SCANS FACTORY

MEDIEVAL FANTASY RUINS
DARK FOREST ENVIRONMENT

DOCUMENTATION

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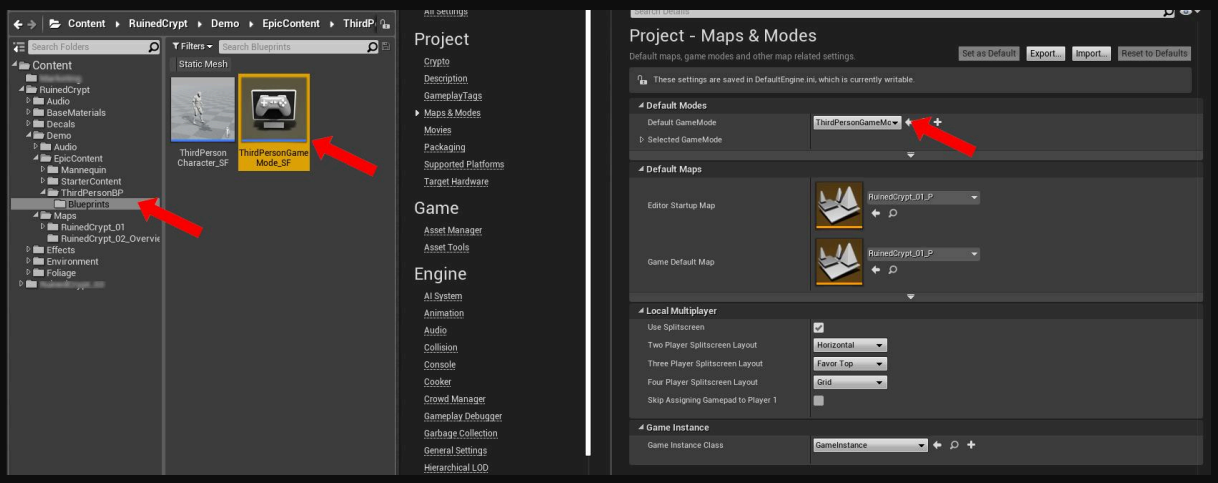
First Steps

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 **ThirdPersonGameMode_SF**



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

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. We plan to start using Lumen and Nanite once it is working properly. Maybe with version 5.1.

Additional keys in Play mode:

1- day light scenario

2 - night light scenario

C - FPP/TPP view

mouse scroll - zoom out in TPP view

F - torch in FPP

B - show FPS

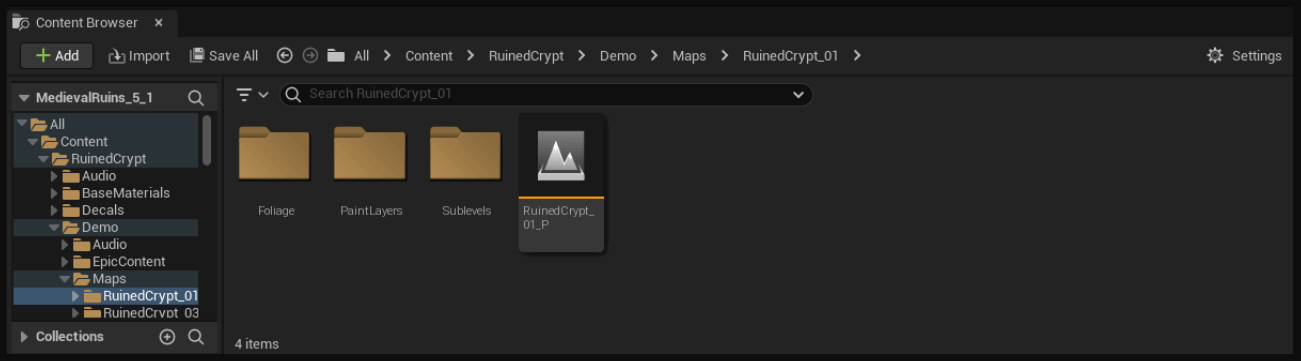
5 - LOW graphic settings

6 - High graphic settings

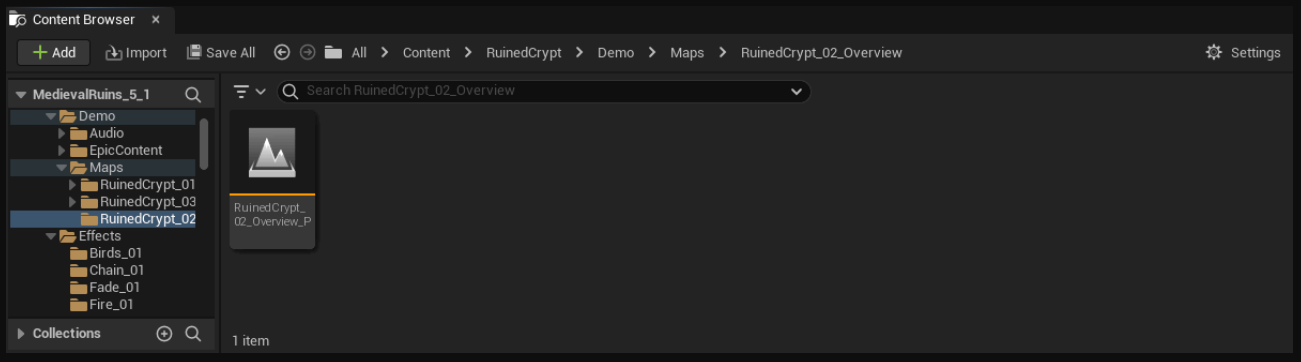
7 - Ultra graphic settings

8 - set supersampling to 160%

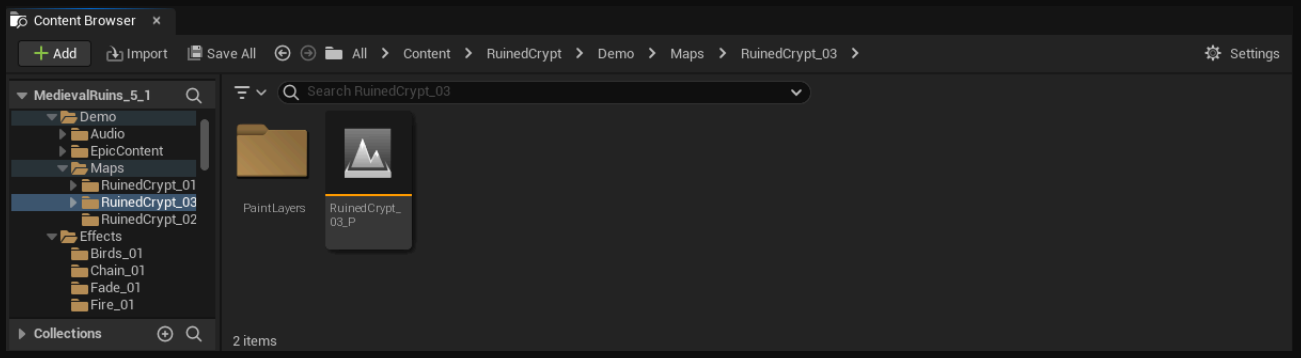
Name of the demo scene: **RuinedCrypt_01_P**



All content is on an overview map **RuinedCrypt_02_Overview_P**



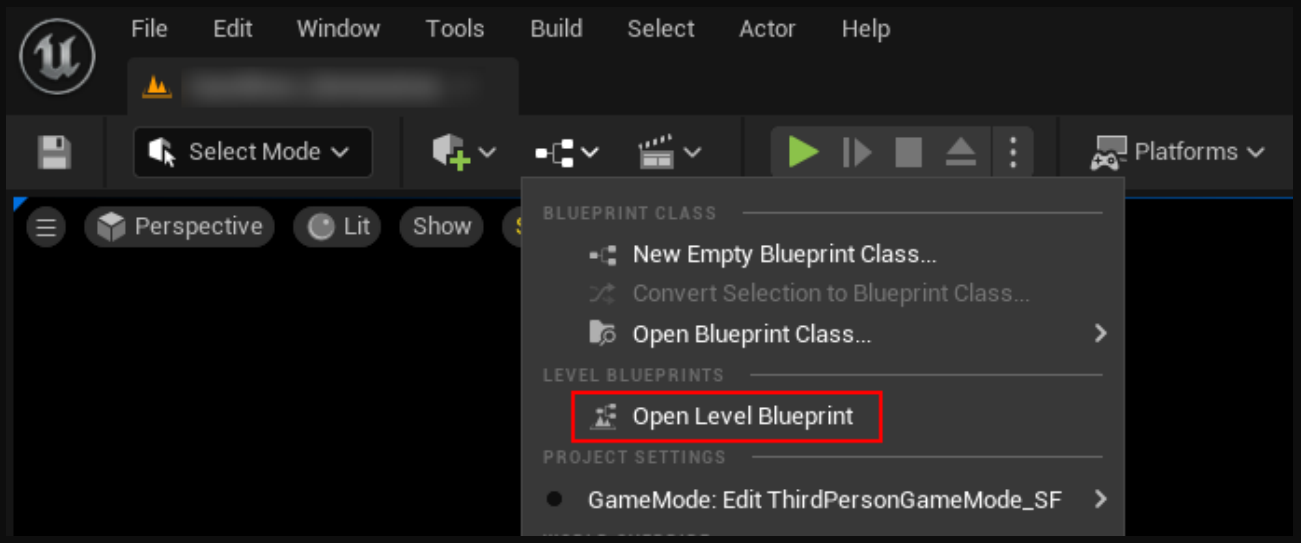
Name of additional scene - **RuinedCrypt_03_P**



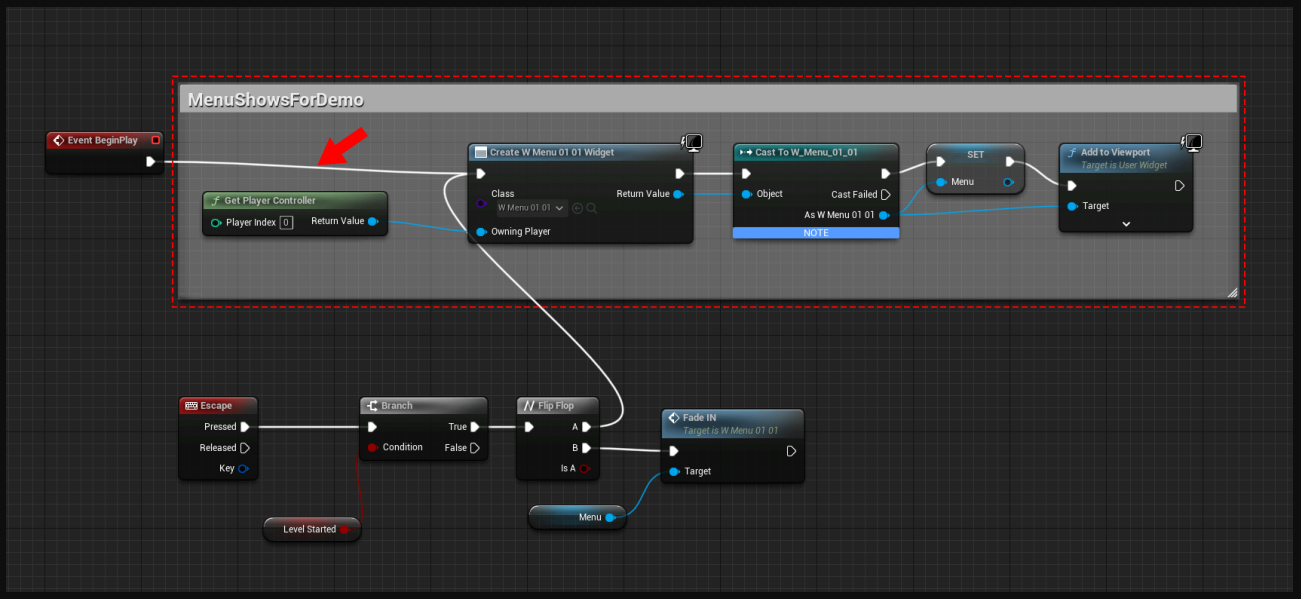
Disable HUD Menu (startup fade & rendering problems)

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\Maps\Menu\

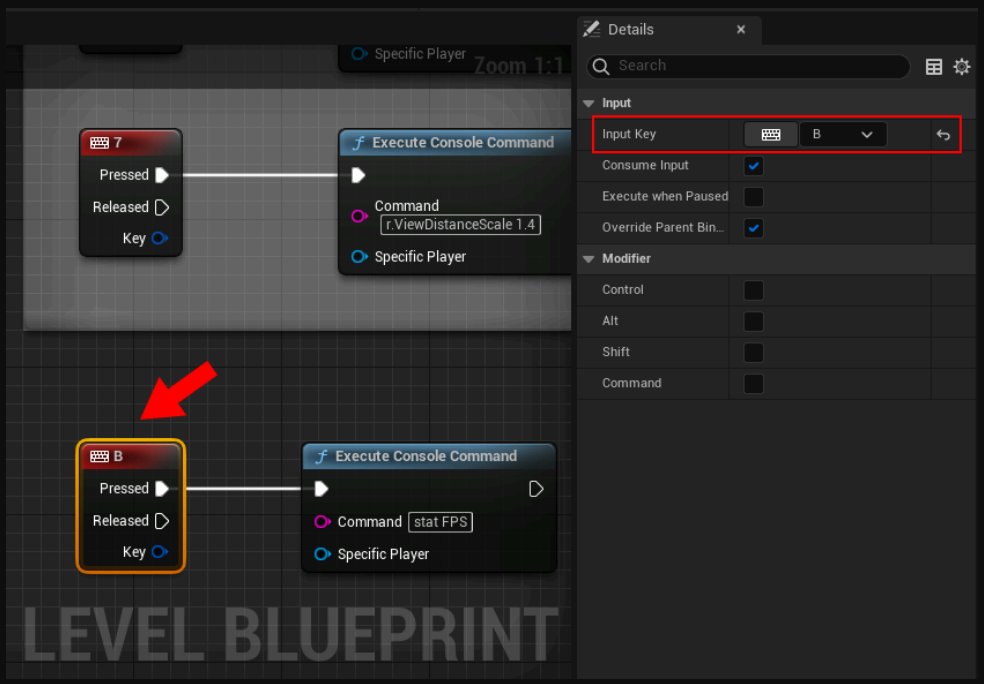
If you want to disable default menu, go to Level Blueprint settings:



The displayed menu is controlled by a selected graph. You can edit it or simply disconnect the indicated node:

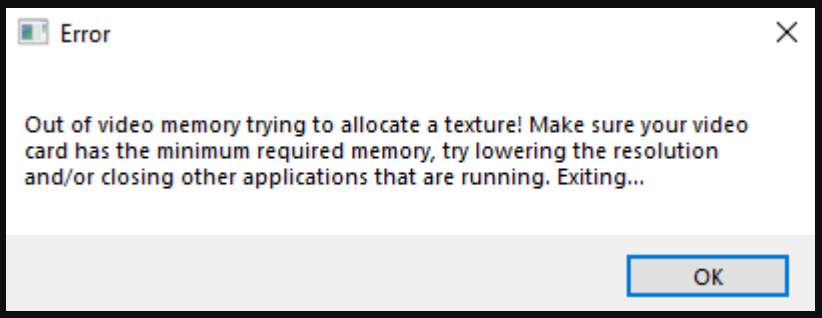


However, if you'd like to customize user menu, you can edit the keys assigned to individual functions:



Film template - out of memory problem

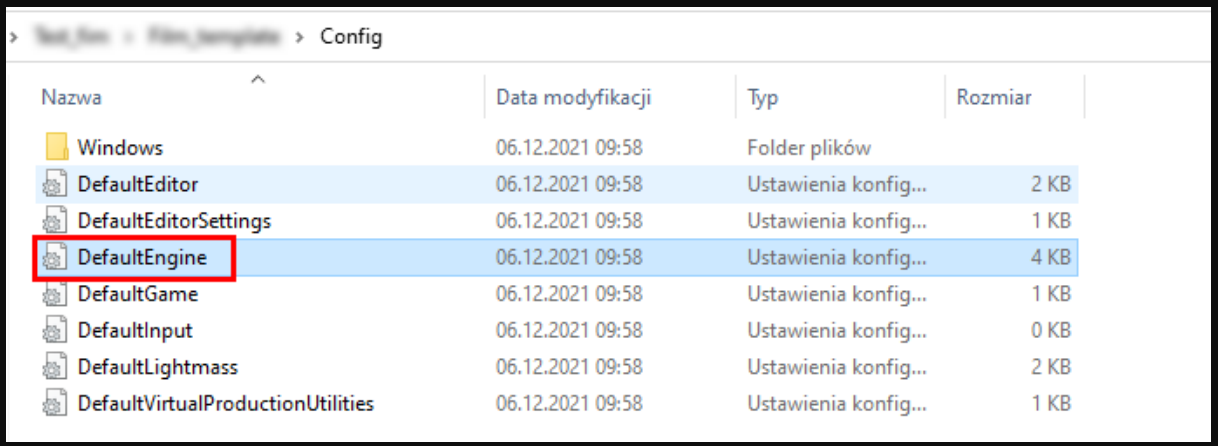
If you use Film, Television, and Live Events template you probably get the error "*Out of memory*"



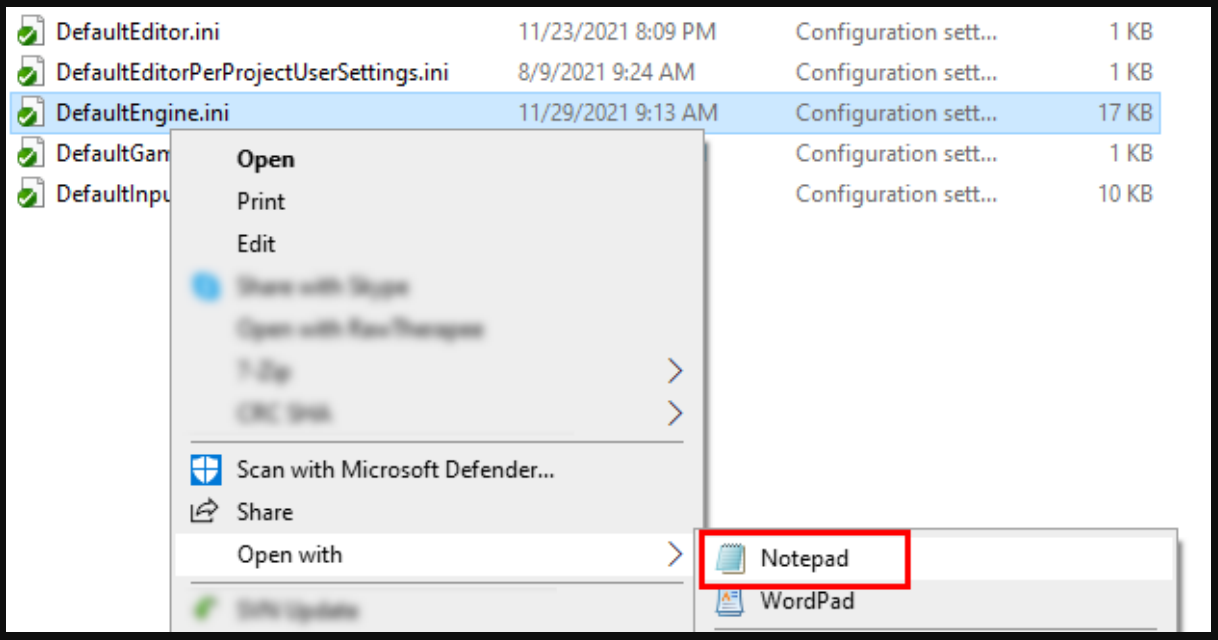
Resolution captures are set to 2048 by default with a *film template* which is the problem.
We use many reflection captures by default because it's perfect for game-projects. You can change this resolution to something reasonable like 512 or 1024 in config files. After opening a scene you will probably 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:

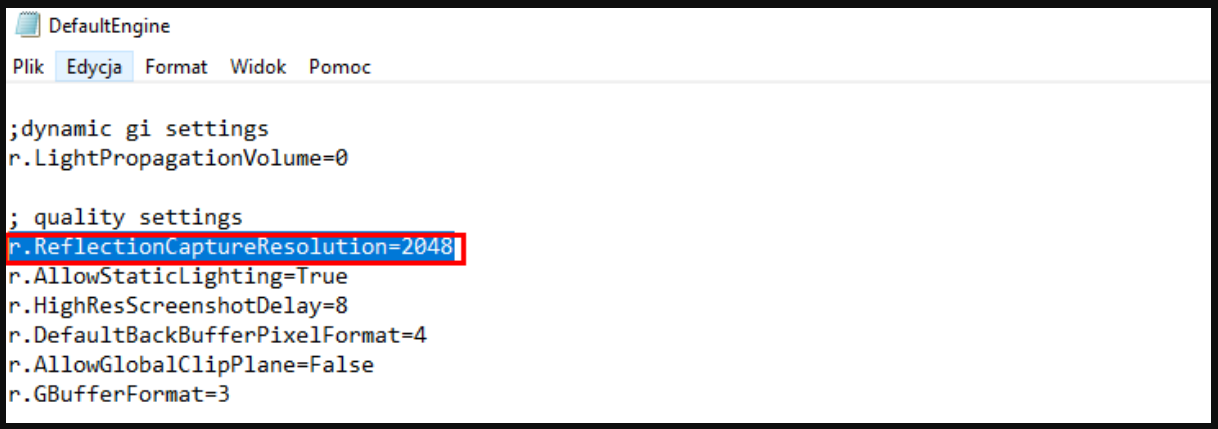
1. find the configuration file *DefaultEngine.ini* that is located - *Your_project's_name\Config*:



2. open with notepad for example:



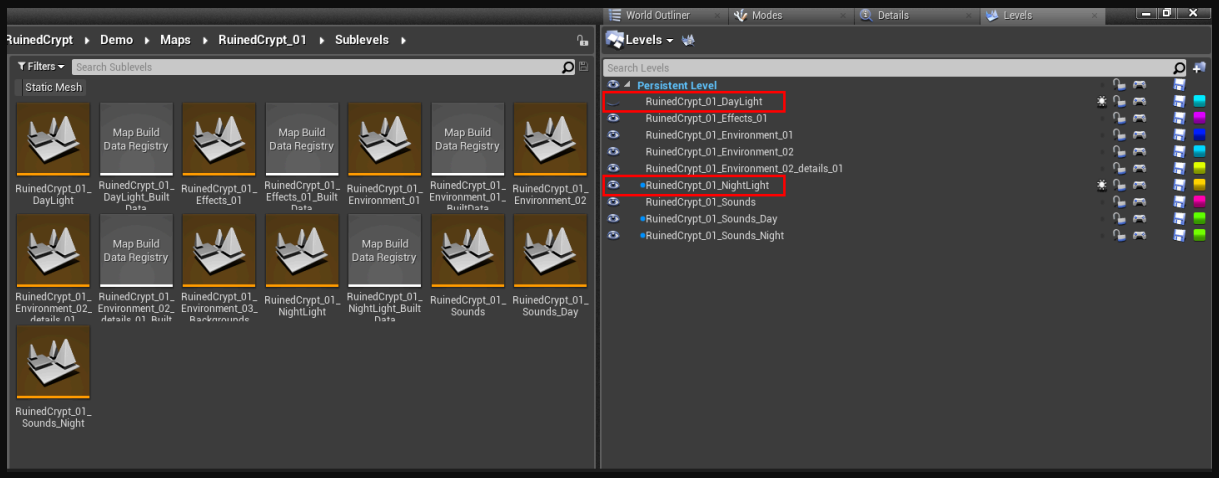
3. find *r.ReflectionCaptureResolution=2048* and change 2048 to 1024 or 512



4. save and enjoy the scene in the movie template

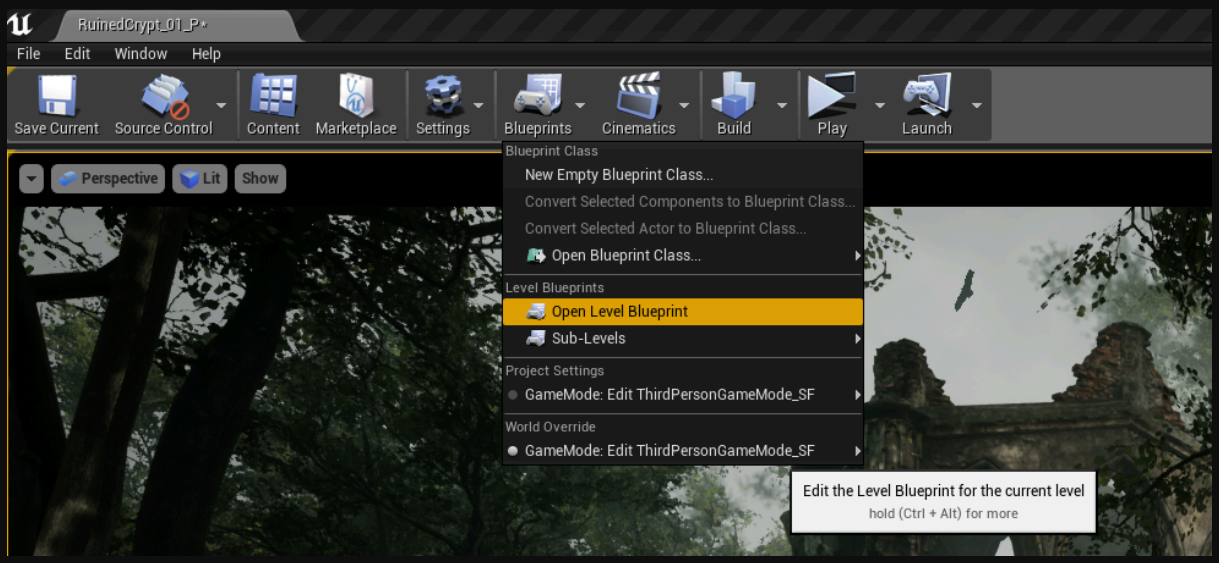
Lights Scenarios

There are two lighting scenarios - day RuinedCrypt_01_Sounds_Day and night RuinedCrypt_01_NightLight. In the editor, you can switch between them from the Levels tab.



In-Game mode, you can switch between light scenarios on keyboard 1 (day), 2 (night).

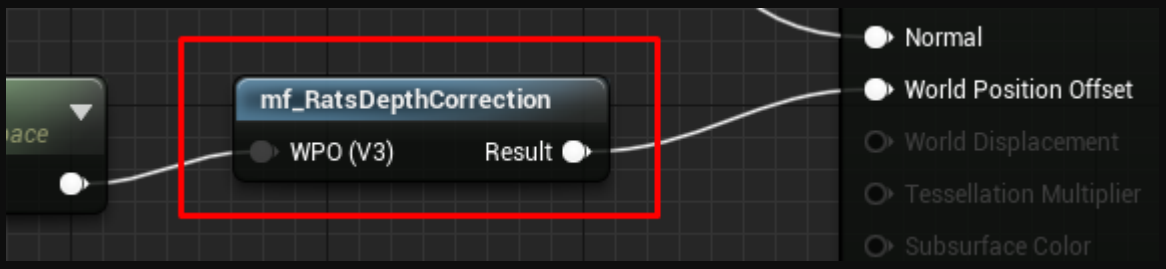
To change the order or deactivate the lighting scenarios you just need to edit the main level RuinedCrypt_01_P blueprint:



Depth Corrected Rats

To use the rats particle aligned to a surface (e.g. landscape) you must follow these steps.

1. Add the mf_RatsDepthCorrection material function to your rat base material.

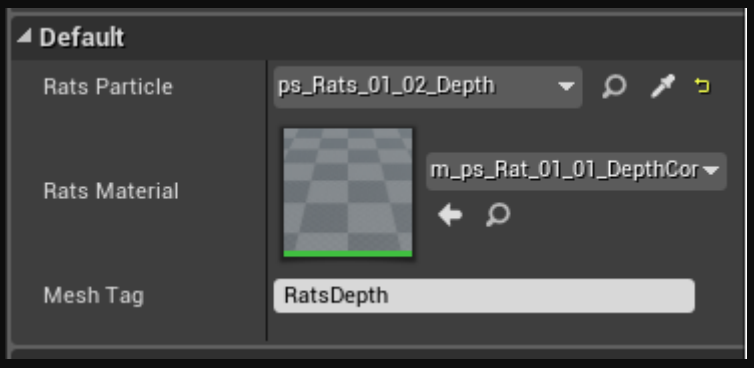


2. Add in your particle a Mesh Material module.

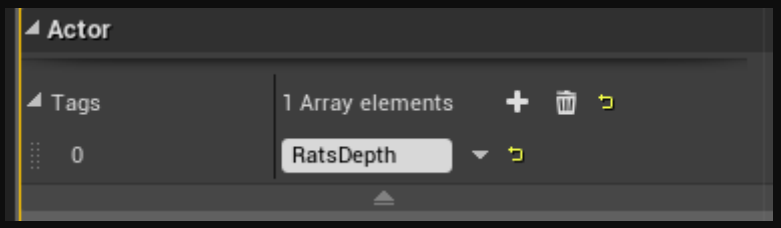
3. Place the rat particle on the level.
4. Place the bp_RatsDepthCorrection_01_01 blueprint on the level where the rats particle is.

   The blueprint should be placed in the center of the rats so that it covers all of them.

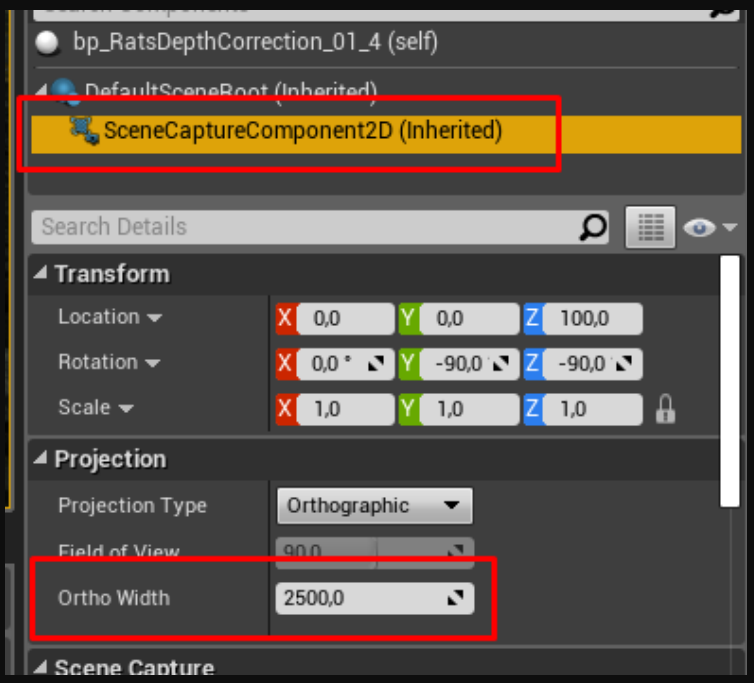
5. Setup blueprint on level:
    a. Assign particle from step 3 to the Rats Particle.
    b. Assign base material with custom material function to the Rats Material.
    c. Type any name in the Mesh Tag.



6. Select the surface on the level to which the rats particle is to be aligned. Add to this mesh the tag from step 5c. You can set a tag on multiple objects, not just one.



7. By default, rats are aligned in 2,500 units (25 meters). If you need a larger distance, you can change it in the SceneCaptureComponent component in the Ortho Width properties.



8. Start the game. Rats particle should be aligned to the surface from step 6.

Tree animation

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

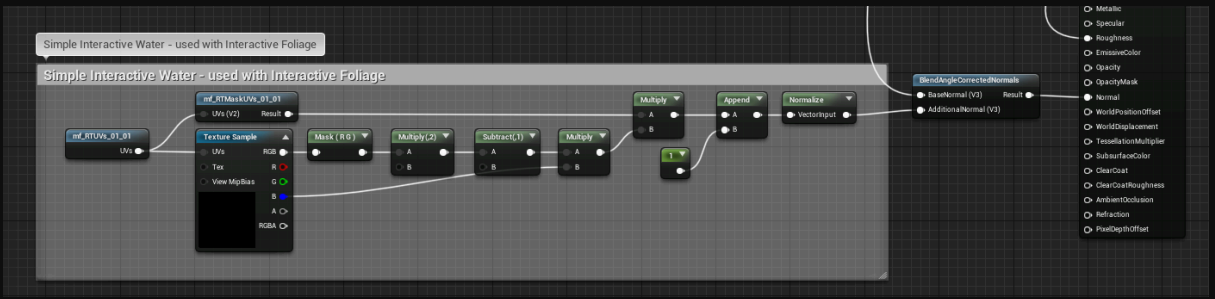
1. In the material instance enable **Leaf Wigle** and setup values.

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

Simple Interactive Water

If you use the interactive foliage you can use also the simple interactive water. The material **m_Water_01_01** in the folder **/RuinedCrypt/Effects/Water_01/** shows how you can add a simple interaction.

1. Open your water material.
2. Add a node **BlendAngleCorrectedNormals** and connect **Result** output to material **Normal** input.
3. Connect your water normals to the **BaseNormal** input.
4. Open **m_Water_01_01** and copy commented nodes.
5. Paste copied commented nodes to your water material and connect them to the **AdditionalNormal** input.

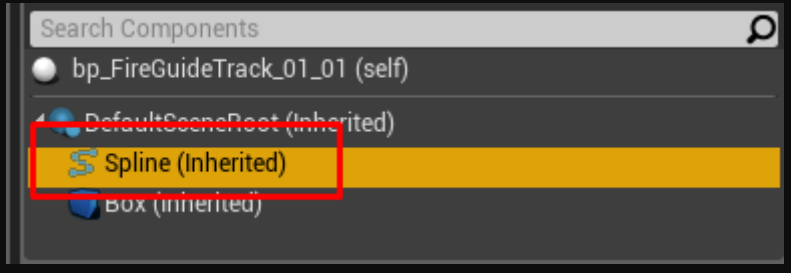


6. Save material and start the game.

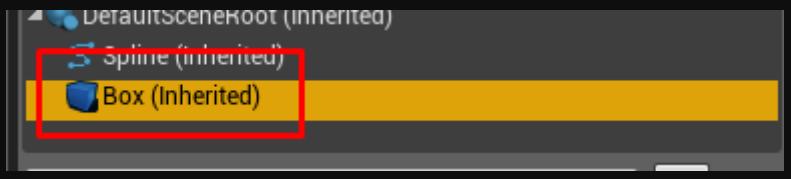
Fire Guide

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.

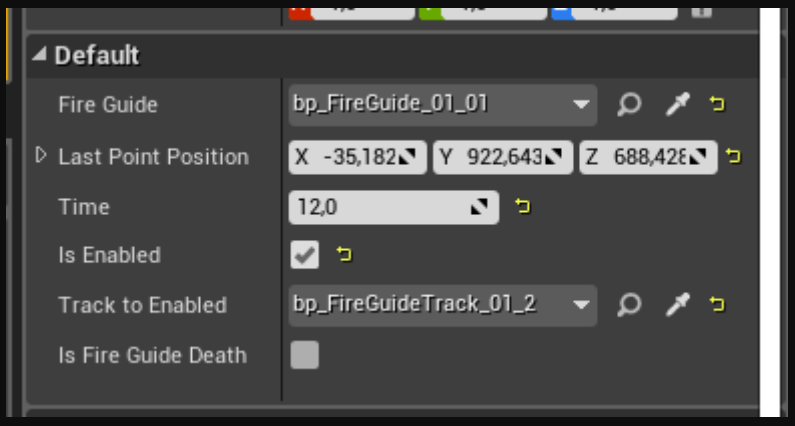
1. Place the **bp_FireGuide_01_01** blueprint on the level.
2. Place the **bp_FireGuideTrack_01_01** blueprint on the level at the same location as the fire guide effect.
3. Edit the **Spline** component in the fire guide track – add new points and move around the level.



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



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.



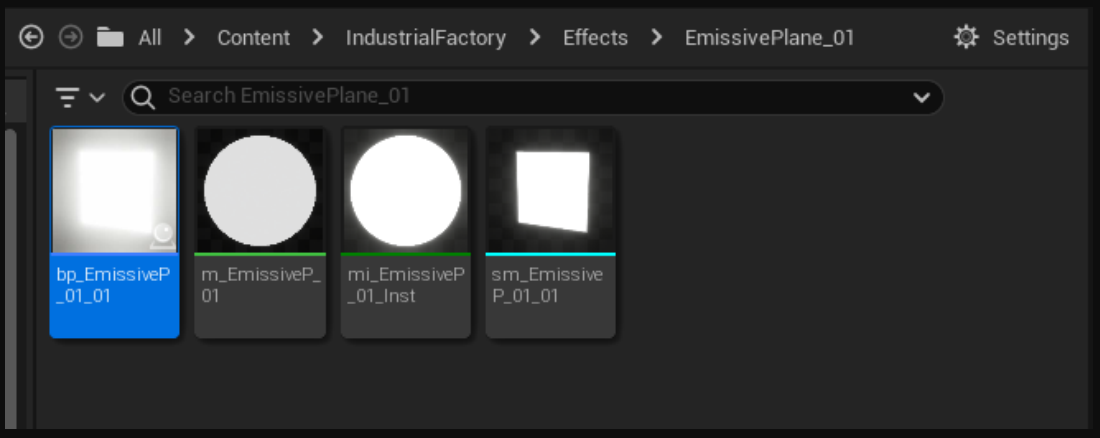
6. If you want more track repeat steps 2-5 for each track.
7. Start the game, go to the fire guide and trigger the travel of the fire guide effect.

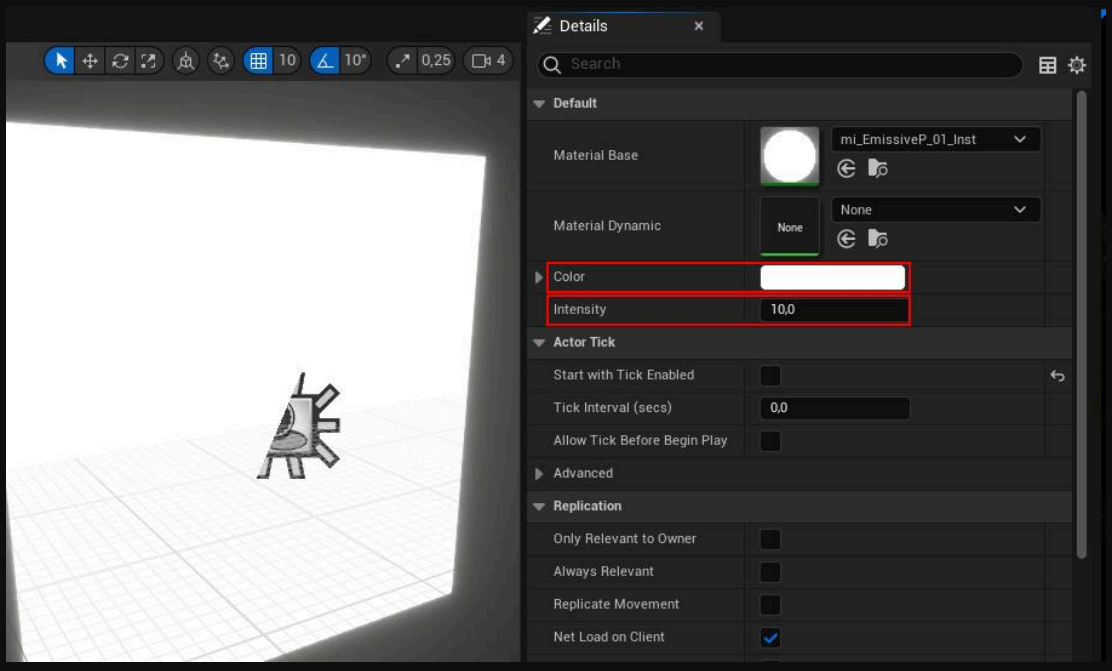
You can create many tracks with many different fire guide effects to guide player around your level.

Emissive Plains Blueprint

We have decided to create an emissive plane to optimize the scene lighting. It is mainly used for creating ambient soft light. You can adjust the intensity and color of emitted light. The emissive plane does not cast shadows, and the mesh is not visible in Game Mode.

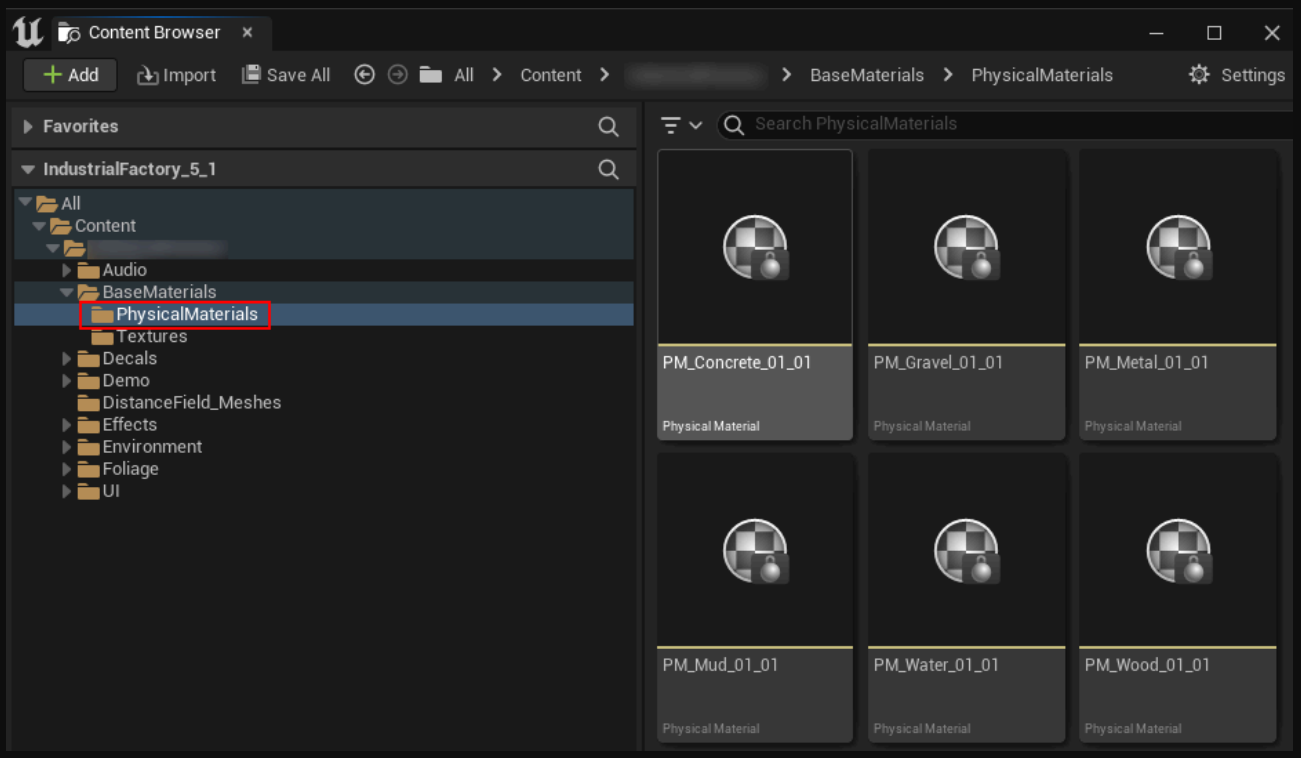
Please exercise caution when using this solution. In some cases, we have noticed issues from calculation of reflected light (Lumen). Try to avoid placing the emissive plane too close to walls and other objects - it's good to leave some space.



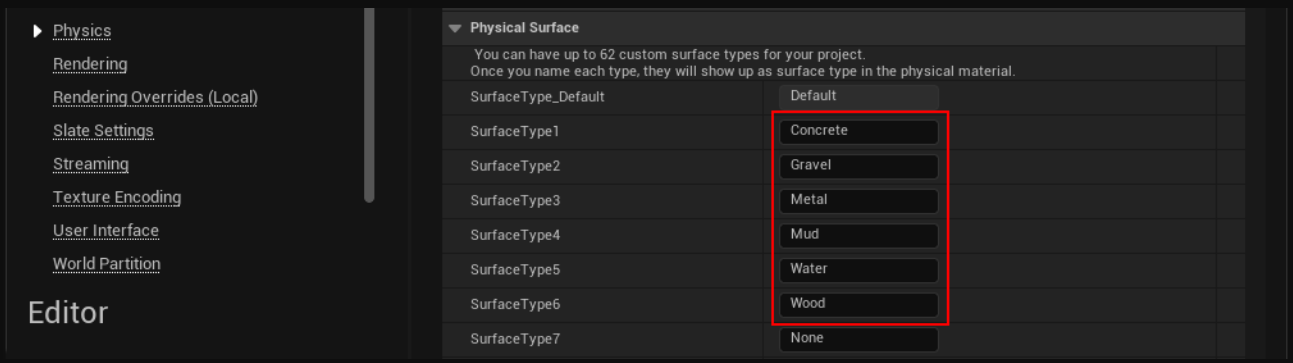


Footsteps warning

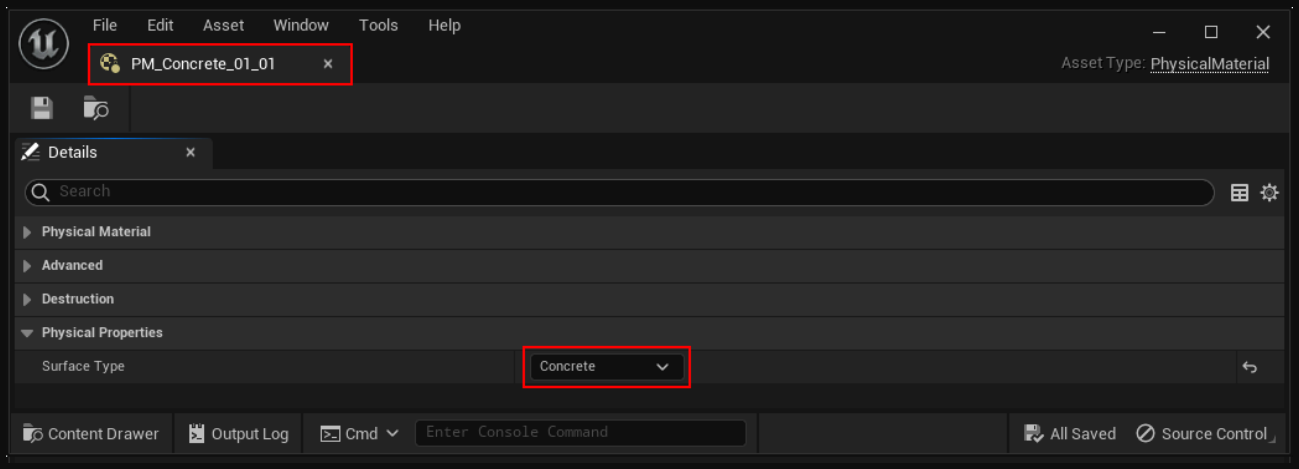
We defined four **Physical Surfaces**: Concrete, Gravel, Metal, Mud, Water and Wood.



Our pawn has footstep sounds implemented for these surfaces. For proper operation and compilation, it must be defined in Project Settings > Engine > Physics > Physical Surface:

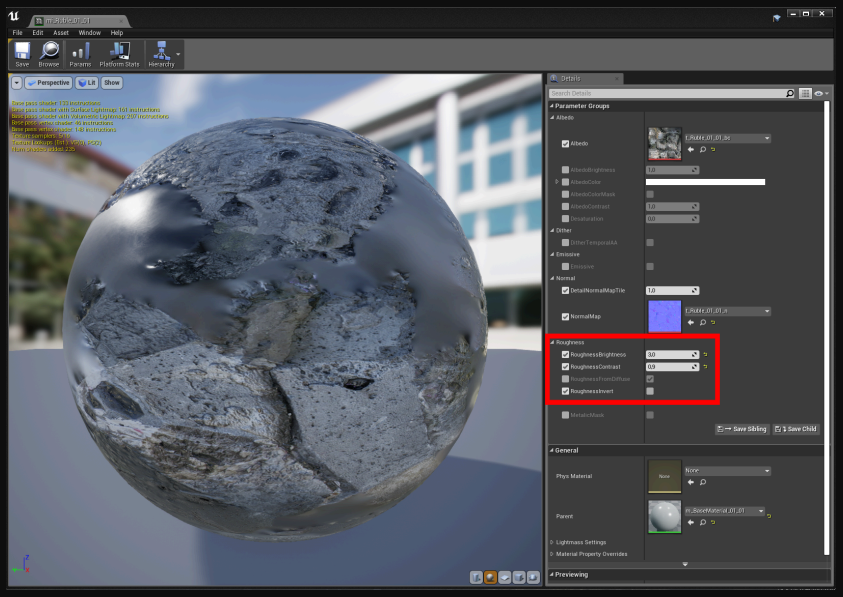


Most likely, in your project, you will need to assign the correct surface in the physical material properties. Just Double-click on each material and choose the correct value from the list:



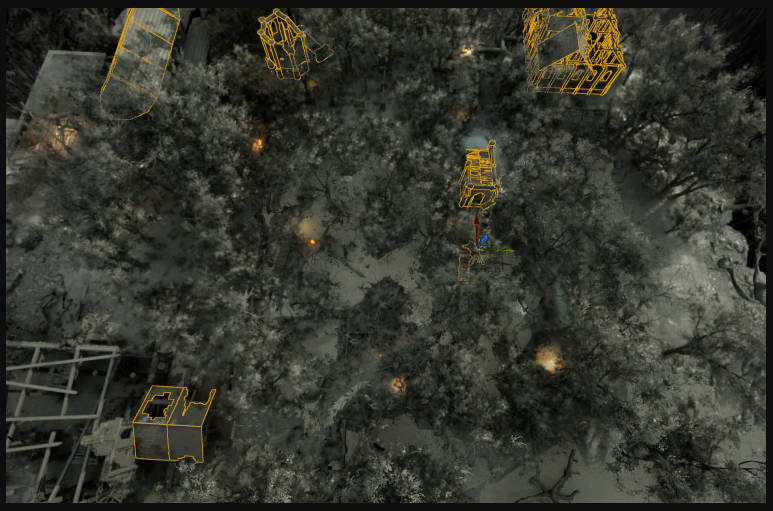
Base Material

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:



Map size

Everything you can see on the walkthrough + updates. In the middle is selected the beginning of the walkthrough video: https://youtu.be/THbCveagmKc. Except that you also have our updates content(dungeons and small forest map).

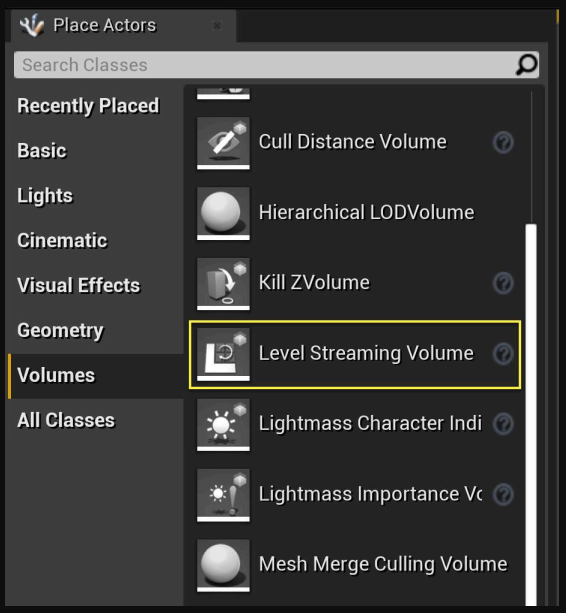


Optimization

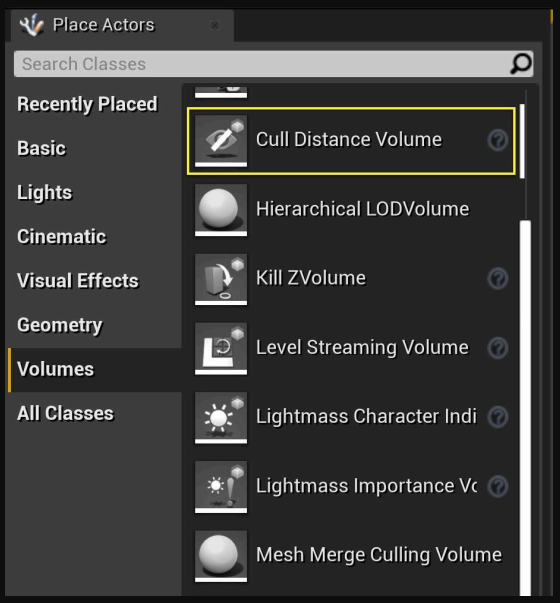
We optimize our scenes to achieve the best performance and experiences. We use Level Streaming Volumes and Cull Distance Volumes for this purpose.

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.



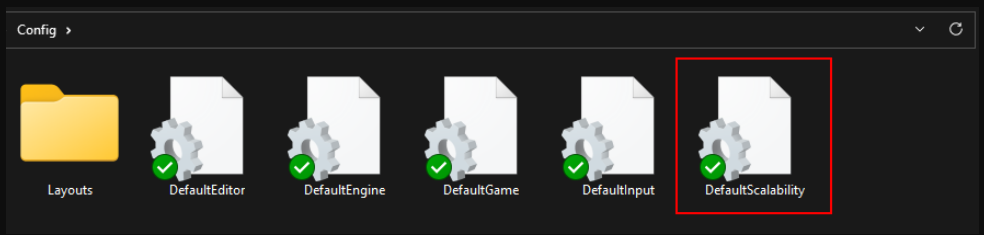
Check how to properly use these solutions in the official UE documentation:

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	LIGHTING SCENARIO	QUALITY SETTINGS		
		LOW	HIGH	ULTRA
RTX 4070 FULL HD AMD Ryzen 7 5700X 8-Core 32 GB RAM SSD STORAGE	DAY	130 FPS	110 FPS	80 FPS
	NIGHT	130 FPS	110 FPS	80 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