Resolve/Fusion Scripting

Resolve Studio's scripting API and pipeline customization support has slowly improved since Python and Lua scripting were added in Resolve v15 back in 2018. The Resolve scripting API was originally added at the same time as the Fusion page was brought into Resolve since it was derived from Fusion Studio's pre-existing FuScript bindings.

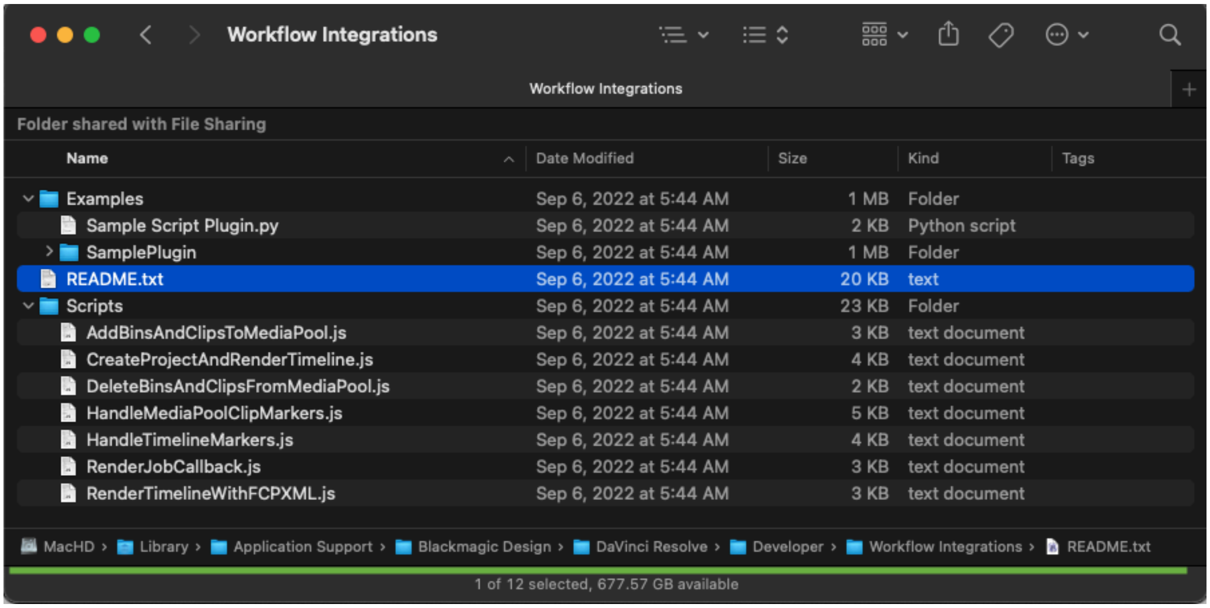
Scripting Options

Resolve Studio/Fusion Studio supports running scripts using Python 2.7 & 3.6-3.10+, as well as Lua scripting. There is a "Python Script Snippets for Fusion TDs" Steakunderwater thread that collects useful Python compatible code snippets in one convenient place.

GUI Toolkits

If you create a Resolve script using Python or Lua you have the option of using an integrated GUI creation toolkit called "UI Manager" which is based upon the QT window manager. If you require more complex GUI creation tools you can also bring along your own PySide install.

The Lua and Python scripting documentation for the Resolve API is located on-disk in the Developer folder. Additionally, there is a "Workflow Integrations" interface which adds NodeJS based scripting, too.



Name	Date Modified	Size	Kind	Tags
Examples	Sep 6, 2022 at 5:44 AM	1 MB	Folder	
Sample Script Plugin.py	Sep 6, 2022 at 5:44 AM	2 KB	Python script	
SamplePlugin	Sep 6, 2022 at 5:44 AM	1 MB	Folder	
README.txt	Sep 6, 2022 at 5:44 AM	20 KB	text	
Scripts	Sep 6, 2022 at 5:44 AM	23 KB	Folder	
AddBinsAndClipsToMediaPool.js	Sep 6, 2022 at 5:44 AM	3 KB	text document	
CreateProjectAndRenderTimeline.js	Sep 6, 2022 at 5:44 AM	4 KB	text document	
DeleteBinsAndClipsFromMediaPool.js	Sep 6, 2022 at 5:44 AM	2 KB	text document	
HandleMediaPoolClipMarkers.js	Sep 6, 2022 at 5:44 AM	5 KB	text document	
HandleTimelineMarkers.js	Sep 6, 2022 at 5:44 AM	4 KB	text document	
RenderJobCallback.js	Sep 6, 2022 at 5:44 AM	3 KB	text document	
RenderTimelineWithFCPXML.js	Sep 6, 2022 at 5:44 AM	3 KB	text document	

MacHD › Library › Application Support › Blackmagic Design › DaVinci Resolve › Developer › Workflow Integrations › README.txt

1 of 12 selected, 677.57 GB available

Note: The "README.txt" file in the Workflow Integrations folder also includes an aside that talks briefly about UI Manager. This readme document acts as the only official notes published by Blackmagic Design about the existence of the UI Manager GUI creation toolkit.

In part, this sparse documentation situation is due to the fact that the Fusion 8 Scripting Guide PDF was published prior to the addition of the UI Manager library in Resolve/Fusion.

This "README.txt" file is located on-disk at:

Windows Docs:

```
C:\ProgramData\Blackmagic Design\DaVinci
Resolve\Support\Developer\Workflow Integrations\README.txt
```

macOS Docs:

```
/Library/Application Support/Blackmagic Design/DaVinci Resolve/
Developer/Workflow Integrations/README.txt
```

Linux Docs:

```
Path to be validated.
```

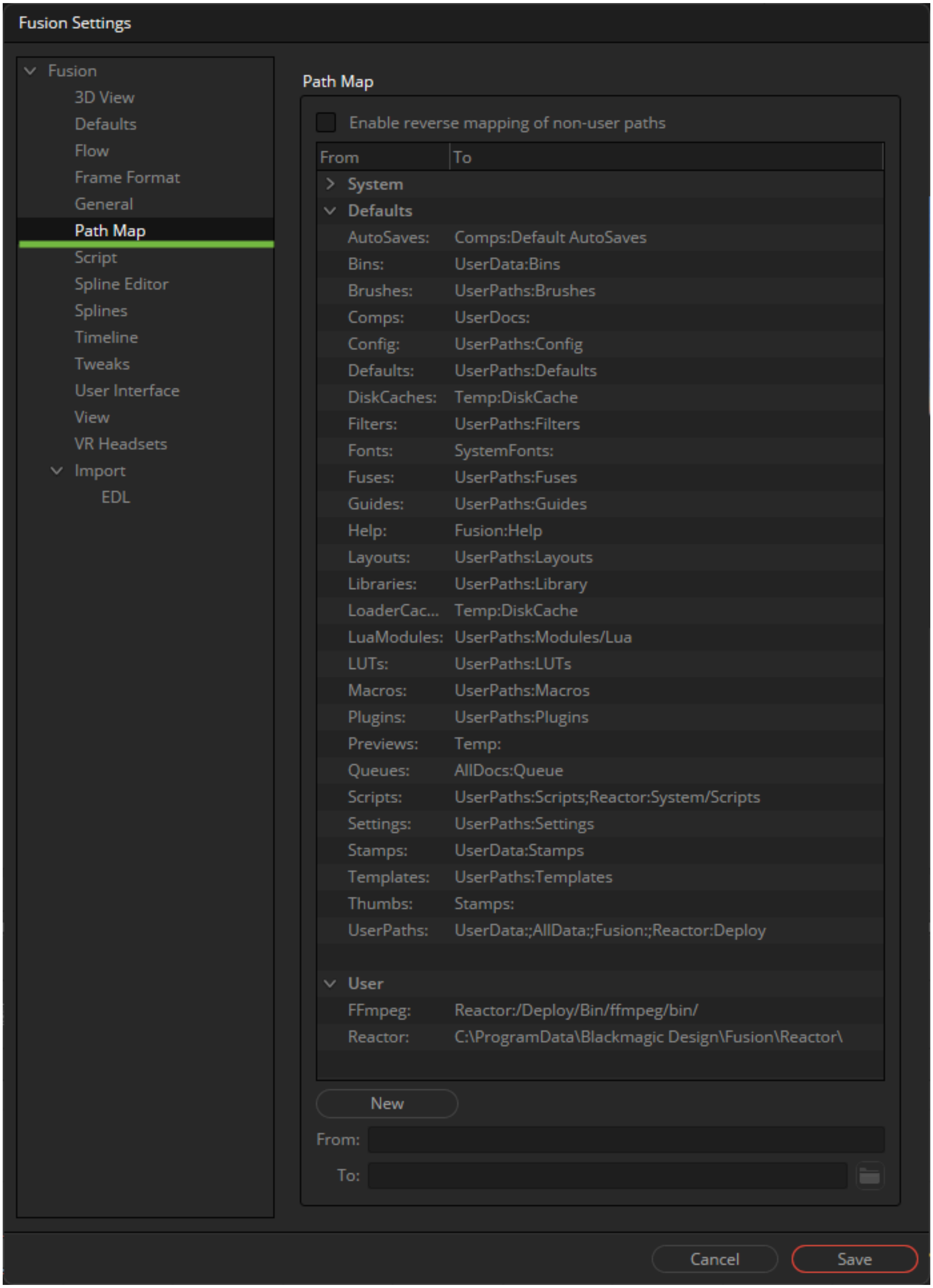
Script Paths

User created Python and Lua scripts are placed on-disk in either of the two Resolve based "Scripts" folders:

```
C:\Users\<User Account>\AppData\Roaming\Blackmagic Design\DaVinci Resolve\Support\Fusion\Scripts\
```

```
C:\ProgramData\Blackmagic Design\DaVinci Resolve\Fusion\Scripts\
```

It is also possible to configure a relative filepath system called a "PathMap" which allows you to use a custom folder path for storing scripts, macros, and other resources. This is customized in the "`Fusion > Fusion Settings…`" menu. In the Fusion Settings window, look under the left sidebar entry labelled "`PathMaps`".



Path Map

☐ Enable reverse mapping of non-user paths

From	To
System	
Defaults	
AutoSaves:	Comps:Default AutoSaves
Bins:	UserData:Bins
Brushes:	UserPaths:Brushes
Comps:	UserDocs:
Config:	UserPaths:Config
Defaults:	UserPaths:Defaults
DiskCaches:	Temp:DiskCache
Filters:	UserPaths:Filters
Fonts:	SystemFonts:
Fuses:	UserPaths:Fuses
Guides:	UserPaths:Guides
Help:	Fusion:Help
Layouts:	UserPaths:Layouts
Libraries:	UserPaths:Library
LoaderCac...	Temp:DiskCache
LuaModules:	UserPaths:Modules/Lua
LUTs:	UserPaths:LUTs
Macros:	UserPaths:Macros
Plugins:	UserPaths:Plugins
Previews:	Temp:
Queues:	AllDocs:Queue
Scripts:	UserPaths:Scripts;Reactor:System/Scripts
Settings:	UserPaths:Settings
Stamps:	UserData:Stamps
Templates:	UserPaths:Templates
Thumbs:	Stamps:
UserPaths:	UserData:;AllData:;Fusion:;Reactor:Deploy
User	
FFmpeg:	Reactor:/Deploy/Bin/ffmpeg/bin/
Reactor:	C:\ProgramData\Blackmagic Design\Fusion\Reactor\

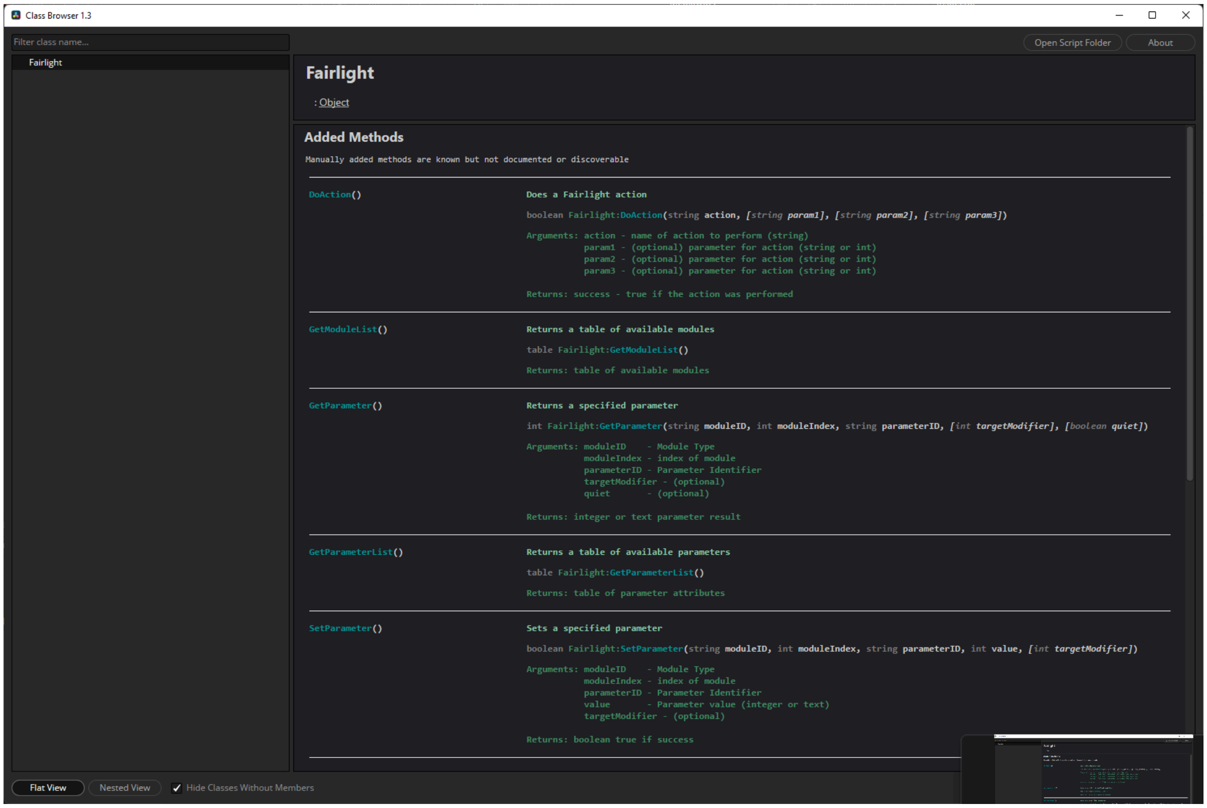
From:

To:

Fusion Class Browser Script

There is a 3rd Party Scripting API browser tool distributed in the Reactor Package Manager called the "Fusion Class Browser" that is helpful for learning more about undocumented scripting API features.

This screenshot shows the results from examining the available Fairlight API functions using the Fusion Class Browser script.



Fairlight

: Object

Added Methods

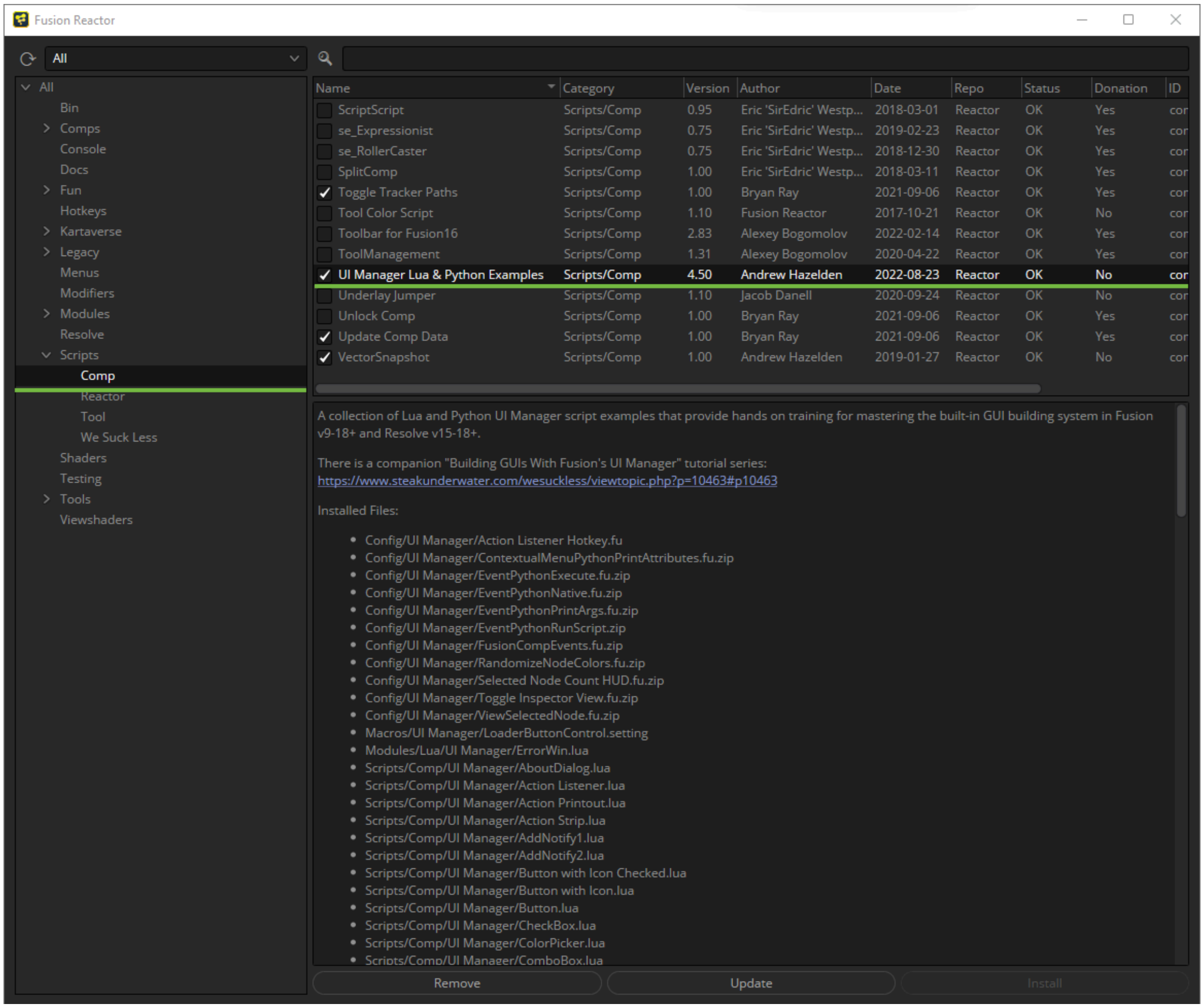
Manually added methods are known but not documented or discoverable

```
DoAction()                  Does a Fairlight action

                            boolean Fairlight:DoAction(string action, [string param1], [string param2], [string param3])

                            Arguments: action - name of action to perform (string)
                                       param1 - (optional) parameter for action (string or int)
                                       param2 - (optional) parameter for action (string or int)
                                       param3 - (optional) parameter for action (string or int)

                            Returns: success - true if the action was performed

GetModuleList()             Returns a table of available modules

                            table Fairlight:GetModuleList()

                            Returns: table of available modules

GetParameter()              Returns a specified parameter

                            int Fairlight:GetParameter(string moduleID, int moduleIndex, string parameterID, [int targetModifier], [boolean quiet])

                            Arguments: moduleID    - Module Type
                                       moduleIndex - index of module
                                       parameterID - Parameter Identifier
                                       targetModifier - (optional)
                                       quiet       - (optional)

                            Returns: integer or text parameter result

GetParameterList()          Returns a table of available parameters

                            table Fairlight:GetParameterList()

                            Returns: table of parameter attributes

SetParameter()              Sets a specified parameter

                            boolean Fairlight:SetParameter(string moduleID, int moduleIndex, string parameterID, int value, [int targetModifier])

                            Arguments: moduleID    - Module Type
                                       moduleIndex - index of module
                                       parameterID - Parameter Identifier
                                       value       - Parameter value (integer or text)
                                       targetModifier - (optional)

                            Returns: boolean true if success
```

UI Manager Scripting Examples

The Steakunderwater Fusion community forum's "Building GUIs With Fusion's UI Manager" scripting thread provides example Lua and Python code to get you started.

There is a companion "`UI Manager Lua & Python Examples`" package in the Reactor Package Manager that simplifies the steps needed to download and install the collection of example script resources.



Name	Category	Version	Author	Date	Repo	Status	Donation	ID
☐ ScriptScript	Scripts/Comp	0.95	Eric 'SirEdric' Westp...	2018-03-01	Reactor	OK	Yes	cor
☐ se_Expressionist	Scripts/Comp	0.75	Eric 'SirEdric' Westp...	2019-02-23	Reactor	OK	Yes	cor
☐ se_RollerCaster	Scripts/Comp	0.75	Eric 'SirEdric' Westp...	2018-12-30	Reactor	OK	Yes	cor
☐ SplitComp	Scripts/Comp	1.00	Eric 'SirEdric' Westp...	2018-03-11	Reactor	OK	Yes	cor
☑ Toggle Tracker Paths	Scripts/Comp	1.00	Bryan Ray	2021-09-06	Reactor	OK	Yes	cor
☐ Tool Color Script	Scripts/Comp	1.10	Fusion Reactor	2017-10-21	Reactor	OK	No	cor
☐ Toolbar for Fusion16	Scripts/Comp	2.83	Alexey Bogomolov	2022-02-14	Reactor	OK	Yes	cor
☐ ToolManagement	Scripts/Comp	1.31	Alexey Bogomolov	2020-04-22	Reactor	OK	Yes	cor
☑ UI Manager Lua & Python Examples	Scripts/Comp	4.50	Andrew Hazelden	2022-08-23	Reactor	OK	No	cor
☐ Underlay Jumper	Scripts/Comp	1.10	Jacob Danell	2020-09-24	Reactor	OK	No	cor
☐ Unlock Comp	Scripts/Comp	1.00	Bryan Ray	2021-09-06	Reactor	OK	Yes	cor
☑ Update Comp Data	Scripts/Comp	1.00	Bryan Ray	2021-09-06	Reactor	OK	Yes	cor
☑ VectorSnapshot	Scripts/Comp	1.00	Andrew Hazelden	2019-01-27	Reactor	OK	No	cor

A collection of Lua and Python UI Manager script examples that provide hands on training for mastering the built-in GUI building system in Fusion v9-18+ and Resolve v15-18+.

There is a companion "Building GUIs With Fusion's UI Manager" tutorial series:
https://www.steakunderwater.com/wesuckless/viewtopic.php?p=10463#p10463

Installed Files:

- Config/UI Manager/Action Listener Hotkey.fu
- Config/UI Manager/ContextualMenuPythonPrintAttributes.fu.zip
- Config/UI Manager/EventPythonExecute.fu.zip
- Config/UI Manager/EventPythonNative.fu.zip
- Config/UI Manager/EventPythonPrintArgs.fu.zip
- Config/UI Manager/EventPythonRunScript.zip
- Config/UI Manager/FusionCompEvents.fu.zip
- Config/UI Manager/RandomizeNodeColors.fu.zip
- Config/UI Manager/Selected Node Count HUD.fu.zip
- Config/UI Manager/Toggle Inspector View.fu.zip
- Config/UI Manager/ViewSelectedNode.fu.zip
- Macros/UI Manager/LoaderButtonControl.setting
- Modules/Lua/UI Manager/ErrorWin.lua
- Scripts/Comp/UI Manager/AboutDialog.lua
- Scripts/Comp/UI Manager/Action Listener.lua
- Scripts/Comp/UI Manager/Action Printout.lua
- Scripts/Comp/UI Manager/Action Strip.lua
- Scripts/Comp/UI Manager/AddNotify1.lua
- Scripts/Comp/UI Manager/AddNotify2.lua
- Scripts/Comp/UI Manager/Button with Icon Checked.lua
- Scripts/Comp/UI Manager/Button with Icon.lua
- Scripts/Comp/UI Manager/Button.lua
- Scripts/Comp/UI Manager/CheckBox.lua
- Scripts/Comp/UI Manager/ColorPicker.lua
- Scripts/Comp/UI Manager/ComboBox.lua

ScriptLib Files

Fusion has a .scriptlib file based-approach that can be used to run Lua code when a fresh Fusion session is started, or a new comp is created. Scriptlib files also allow the addition of new 3rd party Lua functions and global variables that are then available in all other Lua scripts you might run, and in fresh Fusion Console window sessions.

The Reactor Package Manager provides a "Resolve Essentials" atom package that improves the QoL (Quality of Life) for Resolve based scripting enthusiasts. This package also restores a missing scriptlib file that comes included with Fusion Studio but not with Resolve Studio.

This resource is copied into the scripts PathMap-based folder location of:
`Scripts:/bmd.scriptlib`

Which in Reactor terms equates to:
`Reactor:/Deploy/Scripts/bmd.scriptlib`

Actions/Event Callbacks

Resolve's Fusion page has an action/event callback system that is implemented via .fu and .zfu files. These documents are placed in the "Config:/" PathMap folder.

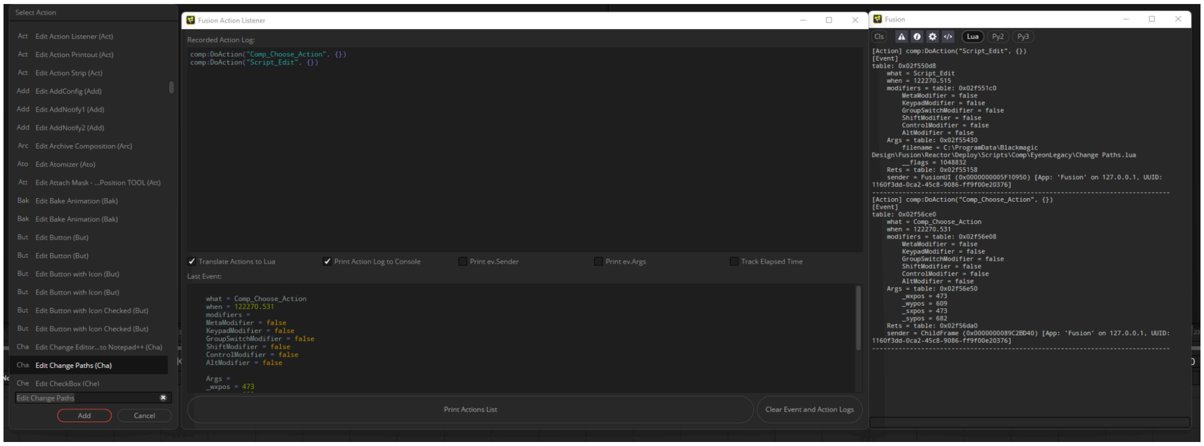
A .fu file is a configuration document that is stored in a Lua table based text file. A .zfu file is a zip archive that holds a .fu file and any extra supporting resources like companion scripts or PNG formatted icons at the base level of the zip file with no encapsulating folders.

If a user-created action needs access to an on-disk resource, there is a "$CFG/" token value that can be entered as a prefix to a Lua script's file path entry. This $CFG token represents the parent folder where the .zfu/.fu file is located on-disk:

```
Execute = [[target:RunScript("$CFG/SomeScript.lua", { mousex =
args._sxpos, mousey = args._sypos })]],
```

A .fu file can be used to create new menus in Fusion Standalone, assign hotkeys to scripts and actions, and capture event hooks for many of the tasks a compositor carries out, as well as add drag-n-drop support for processing files dragged from a Desktop folder browsing window into the Nodes view.

The UI Manager example scripts include a minimal prototype of a QT-based Action/Event script listener tool called "Action Listener". This script can help you discover new and novel ways to automate your compositing workflows.


Select Action
Act Edit Action Listener (Act)
Act Edit Action Printout (Act)
Act Edit Action Strip (Act)
Add Edit AddConfig (Add)
Add Edit AddNotify1 (Add)
Add Edit AddNotify2 (Add)
Arc Edit Archive Composition (Arc)
Ato Edit Atomizer (Ato)
Att Edit Attach Mask - ...Position TOOL (Att)
Bak Edit Bake Animation (Bak)
Bak Edit Bake Animation (Bak)
But Edit Button (But)
But Edit Button (But)
But Edit Button with Icon (But)
But Edit Button with Icon (But)
But Edit Button with Icon Checked (But)
But Edit Button with Icon Checked (But)
Cha Edit Change Editor...to Notepad++ (Cha)
Cha Edit Change Paths (Cha)
Che Edit CheckBox (Che)
Edit Change Paths
Add
Cancel
Fusion Action Listener
Recorded Action Log:
Last Event:
Print Actions List
Clear Event and Action Logs
Fusion
Cls
Lua
Py2
Py3

```
comp:DoAction("Comp_Choose_Action", {})
comp:DoAction("Script_Edit", {})
```

☑ Translate Actions to Lua ☑ Print Action Log to Console ☐ Print ev.Sender ☐ Print ev.Args ☐ Track Elapsed Time

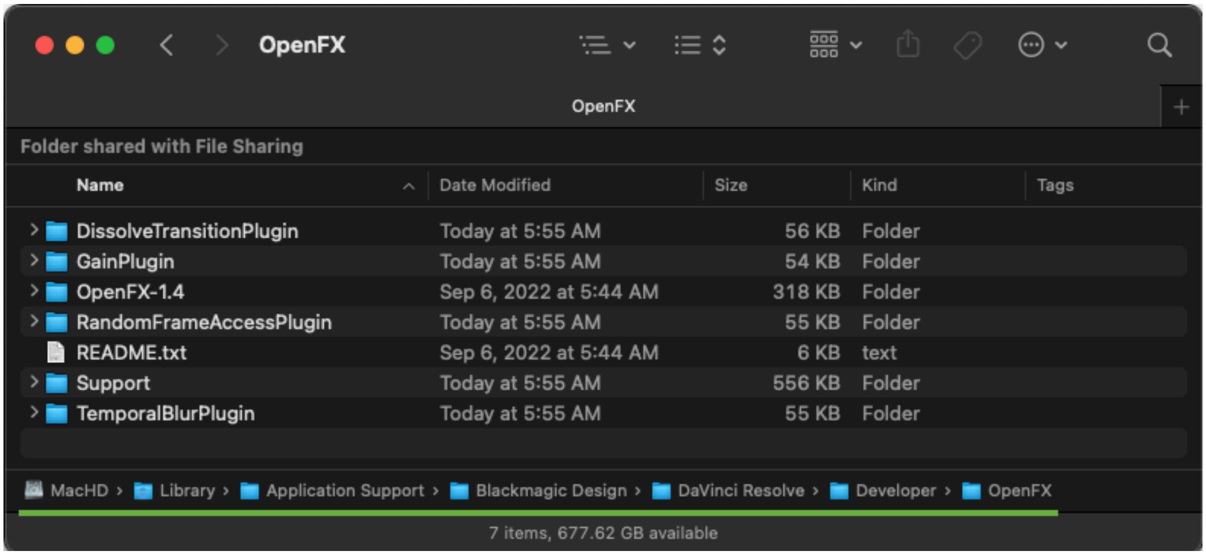
```
    what = Comp_Choose_Action
    when = 122270.531
    modifiers =
    MetaModifier = false
    KeypadModifier = false
    GroupSwitchModifier = false
    ShiftModifier = false
    ControlModifier = false
    AltModifier = false

    Args =
    _wxpos = 473
```

```
[Action] comp:DoAction("Script_Edit", {})
[Event]
table: 0x02f550d8
    what = Script_Edit
    when = 122270.515
    modifiers = table: 0x02f551c0
        MetaModifier = false
        KeypadModifier = false
        GroupSwitchModifier = false
        ShiftModifier = false
        ControlModifier = false
        AltModifier = false
    Args = table: 0x02f55430
        filename = C:\ProgramData\Blackmagic
Design\Fusion\Reactor\Deploy\Scripts\Comp\EyeonLegacy\Change Paths.lua
        __flags = 1048832
    Rets = table: 0x02f55158
    sender = FusionUI (0x000000005F10950) [App: 'Fusion' on 127.0.0.1, UUID:
1160f3dd-0ca2-45c8-9086-ff9f00e20376]
---------------------------------------------------------------------------
[Action] comp:DoAction("Comp_Choose_Action", {})
[Event]
table: 0x02f56ce0
    what = Comp_Choose_Action
    when = 122270.531
    modifiers = table: 0x02f56e08
        MetaModifier = false
        KeypadModifier = false
        GroupSwitchModifier = false
        ShiftModifier = false
        ControlModifier = false
        AltModifier = false
    Args = table: 0x02f56e50
        _wxpos = 473
        _wypos = 609
        _sxpos = 473
        _sypos = 682
    Rets = table: 0x02f56da0
    sender = ChildFrame (0x0000000089C2BD40) [App: 'Fusion' on 127.0.0.1, UUID:
1160f3dd-0ca2-45c8-9086-ff9f00e20376]
---------------------------------------------------------------------------
```

GPU Accelerated Effects

The Edit/Color/Fusion pages all support the use of OFX plugins.

There is a customized version of the OFX plugin development documentation available in Resolve's Developer folder.



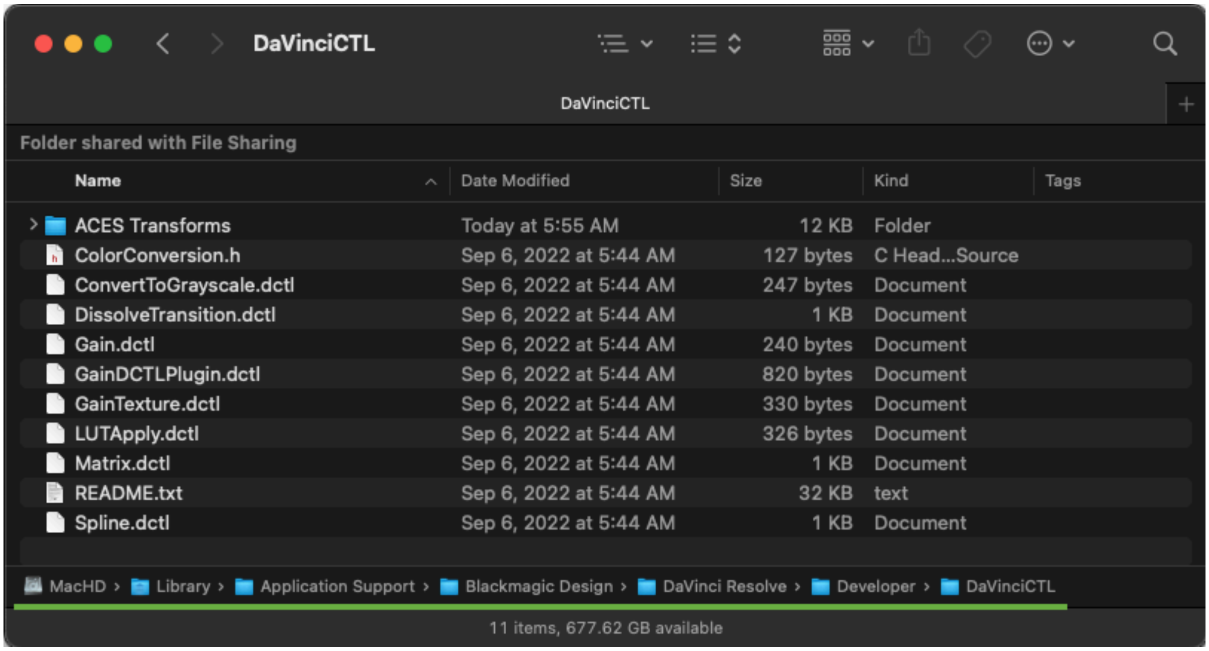
Folder shared with File Sharing

Name	Date Modified	Size	Kind	Tags
DissolveTransitionPlugin	Today at 5:55 AM	56 KB	Folder	
GainPlugin	Today at 5:55 AM	54 KB	Folder	
OpenFX-1.4	Sep 6, 2022 at 5:44 AM	318 KB	Folder	
RandomFrameAccessPlugin	Today at 5:55 AM	55 KB	Folder	
README.txt	Sep 6, 2022 at 5:44 AM	6 KB	text	
Support	Today at 5:55 AM	556 KB	Folder	
TemporalBlurPlugin	Today at 5:55 AM	55 KB	Folder	

MacHD › Library › Application Support › Blackmagic Design › DaVinci Resolve › Developer › OpenFX

7 items, 677.62 GB available

Resolve also has a DCTL (DaVinci Color Transform Language) that is used to create LUTS. More information about DCTL is available in BMD's Docs. Also check out the BaldAvenger GitHub repository for code examples.



Folder shared with File Sharing

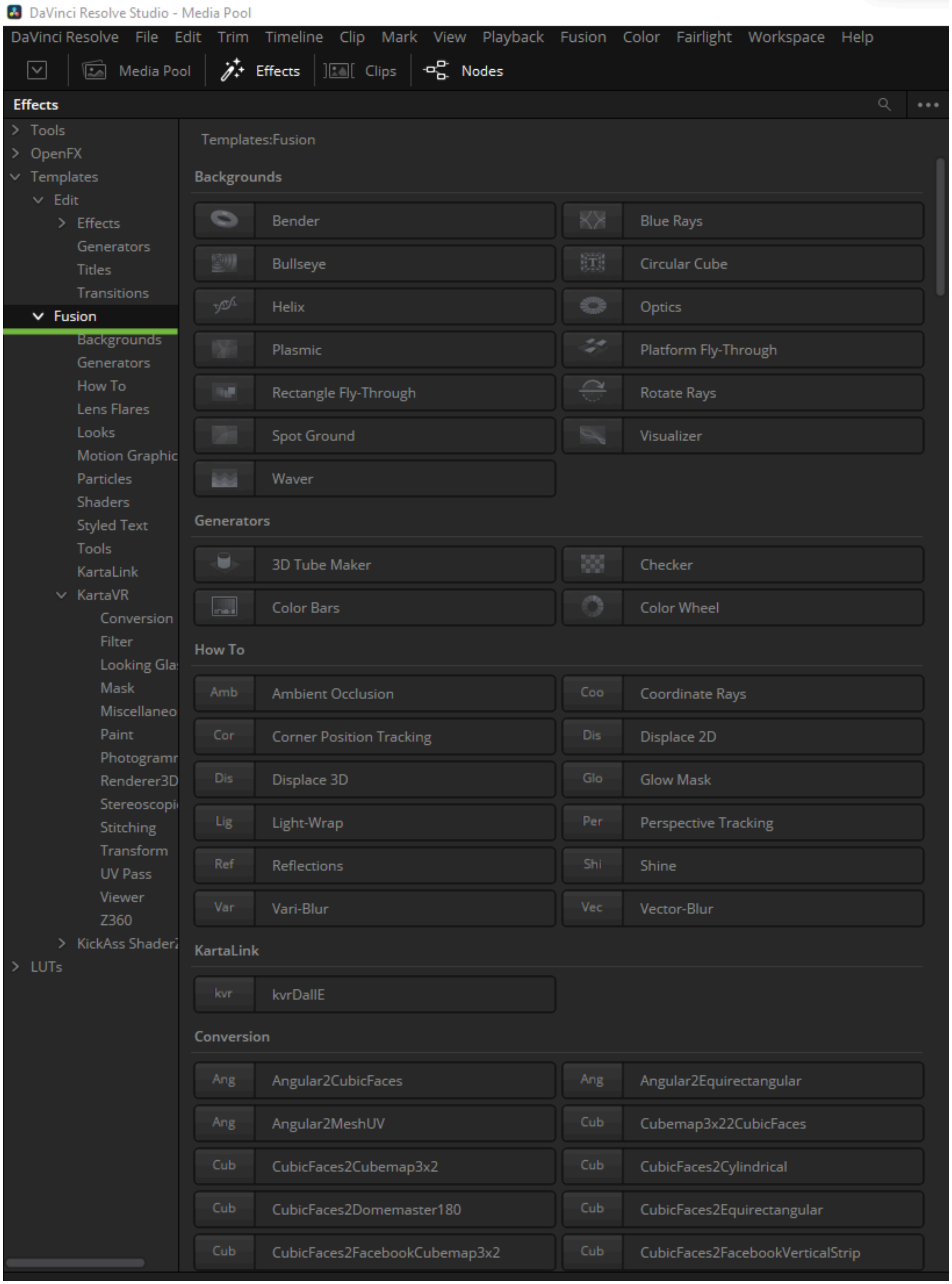
Name	Date Modified	Size	Kind	Tags
ACES Transforms	Today at 5:55 AM	12 KB	Folder	
ColorConversion.h	Sep 6, 2022 at 5:44 AM	127 bytes	C Head...Source	
ConvertToGrayscale.dctl	Sep 6, 2022 at 5:44 AM	247 bytes	Document	
DissolveTransition.dctl	Sep 6, 2022 at 5:44 AM	1 KB	Document	
Gain.dctl	Sep 6, 2022 at 5:44 AM	240 bytes	Document	
GainDCTLPlugin.dctl	Sep 6, 2022 at 5:44 AM	820 bytes	Document	
GainTexture.dctl	Sep 6, 2022 at 5:44 AM	330 bytes	Document	
LUTApply.dctl	Sep 6, 2022 at 5:44 AM	326 bytes	Document	
Matrix.dctl	Sep 6, 2022 at 5:44 AM	1 KB	Document	
README.txt	Sep 6, 2022 at 5:44 AM	32 KB	text	
Spline.dctl	Sep 6, 2022 at 5:44 AM	1 KB	Document	

MacHD › Library › Application Support › Blackmagic Design › DaVinci Resolve › Developer › DaVinciCTL

11 items, 677.62 GB available

The addition of the Fusion page in Resolve allowed for the inclusion of an "Effects Template" feature. These templates are installed using .setting and .drfx files which are based around Fusion macros that are packaged and used directly on clips in a video editing timeline.

This system allows for any Fusion node to be wrapped into a Group/Macro container object and exported for use in the Edit page.


DaVinci Resolve Studio - Media Pool
DaVinci Resolve File Edit Trim Timeline Clip Mark View Playback Fusion Color Fairlight Workspace Help
Media Pool
Effects
Clips
Nodes
Effects

- Tools
- OpenFX
- Templates
  - Edit
    - Effects
    - Generators
    - Titles
    - Transitions
  - Fusion
    - Backgrounds
    - Generators
    - How To
    - Lens Flares
    - Looks
    - Motion Graphic
    - Particles
    - Shaders
    - Styled Text
    - Tools
    - KartaLink
    - KartaVR
      - Conversion
      - Filter
      - Looking Gla
      - Mask
      - Miscellaneo
      - Paint
      - Photogramr
      - Renderer3D
      - Stereoscopi
      - Stitching
      - Transform
      - UV Pass
      - Viewer
      - Z360
    - KickAss Shader
- LUTs

Templates:Fusion

Backgrounds

Bender	Blue Rays
Bullseye	Circular Cube
Helix	Optics
Plasmic	Platform Fly-Through
Rectangle Fly-Through	Rotate Rays
Spot Ground	Visualizer
Waver	

Generators

3D Tube Maker	Checker
Color Bars	Color Wheel

How To

Amb	Ambient Occlusion	Coo	Coordinate Rays
Cor	Corner Position Tracking	Dis	Displace 2D
Dis	Displace 3D	Glo	Glow Mask
Lig	Light-Wrap	Per	Perspective Tracking
Ref	Reflections	Shi	Shine
Var	Vari-Blur	Vec	Vector-Blur

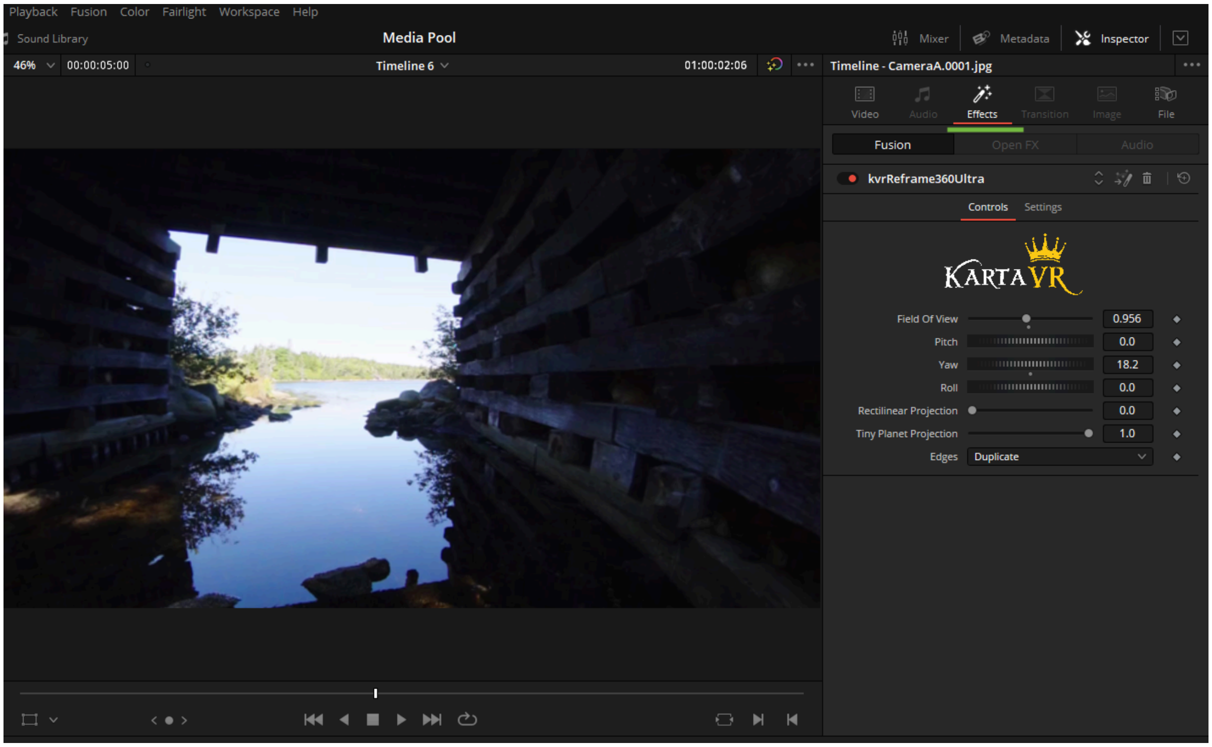
KartaLink

kvr	kvrDallE

Conversion

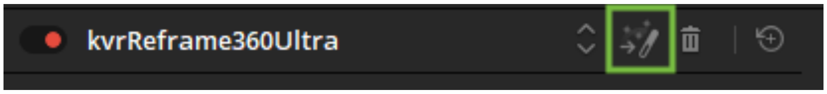
Ang	Angular2CubicFaces	Ang	Angular2Equirectangular
Ang	Angular2MeshUV	Cub	Cubemap3x22CubicFaces
Cub	CubicFaces2Cubemap3x2	Cub	CubicFaces2Cylindrical
Cub	CubicFaces2Domemaster180	Cub	CubicFaces2Equirectangular
Cub	CubicFaces2FacebookCubemap3x2	Cub	CubicFaces2FacebookVerticalStrip

Custom GUI controls added to an Effects Template "macro" are accessible in the Inspector view on the Edit Page.



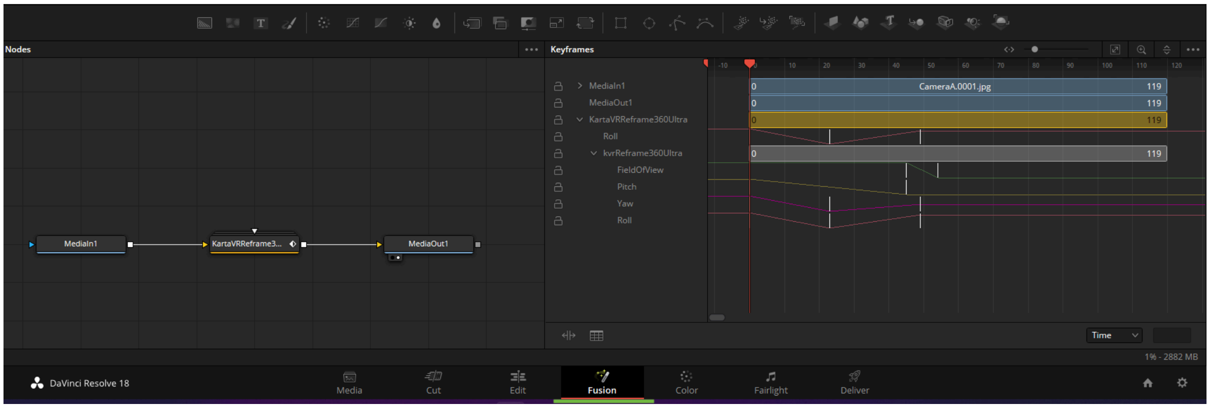
Field Of View 0.956
Pitch 0.0
Yaw 18.2
Roll 0.0
Rectilinear Projection 0.0
Tiny Planet Projection 1.0
Edges Duplicate

You are able to refine an Edit page effect using the controls provided by the Fusion page. This is done by clicking the small magic-wand icon next to the macro's name in the Inspector window. The magic-wand icon has a small arrow pointing towards the base of the wand.



Switching from the Edit page into the Fusion page in this fashion provides access to Fusion's traditional Spline and Keyframe editor views.

These animation editing controls in Fusion are more full-featured for adjusting keyframes and spline curve tangents than is possible with traditional ResolveFX/OFX Plugins that are animated on the Edit page.


Nodes
MediaIn1
KartaVRReframe3...
MediaOut1
Keyframes
-10
0
10
20
30
40
50
60
70
80
90
100
110
120
MediaIn1
MediaOut1
KartaVRReframe360Ultra
Roll
kvrReframe360Ultra
FieldOfView
Pitch
Yaw
Roll
0
CameraA.0001.jpg
119
0
119
0
119
0
119
Time
1% - 2882 MB
DaVinci Resolve 18
Media
Cut
Edit
Fusion
Color
Fairlight
Deliver

Fusion SDK

The Fusion page also has a Fusion SDK which is a C++ API. This development kit allows the creation of 2D Effects, 3D workspace based content, Renderer3D node based plugin rendering engines, the addition of new Loader/Saver node file formats, and more to be created.

The FusionSDK C++ files are available by request to developers at zero cost but require the signing of an NDA (Non-Disclosure Agreement) with the BMD Developer program.

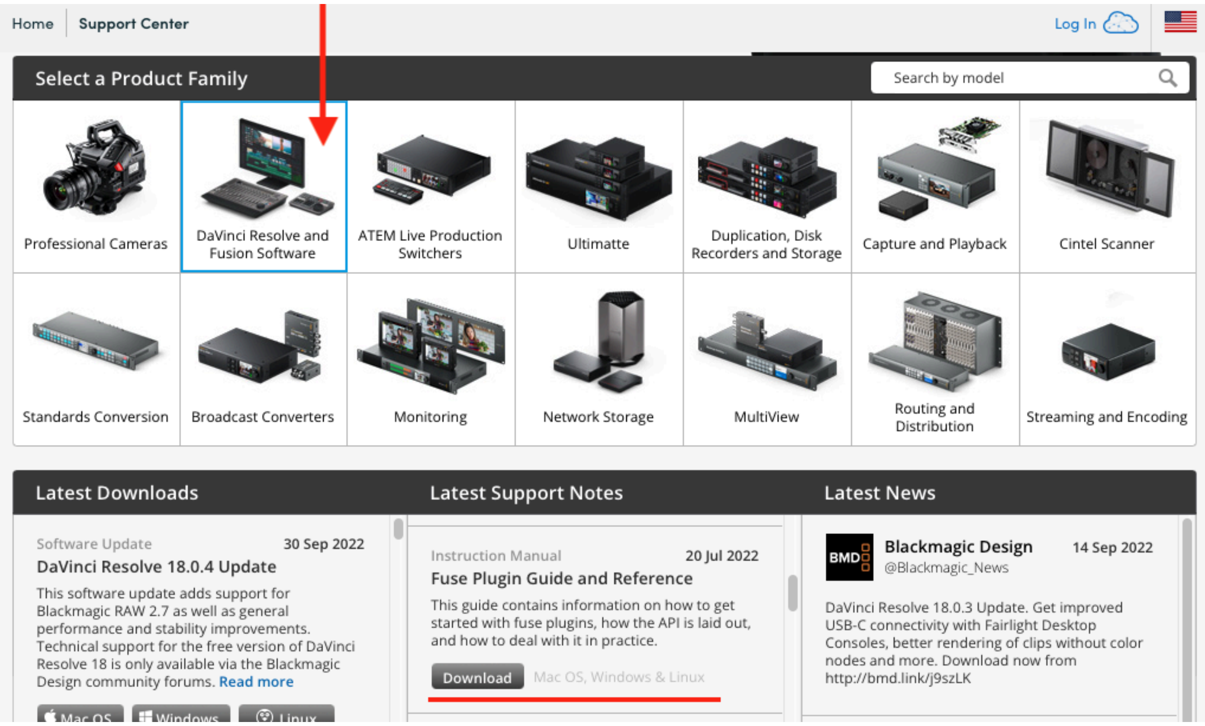
I'd suggest you try contacting BMD's support team about this topic, or if you happen to see Steve Roberts or Matt Jefferson at a BMD booth at a tradeshow event near you, make sure to ask them for more details while meeting them in-person.

Fuse SDK

The Fusion page has a Fuse API which allows DCTL (DaVinci Color Transform Language) based hardware accelerated graphics operations to be done inside a Lua scripted node that works seamlessly in a cross-platform way across Metal, OpenCL, and CUDA based GPUs.

The Fuse API also supports LuaJIT based code to be used to do operations like render vector shapes, process image metadata, add custom image importer/exporter support, or apply effects. This Fuse API is the Fusion equivalent of Nuke Blink Scripting.

BMD released a new Fuse SDK PDF guide this year which is an excellent document for getting developers and enthusiasts comfortable with the Fuse API. The guide comes with Resolve/ Fusion v18 now but it is also possible to download the guide from the BMD Software Support Center's "Latest Support Notes" category: `Fusion_Fuse_SDK.pdf`



Software Update 30 Sep 2022
DaVinci Resolve 18.0.4 Update
This software update adds support for Blackmagic RAW 2.7 as well as general performance and stability improvements. Technical support for the free version of DaVinci Resolve 18 is only available via the Blackmagic Design community forums. Read more

Instruction Manual 20 Jul 2022
Fuse Plugin Guide and Reference
This guide contains information on how to get started with fuse plugins, how the API is laid out, and how to deal with it in practice.

Blackmagic Design @Blackmagic_News 14 Sep 2022
DaVinci Resolve 18.0.3 Update. Get improved USB-C connectivity with Fairlight Desktop Consoles, better rendering of clips without color nodes and more. Download now from http://bmd.link/j9szLK

Macros

A macro in the Fusion page is basically a grouped set of Fusion stock nodes that are collected inside a collapsible folder group.

When a macro is created using a grouped object it can have an internal registry-based node identifier type of either a "MacroOperator" or a "GroupOperator".

A macro is saved to disk as a plain text document that represents an ASCII-encoded Lua table structure on-disk. The macro file is saved with the file extension .setting.

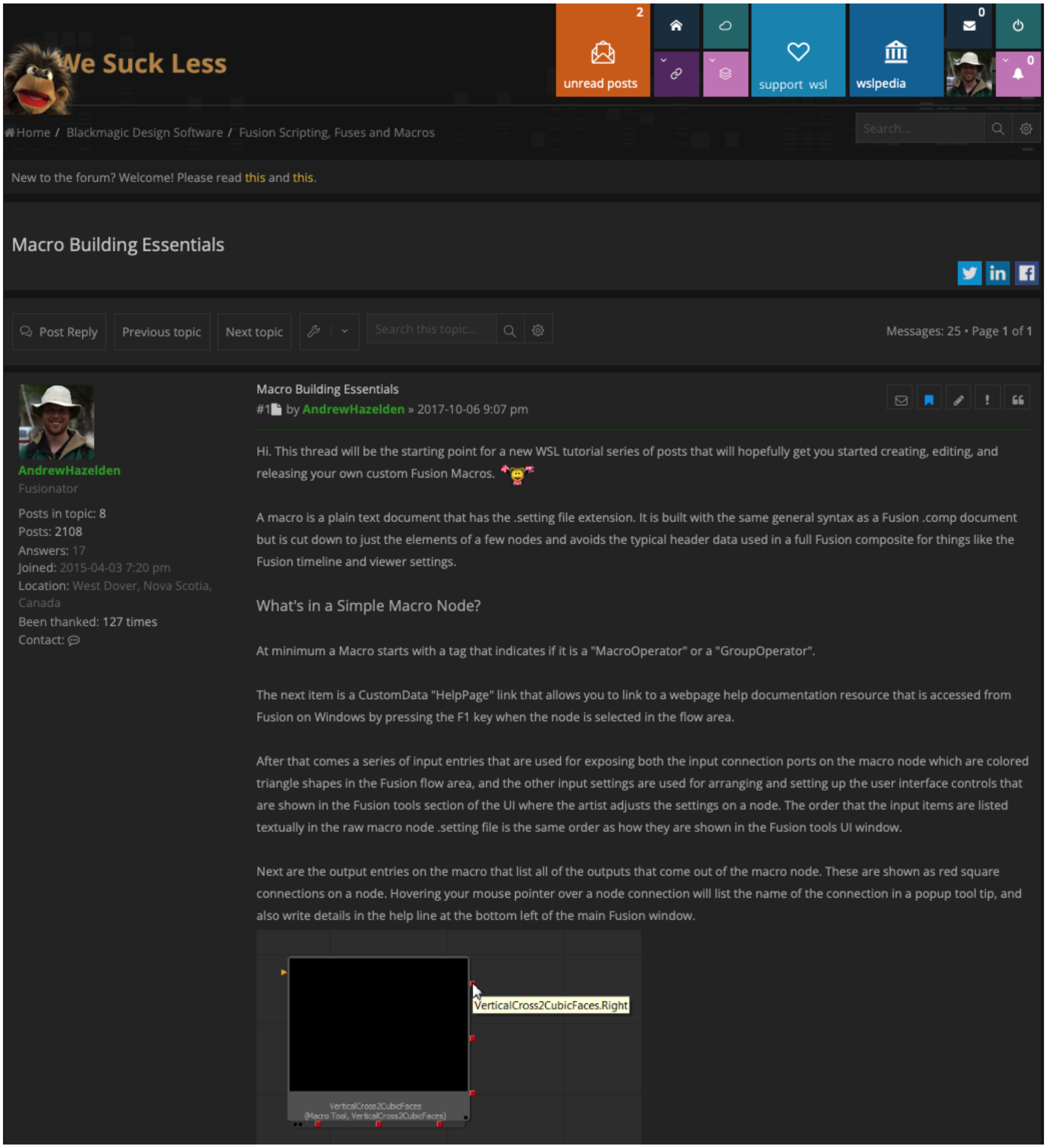
When making macros to share with other users, it is important to know that a GroupOperator node can be easily re-expanded and edited later in the Nodes view.

A MacroOperator is harder to inspect as it needs you to copy the node into a programmer's plain text editor to revise its settings by hand.

When you have a MacroOperator open in a text editor, you can find & replace the word "MacroOperator" with "GroupOperator". This will allow you to visually expand that node's group in the Nodes view.

When creating macros, expressions can be added, along with intool scripts, and custom UserControl based GUIs. This allows for the construction of unique purpose built nodes that can work in both the Fusion and Edit pages.

There is an introductory "Macro Building Essentials" thread on the Steakunderwater forum that helps artists create their own macros in only a short period of time.



New to the forum? Welcome! Please read this and this.

Macro Building Essentials

AndrewHazelden
Fusionator

Posts in topic: 8
Posts: 2108
Answers: 17
Joined: 2015-04-03 7:20 pm
Location: West Dover, Nova Scotia, Canada
Been thanked: 127 times
Contact:

Macro Building Essentials
#1 by AndrewHazelden » 2017-10-06 9:07 pm

Hi. This thread will be the starting point for a new WSL tutorial series of posts that will hopefully get you started creating, editing, and releasing your own custom Fusion Macros.

A macro is a plain text document that has the .setting file extension. It is built with the same general syntax as a Fusion .comp document but is cut down to just the elements of a few nodes and avoids the typical header data used in a full Fusion composite for things like the Fusion timeline and viewer settings.

What's in a Simple Macro Node?

At minimum a Macro starts with a tag that indicates if it is a "MacroOperator" or a "GroupOperator".

The next item is a CustomData "HelpPage" link that allows you to link to a webpage help documentation resource that is accessed from Fusion on Windows by pressing the F1 key when the node is selected in the flow area.

After that comes a series of input entries that are used for exposing both the input connection ports on the macro node which are colored triangle shapes in the Fusion flow area, and the other input settings are used for arranging and setting up the user interface controls that are shown in the Fusion tools section of the UI where the artist adjusts the settings on a node. The order that the input items are listed textually in the raw macro node .setting file is the same order as how they are shown in the Fusion tools UI window.

Next are the output entries on the macro that list all of the outputs that come out of the macro node. These are shown as red square connections on a node. Hovering your mouse pointer over a node connection will list the name of the connection in a popup tool tip, and also write details in the help line at the bottom left of the main Fusion window.

VerticalCross2CubicFaces.Right
VerticalCross2CubicFaces
(Macro Tool, VerticalCross2CubicFaces)

Building GUIs With Fusion's UI Manager

Resolve/Fusion supports the use of a native Lua and Python based GUI building system called the UI Manager library. This library is used whenever you need to create your own custom graphical user interface in a Fusion based Lua or Python script.

The UI Manager allows you to add object oriented windows, buttons, text fields, sliders, tree list views, and controls that are accessible inside your script code. The UI Manager library is QT window manager based, and it is designed to replace Fusion 7's older IUP and AskUser dialog approaches when creating script based GUIs.

Available GUI Elements

As you start to construct new user interfaces in Resolve/Fusion, you can add the following GUI elements by placing them inside the window's ui:VGroup{} tag:

- ui:VGroup{}
- ui:HGroup{}
- ui:Stack{}
- ui:VGap{}
- ui:HGap{}
- ui:Button{}
- ui:CheckBox{}
- ui:ColorPicker{}
- ui:ComboBox{}
- ui:DoubleSpinBox{}
- ui:Label{}
- ui:LineEdit{}
- ui:Slider{}
- ui:SpinBox{}
- ui:TabBar{}
- ui:TextEdit{}
- ui:Tree{}

What is an ID Tag?

In the UI Manager an important concept to understand at this point is that an ID tag string is placed inside the { } curly braces on every control in the GUI layout.

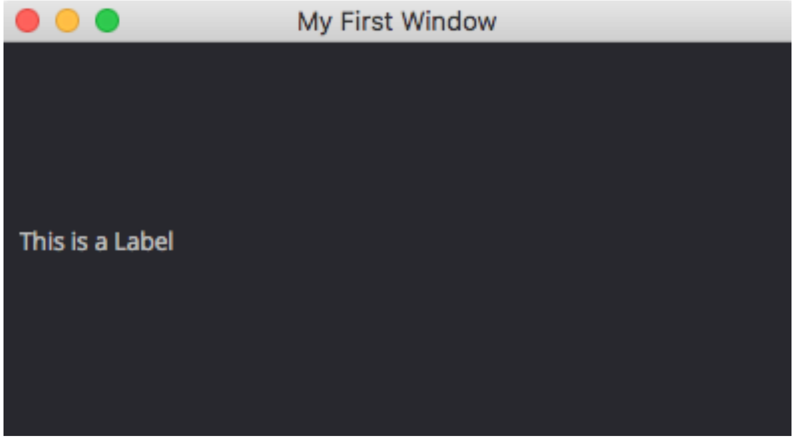
The ID tag setting could be just a single letter in quotes or it could be a longer text string (written without spaces) that is used to define the name that Lua uses to access that specific GUI element from code.

```
ID = 'myCustomName',
```

ID tags are used to allow the UI Manager to respond uniquely to user interactions with each of the controls in a window such as handling button clicks, sliders, checkboxes, typing text in a textfield, etc…

AddWindow()

The AddWindow() command is used to create a new UI Manager window. This window holds the GUI elements in a user interface.



The following code snippet shows the bare minimum of code you need to add to a Lua script in order to create a new UI Manager based window that has a GUI element inside of it.

In this piece of sample code a new window is created that has the title "My First Window". The label GUI element is added to the view that displays the textual message "This is a Label". You can close the new view by clicking on the standard window close box.

```
-- Create a new window
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 400,200

win = disp:AddWindow({
  ID = 'MyWin',
  WindowTitle = 'My First Window',
  Geometry = { 100, 100, width, height },
  Spacing = 10,

  ui:VGroup{
    ID = 'root',

    -- Add your GUI elements here:
    ui:Label{ ID = 'L', Text = 'This is a Label'},
  },
})

-- The window was closed
function win.On.MyWin.Close(ev)
```

```
    disp:ExitLoop()
end

-- Add your GUI element based event functions here:
itm = win:GetItems()

win:Show()
disp:RunLoop()
win:Hide()
```

How do I use the new GUI elements?

ui:VGroup{} / ui:HGroup{}

The ui:VGroup{} and ui:HGroup{} GUI elements are used to create vertical and horizontal layouts inside the window. You can stack multiple of these group objects nested inside of each other to create complex GUIs with UI elements arranged onscreen in rows and columns, or even a grid style of layout is possible.

Lua:

```
ui:VGroup{
  ID = "root",
  -- Add your GUI elements here:
}.
```

Python:

```
ui.VGroup({"ID": "root"},[
     # Add your GUI elements here:
]),
```

ui:VGap{} / ui:HGap{}

The ui:VGap{} and ui:HGap{} GUI elements are used to provide space between each of the GUI controls so it is easier to navigate inside the window and to create a more logical grouping of the elements inside of a ui:VGroup{} or ui:HGroup{} layout. The gap controls have options that allow you to define the space between controls using either pixels or a relative measurement.

This example adds a 5 pixel wide horizontal gap between the controls that are placed on either side of a ui:HGap element in a ui:VGroup{} or ui:HGroup{} layout:

Lua:

```
ui:HGap(5),
```

Python:

```
ui.HGap(5),
```

This example creates a flexible sized horizontal between the controls that are placed on either side of a ui:HGap element in a ui:VGroup{} or ui:HGroup{} layout:

Lua:

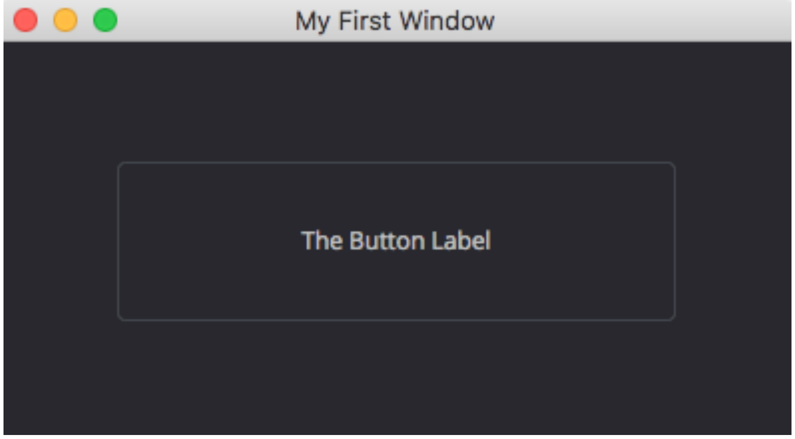
```
ui:HGap(0, 1.0),
```

Python

```
ui.HGap(0, 1.0),
```

ui:Button{}

The ui:Button{} control will create a simple rectangular shaped clickable button.



You can assign a textual label to the new button by adding an attribute like: Text = 'The Button Label'. If your operating system's default font supports showing Emoji's or extended Unicode characters you can add them to the Text label string on a button, too.

If you want to add a button to a UI Manager window layout that is done by writing an entry like this:

```
ui:Button{ID = "MyButton", Text = "Connect"},
```

The Text setting for the button is the actual label that is written on the button. You are able to use Unicode based Emoji icons as part of the Text label string if you are looking for an easy way to add a picture to the button.

The ID setting for the button is the internal name that is used to access the button from other functions in your Lua script.

After you have created a new ui:Button entry inside of your window creation code, further down in the Lua script you would add a matching function that responds to events that are triggered when the button is pressed.

Since I have an ID setting of MyButton I would need to create a Lua function like this to handle the button clicking action:

```
function win.On.MyButton.Clicked(ev)
	print('Hello World!')
end
```

Inside of the win.On.MyButton.Clicked() function you are free to write in any Lua code you want.

You can also rename the button's label once it has been clicked by assigning a new text string to the button label .Text attribute. The new string text that you can assign to the button label doesn't have to be a hard quoted object. It could be a string that is sourced at run-time from a dynamic element coming right from the active Fusion comp like the name of the active node selection, the current composite's filename, or it could come from any Lua variable you want to assign.

Changing a button label at runtime using Lua:

```
function win.On.MyButton.Clicked(ev)
     itm.MyButton.Text = "Link Active"
end
```

Adding a button using Lua:

```
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 400,200

win = disp:AddWindow({
  ID = 'MyWin',
  WindowTitle = 'My First Window',
  Geometry = { 100, 100, width, height },
  Spacing = 10,

  ui:VGroup{
    ID = 'root',

    -- Add your GUI elements here:
    ui:HGroup{
      Margin = 50,
      ui:Button{ID = 'MyButton', Text = 'The Button Label'},
    }
  },
})

-- The window was closed
function win.On.MyWin.Close(ev)
    disp:ExitLoop()
end

-- Add your GUI element based event functions here:
itm = win:GetItems()

function win.On.MyButton.Clicked(ev)
  print('Button Clicked')
    disp:ExitLoop()
end

win:Show()
disp:RunLoop()
```

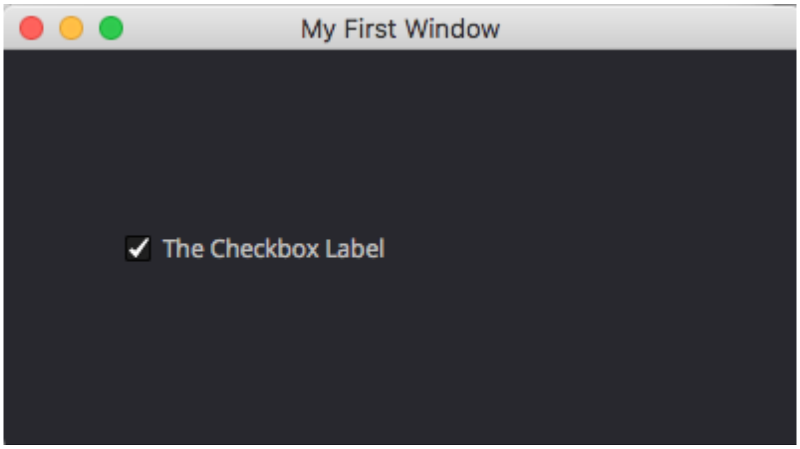
```
win:Hide()
```

Adding a button using Python:

```
ui = fu.UIManager
disp = bmd.UIDispatcher(ui)

dlg = disp.AddWindow({'WindowTitle': 'My First Window', 'ID': 'MyWin',
'Geometry': [100, 100, 200, 50], 'Spacing': 0,},[
      ui.VGroup({'Spacing': 0,},[
            # Add your GUI elements here:
            ui.HGroup({},[
                  # Add four buttons that have an icon resource attached
and no border shading
                  ui.Button({
                        'ID': 'MyButton',
                        'Text': 'The Button Label',
                  }),
            ]),
      ]),
])

itm = dlg.GetItems()

# The window was closed
def _func(ev):
      disp.ExitLoop()
dlg.On.MyWin.Close = _func

# Add your GUI element based event functions here:
def _func(ev):
      print('Button Clicked')
      disp.ExitLoop()
dlg.On.MyButton.Clicked = _func

dlg.Show()
disp.RunLoop()
dlg.Hide()
```

ui:CheckBox{}

The ui:CheckBox{} control will add a checkbox to the window layout. This control is used to define a boolean value which represents either a true (1) or false (0) logical state that corresponds visually to a checked or unchecked status for the control.



You can assign a label to the new checkBox by adding an attribute like:
`Text = 'The Checkbox Label'.`

Adding a Checkbox using Lua:

```
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 400,200

win = disp:AddWindow({
  ID = 'MyWin',
  WindowTitle = 'My First Window',
  Geometry = { 100, 100, width, height },
  Spacing = 10,

  ui:VGroup{
    ID = 'root',
    Margin = 50,

    -- Add your GUI elements here:
    ui:CheckBox{ID = 'MyCheckbox', Text = 'The Checkbox Label'},
  },
})

-- The window was closed
function win.On.MyWin.Close(ev)
    disp:ExitLoop()
end
```

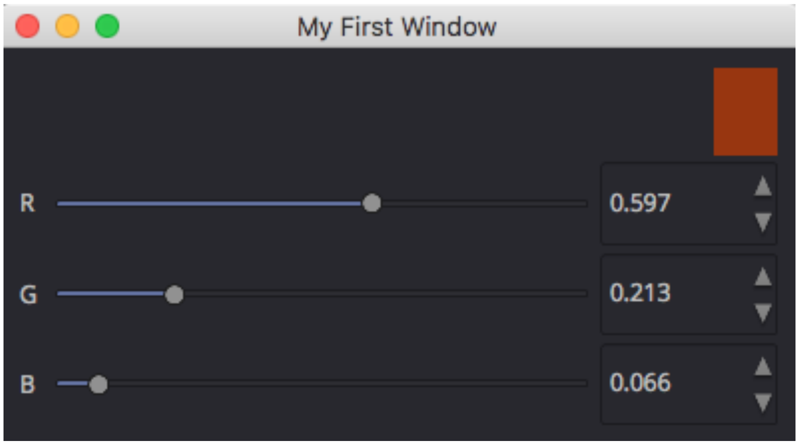
```
-- Add your GUI element based event functions here:
itm = win:GetItems()

function win.On.MyCheckbox.Clicked(ev)
  print('[Checkbox] ' .. tostring(itm.MyCheckbox.Checked))
end

win:Show()
disp:RunLoop()
win:Hide()
```

Adding a Checkbox using Python:

```
ui = fu.UIManager
disp = bmd.UIDispatcher(ui)

dlg = disp.AddWindow({"WindowTitle": "My First Window", "ID": "MyWin", 
"Geometry": [100, 100, 400, 200],},[
      ui.VGroup({"Spacing": 0,},[
            # Add your GUI elements here:
            ui.CheckBox({"ID": "MyCheckbox", "Text": "The Checkbox 
Label"}),
      ]),
])

itm = dlg.GetItems()

# The window was closed
def _func(ev):
      disp.ExitLoop()
dlg.On.MyWin.Close = _func

# Add your GUI element based event functions here:

def _func(ev):
      print("[Checkbox] " + str(itm["MyCheckbox"].Checked))
dlg.On.MyCheckbox.Clicked = _func

dlg.Show()
disp.RunLoop()
dlg.Hide()
```

ui:ColorPicker{}

The ui:ColorPicker{} control provides Red/Green/Blue color sliders and a preview color swatch that can be used to create a custom color value.



You can enter a default color for the ColorPicker using:

```
ui:ColorPicker{ ID = "Color", Color = { R = 0.753, G = 0.753, B =
0.753, A = 1}},
```

If you need an alpha channel slider in the ColorPicker then you can use:

```
ui:ColorPicker{ ID = "Color", Color = { R = 1, G = 1, B = 1, A = 1},
DoAlpha = true  },
```

You can read the color picker RGB float values using:

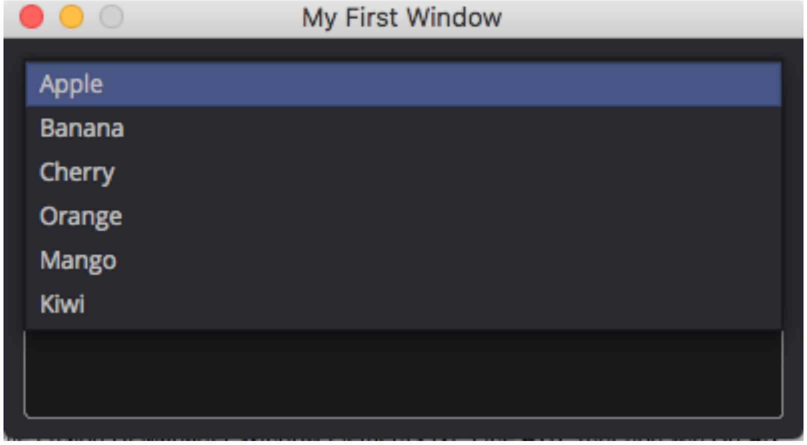
```
red = itm.Color.Color.R
green = itm.Color.Color.G
blue = itm.Color.Color.B
```

Adding a color picker using Lua:

```
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 400,200

win = disp:AddWindow({
  ID = 'MyWin',
  WindowTitle = 'My First Window',
  Geometry = {100, 100, width, height},
  Spacing = 10,

  ui:VGroup{
    ID = 'root',
    -- Add your GUI elements here:
    ui:ColorPicker{ID = 'Color'},
  },
})

-- The window was closed
function win.On.MyWin.Close(ev)
    disp:ExitLoop()
end

-- Add your GUI element based event functions here:
itm = win:GetItems()

win:Show()
disp:RunLoop()
win:Hide()
```

ui:ComboBox{}

The ui:ComboBox{} control allows you to show a ComboControl / Options Menu style of menu that allows you to select an individual menu item from a list of entries.



You can read the text string for the current ComboBox selection using ".CurrentText" like this:

```
print(itm.MyCombo.CurrentText)
```

You can read the index value for the current ComboBox selection using ".CurrentIndex" like this:

```
print(itm.MyCombo.CurrentIndex)
```

Note: You need to define the list of menu items outside the AddWindow() function using the AddItem() command.

Adding a ComboBox using Lua:

```
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 400,100

win = disp:AddWindow({
  ID = 'MyWin',
  WindowTitle = 'My First Window',
  Geometry = {100, 100, width, height},
  Spacing = 10,

  ui:VGroup{
    ID = 'root',

    -- Add your GUI elements here:
    ui:ComboBox{ID = 'MyCombo', Text = 'Combo Menu'},
  },
})
```

```
-- The window was closed
function win.On.MyWin.Close(ev)
    disp:ExitLoop()
end

-- Add your GUI element based event functions here:
itm = win:GetItems()

-- Add the items to the ComboBox menu
itm.MyCombo:AddItem('Apple')
itm.MyCombo:AddItem('Banana')
itm.MyCombo:AddItem('Cherry')
itm.MyCombo:AddItem('Orange')
itm.MyCombo:AddItem('Mango')
itm.MyCombo:AddItem('Kiwi')

-- This function is run when a user picks a different setting in the ComboBox control
function win.On.MyCombo.CurrentIndexChanged(ev)
  if itm.MyCombo.CurrentIndex == 0 then
    -- Apple
    print('[' .. itm.MyCombo.CurrentText .. '] Lets make an apple crisp dessert.')
  elseif itm.MyCombo.CurrentIndex == 1 then
    -- Banana
    print('[' .. itm.MyCombo.CurrentText .. '] Lets make a banana split with ice cream.')
  elseif itm.MyCombo.CurrentIndex == 2 then
    -- Cherry
    print('[' .. itm.MyCombo.CurrentText .. '] Lets make some cherry tarts.')
  elseif itm.MyCombo.CurrentIndex == 3 then
    -- Orange
    print('[' .. itm.MyCombo.CurrentText .. '] Lets peel an orange and have sliced orange boats.')
  elseif itm.MyCombo.CurrentIndex == 4 then
    -- Mango
    print('[' .. itm.MyCombo.CurrentText .. '] Lets eat cubed mango chunks with yoghurt.')
  elseif itm.MyCombo.CurrentIndex == 5 then
    -- Kiwi
    print('[' .. itm.MyCombo.CurrentText .. '] Lets have a fresh Kiwi snack.')
  end
end
```

```
win:Show()
disp:RunLoop()
win:Hide()
```

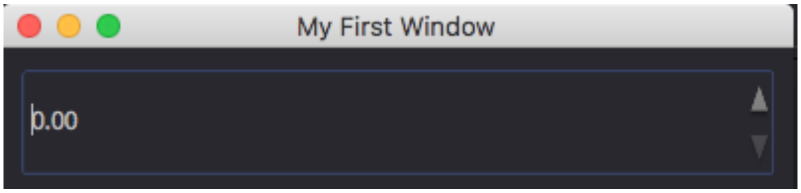
Adding a ComboBox using Python:

```
ui = fu.UIManager
disp = bmd.UIDispatcher(ui)

dlg = disp.AddWindow({"WindowTitle": "My First Window", "ID": "MyWin", 
"Geometry": [100, 100, 400, 45], "Spacing": 10,},[
	ui.VGroup({"ID": "root",},[
		# Add your GUI elements here:
		ui.ComboBox({"ID": "MyCombo", "Text": "Combo Menu"}),
	]),
])

itm = dlg.GetItems()

# The window was closed
def _func(ev):
	disp.ExitLoop()
dlg.On.MyWin.Close = _func

# Add your GUI element based event functions here:

def _func(ev):
	if itm['MyCombo'].CurrentIndex == 0:
		print('[' + itm['MyCombo'].CurrentText + '] Lets make an 
apple crisp dessert.')
	elif itm['MyCombo'].CurrentIndex == 1:
		print('[' + itm['MyCombo'].CurrentText + '] Lets make a 
banana split with ice cream')
	elif itm['MyCombo'].CurrentIndex == 2:
		print('[' + itm['MyCombo'].CurrentText + '] Lets make some 
cherry tarts.')
	elif itm['MyCombo'].CurrentIndex == 3:
		print('[' + itm['MyCombo'].CurrentText + '] Lets peel an 
orange and have sliced orange boats.')
	elif itm['MyCombo'].CurrentIndex == 4:
		print('[' + itm['MyCombo'].CurrentText + '] Lets eat cubed 
mango chunks with yoghurt.')
	elif itm['MyCombo'].CurrentIndex == 5:
		print('[' + itm['MyCombo'].CurrentText + '] Lets have a 
fresh Kiwi snack.')
dlg.On.MyCombo.CurrentIndexChanged = _func
```

```
# Add the items to the ComboBox menu
itm['MyCombo'].AddItem("Apple")
itm['MyCombo'].AddItem("Banana")
itm['MyCombo'].AddItem("Cherry")
itm['MyCombo'].AddItem("Orange")
itm['MyCombo'].AddItem("Mango")
itm['MyCombo'].AddItem("Kiwi")

dlg.Show()
disp.RunLoop()
dlg.Hide()
```

ui:DoubleSpinBox{}

The ui:DoubleSpinBox{} control allows you to enter numeric values. This GUI element can be incremented by typing a number in directly, pressing the up and down arrow buttons, or by clicking in the number field and then scrolling your mouse scroll wheel.



You will typically want to control the size of the ui:DoubleSpinBox control in the GUI by placing it inside a ui:VGroup{} or ui:HGroup{} element.

Adding a DoubleSpinBox number field using Lua:

```
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 400,75

win = disp:AddWindow({
  ID = 'MyWin',
  WindowTitle = 'My First Window',
  Geometry = {100, 100, width, height},
  Spacing = 10,

  ui:VGroup{
    ID = 'root',

    -- Add your GUI elements here:
    ui:DoubleSpinBox{ID='MySpinner'},
  },
})

-- The window was closed
function win.On.MyWin.Close(ev)
    disp:ExitLoop()
end

-- Add your GUI element based event functions here:
itm = win:GetItems()

function win.On.MySpinner.ValueChanged(ev)
  print('[DoubleSpinBox Value] '.. itm.MySpinner.Value)
end
```

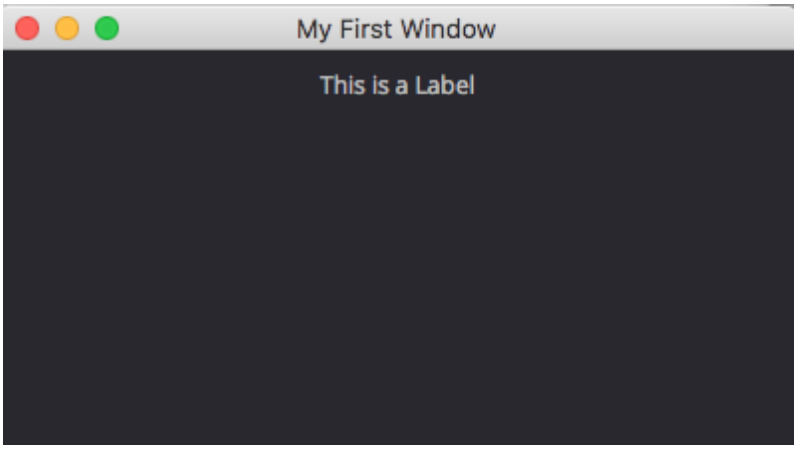
```
win:Show()
disp:RunLoop()
win:Hide()
```

Adding a DoubleSpinBox number field using Python:

```
ui = fu.UIManager
disp = bmd.UIDispatcher(ui)

dlg = disp.AddWindow({"WindowTitle": "My First Window", "ID": "MyWin",
"Geometry": [100, 100, 280, 45], "Spacing": 10,},[
      ui.VGroup({"ID": "root"},[
            # Add your GUI elements here:
            ui.DoubleSpinBox({"ID": "MySpinner"}),
      ]),
])

itm = dlg.GetItems()

# The window was closed
def _func(ev):
      disp.ExitLoop()
dlg.On.MyWin.Close = _func

# Add your GUI element based event functions here:

def _func(ev):
      print( "[DoubleSpinBox Value] " + str(itm['MySpinner'].Value))
dlg.On.MySpinner.ValueChanged = _func

dlg.Show()
disp.RunLoop()
dlg.Hide()
```

ui:Label{}

The ui:Label{} control allows you to add a block of non user editable text to the window.



Using several Label elements inside of your different ui:VGroup{} or ui:HGroup{} layouts can help visually break up a larger more complex window layout into smaller more logical groupings. This will make it easier for a user to understand what a set of controls can be used for.

Adding a textual label using Lua:

```
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 400,200

win = disp:AddWindow({
  ID = 'MyWin',
  WindowTitle = 'My First Window',
  Geometry = {100, 100, width, height},
  Spacing = 10,

  ui:VGroup{
    ID = 'root',

    -- Add your GUI elements here:
    ui:Label{ID = 'L', Text = 'This is a Label', Alignment =
{ AlignHCenter = true, AlignTop = true },},
  },
})

-- The window was closed
function win.On.MyWin.Close(ev)
    disp:ExitLoop()
end
```

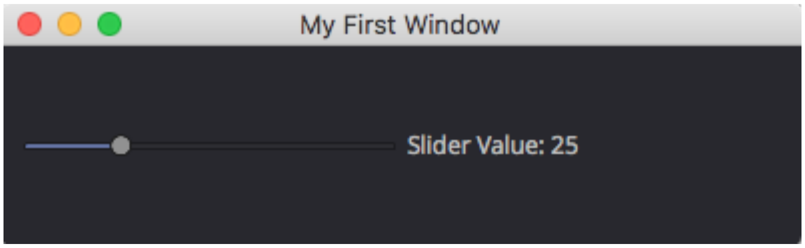
```
-- Add your GUI element based event functions here:
itm = win:GetItems()

win:Show()
disp:RunLoop()
win:Hide()
```

Adding a textual label using Python:

```
ui = fu.UIManager
disp = bmd.UIDispatcher(ui)

dlg = disp.AddWindow({"WindowTitle": "My First Window", "ID": "MyWin",
"Geometry": [100, 100, 400, 200],},[
      ui.VGroup({"Spacing": 0,},[
            # Add your GUI elements here:
            ui.Label({"ID": "Label", "Text": "This is a Label",}),
      ]),
])

itm = dlg.GetItems()

# The window was closed
def _func(ev):
      disp.ExitLoop()
dlg.On.MyWin.Close = _func

# Add your GUI element based event functions here:

dlg.Show()
disp.RunLoop()
dlg.Hide()
```

ui:Slider{}

The ui:Slider{} control provides a horizontal slider control.



Add a slider using Lua:

```
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 400,100

win = disp:AddWindow({
  ID = 'MyWin',
  WindowTitle = 'My First Window',
  Geometry = {100, 100, width, height},
  Spacing = 10,

  ui:HGroup{
    ID = 'root',

    -- Add your GUI elements here:
    ui:Slider{ID = 'MySlider'},

    ui:Label{ID = 'MyLabel', Text = 'Value: ',},
  },
})

-- The window was closed
function win.On.MyWin.Close(ev)
  disp:ExitLoop()
end

-- Add your GUI element based event functions here:
itm = win:GetItems()

itm.MySlider.Value = 25
itm.MySlider.Minimum = 0
itm.MySlider.Maximum = 100

function win.On.MySlider.ValueChanged(ev)
  itm.MyLabel.Text = 'Slider Value: ' .. tostring(ev.Value)
```

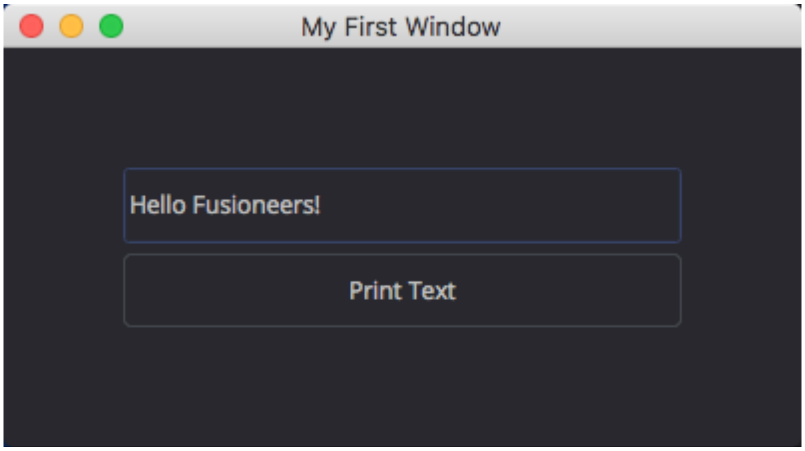
```
end

win:Show()
disp:RunLoop()
win:Hide()
```

Add a slider using Python:

```
ui = fu.UIManager
disp = bmd.UIDispatcher(ui)

dlg = disp.AddWindow({"WindowTitle": "My First Window", "ID": "MyWin",
"Geometry": [100, 100, 400, 100],},[
    ui.HGroup({"Spacing": 0,},[
        # Add your GUI elements here:
        ui.Slider({"ID": "MySlider",}),
        ui.Label({"ID": "MyLabel", "Text": "Value:",}),
    ]),
])

itm = dlg.GetItems()

# The window was closed
def _func(ev):
    disp.ExitLoop()
dlg.On.MyWin.Close = _func

# Add your GUI element based event functions here:

itm['MySlider'].Value = 25
itm['MySlider'].Minimum = 0
itm['MySlider'].Maximum = 100

def _func(ev):
    itm['MyLabel'].Text = "Slider Value: " + str(ev['Value'])
    print("Slider Value: " + str(ev['Value']))
dlg.On.MySlider.ValueChanged = _func

dlg.Show()
disp.RunLoop()
dlg.Hide()
```

ui:LineEdit{}

The ui:LineEdit{} control adds a single line based editable text field control.



The "PlaceholderText" attribute lets you define a label text that is shown when the field is empty. This is useful for indicating what the control is meant to be used for.

Add a LineEdit field using Lua:

```
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 400,200

win = disp:AddWindow({
  ID = 'MyWin',
  WindowTitle = 'My First Window',
  Geometry = { 100, 100, width, height },
  Spacing = 10,

  ui:VGroup{
    ID = 'root',
    Margin = 50,

    -- Add your GUI elements here:
    ui:LineEdit{ID='MyLineTxt', Text = 'Hello Fusioneers!',
PlaceholderText = 'Please Enter a few words.',},

    ui:Button{ID = 'PrintButton', Text = 'Print Text'},
  },
})

-- The window was closed
function win.On.MyWin.Close(ev)
    disp:ExitLoop()
```

```
end

-- Add your GUI element based event functions here:
itm = win:GetItems()

function win.On.PrintButton.Clicked(ev)
  print(itm.MyLineTxt.Text)
end

function win.On.MyLineTxt.TextChanged(ev)
    print(itm.MyLineTxt.Text)
end

win:Show()
disp:RunLoop()
win:Hide()
```

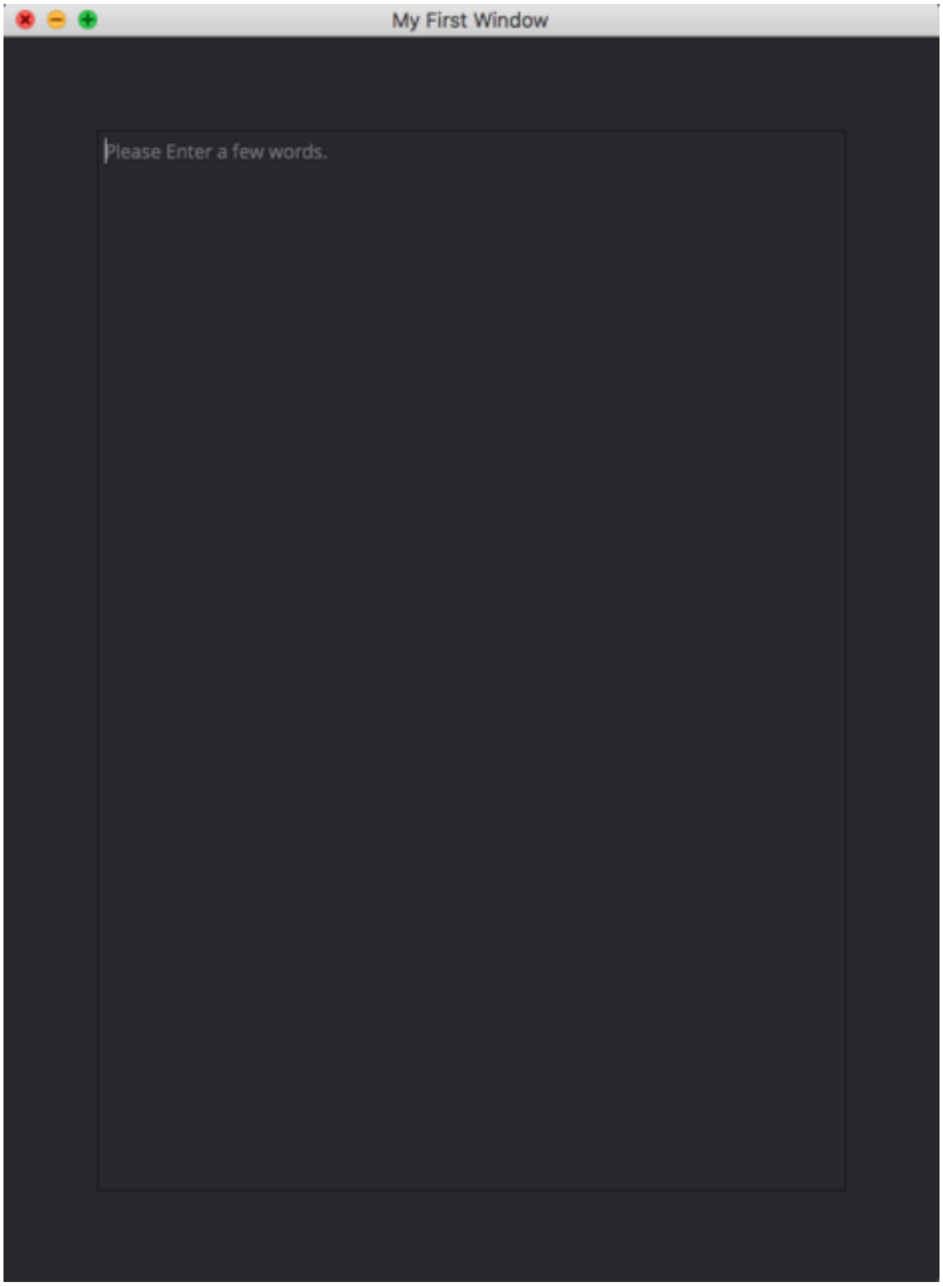
Add a LineEdit field using Python:

```
ui = fu.UIManager
disp = bmd.UIDispatcher(ui)

dlg = disp.AddWindow({"WindowTitle": "My First Window", "ID": "MyWin",
"Geometry": [100, 100, 400, 125],},[
      ui.VGroup({"Spacing": 10,},[
           # Add your GUI elements here:
           ui.LineEdit({"ID": "MyLineTxt", "Text": "Hello
Fusioneers!", "PlaceholderText": "Please Enter a few words.",
"Weight": 0.5}),
           ui.Button({"ID": "PrintButton", "Text": "Print Text",
"Weight": 0.5}),
      ]),
])

itm = dlg.GetItems()

# The window was closed
def _func(ev):
      disp.ExitLoop()
dlg.On.MyWin.Close = _func

# Add your GUI element based event functions here:

def _func(ev):
      print(itm['MyLineTxt'].Text)
dlg.On.PrintButton.Clicked = _func
```

```
def _func(ev):
     print(itm['MyLineTxt'].Text)
dlg.On.MyLineTxt.TextChanged = _func

dlg.Show()
disp.RunLoop()
dlg.Hide()
```

ui:TextEdit{}

The ui:TextEdit{} control adds an editable text field. It is possible to render the text field contents using either unformatted plaintext or HTML.



A ui:TextEdit field's contents can be made read-only (and non-editable) by adding a "ReadOnly" tag like this:

```
ui:TextEdit{ID='Txt', Text = 'Hello', ReadOnly = true,}
```

You can change the contents of a ui:TextEdit field using either:

```
-- Plain unformatted text:
itm.MyTxt.PlainText = 'Hello Fusioneers'

-- HTML encoded text:
itm.MyTxt.HTML = [[<h1>HTML Formatted Text</h1><p>This this HTML
rendered in a ui:TextEdit field!</p>]]
```

The "PlaceholderText" attribute lets you define a label text that is shown when the field is empty. This is useful for indicating what the control is meant to be used for.

Add a TextEdit field using Lua:

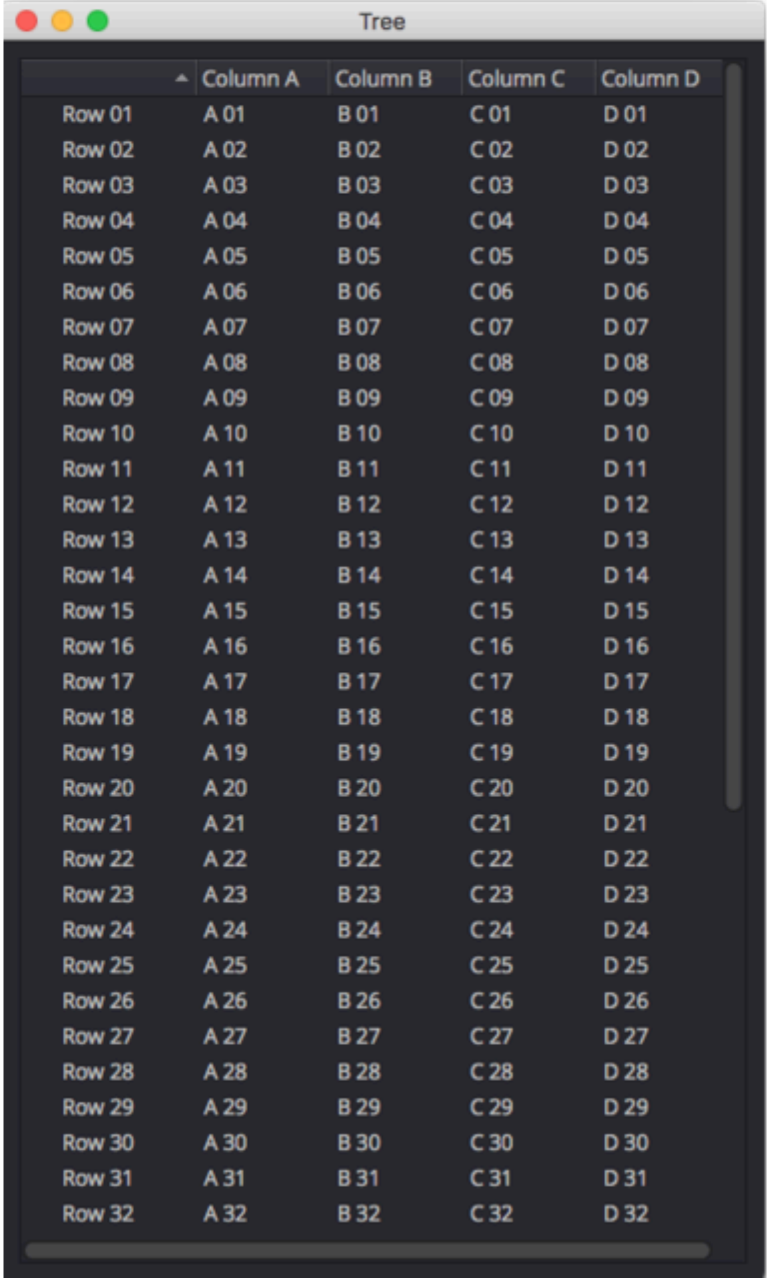
```
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 600,800

win = disp:AddWindow({
  ID = 'MyWin',
  WindowTitle = 'My First Window',
  Geometry = { 100, 100, width, height },
  Spacing = 10,

  ui:VGroup{
    ID = 'root',
    Margin = 50,

    -- Add your GUI elements here:
    ui:TextEdit{ID='MyTxt', Text = 'Hello', PlaceholderText = 'Please
Enter a few words.',}
  },
})

-- The window was closed
function win.On.MyWin.Close(ev)
    disp:ExitLoop()
end

-- Add your GUI element based event functions here:
itm = win:GetItems()

function win.On.MyTxt.TextChanged(ev)
    print(itm.MyTxt.PlainText)
end

win:Show()
disp:RunLoop()
win:Hide()
```

Add a TextEdit field using Python:

```
ui = fu.UIManager
disp = bmd.UIDispatcher(ui)

dlg = disp.AddWindow({ "WindowTitle": "My First Window", "ID":
"MyWin", "Geometry": [100, 100, 600, 800], "Spacing": 10, "Margin":
10,},[
	ui.VGroup({ "ID": "root",},[
		# Add your GUI elements here:
		ui.TextEdit({
			"ID": "MyTxt",
			"Text": "Hello",
			"PlaceholderText": "Please Enter a few words.",
			"Lexer": "fusion",
		}),
	]),
])

itm = dlg.GetItems()

# The window was closed
def _func(ev):
	disp.ExitLoop()
dlg.On.MyWin.Close = _func

# Add your GUI element based event functions here:

def _func(ev):
	print(itm['MyTxt'].PlainText)
dlg.On.MyTxt.TextChanged = _func

dlg.Show()
disp.RunLoop()
dlg.Hide()
```

ui:Tree{}

The ui:Tree{} control creates a spreadsheet like grid layout. This is useful for listing elements in a report with rows and columns.



	Column A	Column B	Column C	Column D
Row 01	A 01	B 01	C 01	D 01
Row 02	A 02	B 02	C 02	D 02
Row 03	A 03	B 03	C 03	D 03
Row 04	A 04	B 04	C 04	D 04
Row 05	A 05	B 05	C 05	D 05
Row 06	A 06	B 06	C 06	D 06
Row 07	A 07	B 07	C 07	D 07
Row 08	A 08	B 08	C 08	D 08
Row 09	A 09	B 09	C 09	D 09
Row 10	A 10	B 10	C 10	D 10
Row 11	A 11	B 11	C 11	D 11
Row 12	A 12	B 12	C 12	D 12
Row 13	A 13	B 13	C 13	D 13
Row 14	A 14	B 14	C 14	D 14
Row 15	A 15	B 15	C 15	D 15
Row 16	A 16	B 16	C 16	D 16
Row 17	A 17	B 17	C 17	D 17
Row 18	A 18	B 18	C 18	D 18
Row 19	A 19	B 19	C 19	D 19
Row 20	A 20	B 20	C 20	D 20
Row 21	A 21	B 21	C 21	D 21
Row 22	A 22	B 22	C 22	D 22
Row 23	A 23	B 23	C 23	D 23
Row 24	A 24	B 24	C 24	D 24
Row 25	A 25	B 25	C 25	D 25
Row 26	A 26	B 26	C 26	D 26
Row 27	A 27	B 27	C 27	D 27
Row 28	A 28	B 28	C 28	D 28
Row 29	A 29	B 29	C 29	D 29
Row 30	A 30	B 30	C 30	D 30
Row 31	A 31	B 31	C 31	D 31
Row 32	A 32	B 32	C 32	D 32

The entries in a ui:Tree can be made clickable and sortable using the following tags:

```
ui:Tree{ID = 'Tree', SortingEnabled=true, Events =
{  ItemDoubleClicked=true, ItemClicked=true }, },
```

You can detect a single click on a row using "function win.On.Tree.ItemClicked(ev)".

You can detect a double click on a row using "function win.On.Tree.ItemDoubleClicked(ev)".

Inside the single click or double click events you can read the row name text that was clicked with "ev.item.Text[1]". The index value in the [] brackets is the specific column heading text you want to display.

You can edit the contents of a specific tree view cell that was clicked on using "ev.column" to access an individual cell:

```
-- A Tree view cell was clicked on
function win.On.Tree.ItemClicked(ev)
  -- You can use the ev.column value to edit a specific ui:Tree cell
label
  ev.item.Text[ev.column] = '*CLICK*'
end
```

It is possible to add folding disclosure triangle sections to a tree view to have sub-headings. This is a more advanced topic so it will be discussed in a future tutorial.

The width of each heading is adjusted using the ".ColumnWidth" setting:

```
-- Resize the Columns
itm.Tree.ColumnWidth[0] = 150
itm.Tree.ColumnWidth[1] = 300
itm.Tree.ColumnWidth[2] = 50
```

When you are dynamically re-building a tree view you can use the "itm.Tree:Clear()" command to clear out the existing items.

Add a tree view using Lua:

```
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 430,700

win = disp:AddWindow({
  ID = 'MyWin',
  WindowTitle = 'Tree',
  Geometry = { 100, 100, width, height },
  Spacing = 0,

  ui:VGroup{
    ID = 'root',
    ui:Tree{ID = 'Tree', SortingEnabled=true, Events =
{ItemDoubleClicked=true, ItemClicked=true}, },
  },
})
```

```
-- The window was closed
function win.On.MyWin.Close(ev)
    disp:ExitLoop()
end

-- Add your GUI element based event functions here:
itm = win:GetItems()

-- Add a header row.
hdr = itm.Tree:NewItem()
hdr.Text[0] = ''
hdr.Text[1] = 'Column A'
hdr.Text[2] = 'Column B'
hdr.Text[3] = 'Column C'
hdr.Text[4] = 'Column D'
hdr.Text[5] = 'Column E'
itm.Tree:SetHeaderItem(hdr)

-- Number of columns in the Tree list
itm.Tree.ColumnCount = 5

-- Resize the Columns
itm.Tree.ColumnWidth[0] = 100
itm.Tree.ColumnWidth[1] = 75
itm.Tree.ColumnWidth[2] = 75
itm.Tree.ColumnWidth[3] = 75
itm.Tree.ColumnWidth[4] = 75
itm.Tree.ColumnWidth[5] = 75

-- Add an new row entries to the list
for row = 1, 50 do
  itRow = itm.Tree:NewItem();
  -- String.format is used to create a leading zero padded row number
like 'Row A01' or 'Row B01'.
  itRow.Text[0] = string.format('Row %02d', row);
  itRow.Text[1] = string.format('A %02d', row);
  itRow.Text[2] = string.format('B %02d', row);
  itRow.Text[3] = string.format('C %02d', row);
  itRow.Text[4] = string.format('D %02d', row);
  itRow.Text[5] = string.format('E %02d', row);
  itm.Tree:AddTopLevelItem(itRow)
end

-- A Tree view row was clicked on
function win.On.Tree.ItemClicked(ev)
  print('[Single Clicked] ' .. tostring(ev.item.Text[0]))
  -- You can use the ev.column value to edit a specific ui:Tree cell
label
  ev.item.Text[ev.column] = '*CLICK*'
end

-- A Tree view row was double clicked on
function win.On.Tree.ItemDoubleClicked(ev)
  print('[Double Clicked] ' .. tostring(ev.item.Text[0]))
end

win:Show()
disp:RunLoop()
win:Hide()
```

Add a tree view using Python:

```
ui = fu.UIManager
disp = bmd.UIDispatcher(ui)

dlg = disp.AddWindow({"WindowTitle": "Tree", "ID": "MyWin",
"Geometry": [100, 100, 430, 700], "Spacing": 0,},[
      ui.VGroup({"ID": "root",},[
            ui.Tree({
                  "ID": "Tree",
                  "SortingEnabled": True,
                  "Events": {
                        "CurrentItemChanged": True,
                        "ItemActivated": True,
                        "ItemClicked": True,
                        "ItemDoubleClicked": True,
                  },
            }),
      ]),
])

itm = dlg.GetItems()

# The window was closed
def _func(ev):
      disp.ExitLoop()
dlg.On.MyWin.Close = _func

# Add your GUI element based event functions here:

# Add a header row
hdr = itm["Tree"].NewItem()
```

```
hdr.Text[0] = ""
hdr.Text[1] = "Column A"
hdr.Text[2] = "Column B"
hdr.Text[3] = "Column C"
hdr.Text[4] = "Column D"
hdr.Text[5] = "Column E"
itm["Tree"].SetHeaderItem(hdr)

# Number of columns in the Tree list
itm["Tree"].ColumnCount = 5

# Resize the Columns
itm["Tree"].ColumnWidth[0] = 100
itm["Tree"].ColumnWidth[1] = 75
itm["Tree"].ColumnWidth[2] = 75
itm["Tree"].ColumnWidth[3] = 75
itm["Tree"].ColumnWidth[4] = 75
itm["Tree"].ColumnWidth[5] = 75

# Add an new row entries to the list
for row in range(1,50):
    itRow = itm["Tree"].NewItem()

    # .format is used to create a leading zero padded row number like
"Row A01" or "Row B01".
    itRow.Text[0] = "Row {0:02d}".format(row)

    itRow.Text[1] = "A {0:02d}".format(row)
    itRow.Text[2] = "B {0:02d}".format(row)
    itRow.Text[3] = "C {0:02d}".format(row)
    itRow.Text[4] = "D {0:02d}".format(row)
    itRow.Text[5] = "E {0:02d}".format(row)

    itm["Tree"].AddTopLevelItem(itRow)

# A Tree view row was clicked on
def _func(ev):
    print("[Single Clicked] " + str(ev["item"].Text[0]))
dlg.On.Tree.ItemClicked = _func

# A Tree view row was double clicked on
def _func(ev):
    print("[Double Clicked] " + str(ev["item"].Text[0]))
dlg.On.Tree.ItemDoubleClicked = _func
dlg.Show()
disp.RunLoop()
dlg.Hide()
```

AddConfig

AddConfig() is a function that is often used to capture window closing hotkeys events.

This approach stops Fusion from closing your foreground composite document each time a user presses Escape, Control+W/Command+W, or Control+F4/Command+F4 when the user expects the hotkey will be used to actually close a UI Manager GUI window instead.

AddConfig using Lua:

```
-- Check the current operating system platform
local platform = (FuPLATFORM_WINDOWS and 'Windows') or (FuPLATFORM_MAC
and 'Mac') or (FuPLATFORM_LINUX and 'Linux')

-- Create the appropriate hotkey message if you are on Windows/Linux
or Mac
local hotkeyTextMessage = 'Press (Control + W) or (Control + F4) to
close this window.'
if platform == 'Mac' then
      hotkeyTextMessage = 'Press (Command + W) or (Command + F4) to
close this window.'
end

-- Create the UI Manager GUI
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 900,132

win = disp:AddWindow({
      ID = 'HotkeysWin',
      TargetID = 'HotkeysWin',
      WindowTitle = 'Dynamic Hotkeys',
      Geometry = {0, 100, width, height},
      Margin = 20,
      Spacing = 0,

      ui:HGroup{
            ID = 'root',
            -- Add your GUI elements here:

            ui:Label{
                  ID = 'HotkeysLabel',
                  Alignment = {
                        AlignHCenter = true,
                        AlignTop = true,
                  },
                  Text = hotkeyTextMessage,
                  Font = ui:Font{
                        Family = 'Droid Sans Mono',
                        StyleName = 'Regular',
                        PixelSize = 24,
                        MonoSpaced = true,
                        StyleStrategy = {
                              ForceIntegerMetrics = true,
                        },
                  },
            },
      },
})


-- Add your GUI element based event functions here:
itm = win:GetItems()

-- The window was closed
function win.On.HotkeysWin.Close(ev)
      disp:ExitLoop()
end

-- The app:AddConfig() command that will capture the "ESCAPE",
"Control + W", or "Control + F4" hotkeys so they will close the
Dynamic Hotkeys window instead of closing the foreground composite.
app:AddConfig('Hotkeys', {
      Target {
            ID = 'HotkeysWin',
      },

      Hotkeys {
            Target = 'HotkeysWin',
            Defaults = true,

            CONTROL_W = 'Execute{cmd = [[app.UIManager:QueueEvent(obj,
"Close", {})]]}',
            CONTROL_F4 = 'Execute{cmd = [[app.UIManager:QueueEvent(obj,
"Close", {})]]}',
            ESCAPE = 'Execute{cmd = [[app.UIManager:QueueEvent(obj,
"Close", {})]]}',
      },
})

win:Show()
disp:RunLoop()
win:Hide()
```

```
app:RemoveConfig('Hotkeys')
collectgarbage()
```

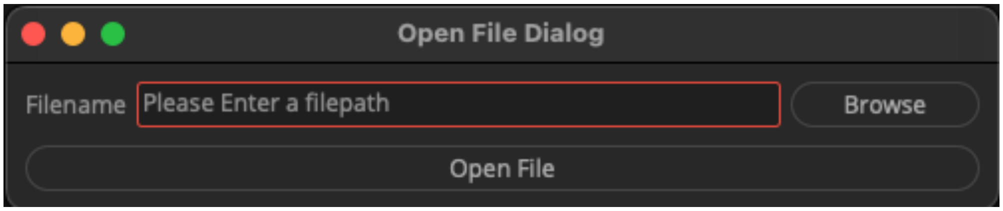
AddConfig using Python:

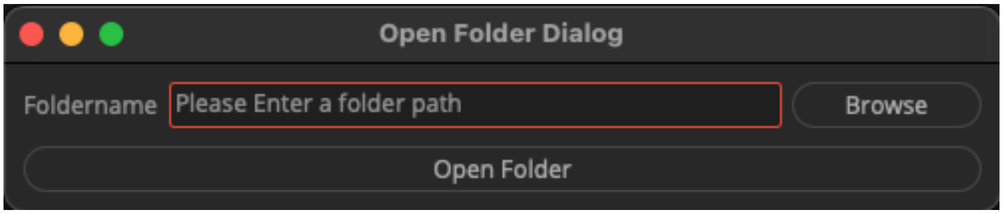
```
# The app:AddConfig() command that will capture the "Escape", "Control
+ W", or "Control + F4" hotkeys so they will close the window instead
of closing the foreground composite. It is worth noting that
comp.Execute() is run asynchronously so it might kick in the 2nd time
the script is run in a Fusion session...
comp.Execute(
"""
app:AddConfig("MyWin", {
      Target {
            ID = "MyWin",
      },
      Hotkeys {
            Target = "MyWin",
            Defaults = true,

            CONTROL_W = "Execute{cmd = [[app.UIManager:QueueEvent(obj,
'Close', {})]]}",
            CONTROL_F4 = "Execute{cmd = [[app.UIManager:QueueEvent(obj,
'Close', {})]]}",
            ESCAPE = "Execute{cmd = [[app.UIManager:QueueEvent(obj,
'Close', {})]]}",
      },
})
""")

ui = fu.UIManager
disp = bmd.UIDispatcher(ui)

dlg = disp.AddWindow({"WindowTitle": "My First Window", "ID": "MyWin",
"TargetID" : "MyWin", "Geometry": [25, 140, 950, 470], "Spacing": 0,},
[
      ui.VGroup({"Spacing": 0,},[
            # Add your GUI elements here:
            ui.Label({"ID": "Label", "Text": "Press the \"Escape\",
\"Control + W\", or \"Control + F4\" hotkeys to close this
window.",}),
      ]),
])

itm = dlg.GetItems()
```

```
# The window was closed
def _func(ev):
     disp.ExitLoop()
dlg.On.MyWin.Close = _func

# Add your GUI element based event functions here:

dlg.Show()
disp.RunLoop()
dlg.Hide()
```

File and Folder Browsing Dialogs

The RequestFile/RequestDir functions provide pre-made file browsing user interfaces for situations where you need to provide a "Browse" button that allows you to select files on-disk.





Create a request file dialog using Python:

```
# Display a file dialog using Python + UI Manager. This is an
alternative to relying on a legacy AskUser dialog which only works in
the Fusion page inside of Resolve.

ui = fu.UIManager
disp = bmd.UIDispatcher(ui)

dlg = disp.AddWindow({'WindowTitle': 'Open File Dialog', 'ID':
'MyWin', 'Geometry': [100, 100, 500, 75],},[
    ui.VGroup({'Spacing': 0,},[
        # Add your GUI elements here:
        ui.HGroup({'Weight': 0.0,},[
            ui.Label({'ID': 'Label', 'Text': 'Filename', 'Weight':
0.1}),
            ui.LineEdit({'ID': 'FileLineTxt', 'Text': '',
'PlaceholderText': 'Please Enter a filepath', 'Weight': 0.9}),
            ui.Button({'ID': 'BrowseButton', 'Text': 'Browse',
'Geometry': [0, 0, 30, 50], 'Weight': 0.1}),
        ]),
        ui.VGap(),
        ui.HGroup({'Weight': 0.1},[
            ui.Button({'ID': 'OpenButton', 'Text': 'Open File',
'Geometry': [0, 0, 30, 50], 'Weight': 0.1}),
        ]),
    ]),
])
```

```
itm = dlg.GetItems()

# The window was closed
def _func(ev):
    disp.ExitLoop()
dlg.On.MyWin.Close = _func

# Add your GUI element based event functions here:
def _func(ev):
    print('[Open File] Button Clicked')
    disp.ExitLoop()
dlg.On.OpenButton.Clicked = _func

def _func(ev):
    selectedPath = fu.RequestFile()
    if selectedPath:
        itm['FileLineTxt'].Text = str(selectedPath)
dlg.On.BrowseButton.Clicked = _func

dlg.Show()
disp.RunLoop()
dlg.Hide()

# Expand relative filepaths using the Fusion based "MapPath" function:
filepath = app.MapPath(itm['FileLineTxt'].Text or '')
# Alternatively you could expand comp file specific PathMaps using:
# filepath = comp.MapPath(itm['FileLineTxt'].Text)

print('\n\n[Open File]', filepath)
```

Create a request directory dialog using Python:

```
# Display a folder dialog using Python + UI Manager. This is an
alternative to relying on a legacy AskUser dialog which only works in
the Fusion page inside of Resolve.

ui = fu.UIManager
disp = bmd.UIDispatcher(ui)

dlg = disp.AddWindow({'WindowTitle': 'Open Folder Dialog', 'ID':
'MyWin', 'Geometry': [100, 100, 500, 75],},[
    ui.VGroup({'Spacing': 0,},[
        # Add your GUI elements here:
        ui.HGroup({'Weight': 0.0,},[
            ui.Label({'ID': 'Label', 'Text': 'Foldername',
'Weight': 0.1}),
                ui.LineEdit({'ID': 'FolderLineTxt', 'Text': '',
'PlaceholderText': 'Please Enter a folder path', 'Weight': 0.9}),
                ui.Button({'ID': 'BrowseButton', 'Text': 'Browse',
'Geometry': [0, 0, 30, 50], 'Weight': 0.1}),
            ]),
            ui.VGap(),
            ui.HGroup({'Weight': 0.1},[
                ui.Button({'ID': 'OpenButton', 'Text': 'Open Folder',
'Geometry': [0, 0, 30, 50], 'Weight': 0.1}),
            ]),
        ]),
])

itm = dlg.GetItems()

# The window was closed
def _func(ev):
    disp.ExitLoop()
dlg.On.MyWin.Close = _func

# Add your GUI element based event functions here:
def _func(ev):
    print('[Open Folder] Button Clicked')
    disp.ExitLoop()
dlg.On.OpenButton.Clicked = _func

def _func(ev):
    selectedPath = fu.RequestDir()
    if selectedPath:
        itm['FolderLineTxt'].Text = str(selectedPath)
dlg.On.BrowseButton.Clicked = _func

dlg.Show()
disp.RunLoop()
dlg.Hide()

# Expand relative filepaths using the Fusion based "MapPath" function:
folderpath = app.MapPath(itm['FolderLineTxt'].Text or '')
# Alternatively you could expand comp file specific PathMaps using:
# folderpath = comp.MapPath(itm['FolderLineTxt'].Text)

print('\n\n[Open Folder]', folderpath)
```

Create file dialogs using Lua:

```
local ui = fu.UIManager
local disp = bmd.UIDispatcher(ui)
local width,height = 1024,200

win = disp:AddWindow({
      ID = 'MyWin',
      WindowTitle = 'Open File and Folder Dialogs',
      Geometry = {100, 100, width, height},
      Spacing = 10,
      Margin = 50,

      ui:VGroup{
           ID = 'root',
           Weight = 1,

           -- Add your GUI elements here:
           -- Open File
           ui:HGroup{
                 ui:Label{
                       ID = 'FileLabel',
                       Text = 'File:',
                       Weight = 0.25,
                 },
                 ui:Label{
                       ID='FileTxt',
                       Text = 'Please Enter a file path.',
                       Weight = 1.5,
                 },
                 ui:Button{
                       ID = 'FileButton',
                       Text = 'Select a File',
                       Weight = 0.25,
                 },
           },

           -- Open Folder
           ui:HGroup{
                 ui:Label{
                       ID = 'FolderLabel',
                       Text = 'Folder:',
                       Weight = 0.25,
                 },
                 ui:Label{
                       ID='FolderTxt',
                       Text = 'Please Enter a folder path.',
                       Weight = 1.5,
                 },
                 ui:Button{
```

```
                ID = 'FolderButton',
                Text = 'Select a Folder',
                Weight = 0.25,
            },
        },
    },
})

-- Add your GUI element based event functions here:
itm = win:GetItems()

-- The window was closed
function win.On.MyWin.Close(ev)
    disp:ExitLoop()
end

-- The Open File button was clicked
function win.On.FileButton.Clicked(ev)
    print('Open File Button Clicked')
    selectedPath = tostring(fu:RequestFile('Brushes:/smile.tga'))

    print('[File] ', selectedPath)
    itm.FileTxt.Text = selectedPath
end

-- The Open Folder button was clicked
function win.On.FolderButton.Clicked(ev)
    print('Open Folder Button Clicked')
    selectedPath = tostring(fu:RequestDir('Scripts:/Comp'))

    print('[Folder] ', selectedPath)
    itm.FolderTxt.Text = selectedPath
end

win:Show()
disp:RunLoop()
win:Hide()
```

Using SlashFor to Batch Edit Nodes in a Comp

Normally a fuse is associated with creating visual imagery in Fusion's viewer window.

There is another type of fuse that is possible and it is called a "Console" fuse. This is a tool that is designed simply to process text and print out results back into the Console window.

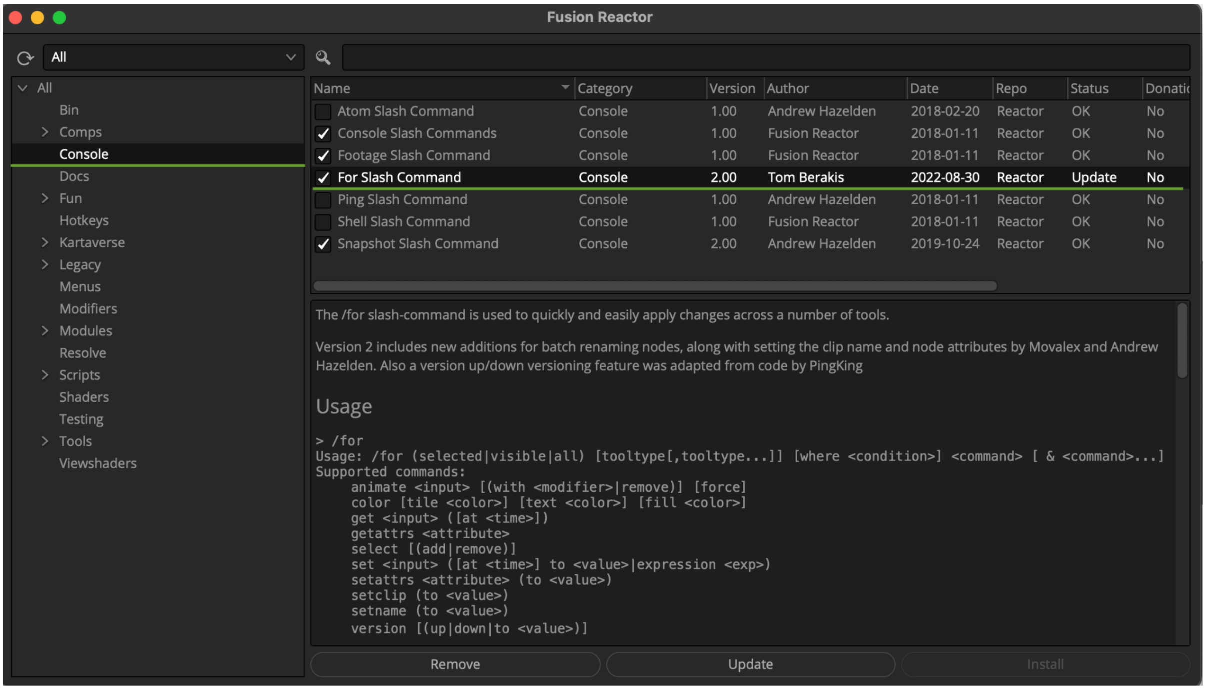
In order to make it easier to build custom Python and Lua scripts that interface with Console fuses, a technology called a "SlashCommand" was created.

The SlashCommands that are installed via Reactor exist on-disk at the PathMap location of:
`Reactor:/Deploy/Scripts/SlashCommand/`

When you type text into the Fusion Console window, with a leading slash character added, that line of text-based input is interpreted as a SlashCommand. This is used to launch a custom 3rd party Lua or Python script to parse the user input.

Note: It would be theoretically possible to create a fully interactive "MUD-like" text-adventure game interpreter with a SlashCommand based script.

SlashFor is by far the most significant SlashCommand fuse. It was created by WSL member tberakis in the following Reactor Submissions thread:
[WSL | [Submission] /for console slash-command]



Name	Category	Version	Author	Date	Repo	Status	Donati
□ Atom Slash Command	Console	1.00	Andrew Hazelden	2018-02-20	Reactor	OK	No
✓ Console Slash Commands	Console	1.00	Fusion Reactor	2018-01-11	Reactor	OK	No
✓ Footage Slash Command	Console	1.00	Fusion Reactor	2018-01-11	Reactor	OK	No
✓ For Slash Command	Console	2.00	Tom Berakis	2022-08-30	Reactor	Update	No
□ Ping Slash Command	Console	1.00	Andrew Hazelden	2018-01-11	Reactor	OK	No
□ Shell Slash Command	Console	1.00	Fusion Reactor	2018-01-11	Reactor	OK	No
✓ Snapshot Slash Command	Console	2.00	Andrew Hazelden	2019-10-24	Reactor	OK	No

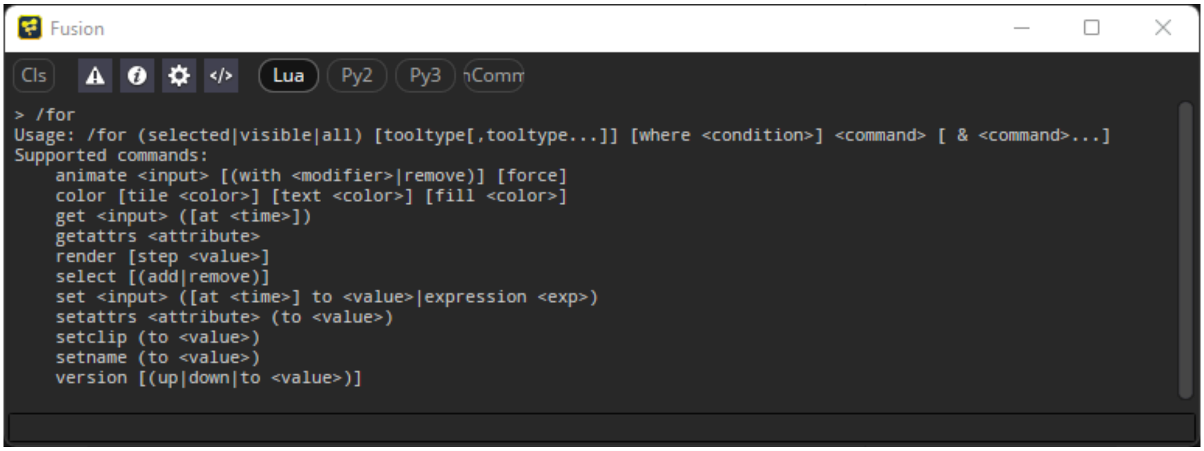
The /for slash-command is used to quickly and easily apply changes across a number of tools.

Version 2 includes new additions for batch renaming nodes, along with setting the clip name and node attributes by Movalex and Andrew Hazelden. Also a version up/down versioning feature was adapted from code by PingKing

Usage

```
> /for
Usage: /for (selected|visible|all) [tooltype[,tooltype...]] [where <condition>] <command> [ & <command>...]
Supported commands:
    animate <input> [(with <modifier>|remove)] [force]
    color [tile <color>] [text <color>] [fill <color>]
    get <input> ([at <time>])
    getattrs <attribute>
    select [(add|remove)]
    set <input> ([at <time>] to <value>|expression <exp>)
    setattrs <attribute> (to <value>)
    setclip (to <value>)
    setname (to <value>)
    version [(up|down|to <value>)]
```

Here is an example of what the "SlashFor" tool returns in the Console when it is run without any parameters entered after the tool name:



```
> /for
Usage: /for (selected|visible|all) [tooltype[,tooltype...]] [where <condition>] <command> [ & <command>...]
Supported commands:
    animate <input> [(with <modifier>|remove)] [force]
    color [tile <color>] [text <color>] [fill <color>]
    get <input> ([at <time>])
    getattrs <attribute>
    render [step <value>]
    select [(add|remove)]
    set <input> ([at <time>] to <value>|expression <exp>)
    setattrs <attribute> (to <value>)
    setclip (to <value>)
    setname (to <value>)
    version [(up|down|to <value>)]
```

Usage Example:

```
> /for
Usage: /for (selected|visible|all) [tooltype[,tooltype...]] [where
<condition>] <command> [ & <command>...]
Supported commands:
        animate <input> [(with <modifier>|remove)] [force]
        color [tile <color>] [text <color>] [fill <color>]
        get <input> ([at <time>])
        getattrs <attribute>
        select [(add|remove)]
        set <input> ([at <time>] to <value>|expression <exp>)
        setattrs <attribute> (to <value>)
        setclip (to <value>)
        setname (to <value>)
        version [(up|down|to <value>)]
```

SlashFor Syntax Examples

Set the Size of all selected tools to 1.0:

```
/for selected set Size to 1.0
```

Set "Use GPU" to Disable:

```
/for selected set UseGPU to 0
/for all ColorCorrector set UseGPU to 0
/for all Merge set UseGPU to 0
/for all set UseGPU to 0
```

Set "Use GPU" to Auto:

```
/for selected set UseGPU to 1
/for all ColorCorrector set UseGPU to 1
/for all Merge set UseGPU to 1
/for all set UseGPU to 1
```

Set "Use GPU" to Enable:

```
/for selected set UseGPU to 2
/for all ColorCorrector set UseGPU to 2
/for all Merge set UseGPU to 2
/for all set UseGPU to 2
```

Set the SeetheRate of all FastNoise tools in the comp to 1.0:

```
/for all FastNoise set SeetheRate to 1.0
```

Double the current size of each Merge or Transform currently selected:

```
/for selected Merge,Transform set Size to value*2.0
```

Select all FastNoise tools:

```
/for all FastNoise select
```

Add all tools to the active selection where Size > 1:

```
/for all where Size > 1.0 select add
```

Remove all Merge tools from the active selection where Angle < 0:

```
/for all Merge where Angle < 0 select remove
```

Loader Node

Set the EXR Part for a Loader node:

```
/for selected Loader set Clip1.OpenEXRFormat.Part to "C"

/for selected Loader set Clip1.OpenEXRFormat.Part to "directdiffuse"
```

Set the RGBA EXR Channel names for Loader nodes, one command at a time:

```
/for all Loader set Clip1.OpenEXRFormat.RedName to "R"
/for all Loader set Clip1.OpenEXRFormat.GreenName to "G"
/for all Loader set Clip1.OpenEXRFormat.BlueName to "B"
/for all Loader set Clip1.OpenEXRFormat.AlphaName to "A"
```

Set the RGBA EXR Channel names for Loader nodes on a single line:

```
/for all Loader set Clip1.OpenEXRFormat.RedName to "R" & set
Clip1.OpenEXRFormat.GreenName to "G" & set
Clip1.OpenEXRFormat.BlueName to "B" & set
Clip1.OpenEXRFormat.AlphaName to "A"
```

Set individual EXR Channel names for Loader nodes, one command at a time:

```
/for all Loader set Clip1.OpenEXRFormat.RedName to "R"
/for all Loader set Clip1.OpenEXRFormat.GreenName to "G"
/for all Loader set Clip1.OpenEXRFormat.BlueName to "B"
/for all Loader set Clip1.OpenEXRFormat.AlphaName to "A"
/for all Loader set Clip1.OpenEXRFormat.ZName to "Z"
/for all Loader set Clip1.OpenEXRFormat.CovName to "pixelCover"
/for all Loader set Clip1.OpenEXRFormat.ObjIDName to "objectID"
/for all Loader set Clip1.OpenEXRFormat.MatIDName to "materialID"
/for all Loader set Clip1.OpenEXRFormat.UName to "U"
/for all Loader set Clip1.OpenEXRFormat.VName to "V"
/for all Loader set Clip1.OpenEXRFormat.XNormName to "NX"
/for all Loader set Clip1.OpenEXRFormat.YNormName to "NY"
/for all Loader set Clip1.OpenEXRFormat.ZNormName to "NZ"
/for all Loader set Clip1.OpenEXRFormat.XVelName to "velX"
/for all Loader set Clip1.OpenEXRFormat.YVelName to "velY"
/for all Loader set Clip1.OpenEXRFormat.XRevVelName to "rvelX"
/for all Loader set Clip1.OpenEXRFormat.YRevVelName to "rvelY"
/for all Loader set Clip1.OpenEXRFormat.XPosName to "posX"
/for all Loader set Clip1.OpenEXRFormat.YPosName to "posY"
/for all Loader set Clip1.OpenEXRFormat.ZPosName to "posZ"
/for all Loader set Clip1.OpenEXRFormat.XDispName to "dispX"
/for all Loader set Clip1.OpenEXRFormat.YDispName to "dispY"
```

Set all of the available EXR Channel names for Loader nodes on a single line:

```
/for all Loader set Clip1.OpenEXRFormat.RedName to "R" & set
Clip1.OpenEXRFormat.GreenName to "G" & set
```

```
Clip1.OpenEXRFormat.BlueName to "B" & set
Clip1.OpenEXRFormat.AlphaName to "A" & set Clip1.OpenEXRFormat.ZName
to "Z" & set Clip1.OpenEXRFormat.CovName to "pixelCover" & set
Clip1.OpenEXRFormat.ObjIDName to "objectID" & set
Clip1.OpenEXRFormat.MatIDName to "materialID" & set
Clip1.OpenEXRFormat.UName to "U" & set Clip1.OpenEXRFormat.VName to
"V" & set Clip1.OpenEXRFormat.XNormName to "NX" & set
Clip1.OpenEXRFormat.YNormName to "NY" & set
Clip1.OpenEXRFormat.ZNormName to "NZ" & set
Clip1.OpenEXRFormat.XVelName to "velX" & set
Clip1.OpenEXRFormat.YVelName to "velY" & set
Clip1.OpenEXRFormat.XRevVelName to "rvelX" & set
Clip1.OpenEXRFormat.YRevVelName to "rvelY" & set
Clip1.OpenEXRFormat.XPosName to "posX" & set
Clip1.OpenEXRFormat.YPosName to "posY" & set
Clip1.OpenEXRFormat.ZPosName to "posZ" & set
Clip1.OpenEXRFormat.XDispName to "dispX" & set
Clip1.OpenEXRFormat.YDispName to "dispY"
```

MediaIn Node

Set the MediaID tag on a MediaIn node:

```
/for selected MediaIn set MediaID to
"445f0cf6-8888-4f2d-9014-1fa8829e9acd"
```

Set the EXR Part for a MediaIn node:

```
/for selected MediaIn set Layer to "C"
/for selected MediaIn set Layer to "directdiffuse"
```

Set the RGBA EXR Channel names for a MediaIn node, one command at a time:

```
/for selected MediaIn set RedName to "R"
/for selected MediaIn set GreenName to "G"
/for selected MediaIn set BlueName to "B"
/for selected MediaIn set AlphaName to "A"
```

Set the RGBA EXR Channel names for a MediaIn node, on a single line:

```
/for selected MediaIn set RedName to "R" & set GreenName to "G" & set
BlueName to "B" & set AlphaName to "A"

/for selected MediaIn set RedName to "C.R" & set GreenName to "C.G" &
set BlueName to "C.B" & set AlphaName to "C.A"
```

Set the In/Out time range for a MediaIn node:

```
/for selected MediaIn set GlobalIn to 0 & set GlobalOut to 47
```

Animate

Animate Size of all selected tools with default modifier (BezierSpline):

```
/for selected animate Size
```

Animate Size of all visible tools (ie not modifiers) with CubicSpline:

```
/for visible animate Size with CubicSpline
```

Animate Size of all selected tools, replacing any already animated ones:

```
/for selected animate Size force
```

Animate Seethe of all FastNoise tools, creating a ramp from 1.0 to 5.0 over 100 frames:

```
/for all FastNoise animate Seethe & set Seethe at 0 to 1.0 & set
Seethe at 100 to 5.0
```

Remove animation from Size of all selected tools:

```
/for selected animate Size remove
```

Expressions

/for can be limited to only affect a subset of the nodes in a comp using the term "where <expression>".

Set the Size of all selected tools to 1.0, if it's already > 1.0:

```
/for selected where Size > 1 set Size to 1.0
```

Set is able to create Fusion-based expression entries on node inputs, too.

Set a Seethe expression on selected FastNoise tools:

```
/for selected FastNoise set Seethe expression time/10.0
```

Select

The 'select' command changes the active selection of nodes in the Nodes view area:

Select all FastNoise tools:

```
/for all FastNoise select
```

Add all tools to the selection where Size > 1:

```
/for all where Size > 1.0 select add
```

Remove all Merge tools from the selection where Angle < 0:

```
/for all Merge where Angle < 0 select remove
```

Color

The 'color' command is used to modify node colors in the Node view.

Set the tile color to red for selected tools:

```
/for selected color tile 1,0,0
```

Set the text color to green for selected FastNoise tools with a non-zero SeetheRate:

```
/for selected FastNoise where SeetheRate ~= 0 color text 0,1,0
```

Set Name

Rename a node:

```
/for selected Loader setname to "MyLoader"
/for selected Saver setname to "MySaver"
/for selected Fuse.vTextCreate setname to "Txt"
/for selected Fuse.vNumberCreate setname to "Num"
```

Set Clip Filenames

Set a Loader node's Clip filename:

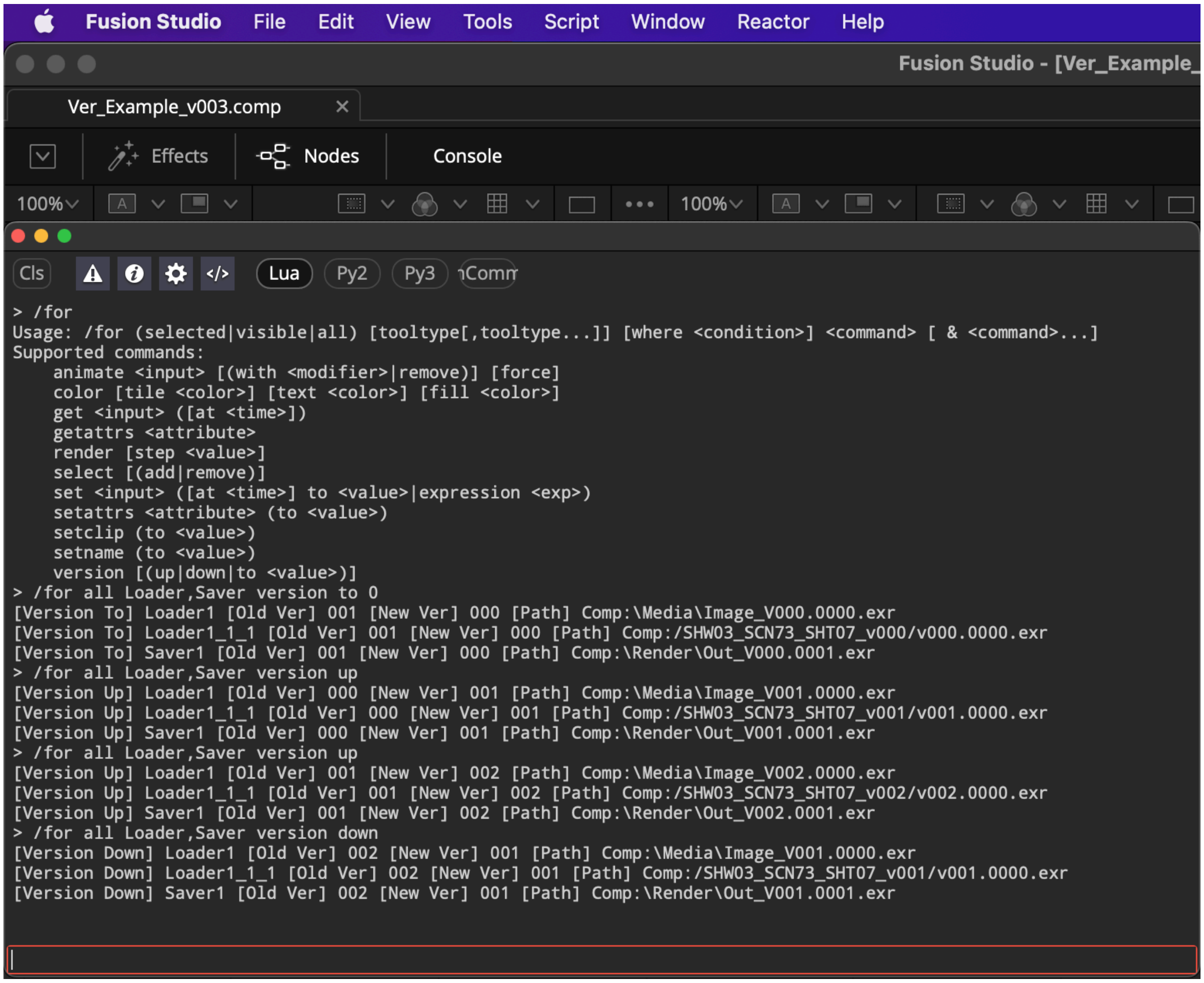
```
/for all Loader setclip to "Comp:/Import.0000.exr"
```

Set a Saver node's Clip filename:

```
/for all Saver setclip to "Comp:/Export.0000.exr"
```

Set Clip Version

If a Loader or Saver node has a version tag added to the clip filename like "V001" or "v001" then the /for versioning features will be your new best friend.



```
> /for
Usage: /for (selected|visible|all) [tooltype[,tooltype...]] [where <condition>] <command> [ & <command>...]
Supported commands:
    animate <input> [(with <modifier>|remove)] [force]
    color [tile <color>] [text <color>] [fill <color>]
    get <input> ([at <time>])
    getattrs <attribute>
    render [step <value>]
    select [(add|remove)]
    set <input> ([at <time>] to <value>|expression <exp>)
    setattrs <attribute> (to <value>)
    setclip (to <value>)
    setname (to <value>)
    version [(up|down|to <value>)]
> /for all Loader,Saver version to 0
[Version To] Loader1 [Old Ver] 001 [New Ver] 000 [Path] Comp:\Media\Image_V000.0000.exr
[Version To] Loader1_1_1 [Old Ver] 001 [New Ver] 000 [Path] Comp:/SHW03_SCN73_SHT07_v000/v000.0000.exr
[Version To] Saver1 [Old Ver] 001 [New Ver] 000 [Path] Comp:\Render\Out_V000.0001.exr
> /for all Loader,Saver version up
[Version Up] Loader1 [Old Ver] 000 [New Ver] 001 [Path] Comp:\Media\Image_V001.0000.exr
[Version Up] Loader1_1_1 [Old Ver] 000 [New Ver] 001 [Path] Comp:/SHW03_SCN73_SHT07_v001/v001.0000.exr
[Version Up] Saver1 [Old Ver] 000 [New Ver] 001 [Path] Comp:\Render\Out_V001.0001.exr
> /for all Loader,Saver version up
[Version Up] Loader1 [Old Ver] 001 [New Ver] 002 [Path] Comp:\Media\Image_V002.0000.exr
[Version Up] Loader1_1_1 [Old Ver] 001 [New Ver] 002 [Path] Comp:/SHW03_SCN73_SHT07_v002/v002.0000.exr
[Version Up] Saver1 [Old Ver] 001 [New Ver] 002 [Path] Comp:\Render\Out_V002.0001.exr
> /for all Loader,Saver version down
[Version Down] Loader1 [Old Ver] 002 [New Ver] 001 [Path] Comp:\Media\Image_V001.0000.exr
[Version Down] Loader1_1_1 [Old Ver] 002 [New Ver] 001 [Path] Comp:/SHW03_SCN73_SHT07_v001/v001.0000.exr
[Version Down] Saver1 [Old Ver] 002 [New Ver] 001 [Path] Comp:\Render\Out_V001.0001.exr
```

Set Loader or Saver Node Filename Version Tags:

```
/for selected version up
/for selected version down
/for selected version to 5

/for all version up
/for all version down
/for all version to 99

/for selected Loader version up
/for selected Loader version down
/for selected Loader version to 99
```

```
/for selected Saver version up
/for selected Saver version down
/for selected Saver version to 99
```

Set Attributes

Turn ON the passthrough option for the selected Loader nodes:

```
/for selected Loader setattrs TOOLB_PassThrough to true
```

Turn OFF the passthrough option for the selected Loader nodes:

```
/for selected Loader setattrs TOOLB_PassThrough to false
```

Get Attributes

Read a node's attributes:

```
/for all getattrs TOOLS_RegID
/for all getattrs TOOLST_Clip_Name
/for all getattrs TOOLB_PassThrough
```

Read the most recent render time for the selected nodes:

```
/for selected getattrs TOOLN_LastFrameTime
```

Get Input Values

Read a node's inputs:

```
/for all Transform get Aspect
/for all get StyledText
/for all get Font
/for all get Center
```

Modify 3D Meshes

FBX/OBJ 3D Meshes

Rename the node:

```
/for selected SurfaceFBXMesh setname to "pCubeFBX"
```

FBX/OBJ - Modify the object name selected from the 3D model hierarchy:

```
/for selected SurfaceFBXMesh set ObjName to "pCube"
```

FBX/OBJ - Clear the object name selected from the 3D model hierarchy:

```
/for selected SurfaceFBXMesh set ObjName to ""
```

FBX/OBJ - Modify the take name:

```
/for selected SurfaceFBXMesh set TakeName to "Take 999"
```

FBX/OBJ - Modify the imported file name:

```
/for selected SurfaceFBXMesh set ImportFile to "Comp:/Media/pCube.fbx"

/for selected SurfaceFBXMesh set ImportFile to "Macros:/KartaVR/
Images/roller_coaster_track.fbx"
```

Alembic 3D Meshes

Rename the node:

```
/for selected SurfaceAlembicMesh setname to "pCubeABC"
```

ABC - Modify the object name selected from the 3D model hierarchy:

```
/for selected SurfaceAlembicMesh set ObjName to "Mesh/pCube"
```

ABC - Clear the object name selected from the 3D model hierarchy:

```
/for selected SurfaceAlembicMesh set ObjName to ""
```

ABC - Modify the imported file name:

```
/for selected SurfaceAlembicMesh set ImportFile to "Comp:/Media/
pCube.abc"
```

OFX and Fuses

OFX plugins and Fuses can be targeted by SlashFor if you know their node type via the Registry ID value:

```
/for all ofx.com.frischluft.openFX.DepthOfField select
/for all Fuse.Wireless select
/for all Fuse.vImageWireless select
/for all Fuse.vTextCreate select
```

Render

The /for render flags make selective rendering of nodes in a comp easier:

```
/for render [step <value>]
```

Render Selected Nodes:

```
/for selected render
```

Render Selected nodes step by 25 frames at a time:

```
/for selected render step 25
```

Render all Saver nodes:

```
/for all Saver render
```

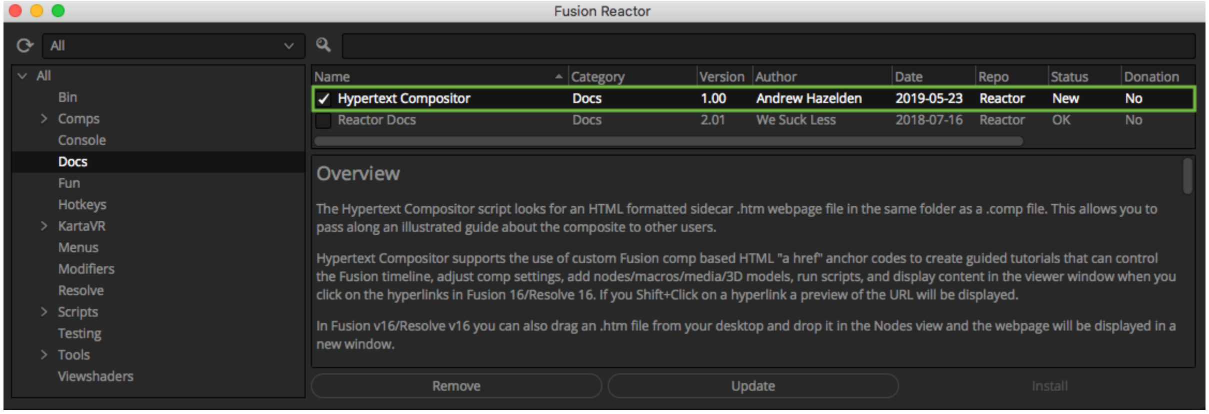
Render all Saver nodes step by 100 frames at a time:

```
/for all Saver render step 100
```

Hypertext Compositor

Hypertext Compositor is an Interactive Documentation & Walkthrough Tool for Compers

The "Hypertext Compositor" tool is available in Reactor and it can be used to create e-documentation and templated comp walkthroughs. It is accessible in the Reactor "Docs" category.



Name	Category	Version	Author	Date	Repo	Status	Donation
☑ Hypertext Compositor	Docs	1.00	Andrew Hazelden	2019-05-23	Reactor	New	No
□ Reactor Docs	Docs	2.01	We Suck Less	2018-07-16	Reactor	OK	No

Overview

The Hypertext Compositor script looks for an HTML formatted sidecar .htm webpage file in the same folder as a .comp file. This allows you to pass along an illustrated guide about the composite to other users.

Hypertext Compositor supports the use of custom Fusion comp based HTML "a href" anchor codes to create guided tutorials that can control the Fusion timeline, adjust comp settings, add nodes/macros/media/3D models, run scripts, and display content in the viewer window when you click on the hyperlinks in Fusion 16/Resolve 16. If you Shift+Click on a hyperlink a preview of the URL will be displayed.

In Fusion v16/Resolve v16 you can also drag an .htm file from your desktop and drop it in the Nodes view and the webpage will be displayed in a new window.

The Hypertext Compositor script looks for an HTML formatted sidecar .htm webpage file in the same folder as a .comp file. This allows you to pass along an illustrated guide about the composite to other users.

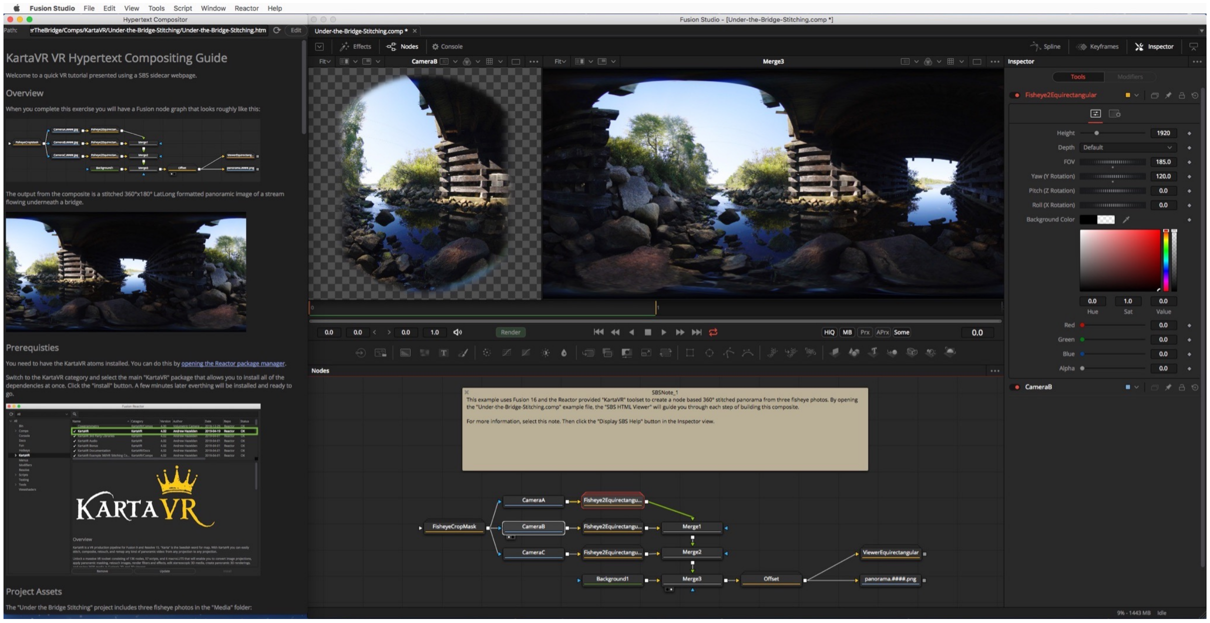
Hypertext Compositor supports the use of custom Fusion comp based HTML "a href" anchor codes to create guided tutorials that can control the Fusion timeline, adjust comp settings, add nodes/macros/media/3D models, run scripts, and display content in the viewer window when you click on the hyperlinks. If you (Shift + Click) on a hyperlink a preview of the URL will be displayed.

In Resolve/Fusion you can also drag an .htm file from your desktop and drop it in the Nodes view and the webpage will be displayed in a new window.

Hypertext Compositor was inspired by an old-school Fusion term called "SBS" or Side-by-Side that was used to represent an approach where a Lua script could be run by Fusion as soon as a .comp file of the same name was opened. The Hypertext Compositor extends this Side-by-Side system to support comp specific documentation.

Hypertext Compositor Screenshots

Here are two screenshots that show the Hypertext Compositor window active with a side-by-side webpage loaded. The clickable links are able to help guide the usage of the composite that is open.



Hypertext Compositor

Path: rTheBridge/Comps/KartaVR/Under-the-Bridge-Stitching/Under-the-Bridge-Stitching.htm

KartaVR VR Hypertext Compositing Guide

Welcome to a quick VR tutorial presented using a SBS sidecar webpage.

Overview

When you complete this exercise you will have a Fusion node graph that looks roughly like this:

The output from the composite is a stitched 360°x180° LatLong formatted panoramic image of a stream flowing underneath a bridge.

Prerequisties

You need to have the KartaVR atoms installed. You can do this by opening the Reactor package manager.

Switch to the KartaVR category and select the main "KartaVR" package that allows you to install all of the dependencies at once. Click the "install" button. A few minutes later everthing will be installed and ready to go.

Project Assets

The "Under the Bridge Stitching" project includes three fisheye photos in the "Media" folder:

Fusion Studio - [Under-the-Bridge-Stitching.comp *]

SBSNote_1

This example uses Fusion 16 and the Reactor provided "KartaVR" toolset to create a node based 360° stitched panorama from three fisheye photos. By opening the "Under-the-Bridge-Stitching.comp" example file, the "SBS HTML Viewer" will guide you through each step of building this composite.

For more information, select this note. Then click the "Display SBS Help" button in the Inspector view.

Fisheye2Equirectangular

Height 1920

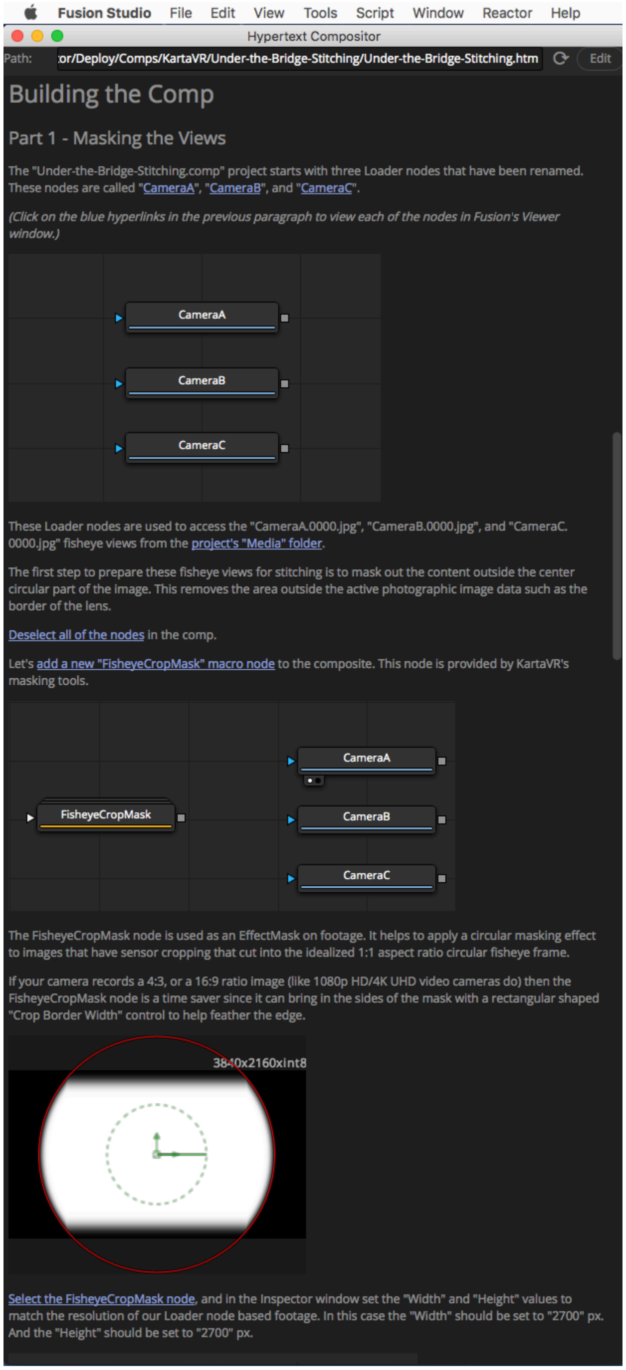
Depth Default

FOV 185.0

Yaw (Y Rotation) 120.0

Pitch (Z Rotation) 0.0

Roll (X Rotation) 0.0



Building the Comp

Part 1 - Masking the Views

The "Under-the-Bridge-Stitching.comp" project starts with three Loader nodes that have been renamed. These nodes are called "CameraA", "CameraB", and "CameraC".

(Click on the blue hyperlinks in the previous paragraph to view each of the nodes in Fusion's Viewer window.)

These Loader nodes are used to access the "CameraA.0000.jpg", "CameraB.0000.jpg", and "CameraC.0000.jpg" fisheye views from the project's "Media" folder.

The first step to prepare these fisheye views for stitching is to mask out the content outside the center circular part of the image. This removes the area outside the active photographic image data such as the border of the lens.

Deselect all of the nodes in the comp.

Let's add a new "FisheyeCropMask" macro node to the composite. This node is provided by KartaVR's masking tools.

The FisheyeCropMask node is used as an EffectMask on footage. It helps to apply a circular masking effect to images that have sensor cropping that cut into the idealized 1:1 aspect ratio circular fisheye frame.

If your camera records a 4:3, or a 16:9 ratio image (like 1080p HD/4K UHD video cameras do) then the FisheyeCropMask node is a time saver since it can bring in the sides of the mask with a rectangular shaped "Crop Border Width" control to help feather the edge.

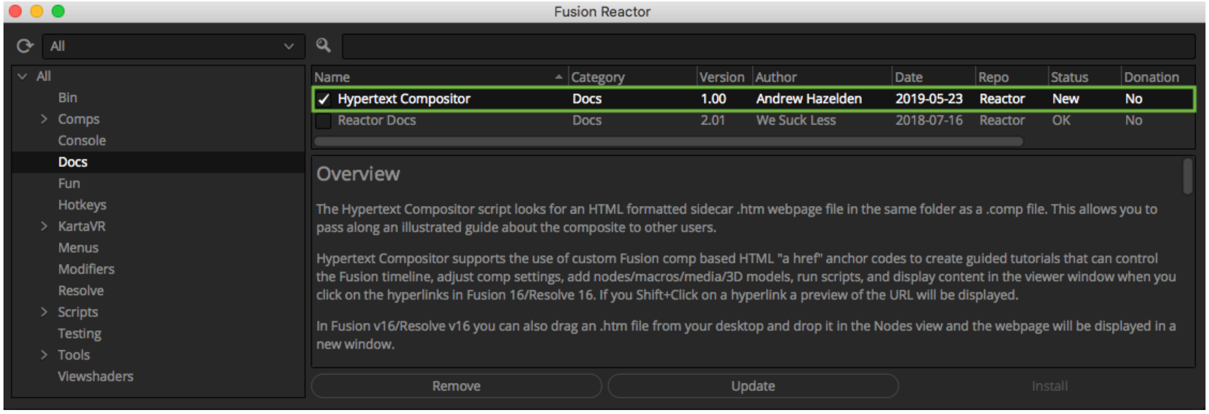
Select the FisheyeCropMask node, and in the Inspector window set the "Width" and "Height" values to match the resolution of our Loader node based footage. In this case the "Width" should be set to "2700" px. And the "Height" should be set to "2700" px.

Hypertext Compositor Usage

If you had a composite called "wesuckless.comp", the SBS HTML formatted sidecar file would be named "wesuckless.htm". When the composite is opened using the "`File > Open...`" or "`File > Open Recent > `" menu items, the matching HTML guide would be displayed automatically.

Hypertext Compositor Editor

An HTML code editor is provided that makes it easy to live-edit and preview the .htm documentation with the images visible, and special clickable hyperlinks are active, too. At the top left of the Editor UI is a ComboBox menu that allows you to quickly add the commands to control a Fusion session.



Name	Category	Version	Author	Date	Repo	Status	Donation
☑ Hypertext Compositor	Docs	1.00	Andrew Hazelden	2019-05-23	Reactor	New	No
□ Reactor Docs	Docs	2.01	We Suck Less	2018-07-16	Reactor	OK	No

Overview

The Hypertext Compositor script looks for an HTML formatted sidecar .htm webpage file in the same folder as a .comp file. This allows you to pass along an illustrated guide about the composite to other users.

Hypertext Compositor supports the use of custom Fusion comp based HTML "a href" anchor codes to create guided tutorials that can control the Fusion timeline, adjust comp settings, add nodes/macros/media/3D models, run scripts, and display content in the viewer window when you click on the hyperlinks in Fusion 16/Resolve 16. If you Shift+Click on a hyperlink a preview of the URL will be displayed.

In Fusion v16/Resolve v16 you can also drag an .htm file from your desktop and drop it in the Nodes view and the webpage will be displayed in a new window.

Images
The HTML Viewer supports PNG images. You can refer to the media using a PathMap based image embedding source URL. To display an image with a relative path starting at the same folder as your .comp/.htm file is located use:

```
<img src="Comp:/example.png">
```

or you could make a "docs" subfolder in your comp directory using and display the image using:

```
<img src="Comp:/docs/example.png">
```

HTML Anchor Commands
Select a node by name:

```
<p><a href="Select://Saver1">Saver</a></p>
```

View the selected node:

```
<p><a href="View://">View Selected Node</a></p>
```

View the selected node on the left viewer:

```
<p><a href="ViewLeft://">View Selected on Left</a></p>
```

View the selected node on the right viewer:

```
<p><a href="ViewRight://">View Selected on Right</a></p>
```

View a node by name:

```
<p><a href="View://FastNoise1">FastNoise1</a></p>
```

View a node on the left viewer by name:

```
<p><a href="ViewLeft://FastNoise1">FastNoise1</a></p>
```

View a node on the right viewer by name:

```
<p><a href="ViewRight://FastNoise1">FastNoise1</a></p>
```

Frame a view:

```
<p><a href="FrameAll://FlowView">FrameAll FlowView</a></p>
```

Rename the selected node:

```
<p><a href="Rename://CharlieLoader">Rename the node to CharlieLoader</
a></p>
```

Render a node by name:

```
<p><a href="Render://Saver1">Saver</a></p>
```

Start the sequence playback:

```
<p><a href="Play://">Play</a></p>
```

Rewind the playback:

```
<p><a href="Rewind://">Rewind Playback</a></p>
```

Go to a specific frame in the timeline:

```
<p><a href="Time://12">Jump to frame 12</a></p>
```

Nudge the Playhead in the timeline to step between keyframes and in between keyframes:

```
<p><a href="NudgePlayhead://Right">Nudge Playhead Right</a></p>
<p><a href="NudgePlayhead://Left">Nudge Playhead Left</a></p>
```

Stop the playback:

```
<p><a href="Stop://">Stop the Playback</a></p>
```

Save the composite:

```
<p><a href="Save://">Save the .comp</a></p>
```

Load a composite:

```
<p><a href="Load://Comp:/sidecar_demo_end.comp">Load a .comp</a></p>
<p><a href="Load://Reactor:/Deploy/Comps/Templates/
UT_Anonymous_Water.comp">Load a .comp</a></p>
```

Add a macro:

```
<p><a href="AddSetting://Reactor:/Macros/Creator/NyanCat.setting">Add
the NyanCat macro</a></p>
```

Add a node:

```
<p><a href="AddTool://GridWarp">Add GridWarp node</a></p>
```

Add a Loader node:

```
<p><a href="AddMedia://Comp:/Render/image.0000.exr">Add an image</a></
p>
<p><a href="AddMedia://Reactor:/Deploy/Macros/KartaVR/Images/
latlong_wide_ar.jpg">Add an image</a></p>
```

Run a script:

```
<p><a href="RunScript://Reactor:/Deploy/Scripts/Comp/
hos_SplitEXR_Ultra.lua">Split the selected EXR image</a></p>
```

Open Reactor:

```
<p><a href="AddAtom://">Open the Reactor package manager</a></p>
```

Toggle the passthrough mode on a node:

```
<p><a href="PassthroughOn://Loader1">Passthrough On Loader1</a></p>
<p><a href="PassthroughOff://Loader1">Passthrough Off Loader1</a></p>
```

Toggle the passthrough mode on the currently selected node:

```
<p><a href="PassthroughOn://">Passthrough On Selected Node</a></p>
<p><a href="PassthroughOff://">Passthrough Off Selected Node</a></p>
```

Run a shell command from the terminal:

```
<p><a href="Shell://env">List environment variables on Mac/Linux</a></
p>
<p><a href="Shell://set">List environment variables on Windows</a></p>
```

Run a Lua/Python command:

```
<p><a href="Execute://Print([=[Hello World]=])">Print "Hello World" in
the Fusion Console</a></p>
```

Run a Fusion action:

```
<p><a href="DoAction://App_CustomizeHotkeys">Run the Customize Hotkeys
Action</a></p>
```

Lock the comp to suppress file dialogs:

```
<p><a href="Lock://">Lock the Comp</a></p>
```

Unlock the comp to show file dialogs:

```
<p><a href="Unlock://">Unlock the Comp</a></p>
```

Undo the last action:

```
<p><a href="Undo://">Undo</a></p>
```

Redo the last action:

```
<p><a href="Redo://">Redo</a></p>
```

Show a preference window:

```
<p><a href="ShowPrefs://PrefsScript">Show the scripting preference
window</a></p>
```

Import an ABC file:

```
<p><a href="AbcImport://">Import ABC Mesh</a></p>
```

Import an FBX/OBJ file:

```
<p><a href="FBXImport://">Import FBX/OBJ Mesh</a></p>
```

Import an SVG Vector file:

```
<p><a href="SVGImport://">Import SVG Vector</a></p>
```

Import a Shape file:

```
<p><a href="ShapeImport://">Import Shape</a></p>
```

Toggle the display of the Bins window:

```
<p><a href="Bins://">Toggle Bin Window</a></p>
```

Toggle the display of the Render Manager window:

```
<p><a href="RenderManager://">Toggle Render Manager Window</a></p>
```