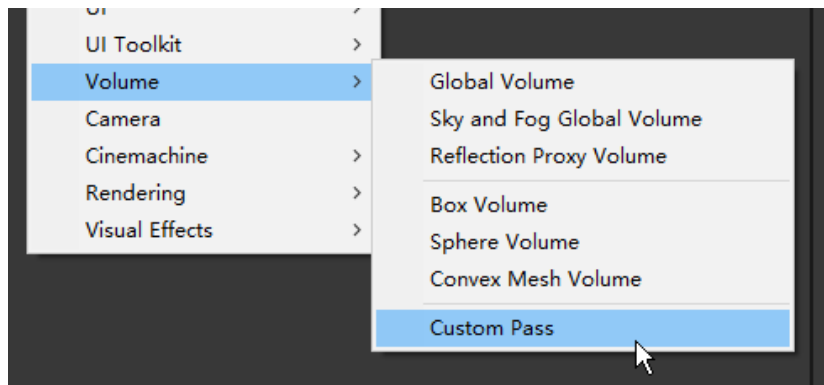


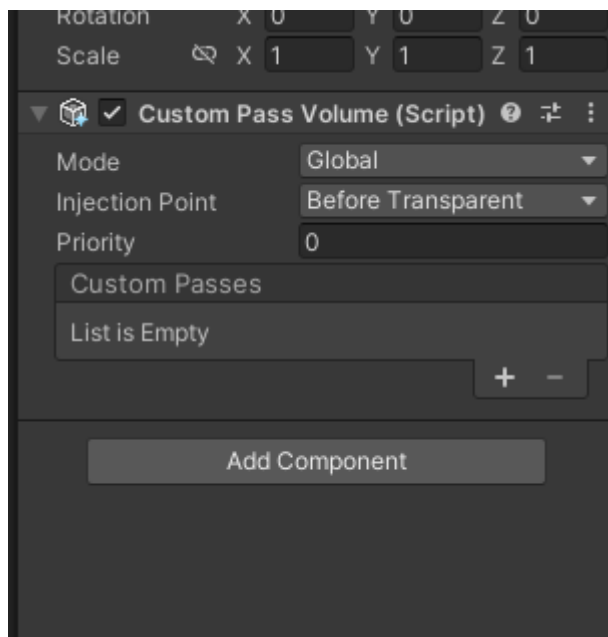
# Highlighted Outline

As Post-Processing outlines would draw outlines in fullscreen shader, considering all pixels on the screen, it cannot differ objects in the game scene. I've added a Custom Pass support for Unity HDRP to use highlighted outlines for objects of a certain Layer, or by dedicated Renderers (MeshRenderer and SkinnedMeshRenderer).

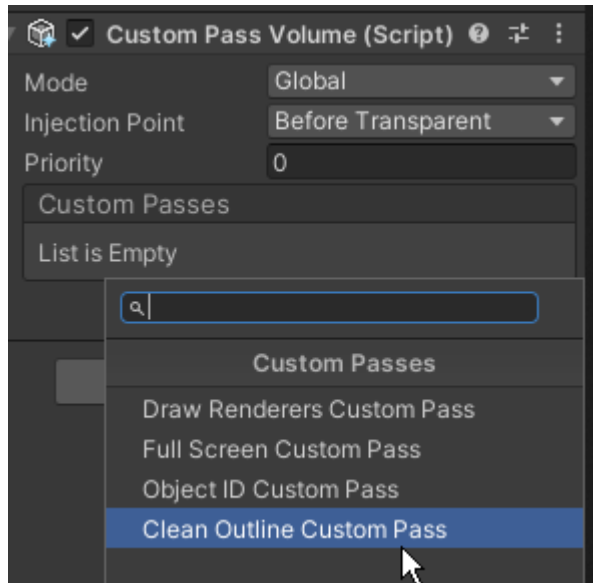
## How to use:



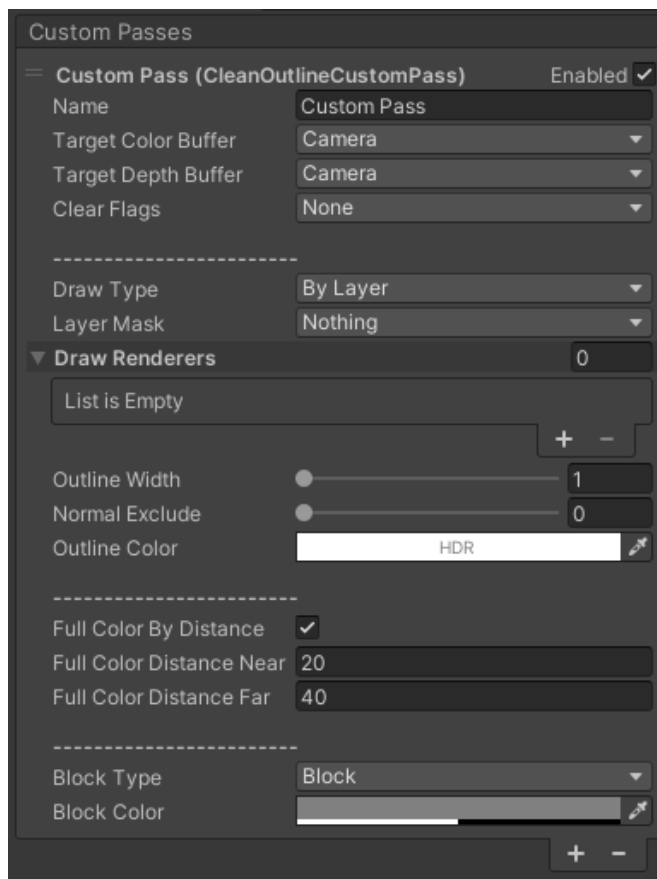
In the scene hierarchy, add a Custom Pass volume.



Keep the Mode as Global, and Injection Point as Before Transparent (as we want transparent objects like glass or FX can be drawn over outlines by default).



In the custom passes list add the Clean Outline Custom Pass.

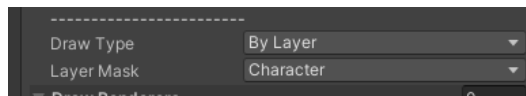


Target Color Buffer/Target Depth Buffer/Clear Flags are created on custom pass by script, leave them as default.

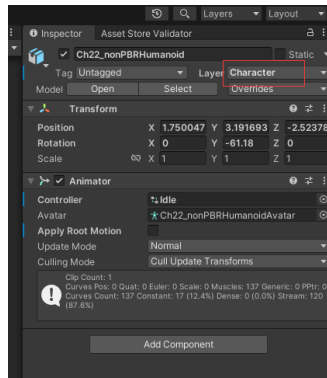
Draw Type is either draw outlines by layer or by renderers.

## Draw By Layer

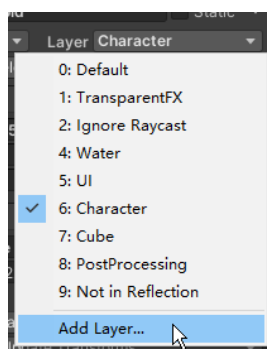
When you select draw by layer, you can set the Layer Mask which layers you want to use.



Let's say, we set it as Character.



And in the scene, select a character and set its Layer as Character.

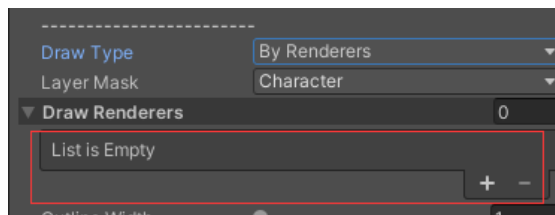


In case you don't know how to add new layers, just select layer and click Add Layer.

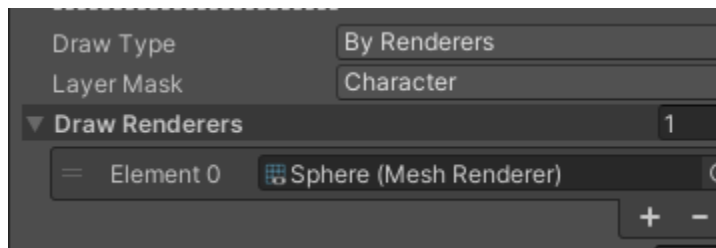


Then the character has a highlighted outline of white.

## Draw By Renderers:



When draw type is By Renderers, the Renderers in DrawRenderers List will be used to draw outlines, regardless of the layers they use, as long as they can be seen by the camera.



Drag a Sphere of the scene to the List.



Then the Sphere get highlighted outline.

(Note : In Draw Type of By Renderers, the property Layer Mask won't be used)

You can also modify the Renderers in script at runtime, you can access Custom Passes from CustomPassVolume.

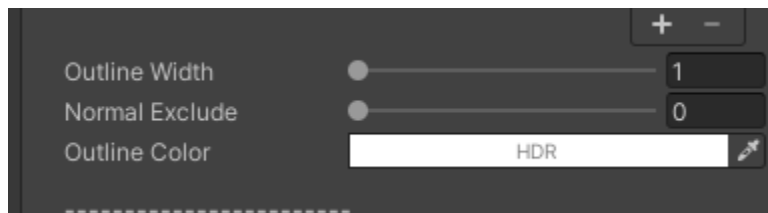
Then modify the List<Renderer> m\_DrawRenderers of CleanOutlineCustomPass

```
CustomPassVolume volume;  
  
// get the first custom pass  
var pass = volume.customPasses[0];  
  
// check the CleanOutlineCustomPass class  
if (pass is CleanOutlineCustomPass customPass)  
{  
    customPass.m_DrawRenderers.Clear();  
    customPass.m_DrawRenderers.AddRange(YourRenderers);  
}
```

Here's a pseudo code to modify Custom Pass.

For more detail how to access Custom Pass with script, you can check the unity documents.

## Outline Parameters



Outline Width is the width of outline, minimal is 1.

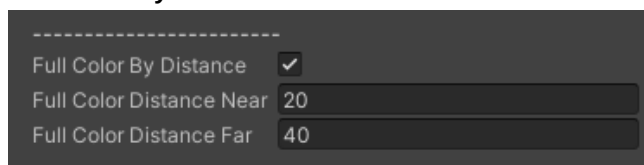
Normal Exclude is how much you want the outline to exclude on character model.



This is how exclude looks like, but in most cases you might just leave it as 0, only in cases you want to have some tuning of different look then use Normal Exclude.

Outline Color is what color to use, and it's in HDR.

## Full Color By Distance

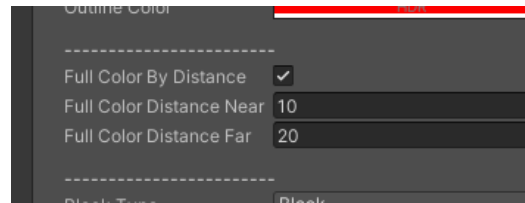


As outline will look very dense on an object far away, some games would make highlighted object as a full color at distance.

So the Full Color By Distance can be set, to make the highlight outline objects as a full color after a distance.

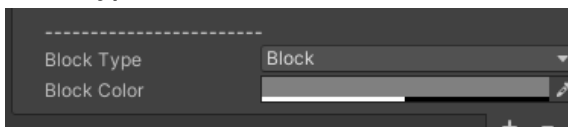
Full Color Distance Near is where the fade start to become full color.

Full Color Distance Far is where the object becomes fully full color.



Becomes full color at a far distance.

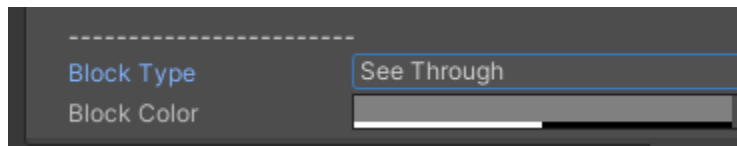
## Block Type



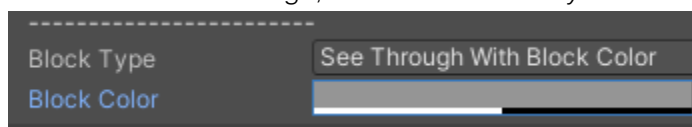
When Block Type is Block, the highlighted outline will be discarded if behind other objects.



Highlighted outline blocked by Unity Sphere.

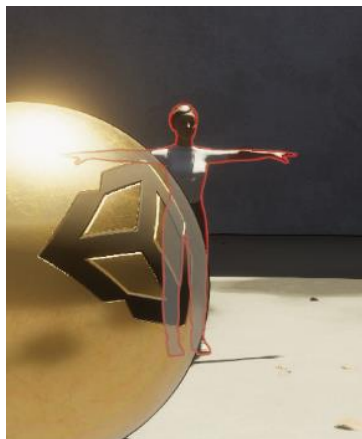


When set as See Through, the outline will always be drawn.



When you set it as See Through With Block Color.

The blocked part of outline objects will be drawn as the Block Color



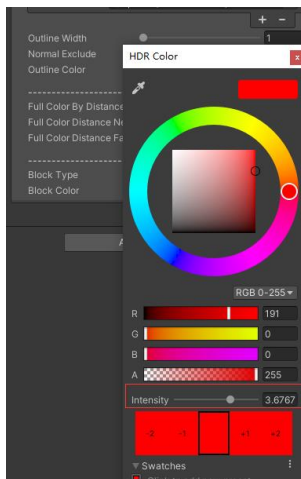
This is probably more common way to create highlights in games.



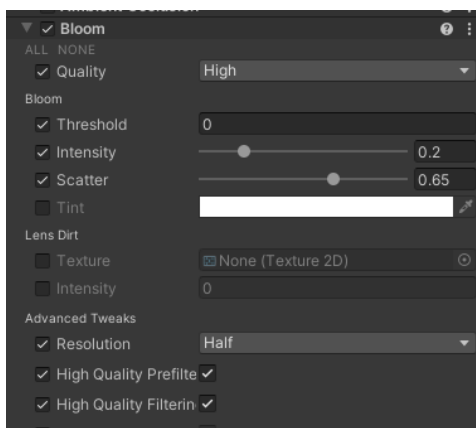
For example in COD:BO4 the character's blocked part will be drawn as white.

## Tricks

Outline color support HDR, so you can create a glowing outline with Bloom.



Give the Outline Color more Intensity over than 1.

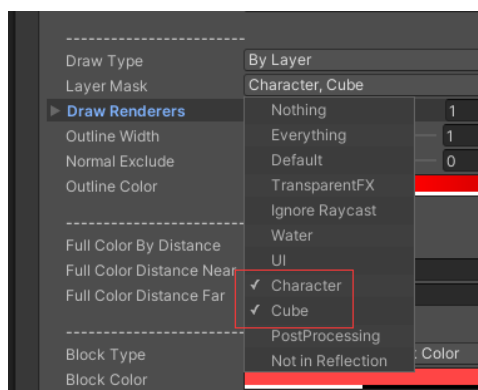


Add a Bloom effect to the global Post-Processing Volume in the scene.





Then the outline gets bloom effect.



You can use multiple Layers to draw by layers. For example we set it as Character + Cube layer.



Then the scene objects of Cube Layer and Character Layer are both drawn highlighted.

## Off Topics

Highlighted outlines are very connected to the game design of the specific game. For example

there might need to be multiple type outlines for friendlies and enemies, outline with noise effect, outline by distance and ect. It might differ a lot by different need. So it's hard to say there's a once-for-all solution for a highlighted outline. Otherwise it might be too over-designed, poor performance or heavy to use.

While Clean Outline's Custom Pass outline only provides a very general way to create highlighted outlines. So if you want a more customized highlighted outline, you can use CleanOutlineCustomPass as a basic framework to add your own customizations, or you can contact me to see if it's universal enough to add to the addon.

If you have any problems, you could send me email

[ryanflees@hotmail.com](mailto:ryanflees@hotmail.com)

[ryanbai2008@163.com](mailto:ryanbai2008@163.com)