = GetActorLocation() + (ForwardVector * SpawnDistance);
    //Spawn new dodgeball
    //GetWorld()->SpawnActor<ADodgeballProjectile>(DodgeballClass, SpawnLocation, GetActorRotation());
    FTransform SpawnTransform(GetActorRotation(), SpawnLocation);
    //Spawn new dodgeball
    ADodgeballProjectile* Projectile = GetWorld()->SpawnActorDeferred<ADodgeballProjectile>(DodgeballClass, SpawnTransform);
    Projectile->GetProjectileMovementComponent()->InitialSpeed = 2200.f;
    Projectile->FinishSpawning(SpawnTransform);
}
```

Ctrl+S

솔루션 탐색기

솔루션 탐색기 검색(Ctrl+Shift+F)

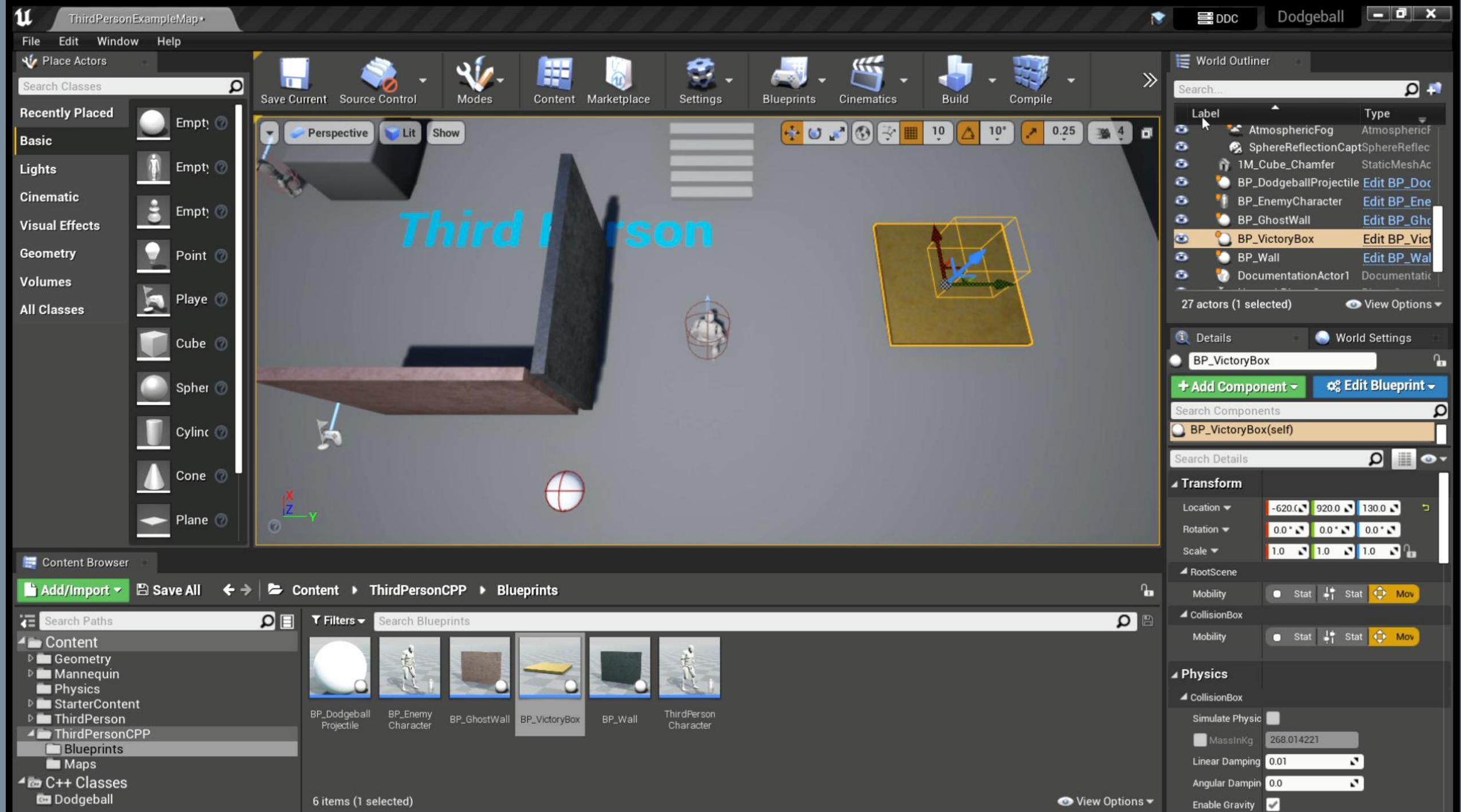
- 솔루션 'Dodgeball' (2/2개 프로젝트)
 - Engine
 - UE4
 - Games
 - Dodgeball
 - 참조
 - 외부 종속성
 - Config
 - Source
 - Dodgeball
 - Dodgeball.Build.cs
 - Dodgeball.cpp
 - Dodgeball.h
 - DodgeballCharacter.cpp
 - DodgeballCharacter.h
 - DodgeballGameMode.cpp
 - DodgeballGameMode.h
 - DodgeballProjectile.cpp
 - DodgeballProjectile.h
 - EnemyCharacter.cpp
 - EnemyCharacter.h
 - VictoryBox.cpp
 - VictoryBox.h
 - Wall.cpp
 - Wall.h
 - Dodgeball.Target.cs
 - DodgeballEditor.Target.cs
 - Dodqeball.uproject

100 % 문제가 검색되지 않음 출: 144 문자: 45 열: 48 혼합 CRLF

빌드 실패 ↗ 소스 제어에 추가 ↗

The screenshot shows the Microsoft Visual Studio interface with the following details:

- Menu Bar:** 파일(F), 편집(E), 보기(V), Git(G), 프로젝트(P), 빌드(B), 디버그(D), 테스트(S), 분석(N), 도구(T), 확장(X), 창(W), 도움말(H), 검색 (Ctrl+Q), Dodgeball.
- Toolbars:** Standard, Debugging, Live Share.
- Solution Explorer:** Shows the project structure for 'Dodgeball' with files like Dodgeball.Build.cs, Dodgeball.cpp, DodgeballCharacter.cpp, etc.
- Code Editor:** Displays the 'VictoryBox.cpp' file with C++ code related to game logic.
- Build Menu (Visible):**
 - 솔루션 빌드(B) (Selected)
 - 솔루션 다시 빌드
 - 솔루션 정리(C)
 - 솔루션의 전체 프로그램 데이터베이스 파일 빌드
 - 솔루션에서 코드 분석 실행(Y) Alt+F11
 - Dodgeball 빌드(U) Ctrl+B
 - Dodgeball 다시 빌드(E)
 - Dodgeball 정리(N)
 - Dodgeball에서 코드 분석 실행(A) Alt+F11
 - 프로젝트만()
 - 일괄 빌드(T)...
 - 구성 관리자(O)...
- Status Bar:** 100 %, 문제가 검색되지 않음, 줄: 144, 문자: 45, 열: 48, 혼합, CRLF, 솔루션 탐색기, Git 변경 내용.



연습 과제

- › Activity 6.01까지 모두 완성한 **Dodgeball** 프로젝트를 제출 하시오.
- › 제출 방법: “프로젝트 폴더” 전체 압축
 - 압축 파일 내에서 다음 “4개 폴더” 삭제
 - 1) Content 폴더 안 StarterContent 폴더
 - 2) Intermediate 폴더
 - 3) Saved 폴더
 - 4) Binary 폴더
 - 압축파일 업로드