

Rendering



Settings

Render Camera Advanced Animation

Configure your animation settings. Animation requires 2 or more SketchUp scene views. Scene transition and delay time will effect the animation.

Has Animated Objects

Time 9.00 / 9.00 (s), Rendered Frames: 10

Start of Animation (s)

0 Jump

End of Animation (s)

9 Jump

Frame Rate (frames / s): 1

Starting Frame #: 8

Base Image Name:

c:\BatchRender-NumberedScenes\t1.jpg Browse

Reuse lighting information

Allow SketchyPhysics to run*

Use SketchyReplay to run recording*

Starting SP Frame #: 0

Commonly Used Frame Rates

- 30 - Standard television
- 24 - Standard film, good for computer playback
- 15 - When in a hurry for your animation, reasonable rate
- 10 - When in a big hurry, animation choppy
- 5 - Test Render frame rate for animations

2 Start (s):

This will read as (0) "zero" at first. You may leave it at (0), or if rendering an animation in "pieces" may choose any second of time to start the animation rendering sequence.

3 Stop (s):

This will read as (0) "zero" at first. If you have 3 frames, you have 2 transitions between them. If SketchUp's Animation Transition Time is set to 2 seconds, then 2 transitions x 2 seconds = 4.00(s) of video. If rendering an animation in "pieces" you can specify any second where you want to stop the animation.

4 Jump

Clicking this button will cause the view in SketchUp to "jump" to the frame at the time specified in the dialog box... or step through the animation using the Arrow Radio Buttons.

5 Frame Rate

The "Number of Frames (Images) Needed per Second of Video", also thought of as the "Rate the Frames Are Shown Per Second."

6 Starting Frame

Defines what number to *attribute* to the starting frame that is rendered. If you have 10 frames to render, and you choose "8" as the Starting Frame Number it will render all 10 frames, but name the files like so: Frame0008.jpg, Frame0009.jpg,Frame0017. Starting Frame # is NOT the frame number from which Twilight will begin rendering. You must set up the animation so that it will start and end properly where you wish by defining starting (time) second and ending (time) second of animation. If you are rendering 10 frames, and wish it to start rendering from frame 8, set Start of Animation to 7 and End of Animation to 9, and set the Starting Frame# as 8. It will render 3 frames like so: Frame0008, Frame0009, Frame0010. Using this feature will result in AUTO-OVERWRITING any frame with that name already in the file!

7 Base Name:

When rendering the frames of the animation, Twilight will automatically change the name of each frame to have a number after it. Click the "Browse" button to find the folder where you want the animation images to be placed. Type the name you want to use as the "Base Name" for all the animation images. The frames will be automatically saved in .jpg format for best quality and compression of color images. To save animation frames in a format other than .jpg, simply add a supported extension to the base name such as .tif (32 bit), OpenEXR .exr (32 bit), .bmp (8 bit), .png (8 bit)

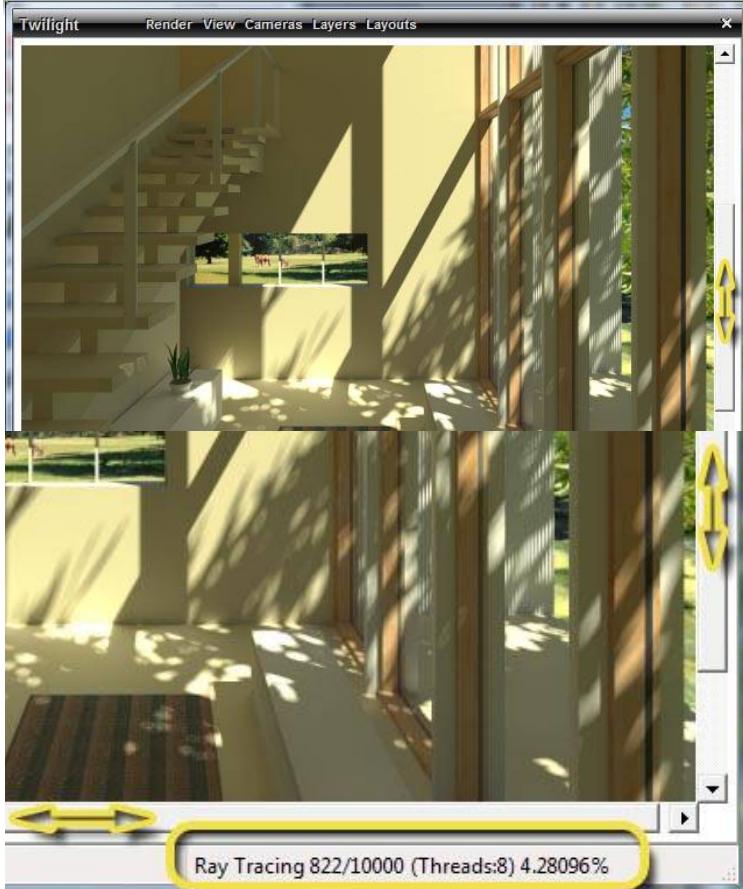
8 SketchyPhysics Animation Options:

SketchyPhysics is a free plugin for SketchUp available [here](#). It allows you to specify physical characteristics for objects in your model, then to play an animation to see how they will act in the real world. This animation can now be rendered using Twilight! See the [SketchyPhysics Reference Section](#) for a detailed tutorial on rendering your SketchyPhysics model.

Rendering



Render Window



Viewing the rendered image within the Render Window can be controlled with the scrollbars.



Clicking the [Save Button](#) will allow you to save your image by default in the highest quality .jpg format at any time during the rendering process. You may save the image in .tif (32 bit), OpenEXR .exr (32 bit), .bmp (8 bit), .png (8 bit), by typing the desired extension after the file name.

The rendering progress information is displayed on the notification line. During a rendering made using a *Progressive Rendering Preset* it will tell you which "Pass" is being completed. i.e. "822/10000"

Progressive rendering means that it will continue to render until the rendering is stopped or until it reaches 10000 passes.

It is not intended or suggested that the image be considered finished when it reaches 10000 passes, stop the render process when you consider the image to be sufficiently 'clear'. For most images the clarity will not increase much noticeably after 1000 passes.

The [Number of Threads](#) being used while rendering is displayed like this (Threads:#)

The percentage complete of a particular "Pass" (not necessarily of the entire rendering process) is displayed next to the number of threads. The Anti-aliasing (AA) pass must be allowed to continue to completion or it is not applied to the rendering. A "Pass" can be thought of as a "phase" in a rendering process. Different Render Settings have different phases or "Passes". Examples of a "Pass" are "Ray Tracing" and "Anti-Aliasing".

Backup of Rendered Image Temporary File Location

For progressive renderings, a temporary backup file is saved to your hard drive in the application's data file. You will have to enable viewing of hidden folders and possibly extensions in your Windows setup in order to see the folder. This can be found on Windows systems in a path something like :

XP: C:\Documents and Settings\Username\Application Data\Twilight\temp

Vista: C:\Documents and Settings\User\Application Data\Twilight\temp_rnder.tmp or try C:\Users\Username\AppData\Roaming\Twilight

Windows 7: C:\Users\Username\AppData\Roaming\Twilight\temp

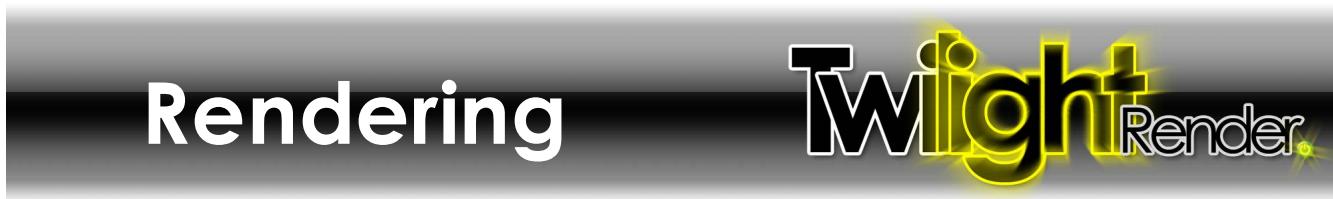


Image Context Menu

The context menu when right-clicking on the image gives you these options.

1 ***Save Image***

This is the same as clicking the Save Button.

2 ***Refresh Image***

Refresh Image will force the image to update its progress. By not updating the image constantly Twilight is able to save resources and render more quickly as well as allow you to continue working in SketchUp during rendering. If the render window is hidden/closed Twilight will 'refresh' the image even less frequently, and therefore improve performance and speed.

3 ***Fit Image to Screen***

Fit Image to Screen will squeeze the entire rendered image to fit into the current Render Window size.

4 ***Stop Before Next Pass***

"Stop Before Next Pass" is for use with progressive render settings. If these render methods are stopped after only a few passes, some 'pass' lines may appear on the image due to an unfinished pass. If stopping this method with the intention of saving the image, it is better to use this choice instead of the normal Twilight stop button.

Rendering



Troubleshooting:

1 I have started a rendering and it is in the “Ray Tracing” phase, but the Render Window is empty or showing only black.

1. Did you turn off all the lights using the [Light Editor Dialog](#)?
2. Did you turn off all the lights by hiding the [TWL Light Layer](#)?
3. Did you turn off the [Sun and set the background](#) to the color of black?
4. Did you neglect applying a Twilight glass material template such as “Thin Glass” to any windows/glass for an interior rendering so that it will allow light to pass through the face? If your glass has an opaque material applied, light can not reach your scene.
5. Did you insert any Twilight Omni or Spot light inside of a component that is opaque, or did you accidentally change the glass material of your lighting component to be opaque using the SketchUp material's opacity slider or the Twilight material's alpha slider?

2 I have changed a material in my scene, but the rendering keeps showing the old material and will not update it.

1. If your model is not updating materials when you render, be sure to check that the setting for [Updating Content](#) is set to “All” and re-render.
2. If you paint the objects inside of a group or component with a material, then you paint the entire group or component with a different material, the material that is painted directly on a front face will take precedence, then the material on the component or group, then materials on back faces.
3. Materials painted on the front face will take precedence of the materials painted on the back face. Set the view of your model in SketchUp to “Monochrome” in order to quickly see if it is the front face that has been correctly painted with the desired material.
4. Be sure that there are not 2 planes with different materials sharing the same 3D space. If this happens, sometimes you will see one material rendered in SketchUp’s view, but the other plane and material will show in the rendering.

3 I have changed some geometry in my scene but the rendering keeps showing the old geometry and will not update it.

1. If your model is not updating geometry when you render, be sure to check that the setting for [Processing Geometry](#) is set to “All” and re-render.

4 There are black speckles (noise) all over my rendering.

Be sure that any light (spotlight or omni light) is not touching/sharing 3D space with other geometry or another object in the scene. Keep lights approximately 2 inches (5cm) away from adjacent geometry.

Rendering



5 When I start the render, it says “Processing had errors” but continues rendering.

Processing had errors...

1. Are there layers or materials with strange or non-latin characters in their names? (~ ^ ' ") Foreign characters should be getting filtered automatically, but using only non-accented letters may help.
2. Was a material applied in the model from a material library which is not installed on the machine having the error? Find the missing material library and put it in the Plugins\Twilight\Materials folder.
3. Was there a material applied for which a texture file is now missing for some reason? Find the missing texture and put it in the same file with the .skp file.
4. Was there a light in the scene which incorporated an IES (photometric) file in it's definition that is now missing (now on a different computer)? Find the IES file and put it in the same file with the .skp model.

6 I can not render my scene using “Medium” or “High” settings, but it will render with “Low”.

Some may find that for high geometry scenes with a lot of lights will simply not render at all on their machine with the Medium or High settings. This is due to the fact that the machine will be running out of RAM to contain all the information necessary to complete the rendering. The scene should render well with Easy Setting “09. Interior Progressive”. Another possible solution would be to eliminate any lights that are not significantly contributing to the scene, also to be sure anything in the model that appears more than once is made into a component, and the components are copied, not the non-component geometry. Leveraging the power of components in SketchUp will save much time in processing and rendering.

It is wise to be extremely cautious when utilizing models posted to the internet and available for free. (Downloading models such as from the Google 3D Warehouse.) This is due to the fact that many of these models are not built with the intention to render them, they are not built correctly, they may contain a lot of superfluous geometry or materials, or they may not be built to correct scale. Typically packages made professionally and posted as groups of models as a resource from a manufacturer are “safe” to utilize... but many of them have problems as well.

7 Twilight Material Appearance Priority Order:

1. Any face with a "Front" material applied will always use that material
2. If not -- If that face is in a group or component, if that group or component has a material applied, it will use that material
3. Finally -- if the face has a back material applied, that material will be used

8 My Dialog Box is missing, or somewhere off screen.

A screenshot of the Twilight Options dialog box. The left sidebar has tabs for 'Directories and Files', 'Dialogs' (which is selected), 'Advanced', 'About', and 'Twilight language:'. The main area shows a note about system options for dialogs. It has three 'Reset' buttons: 'Reset all saved dialog answers', 'Reset all saved dialog positions', and 'Show system log file' with a 'Log' button. A dropdown menu for 'Twilight editor theme' is set to 'Brushed'.

There is an option in Twilight->Options->Dialogs for resetting all saved dialog positions. If you choose it, it will restore the Render window to it's default position. “Reset All Saved Dialog Positions”

Lighting



Section 2: The Omni (Point) Light Tool



The Omni (Point) Light Tool allows you to insert an Omni-directional Light. An Omni Light casts equal amounts of light in all directions (a little bit like a real light bulb). All lights in Twilight are by default set to attenuate light (light diminishes an amount over a distance), just as in real life, by the distance². The exception to this is the Sun which effectively has no attenuation.

To place an Omni Light in your scene:

- ➊ 1. Click the Omni Light Tool
 2. Click your light's Base Point. This is the place in your scene on a face or point *near* where you want the light to be placed. Drawing a temporary line where you intend to place the light may be helpful for guiding placement of a light. For example: draw a line crossing a circle so you can snap to the midpoint for the light.
 3. Now click a second time to pick the insertion point of the Omni Light Component. *To avoid lighting artifacts or problems, the component must not be touching an adjacent face.* Moving the mouse in a direction you can specify the insertion point for the light itself. Use the **Shift** key to lock the inferencing, just as with many tools in SketchUp. With the mouse inferencing a direction you may also type in the distance and hit "Enter". Now click to place the Omni Light Component. You should now see the Omni Light appear in your model.
 4. Twilight will automatically give the light a power. This power can be changed manually using the [Light Editor Dialog](#) later.
 5. After placing a light, right-clicking on the light will give you two options: Edit Light and Set Light Target.
 6. Choosing "Set Light Target" will allow you to "re-target" your light quickly by clicking any point in your model. This works with IES and Projector Lights as well, but may reset any previous custom rotation.
 7. After placing a light, open the [Light Editor Dialog](#) and use the eyedropper tool to choose and edit any light in your scene.
- !** If you see black speckles in your renderings it can be due to the fact a light is sharing 3D space with an adjacent face. For a 'standard' sized lightbulb, keep the Omni Light approximately two (2) inches (5cm) away from adjacent geometry. If you change the radius of your Omni Light to be greater than two (2) inches (5cm), then move it even further away from adjacent geometry to avoid potential conflicts/light artifacts.
- 💡** Place an Omni Light into a light component fixture you have in your scene. Placing a light within a SketchUp Component will cause the light to adopt the component's name. In addition, when you copy the fixture the light goes with it. Also, if properties for an omni or spot light placed inside of a component are edited once, it will change the light inside all instances of that fixture allowing control of many lights at once.

Twilight places all Omni (Point) Lights and Spot Light Components on the layer called "TWL_Lights_Layer". This is so that one can easily hide all the lighting components from within SketchUp's Layers Dialog. Hiding a layer containing lights effectively turns those lights off when rendering in Twilight.

After placing an Omni Light component into your scene, if you copy it to another place inside your model, you need only change its properties in [the Light Editor Dialog](#) once, as all other copies of that light will change with it.

Lighting



Section 3: The Spot Light Tool



The Spot Light Tool allows you to insert a Spot Light. A spot light is manually adjustable to cast light in a certain direction with a definable "Hotspot" angle and a "Falloff" angle.

To place a Spot Light in your scene:

1. Click the Spot Light Tool
2. Click your light's Basepoint (the place in your scene on a face or point near where you want the light to be placed) (drawing a temporary line where you intend to place the light may be helpful for guiding placement of a light, for example a line crossing a circle so you can snap to the midpoint of the line with your light.)
3. Now you need to click a second time to place the insertion point of the Light Component. *To avoid lighting artifacts or problems, the component must not be touching an adjacent face.* Moving the mouse in a direction you can specify the insertion point for the light itself. Use the **Shift** key to lock the inferencing, just as with many tools in SketchUp. Now click to place the Spot Light Component or type a distance.
4. Click a third time to place a Direction Point, this is how to "point" the Spot Light in a certain direction.
5. Twilight will automatically give the light a power. This power can be changed manually using the [Light Editor Dialog](#) later
6. After placing a light, right-clicking on the light will give you two options: Edit Light and Set Light Target.
7. After placing a light, open the [Light Editor Dialog](#) and use the eyedropper tool to choose and edit any light in your scene.

- 💡 If you see black speckles in your renderings it can be due to the fact a light is sharing 3D space with an adjacent face. For a 'standard' sized light bulb, keep the Spot Light approximately two (2) inches (5cm) away from adjacent geometry. If you change the radius of your Spot Light to be greater than two (2) inches (5cm), then move it even further away from adjacent geometry to avoid potential conflicts/light artifacts.
- 💡 Place a Spot Light inside of a light component fixture you have in your scene. The Spotlight will automatically adopt its name from the component. In addition, when you copy the fixture the light copies with it. Also, if properties for an omni or spot light placed inside of a component are edited once, it will change the light inside all instances of that fixture.
- 💡 It is with a Spotlight that one may utilize Photometric (IES) data. Load a Photometric Data File (IES) into the spotlight's definition by choosing the IES tab in the dialog and clicking the Load button to browse to and load the IES file. IES files are found for light fixtures, not for bulb types. They are provided by most commercial lighting manufacturers for free on their websites.
- 💡 To Convert an Omni into a Spot light, choose the Omni Light in [the Light Editor Dialog](#) and click the "Convert" menu item at the top of the dialog. Choose "Spot" to convert the Omni into a Spot Light, then it will be able to be loaded with IES data.

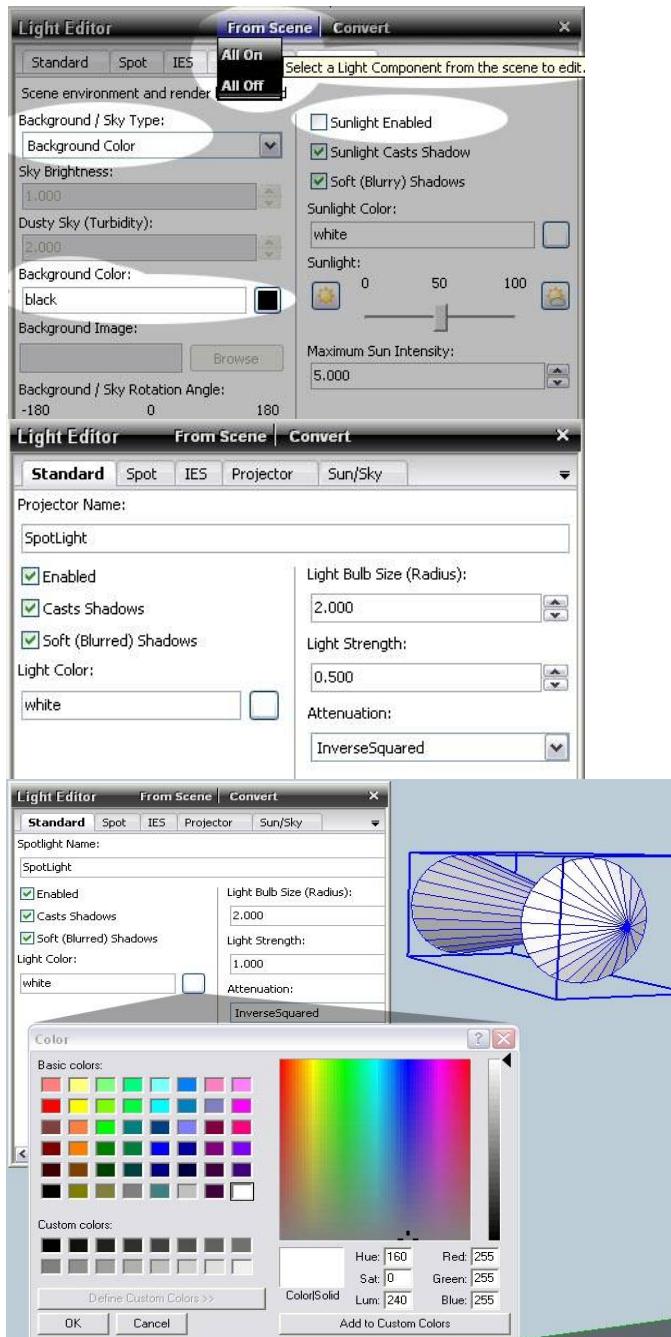
Lighting



Section 4: The Light Editor Dialog



The Light List and Settings (+Sky) is a listing of all lights in the scene, allowing easy access to full lighting control. This is also where you can choose Sun & Sky parameters as well as utilize an [HDR](#) or [Spherical Sky](#).



The Sky contributes to lighting in most rendering methods* in Twilight. This is why the sky is found in the Light List and Settings Dialog. The Sun & Sky work hand-in-hand by default in Twilight with the Physical Sky setting.

*specialized render methods do not take sky light into account such as Alpha Mask or some other render passes. Also, simple raytracing method is possible with Twilight, and sky light is not taken into account with this method.

Using the “From Scene” Pull-down Menu you can choose from a list of all lights in your scene to edit. Chooseing “All Off” will disable *all lights, including the sun*. It will NOT turn off the Sky. To disable the sky, simply choose “Background Color” as the Sky Type. Backgrounds will not contribute light to the scene.

Standard Light Options Tab

Naming lights is important for good scene organization and for ease of the next user to find what they are looking for.

“Enabled” check box turns the light on or off.

“Casts Shadow” check box only works for lights when rendering with non-progressive rendering methods such as the Low-High render presets.

“Soft Shadows” check box turns the soft shadow on or off. Realistic lights usually have soft shadows.

Light Color box will accept RGB values as well as the common color names. Clicking the color swatch button will pull up the Color Swatch dialog.

Light Bulb Size is a *radius* size, so type accordingly. This controls not only how the light will interact with adjacent geometry, but also the soft effect of the soft shadow. The larger the radius, the softer the shadow.

Light Strength: With [IES Data Files](#), the light strength should be set to a power of 1. Light Strength and hotspot/falloff information for spots play crucial roles.

The Attenuation is the amount a light will dissipate. In physics this is typically by the Inverse Squared.