

Materials | Textures QuickStart

This page provides a QuickStart guide to using V-Ray Materials and Textures in Nuke.

Introduction

In this tutorial we are going to show V-Ray for Nuke's ability to generate a rendered element. We'll also take a look at the **VRayMaterialPreview** node and how it can be used to rapidly develop the look of a shader using just the **VRayMaterialPreview** node and a **VRayMtl** node or shading network that you create, without having to set up an entire scene.

To follow this tutorial, you will need to have the V-Ray for Nuke plugin installed. This tutorial is a companion to go along with the QuickStart video posted on our YouTube channel.

Tutorial Assets

To download the files used in this tutorial, please click on the button below.



Due to licensing issues, the Road_A.hdr file used in the tutorial video is not included in the downloadable assets. Instead, please use one of the provided HDR images in its place.

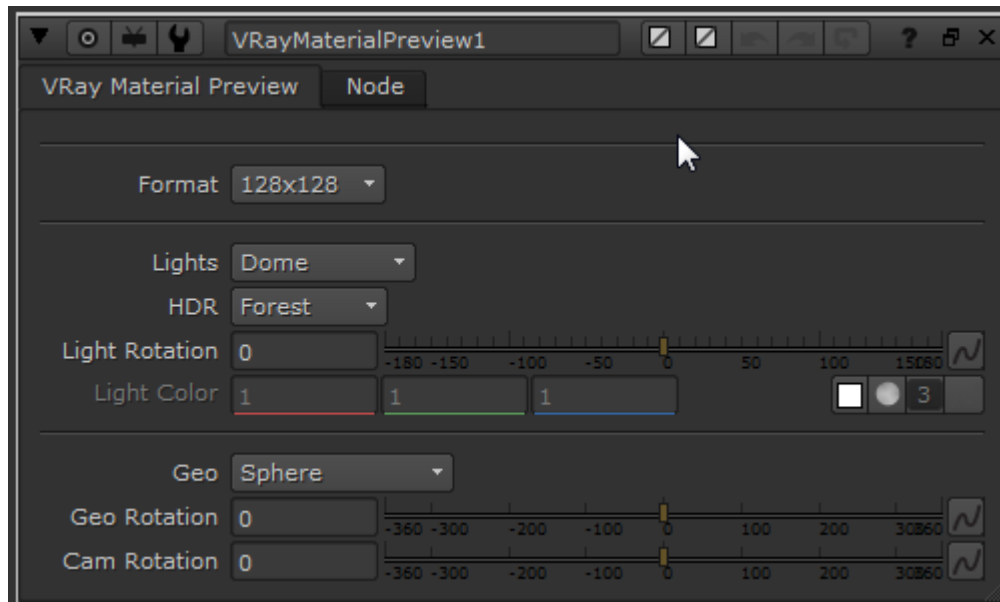
Tutorial Steps

1) Developing VRay materials using the VRayMaterialPreview node

A very useful feature of V-Ray for Nuke is the **VRayMaterialPreview** node. This allows us to develop the look of a material within Nuke when connected to just a **VRayMtl** node, without having to set up a complex scene.

Within the **VRayMaterialPreview** node, the defaults (with no VRay material connected) provide us with a dome light and the Forest HDR connected using preview geometry of a sphere. The preview geometry can be changed for any of a number of different types via the **Geo** dropdown.

In a similar way, we can change the HDR used to any of a number of presets via the **HDR** dropdown, and the entire HDR can be rotated using the **Light Rotation** slider. We can also change the **Format** via its dropdown from the default setting of 128x128 to a higher resolution such as 256x256 or 512x512 so you can see more detail.

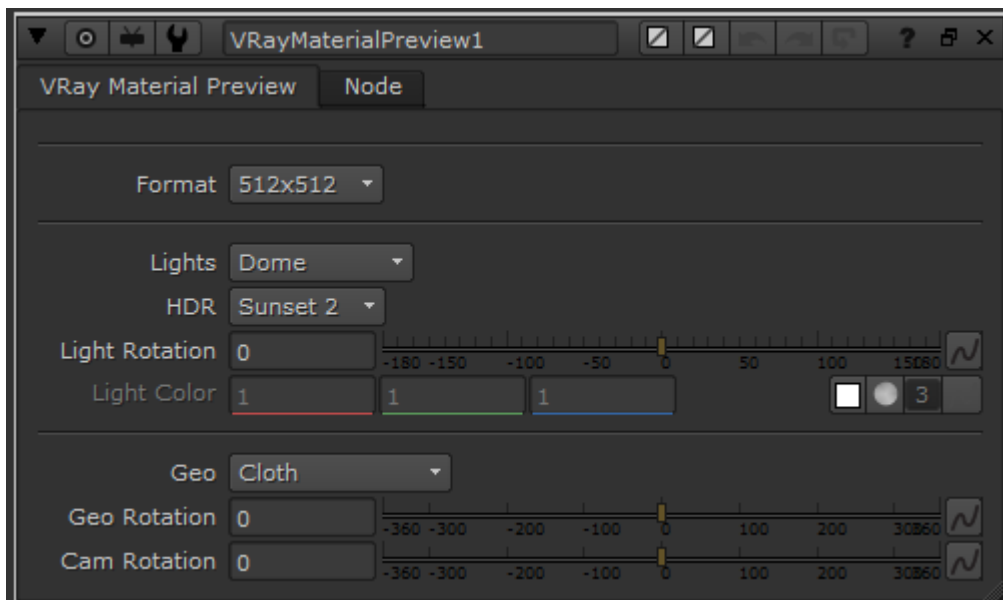


VRayMaterialPreview Default settings

Let's change the geometry to cloth by selecting **Cloth** from the **Geo** dropdown box. Also change the HDR via the **HDR** dropdown box to **Sunset2**, and finally set the preview to a higher resolution by changing the **Format** dropdown box to **512 x 512**. We can also rotate the HDR by changing the value on the **Light Direction** slider to **-41**.

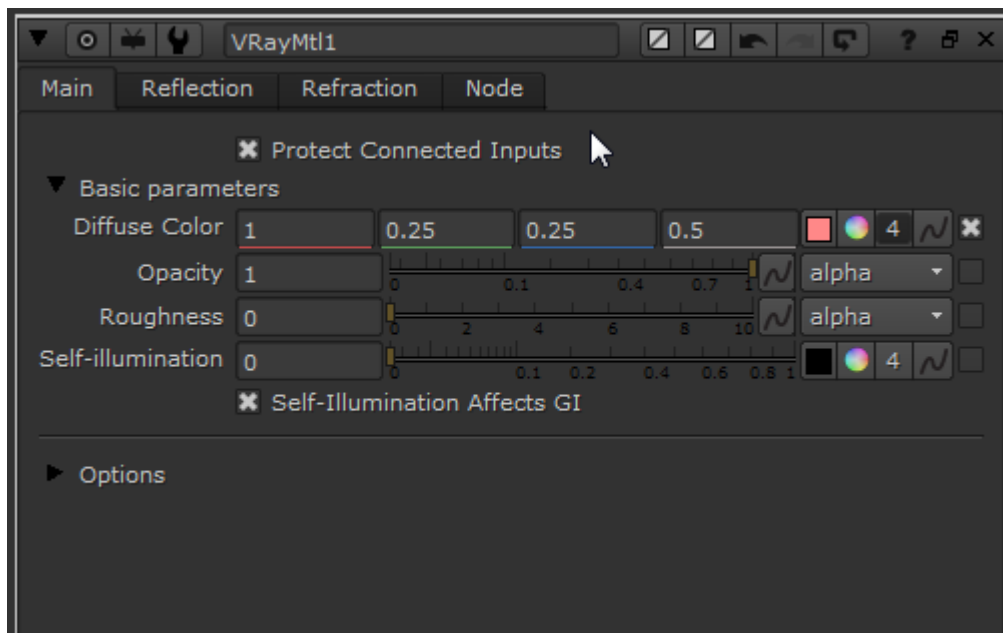
2) Adding a VRayMtl node

You can use the **VRayMaterialPreview** to preview and help us develop a V-Ray material. Create a **VRayMtl** node and connect it to the material slot on the **VRayMaterialPreview** node. This simple, fast setup aids in developing the look of a material without your having to set up any other nodes.



VRayMaterialPreview node properties

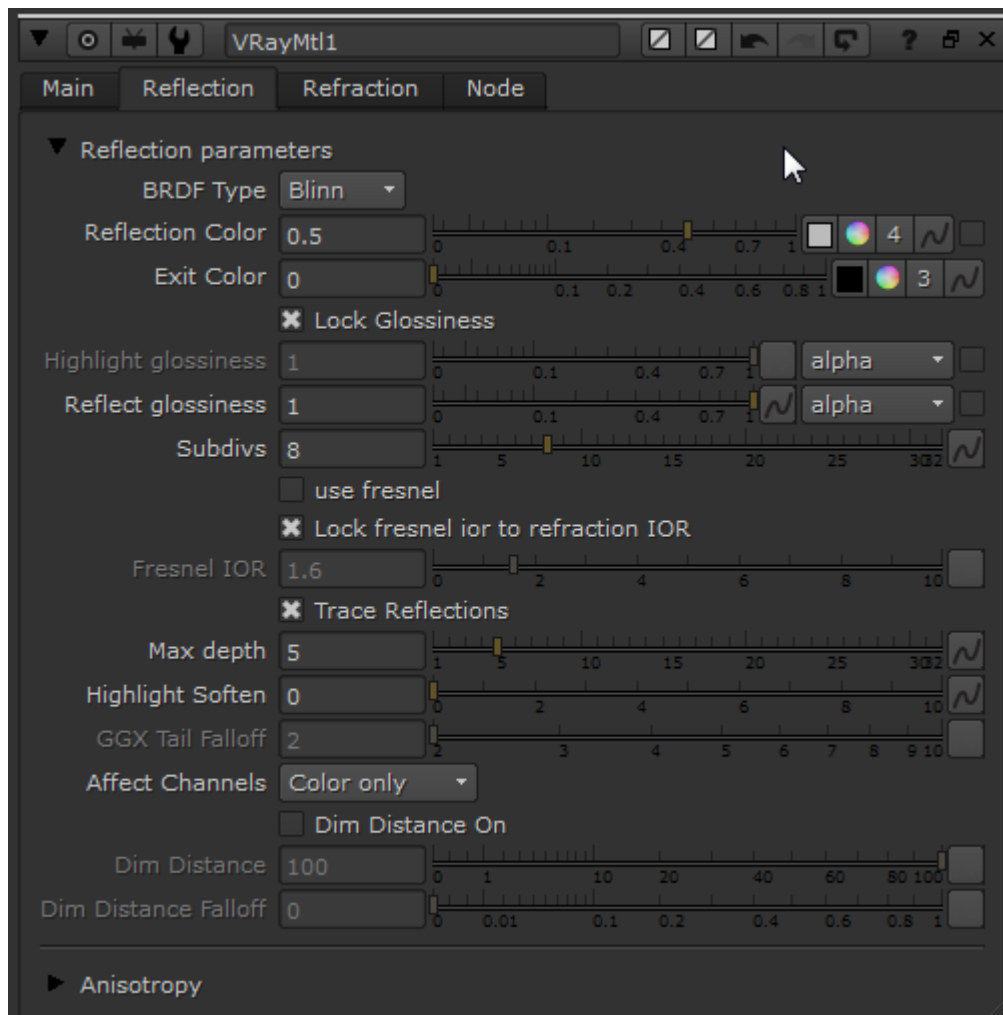
Click the **VrayMtl1** node and change the **Diffuse Color** values to **1, 0.25, 0.25, and 0.5**. The change is represented in the **VRayMaterialPreview** render using both the selected **HDR** (complete with the rotation we set) and the **Cloth** geometry that we set in the **Geo** dropdown.



VRayMtl1 Main tab properties

Move to the **Reflection** tab and change the **Reflection Color** value to 0.5. This change is also represented in the **VRayMaterialPreview** render.

This is just one simple example; the **VRayMaterialPreview** node can also develop complex V-Ray materials.

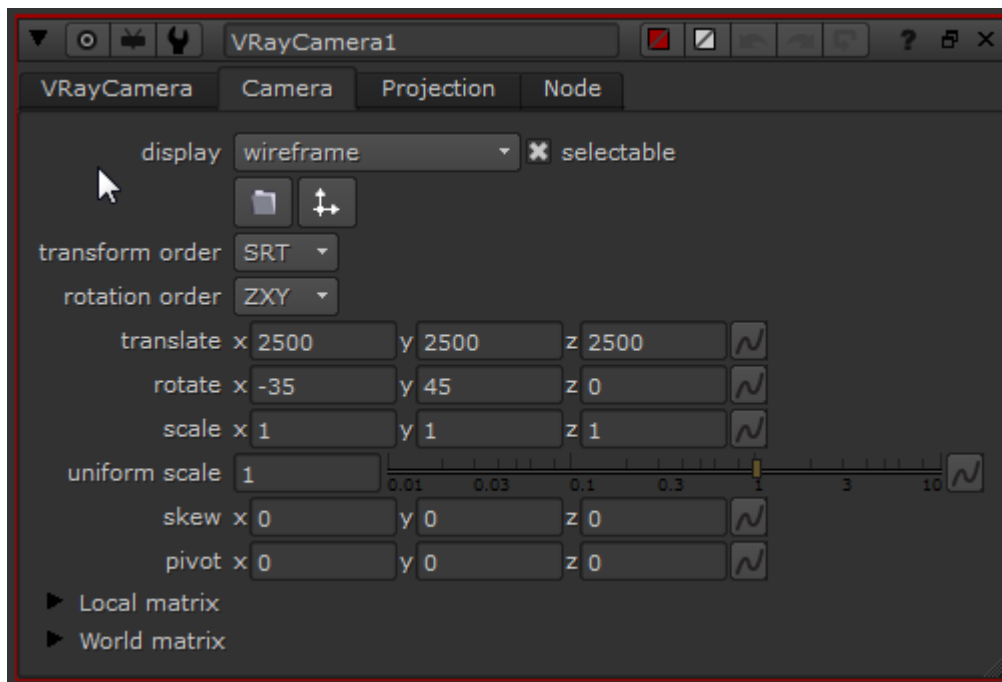


VRayMtl1 Reflection tab properties

3) Setting up the main scene – Starting the basic setup

We need to set up the basic node setup before moving on to the V-Ray Materials. This is the same basic scene that we created in Quick Start Tutorial 1.

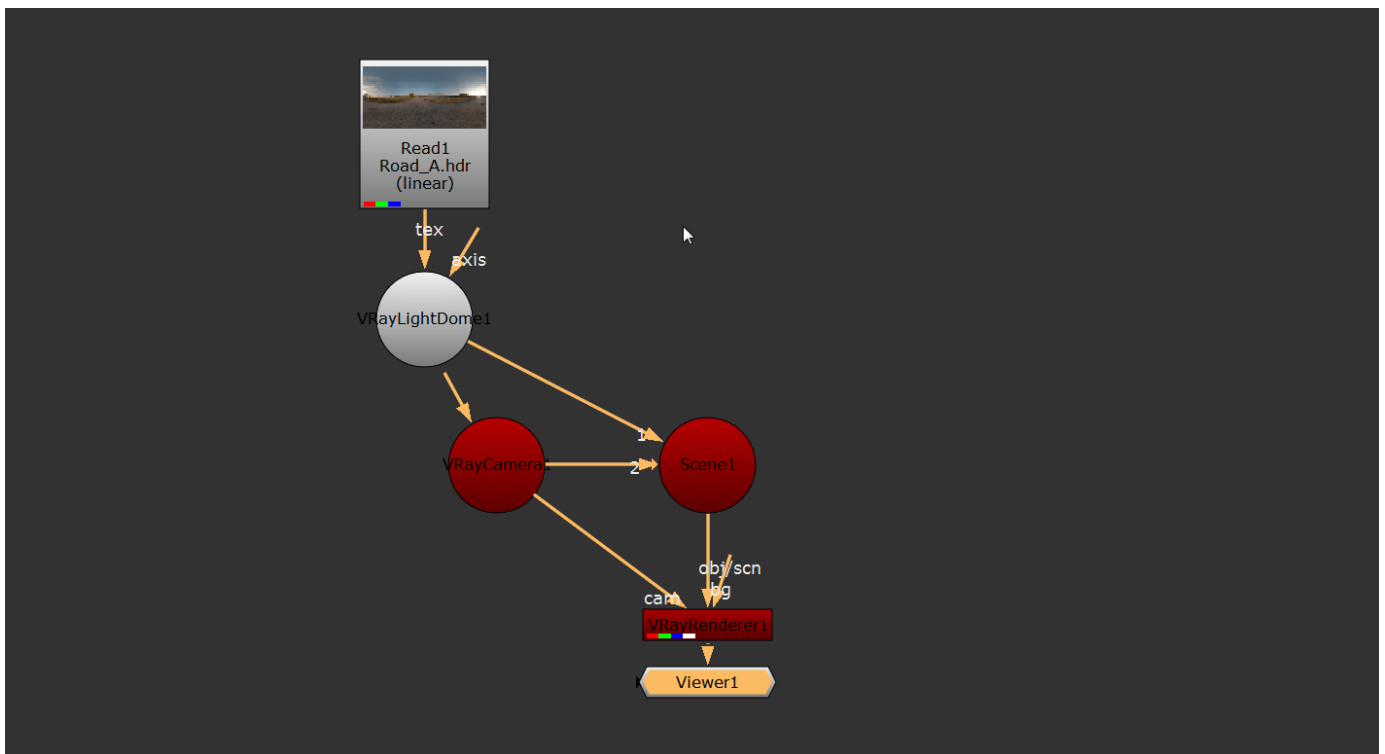
Create a **VRayCamera** and set all three **translate** values to 2500. In the **rotate** values, set **x** to -45 and **y** to 35. This will enable you to see the geometry when you load it.



V-RayCamera Properties

Next, create a **V-RayRenderer** node and connect the Cam connector to the **V-RayCamera** that you just created. Then create a **Scene** and connect the **V-RayRenderer** to it.

You'll need a light in the scene so you can see how light affects the material. Create a **V-RayLightDome**. Next, create a **Read** node (shortcut key: R) and browse for the file *Road_A.hdr* supplied with this tutorial. Connect the **Read** node to the **tex** input of the **V-RayLightDome** so it uses the HDR to light the scene. Then connect the **V-RayLightDome** to your **Scene**.

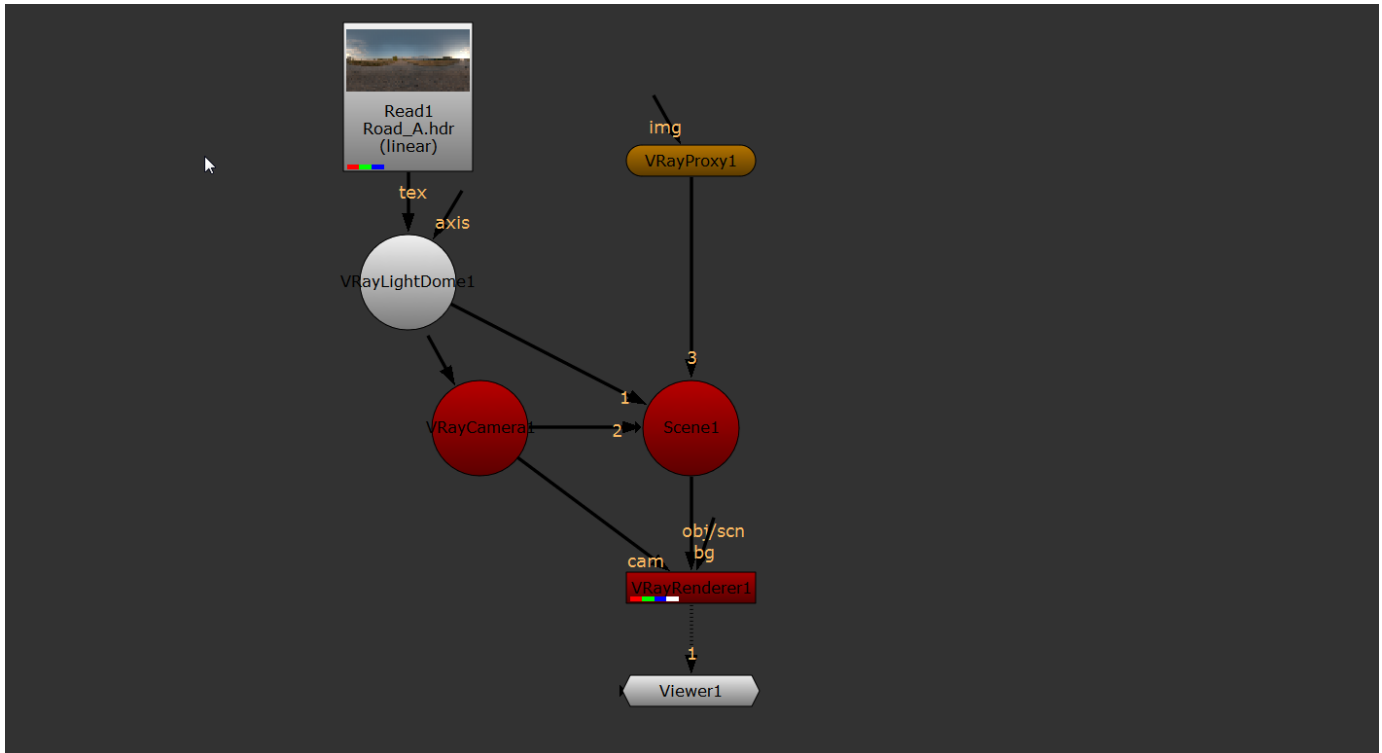


Basic Starting Scene Layout

The next step is to load the geometry. Create a **VRayProxy** node and browse to the **sphere_and_frames.vrmesh** geometry. This geometry has UVs already created for it, and the texture maps used later in this tutorial are supplied. Connect the **VRayProxy** node to your **Scene**.

Next, adjust the **VRayCamera** values in the **Projection** tab of the **VRayCamera** properties. Set the **horiz aperture** to 35 and the **vert aperture** to 24.

You can now see the geometry through the camera in the render being lit by the HDR that is acting as texture to the **VRayLightDome**.



Basic Scene Layout With VRayProxy loading the Geometry

4) Adding materials and assigning them to the geometry

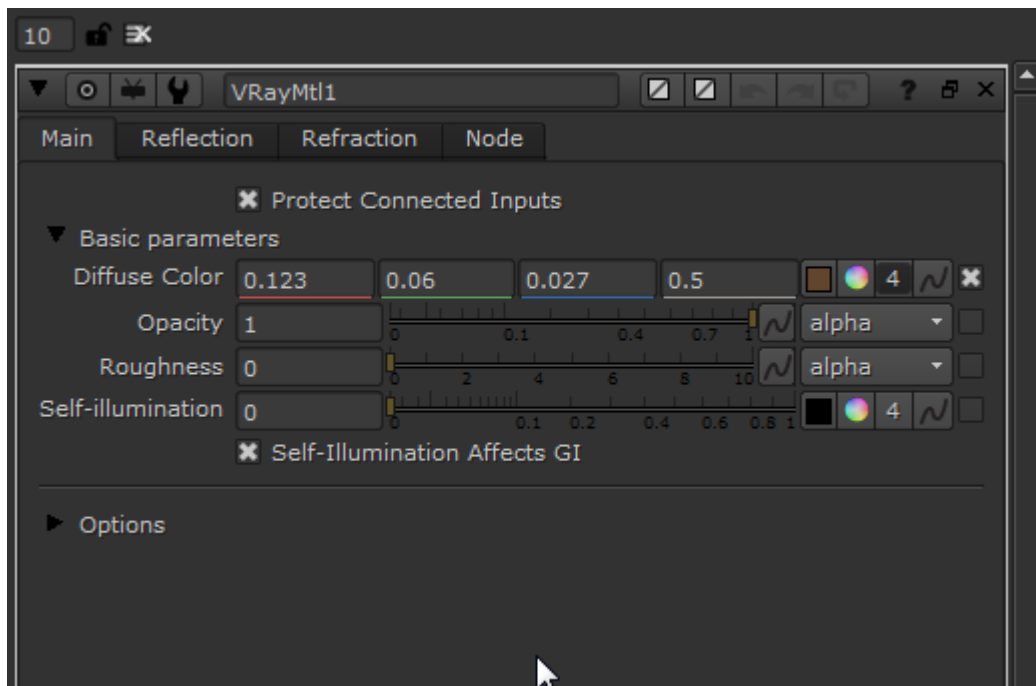
Add an **ApplyMaterial** node directly under the **VRayProxy** node then create a **VRayMtl** node and connect this to the **ApplyMaterial** node. Under the Node tab for the **VRayMtl1** node type *Rust* in the **label** text field to denote that this will be the rust material.

Create a second **VRayMtl** node for the metal material, and enter *Metal* as the **label**. Create another **ApplyMaterial** node under the first one and connect this to the **VRayMtl2** node you just created. In the **ApplyMaterial1** node set the **filter** dropdown box to **name**, click **choose**, and pick **frames_VRayMaterial1**. This means that **VRayMtl2** is now only applied to these parts.

Click the **ApplyMaterial2** node and in its properties set the **filter** dropdown box to **name**, click **choose**, and pick **sphere_VRayMaterial1**. This means that **VRayMtl1** is now set to be on that geometry.

5) Modifying the Materials

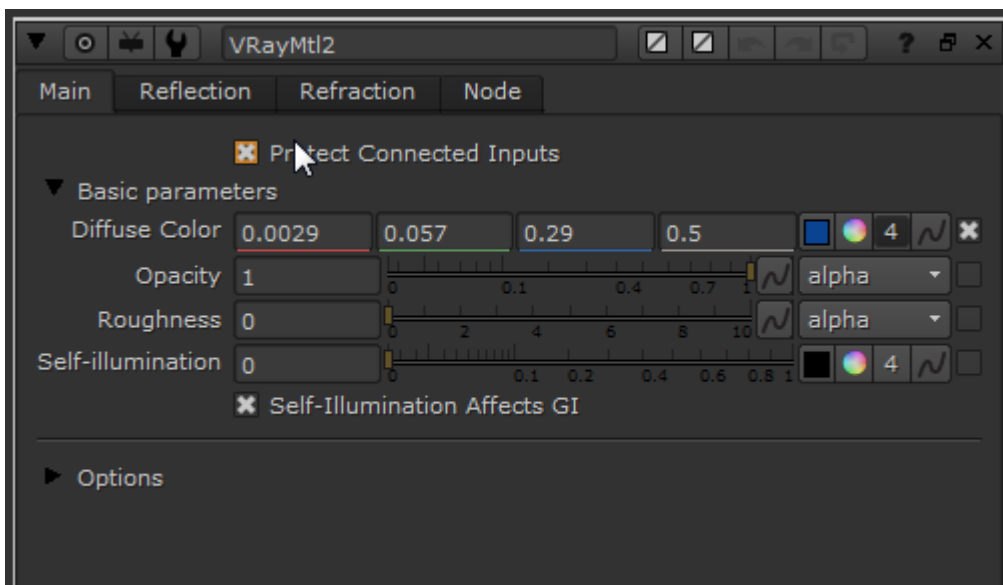
Now it's time for us to modify the materials. First, let's change the **VRayMtl1** (the Rust material) by clicking it, going to its properties, and setting the **Diffuse Color** values to 0.123 in the red channel, 0.06 in the green channel and 0.027 in the blue channel.



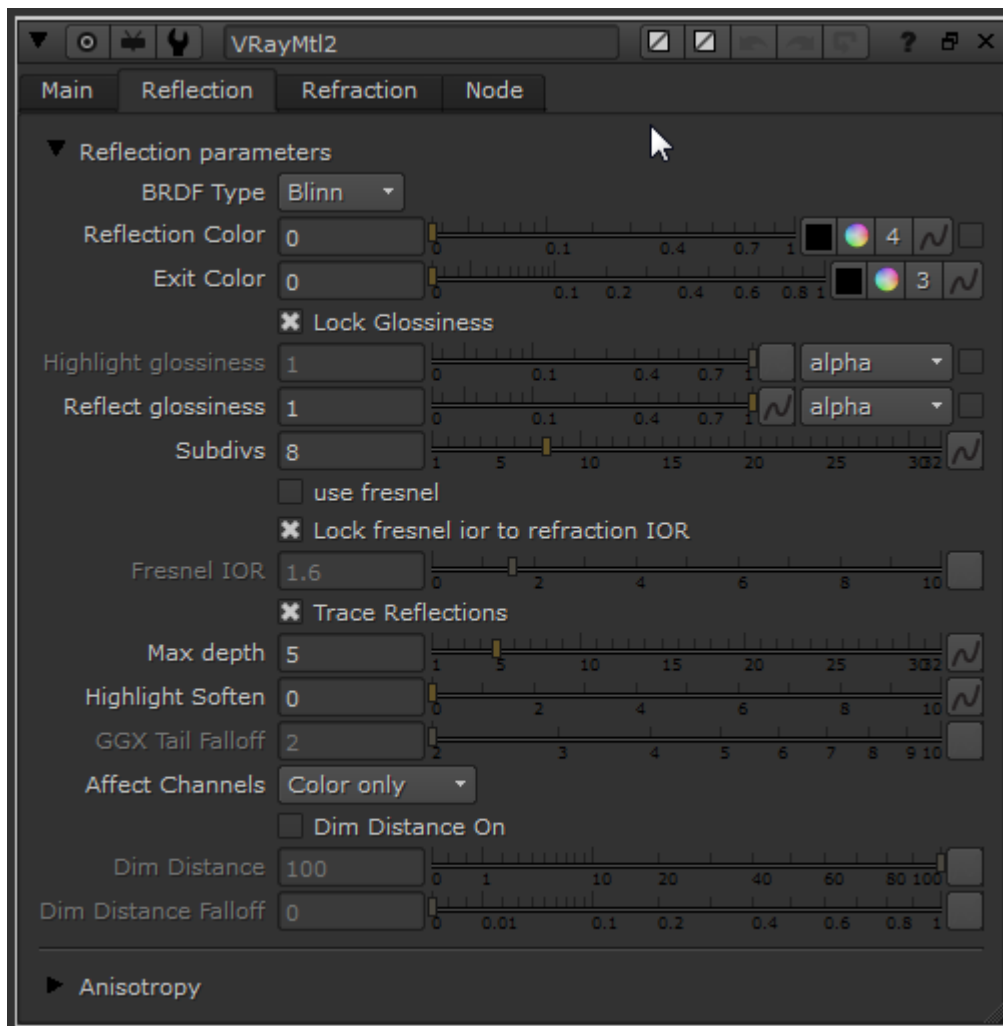
V-RayMtl1 (Rust) Properties – Main tab

Swap to **V-RayMtl2** (the Metal material) and set the values in its **Diffuse Color** to 0.018 in the red channel, 0.004 in the green channel and 0.0036 in the blue channel. You should now see these changes reflected in the render.

Now it's time to make some changes. Go to the **Node** tab of **V-RayMtl2** and change the **label** to *Paint* instead of Rust. Then change the RGB values of its **Diffuse Color** to red *0.0029*, green *0.057* and blue *0.29*.



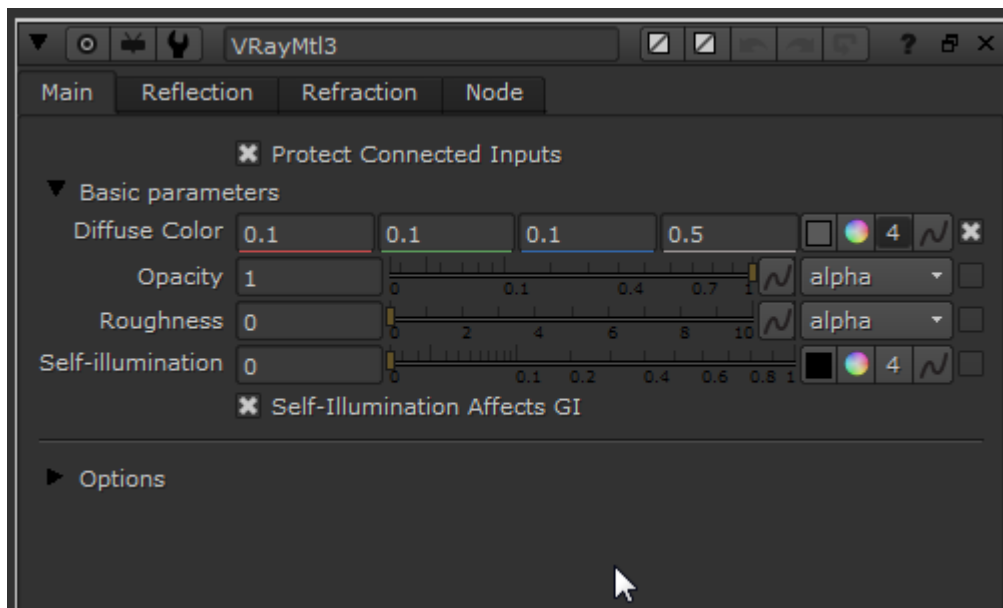
V-RayMtl2 (Paint) Properties – Main tab



V-RayMtl2 (Paint) Properties – Reflection tab

Create another **V-RayMtl** node (V-RayMtl3) and in the **label** field of the **Node** tab, type in *Metal*. Set the **Diffuse Color** in the **Main** tab to values of red 0.1, green 0.1 and blue 0.1.

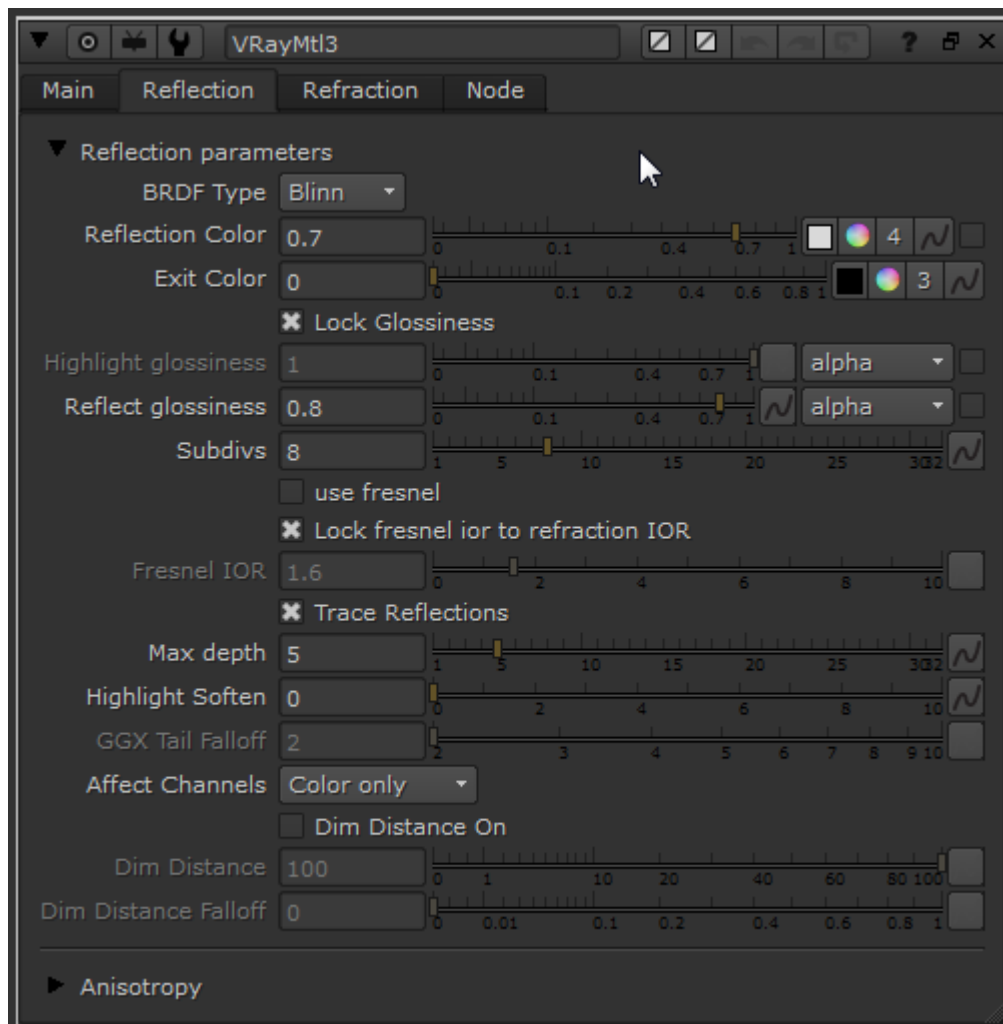
One of the powerful capabilities of V-Ray for Nuke is the ability to blend materials. To see how this works, create a **V-RayBlend** node and connect **V-RayMtl1** (Rust) to the **B** input and **V-RayMtl2** (Metal) to the **A** input.



V-RayMtl3 (Metal) Properties – Main tab

Create a **Read** node and bring in the **bombLink.1101.jpg** texture and the **sphere_mask_2.jpg** texture so you can use them within the materials. Take the **mask connection** on the side of the **V-RayMtlBlend** node and connect this to the **bombLink.1001.jpg** texture. This texture will then act as a mask between the two materials.

The metal material is not quite reflective enough so let's modify its settings by clicking on **V-RayMtl3 (Metal)** and setting the **Reflection Color** in the **Reflection tab** to a value of **0.7**. Set the **Reflect glossiness** to a value of **0.8** to make the reflection on the metal material blurrier. These settings contribute to the metal looking more realistic.

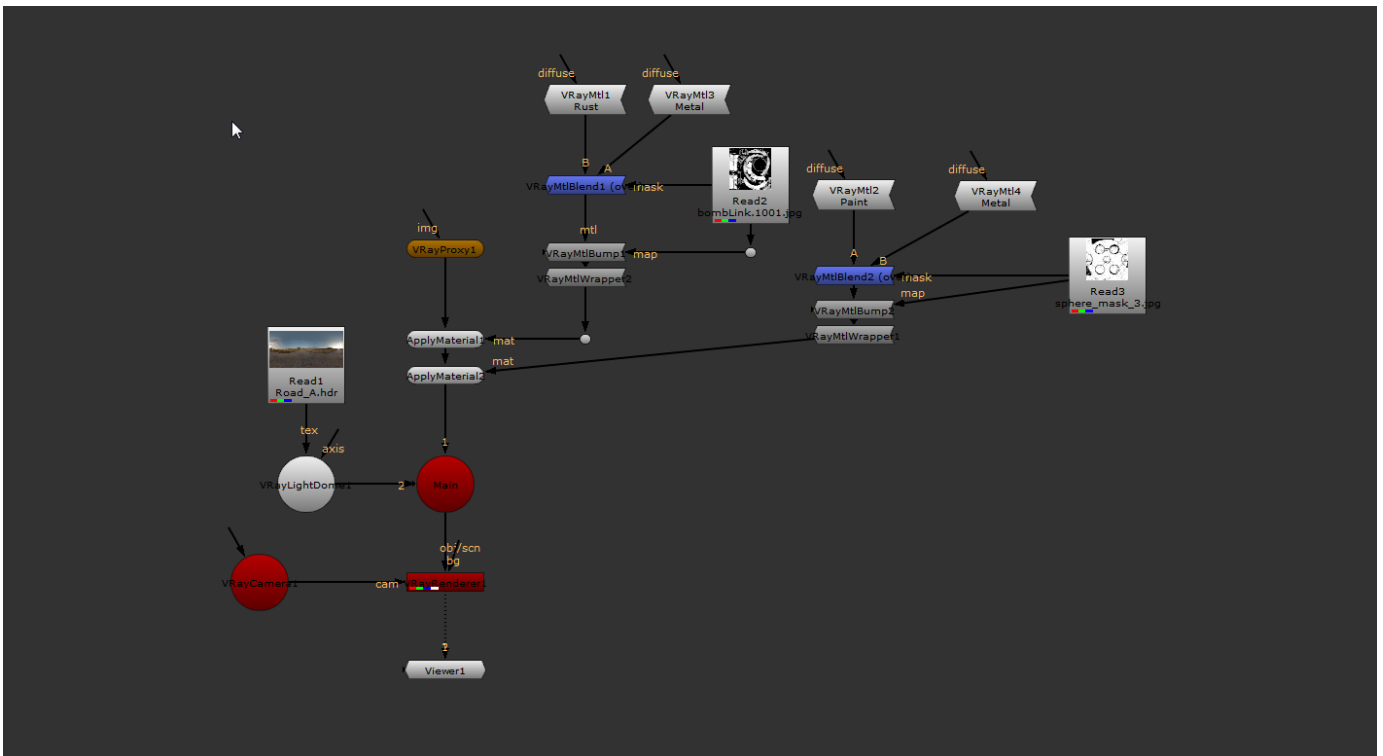


V-RayMtl3 (Metal) Properties – Reflection tab

Let's add some bump to the material by adding a **V-RayMtlBump** node under the **V-RayMtlBlend** node and connecting it to the **bombLink.1101.jpg** texture. To make the bump less aggressive, click the **V-RayBump** node and set the **Bump Mult** to **0.2**.

Copy the **V-RayMtl3** (metal) material and paste a copy into the scene, ensuring that it's not connected to anything else. Add a **V-RayMtlBlend** and connect **V-RayMtl** (Paint) to its **A input** and **V-RayMtl4** (Metal) to its **B input**. Drag the mask arrow from the side of the **V-RayMtlBlend** node and connect this to the **sphere_mask_3.jpg** texture. When you need to swap the inputs of a node you can do this by using the hotkey **Shift + x**. Swap the inputs and you'll see that the scene now shows a worn paint effect.

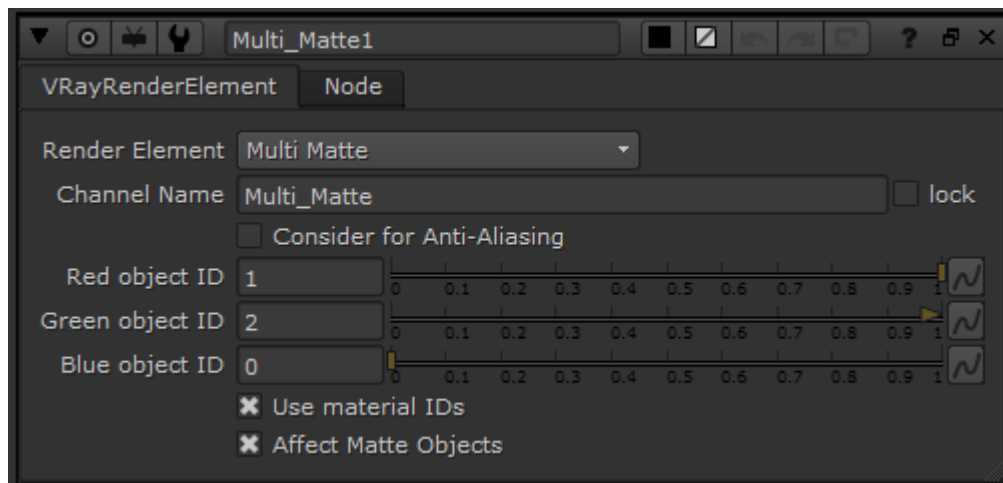
Let's change the values on the **V-RayMtl4** (Metal) node by going to the **Main tab** in its properties and setting the **Diffuse Color** to a red value of **0.018**, a green value of **0.004** and a blue value of **0.00036**. In the **Reflection tab** change the value of its **Reflection Color** to **1** and change the **Highlight glossiness** value to **0.7**. Below the **V-RayMtlBlend** add a **V-RayMtlBump** node and connect this also to the **sphere_mask_3.jpg** texture. Below the **V-RayMtlBump** add a **V-RayMtlWrapper** node and under the **Material ID** section set the **Multimatte ID** to a value of **2**.



The scene layout up to this point

6) Adding Render elements

Add a **VRayRenderElements** node and connect it to your **Scene**. Set its **Render Element** dropdown box to **Multi Matte** and change the value of **Red object ID** to 1, and **Blue object ID** to 2. Make sure that you have the **Use material IDs** checkbox enabled. This will populate the multimatte pass later.



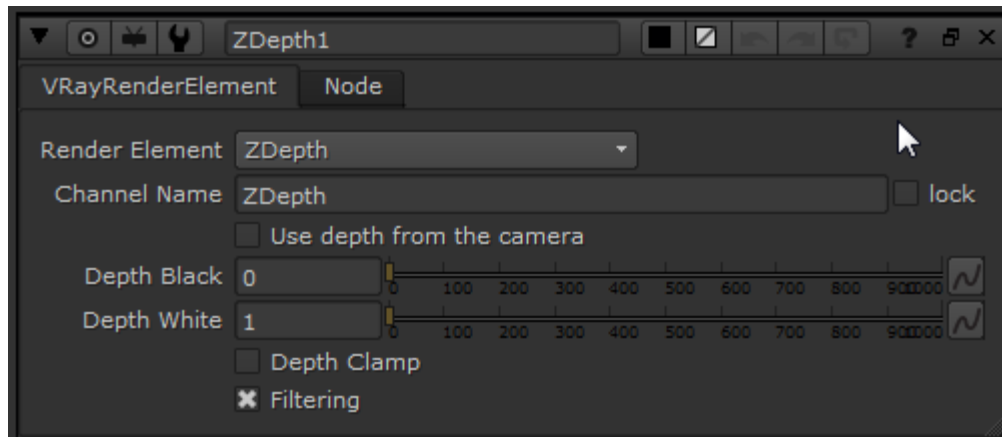
VRayRenderElement Multi_Matte Properties

Let's add some more **VRayRenderElements** nodes to the scene. Create another **VRayRenderElements** node and once again connect it to the **Scene**, but set the **Render Element** dropdown box to **Reflection**.

Create a third **VRayRenderElements** node and once again connect it to the **Scene**, but set the **Render Element** dropdown box to **Diffuse**.

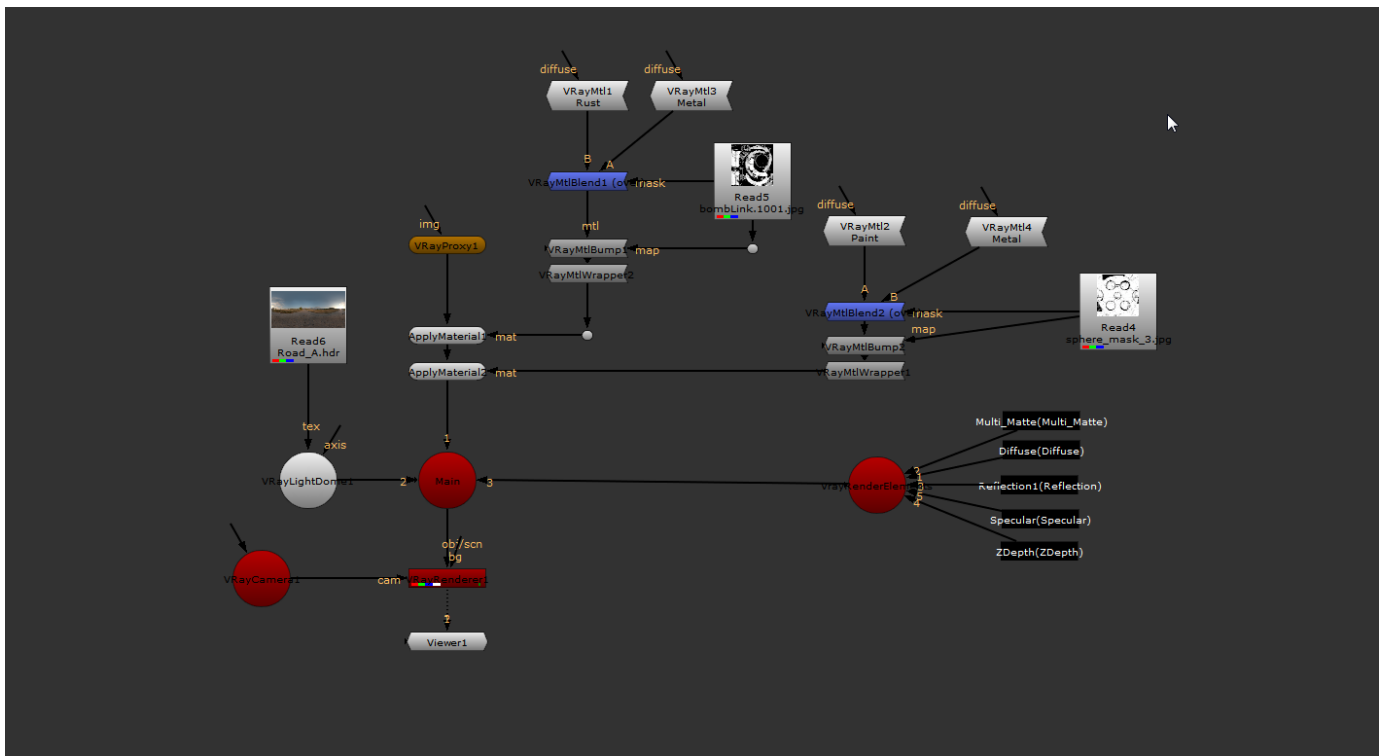
Create a fourth **VRayRenderElements** node and yet again connect it to the **Scene**, but set the **Render Element** dropdown box to **Specular**.

Lastly, create a fifth **VRayRenderElements** node and again connect it to the **Scene**, but set the **Render Element** dropdown box to **ZDepth**. Set its **Depth White** value to 1 and make sure the **Depth Clamp** checkbox is disabled.



VRayRenderElement ZDepth properties

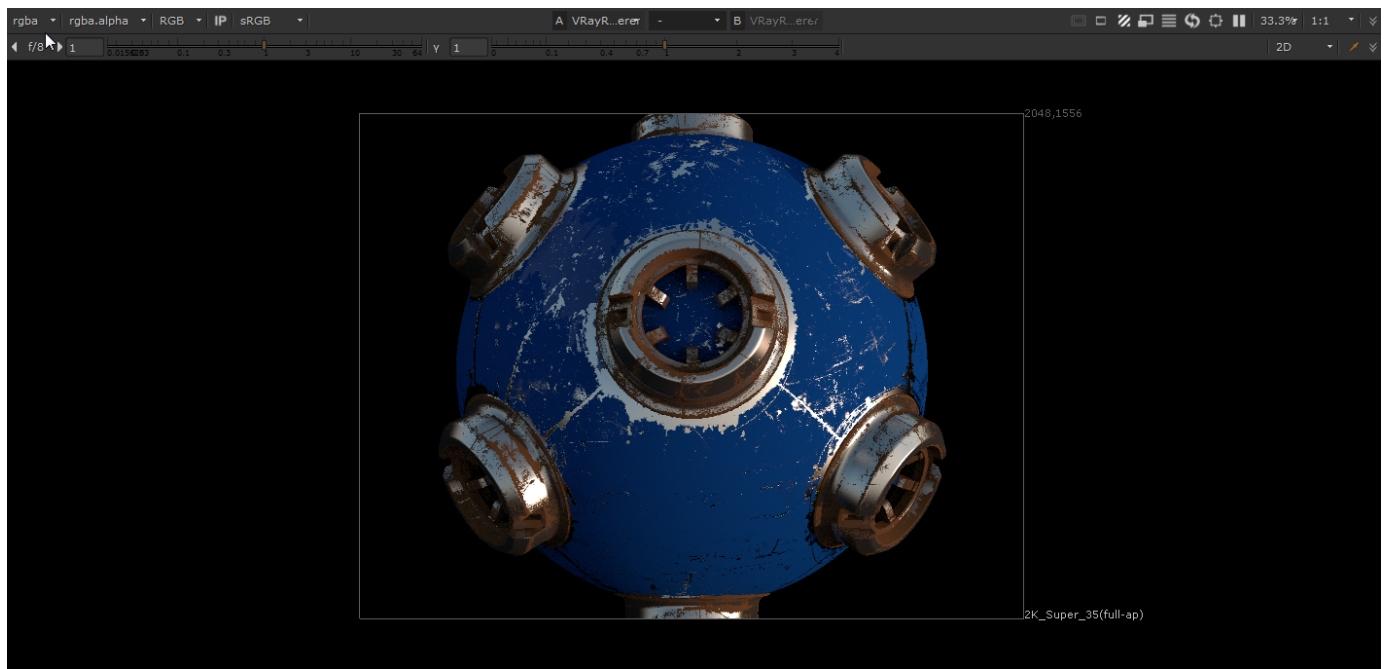
In Nuke, you can now see all the channels for V-ray render elements that you have just set up. To keep the Nuke script looking clean and tidy, put another **Scene** in between the main **Scene** (Scene1) and arrange the render elements as shown below.



The final Scene layout

Once you have a set of V-Ray render elements that you like, you can group these into a ToolSet for use in another Nuke script. Select the **VRayRenderElements** nodes and the **Scene2** Scene, and on the **toolbar** at the side click the ToolSet icon and click **Create**. This will bring up a dialog where you can give this group a meaningful name. Type in *VRayChannels* as a descriptive name for the grouping.

If you now delete your **VRayRenderElements** and **Scene2** node, you can test this ToolSet by pressing Tab and typing in the name of the grouping, then connecting it back to the main Scene. We can, of course, change the **Multi Matte** values if we ever need to do so. E



The final render

In this tutorial we have taken a look at the V-Ray material preview node, built an entire scene from scratch, and learned how we can blend and control materials using textures and values on geometry we read in using a **V-RayProxy** node. We've also taken a look at setting up **V-RayRenderElements** and learned how we can create a ToolSet for later use in other Nuke scripts.