



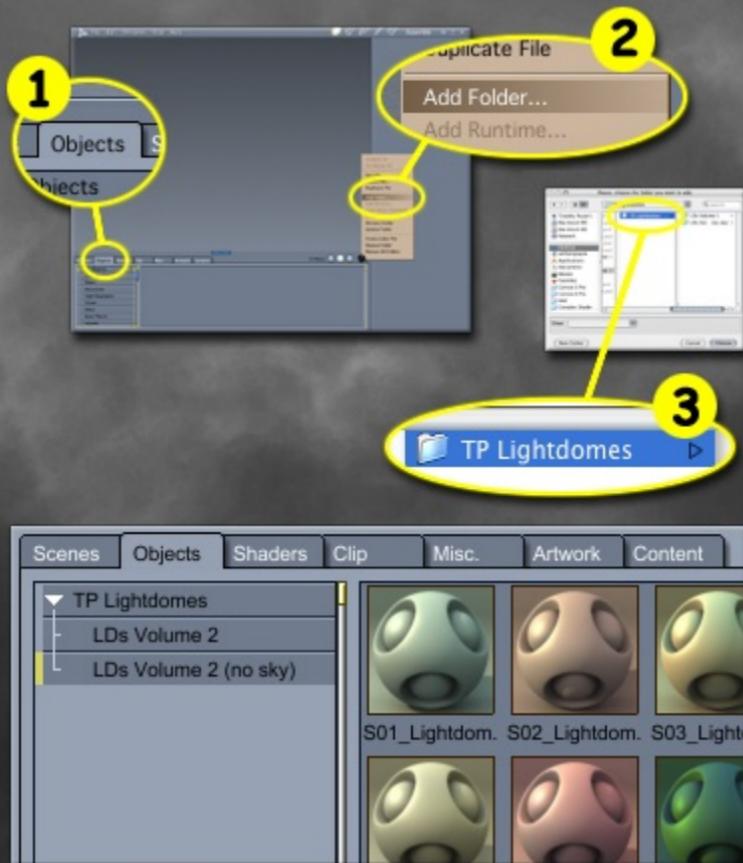
Installation

Note: After the lightdomes have been added to Carrara's browser, moving their folder will break the link with the browser. It's a good idea to put the folder somewhere permanent before proceeding. Your Carrara application folder is a good place.

To add the lightdomes to Carrara's browser, follow these steps:

1. Open Carrara, go to the file browser in the lower portion of the screen and click on the **Objects** tab. This is where the lightdome presets need to be installed.
2. Click on the round black button on the right side of the browser and select **Add Folder**.
3. Choose the folder titled **TP Lightdomes** and click OK.

The lightdomes are now accessible from the browser.



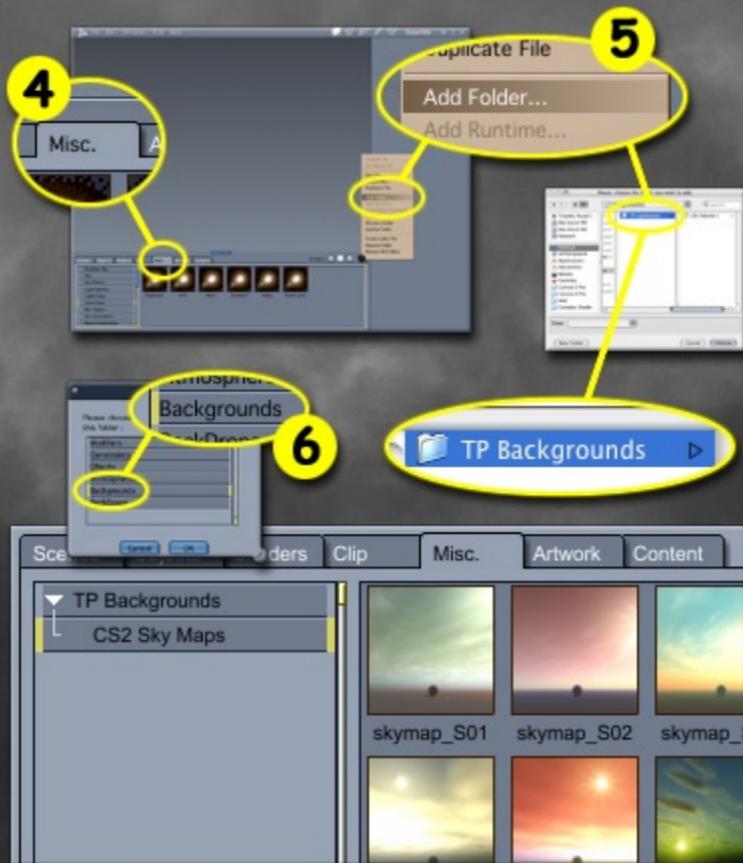
Installation

4. Next, click on the **Misc** tab. This is where the skymap backgrounds need to be installed.

5. Select **Add Folder** and choose the **TP Backgrounds** folder.

6. A dialogue box will appear. Select **Backgrounds** as the file type and click OK.

The spherical skymap backgrounds are now accessible from the browser.



Note: This package also includes **Ambient** presets. At this time Carrara does not support ambient files in the browser. You will have to load them into your scene manually.

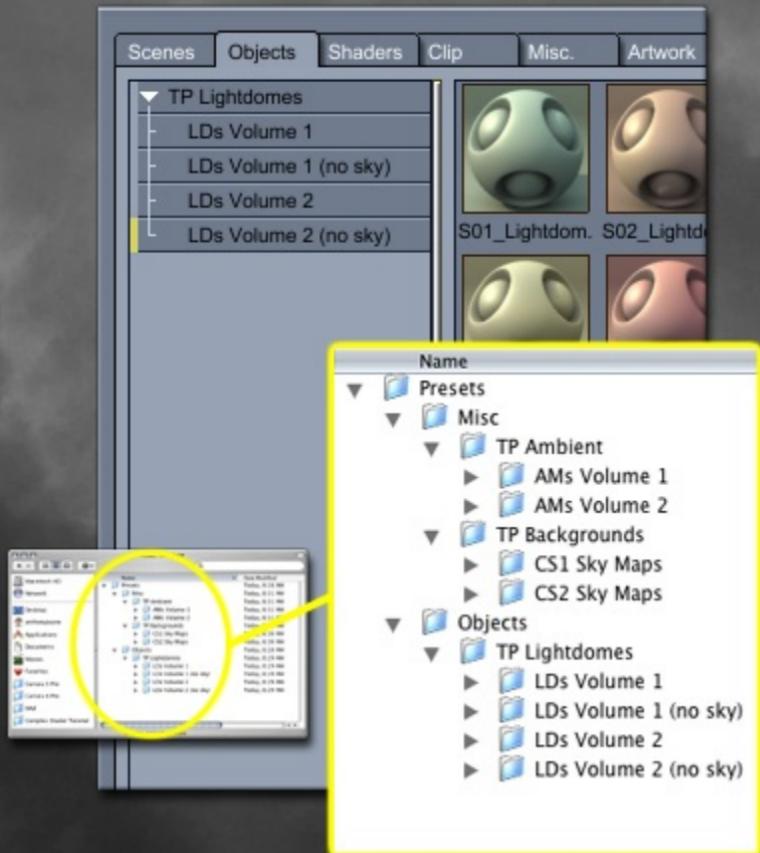
Alternate Installation

If you already own **Carrara Skies Lightdomes 1** and have installed it as described on the preceding pages, you can simply add the **Volume 2** presets to the appropriate folders and they will automatically appear in Carrara's browser.

1. Add the folders titled **LDs Volume 2** and **LDs Volume 2 (no sky)** to the previously installed **TP Lightdomes Folder**.

2. Add the **CS2 Sky Maps** folder to the previously installed **TP Backgrounds** folder.

3. Add the **AMs Volume 2** folder to the previously installed **TP Ambient** folder.



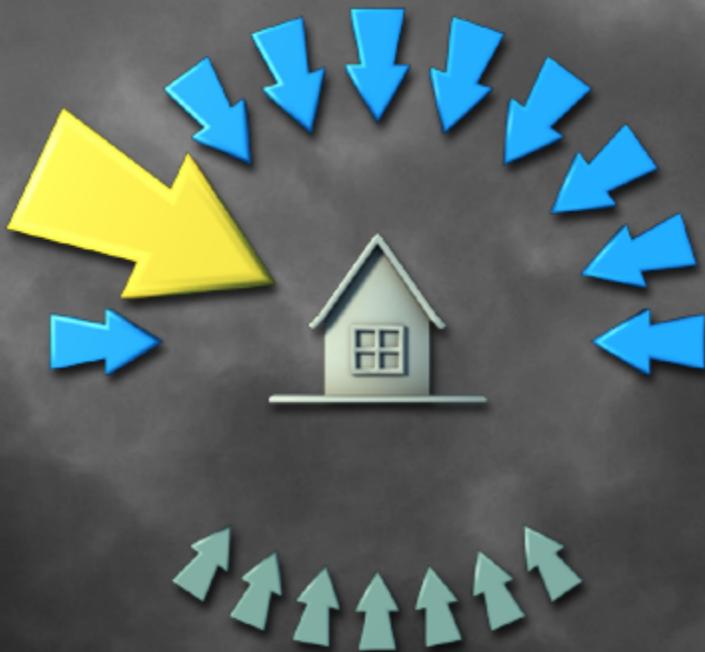
What is a Lightdome?

A lightdome is a hemispherical arrangement of many low intensity lights that provides soft, diffuse illumination to an entire scene.

The lightdomes in this package are designed to simulate outdoor lighting. They are a much more accurate and realistic alternative to the global illumination produced by Carrara's Realistic Sky.

Complex scenes often render faster with a lightdome than with true GI. In some cases the speed improvements are significant.

Another advantage of lightdomes over true global illumination is that they require less memory. This is especially advantageous for those running 32-bit versions of Carrara.



Sunlight, lightdome, and ground bounce

Lightdome Components

Each of the light rigs in this package has four components:

The **Sunlight** is the strong primary light source.

The **Lightdome** provides high-quality global illumination.

The **Ground Bounce** simulates light being reflected from the ground.

The **Ambient** preset helps to fill in dark crevices and overhangs, and is a requirement for rendering with ambient occlusion.



Sky or No Sky?

Carrara Skies Lightdomes includes two different sets of lightdomes. One is for use with the sky presets from **Carrara Skies Volume 2**. The other is for use without a sky, and instead of an actual atmosphere has corresponding spherical skymap images.

Two sets of lightdomes are necessary because the **Realistic Sky Atmosphere** dims and tints the light. The lightdomes intended for use with a sky will be too bright and the wrong color if used without a sky.

The two sets of lightdomes are calibrated to match each other exactly, so you can get the same excellent results with or without Carrara Skies Volume 2.

The advantage of having an actual sky is that you can see the effects of haze and aerial perspective on distant objects. But for smaller scenes and close-up renders this isn't necessary.

An advantage of using the "no sky" presets is that they render slightly faster since the light isn't being filtered by an atmosphere.



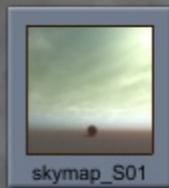
How to Use

To add a lightdome to your scene, simply drag the preset from the **Object** tab of the browser to the **Instance** tab of your scene. To avoid possible conflicts, do not have more than one lightdome in your scene at a time.

The **Ambient Light** presets are unfortunately not accessible from Carrara's file browser. You will need to click on the folder icon in the **Ambient** section of the **Effects** panel and load the preset manually.

If you are using the “**sky**” version of the lightdome, you will also need to add the corresponding **realistic sky preset** and **background bi-gradient** from Carrara Skies Volume 2. No need to add the lens flare preset – it is included in the light rig.

If you are using the “**no sky**” version of the lightdome, you should also use the corresponding spherical **Sky Map** background image. Drag the preset from the **Misc** tab of the browser to your scene's **Background** panel. This image provides the appearance of a sky and gives reflective shaders something to reflect.



Sky Map
(for "no sky" lightdome)



Lightdome Rig

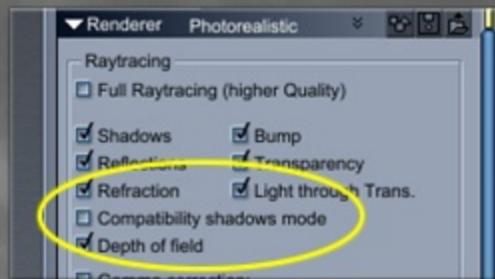
S01_Ambient.cbr



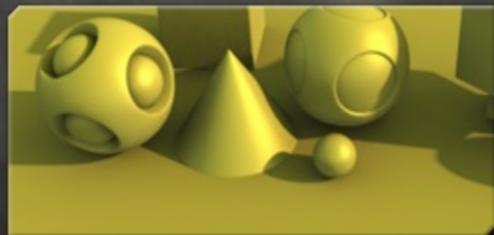
Compatibility Shadows Mode

Important: When using a lightdome in a scene with a sky, the Render Room **compatibility shadows mode** must be turned off. This prevents the atmosphere from over-intensifying the lighting.

This option was first included in Carrara 7. A lightdome cannot be used with a sky in previous versions of Carrara. If you are using Carrara 6, you will need to use the “no sky” lightdomes.



On (too bright)



Off (correct)

Lightdome Quality

Each lightdome has three different quality settings that can be selected via the **Visible** checkbox located in the **General** tab. Do not render with more than one version set to visible.

Fast uses 41 lights and usually produces blotchy shadows but is ideal for quick draft renders and scenes that have a lot of vegetation. Rough surfaces like trees and grass will completely hide the low quality shadows.

Good uses 161 lights and produces a much smoother lighting effect with minimal shadow artifacts even on smooth surfaces. It is typically 2-3 times slower than the Fast setting. Good is the default setting when you load a lightdome into your scene.

Best uses 641 lights and produces extremely smooth lighting but can be very slow. Use this setting with caution – some combinations of shaders and geometry will take forever to render with this many lights.

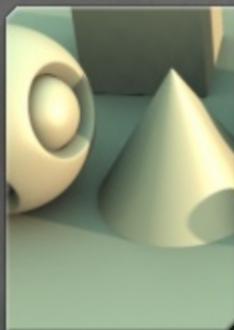
Always try to render with Fast or Good first. Best will rarely be necessary.



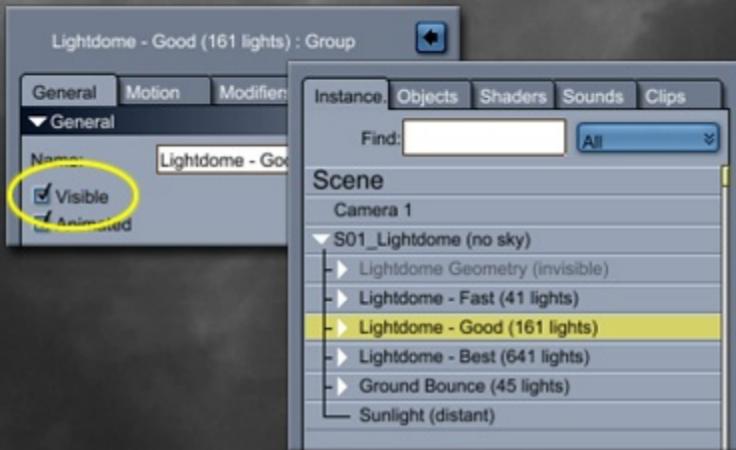
Fast



Good



Best



Intensity Adjustments

The light rigs in this package have been calibrated so they don't blow out light colored shaders, especially light colored skin. The result is realistic lighting that works very well for figure renders, but the sunlight may be somewhat dim for other types of scenes.

This is intentional – it is much easier to brighten the sunlight for high contrast lighting, than it is to find the ideal balance for natural portrait lighting.

Generally, the sunlight will be the only component that needs adjustment, though for very high contrast lighting you may also want to reduce the lightdome intensity.



Rendered with lightdome S29, default sunlight (102%)

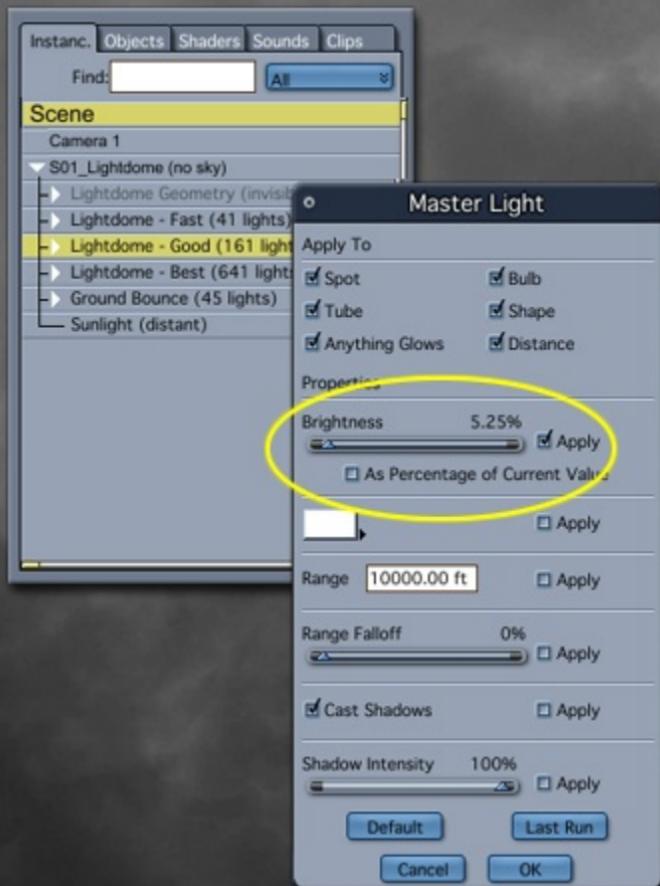


Rendered with lightdome S29, increased sunlight (220%)

Intensity Adjustments

To adjust the intensity of the lightdome, first select the version that you want to modify (Fast, Good, Best, or Ground Bounce), then go to the **Edit** menu and open the **Master Light** editor.

Set the new intensity, uncheck the other light properties, and click OK.



Render Settings

Keep in mind that lightdomes can cast many thousands of shadows even in a simple scene. For optimum render times, do not set your scene's shadow accuracy higher than it needs to be.

The most useful final render setting in Carrara, with or without a lightdome, is:

- Good antialiasing
- 0.5 pixel object accuracy
- 4.0 pixel shadow accuracy

Most scenes will not benefit from higher settings. Use lower settings if possible, and never go higher unless there are visible artifacts.



Global Illumination

Can Carrara Skies Lightdome be used with global illumination?

Ambient Occlusion can be used in conjunction with a lightdome. This won't usually be necessary since a lightdome already creates an AO-type shadow effect. However, if your scene has a partial ceiling, or objects have complex visible undersides, ambient occlusion can help.

Skylight should never be used with a lightdome. A lightdome is a replacement for skylight.

Indirect Lighting can be used with a lightdome, but for best results you will need Carrara 8.1.0.135 or later. Earlier versions of Carrara had difficulty with GI photon mapping when using this type of lightdome, which can result in very slow renders or bad artifacts. If you choose to render with indirect lighting you should disable the Ground Bounce lighting array, since it is there to simulate indirect light. You may also want to reduce ambience to 0%.



Rendered with lightdome S19 and ambient occlusion

The light rigs in this package are static. They are calibrated to match the default sun position of their associated Realistic Sky presets (or Sky Maps). The color and intensity of the lightdome does not adjust to changes in sun position. For this reason, moving the sunlight is not recommended.

In addition, the lightdomes should never be rotated, as this can cause them to stop working correctly.

Instead of moving the sun or lightdome, move your scene. **Group** everything else in the scene, including the rendering camera, and then **rotate** the group around the **z-axis** until you are satisfied with the distribution of light and shadow.



Lightdomes interact realistically with volumetric clouds. You can use a simple volumetric box cloud to add dense fog and haze to your scenes.

To improve rendering speed, set the cloud so it doesn't cast or receive shadows.

Note: This technique is best suited to simple fog-like clouds. Rendering complex cloud formations with a lightdome (or skylight for that matter) can be extremely slow and is almost never necessary.

Large cumulus types of clouds should be excluded from the lightdome's effect by setting them to be affected by sunlight only. Since Carrara Skies Lightdomes use a distant light for the sun, you will need to add a sunlight to your scene and set it to affect only the clouds.

Another, easier, option is to place your cloud formations outside the lightdome's area of effect. The lightdomes in this set have a diameter of 6000 feet.



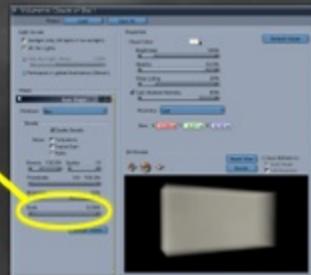
Background only



Volumetric box cloud



Low cloud scale creates fog



Tips & Tricks Additional Lights

Sometimes it can be difficult to get a good render with only one strong lightsource (i.e. the sun). An additional light or two, strategically placed, can greatly improve the quality and readability of many renders.

Depending on their placement relative to the camera, these lights are known as rim lights, bounce lights, fill lights, or kickers, and are used to help objects in the scene “pop” from the background and appear more three dimensional.

In the example here, a single distant light has been pointed from the left side of the image approximately opposite to the direction of the sunlight. The light’s shadows have been disabled so that it will affect everything in the scene and not cast strange shadows.

Notice how this simple addition helps to highlight the bumpy details on the serpent’s neck that are subdued and appear flat when rendered with only the default lightdome preset.



Rendered with an additional fill light



Rendered with default lightdome preset

Reference Renders

S01



SUN: pale yellow-white

DOME: pale gray-green

S02



SUN: yellow-orange

DOME: pale red-pink

S03



SUN: orange

DOME: dull green-blue

S04



SUN: yellow

DOME: yellow-brown

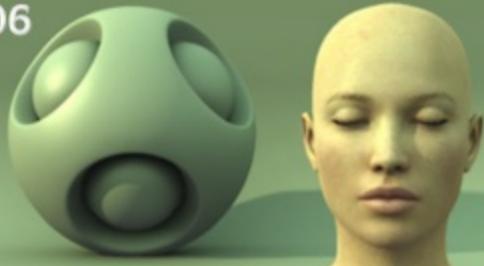
S05



SUN: orange

DOME: dull red-brown

S06



SUN: pale yellow-green

DOME: pale green

S07



SUN: pale yellow-white

DOME: blue

S08



SUN: pale yellow

DOME: dull yellow-gray

S09



SUN: yellow

DOME: green-gray

S10



SUN: pale yellow

DOME: pale gray-tan

S11



SUN: yellow-orange

DOME: red-pink

S12



SUN: bright green

DOME: blue-green





SUN: pale violet

DOME: violet and blue-green



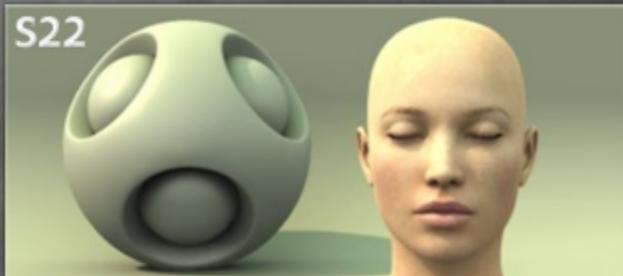
SUN: pale blue

DOME: pale orange-brown



SUN: pale blue-white

DOME: pale gray-blue



SUN: yellow

DOME: pale yellow-green



SUN: pale blue

DOME: gray-brown



SUN: yellow

DOME: dull lavender

S25**SUN:** pale orange**DOME:** gray**S26****SUN:** yellow**DOME:** yellow-brown**S27****SUN:** pale yellow**DOME:** pale gray-green**S28****SUN:** pale yellow-white**DOME:** pale blue-green**S29****SUN:** red-orange**DOME:** red-orange**S30****SUN:** pale yellow-orange**DOME:** pale gray-violet

S31



SUN: yellow-orange

DOME: yellow-green

S32



SUN: pale yellow-white

DOME: pale gray-green

