



User Manual

Version 1.0

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Introduction

Compatibility

shaderMeister is compatible with LightWave3D 9.3 up to LightWave 3D 9.6.

It currently runs with the Windows 32bit, Windows 64bit and Mac OSX versions of LightWave. It has been tested with Windows 2000, the 32bit and 64bit versions of Windows XP as well as Mac OSX. This is why you will see screen shots of both the OSX and the Windows port in this manual.

Please visit <http://shadermeister.db-w.com> for more up to date information.

Features

shaderMeister has been thoroughly tested in production by us and our trusty beta testers. The main features of shaderMeister are:

- Advanced Presets system
- free point upgrades, free support, free beer¹

¹ O.k., so we're still joking about the beer...

Setting up shaderMeister

Installation

The download contains ZIP compressed files for all platforms supported by exrTrader. Extract the appropriate ZIP file for your platform.

Windows 32-bit/64-bit

The **shaderMeister.p** file can be copied to any directory where you keep your plugins. We recommend using a manually created plugin directory to separate third party plugins from plugins shipped with LightWave 3D. This will simplify upgrades of LightWave 3D.

Now use the **Edit Plug-ins** panel (alt-F11) of the **Add Plugins** menu item to add the plugin file **shaderMeister.p** to LightWave 3D.

Mac OSX, UB

The OS X versions of exrTrader are included as a DMG (Disk Image). Double click on the icon to mount the disk image.

It also includes a folder of sample content as shown in the examples section of this manual.

Universal Binary

You can simply drop the **shaderMeister.plugin** icon onto the Install application to install it.

The plugin will either be copied to:

Current User installation option: `~/Library/Application Support/LightWave3D/Plugins`

or

All Users installation option:

`/Library/Application Support/LightWave3D/Plugins`

In both cases LightWave 3D 9.6 will automatically pick up the plugins once you launch it.

You are of course free to copy the plugin file to another location and add it manually.

The download contains ZIP compressed files for all platforms supported by shaderMeister. Extract the appropriate ZIP file for your platform.

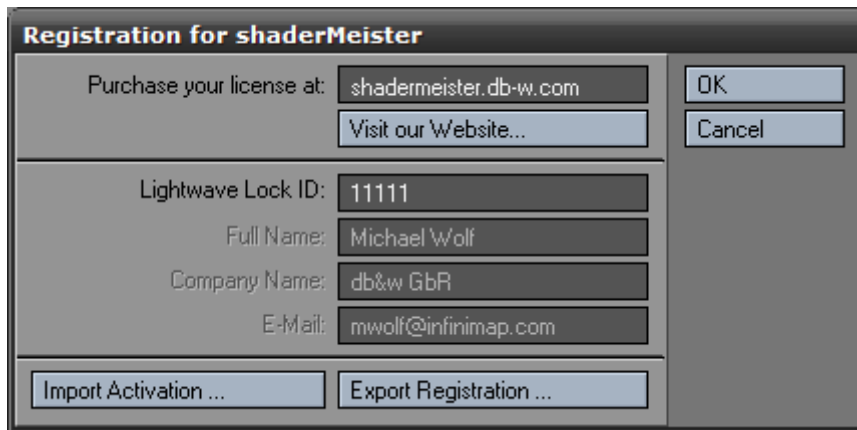
The **shaderMeister.p** file can be copied to any directory where you keep your plugins. We recommend using a manually created plugin directory to separate third party plugins from plugins shipped with LightWave 3D. This will simplify upgrades of LightWave 3D.

Now use the **Edit Plug-ins** panel (alt-F11) of the **Add Plugins** menu item to add the plugin file **shaderMeister.p** to LightWave 3D.

To be able to use shaderMeister you will need to register and activate it with the activation code we will send you.



Registration



Once you've installed the plugin, apply the **shaderMeister** master handler plugin to your scene, and click on the "Register Plugin..." button.

Enter your full name, company name (if applicable) and e-mail address. Export the registration and attach it to an e-mail to **registration@db-w.com**. We will mail you an activation code within 24 hours after payment is received, depending on the time difference².

You can now import the keyfile attached to the activation e-mail.

Your registration is now complete and you will see the interface of shaderMeister, allowing you to use it.

The registration file is stored in the same directory as the plugin, in the file `shaderMeister.key`. If you use multiple licenses of LightWave 3D from a single network share, the registration manager will only append/edit licenses locked to the dongle installed on the host machine. It will however manage multiple licenses allowing for a single registration file on your network share.

Included Plugins

shaderMeister is a collection of plugins for LightWave 3D. Currently it consists of the following plugins:

- shaderMeister (both a Surface Shader and a Master Handler)
- shaderMeister generic (can be assigned to a shortcut or added as a menu item)
- Filter Node
- Logic Node
- Surface Exposure Node

² Our key generator needs some sleep every now and then ;)

What shaderMeister does ... and how it does it

shaderMeister allows you to override the shading of surface on a scene by scene basis. This is accomplished by a shader plugin that needs to be applied to all surfaces that should be overridden by shaderMeister.

When rendering the shader plugin will detect if a shaderMeister global shading network is present and then evaluate it.

The shaderMeister global shading network itself is saved with the scene. A master handler plugin manages it.

Once you have applied the shader to all surfaces in your current scene (which only needs to happen once and is automated by shaderMeister) you can thus override the surfacing on a scene by scene basis.

Unfortunately due to the nature of the LightWave 3D shading systems, things aren't as simple as they seem to be.

Since shaderMeister is applied as a shader, it has limited access to some of the nodal shading information and can also only override some of the nodal data.

The nodal shading buffers (diffuse buffer, specular buffer, reflection buffer, refraction buffer) as well as the material are, unfortunately, applied after the shaderMeister shader plugin.

Originally Posted by **Exper**

"Parameter 1: use it to change the value of Parameter 1".

shaderMeister – Master Handler Plugin

This plugin is the core of shaderMeister. It manages a global nodal surfacing graph that overrides LightWave's native surface via the Shader Plugin.

The global surfacing graph is loaded and saved via the master handler and thus **scene** specific. This allows you to easily create different scenes with different global shading overrides.

The Master Handler Plugin supports presets to facilitate this and allow you to create a library of overrides.



User Interface

Presets

Using the Presets pop-up you can apply any of your presets, save your current settings as a preset or delete existing presets.

shaderMeister has its own system to manage presets. The main reason for developing a custom system was to differentiate between user, global and project (content directory) specific settings.

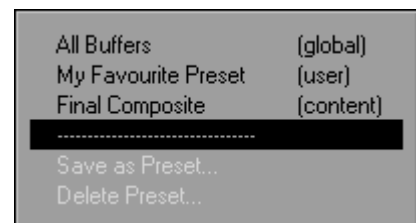
user presets are stored in the same directory where your LightWave3D configuration files are stored, in a subdirectory called "SimplePresets".

global presets are stored in the installation directory of LightWave3D on Windows, on OSX UB they are stored in */Library/Preferences/LightWave3D/SimplePresets/*.

content presets are stored in the current content directory.

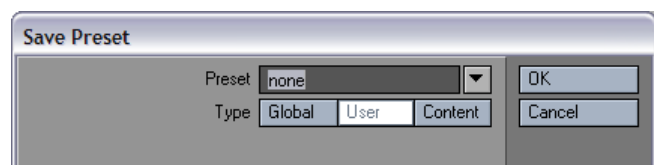
shaderMeister supports the concept of **default** presets. If you name a preset "**default**" then it will be loaded automatically if shaderMeister is added to a scene.

shaderMeister searches for default presets in the **user**, **global** and **content** presets in that order. This means that a default **content** preset overrides a **global** default which in turn has precedence over a **user** preset.



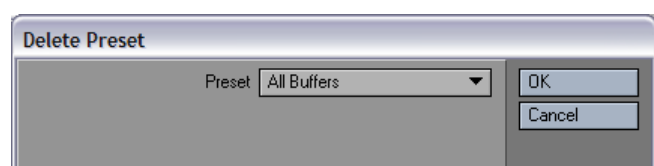
Save as Preset...

This option allows you to save the current shaderMeister settings to a preset. Choose any of the three types and enter a name for the preset. You can also use the small pop-up to select any of the currently available preset names.



Delete Preset...

This allows you to select and of the available presets and delete them from the hard drive.



Global Shading Enabled

This is a switch to deactivate shaderMeister. Deactivating the Master Handler itself in the list of Master Handler plugins will currently not disable shaderMeister.

Nodal Graph...

This opens the nodal shading graph that serves as the override.

The inputs reflect the settings that are available via the normal surface editor. However, since shaderMeister is applied as a shader they may behave differently.

Disable Surface Nodes

This option disables all nodes that are applied to the original surface. There are two reasons to do so:

- 1) Speed up rendering
- 2) The shading and materials applied through surface nodes are applied after the shader has been evaluated. This overwrites the changes made due to shaderMaster.
Disabling Surface Nodes allows shaderMeister to thus overwrite nodal materials and shaders.

Scene Editing

This option allows for simple batch operations on the current objects.

Add All Shaders

This adds the shaderMeister shader plugin to all surfaces that don't have it applied yet.

The Surface Editor should be set to Edit by Object prior to adding all shaders.

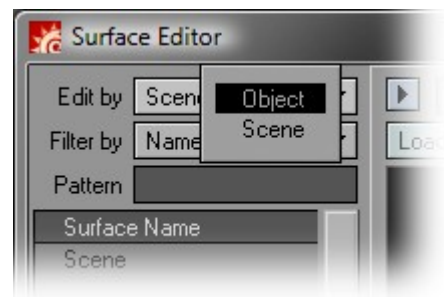
Remove All Shaders

This removes the shaderMeister shader plugin from all surfaces.

Unfortunately this will crash if surfaces contain shaders in addition to the shaderMeister shader. This is a bug in LightWave 3D 9.3.1 to 9.6 and has been reported to NewTek.

The Surface Editor should be set to Edit by Object prior to adding all shaders.

Add All Shaders
Remove All Shaders



Node Input Connections

Here is a description of the inputs available in the node graph:

Colour, Luminosity, Diffuse, Specular, Glossiness, Reflection, Transparency, Refraction Index, Translucency

These inputs correspond to the shading properties as defined in the surface editor. They may be overridden by surface nodes.

Normal

This overrides the following bump input, allowing you to set the normal for the current surface directly as opposed to using a bump value.

Bump, Colour Highlights, Colour Filter, Diffuse Sharpness, Additive Transparency, Reflection Blurring, Refraction Blurring

These inputs correspond to the shading properties as defined in the surface editor. They may be overridden by surface nodes.

Override

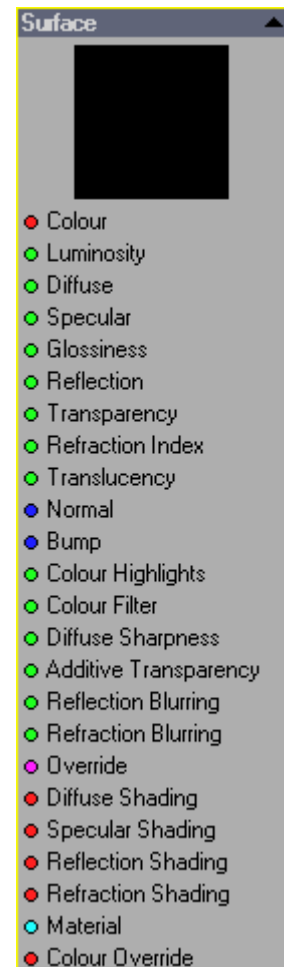
This input is special and modifies how the following inputs behave.

It has been designed to work in conjunction with the **Logic** output of the **Filter Node** or the **Logic Node**, explained later in this manual.

If nothing is connected to **Override** then the following inputs will behave as expected.

If **Override** is connected and the value that is passed on to it is 0, the following inputs will be completely ignored (effectively displaying the original surface).

If **Override** is connected and a value other than 0 then the following inputs will be active.



Diffuse Shading, Specular Shading, Reflection Shading, Refraction Shading

These inputs correspond to the respective inputs in the nodal surface shading system.

They may be overridden by surface nodes connected to the respective shading inputs or the material input in a surface shading network.

Material

This input overrides the Diffuse/Specular/Reflection/Refraction Shading and Transparency. It may be overridden by surface nodes connected to the Shading inputs or the Material input.

Colour Override

This colour completely overrides the colour of the currently rendered pixel. This will be displayed as is in the final image.

If Colour Override is connected, LightWave 3D will not compute any shading on the surface by itself (unless it is a nodal surface). This can be a tremendous speed boost rendering out passes that do not rely on shading/lighting.

Unfortunately this may be overridden by shading and Material nodes when using nodal surfacing.

shaderMeister – Shader Plugin

The shader plugin needs to be applied to all surfaces that you intend to override with shaderMeister.

If there is no shaderMeister global shading network in the scene the shader plugin will do nothing. In Modeler, it will do nothing as well.

The shaderMeister shader can be mass applied using the **Scene Editing** option in the master handler.

The objects will need to be saved after that to make the change permanent.

No other settings are saved with the Shader Plugin, it is just used if the shaderMeister Master Handler is present in the scene.

Nodal Graph...

This button opens the global shading graph from any instance of the shaderMeister Shader Plugin for your convenience. The global shading graph is still only saved with the Master Handler plugin.



Filter Node

The Filter Node allows you to filter the currently shaded spot by:

- Surface name
- Item name
- Object name (as stored on disk as a .lwo)
- Weight Map Value
- Item Comment

These are filtered using their names only (with the exception of the Weight Map option). You can use wildcards to let the filter match more than one surface/item/object.



User Interface

PassThrough

This button completely disables the node.

The respective node inputs will be passed through to the outputs without change. If there is nothing connected to the inputs, the outputs will be either 0 or black, depending on the output type.

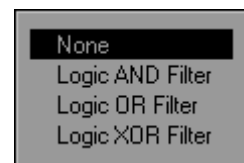
LogicOperation

This setting allows you to modify the output of the Filter Node with the output of another (Filter or Boolean) node.

The result of a boolean operation on the Logic input and the result of the filtering operation within the node will be used to determine the outputs of the Filter node.

This allows you to daisy chain and combine multiple filter nodes.

The boolean operations are:



Logic AND Filter

If both the Logic input and the Filter result are the same, then the Logic output will be true and the new inputs will be passed through.

The **AND** Operation returns true if both inputs have the same value.

Logic Input	Filter	Result
True	True	True
True	False	False
False	True	False
False	False	True

Logic OR Filter

The **OR** Operation returns true if either of the inputs is true

Logic Input	Filter	Result
True	True	True
True	False	True
False	True	True
False	False	False

Logic XOR Filter

The **XOR** Operation returns true only if the inputs have different values.

Logic Input	Filter	Result
True	True	False
True	False	True
False	True	True
False	False	False

Invert Filter

Inverts the logic of the filter.

Filter by

You can filter the surface by a number of criteria.

Surface

This filters by the surface name.

Item

This filters by the item name as displayed in LightWave 3D. This also includes layer names.

Object

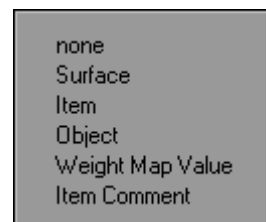
This filters by the object name as stored on disk (the .lwo)

Weight Map Value

This filters by weight maps.

Item Comment

This option allows you to filter by item comments. This is extremely handy as item comments are saved within the scene file.



Include Children

(only if filter by Item is active)

This will include the selected item as well as its children to the filter. This allows you to filter a group of items by only matching the parent item.

Weight Map

(only if filter by Weight Map)

This allows you to select the weight map used by the filter.

Weight Threshold

(only if filter by Weight Map)

Any weight map value above and including this threshold will be considered as being filtered, anything below will be considered as not being filtered.

If the weight map is not applied at all it will also be considered as not being filtered.

Filter

Supported wildcards

*

Matches any amount of characters (or none)

?

Matches any single character.

|

Allows you to concatenate multiple filters

Examples

Let's assume we have the following surface names to filter:

Filter	green	greenish	almost_green	blue	blueish	almost_blue	blue01	blue02	blue3
green*	✓	✓	✓	✗	✗	✗	✗	✗	✗
*ish	✗	✓	✗	✗	✓	✗	✗	✗	✗
blue0?	✗	✗	✗	✗	✗	✗	✓	✓	✗
blue*	✗	✗	✗	✗	✓	✗	✓	✓	✓
blue* green*	✓	✓	✗	✓	✓	✗	✓	✓	✓



Pick...

This button opens a new window that allows you to select a **Surface**, **Item** or **Object**.

The selection will either **Replace** the current **Filter** or **Append** to it (including the insertion of a “|” character to concatenate it to the existing **Filter**).



Node Input Connections

Logic

This integer input allows you to daisy chain multiple Filter or Boolean nodes.

It will be combined with the result of the filter using the **Logic Operation**.

baseVector, baseColour, baseScalar, base Material

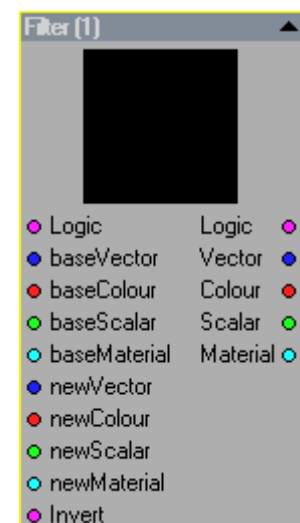
These inputs will be passed through to the respective outputs if the filter is not **true**.

NewVector, newColour, newScalar, newMaterial

These inputs will be passed through to the respective outputs if the filter is **true**.

Invert

This integer input will invert the result of the filter if it is set to anything **but 0**.



Node Output Connections

Logic

This output is 1 if the result of the filter and the Logic Operation on the Logic input result in a **true**.

Otherwise it is 0.

This allows you to daisy chain the Filter node with other filter nodes or Boolean Logic nodes to create complex ex-/inclusions.

Vector

Depending on the result of the filter this will either be the **baseVector** or the **newVector** input.

Colour

Depending on the result of the filter this will either be the **baseColour** or the **newColour** input.

Scalar

Depending on the result of the filter this will either be the **baseScalar** or the **newScalar** input.

Material

Depending on the results of the filter this will either be the **baseMaterial** or the **newMaterial** input.

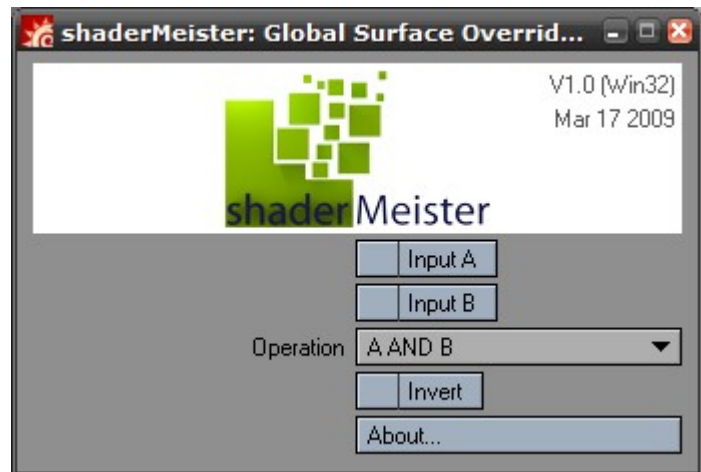
Boolean Node

This node allows you to combine two logical values using Boolean logic.

Using the Logic output of the Filter Node this allows you to design elaborate selections to narrow down the parts of a scene that shaderMeister affects.

Boolean logic deals with elements that can only have two values: true or false, 1 or 0 respectively.

User Interface



Input A

This button allows you to set **Input A** to either True (active) or False (not active) if nothing is connected to the respective input.

Input B

This button allows you to set **Input B** to either True (active) or False (not active) if nothing is connected to the respective input.

Operation

The Boolean operations are best explained with logic tables, as there is a difference to the usage of the words in English.

A and B

The **AND** Operation returns true if both inputs have the same value.

Input A	Input B	Result
True	True	True
True	False	False
False	True	False
False	False	True

A or B

The **OR** Operation returns true if either of the inputs is true

Input A	Input B	Result
True	True	True
True	False	True
False	True	True
False	False	False

A xor B

The **XOR** Operation returns true only if the inputs have different values.

Input A	Input B	Result
True	True	False
True	False	True
False	True	True
False	False	False

Invert

As expected this inverts the result of the Boolean operation.

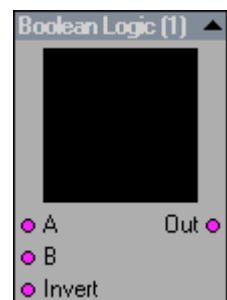
Node Input Connections

A

This is the first parameter of the Boolean operation. A value of 0 corresponds to **false**, any other value is **true**.

B

This is the second parameter of the Boolean operation. A value of 0 corresponds to **false**, any other value is **true**.



Invert

This inverts the result of the boolean operation. **False** turn to **true**, **true** to **false**.

Node Output Connections

Out

This is the result of the boolean operation. A **true** value will be exposed as 1, **false** as 0.

Surface Exposure Node

Please Note:

The Surface Exposure Node should only be added to shaderMeister nodal Surface Graphs applied using the Master Handler plugin.

It will fail to produce any meaningful output in any other Node Editor within LightWave 3D.

It is still very useful though ;)

The Surface Exposure Node makes the shading properties and channels of the currently shaded surface available in the shaderMeister Nodal Graph.

This allows you to modify existing surfaces as opposed to just replacing them.

The outputs correspond to the matching channels in the layered surface editor and include the effects of layers and envelopes on the surface.

These are basically the surface channel as seen by the shader plugin, the effects of nodal surfacing are ignored.

Expose Surface (1)	
Colour	●
Diffuse	●
Luminosity	●
Specular	●
Glossiness	●
Reflection	●
Transparency	●
Refraction Index	●
Translucency	●
Colour Highlights	●
Colour Filter	●
Diffuse Sharpness	●
Additive Transparency	●
Reflection Blurring	●
Refraction Blurring	●

Node Output Connections

Colour, Diffuse, Luminosity, Specular, Reflection, Transparency, Refraction Index, Translucency, Colour Highlights, Colour Filter, Diffuse Sharpness, Additive Transparency, Reflection Blurring, Refraction Blurring

These outputs correspond to the surface properties in the surface editor. Changes due to nodal surfacing are not available due to SDK limitations.

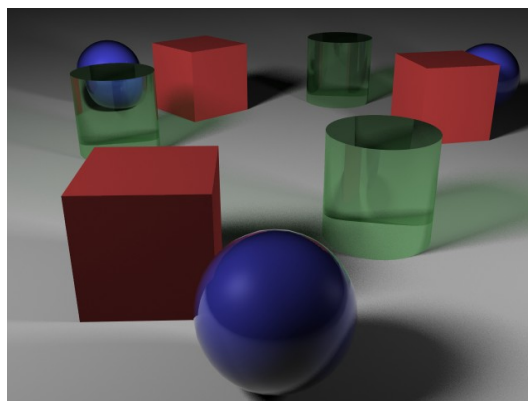
Examples

We've collected a few simple examples do give an idea of the possibilities that shaderMeister allows for.

These are available as Content Presets in the shaderMeister Sample scene which is included with the plugin.

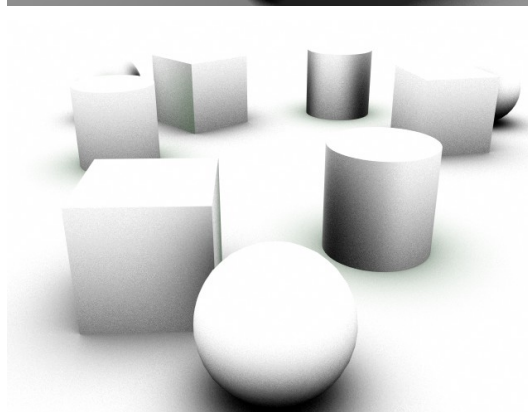
Just load the sample scene, open shaderMeister, select any of the Content Presets and press F9 to render.

The image on the right is the sample scene without shaderMeister.



Ambient Occlusion Pass

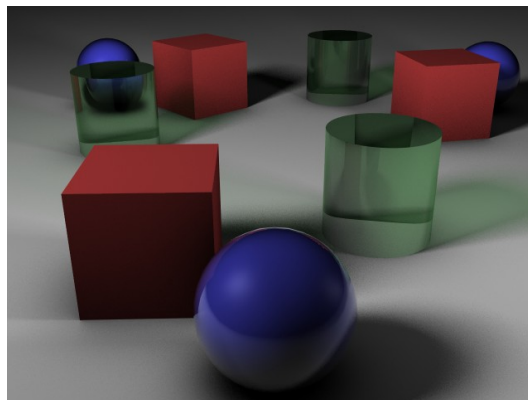
This preset just renders a standard ambient occlusion pass to use in compositing.



Global Ambient Occlusion

This preset mixes an ambient occlusion shader with all existing surfaces.

Please note that any nodal surfaces will override this preset.



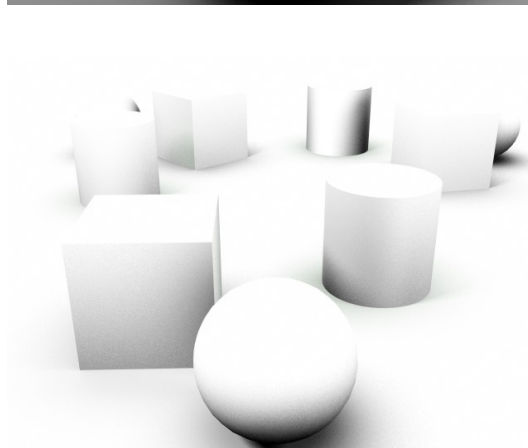
Lit Ambient Occlusion Pass

This preset is a variation of standard Ambient Occlusion that takes normal lighting into account.

Lit areas are less affected by ambient occlusion.

This is designed to be used in compositing.

Courtesy of Guillaume Wyatt

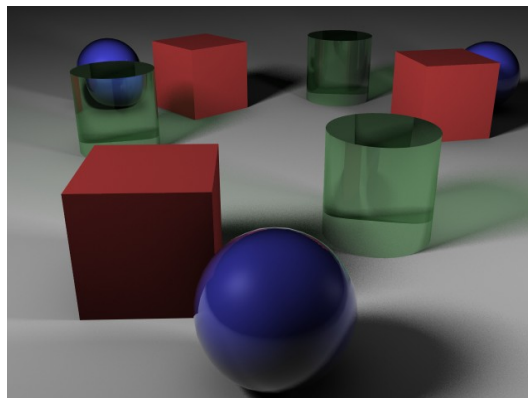


Global Lit Ambient Occlusion

This preset is a variation of standard Ambient Occlusion that takes normal lighting into account.

This preset mixes the lit occlusion with the existing surfaces.

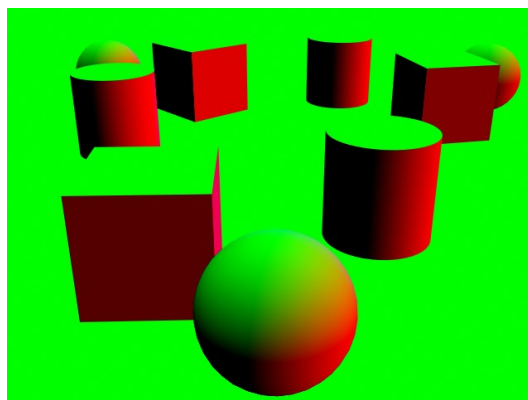
Courtesy of Guillaume Wyatt



Normal Pass

This renders an image where the surface normals are encoded in the RGB channels.

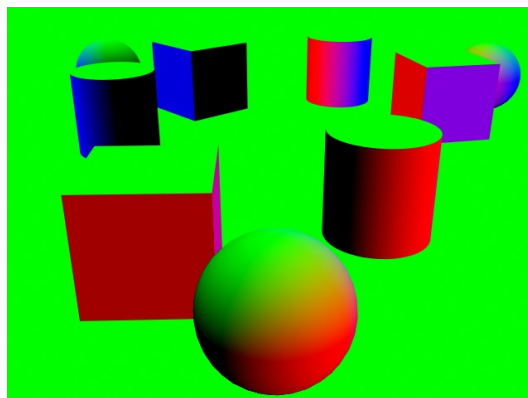
Courtesy of Guillaume Wyatt



Object Space Normal Pass

This renders an image where the surface normals in object space are encoded in the RGB channels.

Courtesy of Guillaume Wyatt

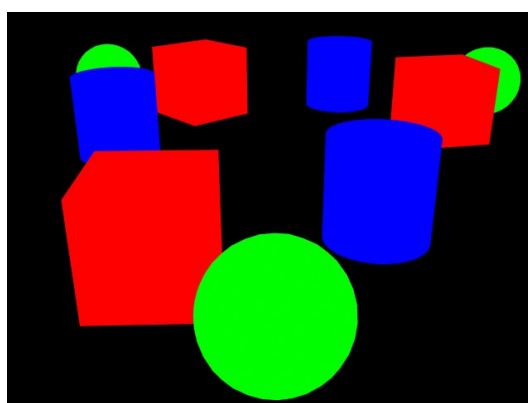


RGBMatte

This preset assigns either red, green, or blue to the surfaces. This allows as compositing application to use a single RGB image as a matte for three different selections.

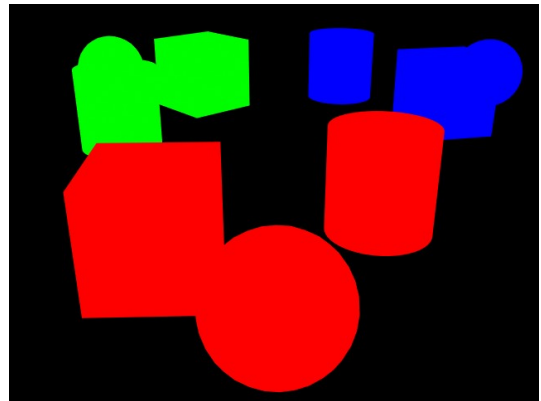
In a way this is like three alpha channels combined into a single image.

Courtesy of Guillaume Wyatt



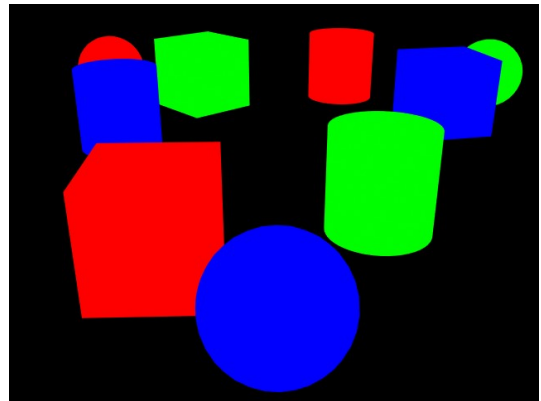
RGBMatte using an Item Hierarchy

This is the same as the RGB Matte, in this case the parent Null objects are selected for the Matte in the Filter Nodes with the “Include Children” option selected.



RGBMatte using Comments

This is another variant of the RGB Matte, this time using Item Comments to filter the surfaces.



Appendices

Network Rendering

shaderMeister is ScreamerNet compatible and allows for network renders. You can install the plugin on any render node and it will render as expected. It has been tested with a variety of third party render controllers, including Butterfly NetRender and Spider.

Known Limitations

Incompatible with FPrime

Due to LightWave 3D SDK limitations FPrime can't render shaders. As these are crucial for shaderMeister, FPrime isn't able to render any modifications due to shaderMeister.

Incompatible with HDInstance

For the same reason as the FPrime incompatibility, shaderMeister won't be visible on items that are rendered by HDInstance.