Mesh Creator Overview

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Motivation for Mesh Creator

1. Code was originally written for high school level game design class at UCLA DMA Summer Institute.
2. Provide easy content creation work flow so users can concentrate on making games.
3. Streamline workflow for making 2D games with Unity.

Use cases

1. 2D platformer games.
2. 3D games using an extruded look.
3. Distant objects requiring physics in 3D games.

Introduction to Mesh Creator

1. Open source - BSD 2 clause license.
2. General workflow:
    a. make transparent image.
    b. import image to Unity as texture.
    c. use MeshCreator scripts to create objects.
3. Editor scripts, and component for game objects in scene.
4. No run time support, editor only.
5. Expects a transparent area around 100% alpha pixels.
6. Deals with holes in an unpredictable manner.
7. Pollutes your project hierarchy with a bunch of mesh assets.
8. Best with square images. Rectangular images can result in funny scaling.

Mesh Creator Workflow

1. Make new scene in Unity.
2. Import textures.
3. Use wizard to create new game objects.
4. Edit and save Unity version of .psd texture file.(also works with png, but psd has better quality)
5. Update meshes by adjusting inspector elements, and clicking "Update Mesh" button.

Importing Mesh Creator

1. Get packages from Github.
    a. browse to https://github.com/uclagamelab/MeshCreator or

b. from game lab->resources->mesh creator->download
c. download as zip, save to desktop

2. Make new project.
    a. Unity -> File -> New Project, or
    b. Unity -> File -> Open Project
3. Import the Mesh Creator Package
    a. Assets -> Import Package -> Custom Package
    b. select latest version of the Mesh Creator unity package:
        MeshCreator06.unitypackage
4. Creates some folders in your project.
    a. Editor, Materials, Meshes, Scripts, Textures.

Importing Sample Scene

1. Import the Mesh Creator Sample Scene:
    a. Assets->Import Package->Custom Package
    b. select latest version of the sample scene:
        MeshCreator06.SampleScene.unitypackage
2. Creates new folders in your project.
    a. PhysicMaterials, Prefabs, Scenes
3. Open the UCLA_Game_Lab_Mesh_Creator scene.
3. Run the scene with play button.
4. Things to notice:
    a. Physics material on scene objects.
    b. Primitive colliders vs. mesh collider.
    c. UV mapped mesh vs. flat planes.
    d. Mesh sizes.
    e. Customizable inspector interface.

Create New Object for Sample Scene

1. Open wizard window:
    a. choose GameObject->Create Mesh Object
2. Select Texture.
3. Toggle Depth.
4. Toggle Collider.
5. Indicate size.
6. Name object.
7. Click create mesh.
8. Wait a few seconds.

Modify Sample Scene

1. Modify size parameters on an inspector element.
    a. choose a game object with Mesh Creator Data script.
    b. change size and Update Mesh
2. Change collider from primitive to mesh and back.
3. Change render mesh to full.
4. Change texture.

Editing Images and Using Photoshop Actions

1. Get Alpha Utility from Unity website:
    a. browse to http://unity3d.com/support/documentation/Manual/HOWTO-alphamaps.html
    b. or google: unity alpha utility
2. Download AlphaUtility.atn.zip
    a. from above link or
        http://unity3d.com/support/documentation/Images/manual/AlphaUtility.atn.zip
3. Unpack zip.
4. Import AlphaUtility action:
    a. Action window menu->load actions
    b. select AlphaUtility.atn
5. Import Alpha Utility Additions:
    a. Action window menu->load actions
    b. select AlphaUtilityAdditions.atn found in the mesh creator OtherFiles folder.
6. Crop image to square, Mesh Creator likes to work with squares.
7. Erase out background of image.
    a. must be transparent to grey and white grid.
    b. best if transparency goes to edge.
8. Rename layer to texture
    a. action requires a layer called texture
9. Run the ConvertToUnityPSD action.

Importing images to Unity

1. Import asset to Unity.
    a. Assets->import new asset.
    b. select the new .psd document.
2. Place texture in texture folder.
3. Select the texture to change import settings.
4. Change Texture Type to Advanced.
5. Uncheck Generate Mip Maps.
6. Set Wrap Mode to Clamp.
7. Set Filter Mode to Point.
8. Set the Correct Max Size.
9. Click Apply.

Advanced and experimental features.

1. Working with large images.
2. Adjusting the pivot.