

1. Introduction

Jaleo 2.5 – with this new version of Jaleo, a number of important features have been added to make productions faster, easier and more efficient. And, most of all, the Jaleo family has a new member, Jaleo for Impact.

With Jaleo for Impact, for the first time editing and compositing of uncompressed D1 video material is available on a desktop platform – including real time input/output in combination with a Ciprico 6900-series disk array and the Impact video card.

And there is a lot more to all the other versions of Jaleo as well – new and improved effects, better editing, better audio support, and the like. The details are described in this documentation update.

We hope you will have a lot of fun with Jaleo 2.5.

With our best wishes, from the Canary Islands

Your Jaleo Team

P.S: Please, **DO READ THE RELEASE NOTES**. They do contain essential information on Jaleo version 2.5

Package Content

If you received a Jaleo 2.5 Update, you should have

- This manual
- Jaleo Version 2.5 release notes
- Jaleo PlugIn Developers Guide
- Two Jaleo User Notes (#1 and #2 from February 1996)
- A tape with Jaleo version 2.5 software

If you have purchased a new package, you should have:

- The full documentation for Jaleo 2.1, consisting of
 - Jaleo 2.1 User Manual
 - Jaleo 2.1 Installation and Setup Guide
 - Jaleo 2.1 Addendum to the User Manual
- Additionally, you should have received all the items mentioned above for the Update.

2. New Features Overview

- For the first time ever, **uncompressed D1 quality video editing** – on a desktop machine, for the price of a compressed video editor. Jaleo 2.5 for Impact, using Silicon Graphics' new Impact Video and Ciprico's 6900-series UltraSCSI disk array gives between 13 and 26 minutes (depending on array model) of uncompressed video storage in digital 4:2:2 YUV quality, with real time D1 capturing and playback.
- Jaleo Composite 2.5 and Jaleo for Impact 2.5 now support synchronized audio capture.
- Audio handling and playback stability in the reel has been improved greatly. Clips can now contain both video and audio information. Functions have been added to create or break composite clips.
- EDL import is now supported.
- Many new and improved effects. For example:
 - The 3D DVE now supports global deformations, to map images into spheres, cylinders, cubes and other shapes. This can be combined with deformation mapping, that has been improved as well.
 - Motion Tracking has been improved and has a new user interface. True corner pinning is now supported in a very comfortable manner.
 - AutoPaint applies a "paint-like" look to input tracks. Many parameters give a large variety of effects.
 - Outline effect, Lookup table colour effect, Swirl (spiral deformation), new blurs...
 - Support for PlugIns. A software developers kit is included with the version, as well as example PlugIns.
 - New Combination Key does key extraction and colour suppression/correction in a single step (implemented as a PlugIn effect).
 - 7-vector colour correction (implemented as a PlugIn effect).
- Improved Time Editor for much faster editing of parameters and time curves.
- RotoPaint now features full blown paint animation using vector shapes and paint strokes. Also, there are new brushes: Cutouts, custom brushes, distort and a background layer for reference and paint through.
- Any number of window placement setups of the Reel's program windows can now be stored and recalled using the new setup manager. This makes operation much faster, as windows can be placed automatically where they are desired.

- Editing tasks like trimming of long raw input clips can be completed much faster now with the new “Active Monitor” mode.
- New “Filmstrip Mode” display of clips if zoomed up to maximum in time.
- Automatic clip creation using drag of sequential images to reel.
- New Render Management. Rendering can now be initiated from the Reel, for any section of the reel or for any selected object. Render destination media can be set directly.
- The Monitor now supports zooming of images. With Jaleo for Impact, dynamic resolution changes between previews and full resolution images dynamically to give optimal preview timing even when effects are present.
- Improved raw disk performance and security. See the release notes for a full description of changes to software and administration tools.
- Command line rendering

3. Reel Changes & Additions

3.1 Editing

3.1.1 Fast Trimming of Long Sequences: Active Monitor / Split Tail

Trimming of clips is now possible using a very quick method, for example during playback of the clip. To make a monitor active, use the appropriate option in the monitor popup menu. New commands in the Select>Bring menu allow to move the edit in and out marks to the current monitor position. As there are keyboard short-cuts, this permits to place the edit in and out marks quickly, thus permitting to mark trim locations during playback, and performing a trim with a single additional keystroke.

The new commands can be found in the Select menu (Bring submenu). Edit Marks can be brought to the position of the active monitor. Monitor In will move the edit in mark to the current active monitor position, Monitor Out will move the edit out mark. For trimming, then use the normal command from the Edit>Trim menu (Trim Both Marks).

Additionally, a new command is available to make sequential trimming of long sequences faster: If you select Split Tail from the Edit>Trim submenu, the clip head will be trimmed to the Edit In position. Also, the clip will be split at the Edit Out position, leaving the rest of the clip available for further trimming. In contrast, by using Trim Both Marks, not only the head would be trimmed, but also the tail, requiring the user to reload the clip to cut out further segments.

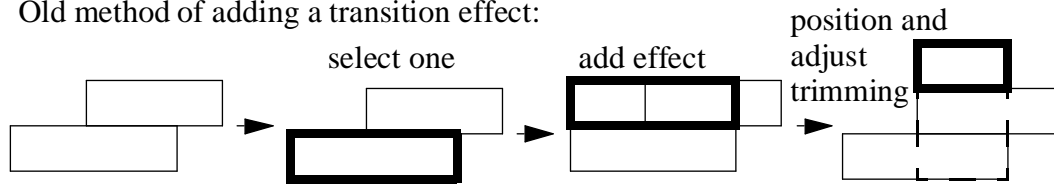
The combination of the Active Monitor with the Split Tail command permits you to capture long stretches of material on real-time capable systems and then to cut in useful chunks quickly and comfortably.

3.1.2 More Comfort for Adding Transition Effects

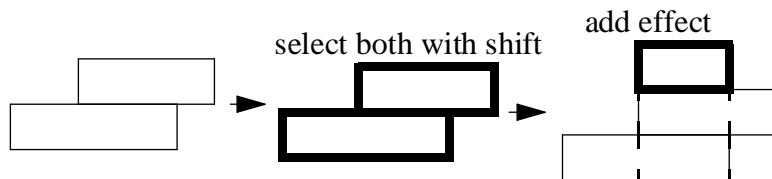
Typically, simple transition effects are added to the area where two image clips overlap. With prior versions of Jaleo, the typical method to add an effect to this overlap area has been to select one of the target clips and then to create the effect by selecting the appropriate menu command. Then the transition would have to be trimmed to the area of the overlap, and the effect extend would have to be adjusted.

Now, with these simple transitions can be fitted automatically: Just select the overlapping clips while holding the shift key and pick the effect from the menu. It will be automatically be fitted correctly.

Old method of adding a transition effect:



New method of adding a transition effect:



3.1.3 Split for Groups and Effects

Groups and effects can now be split, just like clips

3.1.4 Flip for Effects

The Flip command in the Clip menu can also be applied to effects.

3.1.5 Trimming for groups

Using the **Alt** key while rescaling groups, groups can be trimmed. To trim a group using the mouse, you must press the **Alt** key before pressing the second mouse button.

3.1.6 Group Timestretch Without Interpolation: Framerate reduction

A new parameter for groups permits to do timestretch effects without interpolation. This can be used to effectively create framerate reductions or increases.

The parameter is called “width”. A width of 0 means that frames are not interpolated at all, but doubled or dropped instead. A width of 100 is equivalent to the anterior mode, interpolating about one frame. Larger values permit to interpolate over more frames. In some packages, this type of interpolation between neighbouring image information in timestretch operations is called “Motion Blur”.

3.1.7 AutoSnap

AutoSnap (Setup>Reel) now works in a magnet fashion. If you move clips tight enough together with the mouse, Jaleo will pack them automatically. The Snap Radius can be set

in the `.jaleorc` file with the parameter `MAGNETSNAP`. The value is given in frames.

3.1.8 Filmstrip Display Mode

The reel can now display clips in filmstrip mode. That is, instead of showing only the reference image for the frame where the clip cursor is positioned, all frames of a clip are shown.

The filmstrip display is only visible if the time zoom factor is big enough to permit display of all frames. This typically requires rather heavy zoom in to the scenery.

The filmstrip display can be activated or deactivated with the option `Setup>Reel>Strip Display`.

Note: Filmstrip display can slow down reel operations. If many clips are visible at the same time, display can be a demanding task, as each image of the clip must be read, scaled and displayed.

3.1.9 Automatic Clip Creation from Sequential Images

Jaleo 2.1 could create clips from single frames dropped onto the reel. Jaleo 2.5 can do the same for sequential images as well.

- When dropping a single image file over the reel, Jaleo searches in the file's directory for other consecutively numbered files. If it finds any, it will present you with a dialogue box, giving you the choice to create a clip from all the frames in a sequence, or just the single frame you dropped. If it finds no more images, you can just proceed to create a clip from the single image or cancel the operation.

An Example: If you drop an image called `hello0023.rgb` to the reel, Jaleo will check if there are other numbered images called `hello`. Let's assume there are images `hello0000.rgb` to `hello0100.rgb`. Jaleo will now offer you to create a clip including the 101 images from 0 to 100, or a clip just containing the image you dropped, `hello0023.rgb`. If there are no other consecutively numbered images aside of the one you dropped, you only have the choice to make a clip out of this single image.

- If you drop multiple image files on the reel, Jaleo offers you to create a clip from these dropped images. The order of the image will resemble the selection order you used in the SGI file manager window where you selected the files ready to drop.

Again an example: Assume you drop the files `a002.rgb`, `cosa12.rgb` and `a007.rgb`. You selected these files in this order in the file manager. The clip you can produce now will contain these three images in exactly this order.

For the storage location of the images of the newly created clip, you have all the options you have with the newly designed Render Selection dialogue. That is, you can have the

images stored on either a file system in any format, or on a raw disk partition. See Group Render -> Render Selection, on page 13, for more information.

Note: The file name extension may have some trouble with base names that end with a number if the numbering is without leading zeroes.

3.2 Audio

The audio playback from the Jaleo Reel now is done using an independent audio server process. This allows to process audio and images in parallel, improving audio stability and number of tracks to be handled simultaneously without dropouts. The audio process might even run on a separate machine, although no explicit administration support is currently given for this.

With the new audio capture features built into the RtVideo applications (see below) for Composite and Impact (Plus will follow later), Jaleo clips can now contain audio. Audio tracks contained in clip files can be extracted to separate audio clips, and audio clips and image clips can be combined.

For composite clips, the audio information is stored in a separate AIFF file, located in the .SOUNDSRC directory in the current project. Both RtVideo and rendering from the Jaleo reel are capable to create appropriate clip files.

3.2.1 Playback Stability

The operation of the Skip Frame playback mode (Setup>Shuttle>Skip Frame) has been modified. In the new version, playback of audio keeps constant when frames are dropped, at least while the frame rate actually achieved by the image rendering is somewhat larger than 5 frames per second. That way, even sections with effects can be played back with a proper preview “feeling” as audio timing will not be compromised.

If SkipFrame is deactivated, all frames will be shown, and accordingly, the audio playback will be affected if the image rate can not be met.

3.2.2 Audio Commands

Jaleo 2.5 now supports reel clip objects that contain both audio and video. Those clips might be created by the RtVideo application on Composite or Jaleo for Impact, or they may be the product of rendering. The audio information is stored in a separate audio file, located in the .SOUNDSRC directory of the current project. Combination clips can be identified by the second light blue bar the show towards the bottom end, denoting the presence of audio information.

- The audio information can be extracted into a separate audio clip by using the menu option Clip>Audio>Break. It can only be applied to a combination clip of audio and video, and results in two independent clips, one with video only and the other one with audio only.
- Also, if you have a video and audio clip with the same length, you can use the Clip>Audio>Combine command to combine the two into a single clip. This allows you to comfortably move and trim both together. You must have two clips of identical length selected, or the command can not be applied.

Audio Timecurves

Combination Clips with Audio have the typical timecurves of Audio clips in the TimeEditor, that is a volume and panorama control.

3.2.3 Crossfades and Fades

Audio clips placed directly after each other now do automatic crossfades to eliminate clicks.

Volume fades with the time editor curves now sound smoothly, without “staircase effects”

3.2.4 Audio Memory Use

Also, Audio files are not loaded into memory any more, but they are played back from disk. This relieves the considerable memory strain that results from loading larger audio files into memory completely for playback.

3.2.5 Audio Sample Rates

All audio sample rates supported by the machine hardware are supported by Jaleo. However, you can not mix audio clips of different sample rates in a single reel. The current sample rate is preset in the `.jaleorc` file; the system will refuse to load audio of any other sample rate.

To set the audio sample rate, use the keyword `SOUND_SAMPLE_RATE` in `.jaleorc`. Possible values are:

8000, 11025, 16000, 22050, 32000, 44100, 48000, referring to the respective sample rates given as samples per second.

After changing the sample rate in `.jaleorc`, you must stop the sound server (described below) before you run Jaleo again. The Jaleo toolchest provides a command for this. Alternatively, other possible commands are described below

3.2.6 Sound Server

All sound playback is now handled by a separate program, the Jaleo sound server (`js_svc` in the `JALEO-ENV/bin` directory). The sound server normally is run on the same machine as Jaleo. When Jaleo is started up, it will search for the sound server. In case it is not running, a warning is displayed, permitting you to start the sound server by confirming with the OK button. If you cancel, Jaleo will run without sound support.

The sound server is not visible to the user aside of this question box.

If you do not want the sound server to run, you can disable the server by placing the keyword `SOUND_SERVER_HOST` in the `.jaleorc` setup file, with a value set to `NONE`. This will disable all sound operation.

By default, Jaleo tries to contact a sound server running on the same machine as it is running on itself. Normally, you will not want another setup.

If for any reason you wish to run the sound server on a different machine, set the keyword `SOUND_SERVER_HOST` in the `.jaleorc` setup file to the hostname where you want to run the sound server. Note that Jaleo currently can not start-up the server on a different host automatically – you have to make sure yourself that the program `js_svc` is running on the remote machine, and that the machine can be reached over the network. Also, you must make sure that the sound server has access to the audio files, which in turn means that they have to be located either on a network server or locally to the sound server machine. The access path to the files must be identical on the machine running Jaleo and on the remote machine. That means that the Jaleo Work directory must be setup the same way; also, the `JALEO-ENV` directory with all its subdirectories must be present on the machine that runs the sound server. Ideally, you have a complete Jaleo installation on the sound server machine.

A remote sound server setup is an advanced topic beyond the scope of these release notes. We do currently not actively support remote setup, although for an experienced UNIX administrator it should be not too hard to achieve.

To communicate with the sound server, the communication port 1623 has been reserved for the `jaleosnd` service by the Internet authorities. In case you see the sound server running (you can use the `ps -e` command to find out if it currently runs) but you get failing communications, make sure no other application is using this port. One place to check is your `/etc/services` file.

Stopping the Sound Server

If you wish to stop the sound server for any reason, you can do this the standard UNIX ways:

- As root, type `killall js_svc`

- Alternatively, type the command
`ps -e | fgrep js_svc`
 As a result you will get a line like
`1613 ? 0:00 js_svc`
 The number in the first column is the process id. You can then type
`kill -9 <process_id>`

3.3 Group Render -> Render Selection

The Group Render mechanism has been extended. You can now render any selection, be it a group, an effect or a clip. Also, by using the Edit Marks, you can render any section of the selection. To do so, activate the Edit Marks and place them over the section of the reel content you wish to render before you select the Render Selection function. That is, with the edit marks active the Render Selection function will always render the area between the Edit in and out marks, regardless of the selection state.

Render Selection permits you to choose if you wish to

- Render Video, with the additional options of field render and mask render
- and/or Render Audio. If you render to a movie file, you can have the audio additionally included in the movie file. However, the clip generated is still using a separate audio file. Including audio in a movie file is only useful for export purposes; Jaleo itself never uses the embedded audio. See Audio, on page 10, for more information.

Render Selection now also permits you to do many of the things you prior could only do in the IO. You can select output options, permitting you to determine the target file format and disk for the render:

- You can select Disk files in any of the Jaleo supported file formats
- You can select Movie files in the Jaleo supported movie formats
- You can select Raw disk storage

Note that not all formats support alpha channels. For movie files and YUV raw disk storage, no alpha channels are supported.

Finally, you can decide in which mode you wish to render.

- The “Render Now (Foreground)” mode works like the prior Render Group mode. It renders immediately, showing you a progress indicator and a cancel button. The render result is placed in the reel automatically on top of selection.

- The “Render Now (Background)” starts a background render. A progress indicator is shown, but the result is not automatically placed in the reel. However, if your machine has enough performance, you can continue to work while the render is executed.
- The “Write Render Script” option creates a render file to be rendered with the IO. Also, it is now possible to start Jaleo in “render only” mode from the command line, without a user interface. This permits to write render shell scripts if so desired.

Before starting the render, Jaleo will perform a check on available disk space. For file system renders (that is, to a normal sequence of disk files), the system does a worst-case check; as most file formats are compressed, actual disk space usage may be lower. You may thus override the warning Jaleo gives you, but the render is not guaranteed to succeed.

3.3.1 Render Dialogue

The Render dialogue that comes up with Render is the same now as the one for Render Selection. You can now use the Edit Marks to delimit the section to be rendered before you call Render. The special Render Marks do not exist any more. Also, Render has now all the features of Render Selection.

3.3.2 Command Line Interface

- Jaleo now supports a new command line option that permits to run the software in render mode, without user interface. This is particularly useful to execute Jaleo renders from a shell script. Render files must have been created with the Clip>Render Selection or Tools>Render dialogues.

The syntax to run Jaleo in render mode is:

```
jaleo -r <render file>
```

where <render file> must be replaced with the name of the render file created in Jaleo. Note that all render files are searched in the current project.

- Another command line option permits to run a second Jaleo as an independent process. Normally, when you start Jaleo while a copy already is running (it does not matter if you start Jaleo again by using the Toolchest, the desktop icon or a shell), the newly run Jaleo will check if there is a copy running already. If it finds one, it simply tells this existing copy to open a second window and terminates itself, saving system resources and startup time. If, for any reason, you wish to run a second reel window in a separate window, please use the option -a. Type

```
jaleo -a
```

in a shell window.

- Finally, you can extract the Jaleo version number and build date by using the option
- ```
jaleo -v
```

## 3.4 New Monitor Features

The monitor window now supports image zoom and other useful functions.

### 3.4.1 Monitor Zoom

Using the Zoom menu in the monitor popup, you can now zoom the monitor. If the monitor is zoomed up, you can use scrollbars to position the visible area.

With the zoom menu, you can zoom up the window and the image it contains independently. Also, there are preset functions to return the monitor to default sizes.

### 3.4.2 View Image and Key in the Monitor simultaneously

In ShowKey mode, the monitor now can display Alpha and image at the same time. After switching to Show Key mode, you can divide the monitor with a drag with the left mouse button to partly show image and partly show key

### 3.4.3 Monitor Dynamic Resolution

Aside of the high res and low res mode, the monitor now can operate in dynamic resolution mode. Here, full resolution is used whenever image material without processing is in the reel. Wherever there are effects, the system switches automatically and without a break in playback to preview mode. This is particularly useful for Jaleo Plus and the Impact release that sport realtime playback of full res material from a disk array.

### 3.4.4 Monitor to Video Short-cut: Fast Out

To move the monitor display to an external video monitor, you can use the short-cut command Fast Out in the Zoom menu. This will set the appropriate resolution for the monitor, activate the live video option and it will also get the monitor window out of the way. There is also an option to reverse this operation and to restore the monitor on screen.

### 3.4.5 Active Monitor

Any of the monitor windows can now be set to “Active”. The current monitor position can then be conveniently for some editing operations. See Fast Trimming of Long Sequences: Active Monitor / Split Tail, on page 7, for more information.

## 4. Tools Menu

### 4.1 Shuttle

The Shuttle window (Tools>Shuttle) has been extended to provide a framerate slider and a shuttle scrollbar.

The framerate slider allows to set the frame rate between 1 frame per second and 3 times the default framerate as defined in the Jaleo configuration file. Three buttons are also provided to directly select one time, two time or three time default speed.

The shuttle slider works like the shuttle wheel of a VTR. You can move it to the right or the left to temporarily accelerate playback in forward or backward direction. The shuttle will snap back to 0 if you let it go.

### 4.2 Window SetUp Manager

In the tool menu, there is a new utility: The setup manager. It permits to store and recall any number of Jaleo window setups. That is, once you have placed your Jaleo windows as desired, you can choose Add from the SetUp menu of the manager window. In a popup box, you can now enter a name for the setup. It will appear as a button in the setup manager window. By pressing the button at a later time, Jaleo will recreate your window setup. There is currently one limitation:

- For principal reasons, in Motif it is not possible to store the location of tear off menus, as those are handled transparently by the Motif – the application, in this case Jaleo, is not even aware of their existence.

Further functions of the setup manager permit you to store window setup sets to disk. Also, there are functions to delete or update obsolete or modified settings.

Note: By default, the SGI window manager brings up opened windows on screen as a red outline, ready to be positioned manually. This behaviour of course interferes with the setup manager's desire to position windows. The SGI desktop has an option to switch off the manual placement of windows; however, the default placement location is close to the upper left screen corner.

**To have the setup manager work properly, switch on Auto Window Placement for the SGI Desktop.** You can do so by opening the Window settings control panel from the

Toolchest menu (Toolchest: Desktop>Cutomize>Windows). Set the option “Auto WIn-dow Placement” to on.

## 4.3 Render Tool

As described above (see Group Render -> Render Selection, page 13), the render tool in its original form does not exist any more. The menu entry now calls up the same dialogue as Render Selection.

## 5. Time Editor

The time editor curve editing tools have been improved. Editing of parameters is now significantly faster than it was before. Also, there is a new colour chooser.

An overview of the changes:

- Curves can now also be selected by double clicking the curve
- Curve points can be added much faster
- Faster numeric edit
- The text fields at the right of the curve directory entries can now be used to enter values
- A number of new helpful keyboard functions are defined
- A new colour chooser window gives better control of colours, provides a colour store area and offers a full-screen colour pick. Please see New Colour Chooser, on page 27, for more information.

One hint: the Pick Colour option is particularly useful with functions like Key Colour or RGB Filter, Crop, Outline, etc, that are operating on a single colour value. The pick-list based keys still use the Pick Editor.

### 5.1 Curve Selection

A complete curve can now be selected by double clicking anywhere on the curve itself. In the previous version, curves could only be selected by double clicking on a point, or by selecting the curve name in the list box on the left. Both old methods are of course still available.

### 5.2 Adding Points

#### 5.2.1 Adding Points by Mouse

To add points to a curve using the mouse, the curve does not need to be selected any more. If you click anywhere on a curve with the Alt key held down, a new point will be

added. No prior selection is required any more, saving you the mouse trip to the curve directory area.

Of course, where multiple curves overlap so that picking on by mouse is difficult, you can still pre-select the curve desired as before.

### **5.2.2 Adding Points by Keyboard**

As before, the Insert key adds control points to all selected curves at the current cursor position. However, the points inserted are now normal smooth control points, that are generally less confusing and simple to manage than the ones with tangents. You can still get tangents by requesting them explicitly from the menu.

## **5.3 Keyboard Input of Values / Keyboard Navigation**

Numeric input into the time editor has greatly been improved.

### **5.3.1 Whenever a Single CP is selected...**

Whenever you have a single control point selected, with the mouse over the curve area you can just type a new value, without repositioning the mouse. The value will overwrite the current value as soon as you press either the space key or Enter (return) while holding the shift, control or alternate key. We apologize for not being able to offer the return key, as expected, for confirming a numeric entry, but SGI does not feel its necessary to pass the return key press event to the drawing area widget used for the time curves.

### **5.3.2 Inserting and Changing values by Editing the Value Fields**

Instead of entering values for a selected control point, you can also insert or change a control point by editing the value field right of the curve name in the curve directory. No selection of neither curve nor point is necessary - the value entered is applied to the current position of the time cursor in the time editor. If there is no control point at the current time, it is inserted. If one is there, its value is changed.

### **5.3.3 Changing Values with the Cursor Keys**

Curve values can now be edited using the up/down arrow keys. The keys are applied to the currently selected curve, or to the curve where at least one control point is selected. If nothing is selected, the up/down arrow keys do nothing.



The keys operate very similar to the edit of the value fields described above: If there is a control point at the position of the time cursor, its value is modified. If there is no control point, a new one is inserted.

The cursor keys increment or decrement the curve value at the time cursor as follows:

|          | Key Alone | with Shift | with Alt |
|----------|-----------|------------|----------|
| Up Key   | +1        | +10        | +0.1     |
| Down Key | -1        | -10        | -0.1     |

For boolean values, the up/down arrows just toggle between 0 and 1.

### 5.3.4 Keyboard Navigation

You can now move the time cursor around using menu commands or hot keys:

- Left/Right cursor keys while holding the Alt key: Move the time cursor one frame to the left/right
- Left/Right cursor while holding Control: Goto first/last frame
- Left/Right cursor key while holding Shift: Move to previous/next control point

### 5.3.5 Other Hotkeys

There are also hotkeys for flipping the selected curve etc. See the menus for the complete selection.

## 5.4 Other additions

- The time cursor can not be moved outside the effect range in time.
- AutoScroll is suppressed in situations where it obviously does not make sense.
- You can not any more add control points outside the legal y range of the current parameter.

# 6. RotoPaint

## 6.1 Background Layer

RotoPaint now supports a background layer. This layer can be used for reference purposes or as a source for paint through (Clone and Reveal brushes). The background layer can not be modified.

### 6.1.1 Loading a Background Layer

Use the option Open>BackClip from the file menu to load in a background clip. A normal file selector box will appear. The name and length of the background clip will appear in the paint windows title bar.

### 6.1.2 Using the Background as a Source

To use the background layer as a source for Clone and Reveal brushes, select the option menu right of the mix arrows on the bottom toolbar of the paint menu. By default, this popup menu shows the value FG. The alternative option is BG, which only can be selected after a background has been loaded. The background buffer is only used for the Reveal and Clone brushes.

### 6.1.3 Using the Background as a Reference

Operation of the Mix option in the bottom toolbar of the main window also depends on the way the FG/BG option menu is set. If foreground is selected, the mix option works exactly as before: You can choose any other frame of the current sequence as reference. If the background buffer is selected, the background buffer is shown for this purpose.

Note that the default offset between the reference image and the image to be painted is different in both cases: In foreground mode, by default the previous frame is used for reference, as typically desired for rotoscoping. If the background buffer is activated, by default the same frame is used.

## 6.2 New Brushes

### 6.2.1 Cutout and Custom Brush

The new version permits to use cutouts and custom brushes. Both are created the same way; the only difference is the way the cutout area is applied: If you choose Custom, the shape of the cutout is used just like a normal brush, that is monochrome with a colour specified in the colour chooser window. In Cutout mode, the brush is rendered with the colours of the original image, just as cut out.

To create a brush, you must delimit the canvas area you wish to use for the custom brush. This can either be done by painting in the mask, or by drawing a vector shape. Once there is either a selected closed vector shape on the canvas, or something is painted in the mask, you can use the buttons Mask, Shape or Shape Mask from the toolbox window to actually create the brush.

- The Mask button will take all pixels covered by non-zero mask values and interpret them as part of the custom brush.
- The Shape button will take all pixels under the selected shape and copy them to the new brush. The shape will be deleted automatically after the Shape button is pressed.
- The Shape/Mask button takes all pixels with non-zero mask values and copies them to the new brush, but only if they lie inside of the currently selected shape. The shape will be deleted automatically after the Shape/Mask button is pressed.

You will be prompted with a file selector box. Please enter or select a file name to store the cutout into.

The created cutout brushes are immediately useable for painting by choosing Cutout or Custom from the paint tool option menu.

There is a new window, accessible from the cutout menu, that contains graphical representations of all cutouts. Note that you can switch the display between image and mask channel.

By selecting Cutout from the brush type selector, you can paint with the cutout, using its original colours. The cutout will be scaled according to the brush size slider.

If you wish to create a normal coloured custom brush, using the colour from the colour selector, you should create an image with the brush profile and shape in the mask channel. Then use the Mask button from the toolbar to create the brush. If you now select Custom from the Brush palette, you can draw with the new shape.

Note: If you save shapes created with cutout or custom brushes, the stored shape file contains references to the brush files you created when cutting out the shape. You must keep

these shape files, or the shape file will be reproduced incorrectly (if the original shape file can not be found, a default brush will be substituted).

There is a new menu to deal with cutouts:

- Mask, Shape, Shape/Mask  
This entry is a duplication of the cutout creation functions described above.
- Cutout List  
Opens a window showing a list of cutouts available.
- Load, Load All  
Load a single cutout or a collection of cutouts from disk.
- Unload, Unload All  
Removes the selected cutout, or all cutouts from the list window, but leaves the cutout files on disk intact.
- Delete, Delete All  
Deletes the selected cutout or all cutouts from the list *and* deletes the cutout file *permanently* from the disk.
- Show Mask  
Show the cutout mask instead of the cutout image in the list.

### 6.2.2 Distort Brush

The Distort brush basically does the same as the distort effect in the Reel - it permits you to apply a distortion in x and y with a brush. Just like the distort effect in the reel, large distortions create optical-like effects on the image. To create warp-like effects, be careful and use successive small distortions, with smaller brush radii.

## 6.3 Shadow Attributes for Strokes & Shapes

Strokes and Shapes now can have shadows. These are activated with a toggle at the bottom of the attributes box. Shadows have the following attributes:

- Offset in x and y
- Colour
- Transparency

To edit shadow parameters, click the button aside of the shadow toggle in the attributes window.

Shadow parameters are fully animatable using the time editor.

Shadows can also be created as an independent object. Just create a shape and press the shadow button in the Attribute window. A new shape will be created that has the same shape as the currently selected shape, but the position, colour and transparency as determined by the shadow attributes.

## 6.4 Animation

RotoPaint now supports full animation of shapes and strokes. For this purpose, a new menu (“Animate”) has been introduced.

Note: For many effects that typically are applied to the whole image, like converting an image into impressionistic paintings etc., have a look at the new AutoPaint effect in FX>ImageEffects>AutoPaint.

With RotoPaint animation you can:

- animate a shape or stroke moving as a whole entity over the screen and
- animate the paint process of a shape or stroke. That is, you can animate some brush attributes, like size, transparency and colour, as well as the part of the vector outline that is drawn in each frame.

### 6.4.1 Keyframes

To animate a shape or stroke, first create the shape or stroke with the shape tools or the paint brush. You can do this on any frame. While the object is selected (it must be selected *completely*), pick the Add Keyframe option from the animation menu. Once a keyframe is set, the vector outline appears in yellow. Note that you can only set keyframes if the whole shape is selected, unless the option AutoFix All is active.

Move to any other frame, change the shape by moving or deforming it (you can NOT add new control points to an animated shape or stroke) and fix another keyframe. Deletion of control points from a shape or stroke is possible, but the respective control point will be deleted from the object for *all* frames, not just the one selected.

By activating the Preview Animation option in the Animation menu, it is possible to see the motion of the animated shapes when moving the Current Frame slider under the image area. Once an image has been rendered, the preview will also show the rendered shape. Rendering may either be initiated manually or it will be performed automatically after you have moved to a particular frame. See the Animate>AutoRender option described later.

A list of all keyframes set can be seen by opening the Keyframe List Window. You can also delete selected keyframes in the keyframe window.

If a shape has a keyframe set in the current frame its outline is set in yellow. You can delete keyframes by moving to the frame where the keyframe was defined (by watching for the yellow outline in the preview) and selecting the Delete Keyframe option.

Once you are satisfied with the animation preview, you can render the frames. As with all other paint actions, the render result is written to the temporary storage. You must save the results to the original clip or to a new clip if you want to maintain the result.

There also is a “partial render” menu option, permitting you to render only a subrange of frames. A dialogue will prompt you for the start and end frame of the area to render.

### 6.4.2 Render Animation

Further control over the animation is achieved by opening the time editor from the Animation menu. This instance of the time editor gives animation parameters for each animated shape that determine how the shape or stroke is painted over time:

- Animation
  - Start
  - Length

These two parameters determine which part of the stroke or shape will be rendered in each frame. The values are in percent of the total curve length of the vector outline. the start value determines the distance of the first point that is rendered, the length value says how much of the curve is rendered.

*The start and length parameters do not have any effect if the selected shape is closed (i.e. the Close attribute in the attributes box is highlighted).*

Some examples:

- Keep Start constant at 0, and animate Len from 0 to 100: Your stroke will be painted over time, at the first frame almost nothing, and each frame a little bit more. In the final animation you will see the shape drawn out over time.
- Animate Start from 0 to 90, and keep Len on a static value of for example 10. This will move a painted piece of about 10% of the shapes length along the shape curve. Useful for special effects, like moving highlights etc.
- Brush
  - Size
  - Opacity
  - Mask Level

The remaining brush attributes are set as usual (for non-animated shapes) in the Attributes window.

- Colour
  - RGB. The colour is only used if the paint mode is Paint, Tint or Custom. Other brushes either modify the colours found in the image (Blur, Darken, Brighten, Distort, etc.) or have their own colour information (Cutout).
- Shadow Attributes
  - Offset in x and y
  - Shadow colour
  - Transparency

### 6.4.3 Adding Frames to a Sequence

In the file menu, new options have been added to add single frames or a number of frames to the current sequence. Especially when starting from scratch with a paint animation, this is handy to create appropriate space for new images.

### 6.4.4 Animation Options

There are four setup options important for paint animation:

- AutoFix All. Normally, Add Keyframe only fixes a keyframe if one or more shape is selected completely. If not, the Add Keyframe command is greyed out. By activating the AutoFix All option, keyframes are fixed for each object currently on the screen, if it is selected or not.
- AutoZero Mask (Setup Menu). This option helps if travelling mattes are to be created using the paint animation. A clip loaded from Jaleo without a mask appears with an opaque mask in the paint. If a travelling matte is to be created, one would prefer to start with a fully transparent matte. This option, when activated, forces the matte of each frame to fully transparent whenever it is loaded into the system the first time (that is, NOT when a frame has been manipulated already). Now you can quickly either paint directly into the mask or create an animated shape to make a complex mask following a foreground object in your image.
- Auto Render. When you change the current frame with the frame slider or the arrow button, this option decides if the newly selected frame will automatically be rendered or if you will only see the wireframe shapes. If this option is off, preview and frame changes are more rapid.
- Show Path. Shows you the animation path of a shape. You can select different animation interpolation for your animation by choosing “linear” or “spline” from the “Interpolation Type” submenu.

## 6.5 Others

### 6.5.1 Shape Menu

The shape functions are now also found in a menu; the main reason for that is the possibility to have keyboard shortcuts for changing the tool. See the menu for the applicable shortcuts.

### 6.5.2 New Colour Chooser

A new colour chooser is provided in RotoPaint and the Time Editor. It sports a colour wheel, colour sliders for RGB and HSV, and a colour store area that you can use to put store a number of colours. The different control areas can be shown or hidden independently.

#### Pick Colour

The colour chooser now has a Pick Colour button, permitting you to get any screen colour in the selection field. After pressing the Pick Colour button, the colour under the cursor whenever you press the mouse button the next time is chosen as the current colour. The colour pick is not restricted to Jaleo windows; you can click on the whole workstation screen, wherever you like, in- or outside of Jaleo windows.

#### Colour Store

The Colour Store is a grid of storage bins for colours. By default, it contains a set of primary colours and a large number of free storage cells.

To put the current colour into a free cell, just click on the cell. To edit the content of a cell, double click on it and adjust the colours with the controls. When you are done with adjusting colours for the cell, click again to stop changing the cell colour, or double click on another one.

#### WYSIWYG Mode

Furthermore, the colour chooser has a “what-you-see-is-what-you-get” mode, applicable to the RGB and HSV slider modes. In WYSIWYG mode, the sliders do not show gradients of primary colours (RGB) or the colour rainbow and saturation/luminance gradients (HSV), but the colour you will get if you move the respective slider to that position. That is, you can see without moving a slider which colour you will get as a result if you would move one.

#### Foreground, Background, Shadow Colour

Also the colour chooser can be used now to set independent foreground, background and shadow colours (RotoPaint only). On top of the colour chooser window you can find three fields representing the current background, foreground and shadow colour. The



colour chooser controls adjust the selected colour, by default the foreground colour. To adjust another one, just click on the display field.

### 6.5.3 Grid Setup moved to Set Options

The setup for the grid has been moved to a different menu entry – it is now called Set Options. As before, grid size can be specified in two text boxes for x and y. Grid offset, before also controlled using text fields, is now controlled by sliders, allowing you to interactively adjust the grid by dragging the sliders.

### 6.5.4 Mask Display Transparency

In the option setup dialogue box, there is also an additional slider to set the mask display transparency. In the previous version, the mask display, if activated, always was fully opaque, resulting in the inability to see the actual scene and the mask together. Mask editing therefore was sometimes a bit difficult. As a consequence, now the mask display transparency can be adjusted. Note that this does NOT change the values in the mask – it does only change the way values are shown on screen.

### 6.5.5 Setup Options

- Edit>Auto Select. The auto select function makes sure that a shape is selected when you switch to the selection/edit tool after creating it. Without automatic selection, everything is deselected after shape creation.
- Setup>Auto Zero Mask. This option helps if travelling mattes are to be created using the paint animation. A clip loaded from Jaleo without a mask appears with an opaque mask in the paint. If a travelling matte is to be created, one would prefer to start with a fully transparent matte. This option, when activated, forces the matte of each frame to fully transparent whenever it is loaded into the system the first time (that is, NOT when a frame has been manipulated already). Now you can quickly either paint directly into the mask or create an animated shape to make a complex mask following a foreground object in your image.
- File>Save Type. Allows you to select a mode for mask saving. First of all, you can choose if you want to save your images with or without mask. If mask saving is enabled, you can save an image with the mask as is, with the mask “as is” but inverted, or with the mask forced to opaque.
- Setup>Shadow In Back. Allows you to set the mode for shadow drawing. By default, shadows are drawn just immediately before their associated master object is drawn. If the Shadow In Back option is selected, all shadows are drawn first on the background, then master objects are drawn in the proper order.

- `PAINT_TMP_DIR` in the `.jaleorc` setup file. You can now determine in which directory RotoPaint stores its temporary files. Please see the release notes for more information.

### **6.5.6 Hotkeys**

There is a large number of new hotkeys in Rotopaint. All hotkeys can be found in the menus.

## 7. New and Changed Effects

The FX menu has been reorganized a bit. Image Process effects now have two subsections. There is also a new menu for PlugIn effects (see PlugIn Effects, on page 60, for more information).

The following pages describe the changes and additions to the effect menu in a format similar to the original Jaleo 2.1 documentation. Some effects, as those driven by the new Motion Tracking interface, are described in a separate format more appropriate for their function.

The effects are listed in alphabetical order, with the exception of Motion Tracking and a general introduction to PlugIn effects, which both have been added at the end.

## 7.1 3D-DVE Extensions

### Extensions to the 3D DVE

The 3D DVE now supports global deformations of images to spherical, cylindrical or torodial shapes. Also, highlights and some new parameters for displacement map control have been added.

Quality of the 3D DVE has been improved. Where a 3D DVE scales down the image, by whatever transformation, the appearance of flicker has been strongly reduced.

See the original reference page in the manual for more information

### Menu Location

- DVE>DVE 3D

### Input

See original reference page

### Output

See original reference page

### Lights

It is now possible to have more than one directional light. A light can be added by choosing the Add Light button from the Track menu of the Time Editor.

Light direction can be edited in either the timecurve view or the 3D View. A light manipulator appears in the 3D View when you click on the directory button of the respective light track. The manipulator is an arrow symbol inside a trackball. The light source, as before, can not be moved; it is a pure directional light – only the direction it shines in matters.

### Parameters

This page does only describe NEW parameters in version 2.5

- Displacement Control
  - Enable: To activate displacement mapping based on the next input layer to the effect
  - Subdivision: Level of polygonal subdivision. Between 1 and 6. The higher the subdivision, the better the quality of displacement mapping and deformation effects (see below for the latter). However, more polygons also mean higher processing times. Therefore, keep the polygonal subdivision as low as possible to achieve the desired effect. In particular, with displacement images that do not contain frequencies too high, or if only slight displacement/deformation is desired, typically it is not necessary to raise the subdivision level too much. You should raise the level step by step,

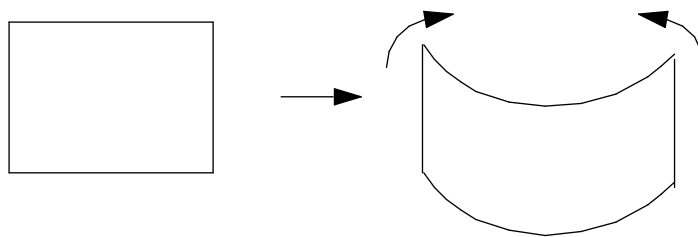
trying a full size render with each setting, until the quality is sufficient. In the preview resolution, the view is not always absolutely representative, as high frequencies are lost by principle.

- **BlurR:** A blur to prevent banding effects due to insufficient luma resolution of the displacement source channel. As displacement values are taken from the luminance of the driving input layer, there are only 256 levels of displacement available. This may give a strongly displaced object a “banded” appearance, that can be prevented by raising this blur parameter slightly. Typical values are below 1, rarely above.
- **Zero:** The luminance level of the displacement source image that will result in a zero displacement. Every value above will create positive displacement, values below a negative one.
- **Ampl:** The displacement amplitude.
- **Highlights**
  - **Inten:** Highlight strength. Note: If the highlight parameter on a flat image is raised over the default, the luminance of the image before and after the 3D DVE may not be identical any more. The same applies, of course, if any of the lighting parameters are modified.
  - **Sharp:** The size and focus of the highlights.
- **Deform:**

The deformation controls permit to apply a global deformation to the image in the 3D DVE. While displacement mapping transforms the smooth image into a “crumpled”, rough surface of some sort, the deformations manipulate the basic geometry. DVE shape deformation allows to create cylinders in both axis directions, toruses, spheres, or cubes. All shapes can be build in a completely rounded or a rather “squar-ish” fashion.

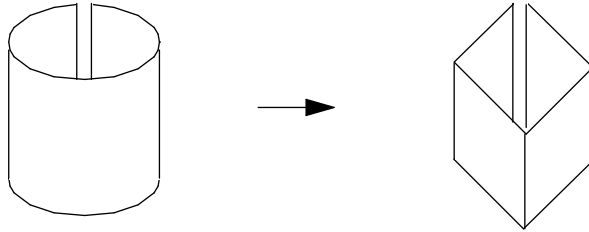
See the table at the end of this manual page for some particular shapes you can get.

  - **CilAng:** Angle of deformation towards a cylinder (in percent of 360 degree). This



parameter creates a cylinder deformation along the y axis. The transformation axis, normally in the center of the image, moves in the direction of the deformation. That is, if the cylinder was complete, it would be in the middle of the cylinder. basically, the transformation center goes with the center of gravity of the deformed object, without taking displacements into account.

- **CylQuad**: Amount of “squareness” for the cylinder deformation. Changes the round cylinder gradually in a more squarish one.



- **TorAng**: Angle of torus deformation (in percent). This parameter has a slightly more complex function than the cylinder deformation. If you use it alone, leaving all other parameters exactly at their default values, the effect is very similar to the CylAng parameter – the image deforms into a cylinder, but on the x axis.  
If you use the torus angle together with the Cylinder angle, you can deform the image in both axis at the same time. If you do this with small values, you get a TV-screen like deformation. If you do it more excessively, the image will transform towards a sphere. You also need to adjust the Torus Radius for this. See TorRad, below, for more information.
- **TorQuad**: Amount of “squareness” for the torus deformation. Works just like the CylQuad parameter described above.
- **TorRad**: Torus radius. By adjusting this value, you can create proper torus and sphere shaped objects. See the table below for useful examples.

## Comments

There are some useful deformation parameter values for particular results:

|         | <b>Sphere</b> | <b>Cylinder</b> | <b>Cube</b> | <b>Torus</b> |
|---------|---------------|-----------------|-------------|--------------|
| CylAng  | 100           | 100             | 100         | 100          |
| CylQuad | 0             | 0               | 100         | 0            |
| TorAng  | 50            | 50              | 50          | 100          |
| TorQuad | 0             | 100             | 100         | 0            |
| TorRad  | 31            | 31              | 31          | 50           |

By animating the parameters, you can easily “morph” between different shapes.

## See Also

3DDVE in the version 2.1 user manual

## 7.2 AutoPaint

The AutoPaint effect lets you give “paint-like” effects to an image. The image will look as if created with brush strokes. As AutoPaint has a wide range of parameters, a whole range of other effects is also possible. Additional input images can be used to define brush shape, brush direction and background.

### Description

Paints over an image automatically to create “as-if-painted” or similar effects. By giving “wilder” parameters, it can also be used for a wide range of special effects.

### Menu Location

- FX>ImageEffects>AutoPaint

### Input

Autopaint requires at least three inputs.

- Background Image (in case you just wish to give a paint look to the foreground image, you will typically want to use the same or a very similar image for the background as for the foreground). A mask channel will be ignored.
- Foreground Image. If the input image has a mask, it is ignored.
- Brush Shape. This is typically a black and white image containing the shape of the key (the image will be scaled down by the effect automatically). A good candidate is for example a softedged Circle pattern (see below). A mask channel will be ignored.  
Note: The image used for the brush shape should fill the image area as much as good as possible. A small white spot, for example, somewhere lost on a black background will make a very inefficient brush. Try to have it zoomed up to fill the monitor if possible by any means.

Optionally, a fourth input can be given:

- Brush Angle. The direction of the brushing is controlled by the luminance of the image. A mask channel will be ignored.

### Output

- Image
- Mask: An empty mask

## Parameters

- **Density.** The density of the automatic brush strokes. A value of 100 will, with most brush sizes, give brush strokes with quite some space inbetween. In the space between brush strokes, the background will shine through. This is the reason why you typically use the same or a very similar background in case you wish to get a paint-like look.
- **Size X/Y:** The brush size in X and Y in percent of the image size in X.
- **Angle:** The brush default angle. If an image is used to modify brush angle (a forth input layer), it will modify this value (that is, the brush will not be modified from 0 but from the angle given here)
- **RandKey:** The random seed generator for the AutoPaint. To have different results, use different values.

## Comments

To try out the AutoPaint effect, use a setting like this:

- Foreground and Background the same image. Brush Shape a circle pattern with quite some softness added. Set Size X to 3, Size Y to 2. Set Density to 100.
- Try to animate brush direction with a fourth image. Use a noise with RadX and Y somewhere between 1 and 3 maybe. You can see brush direction changes much better if you adjust AutoPaint's SizeX/Y to produce "stretched" strokes, for example by making Size X or Y much larger than its companion.
- Use different sizes and densities.
- Try to use a different background, or just offset the foreground a bit by shifting it a frame or two.

## See Also

Circle Pattern



## 7.3 Blur Extensions

For all blur effects, there are now additional new versions with exactly the same parameters. The old versions have been renamed to Blur Box, while the new version is called Blur Gauss.

While the old version was a somewhat limited gaussian blur, now there is the choice between a strongly improved “true” gaussian blur and a fast box blur. The improvement of the new gaussian blur is particularly noticeable with large filter radii. For noise reduction and other tasks that require very small filter radii, the box filter is often sufficient, while the Gauss filter is of much better quality wherever clearly “visible” effects are desired.

## 7.4 Circular Wipe / Circle Pattern

### Description

Produces a true circular wipe with softness and optional multiple circle sources. If used without inputs, produces black and white circle images.

This effect is analogous to the Wipe Library patterns made of stripe generators versus the Stripe utility effect in the FX menu. The only difference is that circle patterns are used instead of the stripes.

If the effect is created from the Wipe Library menu (DVE>Wipes>WipeLibrary), it is automatically setup to create a transition between two input layers. Use it with two inputs in this case, just like a dissolve or any other wipe. If created from the FX menu (FX>Utilities>Circle Patterns), it is set up to be static by default. Typically it will then be used as an image generator, that is without inputs.

### Menu Location

- DVE>Wipes>WipeLibrary
- FX>Utilities>Circle Patterns

### Input

If two inputs are present, a wipe transition according to the circular pattern will be performed, very similar to all other wipes based on the pattern generator. Without inputs, the effect creates a black and white image of the circle pattern.

- Image only

### Output

- Image
- Mask: An empty mask

### Parameters

Circle Pattern supports as many tracks as desired. Each track represents a single circle with the following parameters:

- Rad: The circle radius in percent of the image x size.
- Soft: The degree of softness of the circle.
- CentX/Y: The position of the circle.

## **Comments**

Circle patterns can be used nicely with Bump or Distort, or with AutoPaint, to create air-brush like brushes (by using the independent x and y sizing of brushes in AutoPaint, elliptical brushes can be created.

## **See Also**

Wipe Pattern in the Jaleo 2.1 documentation

## 7.5 Colour Correction (additional PlugIn version)

### Description

A new colour correction that permits to directly manipulate seven colour vectors.

### Menu Location

The colour correction effect has been implemented as a PlugIn. It can be accessed in either of two ways:

- Use the PlugIn menu: FX>PlugIn>SixVecB
- Use drag&drop with the file `SixVecB.fx` from `JALEO-ENV/lib`.

### Input

- The target image
  - Image and optionally Mask. This is the image to be corrected.

### Output

- Image
- Mask

### Parameters

For each of the colour vectors that can be corrected, a set of RGB colour parameters:

- Red
- Green
- Blue
- Cyan
- Magenta
- Yellow
- White

Best use the Colour Editor window to adjust any of the colour bands. Note: Colour values in the colour corrector may be over-saturated, that is, they may have values larger than 100. This can not be achieved with the colour choose; here you would have to use the Time Curve editor.

### Comments

The colour corrector works as follows: If you change the colour values for any of the available colour bands, all colours in the image that have a colour close to the colour if the respective band will be transformed to the colour you set up.

For example, you have an image with a red dress that you wish to change to blue. As the colour to be changed is distinctively reddish, you would select the Red vector in the colour corrector (directory Red). Using the colour wheel of the time editor, you would now be able to replace all red tones in the image with the colour you create in the colour wheel (or using the time curves, for this matter). Obviously, the correction works best if the colour to be changed is at least reasonably separated from the other colours in the image.

Basically, the colour corrector gives you six basic colour bands plus white that you can transform into any other colour. Of course you can also edit combination of the colour bands.

The best way to adjust colour parameters is to use the colour editor view from the Time Editor.

### **See Also**

RGB Transform, RGB Correct in the Jaleo 2.1 documentation

## 7.6 Combination Key Blue/Green

### Description

A new key function that combines key extraction and spill colour suppression/correction in a single handy key. The inputs work just like with the FastKey: If used with a single input, the key extraction is purely algorithmic; if a second input is used, a colour difference key is built. Use a clean background shot as a second input.

You can adjust the standard key parameters clip and gain using the Histogram window in the Pick Editor.

### Menu Location

The colour correction effect has been implemented as a PlugIn. It can be accessed in either of two ways:

- Use the PlugIn menu: FX>PlugIn>CombKeyB or CombKeyG
- Use drag&drop with the file CombKeyB.fx or CombKeyG from JALEO-ENV/lib.

### Input

- The target image
  - Image only. The key will be extracted from this input
- Optionally, a clean background shot, that is, the blue/greenscreen without foreground.
  - Image only. If this image is present, a colour differencing technique is used to improve the key; however, a clean background shot must be available or it must be built with Background Build

### Output

- Image
- Mask

### Extraction Parameters

- Clip/Gain: The standard Clip and Gain parameters that can be found in all Jaleo Key effects. Clip and gain can be adjusted with the Histogram from the Pick Editor; this actually makes most sense.
- BlurX/Y: After extracting a mask, these parameters allow to blur the raw mask before the Clip and Gain correction is applied. This helps to remove noise from the mask. Small values should be used. In exception from normal Jaleo Blur parameters, here only steps in integer values make sense, denoting the size of the blur box in pixels. This will be adapted in a future version of the PlugIn.

## Correction Parameters

- **Pass>R / Pass>G (Pass>B):** Similar to the Suppress Blue effect provided in the Key menu, the Combination Key performs a colour suppression by desaturating blue (green) pixels. That is, for distinctively blue (green) pixels, the blue (green) value is lowered to make these pixels more greyish, thus much less visible. The colour suppression is controlled by two parameters, each of which controls the amount of suppression applied to pixels with considerable amounts of the other primary colours. For the blue key, those are red and green, while for the green key those are red and blue. Basically, the parameters determine the angle of the wedge around blue on the colour wheel. The default value of -50 should be suitable for most purposes. The higher the value, the smaller the angle of the suppression, that is, the more the suppression only affect pure blue pixels.
- **Red/Green/Blue:** By default pixels are desaturated by the colour suppression, that is their blueish/greenish shade is transformed towards grey. Unfortunately, in some cases this causes problems, for example with a blond girl on a blue background. The composited result will show her hair quite greyish, what probably is not desired. In this case, one would raise the red channel in the colour correction to counter the greying effect.  
In general, the colour correction allows to make up for undesired colour loss due to the blue/green suppression. Typically, it will be easiest to use the colour chooser window from the Time Editor to change colours. Of course, you can also use the time curve controls.
- **Lum:** Changes the luminance of the suppressed pixels.

## Comments

### See Also

- Introduction to keying,
- Fast Key Blue/Green,
- Suppress Blue,
- Colour Difference Key,
- Background Build

all from the Jaleo 2.1 documentation

- Colour Correction effect, in this guide

## 7.7 Composite

Images with mask, originally rendered on a black background (for example from 3D animation systems) sometimes produced blackish borders in a composite. This can now be effectively prevented.

The reason for that is that the animation system, when rendering, performed an antialiasing to black. Although after this process a softedged mask is available, the black background colour has already been blended into the edge colours of the effect, thus adding a permanent colour spill to the foreground objects. While not composited over a different background, this poses no problem, but in composition it is fatal. Some computer animation systems, such as ElectroGIG 3D-GO, thus offer the ability to not “pre-compose” the foreground objects with the background using the softedged mask. However, the great majority does so by default.

A new parameter (C-Black) in composite allows to suppress these black borders by correcting for the premultiplication with the mask. If the value is 0, the correction is disabled. A value of 1 enables the black border correction.



## 7.8 Distort

Distort has been modified in that now the mask is passed through, so that spectacular wipe effects can be created. Also, x and y distortion can now be taken from the luminance of two separate input channels. The first input layer is the image to be distorted, the second and third are used to determine distortion in x and y (dependent on image luminance). This is much more comfortable than the old mode that took x and y distortion from the R or G channel of a single input, respectively. The old mode, however, is still working if required.

The ZeroA and BandA parameters have been removed, as they would have prohibited to have the alpha survive for wipe effects.

Environments with old distort effect will still work correctly.

### Description

Distorts images according to additional input tracks.

### Menu Location

- FX>ImageEffects>Distort

### Input

- The target image
  - Image and optionally Mask. This is the image to be distorted
- One or two additional distortion input images. If one additional image is used, the effect operates like the old distort effect - that is, the distortion is determined by the red (x) and green (y) channel of the image.  
If two additional images are used, distortion uses the first one for distortion in x and the second one for distortion in y.

### Output

- Image
- Mask

### Parameters

As described in the reference manual, minus the ZeroA and BandA parameters.

### Comments

The new version of Distort is easier to use and more flexible, as it easily can be used to build wipes and other composite effects.

It is easier to use because x and y distortion can now be derived from the luminance information of two separate input channels instead from red and green channels of a single image.

It is more flexible because it passes through distorted masks, permitting to use it as a composition generator.

**See Also**

The original Distort function, as described in the Reference part of the Users manual

## 7.9 DVE2D

The 2D DVE has been improved for some extreme cases of strong zooms and movements on images with small bright areas. An example for such a case would be the image of stars on a nightly sky, swiftly moved or zoomed.

## 7.10 HotColor Detection and Correction

### Description

The HotColor detection effect finds pixels outside the legal PAL or NTSC colour range and applies a suitable correction, if so desired.

This effect is implemented as a PlugIn effect, and is provided as an example for PlugIn effects based on standard external code. The filter code itself comes from the book Graphics Gems II, and is copyrighted by Alan Plaeth and David Martindale.

### Menu Location

The hot colour detection effect has been implemented as a PlugIn. It can be accessed in either of two ways:

- Use the PlugIn menu: FX>PlugIn>HotCol or
- Use drag&drop with the file HotCol.fx from JALEO-ENV/lib.

### Input

- The image to be checked

### Output

- Image

### Parameters

The effect is controlled by three purely boolean parameters

- PalNtsc: Determines if PAL or NTSC colour space is used for detection or correction. Default is PAL (value 0). For NTSC switch to 1.
- FlgPrc: Determines if the colours outside the valid range are detected only, or if a correction is applied.
- SatLum: Determines if correction, if enabled by FlgPrc, is done via a correction of colour saturation or luminance.

### Comments

None.

### See Also

None.

## 7.11 Invert Key

### Description

Inverts the key information

### Menu Location

- Key>Utilities>InvertKey

### Input

- The image whose key is to be inverted. If the image has no mask, the result will be a black (transparent) key (remember that Jaleo adds a default key to images without key, that is a key that is entirely opaque. Inverting it means switching it to transparent, in effect making the image invisible in a composite). Thus, the effect does not make a lot of sense if the image has no mask.

### Output

- Image with inverted mask.

### Parameters

None.

### Comments

None.

### See Also

- Clear Key
- Show Key
- External Key

## 7.12 Key Colour

The behaviour of the Gain parameter of the Key Colour effect has been changed slightly. Now, negative values for the Gain value are allowed.

In some situations, a negative clip or gain value improves the ability to create a soft fade in or out for the processed material. This is particularly true if the Key Colour effect is used in a transition, that is, when it is used to force a static mask to a transition from black to white or vice versa. Basically, you use negative values in a situation as follows:

If you use the Key Colour effect to create a mask transition, for example from a static noise, you would lower the clip to a value like 20 and animate the Gain from 0 to 100. This will suppress almost all black in the first frame, and will force all pixels to black at the end. In many cases, the few left over black pixels for the transitions are acceptable, because the step from the frame before to the first transition frame is very small. Sometimes however, you do want to make sure that the first transition mask frame is absolutely black. You can achieve this by starting the Gain animation at the negative clip value, instead of at 0. If you had put the Clip to 20, you would animate Gain from -20 to 100 instead from 0 to 100. Values that are further into the negative domain than negative Clip do not make sense.

## 7.13 Lookup

The lookup effect changes colours of an image based on a scanline of another image, used as a lookup table. The line can be animated, providing interesting palette animation effects, especially if the images are created in the Paint.

### Description

Changes image colours according to a lookup table. The image is subdivided into 256 luminance levels and for each luminance level a colour is assigned from a lookup table. The lookup table actually is a scan line of a second input channel.

### Menu Location

- FX>Image Effects>Lookup

### Input

- The image to be modified
- The lookup image

### Output

- Image

### Parameters

- Line: The scanline of the lookup image that is to be used as a lookup table. You can create interesting effects by making the lookup image for example a colour grade and then animating this parameter.
- Cycle: The cycle parameter permits to produce colour cycling animations by shifting the lookup table scanline to the right (or left) and wrapping the colours around.

### Comments

Try to use painted backgrounds or gradients as a colour map.

### See Also

## 7.14 Outline

### Description

Creates a coloured outline around a mask.

The outline effect works by growing the existing mask of the input image as much as desired. The grown mask is then filled with the selected colour. Finally, the original image is composited on top of the grown coloured mask area, leaving a visible outline.

### Menu Location

- Key>Size>Outline

### Input

- Image with mask

### Output

- Image and mask

### Parameters

- RGB: Colour of the outline
- Rad: The size of the outline in percent of the image x size. With negative radii, the outline is drawn to the inside.

### Comments

None.

### See Also

Key>Size>Grow/Shrink in the Jaleo 2.1 reference documentation.



## 7.15 Solarization/Posterization

A new parameter, called Luma, has been added. This parameter permits to apply the Solarization or posterization based on the luminance of the image, instead of the RGB colour values. In many cases, the result looks much more natural.

## 7.16 Suppress Green/Blue

A new parameter allows to modify the behaviour of the colour suppression. To describe it for Suppress Blue: If you are using the colour suppression, the blue component of blueish pixels is reduced to the level of green and red.

This suppression of blue unfortunately changes the luminance of the blueish pixels modified. To prevent this, as necessary in some situations, a new parameter has been introduced. This parameter, named Bright, allows you to achieve the colour correction by lowering blue a bit, but raising red and green as well, in total providing a more luminance-neutral blue suppression.

The parameter is a float value, permitting to balance to which percentage the effect of blue suppression is achieved by lowering blue and to which percentage by raising red and green.

## 7.17 Swirl

The Swirl effect creates an animatable radial “spiral galaxy” distortion of the image. As alpha channel is passed through, this can be used with distortion or bump effects, and/or for the creation of wipes.

### Description

Creates radial distortions of images.

### Menu Location

- FX>ImageEffects>Swirl

### Input

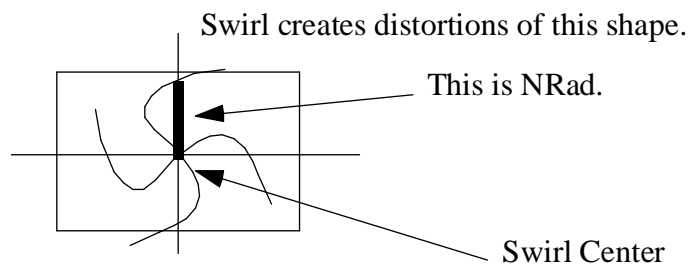
- Image and optionally Mask. If a mask is present, the mask is distorted and the swirl effect is only calculated for pixels inside the mask.

### Output

- Image
- Mask: The distorted mask

### Parameters

- Angle: The swirl angle. For a good effect, animate this parameter from 0 to for example 2000.
- NRad: This is best shown as a graphic:



NRad is the distance from the Swirl origin where a pixel is at the same position as in the undistorted image.

- Cent X/Y: The center of the swirl
- Shift X/Y: An offset to be added to the effect
- Zoom X/Y: Zoom for the result

### Comments

The swirl pattern can very nicely be used to create wipes.

## 7.18 Motion Tracking

The new motion tracking window works quite different from the original tracker. The Motion Track interface is still called up using the PickEditor entry from the Tools menu. It is only accessible when one of the tracking effects is selected. There are now three effect directly coupled with the tracker:

- Stabilization
- Motion tracking
- Corner Pinning. The corner pinning effect has been improved, giving now separate movement and offset curves for each corner point.

The tracker interface now supports any number of trackers. Depending on the effect selected, the information of up to 4 trackers is used, although in the future there will be applications for more concurrent trackers.

To perform a motion tracking, first create a motion tracking effect from the DVE menu. Now open the PickEditor. Here you control the motion tracking process. You can change the frame visible in the MT editor by either using the Frame forward/backward commands from the Show menu or by dragging the preview cursor from the associated effect with the right mouse button. Especially with the latter method you can quickly access all the frames of your tracking clip.

When you open the editor the first time, a single default tracker is displayed in the middle of the window. In the simplest case, to create a simple one-point tracking, just drag this tracker to the desired target, scale it appropriately and issue the Go! command from the Command menu. After the system has created tracking information, you can apply the results to the associated effect using the Apply command.

The MT editor offers much more options. Before we look at those, first a view on the basic layout of the editor. The editor has a menu bar and some status fields in the bottom. The bottom field area can be extended using the triangular bottom at the left; pressing it folds out another panel with advanced controls.

### 7.18.1 Tracker Menu

The motion tracker has a menu with the following options:

#### **File**

The option in this menu are not available for this beta.

#### **Tracker**

Insert and Delete permit the user to create additional trackers or to delete existing ones.

You can show and hide existing trackers using the list box in the extended bottom panel that can be opened with the triangular button at the bottom left. Only trackers highlighted in the list window are drawn on top of the image.

## **Curves**

The curve menu is used to manipulate generated motion curves by cut, copy & paste editing. Also, you can delete entire tracking curves or ranges thereof. To manipulate curves, you must select the trackers by clicking on them. Selected trackers appear red. You can select multiple trackers by holding down the Shift key while clicking on them.

Tracking ranges are set in the extended toolbar that can be opened at the bottom of the track editor window. Press the triangular arrow button to open the extended panel.

## **Command**

The command menu contains commands to initiate tracking using the Go! command. Also, here you can setup to which motion curves of the associated effect you wish to assign the resulting motion curves, and you can perform the application to the effect using the Apply command.

All functions from the command menu generate or use information from all visible trackers, independent of selection. You can show and hide trackers using the list box in the extended bottom panel, to be opened with the triangular button at the bottom left. Only trackers highlighted in the list are visible on the image.

## **Show**

The Show menu contains all the options modifying the view on the images. You can open a zoom controller, see the key, activate high res previewing (only if high res tracking is activated), or step back and forth frames.

## **Setup**

The setup menu contains options to activate high res tracking, automatic updates of the background images and to setup the display of the trackers. You can activate separately if you want to see the trackers connected by line, if you wish to see the generated trajectories etc.

### **7.18.2 Status Fields**

Some status fields are visible always. These are the message line, used to print out messages for you, and the current frame display. Here you can see first and last frame of the sequence, as well as the current frame.

Also, there is a triangular button that permits you to open up another panel below the status line. This panel contains a list of all existing trackers, as well as setup options for the frame range to process and some basic tracking parameters. The rotation parameter

determines if rotation information is used to find tracker movement (this has nothing to do with the generation of rotation information. This is a separate setting in the Commands>SetupApply menu). The history parameter is explained in detail in the manual of the version 2.1.

Only trackers highlighted in the list window to the left are drawn on screen. All buttons from the Command menu are only applied to trackers highlighted in the list box. This permits to have a number of different tracker sets that do not interfere with each others. You would use this, for example, when you have multiple tracking effects in the same reel.

Note that the Edit commands are applied to selected trackers, that is, trackers drawn in red.

### 7.18.3 Operation

Motion Tracking allows you to perform 1, 2, 3 or 4 point tracking. 4-point tracking is typically used in conjunction with the Corner Pin option from the DVE>Motion menu, while 1 to 3 point tracking is used for stabilization and motion effects.

Motion tracking can generate movement, rotation, zoom and corner pin information. While corner pin information can only be generated if the associated effect is corner pinning, you can generate the other three with either 1, 2 or 3 point tracking. Create as many trackers as you require and choose the desired setting using the Setup>Apply submenu to the commands menu.

You can change the image of the source clip you want to track on by dragging the preview cursor of the effect clip. The motion track editor always shows the image the preview cursor selects. Sometimes, you may wish to start positioning on a different frame because the object to be tracked is easier visible in a particular frame.

After you created trackers, place them on the target locations of the image. You can also rescale them as necessary to match a meaningful target area. Now you can start the tracking process by choosing the Go! command.

There are two tracking modes: High or low resolution. Low resolution tracking is fast, but, as it uses only the preview images, much more imprecise. High resolution tracking uses the fullres images. The mode is selected in the Setup menu.

In case you have selected low res tracking and the system thinks after examination of the target image that high res tracking would be recommended, it will tell you so in a message box, giving you the option to cancel or to proceed anyway.

During tracking, the generated control points and the trajectory found will be displayed on screen. This can be deactivated in the setup menu.

If you are pleased with the tracking results, you can select **Apply** from the command menu. Then you can use a monitor to see the results of the effects in the reel, just as always. You can now either modify the generated curves in the Time Editor, or you can refine the tracking itself.

#### **7.18.4 Advanced Options**

Once you have done some tracking, you can refine it either manually or by re-tracking.

You can change tracker positions manually for any frame of the sequence. To do so, move the preview cursor on the effect clip to the desired frame and drag the tracker rectangle to the position you like. Also, you can drag the whole trajectory, that is, the curve plotted by the tracker. To do so, select the whole curve with a double click on the tracker. The curve will be painted in red, and any subsequent drag will move the whole curve instead just the current position, until you deselect the curve.

In case you wish to re-track all or parts of the sequence, you can just re-issue the **Go!** command. If you wish to keep the results of some of the trackers, hide them using the tracker list window. Only trackers highlighted in this window are shown on screen, and only those will be tracked.

Also, you can restrict the frame range to be tracked. To do so, enter values for the **From** and **To** fields of the tracking range. Only for these frames track points will be recomputed. Frame range values can also be set using the buttons labelled **From:** and **To:** in front of the respective text field. Pressing the button will cause the current preview cursor value to be copied into the field.

Note that you can also use the frame range to change ranges of material already copied to the time editor (by **Apply**). **Apply** only overwrites values in the Time Editor inside the selected frame range. Also, it only uses the trackers currently visible, that is, highlighted in the tracker list window.

#### **7.18.5 Tracking Effects**

The **Stabilize** and **Motion** effects are identical to the effects driven by the old motion tracking. The corner track effect, aside of the fact that it is driven directly by the **Motion Tracking** (in contrast to the old **Corner Pin**), has a set of additional offset parameters for the four corner trackers that permit to position the corners of the pinned image relative to the tracker positions.

Regarding the use of motion tracking effects in the reel, the following must be noted:

- **Stabilize** works with a single entry. It is applied to the image material that is used to derive the tracking information. Any curve not generated by tracking can of course be set up manually, for example to add zooming or rotation to the image. Also, the tracking generated curves can be manipulated manually.

- Motion Track needs two inputs: The first one is used to extract the motion information, that then is applied to the clip making up the second input. Again, any curve not generated by tracking can of course be set up manually, for example to add zooming or rotation to the image. Also, the tracking generated curves can be manipulated manually.
- Corner Pinning also requires two inputs: The first one is used to track the motion, and these movements can be applied to the four corners of the images that make up the second input clip. Additional curves permit to offset the pinned image as necessary – it is often the case that the true target position for the pin can not be tracked, for example due to bad image quality, temporary overlays or simply insufficient contrast. In these cases, another location with a very similar relative movement can be tracked and then be offset to the target position.

#### **7.18.6 Usage Note**

Do not make trackers too big – in most cases, trackers as small as possible work best, and they are also much faster.



## 7.19 PlugIn Effects

Jaleo now supports PlugIn effects. The development kit for PlugIns is part of Jaleo 2.5. If you are interested to write PlugIn effects for Jaleo 2.5, please see the development information included in the SDK information. A number of example effects is provided, some of them in source code.

To load a PlugIn effect, you can either use drag&drop from the `JALEO-ENV/lib` directory, or you can use the PlugIn entry in the FX menu. Upon Reel startup, the entries of this menu are built from the PlugIns found in the `JALEO-ENV/lib` directory. Note that some of the PlugIns provided are mostly suitable as examples for developers (those are also available in source code), much less for practical operation. This holds particularly true for `ColFil`, `Xdso`, and `Circle`. For that reason, the development example PlugIns are only available in the `EXAMPLES` directory of your Jaleo installation. To use them, you must copy the `.so` and `.fx` files to `JALEO-ENV/lib`.

## 8. Additions to the RtVideo Programs

With Jaleo 2.5, there are a number of changes to the RtVideo application for Jaleo Composite, Impact and Plus. Unless noted otherwise, features apply to all systems.

The major additions and changes are:

- Free-run Mode (Jaleo for Impact only)
- EDL import.
- Audio Capture for Jaleo for Impact and Jaleo Composite with Cosmo and Galileo (Jaleo Plus will be added shortly)
- For systems with Cosmo and Galileo, better capture precision.

**PLEASE NOTE: Capture precision in the RtVideo program depends on the proper setup and synchronization of the video equipment and VLAN control.**

Please see the release notes for a description of setup requirements.

### 8.1 Free-Run Mode (Jaleo for Impact only)

In free run mode, you can use the RtVideo program without VTR control. That means that it is now possible to capture or play out if no control equipment (i.e. VLAN) is available. Of course, in free run mode no capture precision can be guaranteed, as capture in and out points depend on your “real time” interaction with the system.

To activate free run mode, select the appropriate option in the RtVideo main dialogue.

### 8.2 EDL Import

To import an EDL, please open the Job Window with the See Joblist button. The joblist window has a new load button labelled Load EDL. If you select this button, a file selector window will open permitting you to choose the EDL to read. Also, you must enter a base name for the clips to be generated (they will be numbered consecutively) and for the environment file to be generated from the EDL. Also, you may specify a head and tail

space reserve you want to capture additional to the length of the sequence as specified by the EDL.

When you press OK, the EDL will be loaded and an appropriate environment file will be generated in your current projects ENVIRONMENT directory. Also, there will appear a list of clips to be captured in the joblist window. Note that the EDL converter automatically merges sequences into a single clip file if the time code ranges of the sequences overlap or touch each other, after adding the extension head and tail values.

Also the EDL-generated joblist can be edited like any other joblist.

By using the Perform button in the main RtVideo window, you can capture the sequences specified by the joblist.

If you later load in the generated Environment file to the reel, you will see the composition as specified by the EDL.

**PLEASE NOTE: Capture precision in the RtVideo program depends on the proper setup and synchronization of the video equipment and VLAN control.**

Please see the release notes for a description of setup requirements.

### 8.2.1 Current EDL Features and Limitations

The EDL converter currently accepts EDLs in the following formats:

- Sony
- GVG
- CMX
- Text. Text EDLs must have a format reasonably similar to an EDL. That is, it must have the following format, from left to right:
  - Event number; no number can be double
  - Tape ID
  - Track selection
  - Operation. If the operation is an effect, including the effect time separated by white space
  - 4 time code values

From the EDL, a capture list for the RtVideo is generated. To create the capture list, the following types of entries of the EDL are understood:

- Cuts
- Dissolves
- Wipes

- Keys
- Dynamic Tracking (speed changes). Speed changes are properly handled for video clips only. Jaleo currently does not provide a high quality algorithm to process audio speed changes.
- Audio and Video must have the same entry and out point for a capture. Offsets for audio alone or video alone are not understood.

The capture list is optimized in the sense that material that is used numerous times in the EDL is captured only once. Also, capture is sorted so that all cuts are read from one tape, then from the next, and so on. As mentioned before, the Clips can be captured with a selectable head and tail value to provide editing reserves.

Aside from the capture list, the EDL converter generates a Jaleo Environment file, interpreting the entities read as follows:

- Cuts and dissolves are understood as they are in the EDL.
- Wipes are replaced by dissolves. It is of course very easy to replace the generated effect by any Jaleo transition.
- Keys are replaced by a simple default keying setup. Of course, depending on the material, typically a true key (for example Fast Key) must be set up later in Jaleo.
- Speed changes are interpreted as Jaleo Groups, with a speed change curve set up appropriately.

All generated reel objects (clips, effects etc.) are supplied with the EDL line that generated them in their comment field. The comment can be reviewed with the Attributes inspector window.

Many traditional editing systems generate EDLs in an iterative manner – the EDL is basically used like a session log, containing all edits, even some that have been overwritten later. They sometimes do not only contain the final result list, but also all the steps on the way, all previous versions. Jaleo does not attempt to clean up such a “versioned” EDL – instead, all events contained are translated in a reel environment. Depending on the EDL and desired usage, manual cleanup may or may not be necessary.

## 8.3 Audio Capture

Jaleo 2.5 offers audio capture for Composite and Impact systems in appropriate configurations (that is, Indy with Indy Video and Cosmo, Indigo2 with Galileo and Cosmo, or High Impact with Impact Video and Ciprico 6900). Jaleo Plus will follow shortly.

Almost at the bottom of the RtVideo main window are track select buttons used to determine which audio tracks are to be captured. Simply select which tracks you are interested in. You can also de-activate video to capture audio only if so desired.

Audio is captured to a separate AIFF file, kept in the `.SOUNDSRC` directory of the current project. For export purposes, the new render dialogue in the reel window permits you to create movie files with embedded audio.

**PLEASE NOTE: Capture precision in the RtVideo program depends on the proper setup and synchronization of the video equipment and VLAN control.**

Please see the release notes for a description of setup requirements.

## 8.4 Super User Operation of RtVideo Subprograms for Impact/Cosmo

This section is mainly of interest if you encounter performance problems with RtVideo and for setups running in security-critical environments or which are connected to non-local/non-secure networks.

Currently, this section does *not* apply to Jaleo PLUS.

RtVideo for Impact/Cosmo calls two subprograms to do the actual capture or playout work. These subprograms are called `impact_catch/impact_send` and `cosmo_catch/cosmo_send`. To achieve optimal performance, specifically with audio, these programs must be run with super user permissions (this is setup automatically). The reason for this is that the programs need to change their execution priority, and this is only allowed with super user rights. Of course, you do not want to change your login for running these programs. Instead, UNIX offers a simple way to make a program run with super user permissions, no matter which user is running it: They can be set up with the so called “super-user bit”, that tells the system to give them root permissions when they are run by whichever user. Jaleo’s installation script does this setup. If you do an `ls -l` on the programs, you can see that there are some “s” set instead or additional to the normal `rwX` permission flags.

While the super user bit normally does not cause any trouble in operation, it is considered an access security loophole by many system administrators. The reason for that is that programs with the super user bit set are the primary target for so-called “Trojan Horse” hacking approaches. If a such a program has write permissions, a hacker can replace it with his/her own code, and, as the program has super user rights, perform any action desired. If you are working in a security-critical environment, you may thus wish to inform your system administrator.

To minimize vulnerability, the catch and send programs do have no write permissions for nobody. You should make sure that whatever administration tasks you do, you leave the catch and send programs without write permissions afterwards.

- In case you should encounter performance problems with RtVideo, please make sure the super user bit for user and group is set. You can set it by running the command `chmod ug+s *_send *_catch` in the directory where the capture programs reside. Make sure you also run `chmod ugo-w *_send *_catch` afterwards.

## 9. Miscellaneous

### 9.1 Faster Delete in Dustbin

The dustbin application now first asks if you want to have a cross reference of the material. If not, the material is immediately deleted without the overhead of the search through all Jaleo files. Furthermore, even if a cross-reference is desired, it can be limited to the current project, again saving time.

### 9.2 Pict file support

Jaleo now supports PICT files.

### 9.3 Bad Configuration Warning

If you had errors in your configuration file (`.jaleorc`), prior versions of Jaleo silently used the default configuration; they did not advise the user of this fact. Now, if there is an error, appropriate messages are printed in the console and a dialogue box warns the user that the setup file is incorrect.

# 10. Keyboard Commands

This section contains a list of those keyboard commands that do not have a direct representation in menus. All other keyboard commands can be read from the menus.

Please remember that activated NumLock and CapsLock modes on SGI keyboards and systems inhibit normal functioning of many keyboard keys, in particular the cursor and edit keys.

## 10.1 The Reel

### Navigation and Playback (mouse pointer over reel window):

| Key                 | Command                                         |
|---------------------|-------------------------------------------------|
| space               | Stops playback                                  |
| Arrow key right     | Forward Play                                    |
| Arrow key left      | Backward Play                                   |
| Shift + Arrow right | FastForward Play                                |
| Shift + Arrow left  | FastBackward Play                               |
| Ctrl + Arrow right  | Goto first frame that contains material in reel |
| Ctrl + Arrow left   | Goto last frame that contains material in reel  |
| Alt + Arrow right   | Step forward one frame                          |
| Alt + Arrow left    | Step backward one frame                         |
|                     |                                                 |
| Arrow Up            | Move up one layer                               |
| Arrow Down          | Move down one layer                             |

### Value Line Editing (mouse pointer over reel window):

| Key               | Command                                                |
|-------------------|--------------------------------------------------------|
| Backspace         | Backspace in value line                                |
| Shift + Backspace | Clear value line                                       |
| Keys 0-9          | Numeric entry in value line                            |
| Numeric Pad 0-9   | Numeric entry in value line                            |
| + -               | Invert value in message line                           |
| . :               | Separator character for timecode entries in value line |



## Reel Editing (mouse pointer actions):

| Key/Mouse                                                      | Command                                                                                                                                                                                                          |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Left mouse button on clip                                      | Deselect all and select clip                                                                                                                                                                                     |
| Shift + Left mouse on clip                                     | Select additionally, or, if already selected, deselect<br>Note: If you create an effect after shift-selecting two clips that overlap on two adjacent layers, the effect is fit automatically to the overlap area |
| Left mouse button on background                                | Deselect all and positions the position cursor at the click location                                                                                                                                             |
|                                                                |                                                                                                                                                                                                                  |
| Drag with left mouse btn. on background                        | Rubberband selection                                                                                                                                                                                             |
| Drag with left mouse btn. on selected clip                     | Drag the clip (and all other selected clips) with the mouse                                                                                                                                                      |
| Drag with left mouse btn. on unselected clip                   | Deselect all and drag the clip with the mouse                                                                                                                                                                    |
| Shift + Drag with left mouse btn. on clip                      | Drag the selection with the mouse. While the shift key is held no monitor evaluation takes place, speeding up significantly to reposition clips in complex layerings.                                            |
|                                                                |                                                                                                                                                                                                                  |
| Drag + Middle mouse button                                     | With a selected clip (multiple selection possible): Create a copy of the selection and place the copy at the place where the mouse button is let go.                                                             |
|                                                                |                                                                                                                                                                                                                  |
| Right mouse button on background                               | Drag the reel background for fast positioning of the content                                                                                                                                                     |
| Right mouse button on clip (extensible with left mouse button) | Move the clip cursor. If you move the clip cursor to either end of the clip and then press the left mouse button in addition, the clip will be trimmed                                                           |
| Shift + Right mouse button                                     | Pops up the Edit menu                                                                                                                                                                                            |
| Ctrl + Right mouse button                                      | Pops up the Clip menu                                                                                                                                                                                            |
| Shift + Ctrl + Right mouse button                              | Pops up the Select menu                                                                                                                                                                                          |
| Alt + Right mouse button                                       | Pops up the window menu (Motif window manager function)                                                                                                                                                          |

## 10.2 The Monitor

### Navigation (with cursor over Monitor window)

| Key                                   | Command                 |
|---------------------------------------|-------------------------|
| Left arrow key                        | Step forward one frame  |
| Right arrow key                       | Step backward one frame |
|                                       |                         |
| Up/Down buttons with group navigation | Change overview level   |

## 10.3 The Time Editor

### Navigation (with cursor over curve area)

| Key                   | Command                                                  |
|-----------------------|----------------------------------------------------------|
| Alt + Right arrow key | Move time cursor one frame to the right                  |
| Alt + Left arrow key  | Move time cursor one frame to the left                   |
| Control + Right arrow | Move to the last frame of the time editor area           |
| Control + Left arrow  | Move to the first frame of the time editor area          |
| Shift + Right arrow   | Move forward to the next control point on any curve      |
| Shift + Left arrow    | Move backward to the previous control point on any curve |

### Curve Editing (with cursor over curve area)

| Key/Mouse                             | Command                                                                     |
|---------------------------------------|-----------------------------------------------------------------------------|
| Left Mouse on back-ground             | Deselect all                                                                |
| Left Mouse on control point           | Select the control point                                                    |
| Shift + Left mouse on control point   | Toggle selection state of the clicked point and maintain previous selection |
| Double click left on curve            | Select the curve                                                            |
|                                       |                                                                             |
| Drag with left mouse on background    | Deselect all and drag selection rectangle                                   |
| Drag with left mouse on control point | Move selection (single/multiple CPs, Curves) with the mouse                 |
|                                       |                                                                             |
| Alt + Left btn. on curve              | Insert a control point in the curve                                         |

| Key/Mouse                                         | Command                                                                                     |
|---------------------------------------------------|---------------------------------------------------------------------------------------------|
| Alt + left btn on background with curve selected  | Add a control point at the y position of the mouse for the selected curve                   |
| Insert key                                        | Add a control point for the current curve at the current time cursor position               |
|                                                   |                                                                                             |
| Numeric Input + Space with control point selected | Change the y value of the control point to the new value entered                            |
| Up/Down arrows                                    | Change curve value at the Time Cursor position +/- 1. If necessary, add new control point   |
| Shift + Up/Down arrows                            | Change curve value at the Time Cursor position +/- 10. If necessary, add new control point  |
| Alt + Up/Down arrows                              | Change curve value at the Time Cursor position +/- 0.1. If necessary, add new control point |

## 10.4 RtVideo

### Navigation (with cursor over RtVideo window)

| Key    | Command               |
|--------|-----------------------|
| F7 key | Play forward on VTR   |
| F6 key | Play backward on VTR  |
|        |                       |
| F8     | Fast forward on VTR   |
| F5     | Fast backward on VTR  |
|        |                       |
| F9     | Frame forward on VTR  |
| F4     | Frame backward on VTR |
|        |                       |
| F11    | Pause VTR             |
| F12    | Stop VTR              |

# 11. Copyright Notice

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