



Indigo Renderer

Blender Exporter Manual

Contents

3	Overview
4	About Indigo Renderer
8	Licensing Indigo
10	System Requirements
12	About Installation
13	Installation on Windows
16	Installation on Macintosh
17	Installation on Linux
18	Installing exporters for your modelling package
19	Getting to know Indigo
25	Resolution
26	Tone Mapping
31	White balance
32	Light Layers
34	Aperture Diffraction
36	Network Rendering
37	Render Log
38	Rendering a Test Scene
41	Saving and resuming a render using an IGI
43	Network Rendering
46	Going further with Indigo

Overview

This manual covers the installation and usage of the blender exporter for Indigo Renderer. By following the tutorials in this manual you should be able to export your scene in a high-quality way ready for Indigo to render.

Note that the Blendigo exporter is a very complex piece of software and not all the features are covered in depth by this manual. If a feature of Blendigo is not described to your satisfaction, visit our forum and post a question and we will be happy to help you out. Our forum is available at:

<http://www.indigorenderer.com/forum/>

About exporters

Indigo is independent of modelling package and uses it's own file format – called an Indigo Scene File (.igs). Before Indigo can render your scene, it must be converted into an igs file. The job of an exporter is to create an .igs file from your currently open scene.

About the Blender exporter

The Blender exporter is called 'Blendigo' and is the result of many peoples work on the exporter. Glare Technologies would like to thank the following people for their contribution to Blendigo:

Nick Chapman, U3dreal, Zuegs, Ewout Fernhout, Leope, psor, Wedge, SmartDen, BigFan and DaveC.

Installing Blendigo

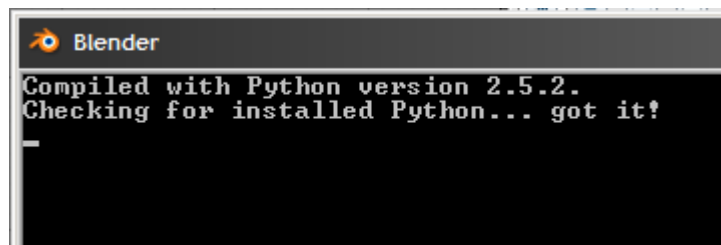
Step 1. Ensure Blender is installed correctly

Most of the problems people have with using Blendigo are due to Blender being incorrectly installed. We recommend you re-install the following packages to ensure that Blender is installed correctly.

Blender Get the latest release of Blender from:
<http://www.blender.org/download/get-blender/>

Python Get Python 2.5 from:
<http://python.org/download/releases/2.5.4/>

When you start Blender – the console window should give you a message saying it found the installed Python.



You are now ready to install Blendigo.

Step 2. Download and install Indigo

Download Indigo for your system and install it to the default location. Instructions for doing this are in the Indigo Manual.

<http://www.indigorenderer.com/download/>

Step 3. Download and install Blendigo

Download the version of Blendigo for your system from:

<http://www.indigorenderer.com/download/>

Blendigo comes with an installer for Windows and Mac. Both installers will look for a “scripts” directory in all known locations for Blender.

Blendigo expects to find Blender at these locations:

Windows c:\Program Files (x86)\Blender Foundation\Blender\

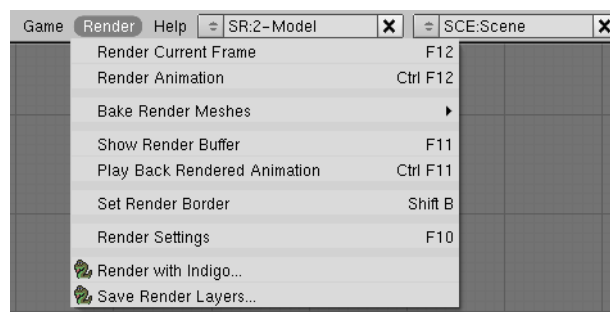
Mac /Applications/Blender

If the installer reports an error that it cannot find Blender on your system – please follow the instructions in Step 1 again and ensure you install to the default locations. If you have further issues – email us at support@indigorender.com.

If you are installing on **Linux** then you need to download Blendigo for linux and run the following commands:

```
tar xvfz blendigo-...-linux.gz
cd blendigo
cp -R * ~/.blender/scripts/
```

Restart Blender after installing Blendigo and you should see “Render with Indigo...” become available under the Render menu.



Things to know

There are several concepts you need to know to know to fully understand how Indigo works and how Blendigo treats these concepts.

First – Indigo is a physically based renderer, that means that if it is possible to construct a photo in the real world, it is possible to render it in Indigo. This means that setting up a scene in Indigo for rendering is very intuitive, but it has the downside that it can be helpful to know photography terminology. You must also understand how Blendigo converts things in the virtual world of Blender into the real world representation used by Indigo

Units of measurement

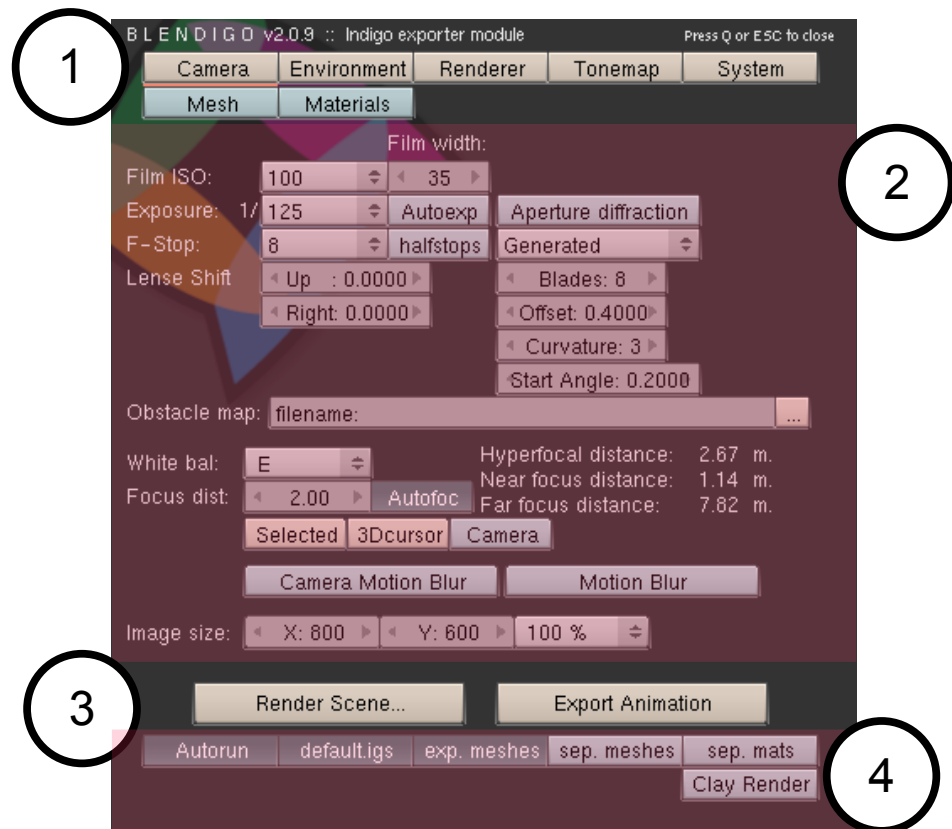
Indigo works on units of metres. Blendigo by default converts on Blender unit of distance to one metre in real world space. Select an object and press n to see the position of the object in blender units to get an idea of the scale of your scene.

Light sources

Blender has some lightsources that do not exist in the realworld – for example point lights (lights that are infinitesimally small and exceptionally bright) and 'invisible spotlights'. To use Indigo correctly you will need to master 'emitting materials' to create realistic lights in your scenes.

Getting to know Blendigo

This section will familiarise you with the Blendigo plugin.



1. The toolbar

The toolbar lets you switch between different screens in the Blendigo. In the screenshot above, the camera screen is currently selected (notice the orange line under the camera button).

2. Main section

Blendigo has 7 separate screens to control different parts of the export. The camera screen is shown, controlling aspects of the Indigo camera. Clicking on buttons in the toolbar will change the main section. Blendigo will remember your settings as you go from one screen to the next.

3. Start render buttons

The "Render Scene..." button is available on every screen. Press it to export the scene and start Indigo.

4. Render control buttons

These buttons are available on every screen. Each button can be toggled on or off. See the next section for their functions

Render control buttons

Autorun

If selected, Indigo is launched after the Indigo scene has been exported. If this is deselected, then you must save your Indigo scene somewhere and start rendering it yourself.

Default.igs

If selected, Blendigo will generate a unique filename for your render. If this is deselected then Blendigo will ask you for a filename to save your Indigo scene file.

Exp. Meshes

If selected, Blendigo will generate meshes for all the models in your scene when exporting. It can be disabled to speed up Blendigo when working with extremely large scenes, in this case the meshes will only be exported once and won't be re-exported everytime you change the material or camera settings.

Sep. Meshes

Writes the meshes to a separate .igs from the main scene file. We recommend you leave this feature unselected.

Sep. Mats

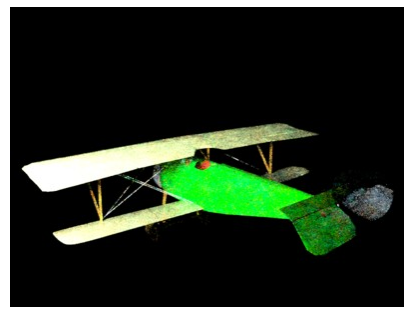
Writes the materials in the scene to a seperate .igs from the main scene file.
We recommend you leave this feature unselected.

Clay render

If selected, exports the scene with all the materials replaced with a grey clay material. This can be used to get a quick 'draft-view' of the scene.



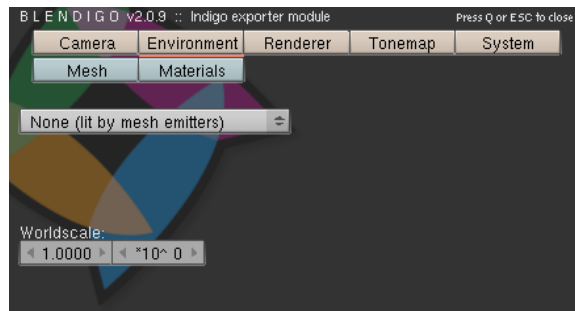
Clay render on



Clay render off

Environment settings

The Environment screen controls the world lighting and background colour of the scene. The different environment settings are accessible from the dropdown.



The worldscale values control how many metres 1 Blender Unit is equal to. The default is 1 blender unit = 1 metre.

No Environment (lit by mesh emitters)

If this is selected then there will be no 'ambient light' in the scene and you must place your own lightsources in the scene. The background will be black when no environment is used.



Suzanne rendered with a mesh emitter and no environment.

Environment map

This setting requires you have an .exr file to use as an environment. Indigo uses the exr file as the background image and also as a light source. See <http://indigorenderer.com/documentation/exr/> for more information about the exr file format.



Suzannes rendered with the uffizi-large.exr environment map.

Physical sky+sun

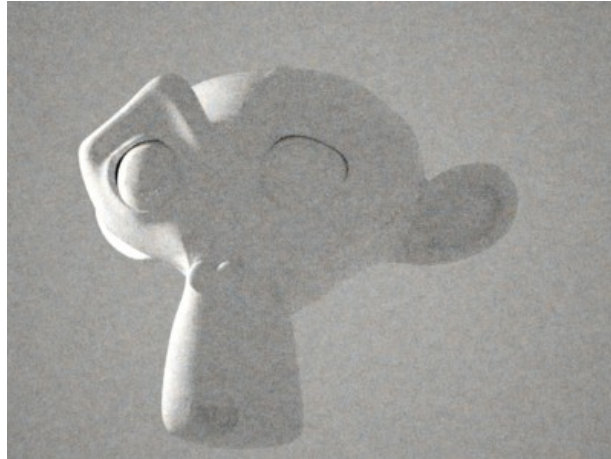
With this setting, Indigo will render a blue sky as the background of the scene and use a realistic sun to light the scene. The sky is modelled on a northern hemisphere sky. You must have a sun lamp present in your scene. Use menu->add->lamp->sun to add a sun lamp. The angle of the sun in the sky will be copied from the angle of the sun lamp.



Suzanne with a physical sky+sun environment

Background Colour

This environment setting is seldom useful. It is better to model a real studio setup (see the Indigo Techniques manual) – but as a quick alternative it is possible to change the background image of the scene using this setting.



Suzanne with a grey background environment and a mesh emitter.

Renderer settings

Renderer settings are for controlling the inner workings of Indigo. Most Indigo users will never have to modify from the default Blendigo settings.

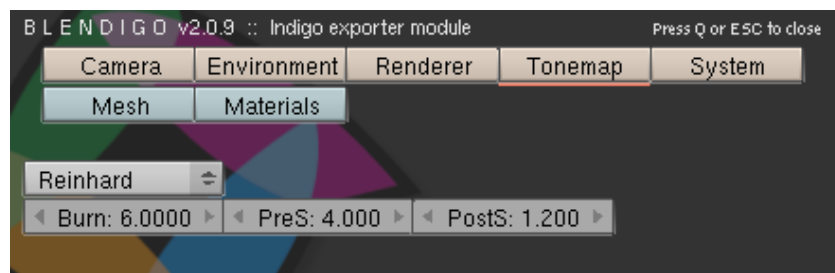


The only two options that may be useful to casual users are the bidirectional and metropolis. Some scenes will render faster with one or both of these techniques disabled.

See the Indigo techniques manual for more information about bidirectional and metropolis.

Tonemapping settings

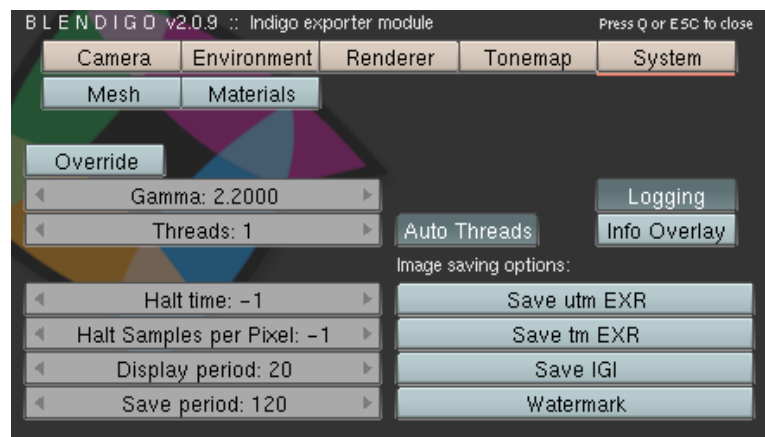
For most users – we recommend you leave these settings to the default and modify your tonemapping settings interactively in the Indigo GUI.



See the Indigo manual for a full description of the various tonemapping settings and how they effect your output image.

System settings

System settings are for controlling the Indigo application. Most Indigo users will never have to modify from the default Blendigo settings.



The settings that may be useful to casual users are:

Halt time

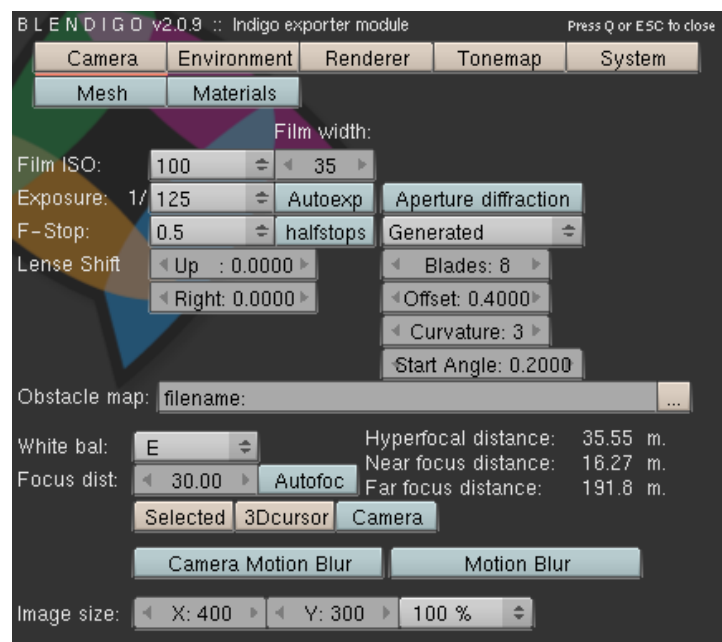
Number of seconds to keep rendering for. Indigo will stop rendering and wait for the user to save the image after this amount of time.

Halt samples per pixel

Indigo will keep rendering until the specified number of samples per pixel is reached. The correct spp value differs for each image but a value of 200 spp is suitable for many simpler scenes.

Camera settings

The camera settings page controls the configuration of the virtual camera in the scene. The camera in Indigo is modelled on a real camera so the settings on this page will be familiar to users with a background in photography.



Film ISO

This setting controls the camera ISO settings. It is only used when the "camera" method of tonemapping is selected. See tonemapping for more information.

Exposure

This setting is used primarily to control motion blur. The other effect of exposure time (image brightness) is controlled instead by the tonemapping process.

F-Stop

This controls the focal length of the camera. Small f-stop numbers will make things that are out of focus more blurry (similar to shooting a photo in macro mode). Higher f-stop numbers will make everything in the scene equally in focus (this is similar to the effect of shooting a photo with a telephoto lens).



Scene rendered with a f-stop of 0.5. The camera is focussed on the red suzanne which is 30 metres from the camera. Notice the green suzanne is out of focus and blurred.

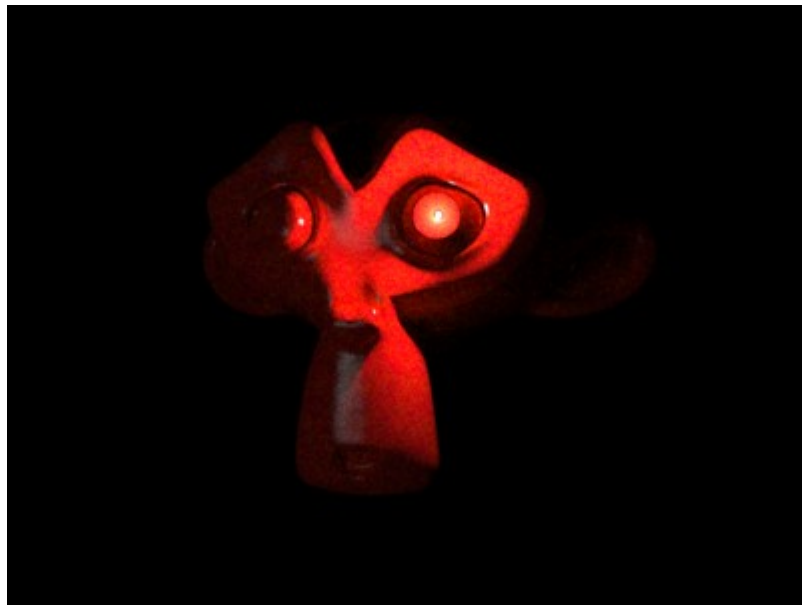


Same scene rendered with a f-stop of 64. Notice that both models are similarly in focus.

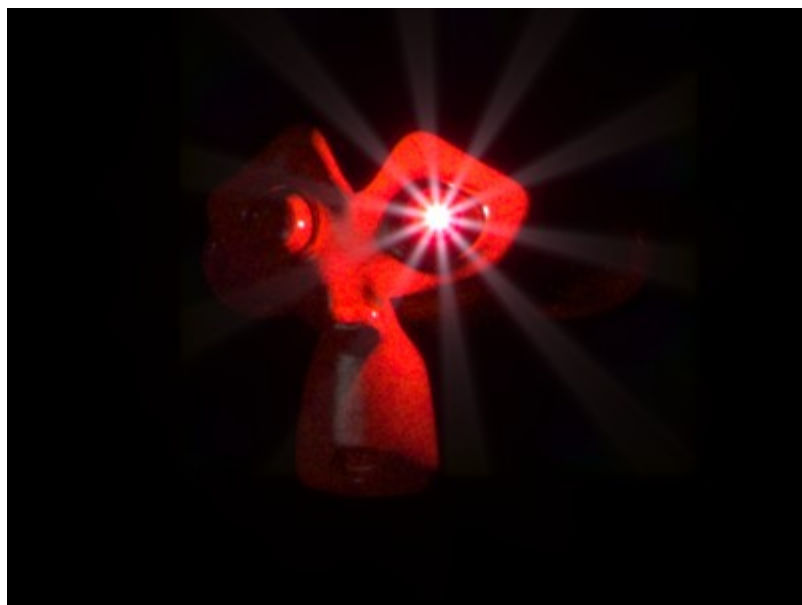
Aperture diffraction

Enabling aperture diffraction causes Indigo to render the 'star' effect around bright objects in the scene. This star effect is commonly seen in photos of spotlights.

To make aperture diffraction visible – you need to set a high f-stop (which causes a smaller camera aperture), have a small and extremely bright lightsource visible and then enable aperture diffraction.



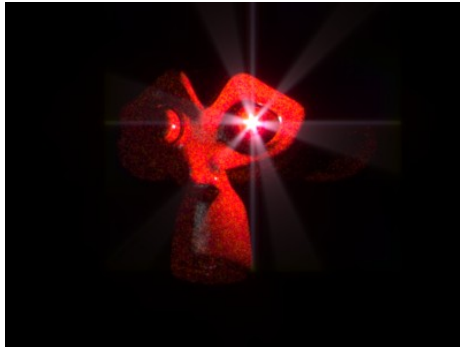
Suzanne rendered with aperture diffraction off



With aperture diffraction on

Blades, Offset and Curvature

These parameters control the shape of the camera aperture, these settings aperture is only noticed when viewing the effects of aperture diffraction.



Diffraction with 3 blades



Diffraction with 7 blades

See the Indigo technical manual for more details on configuring the shape of the aperture.

Obstacle map

The obstacle map is for loading an image that will be mapped over the camera lens – this can be used to simulate dust, finger smudges and scratches on the lens.

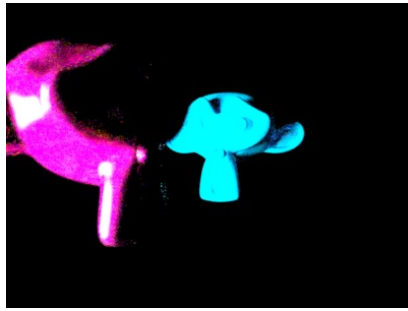
White balance

Controls the whitepoint of the scene. See the Indigo manual for details on configuring white balance, as this can be changed interactively once the scene has started rendering.

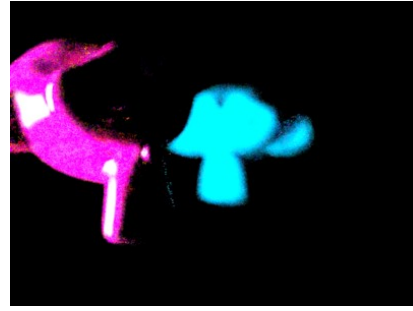
Focal distance

This value will be ignored if Autofocus is set (the **Autofoc** button is pressed). It controls the distance at which the camera is focussed. If you have a low f-stop, items that are not in focus will appear blurry. With higher f-stop

numbers, the effects focal distance becomes less apparent.



Focus distance of 60 metres



Focus distance of 2 metres

Image size

Changes the height and width of the image rendered. This can be changed in the Indigo GUI as well. The free version of Indigo can only render images up to 0.7 megapixels in resolution (for example 1000 pixels by 700 pixels).

Mesh settings

This