Fig. 3

Silhouette 5 What's New

ABOUT THIS GUIDE

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About Us

SilhouetteFX brings together the unbeatable combination of superior software designers and visual effects veterans. Add an Academy Award for Scientific and Technical Achievement, 3 Emmy Awards and experience in creating visual effects for hundreds of feature films, commercials and television shows and you have a recipe for success.

WHAT'S NEW IN 5.2.15

Bug Fixes

Right Eye Keyframe Display

Right eye paint keyframes did not show up as blue in the player.

Tablet and Quick Modes

Tablet support for Clone quick modes was not working.

WHAT'S NEW IN 5.2.13

Bug Fixes

Clone Source > Interactive Mode

Interactive Clone source mode with tablet was not working.

WHAT'S NEW IN 5.2

Features

Crop Node

The Crop node crops the image and session to a user defined size. This is especially useful when you only need to work within a smaller region of a larger image as it will use less memory and process faster.

Edit > Duplicate Action

Duplicates a selected object at the same level in the Object List as opposed to Copy/Paste which places the pasted object at the top of the Object List.

EXR 2.0 Multi-part Support

Silhouette now supports EXR 2.0 Multi-part files. When a multi-part file is loaded, all of the parts are loaded into the Project window.

Input/Output > EXR > Use Data Window as Display Window

The Input/Output > EXR > Use Data Window as Display Window preference overrides the default behavior of Silhouette automatically loading an EXR file's Display Window. Reloading the project or media is required for this preference to be enabled.

Frame Step and Point Trackers

The point trackers now obey the Viewer > Frame Step.

Nuke Export - Inner Blur Support

Inner Blur is now supported for shapes exported to Nuke.

Paint

Duplicate Strokes From One View To Another

Duplicates strokes from one view to another. If a layer with a stereo offset is selected prior to duplicating, the stereo offset is taken into account when duplicating the strokes.

Playback Selected Events Forward or Backward

Playback of paint strokes can now be performed forward or backward depending on whether you select the Play Selected Events Backward or Play Selected Events Forward (arrowhead) icons.

Rebuild In Paint Stroke Order

Rebuild now always rebuilds in paint stroke order, not in time order.

Render > Slap Comp > Invert

There is now an option to invert the Slap Comp in the Render Options.

Scripting

For more information on the scripting features, see the Silhouette scripting guide at: http://support.silhouettefx.com/mw/index.php?title=Scripting_Guide

Ability to Find a Node's Source

Added node.getInput(index=0) and node.getOutput(index=0) to allow you to track the primary source up the chain from a target node.

Extensions

Added an "import extensions" to the startup.py script and added a scripts/extensions directory to use for non-action extensions, such as the included rv flipbook extension.

getInput() Scripting Helper

A number of users have asked for a simple input box so the user can type something in as a parameter to a script.

Global Dictionary

Added fx.globals as a root-level dictionary to support a global place for scripts and UI elements to access shared values. This was added to facilitate startup scripts setting information that might be used by the UI, such as the name of an integrated flipbook.

Hook Improvements

Multiple hook functions can be registered and executed per hook.

Hooks - New

Added the following scripting hooks: "frameChanged" and "selectionChanged".

Keyframe Utilities

Previously, there wasn't an easy way to determine if a time was a key or to find surrounding keys. There are now new Key methods added to Property.

Pan and Zoom Keyboard Shortcuts

The Pan and Zoom keyboard shortcuts can now be reassigned.

Support Multiple Paths in SFX_SCRIPT_PATH

SFX_SCRIPT_PATH can now have a list of colon-separated paths (Mac+Linux) or semi-colon-separated (Windows).

Shape > Blur Type Preference

A Shape > Blur Type preference was added to set the default blur type: Center, Inner, Outer.

Tweak Software > RV Integration

When a path is entered in the RV > Command preference, a "Send to RV" option appears at the bottom right of the Render window. If that is enabled, after rendering, the rendered clip will be sent to the RV playback software--if installed.

Changes

Replaced Edit > Spline > Convert to Bézier

Replaced Edit > Spline > Convert to Bézier with new Edit > Convert to Bézier Action.

Scripting > New API for File I/O

The API for file I/O has been revised. If you have built a custom C++I/O module, you will need to rebuild it with the 5.2 SDK.

Bug Fixes

Blur of 16 bit Float Images Clipping Highlights

The blur was clipping highlights when using 16 bit float images.

Cache Generation - Windows

The cache generation was not working properly on Windows.

Cineon and DPX Alpha Rendering Bug

When rendering Cineon and DPX alpha channels, the alpha was not getting written out and the RGB, when enabled with alpha, was corrupted.

Clone > Filter > Blur & Sharpen in Float 16 Sessions

Clone > Blur & Sharpen were not working in Float 16 sessions.

First Frame of Paint Disappearing

The first frame of paint would disappear when switching back and forth from the Paint node to other nodes and then painting over one of the existing strokes.

gMask Module Old Version

An old version of the gMask module was mistakenly included in v5. The proper version is now included which fixed a bug with overlapping shapes.

Motion Blur and Transparency

When Motion Blur and transparency were used simultaneously, the resulting alpha did not look right.

No Way To Ignore RLM_LICENSE

If the RLM_LICENSE environment variable was set, Silhouette would still assume it was serving floating licenses, and would not fall back to looking for a local license.

Save As With An Existing Project

You can no longer Save As over an existing project as it was causing painted frames to be deleted.

Scripting > project.save(...) Broken

project.save() would not save properly unless the path was of the form "/path/to/<bundleName>.sfx/project.sfx. Now, it will automatically append the "project.sfx" if only a bundle name is provided.

S3D Warp Banding

Banding occurred with certain images when one of the S3D node's Warp types was selected.

Timeline Sash Could Be Made Too Large

It was possible to move the Timeline sash so far to the right that you couldn't get it back again without editing the Silhouette preferences.

WHAT'S NEW IN 5.1.2

Features

Installer - After Effects Creative Cloud

The Silhouette installer now automatically finds the After Effects Creative Cloud install location.

Nuke Exporter

The Nuke exporter now exports Silhouette's Shape > Max blend mode.

Scripting

Script Editor Line Numbers

Added line numbers to the script editor.

Hook For Quit Notification

A new "quit" hook is called when Silhouette is about to quit. If the hook returns false, Silhouette will not quit.

Property SetInterpolation() Missing

Added the ability to set interpolation via scripting.

Changes

Disable Premultiply

Premultiply was disabled for formats that do not support embedded alpha.

mocha Accuracy and Speed

mocha's accuracy and speed was improved.

Bug Fixes

Cache Generation Progress Bar (Mac Only)

The cache progress bar was not updating on Mac.

Dual-Clone Artifacts (Linux Only)

There were artifacts when using Dual Clone on Linux.

Edit Session in Floating Project Window Crash

If you edited a session in a floating Project window, Silhouette would crash.

mocha > Remove Flicker Crash

mocha would crash if you had Remove Flicker on.

Paint > Stereo Alignment

The brush cursor was not lining up on the same feature in the Left and Right Views after a stereo alignment.

Point Tracker > Behavior > Keyframes Crash

The Point Tracker > Behavior > Keyframes feature caused a crash.

Quicktime Load Problem (Mac Only)

Quicktime files with numbers in the name only loaded the first frame.

Right View Not Rendering in Paint Only Mode

The Right view of a stereo pair was not rendering in the Paint Only render mode.

Saving Project From Script Did Not Update Project Root

Using project.save() did not update the SFX_PROJECT_ROOT variable used by Paint. The variable is now updated in the setBundle() call.

Shape > Max Blend Mode

The Shape > Max blend mode had a bug where overlapping shapes with opacities below 100 didn't display the correct value in the overlapped area.

Shape > Multiply Blend Mode

If a shape with less than 100 percent opacity is set to Multiply blend mode, the shape's Alpha is drawn to the border of the bounding box, not to the shape itself.

Object List Renaming (Mac Only)

Using a tablet and double-tapping on a list item to rename was not working on Mac.

Timeline 1FPS Not Working

1FPS was not working in the Timeline.

Variable Vertex After Effects Shape Crashes on Export

When using the Silhouette Shape Import/Export plug-in in After Effects, exporting a variable vertex shape would crash After Effects. Instead of crashing, an error message is displayed instead since Silhouette does not support variable vertex shapes.

WHAT'S NEW IN 5.1.1

Features

Import/Export Environment Variables

Added the ability to override Track and Shape import/export paths independently by setting these new variables:

Import

SFX_TRACK_IMPORT_EXPORT_PATH
SFX_TRACK_IMPORT_PATH
SFX_TRACK_EXPORT_PATH

Export

SFX_SHAPE_IMPORT_EXPORT_PATH
SFX_SHAPE_IMPORT_PATH
SFX_SHAPE_EXPORT_PATH

For example, when importing track data, the import/export dialog will default to the first directory it finds in this set of paths:

- **SFX_TRACK_IMPORT_PATH**
- **SFX_TRACK_IMPORT_EXPORT_PATH**
- **SFX_IMPORT_PATH**
- **SFX_IMPORT_EXPORT_PATH**

<last-used-path>

Support SFX_LICENSE

Silhouette now supports SFX_LICENSE variable as well as "sfx_LICENSE". It now tries these variables in order:

- **sfx_LICENSE**
- **SFX_LICENSE**
- **SFX_LICENSE_SERVER**
- **RLM_LICENSE**

Changes

Extend Pixel Aspect Field Precision

There is now more precision in the pixel aspect field.

Bug Fixes

mocha Tracker > Drift Compensation (Linux)

A crash would occasionally occur when using mocha's Drift Compensation.

mocha Tracker > Track Forward One Frame Problem

If you continuously clicked the Track Forward One Frame button when using mocha, Silhouette would eventually crash.

Paint > Save As Problem

Paint path was not set properly after a Save As causing the paint history to not get copied over to the new project.

XML Doesn't Like Quotes in the Values

There was a bug in XML writer. It needed to escape quotes.

WHAT'S NEW IN 5.1

Features

Action > Color+Depth Side by Side

A Color+Depth Side by Side action was added to the Render group. It renders the color and depth channels next to each other in the same file and is useful for playback on autostereoscopic displays.

Blur Speed Ups

Blurs have been sped up by 30%.

Command-Line: -no_launcher

Added a -no_launcher command-line switch which prevents the launcher from appearing when Silhouette starts up without a project. Useful if there is an action/script with an alternative method of opening projects.

Display Layer > Stereo Offset Keyframes in Timebar

Layer > Stereo Offset keyframes are now displayed in the Timebar.

Feather Improvements

- **Right-clicking on a feather point opens a pop-up menu with Reset and Select All options. Reset sets the selected feather points' offset to 0.**
- **You can now select and edit multiple feather points at once, but only on one shape at a time.**
- **Dragging a point's offset adjusts the other selected points' offsets based on the relative change of the point being dragged.**
- **Pressing Delete deletes all selected points.**

mocha Drift Compensation

Enabled mocha's drift compensation feature to the mocha tracker.

New Shape / Layer Blend Modes

Inside

Places the object inside the alpha generated by the objects below it. Inside is most useful in the S3D node.

Max

Looks at the luminance information for each object and selects the value—whichever is brighter—as the result. Darker pixels are replaced while brighter pixels do not change.

Rotate from Center of Selection Bounding Box > Shape Preference

Controls whether the automatic anchor point is set to the center of the collective bounding box or to the opposite handle.

S3D

Feather

The Feather tool now affects the depth channel.

Layer/Node > Near Depth / Far Depth

Added Near Depth / Far Depth parameters to the Layer > Depth controls and to the Node controls.

Node > 3D Preview Controls

Added a 3D Preview group in the Node controls which contains Volume, Fix Point and Disparity warp parameters used to set the Viewer > 3D Preview.

Node > From Stereo Source Controls

Added Quality, Iterations and Color Correct parameters available when the Node > Depth Mode is set to From Stereo Source.

- **Quality offers two settings to compute the depth map: High and Normal.**
- **Iterations: Fine tunes the quality of the depth map. The higher the value, the better the quality.**
- **Color Correct matches the color between the left and right views to improve the depth map.**

Shape > Depth > Blend Mode

Added a Shape > Depth > Blend Mode menu.

Alpha/Shape > Depth Type > Linear

Size can now be adjusted on both axes.

Alpha/Shape > Depth Type > Radial

Added Aspect Ratio to the Radial gradient.

Alpha/Shape > Depth Type > Ramp

Added a Ramp option to the Alpha object and Shape > Depth Type menus which allows you to adjust three depth levels.

Shape > Depth > Wrap

Blurs the shape inward without completely losing the edge.

X/Y Tool Tips To Point Controls

Added X/Y tool tips to the point controls.

Changes

S3D Node

Depth Range Change

The depth range was changed from -1-1 to 0-1, where 0 is black and 1 white.

Min and Max Disparity Range Change

The Min and Max Disparity sliders range was changed from (-5, +10]) to (-10, +10). A tool tip was also added to explain the sliders.

Bug Fixes

Command-Line: Autosave With -nogui Did Not Work

Autosave with -nogui did not work. The error message wanted to print out using a GUI dialog.

EXR Right Side Not Rendering

If you rendered only the Right side of an EXR file, it produced the following error: Invalid data window in header.

Nuke Export Jittery

Nuke export of shapes that contained extreme transforms would jitter under certain circumstances.

Red Text Output In Console

If an exception was thrown in the Console, the Console text stayed red.

Shape > Blur Crash

Fixed a very rare case where the blur size matched exactly the window size, causing a crash on Mac.

Shape Points Get Larger When Stabilizing

Shape's points would get larger when stabilizing a scale transform.

S3D

Copied Shapes from Roto Node Caused Crashes

Shapes copied from the Roto node to the S3D node could cause crashes.

Gradient Center Point Keyframes Not Setting

There was a bug in interpreting the frame range which could prevent setting keyframes when moving gradient center points.

Depth Preview Affected By Main Viewer Settings

The Depth Preview window was being affected by the main Viewer settings.

Transform Controls Not Available When Viewing Depth

The transform controls were not available when viewing the depth channel.

Viewing Depth And Aspect Ratio

When working with a session that had an aspect ratio correction, the depth view would not update properly when switching nodes.

Warper Should Not Affect Alpha Channel

The S3D Warper, when activated, was affecting the alpha channel.

Viewer Not Refreshing After Some Preference Changes

The Viewer would not update after changing some of the Viewer preferences like Alpha color.

WHAT'S NEW IN 5.0

Major Features

mocha Pro Planar Tracker

SilhouetteFX has signed a licensing agreement with Imagineer Systems permitting the integration of the planar tracking technology from Imagineer's mocha Pro™ into Silhouette V5. Silhouette V5 will continue to offers it's own point and planar trackers in addition to the mocha tracker. With the inclusion of mocha's excellent planar tracker, Silhouette now provides artists a variety of different tracking technologies to complete the most demanding of shots.

Morph Node

Silhouette now includes a fully-featured shape based image warping and morphing system. The Silhouette Morph node provides the highest level of control and quality available.

Warps

Warping can be used to enhance or exaggerate image features or adjust sizing of image elements. Warping has also been used to create other image deformation techniques such as create talking animals or any other type of image deformation.

Morphs

Morphing is used more now than ever before as an invisible segue between live action and computer generated elements. The precision afforded by the Silhouette Morph node makes it especially useful for this purpose. The Morph node also provides a rich feature set for the creation of more obvious transitions between image elements.

Being integrated into the existing Silhouette user interface, all Silhouette artists will readily take to this new capability.

Paint

Auto Paint

Auto Paint is a unique automated paint feature that records all paint activity with tight integration of both Point and Planar Trackers. Paint strokes can be match moved or stabilized giving Silhouette the speed of raster paint with the repeatability of vector paint. The beauty of the system lies in the automatic recording of the paint strokes and brush settings. Individual paint strokes can be selected and repeated over many frames, as well as deleted. If the original footage changes, the entire paint history can be used to rebuild the painted shot automatically.

Roto Node

IK (Inverse Kinematics)

Inverse kinematics (IK) simplifies the process of rotoscoping jointed, segmented figures by making the motion of each part related to the motion of the linked parts. That way, you simply have to animate the starting and ending joints, and the ones in between will adjust themselves and create more natural looking movement. Silhouette implements IK within it's existing infrastructure by using layers to model joints with one or more shapes in each layer to represent the pieces of the object. IK greatly simplify the rotoscoping of humans, animals and all manner of jointed creatures.

S3D Node

The S3D node is an add-on option to Silhouette. It contains a comprehensive 2D-3D conversion toolset for glasses-based (stereoscopic) and glasses-free (auto-stereoscopic) productions. The Silhouette S3D node combines cutting edge technology and algorithms from 3D Impact Media's RealityTools products with a powerful homegrown toolset all integrated into what is already an industry must-have for today's stereoscopic workflow.

Shape Gradients

Silhouette's industry leading rotoscoping and shape tools have expanded functionality in the S3D node. New shape parameters include depth and gradient control.

Depth Tools

Alongside the powerful rotoscoping tools, the S3D Node adds a number of depth tools that make quick work of common depth map tasks. The new time-saving tools include Constant, Horizon, Ramp, Hall, Tunnel and an Adaptive filter which refines the depth map created by other objects by adding edge detail to it.

Depth Preview

The Depth Preview window in the S3D node displays a 3D view of the depth map. It is very useful for visualizing the depth and placement of objects in 3D space. Clicking and dragging will move the image around in a perspective view.

Stereo Correction

The S3D node features the correction of exposition errors in stereo images that are caused by the misalignment of the camera pair during capturing. The following errors can be corrected: vertical offset, horizontal offset, zoom, keystone (rotation of vertical camera axis) and rotation. The correct setting of the correction parameters is done in a preview process. In order to make adjustments with high precision, a full resolution preview window can be activated.

Autostereoscopic Generation

The S3D node transforms stereoscopic content into autostereoscopic (glasses-free) 3D content. With corrected stereo images, two disparity maps are generated which are then used to generate multiple views. The disparity maps can also be controlled in the 3D Geometry Preview Window, which shows the distribution of the depth values in two different projections.

Features

Actions

Copy > Selection

Copies one or more selected shapes in a layer as well as the parent layer hierarchy and transforms. Put another way, this copies the parent layer and its shapes and then deletes all unselected shapes.

Create > Corner-Pin Layer

Creates a corner-pinned layer from four selected point trackers.

Edit > Propagate Blend Mode

Sets the blend mode of shapes to their parent layer's blend mode if it is not Add.

Anaglyph Modes

There are now four anaglyph viewing modes that you can choose from using the Viewer > Anaglyph Mode preference. This preference sets the default anaglyph mode when using the Anaglyph Preview in the Viewer.

Automatic Stereo Alignment

Stereo sources can be aligned instantly by pressing **Shift-Alt** and clicking on the image feature that you would like to align. **Shift-Alt** will function whether or not the Stereo Align view mode is enabled.

Note: A layer must be selected before **Shift-Alt** can be used.

Command-line > Override Threads

You can override the number of multi-processing threads Silhouette uses with the **-threads <n>** command line argument or the SFX_MAX_THREADS environment variable.

Comments and the Command-line Options File

Added #comment support to the -options file. You can now add lines that start with '#' to the options file, and they will be ignored.

Ctrl-W and Ctrl-E Shortcuts

Added **Ctrl-W** and **Ctrl-E** keyboard shortcuts that toggle rotate and scale modes without setting the anchor point.

Depth Channels

Silhouette now supports depth channels as a new input type which can be passed around, generated, displayed, and rendered. With the S3D node, depth channels can be generated and manipulated.

Disk Cache

Disk caching speeds up RAM image loading by pre-loading the frames into a local disk cache for quick playback. You can now cache the source clips used in the session to disk by selecting Session > Cache > Create Source Cache.

Environment Variables

EXR

Some facilities have EXR images that have a display window with the usual film frame size, but have a data window that is larger and contains additional overscaned material that may be used. We now have a way through environment variables to allow facilities with the above scenario to make use of and preserve the entire data window.

SFX_EXR_DATA_WINDOW

SFX_EXR_DATA_WINDOW can be set to four integers "xmin, ymin, xmax, and ymax" to set the data window in the output EXR header. The width and height specified must match the output image buffer size or else this window will be ignored.

SFX_EXR_DISPLAY_WINDOW

SFX_EXR_DISPLAY_WINDOW can be set to four integers "xmin, ymin, xmax, ymax" to set the display window in the output EXR header.

SFX_EXR_USE_DATA_WINDOW

When set, Silhouette uses the data window to determine the image dimensions. This will only work right if the entire sequence has the entire data window.

SFX_MASK_PATH

Some users didn't like having to copy all of the resources tree just to override some masks. So, the SFX_MASK_PATH environment variable was added.

EXR > Save Auto Data Window

The EXR Save Auto Data Window rendering option looks at the alpha channel and determines the data window from that. Then, it writes only the pixels in the data window to the file. For SXR files, it writes the combined data window between the two views.

Note: This option is not compatible with the SFX_EXR_USE_DATA_WINDOW environment variable.

Float 32 Sessions

Float sessions can now be either 16 bit or 32 bit. Float 16 will have slightly less precision than Float 32, but will take up much less memory. Float 32 takes up twice as much memory as Float 16. Depending on the graphics card, texture updates could also take twice as long in Float 32. On the other hand, some filtering operations could be faster in Float 32 than Float 16.

Layer Color

The color pot for layers has been enabled in the Object List so layers can be color coded.

Lock Project

Locks a project so that it can't be modified and displays LOCKED in the Title Bar.

Mouse Wheel Adjustments

Hover over a slider and use the mouse wheel to adjust it. Hold **Shift** for a 10 time larger change. Hold **Ctrl** for 10 time smaller change.

Multiple Object Lists

Multiple Objects Lists in conjunction with filtering can now be used to organize left or right stereo objects, A or B morph shapes or anything else for that matter. Click the Add Dock (+) icon at the bottom left of the Object List to create additional Object Lists. Each additional Object List dock is named with a number and is displayed as a tab below the Object List. With two Object Lists open, for instance, you can filter one on /l and the other on /r for stereo projects

or filter on /a in one and /b for morphing. If you then switch an object's view assignment from left to right or from A to B, it will cause it to jump between the two lists.

Nuke 6.2+ Shapes Export > Convert Opacity to Lifetime

There is a new Input/Output > Nuke 6.2+ Shapes > Convert Opacity to Lifetime preference which when checked, converts opacity keyframes in Silhouette to a Nuke lifetime. The lifetime is enabled ending at either the work range end or the first transition to zero Opacity. The start of the lifetime is either the work range start, if the starting value was 100% opacity, or the frame on which it went from zero to 100% opacity.

Object List Search

Objects can now be searched for by entering text in the Search field located at the bottom of the Object List. Once text is entered, only matching items are shown.

- **If you type /l or /r at the end of a query, it will filter only left or right stereo objects.**

- **If you type /a or /b at the end of a query, it will filter only A or B morph objects.**

Paint

Brush Size Shortcut

The bracket keys, [and], can now be used to change the brush size.

Clone > Blur and Sharpen

The Clone source can now be blurred and sharpened. These controls are located in the Clone > Filter tab.

Draw Straight Line

If you press **Alt**, click and then click in a different location, a straight line is drawn. This will work with any brush type. If you keep **Alt** depressed while clicking, you will create interconnected straight lines.

Presets

A Presets tab now contains 0,1, 2, 3, 4, 5, 6, 7, 8 and 9 buttons on the left side of the Paint window and allows you to save all of the brush parameters as a preset. To save a preset, click on one of the numbered presets and adjust the brush controls. You can also use the **Alt-0** through **Alt-09** keyboard shortcuts to quickly select one of the presets.

Undo

All paint state changes are now undoable.

Preferences

Render > Render Unpainted Frames Preference

By default, Silhouette only renders painted frames when using the Paint Only render option. There is a now a Render > Render Unpainted Frames preference, which when activated (the default), renders all frames in a sequence even if they are not painted on.

User Interface > Invert Mouse Wheel in Editors

Inverts the numerical direction when adjusting sliders with the mouse wheel.

Viewer > Auto-Show Overlay

If Overlay is turned off, Auto-Show Overlay automatically turns Overlay back on when clicking in the Viewer.

Project Structure

All of the project data is now stored in a project folder. This includes the project file, paint data, autosaves, backups, etc. Projects can now easily be archived and moved around. Upon creating a new project, you are now required to create a project name and save the project. When using File > Save As, all of the assets from the current project will be copied to the new location.

Reshape > Pop-up Menu > Reverse

Reverses the order of all shape control points on all keyframes. Useful for warping and morphing, Reverse is used when you are trying to join two shapes where the control points go clockwise in one and counter-clockwise in the other. In this case, the correspondence points would iterate in different directions and

the lines would cross each other. Reversing the points of one of the shapes would make them go in the same direction and the correspondence would be correct.

Roto - Filled Shapes

Added a Color group in the Roto node controls that includes Enable and Opacity parameters to render color filled shapes to the RGB output. The Shape > Outline Color was renamed to just "Color" and this sets the color of the filled shape when the Roto node Color > Enable parameter is on.

Scripting

Access Logs via Scripting

Added a fx.getLog() function which returns a string containing the entire log since Silhouette started up.

Access Persistent Object Data

Added node.getState(key) and node.setState(key, value) to provide access to persistent object data so a script can store data with the project. Supported state types are: bool, int, double, string, list, and map.

Console

The console can be used as an interactive Python interpreter. You can type basic python expressions, including loops, import custom Python modules and call custom functions, etc. The **Tab** key displays a completion list of available methods/attributes.

Dedicated Script Editor

Added a dedicated editor for testing complex scripts. It is much better than using direct Console entry, since it allows a script to be edited and tested efficiently without having to type it in each time. Hidden by default, the Script Editor can be opened with View > Script Editor and is displayed at the bottom of the Project Window.

Node Selected

Added a simple "node_selected" script hook when a node is selected. This allows a user to create a Python function that is called when a node is selected. Please refer to the scripting guide for information on it's use.

Port Scripting

Ports to the nodes have been added so scripts can walk around the DAG.

- **node.inputs (input port map)**
- **node.outputs (output port map)**
- **port.node (the port's node)**
- **port.property (the node property the port is bound to)**
- **port.pipes (the pipe list)**
- **pipe.source (the source Port)**
- **pipe.target (the target Port)**

Python 2.7

Moved up to Python 2.7 on Linux and Windows. This will allow compatibility with PySide.

Set Edit Node Via Scripting

Added a fx.viewer.node attribute/method (read/write). This returns/takes an actual Node object, not a node type string as does the "viewNode" and "setViewNode" attribute/method do.

Query Keybinds

Added the fx.getBind(key) function. It will return either the function that is called when the key is bound to a function, or it will return the name of the widget it is bound to if bound using setControlBind(). Unfortunately, there is no way to query if a key is bound to a tool, since these can change from node to node.

Top Level Script Menus

A way to create top level script menus has been added. There is a new "root" attribute to the Action initializer. The default is "Actions", but users can create additional root menus.

Viewer Stream Control

fx.viewer.setStreamMask() was removed and replaced with some new attributes:

- **fx.viewer.streamMask (read-only) returns a mask of the available streams (StreamMask_Left, StreamMask_Right, StreamMask_Depth)**

- **fx.viewer.streamMode (read/write) - the current visible stream(s). Can be StreamMask_Left, StreamMask_Right, StreamMask_Depth, or a combination of the left/right bits.**

- **fx.viewer.setToolTip(toolName, shortcut) - can be used to set just the tool tip of a tool without binding the key to the control. Use this in combination with a normal bind that calls a Python function to do advanced scripting.**

Scripting Wiki

A scripting Wiki has been created for all things scripting. It can be accessed through the Help > Customization menu item. As time goes by, more information and examples will be added.

Source Node > Transform

Left/Right Transform controls have been added for general source transformations and more importantly to correct exposure errors in stereo images that are caused by the misalignment of the camera pair during capturing. The following errors can be corrected: horizontal/vertical position, horizontal/vertical scale, rotation and horizontal/vertical keystone (rotation of the camera axis). For stereo correction, setting the transform controls is done in a 3D preview process. In order to make adjustments with high precision, a full resolution 3D preview window can be activated.

Timebar

Allow any work range to be entered, even a start/end that goes beyond the available range of footage. This is useful when adjusting motion blur at the start or end of a shot.

Timeline

Highlight Selections Better

Selected items now use a blue background all the way across the timeline and selected keyframes are highlighted green.

Out of Bounds Indicator

The area before the first frame and after the last frame (the area between the actual session range and the work range, if extended) is shaded red in the timeline to show the usable, but out of bounds area.

Tracker

Point Tracker > Merge

If you have multiple trackers that cover different frame ranges, they can be merged into one tracker, automatically compensating for the different offsets. Ideally, the trackers should overlap in time by at least one keyframe.

Pre-Processing > Gamma

Added a Gamma parameter to the Tracker Pre-Processing group.

Planar Tracker

Create Point Tracker
Planar Tracker track points can be converted to point trackers which can then be treated like any other point tracker; they can be merged, smoothed, averaged, and applied to layers. Right-click on a planar track point, choose Create Point Tracker and a new point tracker is created.

Exclude Areas While Planar Tracking
In some cases, there are parts of an image that can interfere with the effectiveness of the Planar Trackers. To exclude an area while tracking, create a subtractive shape or layer above the layer to be tracked. Then, just select both the layer to be tracked as well as the subtractive object prior to tracking.

Improved Feature Selection
We improved the feature selection so the Planar Tracker generates a lot more features on shots that don't have a lot of contrast.

New Controls
The following Planar Tracker controls have been added:

- **Min Tracks**

The minimum number of trackers to generate.

- **Max Tracks**

The maximum number of trackers to generate.

- **Min Dist**

The minimum distance between trackers.

- **Max Age**

The maximum number of frames a specific tracker will live until it is removed and a new tracker is generated.

Note: If you have really good tracks, you can increase the Max Age to cover the entire sequence and the trackers will live for the entire time and will result in a smoother transform. However, this value has to remain low to handle automatic occlusion handling.

Offset Planar Tracking Using Layers

There are times when the object you are planar tracking becomes obscured, and in these instances, you can now animate the layer's transform controls to compensate for the obscured object.

Viewer Rotation

Images in the Viewer can now be rotated to display them in an optimal orientation for rotoscoping and painting. The Rotate icon turns on Viewer rotation mode and when enabled, the Adjust Rotation editing control (hand icon) lights up next to it. Adjust Rotation allows you to click and drag in the Viewer to set the angle.

- **Shift-Ctrl-R**: toggles the Viewer rotation mode on/off.
- **Shift-R**: toggles the Viewer rotation editing mode on/off.

Viewer > Update > Adaptive

An Adaptive Viewer update mode has been added which tries to process as fast possible by first processing a 4:1 proxy and then full resolution.

Changes

Color Management > Cineon/DPX Working Colorspace Preference

The Cineon/DPX Working Colorspace preference is now obeyed every frame instead of only checking once.

Icon Changes

Stereo View Icons

- **Left View**
- **Right View**
- **Left/Right View**
- **Stereo Split Mode**
- **Stereo Align**

Overlay
Aspect Ratio

LUT > Clear List

There is now an option in the LUT pop-up menu to clear the LUT list.

Motion Blur at Start/End Frame Editing

Previously, the motion of the first and last keyframes were extrapolated to create motion blur on those frames. This automatic extrapolation has been removed. Now instead, you can move start/end keyframes to position shapes where they will generate the proper motion blur. This is made possible by the Timebar allowing any work range to be entered, even a start/end that goes beyond the available range of footage.

OCIO > Display

The OCIO > Display button is now hidden if there is less than two options.

OpenColorIO Updated

OpenColorIO has been updated to 1.0.7.

Update OpenEXR to v1.7

The OpenEXR version used by Silhouette was updated to 1.7. In addition, SXRs now obey the dominant view.

Paint

Clone > Match Move

Paint > Clone > Match Move has been renamed to Source Match Move.

Clone Setups

Clone setups have been moved into a more powerful, general purpose Presets tab where all brushes can have presets. Two Clone presets will remain, however, for the purpose of dual cloning capabilities.

Dual Clone

Clone now has two Clone presets and an additional parameter to enable dual clone mode. 1 and 2 will switch the controls over to that bank of Clone parameters. Dual will enable painting in Dual Clone mode. **Shift-Alt-1** and **Shift-Alt-2** will allow switching between the two Clone presets.

Eraser Alpha Behavior

The Eraser used to paint into the alpha when opaque was on. The eraser no longer does this.

Layers

Layers are now available in Paint and are used to set a stereo offset between the left and right views as well as apply tracking data to paint strokes when performing Auto Paint playback.

Magnifier

The Viewer > Magnifier now works in Paint.

Profile Changes

There are now just Circle and Square brush profile options which can both be softened with the Softness slider.

Restore Renamed

Restore was renamed to Delete.

Stereo Offset

The Paint > Stereo Offset controls have been removed from the Paint settings since layers are now available in Paint and that is where Stereo Offset resides for other nodes. The benefit of this is that the Stereo Offset can now be keyframed in Paint.

Path-Point Tool Changes

In the Correspondence, Feather and Tracker tools, **Shift**-clicking a shape now adds it to the selection.

Render Options Changes

- **Save Pop-up has been changed to options with checkboxes.**

- **At the bottom of the Render Options window, there is now an area that previews what the name of the output files will look like.**

- **The default filename format string has been changed to: $(NAME)$(SUFFIX)$(VIEW)$(PREFIX)$(FRAME).$(EXT) where SUFFIX replaces ALPHA to fill in the appropriate suffix when saving external alpha, depth, or paint.**

Source Node > View

The Source Node > View parameter has been renamed to Stream.

Stereo Display Viewer Preferences Moved

The Viewer > Stereo First Field and Stereo View Mode preferences have been moved into the 3D Preview pop-up menu.

Stereo Viewer Renamed

The Stereo Viewer has been renamed to 3D Preview.

Tracker - 4 Point Track Application

When applying a four point track, the frame the tracking data is applied to is considered the reference frame. This was changed to be consistent with one and two point tracker application behavior.

Viewer > Zoom Pop-up Window

You can now enter a custom value in the Viewer > Zoom field. In addition, there are additional preset percentages: 300, 400, and 500.

Viewer Zooming - Mac

The following shortcuts have been enabled on the Mac version to zoom in and out in the Viewer: Scroll wheel, **Shift**-Middle-Mouse drag, and **Space Bar-Shift**-drag.

Known Issues

Paint > Auto-Paint Not Available in v4 Converted Projects

If you convert a v4 paint project to a v5 project, the Paint > Auto Paint controls will not be available. This is a result of the project conversion process.

S3D Node

The features provided by the S3D Node can be greatly accelerated when using the Preferences > GPU > Mode set to Auto or GPU. In certain cases, there are a few driver related issues:

NVIDIA Geforce GT 650m Mac Driver Problem

There is a driver problem with the NVIDIA Geforce GT 650m graphics card which may result in an error when creating an OpenCL context. If this happens, the machine must be rebooted. Currently, this only affects the latest MacBook Pro Retina 15". Apple confirmed the problem, so this might be fixed in the next driver update.

Sleep Mode Problems

On Mac systems with NVIDIA 320m and 330m graphics cards as well as Linux systems with NVIDIA GPUs, there is a problem when coming out of sleep mode that may lead to errors if the Preferences > GPU > Mode is set to Auto or GPU. If this happens, the application must be restarted.

Windows ATI GPUs - Half Resolution

There is a problem with AMD GPUs under Windows when using exactly half HD resolution (960x540) which will lead to visual artifacts. If this happens, the Preferences > GPU > Mode must be set to CPU.

Windows Watchdog Timer

On Windows, the graphics driver has a watchdog timer that kills any GPU programs that run for more than 5 seconds. Using adequate GPUs which are fast enough solves this problem. For more information on this issue, please visit: **http://msdn.microsoft.com/en-us/windows/hardware/gg487368.aspx**