Bella SketchUp Plugin

Bella is a start of the art physically based spectral renderer which focuses on realism, predictability, and ease of use. The Bella GUI has quite a bit of scene editing functionality. The main purpose for its existence is jst to allow getting the rendering process out of host applications so you can render in the background while you keep working in the host app. When installed, you will see the following two icons in the Bella toolbar.


The icon on the left is the Bella Setting manager. It is used to manage the Environment, Camera and Materials attributes. The icon on the left is the Bella plugin which will launch the Bella render software. Each of these will be discussed in further detail.

Bella Settings

Clicking on the Bella Settings icon in the SketchUp toolbar for the Bella Sketchup plugin will launch the screen below.
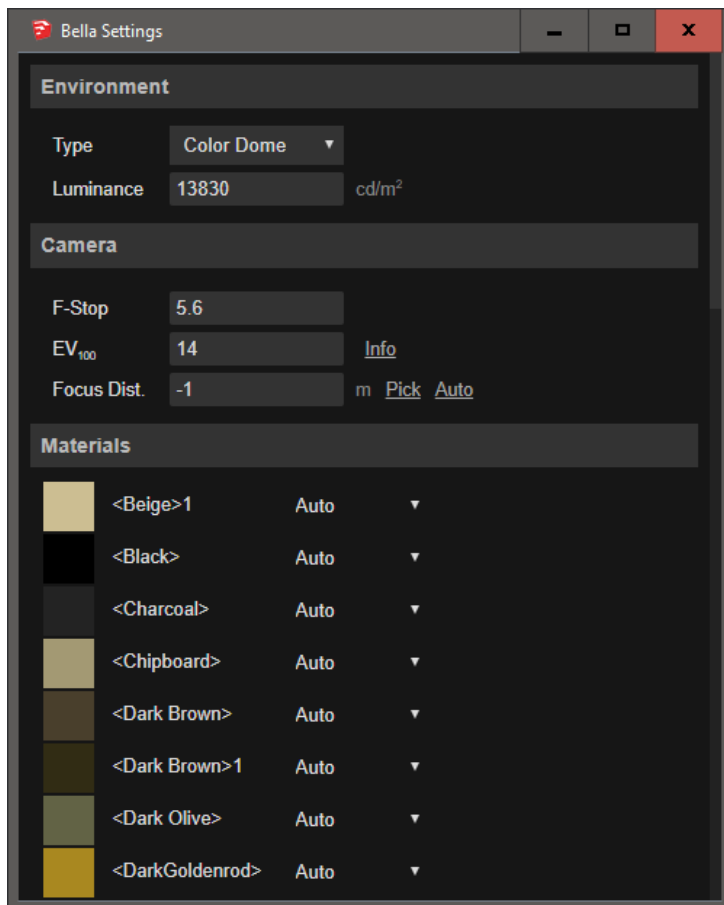
Environment

The plugin uses SketchUp settings where applicable, for example the background & sky colors, sun shadows, north direction, and so forth. Beyond this, you can choose whether to render one of four environment types:

- *Color Dome*: a luminous dome of color surrounds the scene.
- *Sky Dome*: this enables a physical sky simulation, according to SketchUp date/time settings.
- *Image Dome*: lights the scene with an HDR (or LDR, not recommended) image.
- *None*: disables the environment, so you must use emitters to light the scene.

Camera

The plugin will use the SketchUp viewport and view/camera (including parallel & 2-point perspective) to define the Bella camera. You can use the additional parameters in the Bella Settings window to control exposure, depth of field, and focus distance.
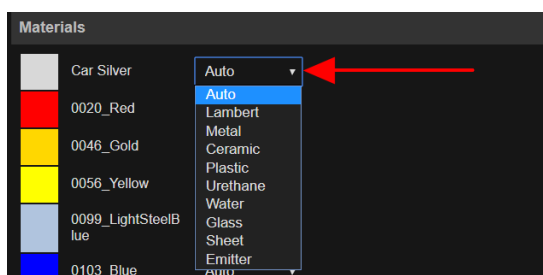
Materials

For setting materials, just open the Bella Settings dialog and you will see all materials listed -- for each, you can choose a type of material from a dropdown, and set parameters related to that type.

By default the plugin will attempt to automatically translate SketchUp materials, but you can also use the Materials section of the window to direct that a given material should render as a Bella metal, plastic, and so forth, with applicable parameters for each being shown in the table.

For the most part, materials are auto-translated as diffuse since there is nothing in a SketchUp material to direct otherwise. However, in some cases the plugin will guess that a material with certain color & opacity values is intended to be glass, and translate it using the Bella Sheet material (good for zero-thickness glass).

You can choose a type of material from a dropdown list for each material in your scene that will allow you to select the type of material and its properties for Bella rendering. Click on the down arrow next to the color name to launch the dropdown list of material types.

Material Type	Description	Properties		
Auto				
Lambert				
Metal	Produces a simple metal material either complex or IOR-based or based on color			
Ceramic	Produces a ceramic material based on color, roughness and specularity			
Plastic	Produces a simple plastic material based on color, roughness and specularity			
Urethane	Produces a urethane like material based on color, translucence, and roughness			
Water	Produces a water material with the given color			
Glass	Produces with given color and IOR			
Sheet				
Emitter				

Important: Bella does not currently support emitter materials assigned at the per-face level.

In may models the list of material may be rather long and the material name may not have been set up to identify the object you want to apply the material type to. In this case you may use the SketchUp eyedropper tool to select the object you want to control.
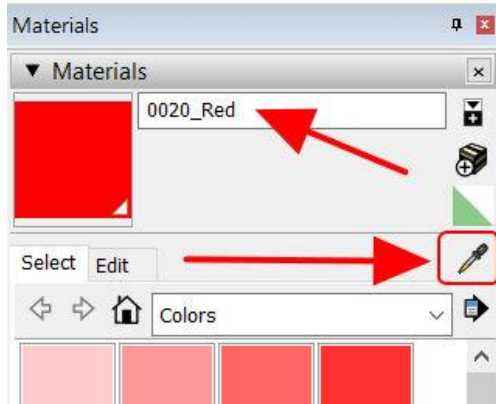
- Go to the Materials tab and click on the eyedropper tool. This will show you the name of the SketchUp name for the material for the object you clicked on.
- This will then scroll Bella material list to the selected material name
- You then select the material type as described before.

Rendering

To render the scene, simply click the Render button in the Bella toolbar. The plugin will write a Bella BSA file next to he SKP file, with any generated textures being placed in a *res* folder alongside.

Once written, the BSA file will be opened and rendered in the Bella GUI where you are free to let it continue rendering until the image is clear, or to stop the rendering and edit the scene if you wish. For more information on Bella GUI, see here.

Modeling

In Bella we have the *xform* node, which represents a 3D transform with a list of child nodes – nodes which me be meshes, or other xforms. This fits very nicely with SketchUp's component/definition model, and it represents a strong argument for making extensive use of components (as opposed to groups) in your model, since it generally takes less time to export a component instance as a Bella xform.

However, it bears mentioning that this can also be used inefficiently – for example, consider making a shrub where each leaf is an instance. This can actually be a step backward since a leaf is so lightweight in terms of data: the instances of the single leaf may require morememory tan if the leaves were exploded to a simple group of faces.