

# **(Draft) Pose2Lux Pro**

## **user guide**

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# Table of contents

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Introduction .....	1
Installation .....	3
Getting started .....	5
The Essentials .....	8
Emitters.....	9
Lights .....	11
Materials.....	13
Exporting your scene .....	15
Advanced stuff .....	18
Material templates.....	19
Camera settings.....	19
Geometry options.....	21
Sampler, filter and integrator .....	23
Useful stuff .....	26
The Paths screen.....	27
World volume .....	27
Menu reference .....	28
Appendices .....	29
XML material libraries .....	30
Basic concepts.....	30
Element names.....	30
Element reference list .....	33
Parameters reference list .....	34
Licence .....	35

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# Introduction

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## What is Pose2Lux?

Pose2Lux is a script for Poser which enables you to export your Poser scene to a text file which can then be imported into the Luxrender rendering program. The script provides a user interface so that you can apply various settings to ensure your scene renders how you want it to.

Luxrender is a free, open source rendering program which purports to produce unbiased, physically accurate renders which produces much more realistic renders than Poser's own internal Firefly rendering engine. Luxrender can be downloaded from: [www.luxrender.net](http://www.luxrender.net)

## Help and support

Pose2Lux has its own website at [www.Pose2Lux.com](http://www.Pose2Lux.com) where you can find more information about using Pose2Lux as well as join a thriving and supportive community of Pose2Lux users.

## Licence

Pose2Lux is released under the MIT licence, details of which are included in the appendix. In essence, you can do pretty much anything you want with it except claim that it's your own work.





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# Installation

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## Requirements

Pose2Lux works with Poser 6, Poser 7, Poser 8, Poser Pro and Poser Pro 2010. It works on both the Windows and Mac platforms, although there are some minor issues with the Mac version.

## The distribution package

The official Pose2Lux distribution package is a zip file containing several files. The only file you need in order to export your scene is 'pose2luxpro.pyc' - the other files consist of licence details, documentation, examples and logos etc.

## Installing the script

The pose2luxpro.pyc script can be run from any folder so you can choose where you save it. There are some considerations when choosing a location for the script:

- ♦ Pose2Lux can save a configuration file to its own folder if it has sufficient access rights, so it is preferable to choose a folder not subject to write restrictions, such as a UAC controlled folder (in Windows)
- ♦ Saving the script to the "runtime\Python\poserscripts\ScriptsMenu" folder of your main Poser runtime, or a subfolder of the ScriptsMenu folder, will cause it to appear conveniently in the Scripts menu of Poser. Note, however, that this may clash with the other consideration described above!

## Other files and folders

The functionality of Pose2Lux can be enhanced by other files such as, for example, material libraries in XML format. These can be stored anywhere on your system, but if you set up special folders for them and configure them on Pose2Lux's 'Paths' screen then you will find Pose2Lux even easier to work with.

How to set up these folders and configure Pose2Lux to work with them is described in the 'Paths screen' section.





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# Getting started

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## Creating your Poser scene

Many Poser scenes contain a lot of information designed to help the Firefly renderer but which is not needed by Luxrender and can compromise Pose2Lux's efforts to accurately convert the materials in the scene.

Pose2Lux will always attempt an accurate conversion, and provides a user interface wherein you can override the conversion choices with your own, but there are things you can do to assist it:

- ♦ Simplify the shader trees in Poser's Material room as much as possible. For example, plug texture maps directly into the PoserSurface.
- ♦ Try to avoid using the 'Alt' inputs (Alt\_Diffuse etc.)
- ♦ Ensure the Ambient\_Value is set to zero for materials that are not intended to act as light sources

Also:

- ♦ Do not use an orthogonal camera (Top, Left etc.) for your render as Pose2Lux does not support them
- ♦ Give meaningful names to your lights, including group names if appropriate. An explanation of light groups and how to name your lights is given in the Lights section.

## Running Pose2Lux

Pose2Lux can be run from Poser's Scripts menu if it has been installed to the appropriate folder. Otherwise, run it from the 'File/Run Python Script' menu or add it to the Python scripts window.

NB: When Pose2Lux is running, avoid making any changes to the Poser scene. Always close Pose2Lux before continuing to work on your scene or you may experience unpredictable behaviour.

## Simple vs. Advanced mode

The Pose2Lux Intro screen offers you the choice of 'Simple' mode or 'Advanced' mode (which is the default).

'Simple' mode temporarily removes several of the screens available in Pose2Lux, leaving only the essential ones. The facilities on the removed screens are only needed in especial circumstances so you probably won't miss them. If you do find that you need to use a feature on one of the removed screens you can simply return to the Intro screen and select 'Advanced' mode, which will make all screens available again.

## Accessing Pose2Lux screens

The column of buttons on the left-hand side of the Pose2Lux window provide access to the script's various screens.



## Recommended workflow

As you gain familiarity with using Pose2Lux you will no doubt develop a workflow that suits you. The workflow described here isn't presented as an 'ideal' workflow, but merely as a guide and starting point until you have developed your own way of doing things.

It is assumed that your scene has been prepared in Poser and that you have launched the Pose2Lux script.

### Step one: Check for emitters

Pose2Lux treats any Poser material with an Ambient\_Value set to something other than zero as an emitter of light, or a light source. However, many materials, especially in legacy content, have non-zero values in Ambient\_Value but are not intended to be light sources. This is especially common with skin materials. The 'Emitters' screen allows you to determine which emitters you want to keep.

### Step two: Set up your lights

I recommend configuring your lights next because the process of preparing a scene for rendering in Luxrender will often require you to make some test renders. These test renders might be made with rendering settings that produce quick results, such as reducing the resolution of the render, but you will nevertheless want to be able to see the resultant image!

Having configured your lights (see the 'Lights' section in

this manual for details) make a test render and while Luxrender is rendering adjust the linear tone mapping settings until the exposure is correct. Before closing Luxrender, duplicate the tone mapping settings onto the Pose2Lux 'Camera' screen so that you don't have to adjust them next time.

### Step three: Assign materials

The process of assigning materials is described in detail in the 'Materials' section of this manual.

An effective method is to manually assign Luxrender materials to those Poser materials for which you have a specific library preset in mind, using the various filters to help you find the relevant entries list of materials.

Having done that, you can then use the auto assign function to automatically complete the task and ensure that no material is left unassigned.

At this point, save your scene settings! Use the 'Save all' menu item to do so. From this point on, whenever you make any changes to your Pose2Lux settings for this scene, always be sure to use the 'Save All' option so that next time you revisit the scene you can load all your export settings and material choices again.

### Step four: Render

This is likely to be an iterative process, involving a test render / change materials/lights etc. / test render cycle. When everything finally looks right set your export settings to the appropriate quality and render your scene.



# The Essentials

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# Emitters

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An emitter (sometimes referred to as an 'area light' is a piece of geometry (figure, prop) that acts as a light source. Any object can be made into an emitter, although simple objects made up of a small number of polygons are the most effective. Pose2Lux also treats all point lights as emitters, converting them into spheres at export time.

To define an object as an emitter set (in Poser) the Ambient\_Value of its material to a value greater than zero (if the object has multiple material zones you can choose which zones emit light). Pose2Lux will then recognise the material as an emitting material and include it in the list displayed on the Emitters screen.

## Configuring emitters

Emitters are configured on Pose2Lux's 'Emitters' screen.

The emitters are listed in two panels. The left hand ('Keep') panel shows the emitters which will remain as emitters during export, while the right hand ('Reject') list shows those that will be exported as regular materials, not light emitting ones. The buttons between the panels let you move the selected emitters between the two panels. Highlighting multiple emitters first allows you to move more than one emitter at a time.

The button labelled 'Set Ambient Value to ZERO in the scene' should be used cautiously as it will write a zero value into the Ambient\_Value channel for all materials listed in the right hand scene. This is one of the very few occasions when Pose2Lux actually changes anything in your scene and cannot be undone.

## Changing the parameters of an emitter

Highlight one or more emitters in the left hand panel. Then change the values in the controls to suit your needs and use the 'ASSIGN' button to copy those values into the corresponding parameters of each highlighted emitter.

Note that you can also highlight an emitter in the left hand panel and then use the 'GRAB' button to copy its parameters into the controls. This is useful, for example, when you want to change just one parameter of a particular emitter.

## What the emitter parameters mean

### Owner/Material

This is a unique reference to identify which material zone is being treated as an emitter. It is the same reference that is used on the 'Materials' screen.

### Wattage

The power of the light source, in Watts.

### Efficacy:

How much light is produced per watt

### Gain:

This is just a simple multiplier of the above parameters, such that total light output is equal to: Wattage x Efficacy x Gain. Note that Gain can be further adjusted in the Luxrender GUI.

### IES

This is the path to an IES data file. IES data files describe the light distribution of light sources, providing the information Pose2Lux needs to make very realistic lighting. IES files are readily available for download on the internet. Note that Pose2Lux can store the path to your IES file collection on its 'Paths' screen for added convenience.

### Use texture map instead of colour

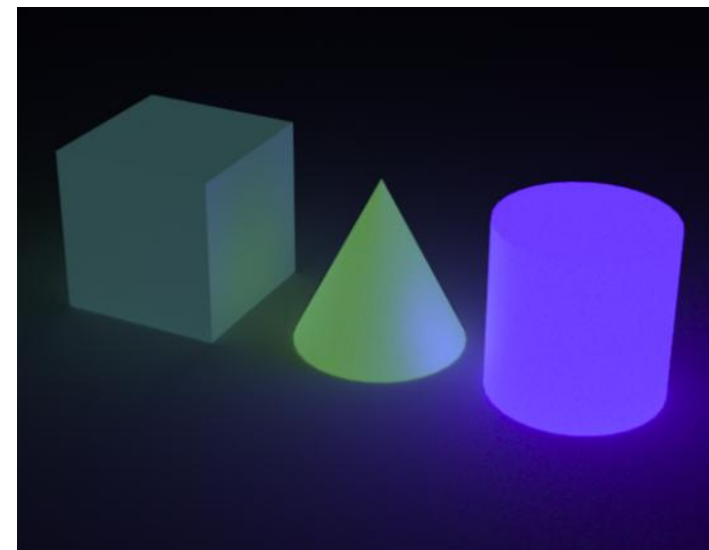
Normally Pose2Lux uses the colour value in Poser's Ambient\_Color channel as the colour of the emitted light.

However, if this option is ticked Pose2Lux will instead look for a texture map attached to the Ambient\_Color channel, and if it finds one it will use that to define the colour of the light.

### Group

This is the light group into which the emitter will be placed. Light groups can be adjusted individually in the Luxrender GUI while your scene is rendering. You can define new light groups on the 'Lights' screen.

Alternatively, you can quickly put all emitters into a single group by ticking the box labelled 'Put all emitters in this group >>>' and entering a group name in the entry field next to it. Note that the group name does not need to have been previously defined.





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# Lights

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The configuration of your scene's lights is done on Pose2Lux's 'Lights' screen.

One of the main benefits of rendering in Luxrender is that you can modify the colour and intensity of your lights while the scene is actually rendering. The changes are made to 'light groups' rather than individual lights. Pose2Lux initially puts all lights into a group called 'default', but you can create more groups and assign your lights to them so as to have finer control over your scene's lighting.

## Grouping lights

### Create a new group

You create a new group by entering a name into the field labelled 'Make new group' and clicking the 'ADD' button. The 'Select group' drop down box is automatically set to the newly added group. Note that these groups can be used for emitters too.

### Assign a light to a group

To add a light to a group highlight a light in the list, select a group from the drop down box and click on the 'SET' button.

### The 'ignore group'

There is a special group called 'ignore' set up by

default. Any lights assigned to this group will not be exported. Among other things, this enables you to set up lights purely for previewing scenes in Poser and by assigning them to the 'ignore' group you don't have to bother with switching them off before running Pose2Lux.

NB: If you prefix your Poser light names with a group name and a colon, the light will be automatically assigned to the group (the group will be created if it doesn't already exist), e.g.: 'fill:Spotlight' will assign the light to a group called 'fill', creating it if necessary.

## Sun and Sky settings

Luxrender can create a distant directional light to emulate the light from the sun. It can also create a sky light to provide a global ambient light with a horizon effect. These are 'switched' on by assigning a Poser to light to them using the relevant drop down box. A light assigned in this way will not be exported as well - it serves purely to trigger the creation of a sun or sky light. Note that the same Poser light can be assigned to both the Sun and the Sky light.

You can switch off the sun and sky lights by using the 'Reset Sun and Sky' button.

The appearance of the sky can be controlled using the six slider controls.

## Sun and Sky parameters

### Turbidity

This is the haziness of a fluid caused by individual suspended particles that are generally invisible to the naked eye, similar to smoke in air. In another words, amount of dirtiness in the sky, the higher the more yellowish/reddish becomes the sky.

### Horizon brightness

This controls brightness of the horizon relative to the sky.

### Horizon size

This defines width of the gradient separating the horizon from the sky.

### Sun halo brightness and size

These are settings to control brightness and size of the sun area respectively. The bigger these values are, the brighter and bigger the sun area will be.

A brighter and bigger sun means that highlights will be bigger and brighter on specular surfaces.

### Backscattering

This is the light scattered back by the atmosphere turbidity. In practice, higher values produce a brighter sky around the sun disk. The backscattered light contributes less the lower the Turbidity values are, though.

## *Lighting in Luxrender*

*You will probably find that you will need fewer lights when rendering with Luxrender than you might normally use in Poser (unless you are using IDL in Poser Pro 2010 or Poser 8) because of the way light propagates around the scene.*

*For outdoor scenes, just one infinite light (or a sun light) will usually suffice. Indoors, place point or spot lights where the lights would actually be in the 'real world'.*

*Note that point lights are treated as emitters and should be scaled up to soften the shadows they produce.*

*Emitters (including point lights) generally produce softer shadows than other lights, the softness being directly related to how large the emitter is and its proximity to the object being lit.*

*Also, although you can adjust the intensity ('gain') of lights in Luxrender while the scene is rendering, it is often preferable to adjust the exposure settings in the Tone Mapping panel instead.*

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# Materials

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The assignment of materials is done on the 'Materials' screen of Pose2Lux. Note that this screen is not available until you have analysed the scene.

## The screen layout

### Poser materials

In the upper left of the screen is the list of Poser materials and the Luxrender materials which have been assigned to them. It is divided into three columns:

- ♦ **Owner** — This is the Poser figure or prop to which the material belongs
- ♦ **Material** — The name of the Poser material
- ♦ **Lux material** — The Luxrender material which has been assigned to the Poser material, or blank if none has yet been assigned.

These rows in the list can be sorted by clicking on the appropriate column header.

### Filters

This collection of checkboxes restricts what materials are displayed in the list above. You can select any combination of filters. NB: the 'Ignore Preview material' filter is on by default, and it does not ignore a preview material if it is the only material the owner has.

### Lux library

The drop down list labelled 'Select' shows all the currently installed Lux material libraries, and allows you to select the one with which you want to work. The materials contained within the selected library are displayed in the list below.

### The big red buttons

These are the controls used to make the actual material assignments, although one of them, the 'Set skin' button, has a special purpose described in more detail later.



## Assigning materials

While not obligatory, it is highly recommended that all Poser materials are assigned a Lux material. Any that are not assigned one will be automatically assigned a default matte grey material on export. When exporting your scene Pose2Lux will warn you if you have left any materials unassigned.

To assign materials select on or more Poser materials from the list on the left (a multiple selection is made using the standard Windows convention of shift-click or control-click), then select one of the Lux materials displayed in the list on the right. Now use the 'Apply to selected Materials' button to effect the assignment.

Should you wish to remove an assignment then simply select the material or materials from the list on the left and use the 'Reset selected Materials' button to clear the assignment. Note that you can also simply overwrite materials with new ones rather than clearing them.

### Auto assign materials button

This button will make Pose2Lux assign a Lux material to all Poser materials without one.

While Pose2Lux will analyse the material's shader tree in an attempt to identify the most appropriate Lux material, the results may not always be optimal so you should scrutinise Pose2Lux's choices and be prepared to change them if you're not happy with them.

### The 'Set Skin' button

This button is used to determine which Lux skin material will be used when the 'Auto assign' feature is used. Pose2Lux knows about the skin materials zones used by many of the most popular Poser figures and will use the skin material of your choice when automatically assigning Lux materials to them.

To set the default skin material, select a material from one of the libraries (you can actually choose any material, though the intention is that you choose one of the actual skin materials from the 'People' library) and then click on the 'Set Skin' button.

### **Saving and loading:**

The choices you make for your material assignments can be saved for future use. See the 'Menu reference' section for more information.



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## Exporting your scene

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Your scene is exported to a text file using the Export screen, and the text file can then in turn be loaded into Luxrender and rendered. Most of the export parameters are on the Export screen itself of course, but there are a few extra ones to be found on the Output screen.

### Output path and filename

At the top of the Export screen is a field in which you can enter the path and filename that Pose2Lux should use for the exported text file. Rather than type in the details you may prefer to use the 'Select' button to choose the saved file name and location using a standard file dialog.

Pose2Lux can also configure Luxrender to intermittently write out a PNG file of the current render, and you can override the default name of the PNG file by entering one of your choice in the field labelled 'Lux name:'. For your convenience, the red button with the chevrons to the right of the 'Select' button will set the 'Lux name' to the same as that selected for the export filename (the file extensions will, however, differ).

If you want Pose2Lux to write out the material definitions in a separate file then select the 'Write separate material file' option on the Output screen.

## Gamma and resolution

By default Pose2Lux will set the scene gamma correction to 2.2, but you can disable that by deselecting the option on the Export screen. Scene gamma can be set using the Lux GUI too, which affords more options.

The resolution of your image is ordinarily taken from the size of the Preview window in Poser, but Pose2Lux will use your specified render dimensions if they have been set.

The red multiplier buttons enable you to change the resolution of your render while maintaining the correct aspect ratio. The 'Reset' button sets the resolution back to Poser's settings.

### Adjust colour levels

If the 'Use scaling' option is selected then the Diffuse and Specular values found in all Poser materials are pre-multiplied the values of the 'Diffuse scaling' and 'Specular scaling' sliders.

Ideally you would leave this unchecked and set all the diffuse and specular values to good ones for Lux in the Poser material room, but this can be a very onerous task! This option lets you easily scale all of them to values that are more compatible with Lux. For best results in Lux, diffuse values should not exceed 0.8 and specular values should not exceed 0.2 (and even lower values are often best).



## Renderer

There are three rendering engines that Luxrender can use. The standard one is the 'Sampler' and at the time of writing is the only reliable one. It uses the CPU for all calculations.

The 'Hybrid' and 'Hybrid SPPM' renderers both use the GPU as well as the CPU with the idea that this will boost performance. To use either you must be using a video card with OpenCL drivers installed, and your version of Luxrender must also be an OpenCL version.

## Film

### Write FLM file

Instructs Luxrender to periodically write an FLM file while rendering. An FLM file enables Luxrender to resume a render from the point at which the FLM file was saved.

### Ignore existing FLM file

Write out the FLM even if an existing FLM will be overwritten. Has no effect if 'Write FLM file' is not selected.

### Write PNG file

Instructs Luxrender to periodically write a PNG graphic file of the current render to disk while rendering.

### Write 16bit PNG

Makes Luxrender write out 16 bit PNG files instead of 8 bit ones. Has no effect if 'Write PNG file' is not selected.

## Other settings

It is beyond the scope of this guide to describe the different features of the accelerators and surface integrators available in Lux. For more information please see [www.luxrender.net/wiki/LuxRender\\_Render\\_settings](http://www.luxrender.net/wiki/LuxRender_Render_settings).

Note that you can select and configure the surface integrator in more detail on the 'Integrator' screen.

### Shadow samples

The suggested number of shadow samples when computing illumination from the given light. No, I don't know what that means either! Note that the default in Pose2Lux is 2, while the Luxrender wiki recommends 1.

### Reduce Fireflies

Fireflies are unwanted bright pixels in the render that won't go away no matter how long you render for. Use this setting to reduce the likelihood of fireflies. The higher the setting, the fewer fireflies you will get, but the longer your render will take. Set to zero to switch off this feature.

### Write Alpha channel (on Output screen)

Do not render a background, and write an alpha channel (i.e. Mask) into the PNG file. This makes it easy to add your own background in a graphics program which supports alpha masks.

### Clay mode (on Output screen)

No textures are output. Everything is a matte grey.



# Advanced stuff

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# Material templates

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A material template is a file created with the 'Save scene materials' option but only containing the materials for one owner (figure/prop) called 'PL2\_GENERIC'.

Materials saved with this special owner name can be applied to any owner, regardless of its actual name.

## Making a template file

- ♦ Rename a figure in your scene to 'PL2\_GENERIC'. This figure will act as the template.
- ♦ Run Pose2Lux and assign materials to the template figure. Make sure all other objects in the scene do not have any materials assigned.
- ♦ Select 'Save scene materials' from the menu and save the file with a meaningful name.

## Applying the template

In the Materials screen, select a material belonging to the owner to whom you want to apply the template, then select the filter 'Show only selected owner'.

Load the template using the 'Load scene materials' menu option. The materials in the template will be applied to the selected owner wherever there is a matching material.

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# Camera settings

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## Exposure controls

The Camera screen in Pose2Lux lets you set various exposure controls similar to those that you might find on an SLR camera. However, the exposure controls are also modifiable in the Luxrender GUI so it is not crucial to get the right settings in Pose2Lux. My own preferred method is to set approximate settings only and then tweak them in the Lux GUI during the render when you can see the effect of each change. Once the settings are optimal, I then implement the same settings in Pose2Lux and save them ('Save all' menu option).

### ISO

The sensitivity of the camera to light. Higher values = greater sensitivity and therefore more exposure.

### Shutter speed

How long the virtual shutter remains open. Higher values = longer exposures.

### fStop

The aperture setting determines how large the opening is for light to enter the virtual camera. Larger f numbers = smaller opening and therefore less exposure.

### Gamma

Not to be confused with scene gamma.

## Presets

The four preset buttons change the default exposure settings in accordance with the type of lighting in your scene. Designed for outdoor scenes using the Lux sun and sky settings, these presets are only an approximate starting point.

## Depth of field

The term 'depth of field' (DOF) refers to how much of the image is in focus. With a narrow DOF only objects on or very near the plane of focus will be sharp. With a wide DOF objects that are in front of or behind the plane of focus may be sharp too.

Many factors affect how much DOF a scene has, but the key one is the fStop value. A wide aperture like f2.8 will have a narrow DOF, while a small aperture such as f16 will have a wide DOF.

To use DOF in your scene:

- ♦ Using the Focus Distance Guide (from Poser's Display/Guides menu), set the camera's focus\_Distance parameter.
- ♦ Run Pose2Lux and set the fStop value on the Camera screen to a value that achieves the DOF effect you want (you may need to change other exposure controls to compensate).
- ♦ You can also override the focal length value of the

camera by using the slider control. The focal length also affects DOF. Note that changing this value does not change the actual focal length used to render your scene — it is only used to modify the DOF calculation. Generally you will not want to change this value.

- ♦ 'Switch on' DOF by selecting the 'Use Depth of Field' checkbox control.

NB: While you can subsequently adjust the fStop value in the Lux GUI it will only affect the exposure, not the DOF. The DOF is calculated at the time of export and cannot be changed during the render.





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# Geometry options

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These options are found on the Geometry screen of Pose2Lux, but for most scenes it will be preferable to use the utility on the Tools screen to add extra parameters to objects in your Poser scene, affording you much finer-grained control over subdivision and displacement.

## Subdivision

Subdivision is the process of dividing each polygon in an object into several smaller polygons. This is useful to achieve smoother surfaces or more detailed displacement.

You can ask Pose2Lux to subdivide figures and props, or you can let Luxrender do the subdivision. The reason you have a choice is because in the early days of Luxrender's development its own subdivision was awful. It is, however, very much better now.

Using Pose2Lux's subdivision will result in longer export times. Using Luxrender's will result in longer scene parsing times.

If the material has a displacement map plugged into it then the 'Displacement subdivision' levels and 'Use microdisplacement' options override all other subdivision options.

'Maintain sharp boundaries' and 'Create edges at

shading normal splits' are both only used by the Luxrender subdivision process and they try to achieve the same thing - to keep sharp edges sharp. For example, a cube subjected to multiple levels of subdivision will turn into a sphere eventually. To prevent this, use one or both of these parameters. They differ in the way they attempt to identify sharp edges - either by analysing the geometry or by analysing the direction of the normals.

### Subdivision levels

For each level of subdivision the polygons will be split into several smaller ones. For this reason you will usually only want to use one or two levels of subdivision, or the number of polygons will quickly become unmanageable unless you have a very high powered computer.

## Displacement

You can choose whether the displacement in your scene is handled by Luxrender's usual displacement algorithm (i.e. Moving actual vertices around) or by the new microdisplacement option. The microdisplacement option works very similarly to Poser's own displacement, subdividing each polygon into many much smaller ones and moving them according to the displacement map.

Use the 'Use Microdisplacement' checkbox to choose the displacement method.

Note that if a surface has a displacement map applied to it then the subdivision levels are based on the value in the 'Displacement Subdivision' slider, overriding any

other subdivision settings on the Geometry screen.

## Dynamic hair settings

The 'Hair root radius' and 'Hair tip radius' settings determine the thickness of hair strands in dynamic hair models.

At the moment this is a generic setting for all dynamic hair models in the scene. Future versions of Pose2Lux will have an option to take these settings from the Poser hair room for each model individually.

## Other geometry options

There are two options to make Pose2Lux calculate normals for Figures and for Props. They are switched on by default and should remain so unless you are experiencing severe problems with your scene's geometry when rendering in Luxrender.

## Add or remove Lux parameters

**\*\* IMPORTANT - Please read! \*\***

For most scenes, using the subdivision options on the Geometry scene is not recommended because they apply to all figures or props in the scene. That can be a lot of subdivision, making great demands on your computer's resources.

It is usually better to just apply subdivision to those figures or props which actually need it.

This is achieved by using the options on the Tools screen to add some new parameters to the figures and props ('actors') in your scene.

The new parameters represent the controls on the Geometry screen, but can now be selectively applied to actors in the scene.

For parameters representing checkbox controls, set them to 1 for 'On' and 0 for 'Off'.

### Displacement base

This parameter lets you specify the value that white represents in the displacement map. Normally this value is 1.0, but if you set it to 0.5 (for example) then black becomes -0.5, and middle grey becomes 0.0, enabling depressed surfaces as well as raised ones.

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# Sampler, filter and integrator

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Pose2Lux provides three screens to give you more control over the Sampler, Pixel Filter and Surface Integrator parameters.

It's not possible in this user guide to explain the function of these Luxrender attributes in any great detail, but the curious reader is referred to:

[www.luxrender.net/wiki/LuxRender\\_Render\\_settings](http://www.luxrender.net/wiki/LuxRender_Render_settings) where all three attributes and their parameters are explained in detail.

Suffice to say, these settings are generally best left at the defaults, with the following exceptions:

## *Pixel filter*

If you are getting small, bright white spots surrounded by a thin black line in your renders then consider switching from the usual Mitchell filter to the Gaussian instead.

## *Surface integrator*

If you're trying for caustic, refractive or reflective effects then the exphotonmap surface integrator may get you good results more quickly. The exphotonmap integrator uses a biased algorithm rather than Luxrender's usual unbiased ones to get a clean image more rapidly than would otherwise be the case.









# Useful stuff

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## The Paths screen

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This screen enables you set your preferred folders to hold various types of Pose2Lux files. You don't have to set any of these folders, but doing so will make using Pose2Lux easier for you.

### Material libraries

Pose2Lux will look here first when you choose to load an XML material file from disk.

### Automatically load materials from

Any XML material library files in this folder will be automatically loaded by Pose2Lux when it runs.

### Scene materials

The default location for files saved using the 'Save scene materials' menu option.

### Textures

This folder is for textures distributed with, and referenced by, XML material libraries.

### Tabbed data files

As for the 'Textures' folder above, except that it's for tabbed data files instead of textures.

### IES files

This is the default folder for IES data files (used for accurate and realistic light distribution patterns).

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## World volume

---

The 'World Volume' of your scene is the medium that surrounds and envelops it. By default, Pose2lux sets this to 'Air' which, of course, is generally the most appropriate one. The 'World' screen in Pose2Lux affords you the opportunity to customise the world volume to create a misty or foggy atmosphere instead.

To override the default setting with your own, select the 'Use custom World Volume' checkbox.

### Absorption

This is the colour of light that the world volume absorbs. If, for example, the world volume absorbs all red and green light then you'll end up with a very blue scene, as shown by the colour patch labelled 'Inverse'.

Change the absorption colour by using the slider controls or clicking on the colour swatch to the right of them to invoke a colour dialog box.

### Scattering

Determines how much each of the red, green and blue elements of the light is scattered within the volume. Higher values make for more dense atmospheres.

### Assymetry

Determines scattering direction: -1 = backwards, 0 = random and 1 = forwards.

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# Menu reference

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All of these menu options are under Pose2Lux's only menu — the File menu.

## Load settings and Save Settings

Pose2Lux can save a 'settings' file containing all your preferred non-scene specific settings. It includes most of the settings on the Export screen, and some from other screens too.

Note that if the settings file is saved into the same folder as that from which Pose2Lux is run then the settings file will be automatically loaded (NB: This feature does not work in Poser 6). If you are unable to save the settings file to this folder because of Windows UAC or some other restriction it may still be possible to save it elsewhere and then move it to the Pose2Lux folder using admin privileges.

## Load/Save scene materials

This option lets you load or save a file containing all the material conversion choices you have made for a scene. When loading a saved scene material file Pose2Lux will try and match up Owner/material combinations—it will only load a material if a corresponding Owner/material is found. Also, a saved material will only be applied if the material can be found in the currently loaded libraries.

## Load/Save All

This option loads or saves a file containing all the information about your scene: material conversion choices, all export settings and the settings for all other controls too.

## Load material library

Load an XML material file from disk. Note that the XML file may contain more than one library.

## Exit

Close Pose2Lux and return to Poser.

# Appendices

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# XML material libraries

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## Basic concepts

An XML document is made up of elements and each element can contain more elements, creating a hierarchical structure.

Note, however, that there can be only one element at the top level: all other elements must be nested within it.

For a Pose2Lux material document, the top level element is always a P2LLIB element:

```
<P2LLIB></P2LLIB>
```

The type of element is determined by its tag, in this case '<P2LLIB>'. The tag is always enclosed in a '<' '>' pair.

Let's look at the structure of an XML element (as used by Pose2Lux):

```
<tag attribute1="y" attribute2="z">Text string</tag>
```

In this example we see the tag identifier enclosed in a '<' '>' pair, together with two attributes. The attributes have a name (e.g. 'attribute1') and a value (e.g. "y").

If a tag has any content, such as the text string in this example or other child elements, then it needs to be closed ('</tag>'). If there is no content then it can be written like this:

```
<tag attribute1="y" attribute2="z"/>
```

Also, note that all whitespace is ignored in an XML document, so we could have written our example like this:

```
<tag attribute1="y" attribute2="z">
Text string
</tag>
```

(or in countless other ways)

Pose2Lux only recognises certain types of elements, and they have to conform to a specific hierarchy:

Within the top level element you can have <library> elements

Within a <library> element you can have <material>, <texture> and <volume> elements.

Within a <material> element you can have <input>, <parameters>, <used\_texture> and <usevolume> elements.

Within a <texture> element you can have <input> elements

Within a <volume> element you can have <input> and <used\_texture> elements

## Element names

There are four element types for which names are required: <library>, <material>, <texture> and <volume>

The name is specified using an attribute ('name'), e.g.:

```
<library name="Potatoes">
```

However, and this is important, for the <material>, <texture> and <volume> elements the actual name used internally by Pose2Lux is different to the name specified by the attribute.

The internal name is made up of the library name in which the element is defined, a '/' character and then the name of the element as specified by the attribute.

So, for example, if you have some XML like this:

```
<library name="Potatoes">
  <material name="King Edward"></material>
</library>
```

(NB: This is for illustrative purposes only. In practice more information is required to make this a valid definition.)

... then the actual material name used internally is 'Potatoes/King Edward'

The reason for this is to avoid duplicate names: this material cannot clash with another material named 'King Edward' because the other one would have a different library name prefixed.

The same principle applies to <texture> and <volume> names too, which is why when you refer to them in other elements (e.g. <used\_texture>) you have to specify the internal name, e.g.

when referencing a <texture> called 'PotatoSkin' you would write, for example:

```
<used_texture>Potatoes/PotatoSkin</used_texture>
```

(Advanced users will know that there is a Pose2Lux parameter that can be used to reference the current library name ('USE\_LIB') - that will be covered later.)

Note that this protocol means that it is possible to reference elements defined in other libraries.

A special note about <texture> names

Pose2Lux tries its best to write textures to the lux scene file only once. Before writing out a texture definition it checks whether or not it has already written out one with the same (internal) name and, if so, uses the one already written instead. This strategy is highly memory efficient and the reason Pose2Lux is able to handle scene of greater complexity than the LuxPose project could, because Lux would otherwise load any referenced texture maps into memory multiple times.

However, this can give rise to a problem when parameters are used within the texture definition.

Consider this example:

```
<texture name="thingy" type="color" value="mix">
  <input>"texture amount" ["libname/amount"]</input>
  <input>"color tex1" [0.090444 0.038903 0.038903]
</input>
  <input>"color tex2" [USE_KD]</input>
</texture>
```



If this texture is used for the materials of several different objects, then the "color tex2" should have different values each time (based on the Diffuse\_Color of the relevant material zone), but as it stands the texture will only be written out once, with the USE\_KD value of the first material processed!

To overcome this you need to use the USE\_KEY parameter in the texture name, e.g.

```
<texture name="thingy@USE_KEY" type="color" value="mix">
```

```
or <texture name="USE_KEY::thingy" type="color" value="mix">
```

Or any other scheme you want to use - the important thing is to include a USE\_KEY parameter which gives each and every use of the texture definition a unique name, ensuring that it is written out separately for each material that uses it, with the correct USE\_KD value for each.

Of course, when referencing such a texture you need to include the 'USE\_KEY' bit too:

```
<used_texture>thingy@USE_KEY</used_texture>
```

This principle will be applied to <volume> elements too in a future update of Pose2Lux, but there are a few technical difficulties to overcome first because although volumes are defined in XML material files they are not actually associated with materials in the Lux scene file - they actually are part of the geometry definition.

(See overleaf for Element and Parameters reference lists)

## Element reference list

### **<library>**

Attributes: name

May contain: <material>, <texture>, <volume>

### **<material>**

Attributes: name, type, value, show

May contain: <parameters>, <input>, <displacement>, <displacementscale>, <sharpboundary>, <used\_texture>, <usevolume>, <exterior\_volume> , <mix\_1>, <mix\_2>, <mix\_amount>

### **<texture>**

Attributes: name, type, value

May contain: <input>

### **<volume>**

Attributes: name, type, value

May contain: <input>, <used\_texture>

## Parameters reference list

\*\*\* These can be used in a <parameters> element or an <input> element:

### **USE\_KD**

Returns: an RGB colour in the form: 1.0 1.0 1.0 ,referencing Poser's Diffuse\_Color \* Diffuse\_Value

### **USE\_KdMAP**

Returns: A quoted string referencing a <texture> definition using imagemap plugged into Poser's Diffuse\_Color

### **USE\_KR**

Returns an RGB colour in the form: 1.0 1.0 1.0 ,referencing Poser's Reflection\_Color \* Reflection\_Value

### **USE\_KS**

If no specular map is found:

Returns an RGB colour in the form: 1.0 1.0 1.0 ,referencing Poser's Specular\_Color \* MaxSpecular (see note)

If specular map is found:

Returns an RGB colour in the form: 1.0 1.0 1.0 ,referencing Poser's Specular\_Color \* Specular\_Value \* MaxSpecular and modulated by the specular map

### **USE\_BUMPMAP**

Returns: A quoted string referencing a <texture> definition using imagemap plugged into Poser's

Bump channel

\*\*\* These can only be used in <input> elements:

#### **USE\_LIB**

Returns an unquoted string containing the name of the <library> in which the element finds itself

**USE\_KEY** (can be used in name attribute too - its intended purpose in fact)

Returns an unquoted string containing a unique reference based on the actor/material zone being processed

#### **USE\_DATAPATH**

Returns an unquoted string containing the path to the tabbed data files folder as set on the 'Paths' screen

#### **USE\_TEXTUREPATH**

Returns an unquoted string containing the path to the textures folder as set on the 'Paths' screen

#### **USE\_KdTEX**

Returns a quoted string referencing the absolute path to the texture map plugged into Diffuse\_Color

#### **USE\_KsTEX**

Returns a quoted string referencing the absolute path to the texture map plugged into Specular\_Color

#### **USE\_TransTEX**

Returns a quoted string referencing the absolute path to the transparency map plugged into Transparency\_Value

\*\*\* This can ONLY be used in a <parameters> element:

#### **USE\_SKIN**

Instructs Pose2Lux to analyse the Skin node plugged into Diffuse\_Color. Only affects glossytranslucent materials.

Note: MaxSpecular refers to the Specular scale option on the Export screen (set to 1.0 if scaling is not selected)

#### **USE\_HS**

Returns: a floating point number equal to Poser's Highlight\_Size

#### **USE\_HV**

Returns: a floating point number equal to Poser's Specular\_Value

#### **USE\_InvHV**

Returns: a floating point number equal to (1 - Specular\_Value )

#### **USE\_RV**

Returns: a floating point number equal to Poser's Reflection\_Value

#### **USE\_InvRV**

Returns: a floating point number equal to (1 - Reflection\_Value)

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