



User Manual

Version 2018.1

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We also thank the LightWave community and the members of the LightWave Plugin Developers mailing list, especially Marvin Landis and Ernie Wright for their insight into the more obscure depths of the LightWave SDK.

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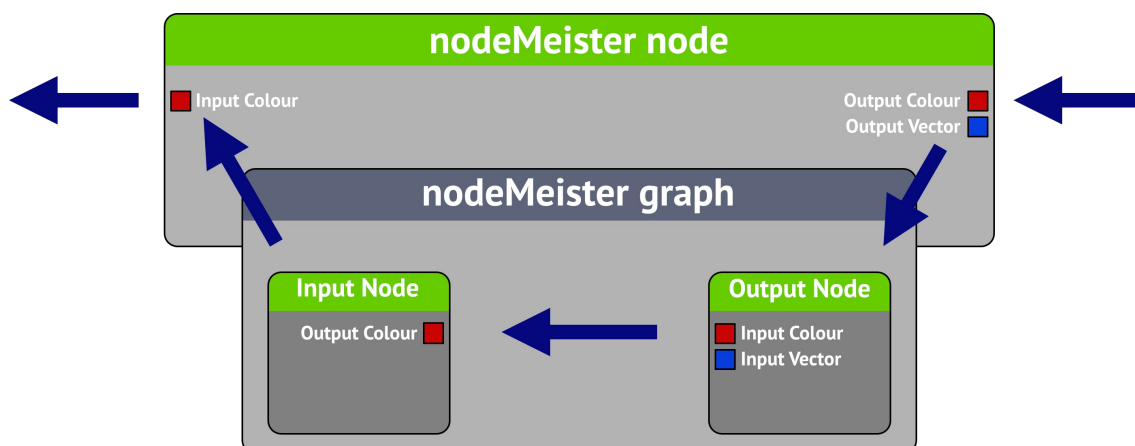
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Table of Contents

Introduction	1
Compatibility.....	1
Features.....	1
Setting up nodeMeister	2
Installation.....	2
Registration.....	3
What nodeMeister does ... and how it does it	4
And what it can't do.....	4
nodeMeister node	5
nodeMeister Graph	7
Input Node.....	7
Output Node.....	9
nodeMeister – Master Plugin	11
Presets.....	11
Node Graphs.....	11
Add.....	11
Edit.....	12
Delete.....	12
Open Node Graph.....	12
About.....	12
Additional Tools	13
Context Info (Node, db&w/developer).....	13
db&w nodeMeister... (Layout Command).....	13
Appendices	14
Node Graph Contexts.....	14
Preset System.....	15

Introduction

“one node graph to rule them all”



nodeMeister allows you to create global node graphs in Layout that can be referenced in other node graphs using a node. Effectively this acts a lot like a native compound node, except that the contained graph is shared.

Often parts of a node graph need to be reused in another graph. This could be a set of procedurals driving a displacement as well as instances or a complex nodal motion applied to multiple items.

Without nodeMeister, those parts of the node graph need to be copied and pasted to the other graph manually. Any change to these parts will require a copy and paste again.

With nodeMeister, you can create a single node graph that can be used multiple times, via a single node, in other node graphs. Changes to the nodeMeister graph will propagate via the node.

Since the nodeMeister graphs can also create a user interface on the nodeMeister node, you can create a library of node graphs to reuse across scenes or even projects.

Compatibility

nodeMeister is compatible with LightWave3D 2018.0.4 and higher on Windows and MacOS.

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

Features

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

- Create global node graphs to be referenced and used multiple times in Layout.
- Allow for any connection type.
- Dynamic user interface in the nodeMeister node to expose node graph inputs.

Please note that the nodeMeister node will not work as expected if a node graph is converted and exported to another system, such as, for example, Octane shading.

If any third party is interested in accessing the node graph within the node, please to get in touch with us and we will provide a mechanism.

Setting up nodeMeister

Installation

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

Windows

The nodeMeister2018.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 nodeMeister2018.p to LightWave 3D.

You can also copy it to

%userprofile%\NewTek\LightWave\2018.0.4\plugins

to allow LightWave to detect the plugin automatically.

MacOS

The MacOS versions of nodeMeister are included as a ZIP file which includes this documentation as a PDF and the plugin file.

You can copy the nodeMeister2018.plugin file into one of two locations for LightWave to use it automatically.

You can either copy it to:

~/Library/Application Support/Newtek/LightWave2018.0.4/Plugins

or

/Library/Application Support/Newtek/LightWave2018.0.4/Plugins

In both cases LightWave 3D 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.

Included Plugins

nodeMeister is actually a suite of plugins for LightWave 3D. Currently it consists of the following plugins (these are the plugin names as displayed in the Edit Plug-ins window by LightWave):

- nodeMeister Node
- nodeMeister Master Plugin
- nodeMeister Command
- nodeMeister Global

To be able to use nodeMeister you will need to register and activate it with the activation code we will send you after your purchase of a license.

The nodeMeister Command is a convenience tool you can assign to a shortcut, or add to a menu, to quickly apply the respective plugin to the current scene (if it isn't applied already) and open the user interface.

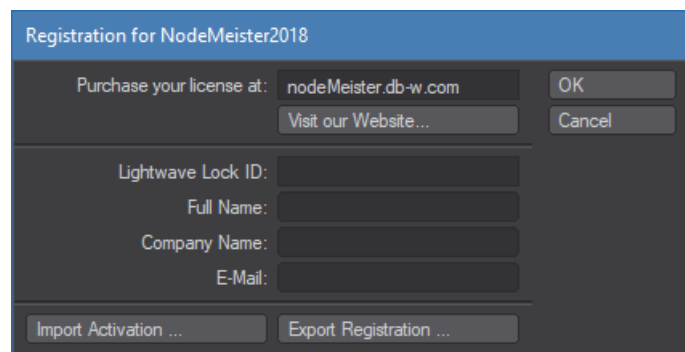
Registration



Once you've installed the plugin, add the nodeMeister master plugin to your scene in Layout, double click it to open the user interface and click on register.

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 difference¹.

Please make sure that our replies don't end up in your spam folder - or check your spam folder for our e-mails. A safe way would be the white list any mail from @db-w.com.



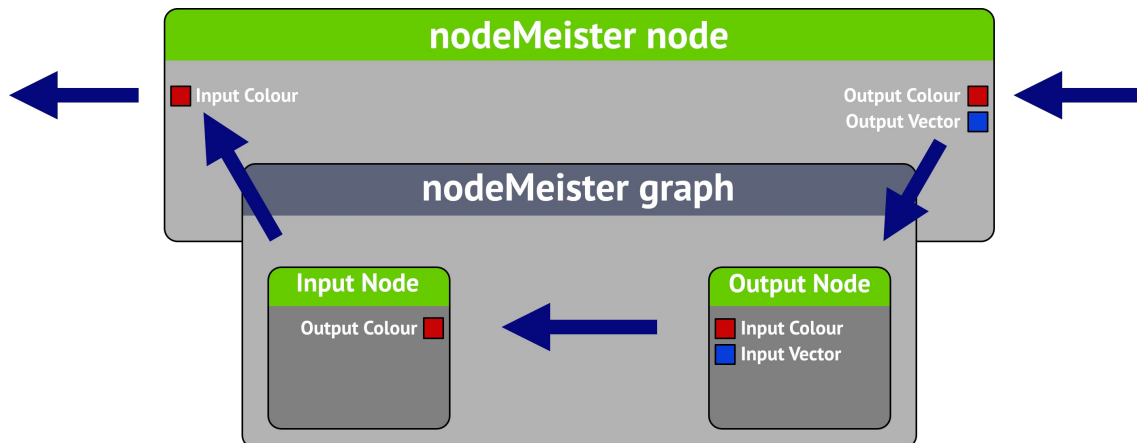
You can now either import the keyfile attached to the activation e-mail, or copy and paste the activation key into the registration panel (please make sure that the personal information is identical to the one submitted to us for the registration).

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

The registration file is stored in %appdata%db&w\licenses in Windows, the license file is named nodeMeister2018.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.

¹ Our key generator needs some sleep every now and then. ;)

What nodeMeister does ... and how it does it



nodeMeister allows you to create node graphs that can be used multiple times, in different node graphs, via the nodeMeister node.

You can create any number of inputs and outputs for the nodeMeister graph. These will be exposed respectively as outputs and inputs on the nodeMeister node².

Certain outputs in the nodeMeister graph will also be exposed as user interface controls on the nodeMeister node.

When the nodeMeister node is evaluated, it will pass on the evaluation to the nodeMeister graph. The evaluation of the nodeMeister graph happens within the context of the graph that's hosting the nodeMeister node.

And what it can't do...

nodeMeister only works with the basic input/output types as defined in the SDK. Third party connections are not supported at this time.

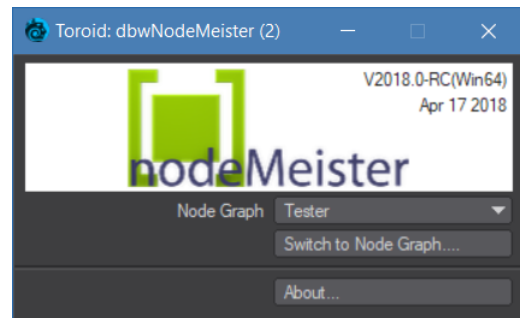
While you can use a material Input in the graph (which translated to a material output on the node using it), this will not be able to pass through the settings of the material connected to it for display in OpenGL. In this case nodeMeister will, just like the native material mixer, output a grey material for the surface. This is just used by OpenGL in the viewport though.

² If you think this sounds complicated, you should see our code. ;)

nodeMeister node

This node is central to nodeMeister. It allows you to use any of the existing nodeMeister graphs in the graph that you add the node to – provided that the contexts match.

To ease the set-up of scenes, it will automatically use the last nodeMeister graph when a nodeMeister node is added for the first time.



nodeMeister Graph

This allows you to select the nodeMeister graph to be used by the node.

Switching to a different graph will change the inputs and outputs of the node, disconnecting them.

Also, depending on the outputs of the graph, new user interface controls will be added to the node panel.

You will need to close/re-open the panel (if the right side of the node editor is collapsed) or select a different node and switch back to make the new controls visible.

(none)

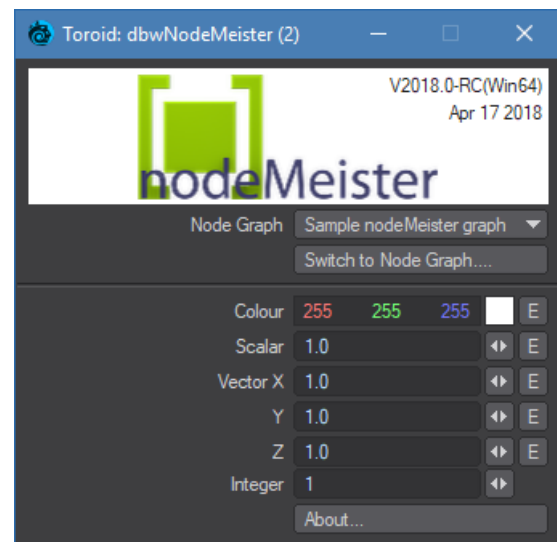
This will select no node graph for the node, removing all the inputs, outputs and controls.

(add new graph)

This will create a new nodeMeister graph, select it for the node and open it in a node editor.

When creating the new nodeMeister graph, only the contexts of the graph the node is in are available. This is to make sure that the new nodeMeister graph is usable by the node.

The nodeMeister master plugin will be added automatically to the scene if required.



Switch to nodeMeister Graph...

This switches the node editor to the nodeMeister graph used by the node. You can use the Open Previous Node Graph... buttons on the Input or Output nodes to return.

[Custom Controls]

The custom controls displayed here depend on the outputs as defined in the currently used nodeMeister graph.

Single Threaded

This button is only exposed in the **Spot/Mesh/Surface** (Displacement node editor) context. It should be kept off for speed reasons but may be required of a node within the nodeMeister graph is not thread safe. Unfortunately there is no automatic way to detect this.

Transparent

This control is only exposed in the **Mesh/Spot/Surface/Raytrace** (Surfacing) context of the node.

This should be off in general but needs to be turned on if a material **within** the used nodeMeister graph is, at least partially, transparent.

About...

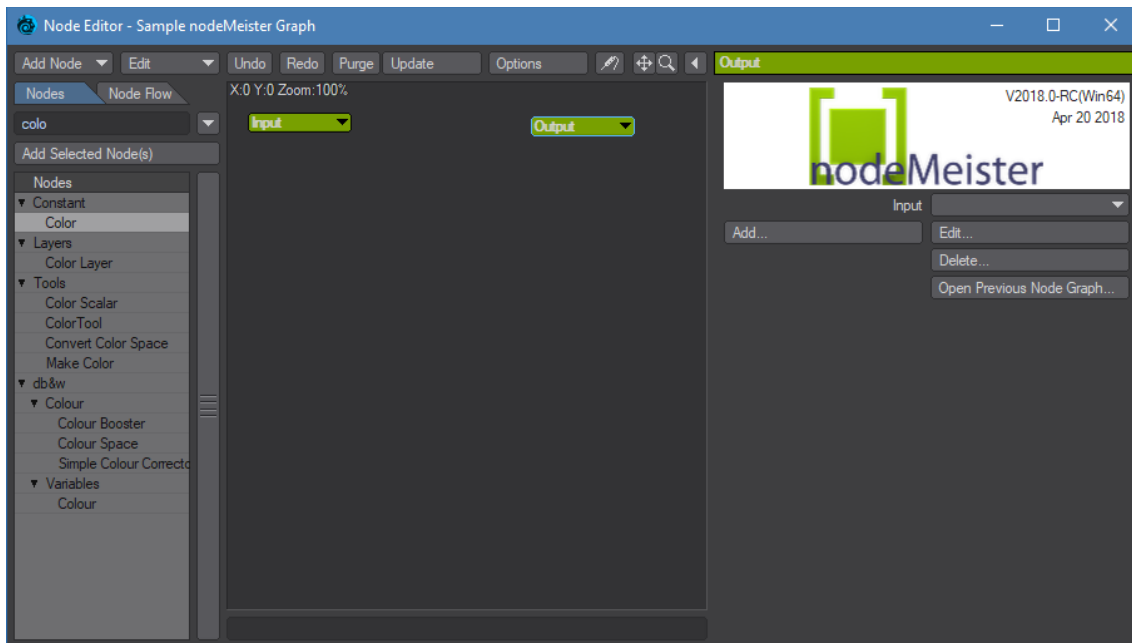
This shows the about window, including version and registration information.

nodeMeister Graph

A graph created by nodeMeister allows you to add custom inputs to the output node as well as custom outputs to the input node.

The currently used graph can be accessed from any of the nodeMeister nodes using it, any nodeMeister graph may be accessed from the nodeMeister master plugin.

The available nodes may be limited by the context of the nodeMeister graph.

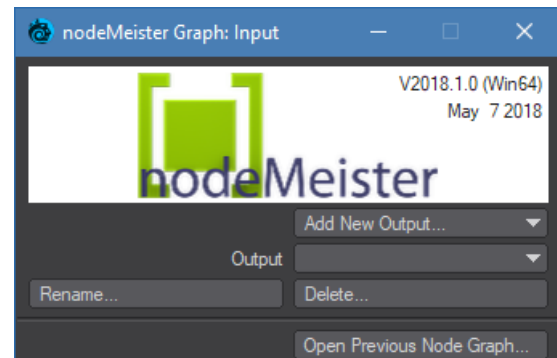


Input Node

You can add outputs to the Input node, these will be available as inputs³ as well as user interface controls on the nodeMeister node hosting the node graph.

The controls allow you to change the values driving the respective output connection on the Input Node without needing to connect the matching input on the nodeMeister node to a Constant.

The following types of outputs are available and expose the following controls:



³ If you think this sounds complicated, it's nothing compared to the mind twisters we had coding it.

Output Type	User Interface Control	Underlying data	Envelope
Colour	Colour	three float values	✓
Scalar	Float, Distance, Percentage, Angle	one float value	✓
Vector	Float, Distance, Percentage, Angle	three float values	✓
Integer	Integer	one integer value	
Function		one float value to be modified	
Projection			
4x4 Matrix		16 float values	
Material			
Octane specific			

The controls for Colour, Scalar and Float also host envelopes, allowing them to be animated directly on the nodeMeister Node.

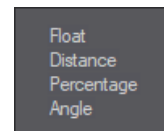
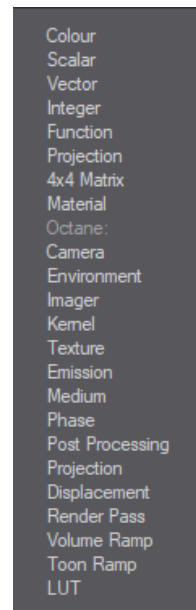
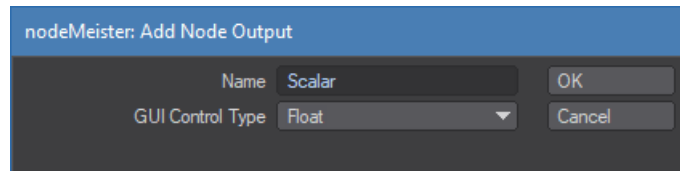
Add New Output...

This allows you to add a new output.

Please Note: The new output will not show up immediately after adding it. You can just select the node again and it will show.

Name

This is the name of the output. Once the node graph is used by a nodeMeister node, this name will be used for the respective input and user interface control (if applicable).



Control Type

If applicable, this displays a choice of user interface control types for the nodeMeister node.

Output

Allows you to select any of the existing outputs to edit or delete.

Edit...

Allows you to edit the output. Currently only changing the name of the output is supported. This will also change the name of the respective input on the nodes using this graph.

Please be careful, if assets that are not in the scene, but use this nodeMeister graph, will later be added to the scene, they will not be able to find this output.



Delete...

This will delete the output and also the respective inputs of the nodes using this graph.

Open Previous Node Graph...

If the nodeMeister node graph has been opened from the nodeMeister Node this will return to the node graph that hosts the node.

This allows you to quickly toggle between the node graph where the node is used and the nodeMeister graph used by the node.

Output Node

You can add inputs to the Output node, these will be available as outputs⁴ on the nodeMeister node hosting the node graph.

The following types of inputs are available:

Colour, Scalar, Vector, Integer, Function, Projection, 4×4 Matrix, Material as well as Octane specific connections.

The node has a “New” input in the node graph. You can just drag any connection onto that input to create a new input with a matching type.



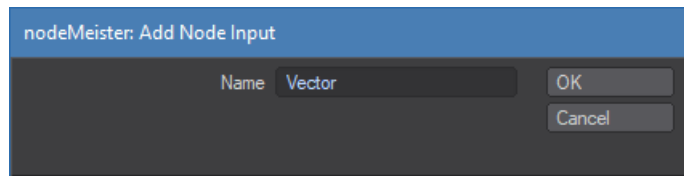
Add New Input...

This allows you to add a new input. This will correspond to an output of the node that eventually hosts this graph.

⁴ Yeah, I know, I know...

Name

Name of the input



Input

Allows you to select any of the existing inputs to edit or delete.

Edit...

This allows you to edit the input - currently only the name can be changed. This will also change the respective output name of all nodes using this graph.



Please be careful: if assets that are not in the scene - but use this nodeMeister graph - are eventually added to the scene, they will not be able to find this input.

Delete...

This will delete the input and also the respective outputs of the nodes using this graph.

Open Previous Node Graph...

If the nodeMeister node graph has been opened from the nodeMeister node this will return to the node graph that hosts the node.

This allows you to quickly toggle between the node graph where the node is used and the nodeMeister graph used by the node.

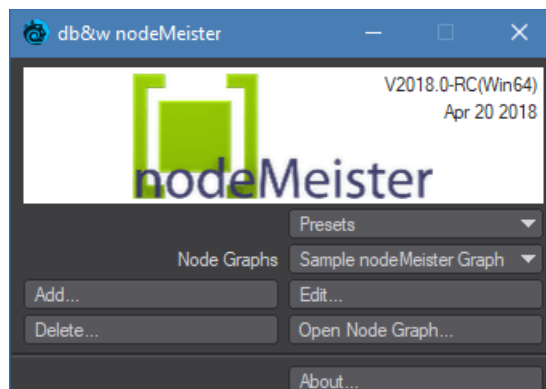
nodeMeister – Master Plugin

The master plugin allows you to manage and edit node graphs, to be referenced by the nodeMeister node.

You can either add the nodeMeister master plugin using the Master Plugins panel, or assign the **db&w nodeMeister...** Layout Command to a button or menu and use that to add and/or open the plugin.



This plugin needs to be a part of the current scene, otherwise the currently defined nodeMeister graphs will not be saved.



Presets

nodeMeister has its own system to manage presets.

Loading a preset will not replace any of the existing nodeMeister graphs, but add a new one. To save/load a specific nodeMeister graph, please use the options in the LightWave node editor.

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

More details about the paths and how you can add your own are available in the Appendix.

Save as Preset...

This option allows you to save the current nodeMeister graph as 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 any of the available presets and delete them from the hard drive.

Load Settings from File...

This allows you to load a previously saved nodeMeister graph from a file.

Save Settings To File...

This allows you to save the current nodeMeister graph to a file.

Node Graphs

This allows you to select any of the currently defined nodeMeister graphs for editing.

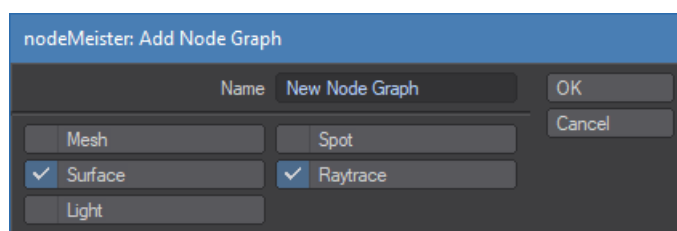
nodeMeister node graphs are saved with the Layout scene file.

Add...

This allows you to add a new node graph.

Name

This is the name for the node graph. The name must be unique. If you enter a name that exist already, a number will be added automatically.



Contexts

This allows you to define the required context(s) for the node graph.

More information about them is available in the Appendix.

Edit...

This allows you to edit the name and context of the currently selected node graph.

Name

You can change the name of the nodeMeister graph at any time, nodes that use it will pick up the name change.



Please be careful when using assets (such as Objects) across different scene. The node references the nodeMeister graph by name.

If you change the graph name and then load an asset that requires an older name, it won't be able to find the nodeMeister graph.

Contexts

This allows you to change the context of existing nodeMeister graphs.

Please have a look at Node Graph Contexts in the Appendix for more information.



If a nodeMeister node uses the graph, be careful not to pick a context that isn't supported by the graph the node is in.

If you do, the node will lose the connection to this nodeMeister graph.

Delete...

This will delete the current nodeMeister graph. All nodes referencing this nodeMeister graph will be reset.

Open Node Graph...

This opens the currently selected nodeMeister graph in the node editor.

About...

About displays the about window of nodeMeister, including the version number and your license status.

Additional Tools

Context Info (Node, db&w/developer)

Since the context of the various node editors is crucial for nodeMeister, we've included a node to probe the context of the current node graph.

Just add it to the node graph you want to examine, open the user interface and it will display the context(s) supported by the node graph.

db&w nodeMeister... (Layout Command)

This Plugin adds the nodeMeister master plugin (if required) and opens the user interface. You may assign this to a menu or shortcut for ease of access to the nodeMeister master plugin.

Appendices

Node Graph Contexts

This is a crucial part of creating a node graph.

The context defines which capabilities a node graph has, which also affects which nodes can be added to it.

Thus, only if the context of the node graph evaluation allows for raytracing, will you be able to add nodes that require raytracing.

The nodeMeister node only allows for a nodeMeister graph to be used if the graph that is hosting the node **at least** matches **all** of the contexts of the nodeMeister graph.

You can select multiple contexts for a node graph, but please note, while this may make more nodes available, this will also restrict where the nodeMeister graph may be used.

As a general rule of thumb, **don't** set a context at all unless you specifically need to use a node that requires a specific context.

The predefined contexts are as follows, more may be available in future versions:

- **All** The Node is available in all contexts.
- **Mesh** The Node is available in contexts where a physical mesh is provided.
- **Spot** The Node is available in contexts where virtual spot geometry is provided.
- **Surface** The Node is available in contexts where virtual or real surface geometry is provided. A surface requires proper normals.
- **Raytrace** The Node is available in contexts where ray-tracing functions are provided.
- **Light** Undocumented - available in a light context only.
- **OpenVDB** Undocumented - available in a OpenVDB context only

Here is a list of select node editors within Lightwave and the contexts they make available:

Node Editor	Available Contexts
Shading	Mesh/Spot/Surface/Raytrace
Motion	Mesh
Displacement	Mesh/Spot/Surface
Light	Spot/Light
Edges	All
OpenVDB	OpenVDB

Examples

Material nodes require both the Raytrace and Surface context.

Preset System

This Preset system is used by various db&w Plugins.

Using the Presets pop-up you can apply any of your presets, save your current settings as a preset or delete existing presets. Our plugins have their 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 a directory that is accessible to all users on the current machine (and can be mirrored on a server).

On Windows the location is:

```
%allusersprofile%\Documents\dbw\LightWavePlugins\
```

On MacOS it is

```
/Library/Preferences/LightWave3D/SimplePresets/
```

Content presets are stored in the current content directory.

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

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

Custom directories for presets

It is possible to define user directories to store the presets in. This is done by placing a text file called "SimplePresetPaths.cfg" either into:

- The LightWave/Programs directory
- The directory where the LW settings are located
- and/or the content directory.

The files are read in that order, and preset paths defined in an earlier configuration file can be overwritten. The text file should be formatted as such:

```
# this is just a comment, anything that starts with a # is ignored
# first the name of the path as displayed to the user (without spaces)
# followed by the path
network \\db-w\lightwave\presets
local_temp c:\my_temp_presets
```

The path name is not case sensitive, it will be capitalized automatically. It may not contain spaces though.

You can also overwrite the existing default paths by using user, content or global as path names.

The custom directories are shared by all db&w plugins that use this preset system.