Procedural Cubemap Generator Quick-Start

Introduction

This quick-start will show you how to set up a client for the Procedural Cubemap Generator. In this example, we will be generating a new cubemap to be used as the scene skybox.

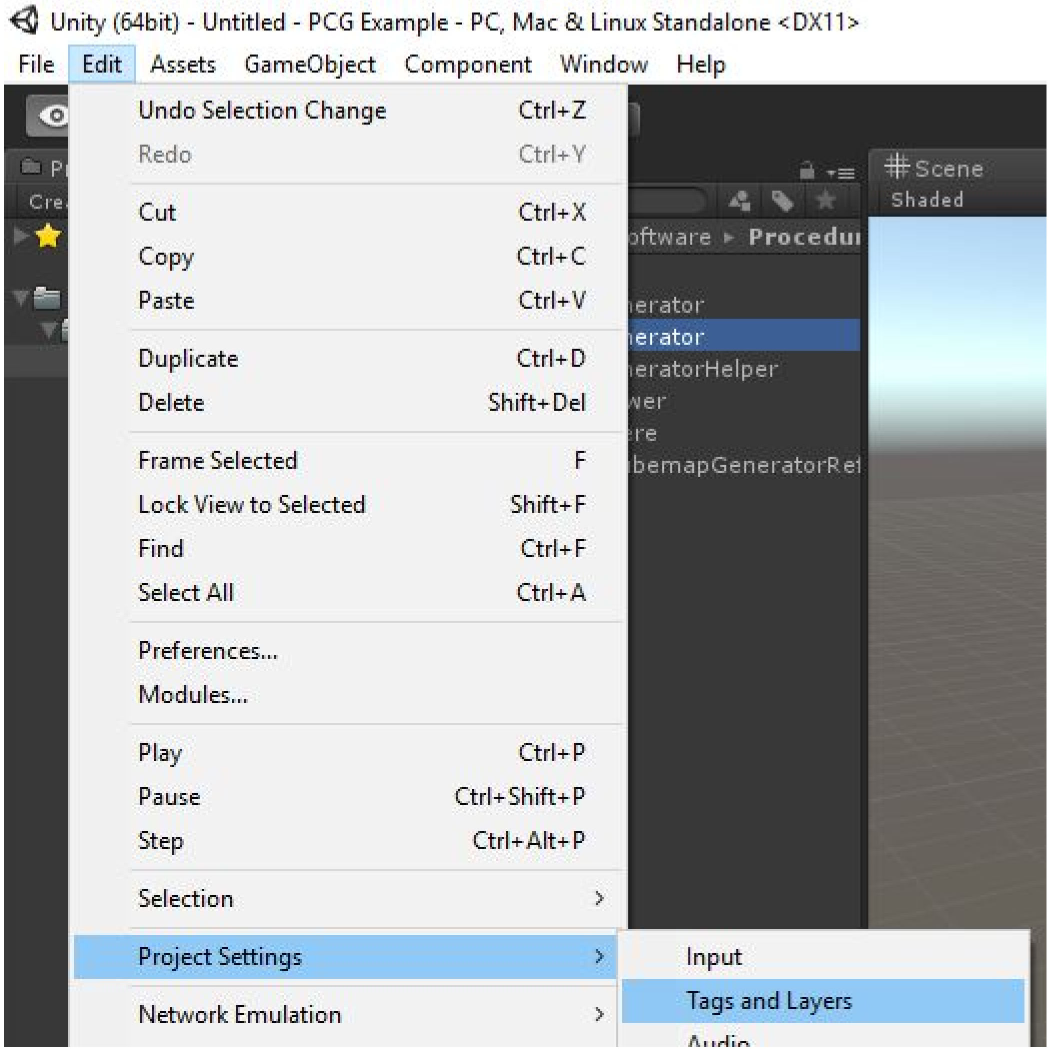
The full code for the example set-up below is included in the asset. (Assets/10101 Software/Cubemap Generator) The example includes a camera movement script as an enhancement which will not be covered in this guide.

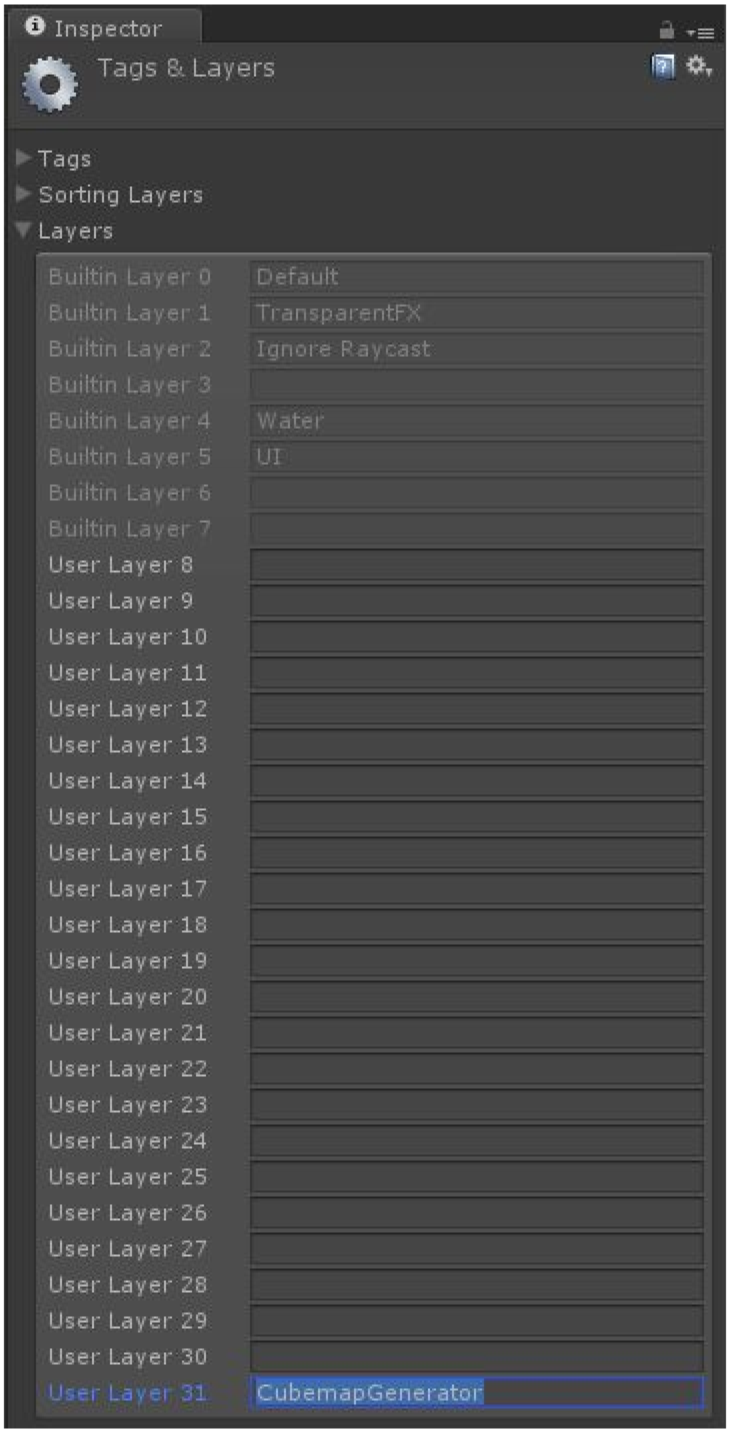
Example Set-Up

This tutorial assumes that the asset has been downloaded and imported and you are starting with an empty scene.

Layers

The system uses layer 31 to render the cubemap without showing the system to other cameras. Define layer 31 by naming it in the Tags and Layers inspector. (Edit > Project Settings > Tags and Layers) In this example, it is named ‘CubemapGenerator’.





Inspector

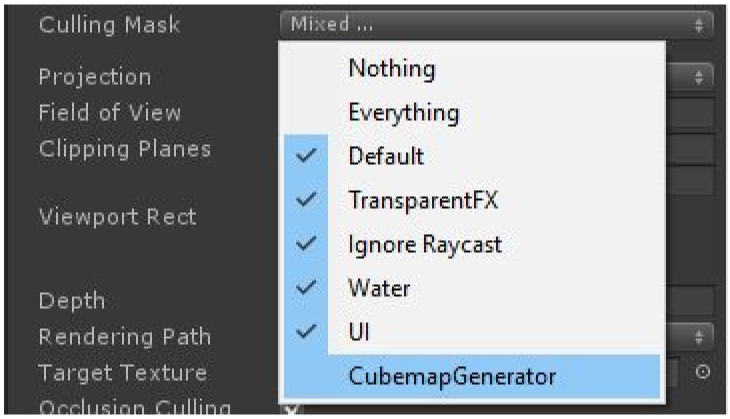
Tags & Layers

- Tags
- Sorting Layers
- Layers

Builtin Layer 0	Default
Builtin Layer 1	TransparentFX
Builtin Layer 2	Ignore Raycast
Builtin Layer 3	
Builtin Layer 4	Water
Builtin Layer 5	UI
Builtin Layer 6	
Builtin Layer 7	
User Layer 8	
User Layer 9	
User Layer 10	
User Layer 11	
User Layer 12	
User Layer 13	
User Layer 14	
User Layer 15	
User Layer 16	
User Layer 17	
User Layer 18	
User Layer 19	
User Layer 20	
User Layer 21	
User Layer 22	
User Layer 23	
User Layer 24	
User Layer 25	
User Layer 26	
User Layer 27	
User Layer 28	
User Layer 29	
User Layer 30	
User Layer 31	CubemapGenerator

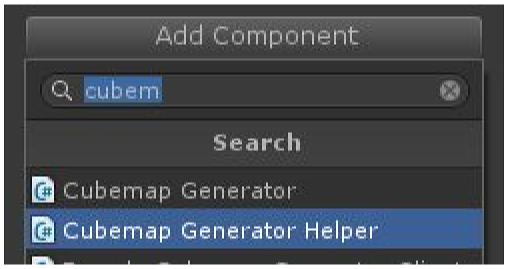
Culling

Our other cameras probably do not want to see the cubemap rendering system. Select the Main Camera and remove the CubemapGenerator layer from the Culling Mask.



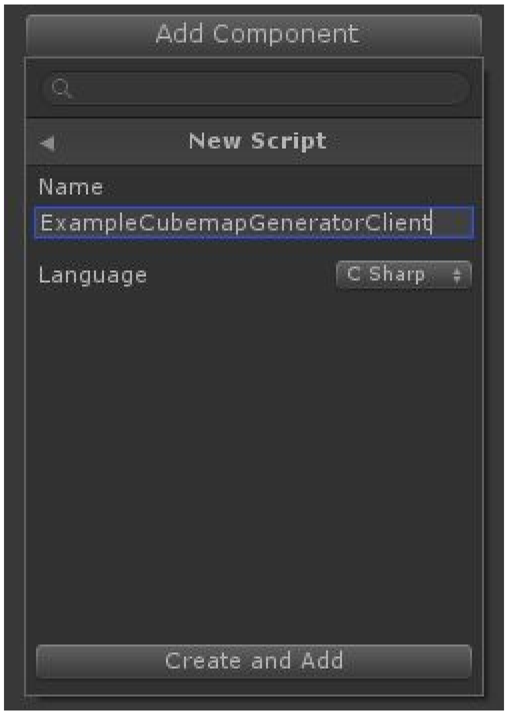
Add Cubemap Generator Helper Component

Add the CubemapGeneratorHelper to the Main Camera. The Cubemap Generator Prefab should already be set.



Create Client

Create a new C# script called ‘ExampleCubemapGeneratorClient’ attached to the Main Camera.



Name: ExampleCubemapGeneratorClient

Language: C Sharp

Code

Add a property to allow an input material:

```
    //this is the procedural material being used in this example
    public ProceduralMaterial inputMaterial;
```

Add another property which is being used as the skybox material:

```
    //this is the material used for the skybox in this example
    public Material skyboxMaterial;
```

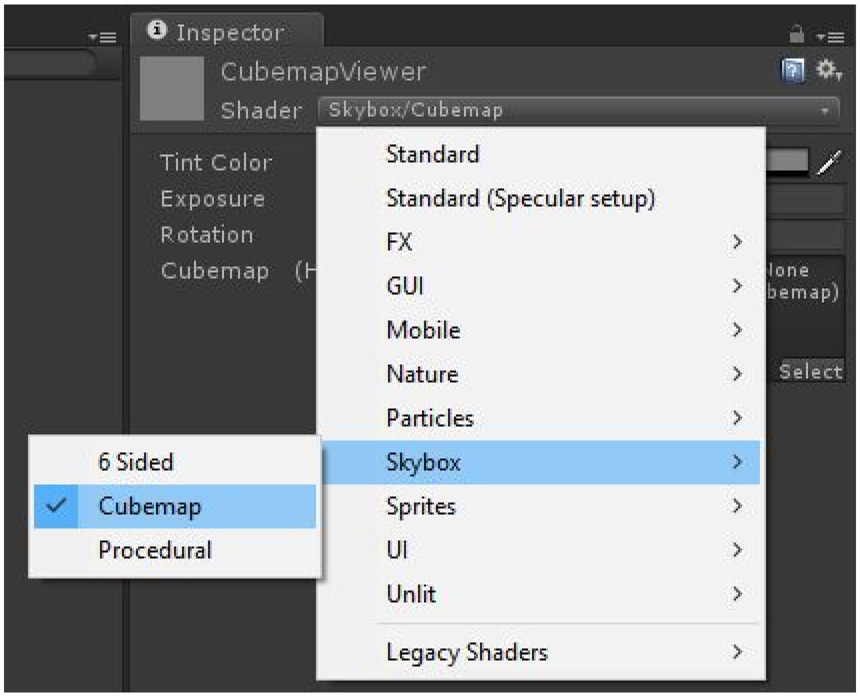
Add a function which will get a new cubemap and assign it to the skybox material:

```
	public void generateNewCubemap () {
		//set the procedural material's properties if needed, before rendering
		inputMaterial.SetProceduralFloat("$randomseed", Random.Range(0.0f,
			10000.0f));

		//have the procedural material render a new texture
		inputMaterial.RebuildTexturesImmediately();

		//render the cubemap
		Cubemap cm = CubemapGeneratorHelper.instance.generateCubemap(inputMaterial,
			CubemapGenerator.Sizes._512);

		//set the skybox material to use the cubemap which was just rendered
		skyboxMaterial.SetTexture("_Tex", cm);
	}
```

This function sets the input procedural material's seed to a random number between 0 and 10000, rebuilds the procedural material's textures, renders the cubemap, and sets the skybox material to the new cubemap.

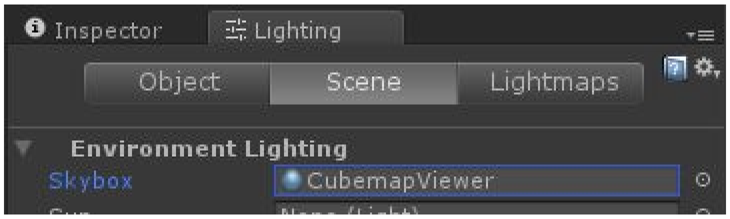
Skybox Material

Create a new material using the Skybox/Cubemap shader.



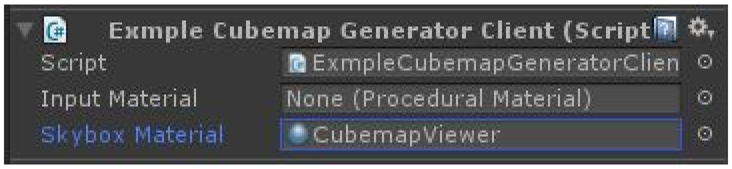
Link Skybox Material

Set the skybox to use the skybox material we just created in the Lighting inspector. (Window > Lighting)



Environment Lighting
Skybox: CubemapViewer

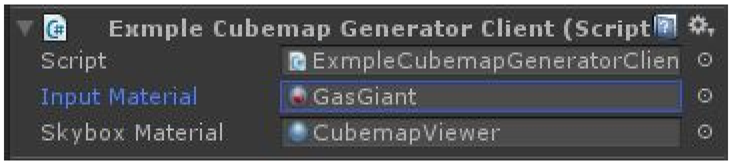
Set the skyboxMaterial on the ExampleCubemapGeneratorClient on the main camera.



Exmple Cubemap Generator Client (Script)
Script: ExmpleCubemapGeneratorClien
Input Material: None (Procedural Material)
Skybox Material: CubemapViewer

Link Procedural Material

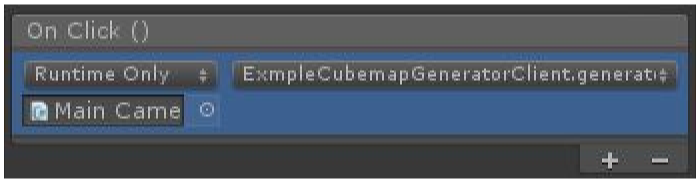
Set the procedural material to the inputMaterial on the ExampleCubemapGeneratorClient on the main camera. An example procedural material is included in the asset. (Assets/10101 Software/Procedural Cubemap Generator/Example/GasGiant.sbsar/GasGiant)



Exmple Cubemap Generator Client (Script)
Script: ExmpleCubemapGeneratorClien
Input Material: GasGiant
Skybox Material: CubemapViewer

User Interface

Now we need a way to trigger the generateNewCubemap on our ExmpleCubemapGeneratorClient. You can do this by creating a UI with a single button which is bound to the generateNewCubemap function.



On Click ()
Runtime Only | ExmpleCubemapGeneratorClient.generat
Main Came

Play

Press the Play button in Unity to enter play mode. The screen will be gray initially because the cubemap has not been generated yet. Once you press the button which was created in the step above, the screen should fill with a brown and blue image. Press it again and different image will be displayed, based on the same algorithm which generated the first one. The full example has camera movement tied to mouse movement so you can look around.

Other Notes

Ensure your procedural material is using the Unlit/Texture shader so the cubemap generator is not affected by lights in the scene.