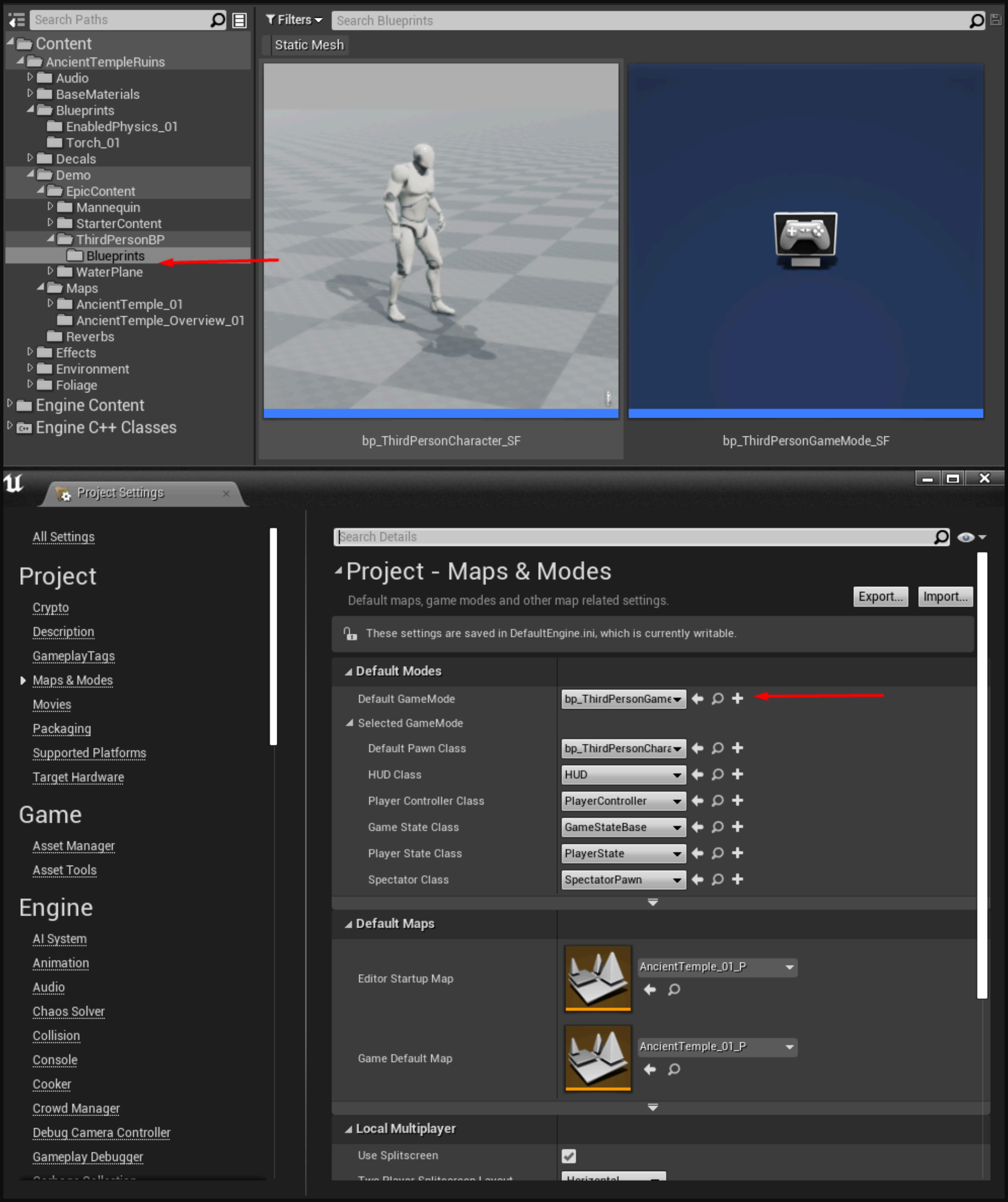
CEMETERY
FORGOTTEN CHURCHYARD

DOCUMENTATION

Thank you for supporting Scans Factory by purchasing our scenes, please check our other products on the UE Marketplace. If you have any problems or suggestions please write to us at: support@scansfactory.com

First Steps - movement impossible

The pack is based on a modified **Third Person template**, after adding it to your project you need to change **Default GameMode** in **Project Settings** to our **bp_ThirdPersonGameMode_SF**



Project - Maps & Modes

Default maps, game modes and other map related settings.

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

Default Modes

- Default GameMode: bp_ThirdPersonGame
- Selected GameMode
  - Default Pawn Class: bp_ThirdPersonChara
  - HUD Class: HUD
  - Player Controller Class: PlayerController
  - Game State Class: GameStateBase
  - Player State Class: PlayerState
  - Spectator Class: SpectatorPawn

Default Maps

- Editor Startup Map: AncientTemple_01_P
- Game Default Map: AncientTemple_01_P

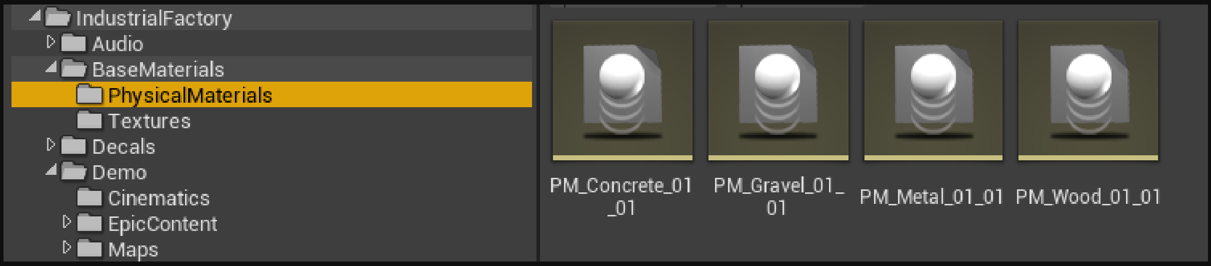
Local Multiplayer

- Use Splitscreen: ☑

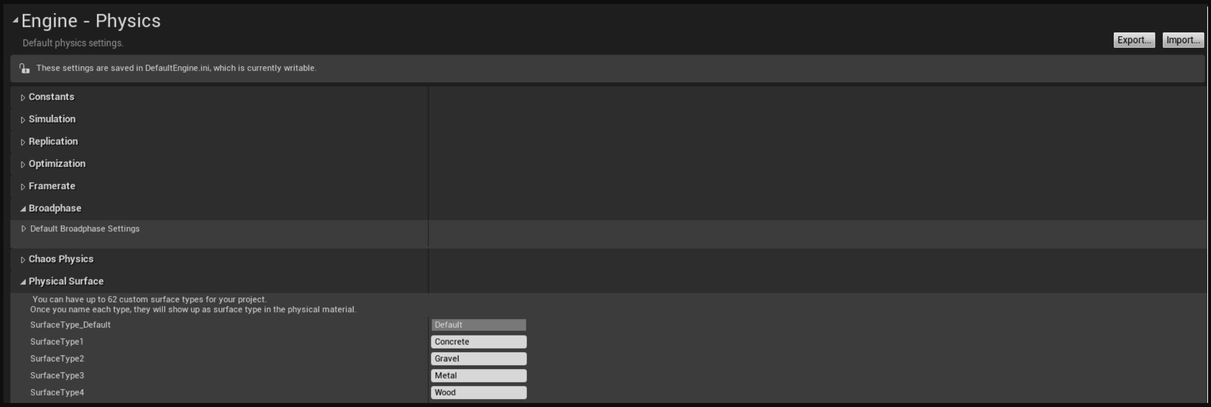
If you add a pack to **Blank projet** you should definite Engine input or import it, simply download it from our drive - Scans Factory input

First Steps - footsteps warning

We defined four **Physical Surfaces**: Concrete, Gravel, Metal, and Wood.



Our pawn has footstep sounds implemented for these surfaces. For proper operation and compilation, it must be defined in Project Settings, or simply download it and import it from our drive - Scans Factory Physics



Engine - Physics

Default physics settings.

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

- Constants
- Simulation
- Replication
- Optimization
- Framerate
- Broadphase
  - Default Broadphase Settings
- Chaos Physics
- Physical Surface

You can have up to 62 custom surface types for your project.
Once you name each type, they will show up as surface type in the physical material.

SurfaceType_Default	Default
SurfaceType1	Concrete
SurfaceType2	Gravel
SurfaceType3	Metal
SurfaceType4	Wood

First Steps for UE 5.0 and 5.1

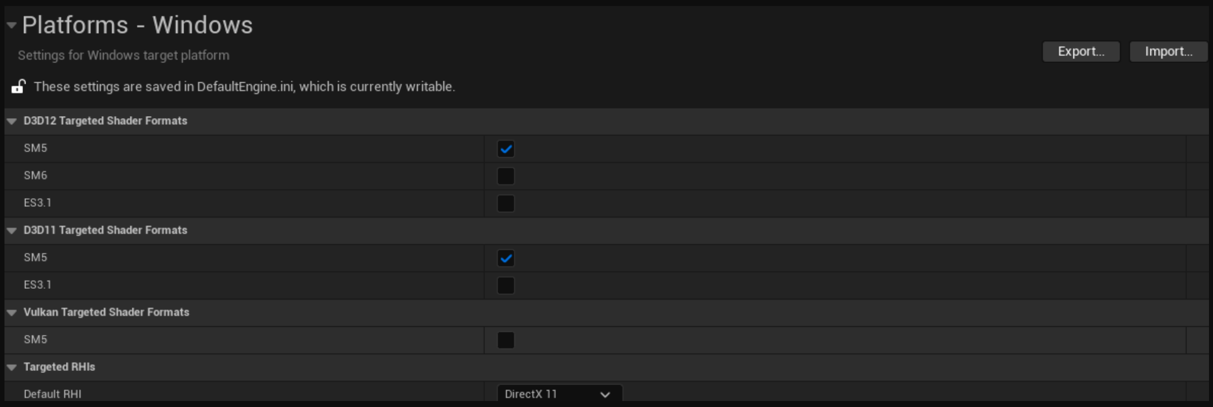
Be aware that Unreal 5 now has Lumen enabled by default. We still support a more game-ready pipeline, and you should disable this feature in your project settings to get results like our screenshots and walkthrough. We plan to start using Lumen and Nanite once it is working properly. Maybe with version 5.1.

Till we have no support for Lumen and Nanite you should turn off all new default features like SM6, DX12, Virtual Shadows (beta). You should have SM5, DX11, and Shadow Maps. If any problems please write to us at support@scansfactory.com

Here you can download our exported settings:

Windows (DX11, SM5):

Download SF Windows settings



Platforms - Windows

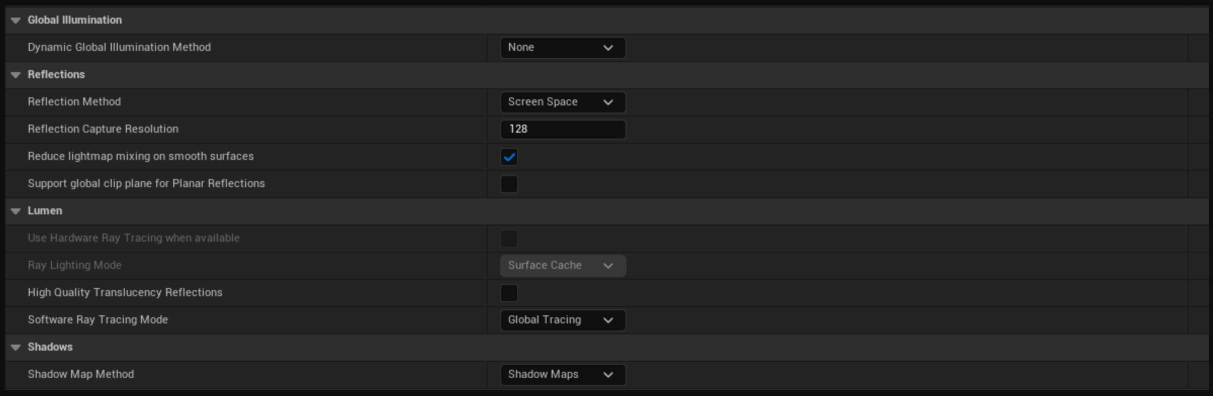
Settings for Windows target platform

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

D3D12 Targeted Shader Formats	
SM5	☑
SM6	□
ES3.1	□
D3D11 Targeted Shader Formats	
SM5	☑
ES3.1	□
Vulkan Targeted Shader Formats	
SM5	□
Targeted RHIs	
Default RHI	DirectX 11

Rendering (GI:none, Reflection:Screen Space, Shadow: Shadow Maps):

Download SF Rendering settings



Global Illumination	
Dynamic Global Illumination Method	None
Reflections	
Reflection Method	Screen Space
Reflection Capture Resolution	128
Reduce lightmap mixing on smooth surfaces	☑
Support global clip plane for Planar Reflections	□
Lumen	
Use Hardware Ray Tracing when available	□
Ray Lighting Mode	Surface Cache
High Quality Translucency Reflections	□
Software Ray Tracing Mode	Global Tracing
Shadows	
Shadow Map Method	Shadow Maps

Be aware that if you want to change our project to lumen and nanite by yourself, you should turn on SM6 + force DX12 to work on those features properly. The first step will also be to turn on virtual shadows(beta), change all no-translucent assets to nanite, and change all level lights to movable. Adjust exposure settings and a number of lights.

First Steps - keys

Additional keys in Play mode:

1- daylight scenario

2 - dark overcast light scenario

C - FPP/TPP view

mouse scroll - zoom out in TPP view

F - flashlight in FPP

B - show FPS

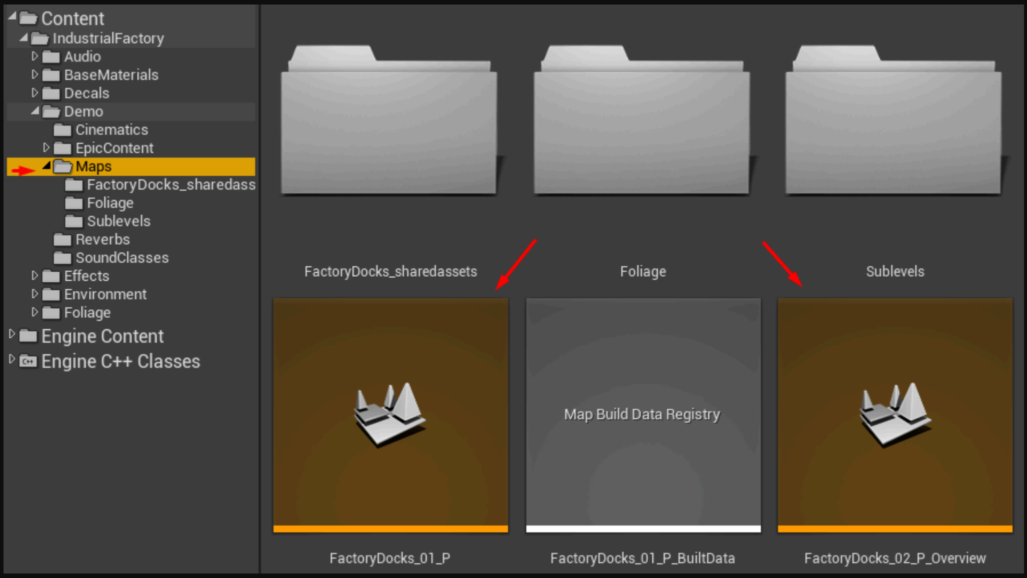
5 - LOW graphic settings

6 - High graphic settings

7 - Ultra graphic settings

8 - set supersampling to 180%

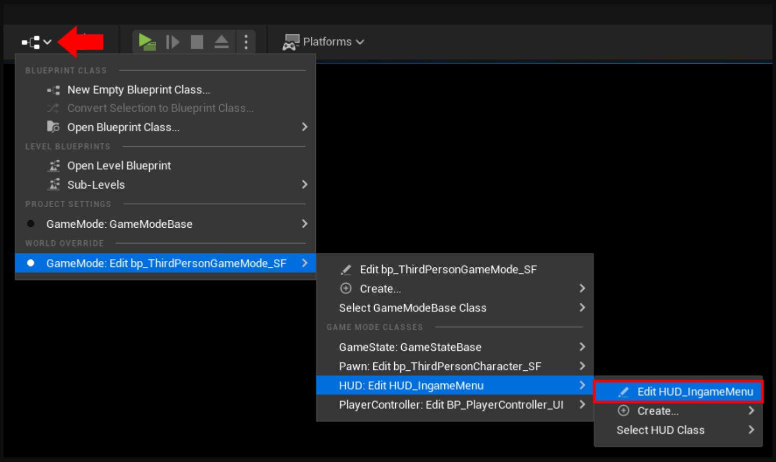
The name of the demo scene is **FactoryDocks_01_P** and all content is present on the overview map: **FactoryDocks_02_Overview_P**

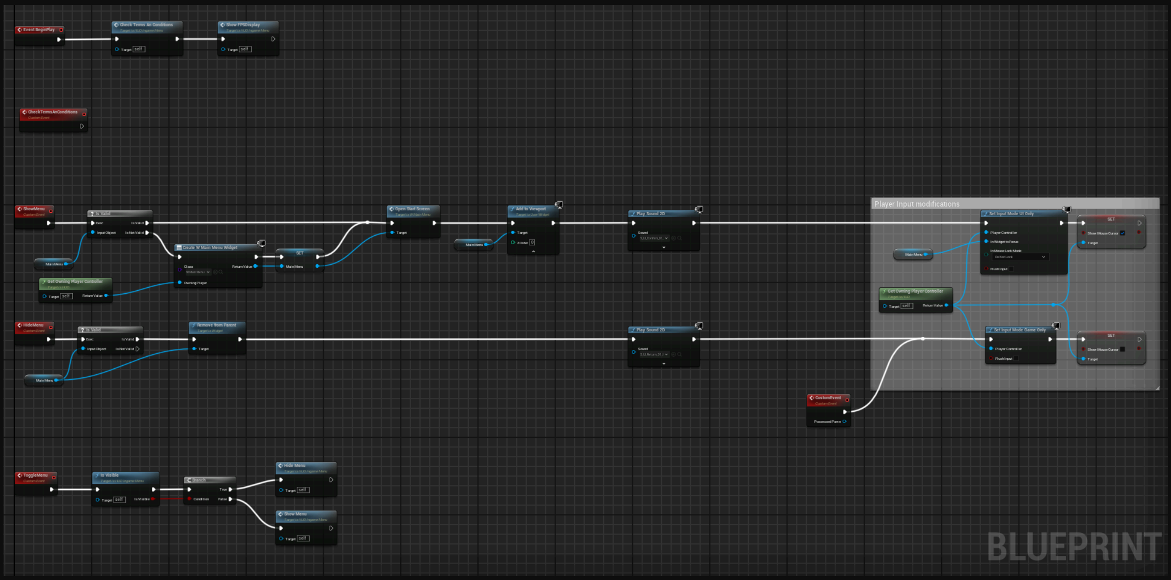


Disable HUD Menu (startup fade & rendering problems)

We have included a user interface menu & fade board when GameMode is launched. All files related to the menu are located in this directory: *\Content\ProjectName\Demo\UI*

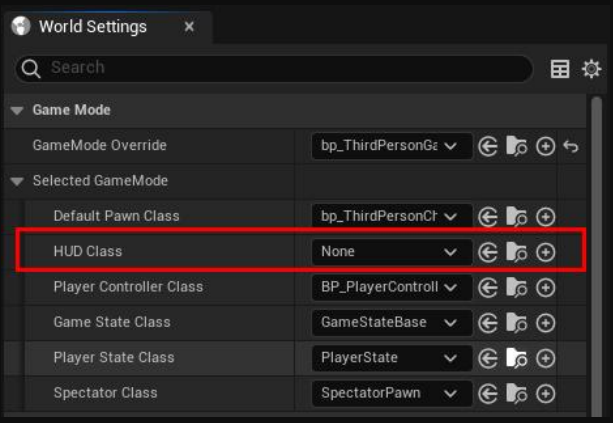
If you want to edit default menu, go to *HUD_IngameMenu* settings:





If you simply don't need our menu in your project and want to disable it, go to:

World Settings > Game Mode > Selected GameMode and set HUD Class to “none”:


World Settings

Search

Game Mode

GameMode Override: bp_ThirdPersonGa

Selected GameMode

Default Pawn Class: bp_ThirdPersonCh

HUD Class: None

Player Controller Class: BP_PlayerControll

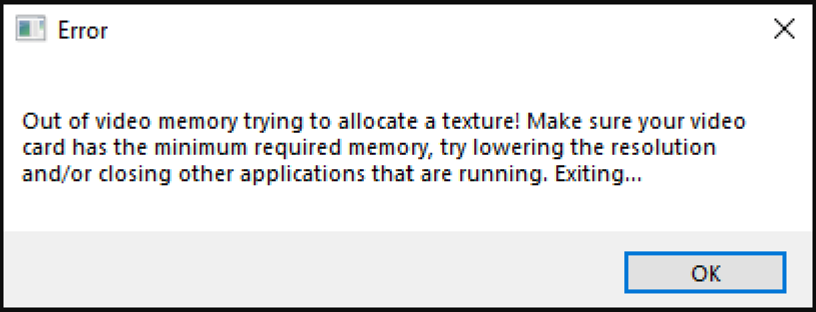
Game State Class: GameStateBase

Player State Class: PlayerState

Spectator Class: SpectatorPawn

Film template - out of memory problem

If you use Film, Television, and Live Events template you probably get the error "*Out of memory*"



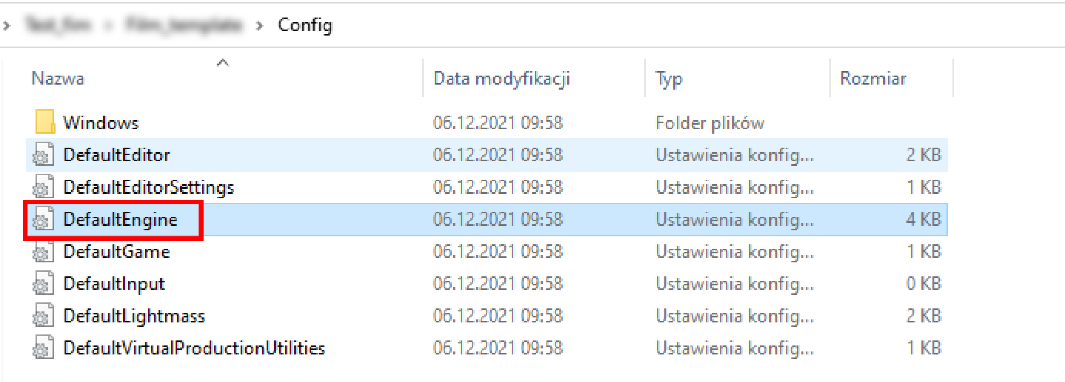
Error

Out of video memory trying to allocate a texture! Make sure your video card has the minimum required memory, try lowering the resolution and/or closing other applications that are running. Exiting...

Resolution captures are set to 2048 by default with a *film template* which is the problem. We use many reflection captures by default because it’s perfect for game-projects. You can change this resolution to something reasonable like 512 or 1024 in config files. After opening a scene you will probably delete all of the reflections capture actors and switch to ray-trace reflections which will do a great job in your movie/film.

To change resolution:

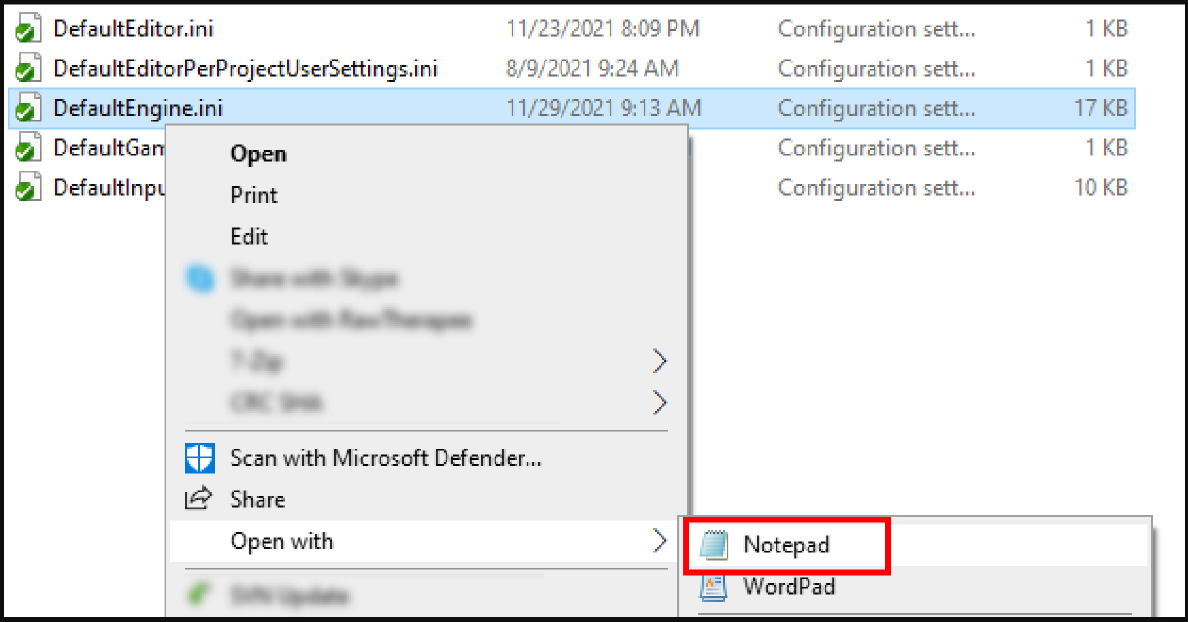
1. find the configuration file *DefaultEngine.ini* that is located - *Your_project's_name\Config*:



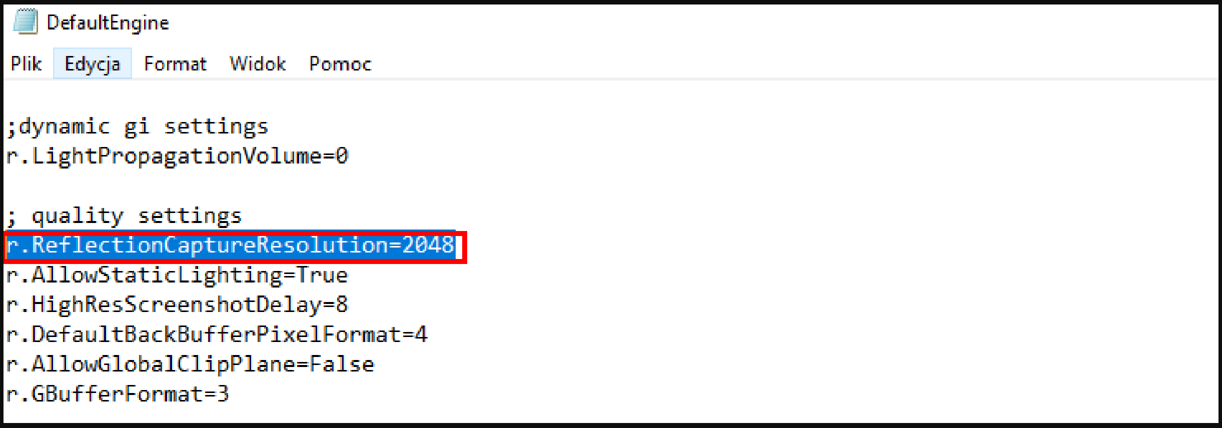
› [redacted] › [redacted] › Config

Nazwa	Data modyfikacji	Typ	Rozmiar
Windows	06.12.2021 09:58	Folder plików	
DefaultEditor	06.12.2021 09:58	Ustawienia konfig...	2 KB
DefaultEditorSettings	06.12.2021 09:58	Ustawienia konfig...	1 KB
DefaultEngine	06.12.2021 09:58	Ustawienia konfig...	4 KB
DefaultGame	06.12.2021 09:58	Ustawienia konfig...	1 KB
DefaultInput	06.12.2021 09:58	Ustawienia konfig...	0 KB
DefaultLightmass	06.12.2021 09:58	Ustawienia konfig...	2 KB
DefaultVirtualProductionUtilities	06.12.2021 09:58	Ustawienia konfig...	1 KB

2. open with notepad for example:


DefaultEditor.ini 11/23/2021 8:09 PM Configuration sett... 1 KB
DefaultEditorPerProjectUserSettings.ini 8/9/2021 9:24 AM Configuration sett... 1 KB
DefaultEngine.ini 11/29/2021 9:13 AM Configuration sett... 17 KB
DefaultGam Configuration sett... 1 KB
DefaultInpu Configuration sett... 10 KB
Open
Print
Edit
Scan with Microsoft Defender...
Share
Open with
Notepad
WordPad

3. find *r.ReflectionCaptureResolution=2048* and change 2048 to 1024 or 512



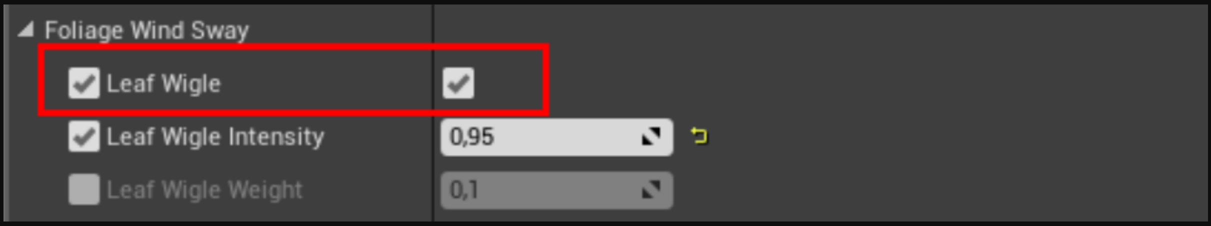
```
;dynamic gi settings
r.LightPropagationVolume=0

; quality settings
r.ReflectionCaptureResolution=2048
r.AllowStaticLighting=True
r.HighResScreenshotDelay=8
r.DefaultBackBufferPixelFormat=4
r.AllowGlobalClipPlane=False
r.GBufferFormat=3
```

4. save and enjoy the scene in the movie template

Tree animation

Material for foliage (***m_Foliage_01_01***) allows you to set up simple animation based on material - **Leaf Wigle** and **Sway**.

1. In the material instance enable **Leaf Wigle** and setup values.



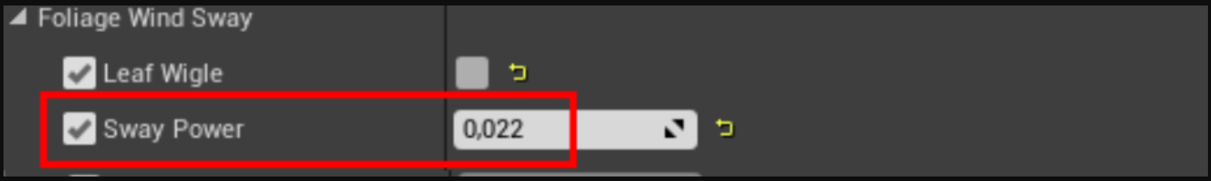
Foliage Wind Sway

☑ Leaf Wigle ☑

☑ Leaf Wigle Intensity 0,95

□ Leaf Wigle Weight 0,1

2. In the material instance enable **Sway Power** and setup value (*remember to setup the same value for trunk and branch)



Foliage Wind Sway

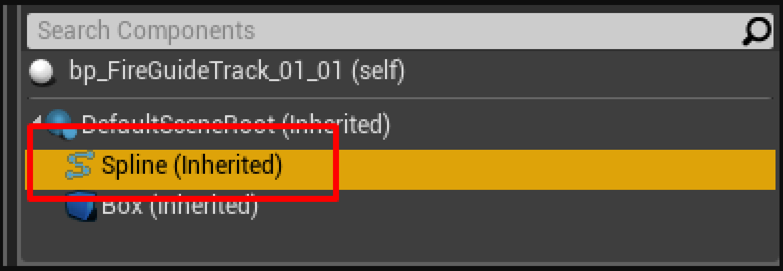
☑ Leaf Wigle □

☑ Sway Power 0,022

Fire Guide

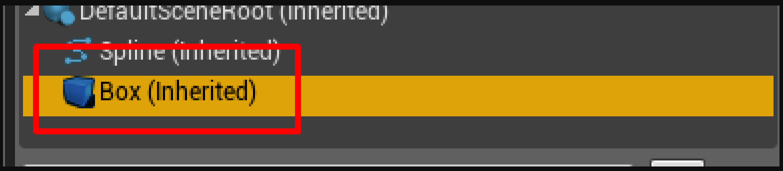
The fire guide consists of two elements: the firefly particle and the path on which it is to move. Both elements work together and connecting them with each other is important.

1. Place the **bp_FireGuide_01_01** blueprint on the level.
2. Place the **bp_FireGuideTrack_01_01** blueprint on the level at the same location as the fire guide effect.
3. Edit the **Spline** component in the fire guide track – add new points and move around the level.



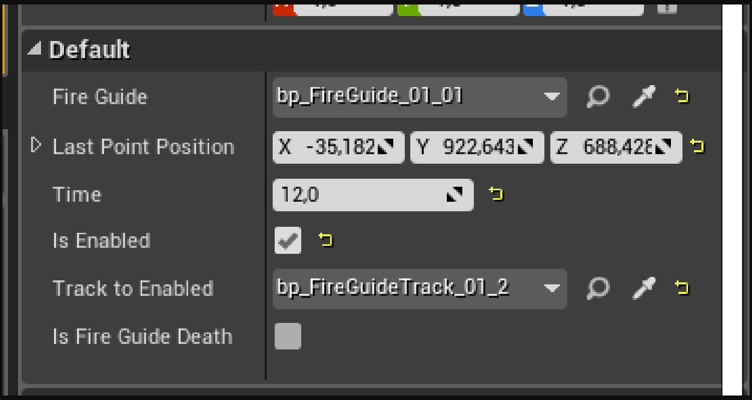
Search Components
bp_FireGuideTrack_01_01 (self)
DefaultSceneRoot (Inherited)
Spline (Inherited)
Box (Inherited)

4. Setup the **Box** collision component that will activate the fire guide travel.



DefaultSceneRoot (Inherited)
Spline (Inherited)
Box (Inherited)

5. Setup the fire guide track blueprint:
    a. Assign the fire guide effect to the **Fire Guide**.
    b. The properties **Last Point Position** can be used to place another track in the same position as the last spline point.
    c. Set how long it will take to travel along the spline in the **Time** properties.
    d. Enable **Is Enabled** if the track is to be unlocked by default and it is to work if the player enters the **Box** collision component. Otherwise, if this track is to be activated by another track, leave this box unchecked.
    e. Assign the next track to the **Track to Enabled** if you want the next track to be unlocked after the fire guide effect travel completes.
    f. Enable the **Is Fire Guide Death** if you want the fire guide effect to disappear at the end of the spline.



Default

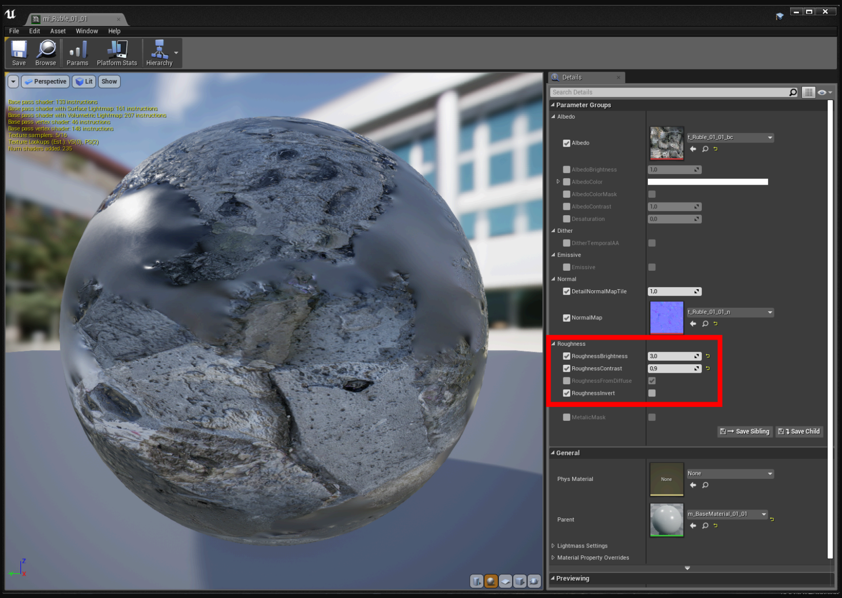
Fire Guide	bp_FireGuide_01_01
Last Point Position	X -35,182 Y 922,643 Z 688,426
Time	12,0
Is Enabled	☑
Track to Enabled	bp_FireGuideTrack_01_2
Is Fire Guide Death	□

6. If you want more track repeat steps 2-5 for each track.
7. Start the game, go to the fire guide and trigger the travel of the fire guide effect.

You can create many tracks with many different fire guide effects to guide player around your level.

Base Material

m_BaseMaterial_01_01 is a special optimal material for models based on photogrammetry scans with many textures. We decide for optimization reasons, to resign from additional texture and generate roughness texture from base color. You can easily control a roughness by two parameters and easy invert it by switch:



Parameter Groups

Albedo

☑ Albedo	t_Ruble_01_01_bc
□ AlbedoBrightness	1,0
□ AlbedoColor	
□ AlbedoColorMask	□
□ AlbedoContrast	1,0
□ Desaturation	0,0

Dither

□ DitherTemporalAA	□

Emissive

□ Emissive	□

Normal

☑ DetailNormalMapTile	1,0
☑ NormalMap	t_Ruble_01_01_n

Roughness

☑ RoughnessBrightness	3,0
☑ RoughnessContrast	0,9
□ RoughnessFromDiffuse	☑
☑ RoughnessInvert	□
□ MetalicMask	□

General

Phys Material	None
Parent	m_BaseMaterial_01_01

Lightmass Settings

Material Property Overrides

Previewing

Interaction system blueprints

It’s a system that allows easy interactions with the environment. It’s constructed with a pair of bpc_PlayerInteractor_01_01 , bpi_Interactables_01_01 and w_sf_InteractionWidget_01_01

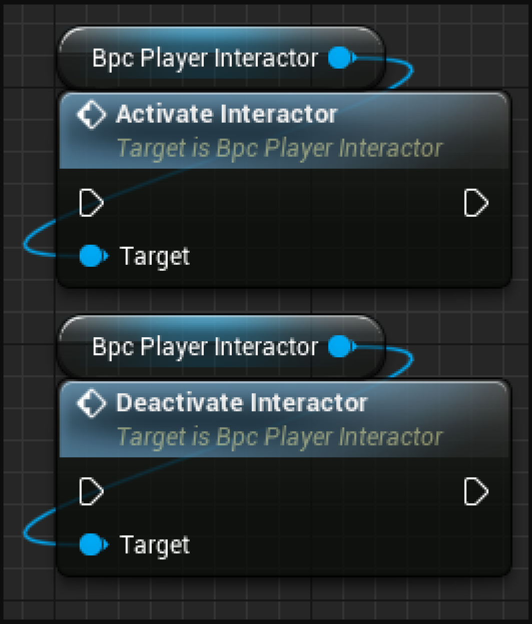
bpc_PlayerInteractor_01_01

It’s a component that can be added to your Pawn and it’s main purpose it to search for any interactable actors in map.

Component setup:

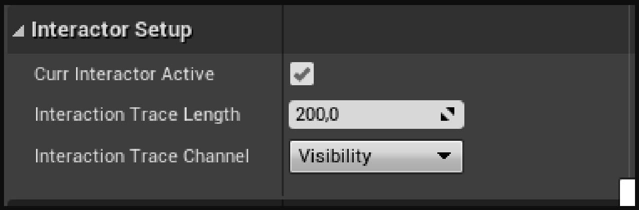
You should add it your pawn and rotate it pawns or camera forward direction.

- CurrInteratorActive - whether or not this component should active on begin play or not - maybe you want to enable searching only when player enters certain area, or holds a specific input key. We keep it enabled always as our player always traces for interactables but you can both set it’s default in this property or assign it dynamically using ActivateInteractor() / DeactivateInteractor() functions



Interaction Trace Length - distance at which Interactor can efficiently detect interactable actors

InteractionTraceChannel - channel to trace for interactables on map - **it’s highly recommended to setup your own trace channel for Interactables in your Project settings** to avoid tracing for all actors. It’s a good practice to wrap your actors with Interaction Volume blocking your trace channel so not whole actor detects interactable but just a specific part of it. For example you could have a PC actor which only triggers Typing interaction when you look at the keyboard.



Interactor Setup

Curr Interactor Active ☑

Interaction Trace Length 200,0

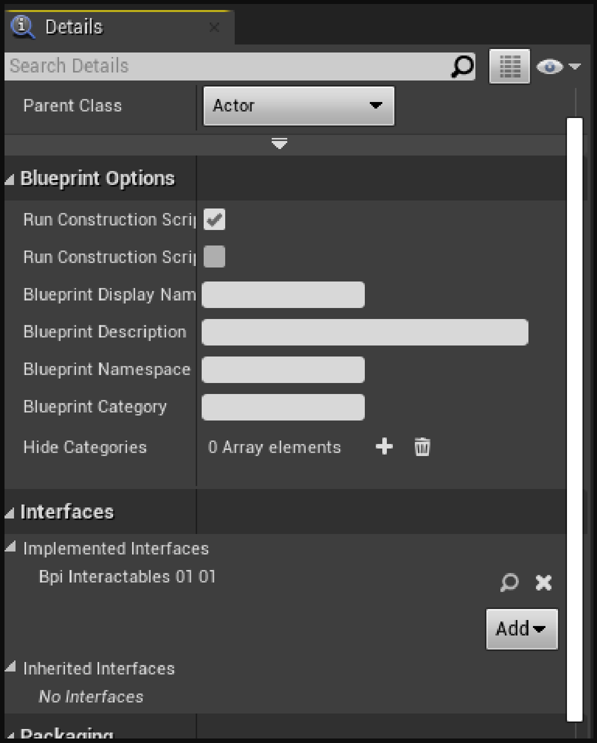
Interaction Trace Channel Visibility

An example of using bpc_Interactor is in bp_sf_PlayerCharacter.

bpi_Interactables_01_01

It’s an interface used to communicate between player and detected by bpc_PlayerInteractor actors. **Only actors implementing this interface can be interacted with.**

Add this interface to your class in its **Class Settings panel.**



Parent Class Actor

Blueprint Options

Run Construction Scri ☑

Run Construction Scri □

Blueprint Display Nam

Blueprint Description

Blueprint Namespace

Blueprint Category

Hide Categories 0 Array elements

Interfaces

Implemented Interfaces

Bpi Interactables 01 01

Inherited Interfaces

No Interfaces

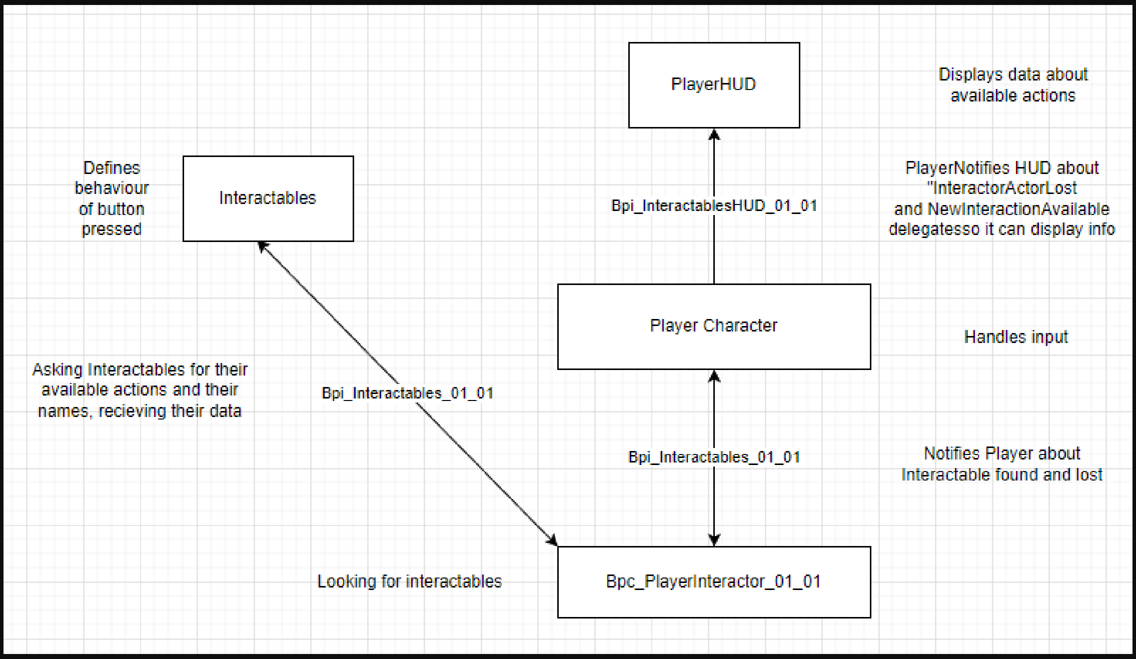
Packaging

You can find bp_InteractableBase_01_01 with implemented interface in content.

Functions to implement in your class:

- CanInteractableBeUsed - Function determining whether this actor can be used, and is it only main action, secondary action or both - function is called each tick while player actor is being seen by PlayerInteractor
- TryUseMainAction - Function called when player uses named interaction - here interaction should be called. Each actor handles its own behavior to players input.
- TryUseSecondaryAction - Same as before, it’s function called when player uses named interaction - here interaction should be called. Each actor handles its own behavior to players input.
- GetActionTexts - function which asks Actor for its interactions texts to display on HUD.

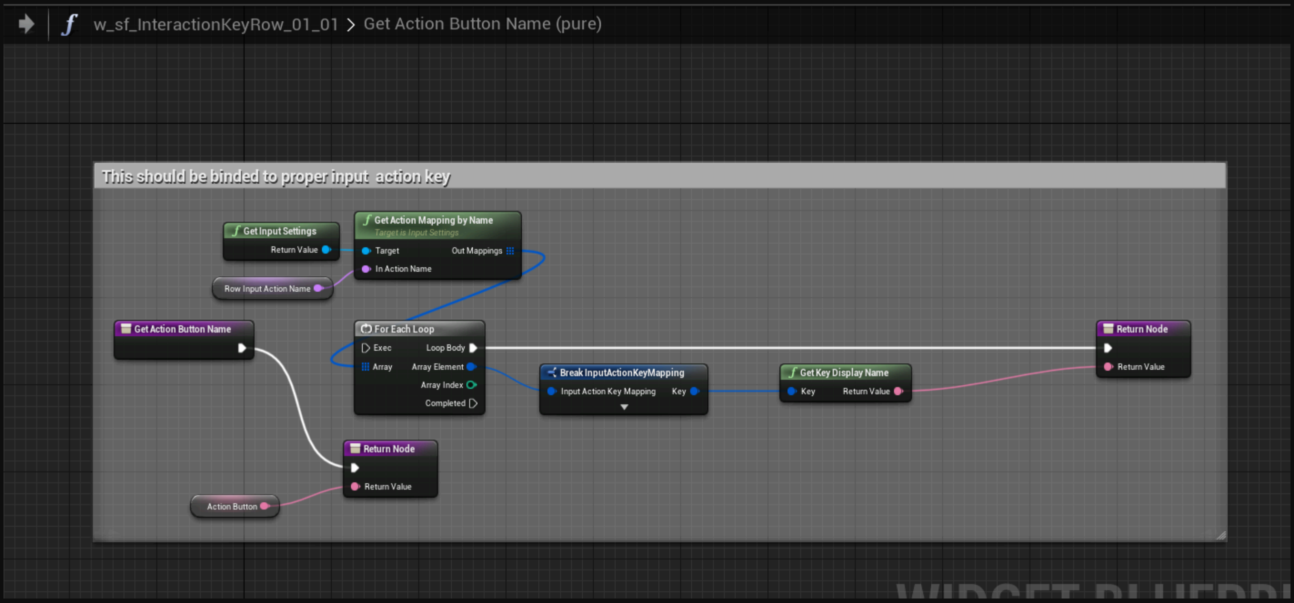
In Addition - Player Character communicates with HUD through **bpi_InteractablesHUD_01_01** to show tips on input and actions of the seen actor. You can notice w_sf_InteractionWidget_01_01 is notified about seen actor so it can display player information about it.


PlayerHUD
Displays data about available actions
Defines behaviour of button pressed
Interactables
Bpi_InteractablesHUD_01_01
PlayerNotifies HUD about "InteractorActorLost and NewInteractionAvailable delegatesso it can display info
Player Character
Handles input
Asking Interactables for their available actions and their names, recieving their data
Bpi_Interactables_01_01
Bpi_Interactables_01_01
Notifies Player about Interactable found and lost
Looking for interactables
Bpc_PlayerInteractor_01_01

Communication chart

Note

As mentioned above, when you add input actions in your project settings, you can switch to picking button tip from settings. It will become more universal this way.



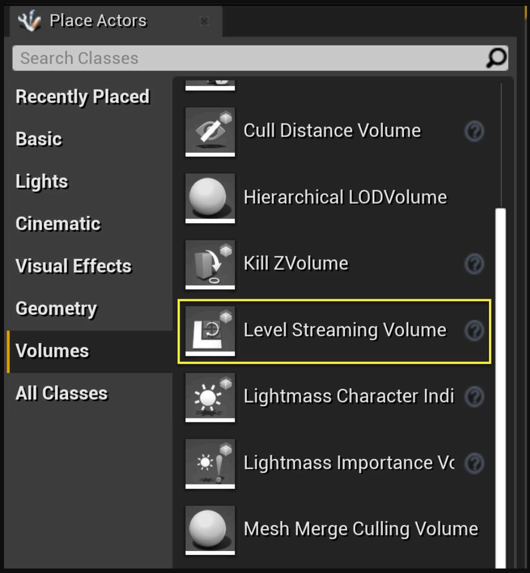
w_sf_InteractionKeyRow_01_01 > Get Action Button Name (pure)

This should be binded to proper input action key

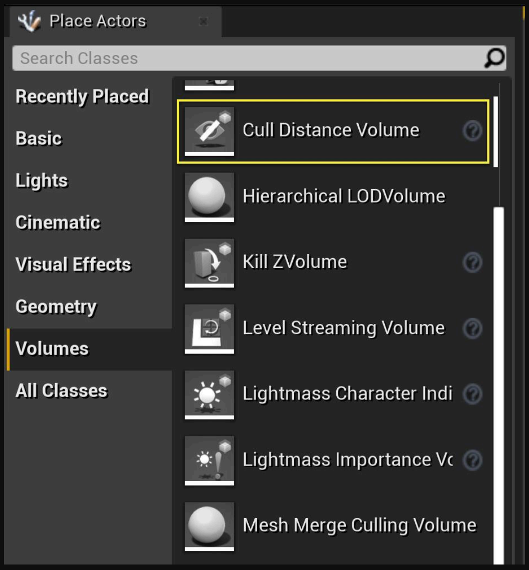
Optimization

We optimize our scenes to achieve the best performance and experiences. We use Level Streaming Volumes and Cull Distance Volumes for this purpose.

Level Streaming Volumes
are a feature in Unreal Engine that allow for the dynamic loading and unloading of map data during gameplay. This solution is especially useful for large environments where the entire map cannot be loaded into memory at once. By dividing the map into smaller areas, known as streaming volumes, only the portions of the map that are currently visible to the player are loaded into memory. This can greatly reduce system resource usage and improve performance by reducing the amount of data that needs to be processed at any given time.



Cull Distance Volumes
are a useful optimization tool that defines what distance to draw (or make visible) any Actor within the volume. These volumes store any number of size and distance combinations called Cull Distance Pairs. These are mapped to the bounds of an Actor (along its longest dimension) and then assigned to that Actor instance in the level.



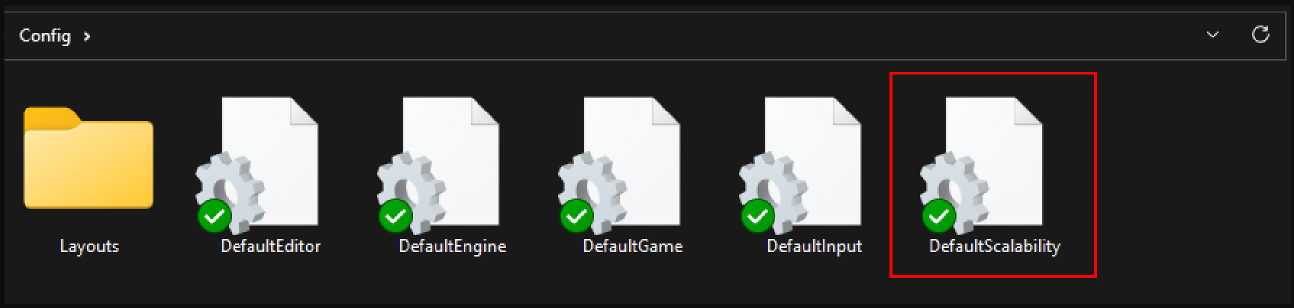
Check how to properly use these solutions in the official UE documentation:

Level Streaming Volumes
Cull Distance Volumes

Scalability Settings

The Scalability settings allow you to adjust the quality of various features, especially the visual appearance in order to maintain the best performance. We place our custom settings and modifications in the DefaultScalability.ini file.

If you want to make your own changes, go to: ProjectName > Config > DefaultScalability.ini



You can read more about the Scalability Settings in the official Unreal Engine Documentation

Performance

SPECIFICATION UE ver. 5.1	QUALITY SETTINGS		
	MEDIUM	HIGH	ULTRA
RTX 4070 FULL HD AMD Ryzen 7 5700X 8-Core 32 GB RAM SSD STORAGE	65 FPS	65 FPS	35 FPS

If it does not work like above please check all “First Steps” and if that will not work for you please write to us at **support@scansfactory.com**

Thanks!

Again if you will have any problems, let us know! :)
Scans Factory Team