GI tab

This page provides information on the GI tab and GI rollout of the Render Settings.

Overview

Global Illumination (or GI) is the illumination in a scene that effectively comes from reflected (or bounced) light as opposed to coming directly from a light source. This enables more naturalistic and accurate lighting solutions.

The indirect illumination rollout in V-Ray controls the *secondary diffuse bounces.* The primary diffuse bounces are always calculated with Brute Force.

- ○ A primary diffuse bounce occurs when a shaded point is directly visible by the camera, or through specular reflective or refractive surfaces.
- ○ A secondary bounce occurs when a shaded point is used in GI calculations.

UI Path: ||Render Settings window|| > **GI tab** > **GI rollout**
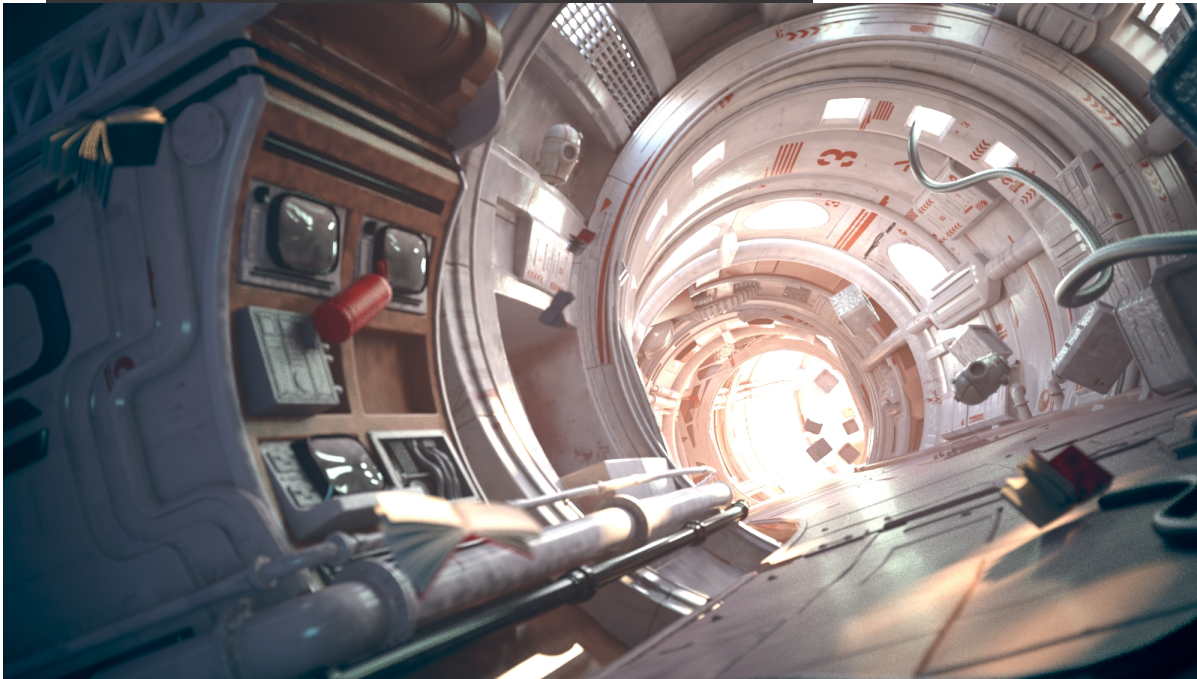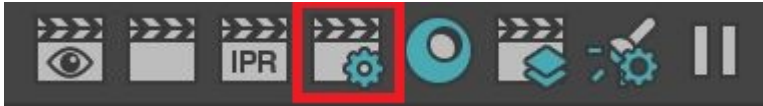
GI

On – Enables/disables indirect illumination.

Reflective and Refractive Caustics

When the render engine is V-Ray GPU, the **Reflective/Refractive Caustics** options are always enabled and are hidden from the UI.

GI caustics represent light that has gone through one diffuse, and one or several specular reflections (or refractions). GI caustics can be generated by skylight, or self-illuminated objects, for example. However, caustics caused by direct lights cannot be simulated in this way. You must use the separate Caustics section to control direct light caustics. Note that GI caustics are usually hard to sample and may introduce noise in the GI solution. *For more information, see the GI Caustics example below.*

     Reflective GI caustics – Allows indirect light to be reflected from specular objects (mirrors etc). Note that this is not the same as Caustics, which represent direct light going through specular surfaces.

     Refractive GI caustics – Allows indirect lighting to pass through transparent objects (glass etc). Note that this is not the same as Caustics, which represent direct light going through transparent objects. You need refractive GI caustics to get skylight through windows, for example.

Engine – Specifies the method to be used for the secondary diffuse bounces.

     None – No secondary bounces will be computed. Use this option to produce skylit images without indirect color bleeding.
     Brute force – Selects the brute force method (direct computation) for secondary diffuse bounces. See the Brute Force Settings section for more information.
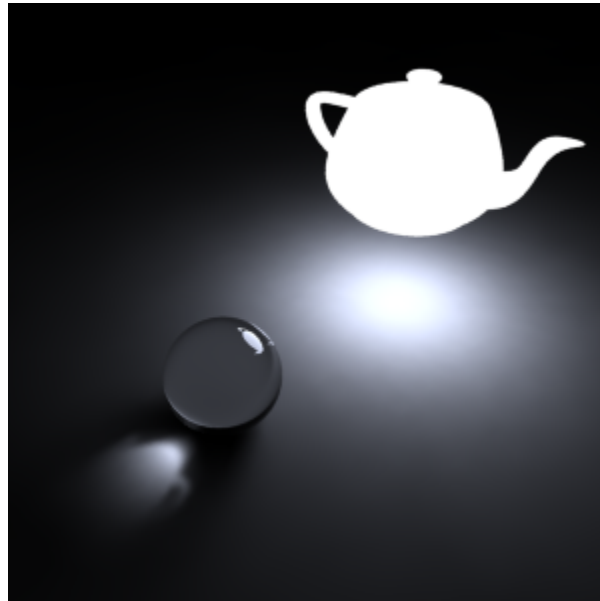   **Light cache** – Selects the light cache method as the secondary GI engine. See the Light Cache Settings section for more information.
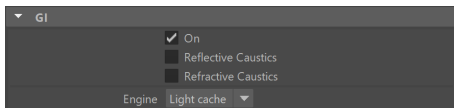
Example: GI Caustics

This example shows GI caustics generated by a self-illuminated object:

Click here to expand Deprecated Settings...
In V-Ray 5, the following parameters are available only for old scenes that already use them.

Post-Processing

These controls allow additional modification of the indirect illumination before it is added to the final rendering. The default values ensure a physically accurate result, but values can be changed to modify the way GI looks for artistic purposes.

Saturation – Controls the saturation of the GI. A value of 0.0 means that all color will be removed from the GI solution and the result will be in shades of grey only. The default value of 1.0 means the GI solution remains unmodified. Values above 1.0 boost the colors in the GI solution.

Contrast – This parameter works together with **Contrast base** to boost the contrast of the GI solution. When **Contrast** is 0.0, the GI solution uses the value defined by **Contrast base**. A value of 1.0 means the solution remains unmodified. Values higher than 1.0 boost the contrast.

Contrast Base – Determines the base for the contrast boost. It determines which GI values in the image remain unchanged during contrast calculations, and which are shifted. The default value of 0.5 values leaves the medium grey values in the GI solution unmodified. When a low **C ontrast Base** value is used in conjunction with a raised **Contrast** value, the image brightens. When a higher **Contrast Base** is used with a higher **Contrast** value, the image darkens.

Ambient Occlusion

These controls add an ambient occlusion term to the global illumination solution.

 On – Enables the ambient occlusion pass.

 Multiplier – Multiplies the effect of the ambient occlusion.

 Radius – Determines the amount of area (in scene units) where the ambient occlusion effect is produced.

 Subdivs – Controls the number of samples that V-Ray takes to calculate the ambient occlusion effect. Lower values render faster but produce a more noisy result.

Ray Distance

The options in this group limit the distance traveled by each GI ray in order to optimize rendering time.

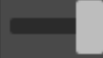**On** – Enables the **Ray Distance** limit.

Ray Distance – Specifies the maximum distance each GI ray will travel.
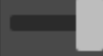
GI - advanced

Post-processing

Saturation	1.000	
Contrast	1.000	
Contrast Base	0.500	

Ambient Occlusion

☐ On

Ray Distance

☐ On