



Silhouette 4.5 User Guide

ABOUT THIS GUIDE

This User Guide is a reference for Silhouette and is available as an Acrobat PDF file. You can read from start to finish or jump around as you please.

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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.

SILHOUETTE FEATURES

Roto

Silhouette allows you to quickly create sophisticated animated mattes using B-Spline, Bézier or X-Spline shapes. Intelligent design and easy-to-use tools, such as variable edge softness on a point by point basis and realistic motion blur, assist you in creating complicated shape animations. Integrated motion tracking makes the normally tedious task of rotoscoping a breeze.

Where did the term Rotoscope come from? A rotoscope was a mechanical device patented by Max Fleischer in 1917. It projected single frames of live action footage onto the animators drawing board. By simply tracing the projected shape, the animator could quickly produce incredibly lifelike drawings. With the passage of time, Rotoscoping or “Roto” for short has become a generic term for drawing shapes to extract, isolate or affect a portion of an image. It is tedious work, but it’s one of the most important parts of the visual effects process.

Roto Features

- **Unlimited number of animated B-spline, X-Spline or Bézier shapes**
- **Stereoscopic rotoscoping workflow and tools**
- **Integrated Motion Tracker that can apply motion data to points or shapes**
- **Planar tracker provides automatic, markerless motion analysis and tracking**
- **Support for open or closed shapes**
- **Move, scale, rotate, shear, and corner-pin shapes and groups of shapes**
- **Point-by-Point variable edge softness**
- **Realistic motion blur**
- **Animation changes for one point or selected points across all keyframes**
- **Independent shape viewing and hiding**
- **User-definable names, colors, blurs and blend modes for each shape**
- **Preview shape animation over image**
- **Shape import and export**

- **Composite preview and rendering**
- **Support for video fields and 3:2 Pulldown**

Paint

Paint is a high dynamic range 2D raster based paint system designed from the ground up to handle the demands of feature film and television production. Whether it's image restoration, dustbusting, wire and rig removal or just plain paint, Silhouette provides simple and sensible tools to get the job done.

Paint Features

- **Innovative non-destructive raster paint allows rotoscoping and keying changes without having to re-paint**
- **Paint on both stereo images simultaneously using an adjustable interocular offset**
- **Black and White, Blemish, Blur, Clone, Color, Color Correct, Drag, Eraser, Grain, Mosaic, Repair and Scatter brushes**
- **Stereoscopic paint workflow and tools**
- **Sophisticated cloning interface**
- **Motion track, position, scale, rotate and corner-pin Clone sources**
- **Onion-Skin, Split Screen and Align tools to match up elements**
- **High dynamic range painting in Float, 16 bit and 8 bit**

Effects

The Effects node allows you to apply the brushes available in the Paint node as filter effects to shapes or layers. Paint and shape features are tightly integrated to form an extremely powerful shape based effects tool. Not only can filters be animated, but they can be combined with animated shapes to take the drudgery out of everyday jobs.

Effects Features

- **Black and White, Blemish, Blur, Color, Color Correct, Grain, Mosaic, Scatter and Scratch filters**
- **Assign filters to shapes and layers**
- **Animateable filter parameters**

Keying

Using proprietary matte extraction techniques, Silhouette's Keyer and Power Matte modules are capable of extracting almost any object in an image quickly and simply even if you are dealing with fine hair detail, smoke, or reflections. They are easy to use, yet provide the needed tools when faced with good, bad, or ugly shots.

Keying Features

- Interactive image matting tool capable of extracting almost any object in an image
- DV/HD deartifacting
- Multiple matte creation
- Color suppression
- Sophisticated matte manipulation
- Generate mattes without blue or green screens

Architecture

- Node based workflow
- Stereoscopic viewing and editing
- Command-Line Rendering
- Scripting and Actions
- OpenColorIO Color Management
- OpenGL® accelerated animation engine
- Multi-processor support
- Proxy management for large image sizes

Compatibility

- File Formats: Cineon, DPX, IFF, JPEG, OpenEXR, PNG, SGI/RGB, QuickTime, TIFF and TARGA
- Export Autodesk®/Discreet® gMask, Elastic Reality®, Eyeon Fusion®, Nuke® and Shake® 4.x SSF shapes
- Import Commotion, Elastic Reality and Shake 4.x SSF shapes

- **Mask interchange with After Effects® using the Silhouette Shape Import/Export Plug-in**
- **Export After Effects, Autodesk/Discreet, Nuke and Shake 4.x trackers**
- **Import After Effects Corner-Pin, Nuke and Shake 4.x trackers**
- **Macintosh®, Windows®, Linux®**

INSTALLATION AND LICENSING

Windows / Macintosh Standalone

- 1 Download the Silhouette software at www.silhouettefx.com
- 2 Double-click on the Silhouette installer file that you downloaded to begin the installation process.

The default installation folder on Windows systems is C:\Program Files\SilhouetteFX\Silhouette4. On Macintosh systems, the default installation folder is /Applications/SilhouetteFX/Silhouette4.

- 3 Start Silhouette on Windows systems by selecting Programs > SilhouetteFX > Silhouette4 > Silhouette v4 in the Windows Start menu.

or

- 4 Start Silhouette on Macintosh systems by going to the /Applications/SilhouetteFX/Silhouette4 folder and double-clicking on Silhouette.

- 5 A dialog box pops up when you run Silhouette.

- 6 If you purchased the software, select Activate Silhouette and follow the instructions.

or

- 7 Select Request Trial Activation (Internet Required) and click Next to receive a fully functioning version of Silhouette for the specified trial period. At the end of the trial period, Silhouette reverts to a limited demo mode.

or

- 8 Select Run in Demo Mode and click Finish.

Note: In Demo Mode, a watermark is superimposed over the image and you will not be able to save projects or export shapes.

Linux Standalone

- 1 Download the Silhouette software at www.silhouettefx.com
- 2 Open a Terminal window and change to the directory where you downloaded the file.
- 3 Type `tar xvzf <name of file>`
- 4 Change to the new directory that is created.
- 5 To install the Silhouette software, become root and run the “install.py” script by typing: `./install.py`

Note: A Python installation is required to run the script.

The default installation folder on Linux systems is
`/opt/SilhouetteFX/silhouette4`.

- 6 Open a new Terminal window and type `silhouette` to start the application.
- 7 A dialog box pops up when you run Silhouette.
- 8 If you purchased the software, select **Activate Silhouette** and follow the instructions.
or
- 9 Select **Request Trial Activation (Internet Required)** and click **Next** to receive a fully functioning version of Silhouette for the specified trial period. At the end of the trial period, Silhouette reverts to a limited demo mode.
or
- 10 Select **Run in Demo Mode** and click **Finish**.

Note: In Demo Mode, a watermark is superimposed over the image and you will not be able to save projects or export shapes.

Linux Modifier Key Configuration

When using the KDE or GNOME desktops, by default there is a Move Window modifier key combination set up, so that if you **Alt**-drag a window, it will move. This interferes with our **Alt**-drag capability in some tools, so you will want to disable this desktop feature.

KDE Desktop

- 1 Run the KDE Control Center.
- 2 Go to the Desktop/Window Behavior panel and select the “Actions” tab.
- 3 Down in the Inner Window, Titlebar & Frame area, change the “Modifier Key option from Alt to Meta.

GNOME Desktop

- 1 Run the Control Center in Preferences.
- 2 Select Windows.
- 3 Select Super (or “windows logo”).

Linux Tablet Configuration

We require that proper tablet support is enabled in the X server. This part is left up to the user, as it is very distribution and version specific. This site can be used for more information: <http://linuxwacom.sourceforge.net/index.php/all>

Activation

Internet Activate (Recommended)

Activates Silhouette over the Internet.

Request License from Self-Service Website

If you do not have an Internet Connection on the computer where you want to run Silhouette, use this option. The self-service website will generate a license file which you can then transfer to the desired computer.

Install a License File

Loads a license file obtained from the self-service website or received by email.

Note: If you experience an error when using Internet Activate, it is because you or your company uses a proxy server to access the Internet and/or your firewall is blocking our program's access to the Internet. For proxy server users, select Advanced Options and enter the appropriate proxy server settings. For firewall users, open your firewall software and allow our software to access the Internet.

Deactivation

Once Silhouette has been activated, you can access the deactivate option by selecting the Help > License menu.

Internet Deactivate (Recommended)

Deactivates Silhouette over the Internet. Use this method to return your Product Code back to the activation server. You will then be able to use your Product Code to activate Silhouette on another computer.

Note: Internet Deactivate is only available if your computer was activated using Internet Activate. If the deactivate option is grayed out, please contact customer support.



License Transfer

Your Product Code allows you to run Silhouette on one computer at a time. However, you may transfer the license by deactivating on one computer and activating on another.

Internet Deactivate / Internet Activate is the preferred method of license transfer between computers, but is only available if you initially activated over the Internet and currently have Internet access. If you do not have Internet access, you will need to contact customer support to assist you in transferring the license.

To transfer a license:

- 1 Select License from the Help menu.**
- 2 Choose Internet Deactivate (Recommended) and click Next.**
Silhouette is now deactivated.
- 3 On the target computer, select Activate Silhouette and follow the instructions.**
Silhouette will then activate on the new computer.



Floating License Installation

Silhouette can utilize either nodelocked or floating licenses. Nodelocked licenses are locked to a particular machine in contrast to floating licenses which can be used on different machines. A floating license is checked out of a dedicated license server when Silhouette is started and checked back in to the server when Silhouette is closed.

In order to connect to your license server, you will need to know the port number and hostname or IP address. This information is entered into the Silhouette Activation window > Advanced Options > License Server field.

Note: Please contact your system administrator if you do not know the port number and hostname or IP address. Silhouette ships with a default port of 4313, but you would use a different port number if you have defined a custom port.

Floating License Installation

1 Start Silhouette.

A dialog box pops up.

2 Select Advanced Options and click Next.

3 In the License Server field, type your port@host information and press Finish. Examples of how to enter the port@host would be 4313@big-server or 4313@192.168.1.50.

Note: Silhouette now checks the SFX_LICENSE_SERVER environment variable before checking the state of the Advanced Options > License Server entry. If you have a large number of client machines that connect to a floating license server, you can now set the SFX_LICENSE_SERVER environment variable with the port@host as the value. Doing this will eliminate the need to enter the port@host in the Advanced Options window for each client machine.

TUTORIALS

Starting Silhouette

- 1 Start Silhouette on Windows systems by selecting Programs > SilhouetteFX > Silhouette4 > Silhouette v4 in the Windows Start menu.

or

- 2 Start Silhouette on Macintosh systems by going to the /Applications/SilhouetteFX/Silhouette4 folder and double-clicking on Silhouette.

or

- 3 Start Silhouette on Linux systems by opening a Terminal window and typing:
silhouette

Importing and Replacing Media

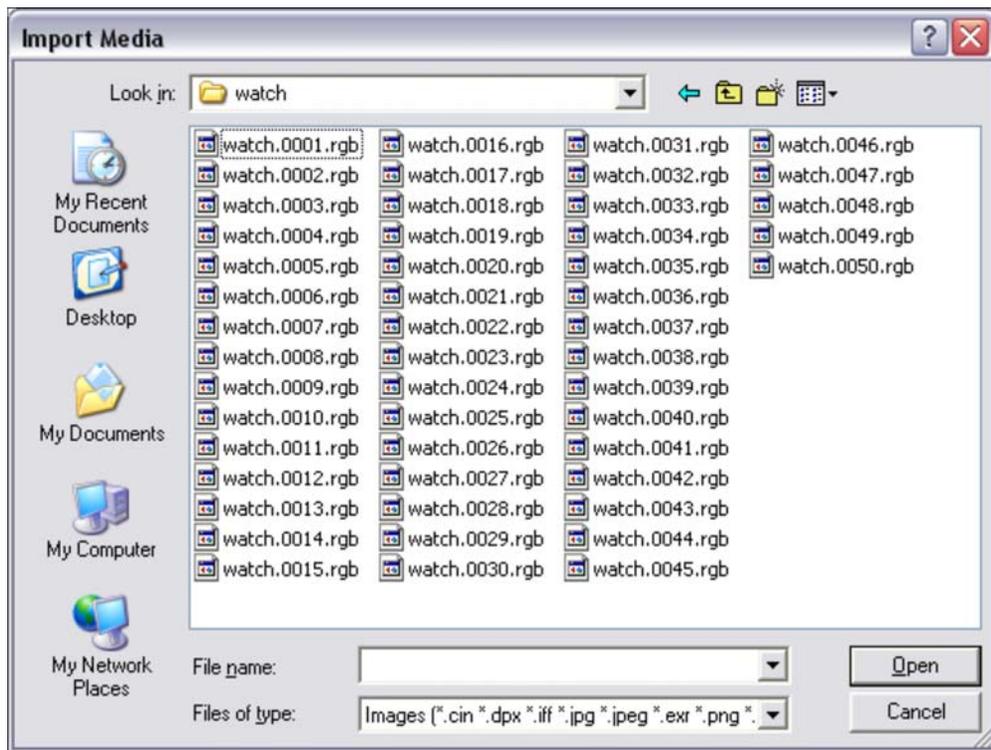
Before you can start using Silhouette, media or footage has to be imported.

Importing Media

- 1 Select File > Import > Media.

or

- 2 Double-click on an open space in the Project window.
- 3 When the File Browser opens, navigate to the location of your image sequence.



We currently support the following file formats: Cineon, DPX, IFF, JPEG, OpenEXR, PNG, SGI/RGB, QuickTime, TIFF and TARGA.

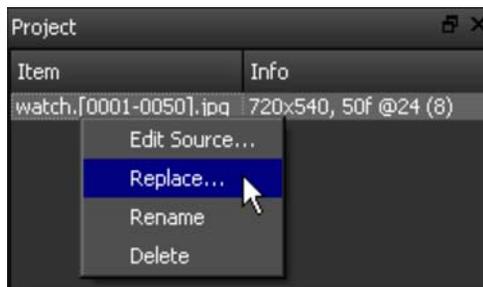
Note: QuickTime is only available on operating systems that support it.

- 4 Select the first frame in the sequence and click on Open.

The entire sequence is imported into Silhouette.

Replacing Media

- 1 In the Project window, right-click on a clip and choose Replace from the pop-up menu.



The File Browser opens.

- 2 Navigate to your clip, select it and hit the Open button.

The old clip is replaced with the new clip.

File Path Environment Variables

The Edit Source > Path and Result fields allow you to specify the file path with environment variables. You can replace parts of the Path field with a new path and/or environment variables, while the read-only Result field shows you the resulting path. If you don't know what an environment variable is, skip this section as fast as you can.

Ok, now for some examples. Say you have some common media on a file server and you want to share the media between various OS types.

- 1 On my Windows computer, I would import the following media located at:
C:\Media\footage\station\station.[0001-0032].tiff

To make my project cross-platform, I need to replace the C:\Media prefix with an environment variable which points to my "network media location".

- 2 To do this, I right-click on the media in the Project window and select Edit Source.
- 3 In the Path field, I replace "C:\Media" with "\$ (MY_MEDIA)", where MY_MEDIA is an environment variable I set using normal environment variable methods.

On my Windows computer, MY_MEDIA points to C:\Media.

- 4 When I hit the Tab key, the Result field will expand the path string and show you the result, and in this case, the resulting path is the same one I started with.

It scans that location for all 32 frames and finds them all, so it shows a green check. Now, let's say I screw up. It wouldn't be the first time.

5 I change \$(MY_MEDIA) to \$(YOUR_MEDIA), and YOUR_MEDIA isn't set as an environment variable.

The Result field will change to “/footage/station/station.[0001-0032].tiff” and a yellow warning icon is displayed, because that path doesn't exist and the frames can't be found. Now, say my administrator has set up a new environment variable for this project, and defined “STATION_MEDIA” to be “C:\Media\tracking\station”.

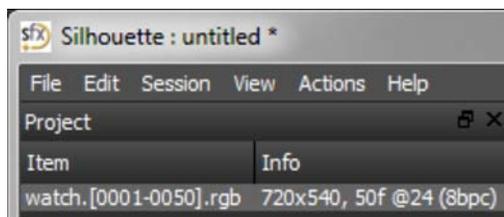
6 I type this into the Path field: \$(STATION_MEDIA)\station.[0001-00032].tiff which would expand in the Result field to the same as before.

You can essentially replace your source footage path with pretty much anything you want, using environment variables.

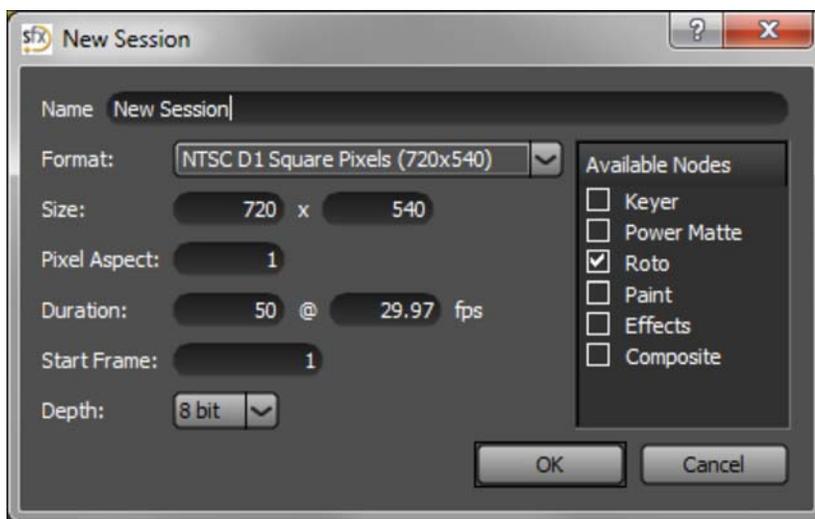
Creating Sessions

Once media is imported into Silhouette, a session has to be created. A session in Silhouette is where you do your work, whether it be rotoing shapes, creating mattes or painting images.

- 1 Highlight an image sequence in the Project window.

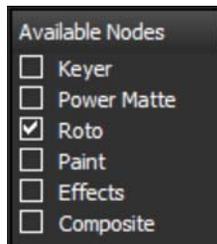


- 2 Choose File > New > Session or press Ctrl(Win)/Cmd(Mac)-N.



The image sequence settings are automatically imported into the Session settings.

- 3 **Activate the nodes that you would like to work with in your Silhouette session.**



Silhouette internally is a node based system and different nodes are used for various functions. Currently, you can choose from Keyer, Roto, Paint, Effects and Composite nodes. By default, the Roto node is selected. Activate whichever nodes you will be using in your session. You can always add additional nodes to a session after it has been created by selecting Session > Settings from the pull-down menu at the top of the screen.

- 4 **If you'd like, rename the session in the Name field and click OK.**

Editing Sessions

Once you have created a session, you can change its settings at any time by using one of the three methods listed below. You will most likely edit a session to add additional nodes or change duration.

- 1 **From the pull-down menu at the top of the screen, select Session > Settings.**

or

- 2 **Right-click on the name of the session in the Project window and choose Edit Session.**

or

- 3 **Press Ctrl(Win)/Cmd(Mac)-Shift-S.**

In either case, the Session window opens and you can change the settings. When the Edit Session window opens, make the desired changes.

- 4 **In the Available Nodes area of the Edit Session window, add a unselected node to the session, for instance a Paint node.**

Cineon/DPX Log Session Workflow

To ensure that Cineon/DPX images display correctly, use the workflow outlined below.

Note: Silhouette tries to figure out whether a DPX file is logarithmic or linear based on the file's header information. Sometimes the program used to create the DPX file writes the wrong information into the header causing Silhouette to think it is Logarithmic when it is Linear and vice versa. To explicitly set whether or not the file is Logarithmic or Linear, see [Edit Source > Interpretation](#) for more information.

Working in Linear Space

Our preferred Cineon/DPX Log workflow is to use linearized Cineon/DPX Log images in a Float session.

- 1 **Load a Cineon or DPX image sequence and create a Float session.**
- 2 **Use the default Color Management > Cineon/DPX Working Space preference setting of Linear.**

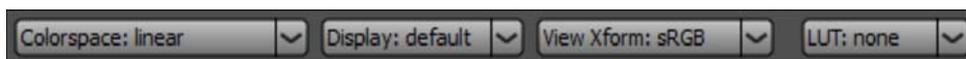
This converts log Cineon/DPX files to scene linear.

- 3 **Make sure that the Display Options icon is enabled in the Viewer.**



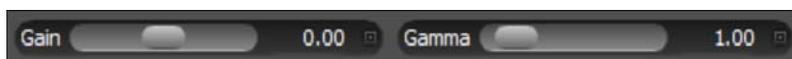
Silhouette automatically tries to determine the colorspace based on the data in the file and other information from the header. If a colorspace can't be detected, Linear will be selected.

- 4 **In the Color Management toolbar located below the Display Options icon, make sure that the Colorspace is Linear and the View Xform is sRGB.**



These settings will ensure that the linearized Cineon/DPX images will look correct in the Viewer. If you'd like, you can also adjust the Gain (exposure) and Gamma of the image.

- 5 **To adjust the brightness of the image in the Viewer, use the Viewer > Display > Gain and Gamma settings.**



Working in Log Space

If you would like to work with Cineon/DPX images in log space, you can bypass Silhouette's Cineon conversion. This allows you to work with the raw Cineon/DPX files without a conversion.

- 1 Load a Cineon or DPX image sequence and create a Float session.**
- 2 Set the Color Management > Cineon/DPX Working Space preference setting to Log.**

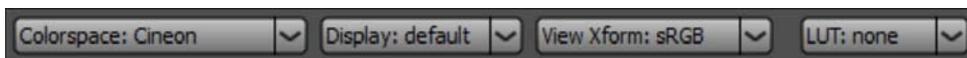
This keeps the Cineon/DPX files in log space.

- 3 Make sure that the Display Options icon is enabled in the Viewer.**



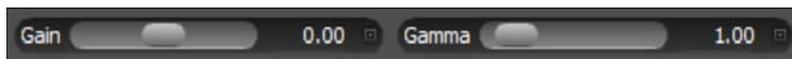
Silhouette automatically tries to determine the colorspace based on the data in the file and other information from the header. If a colorspace can't be detected, Linear will be selected.

- 4 In the Color Management toolbar located below the Display Options icon, make sure that the Colorspace is Cineon and the View Xform is sRGB.**



These settings will ensure that the log Cineon/DPX images will look correct in the Viewer. If you'd like, you can also adjust the Gain (exposure) and Gamma of the image.

- 5 To adjust the brightness of the image in the Viewer, use the Viewer > Display > Gain and Gamma settings.**

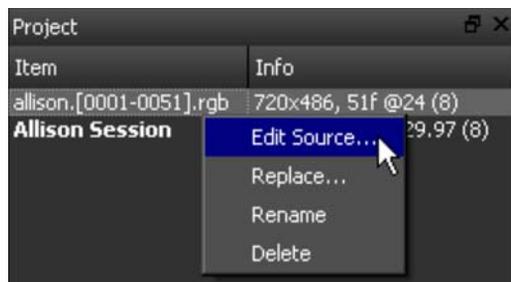


Video Fields and 3:2 Pulldown

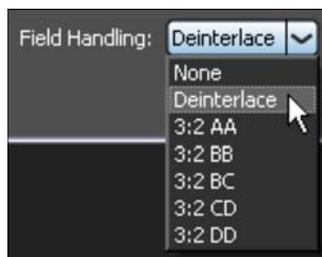
When working with footage that contains video fields, you have the option of either deinterlacing or removing 3:2 Pulldown.

Working with Video Fields

- 1 Import some video media that contains fields and create a session.
- 2 Right-click on the imported clip in the Project window and select Edit Source.



- 3 Select Deinterlace from the Field Handling pop-up menu.



- 4 Choose Even (NTSC) or Odd (PAL) deinterlacing from the Field Dominance pop-up menu.



- 5 Press the F button in the Timebar located at the bottom right of the Viewer to expand the Timeline and increment in half fields.



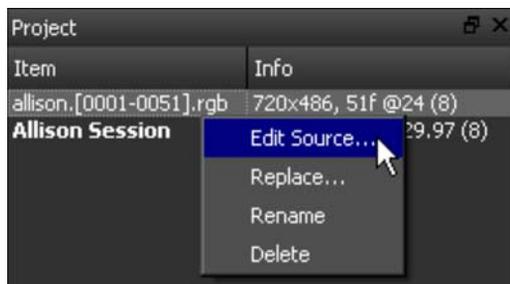
- 6 Roto, paint or key objects while in field mode.
- 7 When it is time to render, select Field Handling > Interlace and Field Dominance > Even (NTSC) or Odd (PAL) in the Render Options window.

Working with 3:2 Pullup / Pulldown

- 1 Import some 3:2 based media and create a session.
- 2 Step through the beginning of your clip and determine the first field blended frame using the 3:2 Pullup setting in the chart below.

| First frame with field blending | 3:2 Setting |
|---------------------------------|-------------|
| 1 | BC |
| 2 | BB |
| 3 | AA |
| 4 | DD |
| 5 | CD |

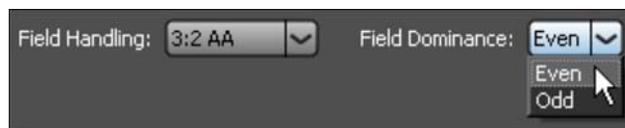
- 3 Right-click on the imported clip in the Project window and select Edit Source.



- 4 Select the appropriate 3:2 setting from the Field Handling pop-up menu.



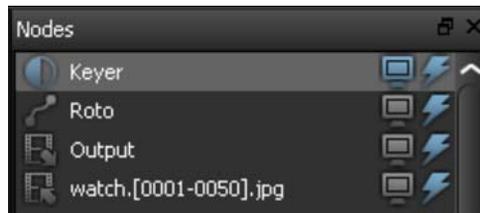
- 5 Choose Even (NTSC) or Odd (PAL) deinterlacing from the Field Dominance pop-up menu.



- 6 When you choose the 3:2 value, the length of your clip changes in the Project Window.
- 7 Change the Session > Settings to reflect the new clip length.
- 8 When it is time to render, select the desired Field Handling > 3:2 setting and Field Dominance > Even (NTSC) or Odd (PAL) in the Render Options window.

Using the Node List

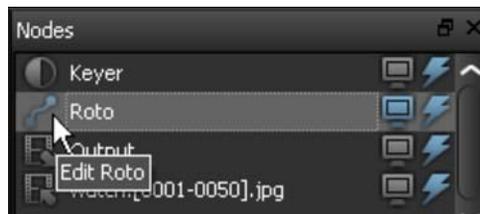
Silhouette internally is a node based system and different nodes are used for various functions. Currently, there are Keyer, Power Matte, Roto, Paint, Effects, Composite, Output and Source nodes. The Node List is used to select nodes for editing, viewing, enabling or disabling.



1 Create a session with Keyer and Roto nodes.

The Keyer node is selected by default since it is first in the order of processing.

2 Click on or near the Roto node's icon to make it the active node. You can tell which node is active by its highlighted state.



Once active, the Roto node's parameters appear in the Node window and the appropriate tools show up in the Toolbar.

The nodes that you see in the Node List are those that were previously selected when creating the session. You can always add additional nodes to a session after it has been created by selecting Session > Settings from the pull-down menu at the top of the screen.

3 Select the View icon for the Keyer.



The Viewer switches to show the output of the Keyer, but the tools and controls remain for the Roto node since it is the active node.

4 Reactivate the View icon for the Roto node.

You may want to selectively disable certain nodes to speed up your interaction. If you will be rotoing for an extended period of time and don't want the speed hit of the Keyer processing on every frame, you can disable it.

- 5 Click on the Enabled icon for the Keyer to disable it.**

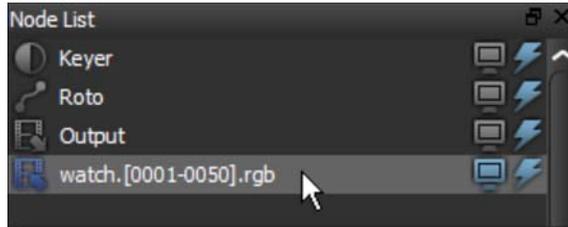


- 6 When you are ready to render, enable the Keyer.**

Shifting a Source Node in Time

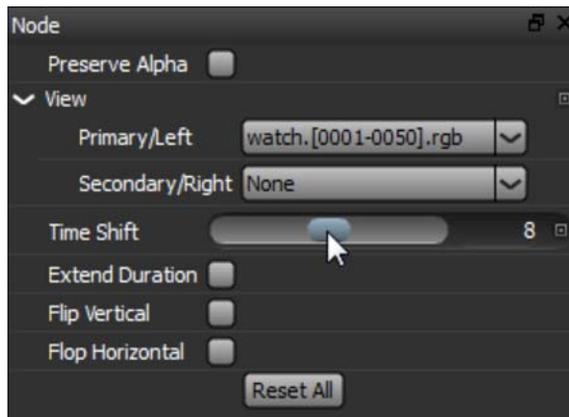
You can shift a Source node in time. This is useful for lining up frames that are numbered differently.

- 1 In the Node List window, select the Source node.



Once active, the Source node's parameters appear in the Node window.

- 2 Drag the Time Shift slider to the desired value or enter a number in the field on the right.



The start frame for the node is adjusted by the Time Shift value.

Viewer

Color Management

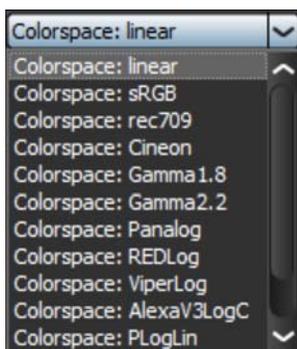
Silhouette uses the OpenColorIO standard originally developed by Sony Pictures Imageworks for its color management. You can load custom color configuration files and custom LUTs, apply colorspace conversions, as well as use other controls for fine tuning.

- 1 **Make sure that the Display Options icon is enabled in the Viewer.**



Silhouette automatically tries to determine the colorspace based on the data in the file and other information from the header.

- 2 **If not set correctly, change the input colorspace of the current scene using the Colorspace pop-up menu.**



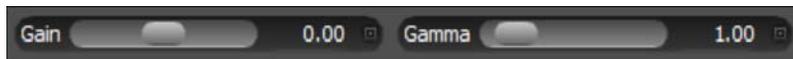
When using Cineon/DPX images with the Color Management > Cineon/DPX Working Space preference set to Linear, the input colorspace should be set to Linear. When the preference is set to Log, the Cineon colorspace should be used.

- 3 **If you are using a custom OCIO configuration, set the Display used to view the scene with the Display pop-up menu.**

- 4 Select the colorspace transform to apply to the scene from the View Xform pop-up menu.



- 5 To adjust the brightness of the image in the Viewer, use the Viewer > Display > Gain and Gamma settings.



You can select a custom OpenColorIO (.ocio) configuration file by choosing it in the Color Management > OCIO Configuration preference.

For more information on OpenColorIO, including the OCIO file format, please visit <http://opencolorio.org/>.

Using the RGBA buttons in the Viewer

- 1 Click on the Red, Green, Blue or Alpha buttons to solo that channel as a gray scale image.



- 2 Ctrl(Win)/Cmd(Mac)-click the Red, Green or Blue channels to toggle the display of each component.

If only one component is selected, it is displayed in gray scale. The horizontal white bar above the RGBA buttons quickly toggles the display of the image back to full color mode.

- 3 Select the horizontal white bar above the RGBA buttons to quickly toggle the display of the image back to full color mode.
- 4 Either press the Alpha button (to the right of the blue button) or the A key to cycle the state of the Alpha display.

Note: To view a shape's Alpha channel, you must first set the View to Output before pressing the Alpha button or A key.

Hitting the Alpha button or A key once superimposes the Alpha channel over the image. Pressing a second time displays the Alpha channel over black.

Hitting again shows only the color image.

Shift-A activates RGBA mode which does the following: Toggles the View to Output, superimposes the Alpha channel over the image and deactivates the Overlay. Pressing **Shift-A** again returns the Viewer to its previous state.

Viewer Navigation

Zooming

- 1 Select a value between 25% and 200% in the Zoom pop-up menu.



or

- 2 Use the scroll wheel on your mouse to zoom in and out of the image.

or

- 3 Press Space Bar-Shift and drag left or right.

or

- 4 Use the I key to zoom in and the O key to zoom out.

Zoom and Centering Presets

- 1 Press the F keyboard shortcut or select Fit from the zoom pop-up window to display the image as large as possible within the Viewer window.
- 2 Press the H keyboard shortcut or double-click the middle mouse button to set the image to a 100% zoom level and center it in the Viewer.
- 3 Press Ctrl(Win)/Cmd(Mac)-F to center the selection in the Viewer.

Optimizing Playback

There are number of ways to increase the amount of frames that can be played back in real time.

- 1 **Select File > Preferences on Windows and Linux or Silhouette > Preferences on Mac.**
- 2 **Increase the %Total Physical RAM parameter in the Cache preferences (requires a restart of Silhouette to take effect). Please note that setting the % Total Physical RAM too high could cause instability if running other memory intensive programs.**

and / or

- 3 **Change your View from Output to Foreground.**

and / or

- 4 **Shorten the length of the clip by adjusting the First and Last Frame in the Timebar.**

and / or

- 5 **Change the proxy setting to 2:1, 3:1 or 4:1.**



and / or

- 6 **If you are working with film resolution files in a Float session, change the session depth to 8 bits while you work, then switch back to Float for rendering.**

Note: When painting, do not use a proxy setting other than 1:1 and make sure that you remain at the Sessions original bit depth. Do not use steps 5 and 6 when painting.

Roto Tips

Rotoscoping or “Roto” for short has become a generic term for drawing shapes to extract, isolate or affect a portion of an image. It is tedious work, but it’s one of the most important parts of the visual effects process. Within the Roto node, there are all the tools needed to make quick work of any Roto job.

Creating usable shape animations can be a bit tricky with the most common problem being edge chatter. Here’s a few tips to help you on your way.

Analyze the Sequence

View your sequence to determine the frame that requires the greatest number of points to create the shape. It is easier to draw your shape on the most complex frame as opposed to starting on a simpler frame and adding points later.

Select a Spline Type

In Silhouette, you can create B-Splines (also known as natural splines), X-Splines, Bézier splines, Circles and Squares.

Create Shapes with Less Points

Use as many points as needed to create the shape, but avoid using more than is necessary. The fewer the points, the easier it is to successfully animate the shape. Unnecessary shape complexity inevitably leads to inconsistency when editing points.

Create Multiple Shapes

Create multiple shapes to Roto complex objects. Drawing separate shapes for the major parts of an object give you finer control over motion especially when separate objects intersect with each other.

Edit the Shape in Groups

Try not to individually move points in a shape unless absolutely necessary. Moving points in groups will maintain consistency and eliminate edge chatter.

Keyframe, Keyframe, Keyframe

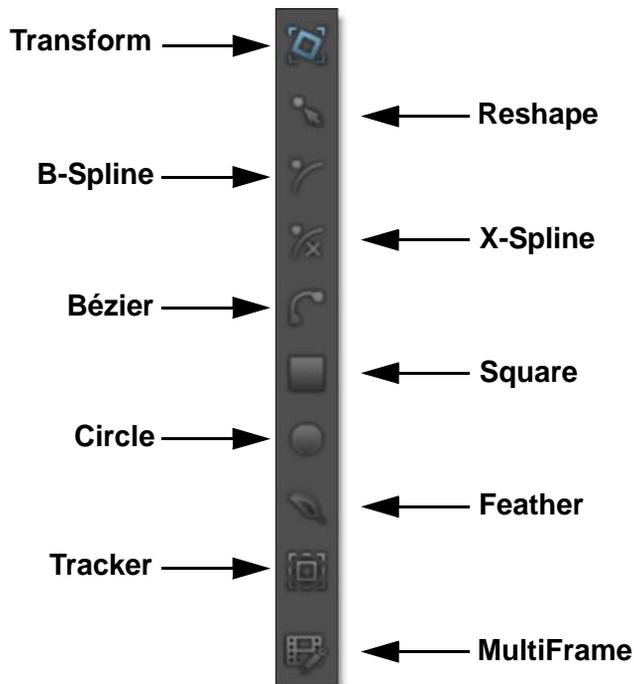
By editing your shape at various frames in the sequence, Silhouette animates the shape in between those keyframes. This saves you work. Make as few keyframes as possible, but as many as needed so the shape properly follows the object that you are rotoing. For instance, on a 80 frame clip, start by adding keyframes at 1, 20 and 40. If more animation is needed, add keyframes at 10 and 30. Get the idea? Creating too many keyframes will cause the shape to jitter or chatter.

Roto Quick Start

For the impatient among you, here's a Roto quick start. For all others, Roto features are covered in more detail after this exercise.

- 1 **Create a session that includes a Roto node and make sure that it is selected in the Node List.**

When the Roto node is selected, a number of different tools are selectable from the Toolbar to the left of the Viewer.



- 2 **View your sequence to determine the frame that requires the greatest number of points to create the shape. It is easier to draw your shape on the most complex frame as opposed to starting on a simpler frame and adding points later.**
- 3 **Select the B-Spline tool (B) from the Toolbar.**



- 4 **Click on the screen to create a control point.**

A control point is created.

- 5 **Add as many points as you like.**

- 6** When finished adding points, click the first control point that you added to close the shape.

Use as many points as needed to create the shape, but avoid using more than is necessary. The fewer the points, the easier it is to successfully animate the shape.

Now that you have a shape, you can use either the Reshape or Transform tool to perform editing functions.

- 7** Select the Reshape tool (R).



The Reshape tool modifies shapes by adjusting their control points and tangents.

- 8** To move points, select one or more control points and drag the point or points to a new location.
- 9** To add a new control point, Alt-click on a selected shape.
- 10** To delete control points, select them and press the Delete key.
- 11** Go to various frames in your sequence and edit the shape using the Reshape tool.

As the shape is edited on different frames, a keyframe marker is shown in the Timebar to provide a visual display of where there are shape keyframes. The color of the markers is determined by the shape color. If multiple selected shapes have a keyframe on the same frame, the most recently selected object's color has precedence.



Next, instead of modifying the shape's control points, try modifying the entire shape.

- 12** Click on the Transform tool (T) in the Toolbar.



The Transform tool affects an entire shape or a group of shapes

13 Select a shape and use one of the on-screen controls to modify it.

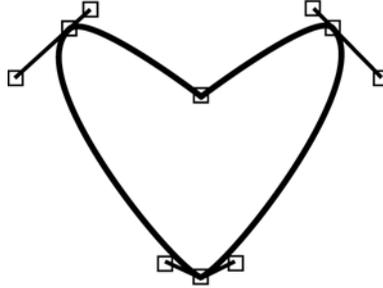
| Shortcut | Action |
|---|--|
| Drag within large center circle | Moves the layer |
| Shift -drag within large center circle | Constrain layer movement horizontally or vertically |
| Drag the center square horizontal and vertical halfway points | Scales the layer horizontally or vertically |
| Drag a center square corner | Proportionally scale the layer |
| Drag large center circle | Rotate the layer |
| Ctrl(Win)/Cmd(Mac) -drag large center circle | Rotates the layer with finer control |
| Drag small center circle | Moves the Anchor point |
| Q | Activates / Deactivates translation of selected layers |
| W | Activates / Deactivates rotation of selected layers |
| E | Activates / Deactivates scaling of selected layers |
| Q, W, E then Ctrl(Win)/Cmd(Mac) | Translates, Rotates or Scales in finer increments |

The **Q**, **W** and **E** keys allow you to quickly translate, rotate or scale selected shapes while using the Transform tool.

14 Press the **Q** key to activate translation mode, the **W** key for rotation mode or the **E** Key for Scale mode and click and drag to transform the selected shape. You must press the **Q**, **W** or **E** key, whichever one was selected, a second time to deactivate the mode.

Using the Bézier Tool

Bézier splines are defined by control points and tangents. The position of the two tangent handles control the amount of a point's curvature.



- 1 Select the Bézier tool (Shift-B) from the Toolbar.



- 2 Click on the image to place the first control point.

The starting control point is created and sets the direction of the shape's path.

- 3 To extend the control point's tangents, drag the cursor while keeping the mouse pressed.

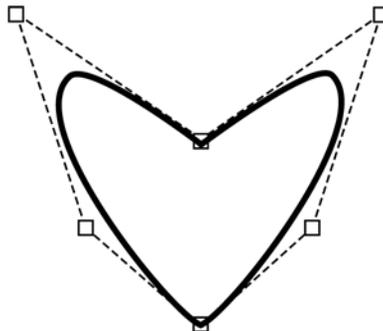
Although you can use the Reshape tool to later change a shape's look after drawing it, you can also use the same Reshape tool keyboard shortcuts to modify a shape while drawing it. See [Adjusting Bézier Curves](#) for more information on the various ways to change a control point's tangents.

- 4 Click on the screen to add more control points.
- 5 When finished adding points, click the first control point that you added to close the shape.

Use as many points as needed to create the shape, but avoid using more than is necessary. The fewer the points, the easier it is to successfully animate the shape.

Using the B-Spline Tool

In contrast to Béziers, B-Splines don't use tangents and are created by only using control points. The position of the points, their intensity settings as well as their proximity to each other determine the curvature of the shape.



- 1** Select the B-Spline tool (B) from the Toolbar.



- 2** Click on the screen to create a control point.

A control point is created.

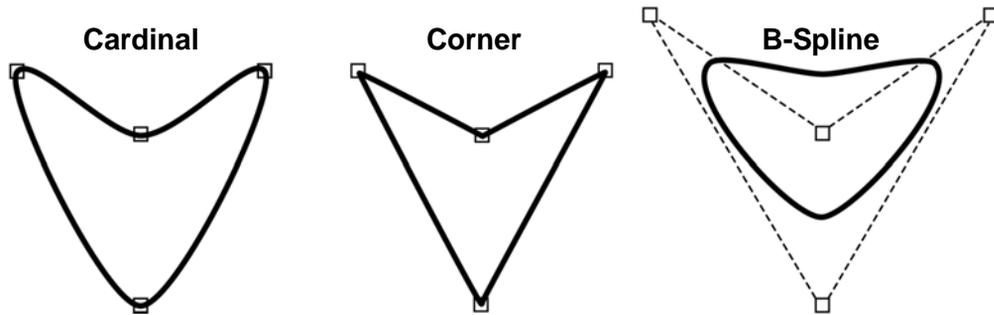
- 3** Add as many points as you like.

- 4** When finished adding points, click the first control point that you added to close the shape.

Use as many points as needed to create the shape, but avoid using more than is necessary. The fewer the points, the easier it is to successfully animate the shape.

Using the X-Spline Tool

A X-Spline is an intuitive and easily editable spline format whereby it's points can be of three different types: Cardinal, Corner or B-Spline.



- 1 Select the X-Spline tool (S) from the Toolbar.



- 2 Click on the screen to create a control point.

A control point is created.

- 3 Add as many points as you like.

- 4 When finished adding points, click the first control point that you added to close the shape.

Use as many points as needed to create the shape, but avoid using more than is necessary. The fewer the points, the easier it is to successfully animate the shape.

Using the Square Tool

- 1 Select the Square tool (Shift-S) from the Toolbar.



- 2 Do one of the following:
 - Click and drag in the shape of a square.
 - To create a perfect square, hold down the Shift key while clicking and dragging in the shape of a square.
- 3 When you release the mouse button, a square shape appears.

Using the Circle Tool

- 1 Select the Circle tool (Shift-C) from the Toolbar.



- 2 Do one of the following:
 - Click and drag in the shape of a circle.
 - To create a perfect circle, hold down the Shift key while clicking and dragging in the shape of a circle.
- 3 When you release the mouse button, a circular shape appears.

Working with Open Shapes

Open shapes are good for rotoscoping strands of hair or thin objects.

- 1 Select either the Bézier, B-Spline or X-Spline tool from the Toolbar.**
- 2 Click on the screen to create a control point.**

A control point is created.
- 3 Add as many points as you like.**
- 4 When finished adding points, press the Esc key or switch to a different tool to finish the shape.**
- 5 Select the open shape and in the Object window, adjust the Stroke Width to set it's thickness.**

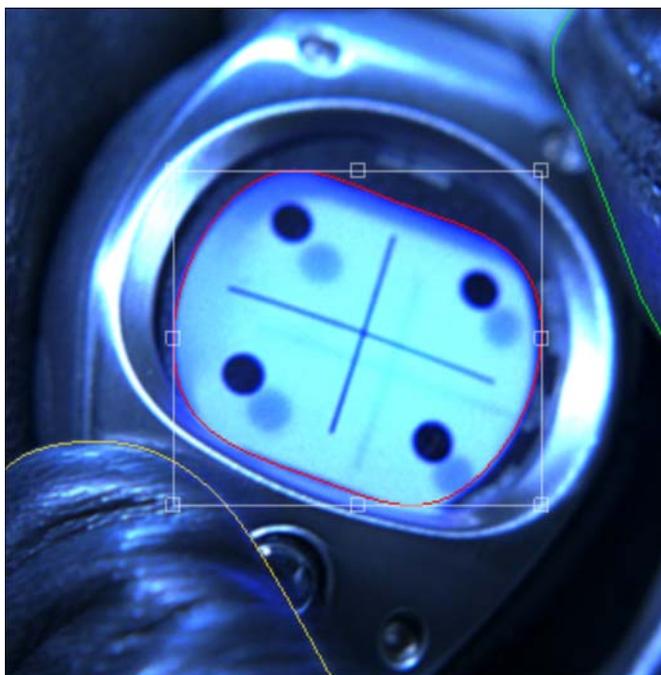
Note: Open shapes can not be exported.

Using the Transform Tool

Once you draw a shape, there are various ways to modify it. As the object that you are attempting to Roto changes over time, you will need to adjust the shape so that it exactly matches the object. The Transform tool affects an entire shape or a group of shapes.

Shape Mode

The Transform tool Shape Mode allows you to position, move, scale, rotate, shear or corner-pin a shape or selection of shapes using the on-screen controls.



- 1** Click on the Transform tool (T) in the Toolbar.

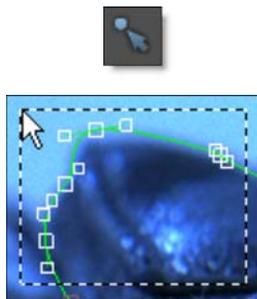


- 2** Select a shape.
- 3** Use one of the on-screen controls to modify the shape. See the following tutorials for more detail on using the On-screen controls.

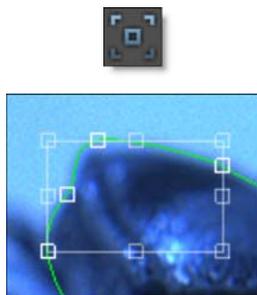
Points Mode

The Transform tool Points Mode allows you to position, move, scale, rotate, shear or corner-pin a selection of points using the on-screen controls.

- 1 Using the Reshape tool (R), select multiple points on the shape.



- 2 In the Toolbar, click on the Transform tool twice (TT).



A bounding box with on-screen controls appears around the selected points instead of around the entire shape.

- 3 Use one of the on-screen controls to modify the shape. See the following tutorials for more detail on using the On-screen controls.

Moving Shapes

Shapes can be moved horizontally or vertically.

Note: The remainder of the Transform tutorials assume that the Transform tool Shape Mode is enabled in the Toolbar.

- 1 Make sure that the Transform tool (T) Shape Mode is enabled.



- 2 Select a shape or series of shapes.

- 3 Drag on the outline of one of the shapes.



or

- 4 Press the Q key to activate translation mode and click and drag to move the shapes.
- 5 You must press the Q key a second time to deactivate translation mode.

To constrain movement along an axis:

- 1 Select a shape or series of shapes.
- 2 Press the Shift key while dragging the outline of a shape. The movement is constrained by the first direction (horizontal or vertical) that you drag in.

Nudging Shapes

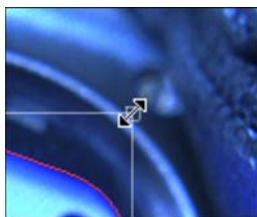
Shapes can be nudged horizontally or vertically using the **Arrow** keys. One press of the **Arrow** key moves the shapes 1 pixel. Using the **Shift** key in conjunction with the **Arrow** keys moves the shapes 10 pixels.

- 1 Select a shape or series of shapes.
- 2 Use the Arrow keys to nudge the shapes.

Scaling Shapes

Scaling changes the size of the shapes.

- 1 Select a shape or series of shapes.
- 2 Drag any of the points on the shape bounding box.



or

- 3 Press the **E** key to activate scaling mode and click and drag to scale.

Note: The position of the cursor when **E** is pressed sets the anchor point for the scaling.

To proportionately scale, hold down the **Shift** key when scaling.

- 4 You must press the **E** key a second time to deactivate scaling mode.

Rotating Shapes

Rotating changes the angle of the shapes.

- 1 Select a shape or series of shapes.
- 2 Ctrl(Win)/Cmd(Mac)-drag on a shape bounding box corner handle.



or

- 3 Press the **W** key to activate rotation mode and click and drag to rotate.

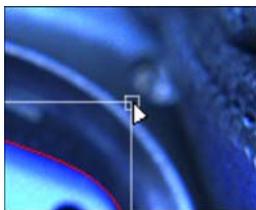
Note: The position of the cursor when **W** is pressed sets the anchor point for the rotation.

- 4 You must press the **W** key a second time to deactivate rotation mode.

Corner-Pinning Shapes

The corner points of a shape's bounding box can be corner-pinned. For instance, you could fit the corners of a shape into the corners of a billboard.

- 1 Select a shape.
- 2 Alt-drag the corners of the shape's bounding box.



Shearing Shapes

Shapes can be sheared resulting in the shape being skewed horizontally or vertically.

- 1 Select a shape.
- 2 **Ctrl(Win)/Cmd(Mac)-drag** on the midpoints of a shape bounding box on either the horizontal or vertical axis.



Anchor Point

A shape rotates around its center point, but scales from the opposite handle. Moving the anchor point changes the center of rotation and scaling when using the on-screen controls.

- 1 Press the **⋄** (period key).

The Anchor Point is displayed on the screen.



- 2 Click and drag the Anchor Point to the desired location.
- 3 Select your shape and then rotate or scale it.

Notice how the shape rotates and scales around the Anchor Point.

Note: If more than one shape is selected, they will both rotate and scale around the Anchor Point. Turning off the Anchor Point with the **⋄** (period key) will cause the shapes to revert to rotating and scaling around their center points.

Copying and Pasting Shapes

Shapes can be cut(**Ctrl(Win)/Cmd(Mac)-X**), copied(**Ctrl(Win)/Cmd(Mac)-C**) and pasted(**Ctrl(Win)/Cmd(Mac)-V**).

Deleting Shapes

A shape or selection of shapes can be easily deleted using none other than the **Delete** key.

- 1** Select a shape or set of shapes.
- 2** Hit the Delete key.

Using the Reshape Tool

The Reshape tool (R) modifies shapes by adjusting their control points and tangents.



Note: The following tutorials assume that the Reshape tool has been enabled in the Toolbar.

Adding Control Points

Adding control points assists in tracing more detailed images.

- 1 **Alt-click on a selected shape to add a new control point.**

Don't click on an existing control point because it will move it instead.

Deleting Control Points

- 1 **Select the control points and press the Delete key.**

or

- 2 **Right-click on a control point and select Delete from the Reshape pop-up menu.**

Moving Control Points

- 1 **Select one or more control points.**
- 2 **Drag the point or points to a new location.**

Nudging Points

Points can be nudged using the **Arrow** keys. One press of the **Arrow** key moves the points 1 pixel. Using the **Shift** key in conjunction with the **Arrow** keys moves the points 10 pixels.

- 1 **Select a point or series of points.**
- 2 **Use the Arrow keys to nudge the points.**

Numbering Points

All points or a selection of points can be numbered.

Numbering All Points

- 1 **Go to File > Preferences > Shape on Windows and Linux or Silhouette > Preferences > Shape on Mac.**

- 2 Set the Number Points preference to All.
- 3 Click OK.

Numbers are now displayed next to all points.

Number One Point or a Selection of Points

- 1 In the Reshape tool, select one or more points.
- 2 Right-click on one of the selected control points and select Tag.

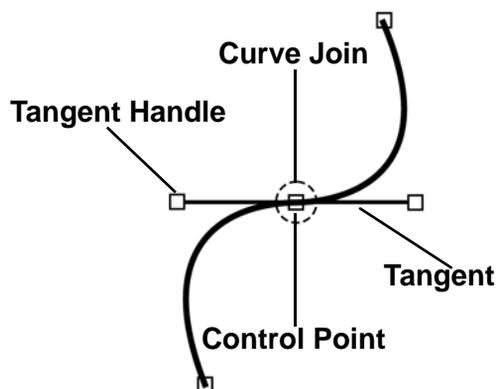
The points are now tagged for numbering.

- 3 Go to File > Preferences > Shape on Windows and Linux or Silhouette > Preferences > Shape on Mac.
- 4 Set the Number Points preference to Tagged.
- 5 Click OK.

Numbers are now only displayed next to tagged points.

Adjusting Bézier Curves

The length and direction of a control point's tangents direct the curve through that control point.



Control points have two tangents that can extend from it. The path of the curve through the control point is determined by the length and orientation of the tangents. When you drag one tangent's handle, the adjacent tangent moves as well.

- 1 Select a control point on a Bézier shape.

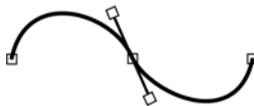
2 Click and drag a tangent handle.

This adjusts the length of one tangent while retaining a fixed angle between the two tangents.



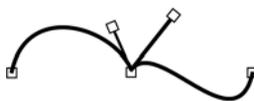
3 Ctrl(Win)/Cmd(Mac)-drag a tangent.

This adjusts both tangents simultaneously while retaining a fixed angle between the two tangents.



4 Alt-drag a tangent.

Only one tangent is moved which is useful for creating corners.



5 Right-click over a control point and select Linear, Corner or Cardinal.

Linear adjusts both tangents one quarter the distance and in the direction of their adjoining control points. Corner collapses both tangents to create a corner point. Cardinal creates a smooth point where the curve passes smoothly through it.

Extending Short Tangents

Sometimes a control point's tangents are so close together that trying to modify the tangent results in movement of the control point. If this is the case, you can force the tangents to move without affecting the control point.

1 Press the Alt key while dragging the tangent.

Only the tangent will move, leaving the control point unaffected.

Moving Curve Segments

Normally, you move control points to adjust the form of a shape, but you can also move the portion of the curve between control points.

1 Deselect all control points by clicking somewhere off the shape.

- 2 **Ctrl(Win)/Cmd(Mac)-drag a Bézier curve segment between control points.**



Once you start dragging, the **Ctrl(Win)/Cmd(Mac)** key can be released.

Note: The surrounding tangents remain smooth, but if you want to keep adjacent tangents from moving, hold down the **Alt** key while dragging.

Adjusting B-Splines

B-Splines are created by only using control points and are simple to adjust. The position of the points, their weight settings as well as their proximity to each other determine the curvature of the shape. The weight (amount of pull on a point) decides how sharp or smooth it is. Silhouette employs variable weight intensities on a point by point basis.

- 1 **Select a control point on a B-Spline shape.**
- 2 **Alt-drag the point to the right to create a corner point or Alt-drag to the left to create a smooth point.**

or

- 3 **Alt-click to cycle through the preset weight settings of the point.**

or

- 4 **Right-click over a control point and select Corner or B-Spline.**

Note: The **Alt**-click and pop-up menu preset weight settings for Corner and B-Spline can't be animated.

Adjusting X-Splines

X-Splines are created by using control points and then adjusting their weight to coincide with one of the point types: Cardinal, Polygon or B-Spline. The point type can even be somewhere in between one point type and another.

- 1 **Select a control point on a X-Spline shape.**

- 2 Alt-drag the point to the right. The tension of the point goes from Cardinal to Corner to B-Spline.**

or

- 3 Alt-click to cycle through the different point types.**

or

- 4 Right-click over a control point and select Corner, Cardinal or B-Spline.**

Converting B-Splines or X-Splines to Bézier Splines

You may convert your B-Splines or X-Splines to Bézier Splines at any time.

- 1 Select a B-Spline or X-Spline shape.**
- 2 Select Edit > Spline > Convert to Bézier.**

Once you select Convert to Bézier, a couple of things happen. The visibility of the B-Spline or X-Spline is toggled to off. A new Bézier Spline is created and is named the same as the B-Spline or X-Spline but has an * at the end of the name.

Note: The Bézier conversion of B-Splines that use extreme, variable weight adjustments will not exactly match the original B-Spline. Do not use extreme, variable weight adjustments if you are planning on converting the B-Spline to a Bézier.

Copying and Pasting Shapes

Selected shapes can be cut(**Ctrl(Win)/Cmd(Mac)-X**), copied(**Ctrl(Win)/Cmd(Mac)-C**) and pasted(**Ctrl(Win)/Cmd(Mac)-V**).

Breaking Shapes

In the Reshape tool, closed shapes can be opened using the Break option from the control point pop-up menu.

- 1 Select and right-click on a control point.**
- 2 Choose Break from the pop-up menu.**

The shape opens at the selected control point.

Note: Feather information will be removed once you break a shape.

Closing and Extending Shapes

Shapes can be closed or extended with just a few mouse clicks. It is necessary to use the Reshape tool to perform the following actions.

Closing Shapes

- 1 Select one of the control points at the end of the shape.
- 2 Alt-click on the other end point to close the shape.

Extending Shapes

- 1 Select a control point at either end of an open shape.
- 2 Alt-click somewhere off the shape.

Joining Open Shapes

In the Reshape tool, open shapes can be joined together.

- 1 Select two open shapes.
- 2 Select one of the end points of the source shape by clicking on it.
- 3 Alt-click on one of the end points of the target shape.

The two shapes are now joined together as one.

- 4 Repeat steps 2 and 3 for the two remaining end points to close the shape.

Note: The target shape inherits the attributes of the source shape.

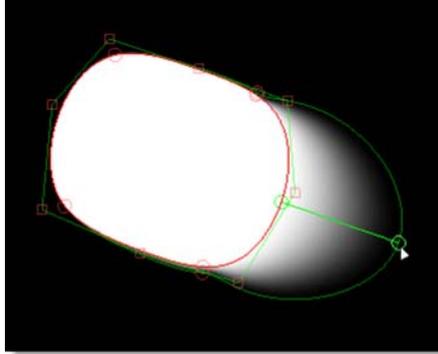
Using the Feather Tool

The Feather tool creates variable edged blurs on a point by point basis.

- 1 Select the Feather tool (Shift-F) from the Toolbar.



- 2 To create a feather point, Alt-click on a selected shape and drag.



- 3 To create a second feather point, Alt-click on the original curve and drag.
- 4 To edit the feather point, click and drag on one of the outer points.
- 5 To delete a feather point, select it and press the Delete key.

Using the MultiFrame Tool

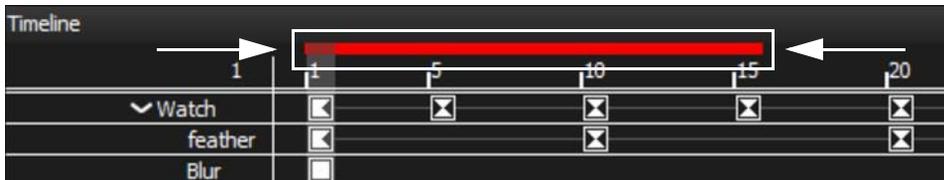
The MultiFrame tool modifies the Transform and Reshape tools to allow you to make adjustments across all previously set keyframes or a selection of keyframes.

- 1 Select the MultiFrame tool (M) in the Toolbar.



A red outline is drawn around the Viewer to let you know that the MultiFrame tool is active.

- 2 Drag the red ends of the MultiFrame range bar at the top of the Timeline to limit the keyframes affected by the MultiFrame tool.



- 3 Select either the Transform or Reshape tools, make a selection and modify the shape.

Only keyframes defined in the MultiFrame range are adjusted.

Rendering Shapes to Channels

Shapes can be assigned to different channels of an image when rendering.

- 1 Create four shapes.**
- 2 Select a shape and in the Object window, set the Channel parameter to Red.**
- 3 Assign the other three shapes as Green, Blue and Alpha.**

Now that you have assigned the shapes to different channels, you can visualize the results prior to rendering using View > Channels in conjunction with the **Alt-R**, **G**, **B** and **A** shortcut keys.

- 4 Choose View > Channels.**
- 5 Use the Alt-R, G, B and A shortcut keys to see which shapes are assigned to the various channels.**
- 6 When ready, render shapes into the assigned channels with the Actions > Render Shapes to Channels action.**
- 7 When the Render window opens, choose a file format that supports RGBA and set Save to Color+Alpha.**

Importing and Exporting Shapes

Exporting Shapes from Silhouette

Silhouette, Elastic Reality, Fusion, gMask (Combustion, Flint, Flame, Inferno), Nuke and Shake 4.x SSF shapes can all be exported.

Notes

- To export shapes for use in After Effects, use the Silhouette Shape format. The Silhouette Shape Import/Export Plug-in is then required to import Silhouette Shapes into After Effects.
- If you are exporting using Nuke 6.2+ Shapes, there is an Input/Output > Nuke 6.2+ Shapes preference that allows you to change the behavior of how the nodes are created in Nuke. You can choose from: Embed all shapes in one node, Embed each shape in its own node, Embed each layer in its own node, and Embed each layer in its own node fully baked. For more information, see the [Nuke 6.2+ Shapes preference](#).

1 Select the shapes that you want to export.

If you are exporting using the Silhouette Shapes format, you can also export layers.

Note: Open shapes can only be exported using the Silhouette shape format.

2 Choose File > Export and select the shape format that you would like to export to.

3 When the file browser opens, type a name and click OK to save the file.

A file is saved with the appropriate file extension.

After Effects Import and Export

Importing Silhouette Shapes into After Effects

The Silhouette Shape Import/Export Plug-in for After Effects is required to import Silhouette Shapes.

1 Start Adobe After Effects, open a project and select a layer in the Timeline.

2 From the After Effects File menu, select Import > Silhouette Shapes.

A file browser opens.

3 Select the shape file to import and click OK.

The Silhouette Shape Import/Export Plug-in will import the shapes and convert them to After Effects masks. When importing Silhouette Shapes, the following shape parameters transfer into After Effects: opacity, blur, shape color, shape name, invert and locked states, transfer mode and per-shape motion blur state.

Exporting After Effects Masks to Silhouette Shapes

The Silhouette Shape Import/Export Plug-in for After Effects is required to be able to convert After Effects masks to Silhouette Shapes.

1 Start Adobe After Effects, open a project and select a layer in the Timeline that contains After Effects masks.

2 From the After Effects File menu, choose Export > Silhouette Shapes.

A file browser opens.

3 Type a name and press OK to save the file.

All After Effects masks from the selected layer are exported and a file is saved with a .fxs file extension. When exporting After Effects masks, the following shape parameters transfer into Silhouette: opacity, blur, shape color, shape name, invert and locked states, transfer mode and per-shape motion blur state.

Importing Shapes

Importing Shapes into Silhouette

Silhouette, Commotion, Elastic Reality and Shake 4.x SSF shapes can all be imported into Silhouette.

1 Choose File > Import and select the shape format that you would like to import.

A file browser opens.

2 Select the shape file to import and click OK.

The shapes are added to the current session.

• Commotion Import Notes

When importing Commotion shapes, the following shape parameters transfer into Silhouette: shape visibility, shape locked state, shape motion blur on / off state. If the shape is invisible in Commotion, it will start out invisible in Silhouette, so it might not look like it was imported unless you have the Object List open.

- **Shake Import Notes**

Shake 4.x shapes are imported but attributes such as feathering, color and opacity are ignored.

Importing Shapes into Other Programs

Instructions for importing shapes into the programs that Silhouette supports can be found below.

Combustion

Import Shapes into Combustion

- 1** In a Mask operator, click on the Settings tab.
- 2** Under Mask Setups, click on Import and select the gMask file that you saved from Silhouette.

Elastic Reality

Import Shapes into Elastic Reality

- 1** With an Elastic Reality project open, select Shape >Import.
- 2** When the File Browser opens, choose the .ers file that you saved from Silhouette.

Flint / Flame / Inferno

Importing Shapes into Flint / Flame / Inferno

- 1** Open the Garbage Mask Setup menu.
- 2** Click Load Setup.
- 3** When the File Browser opens, select the gMask file that you saved from Silhouette.

Fusion

Importing Shapes into Eyeon Fusion

- 1** From a file browser window, drag the .setting file that you saved from Silhouette and drop it into a Fusion flow.

Nuke

There are two Nuke shape export options--Nuke Shapes and Nuke 6.2+ Shapes. Nuke 6.2+ Shapes exports substantially more shape attributes than Nuke Shapes. Of course, the Nuke 6.2+ Shapes option requires that you are using Nuke 6.2 and above.

Nuke 6.2+ Shapes

Nuke 6.2 and above will import the shape opacity, blend mode, invert, motion blur, outline color, shape blur (if outside) as well as the layer and node blur and motion blur. When exported, tracker data is kept separate from shape data.

Nuke Shapes

For Nuke 5.1v3 and above, Silhouette shapes and their blend modes are imported. Nuke will also import Hold and Linear key frames for Opacity. When exported, tracker and shape data are baked together.

Importing Shapes into Nuke

- 1 Select File > Open and choose the .nk file that you saved from Silhouette.**

Note: The imported shapes are set to render into the alpha channel only.

Shake 4.x

Shake 4.x will import the shape name, locked/unlocked state, opacity, visibility, motion blur on/off, shutter angle, and shutter phase. In addition, subtractive shapes import as black in the RGB channels with a white alpha channel.

Importing Shapes into Shake 4.x

- 1 Create a RotoShape node.**
- 2 Click on the Import Shape Data from File icon.**
- 3 When the File Browser opens, select the .ssf file that you saved from Silhouette.**
- 4 Drag the slider in the Timebar to see your shape.**

Using the Planar Tracker

The Planar tracker generates and tracks several points on the image while automatically handling partial occlusions of the tracked object.

Note: The Tracker tool is available in both the Roto and Effects nodes.

Planar Tracking

- 1 Go to the frame where you want to start tracking.
- 2 Set the View to Foreground for the fastest speed when tracking. In the Foreground view, no shape processing occurs and therefore it is faster than View > Output.
- 3 Create a layer in the Object List using the Add Layer icon.



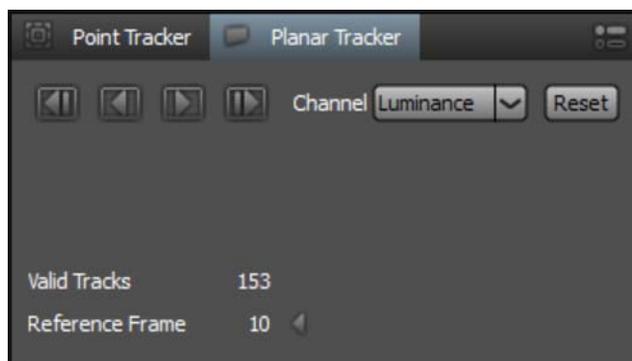
- 4 Inside of the new layer, create a shape around the object that you would like to track and make sure that there is some detail inside of the shape. It does not have to be exact and it is best to leave a little extra room around the object. In addition, you can use more than one shape as long as they are on the same geometric plane.

Note: When a layer is selected, the per-shape blend mode, invert state, on/off state and opacity are all obeyed. This allows you to use shapes to subtract out areas of unwanted motion that may interfere with tracking.

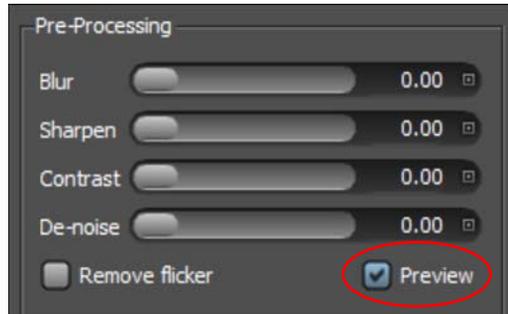
- 5 Choose the Tracker tool (Shift-T) in the Toolbar.



- 6 In the Tracker tab located at the bottom of the screen, select the Planar Tracker tab.



7 Enable Preview in Pre-Processing.



The image in the Viewer becomes black and white and displays the color space that you will track in.

8 Select the color space to track with in the Channel pop-up menu.

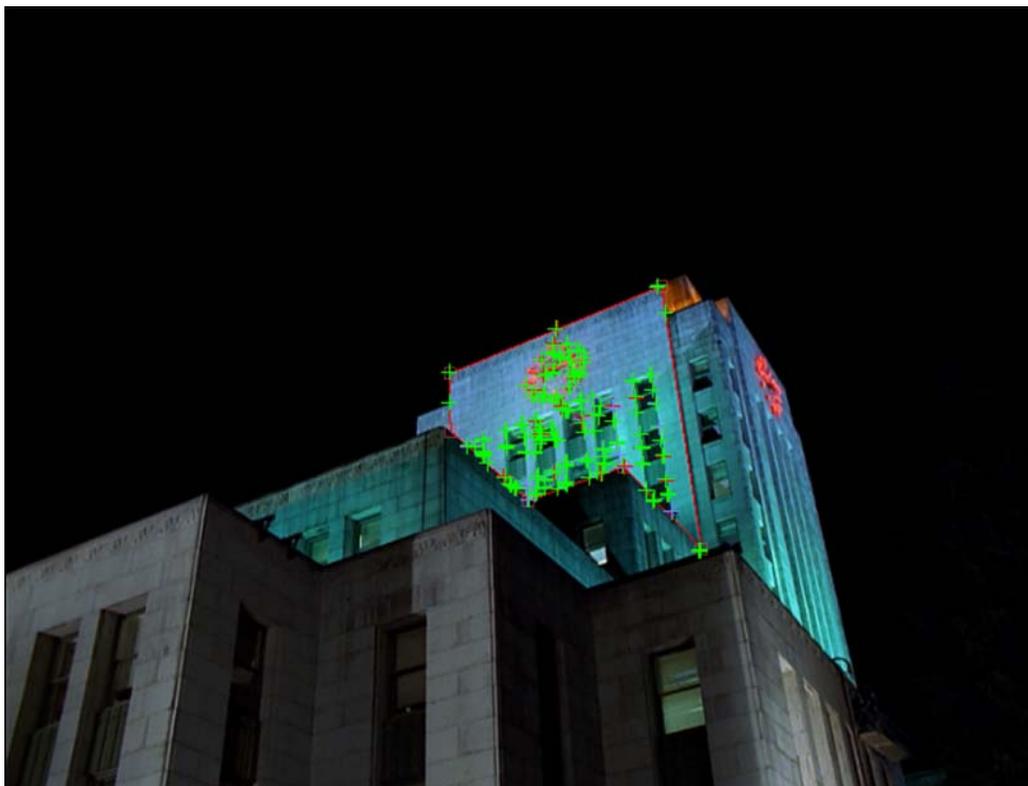


Pick the color space that displays the best contrast in the object you are tracking.

9 Disable Preview in Pre-Processing.

10 Make sure that the layer containing your shape is selected. Otherwise, the Tracker Direction controls will be grayed out.

- 11 Hit either the forward or backward track button.



- 12 When the tracking is done, that's it, you're done.
The tracking data is automatically applied to the selected layer.
- 13 After tracking, if you are not happy with the results, try the different techniques listed at [Planar Tracker Tips and Tricks](#).
- 14 If you want to use Stabilization, click the Stabilize icon above the Viewer to stabilize the image.
- 15 Make shape adjustments and keyframe it as necessary using the Reshape and Transform tools.
- 16 When shape editing is complete, click on the Stabilize icon (if it was activated) above the Viewer to turn off the stabilization.

Planar Tracker Tips and Tricks

If you have trouble tracking a shot using the Planar Tracker, here are some tips and tricks:

- **When creating a shape around the area you want to track, make sure that there is some detail inside of the shape. Also, leave a little extra room around the object you are trying to track.**
- **Change the Channel parameter from Luminance to Red, Green or Blue. The Channel parameter determines which image value the tracking algorithm uses.**
- **Use the Blur, Sharpen, Contrast, De-Noise or Remove Flicker pre-processing parameters.**
- **Stop the tracker if it fails and go back a few frames before it messed up. Reposition your shape and hit the tracking button again. You don't need to go back to your start frame.**
- **Depending on the motion of the object to be tracked, you may get better results if you track from the end to the beginning. You may also track from the middle to the beginning and then from the middle to the end.**
- **In the Layer you are tracking, create shapes to subtract out areas of unwanted motion that may interfere with tracking and select the layer prior to tracking.**
- **Set the View to Foreground for the fastest speed when tracking. In the Foreground view, no shape processing occurs and therefore it is faster than View Output.**
- **You can use shapes for tracking purposes only and once the track is completed, you can hide or delete them.**

Using the Point Tracker

The Point tracker uses trackers which are placed on distinguishable image features.

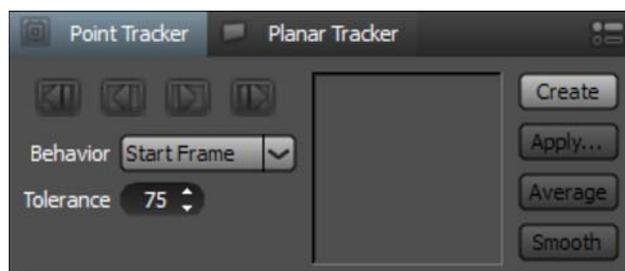
Creating a Tracker

- 1 Select the Tracker tool (Shift-T) in the Toolbar.



Note: The Tracker tool is available in both the Roto and Effects nodes

- 2 Go to the frame where you want to start tracking.
- 3 Set the View to Foreground for the fastest speed when tracking. In the Foreground view, no shape processing occurs and therefore it is faster than View > Output.
- 4 In the Tracker tab located at the bottom of the screen, select the Point Tracker tab.



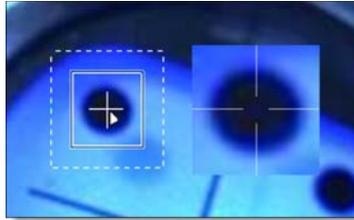
- 5 Press the Create button and a tracker is placed in the center of the image.



or

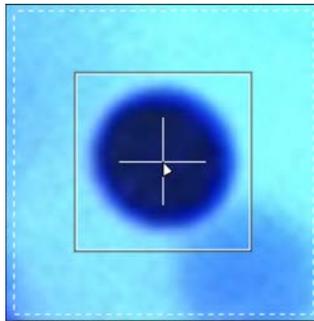
- 6 Alt-click on an open space in the image.

As you pass your cursor over the image with the **Alt** key depressed, a zoomed region to the right of the tracker aids in selecting your Match Area.

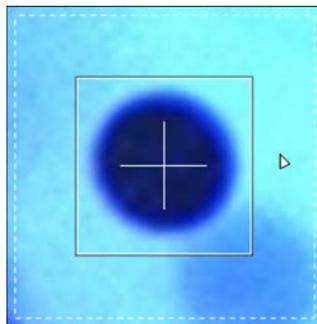


Moving Tracker Components

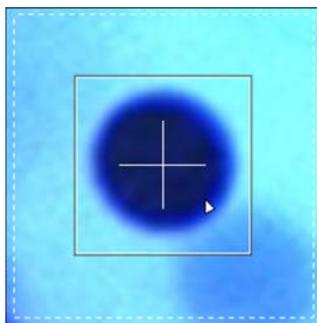
- 1 Clicking and dragging directly on the Track point will move all components of the Tracker: Match Area, Search Region and Track Point simultaneously.



- 2 Clicking and dragging somewhere in the area of the Search Region will move only the Search Region.



- 3 Clicking and dragging somewhere in the area of the Match Area will move both the Search Region and Match Area simultaneously, leaving the Track Point at its current location. This would be used for Offset Tracking when the original track point becomes obscured.



Scaling Tracker Components

- 1 Clicking and dragging on the corners of the Match Area bounding box scales both the Match Area and Search Region.
- 2 Clicking and dragging on the corners of the Search Region bounding box scales only the Search Region.

Tracking an Image

- 1 Adjust the size and position of the Match Area and Search Region.
- 2 Right-click on the tracker and select the color space to use in the Channel sub-menu.



- 3 Hit either the forward or backward track button.

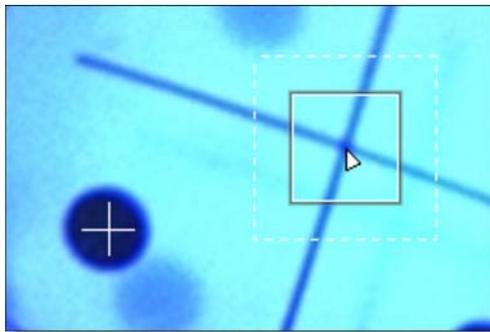


Silhouette will analyze the motion for each frame in the sequence.

Offset Tracking

There are times when your original Match Area gets obscured, and in these instances, you can offset the Match Area and Search Region from the Track Point.

- 1 Create a tracker and track a portion of the sequence until the Match Area becomes obscured.**
- 2 Hit the Stop button in the Tracker Progress window.**
- 3 Back up to the last properly tracked frame.**
- 4 Click and drag somewhere within the Match Area and both the Match Area and Search Region will move simultaneously, leaving the Track Point at its current location.**



- 5 Click the forward tracking button to continue tracking.**

The Track Point follows the same path, but the new Match Area is used to acquire the tracking data.

Tracking Difficult Shots

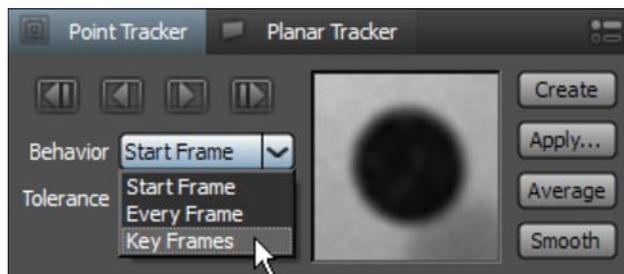
Some sequences are difficult to track because of erratic motion or the occlusion of the feature that you are attempting to track. In these cases, you can do a bit of hand tracking using one of two methods:

- **By pre-keyframing the tracker at various frames throughout the sequence.**
- **Keyframing a shape and then creating tracker keyframes based on the shape's motion.**

Keyframing the Tracker

- 1 Create a tracker.**

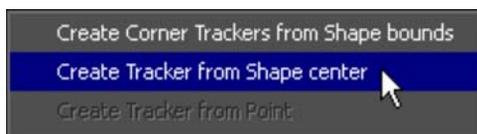
- 2 Adjust the tracker to match the object at various frames throughout the sequence.
- 3 In the Tracker tab, change the Behavior to Key Frames.



The Tracker Match Area will now use these keyframes as a reference while tracking.

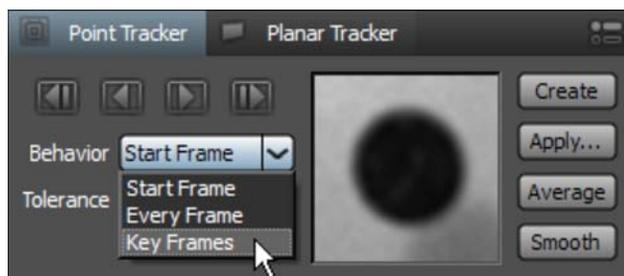
Create Tracker from Shape Center

- 1 Create a shape around the feature that you would like to track. Go to various frames throughout the sequence and adjust the shape to match the feature.
- 2 Select the Tracker tool and right-click on the shape.
- 3 From the pop-up menu, select Create Tracker from Shape Center.



A tracker is automatically created around the center point of the shape and any shape keyframes are automatically applied to the Tracker.

- 4 In the Tracker tab, change the Behavior to Key Frames.



The Tracker Match Area will now use these keyframes as a reference while tracking.

Modifying Tracking Data

Averaging Trackers

Averages multiple tracks into a new destination track. A common technique is to track forwards from the first frame to the last, and then create a second track, tracking backwards from the last frame to the first. These two trackers are then averaged together to derive a more accurate track.

- 1 Select more than one tracker.
- 2 In the Tracker tab, choose Average.



A new averaged tracker is created.

Smoothing Trackers

Smoothing trackers removes inaccuracies in the tracking data caused by film grain or video noise.

- 1 Select a tracker to smooth.
- 2 In the Tracker tab, choose Smooth and adjust the slider when it pops-up.



Applying Trackers

Match Moving and Stabilizing Layers

In general, tracking data should be applied to layers instead of individual shapes. The tracking data is placed into the transform of a selected layer (containing shapes) allowing you to have separate keyframes for both the layer transformation and for the shapes. This results in far fewer shape keyframes than other methods and is the preferred way of working with clips in motion. The result is a very flexible method for discrete editing of layer and shape transformations.

Once applied to a layer, the tracking data can be used in Match Move or Stabilize mode. In Match Move mode, the clip moves as normal and the shape follows along according to the tracking data. In Stabilize mode, the clip is locked in place by stabilizing the Viewer. In either mode, you only need to keyframe the shape when it changes form. After shape editing is complete in Stabilize mode, the Viewer can be returned to its normal state and the shapes will match the motion of their respective objects.

- 1 Create a layer in the Object List using the Add Layer icon.**



The new layer is active and you can tell by the check mark icon in the box to the right of the layer name in the Object List.

Note: Point tracking data is only applied to the active layer.

- 2 Select the trackers that you would like to use.**
- 3 Press the Apply button.**



You have a choice of applying position, scaling and/or rotation. However, scaling and rotation require two trackers.



4 Select Position, Rotation and/or Scaling and click OK.

The tracking data is applied to the Transform > Matrix parameter of the selected layer.

5 Create a shape inside of the selected layer.

If you look at various frames in the sequence, you'll see that the shape is match moved to the motion of the image.

6 If you want to use Stabilization, click the Stabilize icon above the Viewer to stabilize the image.



The Viewer is now stabilized.

7 Keyframe your shapes as necessary.

8 When shape editing is complete, click on the Stabilize icon (if it was activated) above the Viewer to turn off the stabilization.

The Viewer is returned to its normal state and the shapes match the motion of their respective objects. You can return to stabilization mode at any time by clicking the Stabilize icon.

Other layers can be match moved or stabilized using different trackers. Just go to the Tracker tab and apply the motion from different trackers to other layers.

Four Point Corner-Pin Tracking

Four-point tracking is traditionally used to match the perspective of a square or rectangular shape by tracking its four corners and applying a corner-pin transformation.

- 1 **Create four trackers on the corners of a square or rectangular object and track the motion.**
- 2 **Create a layer in the Object List using the Add Layer icon.**



The new layer is active and you can tell by the check mark icon in the box to the right of the layer name in the Object List.

Note: Point tracking data is only applied to the active layer.

- 3 **Select the four trackers.**
- 4 **Press the Apply button.**



The corner-pin data from the four trackers is applied to the layer.

- 5 **Create a square shape inside of the selected layer. When drawing the shape, it should be placed near the location of the four trackers.**

If you look at various frames in the sequence, you'll see that the shape's motion is matched to the motion of the image.

Match Moving Points

Match moving applies the motion of a tracker to individual points on a shape.

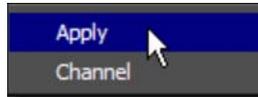
Note: Match moving individual points results in keyframes being set on every frame of the shape and can make it cumbersome to later edit those points. This functionality has been added to Silhouette as some users prefer to work with this way.

- 1 **Select a tracker.**

2 Click on a shape to select it and then select a point.

Note: To select points on a shape, you must first select the shape by clicking on the shape outline. Then, **Ctrl(Win)/Cmd(Mac)**-click each point that you would like to select. Also, when a tracker overlaps a point, it will be difficult to select the point while in the Tracker tool. To select a point that overlaps a tracker, switch to the Reshape tool, select the point and switch back to the Tracker tool.

3 Right-click over a selected point and choose Apply from the pop-up menu.



The tracking data is applied to the point.

Point Tracker Tips and Tricks

If you have trouble tracking a shot using the Point tracker, here are some tips:

- **Set the View to Foreground for the fastest speed when tracking. In the Foreground view, no shape processing occurs and therefore it is faster than View Output.**
- **Stop the tracker, go to the bad frame and reposition the Track Point, and hit the tracking button again. You don't need to go back to your start frame.**
- **Lower the Tolerance value, and track again from the beginning, or the frame before the bad frames. The lower the Tolerance, the more forgiving the tracker will be--but also less accurate.**
- **Start over and switch Behavior from Start Frame to Every Frame. This means that instead of trying to compare the tracking region with the first “pure” frame, it will try to match to the previous frame. If you re-track from the middle of a sequence, it will consider your new start frame as your reference frame with either setting.**
- **Use the Blur, Sharpen, Contrast, De-Noise or Remove Flicker pre-processing parameters.**
- **At any time, you can manually adjust the Track Point by simply grabbing it and putting it where you need to.**
- **Change the Channel parameter from RGB to Luminance, Red, Green or Blue and re-track. The Channel parameter determines which image value the tracking algorithm uses.**
- **A technique you can use to assist with difficult shots is to manually insert tracking keyframes. For example, if you have 100 frames to track, you can put in a keyframe every 5 or 10 frames by repositioning the Tracker. Once your keyframes are manually entered, return to frame 1 and set the Behavior to Key Frames. The tracker searches along the tracker's pre-existing motion path to find matching patterns.**
- **You can use the same technique as in the previous tip, but with the following differences. Create a shape around the feature that you would like to track. Go to various frames throughout the sequence and adjust the shape to match the feature. Select the Tracker tool and right-click on the shape. From the pop-up menu, select Create Tracker from Shape Center. A tracker is automatically created around the center point of the shape and any shape keyframes are automatically applied to the tracker. In the Tracker window, change the Behavior to Key Frames. The tracker Match Area will now use these keyframes as a reference while tracking.**

Importing and Exporting Tracking Data

Exporting Tracking Data

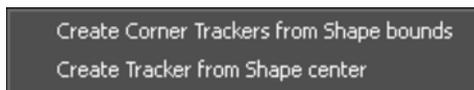
Trackers can be exported to the After Effects, Discreet, Nuke and Shake tracker formats. In addition, the tracking data applied to a layer, either by Point trackers or Planar tracking, can be exported as a four point corner-pin track.

Prepping Trackers for Export

In most cases, trackers are ready to be exported as is. However, trackers can be created based on a shape's points, the center point of a shape or the shape's bounding box using the Tracker on-screen pop-up menu. Trackers created in this manner are a concatenation of the shape and layer transformation data. So, why do this? Because, it is a handy way of creating trackers with all of this combined data for use in other programs.

Creating Trackers from Shapes

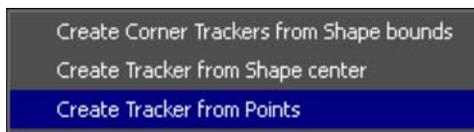
- 1 **With the Tracker tool (Shift-T) enabled, right-click over a shape to open the Tracker pop-up menu.**
- 2 **Choose either Create Corner Trackers from Shape Bounds or Create Tracker from Shape Center.**



The resulting trackers are a concatenation of the shape and layer transformation data.

Creating Trackers from Points

- 1 **Select the Tracker tool (Shift-T) in the Toolbar, right-click over a point and choose Create Tracker from Points.**



The resulting tracker is a concatenation of the shape and layer transformation data.

Exporting One to Two Trackers

- 1 Press the Tracker tool (Shift-T) in the Toolbar.
- 2 Select the trackers that you want to export.
- 3 Choose Export in the Tracker tab and select the tracker format.
- 4 When the window pops-up, type in a name and click Save.

Currently, you can export to the After Effects, Discreet, Nuke and Shake tracker formats.

Exporting Four Trackers for Corner-Pinning

- 1 Press the Tracker tool (Shift-T) in the Toolbar.
- 2 Using the Shift key, select the four trackers that you want to export in a Z pattern: Upper Left, Upper Right, Lower Left and Lower Right.
- 3 Choose Export in the Tracker tab and select the tracker format.
- 4 When the window pops-up, type in a name and click Save.

Exporting a Layer as a Four Point Corner-Pin

- 1 Select the layer that you want to export.
- 2 Press the Tracker tool (Shift-T) in the Toolbar, Choose Export in the Tracker tab and select the tracker format.
- 3 When the window pops-up, type in a name and click Save.

Note: When exporting a four point corner-pin track to Discreet products, it is better to use four trackers instead of the tracking information from a layer.

Importing Tracking Data

After Effects Corner-Pin, Nuke, Shake or Simple Format formatted trackers can be imported into Silhouette. If you would like to import trackers from non-supported applications, simply export a Silhouette tracker in Simple Format to see how it should be formatted.

Importing Trackers into Silhouette

- 1 Select the Tracker tool (Shift-T) in the Toolbar.
- 2 Choose Import in the Tracker tab.

- 3 Select the **After Effects Corner Pin, Nuke, Shake or Simple Format** tracker file that you would like to import and click **Open**.

Note: If you select multiple trackers in the import dialog, more than one tracker can be imported at a time.

Importing Silhouette Trackers into other Programs

After Effects

- 1 Double-click on the tracker text file that you exported from Silhouette.

The value of the Comp Pixel Aspect Ratio line at the top of the exported tracker file must match the Pixel Aspect Ratio in the After Effects Composition settings. Edit the exported tracker file as needed.

- 2 Press **Ctrl(Win)/Cmd(Mac)-A** to select all and **Ctrl(Win)/Cmd(Mac)-C** to copy.
- 3 In **After Effects**, select a layer in the **Timeline** and press **Ctrl(Win)/Cmd(Mac)-V** to paste the **Tracker Data**.

Note: If you exported a limited work range in Silhouette, go to the start frame of the work range in After Effects before pasting.

- 4 Open the **Window > Tracker controls**.
- 5 In the **Motion Source** pop-up, select the layer where you pasted the tracking data.
- 6 From the **Current Tracker** pop-up, select the Tracker that you just pasted. If you only have one tracker, this would be Tracker 1.
- 7 Change the **Track Type** from **Raw** to one of the available options.
- 8 Click **Edit Target** and choose the layer that you would like to apply the motion to.
- 9 Hit **Apply**.

Combustion

Importing One to Two Trackers into Combustion

- 1 Click on the **Tracker** tab.
- 2 In the **Source** pop-up, choose your layer.
- 3 Select the **Track type: Position, Scale or Rotate**.
- 4 Click on the **Import Data** button and pick **Discreet Tracker Setup**.
- 5 Load the tracker file that you saved from Silhouette.

Importing Four Trackers into Combustion

- 1 Create a **3D Workspace**.

- 2 Import two layers into your Composite workspace.
- 3 Click and select the layer that you want to corner-pin and make sure it is at the top of the stack.
- 4 In the Composite Controls > Layer Tab, activate Four Corner.
In your Viewport, the layer will have a point on each corner of the image.
- 5 Click and drag each corner point to the position where you want your layer placed after the trackers are imported.
- 6 Using the Shift key, select the four corner points.
The points turn yellow when they are selected.
- 7 Click on the Tracker tab.
- 8 In the Source pop-up, choose the layer the tracking data was derived from.
- 9 Select the Position Track type.
- 10 Click on the Import Data button and pick Discreet Tracker Setup.
- 11 Load the tracker file that you saved from Silhouette.

Note: When importing a four point corner-pin track in Combustion, it is better to use four trackers instead of the tracking information from a layer.

Flint / Flame / Inferno

- 1 Select the Stabilizer.
- 2 Click on the Imp button below the Track fields and select the tracker file that you saved from Silhouette.

Note: When importing a four point corner-pin track in Flint, Flame and Inferno, it is better to use four trackers instead of the tracking information from a layer.

Nuke

- 1 Choose File > Import Script and select the tracker file that you saved from Silhouette.

Shake

- 1 Add a Tracker, Match Move or Stabilize node.
- 2 In the Tracker node, click the Load button in the Parameter tab and select the tracker file that you saved from Silhouette.
- 3 For the Match Move and Stabilize nodes, right-click on one of the trackName's in the Parameter tab and choose Load Track File.
- 4 Select the tracker file that you saved from Silhouette.

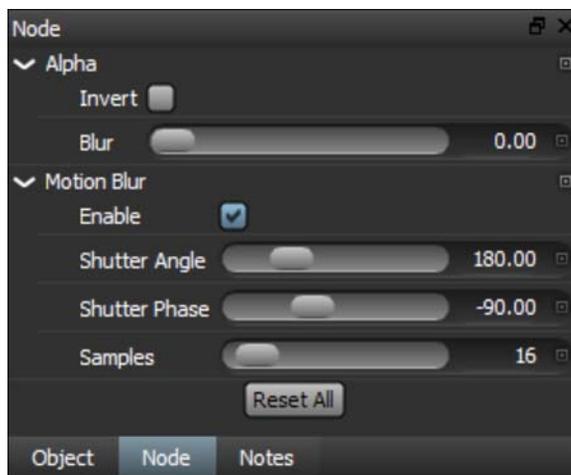
Using Motion Blur

Motion blur is the directional blurring of rapidly moving shapes. To use Motion Blur, it must be activated for each individual shape as well as in the Node window.

- 1 Select one or more shapes and enable Motion Blur in the Object window.
- 2 Click on the Node tab to display the Node parameters.



- 3 In the Node window, enable Motion Blur and adjust the Shutter Angle, Shutter Phase and Samples as desired.



When working with motion blur, it is best to keep your View set to Foreground. This way editing your shape will be quick and interactive.

- 4 Set your View to Foreground.

When you need to view the motion blurred Alpha channel, use **Shift-A**. **Shift-A** toggles the View to Output, superimposes the Alpha channel over the image and deactivates the Overlay. Pressing **Shift-A** again returns the Viewer to its previous state.

- 5 To view the motion blurred Alpha channel, press **Shift-A**.

Renaming Objects

You can rename a shape, layer or tracker by either:

- 1 Click on the object once to select it, hit the Enter key, type in the new name and press Enter again.**

or

- 2 Double-click the object, type in a new name and hit the Enter key.**

or

- 3 Right-click on the object, select Rename and type in a new name.**

Adding Notes

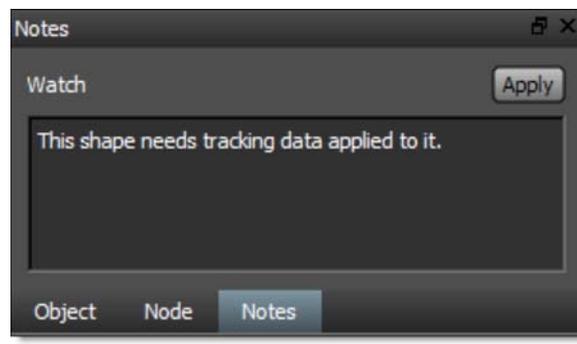
You can type an arbitrary length note for selected objects. Currently, only shapes, trackers and layers are supported.

- 1 **Select a shape, tracker or layer.**
- 2 **In the Object List, click the Notes icon.**



The Notes window comes forward above the Object List.

- 3 **Click in the Notes window and type your note.**



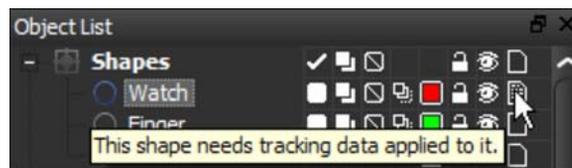
Because you can type multiple paragraphs into the Notes window, you must press Apply to assign the note.

- 4 **Click Apply in the notes window.**

The Notes icon changes once a note is applied to the object.



- 5 **Hover over the Note icon in the Object List and the note is displayed as a tool tip.**



Timebar Keyframes

Colored markers in the shuttle area signify where selected objects have keyframes. These keyframes can be moved to a new position. Objects that display keyframes in the Timebar are shapes, trackers and painted frames. Path keyframes are shown for shapes, position keyframes for trackers and painted frames when in the Paint node.

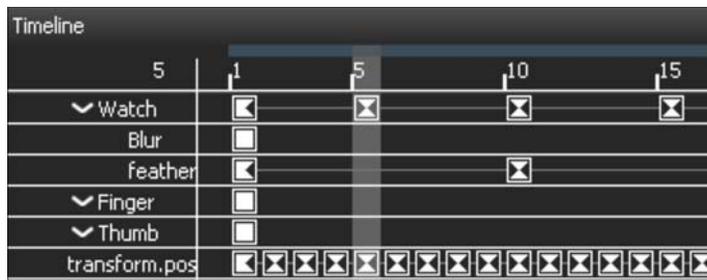


The color of the markers is determined by the object color. If multiple selected objects have a keyframe on the same frame, the most recently selected object's color has precedence.

- 1 Press Shift and hover over one of the colored markers.**
- 2 When the cursor changes to a double arrow, click and drag the marker to a new location.**



Using the Timeline



Zooming the Timeline In or Out

- 1 Use the scroll wheel to zoom the Timeline in and out.

or

- 2 Shift-Middle-mouse drag in the Timeline.

Panning the Timeline

- 1 Use the Spacebar and click and drag to pan horizontally or vertically in the Timeline.

Moving One Keyframe

- 1 Click on a keyframe to select it.
- 2 Drag the selected keyframe to its new time.

Moving a Selection of Keyframes

- 1 Click on the starting keyframe to select it.
- 2 Shift-click on the ending keyframe.
A range of keyframes is selected.
- 3 Click and drag one of the selected keyframes to the new location.
All selected keyframes move to the new location.

Paint

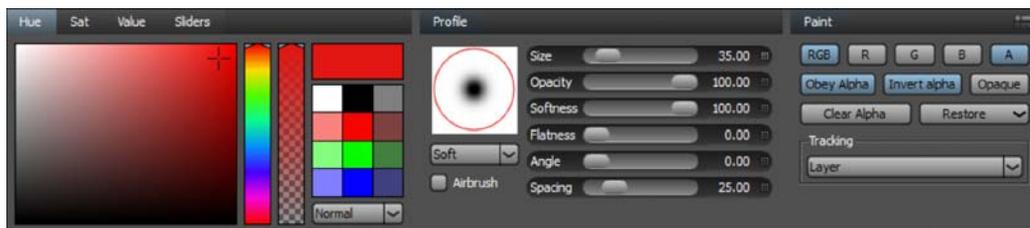
Paint is a high dynamic range 2D raster based paint system designed from the ground up to handle the demands of feature film and television production.

Note: Before Paint can be available for use, it must be enabled in the Session Settings and selected in the Node List.

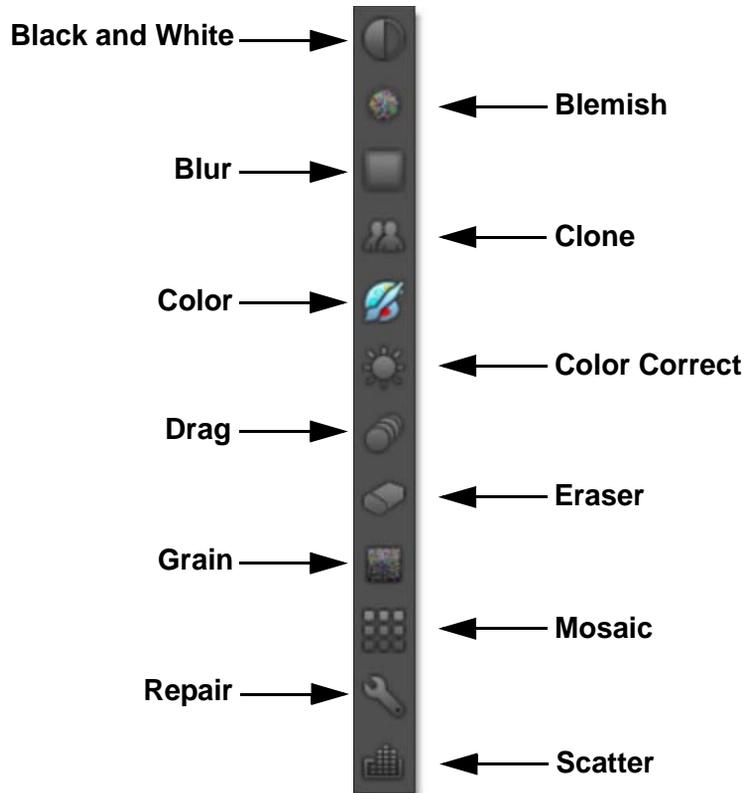
Using Paint

- 1 **Create a session that includes a Paint node and make sure that it is selected in the Node List.**

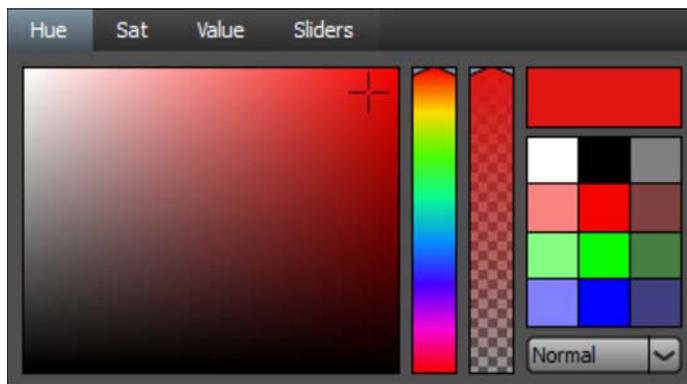
When the Paint node is selected, various non-animateable controls appear in a Paint window located at the bottom portion of the screen. Silhouette provides a wide variety of paint tools that are organized into Brush, Profile and Paint categories.



In addition, a number of different brushes are selectable from the Paint Toolbar to the left of the Viewer.



Once a brush is selected, its controls appear on the left side of the Paint window.



- The Color brush (Shift-C) is selected by default and is preset to white. Select the Color brush if it is not selected.



- Paint on the image in the Viewer by pressing and dragging with your pen or clicking and dragging with your mouse.
- In the Paint window's Profile group, adjust some of the settings to see how it changes your brush.



In addition to the Profile > Size control, the brush can also be resized in the Viewer by holding **Ctrl(Win)/Cmd(Mac)** and dragging the brush outline.

- Experiment with some of the other brushes in the Brush Toolbar.
- Adjusting the brush parameters located on the left side of Paint window will change the effect of the brush when you paint.

By default, you are painting on the RGB channels of the image. However, you can paint individually on the Red, Green, Blue or Alpha channels as well as simultaneously paint on the RGB and Alpha channels using the Paint settings.



- Make sure that the Color brush (Shift-C) is selected.



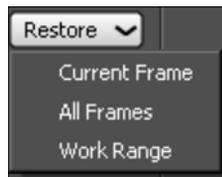
- In the Paint window's Paint group, click on R to paint only the Red channel.
- Paint on the image.

- 10** If you view the individual Red, Green and Blue channels using the RGBA buttons in the Viewer, you will see that only the Red channel is affected.



- 11** Select the horizontal white bar above the RGBA buttons to quickly toggle the display of the image back to full color mode.

At any time, you can clear all paint strokes and restore the original unpainted frames by using the Paint > Restore pop-up menu. You can restore the Current Frame, All Frames or the Work Range.



- 12** Select Restore > All Frames to clear all paint strokes on all frames.

- 13** Go to frame 1 of the sequence and paint on the image.

- 14** Advance to frame 2.

As you change frames in the sequence, the painted frames are stored to disk. Paint on the current frame is also saved with File > Save.

- 15** Go back to frame 1 and you will see that your paint stroke has been recorded.

- 16** Paint some more frames in the sequence.

As frames are painted, a marker is shown in the Timebar to provide a visual display of which frames are painted.



Using the Clone Brush

The Clone brush paints the image using another part of the image/or other image as defined by the settings in the Clone controls.

Quickly Set the Clone Offset

- 1** Choose the Clone brush (C) from the Toolbar.



- 2 Press and hold down the Shift key. In the Viewer, click, drag and release the mouse and then the Shift Key to set the Clone offset.**

The first click sets the Clone source and where you drag and release is the Clone destination.

- 3 Alternatively, you can set the Clone offset by pressing and holding down the Shift key. Tap once to set the Clone source and tap once again to set the Clone destination.**

Quickly Reset the Clone Offset

- 1 Press Shift and without moving the cursor, click your mouse or tap your pen on the screen once.**

The Clone offset is quickly set to a 0,0 offset.

Using the Clone Brush

- 1 In the Clone controls, select Output, Foreground or Clone 1-4 in the Source pop-up menu.**

Output is the painted output of the Paint node and when selected, clones from previously painted areas. Foreground clones from the foreground image, while Clone 1-4 are additional clone sources that clips can be assigned to in the Viewer > Inputs menu.

- 2 If you'd like, set the Frame parameter to choose which source frame to paint from.**

- 3 Set your Clone source offset by one of the following methods:**

- **Shift-clicking, dragging and releasing in the Viewer.**
- **Press and hold down the Shift key. Click once to set the Clone source and click once again to set the Clone destination.**
- **Press Q (Translate), W (Rotate) or E (Scale) and click and drag to translate, rotate or scale the Clone source. Onion Skin mode is automatically activated once the Q, W or E key is pressed. Press whatever key you pressed (Q, W or E) again to deactivate the mode.**
- **Turn on Interactive mode and use the up, down, left and right arrow keys to nudge the Clone source.**
- **Turn on Interactive mode and adjust the X and Y (position), Z (rotate), and H and V (scale) parameters.**

- Turn on Interactive mode and use the on-screen controls. For instance, to corner-pin the Clone source, drag the handles on the corners of the image.

4 Activate Onion Skin or Align mode if you need to line up the Clone source and target images.

- Select the Onion Skin icon to activate it and then align the Clone source.



or

- Select the Align icon to activate it and then align the Clone source.



5 Once the Clone source offset is set, deactivate Onion Skin or Align mode if they are activated.

Very often, you will encounter two images from the same location that are not color matched.

6 If the Clone source needs to be color corrected to match the image to be painted, select the Grade tab and adjust the various sliders.

If you need to do exacting color correction, follow the steps below.

7 Choose the Vertical Split icon to compare the Clone source and target using a split screen.



The split is handy when using the Grade controls to color match the Clone source to the target.

8 Move your cursor into the image area over the split line and when the cursor changes to a double-arrow, click and drag to move the split line to the location where you will be painting and where you want to do the color matching. The split line may not be obvious, so white triangles on the edge of the Viewer will help you find it.

By isolating individual color channels, it is easier to match the colors.

9 In the Viewer, look only at the Red channel (Alt-R).

- 10 **Ctrl(Win)/Cmd(Mac)-drag (for finer accuracy) the Gain > Red slider so that the luminance values on either side of the split line match.**

Tip: Set your Update mode to Always. As you drag a parameter, Silhouette is constantly rendering. This makes the color adjustments more interactive.

- 11 **In the Viewer, look only at the Green channel (Alt-G).**
- 12 **Ctrl(Win)/Cmd(Mac)-drag (for finer accuracy) the Gain > Green slider so that the luminance values on either side of the split line match.**
- 13 **In the Viewer, look only at the Blue channel (Alt-B).**
- 14 **Ctrl(Win)/Cmd(Mac)-drag (for finer accuracy) the Gain > Blue slider so that the luminance values on either side of the split line match.**
- 15 **Press Alt-B again to toggle off the Blue channel and to display the RGB channels in the Viewer at the same time.**

Your Clone source and target should now be color matched.

- 16 **Toggle off the Vertical Split and paint the image.**

Tracking the Clone Source

- 1 **Using a Roto node, create a tracker and apply it to a layer.**
- 2 **Select the Paint node in the Node List.**
- 3 **Choose the Clone Brush in the Toolbar.**
- 4 **Select the tracked Roto node layer in the Paint > Tracking menu.**
- 5 **Make sure that the Clone > Match Move control is activated. It is normally on by default.**

Selecting a layer in the Paint > Tracking menu and activating Clone > Match Move allow you to apply the tracking or transformation data of a Roto node layer to the Clone source.

- 6 **If you would like to Stabilize instead, click the Stabilize icon at the top of the Viewer.**



Aligning Features from Different Images

Oftentimes, you need to align the same feature in two different images of a sequence when painting with the Clone brush.

- 1 In the Clone controls, select Output, Foreground or Clone 1-4 in the Source pop-up menu and then set the Frame parameter to choose which source frame to paint from.**

- 2 Press the ‘ key (located to the left of 1 key).**

The Clone source image automatically appears in the Viewer.

- 3 Set the Onion-Skin mix to 100.**

- 4 Click on the Clone source feature that you want to paint from.**

The Clone destination image automatically appears in the Viewer.

- 5 Click on the Clone destination feature that you want to paint on.**

The Clone offset is set.

Dual Clone Brush

Two Clone presets can be activated at once. This allows you to paint from two different frames, using separate transforms and/or color corrections.

- 1 Select one of the 0-9 Clone presets.**



- 2 Set the Clone source transform, timing and grade controls.**
- 3 Choose a second Clone preset and set its Clone source transform, timing and grade controls.**
- 4 Choose the first preset and press Shift to select the second one.**

The second preset will light up red and there will be a Mix control that appears at the top right of the Clone controls.



5 Change the Mix parameter to set the relative opacity of the two Clone sources.

Mix adjusts the opacity of the first Clone preset. The opacity of the second Clone preset is $1.0 - \text{Opacity}$.

6 When you paint, both Clone presets will contribute to the painted result.

Using Effects

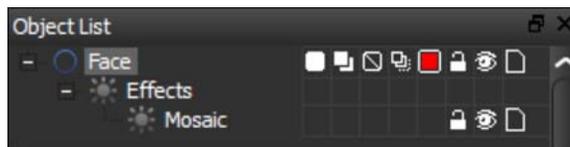
The Effects node allows you to apply the brushes available in the Paint node as filter effects to shapes or layers.

Note: Before the Effects node can be available for use, it must be enabled in the Session Settings and selected in the Node List.

Applying Filters

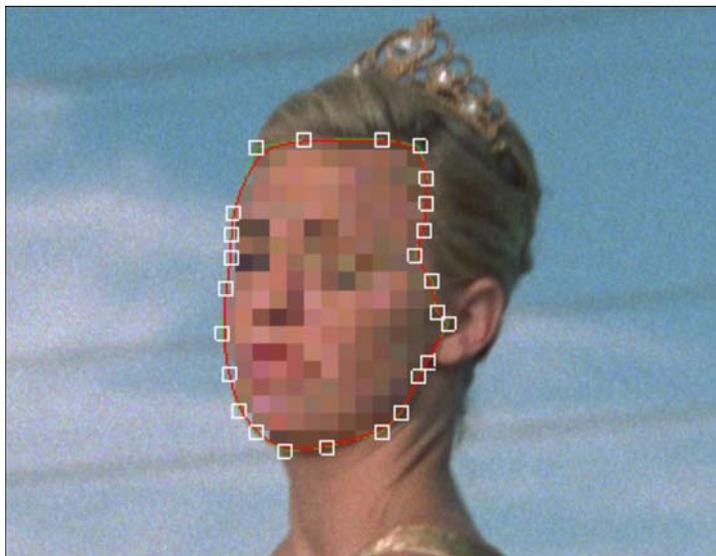
- 1 Create a session that includes an Effects node and make sure that it is selected in the Node List.**
- 2 Using one of the shape tools, draw a shape.**
- 3 Make sure that the shape is selected and choose an effect from the Filter menu. For instance, apply the Mosaic filter.**

Once applied, the filter appears in the Object List within an *Effects* group.



When added to a layer, the effect is applied based on the alpha of the layer. The idea is to allow shapes with various Blend modes to contribute to or limit where the effect will be applied.

Mosaic filter applied to the Face shape



When you click on one of the filters in the Object List, its editable parameters show up in the Object window and can be keyframed like any other attribute.

- 4 Click on the Mosaic filter in the Object List if it is not selected.



- 5 Adjust the filter parameters in the Object window if you'd like.

Obeying Alpha Channels from Upstream Nodes

The incoming Alpha channel generated by previous nodes can be utilized when applying a filter.

- 1 Click on the Effects node in the Node List and select Alpha Behavior > Obey Input in the Node window.

The Alpha channel generated from previous nodes will now be used when applying a filter.

- 2 Using one of the shape tools, draw a shape around the area where you want the filter applied. The shape must contain areas of Alpha channel from a previous node.

- 3 Make sure that the shape is selected and select a filter from the Filter menu.

Using the Scratch Filter

The Scratch filter Removes vertical scratches by averaging in the surrounding pixels.

- 1 Using one of the shape tools, draw a shape around the scratch.
- 2 Make sure that the shape is selected and choose Scratch from the Filter menu.
- 3 Set the Width parameter in the Object tab.

Using the Keyer

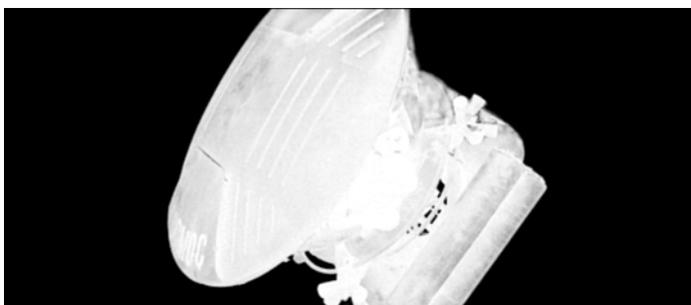
Using proprietary matte extraction techniques, the Keyer quickly and simply creates mattes with minimal parameters even if you are dealing with fine hair detail, smoke, or reflections.

Inner / Outer Keying

We like to use an inner / outer keying method that involves creating a Primary Matte which has gray values in the foreground's edge. This will give a nice, smooth edge in the final composite. Next, the trick is to use the Secondary Matte to fill in any gray areas of the Primary Matte while retaining the gray values in the edge. You can do this by adjusting the Blur, Shrink/Grow and/or Wrap parameters of the Secondary Matte to retain the Primary Matte's edge values.

Note: Before the Keyer can be available for use, it must be enabled in the Session Settings and selected in the Node List.

- 1 Create a session that includes a Keyer node and make sure that it is selected in the Node List.**
- 2 Start by selecting Primary Matte from the View pop-up menu.**
- 3 Set the Primary Matte > Extract On to Blue or Green Screen.**
- 4 Adjust the Background slider so that the background areas are completely black.**
- 5 Set the Foreground slider so that the Primary Matte has gray values, especially in the edges.**



This Primary Matte will be used for the edges.

Note: If you are not going to use the Inner / Outer Keying method, you would adjust the Foreground slider so that the foreground values would be completely white in the Primary Matte. In this case, a Secondary Matte would not be used.

- 6 From the View menu, select Secondary Matte.**

The screen is black, because you must first enable it.

- 7 Expand the Secondary Matte group and click on the Enable checkbox.**
You can now see the Secondary Matte in the Viewer.
- 8 Set the Secondary Matte > Extract On to the same setting as the Primary Matte.**
- 9 Adjust the Secondary Matte so that the foreground is completely white and the background is completely black.**



- 10 Switch the View menu to Combined Matte.**
The Combined Matte view shows the combination of the two mattes.
- 11 Adjust the Secondary Matte > Wrap parameter to pull back the hard edges of the Secondary Matte to reveal the gray edges of the Primary Matte.**
Note: You could also use Secondary Matte: Shrink/Grow and Blur instead of or in conjunction with Wrap to blend the two mattes together.
- 12 Change the View menu to Composite.**



If you have not selected a Background input, the Foreground will be composited over a gray color by default. This color can be changed using the Composite > Background Color preference.

- 13 If you have a clip that you would like to use for the background instead of a color, select it from the Input > Background pop-up menu.**

The foreground will then be composited over the background.

If you see any color spill from the blue or green screen, it can be eliminated using the Color Suppression controls.

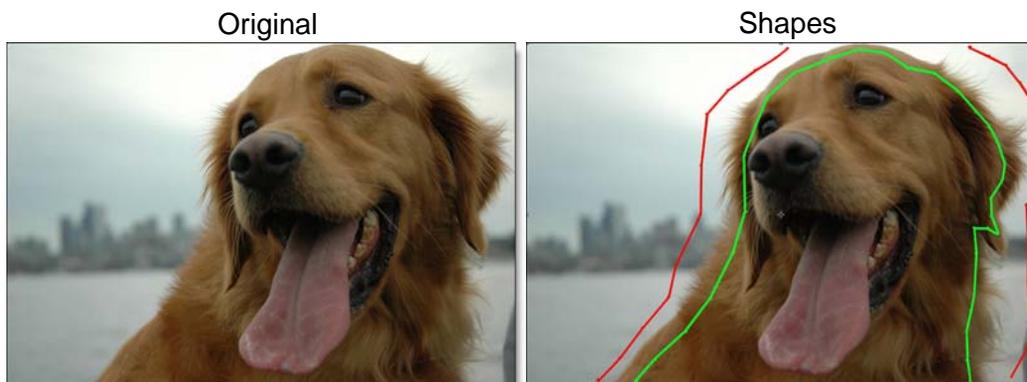
- 14 Expand the Color Suppression group and click the Enable check box.**
- 15 Adjust the Color Suppression > Foreground and Range controls as needed.**

Using Power Matte

Open Shape Method

Power Matte creates mattes by using a trimap--a pre-segmented image consisting of three regions of foreground (what you want to cut out), background (what you want to get rid of) and unknown. Partial opacity values are then computed only for pixels inside the unknown region. Two trimap methods can be used: Open Shape or Closed Shape. This tutorial will use the Open Shape Method.

Unlike previous approaches, our trimaps can be relatively sparse consisting of open foreground and background shapes. All pixels left unmarked will be treated as unknown.



A good Open Shape technique is to draw an inner and outer outline around the object you are extracting using open shapes. Shapes should be near the boundary of the foreground or background, but not right up against the edge. Also, if the foreground or background has varying colors, the shapes should cross over these colors.

Note: The general rule is to not put foreground and background shapes too close together unless you need to.

- 1 Define foreground area (what you want to cut out) by drawing an open shape around the inner edge of the object.**
- 2 Start by selecting either the Bézier, B-Spline or X-Spline tool from the Toolbar.**
- 3 Click on the screen to create a control point.**

A control point is created.

- 4 Add as many points as you like.
- 5 When finished adding points, press the Esc key to finish the open shape.



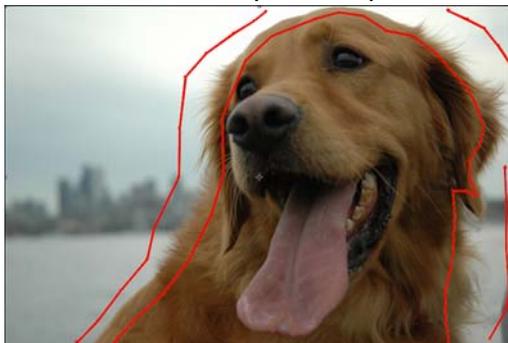
- 6 Now, draw shapes to define background areas (what you want to get rid of). Press the Esc key each time you want to finish an open shape.

If the background has varying colors, the shapes should cover these colors.

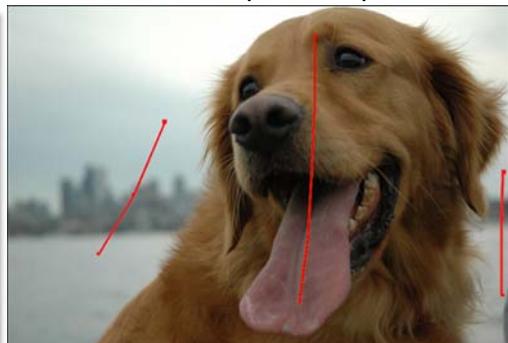
- 7 Choose the Reshape tool when you are done drawing open shapes.

Warning: If you only provide a few sparse shapes, the Open Shape Method will take longer to process with a less accurate result than the Closed Shape Method.

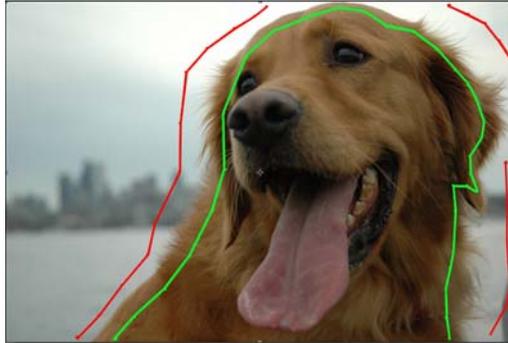
Good Shape Example



Bad Shape Example



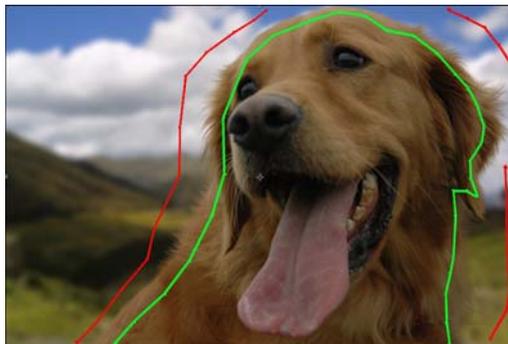
- 8** In the Object List, feel free to change the name and color of your shapes. In the example below, I named the inner shape **Foreground** and changed the color to green. Also, I named all of the outer shapes **Background** and left their color set to red. Although this is not a necessary step, it is helpful to identify what the shapes are being used for.



Power Matte won't process until you assign the shapes as either foreground or background.

- 9** Select the inner, foreground shape and in the Object window, set the type to **Foreground**.
- 10** Select all the outer, background shapes and in the Object window, set the type to **Background**.

Once a foreground and background shape are assigned, Power Matte processes the matte. The viewer displays the composite of the foreground over the background based on your shapes. If "None" is selected for the Background input, the foreground will be composited over a color. The default color is gray, but can be changed by going to File > Preferences > Composite on Windows and Linux or Silhouette > Preferences > Composite on Mac. If you add a Composite node in the Session Settings, the composite will be rendered.



Now that you have foreground and background shapes, animate them over time so that they follow the motion of what you are cutting out. However, since you already assigned the shapes as foreground and background, Power Matte will try and update every time you adjust the shapes.

11 Set the View to Foreground. This way Power Matte is not constantly trying to update when you change a parameter.

12 Animate the foreground and background shapes over time so that they follow the motion of what you are cutting out.

It is best to use the Tracker (**Shift-T**) to animate the motion of your shapes as it will most likely ensure that the motion is consistent from frame to frame.

13 Play through the clip to make sure that the shapes are properly following your object.

14 Use View > Matte to display the generated matte.



15 Hit the Play button to check your results so far. When you hit the Play button, Power Matte renders each frame.

16 If at any time you want to turn off the display of the shapes, click the Overlay icon above the Viewer or press 0 (the number zero) shortcut key.

In the generated matte, white is foreground, black is background and any gray areas in between represent a level of transparency. If the matte is not acceptable after processing, you can either adjust the shapes or add additional shapes near the region where the matte is not accurate.

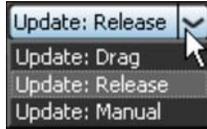
17 If you see gray areas in the foreground object that should be completely white, make additional foreground shapes in those areas.

18 If you see gray areas in the background that should be completely black, make additional background shapes in those areas.

19 Gray values in Unknown areas can be reduced by increasing the Deartifact value located in the Node window.

If you need to adjust the shapes after they have been created and assigned in Power Matte, you can enhance performance by either:

- **Set the View to Foreground while editing shapes.**
- **Set the Update mode to Manual and hit the Enter key when you want to process.** This way Power Matte is not constantly trying to update when you change a parameter.



- **Use a lower quality proxy image by using the Proxy pull-down menu above the Viewer.**



20 Choose View > Composite to display the Composite.

If you look closely at the edges of our dog example, you will see some white fringing created by the sky from the original image. By activating Power Matte's Color Estimation feature, the fringing can be removed by estimating the color of the foreground in unknown and semi-transparent areas.

Color Estimation Off

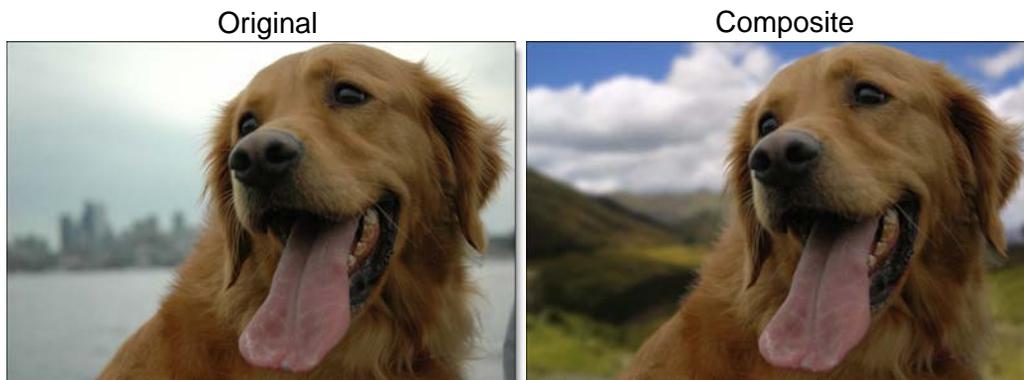


Color Estimation On



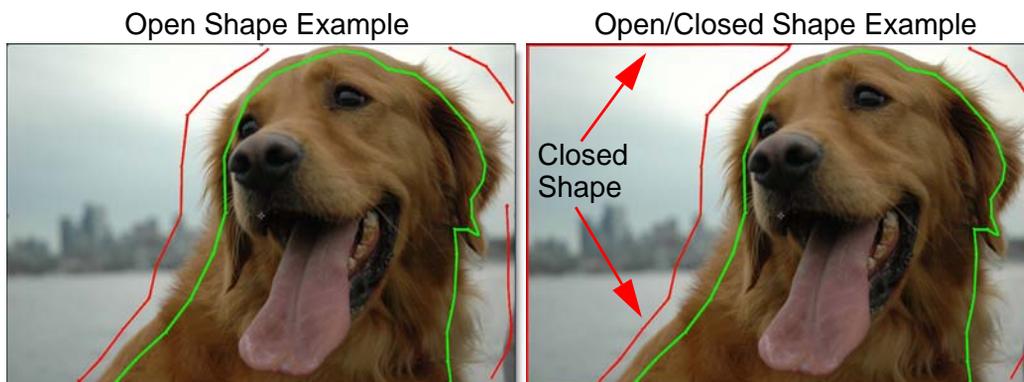
Note: Color Estimation can cause color flickering in edge areas of partial opacity if your shape position is not constant from frame to frame or if your source footage is grainy. Disable Color Estimation if you see flickering in the edge areas.

- 21** To remove fringing around the object being cutout, go to the Node window and turn on Color Estimation.



- 22** When you press the Play button while viewing the Composite, you will see the result in full color.

Now that I have shown you how to generate a matte using open shapes, an alternative method is to use a mix of open and closed shapes. If you have large contiguous areas of background, surrounding the background with a closed shape and enabling Filled in the Object window will speed up Power Matte's processing.



Closed Shape Method

Power Matte creates mattes by using a trimap--a pre-segmented image consisting of three regions of foreground (what you want to cut out), background (what you want to get rid of) and unknown.

The Closed Shape Method uses closed shapes to mark definite foreground and background areas of the image. Any unmarked areas are considered unknown and partial opacity values are then computed for the pixels inside the unknown region. So, make sure that any hair detail, transparent or blurry portions fall within the unknown areas

Note: The Closed Shape method does not handle a foreground object with background holes in it, and therefore the Open Shape method would be a better choice when extracting an object with holes.



- 1 Define foreground area (what you want to cut out) by drawing a closed shape.
- 2 Start by selecting either the Bézier, B-Spline or X-Spline tool from the Toolbar.
- 3 Draw a shape around the inner edge of the object, in this case, the hiker.

- 4 To close the shape, click on the first point that you created.**



- 5 To tell Power Matte that you are using a closed shape, enable Filled in the Object window.**
- 6 Now, draw closed shapes to define background area (what you want to get rid of). If your foreground object is completely surrounded by background, like the hiker example below, a quick way to define the background area is to first draw a closed shape around the outside of the foreground and then invert it in the Object window. The areas outside of the background shape are then considered as background.**



- 7 After drawing the background shape, enable Filled in the Object window. Invert the shape as well if you drew around the boundary of your foreground object as in the example above.**

Once a foreground and background shape are assigned, Power Matte processes the matte. The viewer displays the composite of the foreground over the background based on your shapes. If “None” is selected for the Background Input, the foreground will be composited over a color. The default color is gray,

but for the example below I changed it to black by going to File > Preferences > Composite on Windows and Linux or Silhouette > Preferences > Composite on Mac.



Now that you have a foreground and background shape, animate them over time so that they follow the motion of what you are cutting out. However, since you already assigned the shapes as foreground and background, Power Matte will try and update every time you adjust the shapes.

- 8 Set the View to Foreground. This way Power Matte is not constantly trying to update when you change a parameter.**
- 9 Animate the foreground and background shapes over time so that they follow the motion of what you are cutting out.**

It is best to use the Tracker (**Shift-T**) to animate the motion of your shapes as it will most likely ensure that the motion is consistent from frame to frame.

- 10 Play through the clip to make sure that the shapes are properly following your object.**

- 11** Use View > Matte to display the generated matte.



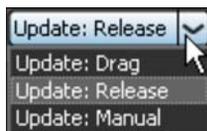
- 12** Hit the Play button to check your results so far. When you hit the Play button, Power Matte renders each frame.
- 13** If at any time you want to turn off the display of the shapes, click the Overlay icon above the Viewer or press 0 (the number zero) shortcut key.

In the generated matte, white is foreground, black is background and any gray areas in between represent a level of transparency. If the matte is not acceptable after processing, you can adjust the shapes.

- 14** If you see gray areas in the foreground object that should be completely white, adjust the foreground shape in those areas.
- 15** If you see gray areas in the background that should be completely black, adjust the background shape in those areas.
- 16** Gray values in Unknown areas can be reduced by increasing the Deartifact value located in the Node window.

If you need to adjust the shapes after they have been created and assigned in Power Matte, you can enhance performance by either:

- Set the View to Foreground while editing shapes.
- Set the Update mode to Manual and hit the Enter key when you want to process. This way Power Matte is not constantly trying to update when you change a parameter.



- Use a lower quality proxy image by using the Proxy pull-down menu above the Viewer.



17 Choose View > Composite to display the Composite.

If you look closely at the edges of our hiker example, you will see some white fringing created by the sky from the original image. By activating Power Matte's Color Estimation feature, the fringing can be removed by estimating the color of the foreground in unknown and semi-transparent areas.

Color Estimation Off



Color Estimation On



18 To remove fringing around the cutout object, go to the Node window and turn on Color Estimation.

Note: Color Estimation can cause color flickering in edge areas of partial opacity if your shape position is not constant from frame to frame or if your source footage is grainy. Disable Color Estimation if you see flickering in the edge areas after a preview or render.

- 19** When you press the Play button while viewing the Composite, you will see the result in full color.

Original



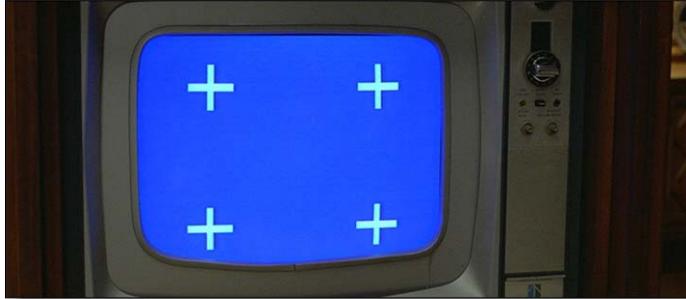
Result



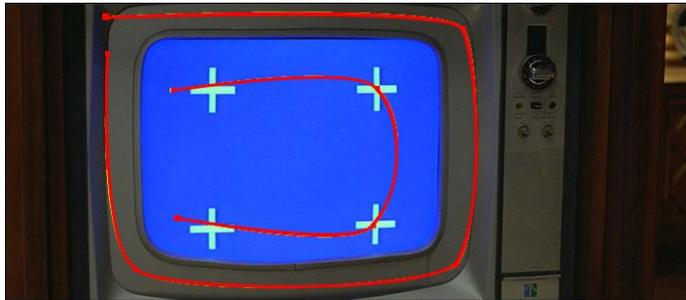
Blue/Green Screen Keying

Keying is a technique for blending two images, in which a color from one image is removed, or made transparent, revealing another image behind it. Either the Open or Closed Shape Method can be used when creating mattes for Blue or Green screen photography. Power Matte doesn't require any specific color for the object to be photographed against, but blue and green screens will be referred to as these are the most common.

Original



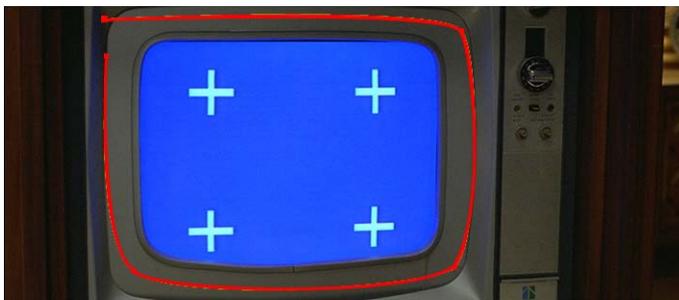
Shapes



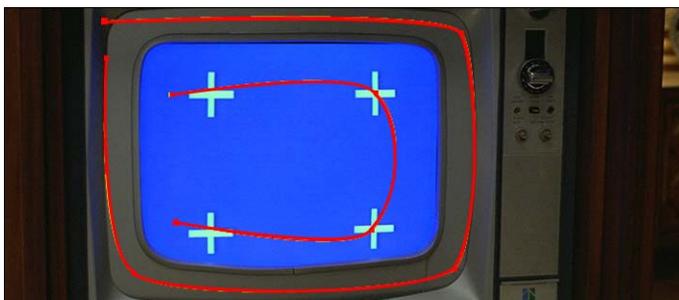
Let's start by creating some open shapes. The shapes should be near the boundary of the foreground or background, but not right up against the edge. Also, if the foreground or background has varying colors, the shapes should cross over these colors.

- 1** Define foreground area (what you want to cut out) by drawing a open shape.
- 2** Start by selecting either the Bézier, B-Spline or X-Spline tool from the Toolbar.

- 3 Draw a shape around the edge of the object that you want to cutout, in this case, the television screen. When done adding points, press the Esc key to finish the open shape.



- 4 Next, draw a shape to define background areas. In the example below, this would be the blue area within the television screen. Press the Esc key when you want to finish the open shape.



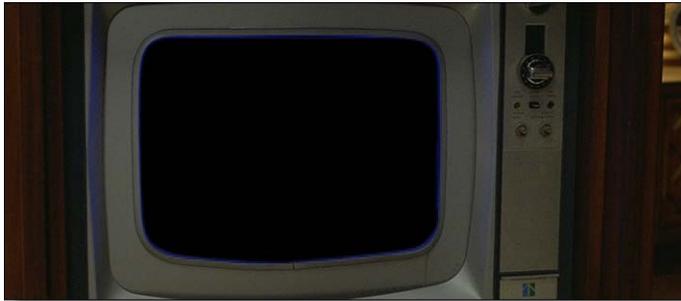
- 5 Choose the Reshape tool when you are done drawing the open shapes.

Power Matte won't process until you assign the shapes as either foreground or background.

- 6 Select the foreground shape and in the Object window, set the type to **Foreground**.
- 7 Select the background shape and in the Object window, set the type to **Background**.

Once a foreground and background shape are assigned, Power Matte processes the matte. The viewer displays the composite of the foreground over the background based on your shapes. If "None" is selected for the Background Input, the foreground will be composited over a color. The default color is gray,

but for the example below I changed it to black by going to File > Preferences > Composite on Windows and Linux or Silhouette > Preferences > Composite on Mac.



Now that you have foreground and background shapes, animate them over time so that they follow the motion of what you are cutting out. However, since you already assigned the shapes as foreground and background, Power Matte will try and update every time you adjust the shapes.

- 8 Set the View to Foreground. This way Power Matte is not constantly trying to update when you change a parameter.**
- 9 Animate the foreground and background shapes over time so that they follow the motion of what you are cutting out.**

It is best to use the Tracker (**Shift-T**) to animate the motion of your shapes as it will most likely ensure that the motion is consistent from frame to frame.

- 10 Play through the clip to make sure that the shapes are properly following your object.**
- 11 Use View > Matte to display the generated matte.**



- 12 Hit the Play button to check your results so far. When you hit the Play button, Power Matte renders each frame.**

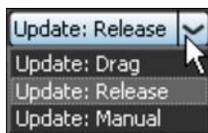
- 13** If at any time you want to turn off the display of the shapes, click the **Overlay** icon above the **Viewer** or press **0** (the number zero) shortcut key.

In the generated matte, white is foreground, black is background and any gray areas in between represent a level of transparency. If the matte is not acceptable after processing, you can adjust the shapes.

- 14** If you see gray areas in the foreground object that should be completely white, adjust the foreground shape in those areas.
- 15** If you see gray areas in the background that should be completely black, adjust the background shape in those areas.
- 16** Gray values in Unknown areas can be reduced by increasing the Deartifact value located in the **Node** window.

If you need to adjust the shapes after they have been created and assigned in **Power Matte**, you can enhance performance by either:

- Set the **View** to **Foreground** while editing shapes.
- Set the **Update** mode to **Manual** and hit the **Enter** key when you want to process. This way **Power Matte** is not constantly trying to update when you change a parameter.



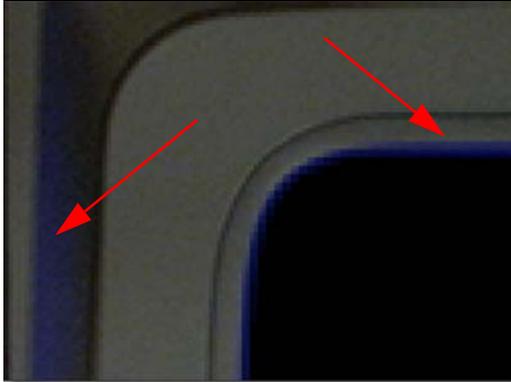
- Use a lower quality proxy image by using the **Proxy** pull-down menu above the **Viewer**.



- 17** Choose **View > Composite** to display the **Composite**.

When a foreground object has been photographed against a solid blue or green backdrop, the blue or green color can have a tendency to spill onto the foreground object. When extracting an object photographed against one of these colors, you may find it necessary to remove the blue or green spill. This is a process called Color Suppression.

Color Suppression Off



Color Suppression Off

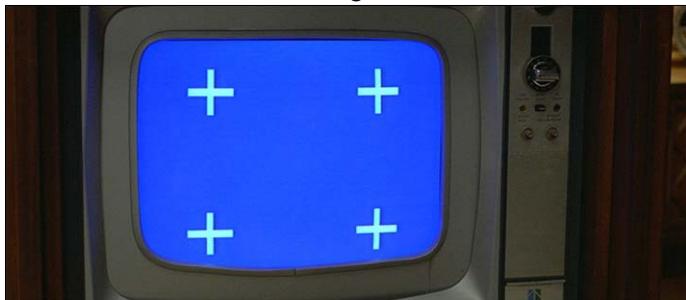


- 18** To remove color spill from your object, go to the Node window and change the Color Suppression > Type parameter from None to Blue or Green.
- 19** Click Play button to see the RGB image results.

Result



Original



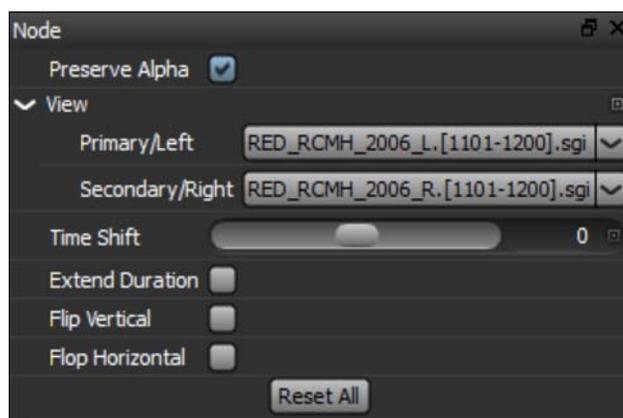
Working with Stereoscopic Images

Creating a Session Using Left and Right Sequences

- 1 Import left and right sequences into Silhouette.
- 2 Create a session with Roto and Paint nodes based on the left sequence.
- 3 Select the left sequence Source node in the Node List.



- 4 In the Node window, expand the View group and select the right sequence in the Secondary/Right pop-up menu.



- 5 Select the Roto node in the Node List.

You are now ready to create shapes.

Creating a Session Using Stereoscopic EXR Files

- 1 Import a stereoscopic EXR file into Silhouette.
- 2 Create a session with Roto and Paint nodes based on the stereoscopic EXR file.
Since stereoscopic EXR files contain both the Left and Right Views within one file, they are automatically connected to the Primary/Left and Secondary/Right views.

3 Select the Roto node in the Node List.

You are now ready to create shapes.

Rotoscoping

1 Above the Viewer, make sure that the L icon (Shift-1) is highlighted. L stands for Left View.



When using a stereoscopic EXR file or when left and right sequences have been assigned in the Source node's View > Primary/Left and Secondary/Right parameters, the Viewer displays additional view modes.



The **L** icon displays the Left View in the Viewer, the **R** icon displays the Right View, and the **LR** icon displays both the Left and Right Views simultaneously. When shapes and layers are created, they will be associated with either the Left or Right View.

2 Create a shape around an object and keyframe as necessary.

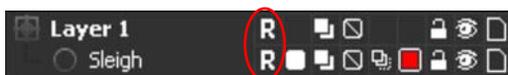


Since the Left View is selected, the shape is automatically associated with the Left View and an **L** is displayed for it in the Object List's View icon.



- 3 Select the shape if it is not already selected and from the Edit > Stereoscopic menu, choose Duplicate > New Layer.**

The shape and all of its keyframes from the Left View are duplicated to the Right View in a new layer and the two shapes are linked together. The newly duplicated shape and layer have a **R** displayed for it in the Object List's View icon signifying that it is associated with the Right View.



Note: Clicking on the View icon in the Object List toggles which view the object is located in.

When using shapes inside of a transformed layer, you can duplicate the layer instead. This will copy the layer along with its transform data into the other view, copy any unlinked stereoscopic children into it and then link the shapes. You can stereo duplicate one layer at a time using this method.

- 4 Select the Right View (Shift-2).**



You probably noticed that the shape from the Left View does not line up with the object it is associated with. This is because the Right View is offset from the Left View to create the stereoscopic effect. However, you can use the Stereoscopic Align tool in conjunction with a layer to negate the offset between the Left and Right Views.

- 5 In the Object List, click on the Layer that was created for the duplicated shape.**

Clicking on the layer makes it the Active Layer and a check appears.



You are now ready to align the two views.

- 6 Select the Stereoscopic Align icon (Shift-4) above the Viewer.**

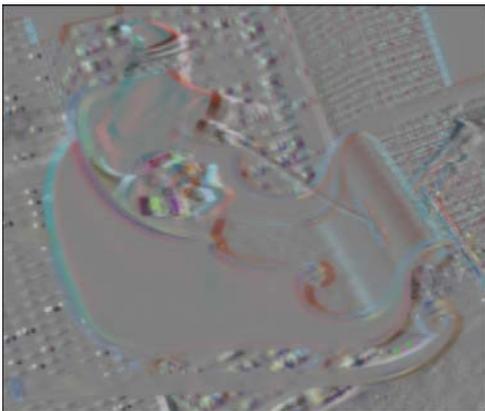


When activated, Stereoscopic Align uses a negative mode which inverts one of the views and mixes it with the other. This creates an embossed effect when similar image areas are not aligned.

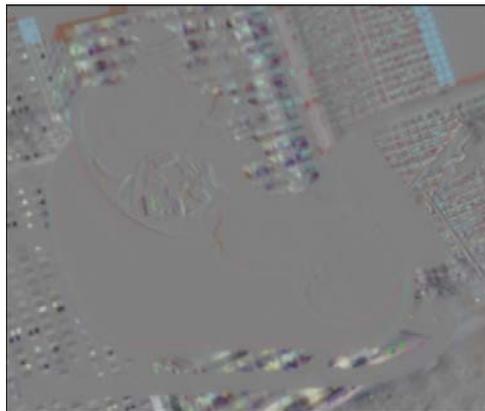
- 7 Click and drag the move cursor that appears to align the views in the area of your shape. You can also Ctrl-drag for finer accuracy. When similar image features are perfectly aligned for the object you are rotoscoping, you will see a solid gray color.**

If you need to align vertically (not common), you can either use the **Up/Down Arrow** keys or press the **Shift** key while clicking and dragging the move cursor in the Viewer.

Not Aligned



Aligned



The amount you move the view in Stereoscopic Align mode is stored in the Stereo Offset parameter of the active layer which is set to animate by default.

- 8 Deactivate Stereoscopic Align mode and the shape will be aligned in the Right View.**

If the object you are rotoscoping moves through various depths, you will want to keyframe the Stereo Offset using the Stereoscopic Align mode at various frames.

Note: If you are rotoscoping objects at different depths, place them in separate layers so that different Stereo Offsets can be set on a per layer basis.

- 9 Adjust the shape keyframes as needed for the shape in the Right View.
- 10 Select the Left/Right View (Shift-3).



In the Left/Right View, the Viewer displays both the left and right sequences.

- 11 To change whether the Left and Right Views are arranged either horizontally or vertically in the Viewer, press the Stereoscopic Split Mode icon.



In the Left/Right View, selecting one of the linked shapes in the Viewer selects the other as well and you can edit both shapes at once. If you only want to work on one shape at a time in the Left/Right View, just make sure that only one of them is selected in the Object List.

Linking Shapes

As an alternative to using Edit > Duplicate or Edit > Duplicate > New Layer as outlined in the previous exercise, shapes of the same type and the same number of control points can be linked together for stereoscopic rotoscoping. Once linked, the two shapes can be simultaneously selected and edited in the Left/Right View.

- 1 Select the Left View (Shift-1) and create a shape.



- 2 Choose the Right View (Shift-2) and create a shape of the same type and number of control points as the one you just created in the Left View.



- 3 Press the Left/Right View icon (Shift-3) above the Viewer.



- 4 Select both shapes in either the Object List or directly in the Viewer.
- 5 From the Edit > Stereoscopic menu, choose Link.

The two linked shapes can now be simultaneously selected and edited when in the Left/Right View.

Paint

In general, painting on stereoscopic images is the same as painting with single images.

- 1 Select the Paint node in the Node List.

The Stereoscopic View mode determines whether you are painting on the Left View, Right View or both the Left and Right Views at the same time.



- 2 Select the Left View (Shift-1).



- 3 Choose the Color brush (Shift-C).



- 4 Paint on the image in the Viewer by pressing and dragging with your pen or clicking and dragging with your mouse.

- 5** Select the Right View (Shift-2) and paint on the image.



- 6** Select the Left/Right View (Shift-3).



- 7** To change whether the Left and Right Views are arranged either horizontally or vertically in the Viewer, press the Stereoscopic Split Mode icon.



- 8** Paint on the image.

Paint is applied to both the left and right images simultaneously. However, the location of the paint on the Left View will be offset slightly from the Right View. To paint on both the Left and Right Views at the same time and in the same location, you will need to use the Stereoscopic Align mode to line up the two views.

- 9** Select the Stereoscopic Align icon (Shift-4) above the Viewer.

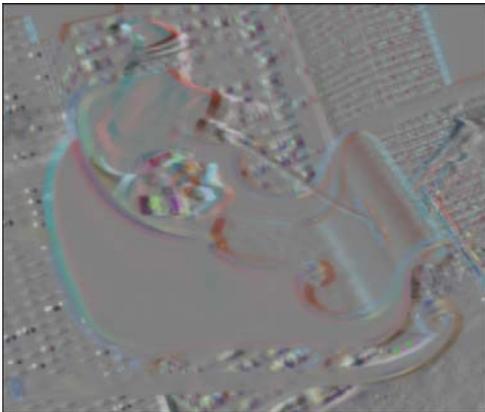


When activated, Stereoscopic Align uses a negative mode which inverts one of the views and mixes it with the other. This creates an embossed effect when similar image areas are not aligned.

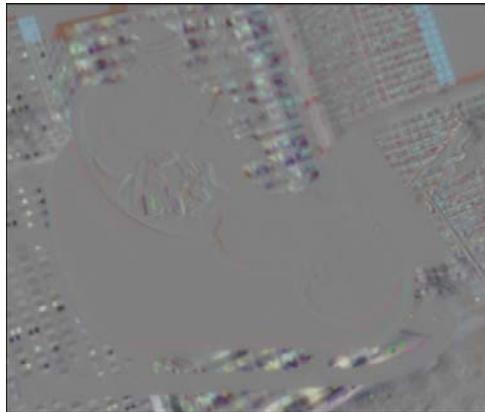
- 10** Click and drag the move cursor that appears to align the views in the area where you will be painting. You can also Ctrl-drag for finer accuracy. When similar image features are perfectly aligned for the object you are painting, you will see a solid gray color.

If you need to align vertically (not common), you can either use the **Up/Down Arrow** keys or press the **Shift** key while clicking and dragging the move cursor in the Viewer.

Not Aligned



Aligned



If the object you are painting moves through various depths, you will want to set the Stereoscopic Align setting on each frame.

Note: The amount you move the view in Stereoscopic Align mode is stored in the Paint > Stereo Offset parameter which can also be used to adjust the offset.

- 11** Deactivate Stereoscopic Align mode.
12 Paint on the image again.

Once aligned, painting with the Left/Right View activated will paint on the same location of the image in both views.

- 13** Paint some more frames in the sequence.

As frames are painted, markers are shown in the Timebar to provide a visual display of which frames are painted. Red markers are displayed for painted frames in the Left View, blue markers for the Right View and green markers for frames painted in both the Left and Right View.



Using the Stereo Viewer

A stereo Viewer window can be used to display the stereoscopic image in either Anaglyph or Interlaced modes on a 3D monitor.

- 1** In Preferences, set the Viewer > Stereo View Mode to either Anaglyph or Interlaced.
- 2** If you are using interlaced mode, set the Viewer > Stereo First Field preference to match the requirements of your 3D monitor.
- 3** Click the Stereo Viewer icon.



- 4** When the Stereo Viewer opens, drag it over to your 3D monitor.
- 5** Right-click in the Stereo Viewer and select Fullscreen.

Using the Composite Node

The Composite node renders a composite of the foreground over the background based on the generated Alpha channel.

- 1 From the pull-down menu at the top of the screen, select **Session > Settings** and activate **Composite** in the Available Nodes.**

If “None” is selected for the Background Input, the foreground will be composited over a color. The default color is gray, but can be changed using the Composite node’s Background Color parameter.

- 2 If you have a clip that you would like to use for the background instead of a color, select it from the **Input > Background** pop-up menu.**

The foreground will then be composited over the background.

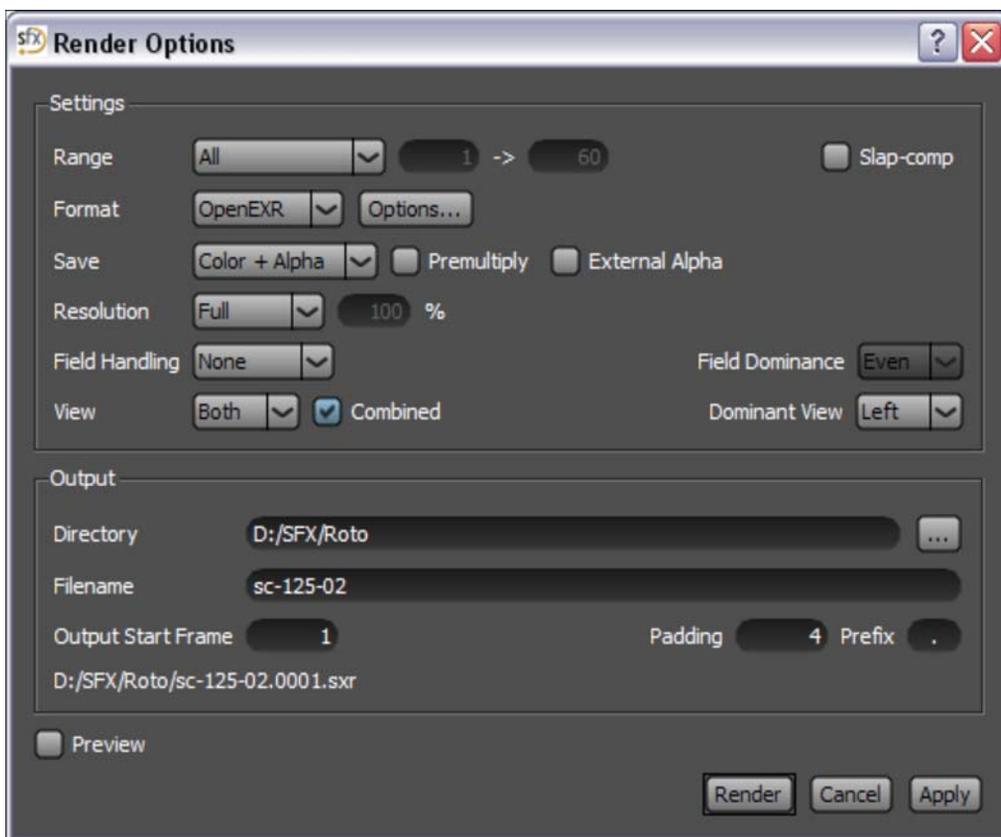
- 3 If you choose to continue editing another node, just select it from the Node List.**

Rendering

When you have completed your work in Silhouette, you will need to render the final result. Rendering takes place in the Render Options window.

1 Select Session > Render.

The Render Options window opens.



2 Choose a Range, File Format and Save mode.

Save sets how the file will be rendered. You can choose from Color+Alpha(RGBA), Color Only(RGB), Alpha Only and Paint Only. With Paint Only, only the painted portions of the frame along with the Alpha channel (where the brush painted) are exported as a premultiplied RGBA file. This feature is handy for adding only the painted portions in your compositing application.

- 3 Select a directory to save your files and change the filename if you don't like the default name.
- 4 If you are rendering a stereoscopic project, select whether you want to render the Left, Right or Both the Left and Right Views simultaneously using the View pop-up menu. If you are using the EXR file format to render a stereoscopic project, select View > Both and activate Combined to render both the Left and Right stereoscopic views into one file.

At this point, you could just hit the Render button to render the sequence to disk. Alternatively, you could open a Preview window that displays each rendered image as well as render statistics while rendering.

- 5 Enable Preview and select Render.



The Preview window opens. Pressing the **R**, **G**, **B**, and **A** buttons toggles viewing of the respective channels while **C** displays the RGB channels.

Keyboard Customization

Keyboard shortcuts can be customized by using a text editor to modify a Python script located in the scripts folder of your Silhouette installation.

To modify your Silhouette keyboard shortcuts:

- 1** Go to the scripts folder of your Silhouette installation.
- 2** For Windows, go to C:\Program Files\SilhouetteFX\Silhouette4\resources\scripts.
or
- 3** For Linux, go to /opt/SilhouetteFX/silhouette4/resources/scripts.
or
- 4** For Macintosh, go to /Applications/Silhouette4, right-click on *Silhouette* and select Show Package Contents.

A new Browser window opens.

- 5** In the new Browser window, go to Contents/Resources/scripts.
Inside the scripts folder, you will find a *keybinds.py* file. As a precaution, it would be a good idea to make a backup of this file.
- 6** Make a copy of the *keybinds.py* file and rename the copy *keybinds.py.bak*.
- 7** Using a text editor, open the *keybinds.py* file.
- 8** Scroll down and replace the existing shortcuts with those of your choosing.
- 9** Save the file.
- 10** Restart Silhouette for the new keyboard shortcuts to be active.

Using the Command-Line

Silhouette on the command-line allows you to execute projects with a variety of commands to control the rendering process.

1 Open a Terminal window.

The Silhouette command-line program is named **sfxcmd** and is located in the following locations depending on your operating system:

- **Linux:** `/opt/SilhouetteFX/silhouette4`
- **Macintosh:** `/Applications/SilhouetteFX/Silhouette4`
- **Windows:** `C:\Program Files\SilhouetteFX\Silhouette4`

2 Use the `cd` command to navigate to the location of the `sfxcmd` command-line program.

3 Type: `sfxcmd`

The Silhouette command-line options are displayed in the Terminal window.

Command-line options are of the form: **-option value**, where **value** may be optional. Required arguments are in brackets (<>) and optional arguments are in braces ([]). If the value must be from a list of possible values, the available values are separated by |. The basic form of the `sfxcmd` argument is: **sfxcmd <projectname> [options]**

4 To render a project called `vfx-125-02.sfx` located at `D:/SFX/projects`, type: `sfxcmd D:/SFX/projects/vfx-125-02.sfx`

By default, the project is rendered using the settings in the project unless changed by command-line options.

5 To render every other frame, use the `-step` command as follows: `sfxcmd D:/SFX/projects/vfx-125-02.sfx -step 2`

Use `-range` or `-f` to specify single or multiple ranges of frames to render and `-start` to override the starting frame number of the rendered frames.

6 The `vfx-125-02` session starts at frame 4000 and you want to render 50 frames, but you want the rendered files to start at 1. To do this, type: `sfxcmd D:/SFX/projects/vfx-125-02.sfx -range 4000-4049 -start 1`

If your project has multiple sessions, you would need to target one of the sessions to render. If you are too lazy to open up the Silhouette user interface to determine the session name, you can use the **-info** command.

7 To print information about the overall project, type: `sfxcmd D:/SFX/projects/vfx-125-02.sfx -info`

When **-info** is used, rendering is disabled and the project information is displayed.

```
Project: vfx-125-02.sfx
FileSource: 125-02.[4000-4351].exr
Session: Session1
    Size: (2048, 1556)
    Aspect: 1.0
    Duration: 352.0
    Start: 4000.0
    Rate: 24.0
    Work Range: (4000.0, 4351.0)
    Node: Roto
    Node: 125-02.[4000-4351].exr
    Node: Output
    Node: Keyer
Session: Session2
    Size: (2048, 1556)
    Aspect: 1.0
    Duration: 352.0
    Start: 4000.0
    Rate: 24.0
    Work Range: (4000.0, 4351.0)
    Node: Output
    Node: 125-02.[4000-4351].exr
    Node: Effects
    Node: Power Matte
```

8 To render Session2 from the vfx-125-02 project, type the following: `sfxcmd D:/SFX/projects/vfx-125-02.sfx -session Session2`

It is also possible to render only a specific node.

9 To render only the Power Matte node in Session2 of the vfx-125-02 project, you would type: `sfxcmd D:/SFX/projects/vfx-125-02.sfx -session Session2 -node "Power Matte"`

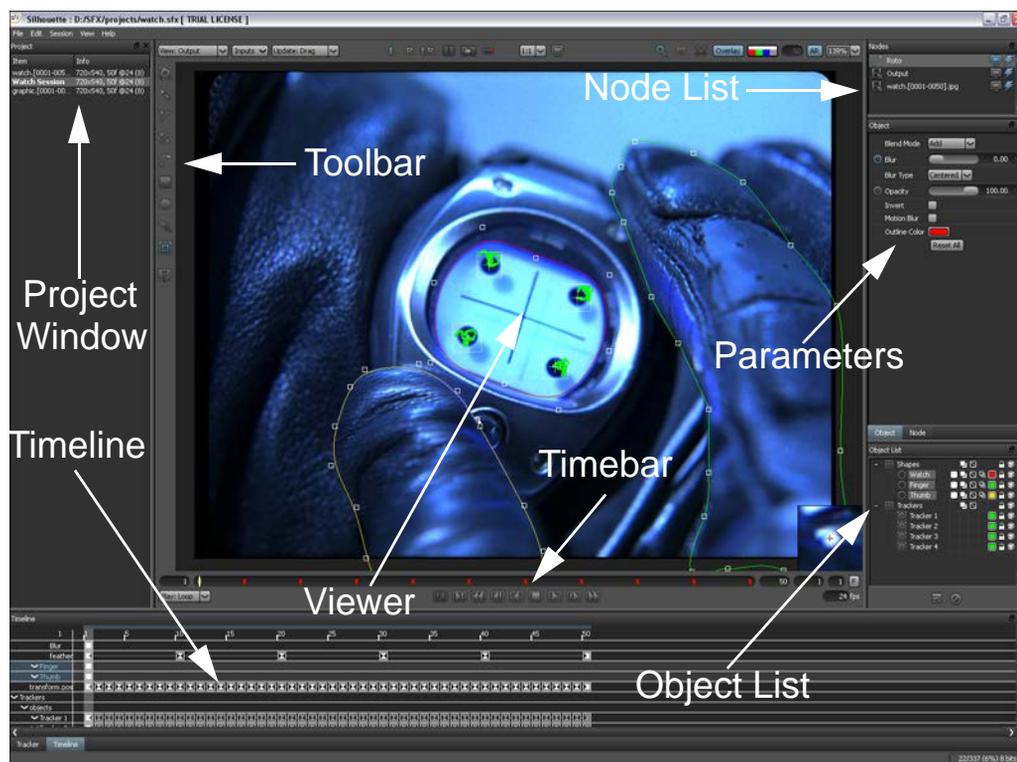
Quotes are used around Power Matte because there is a space in the node name.

There are lots of possibilities, so see the [Command-Line](#) section for a complete list of options and descriptions.

USER INTERFACE

Silhouette uses a combination of traditional pull-down menus, toolbars and pop-up menus. Quick keys are provided for most functions and are shown next to the pull-down menu equivalent. Pop-up tool tips describe the function of buttons when the cursor is dragged over them. Pop-up and floating windows are used where appropriate.

The Silhouette interface is comprised of a Project window, Viewer, Toolbar, Timebar, Timeline, Parameters, Node and Object Lists.



Concepts

Projects

A project contains sessions and media.

Sessions

A session in Silhouette is where you create your Roto shapes, create mattes or paint images. It describes the resolution, bit depth, duration, frame rate and aspect ratio as well as what nodes you will be using. More on nodes below. Typically, you may have a job that requires you to work on multiple shots. A session would be created for each shot that you will work on. You can have as many sessions as you want, but can only work on one session at a time.

Media

Media is a sequence of images. The location, frame rate, raster type, image size, and other information about the media is stored for your reference.

Objects

Objects are items such as shapes, trackers and brushes.

Layers

Layers are used to organize shapes, but more importantly they are used to contain the motion information from trackers.

Nodes

Silhouette internally is a node based system and different nodes are used for various functions. Currently, there are Keyer, Roto, Paint, Effects, Composite, Output and Source nodes.

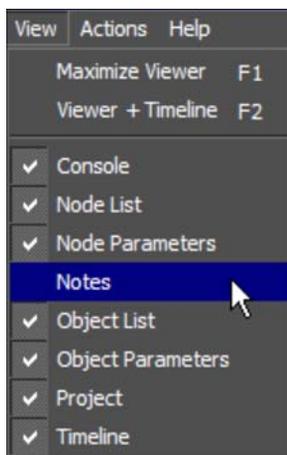
Windows and Adjustments

The Silhouette interface contains multiple windows. Windows can be closed, torn off to be a floating window, or moved to a new location. The upper right portion of the window has two icons: a Minimize/Maximize and a Close icon.



Opening and Closing Windows:

- Click the Close icon to close a window.
- Once a window has been closed, it can be reopened by selecting it from the View pull-down menu.

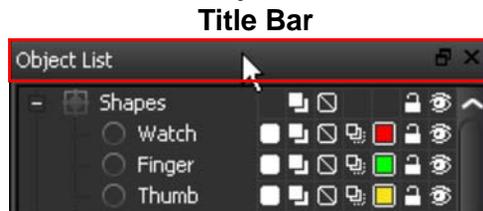


Creating Floating Windows:

- Click the Minimize/Maximize icon to make the window a floating window.

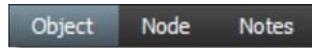
Moving Windows:

- Click and drag a docked window's title bar and place it in a new location in the user interface. Note how the interface adjusts to accommodate the moved window.



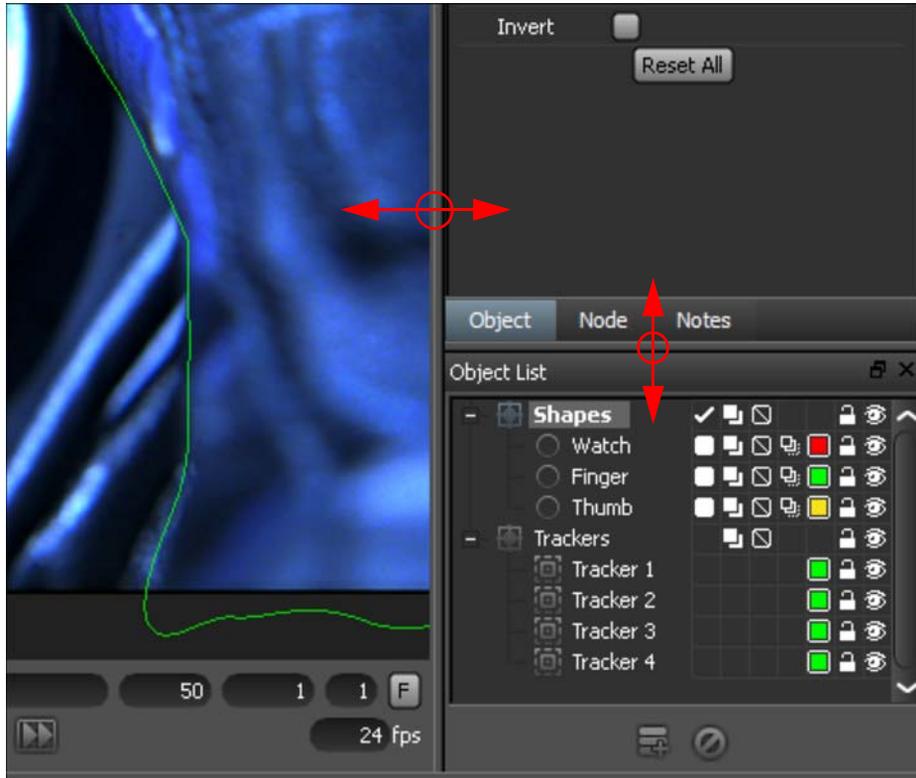
- Click and drag a floating window's title bar and place it in a new location.

- If you drop the window in the center of an existing window, a tab will be created so that both windows will share the same space. This is the same as the Object, Node and Notes windows sharing the same location.



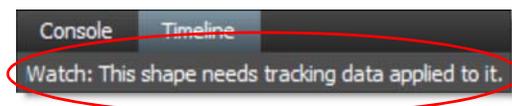
Sashes

By clicking and dragging the sashes, dividing lines between areas of the screen, you can customize the Silhouette interface.



Status Bar

The Status Bar is located at the bottom left of the User Interface and displays various messages.



Tool Tips

Hovering the cursor over an icon will pop up a tool tip that displays its function.



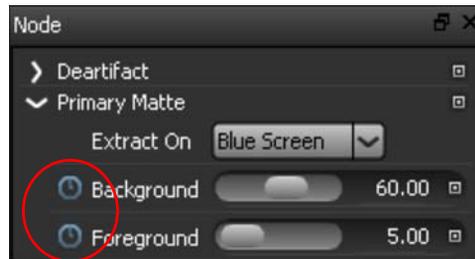
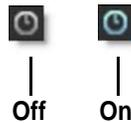
Twirly Icons

Parameter groups in the Object and Node windows can be expanded and collapsed using the Twirly icons located to the left of the group.



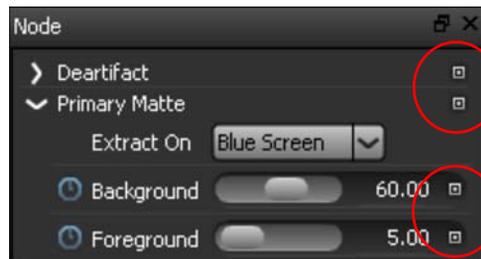
Animate Icons

Animateable parameters in the Object and Node windows have an Animate icon to the left of them. Keyframes are set when the Animate icon is enabled (highlighted).



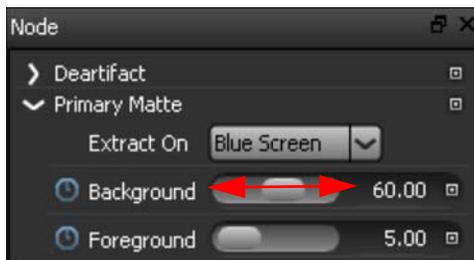
Reset Icons

Individual parameters as well as parameter groups can be reset to their default settings using the Reset icon.



Slider Precision

You can adjust any slider with finer precision by pressing **Ctrl(Win)/Cmd(Mac)** while dragging the slider.



Spin Boxes



Spin boxes change values according to the following key strokes:

- **Click** = change by 1 pixel.
- **Shift-click** = change by 10 pixels.
- **Ctrl-click** = change by 0.1 pixel.

Pull-Down Menus

File

New

Project

Create a new project by selecting File > New.

Session

Create a new session by selecting File > Session.

Open

Open projects with File > Open.

Save and Save As

Projects can be saved by choosing File > Save and File Save As.

Revert

You can revert to the last saved version by selecting File > Revert.

Close

File > Close closes the current project.

Recent Projects

The last five recently opened or saved projects can be selected and opened in File > Recent Projects.

Import

Media

Imports media into the project.

Shapes

Imports shapes into the project.

Export

Exports selected shapes from the project.

Edit

Undo

Undo operations.

Redo

Redo operations.

Cut

Cuts the selected object.

Copy

Copies the selected object.

Paste

Pastes the selected object.

Select All

Selects all shapes.

Deselect All

Deselects all shapes.

Spline

Convert to Bézier

Converts the select shapes to Bézier shapes.

Stereoscopic

This is where you can link, unlink and duplicate shapes for stereoscopic rotoscoping.

Link

Links two selected shapes of the same type and the same number of control points for stereoscopic rotoscoping. Linking allows the two shapes to be simultaneously selected and edited in the Left/Right View.

Note: Linked shapes are bolded in the Object List when one or both of a linked pair is selected.

Unlink

Unlinks selected shapes.

Duplicate

Duplicates a selected shape or a single layer containing shapes to the other view and automatically links it. When a layer is duplicated, all of its transform data is copied as well.

Duplicate > New Layer

Duplicates a selected shape to the other view, automatically links it and places it in a new layer.

Note: Duplicate > New Layer is not available if you are in the Left/Right View.

Session

Session Settings

Opens the session settings.

Render Settings

Opens the render settings.

View

Maximize Viewer

Only the Viewer is shown.

Viewer + Timeline

Only the Viewer and Timeline are shown.

Windows

The various Silhouette interface windows are displayed with checkboxes next to them. When the box is checked next to an item, that particular window is displayed in the user interface.

Actions

The Actions menu executes various scripts located in Silhouette/resources/scripts/actions. For information on how to create custom scripts that show up in the Silhouette > Actions menu, see the Silhouette 4 Scripting Guide for more information.

Select

Various selection actions are provided.

All

Selects all items.

Hidden Objects

Selects hidden objects.

Layers

Selects all layers.

Siblings

Selects all siblings of a selected object in the current layer. For any selected objects, add all similar objects in that object's layer to the selection.

Transparent Shapes

Selects all transparent shapes.

Time

Jump to Transparent

Looks at the selected shapes and jumps the Timebar to the first entirely transparent opacity keyframe it finds.

Render Active Node

Renders the active node.

Render Layer's Shapes in Folders

Renders the layer's shapes in folders.

Render Layers to Separate Files

Renders layers to separate files.

Render Shapes to Channels

Renders shapes to different channels of an RGBA image as defined by the Shape > Channel parameter.

Render Shapes to Separate Files

Renders shapes to separate files.

Help

About

Shows the Silhouette version.

User Guide

Opens the Silhouette User Guide in HTML format.

Scripting Guide

Opens the Silhouette Scripting Guide in HTML format.

What's New

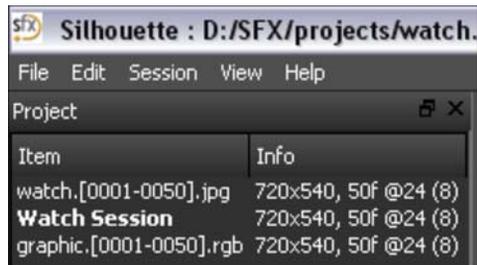
Opens the Silhouette What's New document.

License

Opens the Deactivate window which has three choices: Internet Deactivate (Recommended), Remove License and Advanced Options.

Project Window

A project contains sessions and media. When you open Silhouette, a new Project window automatically opens.



Import Media

Footage is imported by selecting File > Import > Media or by double-clicking on an open space in the Project window. When the File Browser opens, you can import a single frame, the entire clip or a range of frames.

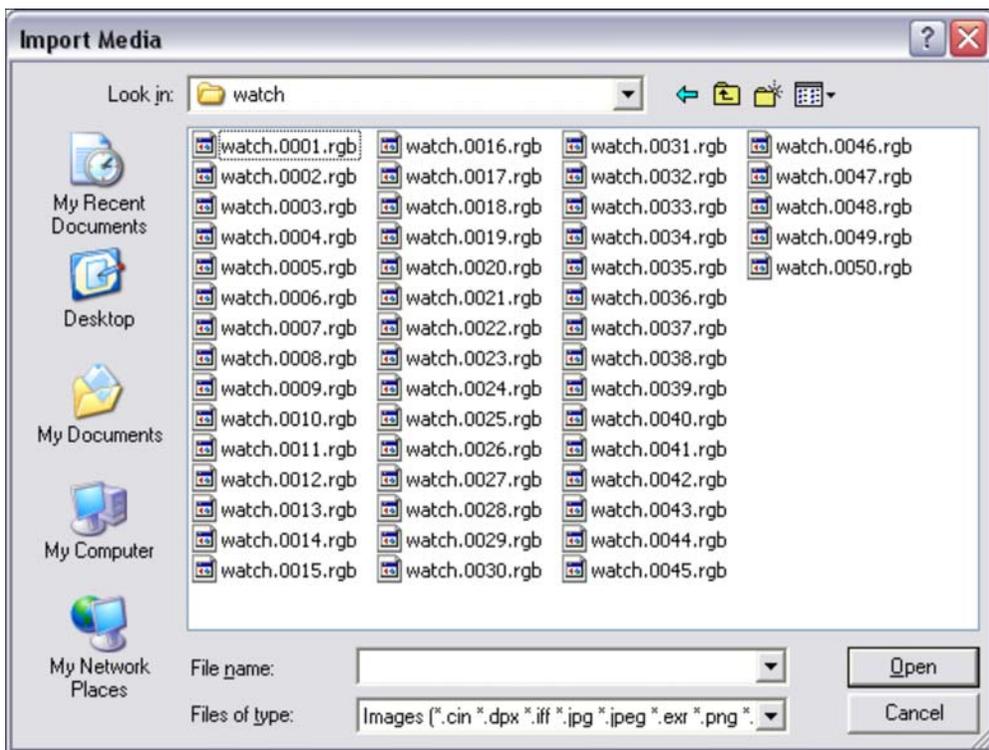


Table 1: Import Options

| <u>Selection</u> | <u>Action</u> |
|--|--------------------------------------|
| Select the first frame in a sequence | Imports the entire sequence |
| Select a range of frames | Imports the selected range of frames |
| Select any single frame other than the first frame | Imports only that frame |

We currently support the following file formats: Cineon, DPX, IFF, JPEG, OpenEXR, PNG, SGI/RGB, QuickTime, TIFF and TARGA.

Note: QuickTime is only available on operating systems that support it.

Open

Loads the selected media into the Project window.

Cancel

Cancels the import operation.

Go to [Importing Media](#) to see how it works.

When media is imported into Silhouette, it is automatically plugged into a Source node. When one of the image sources is selected in the Node List, it's parameters can be set in the Node window.

See [Source Nodes](#) for more information.

Replacing Media

If the media is moved from its location on disk after you have imported it, Silhouette will no longer be able to find it. However, you can easily relink the media using the Replace feature which lets you replace your existing clip with a new one. You can replace footage by going to the Project window, right-clicking the media and choosing Replace from the pop-up menu.

Go to [Replacing Media](#) to see how it works.

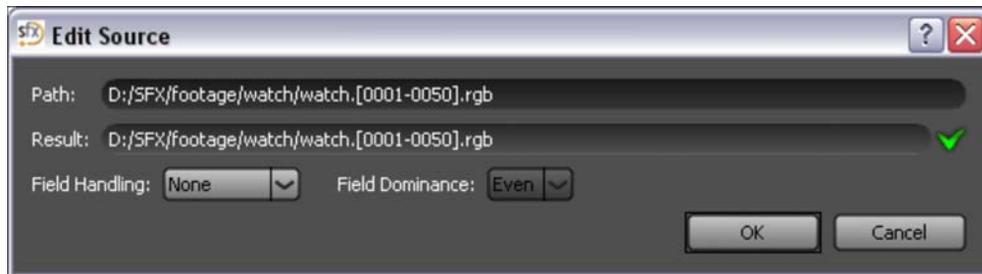
Relinking Painted Frames

When activating the Paint node, a scan for the painted images takes place. If it detects anything missing, it will ask you want to relink or just ignore. The paint resides in a directory named with a GUID (globally unique identifier), such as

71e58332-2a34-4292-b828-6fa8c4b2bed3. This directory with the same name must exist somewhere, and you will be allowed to point to the folder that contains that GUID directory for the relink to happen.

Edit Source

The settings of the source media can be modified using the Edit Source window. You can access these settings by right-clicking on media in the Project window and selecting Edit Source from the pop-up menu.



Environment Variables

The Path and Result fields allow you to specify the file path with environment variables.

Path

You can replace parts of the Path field with a new path and/or environment variables.

Result

The Result field is read-only and shows you what your path expands to if you have environment variables. A green check or yellow warning icon to the right shows you whether or not all of the images in your path are actually present. A green check means the path is valid while a yellow warning icon indicates an invalid path.

Go to [File Path Environment Variables](#) to see how it works.

Video Fields

When working with footage that contains video fields, you have the option of either deinterlacing or removing 3:2 Pulldown. What are video fields and 3:2 Pulldown, you ask? Well, a review of the mechanics of video frames and fields is in order, so listen up.

The resolution of video images is 525 lines for NTSC and 625 lines for PAL. NTSC video runs at 30 frames per second and PAL at 25 frames per second. Each video frame is made of two separate subframes called fields. Each of these fields is an individual snapshot in time. By using fields, the viewer sees twice as many frames and smoother motion. Even though the fields represent different points in time, they occupy the same video frame. This is achieved through a process called interlacing.

Here comes the fun part. Interlacing weaves together the two fields by starting at the top of the image and taking one line from field 1 (the odd field) and another line from field 2 (the even field) until all 525 or 625 lines are interlaced together. Temporally, the fields always occur in the following order: field 1 and then field 2. Spatially, the ordering is different for NTSC and PAL. For NTSC, the spatial field order starts with field 2, or the even field. For PAL, it is the exact opposite with field 1, or the odd field, being the first spatial field.

Therefore, the interlace process produces two fields of half-height for every broadcast frame. When a television displays these images, it quickly shows the first field only, and then the second field only, and then proceeds to the next frame. Each field sacrifices vertical resolution for the benefit of temporal quality.

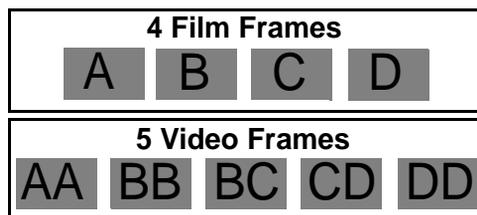
Deinterlacing

When deinterlacing is enabled, it strips out the two fields from each other, placing field 1 at frame 1, and field 2 at frame 1.5. Each field is then copied and moved into the empty spatial place of the removed field. This ensures that all spatial effects are properly handled when rendering fields. This strategy is clever because it doubles the number of frames you have, but keeps the frames within the same duration.

3:2 Pullup / Pulldown

What in the blazes does 3:2 Pullup / Pulldown mean? This is a technique to temporally convert (resolution not being considered here) film footage to video footage and back again. Given that film uses solid frames and video uses interlaced fields, and that film runs at 24 fps and NTSC runs at 30 fps, you split the film footage into fields and double up 2 out of 5 frames to increase your frames to fill the 30 fps. Pullup is the conversion of film footage from 30fps to 24fps while Pulldown is the conversion of 24fps film footage to 30fps.

Let's use the classic diagram:



We see that the third and fourth video frames have field blending in them to stretch time out. It's therefore called 3:2 because you have three solid frames and two mixed frames.

3:2 Pullup

We can fully reconstruct our original four film frames by extracting the field data from the five video frames. Here comes the odd bit. When you receive your footage, it has probably been edited, so it is not necessarily the case that frames three and four are the mixed frames because all of the clips have been shifted around in the edit. We therefore need to figure out what the first frame is before we attempt to remove the extra fields. To do this, you would go to your first five frames in the sequence. If the first frame to have field blending is frame three, you know your first frame should be set to AA. If the first frame to have field blending is frame two, then you know your first frame is BB. You would then set your 3:2 parameter accordingly. If your first frames are a solid color and you can't figure it out, you have to jump to a time range of frames that display the blending and start guessing what the first frame is until the fields go away. Very scientific, isn't it?

Use the 3:2 setting in the chart below that corresponds to your first frame with field blending.

Table 2: 3:2 Pullup

| First frame with field blending | 3:2 Setting |
|---------------------------------|---|
| 1 | BC if followed by a blended frame / CD if followed by a solid frame |
| 2 | BB |
| 3 | AA |
| 4 | DD |

Field Handling

You can choose from either Deinterlace or one of the 3:2 settings.



None

No field processing takes place.

Deinterlace

Deinterlaces the video frame into two separate fields.

3:2 AA

Removes 3:2 Pulldown based on the AA frame being the first frame.

3:2 BB

Removes 3:2 Pulldown based on the BB frame being the first frame.

3:2 BC

Removes 3:2 Pulldown based on the BC frame being the first frame.

3:2 CD

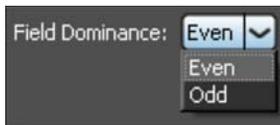
Removes 3:2 Pulldown based on the CD frame being the first frame.

3:2 DD

Removes 3:2 Pulldown based on the DD frame being the first frame.

Field Dominance

Select either Even or Odd field dominance depending on whether you are working with NTSC or PAL images.



Even

Use for NTSC images.

Odd

Use for PAL images.

Go to [Working with Video Fields](#) and [Working with 3:2 Pullup / Pulldown](#) to see how they work.

Interpretation

Interpretation is only displayed in the Edit Source menu when using DPX files. It detects and sets whether DPX files are Logarithmic or Linear. Sometimes the program used to create the DPX files writes the wrong header information into the file causing Silhouette to think it is Logarithmic when it is Linear and vice versa. The controls below allow you to explicitly set whether or not the file is Logarithmic or Linear.

Auto

Automatically figures out whether the DPX file is Logarithmic or Linear.

Log

Manually sets the DPX file to Logarithmic.

Lin

Manually sets the DPX file to Linear.

Autosaving and Backups

A numbered autosave and backup system ensures that you will not lose any of your work. Autosaves and backups are stored in \$HOME/Silhouette4 for Windows and Linux. HOME on Windows is by default in the user's profile directory, usually C:\Documents and Settings\UserName on XP and C:\Users\UserName on Vista. On Macintosh, the autosaves and backups are stored in your HOME directory in Library/Application Support/Silhouette4/autosaves.

Autosaves

The Auto Save > Maximum # of Saves preference specifies how many autosave files will be stored at once. The most recent autosave is autosave.sfx, the second most recent is autosave.1.sfx, then the next is autosave.2.sfx, etc., up to the maximum number of 5. As each new autosave is added, the files are rotated upward. When a project is opened or created, a lock file is created. This file is deleted when the current project is closed. If Silhouette crashes, the lock file will remain. The next time Silhouette starts up, it checks for the lock file as well as the presence of any autosave files, and lets the user choose one. If an autosave file is chosen, the path is cleared, so the user will be asked to choose a filename at the next save.

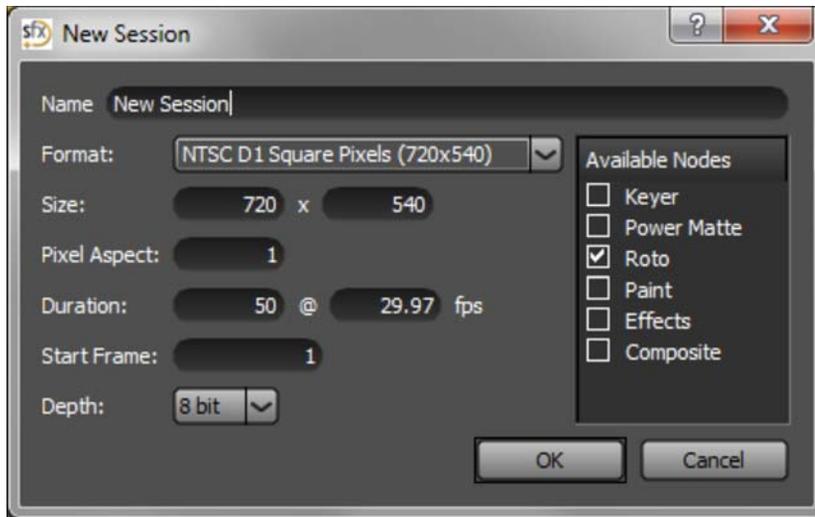
Backups

The Auto Save > Maximum # of Backups preference controls how many backup files are created. Each time a project is saved, a backup copy is stored. These files are rotated exactly like the autosave files each time the project is saved. The backup files are named with the same name as the project.

Note: Like autosaves, the most recent backup is project_name.sfx, the second most recent is project_name.1.sfx, then the next is project_name.2.sfx, etc., up to the maximum number of 5.

Sessions

A session in Silhouette is where you do your work, whether it be rotoing shapes, creating mattes or painting images. Typically, you may have a job that requires you to work on multiple shots. A session would be created for each shot that you will work on. You can have as many sessions as you want, but can only work on one session at a time.



Go to [Creating Sessions](#) to see how it works.

New Session

You must create a session before you can start working with your footage. It describes the resolution, bit depth, duration, frame rate and aspect ratio as well as what nodes you will be using. You create a new session by highlighting an image sequence in the Project window and pressing either **Ctrl(Win)/Cmd(Mac)-N** or selecting File > New > Session.

Editing Sessions

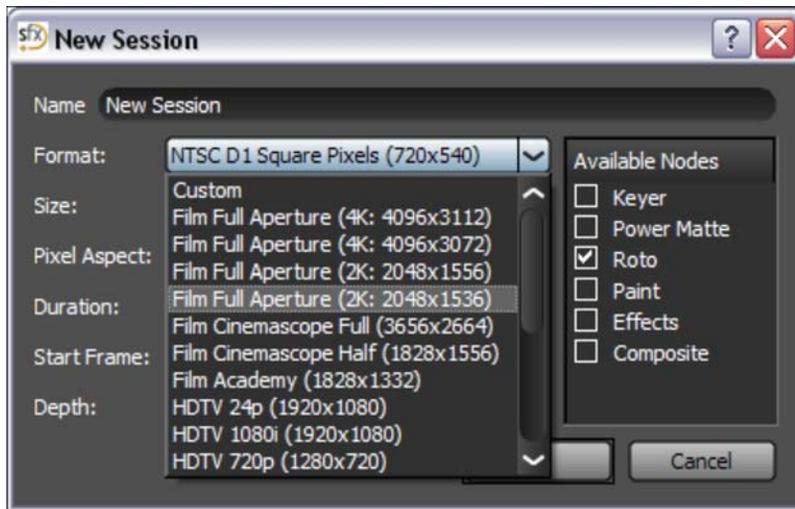
Once you have created a session, you can change its settings at any time by either 1) Selecting Session > Settings, 2) Right-clicking on the name of a session in the Project window and choosing Edit Session or 3) Pressing **Ctrl(Win)/Cmd(Mac)-Shift-S**. In either case, the Session window opens and you can change the settings.

Switching Sessions

To switch between sessions, double-click on the name of the session in the Project window.

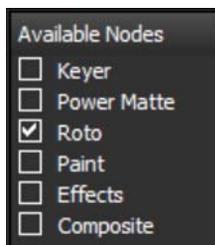
Session Window

The Session window has a variety of settings for format, image size, pixel type, and frame rate. You can choose one of the preset formats or create a custom format.



Available Nodes

Silhouette internally is a node based system and different nodes are used for various functions. Currently, there are Keyer, Roto, Paint, Effects and Composite nodes. By default, the Roto node is selected. Activate whichever nodes you will be using in your session. You can always add additional nodes to a session after it has been created by selecting Session > Settings.



Keyer

Activates the Keyer node for the session.

Power Matte

Activates the Power Matte node for the session.

Roto

Activates the Roto node for the session.

Paint

Activates the Paint node for the session.

Effects

Activates the Effects node for the session.

Composite

Activates the Composite node for the session.

Name

Determines the name of the session.

Format

A number of preset formats can be selected from the Format pop-up menu. When one of the options is selected, the session fields are preset with the appropriate data. See [Appendix C - Session Formats](#) for a complete listing of all format presets.

Format Presets

- **Custom**
- **Film Full Aperture (4K: 4096x3112)**
- **Film Full Aperture (4K: 4096x3072)**
- **Film Full Aperture (2k: 2048x1556)**
- **Film Full Aperture (2k: 2048x1536)**
- **Film Cinemascope Full (3656x2664)**
- **Film Cinemascope Half (1828x1556)**
- **Film Academy (1828x1332)**
- **HDTV 24p (1920x1080)**

- HDTV 1080i (1920x1080)
- HDTV 720p (1280x720)
- NTSC (640x480)
- NTSC (648x486)
- NTSC DV 720x480)
- NTSC DV Widescreen (720x480)
- NTSC D1 (720x486)
- NTSC D1 Square Pixels (720x540)
- PAL D1/DV (720x576)
- PAL D1/DV Square Pixels (768x576)
- PAL D1/DV Widescreen (720x576)

Size

Width

Sets the width of the image.

Height

Sets the height of the image.

Pixel Aspect

Sets the pixel aspect ratio of the image.

Duration

Sets the length of the session.

FPS

Sets the frame rate of the session.

Start Frame

Sets the start frame for the session. The Player, Timeline and Render Options incorporate this value into their numbering.

Depth

Sets the bit depth of the session.

8 bit

Sets the bit depth to 8 bits per channel.

Float

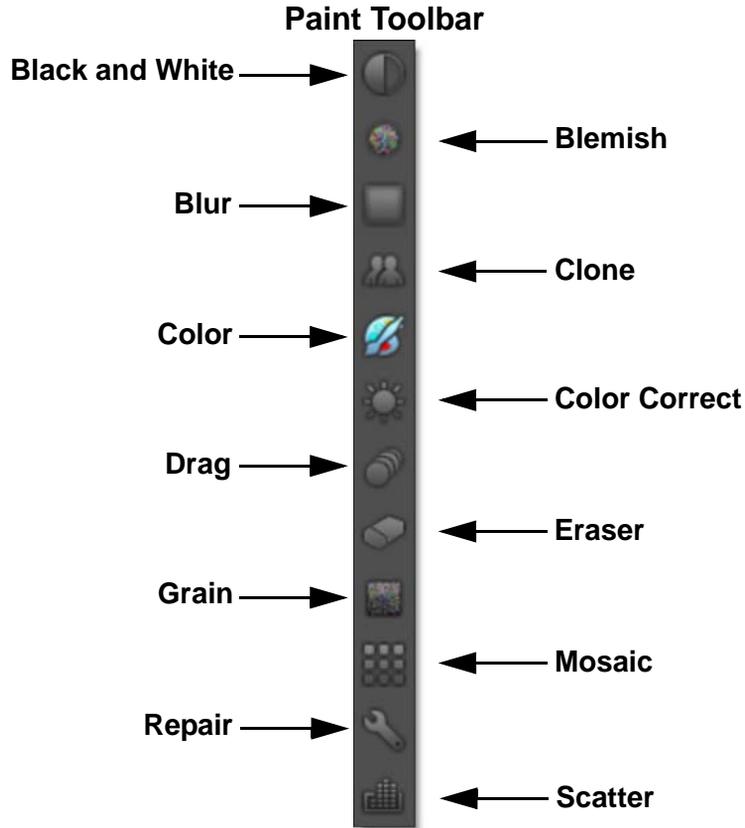
Sets the bit depth to floating point. Use for film sessions using OpenEXR, DPX and Kodak Cineon files.

OK

Creates a new session in the Project window. The name, New Session, is highlighted waiting for you to name it. When you click OK, the session is automatically created.

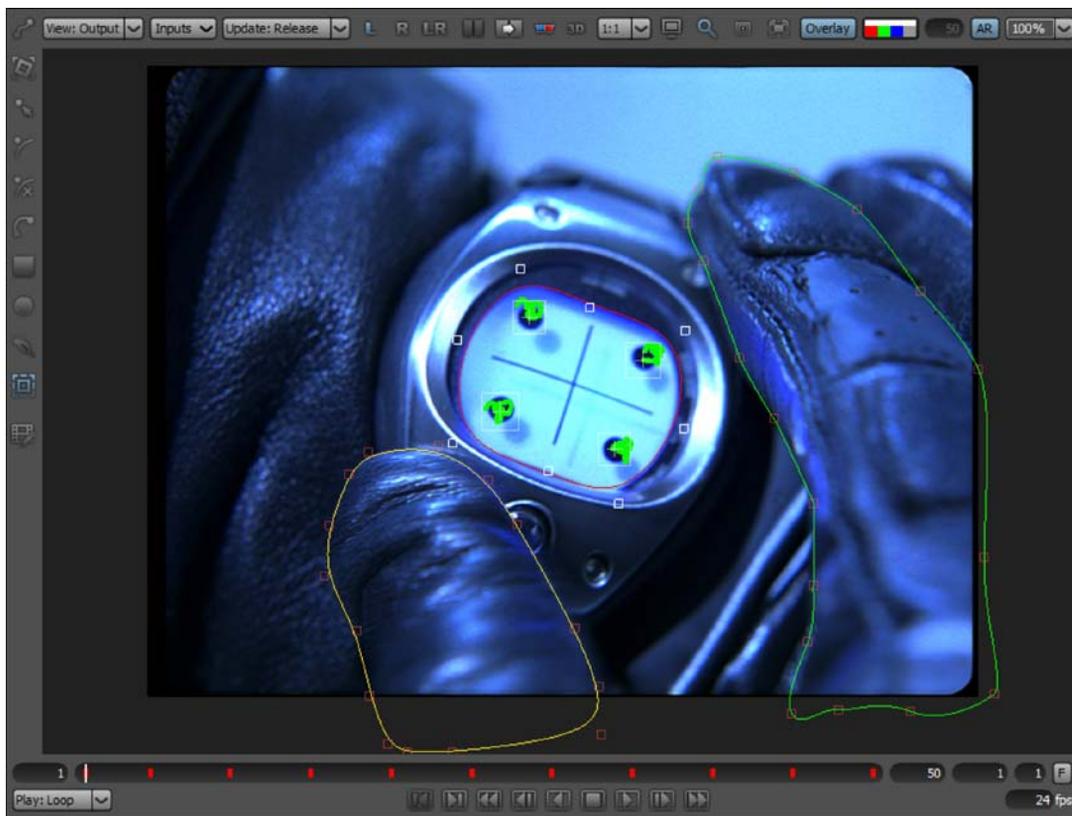
Toolbar

Along the left side of the Viewer is the Toolbar. It contains icons that select various tools. The contents of the Toolbar will change depending upon the node that is selected.



Viewer

Silhouette uses a Viewer for image editing as well as for clip playback. Some features include: viewing individual color channels, the simultaneous display of RGB and Alpha channels, the selection of stereoscopic views as well as the superimposition of shapes over images.



View

Offers various View options for the selected node. The View choices will depend on the node.



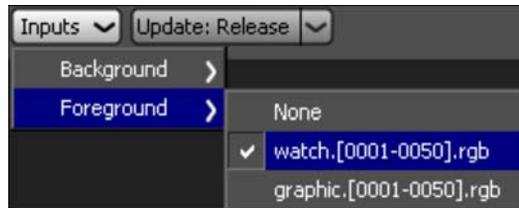
Inputs

Roto, Effects, Keyer and Power Matte Node Inputs

Selects clips from the Project window to be used as the foreground and background.

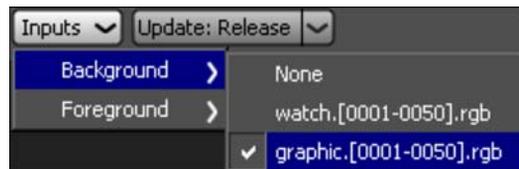
Foreground

Selects a clip from the Project window to be used as the foreground.



Background

Selects a clip from the Project window to be used as the background.

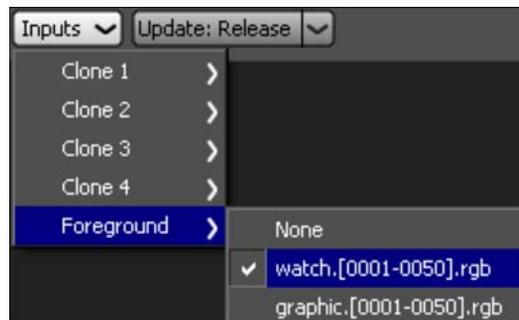


Paint Node Inputs

Selects clips from the Project window to be used as clone sources and the foreground.

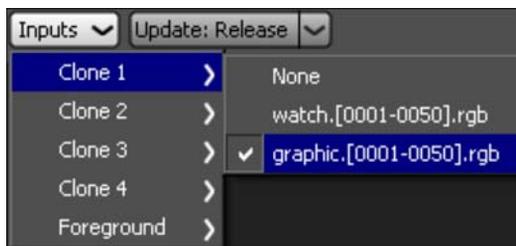
Foreground

Selects a clip from the Project window to be used as the foreground. The foreground input in Paint is the image you will paint on.



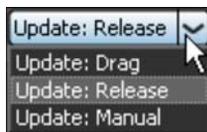
Clone 1-4

Selects clips from the Project window to be used as clone sources.



Update

Determines when processing takes place. The ! key cycles through the Update modes.



Drag

Tries to process as fast possible.

Release

Processes once the mouse or pen is released. This the default setting.

Manual

Silhouette does not process. If you place the cursor within the Viewer window and hit the **Enter** key, Silhouette will manually process any changes.

Stereoscopic View Modes

The Stereoscopic View modes, which only show up when using stereoscopic sources, determine whether you are working on the Left View, Right View or both the Left and Right Views at the same time.



L (Shift-1)

Left View displays the left sequence in the Viewer.



R (Shift-2)

Right View displays the right sequence in the Viewer.



LR (Shift-3)

Left/Right View displays both the left and right sequences in the Viewer at the same time.



Stereoscopic Split Mode

Only available once the Left/Right View is active, Stereoscopic Split Mode determines whether or not the Left and Right Views are arranged horizontally or vertically.

Horizontal

Arranges the Left and Right Views horizontally.



Vertical

Arranges the Left and Right Views vertically.



Stereoscopic Align (Shift-4)

Stereoscopic Align utilizes layers to line up two stereoscopic sequences which will effectively negate the offset between them. Aligning the sequences in this manner allows painting on the same location of the Left and Right Views simultaneously, while for rotoscoping, it means shapes created for the Left View can be easily duplicated to the Right View in the proper position.



Note: Stereoscopic Align can only be selected and used once a layer is active.

When activated, Stereoscopic Align uses a negative mode which inverts one of the views and mixes it with the other. This creates an embossed effect when similar image areas are not aligned. By dragging the move cursor that appears, you can drag on the Viewer to align the views. When similar image features are perfectly aligned, you will see a solid gray color. The amount you move the view in Stereoscopic Align mode is stored in the Stereo Offset parameter of the active layer which is set to animate by default. Animation of this parameter is needed for image sequences that contain depth changes.

Table 3: Stereoscopic Align Keyboard Shortcuts

| Shortcut | Action |
|--|---|
| Click and drag in Viewer | Moves the Stereo Offset horizontally |
| Shift -click and drag in Viewer | Moves the Stereo Offset horizontally and vertically |
| Ctrl -drag in Viewer | Moves the Stereo Offset in finer increments |
| Alt -click in Viewer | Resets the Stereo Offset |
| Arrow keys | Moves the Stereo Offset by 1 pixel |
| Shift-Arrow keys | Moves the Stereo Offset by 10 pixels |
| Ctrl(Win)/Cmd(Mac)-Arrow keys | Moves the Stereo Offset by one tenth of a pixel |
| Hold down Arrow keys | Moves the Stereo Offset continuously |

Anaglyph Preview (Shift-5)

Activates Anaglyph Preview mode so that you can check your stereoscopic image in 3D using red-blue glasses.



Stereo Viewer (Shift-6)

Opens a stereo Viewer window for displaying the stereoscopic image in either Anaglyph or Interlaced modes on a 3D monitor. The default mode is defined in the Viewer > Stereo View Mode preference.



Interlaced mode requires a 3D monitor that uses interlacing like the Zalman passive display. When in Interlaced mode, the Stereo First Field viewer preference controls which eye comes first--Left or Right. This needs to match up with how the monitor does the 3D effect. You can also **right-click** and select Zoom > Fit, Zoom > 1:1 or Fullscreen to completely fill the screen with the Stereo Viewer.

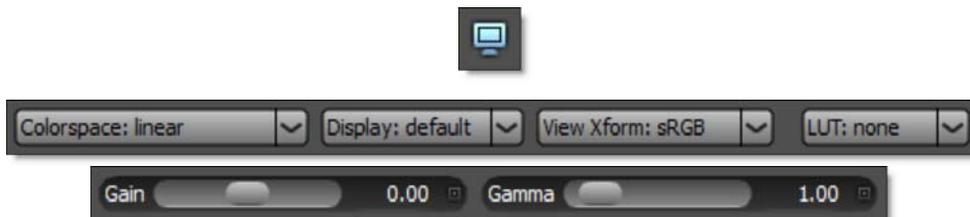
Note: On a single monitor system, the **Esc** key will close the Stereo Viewer.

Table 4: Stereoscopic View Shortcuts

| <u>Shortcut</u> | <u>Action</u> |
|-----------------|-----------------------------|
| Shift-1 | Selects the Left View |
| Shift-2 | Selects the Right View |
| Shift-3 | Selects the Left/Right View |
| Shift-4 | Selects Stereoscopic Align |
| Shift-5 | Anaglyph Preview |
| Shift-6 | Stereo Viewer |

Display Options

The Display Options icon reveals the color management options which remain visible as long as it is enabled.



Silhouette uses the OpenColorIO standard originally developed by Sony Pictures Imageworks for its color management. You can load custom color configuration files and custom LUTs, apply color space conversions, as well as use other controls for fine tuning. Silhouette includes a set of preset color profiles, plus you can configure and use your own by specifying one in the Color Management > OCIO Configuration preference.

For a more detailed explanation of OpenColorIO, including generating LUT's and suggested workflows, please visit <http://opencolorio.org/>.

Note: The color management functionality provided in the Display Options is for display purposes only. The color profiles, LUTs, and colorspace conversions applied in the Viewer do not affect the rendered image.

Color Management

Colorspace

Set the input colorspace of the scene. The following colorspace are provided: Linear, sRGB, rec709, Cineon, Gamma 1.8, Gamma 2.2, Panalog, REDlog, ViperLog, AlexaV3LogC, PLogLin, SLog, Raw.

Silhouette automatically tries to determine the colorspace based on the data in the file and other information from the header. If a colorspace can't be detected, Linear will be selected.

Display

Set the colorspace of the display device used to view the scene. The default OCIO configuration only has one display option. Additional devices can be added in a custom configuration and will show up in this menu.

View Xform

Select a colorspace transform to apply to the scene. You can select from sRGB, rec709 or None.

LUT

Select a custom LUT to apply to the scene. A number of LUT formats are supported including: Flame, Lustre, Color Correction Collection, Color Correction, Cinespace, Houdini, Iridas itx, Iridas cube, Pandora mga, Pandora m3d, Sony Pictures Imageworks 1D, Sony Picture Imageworks 3D, Sony Picture Imageworks mtx, Truelight and Nuke vf.

Note: Selecting a LUT disables the Colorspace, Display and View Xform controls.

Gain

Adjusts the brightness of the image in F-stops. Gain is applied before the display transform.

Gamma

Adjusts the gamma of the image. Gamma is applied after the display transform.

Go to [Color Management Tutorial](#) to see how it works.

Proxy

Sets the resolution at which the clip will be played and viewed. The higher the number, the lower the resolution.



The higher the proxy setting, the more frames you can play.



1:1

1:1 keeps the image quality at full resolution.

2:1

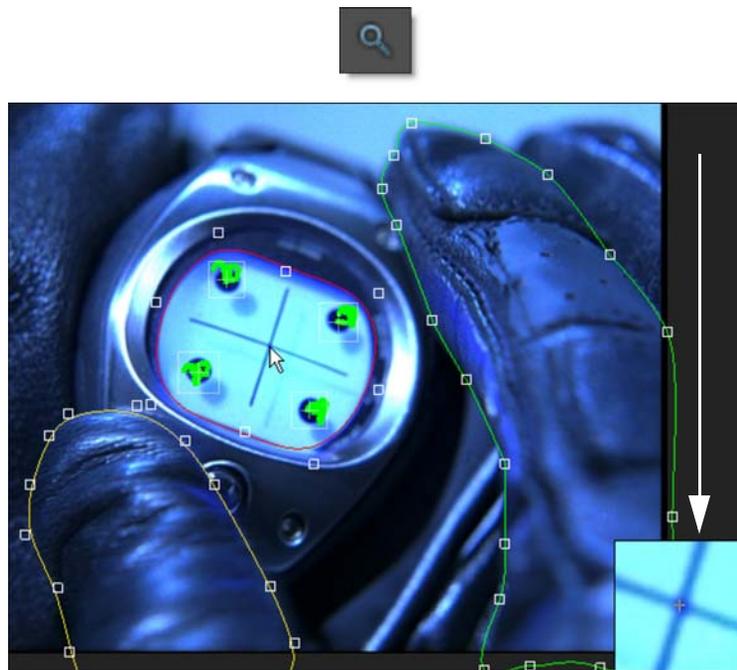
2:1 lowers the image resolution by 1/2.

3:1

3:1 lowers the image resolution by 1/3.

Magnify

Magnify opens a magnification window at the bottom right corner of the Viewer and displays a zoomed area around the cursor location. It is useful for precise control point/tracker placement and while painting when the Viewer is zoomed out. Magnify is available in the Roto > Reshape and Tracker tools.

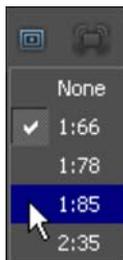


Masks

Masks aid you in determining what will be projected on film or shown on television by adding reticles and or a variable opacity mask to the Viewer.



The following aspect ratio's are supported: 1:66, 1:78, 1:85, 2:35 as well as Safe Action for video. When an aspect ratio is selected from the Mask pull-down menu, the mask settings defined in the Viewer Preferences are activated. See the [Viewer Preferences](#) for more information.



Creating Custom Masks

In the Silhouette/resources folder of your installation, there are two files: formats.xml and masks.xml.

You can add your own custom masks to the masks.xml file. The rectangle values are multiplied by the image width/height to figure out where the mask should be placed. For example, Safe Action is a 90% rectangle, so the border is .1, .1, .9, .9 (i.e. 10%, 10%, 90% 90%) of the image size.

You associate certain masks with certain formats by adding a “Mask” entry to the formats in formats.xml. You can add any number of masks to each format. These masks will be available in the mask selector in the Viewer, depending on the session format.

Note: You can't associate masks with “custom” session formats. Instead, you should add a new format to your formats.xml file if you have an odd format you want to use with masks.

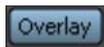
Stabilize

The Viewer is stabilized based on the active layer's tracking data.



Overlay

Toggles the display of overlays which are lines, shapes or objects that Silhouette superimposes over the image. **0**, the number zero, toggles the overlay.



RGBA

Displays various combinations of the Red, Green, Blue and Alpha channels.



Selecting Channels

Clicking on the Red, Green, Blue or Alpha buttons solo that channel as a gray scale image. **Ctrl(Win)/Cmd(Mac)**-clicking the Red, Green, Blue or Alpha buttons toggles the display of each component. The horizontal white bar above the RGBA buttons quickly toggles the display of the image back to full color mode.

Solo Channels

Alt-R/G/B/A toggles the Red, Green, Blue and Alpha channels on and off.

Alpha Display

Cycle Alpha

Either press the Alpha button (to the right of the blue button) or the **A** key to cycle the state of the Alpha display. Pressing once superimposes the Alpha channel over the image. Pressing a second time displays the Alpha channel over black. Hitting it again shows only the color image.

Note: To view a shape's Alpha channel, you must first set the View to Output before pressing the Alpha button or the **A** key.

Display Alpha - No Overlay

Shift-A toggles the View to Output, superimposes the Alpha channel over the image and deactivates the Overlay. Pressing **Shift-A** again returns the Viewer to its previous state.

Display Output Node's Alpha

You can quickly view the Output node's Alpha channel from any other node by using the **Alt+o** shortcut key. Pressing **Alt-o** again views the previous node.

Alpha Mix

The numeric entry box next to the RGBA buttons controls the opacity of the Alpha channel when it is superimposed over the image.

Go to [Using the RGBA buttons in the Viewer](#) to see how it works.

AR

Activates pixel aspect ratio correction in the Viewer as defined in the session settings. For instance, this lets you view Cinemascope ratio images as they would appear when projected.



Zooming and Panning

Sets the zoom factor for the image.



25%-200%

100% displays the image at its actual size at a ratio of one image pixel to one screen pixel.

You can also zoom the image using the scroll wheel on your mouse, the **I** key to zoom in and the **O** key to zoom out or press **Space Bar-Shift** and drag left or right.

Fit

Either pressing the **F** keyboard shortcut or selecting Fit from the zoom pop-up window will display the image as large as possible within the Viewer window.

Home

You can either press the **H** keyboard shortcut or double-click the middle mouse button to set the image to a 100% zoom level and center it in the Viewer.

Center Selection

Press **Ctrl(Win)/Cmd(Mac)-F** to center the selection in the Viewer.

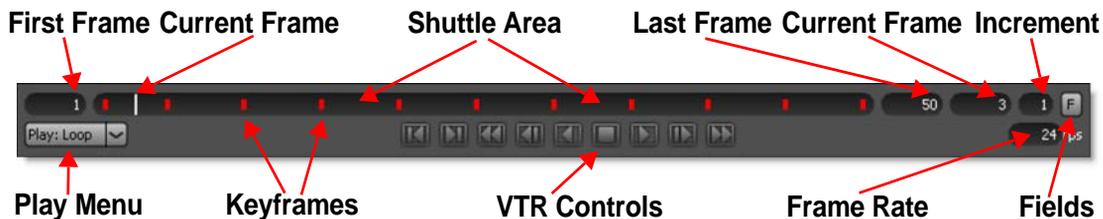
Go to [Viewer Navigation](#) to see how to zoom and pan the Viewer.

Table 5: Viewer Keyboard Shortcuts

| Shortcut | Action |
|--|---|
| F1 | Only the Viewer is shown in the interface |
| F2 | Only the Viewer and Timeline are shown in the interface |
| 0 | Toggles the display of overlays which are lines, shapes or objects |
| Number Keys (1-6) | Switches the Viewer > View menu |
| ~ | Cycles through the update modes |
| A | Cycles the display between the full color image, the Alpha channel superimposed over the image and the Alpha channel by itself |
| Shift-A | Toggles the View to Output, superimposes the Alpha channel over the image and deactivates the Overlay |
| Alt-R/G/B/A | Toggles the Red, Green, Blue and Alpha channels on and off |
| Alt-o | Toggles the display to/from the Output node's Alpha channel from any other node. Pressing Alt-o again views the previous node. |
| Ctrl(Win)/Cmd(Mac)-click RGB buttons | Toggles the display of each component on or off |
| Middle-mouse drag | Pans the image |
| Space Bar -drag | Pans the image |
| I | Zooms the image in |
| O | Zooms the image out |
| Shift -Middle-mouse drag | Zooms the image in and out |
| Scroll wheel | Zooms the image in and out |
| Space Bar -Shift-drag | Zooms the image in and out |
| F | Fits the image in the Viewer |
| H or Middle-mouse double click | Centers the image in the Viewer at 100% |
| Ctrl(Win)/Cmd(Mac)-F | Centers selection in the Viewer |
| ' | Opens a context menu over pen/mouse location |

Timebar / VTR Controls

The Timebar below the Viewer provides you with controls to play your clips as well as navigate your sequence.



Timebar

Keyframe Markers

Colored markers in the Timebar shuttle area signify where selected objects have keyframes. Objects that display keyframes in the Timebar are shapes, trackers and painted frames. Path keyframes are shown for shapes, position keyframes for trackers and painted frames when in the Paint node.



The color of the markers is determined by the object color. If multiple selected objects have a keyframe on the same frame, the most recently selected object's color has precedence. A white marker is used to signify the current frame and hovering over a marker displays a tool tip showing the keyframe time.

Shift-Alt-clicking and dragging a marker will move the keyframe in time.

First Frame

The numeric entry box on the left displays the first frame of the clip being viewed. Enter a new number in the numeric entry box to change the start frame and hit **Enter**.

Last Frame

The numeric entry box to the right of the shuttle slider displays the last frame of the clip being viewed. Enter a new number in the numeric entry box to change the last frame and hit **Enter**.

Current Frame

The second numeric entry box to the right of the shuttle slider displays the current frame of the clip being viewed. Enter a new number in the numeric entry box and hit **Enter** to move directly to that frame in the clip.

Increment

The far right numeric entry box controls the amount of frames that the Viewer increments from frame to frame.

Fields

When selected, the Fields button changes the Timebar and Timeline to advance and display in half frame increments.

Play Menu

Change how the clip is played. The Play menu is located at the bottom-left of the Viewer.



Once

Plays the clip once when you press the Play button.

Loop

Plays the clip in a continuous loop when you press the Play button.

Swing

Plays the clip continuously, alternately forwards, then backwards when you press the Play button.

VTR Controls

The VTR controls control clip playback.



Shuttle

Clicking and dragging in the shuttle area shuttles through the clip.



Previous Key

Moves to the previous keyframe.



Next Key

Moves to the next keyframe.



Home

Moves to the first frame of the sequence.



Previous Frame

Step backward 1 frame.



Play Backward

Plays the sequence backwards.



Stop

Stops playing the sequence.



Play

Plays the sequence forward.



Next Frame

Step forward 1 frame.



End

Moves to the last frame of the sequence.



Table 6: VTR Controls Keyboard Shortcuts

| Shortcut | Action |
|--|--|
| Z | Step backward 1 frame |
| Shift-Z | Moves to the previous keyframe |
| X | Step forward 1 frame |
| Shift-X | Moves to the next keyframe |
| J | Plays the sequence backwards |
| K | Stops or starts playback |
| L | Plays the sequence forwards |
| Space Bar | Stops playback |
| Home | Moves to the first frame of the sequence |
| End | Moves to the last frame of the sequence |
| Click and drag in the shuttle area | Shuttles through the clip |
| Shift-Alt-click and drag a keyframe marker | Moves the keyframe in time |

Frame Rate

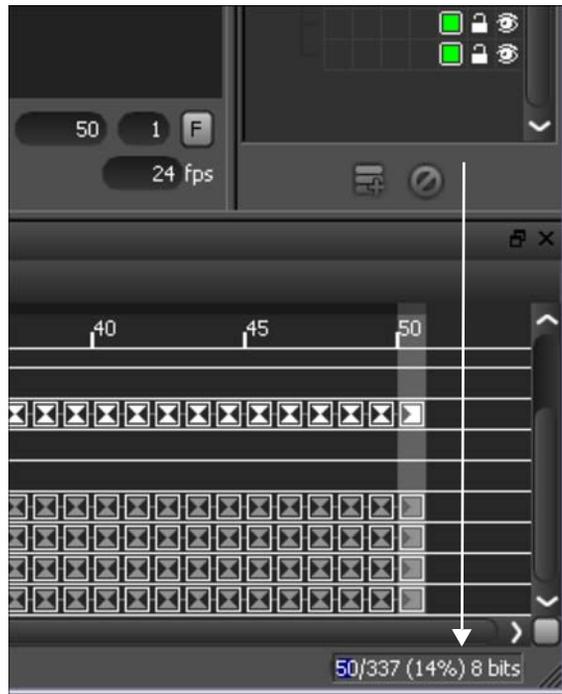
Sets the frame rate for the clip in the Viewer. Enter the desired frame rate, for instance: 24 fps (film), 25 fps (PAL), 29.97 fps (NTSC DF) or 30 fps (NTSC NDF).



Real-Time Playback

Silhouette can cache frames into RAM to guarantee real-time playback. When you hit the play button, each frame is cached into RAM. Once the clip is played through once, it will then play in real-time. At the bottom right corner of the

interface, there is a numeric readout (Cache Display). It displays the length of your clip, the maximum frames that can be cached into RAM, the percentage of RAM currently being used as well as the session's bit depth.



If your clip is longer than the maximum frames that can be cached into RAM, the clip will not play in real-time.

Note: Hovering over the Cache Display will reveal a tool tip that shows the maximum cache size and total available physical memory in megabytes.

Go to [Optimizing Playback](#) to see how you can playback the maximum amount of frames.

Purge Cache

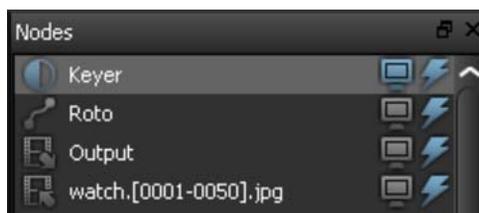
Right-clicking on the Cache Display (numeric readout at the bottom right corner of the interface) pops up a Purge Cache option. If selected, this will clear out currently cached frames.



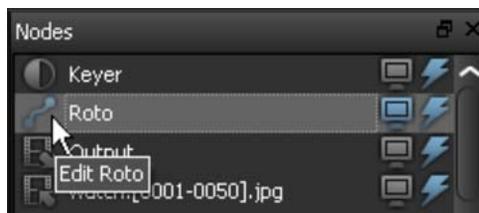
Node List

Silhouette internally is a node based system and different nodes are used for various functions. Currently, there are Keyer, Roto, Paint, Effects, Composite, Output and Source nodes. The nodes that you see in the Node List are those that were selected when creating the session. You can always add additional nodes to a session after it has been created by selecting Session > Settings from the pull-down menu at the top of the screen.

The Node List is used to select nodes for editing, viewing, enabling and disabling.



Clicking on or near a node's icon makes it the active node. You can tell which node is active by its highlighted state.



Once active, the node's parameters appear in the Node window and the appropriate tools show up in the Toolbar.

Go to [Using the Node List](#) to see how it works.

Icons

There are two icons directly to the right of a node's name that are used to change which node is viewed and whether nodes are enabled or disabled.

View

Chooses which node or source to show in the Viewer. Normally, you are viewing the active node, but there are times when you may want to view one node while editing another. Double-clicking the active node will return the view to the active node if a different node was selected for viewing.



Note: The tools and controls are shown for the active node (the node that is highlighted) and not the node that is being viewed.

Enabled

Enables or disables the node. When disabled, the node does not render.



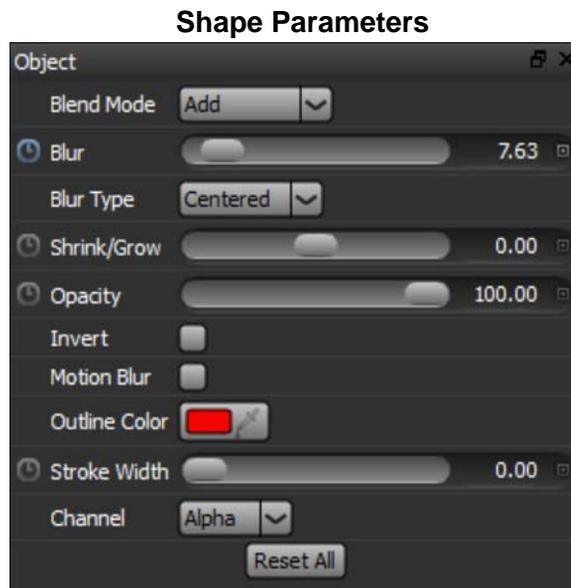
Parameters

Parameters for selected objects such as shapes, layers, and trackers are set in the Object window while nodes like Keyer, Power Matte, Roto, Paint, Effects, Composite, Output and Sources are set in the Node window. In addition, notes can be assigned to shapes, layers and trackers in the Notes window.

Note: When dragging sliders, press the **Ctrl(Win)/Cmd(Mac)** key while dragging for finer control.

Object Parameters

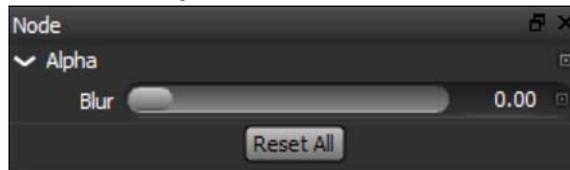
All of the editable parameters of a shape, layer or tracker can be adjusted in the Object window. When a shape is selected, you will see the parameters listed below.



Node Parameters

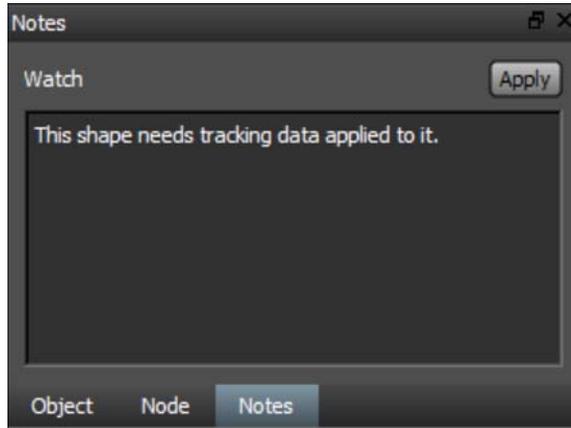
The Node window allows you to adjust parameters for the selected node in the Node List. The nodes that can be currently selected are Keyer, Power Matte, Roto, Paint, Effects, Composite, Output and Sources.

Output Node Parameters



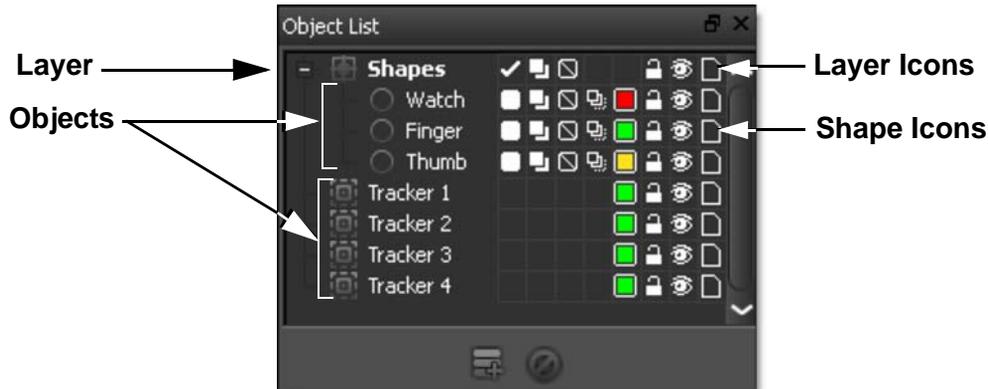
Notes

The Notes window allows you to type an arbitrary length note for selected objects.



Object List

The Object List is where you can select, lock, combine, rename or delete shapes, layers and trackers. Layers are containers for shapes and have their own individual transforms.



Add Layer

Located at the bottom of the Object List, this icon creates a new layer. Layers are used to organize shapes, but more importantly they are used to contain the motion information from trackers.



Note: Dragging objects onto the New Layer icon will create a new layer and move the objects into it in one operation.

Deleting

Select the shape, layer or tracker in the list and press **Ctrl(Win)/Cmd(Mac)-X**, hit the **Delete** key or use the Delete icon at the bottom of the Object List.



Renaming

You can rename a shape, layer or tracker by either:

- Clicking on the object once to select it, hitting the Enter key, typing in the new name and pressing Enter again.
- Double-clicking the object, typing in a new name and hitting the Enter key.

- **Right-clicking on the object, selecting Rename and typing in a new name.**

Selecting

Clicking the name of a shape, layer or tracker selects it. Multiple shapes, layers, and trackers can be selected by **Shift**-clicking on them. **Ctrl**-clicking will add to the selection of objects that are located at different levels of the Object List while **Ctrl**-clicking an object after it is selected will deselect it. In addition, if you **Shift**-click a color pot in the Object List, you select all objects of the same type and color.

Note: In File > Preferences > Shape on Windows and Linux or Silhouette > Preferences > Shape on Mac, there is a Template Color setting that sets the color and opacity of unselected shapes. This feature is enabled by using **Shift-W**.

Moving

Shapes, layers or trackers can be moved by dragging and dropping them to a new position in the list or within another layer.

Expanding / Collapsing Layers

Expand All

Shift-clicking the +/- icon expands or collapses all nested layers inside that layer.



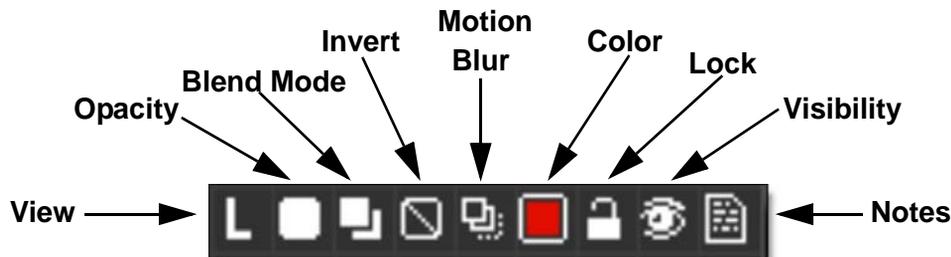
Expand or collapse multiple layers at once

If expanding or collapsing a selected layer using +/- icon, then any other selected layers with the same parent will also expand or collapse. This can be combined with **Shift** to expand or collapse children as well.

Icons

Shape Icons

There are number of icons directly to the right of a shape's name that can be used to modify shapes. The Opacity, Blend Mode, Invert, Motion Blur and Color icons duplicate the functionality of the Shape parameters in the Object window and does so because it is often easier to change these settings in the Object List when multiple shapes are selected.



View

The View icon, which only shows up when using stereoscopic sources, displays either a **L** for Left View or **R** for Right View to the left of the Opacity icon and indicates which view the shape or layer is assigned to. Clicking on the View icon toggles which view the shape or layer is located in.



Opacity

Indicates the opacity level of a shape. It is white when opacity is 100%, black when 0% and a shade of gray when somewhere in between. When keyframing is activated for Opacity in the Shape parameters, you can quickly keyframe the opacity of a shape from 100% to 0% by toggling this icon.



Note: In File > Preferences on Windows and Linux or Silhouette > Preferences on Mac, there is a Shape > Fade Outline with Opacity setting that draws unselected/inactive shape outlines using the Opacity value. This preference can be toggled using the **V** key so that you can easily see any shapes that are at 0% opacity.

Blend Mode

Controls how shapes are blended together. Each click of the icon cycles through the blend modes. See [Blend Mode](#) for information.



Invert

Inverts selected shapes.



Motion Blur

Turns Motion Blur on or off for selected shapes.

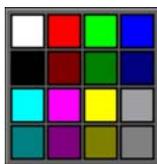


Outline Color

Sets the color of selected shape's outlines.



Left-clicking the color pot opens a standard color picker while right-clicking on the color pot opens a pop-up color menu with 16 primaries.



Lock

Locks/Unlocks selected objects. A locked shape cannot be edited or changed and is italicized in the Timeline.



Visibility

Click the Visibility icon to hide or show selected objects. Only visible shapes are rendered. To solo an object, **Alt**-click on it's Visibility icon. **Alt-Ctrl**-click to force the visibility of all objects to the on position.



Notes

Select an object and click the Notes icon to bring the Notes window forward above the Object List.



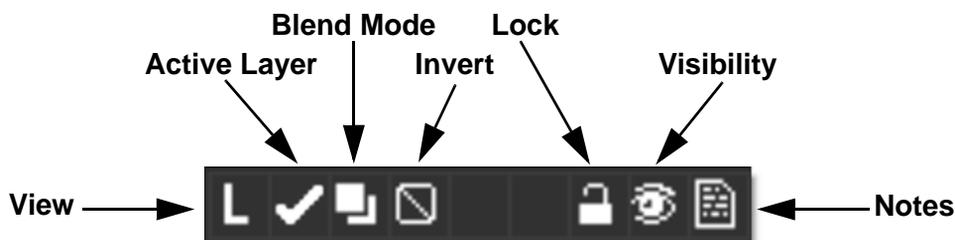
You can type an arbitrary length note for selected objects. Currently, only shapes, trackers and layers are supported. Because you can type multiple paragraphs into the Notes window, you must press Apply to assign the note. The Notes icon changes once a note is applied to the object.



- **Hovering over the Notes icon displays the note, if there is one, as a tool tip.**
- **The Status Bar displays the object name and the note for the selected object.**

Layer Icons

There are few icons directly to the right side of a layer's name that can be used to modify layers.



The Layer View, Blend Mode, Invert, Lock, Visibility and Notes icons have similar functionality to the ones used by shapes.

Active Layer

The Active Layer box displays a checkbox when the layer is selected. Clicking the checkbox will toggle the state of the Active Layer.

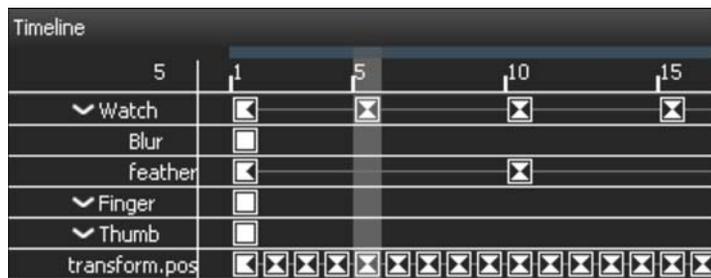


Table 7: Object List Shortcuts

| Shortcut | Action |
|---|--|
| Click on an object | Selects the object |
| Shift -click an object | Adds an object to the current selection |
| Ctrl(Win)/Cmd(Mac) -click on an object | Toggles the object selection |
| Shift -click color pot | Selects shapes of same color |
| Alt -click the Visibility icon | Solos an object |
| Alt-Ctrl -click the Visibility icon | Forces the visibility of all objects to the on position |
| Shift -click the +/- icon | Expands or collapses all nested layers inside that layer |
| Double-click an object | Selects the object so it can be renamed |

Timeline

The Timeline is an overall view of all animated parameters. Animation is the process of setting values at various frames, or keyframes as they are called. These keyframes transition from one to another over time. The Timeline provides you with the tools necessary to view, edit, move or delete keyframes.



The Timeline is divided in two parts:

- **Parameter List:** lists all animateable parameters for a particular process.
- **Timeline:** displays keyframes over time.

Go to [Using the Timeline](#) to see how it works.

Parameter List

The Parameter list shows all objects in the current session. This list is arranged in a collection of shapes, filters, trackers and their associated parameters. Click the twirly to the left of the parameter to either show or hide parameters of a particular object.

Timeline

The Timeline is an overview of your shapes, filters, trackers and keyframes. In the Timeline, you can edit a keyframe's position in time, but not its value.

Current Time Indicator

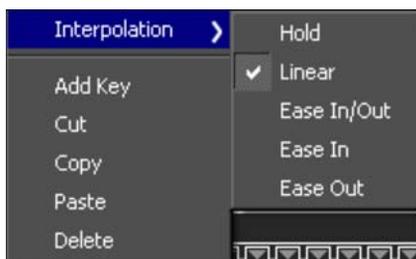
The vertical line in the Timeline is the current time that you are parked at. To move the Current Time Indicator, just click and drag the shuttle slider below the Viewer or in the top line of the Timeline.

Zooming and Panning the Timeline

The Timeline shows the duration specified for the current session. You can zoom in or out using the mouse scroll wheel to see the Timeline in more or less detail and can pan horizontally or vertically using the **Spacebar** while clicking and dragging.

Timeline Pop-up Menu

Right-click over a selected keyframe or property in the Timeline to open the Timeline pop-up menu.



Add Key

Right-click over the property you are interested in at the desired frame in the Timeline and select Add Key. Keyframes will be added to that property for all selected objects.

Note: You can also **Alt**-click in the Timeline to add a keyframe.

Cut

Deletes the currently selected keyframe or keyframes.

Copy

Copies the currently selected keyframe or keyframes.

Paste

Pastes the currently selected keyframe or keyframes.

Delete

Deletes the currently selected keyframe or keyframes.

Note: Individual shape points can be copied and pasted between keyframes using **Ctrl(Win)/Cmd(Mac)-Alt-C** to copy and **Ctrl(Win)/Cmd(Mac)-Alt-V** to paste.

Interpolation

- **Hold**

There is no interpolation and abrupt switches in value occur at keyframes.

- **Linear**

When values change, a straight line with sharp, abrupt angles from one keyframe to the next is drawn.

Ease

Ease allows you to smoothly transition in or out of a keyframe.

- **Ease In**

Eases in to the selected keyframe.

- **Ease Out**

Eases out of the selected keyframe.

- **Ease In/Out**

Eases in and out of a selected keyframe.

Moving One Keyframe in Time

A single keyframe can be moved by selecting it and then dragging it to a new location.

Moving a Selection of Keyframes in Time

Multiple keyframes can be moved by first selecting a range using the **Shift** key and then dragging on them to a new location.

Selecting Shapes and Trackers

Objects can be selected within the Timeline. Clicking the name of an object selects it. Multiple objects can be selected by **Shift**-clicking on them. **Ctrl**-clicking an object after it is selected will deselect it.

Table 8: Timeline Keyboard Shortcuts

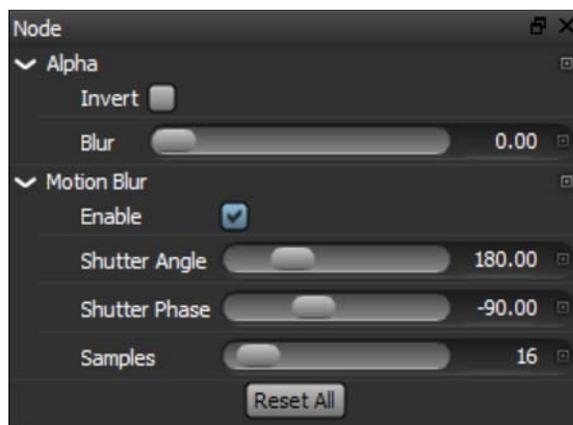
| Shortcut | Action |
|---|-------------------------------|
| Scroll wheel | Zooms the Timeline in and out |
| Shift -Middle-mouse drag | Zooms the Timeline in and out |
| Space Bar -drag | Pans the Timeline |
| Middle -mouse drag | Pans the Timeline |
| Single-click keyframe | Selects one keyframe |
| Ctrl(Win)/Cmd(Mac) -click keyframe | Toggle the keyframe selection |
| Shift -click keyframes | Selects a range of keyframes |
| Alt -click | Inserts a keyframe |

ROTO NODE

Rotoscoping or “Roto” for short has become a generic term for drawing shapes to extract, isolate or affect a portion of an image. It is tedious work, but it’s one of the most important parts of the visual effects process. Within the Roto node, there are all the tools needed to make quick work of any Roto job.

Roto Node Parameters

When Roto is selected in the Node List, parameters specific to the Roto node, such as Motion Blur, can be adjusted in the Node window.



Alpha

Invert

Inverts the Alpha channel.

Blur

Blurs the Alpha Channel. The blur range is from 0-100 and defaults to 0.

Motion Blur

Motion blur is the directional blurring of rapidly moving shapes.

Go to [Using Motion Blur](#) to see how it works.

Enable

Turns Motion Blur on or off. The default is off. Leave this turned off for faster interaction while editing shapes.

Note: The Motion Blur parameters will not affect shapes unless you first activate Motion Blur for each shape in the Object window. See [Motion Blur](#) in the Shape Parameters for more information.

Shutter Angle

Determines how long the camera shutter stays open when a picture is taken--higher values create more motion blur. The range of the Shutter Angle is 0-720 and defaults to 180. Measured in degrees, it simulates the exposure of a rotating camera shutter. The shutter angle uses the footage frame rate to determine the simulated exposure. For example, a shutter angle of 180 degrees (50% of 360 degrees) for 24fps footage creates an effective exposure of 1/48 of a second. Typing 1 degree applies almost no motion blur, and typing 720 degrees applies a high degree of motion blur.

Shutter Phase

Offsets the point in time, either forward or reverse, when the shutter opens. The range of the Shutter Phase is -360 to 360 and defaults to -90.

Motion Samples

Renders intermediate frames equal to the Motion Samples value and accumulates them, one over the other, on a single frame. The higher the number, the smoother the motion. The Motion Samples range is from 1-256 and defaults to 16.

Roto View Menu

When Roto is selected in the Node List, the View menu displays either the shape Output, the Foreground, Background or a Composite of the foreground over the background based on your shapes.



The **1**, **2**, **3** and **4** keys can quickly switch the view: **1** is Output, **2** is Foreground, **3** is Background and **4** is Composite.

Output

Output allows you to see the output of your shapes in the form of an Alpha channel, but will slow down shape editing. To view the Alpha, click either the **A** key or the Alpha channel button at the top right of the Viewer.

Note: Output is the default setting, but switch to Foreground for faster interaction and less memory usage.

Foreground

Display the Foreground clip in the Viewer.

Background

Display the Background clip in the Viewer.

Composite

Display the composite of the foreground over the background based on your shapes. If “None” is selected for the Background Input, the foreground will be composited over a color. The default color is gray, but can be changed by going to File > Preferences > Composite on Windows and Linux or Silhouette > Preferences > Composite on Mac. If you add a Composite node in the Session Settings, the composite will be rendered.

Roto Toolbar

When the Roto node is selected, a number of different tools are selectable from the Toolbar to the left of the Viewer.

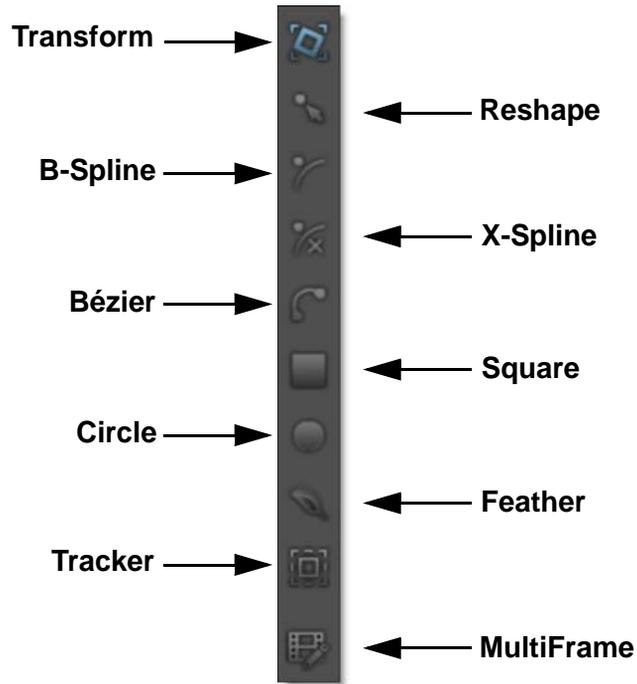


Table 9: Toolbar Keyboard Shortcuts

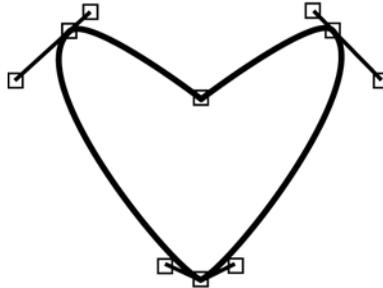
| Shortcut | Action |
|-----------------|--|
| T | Selects the Transform tool Shape Mode |
| TT | Selects the Transform tool Points Mode |
| R | Selects the Reshape tool |
| B | Selects the B-Spline tool |
| S | Selects the X-Spline tool |
| Shift-B | Selects the Bézier tool |
| Shift-S | Selects the Square tool |
| Shift-C | Selects the Circle tool |
| Shift-F | Selects the Feather tool |
| Shift-T | Selects the Tracker tool |
| M | Selects the MultiFrame tool |

Bézier Tool (Shift-B)

Creates a new Bézier spline.

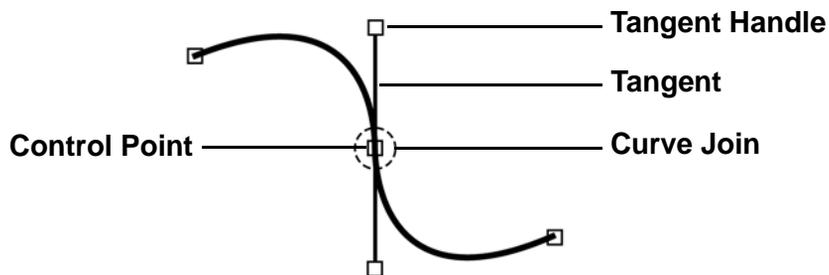


To draw a Bézier spline, click on the image to place the first control point and drag the cursor while keeping the mouse pressed to extend the control point's tangents. Click on the screen to add more control points and when finished adding points, click the first control point that you added to close the shape. When creating an open shape, press the Esc key or switch to a different tool to finish the shape.



Originally developed by Pierre Bézier in the 1970's for CAD/CAM operations, Bézier splines became the foundation of the entire Adobe drawing model. If you're a user of Adobe products, you've probably used Bézier's. Bézier splines are defined by control points and tangents. The position of the two tangent handles control the amount of a point's curvature.

A shape is created by drawing a Bézier curve path. This path contains control points and tangents that define the form of the curve.

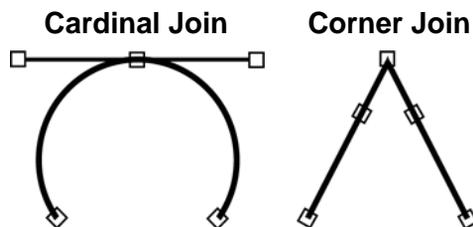


Control Points

Control points are locations on the curve that determine its shape. When a control point is selected, two tangents extend from the control point. These tangents guide the shape of the curve.

Joins

The area of the curve at the control point is called the curve join.



Joins can either be corner or cardinal (smooth) joins. When control point tangents are positioned in opposite directions, the join is cardinal. In contrast, corner joins have their tangents positioned at an angle to each other.

Go to [Using the Bézier Tool](#) to see how it works.

B-Spline Tool (B)

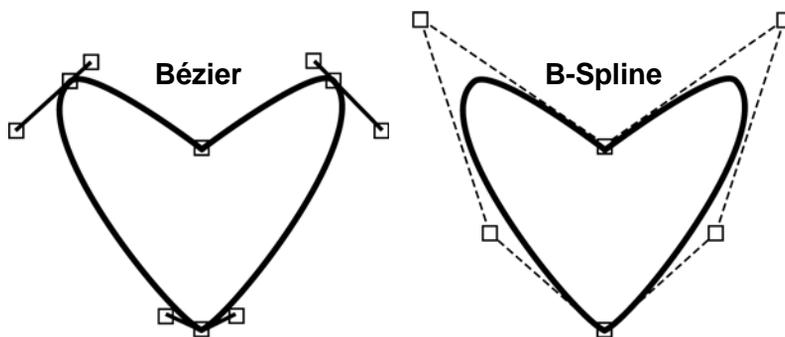
Creates a new B-Spline shape.



To create a B-Spline, click on the screen to create a control point and add as many points as you like. When you are finished adding points, click the first control point that you added to close the shape. When creating an open shape, press the Esc key or switch to a different tool to finish the shape.

In contrast to Béziers, B-Splines don't use tangents and are created by only using control points. The position of the points, their intensity settings as well as their proximity to each other determine the curvature of the shape. B-Splines are somewhat similar to NURBS (non-uniform rational B-Splines) that are used in many 3D modeling packages.

The images below show how the same shape can be created with either Bézier splines or B-Splines.



Because the two spline types have significant strengths and differences, artists are religiously loyal to one or the other. B-Splines create natural curves but are terribly inefficient at defining square corners and require more points to define a similar Bézier shape. On the other hand, Bézier splines can easily create corners and use fewer points, but can have an unnatural curved path caused by overly malleable “split” handles. The best approach is to use both spline types depending on the shape and complexity of the object that you are trying to Roto. Depending upon your expertise, you may find Bézier splines are more appropriate for square and angular shapes while B-Splines will work

better for objects with a lot of curves like a person's face. Just to upset the status quo, there is a new kid on the block called X-Splines which is explained in the next section. This spline type brings together the best of both B-Splines and Béziers.

Go to [Using the B-Spline Tool](#) to see how it works.

X-Spline Tool (S)

Creates a new X-Spline shape.

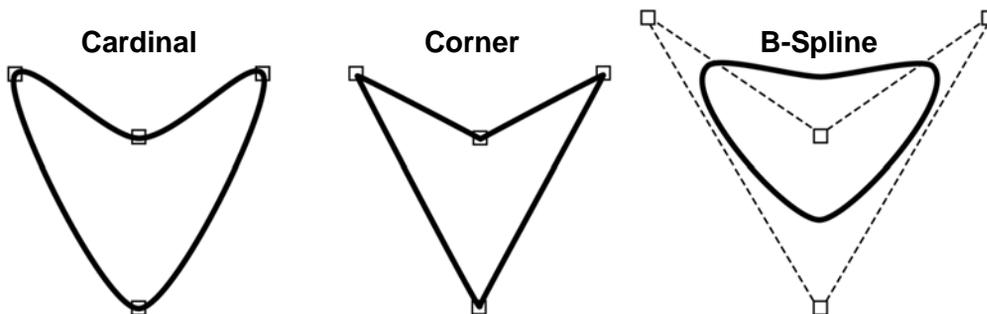


To create a X-Spline, click on the screen to create a control point and add as many points as you like. When you are finished adding points, click the first control point that you added to close the shape. When creating an open shape, press the Esc key or switch to a different tool to finish the shape.

A X-Spline is an intuitive and easily editable spline format whereby it's points can be of three different types: Cardinal, Corner or B-Spline.

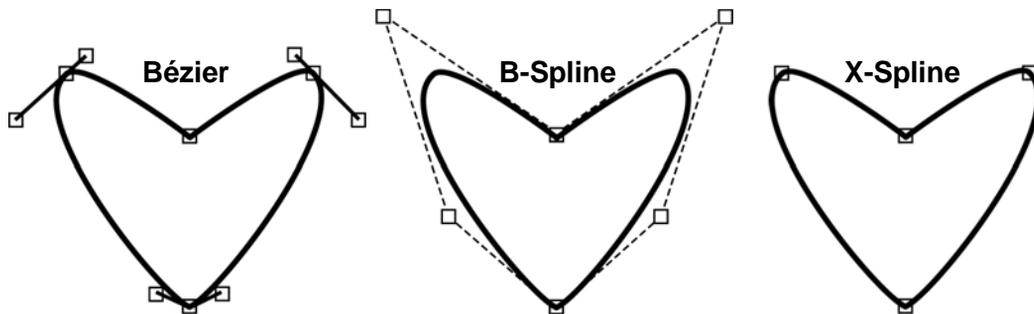
- **Cardinal** creates a path that passes smoothly through each point.
- **Corner** makes a path that consists of angular corner points.
- **B-Spline** creates a smooth path that is determined by the surrounding points.

Look at how the same set of points can yield entirely different shapes based on the point type setting.



The point type can be changed at anytime as well as animated from one type to another. You'll find that the beauty of X-Splines is that the shape's points can be a mix of Cardinal, Corner or B-Splines.

The images below show how the same shape can be created with either Bézier splines, B-Splines or X-Splines.



Go to [Using the X-Spline Tool](#) to see how it works.

Square Tool (Shift-S)

Creates a new square or rectangle Bézier spline.



To create a Square, click and drag in the shape of a square and release the mouse.

Go to [Using the Square Tool](#) to see how it works.

Circle Tool (Shift-C)

Creates a new circle or ellipse Bézier spline.



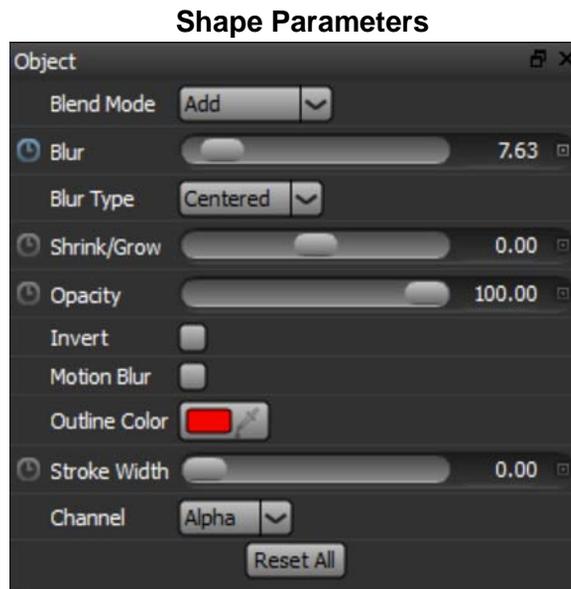
To create a Circle, click and drag in the shape of a circle and release the mouse.

Go to [Using the Circle Tool](#) to see how it works.

Shape and Layer Parameters

Shape Parameters

All of the editable parameters of a shape can be adjusted in the Object window. When a shape is selected, you will see the parameters listed below.

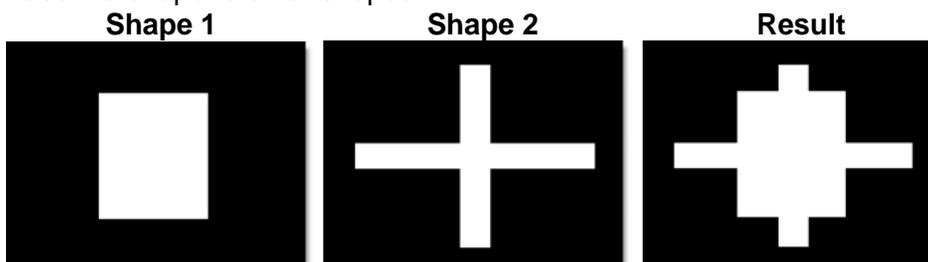


Blend Mode

Controls how shapes are blended together.

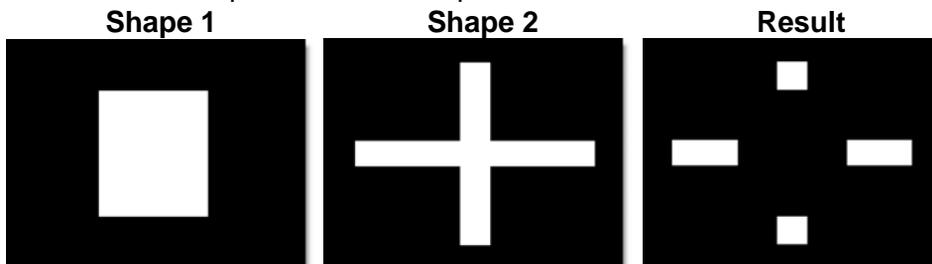
Add

Adds the shape to other shapes.



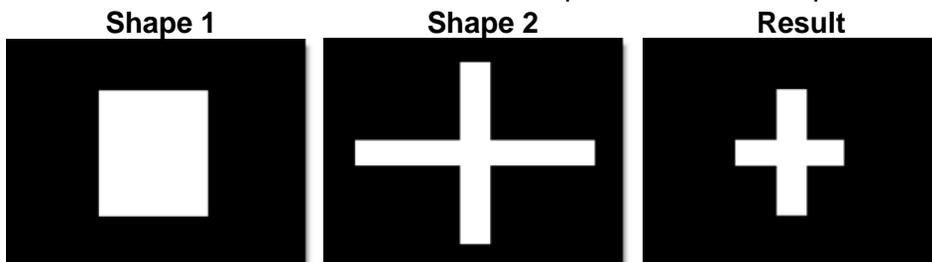
Subtract

Subtracts the shape from other shapes.



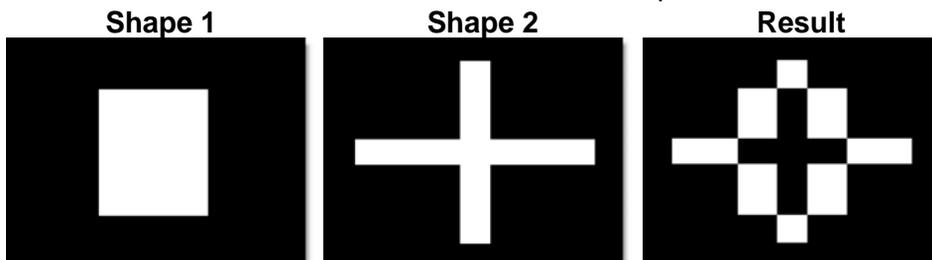
Multiply

Produces a result where there is a union of pixels from two shapes.



Difference

Produces a result where a value exists in each shape, but not in both.



Blur

Sets the blur level of the selected shape or shapes. The Blur slider range is from 0-100 and defaults to 0.

Blur Type

Determines the type of blur.

- **Centered**

The blur is centered on the edge of the shape, equally blurring inward and outward.

- **Inner**

The shape is blurred inward from the edge of the shape.

- **Outer**

The shape is blurred outward from the edge of the shape.

Shrink/Grow

Shrinks or grows the shape's alpha channel. Negative values shrink and positive values grow.

Opacity

Sets the opacity of the selected shape. The opacity range is from 0-100 and defaults to 100. The interpolation type is set to Hold by default making it easy to turn shapes on and off at particular frames.

Note: You can change the Opacity interpolation type from Hold to Linear at any time. To do so, select the shape's Opacity keyframes in the Timeline, right-click and select Interpolation > Linear.

Invert

Inverts the shape values. The default is off.

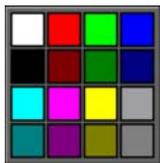
Motion Blur

Motion blur is the directional blurring of rapidly moving shapes. This parameter turns Motion Blur on or off. The default is off.

Note: The Motion Blur parameters will not affect a shape unless Motion Blur is enabled in the Node window. See [Motion Blur](#) in the Roto Node Parameters for more information.

Outline Color

Sets the color of the shape outline. Left-clicking the color pot opens a standard color picker while right-clicking on the color pot opens a pop-up color menu with 16 primaries.



Stroke Width

Sets the thickness of an open shape. When used on a closed shape, an outline is created.

Note: Open shapes can not be exported.

Channel

Determines what channel the shape is rendered into. You can set each shape to Red, Green, Blue, or Alpha. To visualize the results prior to rendering, use View > Channels in conjunction with the **Alt-R**, **G**, **B** and **A** shortcut keys. When ready, render shapes into the assigned channels with the Actions > Render Shapes to Channels action.

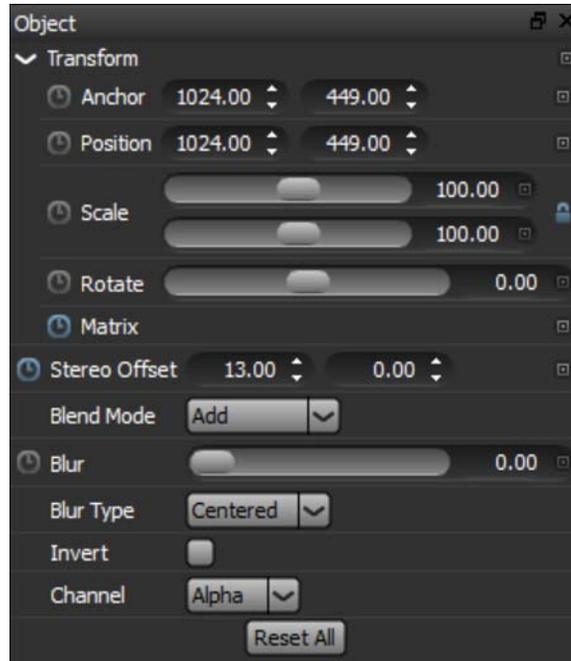
Go to [Rendering Shapes to Channels](#) to see how it works.

Reset All

Resets all parameters to their default state.

Layer Parameters

Layers are used to organize shapes, but more importantly they are used to contain the motion information from trackers. All of the editable parameters of a layer can be adjusted in the Object window. When a layer is selected, you will see the parameters listed below. The Transform, Stereo Offset, Blend Mode, Blur and Invert state of a layer can be adjusted.



Transform

The Position, Scale, Rotation and Anchor Point can be adjusted and animated.

Anchor

Sets the anchor point for the layer transformation. Scaling and rotation operations center around the anchor point.

Position

Sets the horizontal and vertical position of the layer.

Scale

Sets the horizontal and vertical scale of the layer. Typing in a negative value will flip or flop the shapes in the layer.

Rotate

Sets the rotation of the layer.

Matrix

When tracking data is applied to a layer, the Matrix parameter is used to store the tracker keyframes.

Stereo Offset

Stereo Offset, which only shows up when using stereoscopic sources, is used to align the offset between Left and Right Views of stereoscopic sequences and is set to animate by default. This value is automatically set when using the Viewer's Stereoscopic Align mode's on-screen control.

Blend Mode

Controls how layers are blended together. See [Blend Mode](#) for more information.

Blur

Sets the blur level of all shapes within the layer. The Blur slider range is from 0-100 and defaults to 0.

Blur Type

Determines the type of blur.

- **Centered**

All shapes in the layer are blurred equally inward and outward centered on the edge of the shapes.

- **Inner**

All shapes in the layer are blurred inward from the edge of the shapes.

- **Outer**

All shapes in the layer are blurred outward from the edge of the shapes.

Invert

Inverts all shapes within the layer. The default is off.

Channel

Determines which channel the shapes in the layer are rendered into. You can set a layer to Red, Green, Blue, or Alpha. To visualize the results prior to rendering, use View > Channels in conjunction with the **Alt-R**, **G**, **B** and **A** shortcut keys. When ready, render layers into the assigned channels with the Actions > Render Shapes to Channels action.

Note: This overrides the Shape > Channel setting, except when set to Alpha, in which case the shape's Channel setting is obeyed instead.

Go to [Rendering Shapes to Channels](#) to see how it works.

Reset All

Resets all parameters to their default state.

Nudging Layers

Layers can be nudged using the **Arrow** keys. One press of the **Arrow** key moves the layer 1 pixel. Using the **Shift** key in conjunction with the **Arrow** keys moves the layer 10 pixels. **Ctrl** plus the **Arrow** keys moves the layer one tenth of a pixel. These nudge values can be changed in the Preferences menu located in File > Preferences > Nudging on Windows and Linux or Silhouette > Preferences > Nudging on Mac. Holding the **Arrow** keys down slides the layer.

Table 10: Layer Nudging Keyboard Shortcuts

| Shortcut | Action |
|--|---|
| Arrow keys | Moves the layer by 1 pixel |
| Shift-Arrow keys | Moves the layer by 10 pixels |
| Ctrl(Win)/Cmd(Mac)-Arrow keys | Moves the layer by one tenth of a pixel |
| Hold down Arrow keys | Moves the layer continuously |
| Q, W, E then Ctrl(Win)/Cmd(Mac)-drag | Translates, Rotates or Scales in finer increments |
| Q, W, E then Arrow keys | Translates, Rotates or Scales by 1 pixel |
| Q, W, E then Shift-Arrow keys | Translates, Rotates or Scales by 10 pixels |
| Q, W, E then Ctrl(Win)/Cmd(Mac)-Arrow keys | Translates, Rotates or Scales by 1/10 of a pixel |

Note: Nudging of the layer transform is only available if one layer is selected, and no shapes are selected. This is to avoid confusion in case nested layers or objects in them are also selected.

Transform Tool

Once you draw a shape, there are various ways to modify it. As the object that you are attempting to Roto changes over time, you will need to adjust the shape so that it exactly matches the object. While the Transform tool affects an entire shape or a group of shapes, you can use the Reshape tool to modify individual points on a shape. See the [Reshape Tool](#) for more information.

Go to [Using the Transform Tool](#) to see how it works.

Transform Tool - Shape Mode (T)

The Transform tool Shape Mode allows you to position, move, scale, rotate, shear or corner-pin a shape or selection of shapes using the on-screen controls. To enter this mode, press either the Transform tool in the Toolbar or the **T** key once. Then, select a shape and use the on-screen controls to modify it.

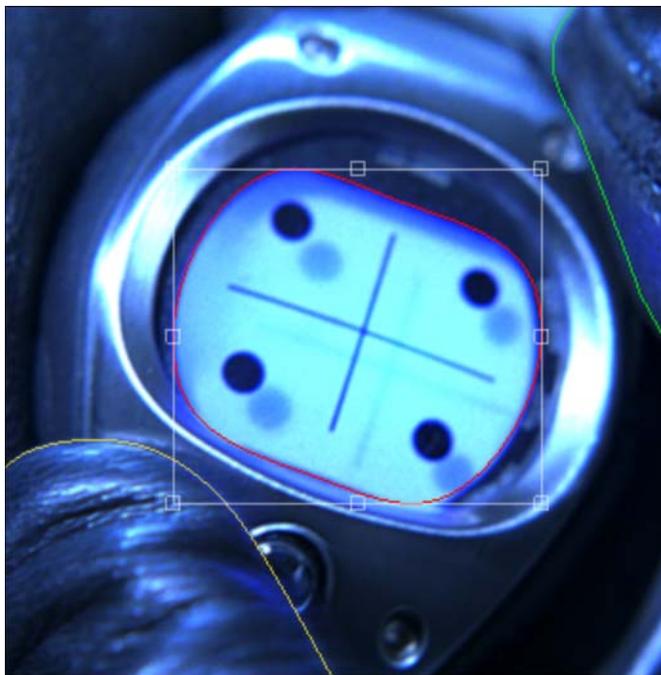


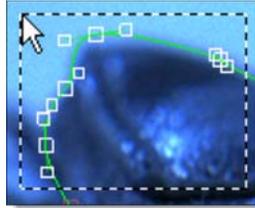
Table 11: Transform Tool On-Screen Controls

| Shortcut | Action |
|---|--|
| Drag shape | Moves the shape |
| Shift -drag shape | Constrain shape movement horizontally or vertically |
| Drag bounding box corner or edge handle | Scales a shape |
| Shift -drag bounding box corner or edge handle | Proportionally scale a shape |
| Ctrl(Win)/Cmd(Mac) -drag on a bounding box corner handle | Rotate a shape |
| Alt -drag on a bounding box corner handle | Corner-pin a shape |
| Alt-Shift -drag on a bounding box corner handle | Constrains the corner-pin movement to one axis |
| Ctrl(Win)/Cmd(Mac) -drag on a bounding box edge handle | Shear a shape |
| ▪ (period key) | Turns the Anchor Point on or off |
| Drag on Anchor Point | Moves the Anchor Point |
| Shift-▪ (period key) | Moves the Anchor Point to the mouse location |
| Q | Activates / Deactivates translation of selected shapes or layers |
| W | Activates / Deactivates rotation of selected shapes or layers |
| E | Activates / Deactivates scaling of selected shapes or layers |
| Q, W, E then Ctrl(Win)/Cmd(Mac) | Translates, Rotates or Scales in finer increments |

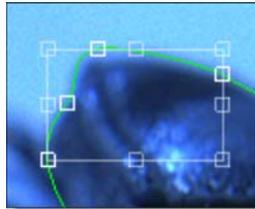
If there are any selected layers while in Transform mode, pressing **Q**, **W** or **E** and then clicking and dragging will translate, rotate or scale the selected layers. If there are no selected layers, you must select a shape or group of shapes before clicking and dragging. Also, the position of the cursor when **W** or **E** is pressed sets the anchor point for the rotation or scale operation.

Transform Tool - Points Mode (TT)

The Transform tool Points Mode allows you to position, move, scale, rotate, shear or corner-pin a selection of points using the on-screen controls. To utilize this mode, use the Reshape tool to first select some points



and then press either the Transform tool twice in the Toolbar or the **T** key twice.



Instead of a bounding box with on-screen controls around the shape, the bounding box is around the selected points.

Transform Tool - Layers

When a layer is selected and the Transform tool is active, you can position, move, scale and rotate the layer using the on-screen controls.

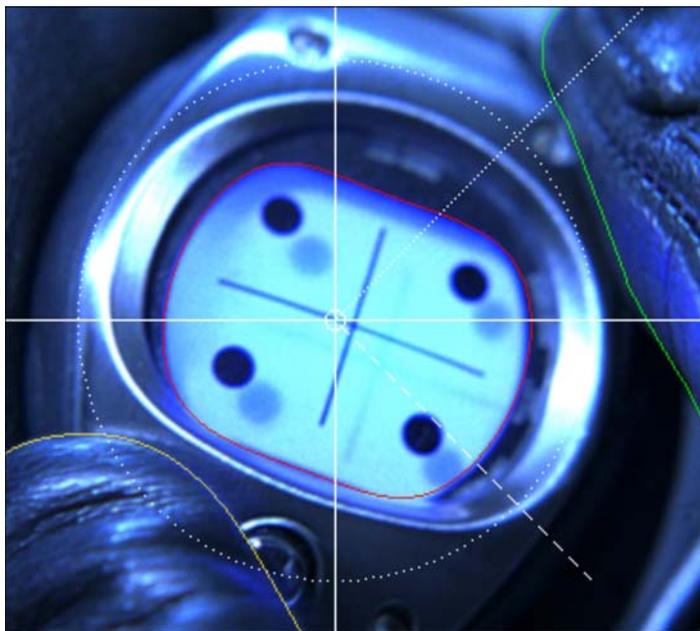


Table 12: Layer Transform On-Screen Controls.

| Shortcut | Action |
|---|--|
| Drag within large center circle | Moves the layer |
| Shift -drag within large center circle | Constrain layer movement horizontally or vertically |
| Drag the horizontal and vertical lines | Scales the layer horizontally or vertically |
| Drag the upper diagonal line | Proportionally scale the layer |
| Drag the lower diagonal line | Rotate the layer |
| Ctrl(Win)/Cmd(Mac) -drag the lower diagonal line | Rotates the layer with finer control |
| Drag small center circle | Moves the Anchor point |
| Q | Activates / Deactivates translation of selected layers |
| W | Activates / Deactivates rotation of selected layers |
| E | Activates / Deactivates scaling of selected layers |

Moving Shapes

Selected shapes are moved using one of two methods: 1) Drag on the outline of a shape or 2) Press the **Q** key to activate translation mode and click and drag to move the selected shapes. You must press the **Q** key a second time to deactivate translation mode.



In either case, you can constrain movement along an axis by pressing the **Shift** key while dragging the outline of a shape. The movement is constrained by the first direction (horizontal or vertical) that you drag in.

Nudging Shapes

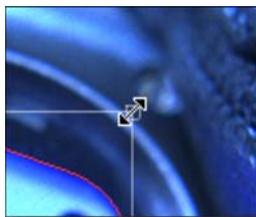
Shapes can be nudged using the **Arrow** keys. One press of the **Arrow** key moves shapes 1 pixel. Using the **Shift** key in conjunction with the **Arrow** keys moves the shapes 10 pixels. **Ctrl** plus the **Arrow** keys moves shapes one tenth of a pixel. These nudge values can be changed in the Preferences menu located in File > Preferences > Nudging on Windows and Linux or Silhouette > Preferences > Nudging on Mac. Holding one of the **Arrow** keys down slides the shapes in that direction.

Table 13: Shape Nudging Keyboard Shortcuts

| <u>Shortcut</u> | <u>Action</u> |
|--------------------------------------|--------------------------------------|
| Arrow keys | Moves shapes by 1 pixel |
| Shift-Arrow keys | Moves shapes by 10 pixels |
| Ctrl(Win)/Cmd(Mac)-Arrow keys | Moves shapes by one tenth of a pixel |
| Hold down Arrow keys | Moves shapes continuously |

Scaling Shapes

Scaling changes the size of the shapes. Selected shapes are scaled using one of two methods: 1) Drag any of the points on the shape bounding box or 2) Press the **E** key to activate scaling mode and click and drag to scale the selected shapes. You must press the **E** key a second time to deactivate translation mode.



Note: The position of the cursor when **E** is pressed sets the anchor point for the scaling.

To proportionately scale, hold down the **Shift** key when resizing.

Rotating Shapes

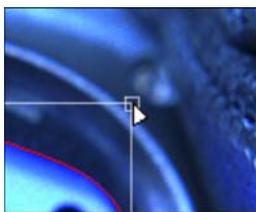
Rotating changes the angle of the shapes. Selected shapes are rotated using one of two methods: 1) **Ctrl(Win)/Cmd(Mac)**-drag on a shape bounding box corner handle or 2) Press the **W** key to activate rotation mode and click and drag to rotate the selected shapes. You must press the **W** key a second time to deactivate translation mode.



Note: The position of the cursor when **W** is pressed sets the anchor point for the rotation.

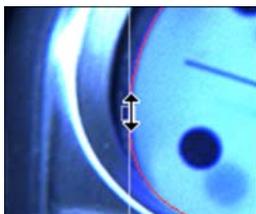
Corner-Pinning Shapes

The corner points of a shape's bounding box can be corner-pinned. For instance, you could fit the corners of a shape into the corners of a billboard. **Alt**-drag the corners of the shape's bounding box to corner-pin the shape.



Shearing Shapes

Shapes can be sheared resulting in the shape being skewed horizontally or vertically. To shear a shape, **Ctrl(Win)/Cmd(Mac)**-drag on the midpoints of a shape bounding box on either the horizontal or vertical axis.



Anchor Point

A shape rotates around its center point, but scales from the opposite handle. Moving the anchor point changes the center of rotation and scaling when using the on-screen controls. To position the Anchor Point, press the **.** (period key) and the Anchor Point is displayed on the screen. Then, click and drag the Anchor Point to the desired location.



Now, when you rotate or scale the shape, notice how the shape rotates and scales around the Anchor Point.

Note: If more than one shape is selected, they will both rotate and scale around the Anchor Point. Turning off the Anchor Point with the **.** (period key) will cause the shapes to revert to rotating and scaling around the default Anchor Points.

Cutting, Copying and Pasting Shapes

Shapes can be cut(**Ctrl(Win)/Cmd(Mac)-X**), copied(**Ctrl(Win)/Cmd(Mac)-C**) and pasted(**Ctrl(Win)/Cmd(Mac)-V**).

Deleting Shapes

A shape or selection of shapes can be easily deleted using none other than the **Delete** key.

Selecting Shapes

Table 14: Shape Selection Keyboard Shortcuts

| Shortcut | Action |
|--|------------------------------|
| Click on a shape | Selects the shape |
| Shift -click a shape or drag select multiple shapes | Selects multiple shapes |
| Ctrl(Win)/Cmd(Mac) -click on a shape | Toggles the shape selection |
| Click anywhere off the shape | Deselects all shapes |
| Shift -click color pot in the Object List | Selects shapes of same color |

Reshape Tool (R)

The Reshape tool modifies shapes by adjusting their control points and tangents. In this mode, the shape's control points and tangents are visible.



You must first select a control point before it can be modified. The following table lists the methods for selecting and deselecting points.

Table 15: Control Point Selection Keyboard Shortcuts

| <u>Shortcut</u> | <u>Action</u> |
|---|---------------------------------|
| Click on a control point. If the control point is part of a Bézier curve, its tangents appear | Selects the control point |
| Shift -click the control points or drag select multiple control points | Selects multiple control points |
| Ctrl(Win)/Cmd(Mac)-Alt-I | Inverts the point selection |
| Alt-Shift-A | Selects all control points |
| Alt-Ctrl-A | Deselects all control points |
| Ctrl(Win)/Cmd(Mac) -click on a control point | Toggles the point selection |
| Click anywhere off the shape | Deselects all control points |

Go to [Using the Reshape Tool](#) to see how it works.

Adding Control Points

Adding control points assists in tracing more detailed images. To add a control point, **Alt**-click on the selected shape. Don't click on an existing control point because it will move it instead.

Deleting Control Points

You can delete control points in one of two ways. Select the control point and press the **Delete** key or right-click on the control point and select Delete from the Reshape pop-up menu.

Moving Control Points

Control points are easily moved. Just select one or more control points and drag one of the selected points to a new location.

Nudging Points

Points can be nudged using the **Arrow** keys. One press of the **Arrow** key moves the points 1 pixel. Using the **Shift** key in conjunction with the **Arrow** keys moves the points 10 pixels. **Ctrl** plus the **Arrow** keys moves shapes one tenth of a pixel. These nudge values can be changed in the Preferences menu located in File > Preferences > Nudging on Windows and Linux or Silhouette > Preferences > Nudging on Mac. Holding the **Arrow** keys down slides the points.

Table 16: Point Nudging Keyboard Shortcuts

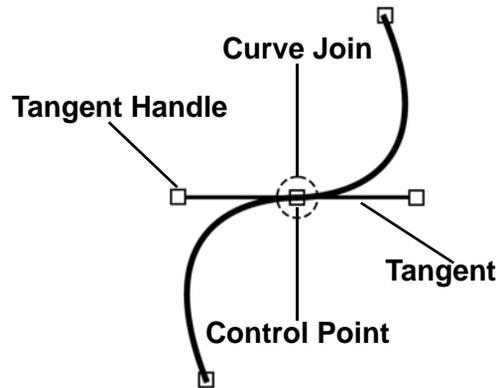
| Shortcut | Action |
|--------------------------------------|--------------------------------------|
| Arrow keys | Moves points by 1 pixel |
| Shift-Arrow keys | Moves points by 10 pixels |
| Ctrl(Win)/Cmd(Mac)-Arrow keys | Moves points by one tenth of a pixel |
| Hold down Arrow keys | Moves points continuously |

Numbering Points

All points or a selection of points can be numbered. To number one point or a selection of points, right-click on a selected control point and select Tag. To see all points numbered, go to File > Preferences > Shape on Windows and Linux or Silhouette > Preferences > Shape on Mac and set the Number Points preference to All.

Adjusting Bézier Curves

The length and direction of a control point's tangents direct the curve through that control point.



Control points have two tangents that can extend from it. The path of the curve through the control point is determined by the length and orientation of the tangents. When you drag one tangent's handle, the adjacent tangent moves as well. Using keyboard shortcuts while dragging allows you to control how the curve passes through a control point.

Table 17: Bézier Keyboard Shortcuts

| Shortcut | Action | Curve |
|--------------------------|--|--|
| No key needed | Adjust the length of one tangent while retaining a fixed angle between two tangents |  |
| Ctrl(Win)/Cmd(Mac) | Adjust both tangents simultaneously while retaining a fixed angle between two tangents |  |
| Alt | Adjusts only one tangent to create corners |  |
| Shift | Adjusts only the length of one tangent (similar to the “No key needed” shortcut) |  |
| Ctrl(Win)/Cmd(Mac)-Alt-1 | Sets the point tension to Corner | |
| Ctrl(Win)/Cmd(Mac)-Alt-2 | Sets the point tension to Cardinal | |

Reshape Tool: Bézier Pop-up Menu

Right-click over a control point to open the Bézier Reshape pop-up menu and select one of the options.



To modify multiple selected points simultaneously, do not right-click on one of the selected points. Right-click on an open area of the Viewer instead.

Table 18: Bézier Pop-up Menu

| <u>Menu Option</u> | <u>Description</u> |
|--------------------|---|
| Invert Selection | Inverts control point selection state |
| Delete | Deletes the selected control point |
| Break | Breaks the shape at the selected control point |
| Close | Closes an open shape |
| Linear | Both tangents are adjusted to one quarter the distance and in the direction of their adjoining control points |
| Corner | Creates a corner point |
| Cardinal | Creates a smooth point where the curve passes smoothly through it |
| Center | Centers the control point between its adjoining control points |
| Tag | Tags control points for point numbering |
| Untag | Untags control points when using point numbering |
| Tween | Takes the point and “re-tweens” it using the surrounding keyframes, and puts them where they would be if you hadn’t moved them on that frame. Useful for simulating an “unkey” of selected points (the shape remains keyed of course) |

Extending Short Tangents

Sometimes a control point’s tangents are so close together that trying to modify the tangent results in movement of the control point. If this is the case, you can force the tangents to move without affecting the control point by pressing the **Alt** key while dragging the tangent. Only the tangent will move, leaving the control point unaffected.

Moving Curve Segments

Normally, you move control points to adjust the form of a shape, but you can also move the portion of the curve between control points. To move a curve segment, deselect all control points by clicking somewhere off the shape and then **Ctrl(Win)/Cmd(Mac)**-drag a curve segment between control points.



Once you start dragging, the **Ctrl(Win)/Cmd(Mac)** key can be released.

Note: The surrounding tangents remain smooth, but if you want to keep adjacent tangents from moving, hold down the **Alt** key while dragging.

Adjusting B-Splines

In contrast to Béziers, B-Splines don't use tangents and are created by only using control points and are simple to adjust. The position of the points, their weight settings as well as their proximity to each other determine the curvature of the shape. The weight (amount of pull on a point) decides how sharp or smooth it is. Silhouette employs variable weight intensities on a point by point basis. The weight can be adjusted by hovering over a point and **Alt**-dragging to the right to create a corner point or **Alt**-dragging to the left to create a smooth point. Alternatively, you can **Alt**-click on one of the selected points to cycle through the preset weight settings.

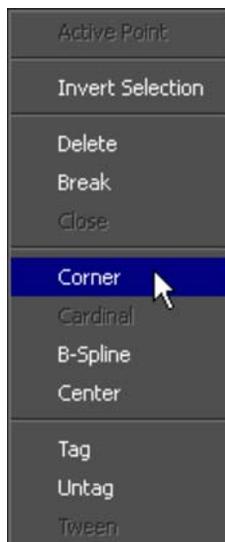
Note: Do not use extreme, variable weight adjustments if you are planning on converting the B-Spline to a Bézier Spline.

Table 19: B-Spline Keyboard Shortcuts

| Shortcut | Action |
|--------------------------------------|--|
| Alt -drag control point right | Creates a corner point |
| Alt -drag control point left | Creates a smooth point |
| Alt -clicking control point | Cycles through the preset weight settings of the point |
| Ctrl(Win)/Cmd(Mac)-Alt-1 | Sets the point tension to Corner |
| Ctrl(Win)/Cmd(Mac)-Alt-3 | Sets the point tension to B-Spline |

Reshape Tool: B-Spline Pop-up Menu

Right-click over a control point to open the B-Spline Reshape pop-up menu and select one of the options.



To modify multiple selected points simultaneously, do not right-click on one of the selected points. Right-click on an open area of the Viewer instead.

Table 20: B-Spline Pop-up Menu

| <u>Menu Option</u> | <u>Description</u> |
|--------------------|---|
| Invert Selection | Inverts control point selection state |
| Delete | Deletes the selected control point |
| Break | Breaks the shape at the selected control point |
| Close | Closes an open shape |
| Corner | Creates a corner point |
| B-Spline | Creates a smooth point that is determined by the surrounding points |
| Center | Centers the control point between its adjoining control points |
| Tag | Tags control points for point numbering |
| Untag | Untags control points when using point numbering |
| Tween | Takes the point and “re-tweens” it using the surrounding keyframes, and puts them where they would be if you hadn’t moved them on that frame. Useful for simulating an “unkey” of selected points (the shape remains keyed of course) |

Note: The **Alt**-click and pop-up menu preset weight settings for Corner and B-Spline can’t be animated.

Adjusting X-Splines

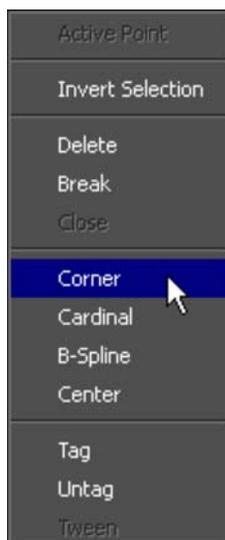
X-Splines are created by using control points and then adjusting their weight to coincide with one of the point types: Cardinal, Corner or B-Spline. The point type can even be somewhere in between one point type and another. The weight can be adjusted by hovering over a selected point and **Alt**-dragging to the right. The weight of the point goes from Cardinal to Corner to B-Spline. Alternatively, you can **Alt**-click to cycle through the different point types.

Table 21: X-Spline Keyboard Shortcuts

| Shortcut | Action |
|------------------------------|--|
| Alt-drag control point right | Adjusts the weight of the point from Cardinal to Corner to B-Spline |
| Alt-drag control point left | When the weight is set to B-Spline, it adjusts the weight of the point from B-Spline to Corner to Cardinal |
| Alt-clicking control point | Cycles through preset weight settings of the point |
| Ctrl(Win)/Cmd(Mac)-Alt-1 | Sets the point tension to Corner |
| Ctrl(Win)/Cmd(Mac)-Alt-2 | Sets the point tension to Cardinal |
| Ctrl(Win)/Cmd(Mac)-Alt-3 | Sets the point tension to B-Spline |

Reshape Tool: X-Spline Pop-up Menu

Right-click over a control point to open the X-Spline Reshape pop-up menu and select one of the options.



To modify multiple selected points simultaneously, do not right-click on one of the selected points. Right-click on an open area of the Viewer instead.

Table 22: X-Spline Pop-up Menu

| <u>Menu Option</u> | <u>Description</u> |
|--------------------|---|
| Invert Selection | Inverts control point selection state |
| Delete | Deletes the selected control point |
| Break | Breaks the shape at the selected control point |
| Close | Closes an open shape |
| Corner | Creates a corner point |
| Cardinal | Creates a smooth point where the curve passes smoothly through it |
| B-Spline | Creates a smooth point that is determined by the surrounding points |
| Center | Centers the control point between its adjoining control points |
| Tag | Tags control points for point numbering |
| Untag | Untags control points when using point numbering |
| Tween | Takes the point and “re-tweens” it using the surrounding keyframes, and puts them where they would be if you hadn’t moved them on that frame. Useful for simulating an “unkey” of selected points (the shape remains keyed of course) |

Converting B-Splines or X-Splines to Bézier Splines

You may convert your B-Splines or X-Splines to Bézier splines at any time. To convert a B-Spline to a Bézier spline, select a B-Spline or X-Spline and choose the Edit > Spline > Convert to Bézier menu item.

Once you select Convert to Bézier, a couple of things happen. The visibility of the B-Spline or X-Spline is toggled to off. A new Bézier spline is created and is named the same as the B-Spline or X-Spline but has an * at the end of the name.

Note: The Bézier conversion of B-Splines that use extreme, variable weight adjustments will not exactly match the original B-Spline. Do not use extreme, variable weight adjustments if you are planning on converting the B-Spline to a Bézier.

Breaking Shapes

In the Reshape tool, closed shapes can be opened using the Break option from the control point pop-up menu. To break a shape, select a point and right-click on it to open the pop-up menu. Choose Break and the shape opens at the selected control point.

Note: Feather information will be removed once you break a shape.

Closing and Extending Shapes

Shapes can be closed or extended with just a few mouse clicks. It is necessary to use the Reshape tool to perform the following actions.

Closing Open Shapes

Select one of the control points at the end of the shape and **Alt**-click on the other end point to close the shape.

Extending Shapes

Select a control point at either end of the shape and **Alt**-click somewhere off the shape.

Joining Open Shapes

In the Reshape tool, open shapes can be joined together. To join open shapes, first select two open shapes. Next, select one of the end points of the source shape by clicking on it and then **Alt**-click on one of the end points of the target shape. The two shapes are now joined together as one.

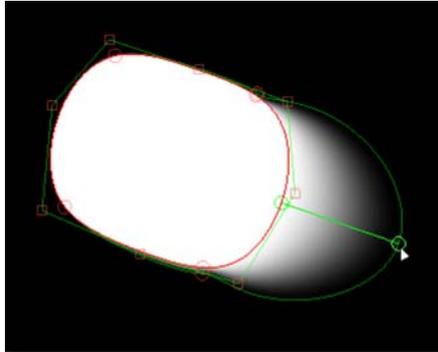
Note: The target shape inherits the attributes of the source shape.

Feather Tool (Shift-F)

Creates variable edged blurs on a point by point basis.



The Feather points can be placed either inside or outside the shape.



To use the Feather tool, select it from the Toolbar and **Alt**-click on a selected shape and drag. Additional feather points are added by **Alt**-clicking on the original curve and dragging. Feather points are edited by clicking and dragging on one of the outer points.

Note: Feather points can only be added when the Feather tool is activated, but can be edited and manipulated using the Reshape tool.

Go to [Using the Feather Tool](#) to see how it works.

Table 23: Feather Tool Keyboard Shortcuts

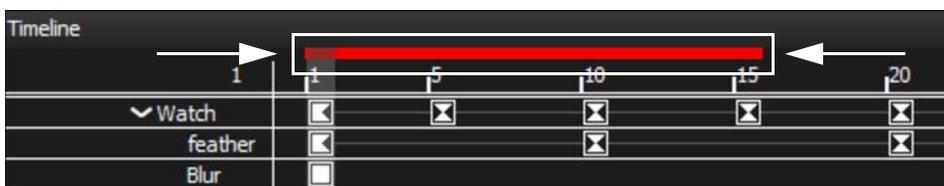
| <u>Shortcut</u> | <u>Action</u> |
|---|--|
| Alt -drag on shape | Adds and pulls out a feather point |
| Click-drag a feather point | Changes the length and position of the feather point |
| Shift -drag a feather point | Constrains the length of the point |
| Hover over feather point and hit the Delete key | Deletes the feather point |

MultiFrame Tool (M)

Normally, adjusting a shape or points on a shape are keyframed only on that particular frame. When the MultiFrame tool is activated, it modifies the Transform and Reshape tools to allow you to make adjustments across all previously set keyframes or a selection of keyframes. A red outline is drawn around the Viewer to let you know that the MultiFrame tool is active.



To use the MultiFrame tool, select it in the Toolbar. Then, drag the red ends of the MultiFrame range bar at the top of the Timeline to limit the keyframes affected by the MultiFrame tool.



The Transform or Reshape tools will now only affect keyframes within the MultiFrame selection.

Go to [Using the MultiFrame Tool](#) to see how it works.

Note: When using the MultiFrame tool, attempts to edit a shape outside the MultiFrame work range will be ignored. If you try to, for example, transform a shape and nothing happens, check to see if the MultiFrame range is active at that particular point in time.

Shape Import and Export

Shapes can be imported and exported using File > Import > Shapes and File > Export > Shapes.

Shape Import/Export Notes

After Effects

- 1** When importing and exporting Silhouette Shapes using the Silhouette Shape Import/Export Plug-in for After Effects, the general rule is that the After Effects Composition size must match the Silhouette Session size for shapes to import and export properly. However, as long as the ratio of the sizes between the After Effects Composition and the Silhouette Session match, you can successfully import and export shapes between them. For instance, you could import or export shapes from a 2000x1000 Silhouette Session to a 1000x500 After Effects Composition with no problems, as long as the pixel aspects were the same.
- 2** When After Effects has the Preserve Constant Vertex Count in the General Preferences dialog deactivated, it is possible for a differing number of control points to occur on different keyframes. These type of shapes can't be imported into Silhouette.

Commotion

- 1** You can't import Commotion B-Splines made with just 3 points.

Nuke

- 1** If you are exporting using Nuke 6.2+ Shapes, there is an Input/Output > Nuke 6.2+ Shapes preference that allows you to change the behavior of how the nodes are created in Nuke. For more information, see the [Nuke 6.2+ Shapes preference](#).
- 2** X-Splines are converted to Bezier's in Nuke.
- 3** Only Blurs set to Outside will transfer to Nuke.
- 4** Multiply mode is not guaranteed to work if the opacities involved are not 0 and 100%. Nuke and Silhouette's notion of multiply is different.
- 5** Layer blend modes are not implemented as Nuke does not support them.
- 6** Nested transformations are exported fully baked because Nuke does not actually nest transformations in its layers.
- 7** If the top or bottom of a Bezier rectangle is perfectly parallel to the screen edge, the resulting shape export will do poorly. This is because the points used for the homography are the four bounding box points which for the Bezier described

above are the same as the four points in the shape, adding no information. If you make a rectangle with more than four points then the shape export will work fine. For instance, add points between each corner.

General

- 1** The resulting export of B-Splines that use extreme, variable weight adjustments will not exactly match the original B-Spline. Do not use extreme, variable weight adjustments if you are planning on exporting B-Splines.
- 2** Open shapes can only be exported using the Silhouette shape format.
- 3** Shapes with variable edge blurs created with the Feather tool can be exported, but only the original spline without the variable edge feather is used.
- 4** B-Spline, X-Spline and Bézier splines can all be exported, but B-Splines and X-Splines are first converted to Bézier splines.

Note: B-Splines exported to Nuke 6.2 and above are not converted to Bézier splines.

After Effects Import and Export

Importing Silhouette Shapes into After Effects

The Silhouette Shape Import/Export Plug-in for After Effects is required to be able to convert Silhouette Shapes into After Effects masks.

Go to [Importing Silhouette Shapes into After Effects](#) to see how it works.

Exporting After Effects Masks to Silhouette Shapes

The Silhouette Shape Import/Export Plug-in for After Effects is required to be able to convert After Effects masks to Silhouette Shapes.

Go to [Exporting After Effects Masks to Silhouette Shapes](#) to see how it works.

Importing Shapes

Silhouette, Commotion, Elastic Reality and Shake 4.x SSF shapes can all be imported into Silhouette.

Go to [Importing Shapes](#) to see how it works.

Exporting Shapes

Silhouette, Fusion, gMask (Combustion, Flint, Flame, Inferno), Nuke and Shake 4.x SSF shapes can all be exported.

Go to [Exporting Shapes](#) to see how it works.

TRACKER

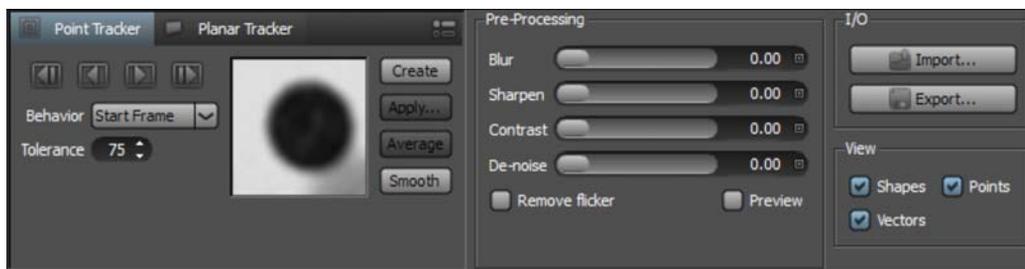
Tracking is a technique that involves analyzing the motion of an image over time. In Silhouette, images can be tracked using an automatic image tracking system called Planar tracking, or Point tracking which utilizes either one, two or four track points. One point tracking obtains horizontal and vertical movement. Two point tracking analyzes scaling and rotation in addition to horizontal and vertical movement. Lastly, four point tracking evaluates and applies perspective movement using a corner-pin transformation.

However the tracking data is obtained, it can then be applied in one of two ways: match moving or stabilization. Match moving applies the motion of the trackers to a layer so that it's shapes follow the motion of the clip. Stabilization inverts the tracking data so that the clip appears to be stable.

Selecting the Tracker (**Shift-T**) gives you access to the various tracking features and controls.



When the Tracker tool is selected, various non-animateable controls appear in a Tracker window located at the bottom portion of the screen. You have the choice of using either the Planar Tracker or Point Tracker.

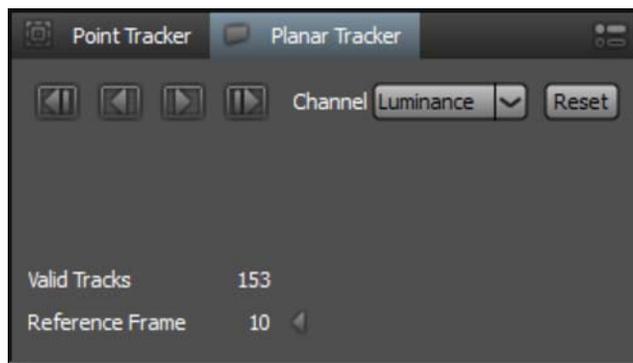


Planar Tracker

The Planar tracker generates and tracks several points on the image while automatically handling partial occlusions of the tracked object.



Go to [Using the Planar Tracker](#) to see how it works.



Tracker Direction

The Tracker Direction buttons are used to track backwards and forwards and are enabled when a layer has been selected.



Note: In a Stereo project, the Tracker Direction buttons are grayed out in the L/R View. You must be in either the Left or Right View to track.

Track Backward One Frame

Tracks backward one frame at a time.



Track Backward

Tracks backward to the beginning of the sequence.



Track Forward

Tracks forward to the end of the sequence.



Track Forward One Frame

Tracks forward one frame at a time.



As you track, the tracker's transform data is automatically applied to the selected layer.

Note: When a layer is selected, the per-shape blend mode, invert state, on/off state and opacity are all obeyed. This allows you to use shapes to subtract out areas of unwanted motion that may interfere with tracking.

Reset

Resets the tracking points.



Channel

Determines which image channel the tracker uses to analyze the image.

Luminance

The tracker analyzes the luminance or brightness of the image.

Red

The tracker analyzes the image's red channel.

Green

The tracker analyzes the image's green channel.

Blue

The tracker analyzes the image's blue channel.

Valid Tracks

The number next to Valid Tracks is a running total of the number of trackers that are viable as the tracker progresses.

Reference Frame

Displays the reference frame number. The reference frame is the frame you first started tracking on and it locks in the picked set of track points at that frame.

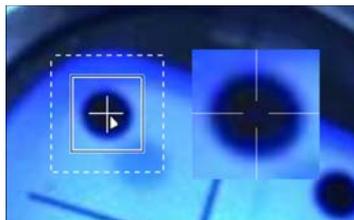
Jump to Reference Frame

When clicked, the Timebar is positioned at the reference frame.

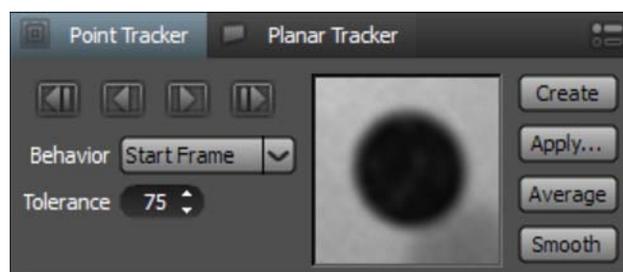


Point Tracker

The Point tracker uses trackers which are placed on distinguishable image features.

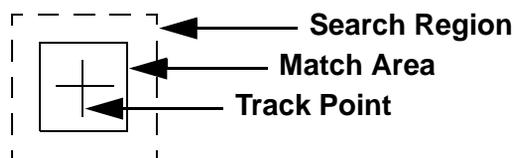


Go to [Using the Point Tracker](#) to see how it works.



Tracker Components

Each tracker has a Match Area, Search Region, and Track Point.



Match Area

The inner box is the Match Area. It defines a pattern that will be searched for from frame to frame. It's a good idea to choose a region with good contrast and detail. Corners with sharp contrast are usually good areas to track as movement can easily be detected in any direction. The Match Area can be scaled to the desired size.

Search Region

The outer, dashed box is the Search Region, which should be the maximum amount your tracking point will move between frames. The larger the size, the slower the processing. The trick is to make the Search Region as small as possible, yet still large enough to cover the area the tracker will move from frame to frame. The Search Region can be sized in the same fashion as the Match Area.

Track Point

The center cross is the track point. It represents the position of the motion track. Normally, the Track Point is at the center of the tracker, but can be offset if the Match Area becomes obscured.

Tracker Direction

The tracker can track both forward and backward one frame at a time or for the entire sequence and are enabled when a tracker has been selected.



Note: In a Stereo project, the Tracker Direction buttons are grayed out in the L/R View. You must be in either the Left or Right View to track.

Track Backward One Frame

Tracks backward one frame at a time.



Track Backward

Tracks backward to the beginning of the sequence.



Track Forward

Tracks forward to the end of the sequence.



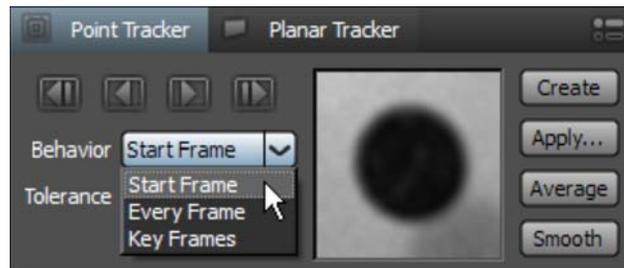
Track Forward One Frame

Tracks forward one frame at a time.



Behavior

Behavior decides what frame should be used as the reference to check the accuracy of the Match Area. By default, the reference is the first frame at which you started the track.



Start Frame

At each frame, the Match Area is compared to the first frame at which you started tracking. If you stop tracking halfway through your sequence, and start up again at a later frame, the later frame will be used as the reference.

Every Frame

The Match Area is compared to the previous frame. This method will cause inherent drift in your track, but is useful for sequences that have drastic changes in perspective and scale.

Key Frames

For difficult shots, it is helpful to preset keyframes for the tracker at various points in the sequence. The Match Area will use these keyframes as a reference while tracking.

Tolerance

Describes the level of accuracy between the Match Area that the Tracker is searching for and the area it actually finds when searching from frame to frame. A perfect match would be a value of 100. If the error that is calculated is below the Tolerance value, no keyframe will be set on that particular frame. The Tolerance is preset to a value of 75.

Create

Clicking on the Create button places a new tracker in the center of the screen. You can also add a new tracker at any time by **Alt**-clicking the image when the Track tool is activated.



Apply

Selecting the Apply button opens the Match Move window where you determine how the tracking data will be applied to a selected layer.



When OK is clicked, the tracking data is transferred to the Transform > Matrix parameter of the selected layer.

Note: The Apply button is only available when trackers and a layer are selected.

Position

Applies X/Y position data to the layer.

Scaling

Applies X/Y scaling data to the layer. Requires two trackers.

Rotation

Applies rotation data to the layer. Requires two trackers.

Average

Averages multiple tracks into a new destination track. A common technique is to track forwards from the first frame to the last, and then create a second track, tracking backwards from the last frame to the first. These two trackers are then averaged together to derive a more accurate track.



To average trackers, select more than one tracker and click the Average button. A new averaged tracker is created.

Smooth

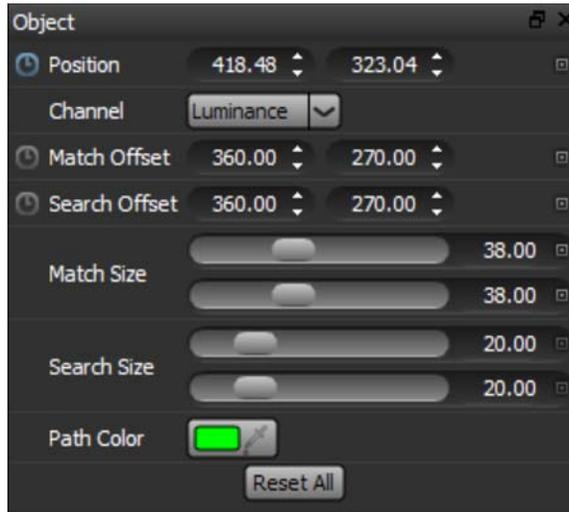
Smooths out the inaccuracies in the tracking data caused by film grain or video noise.



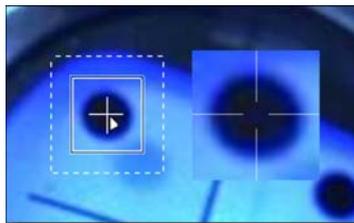
To smooth, select a tracker and click the Smooth button. Adjust the slider when it pops-up and adjust it to the desired level of smoothing.

Tracker Parameters

Most tracker parameters are interactively set while moving the tracker in the Viewer. When a point tracker is selected, its parameters are displayed in the Object window.



Magnify Window



A magnified version of the Match Area is displayed to aid in the placement of a tracker. It is activated when you click the Create button or when you move an existing tracker. The magnified area is displayed in the color space selected from the Mode pop-up menu.

Position

Sets the position of the Track Point. This parameter is automatically set when using the on-screen tracker controls.

Nudging Trackers

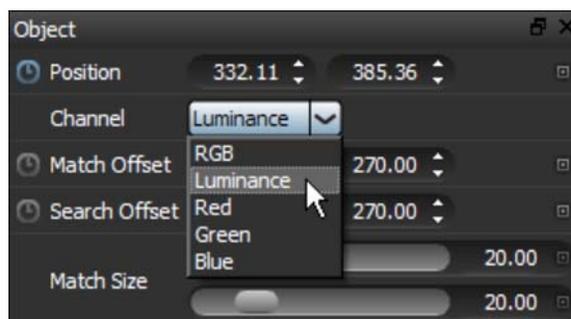
Trackers can be nudged using the **Arrow** keys. One press of the **Arrow** key moves the tracker 1 pixel. Using the **Shift** key in conjunction with the **Arrow** keys moves the tracker 10 pixels. **Ctrl** plus the **Arrow** keys moves the tracker one tenth of a pixel. These nudge values can be changed in the Preferences menu located in File > Preferences > Nudging on Windows and Linux or Silhouette > Preferences > Nudging on Mac. Holding the **Arrow** keys down slides the tracker.

Table 24: Tracker Nudging Keyboard Shortcuts

| Shortcut | Action |
|--------------------------------------|---|
| Arrow keys | Moves the tracker by 1 pixel |
| Shift-Arrow keys | Moves the tracker by 10 pixels |
| Ctrl(Win)/Cmd(Mac)-Arrow keys | Moves the tracker by one tenth of a pixel |
| Hold down Arrow keys | Moves the tracker continuously |

Channel

Determines which image channel the tracker uses to analyze the image.



RGB

The tracker analyzes the red, green and blue channels of the image.

Luminance

The tracker analyzes the luminance or brightness of the image.

Red

The tracker analyzes the image's red channel.

Green

The tracker analyzes the image's green channel.

Blue

The tracker analyzes the image's blue channel.

Match Offset

Offsets the Match Area from the tracker. This parameter is automatically set when using the on-screen tracker controls.

Search Offset

Offsets the Search Region from the tracker. This parameter is automatically set when using the on-screen tracker controls.

Match Size

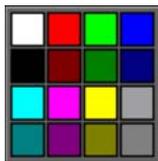
Sets the size of the Match Area. This parameter is automatically set when using the on-screen tracker controls.

Search Size

Sets the size of the Search Region. This parameter is automatically set when using the on-screen tracker controls.

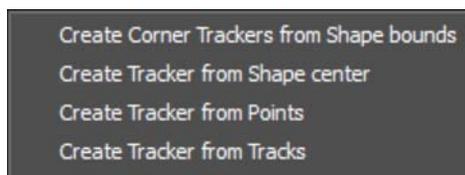
Path Color

Sets the color of the tracker's path. Left-clicking the color pot opens a standard color picker while right-clicking on the color pot opens a pop-up color menu with 16 primaries.



Tracker Pop-Up Menu

With the Tracker tool enabled, right-click over a shape or a selected control point to open the Tracker pop-up menu.



Trackers can be created based on a shape's points, the center point of a shape or the shape's bounding box. Trackers created in this manner are a concatenation of the shape and layer transformation data. So, why do this? Because, it is a handy way of creating trackers with all of this combined data for use in other programs.

Create Corner Trackers from Shape Bounds

Creates four trackers around the four corners of the shape bounding box.

Create Tracker from Shape Center

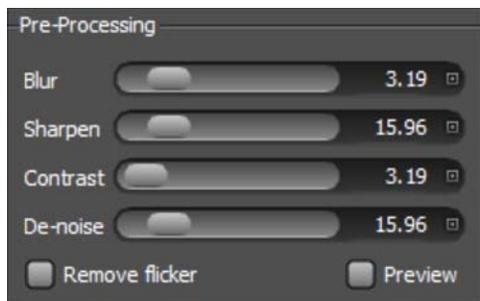
Creates one tracker in the center of the shape.

Create Tracker from Points

Creates trackers from selected points.

Pre-Processing

Images that contain film grain or video noise, lack contrast or sharpness as well as images that have flicker can be tracked more accurately by applying certain filters during the tracking process. Filters such as Blur, Sharpen, Contrast, De-Noise and Remove Flicker will increase tracker accuracy for problematic images.



Blur

Applies a blur to the image features.

Sharpen

Sharpens image features.

Contrast

Increases contrast so that the features being tracked are more apparent.

De-Noise

Applies a de-noise algorithm to smooth out noise while retaining detail.

Remove Flicker

Corrects image flicker or brightness variation over time, which has a habit of interfering with tracker accuracy.

Preview

Shows the effect of the Pre-Processing parameters on the entire image in the Viewer.

I/O

Importing and exporting tracking data takes place in the I/O section of the Tracker tab.



Import

After Effects Corner-Pin, Nuke, Shake or Simple Format formatted trackers can be imported into Silhouette. If you would like to import trackers from non-supported applications, simply export a Silhouette tracker in Simple Format to see how it should be formatted.

Go to [Importing Tracking Data](#) to see how it works.

Export

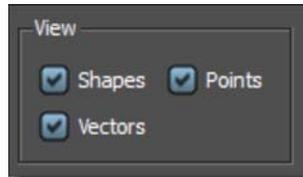
Trackers can be exported to the After Effects, Discreet, Nuke and Shake tracker formats. In addition, the tracking data applied to a layer, either by the Point tracker or Planar tracker, can be exported as a four point corner-pin track.

To create trackers for export that are a concatenation of the shape and layer transformation data, see the [Tracker Pop-Up Menu](#) for more information.

Go to [Exporting Tracking Data](#) to see how it works.

View

Either shapes or tracker vectors can be toggled on or off.



Shapes

Toggles the display of shapes in the Viewer.

Points

Toggles the display of Planar Tracker track points in the Viewer.

Vectors

Toggles the display of tracking vectors in the Viewer. This option is not available for use with the Planar Tracker.

Tracker Preferences

Seldom adjusted tracker controls can be accessed by clicking the Tracker Preferences icon.



See the [Tracker Preferences](#) for information on their use.

PAINT NODE

Paint is a high dynamic range 2D raster based paint system designed from the ground up to handle the demands of feature film and television production. Whether it's image restoration, dustbusting, wire and rig removal or just plain paint, Silhouette provides simple and sensible tools to get the job done.

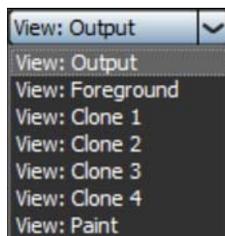
Note: Before Paint can be available for use, it must be enabled in the Session Settings and selected in the Node List.

Warning: To store painted frames to disk, you must change frames in the sequence. The current frame's paint is also saved with a save operation or an autosave.

Go to [Using Paint](#) to see how it works.

Paint View Menu

When Paint is selected in the Node List, the View menu displays either the Output, Foreground or Clone 1-4.



The **1-7** keys can quickly switch the view: **1** is Output, **2** is Foreground, **3** is Clone 1, **4** is Clone 2, **5** is Clone 3, **6** is Clone 4 and **7** is Paint.

Output

The viewer displays the output of the Paint node. This view mode shows the painted frames.

Foreground

The viewer displays the foreground clip.

Clone 1-4

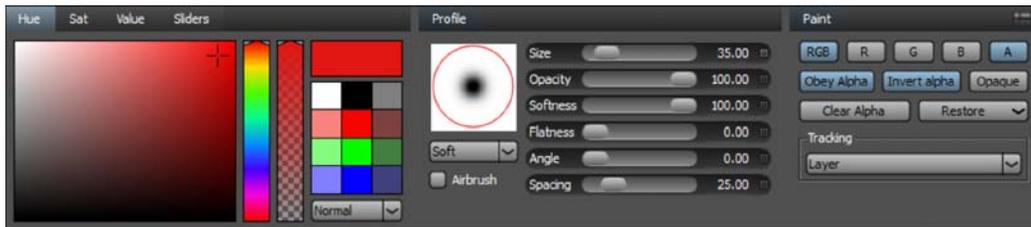
The viewer displays the clips assigned to the Clone 1-4 inputs.

Paint

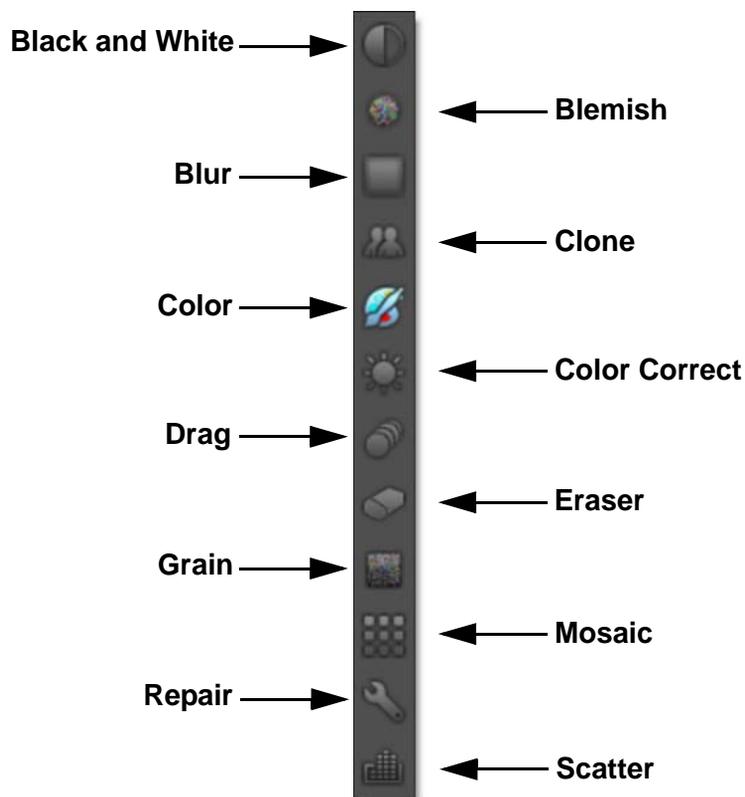
The viewer displays what would be exported when rendering paint only.

Paint Tools

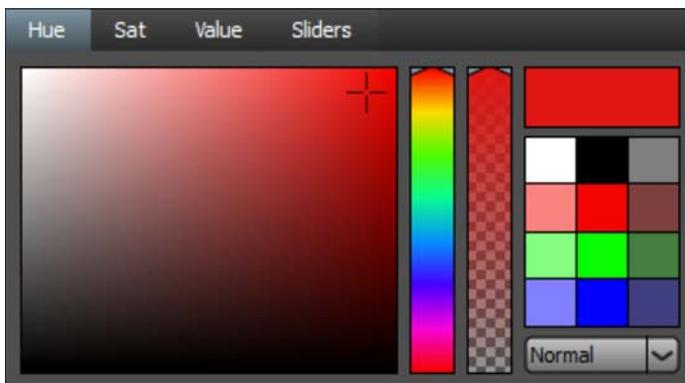
When the Paint node is selected, various non-animateable controls appear in a Paint window located at the bottom portion of the screen. Silhouette provides a wide variety of paint tools that are organized into Brush, Profile and Paint categories.



In addition, a number of different brushes are selectable from the Paint Toolbar to the left of the Viewer.



Once a brush is selected, it's controls appear on the left side of the Paint window.



B/W (B)

The B/W brush converts color images to black and white simulating the look of Black and White photographic filters.



Mode

Selects the method by which the color image is converted to a monochrome image.

Luminance

Creates a monochrome image using the brightness of the image.

Average

Creates a monochrome image using the average of the red, green and blue channels.

Red

Simulates a red filter in black and white photography.

Green

Simulates a green filter in black and white photography.

Blue

Simulates a blue filter in black and white photography.

Yellow

Simulates a yellow filter in black and white photography.

Orange

Simulates a orange filter in black and white photography.

Blemish (Shift-B)

The Blemish brush is useful for removing facial blemishes on film originated footage. It combines the Blur and Grain brushes.



Blur (Ctrl-B)

Blurs the image.

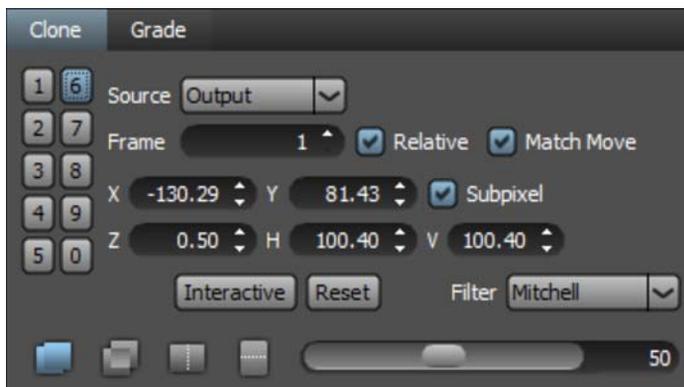


Radius

Sets the amount of blur to be applied.

Clone (C)

Paints the image using another part of the image/or other image with the ability to grade (color correct) the clone source.



Go to [Using the Clone Brush](#) to see how it works.

The controls for the Clone brush are split into two tabs: Clone and Grade. The Clone tab deals with the timing and transformation of the Clone source while the Grade tab contains color correction controls.

Clone

Setting the Clone offset on the same image:

- 1 Press and hold down the Shift key. Next, click, drag and release the mouse and then the Shift key. The first click sets the Clone source and where you drag and release is the Clone destination.

or

- 2 Press and hold down the **Shift** key. Click once to set the **Clone source** and click once again to set the **Clone destination**.

To reset the Clone offset, press **Shift** and without moving the cursor, click your mouse or tap your pen on the screen once.

Setting the Clone offset on different images:

Oftentimes, you need to align the same feature in two different images of a sequence when painting with the Clone brush.

- 1 In the **Clone controls**, select **Output**, **Foreground** or **Clone 1-4** in the **Source** pop-up menu and then set the **Frame** parameter to choose which source frame to paint from.
- 2 Press the **'** key (located to the left of **1** key).

The Clone source image automatically appears in the Viewer.

- 3 Set the **Onion-Skin** mix to **100**.

- 4 Click on the **Clone source** feature that you want to paint from.

The Clone destination image automatically appears in the Viewer.

- 5 Click on the **Clone destination** feature that you want to paint on.

The Clone offset is set.

Source Controls

The Source controls are where you select the Clone source as well as which frame to paint from.



Source

Picks which image will be used as the Clone source.

- **Output**

Clones from the previously painted areas.

- **Foreground**

Clones from the foreground image.

- **Clone 1-4**

Clones from the clips assigned to Clone 1-4 in the Viewer > Inputs menu.

View

The View pop-up menu, which only shows up when using stereoscopic sources, determines which view the Clone source will come from.

- **Auto**

The Clone source is determined by the stereoscopic View mode that has been selected at the top of the Viewer.



For instance, if the Left View is selected above the Viewer, the Clone source comes from the Left View. If the Right View is selected, the Clone source comes from the Right View. If the Left/Right View is selected, the Clone source comes from both the Left and Right Views so you can simultaneously Clone on both the views at the same time.

- **Left**

The Clone source comes from the Left View.

- **Right**

The Clone source comes from the Right View.

Frame

Choose which frame number of the Clone source to paint from. By default, the Frame field displays the actual frame number that you are cloning from. Alternatively, a frame offset can be displayed instead. This behavior is controlled with the Paint > Clone > Absolute Frame Numbers preference.

- **Relative**

When the Relative box is checked, the Clone source Frame value remains relative to the current frame. So, if the Frame value is different than the current frame, the offset between the two is maintained.

When Relative is unchecked, the Clone source is painting from a single frame defined by the value entered in the Frame field.

Match Move

Match Move allows you to apply the tracking or transformation data of a Roto node layer to the Clone source. To do so, select the desired Roto node layer in the Paint > Tracking menu and your Clone source will be Match Moved. If you would like to Stabilize instead, click the Stabilize icon at the top of the Viewer.



Transform Controls

The Transform Controls allow you to position, scale, rotate and corner-pin the Clone source.



X

Sets the horizontal position of the Clone source.

Y

Sets the vertical position of the Clone source.

Subpixel

When activated, subpixel positioning is used when moving the Clone source.

Z

Sets the rotation of the Clone source.

H

Sets the horizontal scale of the Clone source. Typing in a negative value will flop the Clone source.

V

Sets the vertical scale of the Clone source. Typing in a negative value will flip the Clone source.

Nudging the Clone Source

The Clone source can be nudged using the **Arrow** keys. One press of the **Arrow** key moves the Clone source 1 pixel. Using the **Shift** key in conjunction with the **Arrow** keys moves the Clone source 10 pixels. **Ctrl** plus the **Arrow** keys moves the Clone source one tenth of a pixel. These nudge values can be changed in the Preferences menu located in File > Preferences > Nudging on Windows and Linux or Silhouette > Preferences > Nudging on Mac. Holding the **Arrow** keys down slides the Clone source.

Interactive

Activates the on-screen controls. Turn off Interactive mode when you want to Paint. When Interactive is selected, you can position, move, scale, rotate and corner-pin the Clone source using the on-screen controls.

Table 25: Clone Source Transform On-Screen Controls

| Shortcut | Action |
|---|--|
| Drag within large center circle | Moves the Clone source |
| Shift -drag within large center circle | Constrain Clone source movement horizontally or vertically |
| Drag the center square horizontal and vertical halfway points | Scales the Clone source horizontally or vertically |
| Drag a center square corner | Proportionally scale the Clone source |
| Drag large center circle | Rotate the Clone source |
| Ctrl -drag large center circle | Rotates the Clone source with finer control |
| Drag handles on corners of image | Corner-pins the Clone source |
| Q | Activates / Deactivates translation of the Clone source |
| W | Activates / Deactivates rotation of the Clone source |
| E | Activates / Deactivates scaling of the Clone source |
| Q, W, E then Ctrl(Win)/Cmd(Mac) | Translates, Rotates or Scales in finer increments |

Corner-Pin

When Interactive mode is enabled, you can corner-pin the Clone source by dragging the handles on the corners of the image. Alternatively, you can select and move the corner points without being in Interactive mode by using **Ctrl(Win)/Cmd(Mac)-1,2,3 or 4** to select the top left, top right, bottom right and bottom left corner points. Then, use the Arrow keys to move the points. This is great way to select and move the corner points without having to zoom in or out to find the points.

Filter

Chooses the filtering method when transforming the Clone source. Mitchell is the default.

- **Triangle**

The Triangle filter is not the highest quality, but fine for scaled images.

- **Quadratic**

Quadratic is like triangle, but more blur with fewer artifacts. It offers a good compromise between speed and quality.

- **Cubic**

Cubic is the default filter in Photoshop. It produces better results with continuous tone images, but is slower than Quadratic. If the image contains fine details, the result may be blurrier than desired.

- **Catmull-Rom**

This produces good results with continuous tone images which are scaled down, producing sharp results with fine detailed images.

- **Gaussian**

Gaussian lacks in sharpness, but is good with ringing and aliasing.

- **Mitchell**

A good balance between sharpness and ringing, Mitchell is a good choice when scaling up.

- **Sinc**

Keeps small details when scaling down with good aliasing.

Reset

Resets all Clone brush transform controls.

Q (Translate), W (Rotate), E (Scale)

Pressing **Q**, **W** or **E** and then clicking and dragging will translate, rotate or scale the Clone source. Pressing **Q**, **W** or **E** a second time deactivates the mode.

Also, the position of the cursor when **W** or **E** is pressed sets the anchor point for the rotation or scale operation.

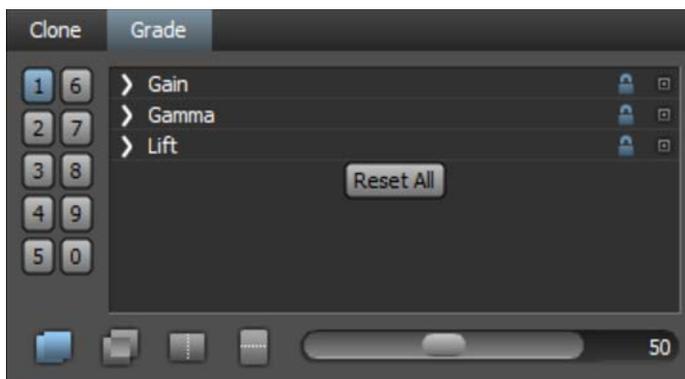
Note: Onion Skin mode is automatically activated once the **Q**, **W** or **E** key is pressed.

Table 26: Clone Source Nudging Keyboard Shortcuts

| Shortcut | Action |
|--|--|
| Arrow keys | Moves the Clone source by 1 pixel |
| Shift-Arrow keys | Moves the Clone source by 10 pixels |
| Ctrl(Win)/Cmd(Mac)-Arrow keys | Moves the Clone source by one tenth of a pixel |
| Hold down Arrow keys | Moves the Clone source continuously |
| Q, W, E then Arrow keys | Translates, Rotates or Scales by 1 pixel |
| Q, W, E then Shift-Arrow keys | Translates, Rotates or Scales by 10 pixels |
| Q, W, E then Ctrl(Win)/Cmd(Mac)-Arrow keys | Translates, Rotates or Scales by 1/10 of a pixel |
| Q, W, E then Arrow keys | Translates, Rotates or Scales by 1 pixel |
| Ctrl(Win)/Cmd(Mac)-1 then Arrow Keys | Nudges the top left corner point |
| Ctrl(Win)/Cmd(Mac)-2 then Arrow Keys | Nudges the top right corner point |
| Ctrl(Win)/Cmd(Mac)-3 then Arrow Keys | Nudges the bottom right corner point |
| Ctrl(Win)/Cmd(Mac)-4 then Arrow Keys | Nudges the bottom left corner point |

Grade

The Clone source can be graded (color corrected) using the various parameters.



Gain

Red

Multiplies red values.

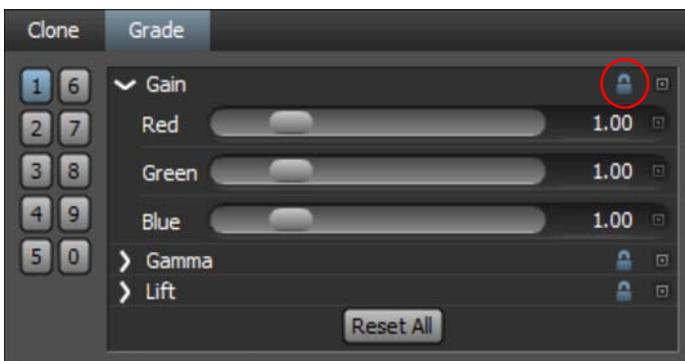
Green

Multiplies green values.

Blue

Multiplies blue values.

Note: The parameters are ganged together by default. To deactivate Gang, press the Lock icon located at the top right of each parameter group.



Gamma

Red

Adjusts red gamma values.

Green

Adjusts green gamma values.

Blue

Adjusts blue gamma values.

Lift**Red**

Adds red values.

Green

Adds green values.

Blue

Adds blue values.

Reset All

Resets all grade controls.

Clone Viewing Options

Four Clone viewing options will aid you in positioning the Clone source. They are: Onion Skin, Align, Vertical Split and Horizontal Split.

Onion Skin

Onion Skin does a mix, as defined by the slider to the right, between the Clone source and target. It is useful when aligning elements and painting with the Clone brush. In addition to the icon, pressing the **Caps Lock** key toggles Onion Skin mode on and off.



Align

Align inverts the clone source and mixes it with the foreground, as defined by the slider to the right, creating an embossed effect when similar images are not aligned. When perfectly aligned, the Viewer appears gray or black depending on the state of the Paint > Clone > Alignment Type preference.



Not Aligned



Aligned



Vertical Split

Compares the Clone source and target using a Vertical Split. Move your cursor into the image area over the split line and when the cursor changes to a double-arrow, click and drag to move the split line. The split line may not be obvious, so white triangles on the edge of the Viewer will help you find it.



The split is handy when using the Grade controls to color match the Clone source to the target.

Horizontal Split

Compares the Clone source and target using a Horizontal Split. Move your cursor into the image area over the split line and when the cursor changes to a double-arrow, click and drag to move the split line. The split line may not be obvious, so white triangles on the edge of the Viewer will help you find it.



The split is handy when using the Grade controls to color match the Clone source to the target.

Clone Presets

0-9 Presets

The 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 buttons on the left side of the window allow you to save all of the Clone parameters as a preset. This includes the Clone source, Frame Offset, Transform, Grade controls, and Brush Size/Opacity/Spacing. To save a preset, click on one of the numbered presets and adjust the transform controls. You can also use **Alt-0** through **Alt-09** keyboard shortcuts to quickly select one of the presets.

Dual Clone

Two Clone presets can be activated at once. This allows you to paint from two different frames, using separate transforms and/or color corrections.

After you have set up two Clone presets, choose the first preset and press **Shift** to select the second one. The second preset will light up red and there will be a Mix control that appears at the top right of the Clone controls. Mix sets the relative opacity of the two Clone sources.



When you paint, both Clone presets will contribute to the painted result.

Note: The first preset is dominant and any transform changes will affect it instead of the second preset.

Color (Shift-C)

Paints the image with the current color.



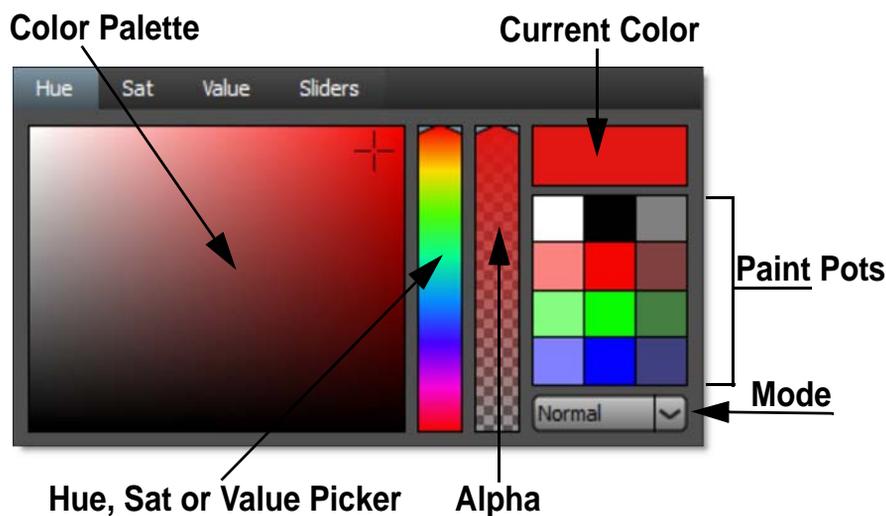
Picking Colors from the Screen

Colors can be picked off of the screen using a couple of different techniques.

- 1 Hover over an area in the Viewer and press the **.** (period key). The area inside the brush diameter is sampled and averaged when choosing the color.
- 2 Right-click picks a color from a single pixel.
- 3 Right-click-drag draws a box and averages the colors within it.

Color Palette

Colors can be selected using the Color Palette.



The Hue, Sat, Value and Sliders tabs provide you with four different methods for selecting a color.

Hue

The hue is selected from the hue picker while the saturation and value are chosen from the large square color palette.

Sat

The saturation is selected from the saturation picker while the hue and value are chosen from the large square color palette.

Value

The value is selected from the value picker while the hue and saturation are chosen from the large square color palette.

Sliders

Use the Red, Green, Blue, Hue, Sat, Value and Alpha sliders to set a color.

Hue, Sat or Value Picker

Depending on which tab is selected in the Color Palette, the vertical color bar to the right of the Color Palette controls the hue, saturation or value of the selected color.

Alpha

The second vertical color bar slider to the right of the Color Palette controls the level of the painted Alpha when Paint > A (Alpha) is selected. An Alpha value of 0 paints black, a value of 100 paints white while a value in between paints a level of gray.

Current Color

Displays the currently selected color.

Mode

Selects how color is applied to the image.

Normal

The Current Color is added to the image.

Tint

The Current Color is used to tint the image by replacing hue and saturation.

Hue

The Current Color is used to tint the image by only replacing hue.

Luminance

Replaces the luminance of the image while leaving hue and saturation unaffected.

Lighten

Pixels darker than the paint color are replaced, and pixels lighter than the paint color do not change.

Darken

Pixels lighter than the paint color are replaced, and pixels darker than the paint color do not change.

Paint Pots

Favorite colors can be stored in the paint pots by dragging and dropping from the Current Color. Click on one of the paint pots to make it the current color.

Color Correct (Alt-C)

The image is painted using color adjustments.



Hue

Rotates the hue.

Saturation

Adjusts saturation. Positive values saturate, negative values desaturate.

Brightness

Adjusts brightness. Positive values brighten, negative values darken.

Contrast

Adjusts contrast. Positive values increase contrast, negative values decrease contrast.

Center

Adjusts the contrast curve to weight it more towards shadows or highlights. A lower value means a brighter range.

Gamma

Adjusts gamma. The gamma adjustment leaves the white and black points the same and only modifies the values in-between. Positive values darken the midtones, negative values lighten the midtones.

Red

Adds or subtracts red.

Green

Adds or subtracts green.

Blue

Adds or subtracts blue.

Drag (D)

Smudge or smear an area of the image. When the brush first starts, it makes a copy of the area under the brush, then on subsequent samples it stamps that area down in the new location with a blend.



Mix

Mix is the initial blend amount of the smudged area.

Decay

Determines how much of the Mix to use on the next stamp and reduces the Mix percentage with each sample.

The defaults are Mix = 50% and Decay = 90%. So, the first stamp will be a 50/50 mix of the brush start sample and the new sample, then the next will be 50% * 90% of it, etc. until it eventually fades away entirely.

Eraser (Shift-E)

Erases previously painted brush strokes.



Grain (G)

Paints grain onto the image.



Size

Sets the size of the grain.

Red Size

Controls the size of the red grain.

Green Size

Controls the size of the green grain.

Blue Size

Controls the size of the blue grain.

Amount

Sets the intensity of the grain.

Red Amount

Controls the intensity of the red grain.

Green Amount

Controls the intensity of the green grain.

Blue Amount

Controls the intensity of the blue grain.

Softness

Sets the softness of the grain.

Red Softness

Controls the softness of the red grain.

Green Softness

Controls the softness of the green grain.

Blue Softness

Controls the softness of the blue grain.

Mono

When checked, the grain is monochrome. In this mode, only the Red Size, Red Amount and Red Softness sliders are active.

Mosaic (M)

Divides the picture up into square tiles.



Size

Controls the size of the square tiles. A small size value will create many square tiles.

Repair (R)

Paints the image with the color level sampled at the beginning of each stroke.



Scatter (S)

Scatters pixels in a random fashion.



Radius

Sets the amount of scattering.

Profile

You can customize your brush settings in the Profile section.



Profile

A soft, hard or square brush can be selected from the pop-up menu.

Hard

The brush profile is hard.

Soft

The brush profile is soft.

Square

The brush profile is set to a hard square.

Airbrush

When on, brush samples are generated at 30 samples/sec as long as the mouse button or pen is held down.

Size

Sets the size of the brush. The brush can also be resized in the Viewer by holding **Ctrl(Win)/Cmd(Mac)** and dragging the brush outline.

Opacity

Sets the opacity or transparency of the brush.

Softness

Sets the brush softness. The brush softness can be changed in the Viewer by holding **Ctrl(Win)/Cmd(Mac)-Shift** and dragging the brush outline.

Flatness

Sets the flatness of the brush.

Angle

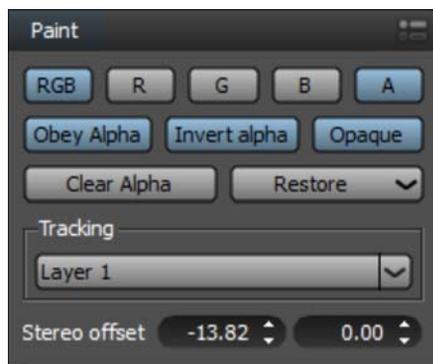
Sets the angle of the brush.

Spacing

Sets the brush spacing.

Paint

The Paint settings affect how paint is applied to the image.



RGB

The selected brush paints on the RGB channels.

R

The selected brush paints on the Red channel.

G

The selected brush paints on the Green channel.

B

The selected brush paints on the Blue channel.

A

The selected brush paints on the Alpha channel.

Obey Alpha

The intensity of the Alpha channel controls how much the image will be affected by a particular paint operation. At any given pixel in the image, the more transparent the value in the Alpha channel, the more transparent the application of the paint operation.

Invert Alpha

Inverts the Alpha channel.

Opaque

Enabled once the “A” button is turned on, the Opaque control ensures that a solid paint stroke is created when painting into the Alpha channel. When Opaque is off, the brush will also affect the Alpha channel. So now, it's possible to blur and drag the Alpha channel, for instance.

Clear Alpha

Wipes any painted portions of the Alpha channel.

Restore

Clears all paint strokes and restores the original unpainted frames.

Current Frame

Clears all paint strokes on the current frame.

All Frames

Clears all paint strokes on all frames.

Work Range

Clears all paint strokes for the Timebar work range.

Tracking

Chooses a Roto node layer's tracking or transformation data to be applied to the Clone source. The Clone source will then be automatically set according to the selected layer's tracking or transformation data.

Note: Match Move in the Clone controls must be activated to use the selected layer's tracking or transformation data.

Stereo Offset

The Stereo Offset control, which only shows up when using stereoscopic sources, is used to align the offset between Left and Right Views of stereoscopic sequences. These values are automatically set when using the Stereoscopic Align mode's on-screen control.

Table 27: Paint Keyboard Shortcuts

| Shortcut | Action |
|--|--|
| B | Selects the Black and White brush |
| Shift-B | Selects the Blemish brush |
| Ctrl-B | Selects the Blur brush |
| C | Selects the Clone brush |
| Shift-C | Selects the Color brush |
| Alt-C | Selects the Color Correct brush |
| Shift-E | Selects the Eraser brush |
| D | Selects the Drag brush |
| G | Selects the Grain brush |
| M | Selects the Mosaic brush |
| R | Selects the Repair brush |
| S | Selects the Scatter brush |
| Ctrl(Win)/Cmd(Mac)-drag brush outline | Sizes the brush |
| Ctrl(Win)/Cmd(Mac)-Shift-drag brush outline | Sets the brush softness |
| Shift-click-drag with Clone brush | Sets the Clone offset |
| Shift-click-click with Clone brush | Sets the Clone offset |
| Shift-click or tap | Resets the Clone offset |
| ' (located to the left of 1 key) | Displays the Clone source and then the Clone destination so that you can click on each to set the Clone offset |
| Caps Lock | Toggles Onion Skin mode on and off |
| . (period key) | Picks colors off of the screen |
| Right-click | Picks a color off of the screen from a single pixel |
| Right-click-drag | Picks a color off of the screen by drawing a box and averaging the colors within it |
| Alt-1 through Alt-5 | Selects one of the Clone brush setups |

EFFECTS NODE

The Effects node allows you to apply the brushes available in the Paint node as filter effects to shapes or layers. Paint and shape features are tightly integrated to form an extremely powerful shape based effects tool. Not only can filters be animated, but they can be combined with animated shapes to take the drudgery out of everyday jobs.

Since shapes are needed for the filters, the Effects node has it's own shape tools similar to those in the Roto node. See the [Roto Node](#) for more information.

Effects Node Parameters

When the Effects node is selected in the Node List, parameters specific to the Effects node can be adjusted in the Node window.



Alpha Behavior

Determines how incoming and outgoing Alpha channel's are handled. The default is None.

None

The incoming Alpha channel generated by previous nodes is not used for filter applications nor are the Effects node's shapes rendered to the Alpha channel.

Obey Input

The incoming Alpha channel generated by previous nodes is considered when applying a filter.

Obey Inverted Input

The incoming Alpha channel generated by previous nodes is inverted and considered when applying a filter.

Write Output

When enabled, shapes with effects applied to them are rendered to the Alpha channel.

Effects View Menu

When Effects is selected in the Node List, the View menu displays either the Foreground or Output.



The **1** and **2** keys can quickly switch the view: **1** is Foreground and **2** is Output.

Foreground

The viewer displays the foreground clip.

Output

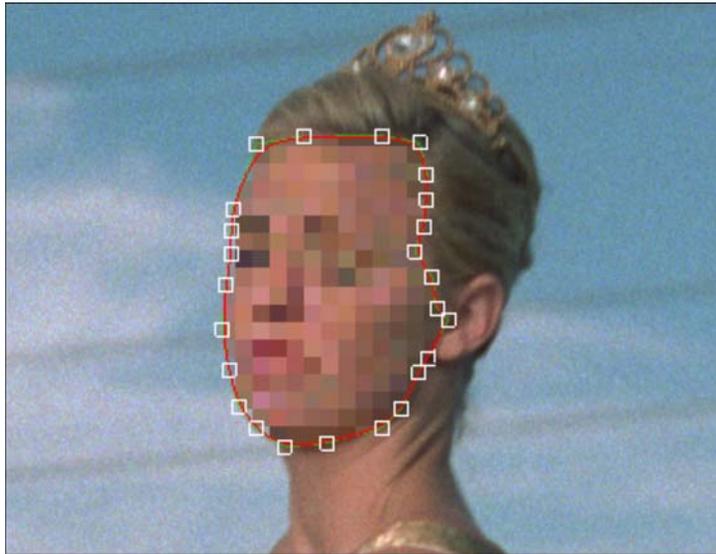
The viewer displays the output of the Effects node.

Applying Filters

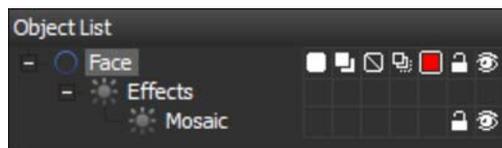
Using Shapes or Layers

Filters can be applied to shapes or layers. Simply select a shape, a selection of shapes or a layer and choose an effect from the Filter menu. When added to a layer, the effect is applied based on the alpha of the layer. The idea is to allow shapes with various Blend modes to contribute to or limit where the effect will be applied.

Mosaic filter applied to the Face shape

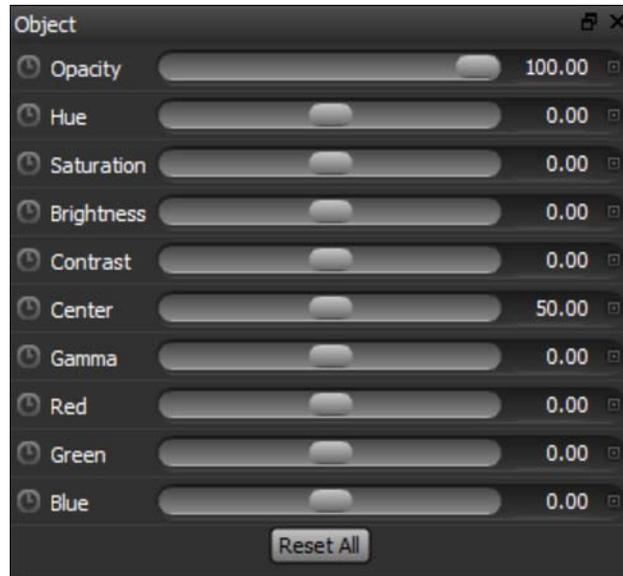


Once applied, the filter appears in the Object List within an *Effects* group.



In addition, if you click on one of the filters in the Object List, its editable parameters show up in the Object window and can be keyframed like any other attribute.

Here's an example of the Color Correct filter parameters:



Go to [Applying Filters](#) to see how it works.

Obeying Alpha Channels from Upstream Nodes

The incoming Alpha channel generated by previous nodes can be utilized when applying a filter. All you need to do is click on the Effects node in the Node List and select Alpha Behavior > Obey Input in the Node window. Now, when a filter is added to a shape, it is only applied to the areas of input Alpha contained within the shape.

Go to [Obeying Alpha Channels from Upstream Nodes](#) to see how it works.

Filters Menu

When the Effects node is selected in the Node List, a Filter menu appears in the Title bar. This is where you select filters to be applied to shapes or layers. A number of different effects are selectable from the Filters menu.



B/W

The B/W filter converts color images to black and white simulating the look of Black and White photographic filters.

Opacity

Sets the opacity of the B/W filter.

Mode

Selects the method by which the color image is converted to a monochrome image.

Luminance

Creates a monochrome image using the brightness of the image.

Average

Creates a monochrome image using the average of the red, green and blue channels.

Red

Simulates a red filter in black and white photography.

Green

Simulates a green filter in black and white photography.

Blue

Simulates a blue filter in black and white photography.

Yellow

Simulates a yellow filter in black and white photography.

Orange

Simulates an orange filter in black and white photography.

Blemish

The Blemish filter is useful for removing facial blemishes on film originated footage. It combines the Blur and Grain filters.

Blur

Adds blur to the image.

Opacity

Sets the opacity of the Blur filter.

Radius

Sets the amount of blur to be applied.

Color

Adds color to the image.

Opacity

Sets the opacity of the Color filter.

Color Picker

The Color parameter sets the color through the use of a standard color picker.

Blend Mode

Selects how color is applied to the image.

Normal

The current color is added to the image.

Tint

The current color is used to tint the image by replacing hue and saturation.

Hue

The current color is used to tint the image by only replacing hue.

Luminance

Replaces the luminance of the image while leaving hue and saturation unaffected.

Lighten

Pixels darker than the paint color are replaced, and pixels lighter than the paint color do not change.

Darken

Pixels lighter than the paint color are replaced, and pixels darker than the paint color do not change.

Color Correct

Manipulates the image using hue, saturation, brightness, contrast, gamma, red, green and blue values.

Opacity

Sets the opacity of the Color Correct filter.

Hue

Rotates the hue.

Saturation

Adjusts saturation. Positive values saturate, negative values desaturate.

Brightness

Adjusts brightness. Positive values brighten, negative values darken.

Contrast

Adjusts contrast. Positive values increase contrast, negative values decrease contrast.

Center

Adjusts the contrast curve to weight it more towards shadows or highlights. A lower value means a brighter range.

Gamma

Adjusts gamma. The gamma adjustment leaves the white and black points the same and only modifies the values in-between. Positive values darken the midtones, negative values lighten the midtones.

Red

Adds or subtracts red.

Green

Adds or subtracts green.

Blue

Adds or subtracts blue.

Grain

Adds grain to the image.

Opacity

Sets the opacity of the Grain filter.

Size

Sets the size of the grain.

Red Size

Controls the size of the red grain.

Green Size

Controls the size of the green grain.

Blue Size

Controls the size of the blue grain.

Amount

Sets the intensity of the grain.

Red Amount

Controls the intensity of the red grain.

Green Amount

Controls the intensity of the green grain.

Blue Amount

Controls the intensity of the blue grain.

Softness

Sets the softness of the grain.

Red Softness

Controls the softness of the red grain.

Green Softness

Controls the softness of the green grain.

Blue Softness

Controls the softness of the blue grain.

Mono

When checked, the grain is monochrome. In this mode, only the Red Size, Red Amount and Red Softness sliders are active.

Mosaic

Divides the image up into square tiles.

Opacity

Sets the opacity of the Mosaic filter.

Size

Controls the size of the square tiles. A small size value will create many square tiles.

Scatter

Scatters pixels in a random fashion.

Opacity

Sets the opacity of the Scatter filter.

Radius

Sets the amount of scattering.

Scratch

Removes vertical scratches by averaging in the surrounding pixels.

Opacity

Sets the opacity of the Scratch filter.

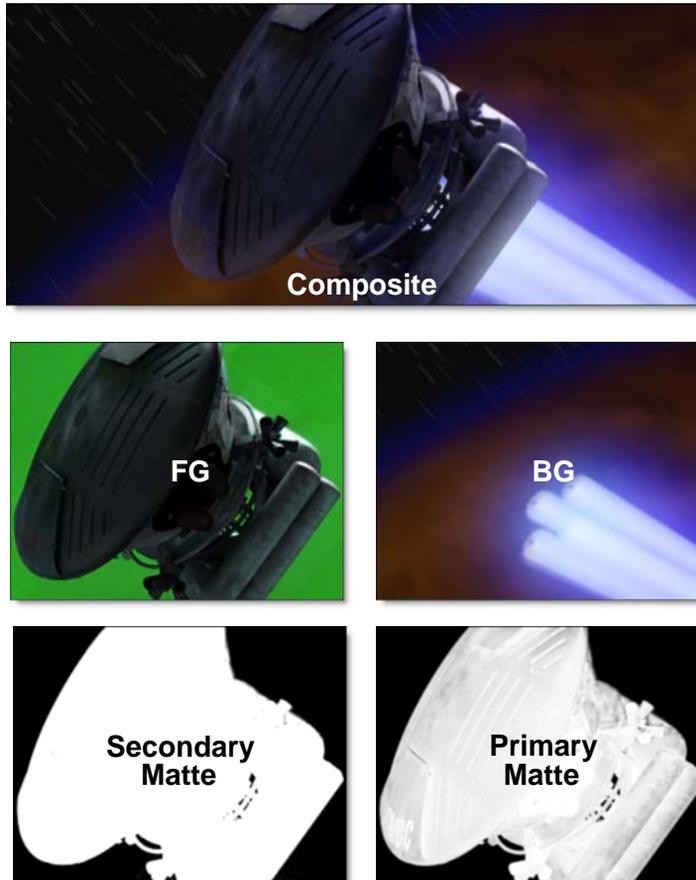
Width

Controls the strength of the Scratch filter.

Go to [Using the Scratch Filter](#) to see how it works.

KEYER NODE

Using proprietary matte extraction techniques, the Keyer quickly and simply creates mattes with minimal parameters even if you are dealing with fine hair detail, smoke, or reflections. It is easy to use, yet provides the needed tools when faced with good, bad, or ugly shots — tools such as DV/HD deartifacting, multiple matte creation, color suppression and sophisticated matte manipulation.

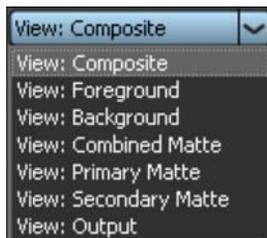


Go to [Using the Keyer](#) to see how it works.

Note: Before the Keyer can be available for use, it must be enabled in the Session Settings and selected in the Node List.

Keyer View Menu

When the Keyer is selected in the Node List, the View menu displays either the Composite, Foreground, Background, Combined Matte, Primary Matte, Secondary Matte or Output.



The **1**, **2**, **3**, **4**, **5**, **6**, and **7** keys can quickly switch the view: **1** is Composite, **2** is Foreground, **3** is Background, **4** is Combined Matte, **5** is Primary Matte, **6** is Secondary Matte and **7** is Output.

Composite

The viewer displays the composite of the foreground over the background based on your matte. If “None” is selected for the Background Input, the foreground will be composited over a color. The default color is gray, but can be changed by going to File > Preferences > Composite on Windows and Linux or Silhouette > Preferences > Composite on Mac. If you add a Composite node in the Session Settings, the composite will be rendered.

Foreground

The viewer displays the foreground clip.

Background

The viewer displays the background clip.

Combined Matte

The viewer displays the final matte. If the Primary and Secondary Mattes are utilized, this option will show you the combined matte.

Primary Matte

The viewer displays the Primary Matte.

Secondary Matte

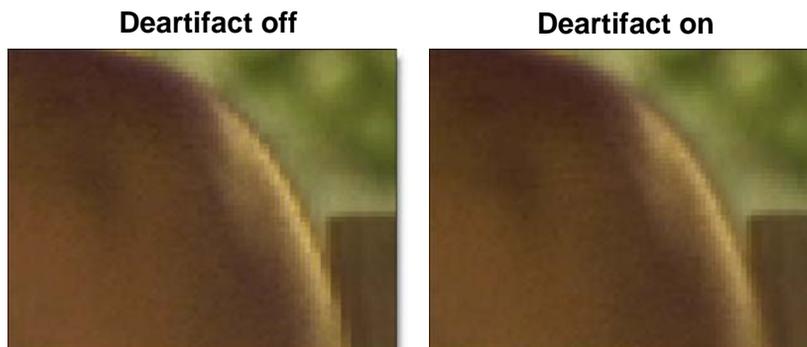
The viewer displays the Secondary Matte if it is enabled.

Output

The viewer displays the output of the Keyer node which is the modified foreground and Alpha channel.

Deartifact

The Deartifact parameters are handy for cleaning up artifacts caused by DV and HD video footage. In fact, they are useful for cleaning up foregrounds that have aliased or jaggy edges.



When activated, a RGB to YUV conversion takes place so that you can blur only the U and V color channels. Since this is where most of the artifacting shows up, this has the effect of cleaning up the ratty edges encountered when keying DV or HD video footage. It is usually best to blur mostly on the horizontal axis.

Note: The Deartifact parameters default to settings that are good for DV footage. If you are working at higher resolutions, you will want to increase the Horizontal Blur settings.

Enable

Activates Deartifacting.

Horizontal Blur

Prior to pulling the matte, the U and V color channels are blurred by a fast, quality blur along the X-axis.

Vertical Blur

Prior to pulling the matte, the U and V color channels are blurred by a fast, quality blur along the Y-axis.

Gang

The horizontal and vertical slider values can be ganged together.

Primary Matte

The Keyer can utilize up to two mattes in the creation of the final composite. If only one matte is needed, you would use the Primary Matte. When adjusting the Primary Matte, you should select Primary Matte in the View pop-up menu so you can see what you are doing.

Note: Keep in mind when creating your matte that wherever you see black in the matte, you will see background in the final composite. Wherever you see white in the matte, you will see foreground in the final composite--foreground being anything that is extracted from the blue or green screen.

Extract On

Extract On selects the type of matte extraction. Select whichever type isolates the desired values. A matte is extracted based on one of the following:

Blue Screen

Choose blue screen if you have a blue screen.

Green Screen

Choose green screen if you have a green screen.

Luminance

A matte is extracted based on the luminance of the image.

Hue

A matte is extracted based on the hue of the image. When adjusting the Position parameter, you are selecting different hues.

Saturation

A matte is extracted based on the saturation of the image.

Average

A matte is extracted based on the average of the image's RGB values.

Red

A matte is extracted based on the image's red values.

Green

A matte is extracted based on the image's green values.

Blue

A matte is extracted based on the image's blue values.

Alpha

A matte is extracted based on the image's alpha values.

Cyan

A matte is extracted based on the image's cyan values.

Magenta

A matte is extracted based on the image's magenta values.

Yellow

A matte is extracted based on the image's yellow values.

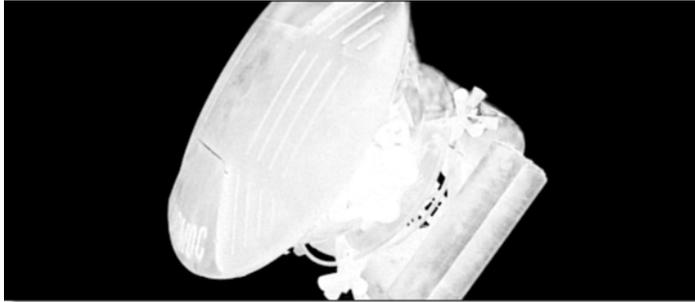
Background/Foreground

When using the Extract On > Blue Screen or Green Screen settings, Background and Foreground are used while all other matte extraction methods use Position and Range.

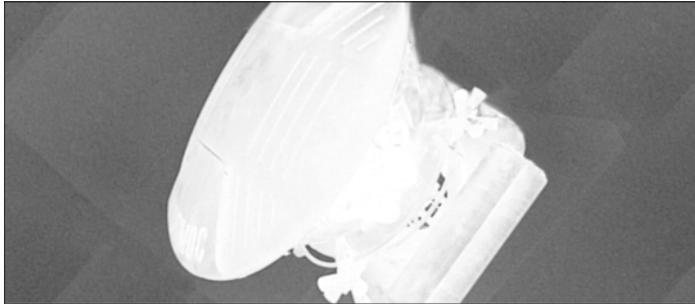
Background

Sets the background value. The lower the value, the harder or blacker the matte will become.

Background = 40



Background = 80

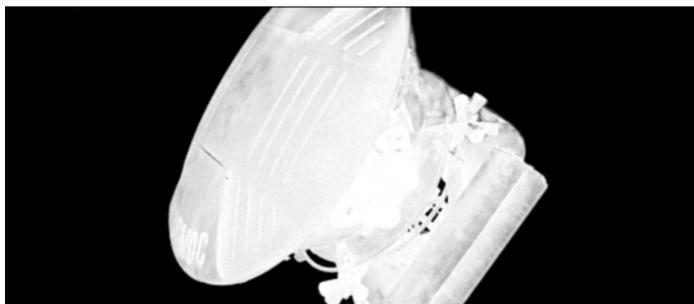


It is best to set the Background value as high as possible, while at the same time making sure that the background is completely black.

Foreground

Sets the foreground value. The higher the value, the harder or whiter the matte will become.

Foreground = 0



Foreground = 17



It is best to set the Foreground value as low as possible, while at the same time making sure that the foreground is completely white for any areas that should be opaque in the final composite.

Position and Range

When using matte extraction methods other than the Extract On > Blue Screen or Green Screen settings, Position and Range are used instead of Foreground and Background.

Position

The Position value pinpoints the values to be used in the matte. For a Luminance extraction, a Position value of 100 would make a white matte of the highlights and a value of 0 would make a white matte of the shadows.

Range

Increases or decreases the range of values in the matte. A low Range value indicates a narrow range of values. A high Range value indicates a large range of values included in the matte.

Black Clip

Blacks in the matte are made blacker by increasing the value of the slider. As the slider value increases, more values are clipped to black. This is helpful for getting rid of unwanted gray areas in what should be the black part of the matte.

White Clip

Whites in the matte are made whiter by increasing the value of the slider. As the slider value increases, more values are clipped to white. This is helpful for getting rid of unwanted gray areas in what should be the white part of the matte.

Shrink/Grow

Shrinks or grows the matte. Negative values shrink and positive values grow the matte.

Shrink/Grow = -5



Blur

The matte is blurred by a fast, quality blur.

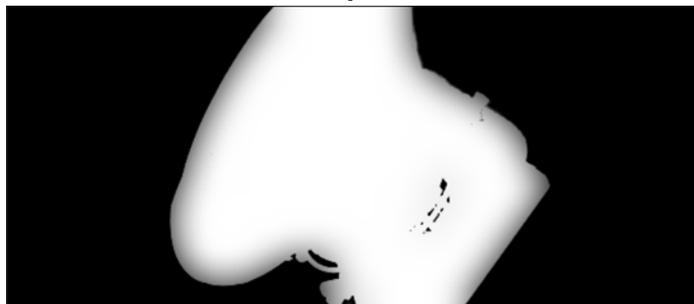
Blur = 10



Wrap

Helps blend the foreground into the background by making the background “wrap” into the foreground edges without completely losing the edge. The edge of the foreground starts to become transparent.

Wrap = 30



Secondary Matte

Sometimes two mattes are needed to create a good key. The Keyer allows you to create two different mattes and combine them with various Blend modes.

With the exception of those listed below, the remaining parameters for the Secondary Matte are the same as the Primary Matte: Extract On, Background, Foreground, Position, Range, Shrink/Grow, Blur, and Wrap.

Enable

Activates the Secondary Matte.

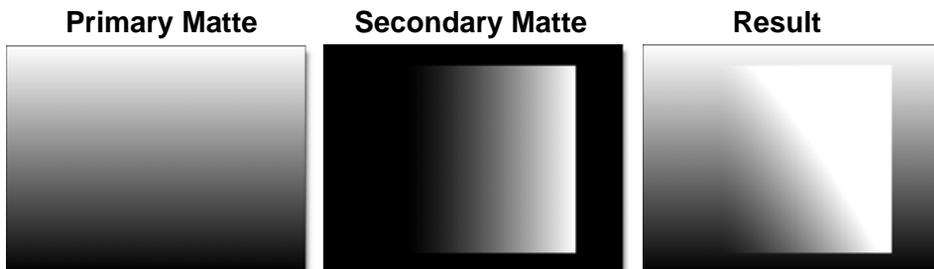
Note: You must first enable the Secondary Matte before it can be seen in the View pop-up menu.

Blend

Once a blend mode is selected, the Secondary Matte is combined with the Primary Matte.

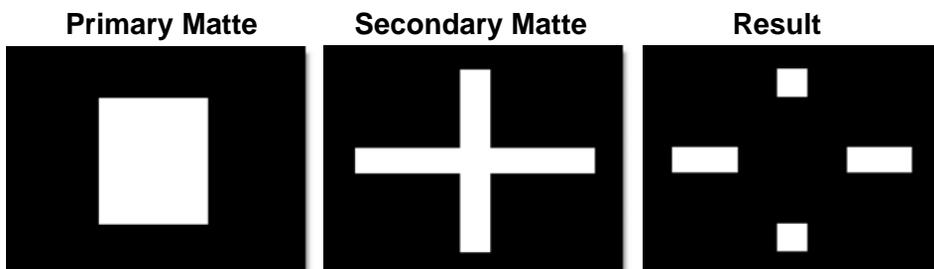
Add

The Secondary Matte is added to the Primary Matte.



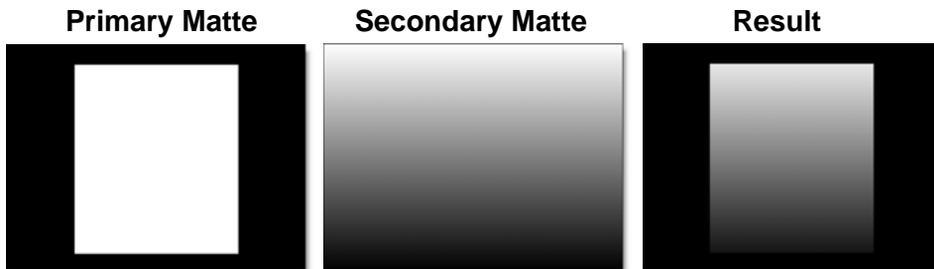
Subtract

The Secondary Matte is subtracted from the Primary Matte.



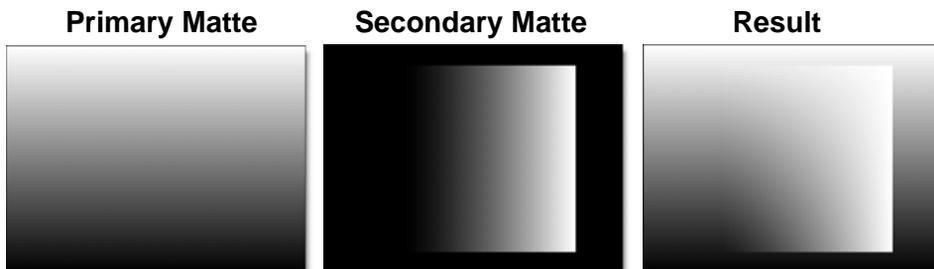
Multiply

Produces a result where there is a union of the Primary and Secondary Mattes.



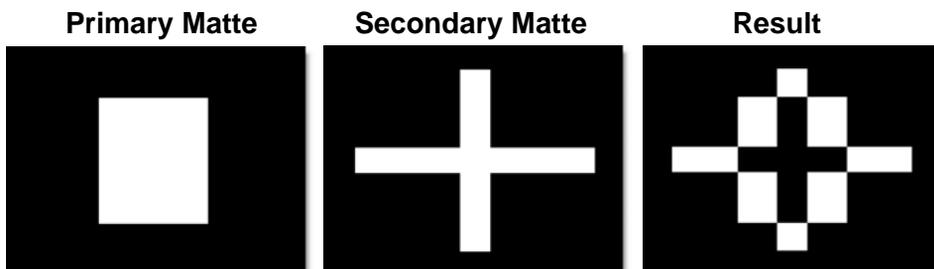
Screen

This looks kind of like the Add blend mode, but highlights are retained as opposed to being burnt out.



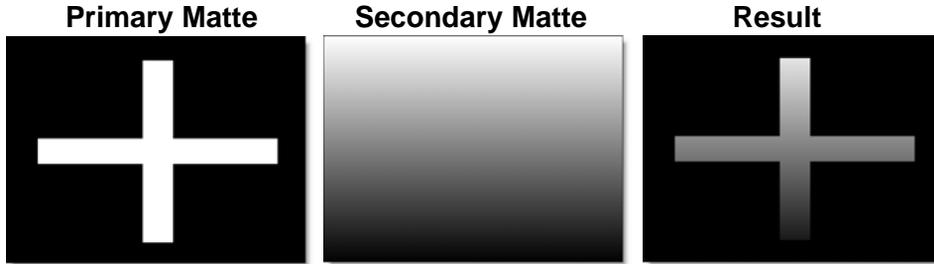
Difference

Produces a result where a value exists in the Primary and Secondary Mattes, but not in both.



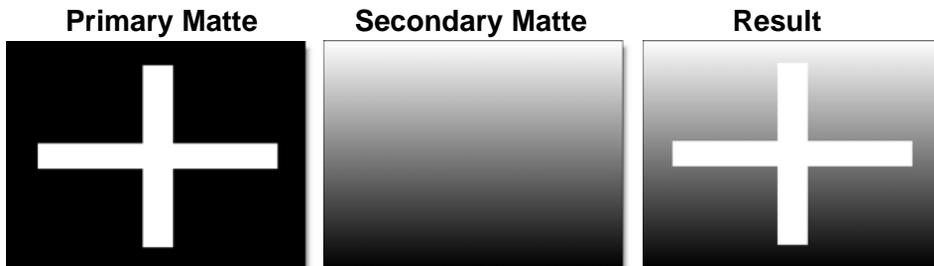
Darken

Compares the two mattes and takes pixels with the lower value.



Lighten

Compares the two mattes and takes pixels with the higher value.



Opacity

Sets the opacity of the Secondary Matte.

Color Suppress

Removes either blue or green spill from the foreground object.

Note: Color Suppress is only available when using Extract On > Blue or Green Screen in the Primary Matte.

Enable

Activates color suppression.

Foreground

Suppresses color spill in the foreground. The default value of 100 should be sufficient for most situations.

Foreground = 0



Foreground = 100



Range

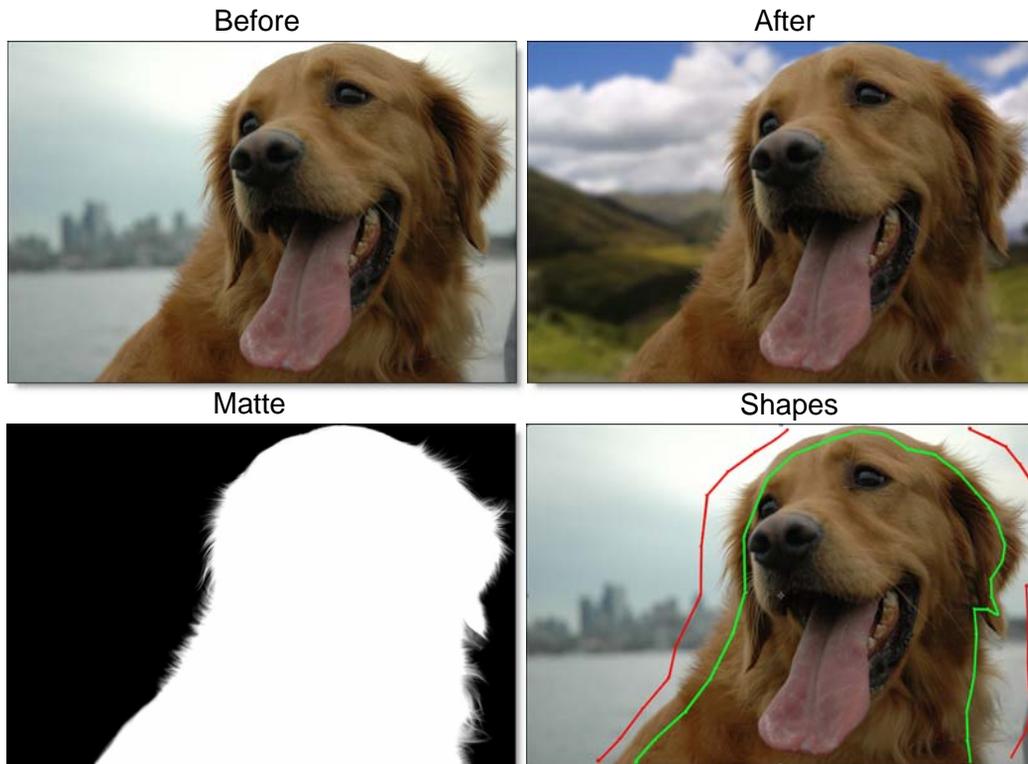
Increases the range of areas that are color suppressed. If color spill is still evident, increase this value.

Edge

Suppresses the color spill of the foreground edge to the color gray. This is very useful for edges that contain a lot of transparency like hair or reflections.

POWER MATTE NODE

Power Matte is an easy to use interactive image matting tool capable of extracting almost any object in an image--even if you are dealing with fine hair detail, smoke, or reflections.



To work this magic, Power Matte iteratively estimates the transparency value for every pixel in the image, based on a small sample of foreground (what you want to cut out) and background (what you want to get rid of) pixels marked by defining simple shapes on the image. Results show that compared with previous approaches, our method is more efficient and requires minimal effort to extract high quality mattes for foregrounds with significant semi-transparent regions. In addition, the foreground edge colors can be estimated in the semi-transparent areas to create a seamless composite.

Go to [Using Power Matte](#) to see how it works.

Note: Before Power Matte can be available for use, it must be enabled in the Session Settings and selected in the Node List.

Since shapes are required for Power Matte, it has its own shape tools similar to those in the Roto node. See the [Roto Node](#) for more information.

Matte Creation

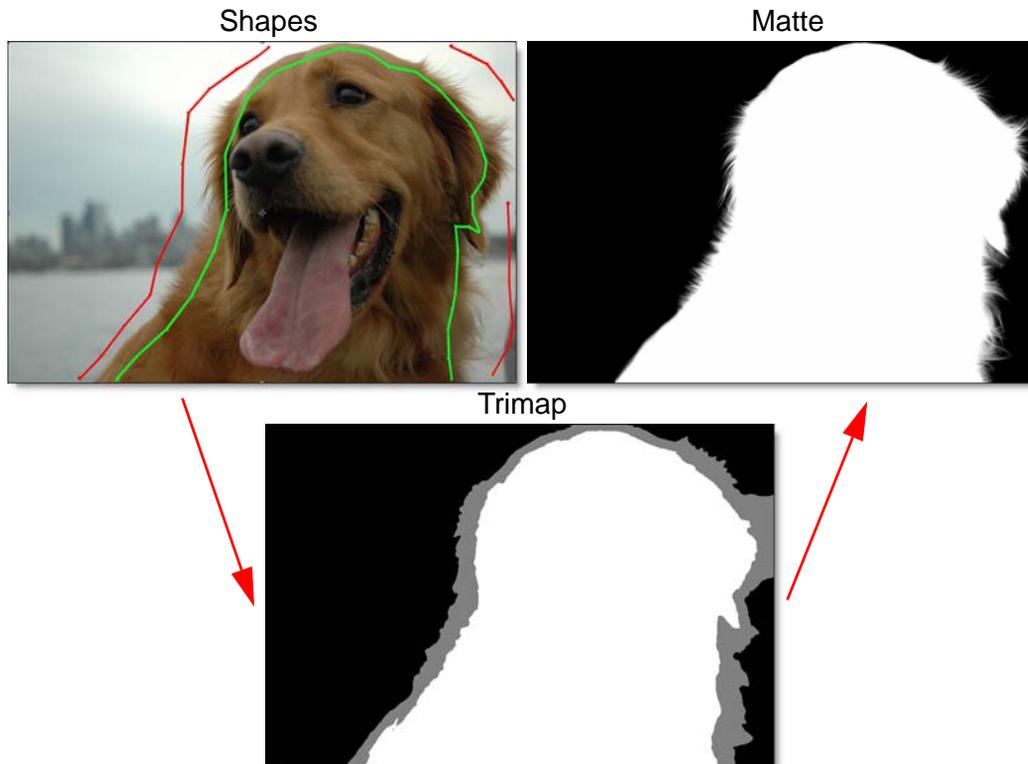
Power Matte uses open or closed shapes to define the object you would like to isolate or extract. The shapes can be loose--they don't need to follow exactly around the edges. Areas not defined by shapes are considered unknown areas and are automatically computed by Power Matte.

Trimaps

Power Matte creates mattes by using a trimap--a pre-segmented image consisting of three regions of foreground (what you want to cut out), background (what you want to get rid of) and unknown. Partial opacity values are then computed only for pixels inside the unknown region. Two trimap methods can be used: Open Shape or Closed Shape. When creating mattes, start with the Open Shape Method and move on to the Closed Shape Method if the results are not satisfying.

Open Shape Method

Power Matte only requires a few open shapes to define foreground and background areas of the image when using the Open Shape Method. Areas not defined by shapes are considered unknown areas with partial opacity values being computed between the areas marked by foreground and background shapes.



Using the shapes, Power Matte generates an intermediate matte result called a Trimap. White signifies solid foreground, black is complete background and gray is unknown area where Power Matte will compute partial opacity.

The Open Shape Method requires little user input, but when color ambiguity exists between the foreground and background, the Closed Shape Method may create a more accurate matte. In addition, the Open Shape Method will also take slightly longer to render as it requires an extra calculation step.

Open Shape Method Tips & Tricks

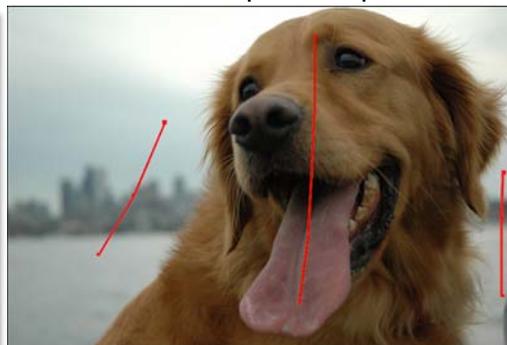
- Make sure you draw enough foreground (what you want to cut out) and background (what you want to get rid of) shapes. A good technique is to draw an open inner shape within the object you are extracting and an outer, open shape outside the object.
- The shapes should be near the boundary of the object, but not right up against the edge.
- If the foreground or background has varying colors, the shapes should cover these colors.
- When viewing the matte, if you see gray areas in the foreground object that should be completely white, make additional foreground shapes in those areas. If you see gray matte areas in the background that should be completely black, make additional background shapes.
- The general rule is to not put different foreground and background shapes too close together unless you need to.

Warning: If you only provide a few sparse shapes, the Open Shape Method will take longer to process with a less accurate result than the Closed Shape Method.

Good Shape Example

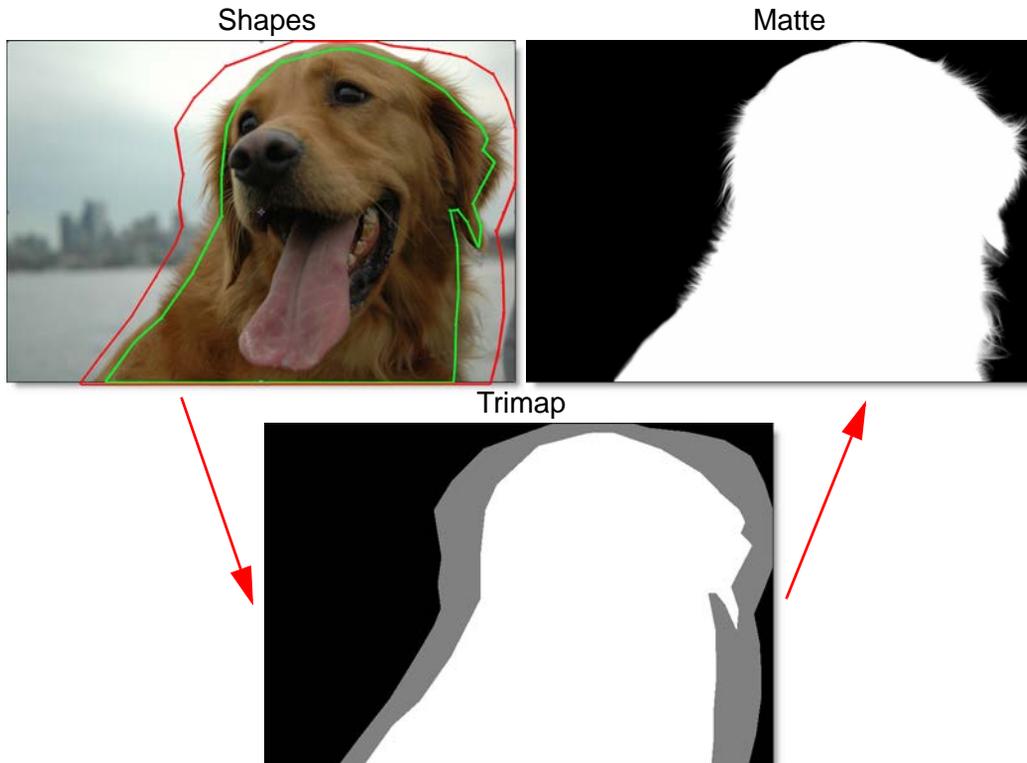


Bad Shape Example



Closed Shape Method

The Closed Shape Method uses closed shapes to mark definite foreground and background areas of the image. Any unmarked areas are considered unknown and partial opacity values are then computed for the pixels inside the unknown region. So, make sure that any hair detail, transparent or blurry portions fall within the unknown areas.



Closed Shape trimaps process slightly faster than Open Shape trimaps and can result in extracting a more accurate shape, most notably when color ambiguity exists between the foreground and background. However, they can be tedious to create and tend to fail for images with large portions of semi-transparent foreground where the trimap is difficult to create manually. The Closed Shape method does not handle a foreground object with background holes in it, and therefore the Open Shape method would be a better choice when extracting an object with holes

Closed Shape Method Tips & Tricks

- **First, define foreground areas by drawing a closed shape around the inside edges of the foreground (what you want to cut out).**
- **Next, define background areas (what you want to get rid of) by drawing a closed shape around the background areas.**
- **If your foreground object is completely surrounded by background, a quick way to define the background area is to first draw a closed shape around the outside of the foreground and then invert the shape in the Object window.**
- **Ideally, the unknown region, the regions not defined with foreground or background shapes, should only cover transparent pixels whose actual values are not completely foreground or background. In other words, the unknown region should include hair detail, transparent or blurry portions of the image.**

Note: Large foreground objects take longer to process than small ones.

Power Matte View Menu

When Power Matte is selected in the Node List, the View menu displays either the Composite, Foreground, Background, Trimap, Matte or Output.



The **1**, **2**, **3**, **4**, **5** and **6** keys can quickly switch the view: **1** is Composite, **2** is Foreground, **3** is Background, **4** is Trimap, **5** is Matte and **6** is Output.

Composite

The viewer displays the composite of the foreground over the background based on your shapes. If “None” is selected for the Background Input, the foreground will be composited over a color. The default color is gray, but can be changed by going to File > Preferences > Composite on Windows and Linux or Silhouette > Preferences > Composite on Mac. If you add a Composite node in the Session Settings, the composite will be rendered.

Foreground

The viewer displays the foreground clip.

Background

The viewer displays the background clip.

Trimap

The viewer displays the trimap matte.

Matte

The viewer displays the generated matte.

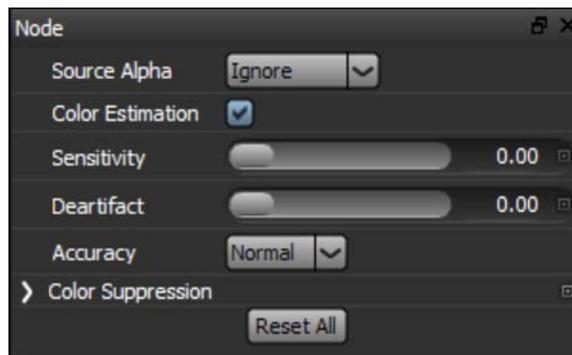
Output

The viewer displays the output of the Power Matte node which is the modified foreground and Alpha channel.

Note: If Color Estimation is enabled, the edges of the foreground element will look a bit odd in the Output View.

Power Matte Node Parameters

When Power Matte is selected in the Node List, parameters specific to Power Matte can be adjusted in the Node window.



Source Alpha

Controls how the incoming Alpha channel is blended with the Power Matte Alpha channel.

Ignore

The incoming Alpha channel is not used.

Add

Adds the incoming Alpha channel to the Power Matte Alpha channel.

Subtract

Subtracts the incoming Alpha channel from the Power Matte Alpha channel.

Multiply

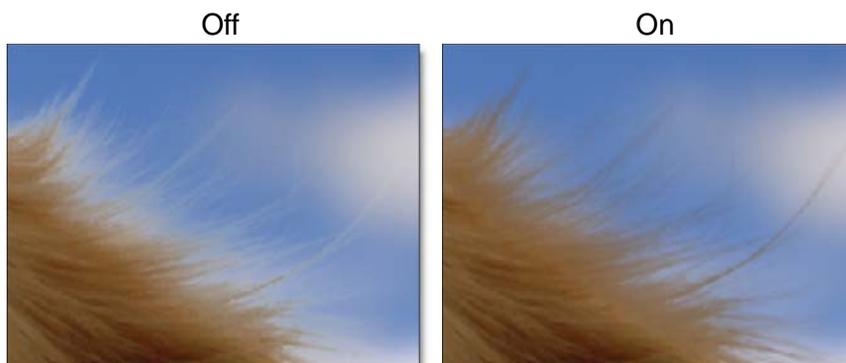
Produces a result where there is a union of pixels from the incoming Alpha channel and Power Matte Alpha channel.

Difference

Produces a result where a value exists in the incoming Alpha channel and Power Matte Alpha channel, but not in both.

Color Estimation

Estimates the color of the foreground in unknown and semi-transparent areas. Color Estimation is off by default and when activated, prevents fringing to create a seamless composite. When disabled, a foreground object with transparent edges against a bright or dark background will have bright or dark edges in the composite.



Note: Color Estimation can cause color flickering in edge areas of partial opacity if your shape position is not constant from frame to frame or if your source footage is grainy. Disable Color Estimation if you see flickering in the edge areas after a preview or rendering.

Sensitivity

Sets the sensitivity of the Unknown areas. The higher the value, the more details are brought out.

Deartifact

Blurry artifacts can be generated while attempting to extract objects that have drop shadows, similar colors to the background or out of focus edges.

Deartifact can be used to limit these artifacts.

Accuracy

The accuracy of the generated matte can be increased with this control. When foreground and background shapes are close together, setting the Accuracy to Higher or Full will result in a more accurate matte.

Note: It is best to work with Power Matte at the Accuracy setting that you will be rendering at.

Normal

Normal will work for most images and will render faster than the other settings.

Higher

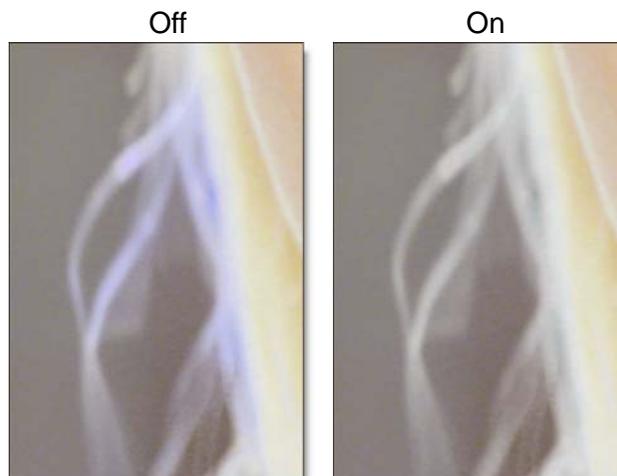
Higher results in better accuracy than the Normal setting, but not quite as good as Full.

Full

Full will result in the most accurate matte, but will take longer to render.

Color Suppression

When a foreground object has been photographed against a solid blue or green backdrop, the blue or green color can have a tendency to spill onto the foreground object. When extracting an object photographed against one of these colors, you may find it necessary to remove the blue or green spill. This is a process called Color Suppression.



Type

Selects whether blue or green is suppressed from the foreground image.

Foreground

Suppresses color spill in the foreground. The default value of 100 should be sufficient for most situations.

Range

Increases the range of areas that are color suppressed. If color spill is still evident, increase this value.

Edge

Suppresses the color spill of the unknown edge areas to the color gray. This is useful for edges that contain a lot of neutral transparency like glass reflections.

Reset All

Resets all parameters to their default state.



Power Matte Shape Parameters

Type

Foreground

Assigns the shape to be used as foreground (what you want to cut out).

Background

Assigns the shape to be used as background (what you want to get rid of).

Filled

Determines whether or not the shape is filled.

Invert

Inverts a filled shape. This option is only available if Filled is enabled.



STEREOSCOPIC

Traditional stereoscopic photography consists of creating a 3-D illusion from a pair of 2-D images. The easiest way to create depth perception in the brain is to provide the eyes of the viewer with two different images, representing two perspectives of the same object, with a minor deviation similar to the perspectives that both eyes naturally receive in binocular vision.

Silhouette provides stereoscopic viewing and editing tools to handle dual images from different perspectives.

Go to [Working with Stereoscopic Images](#) to see how it works.

Stereoscopic Workflow

Creating Sessions

- Load a stereoscopic EXR file or left and right sequences into Silhouette.
- Create a Session.
- If you are not using a stereoscopic EXR file, the left and right sequences have to be linked together using the Source node's View > Primary/Left and Secondary/Right parameters.

Roto

- Use the Stereoscopic View modes to determine whether you are rotoscoping on the Left View, Right View or both the Left and Right Views at the same time.
- Create a shape around an object in either the Left or Right View and keyframe it as needed.
- Use Edit > Stereoscopic > Duplicate > New Layer so that the shape and all of its keyframes from the Left View are duplicated to the Right View in a new layer and the two shapes are linked together. When using shapes inside of a transformed layer, you can duplicate the layer instead. This will copy the layer along with its transform data into the other view, copy any unlinked stereoscopic children into it and then link the shapes. You can stereo duplicate one layer at a time using this method.
- Go to the view that contains the duplicated shape and layer and click on the layer in the Object List to make it active.

- Activate the Stereoscopic Align mode and click and drag in the Viewer to align the two views in the area of your shape. The views are aligned when there is a solid gray color.
- If the object you are rotoscoping moves through various depths, you will want to keyframe the Stereoscopic Align setting at various frames.
- Deactivate Stereoscopic Align mode.
- Once aligned, the duplicated shape is aligned to the rotoscoped object using the offset created when adjusting the Stereoscopic Align mode.
- Adjust the duplicated shape as needed.

Paint

- Use the Stereoscopic View modes to determine whether you are painting on the Left View, Right View or both the Left and Right Views at the same time.
- To paint on both the Left and Right Views at the same time and in the same location, you will want to use Stereoscopic Align mode to line up the two views.
- Activate the Stereoscopic Align mode and click and drag in the Viewer to align the two views in the area where you will be painting. The views are aligned when there is a solid gray color.
- Deactivate Stereoscopic Align mode.
- Once aligned, painting in the Left/Right View will paint on the same location of the image in both views.

Keying

- Use the Stereoscopic View modes to view the result of the keyer in the Left View, Right View or both the Left and Right Views at the same time.

Note: The Keyer applies the same setting to both the Left and Right Views.

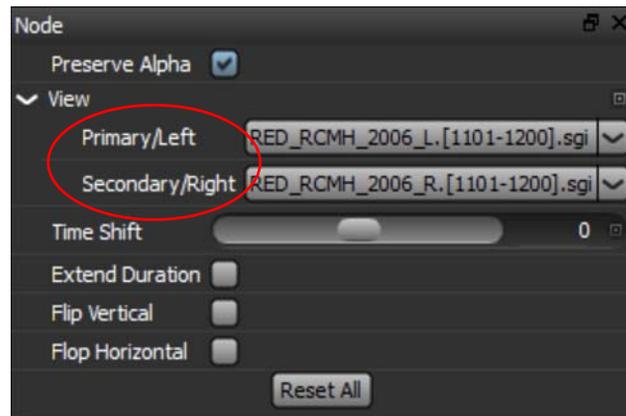
Effects

- Use the Stereoscopic View modes to determine whether you are creating effects on the Left View, Right View or both the Left and Right Views at the same time.

Source Node > View

The stereoscopic tools in Silhouette only show up in the user interface when using a stereoscopic EXR file or when left and right sequences have been assigned in the Source node's View > Primary/Left and Secondary/Right parameters.

In the Source node parameters, you will find View controls. This is where you identify which sequences are used for the left and right views of stereoscopic sessions.



Primary/Left

Sets which sequence is used for the left view.

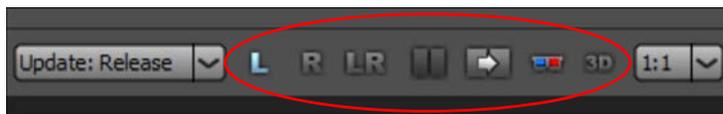
Secondary/Right

Sets which sequence is used for the right view.

Note: Stereoscopic EXR files which contain both the Left and Right Views within one file are automatically connected to the Primary/Left and Secondary/Right views.

Stereoscopic View Modes

The Viewer's Stereoscopic View modes determine whether you are working on the Left View, Right View or both the Left and Right Views at the same time.



L (Shift-1)

Left View displays the left sequence in the Viewer.



R (Shift-2)

Right View displays the right sequence in the Viewer.



LR (Shift-3)

Left/Right View displays both the left and right sequences in the Viewer.



Stereoscopic Split Mode

Only available once the Left/Right View is active, Stereoscopic Split Mode determines whether or not the Left and Right Views are arranged horizontally or vertically.

Horizontal

Arranges the Left and Right Views horizontally.



Vertical

Arranges the Left and Right Views vertically.



Stereoscopic Align (Shift-4)

Stereoscopic Align utilizes layers to line up two stereoscopic sequences which will effectively negate the offset between them. Aligning the sequences in this manner allows painting on the same location of the Left and Right Views simultaneously, while for rotoscoping, it means shapes created for the Left View can be easily duplicated to the Right View in the proper position.



Note: Stereoscopic Align can only be selected and used once a layer is active.

When activated, Stereoscopic Align uses a negative mode which inverts one of the views and mixes it with the other. This creates an embossed effect when similar image areas are not aligned. By dragging the move cursor that appears, you can drag on the Viewer to align the views. When similar image features are perfectly aligned, you will see a solid gray color. The amount you move the view in Stereoscopic Align mode is stored in the Stereo Offset parameter of the active layer which is set to animate by default. Animation of this parameter is needed for image sequences that contain depth changes.

Table 28: Stereoscopic Align Keyboard Shortcuts

| <u>Shortcut</u> | <u>Action</u> |
|--|---|
| Click and drag in Viewer | Moves the Stereo Offset horizontally |
| Shift -click and drag in Viewer | Moves the Stereo Offset horizontally and vertically |
| Ctrl -drag in Viewer | Moves the Stereo Offset in finer increments |
| Alt -click in Viewer | Resets the Stereo Offset |
| Arrow keys | Moves the Stereo Offset by 1 pixel |
| Shift-Arrow keys | Moves the Stereo Offset by 10 pixels |
| Ctrl(Win)/Cmd(Mac)-Arrow keys | Moves the Stereo Offset by one tenth of a pixel |
| Hold down Arrow keys | Moves the Stereo Offset continuously |

Anaglyph Preview (Shift-5)

Activates Anaglyph Preview mode so that you can check your stereoscopic image in 3D using red-blue glasses.



Stereo Viewer (Shift-6)

Opens a stereo Viewer window for displaying the stereoscopic image in either Anaglyph or Interlaced modes on a 3D monitor. The default mode is defined in the Viewer > Stereo View Mode preference.



Interlaced mode requires a 3D monitor that uses interlacing like the Zalman passive display. When in Interlaced mode, the Stereo First Field viewer preference controls which eye comes first--Left or Right. This needs to match up with how the monitor does the 3D effect. Right-clicking on the Stereo Viewer gives you the choice to Zoom > Fit, Zoom > 1:1 or to go Fullscreen.

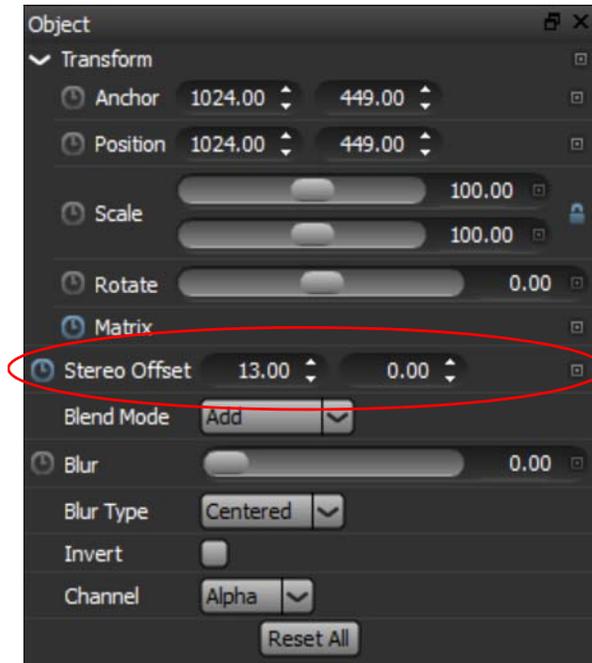
Note: On a single monitor system, the **Esc** key will close the Stereo Viewer.

Table 29: Stereoscopic View Shortcuts

| <u>Shortcut</u> | <u>Action</u> |
|-----------------|-----------------------------|
| Shift-1 | Selects the Left View |
| Shift-2 | Selects the Right View |
| Shift-3 | Selects the Left/Right View |
| Shift-4 | Selects Stereoscopic Align |
| Shift-5 | Anaglyph Preview |
| Shift-6 | Stereo Viewer |

Layer > Stereo Offset

The Layer > Stereo Offset control is used to align the offset between Left and Right Views of stereoscopic sequences and is set to animate by default. This value is automatically set when using the Stereoscopic Align mode's on-screen control.



Stereoscopic Roto

Shape and Layer Creation

When in the Left or Right View, creating a shape or layer will create it in either the Left or Right View. In the Left/Right View, a shape or layer is created in both the Left and Right Views.

Switching the View Assignment for Shapes and Layers

Whichever view is selected when the shape or layer is created, a **L** for Left View or **R** for Right View appear to the left of the Object Lists's Opacity icon and indicates which view the shape or layer is assigned to. Clicking on this View icon toggles which view the shape or layer is located in.



Link, Unlink and Duplicate Shapes

In the Edit menu, you will find a Stereoscopic entry. This is where you can link, unlink and duplicate shapes for stereoscopic rotoscoping.

Link

Links two selected shapes of the same type and the same number of control points for stereoscopic rotoscoping. Linking allows the two shapes to be simultaneously selected and edited in the Left/Right View.

Note: Linked shapes are bolded in the Object List when one or both of a linked pair is selected.

Unlink

Unlinks selected shapes.

Duplicate

Duplicates a selected shape or a single layer containing shapes to the other view and automatically links it. When a layer is duplicated, all of its transform data is copied as well.

Duplicate > New Layer

Duplicates a selected shape to the other view, automatically links it and places it in a new layer.

Note: Duplicate > New Layer is not available if you are in the Left/Right View.

Selection

Selecting Shapes

- When in the Left/Right View, selecting a shape also selects its linked shape.
- While in the Left/Right View, in the Transform and Reshape tools, changing the selection state of a stereoscopic linked shape will do the same to the linked shape.
- It is possible to only select one of the two linked objects:
 - 1 In the Left/Right View by using the Object List.
 - 2 In the Transform tool by Alt-clicking a shape.
 - 3 In the Reshape tool by Alt-clicking an unselected shape.
- An Alert icon appears over the Left or Right View icons if there is a selected shape in the other view.

Selecting Points

When in the Left/Right View, changing point selection on one shape will match the point selection on the linked shape

Editing

Points

Moving Points

When in the Left/Right View, selected points on both shapes are moved by the same amount.

Adding Points

Adding points is only allowed while in the Left/Right View, so you can see the change to both linked shapes.

Deleting Points

Deleting points is only allowed while in the Left/Right View, so you can see the change to both linked shapes.

Note: Adding and deleting points is only allowed when in the Left/Right View when both shapes are selected and when both shapes have the same selected control points.

Shapes

Deleting Shapes

Deleting a linked shape will sever its link.

Cutting Shapes

Cutting a single linked shape will sever its link, unless both linked shapes are cut.

Copying Shapes

Copying a single linked shape will sever its link, unless both linked shapes are copied.

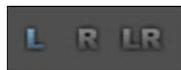
Pasting Shapes

If both linked shapes are in the copy buffer, the new pasted shapes will be linked to each other.

Stereoscopic Paint

Painting

In general, painting on stereoscopic images is the same as painting with single images. The Stereoscopic View mode determines whether you are painting on the Left View, Right View or both the Left and Right Views at the same time.



In the Timebar, red markers are displayed for painted frames in the Left View, blue markers for the Right View and green markers for frames painted in both the Left and Right View.



Clone > View

The View menu determines which view the Clone source will come from.



Auto

The Clone source is determined by the Stereoscopic View mode that has been selected at the top of the Viewer.



For instance, if the Left View is selected above the Viewer, the Clone source comes from the Left View. If the Right View is selected, the Clone source comes from the Right View. If the Left/Right View is selected, the Clone source comes from both the Left and Right Views so you can simultaneously Clone on both the views at the same time.

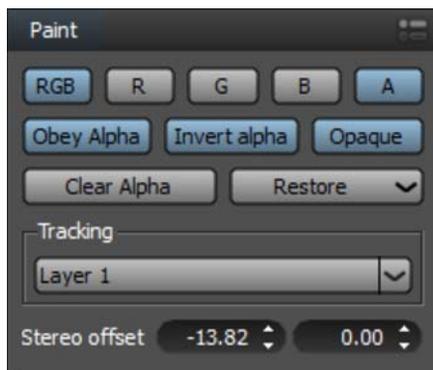
Left

The Clone source comes from the Left View.

Right

The Clone source comes from the Right View.

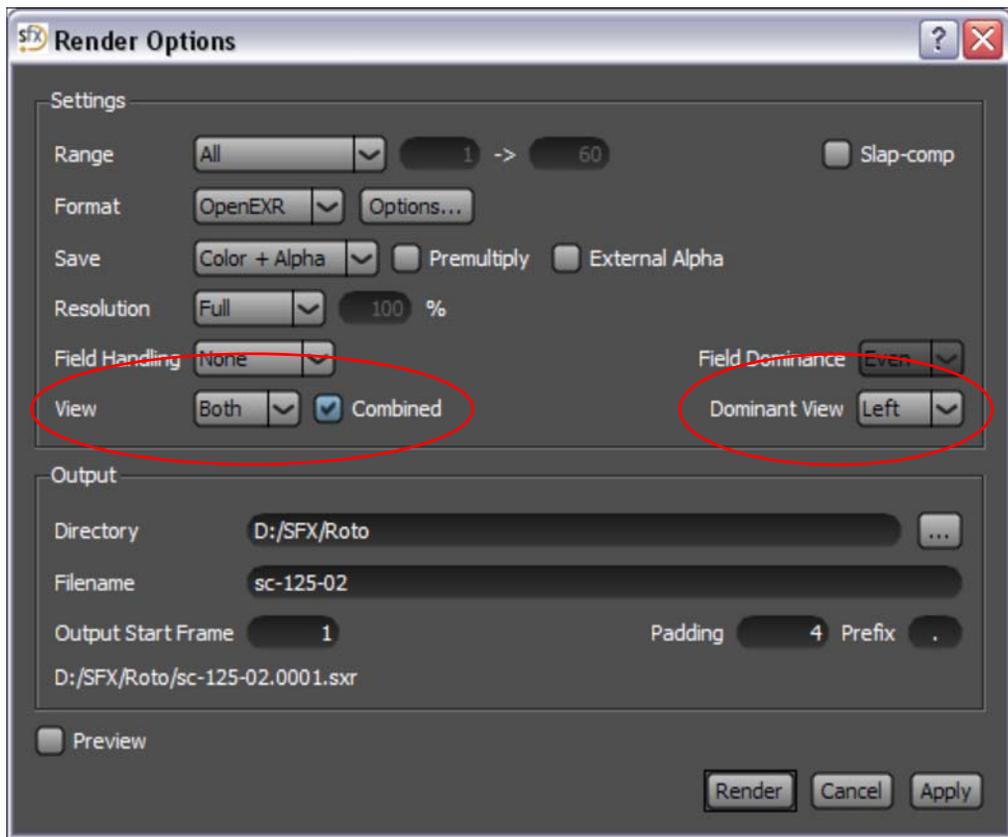
Paint > Stereo Offset



The Stereo Offset controls are used to align the offset between Left and Right Views of stereoscopic sequences. These values are automatically set when using the Stereoscopic Align mode's on-screen control.

Stereoscopic Rendering

The View and Dominant View pop-up menus appear in the Render Options window when using stereoscopic sources.



View

The View pop-up allows you to control whether you render the Left, Right or both the Left and Right stereoscopic views simultaneously.

Both

Renders both the Left and Right stereoscopic views with a `_L` and `_R` appended to the filenames.

Left

Renders only the Left stereoscopic view with a `_L` appended to the filename.

Right

Renders only the Right stereoscopic view with a _R appended to the filename.

Combined

Renders both the Left and Right stereoscopic views into one file when using the EXR file format.

Note: View > Both must be selected before the Combined button is active.

Dominant View

The Dominant View, which is only available when rendering stereoscopic EXR files, determines the view that non-stereoscopic aware applications will display.

Left

Sets the Left stereoscopic view as the dominant view.

Right

Sets the Right stereoscopic view as the dominant view.

SOURCE NODES

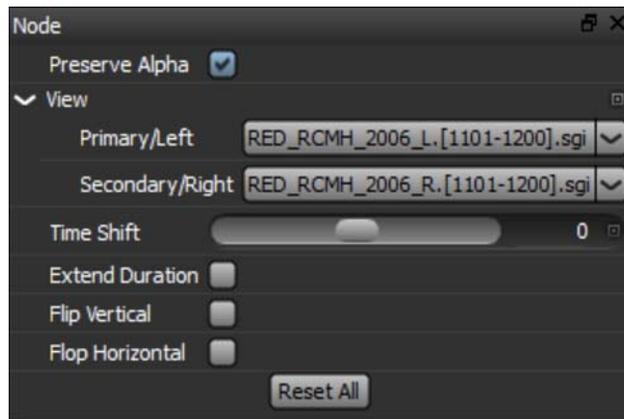
When media is imported into Silhouette, it is automatically plugged into a Source node.

Source Node Parameters

When one of the image sources is selected in the Node List,



parameters specific to that Source node can be adjusted in the Node window.



Preserve Alpha

Determines whether or not to use the input clip's Alpha channel. The default is off.

View

The View parameters are where you identify which sequences are used for the Left and Right Views when working on stereoscopic sessions. The stereoscopic tools in Silhouette only show up in the user interface when using a stereoscopic EXR file or when left and right sequences have been assigned in the View > Primary/Left and Secondary/Right parameters.

Note: Non-stereoscopic sources only use the Primary/Left view.

Primary/Left

Sets which sequence is used for the Left View.

Secondary/Right

Sets which sequence is used for the Right View.

Note: Stereoscopic EXR files which contain both the Left and Right Views within one file are automatically connected to the Primary/Left and Secondary/Right views.

Time Shift

Shifts the source node in time.

Extend Duration

When enabled, the last frame of the sequence will repeat if the Session duration is longer.

Flip Vertical

Flips the sequence vertically.

Flip Horizontal

Flops the sequence horizontally.

Renaming Source Nodes

You can rename a Source node by either:

- Clicking on the Source node once to select it, hitting the Enter key, typing in the new name and pressing Enter again.
- Right-clicking on the Source node, selecting Rename and typing in a new name.

COMPOSITE NODE

The Composite node renders a composite of the foreground over the background based on the generated Alpha channel. If “None” is selected for the Background Input, the foreground will be composited over a color. The default color is gray, but can be changed using the Composite node’s Background Color parameter.

Note: Before the Composite node can be available for use, it must be enabled in the Session Settings.

Both the position and scale of the foreground element can be adjusted in the Composite node.

Go to [Using the Composite Node](#) to see how it works.

Composite View Menu

When Composite is selected in the Node List, the View menu displays either the Composite, Foreground or Background.



The **1**, **2** and **3** keys can quickly switch the view: **1** is Composite, **2** is Foreground and **3** is Background.

Composite

The viewer displays the composite of the foreground over the background based on your matte. If “None” is selected for the Background Input, the foreground will be composited over a color.

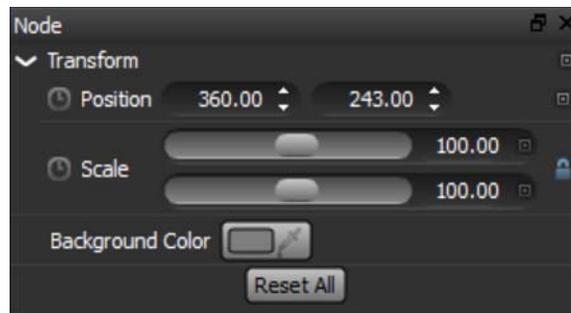
Foreground

The viewer displays the foreground clip.

Background

The viewer displays the background clip.

Composite Node Parameters



Transform

Transforms the foreground and matte.

Position

Sets the horizontal and vertical position of the foreground and matte.

Scale

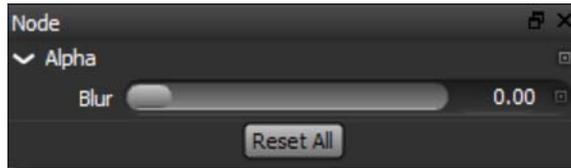
Sets the horizontal and vertical scale of the foreground and matte.

Background Color

Changes the background color which is only used if “None” is selected as the Background Input.

OUTPUT NODE

The Output node is the result of all enabled nodes and is what Silhouette actually renders.



Tip: You can quickly view the Output node's Alpha channel from any other node by using the **Alt+o** shortcut key. Pressing **Alt-o** again views the previous node.

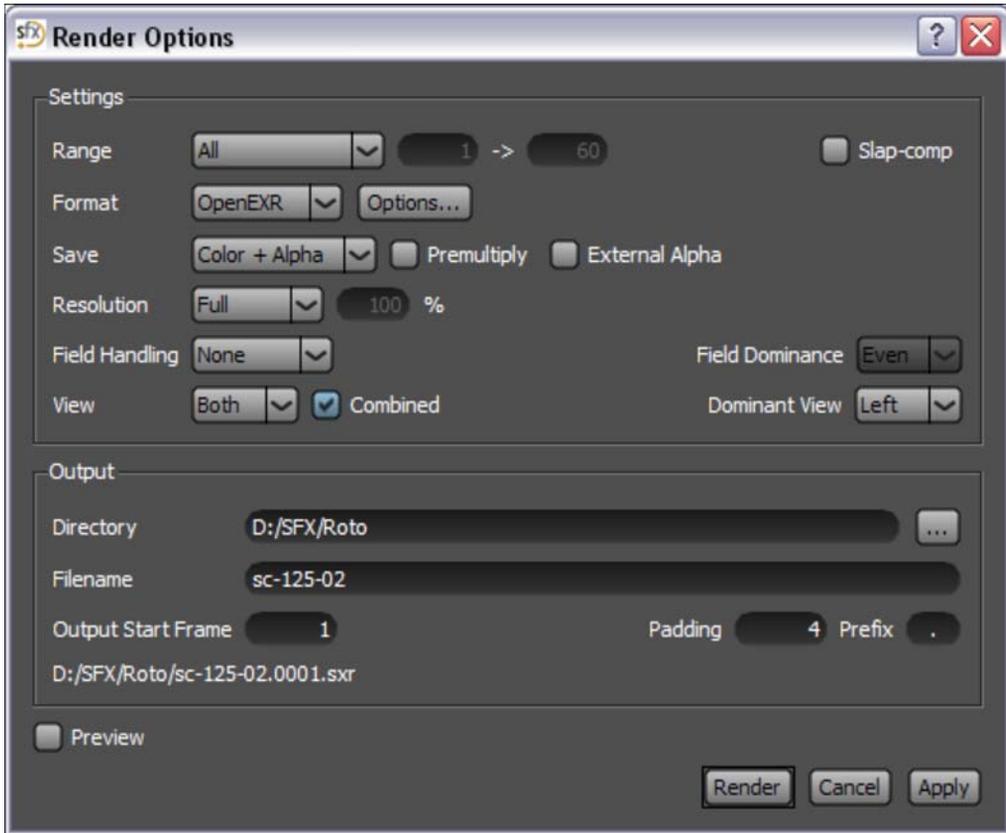
Alpha

Blur

Blurs the final Alpha channel.

RENDER

When you have you completed your work in Silhouette, you will want to render the final result. Rendering takes place in the Render Options window and is accessed by selecting Session > Render.



Go to [Rendering](#) to see how it works.

Additional rendering options are available in the Actions menu such as: Render Active Node, Render Layer's Shapes in Folders, Render Layers to Separate Files, Render Shapes to Channels, and Render Shapes to Separate Files. Go to [Actions](#) for more information.

Render Options

Range

Range determines which frames will be rendered. The numeric entry fields to the right of the range pop-up display the frame range to be rendered, but can also be used to enter a specific frame range if Custom has been selected.



All

Renders the entire frame range.

Work Range

Renders the frame range in and out points in the Timebar.

Current Frame

Renders the current frame.

Custom

Renders a custom frame range as defined by the numeric entry fields.

Format

The format setting allows you to select from various file formats. We currently can save to the following file formats: Cineon, DPX, IFF, JPG, OpenEXR, PNG, SGI/RGB, QuickTime, TIFF and TARGA.

Note: QuickTime is only available on operating systems that support it.

Options

Adjusts options for the selected file format.

Save

Save sets how the file will be rendered.

Color+Alpha

Renders a single RGB+Alpha file.

Premultiply

Premultiplies the RGB channels by the Alpha channel.

External Alpha

Renders two separate files: an RGB file and an Alpha file. The Alpha file has alpha appended to the filename.

Color

Renders the foreground image into the RGB channels.

Alpha Only

Renders an Alpha only file.

Paint Only

Only the painted portions of the frame along with the Alpha channel (where the brush painted) are exported as a premultiplied RGBA file. This feature is handy for adding only the painted portions in your compositing application.

Note: If you paint into individual R, G or B channels, or paint Alpha only, this Paint Only feature will not work properly.

Resolution

Lowers the image resolution for faster rendering.

Full

Full keeps the image quality at full resolution.

Half

Half lowers the image resolution by 1/2.

Quarter

Quarter lowers the image resolution by 1/4.

Custom

Allows you to choose a custom resolution.

Field Handling

None

No field processing takes place.

Deinterlace

Deinterlaces the video frame into two separate fields.

3:2 AA

Removes 3:2 Pulldown based on the AA frame being the first frame.

3:2 BB

Removes 3:2 Pulldown based on the BB frame being the first frame.

3:2 BC

Removes 3:2 Pulldown based on the BC frame being the first frame.

3:2 CD

Removes 3:2 Pulldown based on the CD frame being the first frame.

3:2 DD

Removes 3:2 Pulldown based on the DD frame being the first frame.

Field Dominance

Select either Even or Odd field dominance depending on whether you are working with NTSC or PAL images.

Even

Use for NTSC images.

Odd

Use for PAL images.

View

The View pop-up menu, which only shows up when using stereoscopic sources, allows you to control whether you render the Left, Right or both the Left and Right stereoscopic views simultaneously.

Both

Renders both the Left and Right stereoscopic views with a `_L` and `_R` appended to the filenames.

Left

Renders only the Left stereoscopic view with a `_L` appended to the filename.

Right

Renders only the Right stereoscopic view with a _R appended to the filename.

Combined

Renders both the Left and Right stereoscopic views into one file when using the EXR file format.

Note: View > Both must be selected before the Combined button is active.

Go to the [Render Preferences](#) to see how to modify the default suffixes appended to the filename.

Dominant View

The Dominant View, which is only available when rendering stereoscopic EXR files, determines the view that non-stereoscopic aware applications will display.

Left

Sets the Left stereoscopic view as the dominant view.

Right

Sets the Right stereoscopic view as the dominant view.

Slap Comp

Renders out the Alpha channel overlaid on the image as a color with opacity. This is useful for showing your handiwork to a supervisor for approval. When activated, color and opacity parameters appear.

Output

The Output options control where the file is rendered and how it is named.

Directory

Selects the directory where the rendered files will be stored.

Filename

By default, the name of the session is used for the filename. Type in a new name if you don't like the default.

Output Start Frame

The rendered frames will start with this number.

Padding

Sets how many numbers are in the filename. The default is 4.

Prefix

Adds a prefix symbol before the file numbers. Allowed values are `.`, `-`, `_` and nothing with `.` being the default.

Template

Shows you where the file will be stored and how it will be named.

Filename Customization

You can add environment variables to the filename using the sfx `$(VARNAME)` format. Two internal variables are defined for rendering, `VIEW` and `ALPHA`. `$(ALPHA)` expands to `_alpha`, but only when it is needed for naming external alpha. `$(VIEW)` expands to `L` or `R`, when appropriate.

The default filename expansion, when `$(VIEW)` and `$(ALPHA)` are not typed manually (i.e. by default), is this:

```
$(FILENAME_TYPED_BY_USER)_$(VIEW)$(ALPHA)
```

If not doing multiple view stereo rendering, it is:

```
$(FILENAME_TYPED_BY_USER)$(ALPHA)
```

Remember that `$(ALPHA)` expands to nothing when not needed.

Miscellaneous

Preview

Opens a Preview window that displays each rendered image as well as render statistics. With the Preview window open, press the **R**, **G**, **B**, and **A** buttons to toggle viewing of the respective channels or **C** to view the RGB channels.



Render

Renders using the current settings.

Cancel

Closes the Render Options window.

Apply

Saves the current settings and closes the Render Options window without rendering.

Table 30: Render > Preview Shortcuts

| <u>Shortcut</u> | <u>Action</u> |
|------------------------|----------------------------|
| R | Displays the Red channel |
| G | Displays the Green channel |
| B | Displays the Blue channel |
| A | Displays the Alpha channel |
| C | Displays the RGB channels |

COMMAND-LINE

Silhouette on the command-line allows you to execute projects with a variety of commands to control the rendering process. Further customization is accomplished via scripting as much of the Silhouette object model is exposed to the Python scripting language.

General Options

Command-line options are of the form: **-option value**, where **value** may be optional. Required arguments are in brackets (<>) and optional arguments are in braces ([]). If the value must be from a list of possible values, the available values are separated by |.

The basic form of the `sfxcmd` argument is: **sfxcmd <projectname> [options]**

where **options** are from the list below. By default, the project is rendered using the settings in the project unless changed by command-line options. Rendering can be disabled with the **-render 0** option (see below). Certain options, such as format conversion, will implicitly disable rendering as well.

-options <options file>

Load the options file and treat each line of the file as a command-line option. For instance, instead of writing this:

```
sfxcmd project.sfx -log -info project
```

You can write this:

```
sfxcmd project.sfx -options options.txt
```

Where `options.txt` contains:

```
-log
```

```
-info project
```

```
-version
```

Print the `sfxcmd` version.

-log

Enable log messages. For example, use **-log** to display module load messages and other non-critical informational messages.

-info[project|session|node|render]

Print information about the overall project, the active session, active node or active session rendering information. Enabling this option loads the `info.py` script in the Silhouette scripts directory, and calls the appropriate function to dump basic information. This file can be modified by the user to alter how the information is presented. If just **-info** is used, the default is to display project information. Multiple options can be supplied, separated by commas, to print multiple types of information. For instance, **-info session,render** will print session and rendering information. When **-info** is used, rendering is implicitly disabled, unless the **-render 1** option is also used.

The information displayed by **-info** can be customized by editing the `info.py` Python script located in `Silhouette/resources/scripts`.

-session <name>

Make the specified session active in the project. This is only useful if the project contains more than one session. To print a list of sessions in the project, use the **-info** option.

-node <name>

Target the specified node in the active session for output. By default, the Output node is used. The node name (ie. `RotoNode`, `KeyerNode`, etc) or the user-defined node label (as displayed in the node list) can be used. To print a list of nodes in the active session, use the **-info session** option.

-script <scriptfile>

Run the specified Python script after the project is loaded. The script has access to the active project, session, and node, as specified by the **-session** and **-node** options. Scripts can walk the object model, manipulate the object state such as visibility, and print information, limited only by the Silhouette scripting API.

-action <actionName>

Run the specified Action after the project is loaded, where `actionName` is an action class name for one of the actions found in `Silhouette/resources/scripts/actions`. When **-action** is used, rendering is implicitly disabled, unless the **-render 1** option is also used. Any rendering done by the action itself is not disabled.

-render <0|1>

Rendering can be disabled by using **-render 0**. Use this if you only want to print information about the project or run a script that does other things with the project. Rendering is enabled by default if a project is specified.

Note that when **-info** or **-action** are used, **-render 0** is implicitly set unless the **-render 1** option is also set.

Rendering options

-write <0|1>

Disable frame writing by using **-write 0**. This is useful for doing test runs to verify that options are set properly.

-dir <path>

Specifies the output directory where files should be written to.

-file <name>

Use **-file** to specify the root filename for output files.

-padding <number>

Sets the number of digits of padding for frame numbers. Use **-padding 0** to disable padding.

-range <all|work|start#-end#x#>

Specifies the range of frames to render. A specific range is set by passing two numbers. A step factor can be introduced by using `x#` after the range. Some examples are:

- **-range 1-10** renders frames 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.
- **-range 1-10x2** renders frames 1, 3, 5, 7, and 9.

- **-range 3** renders frame 3.

Multiple **-range** arguments can be used to specify multiple ranges, for instance **-range 1-50x1 -range 51-60x2 -range 60-100x3**. You can also use commas to separate ranges in a single **-range** option.

Frames are in the range of the session, and do not necessarily start at 1. If your session starts at frame 4000, to render the first 50 frames of the session, use **-range 4000-4049**.

-f

Same as **-range**.

-step <number>

Specifies the number to add to get to the next frame. The default is 1. Note that **-step** will override whatever step factor is used in **-range** or **-f**.

-start <number>

Use **-start** to override the starting frame number of the output frames. For example, if your session starts at 4000 and you want to render 50 frames, but you want the generated frame files to start at 1, use **-range 4000-4049 -start 1**.

-depth <8|16|float>

Sets the render depth.

-save <rgba|rgb|alpha|paint>

Specifies the output type and the channels that are rendered. When using RGBA, the **-extalpha** option can be used to write alpha to a separate file. When using **-save paint**, a Paint Node is assumed to be present in the session, and will be automatically targeted.

-resolution <full|half|quarter|%>

Override the output resolution to full resolution, half resolution, quarter resolution, or a specific percentage of the original size (1-100%).

Note: Half resolution is width/2*height/2, and quarter resolution is width/4*height/4.

-extalpha <0|1>

Use **-extalpha 1** to write the alpha channel to a separate, single-channel file, when supported by the file format. This is only useful when saving in RGBA mode.

-mb <0|1>

Controls the motion blur on/off state of the targeted node providing that the node supports motion blur. For instance, to force motion blur off in the Roto node, you would write this: **-node Roto -mb 0**

-format <name>

Specifies the output file format. For a list of supported formats, consult the format list in the Silhouette Render dialog.

-formatopts <options>

Specifies format specific options for the output file format. The options are a comma-separated list of name=value pairs. Consult the format options of the desired file format in the Silhouette Render dialog. To view the current set of format options, use the **-info render** option. For example, to set the SGI format compression option to on, use **-formatopts compression=1**.

-fields <none|interlace|aa|bb|bc|cd|dd>

Sets the field handling to one of the supported options. The two letter options assume 3:2 handling.

-dominance <even|odd>

Sets the field dominance when field handling is enabled.

-view <left|right|both>

Sets the Stereoscopic view(s) to render.

-domview <left|right>

Sets the dominant Stereoscopic view when **-view both** is used.

-combinestereo <0|1>(available with EXR format only)

Enables writing of both Stereoscopic views to the same file, with **-view both** when the output format is EXR. The dominant view will be the first one referenced in the file.

-slapcomp <r,g,b,a>

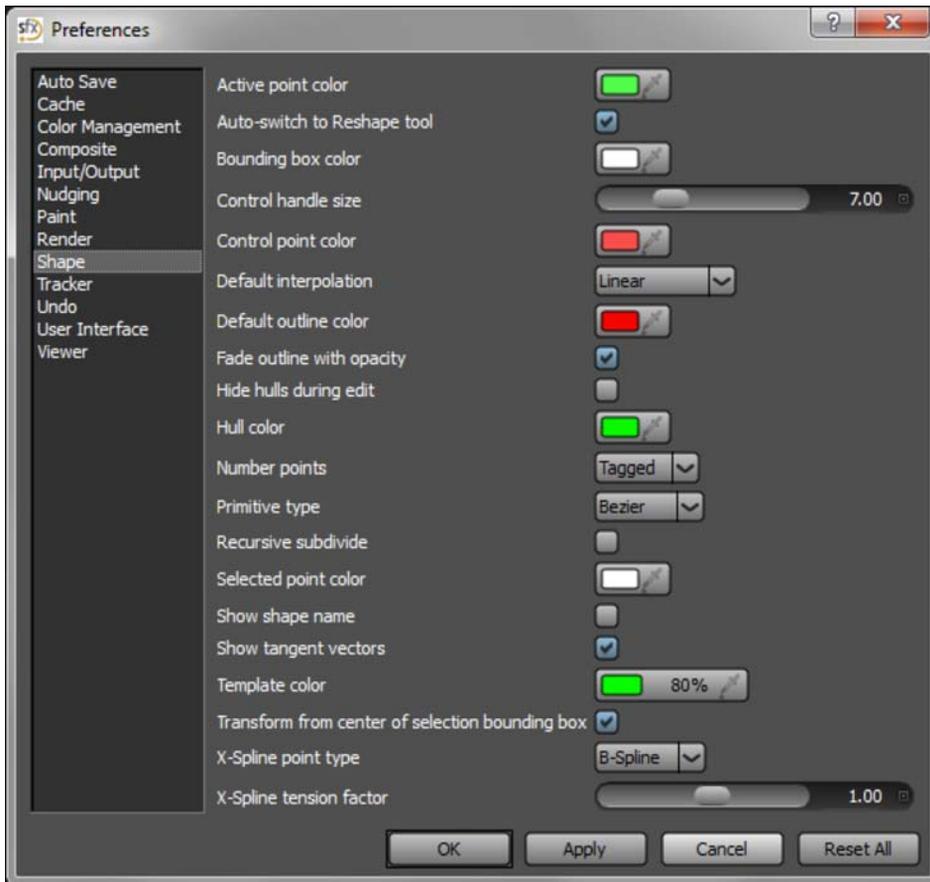
Perform a slap comp on the rendered image when the output type is RGBA or RGB. This will overlay the alpha channel over the RGB channels using the color specified as 4 floating point numbers from 0-1.

-nogui

For Linux systems without X-Windows installed, -nogui allows Silhouette to not use X-Windows. However, scripts that do drawing, for example Slate, will not work.

APPENDIX A - PREFERENCES

Preferences allow you to customize default settings and can be accessed by selecting File > Preferences on Windows and Linux or Silhouette > Preferences on Macintosh.



Autosave

Interval (minutes)

Sets the default time for autosaving the project. Set interval to 0 to disable autosave.

Maximum # of Backups

Controls how many backup files are created. Each time a project is saved, a copy is stored in \$HOME/Silhouette3/backups.

Maximum # of Saves

Specifies how many autosave files will be stored at once. These files are stored in \$HOME/Silhouette3/autosaves.

Cache

% Total Physical RAM

Sets the amount of RAM to be used for playback. The default is 50% and the range is 10-90%.

Note: A program restart is needed to enable % Total Physical RAM changes.

Purge Cache on Project Load

When selected, the cache is purged when a Project is loaded.

Color Management

Cineon/DPX Working Colorspace

Controls whether or not Cineon and DPX images are converted to scene linear.

Linear

Converts the Cineon/DPX images to scene linear.

Log

Cineon/DPX images are kept in log space.

Note: After changing this preference, you must restart Silhouette for changes to take effect as the value is cached.

Warning: It is not a good idea to change this preference in the middle of a paint Session, since when in Linear mode, it physically alters the pixels on import/export.

OCIO Configuration

This preference is a path to a global configuration file to use. The default is “\$(OCIO)”. Silhouette will initially look for \$SFX_OCIO and will use that first. Otherwise, it will use whatever the configuration preference is set to and finally it will check for \$OCIO. If it still can't find a configuration, it will fall back to the embedded configuration in the resources/ocio folder.

Composite

Background Color

When the View is set to Composite and no background input has been selected, the foreground based on it's matte will be composited over this color at the percentage listed in the numeric entry box to the right.

Note: For changes to the Background Color to be seen, you will need to purge the cache and force an update by changing frames.

Input/Output

Nuke 6.2+ Shapes

Connect Nodes When Embedding Layers Into Nodes

Connects layers together in Nuke using Merge nodes. However, if you set a layer in Silhouette to Subtract for example, you will have to manually adjust the corresponding Merge node in Nuke to Minus.

Note: Connecting of nodes with Merge nodes in Nuke is only supported in the layer based export modes: “Embed each layer in its own node” and “Embed each layer in its own node fully baked”.

Embed All Shapes In One Node

All selected shapes are exported into one Nuke Roto node.

Embed Each Shape In Its Own Node

Selected shapes are exported into separate, unconnected Nuke Roto nodes.

Embed Each Layer In Its Own Node

Shapes are exported into their respective layers as separate, unconnected Nuke Roto nodes. Shapes not located in a layer will be combined into a Nuke node called Roto. If a layer has blur or invert settings applied to it, blur and invert nodes will be created in Nuke and connected to the layer’s node.

Silhouette may break shapes in a single layer into more than one Nuke Roto node if these shapes are interrupted by a Silhouette sub-layer. This is intentional so that the correct depth order can be maintained. For example, if the Silhouette Roto node contained Shape 1, Shape 2, Layer 1, Shape 3: The “Embed each layer in its own node” mode will break Shape 3 into its own Nuke Roto node so that the user has the option of ordering the contents of Layer 1 in between Shape 1, Shape 2 and Shape 3.

Embed Each Layer In Its Own Node Fully Baked

Shape control points are fully baked on every frame of the work range. While this creates larger files, it works around a known Nuke motion blur problem.

Nudging

Distance (pixels)

Sets how many pixels an object moves when the **Arrow** keys are used.

Extended (shift) Distance (pixels)

Sets how many pixels an object moves when the **Arrow** keys are used in conjunction with the **Shift** key.

Precise (control) Distance (pixels)

Sets how many fractional pixels an object moves when the **Arrow** keys are used in conjunction with the **Ctrl** key.

Paint

Brush Outline Color

Sets the color of the brush outline.

Cursor

Controls the display of the cursor crosshair while painting.

Off

The cursor crosshair is not displayed.

On

The cursor crosshair is always displayed.

On/Off

The cursor crosshair disappears while painting a stroke, but is visible otherwise.

Default Directory

Determines how painted frames should be stored/accessed.

The first time the paint tool is activated, per session, the Default Directory preference is used to generate a default path. This path is shown and can be changed to some other path if desired. Once the path is set, Paint can be used and that path is then stored with the project from then on.

The default directory value is:

```
$(PROJECT_DIR)/painted/$(PROJECT_NAME)/$(SESSION_NAME).
```

Variables

PROJECT_DIR

The directory the current project is stored in.

Painted

This is the folder name for painted frames. It can be named to anything you like.

PROJECT_NAME

The name of the current project (without the extension).

SESSION_NAME

The name of the current session.

Pressure Threshold

Controls how hard the pen has to be pressed before opacity kicks in. The preference is from 0-1. When the threshold has been reached, the calculated pressure is scaled into the new range from threshold to 1.

Use Tablet Pressure

Turn tablet pressure sensitivity on or off.

Clone

Absolute Frame Numbers

When activated (the default), displays the actual frame number in the Clone > Frame field. When turned off, it uses the old Silhouette v2.3 behavior where an offset in relation to the current frame was shown instead of the actual frame.

Alignment Type

Black

When in Align mode, the Viewer appears black when the Clone source and destination are perfectly aligned.

Gray

When in Align mode, the Viewer appears gray when the Clone source and destination are perfectly aligned.

Incremental Clone Offset

Controls whether the Clone offset starts at last offset or at click location.

Show Offset

Forces the Clone Offset connecting line to always be displayed.

Source Outline Color

Sets the color of the Clone brush outline.

Source Outline Color (Secondary)

Sets the color of the secondary Clone brush outline. This is the color of the second Clone source that is activated by **Shift**-clicking a second Clone preset.

Render

Default Format

Sets the default file format for rendering.

Default Channels

Sets the default channels to be rendered.

Filename

Sets the default suffixes that are appended to the Filename in the Render Options menu.

Alpha Suffix

Sets the default Alpha suffix to `_alpha`.

Format

You can now override the output filename structure. The format for the output name is now defined by the Format preference.

The default is: `$(NAME)$(ALPHA)$(VIEW)$(PREFIX)$(FRAME).$(EXT)` which matches the previous format.

- **NAME** substitutes the Filename field in Render Options
- **ALPHA** substitutes the Alpha suffix (`_A`) when saving external alpha
- **VIEW** substitutes the left/right suffix (`_L_R`) when saving a left/right view
- **PREFIX** substitutes the Prefix field in Render Options
- **FRAME** substitutes the frame number with padding
- **EXT** substitutes the output module default extension

Note: This Format preference is currently system wide and cannot be used on a per session basis.

Left View Suffix

Sets the default Left View suffix to `_L`.

Right View Suffix

Sets the default Right View suffix to `_R`.

Shape

Active Point Color

Sets the default color of the active point (the point that the cursor is hovering over) through the use of a standard color picker.

Auto Switch to Reshape Tool

After closing a new shape, you will switch to the Reshape tool automatically.

Bounding Box Color

Sets the default color of shape bounding boxes through the use of a standard color picker.

Control Handle Size

Sets the size of control point handles.

Control Point Color

Sets the default color of control points through the use of a standard color picker.

Default Interpolation

Sets the default keyframe interpolation type.

Hold

There is no interpolation and abrupt switches in value occur at keyframes.

Linear

When values change, a straight line with sharp, abrupt angles from one keyframe to the next is drawn.

Ease In

Eases in to the selected keyframe.

Ease Out

Eases out of the selected keyframe.

Ease In/Out

Eases in and out of a selected keyframe.

Default Outline Color

Sets the default color of the shape outline through the use of a standard color picker.

Fade Outline with Opacity

Draws unselected/inactive shape outlines using the shape opacity value. The **V** key toggles this preference so that you can easily see any shapes that are at 0% opacity.

Hide Hulls During Edit

When activated, tangents/hulls hide when editing.

Hull Color

Sets the default color of the hull (lines that connect tangents) through the use of a standard color picker.

Number Points

None

Control points are not numbered.

Tagged

Only numbers points that have been tagged using the Reshape tool > control point pop-up menu.

All

All control points are numbered.

Primitive Type

Sets what shape type is used when circles and squares are created.

Bézier

Bézier shapes are used for circle and square creation.

B-Spline

B-Splines are used for circle and square creation.

X-Spline

X-Splines are used for circle and square creation.

Recursive Subdivide

Drastically improves the curvature of shapes and reduces artifacts when using feathering. You can return to the previous behavior of v4.0.4 and below which used a fixed-step iterator by turning this preference off, if for some reason it causes shape artifacts.

Selected Point Color

Sets the default color of selected points through the use of a standard color picker.

Show Shape Name

Displays the shape name in the center of the shape.

Show Tangent Vectors

Turns Bézier tangents on or off. Turns B-Spline and X-Spline hull drawing on or off.

Template Color

Sets the color and opacity of unselected shapes. This Viewer Template feature is enabled by using **Shift-W**.

Transform from Center of Selection Bounding Box

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

X-Spline Point Type

Controls the default weighting of X-Spline points when they are created.

B-Spline

X-Spline points have B-Spline weighting.

Cardinal

X-Spline points have Cardinal weighting.

Corner

X-Spline points have Corner weighting.

X-Spline Tension Factor

This is a weight from -10 to 10 that is multiplied by the mouse delta when manipulating the X-Spline point tension. You can reverse the sense of the weight by making this value negative. Also, you can boost the amount the tension is adjusted based on mouse movement by making the value larger, for example closer to -10 or 10.

Tracker

Default Path Color

Sets the default color of the tracker path.

Default Point Track Tolerance

Sets the default tracker tolerance. Describes the level of accuracy between the Match Area that the Tracker is searching for and the area it actually finds when searching from frame to frame.

Point Tracking Behavior

Sets the default tracker behavior. Behavior decides what frame should be used as the reference to check the accuracy of the Match Area.

Show Path Points

Displays tracker points along the path of the track.

Undo

Max Paint Undo Events

Sets the maximum number of paint undos.

Max Undo Events

Sets the maximum number of undos.



User Interface

Show Sources Last in Node List

When enabled (the default), Source nodes are displayed last in the Node List.

Show Object Properties on Selection

When you select an item in the Object List, the controls for that item are automatically shown in the Object window. If you select an item in the Node List, the controls for that item are automatically shown in the Node window. This behavior can be disabled with this preference.



Viewer

Alpha Overlay Color

Sets the color of the Alpha overlay.

Anchor Color

Sets the color of the Transform tool anchor point.

Background Color

Sets the border color in the Viewer.

Handle Mode

Controls how handles are drawn.

Blend

Uses a normal blend mode to display layer and shape handles.

XOR

Uses an XOR blend mode to display layer and shape handles.

Layer Transform Color

Sets the color of the layer's on-screen controls.

Mask Fill Color

Color

Sets the color of the mask.

Opacity

Set the opacity of the Mask Fill Color by clicking on the percentage field (to the right of the color picker) and typing in a new number.

Mask Outline Color

Color

Sets the color of the mask outline.

Opacity

Set the opacity of the Mask Outline Color by clicking on the percentage field (to the right of the color picker) and typing in a new number.

Picking Tolerance

Sets the radius of the threshold for picking points.

Stereo Alignment Type

Selects either Gray or Black for the Stereo Alignment.

Stereo First Field

When the Stereo View mode preference is set to Interlaced, Stereo First Field determines which eye comes first while interlacing--Left or Right. This needs to match up with how the monitor does the 3D effect.

Left Eye

Interlaces starting with the Left Eye.

Right Eye

Interlaces starting with the Right Eye.

Stereo View Mode

Selects the display mode to use in the Stereo Viewer.

Anaglyph

Selects Anaglyph viewing mode in the Stereo Viewer.

Interlaced

Selects Interlaced viewing mode in the Stereo Viewer. Interlaced mode requires a 3D monitor that uses interlacing like the Zalman passive display.

Template Mode

Turns template mode on or off. See [Template Color](#) for more information.

Zoom Factor Preference

Added a Viewer > Zoom Factor preference which controls the **I/O** zoom factor keyboard shortcuts. Default is 2. Range is 1.05 > 2.0.

Zoom Filter

Linear

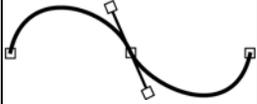
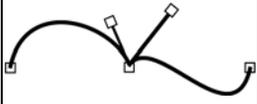
Interpolates pixels when zoomed into the image. This results in a smoother, but softer image.

Nearest

Replicates pixels when zoomed into the image. This results in a sharper, but chunkier image.

APPENDIX B - KEYBOARD SHORTCUTS

Bézier Splines

| Shortcut | Action | Curve |
|--------------------------|--|--|
| No key needed | Adjust the length of one tangent while retaining a fixed angle between two tangents |  |
| Ctrl(Win)/Cmd(Mac) | Adjust both tangents simultaneously while retaining a fixed angle between two tangents |  |
| Alt | Adjusts only one tangent to create corners |  |
| Shift | Adjusts only the length of one tangent (similar to the "No key needed" shortcut) |  |
| Ctrl(Win)/Cmd(Mac)-Alt-1 | Sets the point tension to Corner | |
| Ctrl(Win)/Cmd(Mac)-Alt-2 | Sets the point tension to Cardinal | |

Bézier Control Point Pop-up Menu

| Menu Option | Description |
|--------------------|---|
| Invert Selection | Inverts control point selection state |
| Delete | Deletes the selected control point |
| Break | Breaks the shape at the selected control point |
| Close | Closes an open shape |
| Linear | Both tangents are adjusted to one quarter the distance and in the direction of their adjoining control points |
| Corner | Creates a corner point |
| Cardinal | Creates a smooth point where the curve passes smoothly through it |
| Center | Centers the control point between its adjoining control points |
| Tag | Tags control points for point numbering |
| Untag | Untags control points when using point numbering |
| Tween | Takes the point and “re-tweens” it using the surrounding keyframes, and puts them where they would be if you hadn’t moved them on that frame. Useful for simulating an “unkey” of selected points (the shape remains keyed of course) |

B-Spline Shapes

| Shortcut | Action |
|--------------------------------------|--|
| Alt -drag control point right | Creates a corner point |
| Alt -drag control point left | Creates a smooth point |
| Alt -clicking control point | Cycles through the preset weight settings of the point |
| Ctrl(Win)/Cmd(Mac)-Alt-1 | Sets the point tension to Corner |
| Ctrl(Win)/Cmd(Mac)-Alt-3 | Sets the point tension to B-Spline |

B-Spline Control Point Pop-up Menu

| <u>Menu Option</u> | <u>Description</u> |
|---------------------------|---|
| Invert Selection | Inverts control point selection state |
| Delete | Deletes the selected control point |
| Break | Breaks the shape at the selected control point |
| Close | Closes an open shape |
| Corner | Creates a corner point |
| B-Spline | Creates a smooth point that is determined by the surrounding points |
| Center | Centers the control point between its adjoining control points |
| Tag | Tags control points for point numbering |
| Untag | Untags control points when using point numbering |
| Tween | Takes the point and “re-tweens” it using the surrounding keyframes, and puts them where they would be if you hadn't moved them on that frame. Useful for simulating an “unkey” of selected points (the shape remains keyed of course) |

Cut / Copy / Paste

| <u>Shortcut</u> | <u>Action</u> |
|-----------------------------|----------------------|
| Ctrl(Win)/Cmd(Mac)-X | Cuts an object |
| Ctrl(Win)/Cmd(Mac)-C | Copies an object |
| Ctrl(Win)/Cmd(Mac)-V | Pastes an object |

Feather Tool

| <u>Shortcut</u> | <u>Action</u> |
|---|--|
| Alt -drag on shape | Adds and pulls out a feather point |
| Click-drag a feather point | Changes the length and position of the feather point |
| Shift -drag a feather point | Constrains the length of the point |
| Hover over feather point and hit the Delete key | Deletes the feather point |

Layer Nudging

| Shortcut | Action |
|--|---|
| Arrow keys | Moves the layer by 1 pixel |
| Shift-Arrow keys | Moves the layer by 10 pixels |
| Ctrl(Win)/Cmd(Mac)-Arrow keys | Moves the layer by one tenth of a pixel |
| Hold down Arrow keys | Moves the layer continuously |
| Q, W, E then Ctrl(Win)/Cmd(Mac)-drag | Translates, Rotates or Scales in finer increments |
| Q, W, E then Arrow keys | Translates, Rotates or Scales by 1 pixel |
| Q, W, E then Shift-Arrow keys | Translates, Rotates or Scales by 10 pixels |
| Q, W, E then Ctrl(Win)/Cmd(Mac)-Arrow keys | Translates, Rotates or Scales by 1/10 of a pixel |

Layer Transform On-Screen Controls

| Shortcut | Action |
|---|--|
| Drag within large center circle | Moves the layer |
| Shift -drag within large center circle | Constrain layer movement horizontally or vertically |
| Drag the horizontal and vertical lines | Scales the layer horizontally or vertically |
| Drag the upper diagonal line | Proportionally scale the layer |
| Drag the lower diagonal line | Rotate the layer |
| Ctrl(Win)/Cmd(Mac) -drag the lower diagonal line | Rotates the layer with finer control |
| Drag small center circle | Moves the Anchor point |
| Q | Activates / Deactivates translation of selected layers |
| W | Activates / Deactivates rotation of selected layers |
| E | Activates / Deactivates scaling of selected layers |

Object List

| Shortcut | Action |
|---|--|
| Click on an object | Selects the object |
| Shift -click an object | Adds an object to the current selection |
| Ctrl(Win)/Cmd(Mac) -click on an object | Toggles the object selection |
| Shift -click color pot | Selects shapes of same color |
| Alt -click the Visibility icon | Solos an object |
| Alt-Ctrl -click the Visibility icon | Forces the visibility of all objects to the on position |
| Shift -click the +/- icon | Expands or collapses all nested layers inside that layer |
| Double-click an object | Selects the object so it can be renamed |

Paint

| Shortcut | Action |
|--|--|
| B | Selects the Black and White brush |
| Shift-B | Selects the Blemish brush |
| Ctrl-B | Selects the Blur brush |
| C | Selects the Clone brush |
| Shift-C | Selects the Color brush |
| Alt-C | Selects the Color Correct brush |
| D | Selects the Drag brush |
| Shift-E | Selects the Eraser brush |
| G | Selects the Grain brush |
| M | Selects the Mosaic brush |
| R | Selects the Repair brush |
| S | Selects the Scatter brush |
| Ctrl(Win)/Cmd(Mac)-drag brush outline | Sizes the brush |
| Ctrl(Win)/Cmd(Mac)-Shift-drag brush outline | Sets the brush softness |
| Shift-click-drag with Clone brush | Sets the Clone offset |
| Shift-click-click with Clone brush | Sets the Clone offset |
| Shift-click or tap | Resets the Clone offset |
| ' (located to the left of 1 key) | Displays the Clone source and then the Clone destination so that you can click on each to set the Clone offset |
| Caps Lock | Toggles Onion Skin mode on and off |
| ▪ (period key) | Picks colors off of the screen |
| Right-click | Picks a color off of the screen from a single pixel |
| Right-click-drag | Picks a color off of the screen by drawing a box and averaging the colors within it |
| Alt-1 through Alt-5 | Selects one of the Clone brush setups |

Paint Clone Source Nudging

| Shortcut | Action |
|--|--|
| Arrow keys | Moves the Clone source by 1 pixel |
| Shift-Arrow keys | Moves the Clone source by 10 pixels |
| Ctrl(Win)/Cmd(Mac)-Arrow keys | Moves the Clone source by one tenth of a pixel |
| Hold down Arrow keys | Moves the Clone source continuously |
| Q, W, E then Arrow keys | Translates, Rotates or Scales by 1 pixel |
| Q, W, E then Shift-Arrow keys | Translates, Rotates or Scales by 10 pixels |
| Q, W, E then Ctrl(Win)/Cmd(Mac)-Arrow keys | Translates, Rotates or Scales by 1/10 of a pixel |
| Q, W, E then Arrow keys | Translates, Rotates or Scales by 1 pixel |
| Ctrl(Win)/Cmd(Mac)-1 then Arrow Keys | Nudges the top left corner point |
| Ctrl(Win)/Cmd(Mac)-2 then Arrow Keys | Nudges the top right corner point |
| Ctrl(Win)/Cmd(Mac)-3 then Arrow Keys | Nudges the bottom right corner point |
| Ctrl(Win)/Cmd(Mac)-4 then Arrow Keys | Nudges the bottom left corner point |

Paint Clone Source On-Screen Controls

| Shortcut | Action |
|---|--|
| Drag within large center circle | Moves the Clone source |
| Shift -drag within large center circle | Constrain Clone source movement horizontally or vertically |
| Drag the center square horizontal and vertical halfway points | Scales the Clone source horizontally or vertically |
| Drag a center square corner | Proportionally scale the Clone source |
| Drag large center circle | Rotate the Clone source |
| Ctrl -drag large center circle | Rotates the Clone source with finer control |
| Drag handles on corners of image | Corner-pins the Clone source |
| Q | Activates / Deactivates translation of the Clone source |
| W | Activates / Deactivates rotation of the Clone source |
| E | Activates / Deactivates scaling of the Clone source |
| Q, W, E then Ctrl(Win)/Cmd(Mac) | Translates, Rotates or Scales in finer increments |

Render > Preview

| <u>Shortcut</u> | <u>Action</u> |
|------------------------|----------------------------|
| R | Displays the Red channel |
| G | Displays the Green channel |
| B | Displays the Blue channel |
| A | Displays the Alpha channel |
| C | Displays the RGB channels |

Shape & Point Nudging

| Shortcut | Action |
|--------------------------------------|--|
| Arrow keys | Moves shapes or points by 1 pixel |
| Shift-Arrow keys | Moves shapes or points by 10 pixels |
| Ctrl(Win)/Cmd(Mac)-Arrow keys | Moves shapes or points by one tenth of a pixel |
| Hold down Arrow keys | Moves shapes or points continuously |

Selecting / Deselecting Control Points

| Shortcut | Action |
|---|---------------------------------|
| Click on a control point. If the control point is part of a Bézier curve, its tangents appear | Selects the control point |
| Shift -click the control points or drag select multiple control points | Selects multiple control points |
| Ctrl(Win)/Cmd(Mac)-Alt-I | Inverts the point selection |
| Alt-Shift-A | Selects all control points |
| Alt-Ctrl-A | Deselects all control points |
| Ctrl(Win)/Cmd(Mac) -click on a control point | Toggles the point selection |
| Click anywhere off the shape | Deselects all control points |

Selecting / Deselecting Shapes

| Shortcut | Action |
|--|------------------------------|
| Click on a shape | Selects the shape |
| Shift -click a shape or drag select multiple shapes | Selects multiple shapes |
| Ctrl(Win)/Cmd(Mac) -click on a shape | Toggles the shape selection |
| Click anywhere off the shape | Deselects all shapes |
| Shift -click color pot in the Object List | Selects shapes of same color |

Stereoscopic Align Keyboard Shortcuts

| Shortcut | Action |
|--|---|
| Click and drag in Viewer | Moves the Stereo Offset horizontally |
| Shift -click and drag in Viewer | Moves the Stereo Offset horizontally and vertically |
| Ctrl -drag in Viewer | Moves the Stereo Offset in finer increments |
| Alt -click in Viewer | Resets the Stereo Offset |
| Arrow keys | Moves the Stereo Offset by 1 pixel |
| Shift-Arrow keys | Moves the Stereo Offset by 10 pixels |
| Ctrl(Win)/Cmd(Mac)-Arrow keys | Moves the Stereo Offset by one tenth of a pixel |
| Hold down Arrow keys | Moves the Stereo Offset continuously |

Stereoscopic View Shortcuts

| Shortcut | Action |
|-----------------|-----------------------------|
| Shift-1 | Selects the Left View |
| Shift-2 | Selects the Right View |
| Shift-3 | Selects the Left/Right View |
| Shift-4 | Selects Stereoscopic Align |
| Shift-5 | Anaglyph Preview |
| Shift-6 | Stereo Viewer |

Timeline

| Shortcut | Action |
|---|-------------------------------|
| Scroll wheel | Zooms the Timeline in and out |
| Shift -Middle-mouse drag | Zooms the Timeline in and out |
| Space Bar -drag | Pans the Timeline |
| Middle -mouse drag | Pans the Timeline |
| Single-click keyframe | Selects one keyframe |
| Ctrl(Win)/Cmd(Mac) -click keyframe | Toggle the keyframe selection |
| Shift -click keyframes | Selects a range of keyframes |
| Alt -click | Inserts a keyframe |

Toolbar

| Shortcut | Action |
|-----------------|--|
| T | Selects the Transform tool Shape Mode |
| TT | Selects the Transform tool Points Mode |
| R | Selects the Reshape tool |
| B | Selects the B-Spline tool |
| S | Selects the X-Spline tool |
| Shift-B | Selects the Bézier tool |
| Shift-S | Selects the Square tool |
| Shift-C | Selects the Circle tool |
| Shift-F | Selects the Feather tool |
| Shift-T | Selects the Tracker tool |
| M | Selects the MultiFrame tool |

Tracker

| <u>Shortcut</u> | <u>Action</u> |
|-----------------|--|
| Alt-click | Alt-click on an open space in the Viewer |

Transform Tool

| Shortcut | Action |
|---|--|
| Drag shape | Moves the shape |
| Shift -drag shape | Constrain shape movement horizontally or vertically |
| Drag bounding box corner or edge handle | Scales a shape |
| Shift -drag bounding box corner or edge handle | Proportionally scale a shape |
| Ctrl(Win)/Cmd(Mac) -drag on a bounding box corner handle | Rotate a shape |
| Alt -drag on a bounding box corner handle | Corner-pin a shape |
| Alt-Shift -drag on a bounding box corner handle | Constrains the corner-pin movement to one axis |
| Ctrl(Win)/Cmd(Mac) -drag on a bounding box edge handle | Shear a shape |
| ▪ (period key) | Turns the Anchor Point on or off |
| Drag on Anchor Point | Moves the Anchor Point |
| Shift-▪ (period key) | Moves the Anchor Point to the mouse location |
| Q | Activates / Deactivates translation of selected shapes or layers |
| W | Activates / Deactivates rotation of selected shapes or layers |
| E | Activates / Deactivates scaling of selected shapes or layers |
| Q, W, E then Ctrl(Win)/Cmd(Mac) | Translates, Rotates or Scales in finer increments |

Viewer

| Shortcut | Action |
|--|---|
| F1 | Only the Viewer is shown in the interface |
| F2 | Only the Viewer and Timeline are shown in the interface |
| 0 | Toggles the display of overlays which are lines, shapes or objects |
| Number Keys (1-6) | Switches the Viewer > View menu |
| ~ | Cycles through the update modes |
| A | Cycles the display between the full color image, the Alpha channel superimposed over the image and the Alpha channel by itself |
| Shift-A | Toggles the View to Output, superimposes the Alpha channel over the image and deactivates the Overlay |
| Alt-R/G/B/A | Toggles the Red, Green, Blue and Alpha channels on and off |
| Alt-o | Toggles the display to/from the Output node's Alpha channel from any other node. Pressing Alt-o again views the previous node. |
| Ctrl(Win)/Cmd(Mac)-click RGB buttons | Toggles the display of each component on or off |
| Middle-mouse drag | Pans the image |
| Space Bar -drag | Pans the image |
| I | Zooms the image in |
| O | Zooms the image out |
| Shift -Middle-mouse drag | Zooms the image in and out |
| Scroll wheel | Zooms the image in and out |
| Space Bar-Shift -drag | Zooms the image in and out |
| F | Fits the image in the Viewer |
| H or Middle-mouse double click | Centers the image in the Viewer at 100% |
| Ctrl(Win)/Cmd(Mac)-F | Centers selection in the Viewer |
| ' | Opens a context menu over pen/mouse location |

VTR Controls

| Shortcut | Action |
|---|--|
| Z | Step backward 1 frame |
| Shift-Z | Moves to the previous keyframe |
| X | Step forward 1 frame |
| Shift-X | Moves to the next keyframe |
| J | Plays the sequence backwards |
| K | Stops or starts playback |
| L | Plays the sequence forwards |
| Space Bar | Stops playback |
| Home | Moves to the first frame of the sequence |
| End | Moves to the last frame of the sequence |
| Click and drag in the shuttle area | Shuttles through the clip |
| Shift-Alt-click and drag a keyframe marker | Moves the keyframe in time |

X-Spline Shapes

| Shortcut | Action |
|--------------------------------------|--|
| Alt -drag control point right | Adjusts the weight of the point from Cardinal to Corner to B-Spline |
| Alt -drag control point left | When the weight is set to B-Spline, it adjusts the weight of the point from B-Spline to Corner to Cardinal |
| Alt -clicking control point | Cycles through preset weight settings of the point |
| Ctrl(Win)/Cmd(Mac)-Alt-1 | Sets the point tension to Corner |
| Ctrl(Win)/Cmd(Mac)-Alt-2 | Sets the point tension to Cardinal |
| Ctrl(Win)/Cmd(Mac)-Alt-3 | Sets the point tension to B-Spline |

X-Spline Control Point Pop-up Menu

| <u>Menu Option</u> | <u>Description</u> |
|---------------------------|---|
| Invert Selection | Inverts control point selection state |
| Delete | Deletes the selected control point |
| Break | Breaks the shape at the selected control point |
| Close | Closes an open shape |
| Corner | Creates a corner point |
| Cardinal | Creates a smooth point where the curve passes smoothly through it |
| B-Spline | Creates a smooth point that is determined by the surrounding points |
| Center | Centers the control point between its adjoining control points |
| Tag | Tags control points for point numbering |
| Untag | Untags control points when using point numbering |
| Tween | Takes the point and “re-tweens” it using the surrounding keyframes, and puts them where they would be if you hadn’t moved them on that frame. Useful for simulating an “unkey” of selected points (the shape remains keyed of course) |

APPENDIX C - SESSION FORMATS

A number of preset formats can be selected from the Session Format pop-up menu. When one of the options is selected, the session fields are preset with the appropriate data.

Film Full Aperture (4K: 4096x3112)

Uses the following presets.

Width: 4096

Height: 3112

Pixel Aspect Ratio: 1

Frame Rate: 24

Film Full Aperture (4K: 4096x3072)

Uses the following presets.

Width: 4096

Height: 3072

Pixel Aspect Ratio: 1

Frame Rate: 24

Film Full Aperture (2k: 2048x1556)

Uses the following presets.

Width: 2048

Height: 1556

Pixel Aspect Ratio: 1

Frame Rate: 24

Film Full Aperture (2k: 2048x1536)

Uses the following presets.

Width: 2048

Height: 1536

Pixel Aspect Ratio: 1

Frame Rate: 24

Film Cinemascope Full (3656x2664)

Uses the following presets.

Width: 3656

Height: 2664

Pixel Aspect Ratio: 2

Frame Rate: 24

Film Cinemascope Half (1828x1556)

Uses the following presets.

Width: 1828

Height: 1556

Pixel Aspect Ratio: 2

Frame Rate: 24

Film Academy (1828x1332)

Uses the following presets.

Width: 1828

Height: 1332

Pixel Aspect Ratio: 1

Frame Rate: 24

HDTV 24p (1920x1080)

Uses the following presets.

Width: 1920

Height: 1080

Pixel Aspect Ratio: 1

Frame Rate: 24

HDTV 1080i, 1920x1080

Uses the following presets.

Width: 1920

Height: 1080

Pixel Aspect Ratio: 1

Frame Rate: 30

HDTV 720p, 1280x720

Uses the following presets.

Width: 1280

Height: 720

Pixel Aspect Ratio: 1

Frame Rate: 60

NTSC, 640x480

Uses the following presets.

Width: 640

Height: 480

Pixel Aspect Ratio: 1

Frame Rate: 29.97

NTSC, 648x486

Uses the following presets.

Width: 648

Height: 486

Pixel Aspect Ratio: 1

Frame Rate: 29.97

NTSC DV, 720x480

Uses the following presets.

Width: 720

Height: 480

Pixel Aspect Ratio: .9

Frame Rate: 29.97

NTSC DV Widescreen (720x480)

Uses the following presets.

Width: 720

Height: 480

Pixel Aspect Ratio: 1.2

Frame Rate: 29.97

NTSC D1 (720x486)

Uses the following presets.

Width: 720

Height: 486

Pixel Aspect Ratio: .9

Frame Rate: 29.97

NTSC D1 Square Pixels (720x540)

Uses the following presets.

Width: 720

Height: 540

Pixel Aspect Ratio: 1

Frame Rate: 29.97

PAL D1/DV (720x576)

Uses the following presets.

Width: 720

Height: 576

Pixel Aspect Ratio: 1.07

Frame Rate: 25

PAL D1/DV Square Pixels (768x576)

Uses the following presets.

Width: 768

Height: 576

Pixel Aspect Ratio: 1

Frame Rate: 25

PAL D1/DV Widescreen (720x576)

Uses the following presets.

Width: 720

Height: 576

Pixel Aspect Ratio: 1.42

Frame Rate: 25

APPENDIX D - ENVIRONMENT VARIABLES

Environment Variables

The following environment variables can be set from a shell before launching, and Silhouette will use those paths in respective dialog boxes instead of “the last used” paths.

If you have custom modules, you can set SFX_MODULE_PATH to add other search paths to look in for other modules.

MULTIVIEW_EXR_EXT

By default, stereoscopic (multi-view) EXR files are saved with a .sxr extension instead of the normal .exr extension. However, the value of the MULTIVIEW_EXR_EXT environment variable will be used instead if it is set.

SFX_CINEON_WORKING_SPACE

Set to either log or linear. This environment variable overrides the Color Management > Cineon/DPX Working Colorspace preference.

SFX_DPX_INTERPRETATION

Sets the default DPX interpretation for loading and saving to either log or linear. This value only gets queried when media is first imported.

SFX_DPX_LOAD_INTERPRETATION

Sets the default DPX interpretation for loading to either auto, log, or linear.

SFX_DPX_SAVE_INTERPRETATION

Sets the default DPX interpretation for saving to either log or linear.

SFX_EXPORT_PATH

Defaults to this path in the Export dialog box when set. Overrides the SFX_IMPORT_EXPORT_PATH.

SFX_EXR_COMMENTS

By default, the Project path, Paint path and Session name are stored in the comments attribute of the EXR file header.

If the `SFX_EXR_COMMENTS` environment variable is set, it is appended on to the end of the comments string. The format of this variable should be `name=value;name=value;` etc. No `$VARIABLE` expansion is performed.

SFX_EXR_COMPRESSION

Set to RLE for faster saving.

SFX_IMPORT_EXPORT_PATH

Default to this path in the Import/Export dialog boxes when set.

SFX_IMPORT_PATH

Defaults to this path in the Import dialog box when set. Overrides the `SFX_IMPORT_EXPORT_PATH`.

SFX_MODULE_PATH

Semi-colon separated list of paths to search for Silhouette modules. User-specified paths are checked before the built-in modules path. Useful for end-users to provide custom I/O modules in a network-central location.

SFX_LICENSE_SERVER

Set to enable floating licensing. Set to `port@host` of the license server.

SFX_OCIO_COLORSPACE

Sets the default Viewer > Display > Colorspace.

SFX_OCIO_DISPLAY

Sets the default Viewer > Display > Display.

SFX_OCIO_LUT

`SFX_OCIO_LUT` can be used to set the default LUT. This will get set on the session when a new session is first created. The value for this variable is the full path to the LUT, including extension. The name is case sensitive.

SFX_OCIO_VIEW

Sets the default Viewer > Display > View Xform.

SFX_OUTPUT_PATH

Default to this path in the Render dialog when set.

SFX_PAINT_TEMP

Define a writeable temp directory (preferably on a local disk) for storing paint undo data. This data is deleted when Silhouette exits.

SFX_PROJECT_PATH

Default to this path in the Project Open/Save dialog box when set.

SFX_RESOURCE_PATH

Sets path to Silhouette run-time resources. On Mac, this defaults to Silhouette.app/Contents/Resources on Mac, while on Windows and Linux it defaults to <path_to_silhouette>/resources.

SFX_TMP_PATH

SFX_TMP_PATH controls where user-specific autosaves, backups, and the lock file are stored. SFX_TMP_PATH defaults to SFX_USER_PATH. SFX_TMP_PATH should point to a user-writable directory.

SFX_VALID_XML

Silhouette shape files are not valid XML. Now, shape files can be written as valid XML by setting the SFX_VALID_XML environment variable to anything (except 0, which will disable the option). When enabled, shape files will not import into older versions of Silhouette.

SFX_USER_PATH

Sets the path to the user's copy of Silhouette's files. Defaults to ~/Silhouette4