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 VRayMtI 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.

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VRay Material P	review Node	
Format	128x128 •	R
Lights	Dome •	
HDR	Forest 🔹	
Light Rotation	0	50 100 15080
Light Color		3
Geo	Sphere 🔹	
Geo Rotation	0 -360 -300 -200 -10	
Cam Rotation	0 -360 -300 -200 -10	0 100 200 30860

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.

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VRay Material P	review Node
Format	512x512 •
Lights	Dome •
HDR	Sunset 2 🔹
Light Rotation	0 -180 -150 -100 -50 0 50 100 15080 M
Light Color	1 1 1 3
Geo	Cloth •
Geo Rotation	0 -360 -300 -200 -100 0 100 200 30860 M
Cam Rotation	

VRayMaterialPreview node properties

Click the VrayMt11 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.

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Basic parame	iters
Diffuse Color	1 0.25 0.25 0.5 4 📈 🗙
Opacity	1 0.1 0.4 0.7 1 // alpha
Roughness	0 0 2 4 6 8 10 N alpha V
Self-illumination	0 0.1 0.2 0.4 0.6 0.8 1
	X Self-Illumination Affects GI
Options	

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.

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Highlight glossiness	1 0.1 0.4 0.7 f
Reflect glossiness	1 0 0.1 0.4 0.7 1 Alpha
Subdivs	8 <u>1 5 10 15 20 25 332</u> 1
	use fresnel
	Lock fresnel ior to refraction IOR
Fresnel IOR	
	X Trace Reflections
Max depth	5 10 15 20 25 3G2 N
Highlight Soften	0 2 4 6 8 10 10
GGX Tail Falloff	2 3 4 5 6 7 8 9 10
Affect Channels	Color only
	Dim Distance On
Dim Distance	100 0 1 10 20 40 60 80 100
Dim Distance Falloff	0 0.01 0.1 0.2 0.4 0.6 0.8 1
Anisotropy	

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 VRay 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.

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VRayCamera	Camera I	Projection I	Node		
display transform order rotation order	wireframe	- x	selectable		
translate	× 2500	y 2500	z 2500	\sim	
rotate	x -35	y 45	z 0	\sim	
scale	× 1	y 1	z 1	\sim	
uniform scale	1	0.01 0.03	0.1 0.3		
skew	× 0	y 0	z 0	\sim	
pivot	× 0	y 0	z 0	\sim	
 Local matrix World matrix 					4
		VRavCamera Pr	roperties		

Next, create a VRayRenderer node and connect the Cam connector to the VRayCamera that you just created. Then create a Scene and connect the VRa yRenderer to it.

You'll need a light in the scene so you can see how light affects the material. Create a **VRayLightDome**. 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 **VRayLightDome** so it uses the HDR to light the scene. Then connect the **VRayLightDome** 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 **VRayMtI** node and connect this to the **ApplyMaterial** node. Under the Node tab for the **VRayMtI1** node type *Rust* in the **label** text field to denote that this will be the rust material.

Create a second VRayMtI node for the metal material, and enter *Metal* as the label. Create another ApplyMaterial node under the first one and connect this to the VRayMtI2 node you just created. In the ApplyMaterial1 node set the filter dropdown box to name, click choose, and pick frames_VRayMaterial2. This means that VRayMtI2 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.

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Main Reflection Refraction Node	
X Protect Connected Inputs	
Basic parameters	
Diffuse Color 0.123 0.06 0.027 0.5 🔲 🔍 🗶	
Opacity 1 0,1 0,4 0,7 1	
Roughness 0 A 6 8 10 V alpha V	
Self-illumination 0 4 V	
X Self-Illumination Affects GI	
Options	

VRayMtl1 (Rust) Properties - Main tab

Swap to VRayMtl2 (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 **VRayMtl2** and change the **label** to *Paint* instead of Rust. Then change the RGB values of its **D** iffuse **Color** to red 0.0029, green 0.057 and blue 0.29.

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Main Reflectio	on Refraction Node	
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Diffuse Color	0.0029 0.057 0.29	0.5 📃 🔍 4 📈 🗙
Opacity	1	0.7
Roughness	0 0 2 4 6	∧/ alpha ▼
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VRayMtl2 (Paint) Properties – Main tab

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Main Reflection	Refraction Node
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BRDF Type	Blinn 👻
Reflection Color	0 0.1 0.4 0.7 1
Exit Color	0 0 0.1 0.2 0.4 0.6 0.81
	X Lock Glossiness
Highlight glossiness	1 0.1 0.4 0.7 1 alpha -
Reflect glossiness	1 0.1 0.4 0.7 1 N alpha
Subdivs	8 <u>1 5 10 15 20 25 302</u> 1
	use fresnel
	Lock fresnel ior to refraction IOR
Fresnel IOR	1.6 0 2 4 6 8 10
	X Trace Reflections
Max depth	5 <u>1 5 10 15 20 25 302</u> N
Highlight Soften	0 2 4 6 8 10 1
GGX Tail Falloff	
Affect Channels	Color only 🔹
	Dim Distance On
Dim Distance	
Dim Distance Falloff	0 0.01 0.1 0.2 0.4 0.6 0.8 1
Anisotropy	

VRayMtl2 (Paint) Properties – Reflection tab

Create another VRayMtI node (VRayMtI3) 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 VRayBlend node and connect VRayMtl1 (Rust) to the B input and VRayMtl2 (Metal) to the A input.

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Main Reflectio	on Refraction Node	
Basic parame	X Protect Connected Inputs eters	
Diffuse Color	0.1 0.1 0.1	0.5
Opacity	1 0 0.1	0.4 0.7 1 N alpha •
Roughness		6 8 10 N alpha -
Self-illumination		2 0.4 0.6 0.8 1
	X Self-Illumination Affects GI	
Options		
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VRayMtl3 (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 **VRayMtlBlend** 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 VRayMtl3 (Metal) and setting the Reflection Color in the Reflect ion 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.

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Main Reflection	Refraction Node
Reflection param	leters
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Reflection Color	
Exit Color	
	X Lock Glossiness
Highlight glossiness	1 0.1 0.4 0.7 1 alpha •
Reflect glossiness	0.8
Subdivs	8 <u>1 5 10 15 20 25 302</u>
	use fresnel
	Lock fresnel ior to refraction IOR
Fresnel IOR	1.6
	X Trace Reflections
Max depth	5 1 5 10 15 20 25 302 V
Highlight Soften	
GGX Tail Falloff	
Affect Channels	Color only *
	Dim Distance On
Dim Distance	
Dim Distance Falloff	
Anisotropy	

VRayMtl3 (Metal) Properties - Reflection tab

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

Copy the VRayMtl3 (metal) material and paste a copy into the scene, ensuring that it's not connected to anything else. Add a VRayMtlBlend and connect VRayMtl (Paint) to its A input and VRayMtl4 (Metal) to its B input. Drag the mask arrow from the side of the VRayMtlBlend 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 VRayMtl4 (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 VRayMtlBlend add a VRayMtlBump node and connect this also to the sphere_mask_3.jpg texture. Below the VRayMtl IBump add a VRayMtlWrapper 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.

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Green object ID	2		0.1	0.2	0.3	0.4	0.5	0.6	0.7		0.9		J
Blue object ID	0	٦į–	0.1		0.3	0.4	0.5	0.6	0.7		0.9		/
	X Use mat X Affect M	erial atte (IDs Objec	ts	0.5		0.2	0.0	•	0.0	0.0		

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.

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VRayRenderElen	nent Node											
Render Element	ZDepth									k		
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Depth White	1	100										
	Depth Clamp	100	200	300	400	500	600	/00	800	Salla		

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 **VRayRenderEle ments** 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 VRay 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 **VRayProxy** node. We've also taken a look at setting up **VRayRenderElements** and learned how we can create a ToolSet for later use in other Nuke scripts.