Creating and Automating 3D Mesh Features

Time: 00:07:10

Materials are the “paints” of a 3D scene: apply them to meshes to give the color, surface, and overall appearance of real-world objects like bricks, wood, or steel.

Objectives

Time: 00:021:29

- Applying a material to a mesh
- Changing a material using Snap

Applying a material to a mesh

Time: 00:41:15

After you create a mesh in your 3D Scene, begin prototyping quickly and easily by applying one of the pre-defined library materials to your mesh. You can change this material to other, more customizable ones later, as you refine your design. Ensure the mesh you want to “paint” is visible in the scene viewport. From the bottom tab bar, click the Materials tab. A list of materials appears. These are library materials: pre-built materials you can use right away without having to worry about how to create them. Browse through the library material thumbnails to find one closest to your needs. Drag a material thumbnail onto the mesh you want to paint: you’ll see the material appear on the mesh. Not the basic look you’re hoping for? Just drag another material onto the mesh to replace it. When you’re done with the materials tab, click anywhere outside it to close it.

Changing a material using Snap

Time: 01:52:22

Meshes have many default properties, which describe how they appear in the scene. We set one of them: the material property. Once set, any property of a mesh is used for as long as the scene is displayed. But properties can be dynamic. You can change a property while the scene is running, using Snap rules. Let’s change the material of an object in our scene, based on a field value in our configurator. To review, we’ve set a mesh’s material property manually, by using the properties window. Leave the scene designer, and enter the rules editor by clicking the rules tab on the left. In the rules editor, you’ll see an explorer of different types of logic you can adjust. We’ll focus on the rules themselves, so click the rules entry in the explorer. When highlighted, the rules entry shows a plus sign. Click it to create your first scene rule. Scene rules are logic that is run every time your user edits any field in the configurator associated with this scene. Change the name of your scene rule by double-clicking the name. Let’s change it to Set Box Material. In the Snap workspace to the right, drill into the toolbox category scene… nodes. You’ll see the set mesh block. Drag it into your workspace, connecting it to the start block. Fill in the missing parameters. For example, we can set the Box’s material to the library material plastic02. Run your configurator: you’ll see the original material you set in the parameters is overridden by the new material set in your code. Usually, you would set your material based on settings from the configurator. Let’s make the Snap code smarter. Return to the Snap rule, and add a switch block. The switch block is just like the If block, only it’s easier to read when comparing the same thing over and over. We want to test a field from the configurator. So, drill into the toolbox category configurator… fields, and drag the first getField block into

place. By the way, if you don't see the configurator fields category, your scene isn't connected to a configurator. Fix that by clicking the gear icon in the upper right

Open the toolbox category values, and drag out the string block. Use these Snap blocks to create your logic. If the configurator's MaterialType is Organic, assign a wood material to the mesh called box. Remember, case is important, so spell and capitalize your string value correctly. Add a new test for the next material type. Click the mutation symbol next to if, and add a new equals clause. Duplicate the set mesh block. You can click on it once so it's highlighted, and then CTRL-drag it. Or you can right-click it, and choose duplicate. Duplicate the string block, and replace Organic with Metallic. Repeat this process for the remaining MaterialType choices. Finally, a good practice to prevent future problems is adding an else clause to your conditionals. Click the mutation symbol next to if, and add a new else clause. Set the material to some clearly inaccurate material, which makes any future errors easier to see. Test your work by clicking the run button, and changing the material field in your configurator. You should see the material of the cube change in the 3D scene. By the way, if you don't see the scene in your configurator's viewer, fix that by updating the viewer section of properties in your configurator. It should list the 3D scene you're working on.

Recap

In this course we applied a pre-built library material, ideal for quick prototyping and in many cases all that's needed. We also learned how Snap rules can apply a different material to a mesh, depending on your business rules.

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