

Shadow Catcher

This tutorial walks you through the steps of creating a shadow/matte catcher.

Overview

A shadow catcher is a matte object, which is not directly visible in the scene, but shows the received shadows. This approach is ideal for achieving a photorealistic render, compositing a 3d object with a shadow on top of the environment map or just a backdrop.

For the purpose of this tutorial, we use car geometry from our Chaos Cosmos 3D content library. The scene lighting is achieved with a V-Ray Dome light loaded with an HDRI, and another HDRI from [Poly Haven](#) used as an environment.

The renders on the right illustrate what a great difference a shadow catcher usage adds to the final image.

Note that the downloadable scene files show only the setup for Houdini.

[Download Scene Files](#)

none
shadow catcher





Workflow

In this tutorial, a plane becomes a shadow catcher/matte object. There are two ways to do that:

- by applying Matte/Shadow object properties to the plane
- by using the V-Ray Wrapper material

Open the scene you will use for this tutorial and let's delve into each method. Note that the scene shows only the workflows in Houdini.

Using V-Ray Object Properties

Houdini Workflow

Select the object, which will become a shadow catcher. In this particular case, select the plane.

Click the **Object Props** button from the [V-Ray Shelf](#), or go to V-Ray top menu > Object Properties > Common to assign [object properties](#) to the selected plane.

Next, go to the plane parameters and under the V-Ray tab > Matte / Shadow tab set the following settings:

- Enable **Matte /Shadow Options**.
- Enable **Matte Surface**.
- Enable **Shadows** – this option allows the object to receive shadows.
- Enable **Affect Alpha** – this option determines whether the received shadows affect the alpha. The Alpha Contribution specifies whether to add to the alpha, when set to 1.0. When the option is set to -1.0, it takes away from the alpha. When set to 0.0, it leaves the alpha unchanged.
- Set the **Alpha Contribution** to **-1.0**. This allows the received shadows to take away from the alpha information for later compositing.

- For increased realism, set the **Matte For Secondary Rays** option to **With Projection Mapping**. This enables the matte object to project the environment back onto other objects in the scene.

The environment can be added in the /out network through a V-Ray Environment ROP that needs to be connected to the V-Ray Renderer ROP's Environment parameter.

All these steps turn the plane into a Matte object. This means that it is not directly visible in the scene; instead the background color is shown in its place.



obj



Geometry

Plane

Transform

Render

Misc

V-Ray

Object Properties

Enable All

Disable All

Main

Open Subdiv

Reference Mesh

Bake Geometry

Mat



Enable Matte / Shadow Options

Main



Generated GI Mult.

1



Received GI Mult.

1



Generated Caustics...

1



Received Caustics...

1



Subdivs Mult.

1



Use Irradiance Map

Matte Properties

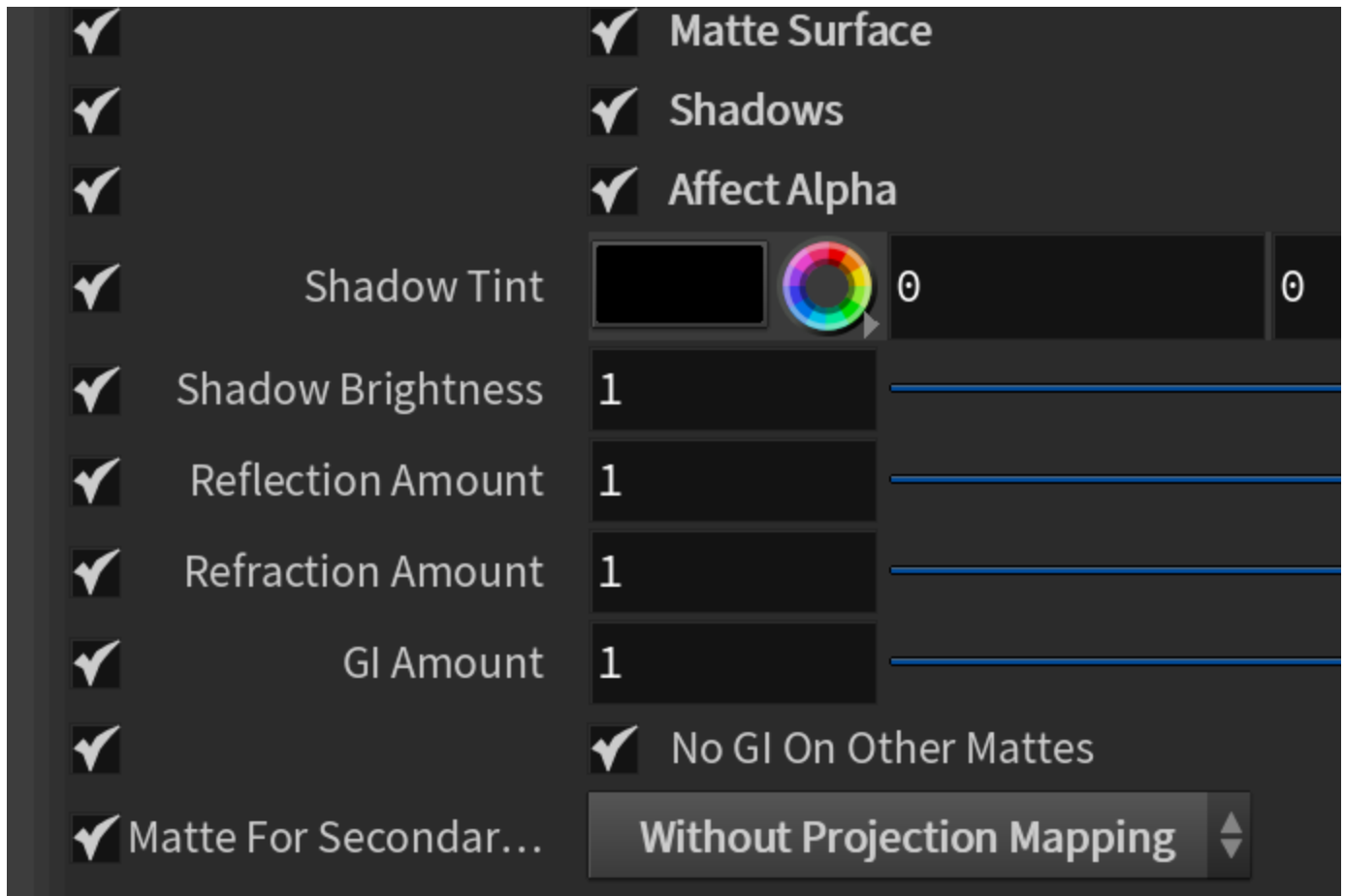


Alpha Contribution

-1



Generate Render Elements



Solaris Workflow

In /stage, create a **Render Geometry Settings** LOP and chain it to the rest of the nodes. Drag the geometry you want to turn into a Matte Object and drop it into the **Primitives**.

Set or Create the following parameters:

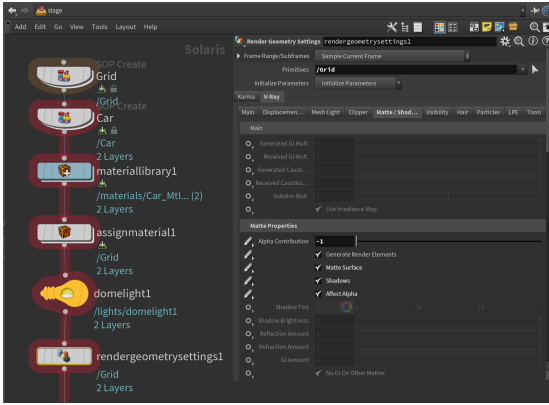
- **Matte surface**
- **Shadows**
- **Affect Alpha**
- **Alpha Contribution**

Then enable all of them, and set the **Alpha Contribution** to -1.

For increased realism, set the **Matte For Secondary Rays** option to **With Projection Mapping**. This enables the matte object to project the environment back onto other objects in the scene.

The environment can be added through the Dome Light LOP parameters. Go to the V-Ray tab > Environment tab > Secondary Matte, and then set or create the needed parameters.

Now the plane is a Matte object.



Click the image to enlarge it.

Using V-Ray Wrapper Material

Houdini Workflow

Another way to achieve the shadow catcher effect is through the use of [V-Ray Wrapper](#) material.

In the mat Network, create a **V-Ray Wrapper** and assign it to the shadow catcher. In this case – to the plane.

Enable the same options for the V-Ray Wrapper material as the ones outlined in the previous approach:


- **Matte surface**
- **Shadows**
- **Affect Alpha**


Set the **Alpha contribution** to **-1.0**.


For increased realism, set the **Matte For Secondary Rays** option to **With Projection Mapping**. This enables the matte object to project the environment back onto other objects in the scene.


The environment can be added in the /out network through a V-Ray Environment ROP that needs to be connected to the V-Ray Renderer ROP's Environment parameter.




This turns the plane into a Matte object. This means that it is not directly visible in the scene; instead the background color is shown in its place.







 mat

 vrayMaterialBuilder

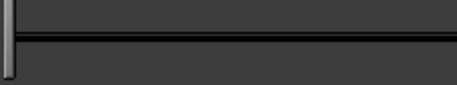



 **V-Ray MtlWrapper** wrapperMtl

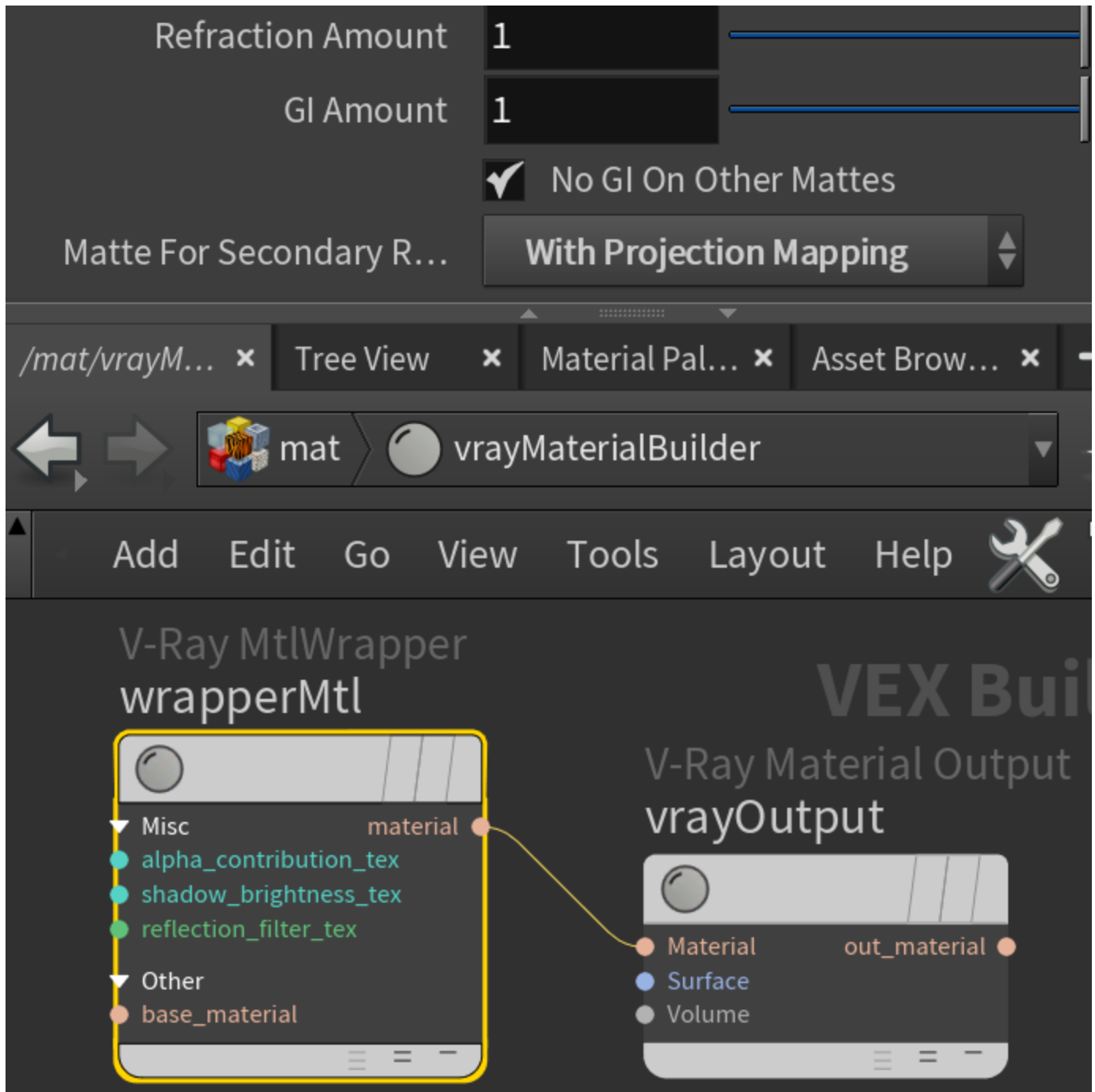


Main

Generated GI Mult.	1	
Received GI Mult.	1	
Generated Caustics Mult.	1	
Received Caustics Mult.	1	
Subdivs Mult.	1	
<input checked="" type="checkbox"/> Use Irradiance Map		

Matte Properties

Alpha Contribution	-1	
<input checked="" type="checkbox"/> Generate Render Elements		
<input checked="" type="checkbox"/> Matte Surface		
<input checked="" type="checkbox"/> Shadows		
<input checked="" type="checkbox"/> Affect Alpha		
Shadow Tint		<div><div>0</div><div>0</div><div>0</div></div>
Shadow Brightness	1	
Reflection Amount	1	



Solaris Workflow

In /stage, create a **Material Library** LOP or use an existing one if available. Dive inside it and create a new material VOP - **V-RayWrapper**.

Create an **Assign Material** LOP, and then assign the new shader to the shadow catcher (the plane). For more detailed instructions on how to work with Material Library and Assign Material LOPs, see the [Working with Solaris Materials](#) page.

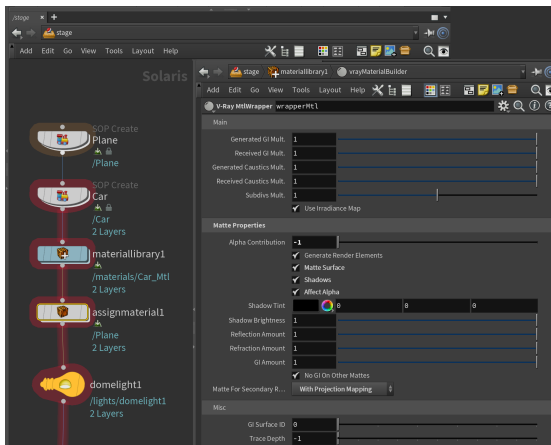
Enable the same options for the V-Ray Wrapper material as the ones outlined in the previous approach:

- **Matte surface**
- **Shadows**
- **Affect Alpha**

Set the **Alpha contribution** to **-1.0**. Just like in the preceding workflows, set the **Matte For Secondary Rays** option to **With Projection Mapping** to increase the realism of the image. This enables the matte object to project the environment back onto other objects in the scene.

The environment can be added through the Dome Light LOP parameters. Go to the V-Ray tab > Environment tab > Secondary Matte, and then set or create the needed parameters.

Now the plane is a Matte object. This means that it is not directly visible in the scene; instead the background color is shown in its place.



Click the image to enlarge it.