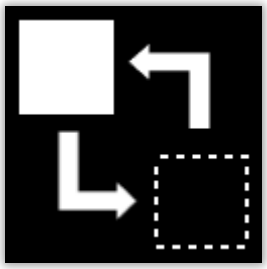
Layer Based Visibility Manager Documentation (v1.0)

By LogerLaw



1. Introduction

Layer Based Visibility Manager (LBVM) plugin is an easy-to-use tool which can help you batch managing actors' visibility in both Editor and Runtime. With this plugin you can easily and quickly build maps that need to change actors' visibility frequently and massively.

1.1. Features

- Batch managing actors' visibility by layers.
- Separated from your actors - you don't need to add any component to actors and this plugin will work fine.
- Easy-to-use editor utility widget and undo function.
- Have a volume tool to batch managing actors in bounds.
- Can work in both editor and runtime.

1.2. Differences between LBVM, Layers in UE and Data Layers in UE5

	LBVM	**Layers in UE**	**Data Layers in UE5**
Focus on	Managing actors' visibility	Organizing actors	Loading and unloading actors
Supported map	All maps	All maps	Only world partition maps
Environment	Editor and runtime	Editor	Mainly in editor

2. How to Use

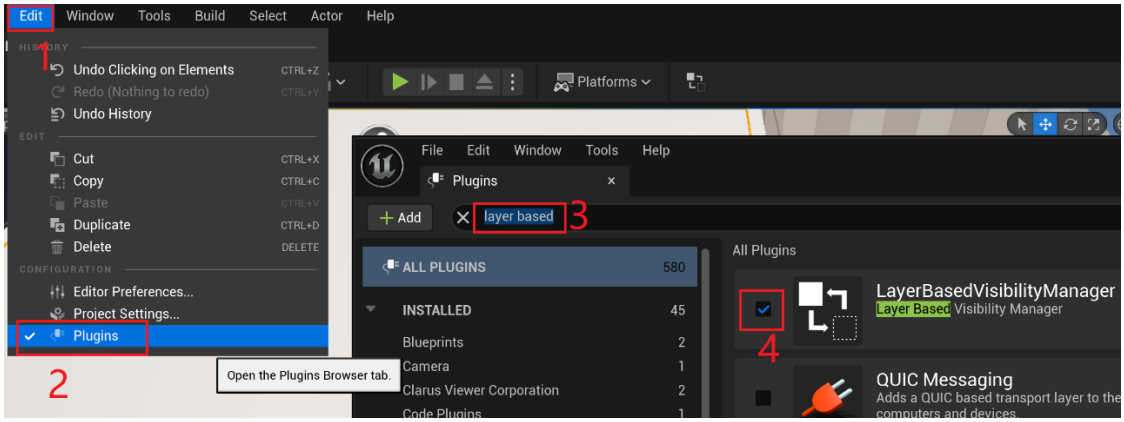
2.1. Initialization

2.1.1. Install the plugin

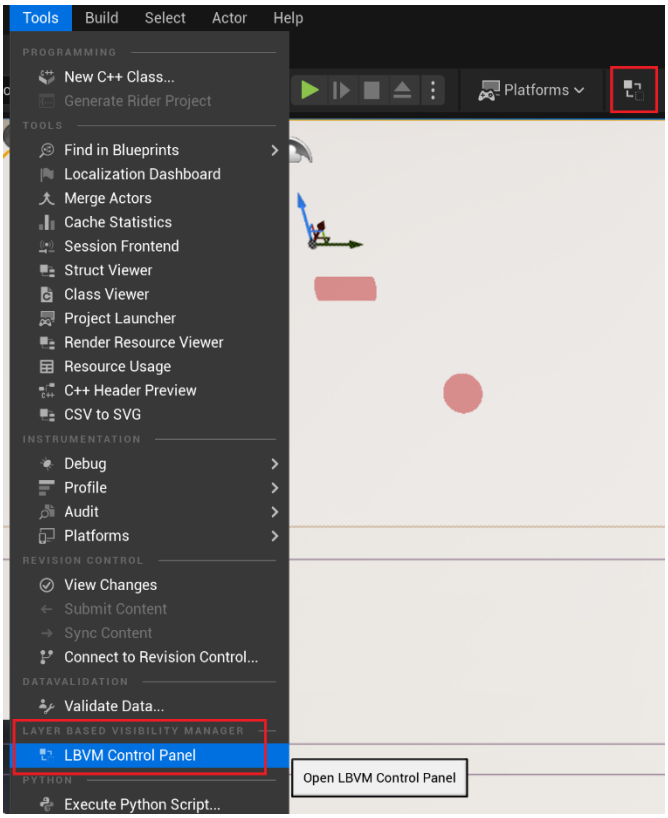
Use Unreal Launcher to install the plugin to your engine, or copy the plugin files to “Plugins” folder in your project folder.

2.1.2. Enable the plugin in your project

Open your project, click “Edit - Plugins” to open the Plugins panel, search to find “LayerBasedVisibilityManager” and enable it, then restart the editor.



After restarting, if you can find these two buttons in the toolbar, it means the plugin is enabled successfully, click one to open the LBVM Control Panel.



2.1.3. Add LBVMInfo actor to your map

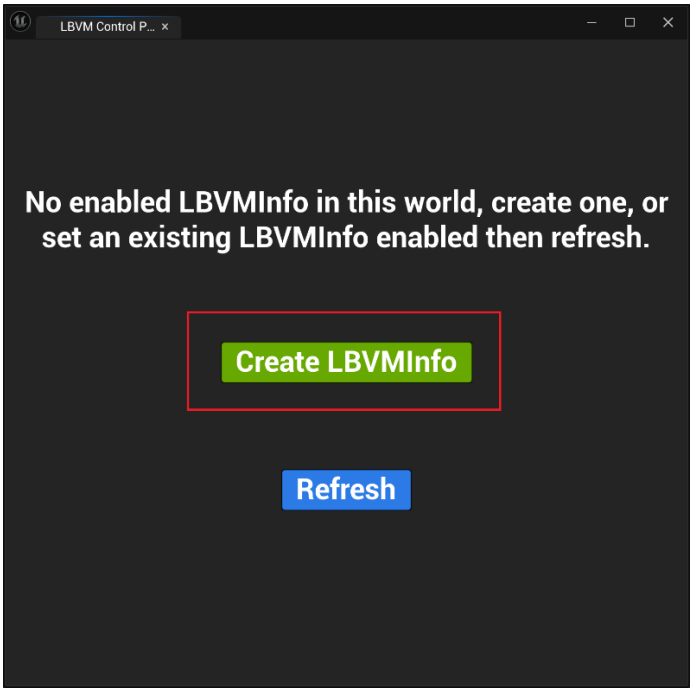
If it's the first time you use this plugin in the map, the panel will indicate that you need to create an LBVMInfo actor to the map. Click "Create LBVMInfo" button to add one. LBVMInfo is a derived AInfo actor to store the layer information in the map, and two settings can be set.

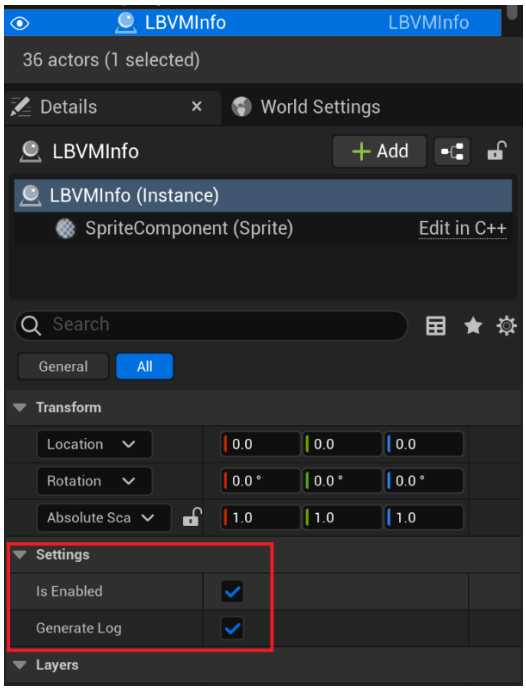
Is Enabled: If this bool is set to false, you can use control panel to add another LBVMInfo actor to the map, and store different layer information from the first one. That's an advanced usage but do remember that there must be only one enabled LBVMInfo at the same time, or you can't tell which LBVMInfo's layer information is used.

> Warning:
>
> There must be only one enabled LBVMInfo in a map at the same time.

Generate Log: Whether to generate logs. You can find logs in output log with "LBVMLog"

category.





2.2. Edit Layers

2.2.1. In editor

After adding LBVMInfo to the map, the control panel will change and show two columns. Left column contains functions to edit layers.

1. Add layer button: click to add a new layer.

2. Refresh button: click to refresh.

3. Active button: click to change the layer's isActive. An inactive layer will not be refreshed when refresh visibility functions are called, and the layer name will also be gray.

4. Visibility button: click to change the layer's isVisible, and refresh the actors' visibility of this layer.

5. Layer name: click to highlight the layer, background will be blue and right column will list the actors in the highlighted layer.

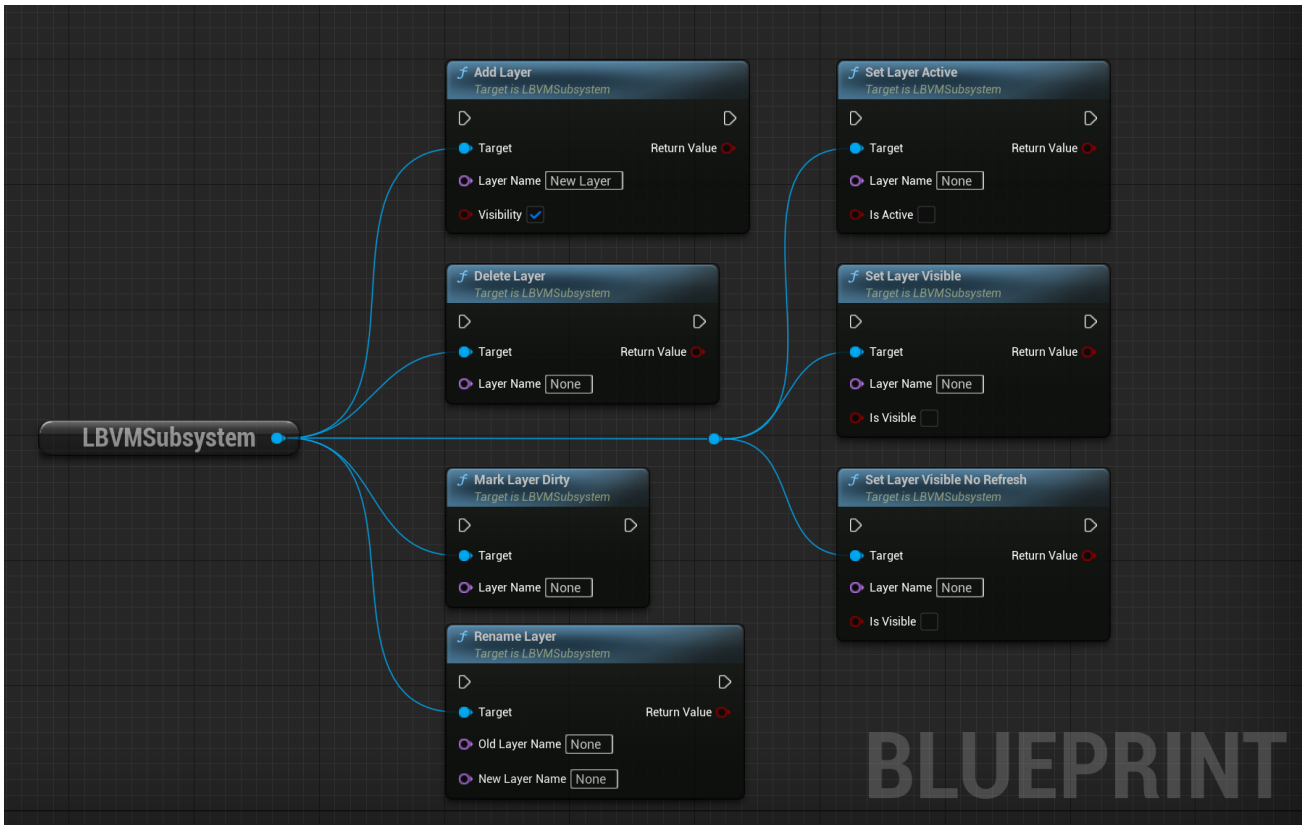
6. Rename button: click to make the layer name editable and rename it. Layer name uses FName so it's case-insensitive, "Layer1" and "layER1" will be considered as the same name.

> Tips:
>
> Every time the control panel refreshes, the layers will be sorted by lexicographic order. Although the order doesn't affect functionality, you can add digital prefix such as "00Background" to set the order and make the list more clearly.

7. Delete button: click to delete the layer and refresh.

2.2.2. At runtime

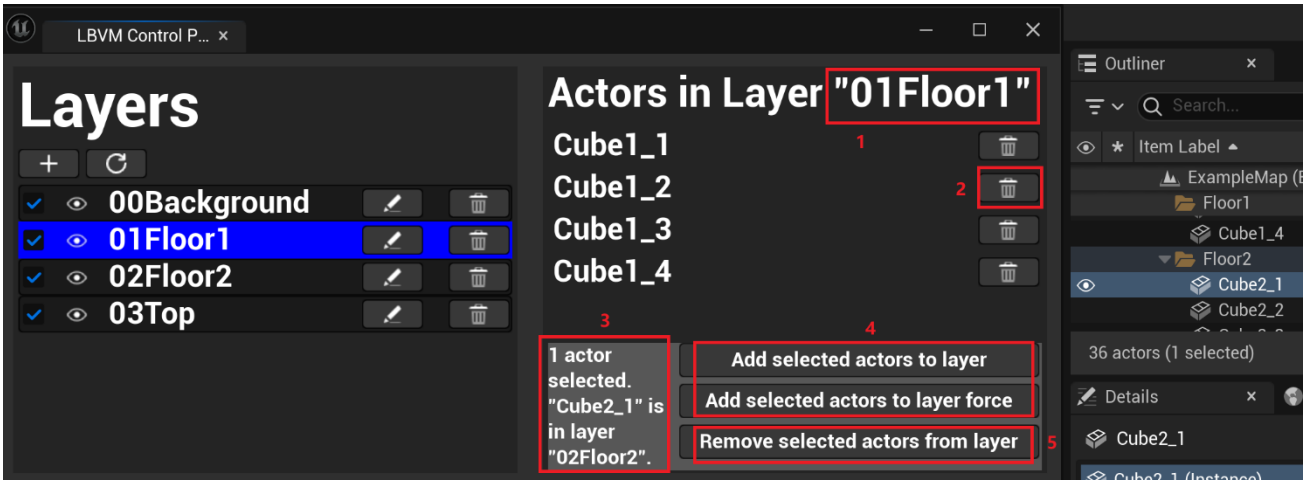
Get LBVMSubsystem and call functions in category "LBVMSubsystem|Layer Operation" in blueprint. "Set Layer Visible" will also refresh actors' visibility in the layer.



2.3. Add Actors to Layers

2.3.1. In editor

After adding layers and highlight one, right column of the control panel will list actors in the highlighted layer. And if you select actors in the world outliner window, at the bottom of the right column will show button to add or remove selected actors from the highlighted layer.



1. Name of the highlighted layer.

2. Remove button: click to remove the actor from the highlighted layer.

3. Show how many actors are selected in world outliner. If only one actor is selected, it will also tell which layer the actor is in.

4. Add selected actors buttons: click to add selected actors to the highlighted layer. The difference between the two button is, the “no-force” button will only add selected actors which are in no layer, while “force” button will firstly remove selected actors from the layers which they are in, then add all selected actors to the highlighted layer.

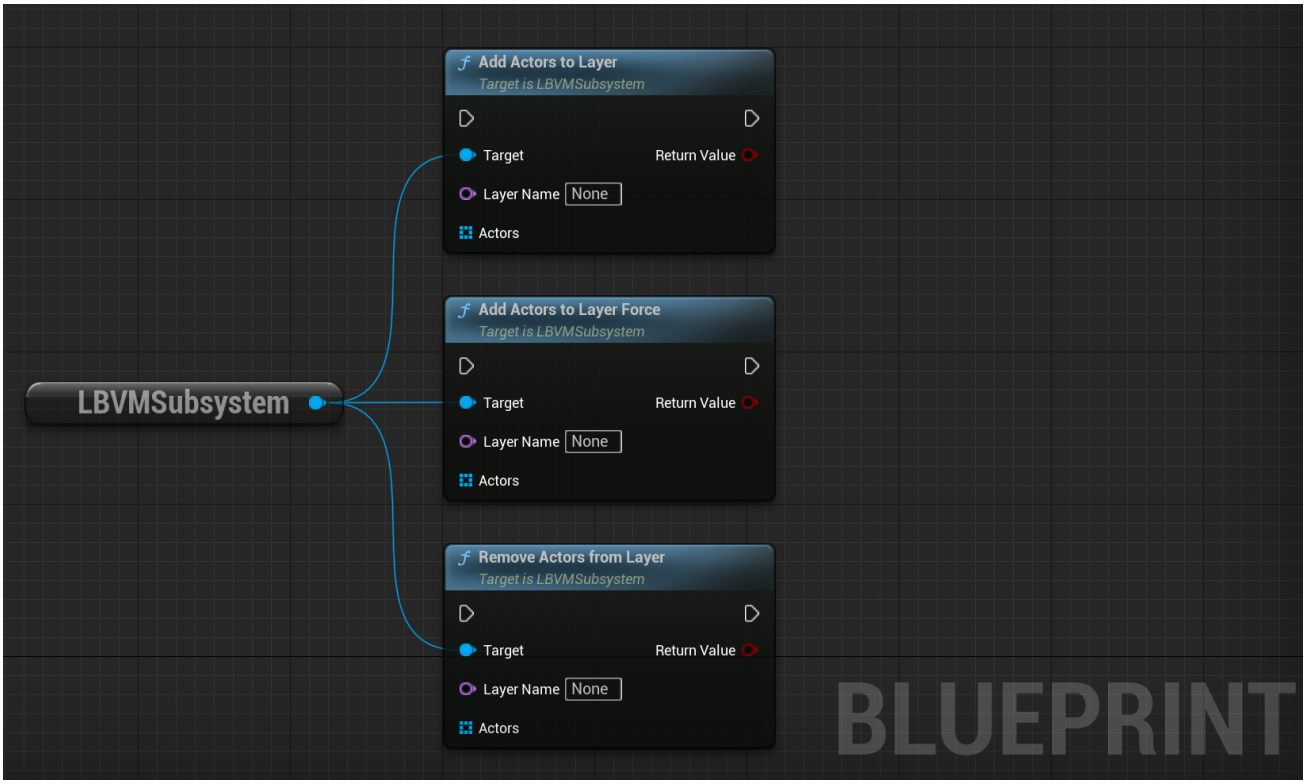
Warning:

One actor can only be in one layer.

5. Remove selected actors button: click to remove selected actors from the highlighted layer.

2.3.2. At runtime

Get LBVMSubsystem and call functions in category “LBVMSubsystem|Actor Operation” in blueprint.



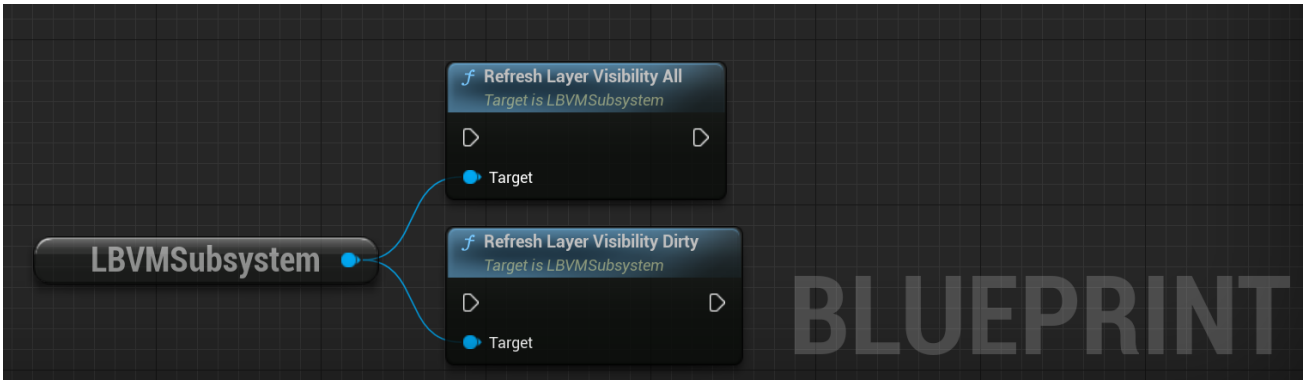
2.4. Refresh Visibility

2.4.1. In editor

Click visibility button in control panel, see 2.2.1.

2.4.2. At runtime

Get LBVMSubsystem and call functions in category “LBVMSubsystem|Refresh Operation” in blueprint.

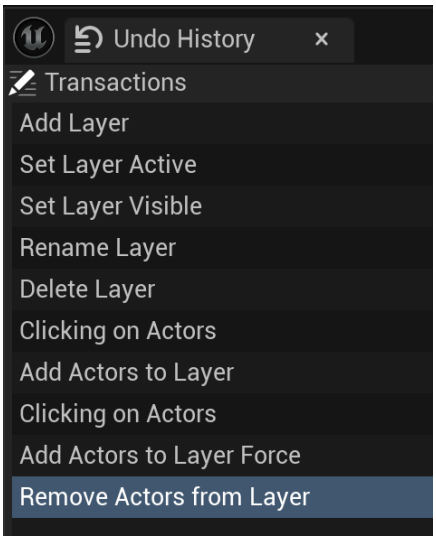


Note that a layer will be marked dirty when the layer changes (actor added/removed, isVisible changed) or calls “Mark Layer Dirty” function, “Refresh Layer Visibility Dirty” will only refresh dirty layers and has a smaller performance cost than “Refresh Layer Visibility All”. So, when you want to change a lot of layers’ visibility at the same time, the most performance-saving approach is calling” Set Layer Visible No Refresh” function to set every layer you want to change then call “Refresh Layer Visibility Dirty”, and you can divide them into several ticks.

3. Additional Functions

3.1. Undo

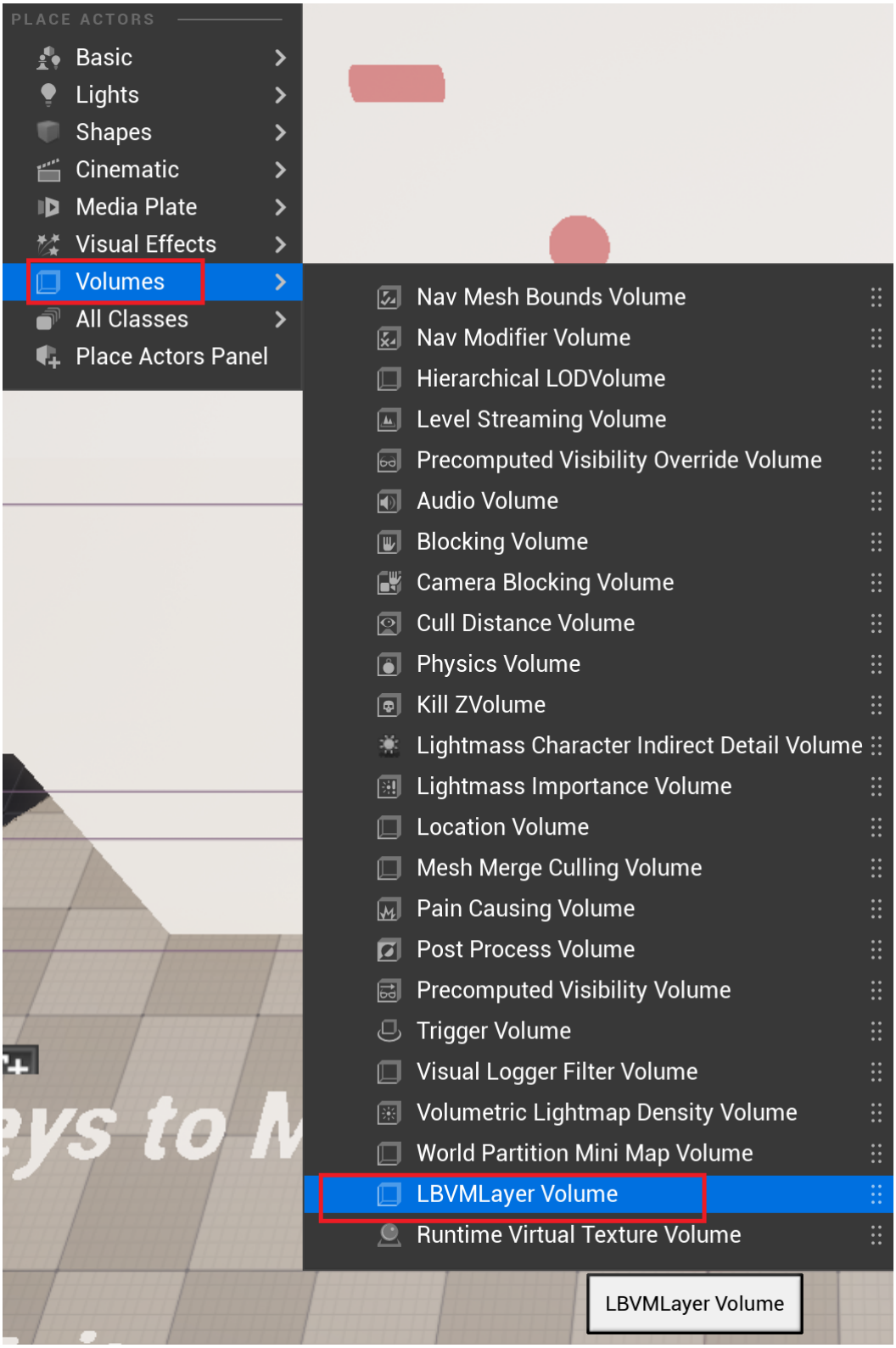
All editor operations above are implemented the undo function, don’t forget to use it. But to save performance, the control panel won’t tick to sync the undo changes, so do remember that you need to click the refresh button after undoing this plugin’s operation.



3.2. LBVM Layer Volume

LBVM Layer Volume is a derived AVolume actor that helps you batch adding actors in the space

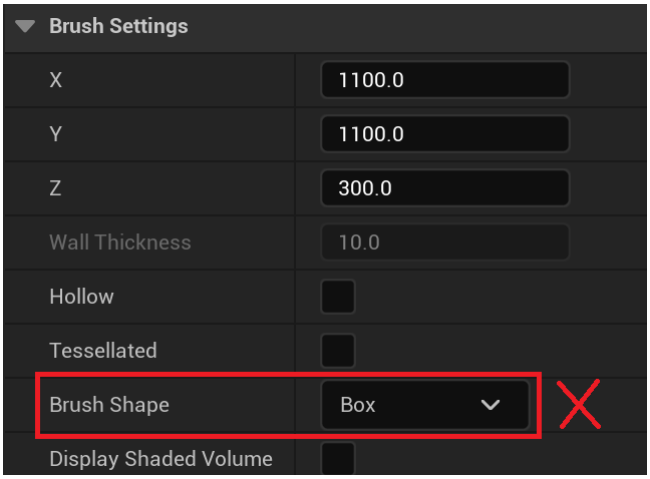
within the volume to layer more quickly. You can find it in the “Volumes” category.



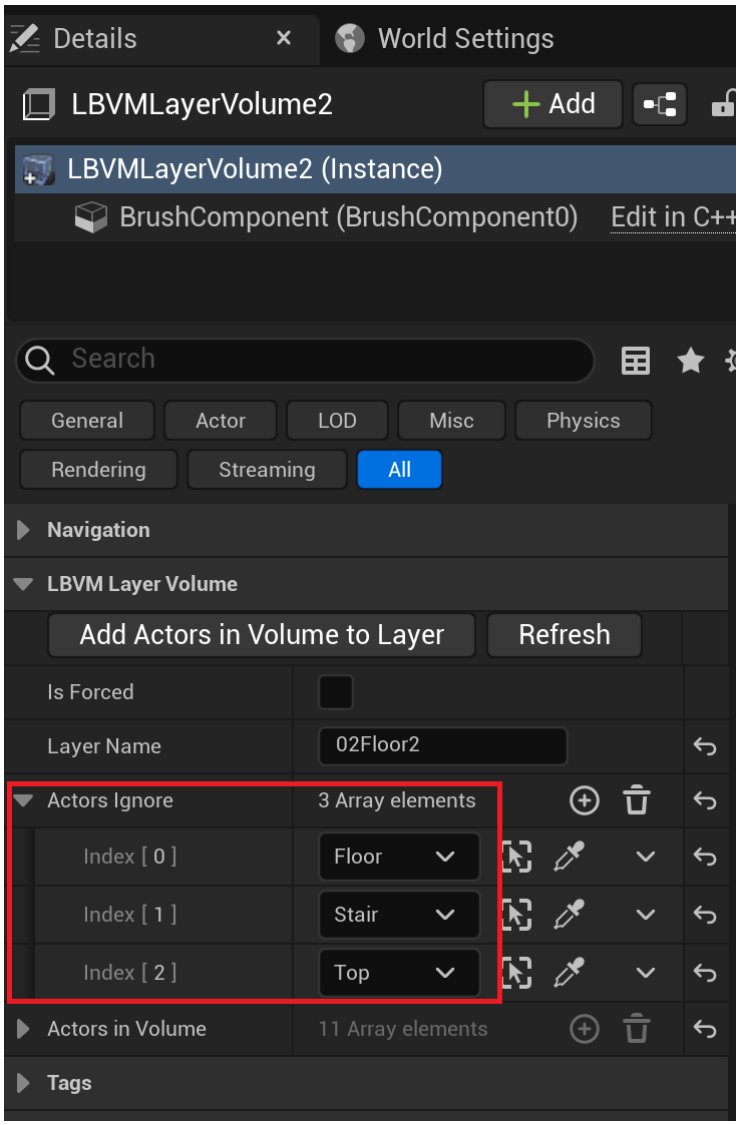
1. After adding it to map, you can see a wireframe box in the viewport.

2. Reposition, rotation and resize it to contain the actors that you want to add to a same layer.

Don't change Brush Shape in "Brush Setting" category, or the wireframe won't match the real detection space.



3. Find "LBVM Layer Volume" category in the Details panel, add actors which you want to ingore in the volume to the "Actors Ignore" array, this will prevent these actors from adding.



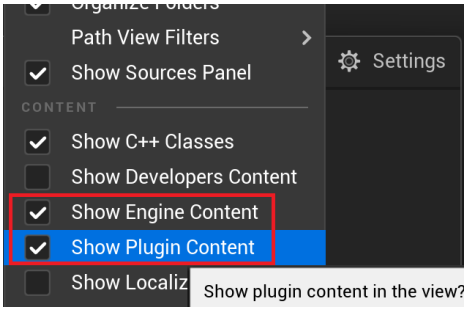
4. Click “Refresh” button (not control panel’s refresh button), you will see all actors whose position point is in the volume are listed in the “Actors in Volume” array. Set Layer Name and click “Add Actors in Volume to Layer” and that’s it.

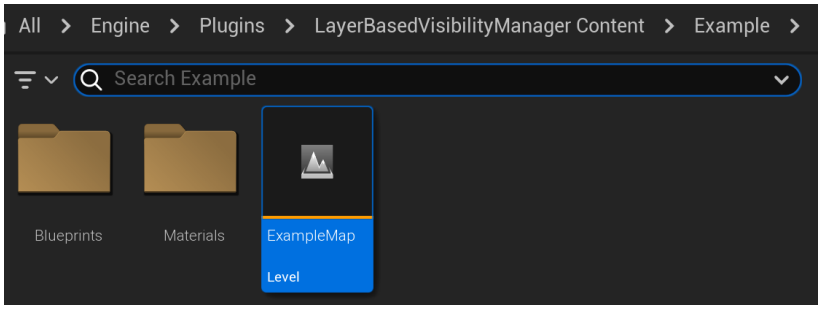
5. You can also use blueprint to do some other logic control like dealing with overlap event at runtime, see an example blueprint class in next section “Example Map”.

3.3. Example Map

Enable “Show Engine Content” and “Show Plugin Content” in the Content Browser Settings, you can find “ExampleMap” in “All/Engine/Plugins/LayerBasedVisibilityManager Content/Example”

folder. This is a blueprint-only map that shows how to work with this plugin.





Open this map and play, you can control a green rolling ball to move in and out the building, go upstairs and downstairs, push blue objects anywhere to see what this plugin can do.

This map contains 4 layers, “00Background”, “01Floor1”, “02Floor2” and “03Top”. “00Background” and “03Top” are built using the control panel while the others are built using LBVM Layer Volume. Also, “BP_ExampleLBVMLayerVolumeHandler” in the “Blueprints” folder shows an example of how to use blueprint to control LBVM Layer Volume.

4. Bug Report

1. Post a question in UE marketplace product page.

2. Send an email to logerlaw@gmail.com.