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Reference Guide

This is Commotion's™ Reference Guide. It contains instructions for using all of Commotion's™ commands and functions. All of the entries in this guide appear according to the layout of the user interface. The Guide is divided into 13 sections: one for the Clip Window -- the window that shows your footage -- one for each of the six pulldown menus, and six others for Commotion's™ floating palettes.

Clip Window

Below is Commotion's™ Clip Window, the window that shows a clip once it is loaded. Several useful and important features can be controlled from this window.



Window Resize Button

The Resize button, which appears in the upper right corner of all Macintosh windows, commands Commotion™ to show the entire frame at the present zoom setting. If at the present zoom setting the entire frame cannot fit on your monitor, the window is sized to take up the entire monitor, and the zoom setting is maintained.



Collapse Button

The Collapse button appears on the upper part of the right edge of the Clip Window. It allows you to collapse the window into a small thumbnail view to save screen space. Clicking on the Collapse button collapses the window to the

thumbnail and clicking on the thumbnail returns the window to its size and location when it was collapsed.



Clone Source Indicator

The Clone Source Indicator icon in the upper right edge of the clip window tells whether the clip window is set as the present source for the Super Clone Brush.



Zoom Value

A small Zoom Value window in the lower left corner of the Clip Window displays the current zoom as a percentage of the 1:1 zoom setting (where 1 screen pixel displays one clip pixel). You can change the zoom value by selecting Magnify, Reduce, Variable Mag..., or 100% from the Window Menu. You can also use a keyboard shortcut: Cmnd +/- for Magnify and Reduce, respectively. Clicking and holding down the mouse button brings up a display of the actual canvas size (in pixels) and present color depth display for the clip. The zoom commands are covered extensively in the Window Menu chapter.

If you click on the Zoom Value window and hold down the mouse button, a box will appear in the lower left region of the Clip Window showing the resolution and the color depth of the clip.

Not yet activated: You can also increase or decrease the Zoom using the zoom tool. See this tool under the Tools palette chapter



Current Frame

The number to the right of the Zoom Value is the Current Frame number. When you change to a new frame, the value in this window will update to reflect the change.



Onion Skinning Button

The Onion Skinning Button toggles the Onion Skinning option on and off. Onion Skinning is a lower opacity overlay of the preceding (or following) frames. Also see the Onion Skinning Preferences entry in the File Menu and the entry under the Mode Menu.



BG Button

The BG button toggles on and off (shows/hides) the background layer, according to the options you set in the Assign BG window. This is part Commotion's™ simple but powerful compositing functionality. See the Assign BG entry in the Calculate Menu chapter for how to use this command.



Display Mode

This region shows which color channel(s) is(are) being displayed. You can change the display mode by using the Mode<Display Mode pop-up menu or using a keyboard shortcut: *Cmd-1,2,3,4* to show the Red, Green, Blue, and Alpha channels, respectively. You can also use *Cmd-0* to show the regular RGB (full color) display, and press *Cmd-M* to display a red overlay of the alpha channel on top of the other channels you are displaying.

Paint on Alpha Button

The Paint-on-Alpha button allows you to toggle between painting on the Alpha channel and painting on the color channel(s) currently being displayed. When the option is on, the icon turns red. You can also control this option by selecting the Paint-on-Alpha command under the Mode menu.

Normal Window Features

The Clip Window also has the other regular features that appear in Macintosh™ windows.



Drag Resize - You can change the drag-resize of the window



Close Window - The Close-window button works, too.



Scroll Bars - You can use the scroll bars to navigate around the frame if the frame does not fit entirely within the window at the present zoom value.

File Menu



New

Cmd-N

This command is used for creating a custom sized blank canvas.

After selecting the New command, a dialogue box appears. The dialogue box allows you to name the file, select the size of the canvas (in pixels), set the number of frames in the clip, and choose the color depth. Enter any of the numerical values by clicking on the window and typing the number in that you desire. Select the color depth by clicking on the color depth bar and releasing when the color depth you want is highlighted. Note that you cannot paint in the Thousands of Colors color depth; this depth is primarily for playback.



Open

Cmd-O

This command opens a previously created movie or PICT file sequence. Open will bring up the standard Mac Open dialog box, with two extra options, Show Preview, and Open Movies as QuickTime Movies.



- **Show Preview** - Clicking on the Show Preview checkbox at the bottom of the Open dialogue box toggles between showing and hiding a thumbnail preview of the file highlighted in the display of files. If a preview thumbnail does not already exist, pressing the “Create” button will create a new for the movie or PICT.
- **Open Movies** - If you are opening a QuickTime movie, you have the option of opening the file in a standard QuickTime window which will allow you to play through the clip as you would in MoviePlayer. Clicking on the “Open Movies as QuickTime Movies” checkbox turns the option on and off. If it is on, a MoviePlayer window appears displaying the file. If the option is off, you will get the normal “Load Frames” dialog box to open the movie as a Commotion clip.

When you click on Open in the open dialogue box and the Open Movies as QuickTime Movie checkbox is not checked, the Load Frames dialogue box appears. This dialogue box allows you to choose

the frame range, scale value, canvas size, and subwindow for the clip to be loaded.

Load Frames Dialogue Box

When you press Open in the Open dialogue box, the Load Frames dialogue box appears, allowing you to set several options for the frames you load.

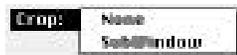


The Load Frames dialogue box contains the following options:

- **Color Depth** is adjusted from this menu. This allows you to set the color depth at which the clip is loaded. The color depth setting determines how many colors are displayed in your Clip Window when the file is open. Millions of Colors means that there can be 256 variations in each of the Red, Green, Blue, and Alpha channels. Thousands of Colors means that there are 56 thousand color variations possible. You cannot paint on frames loaded at Thousands of Colors; this mode is primarily for improved playback speed. You can paint in both 256 colors (an indexed color palette) and 256 grays modes.



- The **Crop Window** command will activate the SubWindow mode so that you can work on only a section of the clip.(See Subwindow)



Subwindow - The subwindow function allows you to open just a sub-section of a clip, manipulate it, and then save it back into its original location in the file. When you select Subwindow from the Crop pop-up, a new dialogue box appears, allowing you to click-drag to

create a box that will serve as your subwindow. You can position this box anywhere in the frame and make it any size.

- The **Scale** command will scale the entire clip and the window. This changes the resolution of the image so that it fits on a smaller canvas, allowing increased playback speed.



- **Skip/Duplicate**- this will allow you to either skip or duplicate frames in the increment indicated. Skip allows you to open every second or third frame by entering 2 or 3 in the number box next to the word 'Frame' (or you can skip a higher number of frames). When Duplicate is selected, the number box shows the number of times that each frame is included in the Live Frames; for example, entering 3 in the number box when Duplicate is selected will load and display all of the frames you set to be loaded three times.

Open Random...

This feature allows you to load a series of still art frames to use as keyframes while animating. This command only works with PICT images. When you select this command, the standard Open dialogue box appears. You open one frame at a time by selecting the file in the window and clicking Open (or double clicking on the file name). The frame loaded and the Open dialogue box reappears, allowing you to open another frame. Open as many frames this way as you want, then click Cancel. Commotion™ loads the frames into one clip, in the order you select them. (The first file you select is the first frame in the clip, and so on.)

Close

Cmd-W

This command closes the file (for QT movies) or sequence (for PICT's) in the active clip window. If unsaved changes exist, you will be asked if you want to save these changes.

Save

Cmd-S

Save and Save As save the current clip in the file format that you select. Commotion's™ has a few special options for saving: You can select the file format from the Type pop-up menu. If the current clip was opened as a Subwindow, the Subarea checkbox in the lower left of the Save dialogue box selects whether to save the clip back to its original location in the larger file. If unchecked, the clip will be saved as a new file or sequence of files, separate from the original clip. The Save Alpha checkbox selects whether to save alpha channel of the clip. If the box is unchecked, the alpha channel information will be lost so that when the clip is opened in the future the alpha channel will be black.

Revert [Inactive in present version of Commotion™]

Use the Revert command to restore an entire frame to its last saved or snapshot version (Snapshots are intermediate “saves” that you can make while working to make an additional “copy” which is saved as a temporary file on your scratch disk). When Revert is selected, a warning box appears asking whether you want to revert to the last saved version of the file; all changes made since saving the file are lost.

Print to Video

Print to video brings up a dialogue box that allows you to set a number of options for the Print to Video command. You can then play your clip on the monitor with the rest of the screen hidden, so that only the clip itself is visible. You can set to play the clip any number of times, add a set number of seconds before and after the play sequence, and add a note to be displayed above your clip.

Preferences

When Preferences is selected, a pop-up menu appears with three entries: General, Display, and Onion Skin.



- **General** - An dialogue box appears allowing you to select the Primary and Secondary Scratch Disks from a pop-up menu. The menu displays the local disks. Check boxes appear in the bottom half of the window allowing you

to choose whether Virtual Frames and Undoable Film are on or off by default. Regardless of these settings, Virtual Frames and Undoable Film can be switched on/off by selecting them from the Mode menu. (See the entries in the Mode Menu chapter for more information on Virtual Frames and Undoable Film.)



- **Display** - The Display Preferences dialogue box allows you to set screen behavior when using a monitor set to less than Millions of Colors and when switching between clips of different bit-depths. The Auto Color Depth Adjust checkbox changes the monitor's color depth display mode to the color depth of the clip window, in order to optimize the speed of updating the screen and playing back the clip. The Dither on Lower Color Depth Displays checkbox tells Commotion™ to use dithering to improve the display quality of lower color depth displays. This mixes the colors of nearby pixels such that the image appears to have greater color variation than it really does.



- **Onion Skin** - Brings up a dialogue box that allows you to set the opacity of the Onion Skin overlay as well as the number of previous and later

frames to see. Onion Skinning is a feature of Commotion™, also described in the Mode Menu chapter, that allows you to display the current frame as a translucent overlay on top of the preceding or following frame(s). This helps you to follow differences from one frame to the next. You can also set the color of the onion skin layer by clicking on the Color Onionskin checkbox and clicking on the colored rectangle to the right to choose a color with the color picker.



Print/Page Setup

Cmd-P for Print

[Inactive in present version of Commotion™]

The Print command allows you to print out individual frames to the printer selected in the Chooser, under the Apple menu. When the print command is selected, the standard Mac Print dialogue box appears. The Page Set-up command brings up the standard Mac Page Set-up dialogue box, automatically configuring Commotion to print on the selected printer and allowing you to choose the orientation, scale, and paper size for the file to be printed.

Quit

This quits Commotion™. If there are unsaved changes in any open clips, you will be asked if you want to save.

Edit Menu



Undo

Command-Z

This command undoes the last change made in the active clip. Only the last change can be undone. After you execute Undo, you can redo the changes by selecting Redo, which appears instead of undo (and it obeys the keyboard shortcut for Undo, *Command-Z*).

- **Undoable Film** - Using Undo when the Undoable Film option is enabled allows you to undo a process that affects a range of frames. To use Undoable film the Undoable Film option must be turned on in the Modes menu.
- **Paint to Undo Buffer** - You can paint to the Undo buffer by holding down *Command* and painting on the Clip Window; this changes pixels on the frame to the way they would look if you used the Undo command.

Cut/Copy/Paste/Clear *Cmd-X/C/V*

[Inactive in present version of Commotion™]

These commands work on an intraframe basis -- that is, they apply only to the frame you currently see in the clip window. Holding down the Option key turns these commands into extraframe commands - making them affect the range currently marked by the in-out markers. Cut and Copy place the current selection into the clipboard. Paste pastes the selection into the currently active Clip Window.

Selections

[Selections are still in Heavy Development in this version of Commotion™. The headings about selections, below, show basically how they will work when finished.]

Selections in Commotion are represented by crawling ants. Any time a selection is made, painting, image processing and calculation commands can be performed only on the selected area; unselected areas are masked out. The Marquee, Lasso, and Magic Wand tools can be used to create freeform selections in the Clip Window. (For information on selections, also see the Tools Palette section of this manual.) Additionally, the following commands can be used to modify selections.

Select All *Cmd-A*

Selects the entire frame as the selection.

None *Cmd-D*

Clears the selection completely. If you want commands to affect entire frames, it is a good idea to hit *Cmd-D* to make sure nothing is selected.

Hide Selection *Cmd-H*

Toggles the outline (marching ants) of the selection on/off. The selection remains selected until you unselect it by clicking outside the selection with a marquee or choosing Select None (*Cmd-D*).

Inverse Selection *Shift-Cmnd-I*

Changes the current selection to its inverse; the area that was unselected becomes selected and the area previously selected is deselected.

Feather Selection *Shift-Cmnd-F*

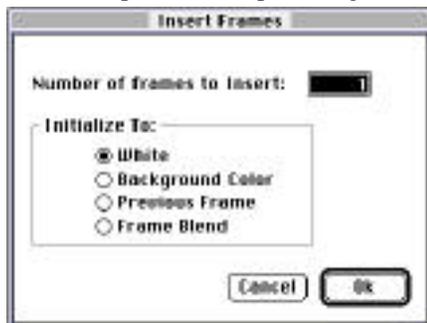
This allows you to soften the edge of the current selection, so that changes made by painting do not abruptly stop at the selection boundary. Brings up a dialog box for setting feathering values. Feathering can be set to be Inwards, Outwards, or Center weighted so that you can make sure changes affect the side of an edge that you want to have affected.

Edit Clip

Edit clip has a pop-up menu with three options. These allow you to modify your clip by adding, deleting, or blending frames. Each command on the Edit Clip pop-up menu brings up a dialog box with more options.



- **Insert Frames** - The Insert Frames command in the Edit Clip pop-up in the Edit menu brings up the following dialog box. This allows you to add more frames to your clip. The new frames will be inserted after the current frame (as displayed in the Clip Window and the Player Palette). You can select the initial contents of the new frames from the four options: White, Background color (as currently shown on the Tools and Color palettes), Previous Frame, and Frame Blend (which blends the pixels of the preceding and following frames).

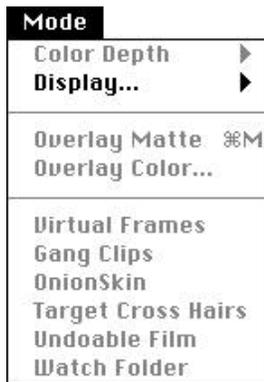


- **Delete Frames** - The Delete Frames command in the Edit Clip pop-up in the Edit Menu brings up the following dialog box appears. Frames will be deleted starting from the frame you are currently on.



- **Blend Frames** - The Blend Frames command in the Edit Clip pop-up under the Edit menu brings up the following dialouge box that allows you to blend frames together.

Mode Menu



Color Depth

This command allows you to switch the color bit depth for the clip. The color depth represents both the range of different colors that can exist in your clip and the amount of memory that is required to store the color information for each pixel.



Most paint operations are optimized for "Millions" of colors, and painting is not permitted in the Thousands of Colors mode *** (but is possible in 256, grayscale, or bitmap). Once you have changed the bit depth for a clip, the Revert command and Magic Erase Tool will not be able to restore frames or parts of an image. You must create a new saved version or a snapshot at the new bit depth in order to regain these functionalities.

Display

This command allows you to change the display mode from RGB, or the Red, Green, Blue or Alpha channels individually. Each individual channel is an 8-bit grayscale channel that represents one of the color components: Red, Green, or Blue. The Alpha channel, or Matte, is not a color component; it is an 8-bit grayscale channel used for masking out certain areas of frames.



The following keyboard shortcuts are available to switch quickly between display channels.

RGB	<i>Cmd-0</i>
Red	<i>Cmd-1</i>
Green	<i>Cmd-2</i>
Blue	<i>Cmd-3</i>
Alpha	<i>Cmd-4</i>

Overlay Matte *Cmd-M*

In Commotion™ like in other image editing programs the Alpha channel – or Matte – is a way to help you composite separate clips together. The matte can be used to specify what part of a foreground image is shown and what part is transparent so that you can see through to a background. The alpha channel is a separate eight bit channel (along with Red, Green, and Blue). You can invert this channel easily, so it is generally not important to keep track of whether it is black or white that shows the image or is transparent. For your reference, however, by default black shows the image and white is transparent.

Overlay Matte (*Cmd-M*) allows you to superimpose the Alpha channel over the RGB channels of the clip. Commotion™ uses a default color of red, or a color you choose with the Overlay Color command (**not yet implemented**).

When you turn on the Overlay Matte function, the colored overlay (red or otherwise) is the part of the alpha channel that is black. The overlay color does not appear in the areas of the frame where the alpha channel is white.

Overlay Color...

[Not currently implemented]

Choose the Overlay Color... command to set the color value and opacity level for the overlay. Selecting this option brings up a dialogue box in which you can select both the color and the opacity of the matte overlay.

Auto Frame Spooler, formerly known as Virtual Frames

When on, this allows you to move beyond the current loaded frame range. Commotion™ automatically loads into RAM additional frames of the clip as you continue advancing the frames beyond those that are loaded into RAM. When the Auto Frame Spooler/Virtual Frames option is off, stepping beyond the end of a clip's Live Frames will loop you back to the first frame in RAM.

Gang Clips

[still in development]

Commotion™ allows you to “gang” separate files together, which means that open clips that are ganged together move together in time and their windows update as you move forward/backward in time. For example, if one window is used as a source for cloning in another window, ganging these clips together will cause frame 1 in the clone source clip to be cloned into frame 1 in the target clip. Frame 2 in the source window will be cloned into frame 2 of the target clip, and so on. When ganging is off, only the currently selected clip will update. In this case, cloning would only use one selected frame as the clone source. To establish whether clips are ganged together, turn the Gang button on/off in the window of the clips.

Onion Skin

"Onion Skins" are lower opacity overlays of the current frame on top of previous or following (**currently only previous frames can be shown**) frames that are handy when doing frame by frame animation/painting. In the Onion Skin Preferences (File<Preferences) Dialogue Box, you can set the number of onion skin frames and the opacity of overlay of the current frame. (**The Color of Onion Skin is not included at present.**) You also can set the preferences so that the default for Onion Skinning is either on or off (see OnionSkin, under Preferences in the File Menu chapter).

Target Cross Hairs

When on, the target area for clone brushes will appear as a crosshair in the window you are cloning from. When off, no crosshairs appear

Undoable Film

When Undoable Film is on and a change is made to a range of frames, such as an adjustment to the brightness using the Brightness/Contrast filter, the Undo command in the Edit menu will undo the operation for the entire frame range.

When off, operations that affect multiple frame ranges cannot be undone.

Undoable film works by cache-ing to your primary scratch disk a temporary backup of your files. This procedure is repeated each time you make an operation, so that at all times you can undo the last operation. Only the frames that you are about to modify are sent to disk, so performance will depend on how many frames you are about to change. This is different from the Restore command (which restores to the last manually saved files or Snapshot).

Undoable film is disk intensive, as it is making multiple backups of many frames as you work. You may want to turn the option on and off (under the Mode menu) as you work, relying on it before making an operation whose results you are not certain you will like.

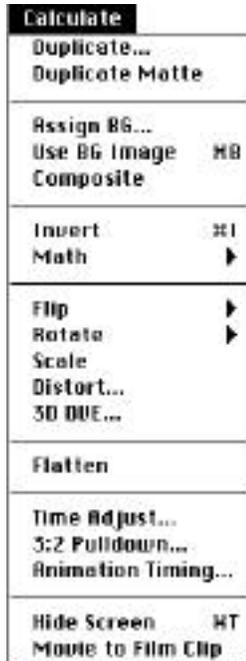
Watch Folder

When on, Commotion will periodically monitor the source files for your clips, and update any new file within the loaded frame range as soon as it is changed in the finder. When off, files are updated in RAM only when explicit operations are performed that require loading the image(s) from disk.

This mode is useful to dynamically update sequences of images as they are being dropped or rendered to disk. If a 3D application is rendering a range of files, Commotion can be left open to automatically loop the rendered frames—as new frames are finished, they will automatically be incorporated into the looping clip.

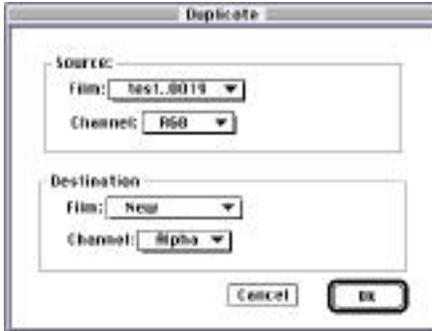
Calculate Menu

The Calculate menu contains many of Commotion's™ mathematical functions for duplication, backgrounds, flip/rotate/scale, and time manipulation.



Duplicate/Duplicate Matte

This command is used to duplicate channels from one clip to another or to view a new clip. The file and channel(s) selected from the source file are copied into the file channels selected for the destination in the Duplicate dialogue box.



Composite / Use BG Layer

The Composite command is useful for quickly establishing a relationship between two clips for painting and/or compositing.

Composite

Selecting this command in the Calculate menu brings up a floating palette to designate the Background Layer for the current clip, the transfer mode and related opacity/channels for the composite, and the destination for the Composite. You can bring up this dialogue box by holding down *Option* and pressing the BG icon at the bottom of the Clip Window.



- **Matte Checkbox** - The Matte checkbox selects whether to use the matte from a source other than the foreground clip. When the Matte

checkbox is unchecked, the alpha channel of the foreground clip is used, when applicable.

- **Matte Pop-up** - For the Matte Into and Matte Behind modes in the transfer mode pop-up, it can be useful to use the alpha channel of a separate clip, which can be selected with the Matte pop-up. Click-dragging on the pop-up menu allows you to select the clip to be used as a matte for the background from the clips that are currently open. To use the alpha channel of a clip, the clip must first be opened, although it is not necessary for particular frames to be loaded. The file chosen in the Matte pop-up is only used as the alpha if the Matte checkbox is checked; otherwise the alpha of the foreground clip is used.
- **BG Pop-up** - Click-dragging on the pop-up menu icon allows you to select the BG from the currently open Clips..
- **Transfer Mode Pop-up** - This pop-up menu in the upper right hand corner of the Assign BG window allows you to select the Transfer mode for compositing the foreground (FG) clip with the BG. See the Transfer Mode Pop-up listing below for details on each transfer mode.
- **Opacity** - When applicable to the transfer mode, dial in the opacity. This has a slightly different function for different transfer modes; see the transfer mode listings below for more details.
- **Frame Lock Checkbox** - The checkboxes below the Frame Lock icon allow you to lock the current background frame for use as the background for all frames [????] for both the clip selected as the matte and for the clip selected
- **Frame Offset [NOT YET IMPLEMENTED]** - For both the clip selected as the matte and the clip selected as the background, you can set a frame offset so that a frame in the foreground clip has as its background an earlier or later frame in the background clip. For example, with a relative offset of 2, the frame number of the background clip is 2 frames greater than the frame number of the foreground clip. This value will stay the same as you advance through the frames. A value of zero means that the background frame number is the same as the foreground frame number. (The frame number of the active/foreground clip is displayed near the lower left corner of the Clip Window and in the middle of the Player palette.)

Transfer Mode Pop-up

The Transfer Mode Pop-up in the upper right portion of the Composite window specifies how pixels are combined between the background and foreground layers. Each layer is normally opaque, so placing a background layer “behind” the foreground will be invisible unless the foreground pixels are somehow combined with the background pixels. The selections in the Transfer Mode Pop-up provides a variety of ways to place the background and foreground layers together. In each case, the operations are pixel-by-pixel, meaning that corresponding pixels in the foreground and background layers are used to generate the resulting pixel.

- **Blend** - Blends the foreground and background together by giving them a total opacity of 100% and dividing it between the two layers. The opacity slider on the Composite palette shows the opacity of the background layer. Moving this slider between 0 and 100% blends between showing only the foreground and only the background layer.
- **Add** - For each pixel in the films specified, the values in each color channel are added together. The values are capped at 255 (the maximum value for a channel) and are not scaled. So if a pixel has a red value of 200 and green and blue values of 0 and it is added to a frame whose corresponding pixel has a red value of 100, a blue value of 100, and a green value of 0, the result will be a pixel with red = 255, green = 0, and blue = 100. Any time the sum would be greater than 255, the result is set at 255. When light pixels are added together, the result is usually a white pixel.
- **Subtract** - For each color channel for each pixel, the foreground pixel value is subtracted from the background value ($BG - FG$). If the background is generally darker than the foreground, Subtract will result in a frame that is largely black.
- **Lighter** - This compares the values in each color channel and keeps the higher value. The result will generally be lighter than the original. The colors will frequently be much different from the original, since the lighter/darker comparison is performed for each channel.
- **Darker** - This compares the values in each color channel and keeps the lower value. The result will generally be darker than the original. As with the Lighter mode, the colors will often be much different from the original due to the channel-by-channel nature of the comparison.

- **Matte Into** - This uses the alpha channel of the foreground or the selected matte (see Matte pop-up, above) as a mask for the foreground. The alpha channel masks out the foreground and shows the background.
- **Matte Behind** - This uses the inverse of the alpha channel of the foreground or the selected matte (see Matte pop-up, above) as a mask for the foreground. In this case, the alpha channel masks out the background and shows the foreground. In other words, Matte Behind applies the selected alpha channel to the background, whereas Matte Into applies the alpha to the foreground.
- **Multiply** - Multiplies each channel's color values together. This generally yields darker pixels than you began with.
- **Screen** - Screen functions like Add in that the result is always a lighter color. Screen takes the values in each color channel and multiplies their inverse ("inverse" meaning "255 minus the current value"). Light pixels screened against dark pixels result in light pixels. This transfer mode is usually more useful for black and white colored pixels, since it often results in bizarre color changes for saturated colors.
- **Difference** - The Difference mode compares each channel's value for each pixel and subtracts the smaller value from the larger value; unless the corresponding pixels in each layer are both black, there will be no black pixels resulting from the Difference mode.

Destination Radio Buttons

To select the destination for the composite, click on the radio button for the destination you want. The four options appear along the bottom of the Composite window. Assign does not render a composition of the foreground and background, but instead generates a preview on the fly, according to the settings you give. This allows you to see the effect of your changes without permanently changing any files. New Clip renders a composition (according to your settings) to a new clip which is automatically opened when it is created. To Disk renders the composite to disk (not to RAM) as a new file. And Flatten renders the composite into the current foreground clip, effectively flattening the foreground and background layers into one clip. For the three destinations that create a composition (To Disk, New Clip, and Flatten), the pixels of the foreground and background are combined using the transfer mode and settings you in this window. The command will be executed over the current In-Out

frame range so that only the frames in this range will be affected (see In/Out frame range in the Player Palette chapter).

Use BG Layer

If you have assigned a background without redrawing a composition (do this by clicking the Assign radio button in the Composite window), selecting the Use BG Layer command in the Calculate menu toggles between showing and hiding the background, according to the options you have set in the Composite dialogue box. You can also show/hide the background by clicking on the BG icon at the bottom of the Clip Window.

Invert

Cmd-I

Inverts the channels (RGB, R, G, B, A) of all pixels in the current in/out frame range or selection area. “Invert” means (255 - current value), so if the red channel has a value of 4, then inverting will give it a value of 251. To invert only one of the channels (RGB or Alpha), first display only that channel by selecting it from the Mode<Display pop-up menu and then select Invert from the Calculate menu.

Math Pop-up



Selecting any of the options from the Math Pop-up menu brings up a dialog box for performing calculation operations between the pixels in two currently open clips.

The math functions perform calculations based on two existing clips. For each type of calculation (or mode, in After Effects™ and Photoshop™), Commotion™ performs pixel-by-pixel operations on the two existing clips. The easiest way to learn how the math functions work is to experiment with them. Many result in extreme coloring unless one of the original clips is mostly black. Screen, for example, is good for adding raindrops that exist in a

clip against a black background, but screening together two clips containing identifiable pictures will yield a very bright and washed-out image.

Below is a description of the mathematical operations Commotion™ performs for each math mode. All images in Commotion™ are stored in terms of RGB color space and all image processing operations are performed in RGB color space except for functions that refer explicitly to non-RGB terms such as hue, saturation, brightness, lightness, and contrast. When your color depth is set to Millions of Colors, each pixel in each frame is described by an 8-bit (0 to 255) value for each color channel -- red, green, and blue. Each channel has a value between 0 and 255. The math modes perform operations on these channel's values. When the color depth is set to Millions of Colors, each pixel also has an 8-bit alpha channel for use as a matte. The operations in the Math Pop-up do not affect the existing alpha channel of either clip involved in the operation.

Many of these modes also appear in the Math Mode pop-up menu in the Composite dialog box and are described with the other functions of that palette, under the Composite command in the Calculate menu.

- **Add** - Adds each color channel's values so that the result for each pixel's Red, Green, and Blue channels is the sum of the values for the corresponding channel's values in the two original pixels.
- **Add Over** - I don't know
- **Subtract** - For each color channel for each pixel, the Clip 1 pixel value is subtracted from the Clip 2 value. If the background is generally darker than the foreground, Subtract will result in a frame that is largely black.
- **Difference** - The Difference mode compares each channel's value for each pixel and subtracts the smaller value from the larger value; unless the corresponding pixels in each layer are both black, there will be no black pixels resulting from the Difference mode.
- **Blend** - Blends the foreground and background together by ...???
- **Lighter** - Compares the values in each color channel and keeps the higher value. The result will generally be lighter than the original. The colors will frequently be much different from the original, since the lighter/darker comparison is performed for each channel.
- **Darker** - Compares the values in each color channel and keeps the lower value. The result will generally be darker than the original. As with the Lighter mode, the colors will often be much different from the original due to the channel-by-channel nature of the comparison.

- **Multiply** - Multiplies each channel's color values together. This generally yields darker pixels than you began with.
- **Screen** - Screen functions like Add in that the result is always a lighter color. Screen, however, multiplies the inverse of each color channel's values, which basically just means that light pixels screened against dark pixels result in light pixels.

Flip Horizontal or Vertical

This command will flip the selection or frame area ??? on either a horizontal or vertical axis. This command is not keyframable. Commotion™ performs the operation over the In/Out frame range.



Rotate

This command will rotate the frames of a clip in the In/Out frame range. A clip can be rotated clockwise, counterclockwise or 180 degrees. The rotated frames will automatically be resized to fit within the window without cropping. (In other words, the dimensions of the canvas will be reversed automatically to fit the frame.)



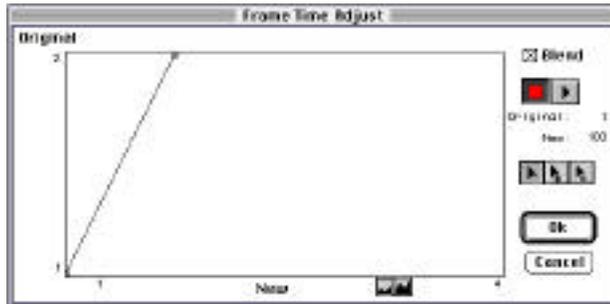
Scale [Inactive in present version of Commotion™]

Selecting Scale allows you to increase or decrease the size of the image in terms of the width and length in pixels. It affects the frames in the In/Out frame range set in the Player palette.

Time Adjust...

Selecting Time Adjust... brings up the Frame Time Adjust window, which shows the frame number (1st frame = 1, 2nd frame = 2...) of the frames in the original order plotted against the frame number in the new order. It is probably easier to think of the plot as representing the passage of time in the clip. When

you open the window, the plot slopes upward from beginning to end (steepest in the middle), which means that 'time' moves forward throughout the clip. If you change the curve so that a portion of it is sloped downward on the screen, the downward-sloping portion represents movement backward in time. The steeper the slope, the faster the animation appears in the clip. Extreme changes in the time adjustment can make the clip's animation appear choppy in playback because there are a set number of frames from which to generate the new animation.



- **Play /Stop** - Clicking on the Play icon in the Frame Time Adjust menu allows you to preview the new time settings. Clicking on the stop icon stops the playback. This playback will occur at a limited speed, since Commotion™ has not yet rendered the changes to a permanent clip.
- **Original/New** - The original and new frame numbers of a selected point on the Time Adjust plot are displayed below the Play/Stop icons. Clicking at a point on the plot causes the original and new frames to be displayed for that point.
- **Point/Add Point/Delete Point** - When the point icon (the left icon of the three point icons) is highlighted (by clicking on it), you can click and drag the existing points on the plot. You can add new points by clicking on the Add-point icon and then clicking on the plot where you want a new point. Delete points by selecting the Delete-point icon and clicking on the points you want to delete. When you click OK, Commotion™ calculates the new changes

Hide Screen *Cmd-T*

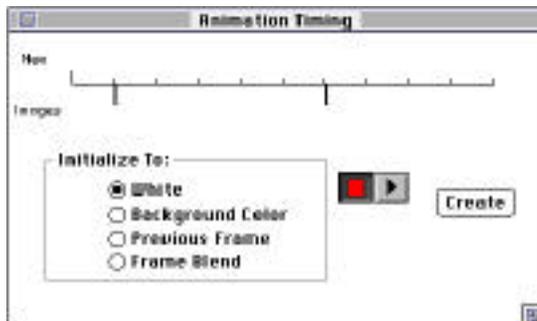
Hide Screen hides the screen except for the active clip, which is positioned in the upper left corner of the monitor when the screen is hidden. The Hide Screen is toggled on or off with the Command-T keyboard shortcut, or with the menu option. The menubar is still available when the screen is hidden; click near the top of the monitor and the menubar menus appear.

Animation Timing

This command is used to re-time frames in a clip based on tick marks similar to those used in animation timing sheets. The command will affect the entire clip's overall timing and redistribute existing frames. When you select Animation Timing from the Calculate menu, you will be prompted for the number of new frames to create.



The "Animation Timing" window will appear. Moving the long tick marks below the line will establish new timing. You can play the clip back and preview these new timings without committing to the changes by hitting the play/stop buttons in the window; these buttons behave the same as the play/stop buttons in the Time Adjust window. (The frame rate will be limited.)



- **Upper Ticks** - Represent the consistent timing of the clip with the frames distributed evenly.
- **Lower Ticks** - Represent the new distribution of frames. Move these left/right to move them earlier/later in time. As you move the ticks around, a number will appear above and below the line: the number below the tick is the frame number of that tick (from the original clip timing), the number above the line is the NEW frame number where the frame will occur.
- **Initialize To** - Select one of the options to fill new frames you are creating.
 - White - fills the new frames with white
 - Background color - fills the new frames with the background color as displayed in the Tools palette and Color palette
 - Previous Frame - fills the new frames with the same image as appears in the nearest existing frame preceding each new frame
 - Frame Blend - performs an operation to blend the nearest nearest existing frames preceding and following each new frame.
- **Play/Stop** - Buttons can be used to preview the clip at the new duration. Only the timing will be previewed (no new frames from the Initialize To: setting will be shown).
- **Create** - After previewing the timing a new clip is rendered by hitting the Create button.

Filters Menu

[Filters are still in heavy development. The descriptions below cover several of the filters that will be available soon.]

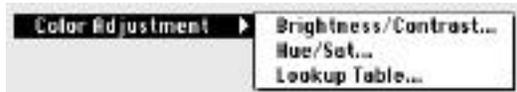
The Filters menu contains many of the image processing routines that Commotion™ is able to perform, including color adjustments, keying, blurs and sharpens, adding and removing noise, and others. Commotion™ also can support third-party plug-ins. These different filters are organized into pop-up menus according to their category. When you select a filter, a dialogue box appears, allowing you to set options for the filter. When you press OK to execute a filter, it operates over the In/Out frame range that is set on the bottom of the two slider bars in the Player palette.



Repeat Filter

Repeat Filter will re-execute the last filter command used with all its settings intact. A common use would be to run a filter on a limited in-out duration range to test the results, and then change the in-out range and use the Repeat Filter command to complete the filter on the rest of the frames in the clip.

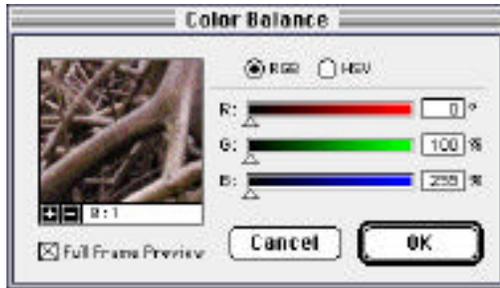
Color Adjustment Filters



fix screenshot

Color Balance

The Color Balance filter allows you to alter a clip's overall Red, Green, Blue, Hue, Saturation, and Luminosity values. You can alter any or all of these variables when you run the Color Balance Filter. Commotion™ applies the selected change to all pixels in all frames included in the currently set In/Out frame range.



To use the Color Balance filter, select it from the Color Adjustment pop-up in the Filter menu. This brings up the Color Balance dialogue box, showing a preview window of the filter's effects and the RGB (or HSV) sliders for controlling the amount of change in terms of the different variables.

Click on either the RGB or HSV radio button to select the color space in which to make your adjustments; Commotion™ updates the sliders to agree with the color space you select. You can drag the triangles across the sliders to set the amount of adjustment in each variable, or click on the number box to enter the number numerically. You can either increase or decrease the value in any of the channels or HSV variables.

The preview window in the dialogue box shows all or a portion of the frame in the clip window. You can zoom in or out in this window by pressing the plus (+) or minus (-) signs at the bottom of this preview window. The numbers next to the +/- signs tell the current zoom of the preview window relative to the clip window. The appearance of this preview window will change as you drag the RGB/HSV sliders around to show you how the image will appear after you render the changes.

The Full Frame Preview checkbox selects whether you are also shown a preview of the changes in the actual Clip Window. If this is checked, you may be able to get a better idea of the effect of the Color Balance filter's changes, but this can also slow down the process of setting the color balance changes, because Commotion™ takes more time to create the preview.

When you press OK, Commotion™ renders the changes you set to the frames in the In/Out frame range

A few helpful definitions:

Brightness: the amount of light given off by a pixel.

Contrast: the difference in brightness between the lighter and darker pixels in an image.

Hue: the wavelength of light (“color”) reflected from or transmitted through an object.

Saturation: the strength or purity of the color, or -in other words - the extent to which an object appears to be free of white light..

Luminosity: basically, the brightness of a pixel (the difference between brightness and luminosity is a detail reserved for color scientists)

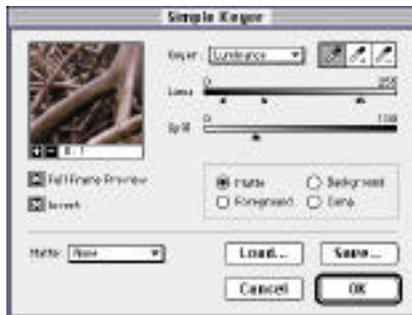
Keys



fix this screen shot

Simple Keyer: Red, Green, Blue, and Luminance

The Simple Keyer allows you to create a matte based on a color key -- such as a bluescreen or luminance matte. The four types of keys that can be taken with the simple keyer are blue, green, red, and luminance.(????) You select the Simple Keyer from the Keys pop-up in the Filter menu, which brings up the Simple Keyer dialogue box shown below.



Select the type of key you want to use from the Keyer pop-up at the top of the dialogue box. These different types of keys refer to how Commotion™ calculates the matte you want. The blue keyer, for example, looks only at the blue channel value for each pixel. The luminance keyer looks only at the luminance of each pixel, and not directly at any red, green, or blue. (For more information on channels and color space, see ...???)



- **Color Sliders**

The two sliders in the Simple Keyer dialogue box allow you to set the threshold value for whether the matte pixel is rendered black, white, or gray. To change these threshold values, click on the right or left slider and drag it to where you want it. Commotion™ looks at the value of each pixel and compares it to the threshold values set on the two sliders. Again, each type of keyer only looks at one particular color channel (or luminance, which is not a channel, but is a single color space variable). The right slider sets the value above which the matte is drawn white, and the left slider sets the value below which the matte is drawn black. If a pixel's value is between the upper and lower threshold values, it is drawn as a gray pixel in the matte; these grays vary gradually according to where the value lies between the two threshold values you set.

Here are topics that will be covered soon:

- THERE IS A THIRD SLIDER, too.

The Spill slider sets the 'softness' value... I don't know how to explain this at the moment.

- **Matte, Foreground, Background, and Comp**
- **Full Frame Preview**
- **Invert**
- **Matte Pop-up**
- **Rendering**

When you have the settings how you want them, click OK, and Commotion™ renders the matte for the frames in the In/Out frame range.

- **Save/Load**

You can also save and load keyer settings so that you can use a certain group of settings more than once without having to write them down or remember them. When you press Save, a Save dialogue box appears, allowing you to give a name and location for the saved keyer settings. The settings are saved in a separate file.

When you press Load, an Open dialogue box appears, allowing you to select a file with saved keyer settings. When you have selected a file with keyer settings, press Open and the settings are automatically loaded into the Simple Keyer dialogue box.

Color Extraction

[There will be a description of this filter.]

Difference

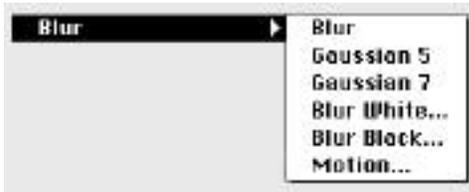
The sliders in the Difference... dialogue box allows you to set the threshold difference value in each color channel for deciding whether to include a pixel in the matte. The three sliders in the dialogue box represent the amount of difference there can be in each channel before the pixel is included in the matte. The matte is generated using these threshold values to compare the clip with the clean plate, and the softness slider's value is added in to make pixels that are very close to the threshold level gray, so that there is some transition between black and white

Move the sliders until you get an edge that is not too hard (no abrupt shift from black to white). The three slider values will probably be fairly close together, though not necessarily

Color Suppressor

[There will be a description of this filter.]

Blur



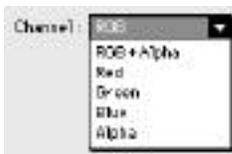
Commotion™ has a set of filters for blurring images. The Blur and Gaussian Blur simply take the image out of focus; the Blur filter blurs by a fixed amount and the Gaussian Blur allows you to set the amount of blur numerically. The Blur White and Blur Black filters allow you to blur your matte???. The Motion Blur allows you to create the illusion of motion by blurring in a certain direction???

Blur

[There will be a description of this filter.]

Gaussian

[There will be a description of this filter.]





Blur White

[There will be a description of this filter.]



Blur Black

[There will be a description of this filter.]



Fast Blur

[There will be a description of this filter.]



Motion Blur

[There will be a description of this filter.]

Sharpen



The Sharpen filter allows you to sharpen you image by increasing the contrast between pixels. When you select Sharpen from the Sharpen pop-up in the Filter menu (currently there is only one filter in the Sharpen pop-up), the Sharpen filter dialogue box appears:

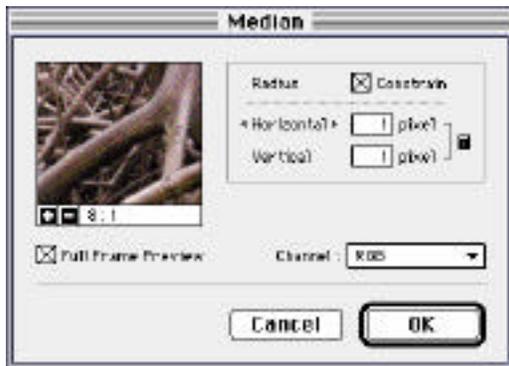


Noise



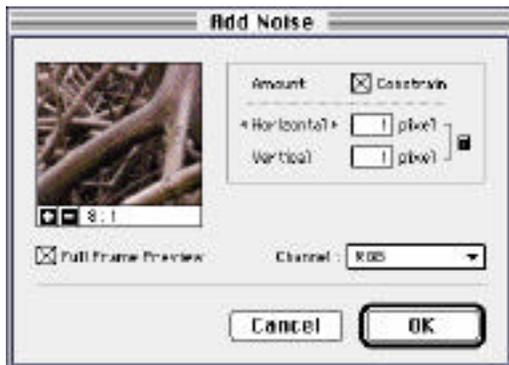
Median

[There will be a description of this filter.]



Add Noise

[There will be a description of this filter.]



Remove Dirt

[There will be a description of this filter.]



Average Frames

[There will be a description of this filter.]



Special



Custom Kernel

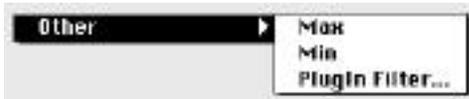
[There will be a description of this filter.]

BuildMin

[There will be a description of this filter.]

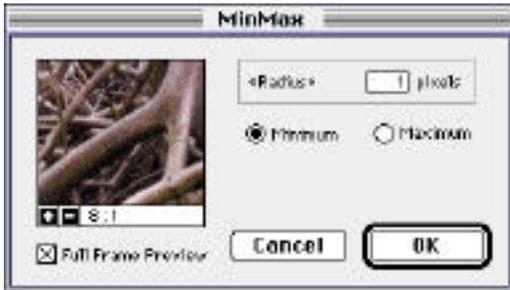
Max

Other Filters



MinMax

[There will be a description of this filter.]



Plug-In Filter

[There will be a description of this filter.]

Window Menu

The Window menu contains zoom functions and a list of toggles to show or hide Commotion's™ floating palettes.



Magnify and Reduce

Cmd +/-

Magnify and Reduce increase or decrease (respectively) the size of the view by a factor of two. For example, Magnify will change a view at 100% zoom to 200%. These commands only change the way the clip is shown on screen; they do not affect the data in the file.

Variable Mag...

This command opens a dialogue box that allows you to enter the zoom with the keyboard as a numerical percentage.



100%

This command sets the zoom to 100%, which means that each pixel in the file corresponds to one pixel on screen. Clips with a canvas size greater than the pixel resolution of your monitor (832 x 624, 1024 x 768, etc) are still sized at 100%, so the screen displays only a portion of the screen.

Palette Show/Hide Toggles

The bottom half of the Window menu contains a list of Commotion's floating palettes. These include the Tools, Player, Tool Options, Color, Rotospline, Super Clone (Clone Source), and Info palettes. Selecting these headings in the Windows menu toggles between showing and hiding the corresponding floating palette.

When you click to show a hidden palette, the palette appears in the last place it was prior to being closed or hidden. If you have the Macintosh Windowshade function enabled, the floating palettes obey the windowshade function like other windows. You can also drag the floating palettes to move them like you can drag other windows. The palettes do not have functions for resizing and scrolling, however. When Commotion™ is the current application, the floating palettes appear in front of all other windows, including the Clip Window. When Commotion™ is not the current application, the floating palettes are hidden. (The current application is the application with a check by its name in the pulldown menu in the upper right corner of your screen.) The later chapters detail the functions of each palette.

Show Open Files

At the bottom of the Window menu is a list of the clips currently open in Commotion. Selecting one of these headings shows and activates the window of the corresponding file.

Commotion's™ Floating Palettes

Commotion™ has seven floating palettes that operate much like those in other high-end desktop digital effects programs. Commotion's™ palettes include the Tools, Player, Tool Options, Color, Rotospline, Super Clone (Clone Source), and Info palettes. Each palette is described in detail in the following seven chapters. Here is a brief overview of each palette's main functions:

- **Tools** - The Tools palette contains Commotion's™ brushes and other tools for the cursor. These include tools for making selections, such as the Marquee and Magic Wand Tools. Also included are various painting tools, among them being the Paintbrush, Clone Tool, Eraser, and Burn/Dodge Tools. There are also the Grab and Zoom Tools for changing the way clips are shown on screen. Finally, the Tools palette displays the foreground and background paint colors.
- **Player** - The Player palette allows you to play the current clip, advance frame by frame, change the range of Live Frames, and change the In/Out frame range. You can also change the playing options so that the clip plays either once through, looping, or repeatedly forward and backward and turn on or off the Virtual Frames Loader option.
- **Tool Options** - The Tool Options (Options) palette contains all of the options for the tools selected in the Tools palette. All of the painting tools allow you to select different brushes, or create your own; ...not finished here
- **Color** - The Color palette contains a variety of functions for selecting colors for Commotion™ paint tools. These include sliders for different color channels, a scratch pad for trying out colors and creating new ones, and a palette of swatches to allow you to quickly select particular colors.
- **Rotospline** - The Rotospline palette contains the tools that allow you to create paths to define mattes. You can create any number of rotosplines and set a variety of settings for each one.
- **Clone Source** - The Clone Source palette controls the source for Commotion's™ Super Clone Brush, a tool that allows you to copy parts of images from one frame to another.
- **Info** - The Info palette displays information about the current pixel where your cursor is located. The palette displays the location of the pixel in terms of horizontal and vertical pixels from the upper left corner of the

frame. It also displays the values in each color channel -- Red, Green, Blue, and Alpha -- for the pixel.

The Tools Palette



The Tools Palette controls Commotion's™ functions for painting and making selections. You can click on any of the tools to make them active, and most of the them have a keyboard shortcut. In addition to the paint tools that appear in virtually all painting programs – such as paintbrush, airbrush, and marquee – Commotion™ has tools specially designed for painting and editing over time. Most of the tools also have a set of options for customizing your painting; these options appear at the top of the Tool Options palatte.



The Rectangular Marquee

[Commotion™ is not currently obeying selections as paint boundaries.]

The Rectangular Marquee Tool is used to make rectangular selections. By pressing on the icon (or pressing M on the keyboard (case insensitive) and then

clicking and dragging in the clip window, a selection is made. A selection is a temporary matte that allows changes to be made only within the selected area. Selections can be cut/copied and pasted, painted on, moved, filled, and filters and calculations can be run on the selection. Selections can be unselected by clicking once with the marquee or Lasso tool outside of the selection area, or by choosing Select None from the Edit menu (Cmd-D).



The Lasso Tool

The Lasso Tool is another tool for making selections. After selecting the tool, you can make a selection by clicking and holding down the mouse button while drawing with the cursor the shape of the selection you desire. When you release the mouse button, any gap between the ends of the shape you have drawn is connected by a straight line to finish enclosing the selection.



The View Window Tool

Activating this tool allows you to draw a rectangular window in the Clip Window within which playback will occur. This View Window is the area where you will see playback, and because the area is smaller, less data is required to display each frame on screen, so playback can be faster. This allows real-time playback on slower machines or high-resolution clips. Drawing a view window is done the same way as making a selection with the rectangular marquee: select the tool, then click-drag to define the window. To deactivate a View Window you have created, click outside the view window.



The Pen Tool

The Pen Tool activates Commotion's™ roto-splining functions. When the Pen Tool is selected, clicking and dragging in the clip window creates new keypoints on the active path in the Rotospline palette. Rotosplining is the creation of paths that are defined by keypoints and a certain curvature between them. These paths, or splines, are used to define mattes which are in turn used to remove certain portions of a frame or clip or to limit modifications to these particular areas. Splines can be used as selections (like those made with the Lasso Tool), and these selections behave in the same way as other selections. Splines have

important functionality beyond that of the Lasso Tool, however. They can be saved and loaded later, they can be modified in various ways once they have been created, and they can be animated across a range of frames. For more information on using splines and the Pen Tool, see the Rotosplining chapter in this manual.



The Magic Wand

The Magic Wand selects all pixels adjacent to a point you click on that are within a specified color range of the pixel selected. Commotion™ allows you to select the color range (“fuzziness”) in each of the components of either RGB or HSV color space; these controls will appear in the Tool Options palette when the Magic Wand is selected.



The Move Tool

The Move Tool allows you to move selected pixels within the active clip. To use the tool, select it from the Tools palette, then click and drag in the Clip Window; the selected pixels will be transposed from where you click first to where you release the mouse button.



The Paintbucket

The Paintbucket operates in the same way as the Magic Wand, except that it fills with the foreground color the area the Magic Wand would have selected. It can be a valuable tool for mattes.



The Eyedropper

This is a color selection tool that works by sampling from a pixel you choose. When the Eyedropper is selected, Commotion™ changes the foreground color to the color of the pixel that is clicked with the eyedropper in the Clip Window.



The Airbrush

The Airbrush paints like a spray-paint bottle, so that painting in an area for only an instant is translucent and the pixels are not evenly colored (the spray “sputters” a little bit), but the paint builds up in an area as you paint on it longer. This tool is helpful for creating minor color changes in an area. You can select the brush size and softness as with the other painting tools. (For information on creating brushes, see the Tool Options Palette chapter, below.)



The Paintbrush

The Paintbrush paints with an opacity and softness you set, so that it can vary from a very transparent effect to a completely opaque brush. You can select from a palette of brushes that Commotion™ has built-on, or you can create your own brush by holding down Command and Option while dragging with the mouse. For more information about the Paintbrush and other painting tools, see the Tool Options chapter.



The Line Tool

The Line Tool can be used to draw straight, solid lines. When you select the Line Tool then click-drag; a line is drawn from the first point where you click to the point where you release the mouse button.



The Gradient Tool

[The Gradient Tool is inactive in this version of Commotion™]
When implemented, it will appear beneath the Paintbrush on the Tools palette. It would be used to create a variation of color across a chosen range of pixels.



The Eraser

The Eraser is used to erase areas of a drawing. It acts as a paintbrush that paints the default background color (????). You can select the brush size and softness as well as the opacity of the Eraser tool. One of the eraser options is to erase to

the last saved version of the file, instead of erasing to the background color; this lets you undo changes to your document by painting. To select this option, click on the radio button in the Tool Options palette when the Eraser tool is selected.



The Pencil

The Pencil functions like the Paintbrush, but with no softness on the edges of the paint that is laid down.



The Clone Brush

The Clone Brush allows you to clone pixels from one part of a window to another by selecting a reference point and then painting from another point. After defining a reference point by `..***..`, the area around the reference point is cloned around the point where you begin painting.



The Super Clone Brush

The Super Clone Brush allows you to clone like with the regular Clone Brush, but from other frames. If certain frames in a clip have an unwanted object or blemish interfering with a view but other frames do not have the blemish, the Super Clone Brush can be used to clone pixels from the unobstructed view to replace the blemish with a desired view. For more information on using the Super Clone Brush, see the



The Blur Tool

The Blur Tool functions much like a paintbrush, but instead of adding color to pixels, it blurs the image of the pixels around an area.

Dodge/Burn Tool **[not yet implemented]**

The Burn tool darkens the pixels that are painted when the tool is activated.
The Dodge tool lightens the pixels that are painted when the tool is activated



The Wire Removal Tool

The Wire Removal tool is a cross between the Line tool and the Eraser; it draws a straight line like the line tool, but rather than drawing a line, it “erases” by blending nearby pixels to replace the pixels in the path of the line.



Foreground/Background Color Selections

This is the Color Selection Window that is planned for Commotion™. The present selection area is a square within a larger square; click on either the foreground (smaller) or background (larger) square to bring up the color picker.

There are **three/four** buttons in this color selection area. The two larger squares are the current foreground and background colors. The foreground color is the color which is painted with the paintbrushes or with the fill or stroke commands. The background color is the color that is “painted” with the Eraser. You can select the foreground color by clicking on the foreground color square, which brings up the Color Picker dialogue box, or by sampling with the eyedropper. You can select the background color by clicking on the background color square, which also brings up the Color Picker dialogue box.

The small icon to the upper right of this area switches the foreground and background colors. The small icon to the lower left of this area changes the foreground and background to the default colors: black in the foreground and white in the background.



The Grab Tool

The Grab Tool pans the frame within the clip window. If the active clip (at the current zoom) is larger than the Clip Window – if the file don't fit in 'da winder – the Grab Tool can be used to change the section of the frame that is shown. This is done by clicking and dragging within the Clip Window; the first point you click on is used as a reference point and moves to the point on the window where you release the mouse button.



The Zoom Tool

The Zoom Tool is used for increasing the size of the clip's display on screen. I'm not sure it works yet, or how it works if it does.

The Player and Info Palettes

The Player Palette

The Player palette allows you to change frames in the display. You can move to the beginning or end of the clip currently loaded into RAM, play the clip in the normal or reverse direction, or advance a single frame in either direction by pressing the icon buttons in the palette. The a new range of frames can also be loaded into RAM, and the Virtual Frames and Ganging function can be toggled on or off. The frame rate of playback can also be set using a pop-up menu.



Beginning/End

The left-pointing icon moves the display to the first frame in the currently-loaded clip. The right-pointing icon moves to the last frame in the currently-loaded clip.

Play/Reverse Play

Pressing these buttons plays the currently loaded clip. The left-pointing icon plays the clip in reverse and the right-pointing icon plays the clip normally.

Single Frame Advance

Pressing these buttons allows you to advance the clip one frame forward or backward, right for forward and left for reverse.

Stop

Press the square icon to stop playback.

Frame Rate Pop-up



This pop-up menu allows you to select the frame rate (in frames per second) for playback. The pop-up menu has the options Max, 30, 24, and Var. Max plays the clip at the maximum rate possible for the size of the canvas, the configuration of your system, and any limiting factors such as calculations or windows covering the clip window. In different circumstances, the max frame rate will vary from much less to much more than the normal video frame rate of 30 frames per second (fps). “30” plays the clip at 30 fps if possible; otherwise, the clip is played at the maximum rate. “24” plays the clip at 24 fps, the standard film frame rate. Var brings up a dialogue box requesting a keyboard input for the playback speed; Commotion™ will play back the clip at the speed entered or the closest rate possible.

Frame Rate Display



To the right of the Frame Rate Pop-up is a display of the frame rate for playback. While your clip is playing, the number in parentheses is updated to reflect the actual frame rate in frames per second (fps). If you change the frame rate setting while not playing a clip, the frame rate display is changed to reflect your setting. It will be updated according to the actual playback speed the next time you play back a clip. During playback, if you selected Max playback speed or if you set a particular playback speed that exceeds the maximum for your system and the clip you playing, the frame rate display shows the maximum playback speed. Otherwise, it displays the playback speed that you selected.



Toggling Gray Frame Border On/Off

Pressing the Frame Border button toggles between showing and hiding a gray border around the frame in the Clip Window. This can give a better sense of how the frame looks and it also allows you to draw Rotosplines (see Rotosplines chapter) that go off the edge of the frame, so you can be sure that the mattes produced by rotosplines cover the entire edge of the frame.

Toggling Frame Lock On/Off

Pressing the Frame Lock button locks the In/Out frame range to the range of Live Frames. The In/Out frame range is automatically changed to match the Live Frame range. You can do this manually by dragging the In/Out frame range slider around, but this button makes it much easier to lock the In/Out range to the Live Frame range.

Toggling Auto Frame Spool On/Off

Press the icon to toggle the Auto Frame Spool function on or off. When on, this function dictates that frames are loaded into RAM when you single-frame advance past the end of the range of Live Frames. This allows you to single-frame advance through more frames than just those you have space for in RAM, though loading these frames is a little slower than the instantaneous frame advance with Live Frames. The Beginning/End and Play/Reverse Play buttons function the same way, regardless of the Auto Frame Spool setting; playback occurs within the Live Frames. Auto Frame Spool is also described in the Mode Menu chapter.

Current Frame Display



This display shows the number of the frame currently displayed in the Clip Window, and shows the first and last frame number of Live Frames. The number above the slider bar, in the middle, shows the currently displayed frame. The number to the left of the slider bar shows the frame number of the first frame in the range of Live Frames. The number to the right of the slider bar shows the frame number of the last frame in the range of Live Frames. The blue rectangle shows where the current frame is relative to the beginning and ending of the Live Frame range.

Changing the Range of Live Frames



By clicking and dragging the top slider bar of the two in the Player palette - the blue one - you can change the range of Live Frames for the current clip. You can click-drag the triangles at the ends of the slider bar to move one end of the

Live Frame range, or you can click-drag the blue part of the slider to keep the same number of Live Frames but change both the beginning and end of the range of Live Frames. You can also change the range of Live Frames by clicking on the numbers at the left and right ends of this slider. To set the first Live Frame number, click on the number to the left of the Live Frame slider and type in the number you want; to set the last Live Frame, click on the number to the right of the slider and type in the number you want.

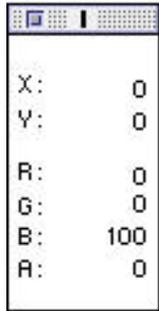
The In/Out Frame Range



The In/Out Frame Range is set on bottom of the two slider bars in the Player palette - the black one. It represents the range of frames to which all image-processing operations are applied; all operations that affect a range of frames, such as Math Calculations or Filters, are applied only to the frames in the current In/Out Frame Range. You can change this range of frames in the same way as you change the range of Live Frames: Click on either the triangles at the ends of the slider bar, drag the slider, or click the numbers at the ends of the slider to enter the In and Out frames numerically.

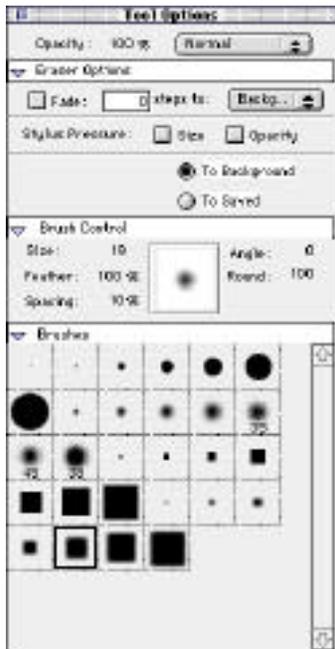
The Info Palette

The Info palette displays the x and y coordinate (in pixels) of the cursor on the screen. The origin ($x = 0$, $y = 0$) is in the upper left corner. The tip of the point on the pointer cursor is the point to which the Info palette's display refers.



The Info palette also displays the Red, Green, Blue, and Alpha channel's 8-bit values for the pixel where the cursor is located.

The Tool Options Palette



The Tool Options palette contains all of the options for the tools selected in the Tools palette. All of the painting tools allow you to select different brushes, or create your own. Most tools also allow you to control to opacity of the tool you are using, so that you can create subtle effects, bold effects, or anything in between. Different tools also have special options. For example, the Eraser tool can be set to erase to the background color, or to erase to the last saved version of your clip, so that you can undo changes by painting. All of these controls are contained in the Options palette.

The Options palette, as well as the Color palette, consists of a number of different sections. For the Options palette, these sections include the opacity slider and transfer modes pop-up, the tool-specific options, the brush control section, and the array of default/saved brushes.

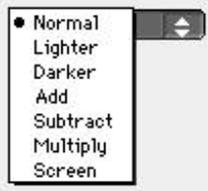
Opacity Slider

Opacity : %

The opacity slider at the top of the Tool Options palette sets the opacity of the tool you are using. If you set an opacity less than 100%, the effect of the tool will be blended with the existing pixels. For example, with the pencil and an opacity setting of 100%, the pixels you paint will be turned completely to the foreground color (as shown in the Tool and Color palettes). If the opacity is set to - say - 50%, then the pencil will change pixels to a color that is between the foreground color and the previous color of the pixels.

To change the opacity setting, position the cursor over the word 'opacity.' A small double arrow will appear, signifying that Commotion's™ flying slider has been activated. When this double arrow is visible, you can click-drag right or left to increase or decrease the value on the slider.

Transfer Mode Pop-up



The Transfer Mode pop-up, which appears in the upper right corner of the Tool Options palette, allows you to set the mathematical function used to combine pixels between the selected tool and the existing pixels. (All tools operate pixel-by-pixel.) Click-drag on this pop-up menu to select a different mode. The Normal mode is used most often; this simply paints on top of the existing pixels, according to the opacity setting and the selected tool and color(s). Below is a summary of the transfer modes; the paint pixel refers to any color associated with the selected tool (foreground color for paintbrush, for example), and the existing pixel refers to the pixels in the clip before using the tool.

- **Normal** - Places the paint pixels' color on top of the existing pixels.
- **Lighter** - Compares the values in each color channel of both the existing pixels and the paint pixels and keeps the higher value. The result will always be lighter than the original. The colors will frequently be much different from the original, since the lighter/darker comparison is performed for each channel.

- **Darker** - Compares the values in each color channel and keeps the lower value. The result will always be darker than the original. As with the Lighter mode, the colors will often be much different from the original due to the channel-by-channel nature of the comparison.
- **Add** - Adds each color channel's values so that the result for each pixel's Red, Green, and Blue channels is the sum of the values for the corresponding channel's values in the paint pixels and the existing pixels.
- **Multiply** - Multiplies each channel's color values (as proportions of the maximum value) together. This always yields darker pixels than you began with. If either the existing pixels or the paint pixels are black, the result is black.
- **Screen** - Screen functions like Add in that the result is always a lighter color. Screen, however, multiplies the inverse of each color channel's values, which basically just means that light pixels screened against dark pixels result in light pixels. Any pixels screened against light pixels will result in light pixels.

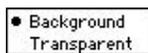
Tool-Specific Options

The tool-specific options are described with the tools in the Tools Palette chapter of the Reference Guide. For information on the options accompanying any specific tool, see the Tools Palette chapter. The tool-specific options appear near the top of the Tool Options palette, below the Opacity slider and Transfer Mode pop-up.

As an example of the tool-specific options, the Eraser options display is shown below.



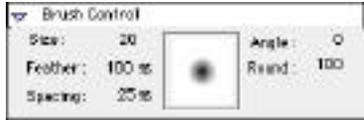
Most of the painting tools have a "Fade ___# of steps to" which allow you to set the tool's effect to fade out as you move the tool on the screen.



Commotion™ supports the WACOM™ pen tablet, and most paint tools also have a checkboxes for you to select whether the amount of pressure that you put

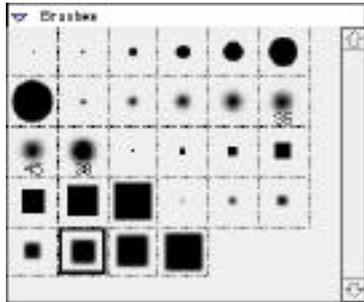
on the stylus (pen) corresponds to the size of the brush/tool or its opacity.
(With a mouse, the opacity and brush size are constant, according to the settings on the palette.)

Brush Controls



Click-drag on the corresponding word to change the size, feather, or spacing for the new brush. Angle and Roundness are not yet implemented. When the brush in this box is the selected brush, you cannot create a brush on the fly by pressing Command-Option like you normally can. (The keyboard shortcut for feathering, by the way, is dragging into the middle of your brush while holding down control.)

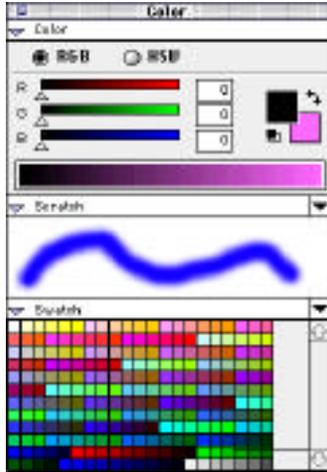
Selecting a Brush from the Array of Saved Brushes



You can select a brush from the array of default brushes simply by clicking on the one you want. Any brush you click on then appears in the brush window in the middle of the Brush Controls section of the Tool Options palette. You can make changes to the control settings of the brush you select by dragging around the

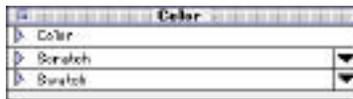
The Color Palette

The Color palette gives you a range of controls for selecting colors for Commotion's™ painting tools. The palette is divided into three sections: The Color Sliders section, the Scratch Pad, and the Color Swatches.



The color palette in Commotion™ is unique because you can fold up any of the three separate sections to only show what you need - saving valuable screen real estate.

By clicking on the blue triangles on the left side of the Color palette can fold up or drop down any of the three separate sections to show only what you need, so that you can save screen real estate.



The Color Sliders



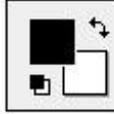
The color sliders function as they do in most image processing programs - you can choose between R,G,B or H,S,V color space. To pick a color, either slide the pointers or manually enter a numeric value for each.

The color sliders function as they do in most image processing programs - you can choose between R,G,B or H,S,V color space by clicking on their respective radio buttons at the top of the palette. To pick a color, either click-drag on the

small triangles to slide the pointers. You can also manually enter a numeric value for each color value (channel) by clicking on the number window for the desired color value then typing in a number.

The color bar at the bottom of the color slider palette displays a gradient of colors between the foreground and background colors as currently selected.

- **Foreground/Background Colors**



The two larger squares represent the foreground and background colors; the foreground color appears to be on top of the background color. The arrow in the upper right corner exchanges the foreground and background colors. The small black and white squares reset the foreground and background colors back to black and white, respectively.

Scratch Pad

[This is inactive in the current version of Commotion™.]



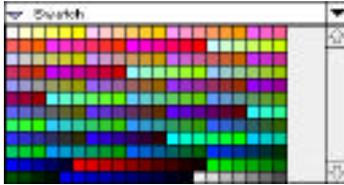
The scratch pad is an area that can help you to create a custom color. You can use it to blend colors or test brushes. It is basically a small, single-frame clip that is always available to paint on. You can save the Scratch Pad's displays as a PICT file or load pads you have used in the past. The Scratch Pad pop-up menu provides you with the following options for saving and loading scratch pads.



- **Reset** - resets palette to default state.
- **Load** - Loads the color to the palette, temporarily.
- **Save** - Saves the color to the palette, permanently.
- **Append** - **??**

This pop-up menu on the right-hand side of the palettes is the same for both the swatches palette and the scratch pad palette.

Swatches Palette



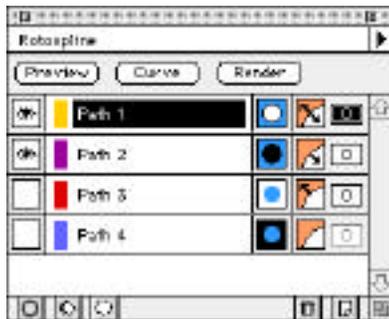
This palette contains the color swatches of the various default colors that Commotion™ has pre-programmed. By clicking on a color it will become the active color you will be painting with.

- To add custom colors to the swatches pallet, first select the custom color as the foreground color either by choosing it with the Color Sliders section of the Color palette or by using the Color picker or Eyedropper. Then hold down the shift key to access the paintbucket, then click on the square you would like to fill with the new color; that square is filled with the current foreground color.
- By holding down the control key and clicking on a color, it will be deleted from the swatches palette.
- The Swatches Palette pop-up menu in the upper right corner of the Swatches Palette section contains the same options as appear in the Scratch Pad section of the Color Palette.

The Rotospline Palette

Rotosplines are paths you can create in Commotion™ for specifying shapes for mattes. A rotospline - or 'spline' - is a closed curve connected by a series of either straight lines or bezier curves. When you render splines by pressing the Render button in the Rotospline palette, Commotion™ creates a grayscale matte that you can use to define foregrounds and backgrounds in when compositing more than one clip together.

All of the rotosplining (path) tools are controlled in the Rotospline Palette. The palette has a list of the paths loaded for the active clip along with a series of settings.



Spline Basics

Commotion allows you to use as many splines as desired for each clip. When you have multiple splines, think of them as a stack of layers -- one spline on each layer -- with the first spline being on the top-most layer (so the way they appear on your monitor in the Rotospline palette is the way they are stacked). Each spline has a fill quality specification that calls for either the inside or the outside of the spline to be filled (with either white or black). Because only one side (inside or outside) of each spline is filled, in the unfilled side, you can see the layers below. This allows you to create complex mattes in the way that is most convenient for the type of shot with which you are working.

You choose the fill quality for each layer (spline) by clicking on the fill quality icon directly to the right of the spline name. Commotion fills one side of the spline on each layer with either white or black; for the side of the spline that is

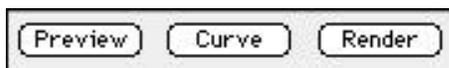
not directed to fill with a specific color, the layers below are allowed to show through.

If the “Merge with Alpha” option is unselected, Commotion™ uses the bottom spline to determine the background of the splines; this bottom spline is filled as specified, and then the opposite side has the opposite fill quality. So if the inside of the bottom spline is set to be filled with black, then the outside of this spline will be filled with white, and all of the other splines stack on top of this background. If the Merge with Alpha option is selected, then the existing alpha channel is used as the background and all of the spline layers are stacked on top of the existing alpha when the splines are previewed or rendered.

When you are editing them, splines are associated with a certain clip. You can save splines, either individually or as a group, independent of any clip. To do this, choose one of the Save Layers options in the Rotospline palette pop-up menu. You can then load saved splines either into the same clip or into a different clip at a later time.

Preview, Curve, and Render Buttons

These three buttons appear near the top of the Rotospline palette. Each activates a key feature of Commotion’s™ Rotospline functionality.



- **Preview** - The Preview button generates a preview of the alpha channel according to the present splines and their configurations. You have three options for how to display the preview: High contrast matte, Mask overlay, or Comp against. These options are set in the Preview Options dialogue box, which you bring up by selecting Preview Options from the Rotospline palette pop-up menu in the upper right corner of the Rotospline palette. (For more information, see the Preview Options entry under the Rotospline Palette Pop-up Menu heading.)
- **Curve** - The Curve button brings up the Path Curve Editor, which allows you to change the the way each spline is animated over time. When you press the Curve button, the Spline Curve Editor window appears. (For more information, see the Spline Curve Editor entry below.)
- **Render** - The Render button renders an 8-bit alpha channel according to the settings in the Rotospline palette and the in/out frame range. (For more information, see the How Splines Are Rendered entry below.)

Showing, Hiding, Coloring, and Activating Splines

-  **Show/Hide Spline** - Clicking on the eyelid icon toggles between showing and hiding the spline shape listed to the right. When a matte is generated from the splines, only the splines that are shown will contribute to the matte.
- **Spline Color** - You can change the color of splines by clicking on the colored rectangle to the left of the spline name, which activates a pop-up palette of colors to select.
- **Active Spline** - Clicking on the name of a spline in the list makes this the active spline. The highlighted name indicates the active spline.

Splines Settings

When you have multiple splines, think of them as a stack of layers, with the first spline being on the top-most layer. Each spline has a group of parameters to its right which control the edge qualities and masking function of the spline shape.



Fill Quality

Fill Quality is represented by the icons above. From the left, the four states are:

1. Fill interior with white
2. Fill interior with black
3. Fill exterior with white
4. Fill exterior with black

When Commotion™ creates mattes - or alpha channels - from the paths defined in the rotosplines palette, it stacks the splines on top of each other according to the spline settings. As mentioned near the beginning of this chapter, if the “Merge with Alpha” option is unselected, Commotion™ uses the bottom spline layer to determine the background of the splines; this bottom spline is filled as specified, and then the opposite side has the opposite fill quality. So if the inside of the bottom spline is set to be filled with black, then the outside of this

spline is filled white, and all of the other splines stack on top of this background..

The settings for each spline specify to fill either the interior or exterior of the spline. The region not filled is left unchanged by each individual path; this allows the splines to be stacked as layers, in order to create complex mattes from several splines.



Feather Settings

The feather settings for each spline can be set individually and there are three settings for the feathering. From the left, the four states are the following:

1. Centered: The feathering is centered across the edge of the spline.
2. Inside: The feathering begins at the spline edge and feathers inward.
3. Outside: The feathering begins at the spline edge and feathers outward.

The small number box to the right of the Feather Settings icon is the feather radius; clicking on the box allows you to enter a numerical value for the distance over which a matte is feathered out.

Rotospline Palette Pop-up Menu

Toward the top right of the rotospline palette, there is a pop-up menu that allows you to save and load splines as separate files and to control some of the rotosplining options.



Here is a quick overview of the commands in the Rotospline palette pop-up menu. Following this list are more in-depth explanations of each command.

- **Keypoints** - Toggles display of keypoints on spline on/off.???

- **Layer Options** -
- **Preview Options** - Brings up a dialogue box allowing you to see the preview (see Preview button, above) as either a High-Contrast (grayscale) matte, a translucent overlay of the matte over the Clip, or a composite of the Clip on a selected background color using the preview matte.
- **Merge with Alpha** - When Merge with Alpha is checked (selected), the alpha channel generated according to the splines and their settings is stacked on top of the existing alpha channel.
- **Invert All** - Inverts the grayscale matte created from your splines.
- **Duplicate Layer** - Duplicates the current spline and names it "copy of (current spline name)". The new (duplicate) spline appears in the list of splines in the Rotospline palette.
- **Save/Load Layer** - Will save/load the currently selected spline to/from disk. When loading a group of splines with this command, only the first spline in the group will be loaded.
- **Save/Load All Layers...** - Will save/load all the splines for a clip as a group in a single file to disk. When loading, the incoming group will replace any current splines for a clip.

Layer Options

[not currently implemented in Commotion™]

Preview Options



Selecting Preview Options from the Rotospline palette pop-up menu allows you to select from three different ways to preview the matte generated according to your splines and their settings. When you select Preview Options, a dialogue box appears, allowing you to select from Hi-Con, Matte Overlay, or Comp

Against. The the preview (see Preview button, above) as either a High-Contrast (grayscale) matte, a translucent overlay of the matte over the Clip, or a composite of the Clip on a selected background color using the preview matte.

Merge with Alpha

When Merge with Alpha is checked (selected), the alpha channel generated according the the splines and their settings is stacked on top of the existing alpha channel in the active clip. When you render or preview the alpha specified by your splines and their settings, Commotion™ uses the alpha channel of the frame currently displayed in the active Clip Window as the background. This allows you to edit existing alphas with splines, in addition to creating new alphas. One important application of this function is making garbage mattes (rough shapes) to clean up a matte generated with one of the keyer filters.

Engaging the Merge with Alpha option turns off Commotion's™ default background creator. When the Merge with Alpha option is off, Commotion creates the background for the spline-generated matte according to the setting in the bottom (last) spline layer; the interior or exterior of the bottom spline is filled according to the setting on the fill quality icon, and the opposite side (exterior or interior) is filled with the opposite color.

Invert All

The Invert All option allows you to invert (switch between black and white) the matte produced from your splines; the non-inverted matte is calculated first, then inverted; this gives you both flexibility and convenience in creating different mattes. If you need the inverted version of a matte after creating it from several spline layers, you can just select this option rather than figuring out the necessary stacking order and fill qualities of your separate splines needed to produce the inverted matte.

Selecting the Invert All option from the Rotospline palette pop-up toggles the option on and off. A checkmark will appear to the left of the Invert All entry in the pop-up menu when the option is on.

Duplicate Layer

When you select Duplicate Layer from the Rotospline palette pop-up menu, Commotion™ duplicates the current spline and names it "copy of (current spline name)". The new (duplicate) spline appears in the list of splines in the Rotospline palette. By default, the new spline is (shown, what color???)

Saving Splines

You can save splines by selecting either the Save Single Layer or the Save All Layer option in the Rotospline palette pop-up menu in the upper right corner of the Rotospline palette. The Save Single Layer command allows you to save the currently active spline (indicated by black highlight). The Save All Layers command saves all of the splines currently listed in the Rotospline palette. Both of these Save commands are otherwise the same; each brings up a standard Save dialogue box and each saves the spline(s) in a Commotion™ Spline File???.

Loading Splines

You can load Commotion™ spline files by selecting either the Load Single Layer or the Load All Layers command from the Rotospline palette pop-up menu in the upper right corner of the Rotospline palette. The splines you load can be from any clip; Commotion™ has a number of options for loading splines from a different sized clip (see Dynamic Scaling of Splines, below.) Selecting the Load Single Layer command allows you to add a saved spline to the list of splines in the Rotospline palette; when you choose a spline file in the Open dialogue box that appears, the new spline appears at the bottom of the stack of spline layers. When loading splines, Commotion™ can read only Commotion™ spline files, since no other programs have spline files.

- **Dynamic Scaling of Splines**

When loading a path that originated from a clip of different dimensions than the current clip, Commotion can adjust the proportions/scale of the splines accordingly. This allows you to quickly create a spline at a reduced resolution, and then open up the path in the full resolution clip for fine tuning.

The settings in the Load Spline Options???. dialogue box will resize the spline information according to your selection.

- **Keep Same** - Leaves the spline(s) the same size (in terms of pixels). The spline or group of splines is placed in the top left corner of clip (Commotion's standard X-Y origin).
- **Keep Same, Centered** - Leaves the spline(s) at same size, centered in the clip that you are loading them into.
- **Adjust Size + Ratio** - Scales the spline(s) to fit the new clip size, stretching the aspect (length/width) ratio if necessary.

- **Adjust Size, Keep Ratio** - Scales the spline(s) to fit, maintaining the original aspect ratio. If the aspect ratio is different between the clip and the splines being loaded, Commotion™ sizes the spline layer(s) so that they fit entirely within the new clip.

Painting Splines and Making a Selection

By clicking on the icons at the bottom of the Rotosplines palette, splines can be used as a fill, stroke, or selection boundary:



Stroke

Click on the Stroke icon to stroke the current selected path using the current Paintbrush Tool Options (opacity, brush shape, transfer mode, etc.).



Fill

Use the Fill icon to fill a spline shape with the current foreground color. (This can be useful when touching up mattes or imperfections in color/luminosity areas that will be keyed latter.)



Make Selection

Makes the currently viewable splines into a selection for the current frame. This selection behaves the same as selections made with the Magic Wand, Marquee, or Lasso Tools. (See Selections in the Edit Menu chapter and see the entries in the Tools Palette chapter for these specific tools.)

New and Delete Spline Icons

In the lower right corner of the Path Tools palette are three tool buttons for working with splines:



New Spline

Clicking creates a new spline. It will appear at the bottom of the list of existing splines. There is no shape in the clip window for the spline until you draw one with the Pen tool.



Delete Spline

Clicking this icon deletes the currently active spline. (The active spline is the spline with its name highlighted in black in the Rotospline palette.)

Naming Splines

To rename a spline, double click on its current name. A dialogue box will appear, in which you can type the new name for the spline.

Drag Re-Ordering of Splines

Because splines behave as layers stacked on top of one another, the order of the splines has a large impact on the alpha channel that results when it is rendered from the splines. To make it easy to change the order of your splines, you can move a spline to a new location in the stack of layers by clicking on the spline you wish to move and dragging it to the place in the stack where you want it. While you are dragging, a bold line will appear below the line where the new spline will appear when you release the mouse button.

Spline Curve Editor

The Spline Curve Editor allows you to add, subtract, and move spline keyframes. Keyframes are frames for which the location and shape of a spline is set -- not interpolated. The splines' location and shape for each non-keyframe is interpolated based on the keyframe preceding and the keyframe following each non-keyframe. This interpolation is ___(mathematical method, whether it can be varied???). The interpolation applies to the location of each spline keypoint (the squares that appear when you click with the pen tool), as well as the bezier handles for each keypoint, if applicable.

To access the Spline Curve Editor, press the Curve button on the Rotospline palette. This brings up the Spline Curve Editor window.

The Spline Curve Editor window works much like the Time Adjust window; it shows a plot of the currently set keyframes

How Splines Are Rendered

When you press the Render button in the Rotospline palette, a dialogue box appears, allowing you to select the destination for the 8-bit alpha channel that will be rendered according to the current splines and their settings. When you press OK, Commotion™ writes the a new alpha channel to the selected desination for all of the frames in the In/Out frame range.

The three options available for the rendering desination are New Clip, To Disk, and To Alpha of Current Clip. New Clip and To Disk both render the alpha to a new sequence of 8-bit grayscale PICT. New Clip automatically opens the new

file and loads a range of frames. To Disk renders the sequence of new files to disk without opening them as a clip. To Alpha of Current Clip renders the grayscale matte to the alpha channel of the current clip. (If you had more than one clip open, you would have to make sure that the active clip window was the one for which you wanted to render the matte. This usually will not be confusing, though, because the Rotospline palette shows the splines for the currently active clip, so when you change clips, the Rotospline palette changes its display.)

The Clone Source Palette

The Clone palette is used to control the clone source for Commotion's™ Super Clone Brush. The Super Clone Brush is a tool that allows you to clone (copy) pixels from any location in any frame of any open clip. If one frame has a flaw but another does not, and the flaw is set on an area that does not change from one frame to the next, then you can clone pixels from the good frame to remove a flaw. You can clone from clips that are different sizes (in terms of pixel dimensions); Commotion™ lines up the upper left corner of the clone source with the upper left corner of the target by default and you can set an X-Y offset from there.



This tool can be a great help when you wish to fix a problem with a frame and there is another similar frame that does not have the same problem. The capacity to clone pixels from one area to another is a very useful ability for touching-up photorealistic images. This way, subtle variations of color can be maintained. Cloning is also important if you are using footage at a low color depth that has been dithered; simply painting onto a dithered image is very difficult if the image is meant to look at all realistic. The Clone tools allow the moving picture artist -- you -- to paint out unwanted items such as boom microphones or to remove dirt or blemishes from a shot.



The Clone palette allows you to select the sources for cloning with the Super Clone Brush. You can set up to four different clone sources at one time. Each source is specified by the name of the clip, the relative and absolute frame offset, and the X-Y offset.

Selecting the Clone Source



The paintbucket icon at the left of the Clone palette shows the selected clone source. The four rows in the middle of the clone source palette each corresponds to one of the four clone sources you can set. To select a different source, click on the row of the source you want, in the column where the paintbucket is.

Name of the Source Clip



For each of the four possible clone sources, you can select the source clip by clicking on the source name pop-up. When you hold down the mouse button on one of the source name pop-ups, Commotion™ displays a list of the open clips. Select the clip for each clone source by dragging to the name of the clip you want as your source.

Frame Box



The Frame Box contains three settings that can be applied independently to each clone source: The Frame Lock, The Relative Frame Offset, and the Absolute Clone Source Frame.

Frame Lock



The Frame Lock checkbox allows you to turn on or off the Frame Lock option, which...DOES SOMETHING THAT I DON'T KNOW ABOUT...

Relative Frame Offset **fixfixfixfixfixfixfixfix**

The “Rel” heading refers to the relative frame offset. If this value is zero, the the Super Clone Brush clones from the same frame number in the source clip as the current active clip is displaying. For example, if the clip that you are cloning to (which will be the active clip) is displaying frame number 5 and the relative frame offset is 0, then the Super Clone Brush will clone from frame number 5 in the source clip.

You can set the relative frame offset to a different value to use an earlier or later frame as the clone source. If you set the relative frame offset to a negative number, an earlier frame is used as the clone source. For example, if the relative offset is set to -2 and the clip that you are cloning to is displaying frame number 5, then the Super Clone Brush will clone from frame number 3 ($5 - 2$) in the clip selected as the clone source. If you set the relative frame offset to a positive number, a later frame (relative to the frame number in the destination) will be used as the clone source.

To change the relative frame offset, click/double click on the current setting for the offset. This brings up a dialogue box that allows you to enter the frame number and click a radio button to determine whether you are using a relative or absolute frame reference.

X-Y Offset

Offset	
X	Y
0	0
0	0
0	0
0	0

By default, when you use the Super Clone Brush, you clone from the same location in the frame being used as the clone source and in the active clip -- the cloning destination. This is because one of the most common uses for the Super Clone Brush is to copy pixels between two frames with the same content aside from a certain moving element, or between two pieces of footage shot with

a motion control camera so that the content is largely identical. However, you can set an X-Y offset for each clone source so that you can clone from different parts of the clone source frame from where you are painting in the active clip. The X-Y offset values in the Clone palette show the offset of the clone source relative to the clone destination (in the active clip). X-Y (horizontal - vertical) values in Commotion™ are measured from the upper left corner of a frame, increasing as you move down and to the right.

To set the X-Y offset, you can click on the X or Y offset value you want to change, which brings up a dialogue box that allows you to set the X-Y offset numerically. You can also hold down *Shift* -- showing an Onion Skin overlay of the clone source on the target -- and click-drag in the Clip Window to move the Onion Skin overlay around. The X-Y offset will be set accordingly.

Cue Button



Using the Super Clone Brush



To use the Super Clone Brush, set up a clone source in the clone palette and select the Super Clone Brush tool from the Tools palette. Make sure the clone source you set up is selected in the Clone palette. Also select a brush from the Tool Options palette or create a new brush; like most painting tools, the Super Clone Brush obeys the brush settings in the Tool Options palette. (For how to select or create brushes, see the Tool Options Palette chapter.) Then paint in the active clip window to clone pixels into the window.