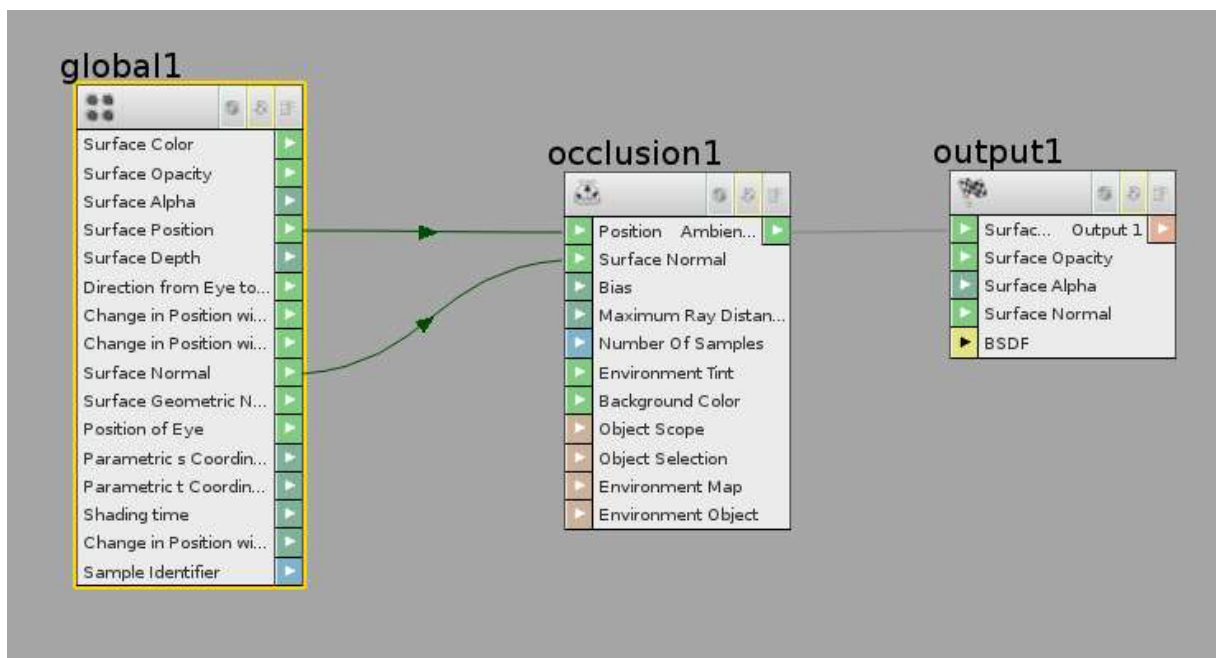


In Houdini 11, to create an ambient occlusion shader by Deborah R. Fowler*

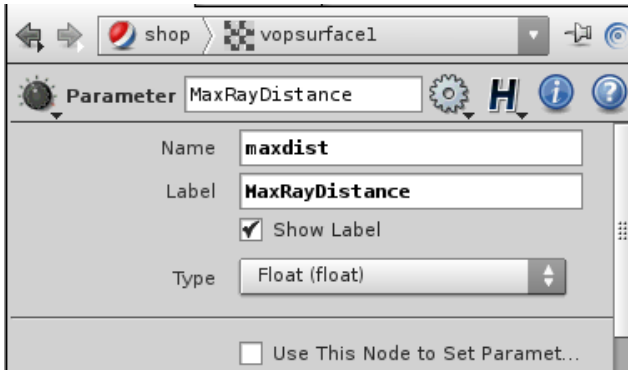
* (idea from Murat Gonul demo):

1. In the **shop**, hit tab and select under the **Surface** submenu select **Surface Shader Builder**
2. Dive into the node (double click or hit i). You are now in a vex builder context with vop nodes. You will see two nodes, one labeled global1 and one labeled output1.
3. Hit tab and type in **occlusion** – this will give you the occlusion1 vop.
4. Wire in the Surface Position from the global1 node to Position in the occlusion node. Wire in the Surface Normal from the global1 node to Normal in the occlusion node. Now wire the Ambie... output to the output1 node as shown below.



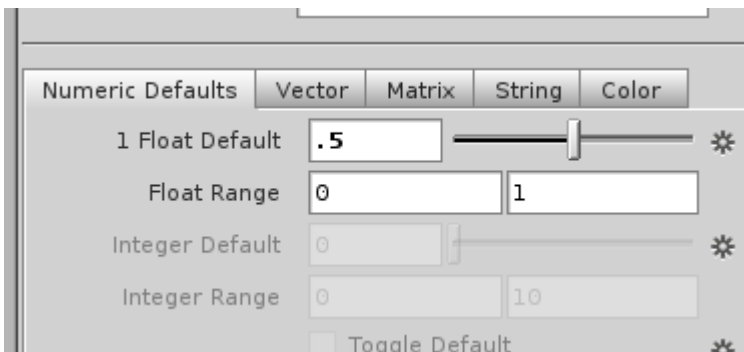
5. Now select the occlusion1 node. You will see several parameters in the view. We really only want Maximum Ray Distance and Number of Samples to control.

Create two parameter nodes (tab and type **parameter**). Wire them to Maximum Ray Distance and Number of Samples and label appropriately. Now change their settings:



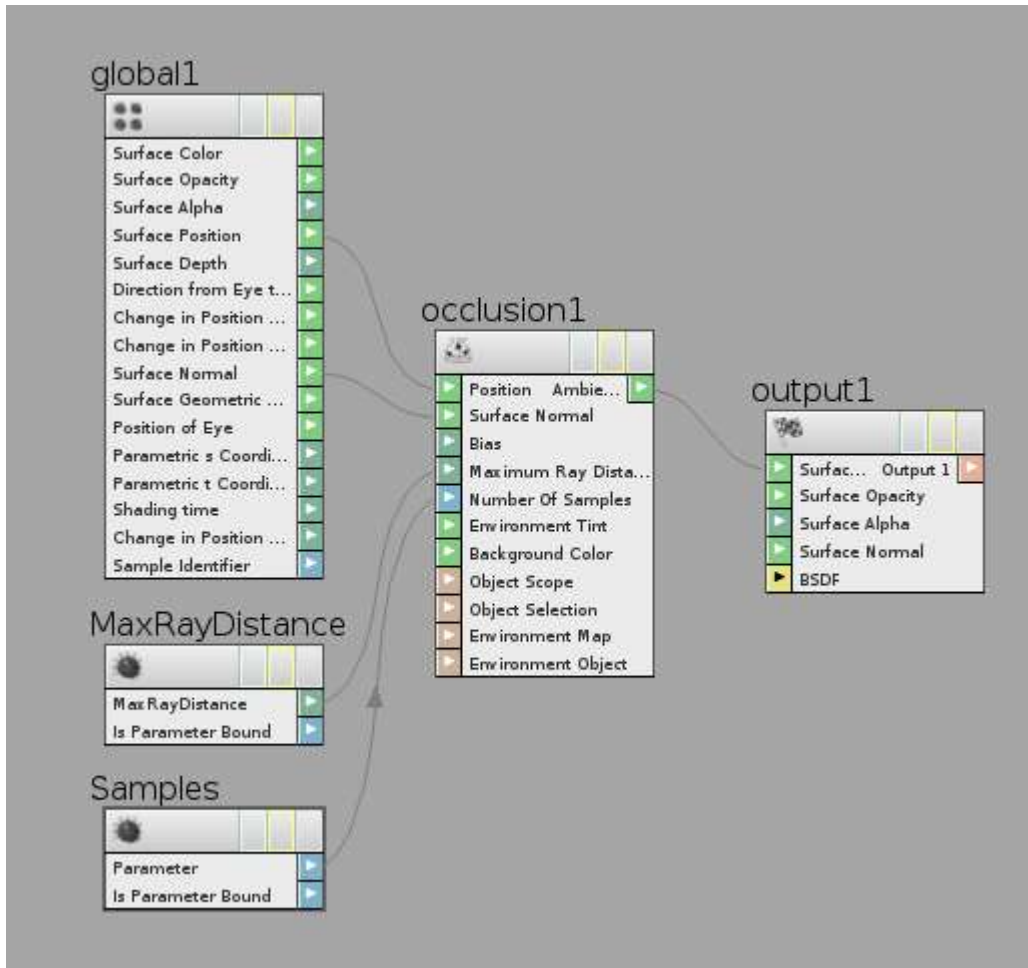
Note that MaxRayDistance will now be a parameter in your vopsurface1 node.

Change the default Maximum Ray Samples to .5.

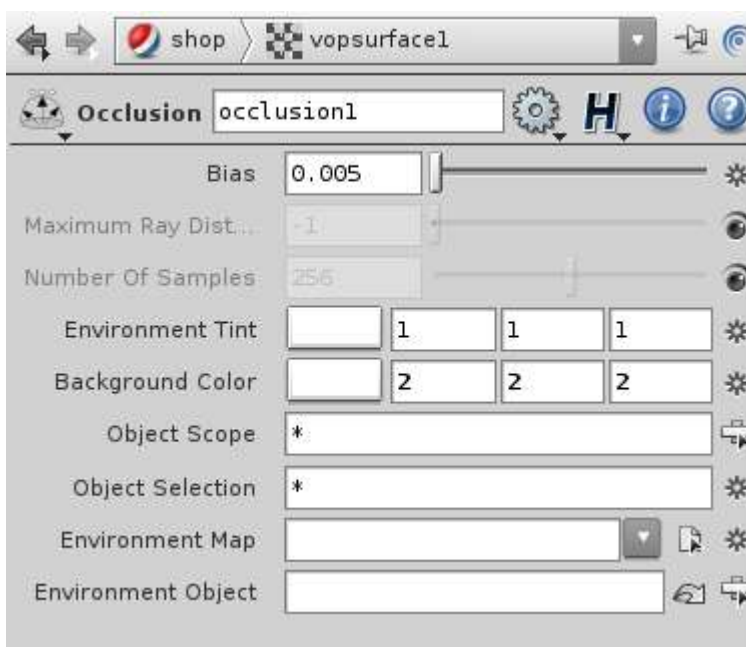


Do the same for Samples – note the dotted line disappears when you select type to be **int** (this information can be attained by floating your cursor over the input colored box – it will show int samples – this way you know what type it is and what to name it.) Change the default to 256 and the range to 0 to 512.

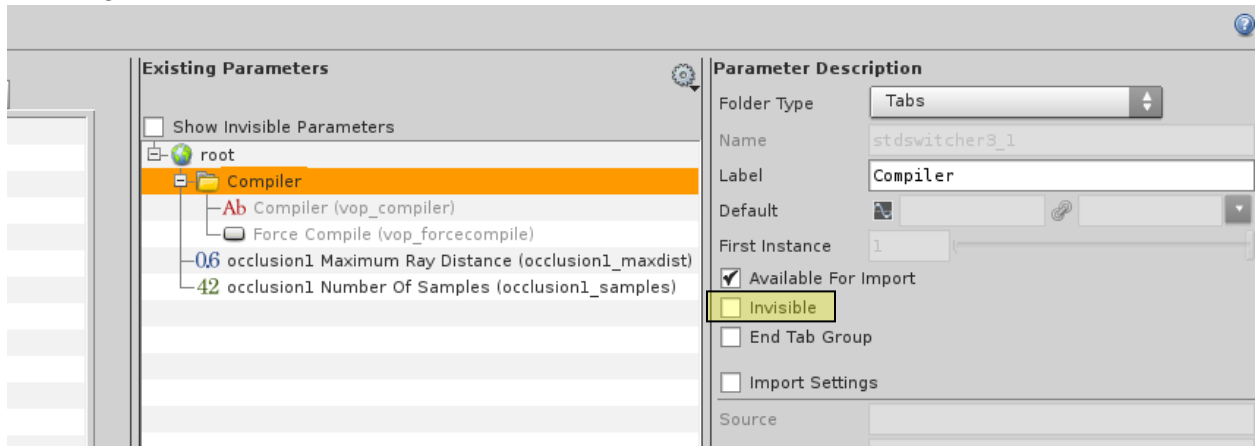
We are almost ready. So far your network should look like this:



One more change needs to be made. The background color parameter should be changed from 0 0 0 to 2 2 2. Select the occlusion1 node and change this.



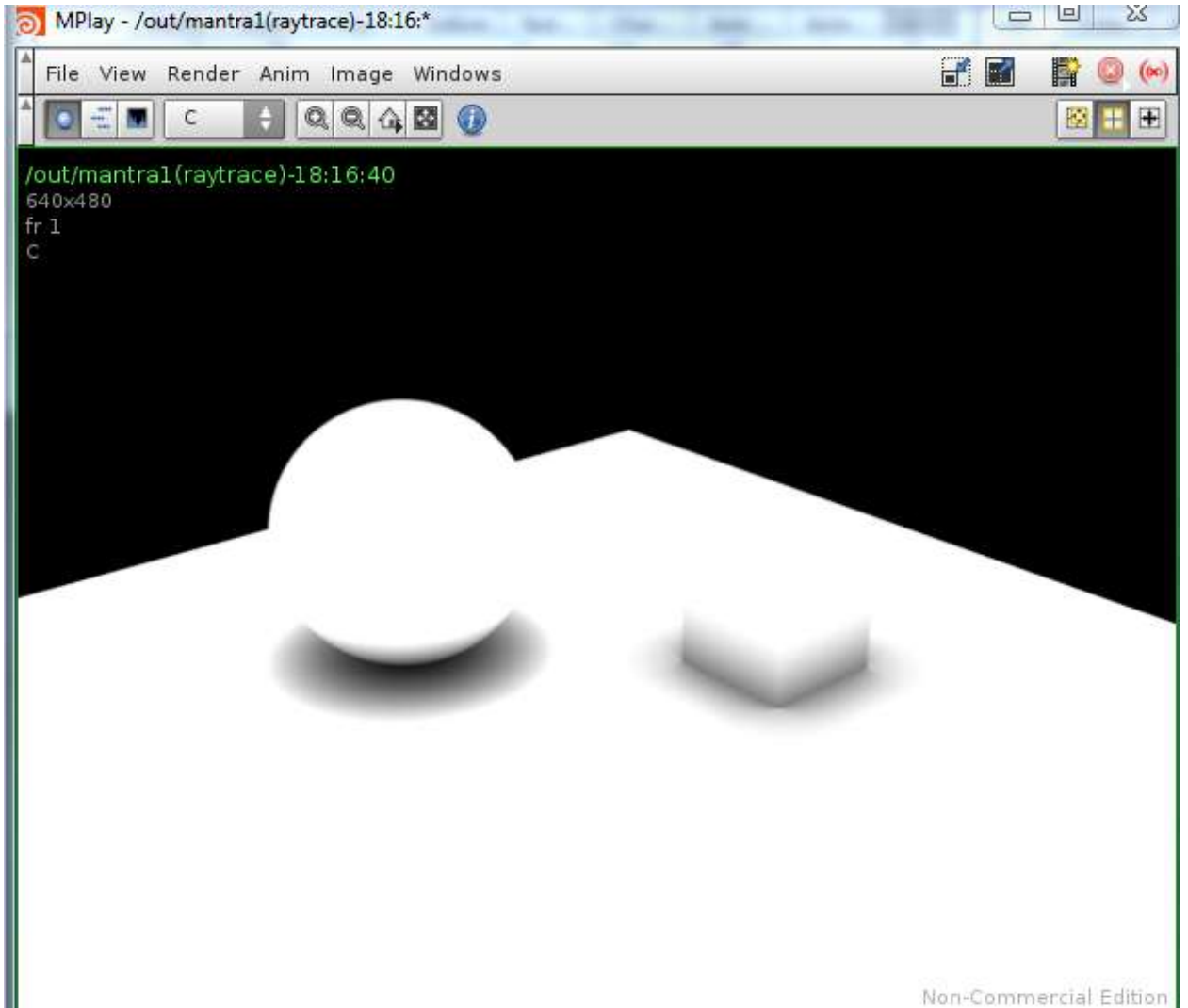
- Now go up to your vopsurface1 node and Edit parameter interface (The gearbox button). To lessen the clutter of your parameters, select OGL and Compiler and check off the box to the right labeled **Invisible**.



Now rename the node from vopsurface1 to something more obvious such as myOcclusionShader (You can name it just about anything you'd like **except** occlusion – it you do this, everything will render white and you will get a vex compiler error).

You are now ready to assign your new shader to the objects in your scene. The resulting render will be an occlusion pass. Please see the document on using takes for a workflow to make this easy.

You can now use the resulting render to whatever degree you desire in your compositor. This will give objects that seem “floaty” a better contact shadow and darken corners that seem unnaturally bright in rooms lit with CG lighting.



You can use Nuke (recommended) or Houdini's compositor (to test) to get the balance of how much contribution will enhance your image.

The occlusion shader sample can be found in `occlusionMyShader.hipnc` or if you do not wish to build your own, you may copy the shader from the `occlusionshader.hip`.