

Fog

This page provides information on the Fog Node in V-Ray for Blender.

Overview

The Fog node is an atmospheric effect that allows the simulation of participating media like fog, atmospheric dust and so. Volumetric properties can be determined by 3d texture maps. The atmospheric effect can also be confined with geometry objects.

UI Path

[[Node Editor]] > **Add** > **Effects** > **Effects Container**

Node

Gizmo – Allows you to connect a **Fog Gizmo** so that the effect is confined within a specified volume.

Color – An input slot for a texture defining the fog color.

Emission – Controls the fog emission (self-illumination). You can use this parameter to substitute the ambient illumination inside the fog, instead of using GI.

Emission Mult – A multiplier for the Emission parameter.

Density – A multiplier for the Fog distance parameter that allows a texture to be used for the density of the fog.

Lights – Allows you to specify which lights are affect the fog.



Parameters

Fog Color – Defines the color of the fog when it is illuminated by light sources.

Subdivs – Determines the number of points inside the fog at which volumetric lighting is evaluated. Smaller values for this parameter render faster, but may produce noise in the image. Higher values render longer, but with less noise.

Use Height – When enabled, you are able to limit the fog height.

Height – Specifies an upper limit for the fog height.

Fog Distance – Controls the fog density. Larger values make the fog more transparent, while smaller values make it more dense. *See the Fog Distance example below.*

Fog Density – A multiplier for the Fog distance parameter that allows a texture to be used for the density of the fog.

Simplify Textures for GI – When enabled, V-Ray uses a simplified method for calculating the GI when rendering parts of the fog that are textured or are being faded out.

Scatter GI – When enabled, the fog also scatters global illumination. Please note that this can be quite slow. In many cases, global illumination within the fog can be substituted with a simple emission term. When this option is on, the currently selected global illumination algorithm in the V-Ray settings is used to accelerate GI inside the volume.

Scatter bounces – When Scatter GI is enabled, this parameter controls the number of GI bounces that are calculated inside the fog.

Light Mode – Allows you to specify which lights are considered when rendering the environment fog. It is used when you have certain lights affecting just specific objects in the scene while another group of lights is affecting the environment fog.

No lights – Lights in the scene do not affect the environment fog.

Per-Gizmo (default) – Lights attached to the environment fog set are ignored. Only the lights affecting the shape where the fog resides, are used.

Override – Only lights affecting the environment fog set are considered.

Intersect – Only lights that are affecting both the shape and the environment fog set are considered.

Add – Lights affecting both the shape and the environment fog set are considered.

Fade Out Mode – Allows you to choose between two different falloff modes: **Multiply** and **Subtract**.

Fade Out Radius – When the fog effect is contained within a gizmo this option allows you to specify a falloff radius for it. This way the fog effect does not have sharp edges at the edges of the gizmo.

Step size – Determines the size of one step through the volume. Smaller steps produce more accurate results but are slower to render. In general, dense volumes require smaller step sizes than more transparent volumes. In practice, step sizes that are two to three times smaller than the Fog distance parameter work well.

Tex Samples – Determines the number of texture samples for each step through the volume. This allows to sample textures more accurately than the volumetric lighting. It is useful in cases where the textures vary much faster than the lighting itself (e.g. for detailed fractal textures).

Max steps – Specifies the maximum number of steps through the volume.

Cutoff Threshold – Determines when the raymarcher stops traversing the volume. If the accumulated volume transparency falls below this threshold, the volume is considered opaque and tracing is aborted. Higher values make the rendering faster but may introduce artifacts.

Affect Shadows – **Determines whether the fog affects the shadow rays.**

Solid Mode – **When enabled, V-Ray sample the fog uniformly.**

Shadow Opacity – Controls the opacity of shadows cast by the fog.

Solid Threshold – A fraction of the Density parameter at which V-Ray samples the fog when **Solid Mode** is enabled.

Affect Background – When this option is off, the background is not obscured by the fog.

Affect Camera – Determines whether the fog is visible to camera rays.

Affect GI – Determines whether the fog affects the GI rays.

Affect Reflections – Determines whether the fog is rendered in reflections.

Affect Refractions – Determines whether the fog is rendered in refractions.

Node: Fog

Subdivs: 8

☐ Use Height

Height: 100.000

Fog Distance: 1.000

Fog Density: 1.000

☐ Simplify Textures for GI

☐ Scatter GI

Scatter Bounces: 8

Light Mode: Per-Gizmo

Fade Out Mode: Multiply

Fade Out Radius: 0.000

Step Size: 1.000

Texture Samples: 4

Max Steps: 1000

Cutoff Threshold: 0.001

☒ Affect Shadows

☐ Solid Mode

Shadow Opacity: 1.000

Solid Threshold: 0.500

☒ Affect Background

☒ Affect Reflections

☒ Affect Camera

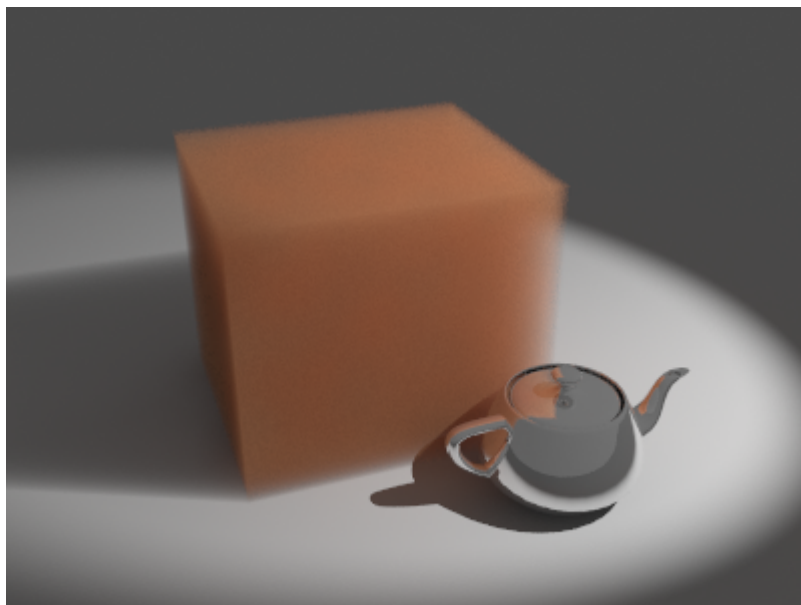
☒ Affect Refractions

☒ Affect GI

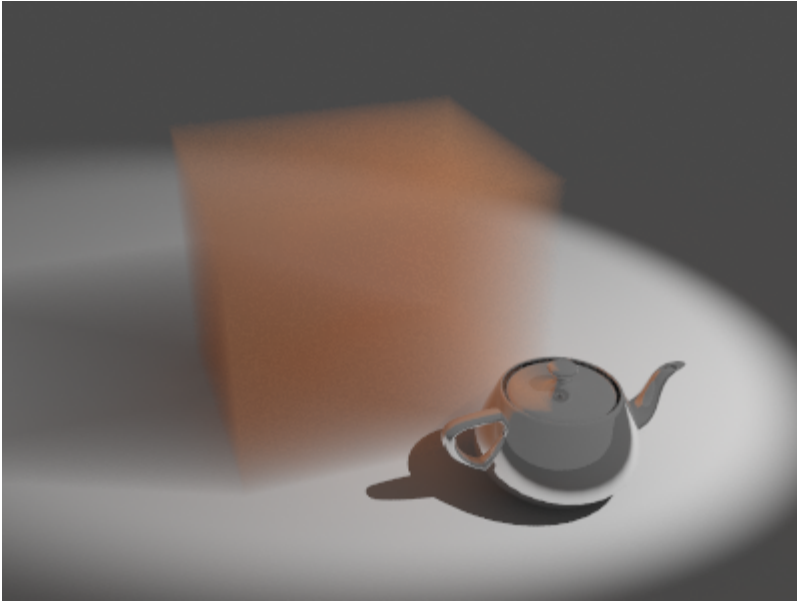
☐ Use Shade Instance

Example: Fog Distance

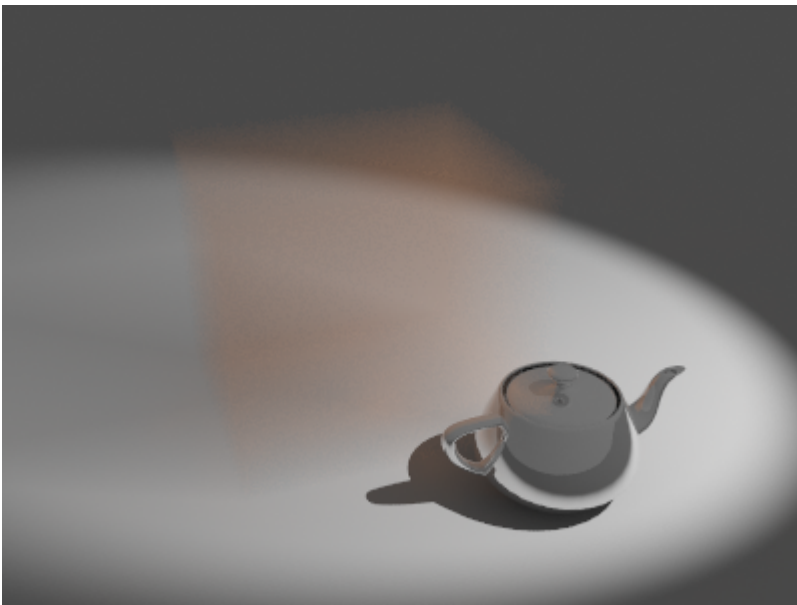
This example demonstrates the effect of the Fog distance parameter. Note how larger values make the fog more transparent. A polygon box has been used to confine the fog volume with the Fog set as the material in the shading group of the box.



Fog distance is 4.0



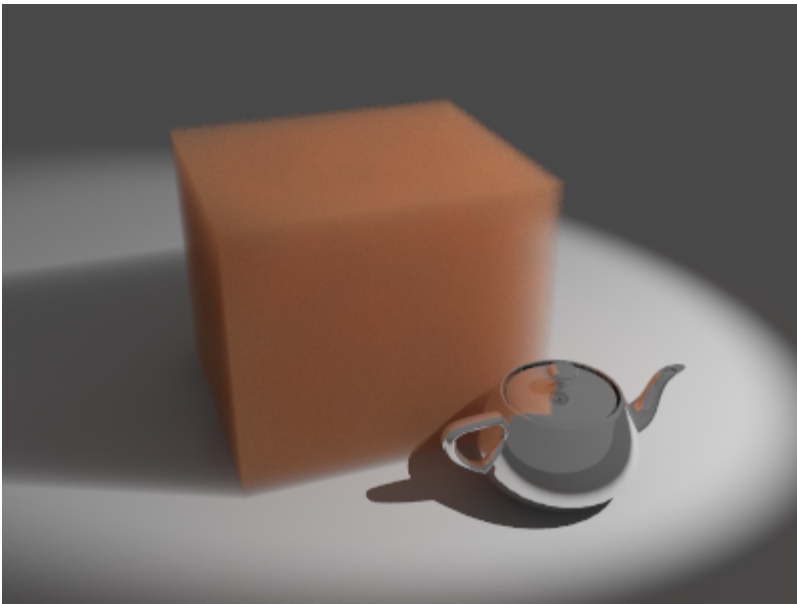
Fog distance is 16.0



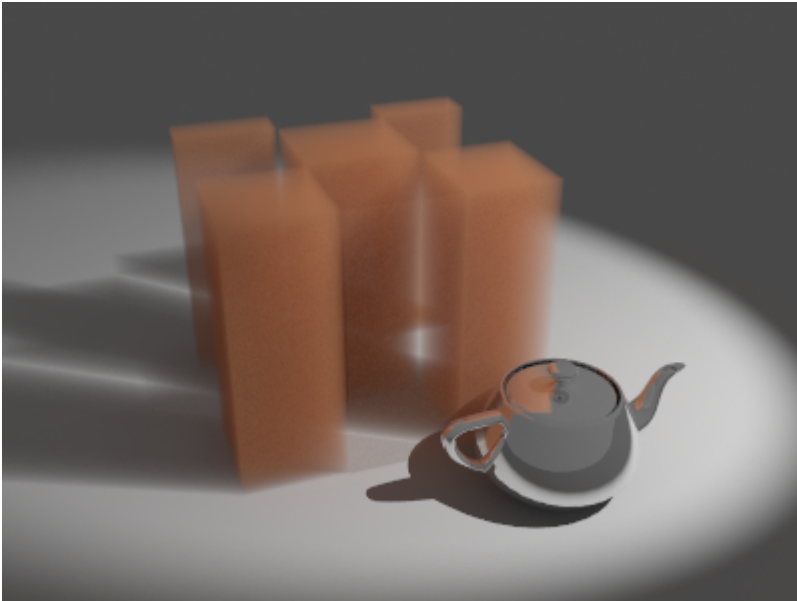
Fog distance is 64.0

Example: Textured Fog Gizmo

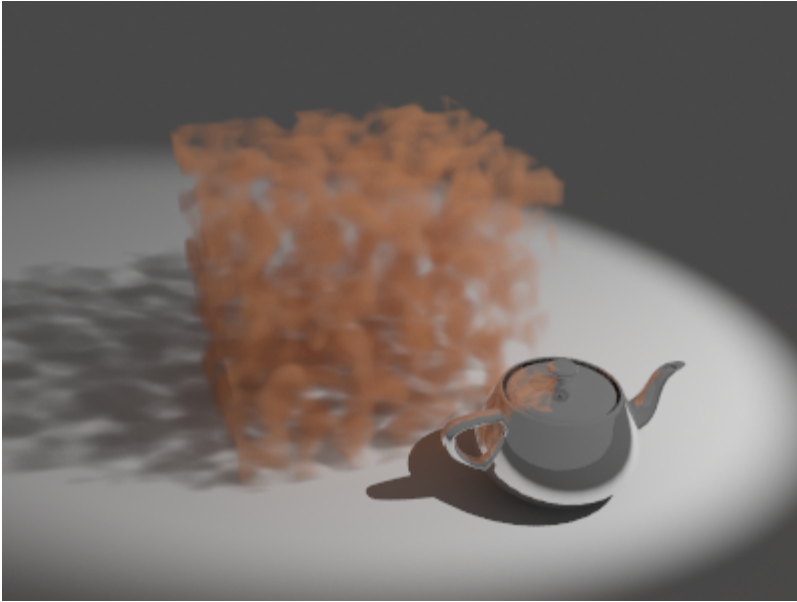
In the following examples, the fog density has been mapped with a texture. World XYZ mapping type was used for the textures.



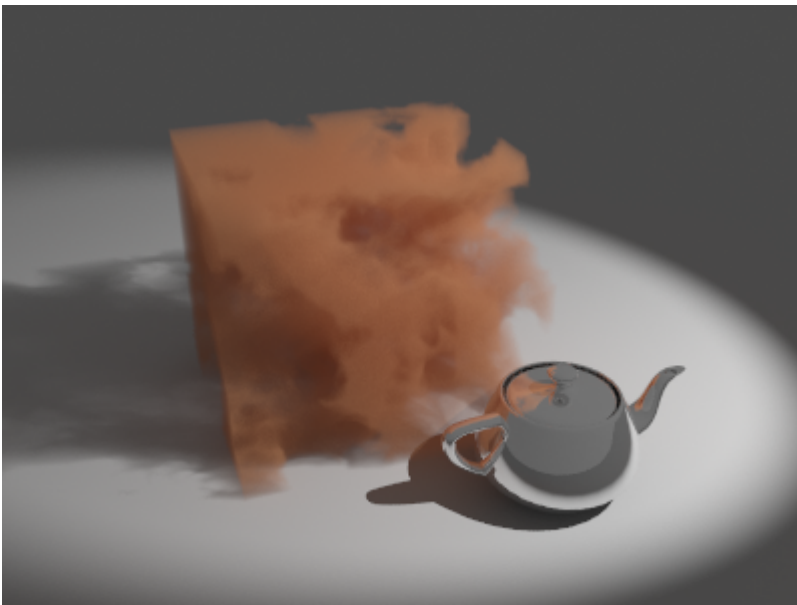
No texture



Checker texture



Regular Noise texture



Inverted turbulence Noise texture

Example: Scatter GI and Scatter bounces

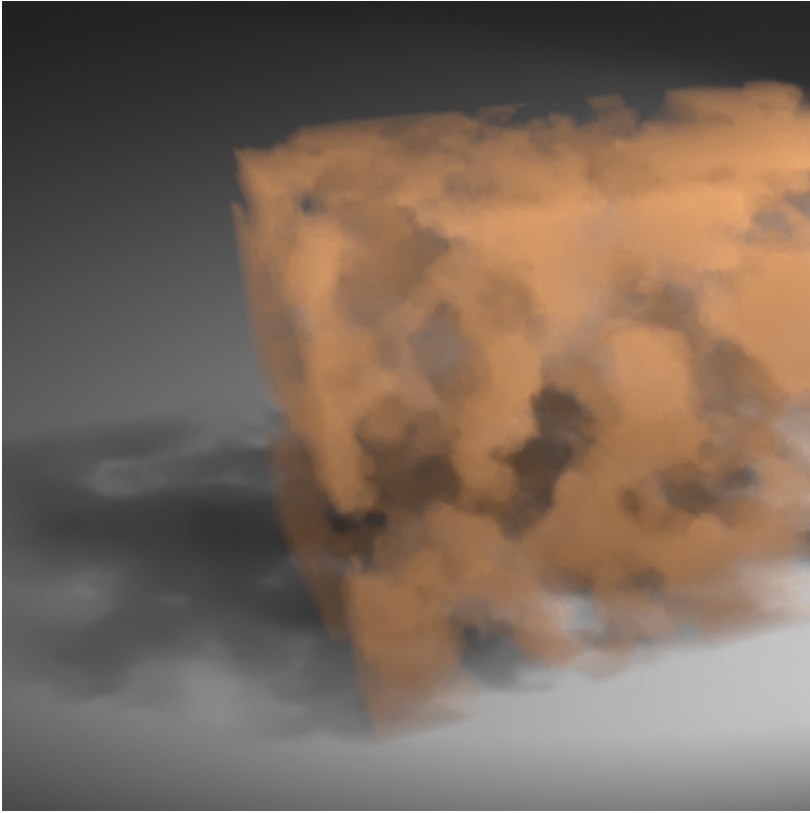
These examples demonstrate the effect of the Scatter GI and Scatter bounces parameters. Note how multiple scattering of light inside the volume greatly increases the realism of the image.



GI is off in the V-Ray settings.
The fog volume only shows direct lighting.



GI is on, Scatter GI is off.
The fog does not scatter GI and so looks identical to the left image (it is lit with direct light only).



GI is on, Scatter GI is on, Scatter bounces is 1.
Notice how the fog volume is affected by the skylight. Brute Force was used for the primary GI engine.



GI is on, Scatter GI is on, Scatter bounces is 2.
Brute Force + Light Cache GI for secondary bounces



GI is on, Scatter GI is on, Scatter bounces is 4.
Brute Force + Light Cache GI



GI is on, Scatter GI is on, Scatter bounces is 8.
Brute Force + Light Cache GI



GI is on, Scatter GI is on, Scatter bounces is 100.
Brute Force + Light Cache GI

