

10.2.4 Render - Blender Render Engine - World

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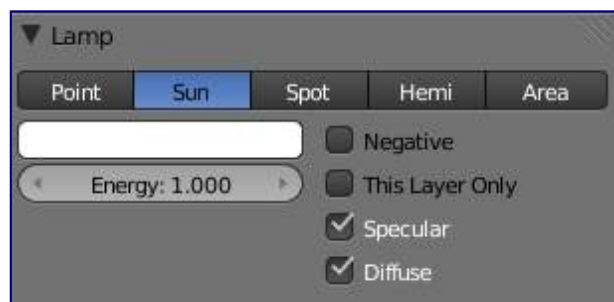
World

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Introduction

A *Sun* lamp provides light of constant intensity emitted in a single direction. A *Sun* lamp can be very handy for a uniform clear daylight open-space illumination. In the 3D view, the *Sun* light is represented by an encircled black dot with rays emitting from it, plus a dashed line indicating the direction of the light.

This direction can be changed by rotating the *Sun* lamp, like any other object, but because the light is emitted in a constant direction, the location of a *Sun* lamp does not affect the rendered result (unless you use the “*sky & atmosphere*” option).



Sun lamp panel

Lamp options

Energy and Color

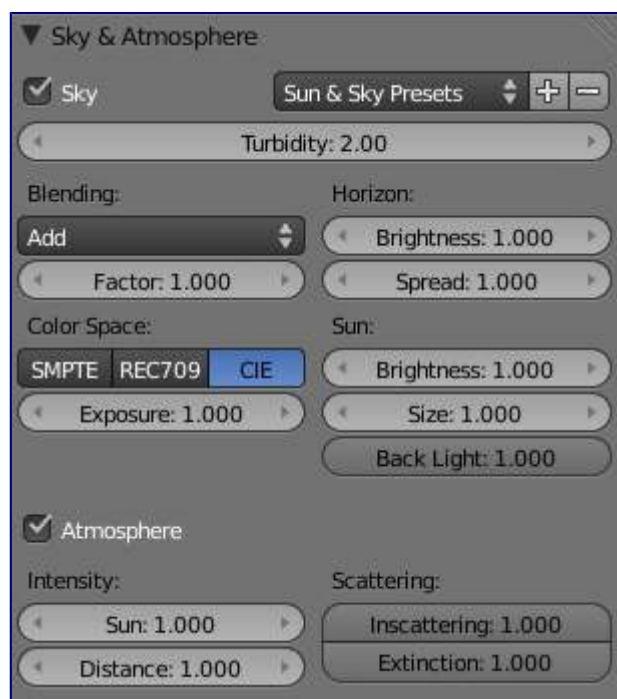
These settings are common to most types of lamps, and are described in *Light Properties*.

Negative, This Layer Only, Specular, and Diffuse

These settings control what the lamp affects, as described in *What Light Affects*.

The *Sun* lamp has no light falloff settings: it always uses a constant attenuation (i.e. no attenuation!).

Sky & Atmosphere



Sky & Atmosphere panel

Various settings for the appearance of the sun in the sky, and the atmosphere through which it shines, are available. For details, see *Sky and Atmosphere*.

Shadow

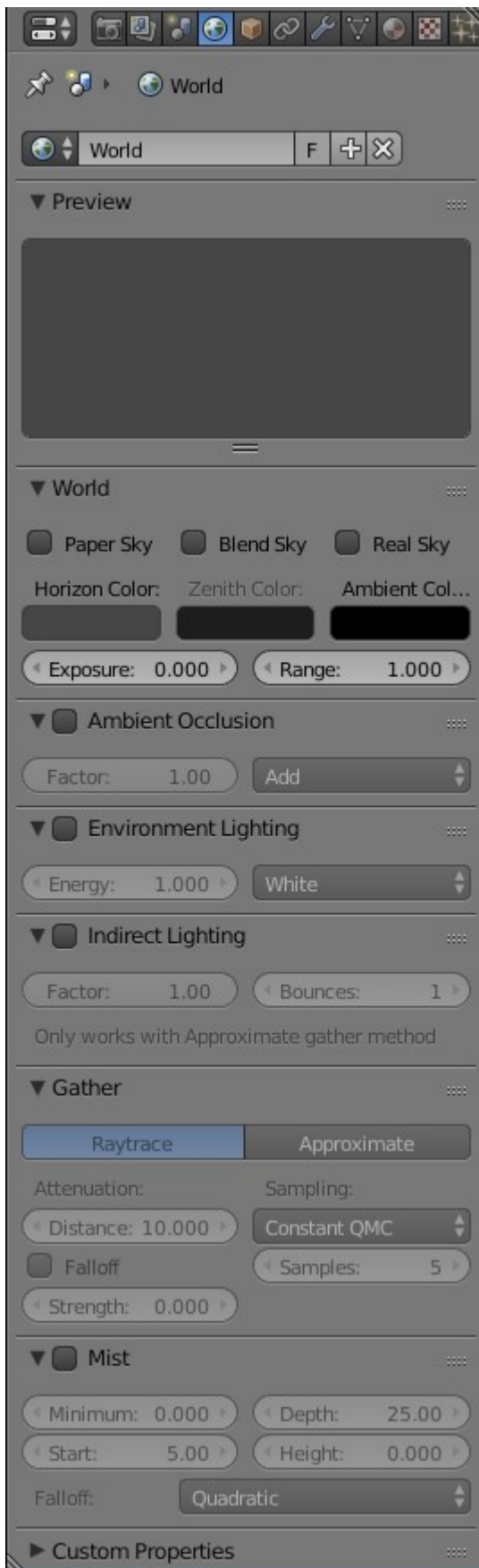


Shadow panel

The *Sun* light source can only cast ray-traced shadows. It shares with other lamp types the same common shadowing options, described in *Shadows Properties*.

The ray-traced shadows settings of this lamp are shared with other lamps, and are described in *Raytraced Properties*.

Introduction



World Panel

Blender provides a number of very interesting settings to complete your renderings by adding a nice background, and some interesting 'depth' effects. These are accessible via the *World* context. By default a very

plain uniform world is present. You can edit it or add a new World.

You have:

Background

The color and texture of the world background, with special settings for mapping coordinates.

Mist

Add a mist to your scene to enhance the feeling of depth.

While these world settings offers a simple way of adding effects to a scene, *compositing nodes* are often preferred, though more complex to master, for the additional control and options they offer. For example, filtering the Z value (distance from camera) or normals (direction of surfaces) through compositing nodes can further increase the depth and spacial clarity of a scene.

Note

Some of the settings under the World panel in Blender affect lighting so you find them under the *Lighting* chapter (see *Ambient Light*, *Exposure* and *Ambient Occlusion*). When using a *Sun Lamp* options for *Sky* & *Atmosphere* are available in the *Lamp* menu.

World Background

Description

The world buttons let you set up the shading of your scene in general. It can provide ambient color, and special effects such as mist, but a very common use of a *World* is to shade a background color.

Note

Background Image in Render

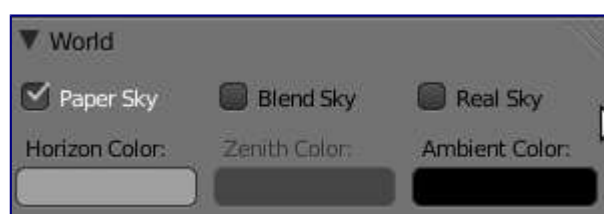
To use an image as your render background, see *BackBuf images specified in the Output Panel*

Note

Background Image in 3D

To use an image as a background image in your 3D view, for example as a reference when doing a model, see *using a Background Image*

Options



World panel

Horizon Color

The RGB color at the horizon

Zenith Color

The RGB color at the zenith (overhead)

How these colors are interpreted depends on which kind of *Sky* is chosen.

None Enabled

If none of these three buttons is checked, your background will just be plain flat color (using the horizon one).

Paper Sky

If this option is added, the gradient keeps its characteristics, but it is clipped in the image (it stays on a horizontal plane (parallel to x-y plane): what ever the angle of the camera may be, the horizon is always at the middle of the image).

Blend Sky

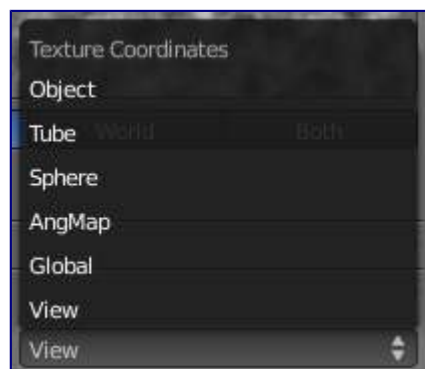
The background color is blended from horizon to zenith. If only this button is pressed, the gradient runs from the bottom to the top of the rendered image regardless of the camera orientation.

Real Sky

If this option is added, the gradient produced has two transitions, from nadir (same color as zenith) to horizon to zenith; the blending is also dependent on the camera orientation, which makes it more realistic. The horizon color is exactly at the horizon (on the x-y plane), and the zenith color is used for points vertically above and below the camera.

Textures

Instead of a color, or blend of two colors, Blender can use an 2D image which it maps to a very large Box or sphere which encompasses the entire scene, or which it maps to a virtual space around the scene.



Texture Coordinates pop-up menu

The World textures are accessible in the texture menu (just select *World* first, then *Texture*. They are used much like the Materials textures, except for a couple of differences. The textures can be mapped according to:

View

The default orientation, aligned with the co-ordinates of the final render

Global

Uses global coordinates

AngMap

Used to wrap a standard hemisphere angular map around the scene in a dome. This can be used for image based lighting with *Ambient Occlusion* set to sky color. You'll generally need a high dynamic range image (HDRI) angular map. (It will look like a weird spherical image).

Sphere

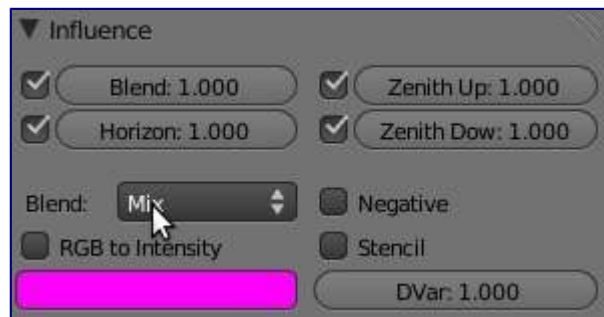
Sphere mapping, similar to that of materials

Tube

Wrap the rectangular texture around in a cylinder, similar to that of materials

Object

Position the texture relative to a specified object's local texture space



Texture Influence panel

The texture affects color only, but in four different ways:

Blend

Makes the Horizon color appear where the texture is non-zero

Horizon

Affect the color of the horizon

Zenith Up

Affect the zenith color overhead

Zenith Down

Affect the zenith color underneath

If you are disappointed that your camera appears to carry the texture with it rather than rotate through the texture, you should check the Real Sky checkbox in the World tab of the Properties view.

Mist

Description

Mist can greatly enhance the illusion of depth in your rendering. To create mist, Blender makes objects farther away more transparent (decreasing their Alpha value) so that they mix more of the background color with the object color. With Mist enabled, the further the object is away from the camera the less it's alpha value will be.

Option



Mist panel

Mist check box

Toggles mist on and off

Minimum

An overall minimum intensity, or strength, of the mist.

Start

The distance from the camera at which the mist starts to fade in

Depth

The distance from *Start* of the mist, that it fades in over. Objects further from the camera than *Start+Depth* are completely hidden by the mist.

Height

Makes the mist intensity decrease with height, for a more realistic effect. If greater than 0, it sets, in Blender units, an interval around $z=0$ in which the mist goes from maximum intensity (below) to zero (above).

Falloff

The decay rate of the mist (*Quadratic* / *Linear* / *Inverse Quadratic*). These settings control the rate of change of the mist's strength further and further into the distance.

Note

Mist distances

To visualize the mist distances in the 3D View, select your camera, go to the camera menu, and enable *Show Mist*.

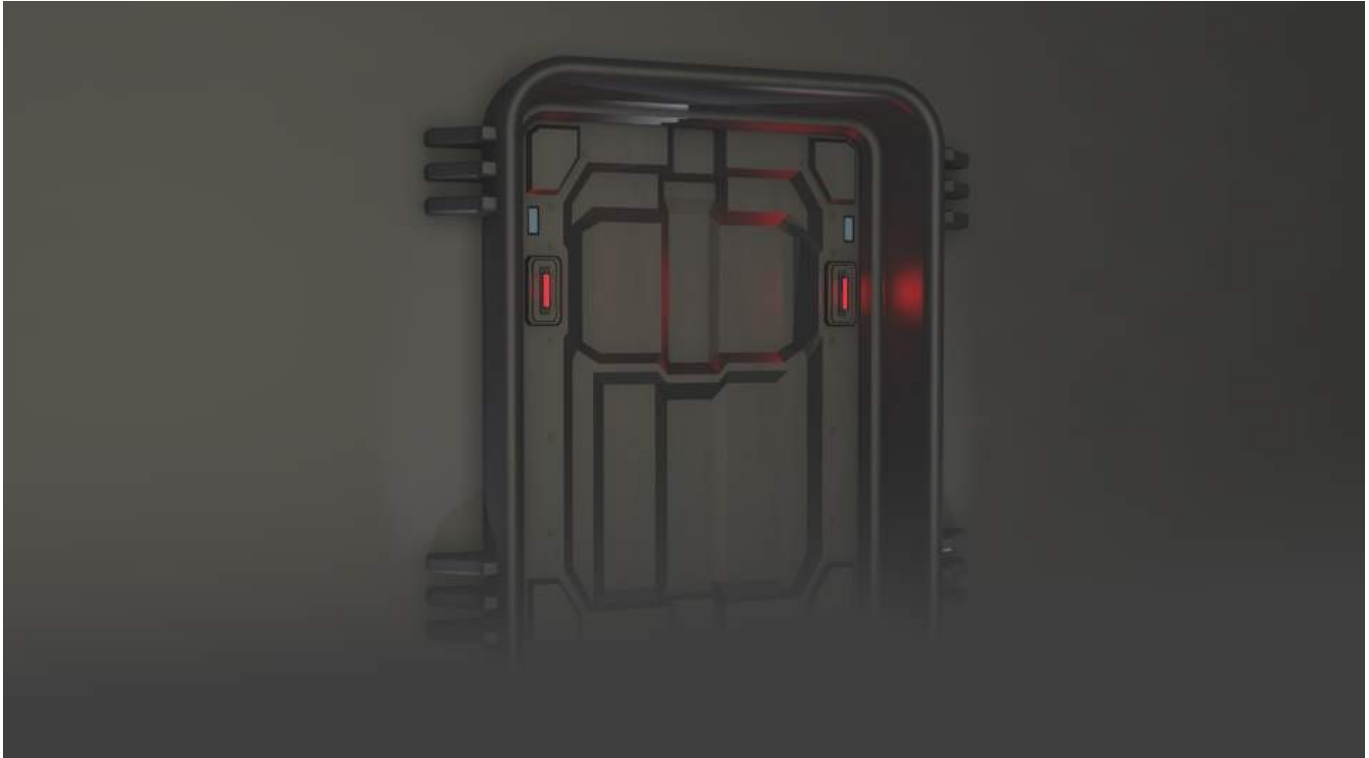
The camera will show mist limits as a line projecting from the camera starting from *Start* and of distance *Depth*.

To get a better view to evaluate the *Mist* visualization, **Shift-Numpad1** with the camera selected (Numpad5 to toggle perspective view on and off). This will place the 3D view right over the camera looking down.

Transparency

Because *Mist* works by adjusting transparency, this can sometimes cause objects to be partially transparent when they shouldn't be. One workaround is to set the Mist settings as desired, but turn Mist off. The Mist data is still available for compositing even though it is off. Use *Do Composite* and the *Node Editor* to feed the Mist pass to an *AlphaOver* to blend the background color (or a render layer with just the sky) with the rendered image. This produces the mist effect but since Mist is off the object transparency (or lack of) is preserved.

Examples



Mist example

In this example (.blend) the *Mist Height* options has been limited to create smoke covering the floor.

This simple scene was inspired by Stefan Morell's Arc Sci-Fi Corridor.