

Retro Aesthetics. Documentation

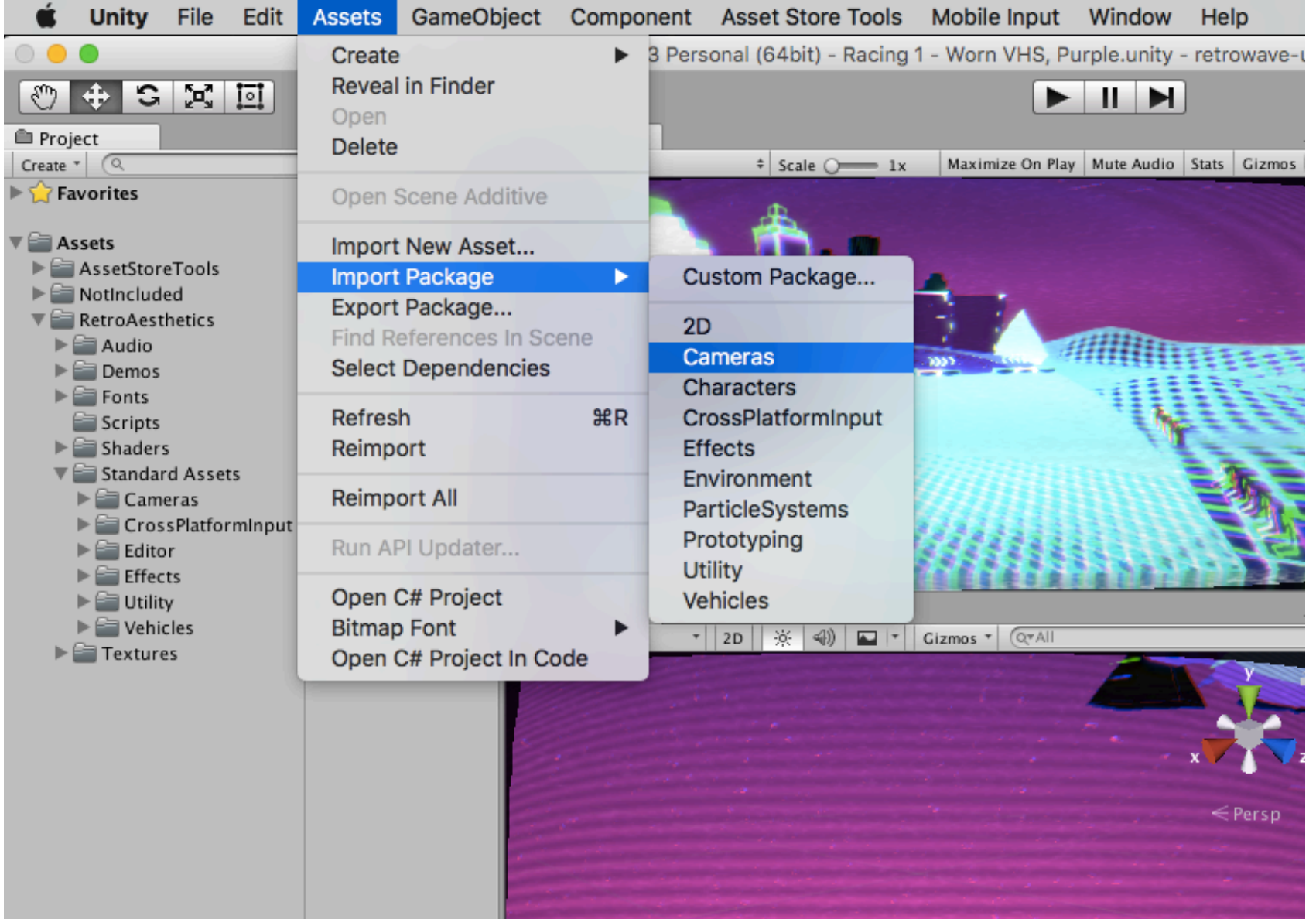


Retro Aesthetics Documentation

Version 1.0

Before doing **anything**, please import the listed below *Standard Assets* and *Cinematic Image Effects* asset into your Retro Aesthetics project. Unfortunately, Unity does not allow us to include these packages with the asset. We use them mostly in the racing demo and as additional post-processing effects.

To import *Standard Assets* go to **Assets – Import Package:**



The packages you need are:

- Cameras
- CrossPlatformInput
- Effects
- Utility
- Vehicles

If some of the packages are missing from the “Import Package” menu, you need to reinstall your version of Unity and make sure you have “Standard Assets” checked on during the installation.

To import the [Cinematic Image Effects](#) asset go to Window – Asset Store, search for “Cinematic Image Effects” and click Import:



After those two steps, all errors should be resolved.

Retro Aesthetics asset provides all resources to turn a game of any genre into a stylish 80's movies inspired title. It covers object materials, a full-screen camera effect, textures and UI, sound effects and music, as well as color presets and demos of the asset in action. We made it easily extensible to give you a possibility to tune to the unique needs of your game. In this document we describe each component of the asset and explain how it can be tuned to your needs.

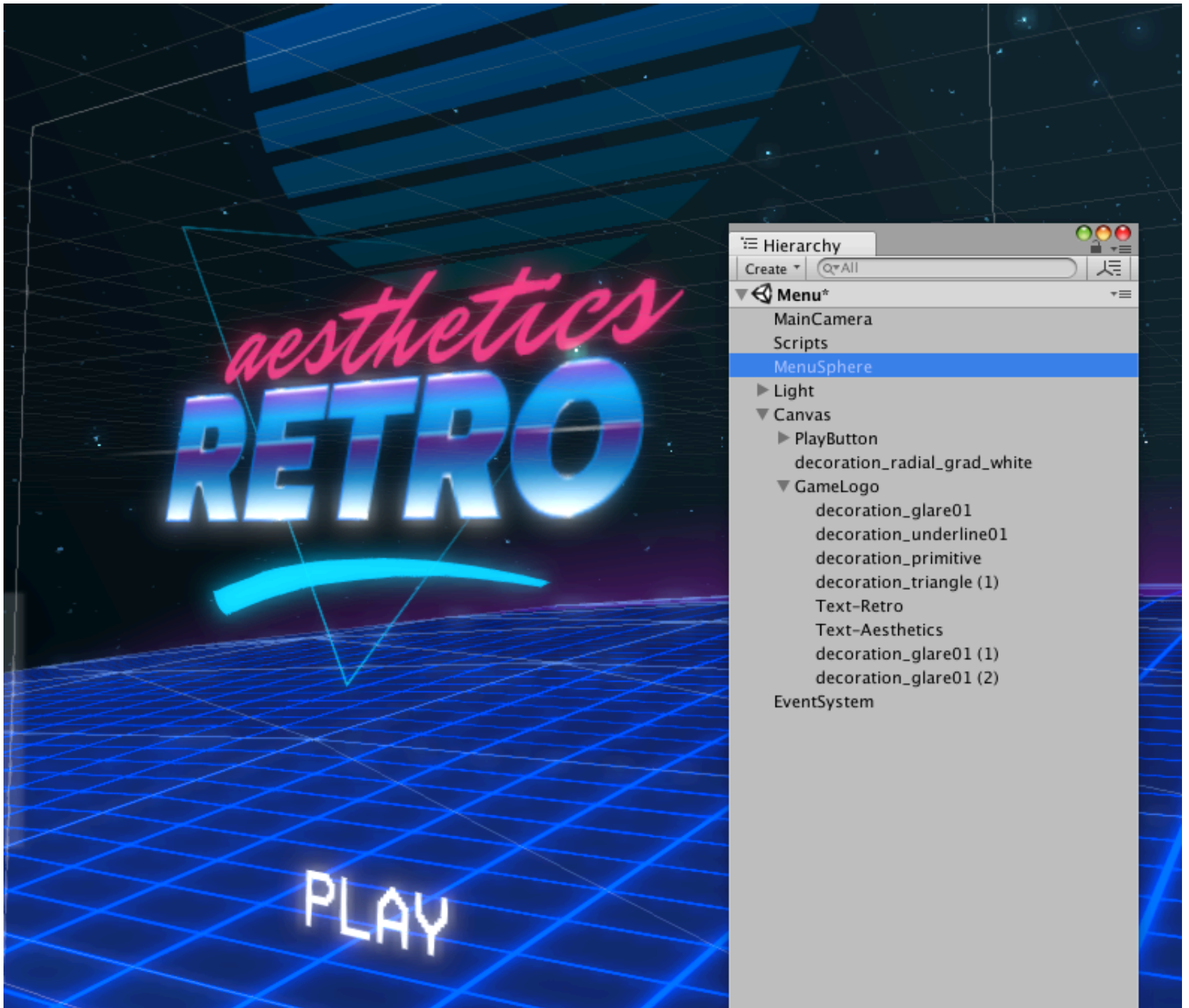
Demos

We believe that the best way to learn the asset is by playing with the provided demos. The package includes two sets of scenes in the Demos folder: a generic menu (*Demos/Menu*) and an example game, which we chose to be an arcade racing (*Demos/Racing*). Each of those demos includes some specific resources, which are located in the same folder as the scenes. If you do not need the demos in your project, feel free not to import the root Demos folder, so that only core asset resources are added to your game.

Menu scenes

Demos/Menu folder includes the following scenes:

- **Menu scene** is an example of a generic title screen of a game.



- **Loading scene** is the screen that is shown during loading of a user-selected level from the menu. In order to appear right away and cover full duration of loading, it needs to be light and simple.



Example game scenes

The racing demo has few scenes with identical gameplay, but different asset settings. You can browse through the scenes to get the feel of what retro look suits your game the most and use it as a starting point for your own look and feel.

The racing scene is build upon the standard Unity racing example with some modifications.

Let us overview a demo gameplay scene hierarchy and explain the items:

- **Light** – two directional lights are defining ambient color and shadows of the scenes. Asset's object materials are implemented as [Surface shaders](#), so that they play nicely with the lights.
- **CarCameraRig** – Game Object that contains camera and controls its behaviour. On the camera itself, along with optional standard Unity post-effects, located *RetroCameraEffect*, our post-processing script and shader. There is a section on this effect below. Note the *SpeedTilt* component of the *Pivot* Game Object – it adds an illusion of greater speed by changing camera position, rotation and FOV, based on its speed.
- **RetroCar** – the vehicle, controller by the player in the demo game.

- **Track, Decorations** – the static objects that compose the scene. The materials used are described below in this document.
- **Music** – contains the AudioSource that plays the music loop.

Shaders and Materials

There are several types of Materials in Retro Aesthetics asset:

- Retro Skybox
- RetroEmissiveColors
- RetroEmissiveTextured
- RetroGridGenerative
- Sprite Gradient Stripes

Let's overview each of these.

Emissive Colors (*RetroAesthetics/RetroEmissiveColors*)

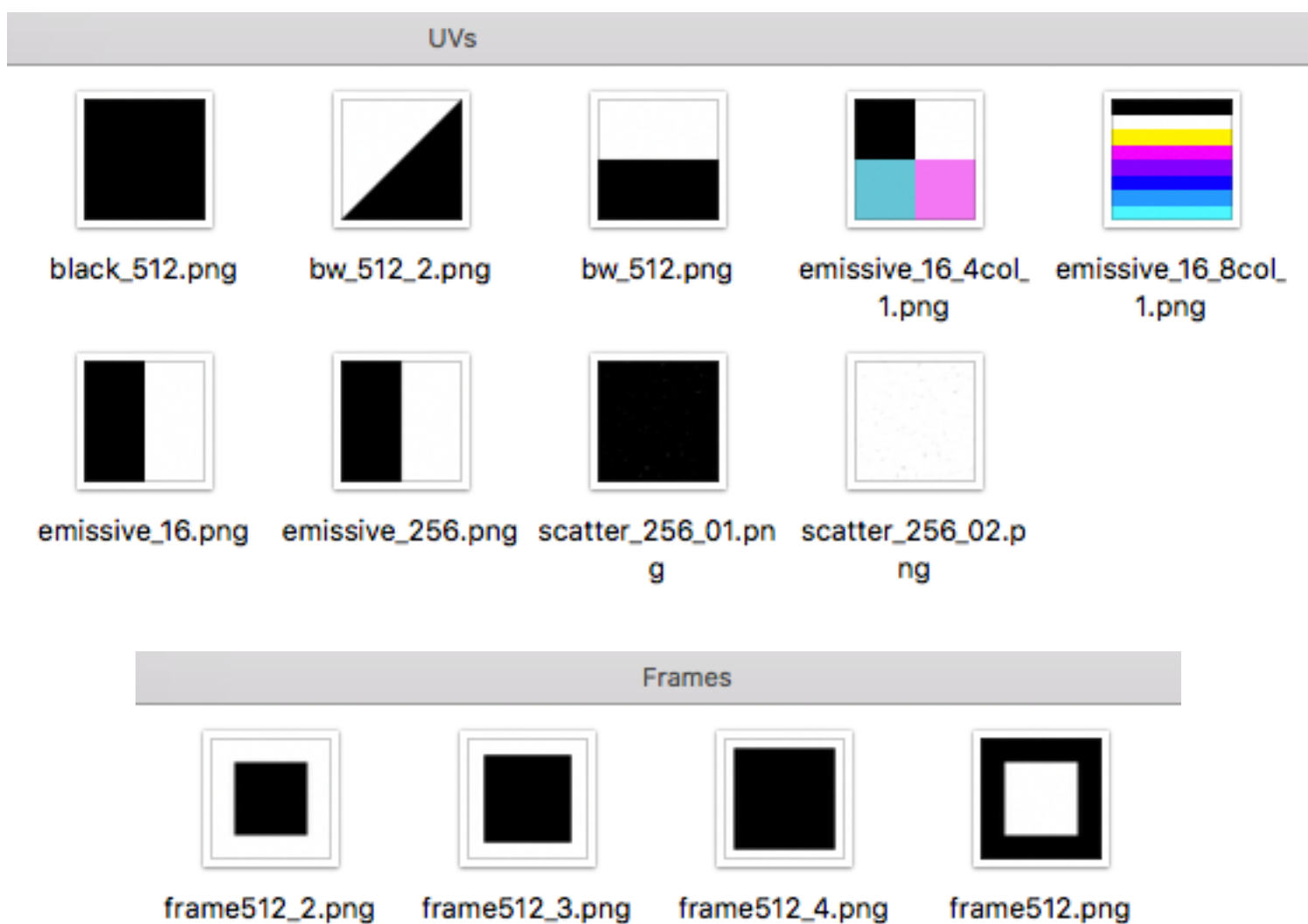
The materials in this asset are specifically designed for giving an opportunity for you to select which part of a mesh should glow and which one is just a diffuse color. To make it work, the mesh should be properly UV-unwrapped. On the picture below (screenshot of the *RetroAesthetics/Textures/UVs* folder) there are UV textures that are included in the package. As you see, the most part of them are just black-white textures. This shader uses textures as "glow maps" which mark the emissive parts of the objects. The colors of both emissive and dark parts of objects are set in the material settings, this way you can change colors of your scene without having to generate new uv textures. When creating a new mesh in 3D modelling software, you only need to set parts of the mesh that are supposed to glow to be projected on the white portion of the texture, while the parts of the mesh to diffuse – should be projected on the black part of the picture. Then, set the texture and the colors in Unity Editor as properties of a material that uses this shader.

Note: To see the glow, emitted by the object you need to add a Bloom post-effect component to the camera (as shown in demo scenes).

Emissive Textured Colors (*RetroAesthetics/RetroEmissiveTextured*)

On the same picture below there are a few textures containing blue, purple and other colors. This is made by an analogy of the Emissive Colors discussed above. The difference is that the colors of the diffused parts of the mesh, in this case, are predefined in the texture, as opposed to the Unity editor. In other words, use any UV texture with colors that fit your project through adding them on the texture. Meanwhile, the emissive parts of your mesh still refer to the **white** portion of the texture.

We describe the ways you can use UV textures in the **Grids** section below.

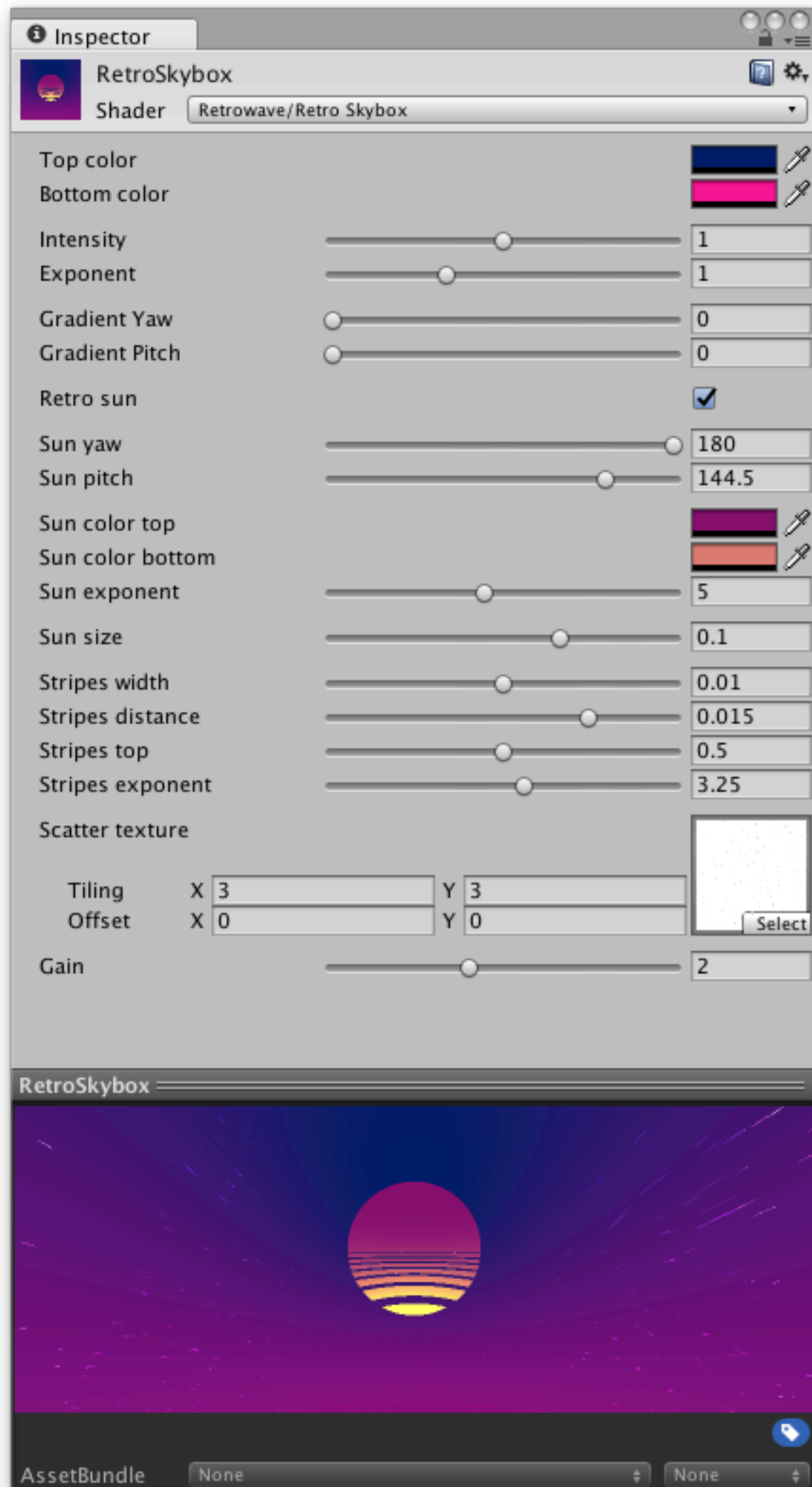


Skybox (*RetroAesthetics/Retro Skybox*)

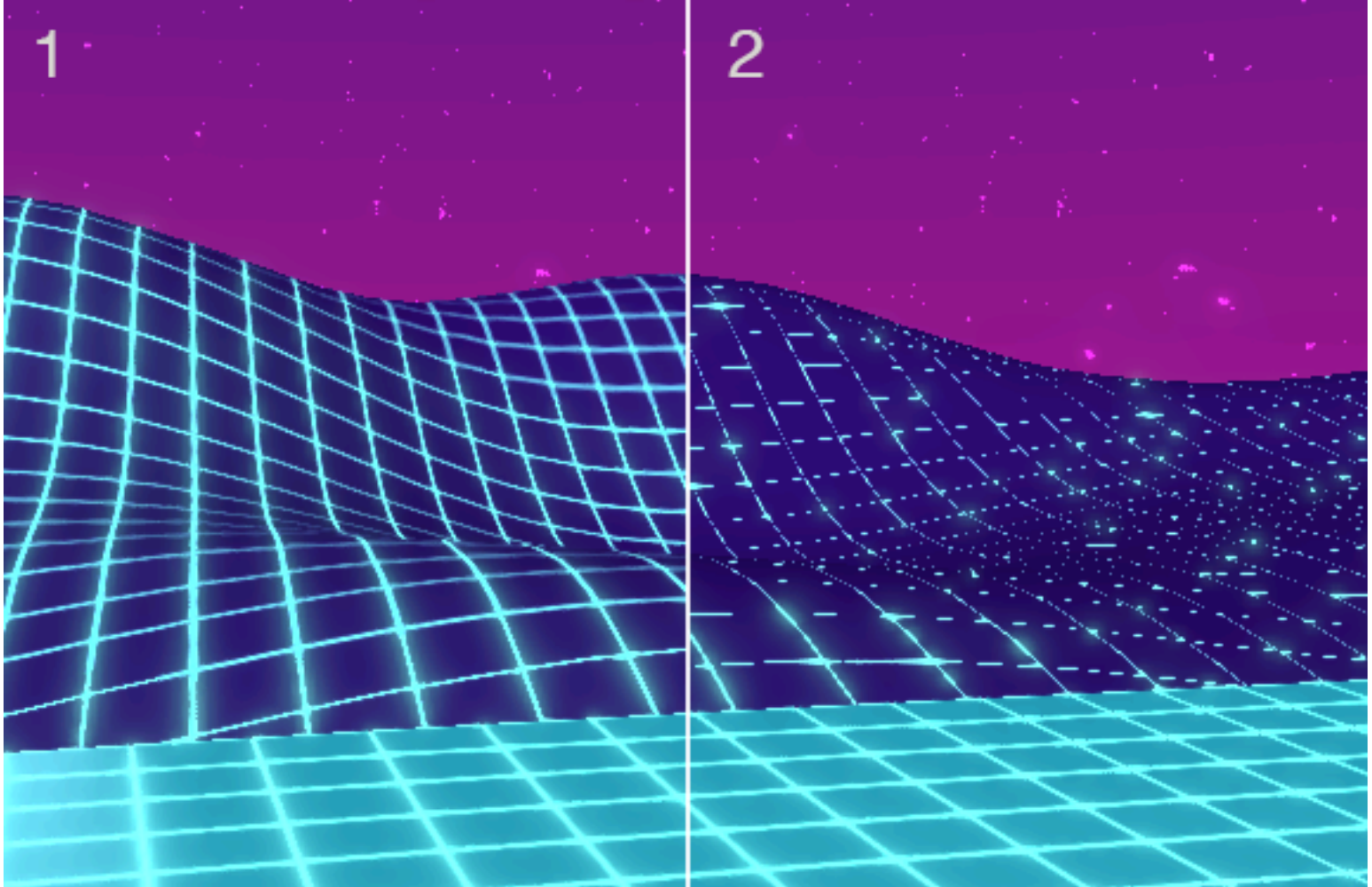
The Skybox material (*RetroAesthetics/Retro Skybox*) consists of three major components:

- **The color of the sky/background** – defined as a gradient of two colors. Blue and red colors give the most authentic 80s look.
- **Retro Sun** – a classic stripe-shaped setting sun.
- **Scatter texture** – a texture overlayed on the backdrop gradient. Useful

for stars or other small details.



Grids (*RetroAesthetics/RetroGridGenerative*)

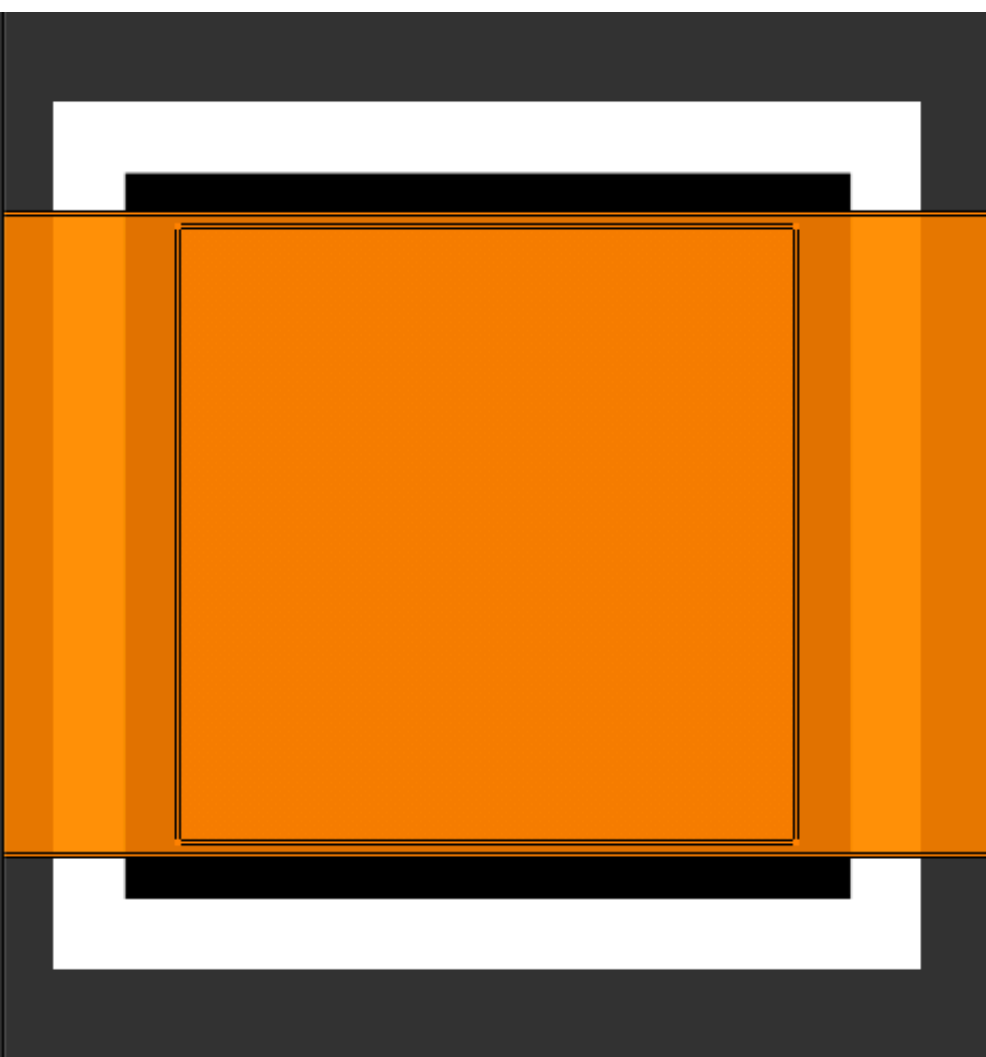
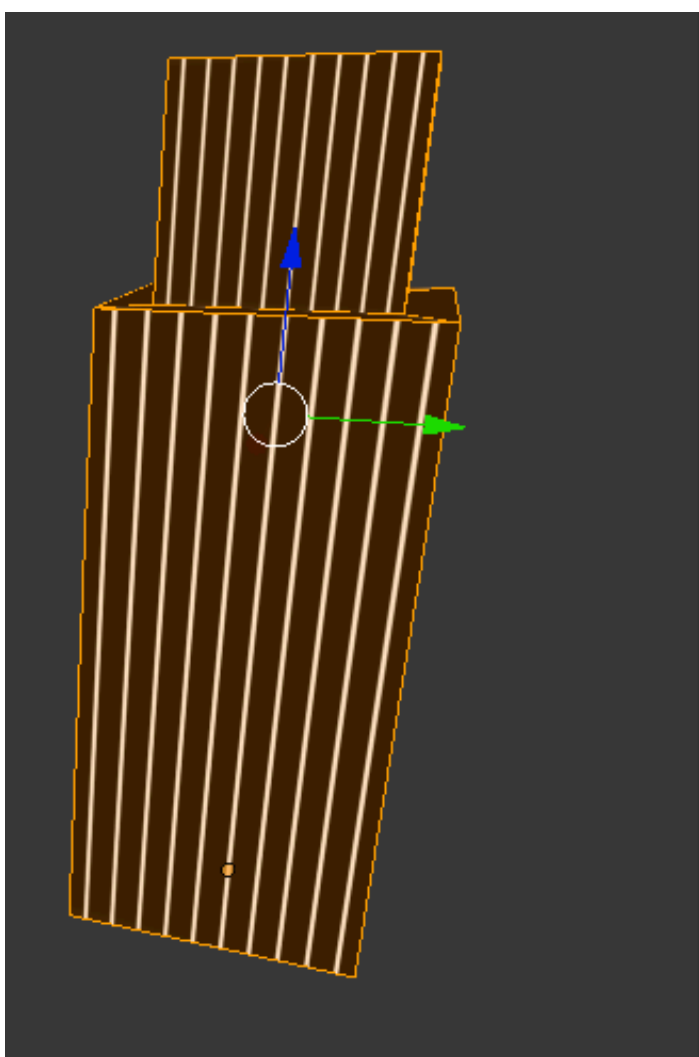
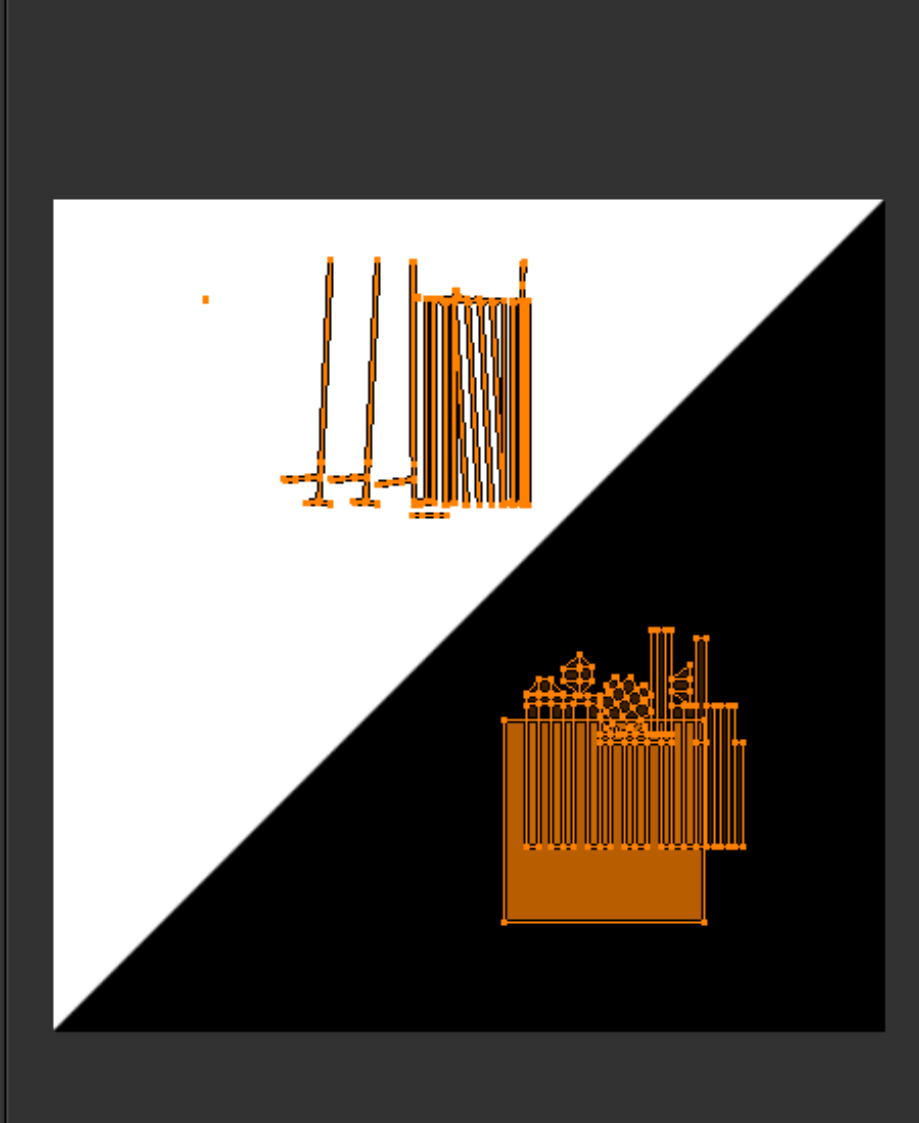
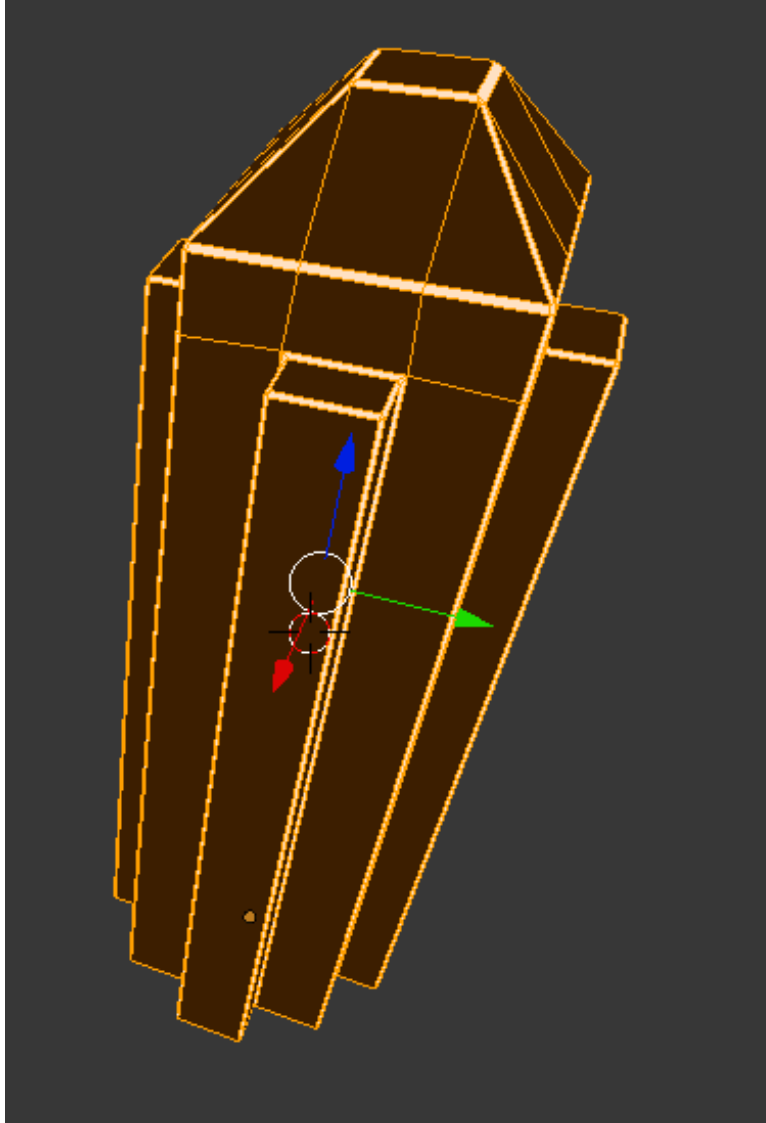


You can do Grids using two methods. The first is to use **RetroEmissiveColors** (*RetroAesthetics/RetroEmissiveColors*), which uses emissive textures of black/white frame. The second way is to generate the grid with **RetroGridGenerative** (*RetroAesthetics/RetroGridGenerative*). Both methods have similar parameters.

RetroGridGenerative generates the grid procedurally, so it does not require an input texture, does not depend on UV of the mesh, providing a quick solution for any model. However, if the lines are too thin, aliasing can become visible due to absence of color interpolation in fragment shaders. This is why we created a second option, **RetroEmissiveColors**, which utilizes textures for bilinear interpolation. The texture which is a material parameter defines the shape of the grid and still can be scaled to your needs.

As you can see on the picture above, (1) is the textured material; (2) is generated grid.

The similar interpolation problems (unless it's not a problem) may occur when creating models. Below you can see the pictures of two methods of UV unwrapping.



On the **first** picture, the model has physically predefined thin edges, which are projected on the white portion of the texture (white=glow, black=diffuse) (*RetroAesthetics/Textures/UVs*), on the **second** one we used a frame texture (due to the fact the ratio of black/white is uneven,

we called it “frames” (*RetroAesthetics/Textures/**Frames***) Basically, we needed any repeating pattern, where would be thin whites and thick blacks). On the model itself, the white parts are not hard-predefined, unlike in the first example. In other words, The white/black boundaries are made in the model itself (1) and in the texture (2). The result is, again, the smooth thin lines that you get in Unity.

Camera Post-Effect

This is where things get particularly interesting. You’ve got the variety of well-thought bits of vintage authenticity going on camera. The controls of the components look simple and clear. What makes the difference is the combination of things. Should you want to mimic the subtle wear of the cassette — bypass a few of effects, go moderate with those turned on. Or, if you want the heavy effect, you can do it, too.

Inspector

MainCamera

Static

TagMainCameraLayerDefault

Prefab

Select

Revert

Apply

Transform

Position

X0Y0Z-3.5

Rotation

X10Y0Z0

Scale

X1Y1Z1

Camera

Flare Layer

Audio Listener

GUI Layer

Bloom (Script)

Anti Aliasing (Script)

Tonemapping Color Grading (Script)

Camera Motion Blur (Script)

Retro Camera Effect (Script)

ScriptRetroCameraEffect

Use Static Noise

Noise Texturestatic_noise01

Static Intensity1.3

Random Glitches

Glitch Intensity1

Glitch Frequency10

Use Displacement Waves

Displacement Amplitude0.8

Displacement Frequency80

Displacement Speed1

Use Chromatic Aberration

Chromatic Aberration10

Use Vignette

Vignette0.1

Use Bottom Noise

Bottom Height0.05

Bottom Intensity1

Use Bottom Stretch

Use Radial Distortion

Radial Intensity20

Radial Curvature4

Gamma Scale1

Use Scanlines

Scanline Size512

Scanline Intensity0.3

Add Component

So, the main components of the camera effects are:

- Static Noise
- Random Glitches
- Displacement Waves
- Chromatic Aberration
- Vignette
- Bottom Noise (Warp)
- Radial Distortion
- Gamma Scale
- Scanlines

Important: If the RetroCameraEffect is not showing in the build of your game, it is probably because it's not directly referenced in the project. To fix this, you need to add the effect shader to the always included shader list. To do this, go to Edit -> Project Settings -> Graphics and drag the *RetroAesthetics/Shaders/Post-processing/RetroCameraEffect.shader* file from Library to the "Always Included Shaders" list, appending it as a last item.

Models and Meshes

As you see, there is one example of this asset implementation included: the racing game prototype. Thus, the models were made for this case specifically. The decorations as well as the road spline were made in 3rd party 3D editor (in our case, Blender). The terrain was made with Unity's native Terrain builder. All of the models (except road parts) are UV unwrapped (using one of two methods mentioned earlier in Shaders and Materials section of this document).

UI and Textures

You can find a lot of pieces of UI included in the asset. An example of so-called Logo Constructor is presented in Menu scene (Demos/Menu).

There are a few ready-to-use bits of graphics, fonts (about fonts, look

further in this manual), which can be viewed as an integral part of Logo Constructor.

Fonts

You can use the fonts installed on your system, apply a gradient mask or a solid color if needed. That requires quite some time. Alternatively, there are a bunch of bitmap fonts included into the asset (*Fonts/Bitmap*). The beauty of these is in the fact that the bitmap fonts have pre-applied gradient masks, they are ready to use — you don't have to install them on your system, they are performance-friendly. Moreover, we added each font in two versions: the one with pre-defined color texture; but if you'd like to change the color yourself, there is a second version, with plain white tint. You can distinguish them by looking at the name of the folder with corresponding font. In example, *Monotron1* (the colored one) and *Monotron_white* (the one for you to color).

HINT: Check out "[Littera](http://kvazars.com/littera/)" online service for bitmap fonts. It's great!
<http://kvazars.com/littera/>

Audio

For sure, the vital part of the retro vibe is the sound. When you are talking about 80s era aesthetics, you may think of old movie soundtracks or, perhaps, you know any contemporary music artist who works with such a sound (Com Truise, anyone?) Anyway, we included one music track for the racing demo and one for the menu. Both tracks are loopable. Also, there is a collection of go-to sound effects for your game project.

HINT: Although the sound effects are named something like "Boom", "Zap", "LevelDone" etc, be sure to audition them all for your specific needs. You may find "Blast.wav" sound suits your mouse click event better than actually "Click.wav".

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