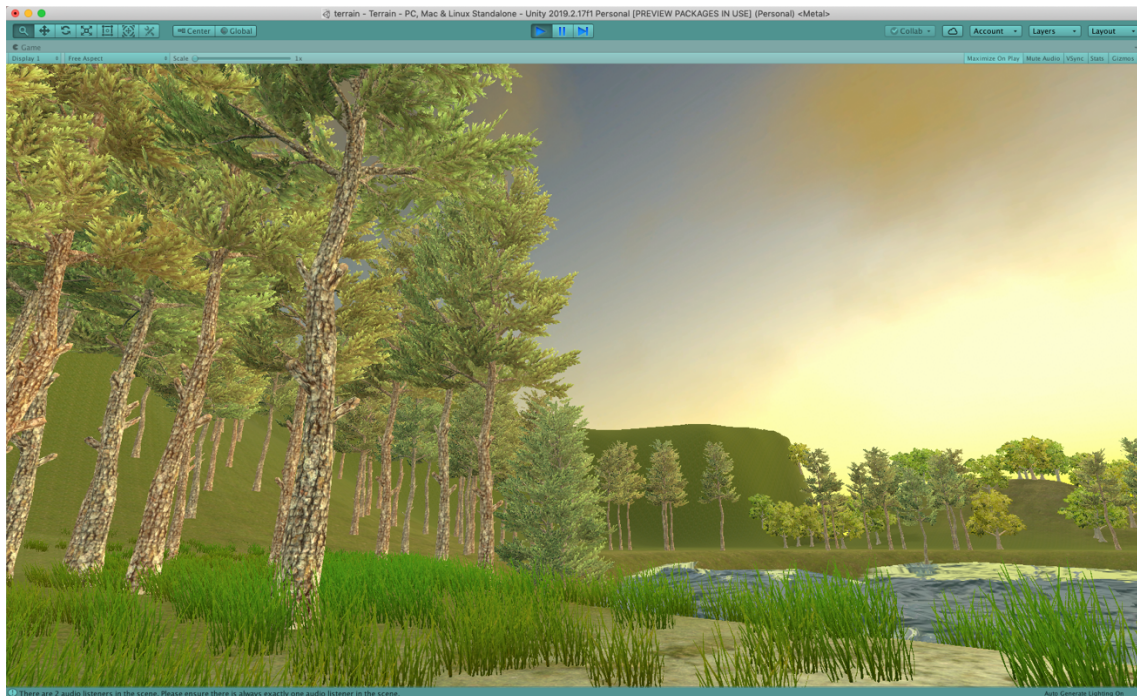


Terrain & Post Processing

Tutorial

Osama Halabi

For this exercise, you will create your own private island. Perform the following steps.



Create a New Scene

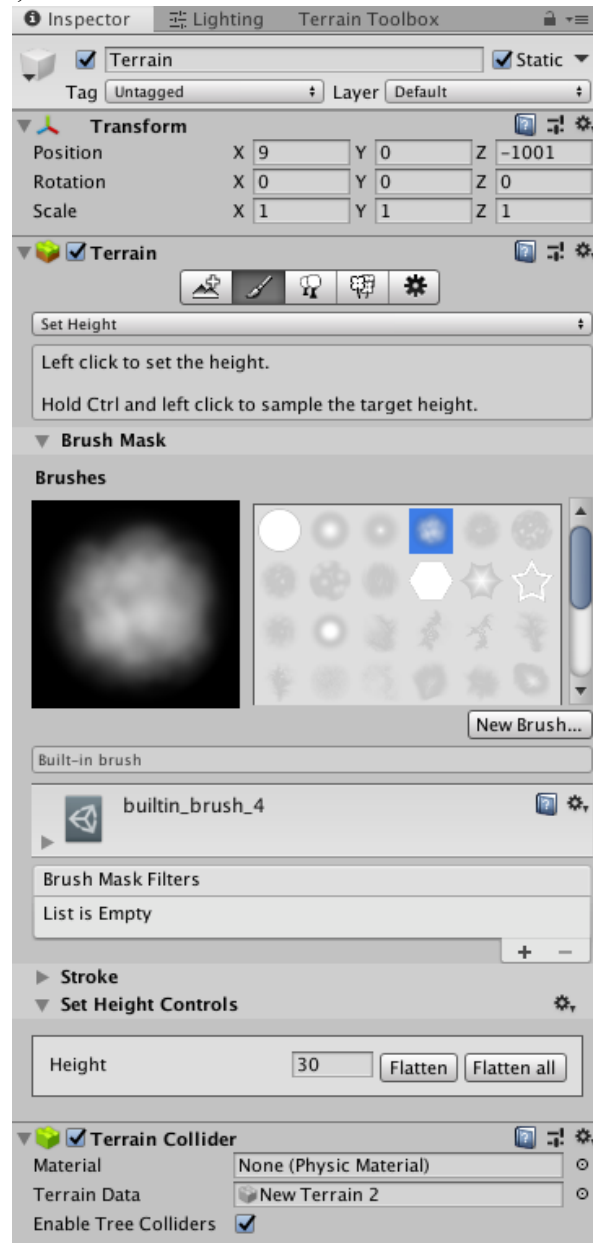
1. Open Unity
2. Create a New Scene within your existing Project.
3. Install and import Outdoor Ground Texture, Grass Flowers Pack1, Conifers

Import Terrain Tools

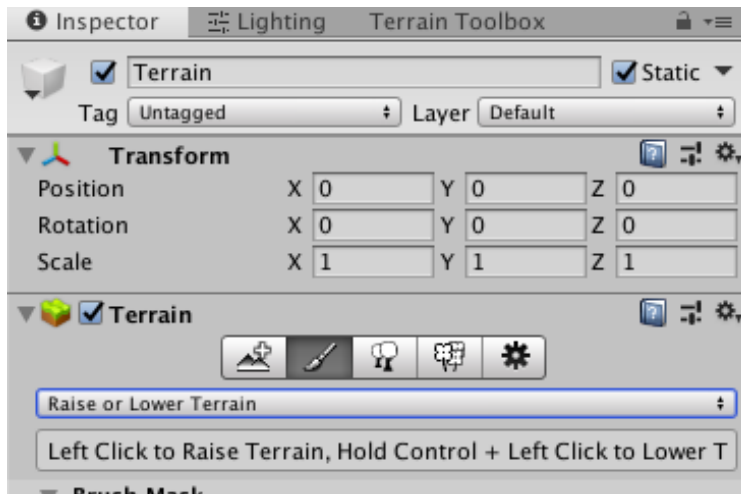
1. From Top Menu, select Window → package manager
2. Make sure All package are checked, and in Advanced select show preview packages
3. Search for Terrain Tools (still preview) → install
4. Once finish installation, click on download Asset Samples form Asset Store → download Terrain Tools Sample Asset Pack → once done click on import to import the asset to your project.

Create the Terrain

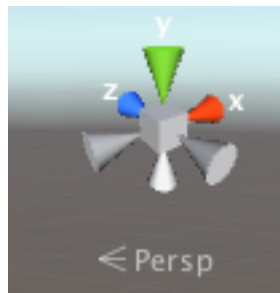
1. Create the geometry
 - a. From Top Menu, select GameObject → 3D Object → Terrain
 - b. From Top Menu, select Window → Terrain Toolbox (insert it next to inspector tab)
 - c. In Terrain Toolbox, Set Width = 500, Length = 500, and Height = 600.
 - d. From Inspector → Terrain → activate Paint Terrain → Set Height controls → set Height = 30, then click the *Flatten* button



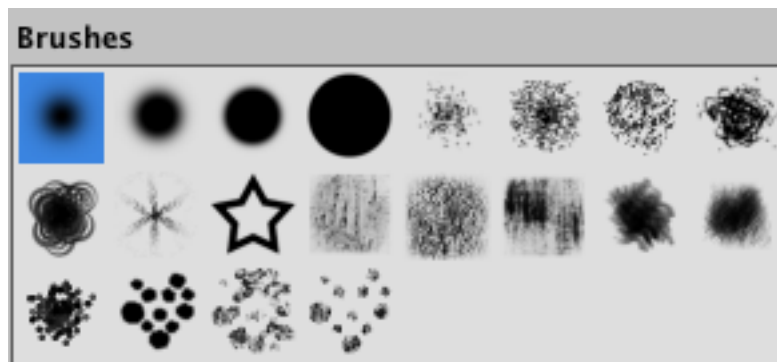
2. Carve the shore
 - a. In the Hierarchy, select the Terrain
 - b. In the Inspector, Terrain → activate Paint Terrain (brush) → Select Raise or Lower Terrain from the list menu



- c. Set the Brush Size = 100, Opacity = 75
- d. Change the Scene view to the Top view by clicking on the green Y arrow in the view gizmo:



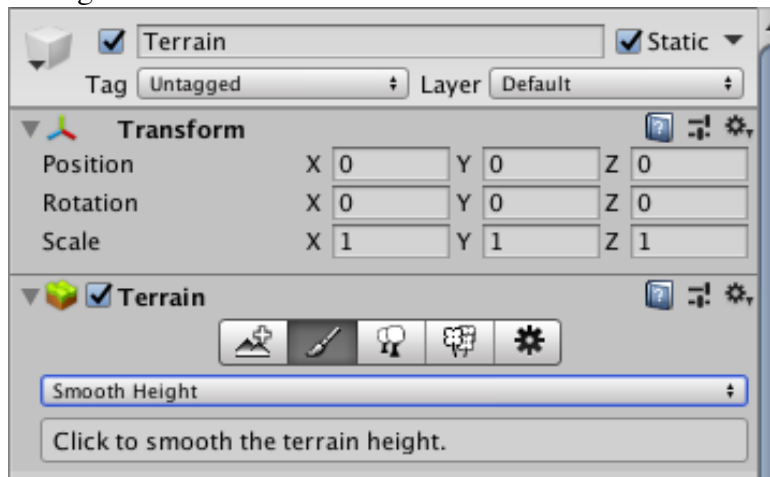
- e. Zoom in or out (mouse wheel) until you can see the whole terrain as a square on the screen
- f. While holding the Control key and the left mouse button, draw near the edges of the terrain to carve out the shoreline. Use the first brush; it is the one highlighted in blue below:



- g. Try to match the picture below as closely as possible.



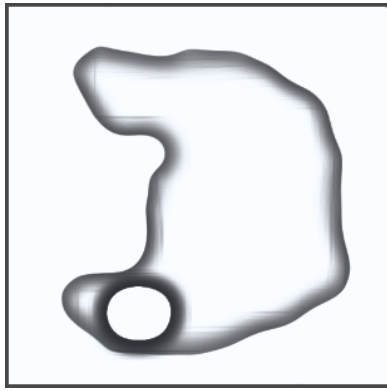
- h. Add some hills and depressions on the island using the Raise Height tool. Be creative; change the brush sizes. Make sure to leave lots of flat space available for other items that will be added in later. Some tips:
 - i. To make a dip, hold the Control key while clicking
 - ii. To make a hill, just click where you want the hill placed
 - iii. Experiment with the different brushes to get different hill shapes
 - iv. Use the Smooth Height tool (see below) to round off some of the sharp cliff edges



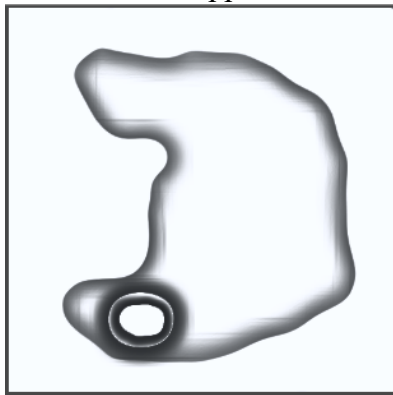
- v. Make sure that you do not cover the land completely with hills. You will want to leave a flat path across the island.
- vi. And again, leave a clearing that is a bit flat. We'll need it later!

Volcano

3. Activate the Paint Height tool. Use the same brush that you have been using (the first one).
4. Set the Paint Height tool's parameters to Brush Size = 75, Opacity = 50, Height = 100
5. In the Scene Window, draw a circle in the lower left corner of the island. It should look roughly as follows:



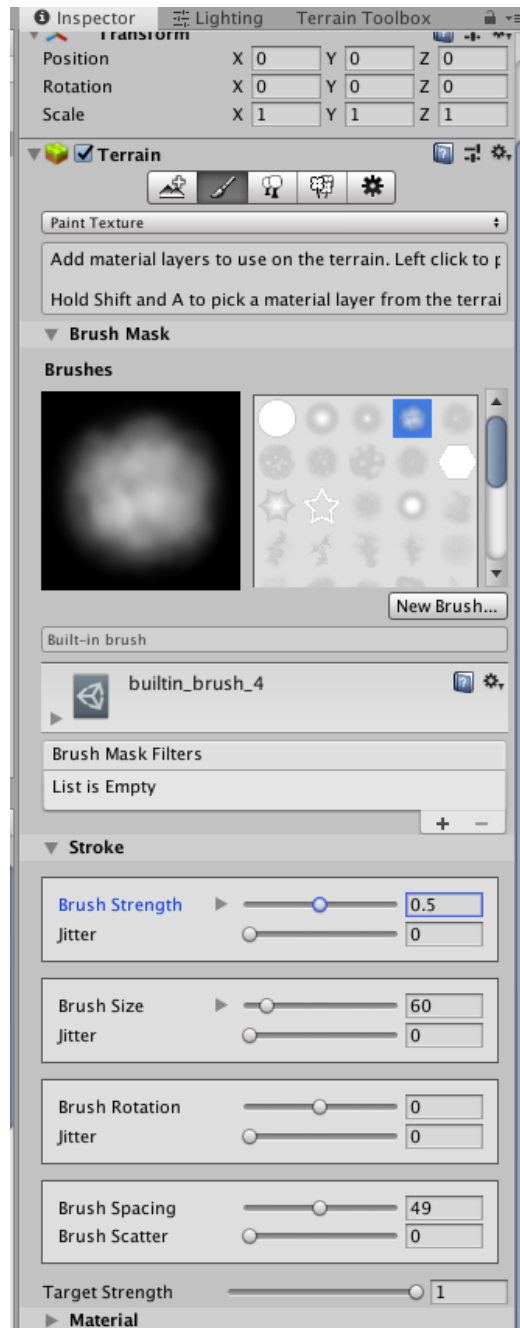
6. Draw the mouth of the volcano. Again using the Paint Height tool, change the settings to: Brush Size = 30, Opacity = 50, Height = 20. Now draw in the mouth of the volcano. It should appear as follows:



7. Activate the Smooth Height tool. Set its attributes to: Brush Size = 30, Opacity = 100. (see below)
8. Smooth out the rim of the volcano's mouth by using your mouse to draw around the upper lip of the volcano. Once you are finished smoothing, switch the view back to Perspective by clicking on the View Gizmo in the center box.
9. Remember, if you lose track of your terrain in the Scene window, press the F key while the mouse is over the window.

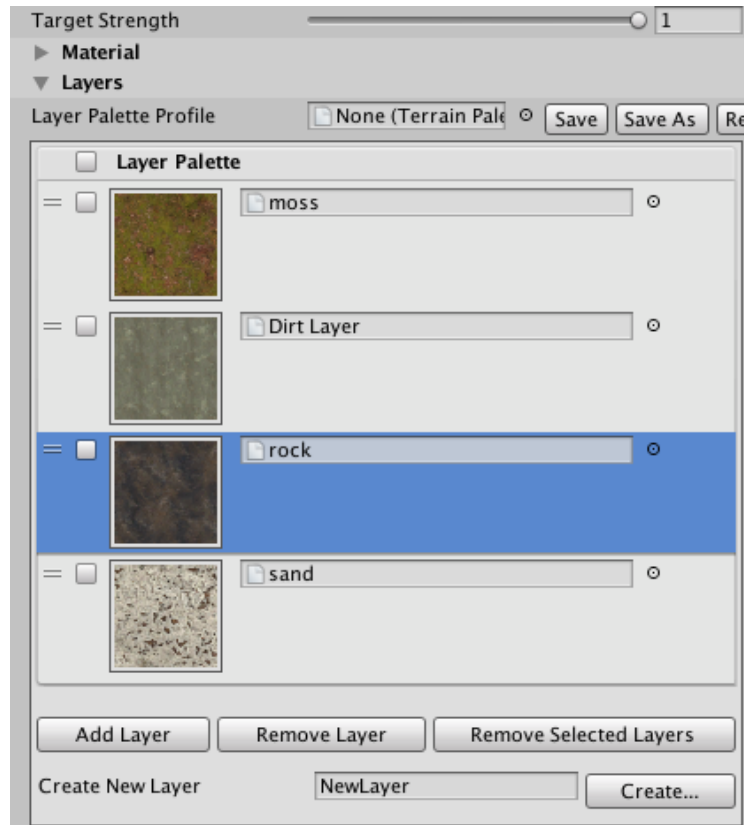
Texturing

1. Select the Paint Textures and set its parameters as follows: Brush Size = 60, Opacity = 50, Target Strength = 1

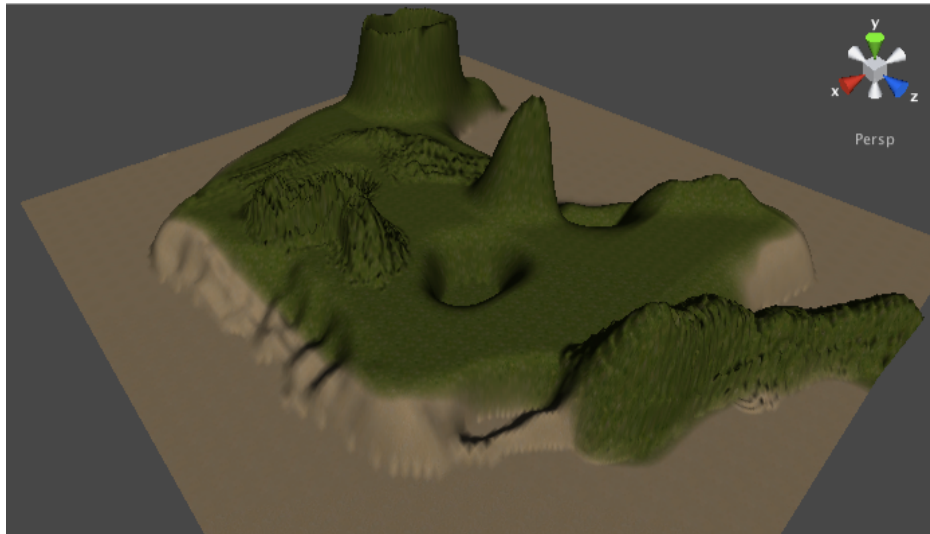


2. In the **Terrain Inspector**, click the **Paint Terrain** icon, and select **Paint Texture** from the list of **Terrain** tools.
3. To configure the tool, you must first create or add Terrain Layers.
4. Download and import Standard Assets to get grass and trees textures.
5. Click the circle to the right of the Splat field. This will show all the available Textures. Double click on the one called, "Grass (Hill)". Now click the Add button.
6. Repeat steps 2 and 3 for three more Textures: Grass & Rock, GoodDirt, and Cliff (Layered Rock). BUT, for the Cliff, set the Tile Size X = 70 and Tile Size Y = 70.
7. Notice that the terrain is covered in Grass (Hill). This is because it was the first Texture you added. The rest of the Textures you apply will need to be painted on using the mouse.

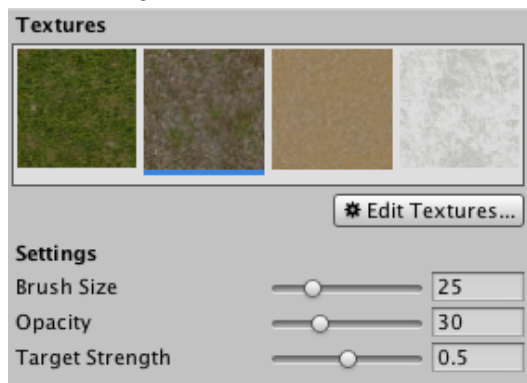
8. Select the Texture called GoodDirt (see below, the selected texture has a blue line under it). Set the Brush Size = 60, Opacity = 50, Target Strength = 1



9. Using the mouse, paint beaches along the coast of your island.
- Remember, you can switch back and forth between the Top and Perspective Views using the View Gizmo
 - When in the Perspective View, if you hold the Alt key while clicking the mouse, you can rotate the scene.
 - Mouse wheel zooms the scene in and out.
 - When finished, it should look something like the following:



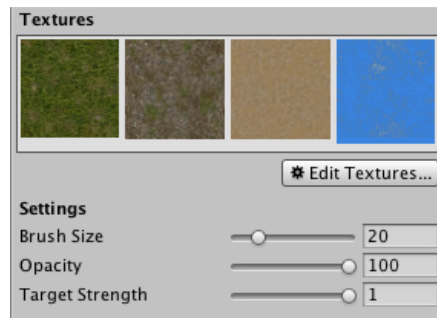
10. Switch the active Texture to Grass & Rock; Brush Size = 25, Opacity = 30, Target Strength = .5



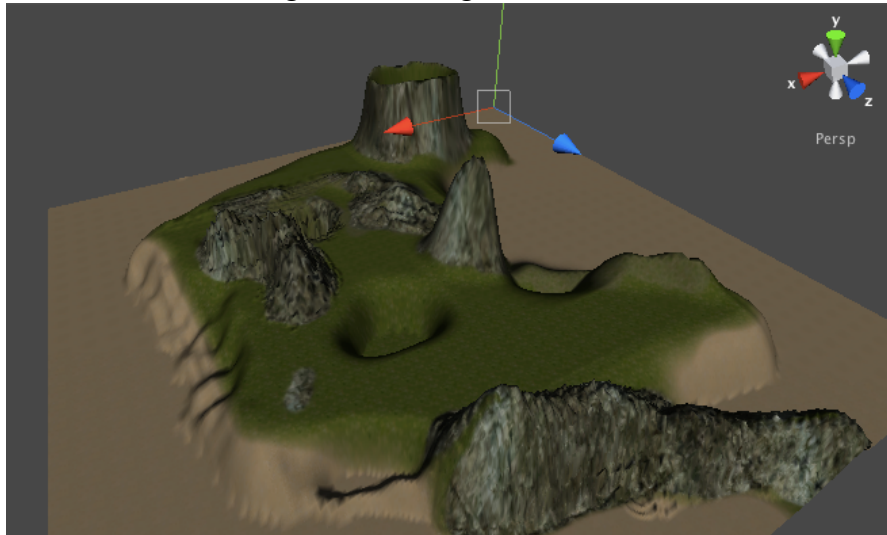
11. Use the Grass & Rock Texture to paint any low hills that you have created.



12. Lastly, the volcano and rock outcrops need texturing. Select the Cliff (Layered Rock) texture. Set Brush Size = 20, Opacity = 100, Target Strength = 1

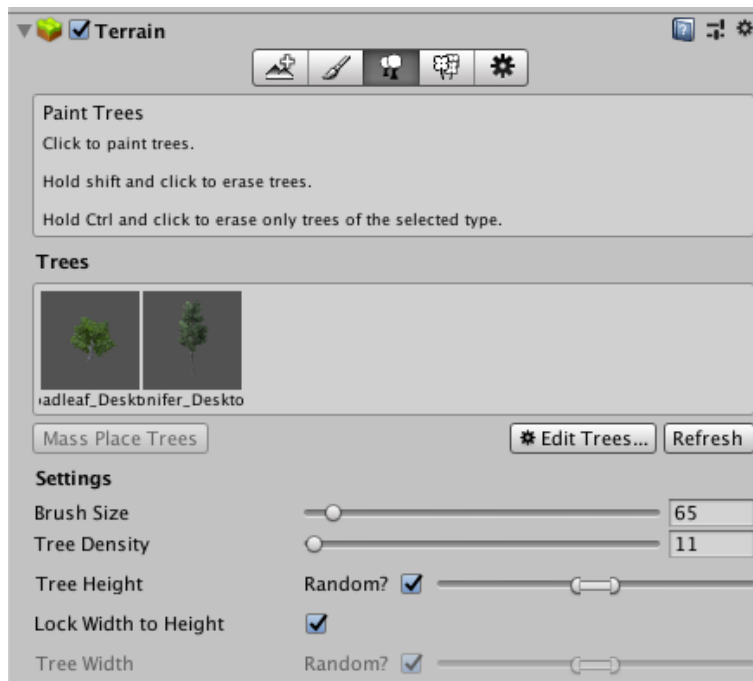


13. Using the Cliff (Layered Rock) texture, paint the inner and outer walls of the volcano. Also paint any protruding rocks you have created in your scene. When you are finished, it should look something like the image below:



Trees

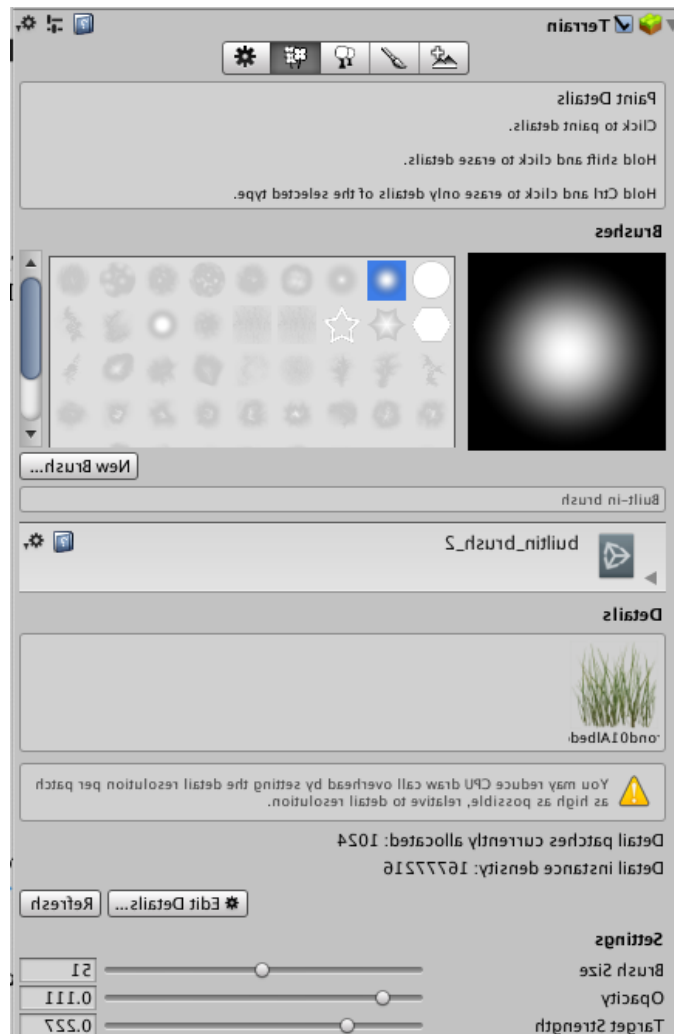
1. Activate the Tree tool:



2. Click the “Edit Trees . . .” button; click “Add Tree . . .”.
 - a. Click the circle to the right of the Tree field; double-click “Palm”. Now, set the Bend Factor = 2
3. Set the following settings for the Tree tool, Brush Size = 15, Tree Density = 40, Color Variation = .4, Tree Height = 50, Tree Width = 50, Variation = 30
4. Single click locations around the island to place trees. If you make a mistake, hold the Shift key and click again to erase trees.

Grass

1. Select the Paint Details tool. Set Brush Size = 100, Opacity = .1, Target Strength = 0.3125.
NOTE: you will be using a different brush than you have previously (see below)



2. Click “Edit Grass . . .”, Click “Add Grass Texture...”. Click the circle to the right of the field called “Detail Texture”. Select the icon called “Grass”. Keep the rest of the values at their default values.
3. Single click points on your island to apply grass.
 - a. However, do not overdo it as too much grass on your map can slow it down tremendously.
 - b. If you are zoomed out too far, when you click to apply grass, you will not see it unless you zoom in.

Here Comes the Sun

1. From the Top Menu, select GameObject - - > Create Other - - > Directional Light
2. In the Inspector Window, set Position and Rotation to acceptable clear view.
3. From Assets Store download and import 10 Skyboxes Pack
4. From the Top Menu, select Window - - > Lighting.
5. In the Inspector Window, click the circle to the right of the field called, “Skybox Material”. Double click the icon named “SkyMorning” or try with other available

skyboxes! If not available download free skybox and apply it or create your own skybox from textures.

Water

1. Download standard assets > import > select environment only
2. In the Project Window, navigate to Standard Assets - - > Water. Drag “Water4Advance” over to the Hierarchy Window; it should not be dropped on any other object.
3. In the Inspector Window, set the Position X = 250, Position Y = 4, Position Z = 250, Scale X = 1600, Scale Y = 1, Scale Z = 1600.

Walk Around

1. Zoom in and locate the place on the island where you want to begin walking.
2. From Assets Store download and import Starter First Person Assts.
3. In the Project Window, navigate to Starter Assets - - > Prefabs -> and add MainCamera, PlayerCapsule, and PlayerFollowCamera
4. add a reference to the PlayerCameraRoot (Which is a child of the PlayerCapsule) in the PlayerFollowCamera object, in the CinemachineVirtualCamera component under ‘Follow’.
5. In the hierarchy window, delete the old MainCamera object (keep the Main Camera from the Starter Asset)
6. Click the Play button. Using the keyboard, you can walk around the island you have created (W = forward, S = backward, A = left, D = right, Spacebar = jump); use the mouse to look around.
7. Enjoy!!!