



octanerender™
for Smith Micro Software Poser®

version Beta 1.0



By Peter "Zay" Arnholm

OctaneRender™ for Smith Micro Software Poser® User Manual

Version Beta 1.0 - released 19 November 2012

<http://render.otoy.com>

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By Bodo "Mazak" Nittel

Chapter 1

Installation

1. Installation Requirements

1.1 Software and Hardware Requirements

The plugin requires OctaneRender™ Standalone Version installed and working properly as a prerequisite. To install OctaneRender™ Standalone Version please refer to the installation chapter of the OctaneRender™ User Manual.

The plugin requires Poser 9 or Poser Pro 2012, with Service Release 3.1 installed. It runs under Windows 32 bit and 64 bit.



Refer to Chapter 1 of the OctaneRender™ Standalone Version User Manual for more details about hardware setup.



Greek Vases by Florinmocanu

OctaneRender™ for Poser® is available for the following operating systems :

- Windows XP (32 and 64 bit)
- Windows Vista (32 and 64 bit)
- Windows 7 (32 and 64 bit)

1.2 Internet Access

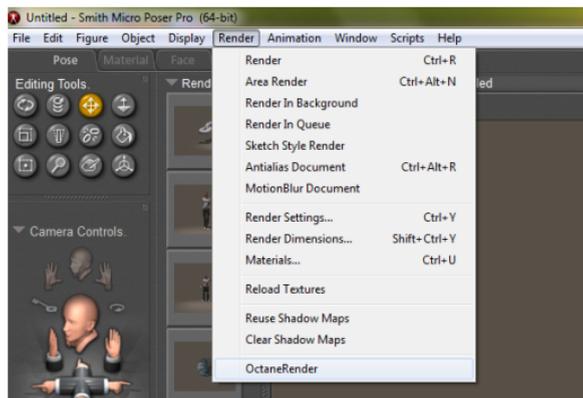
The OctaneRender™ for Poser® plugin requires internet access to launch the first time. Internet access is not required to use both OctaneRender™ and OctaneRender™ for Poser® plugin.

When no internet access is present, the Live Database will not be accessible. Upon launching the plugin for the first time, the user will need to log in to their OctaneLive™ account which associated with their forum log-in information. This information can be found in the customer section of the OctaneRender™ website.



2. Installation of the Plugin into Poser

The installation zip file contains both the 32 and 64 bit plugin. The contents of either the Win32 or the Win 64 folder (depending on your operating system) need to be unzipped into the folder where your Poser.exe or PoserPro.exe file resides. For example, octane.dat would be copied into C:\Program Files\Smith Micro\Poser Pro 2012, and the Runtime folder in the zip file would also be copied into that folder (so it will be merged with the runtime folder already there).

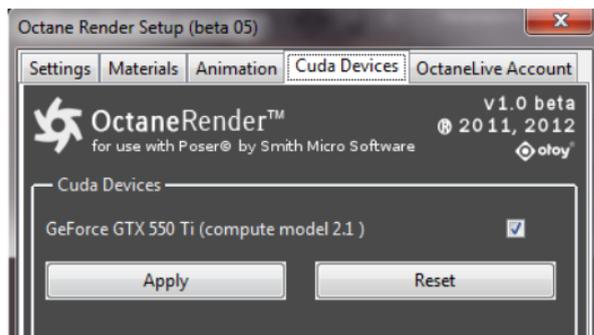


To start using OctaneRender™ for Poser, simply start Poser after installing the plugin and select OctaneRender from the Render menu. All Octane functions are accessed from this menu option.

Selecting the above menu item will display the following dialog window: You will need to activate the plugin prior to using it for the first time. Enter your OctaneLive User ID and Password and click the Activate button. Once activated, the other tabs (ie Settings, Materials, etc) will be selectable and you can start using the plugin.

3. GPU Settings

The Cuda Devices tab will display the following window:



You can enable or disable your Cuda Devices from this window. If for some reason you need to reset the Cuda devices, use the Reset button.



For troubleshooting problems, refer to Chapter 1 Section 6 of the OctaneRender™ Standalone Version User Manual.

4. Defaults

The OctaneRender for Poser plugin does all the conversion of the Poser scene to Octane for you. However, there are some settings which you can tune to speed up your workflow. These settings are in the OctaneDefaults.py file. This is a python file which you can edit with a text editor (make sure you make a backup first). The OctaneDefaults.py file resides in the Runtime\Python\addons\OctaneRender for Poser folder. If you edit OctaneDefaults.py, you will need to restart Poser in order for it to take effect.

If you open OctaneDefaults.py, you will see that parameters such as the following can be changed:

- Maximum number of textures your video can render
- Default viewport refresh rate
- Default Kernel settings
- Default Imager settings
- Default Camera settings
- Default window positions
- Default image node power
- Skin conversion parameters
- Default output folders
- Skin materials list



By Philip "boeing727223" Ralabate

Chapter 2

Using the Integrated Poser® Plugin

1. OctaneRender™ Viewport

To display the OctaneRender™ Viewport, go to the 'Setting tab and click the Open Viewport button. This will open a new window and start rendering the current scene in that window.

The Poser scene materials are converted to Octane, and the default Poser scene contains an IBL light, so this light is lighting the scene.



If you would like all your Poser lights to contribute to the scene lighting, run the "Create Emitters From Lights" python script from the Poser Scripts → OctaneRender for Poser menu. This script will convert your Poser lights into Plane geometries and set the ambient light appropriately so that these geometries will become light emitters in Octane. Once you have run this script, click the Refresh button in the Render View Settings window to load these new emitters into Octane. Emitters will either be converted to black and white blackbody or colored texture emission nodes in Octane. You can select between blackbody and texture emission in the OctaneDefaults.py file (the USE_TEXTURE_EMISSION_FOR_EMITTERS variable). You can then fine tune the emitter parameters in the Materials tabs, where the emitters will be listed as emitterProp_Light1|Preview, etc.

Whilst rendering the scene in the Viewport, you can move the Poser camera around, and this will be immediately reflected in the Viewport.

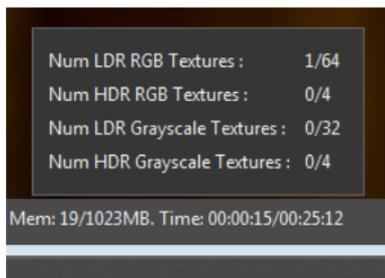
Viewport Buttons

The viewport contains buttons to pause and continue the render. There is also a Resolution Lock button. When resolution is locked, the render size is specified by the resolution in the Render Options List of the Settings tab. Move the sliders to change the resolution. If you unclick the Resolution Lock button, the resolution will be the Viewport frame size, so you can resize the frame to change the render size. When the resolution is locked, you can also use drag the mouse to pan around the render area.

There is also a Save button on the Viewport, where you can save the current render to file.

If you click on the rendering image (and there is geometry where you clicked), autofocus will be disabled and the focus will be set to that point. That focus distance will also be copied to the current Poser camera's focus_Distance dial.

At the bottom of the Viewport is a status window, showing the render statistics, including the elapsed render time and estimated total render time. Mouse-over this status text to get the texture count status from Octane Render.



NOTE: Only the Poser non-orthographic cameras (ie. Main, Aux and Dolly cameras) can be rendered by the plugin. Cameras cannot be scaled (they need to be left at 100% in Poser).

2. Render Settings

The Settings tab contains the Octane render settings, which can be adjusted to get the desired render output.

The screen contains the following items:

Open Viewport button

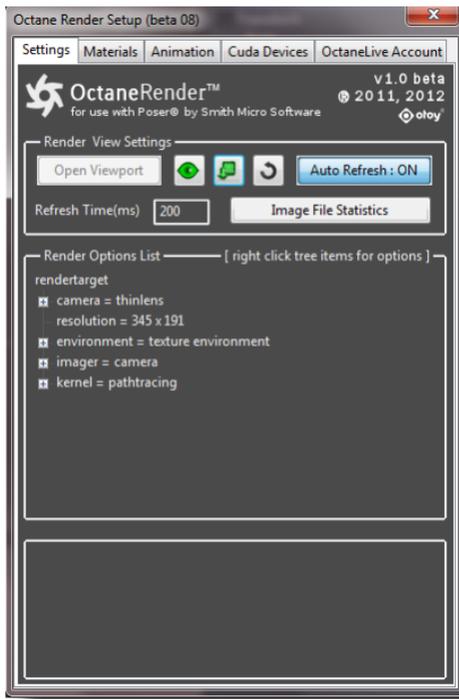
Opens the Octane rendering viewport.

Use Poser Focus toggle button ("Eye" button)

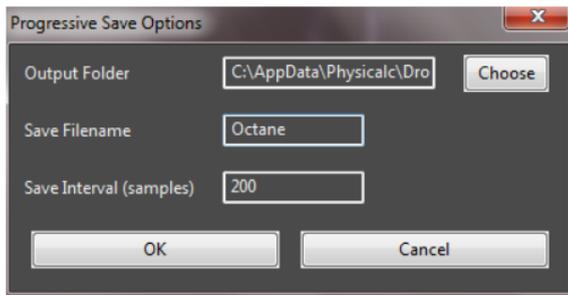
Green when active. When active, the Octane scene has its focus set to the current Poser camera's focus_Distance dial. When rendering an animation, each frame will have its focus set to the focus_Distance dial setting for that frame.

Progressive Save toggle button

Green with active. This saves the current render at regular intervals into a specified folder. A separate file is saved each time, and the filename includes the samples and rendertime at the time the file was saved. When you activate this option, a dialogue will ask you for the filename, save directory and save interval.



These defaults can be changed in the OctaneDefaults.py file
(under PROGRESSIVE_SAVE_SAMPLES_INTERVAL and PROGRESSIVE_SAVE_OUTPUT_FOLDER).



Full Scene Refresh button

Refreshes the complete scene from Poser, and converts the materials from any new props or figures.

NOTE: Invisible figures and props are not loaded into the Octane scene from Poser.

Auto-Refresh toggle button

When on, every time the Poser scene changes, the geometry of the selected figure or prop is refreshed.

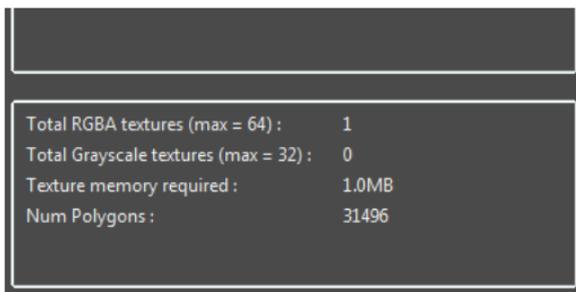
NOTE: Only the vertex positions are updated, so it is much quicker than the full scene refresh. Right click this button to force a refresh of the vertex positions of all figures and prop in the scene [even if the button is OFF].

Refresh Time edit box

Containing the number of milliseconds between refreshes of the Octane Viewport window.

Image File Statistics

Displays the number of textures used in the Octane scene in the bottom window.



Total RGBA textures (max = 64) :	1
Total Grayscale textures (max = 32) :	0
Texture memory required :	1.0MB
Num Polygons :	31496

If the number of textures in the Octane scene exceeds the limits of your graphics card, the Image File Statistics button will highlighted red. The graphic card limit is set in the OctaneDefaults.py file under (MAX_NUMBER_OF_RGBA_TEXTURES and MAX_NUMBER_OF_GRAYSCALE_TEXTURES).

Another useful resource management tool is the Poser Scripts → OctaneRender for Poser → Scene Texture Counter. This script analyses the Poser scene (not the Octane scene), and details the total texture memory requirements, and which figures/props are requiring that memory. It is suggested you run this script prior to running OctaneRender for Poser on large scene to ensure you are within your graphics cards limits.

Render Options List tree

This tree contains all the Octane nodes defining the scene rendering parameters. Right-click the tree to expand/collapse it.

Many of the tree items have default values which can be changed in the OctaneDefaults.py file.

The default resolution is set to the Poser render resolution as specified in the OctaneDefaults.py file.

NOTE: Resolution lock is OFF by default, meaning you need to change the render size by changing the Octane Render Viewport window size. To change to resolution via the "resolution" tree sliders, open the Viewport and click the Resolution Lock button first.

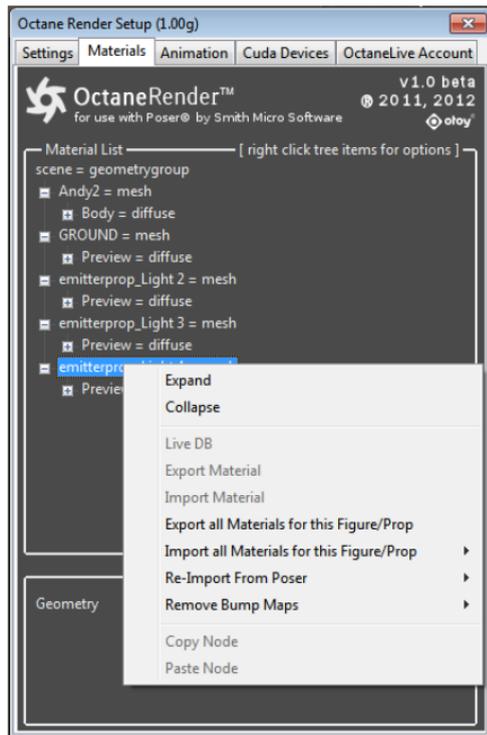
The camera position, look at direction and field of view cannot be changed via the Render Options List. Instead move the Poser camera, or change the current Poser cameras focal dial to adjust these parameters.

3. Materials

The Materials tab displays a tree structure containing all the Poser scene elements (figures and props), and their materials, which have been loaded into the Octane scene. If you select a prop or figure in the Poser UI, that same prop/figure will be selected in the Materials tab (if that tab is selected). If you enter the Poser Material Room, and use the picker to select a Poser material, that material will also be selected in the Material tab in the plugin.

NOTE: If the desired material is already selected in the Poser Material Room, select another material, and then re-select the desired material in order for the plugin to be able to select it.

Right-click on a material or node to get additional options.



LiveDB

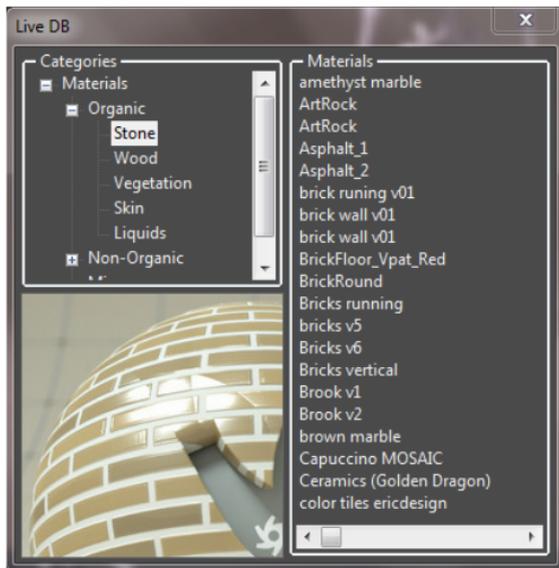
Available for materials and textures – set this node to a material or texture in the LiveDB. Select from the Categories and double click the desired Material. Mouse-over the material for a preview of the material.

Export Material

Available for material nodes. Export this material to disk for loading at a later time.

Import Material

Assign the nodes of the selected material to be for a previously saved material. When importing a material, you can select to either keep the textures (diffuse, bump and opacity) of the current material, or replace the textures with the imported material.



Export All Materials for this Figure/Prop

Exports a material collection (ie. All the materials for this figure or prop) to disk.

Import All Materials for this Figure/Prop

Import a material collect into the selected prop or figure. Any unmatched material names are ignored.

Re-import from Poser

Available for materials – this option resets this Material, material collection or all the materials to the defaults from Poser.

Remove Bump Maps

Removes all bumps maps from the current material, figure/prop or scene. This is useful if you have exceeded your graphic card texture limit or memory.

Copy

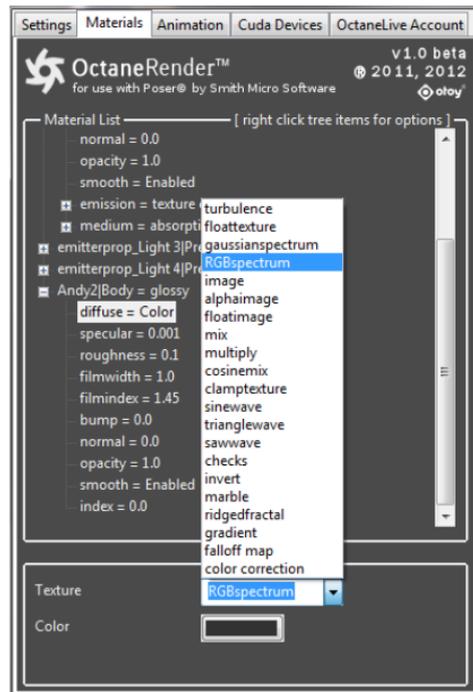
Copy the current node (any node type) into the plugin clipboard.

Paste

Pastes the node in the clipboard into the current node. This option is only available when the node types are compatible. You can select to either keep the existing textures, or replace the textures with those in the clipboard.

3.1 Changing Nodes

If you click on a tree item, it will display the specific details of that item in the lower window. In the lower window you will be able to change the node type (via the drop-down box), or change its value.



4. Animation

The Animation tab enables you to render an animation sequence from Poser in Octane. This sequence will be saved as a series of image files, which you can convert to AVI using a standalone application such as VirtualDub.

The following can be set in the Animation window:

Start Frame

The first Poser frame to render

End Frame

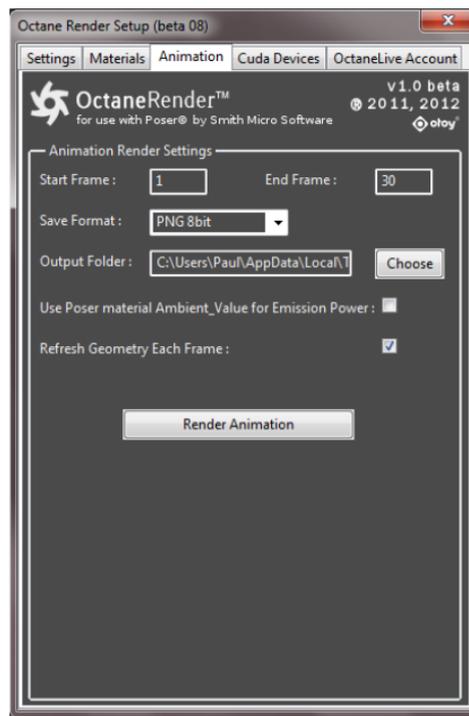
The last Poser frame to render

Save Format

The file save format of the image to be saved each frame

Output Folder

The location the the image sequence is saved to. The default can be set in the OctaneDefaults.py file.



Use Poser material Ambient_Value for Emission Power

If checked, the ambient value of each emitter prop will be transferred from Poser into Octane for each frame in the animation. Click this option if you want to animate your light intensities. You will need to click the Animated icon next to Ambient_Value for each emitter in the Poser Material Room in order to keyframe animate these values.

Refresh Geometry Each Frame

If this checkbox is OFF, the geometry of the scene will not be updated each frame. This is useful for doing camera-only movement animations where there is no prop of figure movement.

Render Animation button

Starts the animation. Once started, the Viewport cannot be resized, and render settings cannot be changed. To cancel the animation, click the Cancel button or close the Viewport window.

When rendering the animation, the elapsed time and estimated total time to render the whole animation will be displayed, along with the average render time per frame.

To abort the animation, click the Cancel button or close the Octane Render Viewport window. Whilst rendering an animation, only the Animation tab will be able to be selected.

If autofocus is OFF, and the "Eye" button on the Settings tab is ON, the focus will be set to the Poser camera focalDistance dial each frame (see "6. Octane Camera" for details).

5. Rendering Kernels

There are four major rendering kernels in OctaneRender™ :
Direct Lighting, Path Tracing and PMC and Deep Channel.

They are switchable by changing the type in the **Node Inspector**.
To do this either click on the **Mesh Preview Kernel** node in the **Graph Editor** or click on the **Preview Kernel Icon** in the **Node Inspector**.

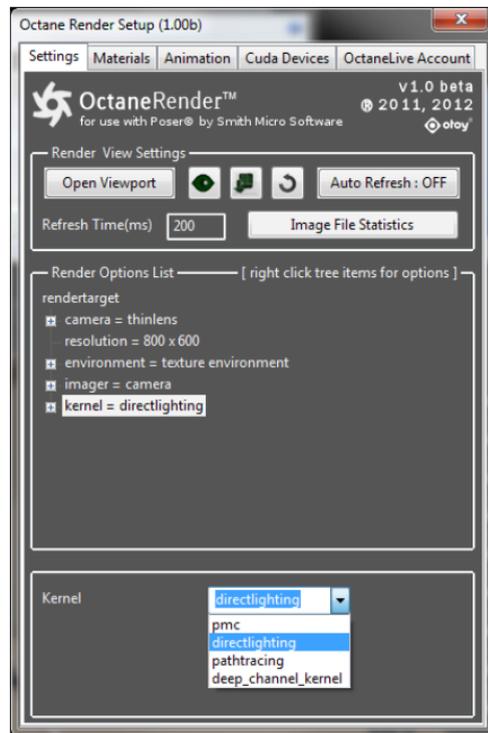
In the first dropdown menu in the node inspector, you can switch the node types. .

5.1 Direct Lighting



Refer to Chapter 4 Section 4.1 of the OctaneRender™ Standalone Version User Manual.

Direct Lighting is used for faster preview rendering. Direct Lighting is not unbiased and should not be used when you aim photo-realism but is useful when creating quick animations or renders.



Specular Depth (speculardepth)

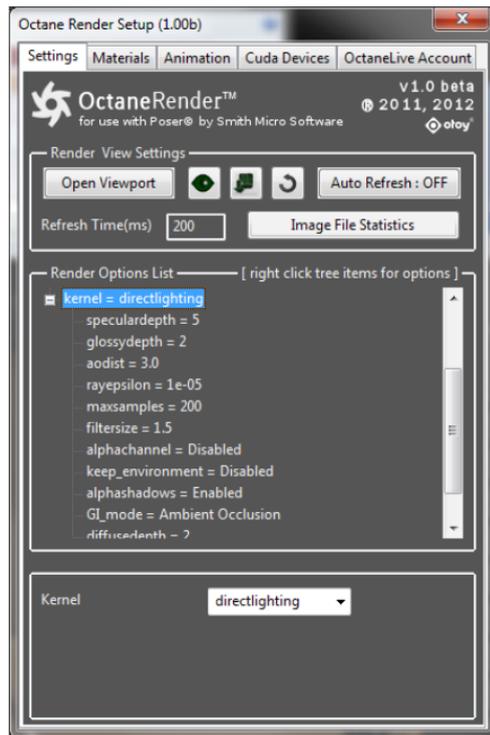
Specular depth controls the number of time a ray can be refracted before dying. Higher numbers mean higher render times but more color bleeding and more details in transparent materials. Low numbers can introduce artifacts, or turn some refractions into pure black.

Glossy Depth (glossydepth)

Glossy depth controls the number of times a ray can be reflected before dying. Higher numbers mean higher render time. Low numbers under 4 can introduce artifacts, or turn some reflections into pure black. You should setup this setting based on the complexity of the scene you are working on, and especially based on how many reflective parallel surfaces you have.

AO Distance (aodist)

The distance of the ambient occlusion in units. Always check if the amount is right related to your model scale. For example you don't need an amount of 3 units if your object is a small toy. But if your model is a house or something large, you can increase the value. The more you increase the value the darker your render will be.



Ray Epsilon (rayepsilon)

The ray epsilon is the distance to offset new rays so they don't intersect with the originating geometry. This value should be left as the default.

Maximum Samples (maxsamples)

This sets the maximum number of samples per pixel before the rendering process stops. The higher the number of samples per pixel, the cleaner the render. There is no rule as to how many samples per pixel are required for a good render.

Filter Size (filtersize)

This sets the pixel size for filter for the render. This can improve aliasing artifacts in the render. If the filter is set too high, the image can become blurry.

Alpha Channel (alphachannel)

This option removes the background and renders it as transparent (zero alpha). This can be useful if the user wants to composite the render over another image and does not want the background to be present.



Angelina by jelly_bean

Keep Environment (keep_environment)

This option is used in conjunction with the Alpha Channel setting. It allows the background to be rendered with zero alpha but is still visible in the final render. This allows even further flexibility in compositing images.

Alpha Shadows

This setting allows any object with transparency (specular materials, materials with opacity settings and alpha channels) to cast a shadow accordingly instead of behaving as a solid object.

GI Mode

There are five different Global Illumination modes in the Direct Lighting Kernel.

None(0)

Only direct lighting from area lights is included. the rest of the image areas receive no contribution and will be black.

Ambient(1)

Use a simple ambient colour from the environment above.

Sample Environment (2)

Use a simple ambient colour from the environment/horizon.

Together with ambient and none, these modes are all very fast, as no montecarlo (sampling) is required. These give a very unrealistic, classic z-buffer/whitted raytracing style look, but are very fast, and very handy for interactive tuning of complex scenes or on slow hardware.

Ambient Occlusion (3)

Standard ambient occlusion.

Diffuse (4)

Indirect diffuse, with a configuration to set the number of indirect diffuse bounces to include.

This gives a GI quality that is in between direct/AO and pathtracing, without caustics and a decent realistic quality (much better than AO), but much faster than pathtracing/PMC.

It is very good for quick finals and animations. It is similar in some ways to 'bruteforce' indirect GI in other engines.

Diffuse Depth

Gives the maximum number of diffuse reflections if GI Mode is set to Diffuse (4)

Russian Roulette Probability (rrprob)

In path tracing, maxdepth is the maximum amount of bounces a ray can make, but, after 3 bounces, there is a 50 % chance that the ray is killed, if you set the rrprob parameter to 0.5. So in practice it will rarely exceed more than 16-20 bounces once every million pixel samples (generating a firefly usually).

If the rrprob is set to 0, it uses a automatic setting. If it is set to anything else, the user directly controls the probability the ray is ended at random after 3 bounces and so forth.

5.2 Path Tracing



Refer to Chapter 4 Section 4.2 of the OctaneRender™ Standalone Version User Manual.

Path Tracing is best used for realistic results. The render times are higher than Direct Lighting but the results can be photorealistic. It can have some difficulties with small light sources and proper caustics.

Maximum Depth (maxdepth)

The maximum number of times a ray can bounce/reflect/refract in a surface. Higher amounts mean also higher render time but more realistic results. For outdoor renders a good setting is around 4 maxdepth. For lighting interior with natural light (the sun and the sky) you will need higher settings such as 8 or higher. While high values are possible, in reality rays will not usually go beyond 16 ray depth.

Russian Roulette Probability (rrprob)

The RRprob is the probability of terminating the path randomly during raytracing. This value should be left as the default. A value of zero allows OctaneRender™ to determine the value.

Ray Epsilon (rayepsilon)

The ray epsilon is the distance to offset new rays so they don't intersect with the originating geometry. This value should be left as the default.

Maximum Samples (maxsamples)

This sets the maximum number of samples per pixel before the rendering process stops. The higher the number of samples per pixel, the cleaner the render. There is no rule as to how many samples per pixel are required for a good render.

Filter Size (filtersize)

This sets the pixel size for filter for the render. This can improve aliasing artifacts in the render. If the filter is set too high, the image can become blurry.

Alpha Channel (alphachannel)

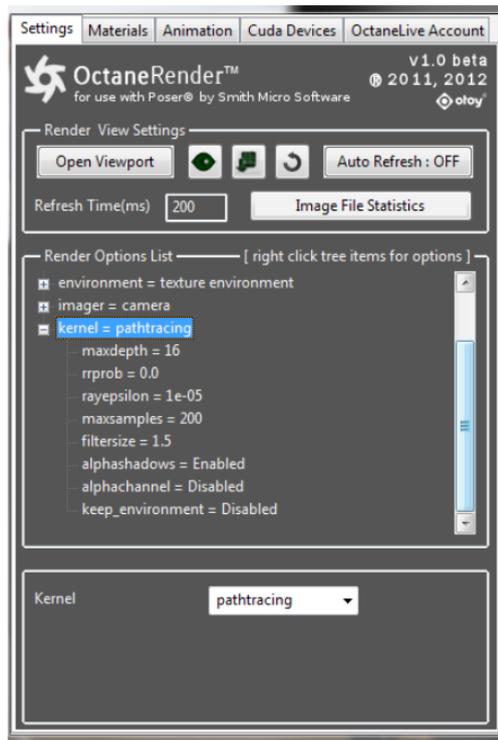
This option removes the background and renders it as transparent (zero alpha). This can be useful if the user wants to composite the render over another image and does not want the background to be present.

Keep Environment (keep_environment)

This option is used in conjunction with the Alpha Channel setting. It allows the background to be rendered with zero alpha but is still visible in the final render. This allows even further flexibility in compositing images.

Alpha Shadows (alphashadows)

If alpha maps are used in the scene, this setting controls whether the shadows will be calculated from the mesh geometry or from the alpha map.



5.3 PMC



Refer to Chapter 4 Section 4.3 of the OctaneRender™ Standalone Version User Manual.

PMC is a custom mutating unbiased kernel written for GPUs. It allows for complex caustics and lighting to be resolved

Maximum Depth (maxdepth)

The maximum number of time a ray can bounce/reflect/refract in a surface. Higher amounts mean also higher render time but more realistic results. For outdoor renders a good setting is around 4 maxdepth. For lighting interior with natural light (the sun and the sky) you will need higher settings such as 8 or higher. While high values are possible, in reality rays will not usually go beyond 16 ray depth.

Russian Roulette Probability (rrprob)

The RRprob is the probability of terminating the path randomly during raytracing. This value should be left as the default. A value of zero allows OctaneRender™ to determine the value.

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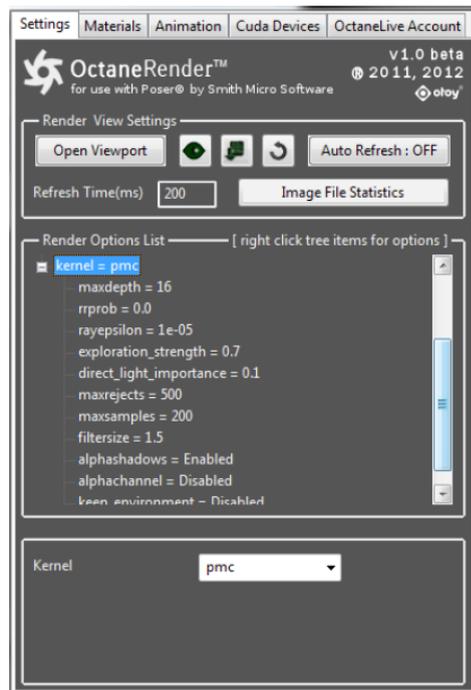
This sets the pixel size for filter for the render. This can improve aliasing artifacts in the render. If the filter is set too high, the image can become blurry.

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Keep Environment (keep_environment)

This option is used in conjunction with the Alpha Channel setting. It allows the background to be rendered with zero alpha but is still visible in the final render. This allows even further flexibility in compositing images.



Alpha Shadows (alphashadows)

If alpha maps are used in the scene, this setting controls whether the shadows will be calculated from the mesh geometry or from the alpha map.

Exploration Strength (exproation_strength)

This specifies how long the kernel investigates good paths before it tries to find a new path. Low values can create a noisy image while larger values can create a splotchy image.

Direct Light Importance (direct_light_importance)

The direct light importance makes the kernel focus more on paths with indirect light. For example, imagine sunlight through a window creates a bright spot on the floor. If the direct light importance is 1, the kernel would sample this area a lot, although it becomes clean very quickly. If the direct light importance is reduced, the kernel reduces its efforts to sample that area and focuses more on more tricky areas that are harder to render.

Max Rejects (maxrejects)

This can control the bias of the render. By reducing the value, the result will be more biased, but the render time will be shorter.

5.4 Deep Channel Kernel

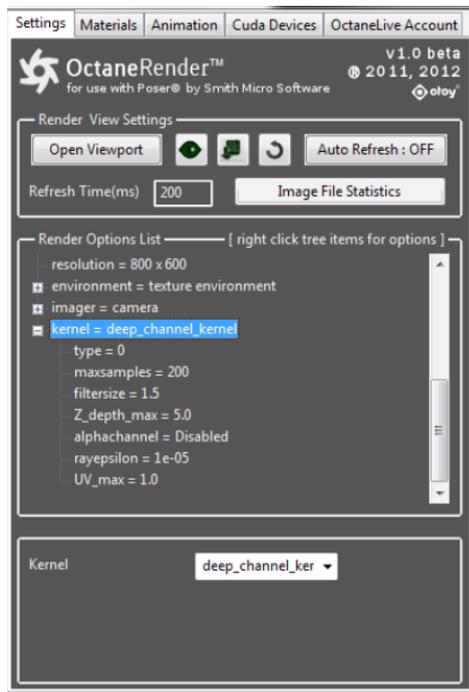


Refer to Chapter 4 Section 4.4 of the OctaneRender™ Standalone Version User Manual.

The `deep_channel_kernel` creates false-color images of the scene, containing various types of information about the scene. In scenes where the environment is visible you should enable the alpha channel.

The following settings are available:

- Geometric normals: the vectors perpendicular to the triangle faces of the mesh.
- Shading normals: the interpolated normals used for shading. This does not take into account the bump map of the object. For objects without smoothing this is identical to the geometric normals.



- Position: The position of the first intersection point.
- Z-depth: The distance between the intersection point and the camera, measured parallel to the view vector.
- Material ID: Every material pin is represented as a separate color.
- Texture Coordinates

For display these values are scaled to get values approximately between 0 and 1. All tone mapping settings except for `min_display_samples` and `gamma` are ignored. Exposure is enabled for Z-depth, and will indicate the value which gets mapped to white. To save these channels you should use `untoneMapped EXR`.

6. Octane Camera

The Octane camera position, target, up vector and fov (Field of View) are all taken from the current Poser camera. Only non-orthographic cameras can be rendered in the Octane Render Viewport (ie. the Poser Main, Aux and Dolly cameras). The current Poser camera must also be scaled to 100% (which is the default), in order to be rendered in the Octane Render Viewport.

To move the Octane camera, simply move the current Poser camera. The Octane camera will be updated whenever you move or rotation the Poser camera.

Limitation: The Octane Render fov calculated for Dolly cameras does not exactly match the Poser viewport.

When you can click on the Octane Render Viewport, it sets the Octane focalDepth parameter to the element distance that you clicked on. This will also set the current Poser camera focusDistance dial to the same value. If the focus button is selected, then the Octane focalDepth will be taken from the Poser camera focalDistance dial.

This is incredibly handy for rendering an animations, since the focalDistance in Poser can be keyframed, and it will be assigned to the Octane camera focalDepth for each animation frame (remember to turn autofocus OFF, and to click the "eye" button).

All other Octane camera settings are in the "camera" tree item under "rendertarget" in the Render Options List Window on the Settings tab of the plugin.



7. Octane Daylight, Emitters and Poser® IBL

7.1 Octane Daylight

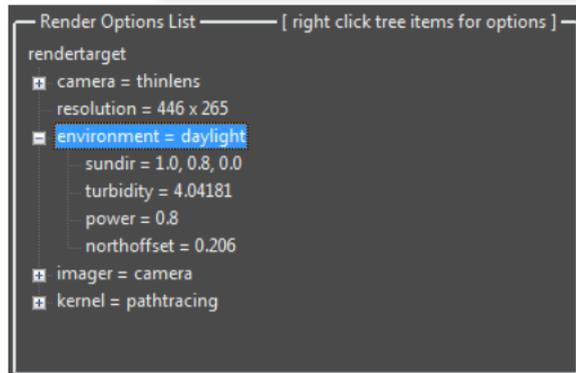


Refer to Chapter 4 Section 6.2 of the OctaneRender™ Standalone Version User Manual for details about the OctaneRender™ Daylight System environment.

Go to the environment tree item under the rendertarget item in the Render Options List on the Settings tab, and change the default "texture environment" to "daylight". You can then control the sun position. from the sliders.

Turbidity

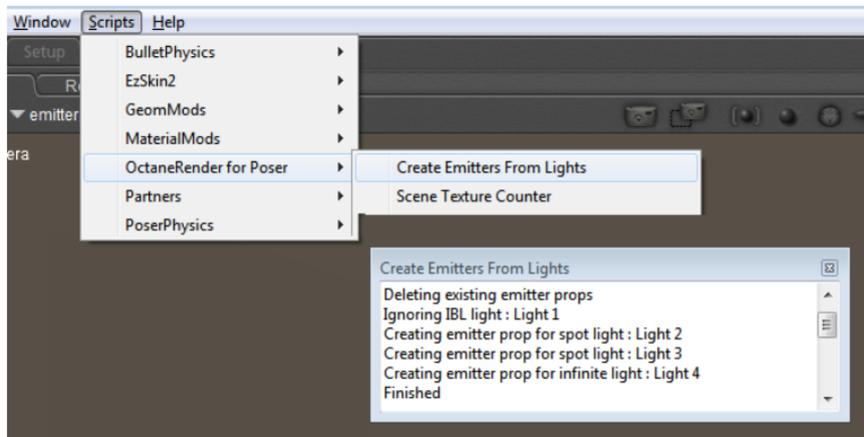
The Turbidity can be used to adjust the sharpness of the sunlights and shadows. A low value creates sharp shadows (like on a sunny day) and a higher value diffuses the shadows similarly to a cloudy day.



7.2 Emitters

Geometry can be assigned an emitter material in order to become a light source.

To quickly convert all the Poser (spot, point and infinite) light sources in your scene into emitters, run the **python scripts via Scripts → OctaneRender for Poser → Create Emitters from Lights**. These scripts will create a new "Square HiRes" prop for each light (and parent each prop to its light) in the Poser scene and set the Ambient_Value accordingly. So when you run the plugin, these emitter props will be converted to emitter materials.



7.3 Poser® Image Based Lighting

If there is an IBL light ("Diffuse IBL") in your Poser scene, then any texturemap attached to that light material will also be attached to the "texture environment" in the environment tree item in the Render Options List of the Settings tab. The image will be used to light the Octane scene.

The power parameter is used to set proper brightness and the rotation parameter is used to set the proper orientation of the image map.



8. Materials and Texture interface

8.1 Materials

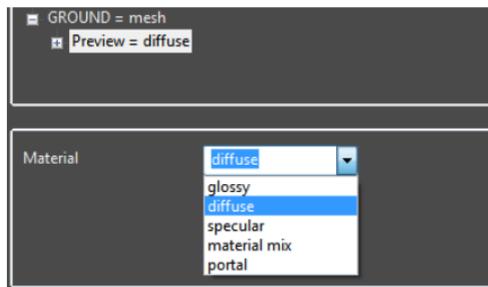
OctaneRender™ has 5 basic materials. When the plugin converts the materials from the scene into the plugin, it will use same basic rules for determining the material type.

If a Poser Material has an Ambient_Value of $\rightarrow 1$, it will be treated as a light emitter Octane material. In this case the Octane material will be diffuse, with either a “blackbody” or “texture emission” node on the “emission” pin of the diffuse material.

If the Poser material name is in the list of SkinMaterials in the OctaneDefaults file, then it will be treated as a human skin material (glossy, which initial parameters as specified in the OctaneDefaults SkinNodeTemplate variable).

If the Poser material Transparency is $\rightarrow 0.5$, and there is no TransMap, then the material will be an Octane specular material (ie. Cornea, glass).

If the Poser material Specular_Color/Specular_Value is more powerful than the Diffuse_Color/Diffuse_Value (by the GLOSSY_DIFFUSE_RATIO factor in OctaneDefaults), then the material will be a glossy Octane material node. Otherwise it will be an Octane diffuse material node. In both cases, the texturemap, bump map and trans maps will be copied from the Poser material to the Octane material.



8.1.1 Diffuse Material

The Diffuse value gives the material it's color.

Bump / Normal

Both the Bump and Normal channels can load images to control the amount of bump mapping and normal mapping. The Bump channel should be set to floatimage to load a bump map. The Normal channel should be set to the image data type to load a full color normal map.

Opacity

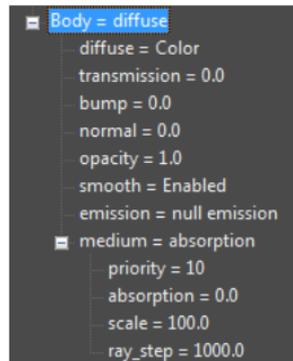
Opacity sets the transparency of the material. Set the data type to alphaimage (if the image has an alpha channel) or floatimage (for black/white images) to load an image to set the transparency (use the Invert checkbox if necessary to adjust whether black or white regions are considered transparent).

Normal Smoothing

Normal Smoothing is a Boolean value that sets whether to smooth the normals of all meshes sharing that material. When off, the materials can be faceted and polygonal.

Emission

The Emission setting controls whether the material acts as a light source.



8.1.2 Glossy Material

Glossy materials have the following parameters to adjust:

Diffuse (diffuse)

The value gives the material its color.

Specularity (specular)

The value determines the amount of specularity on the mesh.

Film Width (filmwidth)

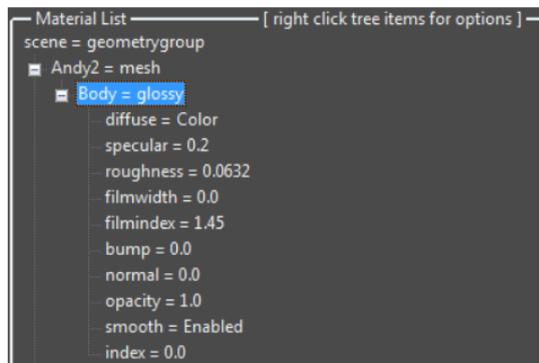
This controls the thickness of a optical, thin film on the material. This is useful in creating rainbow or oil slick effects.

Film Index (filmindex)

This controls the Index of Refraction of the thin film.

Roughness

The roughness determines the amount of reflection that will be present. A low roughness value will create blurry reflections and a high value will produce a mirror like reflection.



Bump / Normal

Both the Bump and Normal channels can load images to control the amount of bump mapping and normal mapping (respectively). The Bump channel should be set to floatimage to load a bump map. The Normal channel should be set to the image data type to load a full color normal map.

Opacity

Opacity sets the transparency of the material. Set the data type to alphaimage (if the image has an alpha channel) or floatimage (for black/white images) to load an image to set the transparency (use the Invert checkbox if necessary to adjust whether black or white regions are considered transparent).

Normal Smoothing

Normal Smoothing is a Boolean value that sets whether to smooth the normals of all meshes sharing that material. When off, the materials can be faceted and polygonal.

8.1.3 Specular Material

Specular materials have the following parameters to adjust:

Reflection

The Reflection value determines the glossiness of the mesh.

Transmission

The Transmission value gives the base color to the mesh.

Index

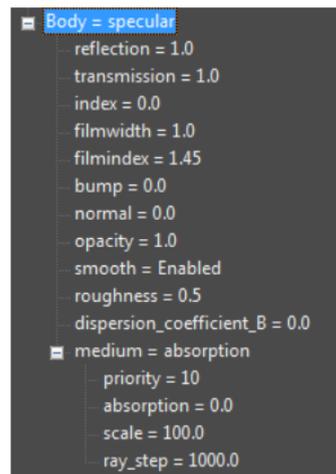
The Index represents the Index of Refraction of the material. Standard values of Index of Refraction (IOR) can be readily found via searching the internet. Glass typically has a value of 1.53 and water 1.33.

Film Width (filmwidth)

This controls the thickness of a optical, thin film on the material. This is useful in creating rainbow or oil slick effects.

Film Index (filmindex)

This controls the Index of Refraction of the thin film.



Bump / Normal

Both the Bump and Normal channels can load images to control the amount of bump mapping and normal mapping (respectively). The Bump channel should be set to floatimage to load a bump map. The Normal channel should be set to the image data type to load a full color normal map.

Opacity

Opacity sets the transparency of the material. Set the data type to alphaimage (if the image has an alpha channel) or floatimage (for black/white images) to load an image to set the transparency (use the Invert checkbox if necessary to adjust whether black or white regions are considered transparent).

Normal Smoothing

Normal Smoothing is a Boolean value that sets whether to smooth the normals of all meshes sharing that material. When off, the materials can be faceted and polygonal.

Dispersion Coefficient (dispersion_coefficient_B)

The dispersion in OctaneRender™ is based on Cauchy's equation which has two terms: A which is the index of refraction and B which is the dispersion coefficient. Increasing the value increases the amount of coloration and dispersion in the object and in caustics.

Absorption

Absorption means that the material slightly absorbs light while passing through. The color resulting from this absorption is dependent on the distance light travels through the material. With increased distance it will get darker, and if the absorption is colored it will get more saturated.

Absorption Color (absorption_color)

The absorption color gives the spectrum remaining from white light after traveling through the material for a certain distance. Only constant colors are supported correctly.

Depth of Absorption (depth_of_absorption)

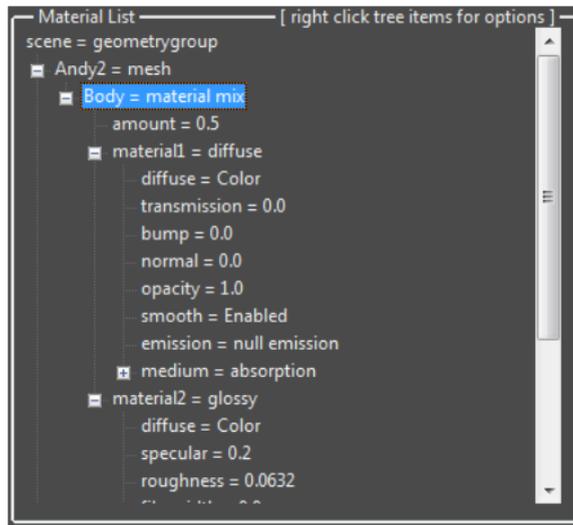
The Depth of Absorption specifies the aforementioned distance (in meters). The smaller this distance, the stronger the absorption will be.

8.1.4 Mix Material

The Material Mix option is used to combine two different materials. It accepts any two material nodes and a texture to control the mix. In the example below, a white glossy material is mixed with a red specular material. A checker texture node is used to control the mixing of the two materials.

8.1.5 Portal Material

The Portal Material option is used in pathtracing type kernels, eg pathtracing and PMC. (not directlighting/ambient occlusion).

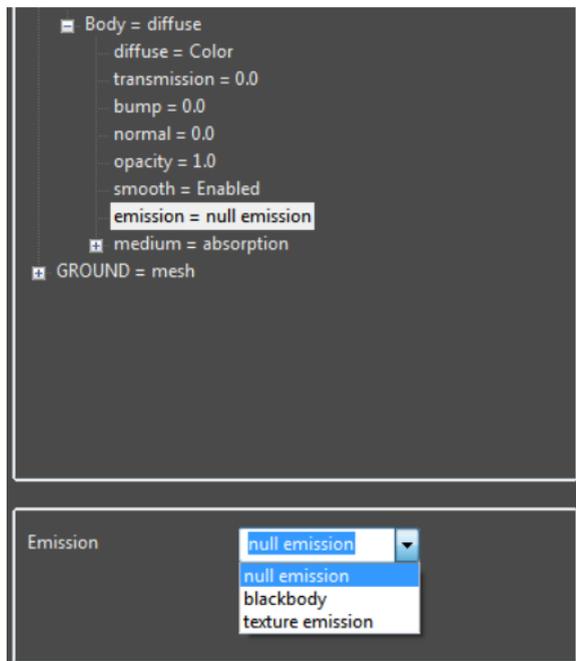
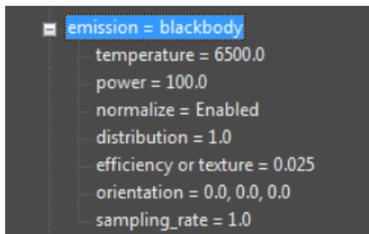


8.2 Emissions

In order to use a mesh as a light source, it needs to be changed to a Diffuse material type. The Emission parameter has three different options.

8.2.1 Blackbody Emission

The Blackbody Emission type uses Colour Temperature (in Kelvin) and Power to control the colour and intensity of the light.



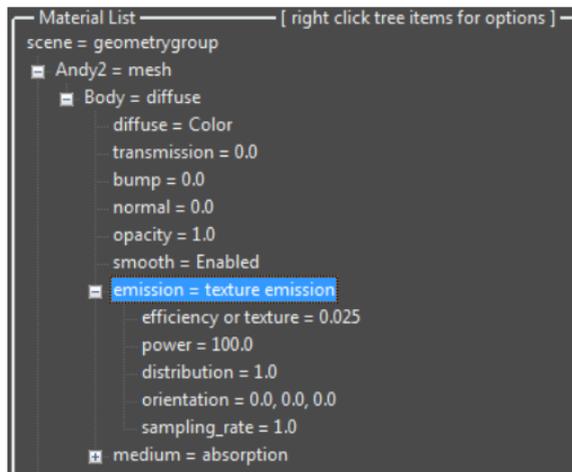
8.2.2 Texture Emission

This allows any valid texture type to set the light intensity. This can be used to create neat effects such as TV screens by using an Image Texture as the source.

NOTE: Geometry in the Poser scene with an Ambient_Value \rightarrow 1 will be converted to a Diffuse material in Octane with a power of the Poser ambient intensity.

8.2.3 Null/No Emission

This sets the diffuse material as a standard diffuse material with no light emission.

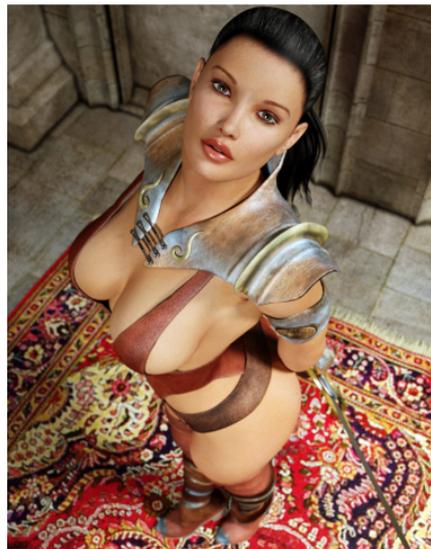


The following settings are listed for the Blackbody emission settings, but many of the settings are shared with the Texture emission settings. The main difference is whether the colour comes from the Blackbody temperature or from the texture settings of the diffuse material.

Temperature - The temperature (in K) of the light emission.

Power - This is the wattage of the light source. Each light in the scene should be set to its real world wattage. For example, a desk lamp could be set to 25 watts, a ceiling lamp to 100 watts, and an LED light to 0.25 watts. This setting should not be used to balance the lighting power of the scene.

Efficiency or Texture - This setting is used to set the efficiency of the light source. No light is 100% efficient at delivering the power at the specified wattage (a 100 watt light bulb does not actually deliver 100 watts of light). The efficiency setting can be used to enter the real-world values.



By Peter "Zay" Arnholm

These values can be used to create very realistic light settings. For example, a standard 100 watt incandescent bulb would only be approximately 2.0% efficient where as a 25 watt compact fluorescent light will be 10% efficient. These will both produce around the same quantity of light in real life.

Orientation - This setting is used to adjust the direction the light is pointed in the scene. This setting only affects lights using a non-uniform distributions (textures or IES files).

Distribution - The distribution controls the pattern of the light. This can be set to an floattexture and an image or IES file can be loaded.

8.3 Mediums



Refer to Chapter 5 Section 5.9 of the OctaneRender™ Standalone Version User Manual.

OctaneRender™ has two types of mediums: Absorption and Scattering.

8.3.1 Absorption Medium

Absorption means that the material slightly absorbs light while passing through. The color resulting from this absorption is dependent on the distance light travels through the material. With increased distance it will get lighter, and if the absorption is colored it will get more desaturated. It works in a subtractive way, so you need to configure the inverted colour instead to get an absorption colour desired.

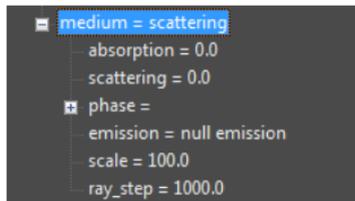
```
medium = absorption
priority = 10
absorption = 0.0
scale = 100.0
ray_step = 1000.0
```

8.3.2 Scattering Medium

This is a medium with single-scattering SSS, and also absorption. To use this medium you need to create a volume, it will not work correctly on simple surfaces.

You can use it to create true unbiased SSS (although not multiple-scattering yet), using various parameters, including scattering texture, emission texture and various other parameters.

Note that this is single-scattering SSS, not multiple-scattering. It's much faster than the latter, and much more practical, although it does not allow a few things such as volumetric caustics.



8.4 Textures

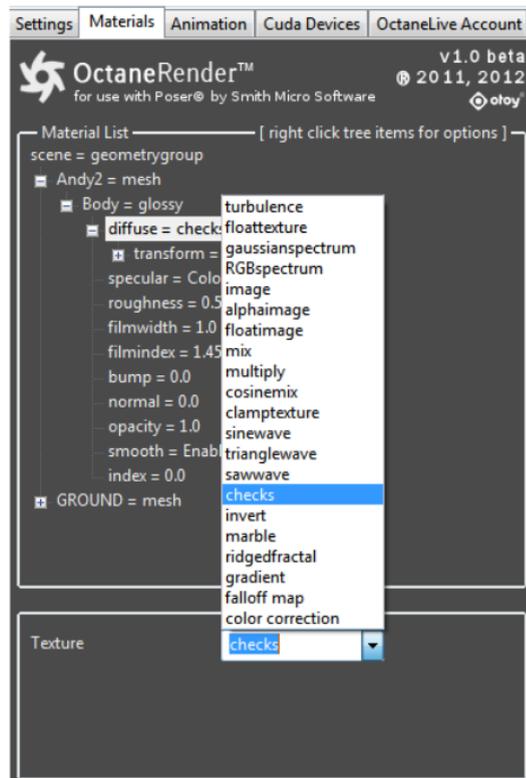
The Texture types allow for creating very flexible materials.

These are used to create patterns that can be used alone or in combination with the Mapping and Colour textures to create memory efficient, procedural textures that, in turn, can be used to create textures, bump maps and other advanced materials with minimal impact to GPU memory.

It is therefore advantageous to explore creating materials using these textures before resorting to image based textures.

8.4.1 Checks Mix Texture

The Check procedural texture is useful for making stripes, checker board and grid patterns. It is controlled by a float3 value. It is most useful when mixed with other textures.



8.4.2 FloatImage (Gray Scale)

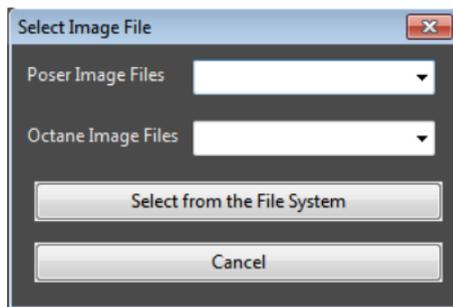
The image is interpreted as gray scale even if it is a full colour image, thus saving GPU ram. The Invert checkbox can be used to invert the image (useful for bump and opacity maps.)

8.4.3 Image (Color Image)

Image textures use image files to create the texture.

An image texture is used for the parameter (mesh must be UV mapped prior to export to properly use the Image type). The image is interpreted as being full colour even if it is a grey scale image, and therefore taking up more GPU memory.

When selecting an image, you can select from the list of Poser images, Octane images, or load from disk.



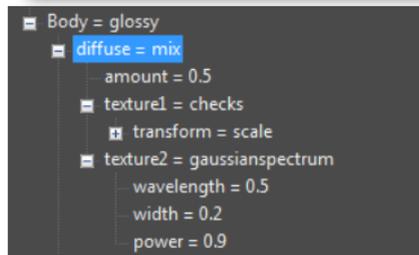
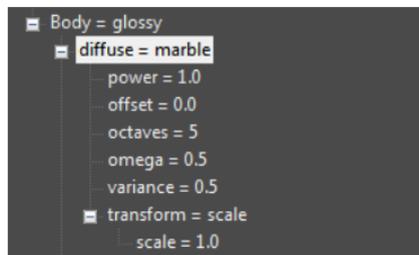
8.4.4 Marble Texture

The Marble texture is a procedural texture that can be used to create marble-like noise. It is similar to a turbulence texture but more fine-tuned to create marble-like patterns.

8.4.5 Mix Texture

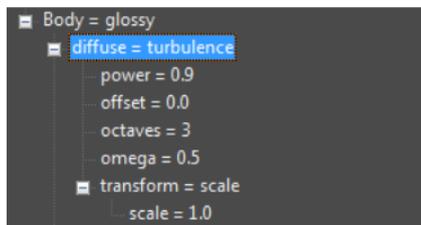
The Mix textures are used for mixing two textures together (either linearly or according to a cosine wave).

For example, you place a Checks Mix combined with a GaussianSpectrum.



8.4.6 Turbulence Texture

The Turbulence texture can be used to create many different effects based on banded noise. This flexible texture can be used to create wood, marble, flesh, and many other useful textures.



When to use Floatimage versus Image Data Type?

There are some parameters where full colour data is not used (or useful). If a full colour image is loaded, it can take much more memory in the GPU than a grey scale image, even though the user only really wants the grey scale data. Since memory management is very critical for GPU rendering, the Floatimage type allows a user to load a full colour texture but it will be interpreted as a grey scale image and therefore use less video ram. If the full colour data is needed then use the Image data type (normal maps, diffuse maps)

9. Limitations

- Instancing is not currently supported (this is planned for the next release).
- Whilst dynamic hair is supported, in some cases it does not contain many polygons per strand, which does not give a quality render result.
- If you have selected a camera in Poser, the Poser Material Room material picker for Octane will not work.
- The Field of View in the Octane Render Viewport will not exactly match the Poser viewport for Dolly cameras .
- OctaneRender standalone allows an aperture of 0 to remove dof effects. This is not supported in the Poser plugin.

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[http//render.otoy.com](http://render.otoy.com)

info@octanerender.com

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