Layer Shuffler v1.3 documentation

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Glossary

Shuffle - The extraction of layers from the Selected Node into their own Shuffle nodes in the Node Graph

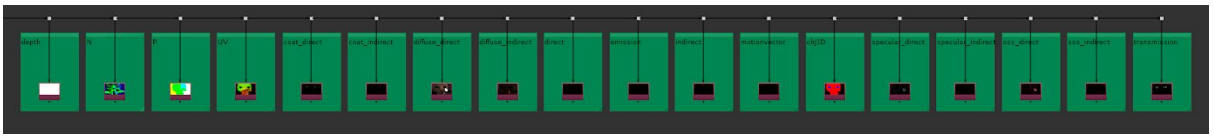
Contents package/Package folder - The folder containing all the relevant files for the Layer Shuffler. This would be the folder that has been extracted from the .zip file.

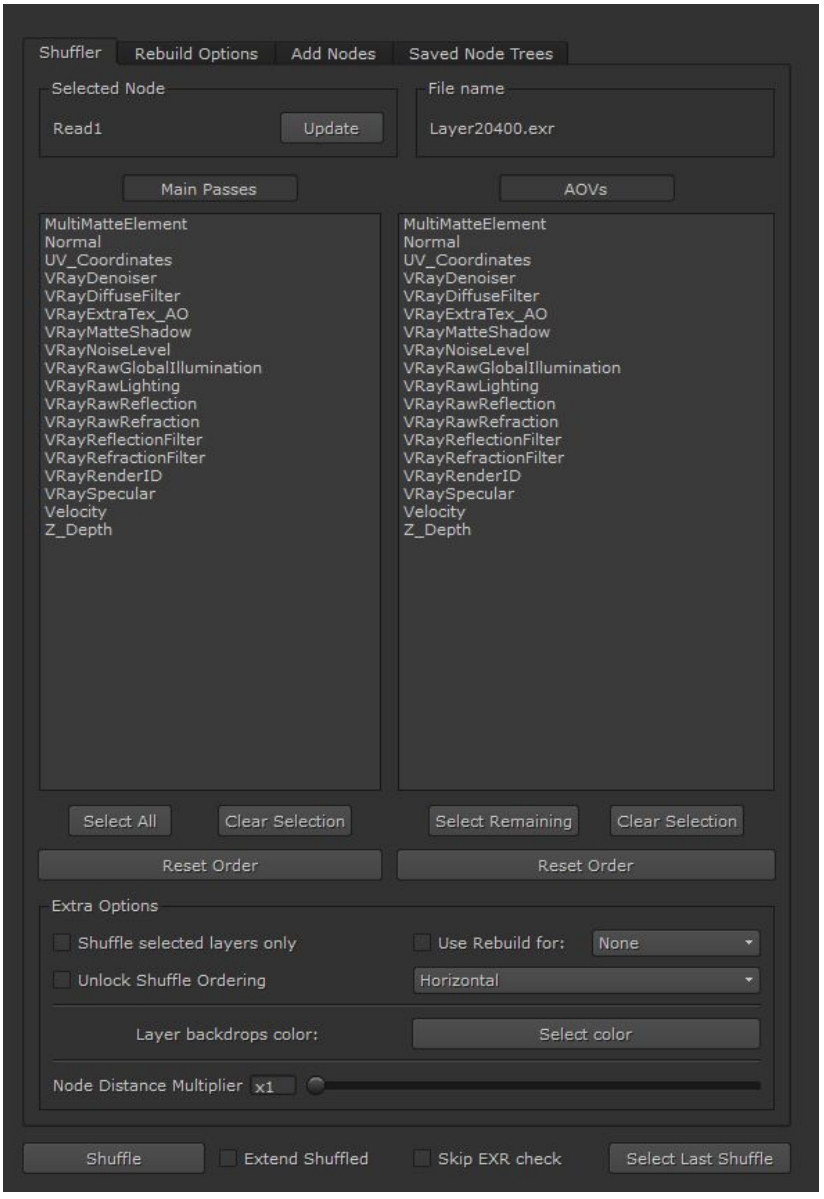
Target node - The node that has been “remembered” by the tool. This will be stored in the “Selected Node” field.

Rebuild - To recombine rendered passes of a final image that have been exported from a renderer.

Overview

Layer Shuffler provides the utility to review a list of identified layers in the node stream of the currently targeted node in the Node Graph in Nuke and extract each layer into Shuffle nodes. Beyond that, in the case of dealing with rendered files, it allows the separation of your Main Passes and AOV passes through two different list selections, as well as custom naming of both.





Further, it allows you to rebuild the main passes of your render, should you desire to do so. However, this feature is currently limited to Arnold and VRay only (the “Planned Implementations” section expands upon this).

The tool also allows the user to specify their own order in which the layers can be arranged after the Shuffle.

Each of these features will be explained in detail in the “Options” section of this documentation and an Installation Guide will be provided, which will explain the process appropriately for both experienced Nuke operators and to those who are barely familiar with the terminology, so please bear this in mind.

The tool should work with both PySide (pre-Nuke 11) and PySide2 (post-Nuke 11).

Installation Guide

To begin with, extract the contents of the compressed .zip file. Within the resulting “package” folder, you’ll find another folder - “layerShuffler”. Copy/Move that folder directly into your “.nuke” directory.

If you don’t know where to find this directory, it will normally be under *C:/Users/<your user name here>/.nuke*.

Next, in “.nuke”, find your init.py file, open it and add the contents of init.txt from the “package” folder. If an init.py file does not exist, follow the next steps to create the necessary one: Open the init.txt from the contents package folder, go to File -> Save As, navigate to the “.nuke” directory, set the File Name to “init.py” and change the Save as type to All Files, click Save. This should create an init.py file in your “.nuke” folder.

Again in “.nuke”, find your menu.py file, open it and add the contents of menu.txt (from the contents package) in the following way. The two lines underneath “# IMPORTS”:

```
from nukescripts import panels

import LayerShuffler
```

need to be copied to the beginning section of the file where imports usually live in a Python file. If you’re unsure where to place these, just make sure they are the first two lines of text in the file (like they are in the menu.txt file).

The remaining line (underneath “# REGISTRATION”):

```
panels.registerWidgetAsPanel("LayerShuffler.LayerShuffler", "Layer
Shuffler", "LayerShufflerPanelId")
```

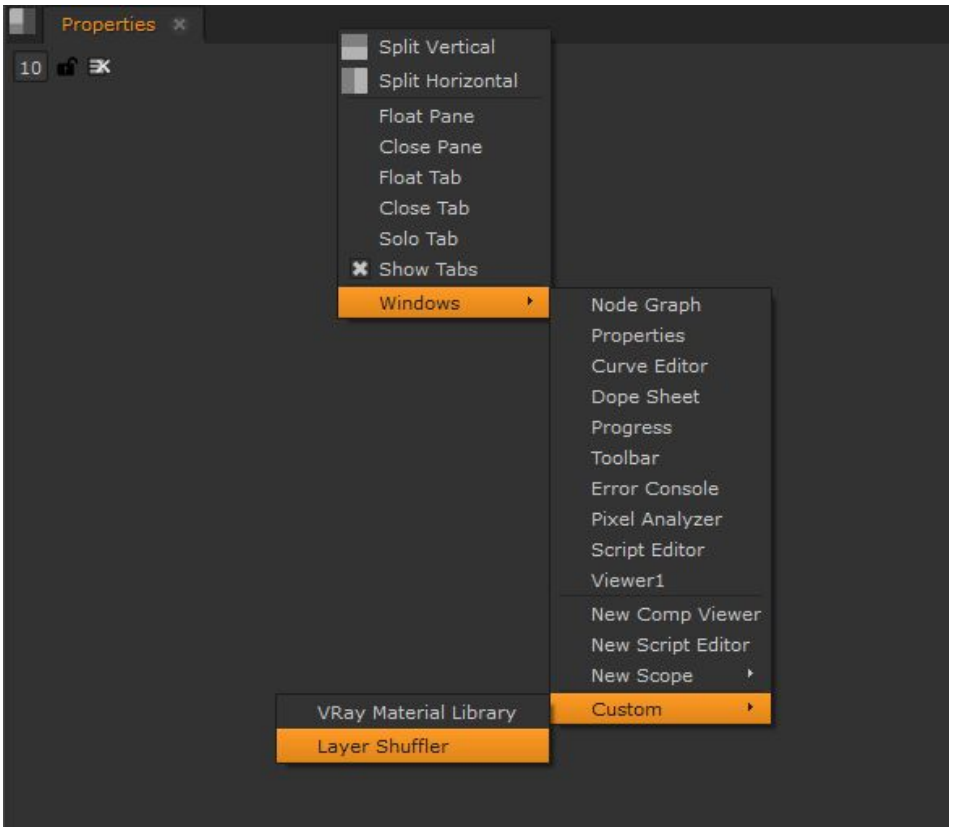
can be pasted at any point after that section. If a menu.py file does not exist, follow the next steps to create the necessary one: Open the menu.txt from the contents package folder, go to File -> Save As, navigate to the “.nuke” directory, set the File Name to “menu.py” and change the Save as type to All Files, click Save. This should create a menu.py file in your “.nuke” folder.

This concludes the installation. If Nuke is open, please restart for the changes to take effect.

Startup

To access the Layer Shuffler follow the next steps.

1. Open Nuke
2. Navigate to any Panel
3. Right-click the main bar of the Panel
4. Go to Custom
5. If installation was carried out correctly, you should see “Layer Shuffler” in the resulting menu
6. Select Layer Shuffler

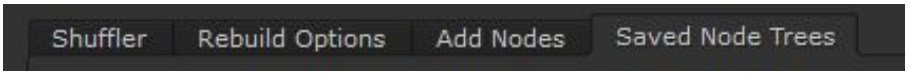


This will spawn a Tab of the Layer Shuffler, which will behave like a normal Nuke Panel and can thus be Floated, Docked to other areas, etc. Furthermore, multiple instances can be spawned.

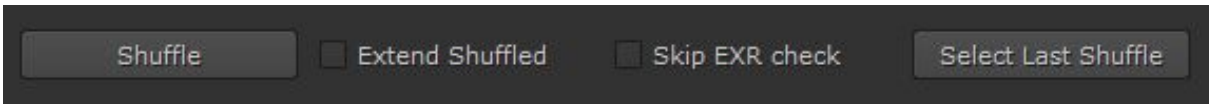
Options

This section will serve as an explanation and a guide to the Options in the Layer Shuffler UI.

Features have been separated in multiple different tabs, which will be covered in their respective sections. Tabs can be moved around, if desired.



Underneath each tab, you'll find two buttons and two checkboxes:



Shuffle button

Performs the main Shuffling action which will attempt to extract each layer, while respecting the user options. For each option, there will be a default behaviour should you wish to use the tool in a more "basic" manner.

Extend Shuffled

If you've already Shuffled out layers, checking this box will attempt to find the last connected one from those layers and begin a new Shuffle from there. Also, it will not erase the previously Shuffled nodes from memory so that *Select Last Shuffle* will still find them.

Skip EXR check

This will inform the Shuffle action to bypass checking if an EXR file is in the beginning of the incoming Node Graph. Normally, if this box is unchecked, the Shuffle action will check for such a file and ask the user if they wish to proceed.

Select Last Shuffle button

Attempts to select each Node created since the last time the "Shuffle" button was clicked, as well as any extended Shuffles. However, if the instance of Layer Shuffler is closed, it will lose every reference to the created nodes and will thus not select the nodes that have been shuffled last.

Shuffler

At the top of the Shuffler tab, you'll find two fields - ***"Selected Node"*** and ***"File Name"***.

Selected Node field

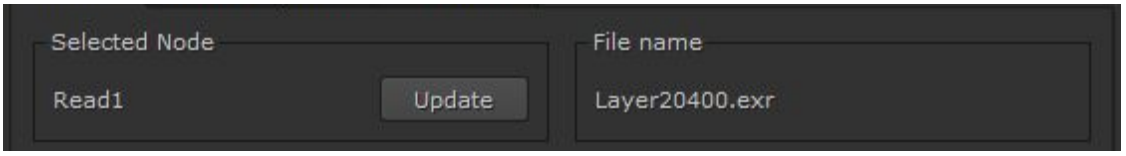
Saves the name of the node that was selected when the UI was opened. This ensures that even if you select a different node, your desired target node will not be changed. Should you wish to do that, hit the ***"Update"*** button.

Update button

Updates all of the relevant information that the tool can gather about the target node.

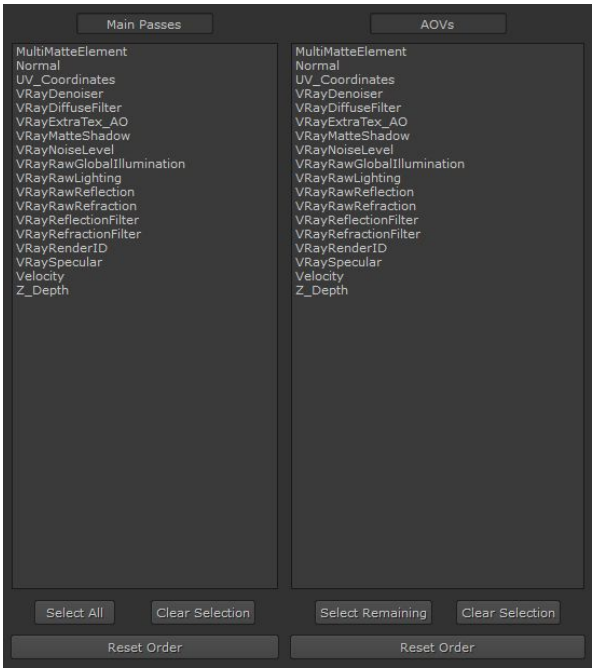
File name field

The File Name field will display the name of a connected file name if there is one in the incoming node graph.



Main Passes and *AOVs* list fields

Both will display every discovered layer in your target node. However, you can have different selections and orders in both. As per the default namings, the purpose of the left field is to point to your Main Passes and the right field - your AOV passes. These will be shuffled in different sections to separate them based on your selections. Custom names can also be assigned to each. However, only the left-side list selection will be considered for a Rebuild. Any unselected layers will be shuffled to a tertiary section, called "Other", unless the "Shuffle selected layers only" box is checked in "Extra Options".



Below the list fields, helper buttons exist - "Select All", "Select Remaining", "Clear Selection" and "Reset Order".

Extra Options group

An “Extra Options” group contains options for further customization.

Shuffled selected layers only checkbox

Instructs the Shuffle action to not create the third section with unselected layers, but instead focus on only the selected ones.

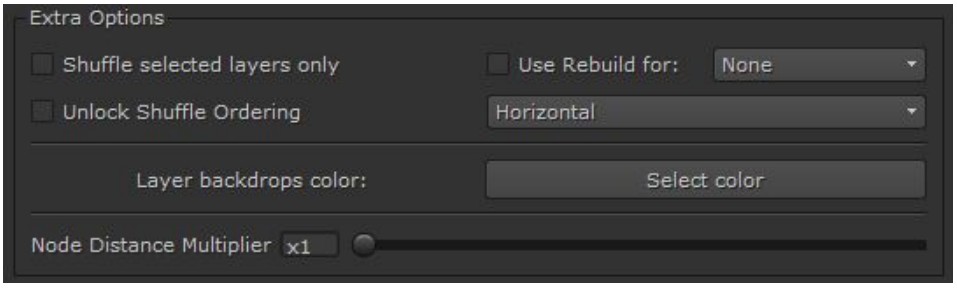
Use Rebuild for: checkbox

Informs the Shuffle script to create and connect the structure needed for a rebuild, based on the options set in the “Rebuild Options” tab (which will be explained in its corresponding section). The Rebuild can also be performed Horizontally or Vertically, based on user selection in the neighboring dropdown selection box. Renderer presets can also be selected in the dropdown box next to the checkbox.

Unlock Shuffle Ordering checkbox

Unlocks the functionality to reorder the list items in the lists above. This will inform the tool in what order to arrange the layers during the Shuffle action.

NOTE: This order will be ignored in the left-side list for every layer that is involved with the Rebuild, if “Use Rebuild” is checked, because the script will try to arrange them in the order presented in the official online documentations for each renderer preset, which were used as reference.



Select Color button

A color can be selected through the button, which will be used for all the backdrops created for each extracted layer. The button will call a Nuke Color Wheel widget for the purpose.

Node Distance Multiplier slider

Increases the distance between the created nodes, should you wish to do so. The number is constrained between 1 and 10.

Rebuild Options

The “Rebuild Options” tab currently only offers presets for ***Arnold*** and ***VRay*** rebuilds. These have been informed by the respective online documentations.

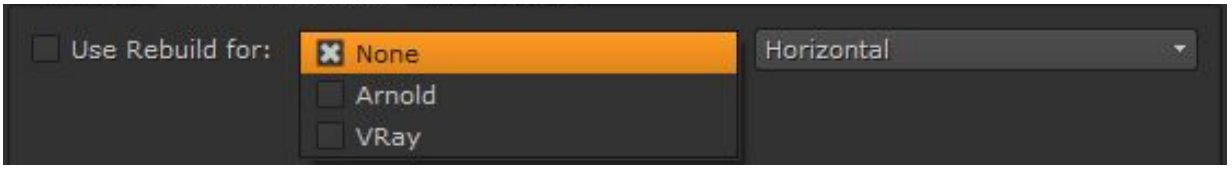
As mentioned previously, updating the target node in the Shuffler tab will update every relevant field with information found in the node stream. This includes each field in the Rebuild Options. The tool will check the list of discovered layers for the default names of each pass (based on the official online documentations for each renderer) for the corresponding field, and automatically set that dropdown selection to its respective layer if it is found in the list of layers.

IMPORTANT NOTE*:* Currently, results can be unpredictable if only some of the required elements are selected for the Shuffle in the Main Passes (left-side) list in the Shuffler tab. The algorithms will be improved in future versions, as explained in the *Known Issues* section.

Use Rebuild checkbox and dropdown boxes

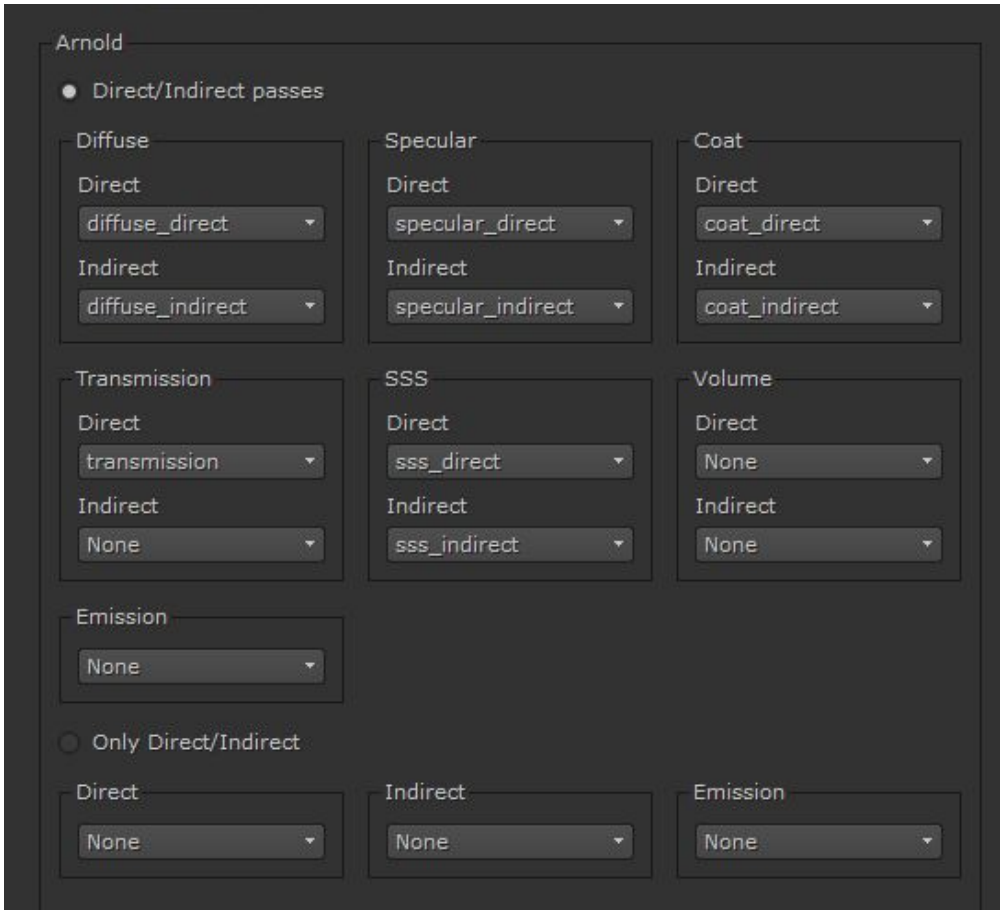
The presets can be accessed through the dropdown selection next to “Use Rebuild” at the top of the page. This will dictate how the tool will attempt to rebuild the passes after the Shuffle extraction has ended. If set to “None”, no Rebuild action will be carried out.

All three elements are linked to their corresponding elements in the Shuffler tab, so changing the options for one will change the options for the other.



Arnold options

Setting the Renderer option to Arnold will reveal the corresponding options. You can choose to Rebuild either through the method of overall Direct and Indirect passes by selecting *“Only Direct/Indirect”* or through the method of broken-down Passes by selecting the *“Direct/Indirect passes”* radio button.



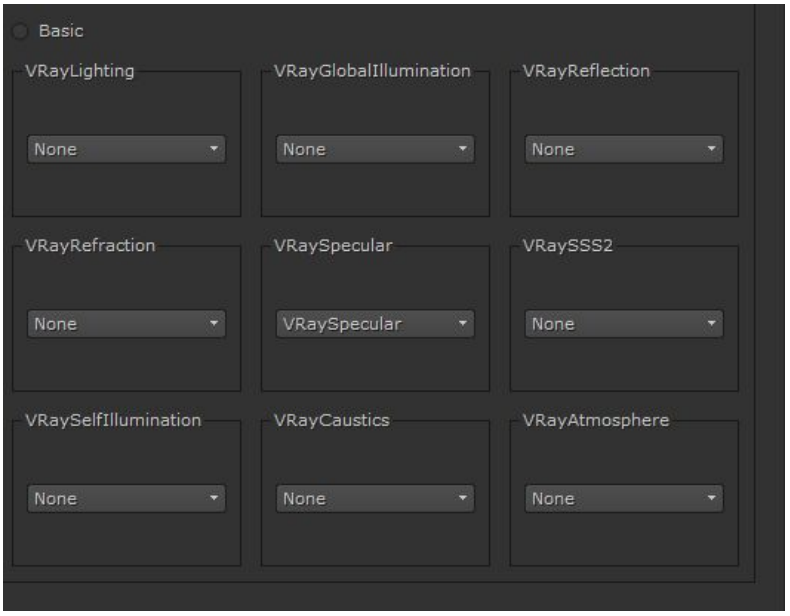
The former expects an input from the user, to point the tool to the respective *Direct*, *Indirect* and *Emission* passes from the list of discovered layers.

The latter can work in multiple different ways. You can either assign the *Direct* and *Indirect* component of each pass (for example, *Direct Diffuse* and *Indirect Diffuse*; *Direct Specular* and *Indirect Specular*; etc.), or you can only assign a single pass to only the *Direct* box for the respective section.

So, for instance, if you have rendered a *Direct Diffuse* and *Indirect Diffuse*, but you have decided to render the full *Specular* (without its own *Direct* and *Indirect* components), you can simply assign that whole *Specular* pass to the *Direct* dropdown selection for *Specular*. The tool will only include that as part of the Rebuild and ignore the Indirect component, but only if the Indirect component is set to “None”.

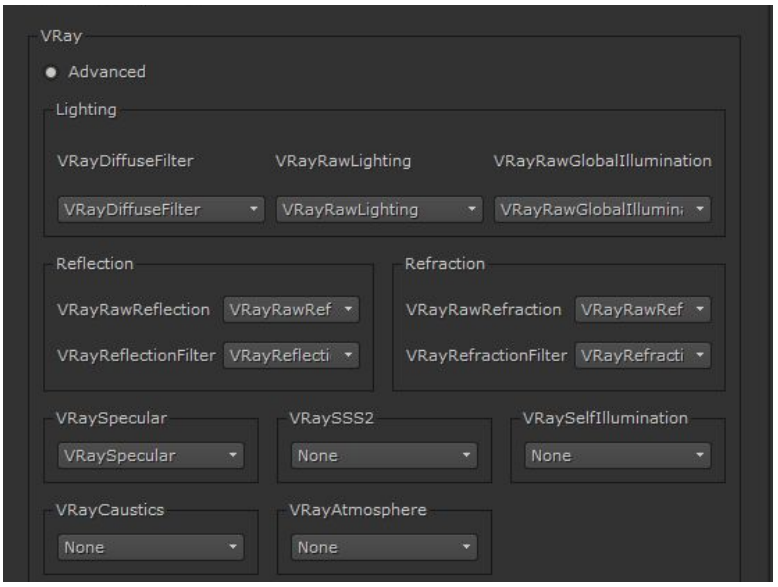
VRay options

In a similar fashion, setting the Renderer selection to VRay will reveal its own options, and again, there will be two radio buttons for the Advanced and Basic Rebuild workflows (as outlined in the VRay documentation). The Shuffle action will be directed by the user's choice of Rebuild methodology.



The *Basic* method is a straightforward assignment of the corresponding passes. You will need to identify which pass matches each selection box, based on the official name of the pass.

The *Advanced* method, however, allows a hybrid approach, much like the *"Direct/Indirect passes"* method for the Arnold preset. If all the required elements are present, you will need to ensure they are correctly assigned to their corresponding selection box.



However, if you have rendered *VRayLighting* and *VRayGlobalIllumination* passes (basic method) instead of *VRayDiffuseFilter*, *VRayRawLighting* and *VRayRawGlobalIllumination* (advanced method), you can assign your *VRayLighting* pass to the *VRayRawLighting* selection box and the *VRayGlobalIllumination* to *VRayRawGlobalIllumination* selection, and then leave the *VRayDiffuseFilter* selection to “None”. This will instruct the tool to rebuild the *VRayLighting* and *VRayGlobalIllumination* while disregarding the *VRayDiffuseFilter* before proceeding with the rest of the Advanced rebuild.

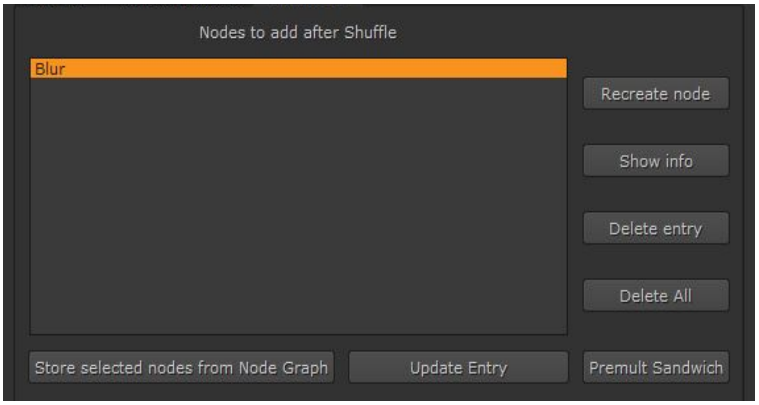
Similarly, for *Reflection* and *Refraction* - if you have rendered the full *VRayReflection* instead of *VRayRawReflection* and *VRayReflectionFilter*, you can set the *VRayRawReflection* selection to *VRayReflection* and leave the *VRayReflectionFilter* to “None”. This will cause the tool to disregard the inclusion of the Filter into the Rebuild and grab only the selected layer for *VRayRawReflection*. Repeat the same process for the Refraction counterpart.

It is important to note that the Arnold *“Direct/Indirect passes”* and VRay *“Advanced”* methods are designed to allow the user freedom of their own workflows and may encounter some unforeseen circumstances. As the tool evolves, more of these circumstances will be patched up with time when it is exposed to more and more artists’ workflows.

Add Nodes

This tab allows the user to save any node from the Node Graph that can receive inputs and create outputs, and this will then inform the tool to recreate that node after specified layers. Every stored node entry will have its own unique layer selections and node settings.

Nodes to add after Shuffle **list**



This list shows the currently stored nodes inside the tool instance. Each entry will have its own layer selections and node settings. The Shuffle action will always look at the list and attempt to recreate any stored nodes.

NOTE: It is NOT necessary for the original nodes to exist in the Node Graph once you have stored them.

Store selected nodes from Node Graph **button**

Creates a node entry for each of the selected nodes in the Node Graph. The tool will check if the node can receive inputs and create outputs to evaluate whether it is a suitable node for creation after the Shuffle.

Update Entry **button**

Replaces the currently selected entry in the list with the currently selected node in the Node Graph.

Recreate Node **button**

Recreates the currently selected node entry in the Node Graph without connecting it to anything.

Show Info **button**

Opens a new Panel that displays information about every knob of the selected stored node entry.

Delete Entry **button**

Deletes the selected entry.

Delete All button

Clears the list of all entries.

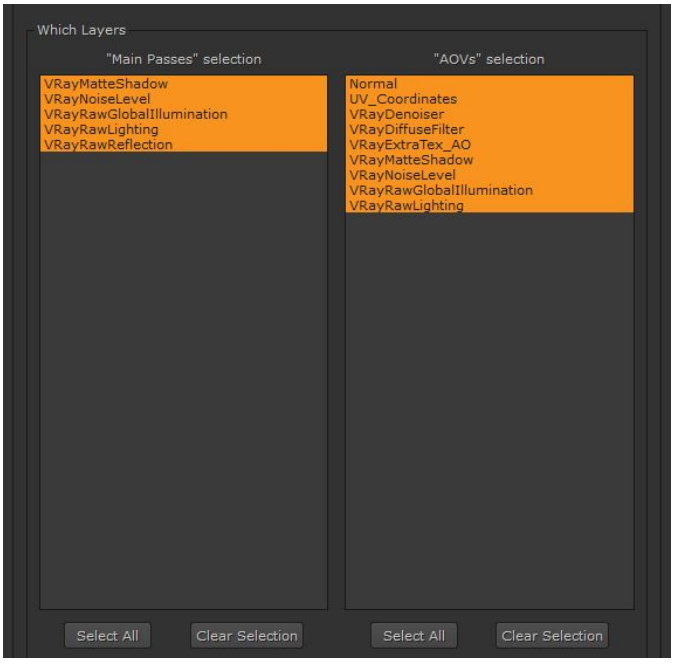
Premult Sandwich button

Adds an Unpremult node entry in the beginning of the list and a Premult node entry at the end of the list.

[“Main Passes”] selection list

This list will display every selected layer in the left-side list in the Shuffler tab. The name above the list will be updated based on your custom name in the Shuffler tab, as well.

You can specify target layers for the selected Node Entry in the list above. Helper buttons are situated below, as well.



[“AOVs”] selection list

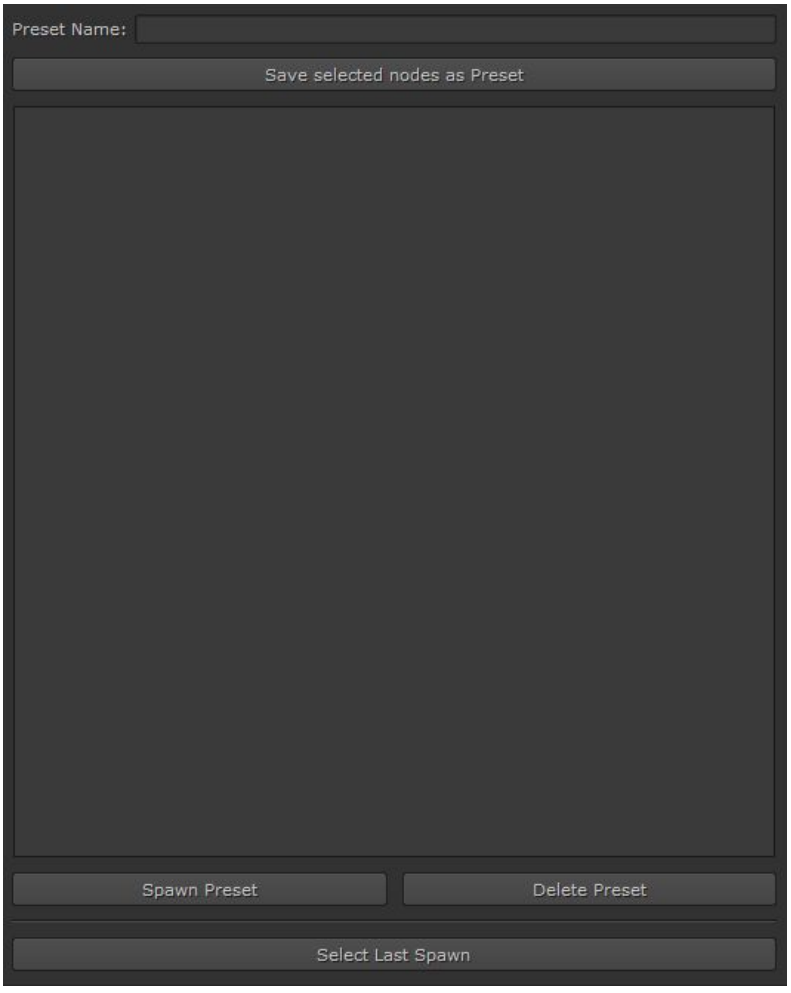
Same as above, but corresponds to the right-side list in the Shuffler tab.

Saved Node Trees

Upon first initializing the tool, it will ensure that a “nodeTreePresets” folder exists in the Layer Shuffler’s directory under the .nuke directory. There it will create files for each preset you store in the tool.

This functionality of the tool allows you to select an arbitrary amount of nodes in the Node Graph and save their information out to a file, including their knobs, relative positions to each other, their connections, etc.

These presets can then be accessed from the List Widget in the tab and spawned back into the Node Graph.



Preset Name **text field**

Input the desired name for your new preset in this field.

NOTE: If a preset with this name already exists, it will be overwritten.

Save Selected Nodes as Preset **button**

Stores the necessary information about the selected nodes in the Node Graph and writes it out to file.

Spawn Preset **button**

Recreates the selected preset from the List Widget into the Node Graph, according to the data saved into the corresponding file.

Delete Preset **button**

Deletes the selected preset from the List Widget, as well as the associated file in the presets directory.

Select Last Spawn button

Much like the Select Last Shuffle button, selects all the nodes that were created by the last recreated spawn.

Preferences

The tool will also save the user's last set options in a "Preferences" file in its own directory in the .nuke folder. Preferences will only be saved for the following UI items:

- Both backdrop naming fields
- The two lists with your layers in the Shuffler tab
- The following checkboxes:
    - "Skip EXR Check"
    - "Shuffle selected layers only"
    - "Unlock Shuffle Ordering"
- "Select color" button's color value
- The following dropdown boxes:
    - Rebuild direction
    - Renderer selection
- Node distance slider (both the number field and slider value itself)

Known Issues

Volatile Rebuilds:

If the “Main Passes” (left-side in Shuffler tab) list selection does not include some elements required for a Rebuild of the currently selected Preset, unpredictable results can happen which might result in script errors in certain scenarios.

Future versions of the tool will attempt to improve the algorithms.

Planned Implementations

More rebuilds

Additional options may be added to the Rebuild Options tab, to account for Renderman and Scanline renderer rebuilds, as well.

Rebuild algorithm improvements

Future versions of the tool will attempt to improve the algorithms for the Rebuilds for certain cases where the user might only want to rebuild a few of the required passes for a rebuild.

Contact details

If you wish to contact me with any questions, please do so through the following email address:

kalogane@gmail.com

For any issues with the tool that you wish to bring to my attention, please start the email subject line with **“Layer Shuffler - Bug Report”.** It will be very much appreciated if you provide a detailed explanation of the situation as well as screenshots where possible, in order to reproduce the bug as closely as possible.

For feature requests, please start the email subject line with **“Layer Shuffler - Feature Request”** and provide a detailed explanation of your idea. Credit will be given where it is due!

It is my intention to maintain this tool and upgrade it when and where possible, so feedback and suggestions are always welcome.

Bibliography

Arnold Online documentation for AOVs

https://support.solidangle.com/display/A5AFMUG/AOVs#AOVs-AOVBrowser

VRay Online documentation for Back to Beauty Compositing

https://docs.chaosgroup.com/display/VRAY3MAX/Beauty+%7C+RGB_Color#Beauty|RGB_Color-BacktoBeautyCompositing