



INTRODUCTION TO INTERIOR LIGHTING

author:

Serge Vasiliew

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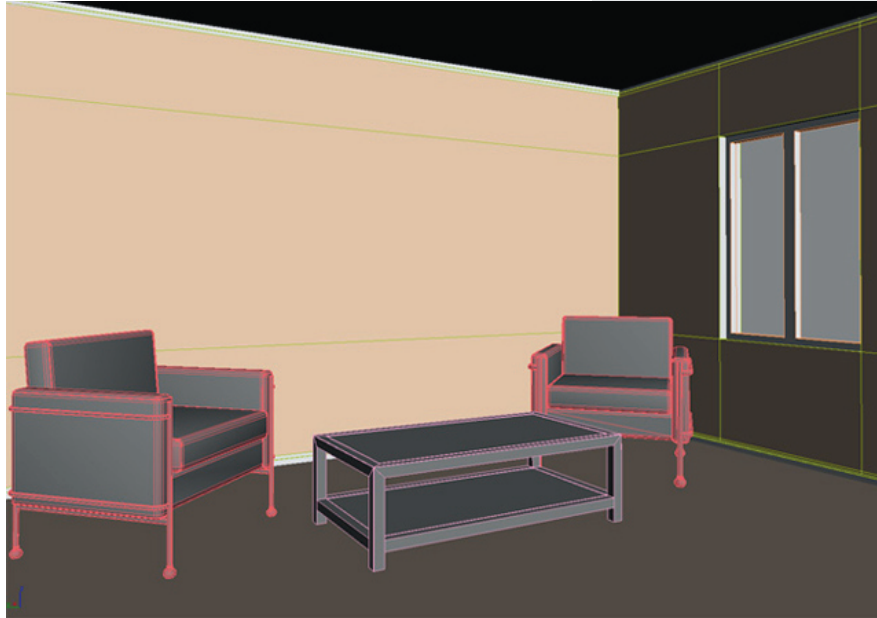
INTRODUCTION

This quick start tutorial will walk you through some V-Ray basics including working with V-Ray lights and materials and setting up the scene for a successful rendering.



GETTING STARTED

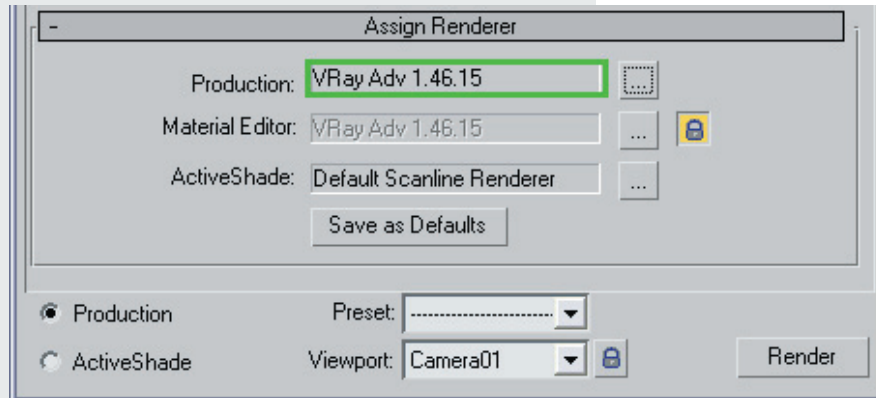
Let's get started with this simple room consisting of a box (representing the room itself), two instanced chairs and a coffee table. The room has materials applied to the walls, floor and ceiling as well as two multisub materials for the chairs and table.



You can use the 3ds max file (model_start.max) included with this tutorial, to see how the scene has been arranged.

STEP 1

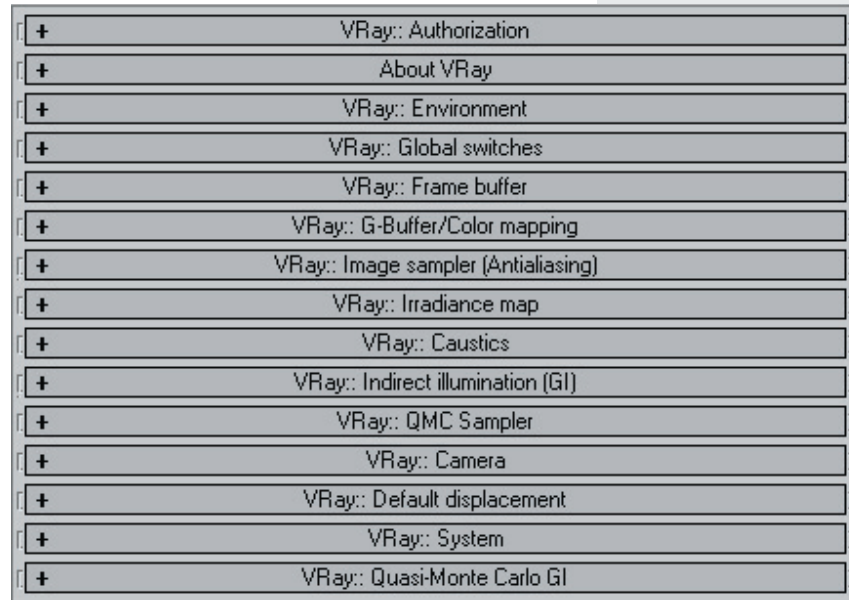
The very first thing we need to do is ensure that V-Ray is set as the default production renderer. This can be set at the bottom of the render scene dialog, in the Assign Renderer rollout.



Once set, let's render the scene to see the effects that have taken place.



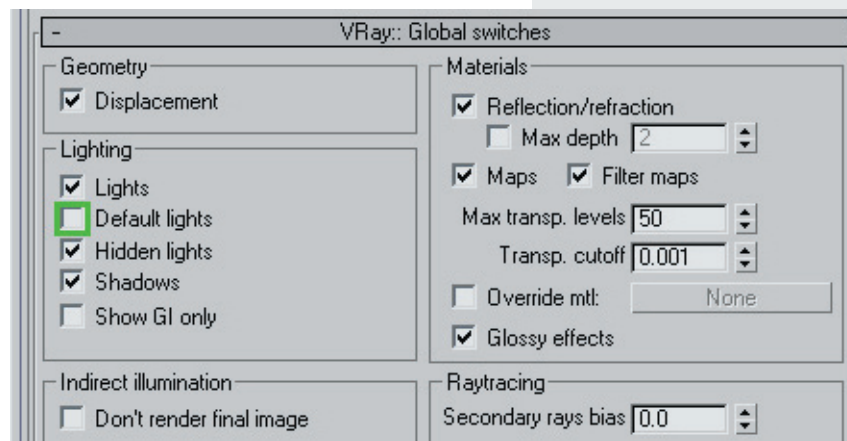
Our image looks similar to a scanline rendering: very dark, lacking of shadows and realism. Let's examine the renderer rollouts to see what can be tweaked.



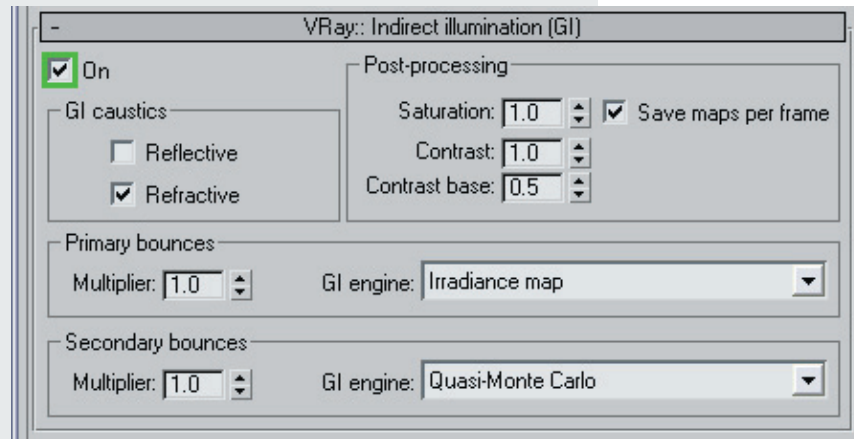
STEP 2

First open the VRay: Global switches rollout and disable default lights. This will get rid of max standard lighting.

Global switches are useful tools as they allow you to control many render elements and features, like maps and reflections, globally.



Next, open the VRay: Indirect Illumination rollout and turn on the indirect illumination.



Indirect illumination is perhaps the most important rollout of all. This rollout allows you to select the indirect lighting solution method for first and secondary light bounces.

For now, leave the other options as they are but set Irradiance map as a GI engine for the primary bounces and QMC (Quasi-Monte Carlo) for the Secondary Bounces.

STEP 3

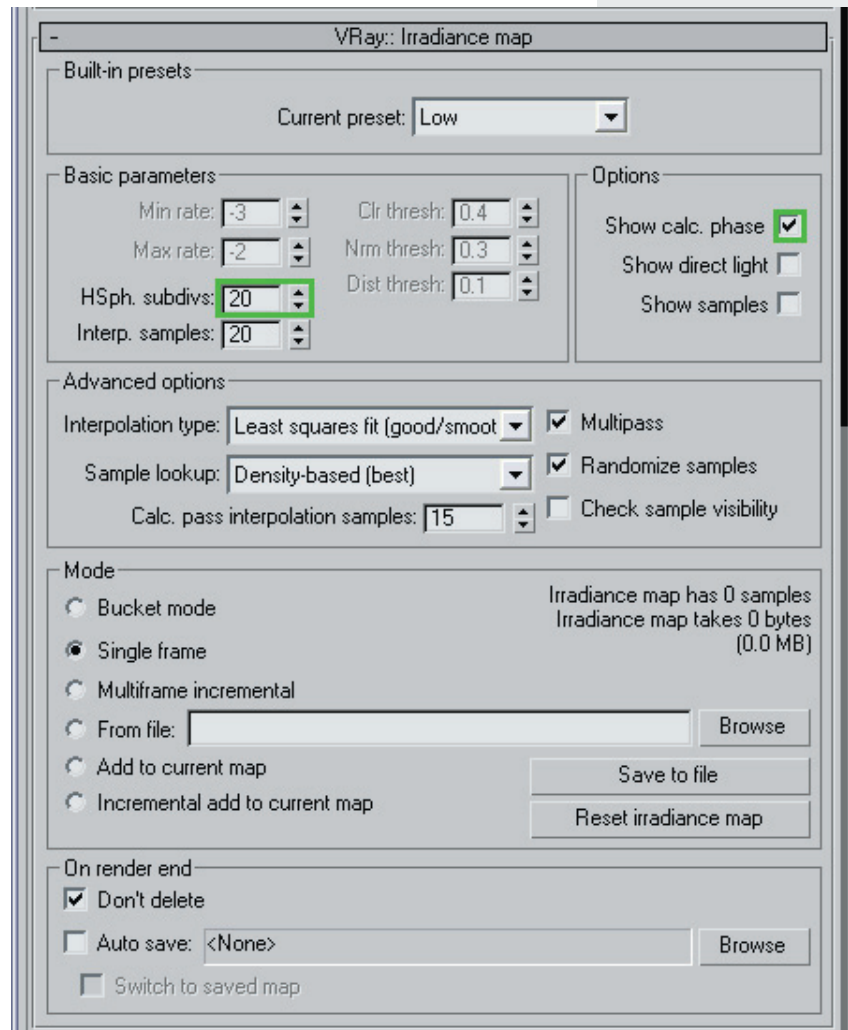
Now open the VRay: Irradiance map rollout and examine it. Irradiance mapping is main and most common technique of indirect lighting approximation used for primary bounces in V-Ray.

The Chaos team provided some quality presets to make our lives easier, so let's apply one of them. At the top of rollout, select the Low preset for faster image previewing.

In the options section, check Show Calc. phase to see how the irradiance map works.

Lastly, set the hemispheric subdivisions (HSph. Subdivs) amount to 20, leaving all other settings at their defaults. This setting highly affects rendering performance, controlling the number of rays coming from light emitter.

By default it is set to 50, but a value of 25-30 is usually enough to get correct rendering.



Render the scene now and see what happens with the lighting.



Almost nothing is visible in the scene, except the window frame.

This is because the only light emitter in the scene is an environment background, but it is too weak to light the room.

We can make it stronger, using the V-Ray: Environment rollout, and setting a value higher than 1 in the GI environment override. Instead, we will use V-Ray native area light to light this interior.

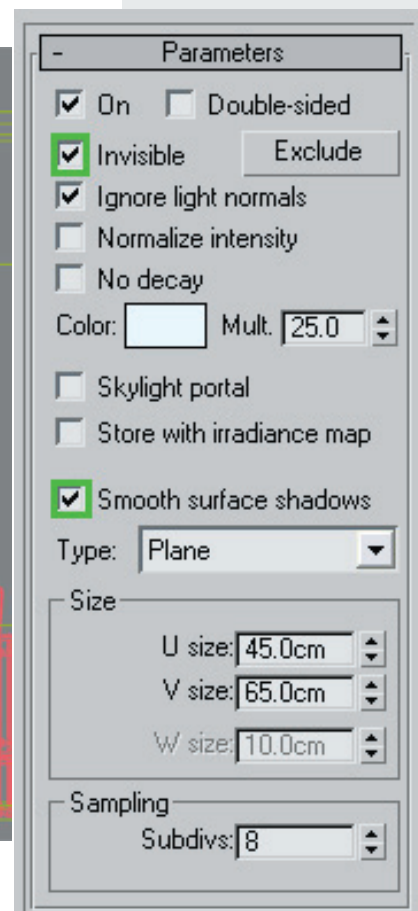
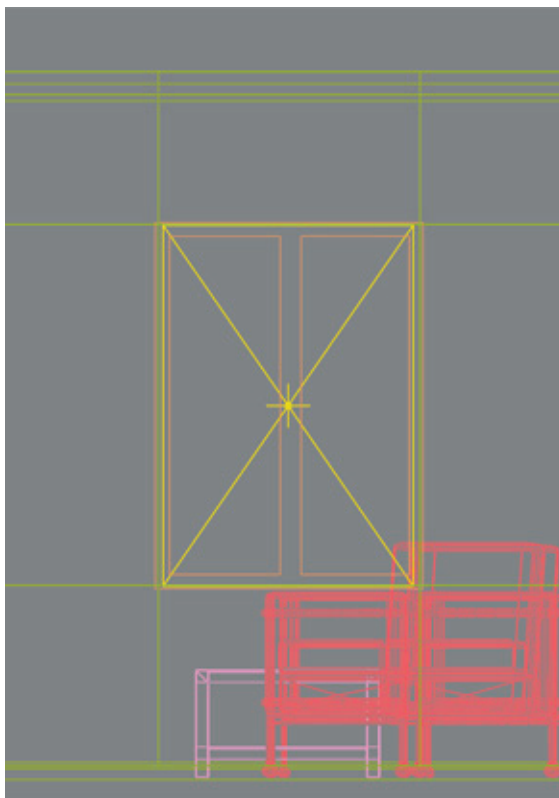
STEP 4

In the max lights panel, select VRayLight and create one.

From the front viewport, resize the light using the U and V spinners, so that its size is similar to the window.

Set it inside the room, leaving a small gap between the light and wall and ensuring the placement does not intersect with the wall or the window frame.

Intersections can result in the image becoming too grainy.



Set V-Ray's light settings similar to those shown in the image; make it invisible and turn on Smooth surface shadows.

Now, set the color to light bluish and the multiplier to something around 25.

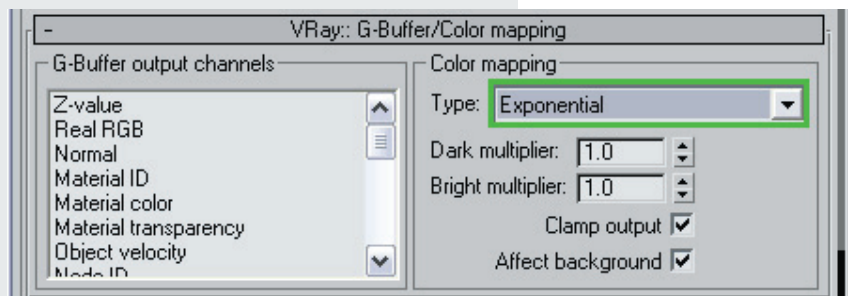
Now render the image and let's see how the lighting turns out.



Well, our room has become a lot brighter, but it looks like a nuclear bomb blew up behind the window as the ceiling and wall are too burned out.

You can fix this in the V-Ray: G-Buffer/Color mapping rollout by setting the color mapping type to Exponential instead of Linear.

This will take care of the overburned surfaces and give us a much nicer and balanced image.

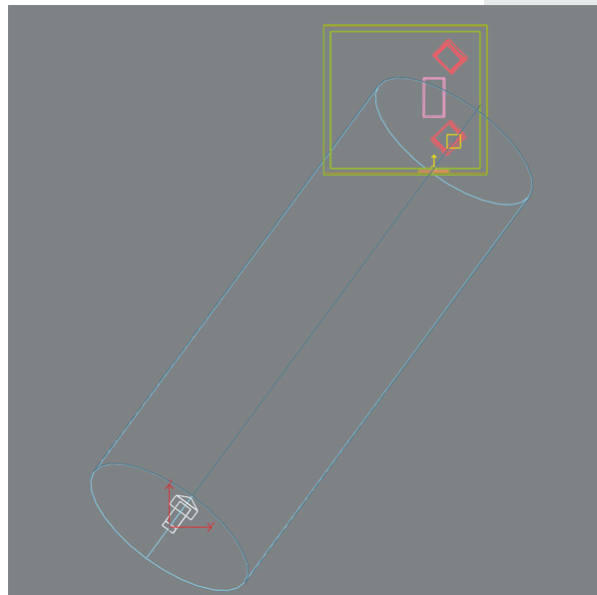


Once again, render the image to see the changes that have been made.

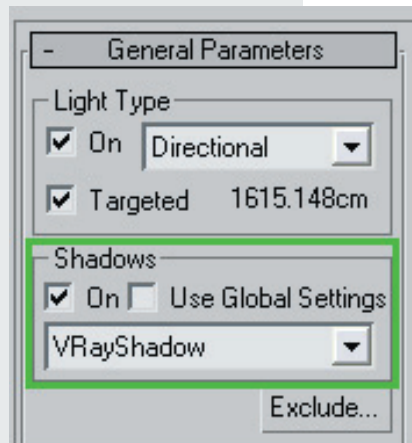


STEP 5

Next, add a Target direct light to the scene and place it somewhere above the roof, pointing towards the window. It will play the role of the sun in this scene.



From the General parameters rollout, set the shadow type to VRayShadow.



The sun multiplier value should be set to something around 7-10, and the color changed to warm yellow.

Hit render this time, keeping in mind the changes that have been made to the light.



Now the room is lit and has direct sunlight, but it lacks warmth. This can be improved through our materials.

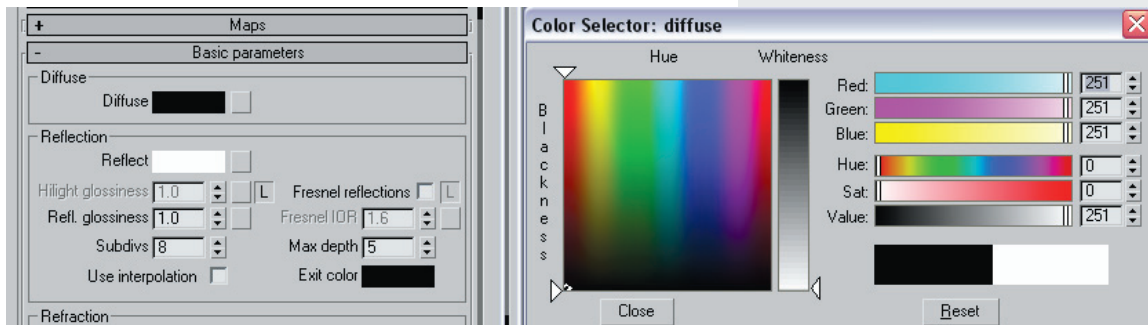
STEP 6

Open the material editor and find the Multi/Sub-Object material called chair. Click on the first slot called chair_body.

Next, click on the standard button and then from Material/Map Browser list, select VrayMtl. VrayMtl is a native V-Ray material; it works faster and has several specific options and abilities not available in max standard material.

Click on the diffuse slot and select some bright color, any color you like. I've picked red for this scene. Move forward one level in the Multi/Sub material and select the chair_legs material. It will be a chrome material for the chair legs.

Since chrome doesn't have its own color and is almost completely reflective, set the diffuse color to black, with a value of 0. Now, click on the reflect color picker and choose a white value of around 250.



To see the result, render the scene again.



I've also added a wood texture to the table's sub-object material.

Note that walls become a little reddish. This is due to a natural effect called color bleeding, which is when an object receives reflected color from a brighter surface near to it.

STEP 7

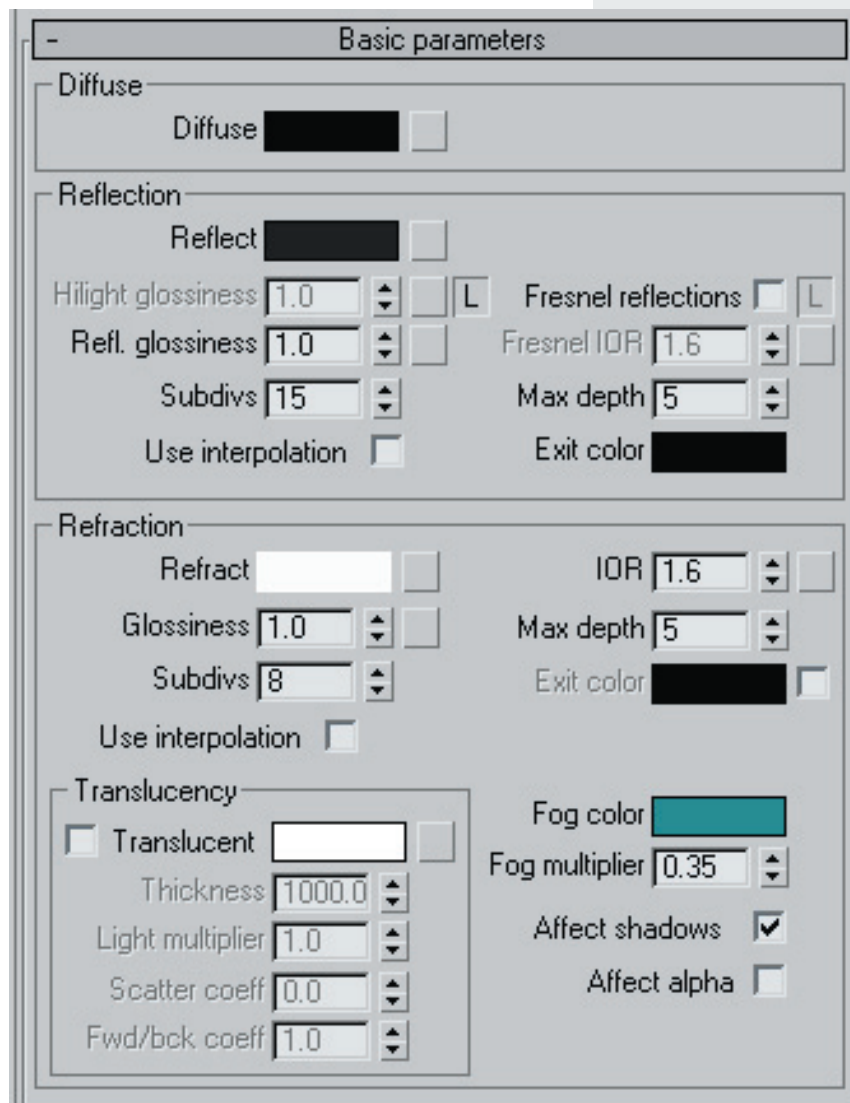
Next we'll create a refractive material for the coffee table.

From the table material, select the second slot called `table_glass`. Set the diffuse color to pure black, the reflection value to something around 30, and almost pure white in the refraction slot.

At the bottom of basic parameters rollout, there is a Fog Color selector and multiplier that describe the material's ability to absorb light.

Select a greenish color as the fog color and set its multiplier to something around 0.3 (you can experiment with these values to see the effect) and turn on the affect shadows checkbox.

This enables V-Ray to calculate physically correct transparent shadows from refractive material.





STEP 8

The last thing that this tutorial will cover is the glossiness setting of the materials, or its ability to reflect light.

Let's go back to our chair_body material slot and set the reflection value to something around 25 and the reflection glossiness to 0.85. Render the scene one last time.



As you can see, the chairs now have glossy highlights on them and have a more leather-like appearance

Well, that's all there is to this quick start tutorial, I hope it will be useful for you.

A copy of the finished 3ds max file (model_finished.max) is included in the zip file with this tutorial.

In this quick start tutorial you have learned some V-Ray basics, including working with V-Ray lights and materials and setting up the scene for a successful rendering. - SV



ABOUT THE AUTHOR

Serge Vasiliew began studying 3D design nearly 3 and a half years ago. Although he received his degree in computer engineering and networking, Serge has worked in various fields applying 3D design including video editing, TV advertising, holographic 3D movies, and as an architectural visualization artist.

Currently, he is employed as art director and lead architectural visualization artist in the Cat-a-pult studio of Odessa, which was founded earlier this year by a group of freelancers. Cat-a-pult has assembled the most competent 3D designers in Odessa and quickly became the number one architectural visualization studio in Ukraine; providing high quality 3D services to clients all around the globe.

Serge has been an active and valued contributor to VisMasters for a long time. Many of his images have been featured in our Gallery and as Image of the Week.

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