

LuxusTM

LuxRender plugin for DAZ Studio

Introduction

Thank you for your interest in Luxus. Luxus allows you to render a DAZ Studio scene to an image using LuxRender. To take full advantage of the power of LuxRender, settings specific to LuxRender can be added to your DAZ Studio scene.

LuxRender is an unbiased render engine based on what light does in real life. Images generated are defined by a simulation of the laws of physics.

Luxus offers tight integration with DAZ Studio. As much as possible it does things the way users of DAZ Studio would be familiar with. Luxus shows up as a render engine inside the Render Settings Pane(Tab). Material parameters relevant to LuxRender can be added to any existing materials in the DAZ Studio scene. These parameters can be multiple selected and adjusted in the Surfaces Pane(Tab). Any material presets saved out will have these LuxRender parameters.

As much as possible Luxus is future proofed. Although somewhat advanced, each material or light contains an Extra Settings property which allows the user to pass any command(even ones not known yet) directly to LuxRender. This Extra Settings property is also very helpful to anyone making improvements to LuxRender itself.

Installation

Luxus requires DAZ Studio 4.5+, please ensure your copy of DAZ Studio is working properly.

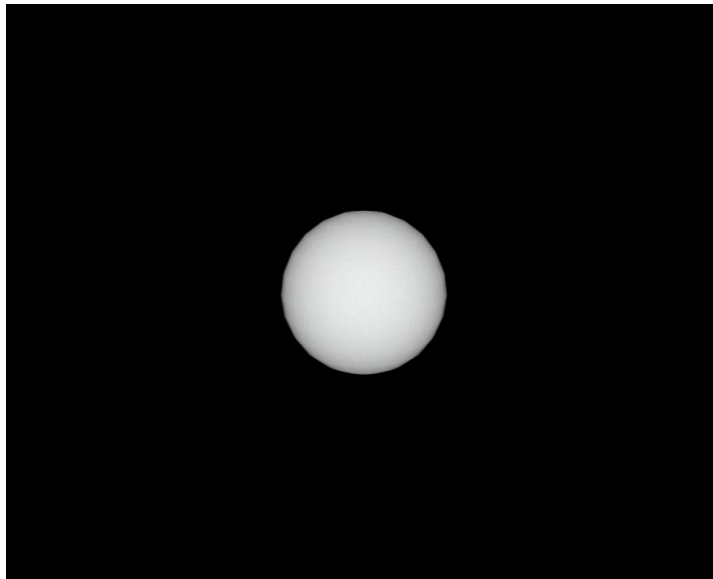
Download and execute the installer for Luxus. This will place an Luxus.dll or a Luxus.dylib into your DAZ Studio 4 plugins folder.

Install LuxRender if you have not already done so. **Important:** on www.luxrender.net, as of the time of this writing, DAZ Studio is listed as having a download option, this is a link to Reality, a competing product to Luxus. You want the standalone version. Go to the www.luxrender.net website to

download and install the latest LuxRender. The current version is 1.2RC2. On Windows, this is a zip file you extract to a folder of your choosing. Remember the folder.

To ensure Luxus is installed correctly, perform each of the following steps

1. Launch DAZ Studio
2. Open the Render Settings Pane.
3. Choose the Advanced Tab to see more options.
4. In the Render Engine section, choose “LuxRender via Luxus”, Note the different parameters that appeared.
5. The first parameter should be “Path To LuxRender”, click on this and browse to the proper folder. The folder you browse to needs to contain the LuxRender application. Some may find it easiest to browse so that you see the LuxRender application, navigate up one folder, and select the folder that contained the application. A search for LuxRender.exe in windows search can also be helpful.
6. Add a Primitive to the scene. Menu → Create → Primitive → Sphere.
7. Render the scene. Menu → Render → Render.
8. DAZ Studio will render as normal but with an extra window showing messages from LuxRender. With the default settings, the image will update every 12 second..
9. After about 12 seconds you should see a lit sphere similar to the following(size may vary). LuxRender will continue to run the simulation until stopped. Use the stop button on the LuxRender Console window.



Using Luxus

The following Luxus settings are relevant to LuxRender:

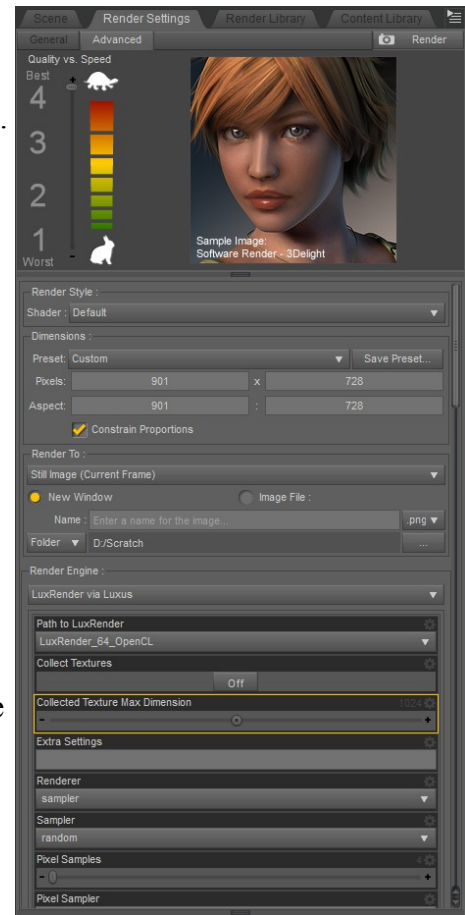
1. Global Scene Settings
2. Light Parameters
3. Material Parameters

Global Settings

The global scene settings are available in the Render Settings Pane. Always use the Advanced Tab in the Render Settings Pane when working with Luxus. You must choose “LuxRender via Luxus” in the Render Engine section to see the parameters specific to Luxus and LuxRender. The first four parameters are as follows:

1. Path to LuxRender. This is the path to the LuxRender application folder.
2. Use LuxRender GUI. Although less integrated with DAZ Studio, the LuxRender GUI has many options and allows their adjustment in realtime.
3. Collect Textures. If enabled, all textures used by LuxRender are collected to a folder and converted to TIFF format.
4. Collected Texture Max Dimension. This will downsize the textures as needed if the above option is enabled.
5. Texture Gamma. A lower value will make the textures brighter but more “washed out”, while increasing this value will darken and deepen the color of the textures.
6. Extra Settings.

Other parameters are specific to LuxRender and documented at http://www.luxrender.net/wiki/LuxRender_Render_settings. The defaults generally work the best.



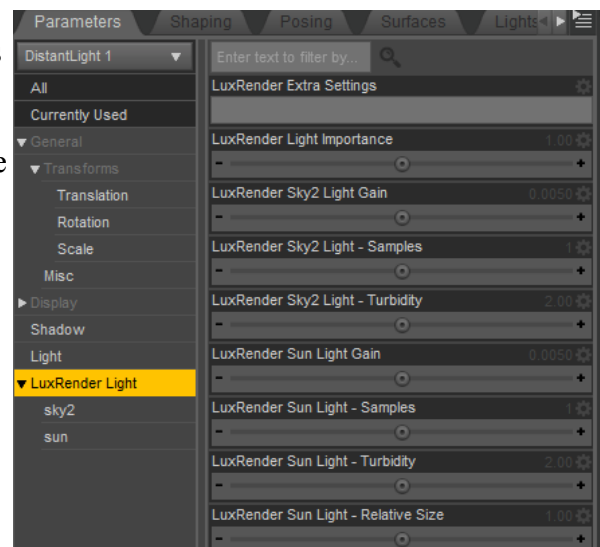
Render Settings Pane

The Extra Settings parameter allows you to manually enter LuxRender commands in the globals section of the scene. These can override any of the parameters shown in the UI. This future proofs Luxus and provides a convenient way for users to share settings via forum or email. The format of the settings should be in LuxRender Scene File format. This format is documented at http://www.luxrender.net/wiki/Scene_file_format_1.0.

Numerical and color parameters have recommended ranges. The user is encouraged to work within the ranges which are enforced via limits. The limits can be disabled as needed, click on the icon in the top right corner of the parameter and choose Parameters Settings, uncheck “Use Limits”.

Light Parameters

Luxus will automatically translate existing lights in the scene. The lights that exist in Studio are setup to look a certain way in 3Delight. 3Delight and LuxRender use different methods to render an image. Please don't expect results to be the same. After some practice with LuxRender, incredibly accurate photo quality images are



LuxRender's Sun and Sky2 Light

achievable.

For control over the lights that are sent to LuxRender, you can select one or more lights and add LuxRender properties to them using the “Luxus – LuxRender Lights” action available in Parameter Pane → Options Menu. You will have the option to include all available parameters, or just those for a specific type of light. Choose the “all” option to explore the different types. Alternatively, choose the desired type to show only the relevant parameters shown. The specific types are documented in detail at http://www.luxrender.net/wiki/LuxRender_Lighting. Area lights are a special light which are implemented in Luxus as parameters on materials(see the Material Parameters Section).

To create an excellent outdoor light, do the following:

1. Create a distant light in DAZ Studio. Menu → Create → New Distant Light.
2. Ensure your light is selected in the Scene Pane(Tab).
3. Add LuxRender settings. Parameters Pane → Options Menu → “Luxus – LuxRender Light”.
4. You will see a dialog asking you to select an option. Choose “sun sky2”.
5. Rotate the light so that is a more downward facing direction, ex: X Rotate of -33 degrees.
6. Note the “LuxRender Light” and its child parameters added to the Parameters Pane.
7. You can now position the light and adjust its Light parameters to suite your needs in 3Delight and in LuxRender..

Material Parameters

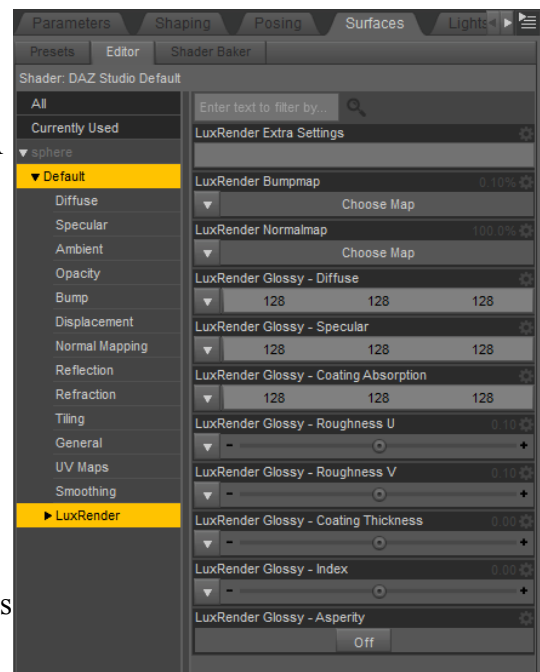
Luxus will automatically translate existing materials to LuxRender materials. The materials that exist in Studio are setup to look a certain way in 3Delight. Some of these materials are custom shaders whose implementation is know only to their respective authors. The names of the parameters are utilized by Luxus to do the translation. Depending on options, UberSurface and its derivatives are translated to a glossy translucent material with subsurface scattering and usually achieves excellent results.

Instead of relying on the automatic translation, you can setup parameters specific to LuxRender. This is done by selecting one or more existing materials and executing the “Luxus – LuxRender Material” action. You will find this in Surfaces Pane → Options Menu → “Luxus – LuxRender Material”. A dialog will be presented allowing the user to choose among the following options:

- Material Type
- Light Parameters
- Volume Parameters
- Mesh Parameters.

The “All with switcher” options is excellent for experimenting with the different types of materials available in LuxRender. The options corresponding to a specific type will only show the parameters relevant to that type. The types in LuxRender are documented at

http://www.luxrender.net/wiki/LuxRender_Materials. The



LuxRender's Glossy Material

option to remove all LuxRender properties will remove all the associated properties from the currently selected materials.

The “Light Parameters” checkbox enables any material to emit light in the scene, thus allowing any material surface to be an area light. Area lights are best documented on the LuxRender wiki, see http://www.luxrender.net/wiki/LuxRender_Lighting

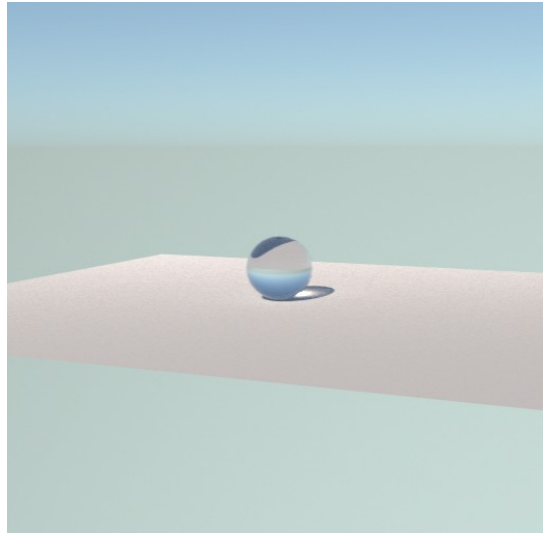
“Volume Parameters” enable the simulation of light as it passes through a medium. Glass and water effects are common uses of volumes. Smoke or other atmospheric effects are also possible. See the documentation found at http://www.luxrender.net/wiki/LuxRender_Volumes.

“Mesh Parameters” show several parameters that relate to the mesh, such as displacement map and subdivision parameters.

Note: One may wonder why there is a glass and glass2? Why metal and metal2? Each is an actual LuxRender material. Besides sharing 5 letters and trying to achieve a similar result, metal2 uses a different “shading” algorithm than metal.

To ensure materials are working properly in LuxRender do the following steps:

1. Launch DAZ Studio.
2. Create a plane, make it big enough to be a floor.
3. Create a sphere.
4. Make sure the sphere is selected.
5. In the Surfaces Pane, select the material of the sphere by clicking on the word sphere in the left column of the Surfaces Pane.
6. Add the LuxRender properties to the sphere. Surfaces Pane → Options Menu → “Luxus – LuxRender Material”. In the dialog, choose glass2 and click the checkbox for Volume Parameters.
7. Click on the word “LuxRender” that is now shown as a child Parameter of Default(the only material of the sphere).
8. Find “LuxRender Volume - Type” and change the option to “clear”.
9. Find “LuxRender Volume - Refractive Index”. Change the value from 1 to 1.6.
10. Perform the steps in the previous section on lights that start with “To create an excellent outdoor light...”
11. Render the scene using LuxRender via Luxus in the Render Settings Pane.
12. You should see something similar to the following:



Questions & Answers

I don't understand, is it a render engine like 3Delight? Does it include LuxRender?

Not exactly. Similar to the interaction between DAZ Studio and 3Delight, Luxus translates the contents of the scene in DAZ Studio and sends it to LuxRender. LuxRender is doing the work of rendering. Install LuxRender from the <http://www.luxrender.net>. Luxus is the glue between the two applications.

My model looks too dim, how do I adjust its color to be more bright? My model looks too bright, how do I adjust its color to be less bright?

The laws of physics are against you, meaning: with an unbiased renderer, like LuxRender, you are usually better off adding a light to get what you want as opposed to adjusting the color of the model. Try adding an environment'ish light such as an HDRI/infinite light or a sky2, then add a more direct light such as an area light(plane with null, but light emitting, material), aim the plane at your model. You can adjust the gain/power of each light in the LuxRender GUI in realtime to see the effect. See "HDRI & Area Light" scene in the SphericLabs content.

Will the LuxRender parameters work as expected when I create a material or shader preset?

Yes.

Will a preset with the LuxRender parameters give an error if used by someone who does not have

Luxus installed?

No, in fact they will be able to see the properties. They could even adjust them, although this is not very useful without Luxus, but these properties are open and accessible. The parameters are consistently named and another plugin developer could read these same values. They are encouraged to do so to maintain the best possible experience for all.

Will Copy/Paste of materials work in DAZ Studio with regards to the LuxRender parameters?

Yes, but the DAZ Studio action “Paste Selected Surfaces” will ignore any parameters which the surface being pasted to does not have. In other words, run the “Luxus – LuxRender Material” action to add the LuxRender properties before pasting.

On Mac when I do a render, if I click on any other windows besides the render image or the Lux Console, the windows goes away and I can't get it back.

Use Command + tilda(~) key to cycle through windows of a program.

Exporting characters is slow.

If your character is SubD, turn down the Mesh Resolution found in the Parameters tab. Turn it back up when you are ready to do final renders.

Where is the mix and layered material types? What about all the different texturing possibilities?

At this time Luxus does not provide an interface to directly do this, but the extra settings parameter makes it possible to do any material/texture combination possible in LuxRender. If you do use the extra settings parameter and want to distribute your material presets, you are encouraged to use a relative path mechanism supported by Luxus. For a simple example, note the \$RPATH in the following:

```
Texture "texture0" "color" "imagemap"  
    "float vscale" [-1.000000]  
    "string filename" ["$RPATH/Runtime/Textures/SphericLabs/Luxus/plasma.jpg"]  
  
Material "matte" "texture Kd" ["texture0"]
```

I copied and pasted text for a material into the Extra Settings, why doesn't it work?

Most likely, you have copied only the declaration of a named material. You need to issue the command to use the named material and perhaps the volume. The following material is from the www.luxrender.net community material database. For it to work, it needs a NamedMaterial command, noted in bold at the end:

```

# BEGIN DB Material 'LightBluePyrex' ID 8
# Author dougal2, Wed, 06 Apr 11 10:58:56 -0700
# Version 0.8 ; Rated 0 / 5.0 ; 0 Votes
# previewsamples : 2560

# DB Object ID 119
MakeNamedMaterial "LightBluePyrex"
  # ParamSet ID 8
  "bool architectural" ["false"]
  "float cauchy" [0]
  "float film" [0]
  "float filmindex" [1.3332999944687]
  "float index" [1.4739999771118]
  "color Kr" [0.69999998807907 0.69999998807907 0.69999998807907]
  "color Kt" [0.83134520053864 0.94818097352982 1]
  "string type" ["glass"]

# END DB Material 'LightBluePyrex' ID 8

NamedMaterial "LightBluePyrex"

```

What about HDRI lights?

Yes they work. This would mean an infinite light in LuxRender with an High Dynamic Range Image(HDRI) as the map. Create one as follows:

1. Create a light in Studio(type does not matter)
2. Select the light
3. Parameters Pane → Options Menu → “Luxus – LuxRender Light”
4. Find the LuxRender Light parameters for the light in the Parameters Pane.
5. Change the Environment Map to an image of your choosing. Any image can be used, but an HDRI image intended for lighting will give the best visual results. HDRI images commonly have the extension hdr or exr. As a common usage error: Many HDRI files have a jpeg version right next to them and the jpeg version will work, but the quality will be noticeably lower than the HDRI image.

What's wrong with Michael 5's face?

In short, the bump map in combination with LuxRender's hyper realism. Zoom in close to the problem areas and do a render in 3Delight to see that the surface is very rough.

The easiest way to fix this is to turn on “Collect Textures” found in the Luxus render settings. Ensure the “Collected Texture Max Dimension” parameters is set to 1024. This will down sample the bump maps. As an alternative the user can do this manually in an image program.

The long version of this answer involves a less than perfect translation of UberSurface to LuxRender. In real life, skin is quite bumpy up close. The translucency and subsurface scattering of skin makes skin seem smoother as one is further away. Although Luxus' current translation of UberSurface to LuxRender uses a translucent material with subsurface scattering, improvements are certainly possible.