Tinder
for
Discreet

Tinder for Discreet User Guide

Rev: February 2010

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INTRODUCTION

Welcome to this User Guide for Tinder on Discreet.

Tinder is a rich collection of image processing tools and effects and includes blurs, visual effects, image generators, tools and warpers.

We hope you enjoy using this collection of tools from GenArts.

About this User Guide

This User Guide will tell you how to install, license and use the Tinder sparks. Each spark is described in detail in later chapters.

This guide assumes you are familiar with Discreet and the machine it is running on.

In later chapters, each spark includes a section where all parameters are listed and described. The parameters are ordered by top to bottom, left to right as shown in Figure 1.

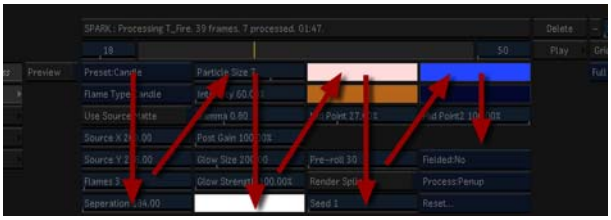

Figure 1. Parameter order in this User Guide.

Installing Tinder

You can find installations instructions for Tinder on the GenArts website (http://www.genarts.com).

About Tinder Plug-ins

All Tinder plug-ins integrate seamlessly into Discreet. They are applied to your clips as you would any other spark and they can all be animated using the standard animation tools.

BASICS

This section will tell you some basic information about sparks.

What is a Spark?

A spark (or plug-in) is a small computer program that can be loaded onto your Discreet system to do a specific task. Once loaded, a spark behaves as an integral part of your Discreet system and appears in the Effects menu just like the built-in effects.

Where are the Sparks?

The sparks buttons are in the Effects menu on most Discreet systems. You can have up to five sparks loaded at any one time. The

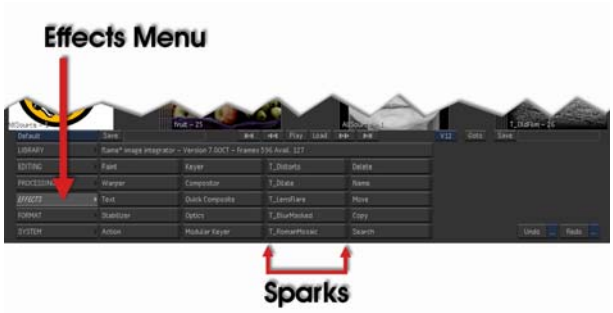

Figure 2. Flame User Interface showing Sparks Buttons

name of the currently loaded spark is shown on the spark button. In the image above T_Distorto, T_Dilate, T_LensFlare, T_BlurMasked, T_RomanMosaic have been loaded. If a button does not have a spark loaded it will display the word Spark on the button.

Loading Sparks

To load a spark, either click on the button (if it says Spark) or hold down the Alt key and click on any spark button (if it already has a

spark loaded). This will display the sparks browser. Select the

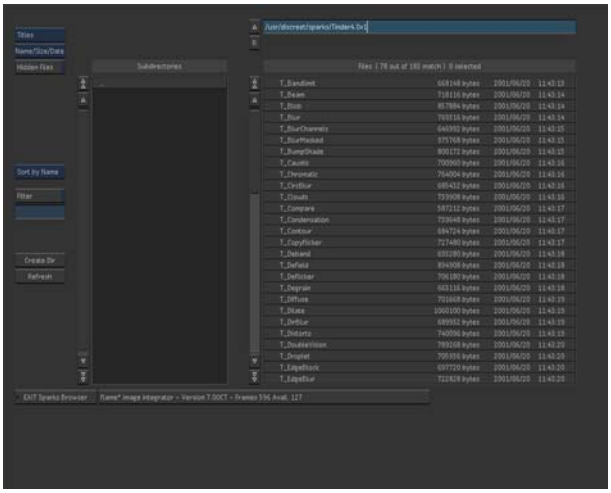

Figure 3. Sparks Browser showing Tinder

Tinder spark you want to load from the directory /usr/discreet/sparks/Tinder 5.3v1.

Using Sparks

Using a spark is not much different from using one of Discreet's own effects. Click on the spark you want to use. The cursor will change colour prompting you to select images or mattes and finally a destination reel to put the processed clip. The spark interface will be launched. This will give you access to all the parameters that control the spark.

When you select a spark a letter "S" may appear on the button. Pressing this "S" letter will launch the spark using the clips selected last time the spark was used.

Command and Module Modes

All Tinder sparks run in Module mode. The Module mode gives you access to all the parameters and animation channels for that effect. Command mode processes the clip(s) without giving the user the opportunity to change parameters. No Tinder sparks work in Command mode. All sparks have some standard controls supplied by Discreet. These are the three columns of buttons on the left-hand side, the frame slider and play control buttons in the middle and the

image window display controls (pan & zoom) on the right. The remaining controls depend on that particular spark.

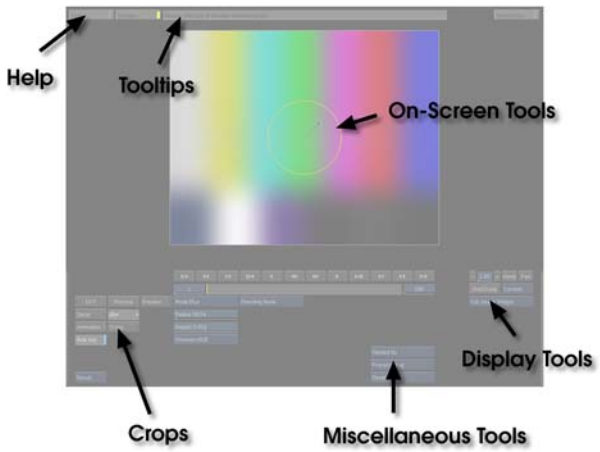

Figure 4. Effects User Interface for T_Blur. Main controls are annotated.

Saving Sparks

You can load and save your spark's current parameter settings from the Setup menu. See your Discreet User Guide for more information.

COMMON CONTROLS

There are many controls that are common to the Tinder 5.3 plug-ins. These are all described in detail in this chapter.

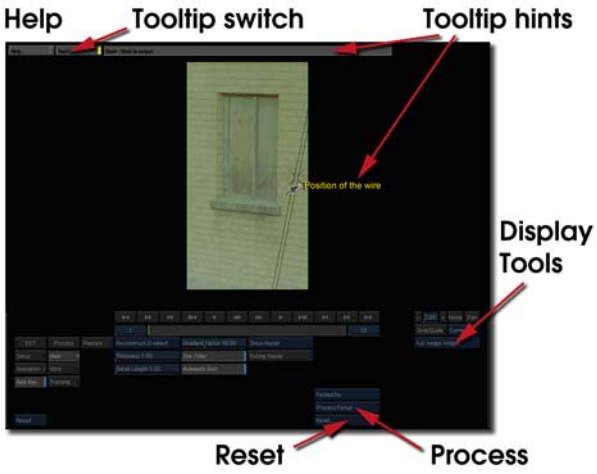

Figure 5. Common Controls.

Display Tools

The display tools can be found on the right hand side of the sparks interface as shown in Figure 5. This controls the rendering of proxy images, shows tool tips and on-screen tools and activates the multi-select tool for a more visual method of altering parameter values.

The display tools options are listed here.

- **Multi Select Zoom** - splits the image into a grid of 9 tiles. Each tile has the same cropped image but with different parameter values applied. See Figure 6 on page 6.
- **Multi Select Proxy** - splits the image into a grid of 9 tiles. Each tile has the full image scaled to fit and the tiles have different parameter values.
- **Multi Select** - splits the image into a grid of 9 tiles. The tiles form the original image, but each tile has a different parameter value applied.
- **Quarter Proxy Widget** - renders a quarter of the image resolution (scaled to fit the screen) and displays the on-screen tools and buttons.
- **Half Proxy Widget** - renders half the image resolution (scaled to fit the screen) and displays the on-screen tools and buttons.
- **Full Image Widget** - renders the full image resolution and displays on-screen tools and buttons.

- **Quarter Proxy** - renders a quarter of the image resolution (scaled to fit the screen) without on-screen tools and buttons.
- **Half Proxy** - renders half the image resolution (scaled to fit the screen) without on-screen tools and buttons.
- **Full Image** - renders the full image resolution without on-screen tools and buttons.

Multi Select Zoom

In Figure 6 on page 6, T_Blur has been applied to a picture of some orange masks and the Multi Select Zoom tool has been selected.

The image is split into a grid of 9 rectangles. In this example, the currently selected parameter in T_Blur is the radius of the blur

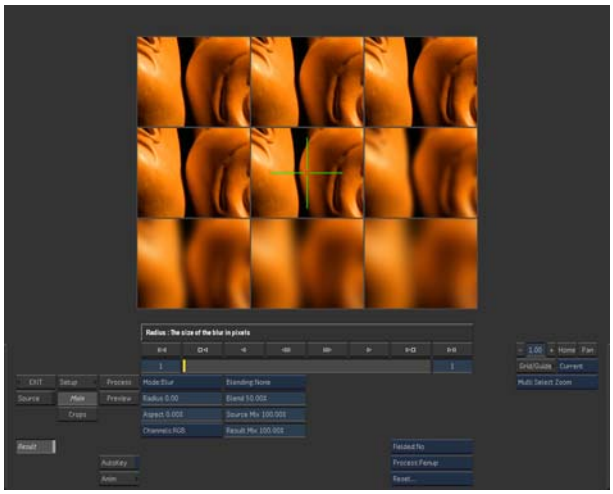

Figure 6. Multi Select Zoom.

which is zero. The centre rectangle has a blur radius of zero. Rectangles to the right and below have increasing amounts of blur added. The bottom right rectangle has the largest blur value. Rectangles to the left and above the centre tile have smaller blur values. (In this case, they are all zero.)

If the centre tile is selected, the area of interest can be moved by repositioning the complete image back over the centre tile. In Figure 7 on page 7, the image is repositioned so that the new area of

interest is the nose of the right mask.

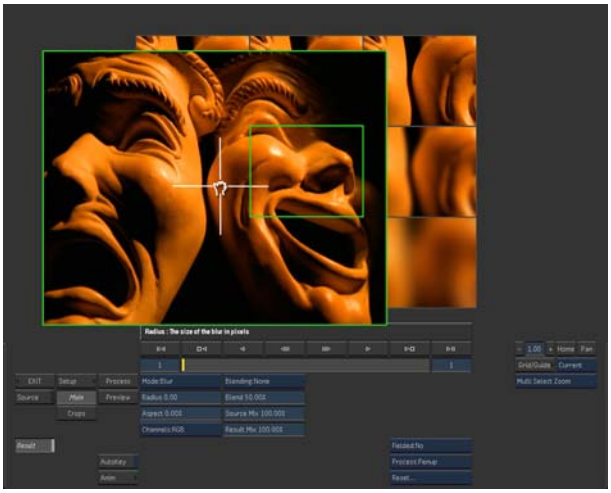

Figure 7. Multi Select Zoom.

A snapshot of the Multi Select Zoom for the repositioned image is shown in Figure 8.

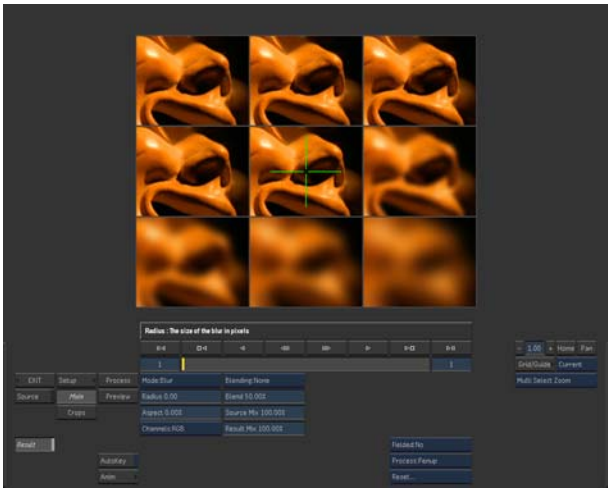

Figure 8. Multi Select Zoom.

Multi Select Proxy

In Figure 9 on page 8, T_Blur has been applied to a picture of some orange masks. The display tool Multi Select Proxy has been selected and the image is tiled into a grid of 9 rectangles. Each tile shows the

complete image scaled to fit. The currently selected parameter is the

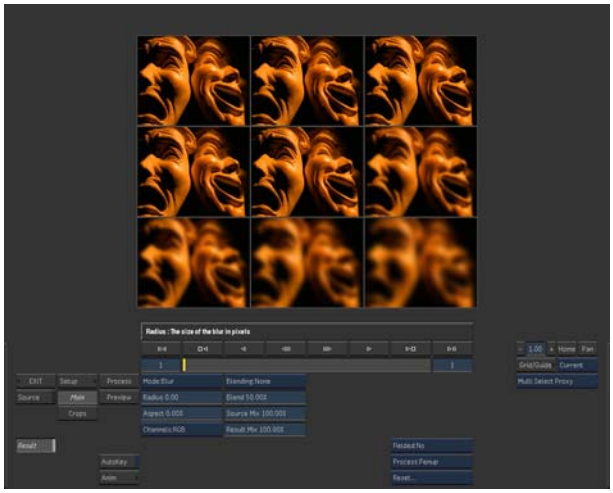

Figure 9. Multi Select Proxy for T_Blur.

radius of the blur which varies from no blur in the top left square to a large blur in the bottom right.

The Multi Select tool works for most parameters including the presets. The following example (Figure 10 on page 8) features the presets in T_LensFlare.

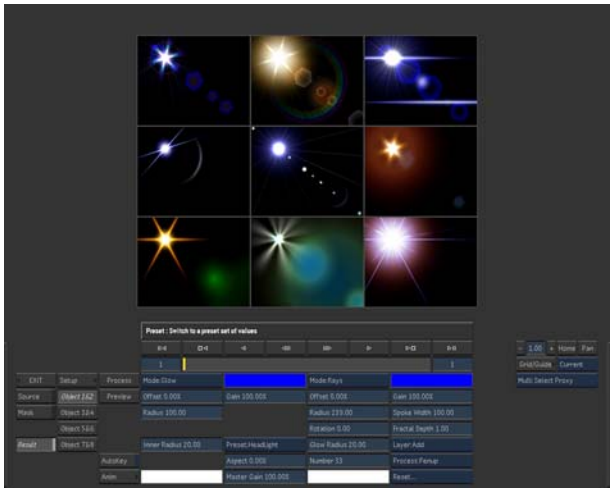

Figure 10. Multi Select Proxy on the presets in T_LensFlare.

Multi Select

In Figure 11 on page 9, T_Blur has been applied to a picture of orange masks. The display tool Multi Select has been selected and the image is tiled into a grid of 9 rectangles which together form the

original picture. The currently selected parameter is the blur radius

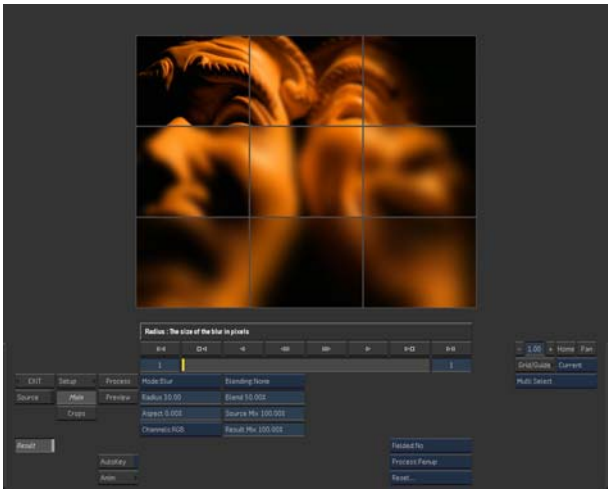

Figure 11. Multi Select.

which is set to the default 30. The centre tile shows a blur of 30. Tiles to the left and above show smaller blur values. Tiles to the right and below the centre tile have increasingly larger blur values. To change the blur value, simply click on the tile that most closely matches the blur value you are after. This parameter value is then slotted into the centre tile and the blurs surrounding the centre tile are readjusted.

If the centre tile is selected the range of blur values surrounding the centre tile will reduce to enable you to refine your selection.

Motion Blur

When quickly moving objects are filmed they will often not appear to be sharp, but have a characteristic blur. This motion blur is due to the object moving while the image was being exposed onto the film. Camera shutter speeds control how quickly this exposure can happen. The faster the shutter speed the sharper the moving object will appear. Compositors are often asked to add motion blur to

objects to blend them into a scene. Tinder 5.3 now provides motion blur for most of its effects.

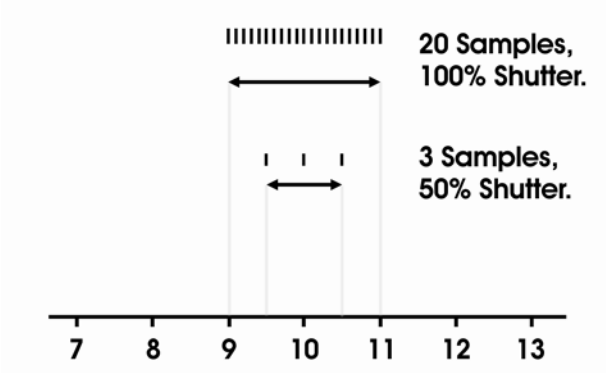

Figure 12. Diagram showing Shutter and Samples.

Example 1

If the current frame is 10, the shutter is set to 100% and the samples to 5, we look at the parameter values at frame 9 and 11 and compute 5 inbetween frames. These 5 frames are then blended together to form the output.

Example 2

If the current frame is 10, the shutter is set to 50% and the samples to 25, we look at the parameter values at frame 9.5 and 10.5 and compute 25 inbetween frames. These 25 frames are then blended together.

Tinder 5.3 motion blur is activated from the on-screen tools. Select Full Image Widget from the Display Tools. (See “Display Tools” on page 5.)

Motion Blur Samples

Sets the number of frames that are computed and blended together to simulate the motion blur.

Motion Blur Shutter

Sets how long the shutter is open as a percentage of a frame. Increase this value for more motion blur. a value of zero will produce no motion blur.

Note *Motion blur is symmetrical producing equal blurring on the leading and trailing edges. It is a common misconception that the leading edge is sharp with a long trailing blur behind the object.*

Help

Press the Help button to display a brief overview of the currently loaded Tinder 5.3 spark. The help page also shows the version of the Tinder spark. To hide the help page, press the Help button again.

Tooltips

Switch this on to display information about the currently selected parameter. The tooltips are shown at the top of the screen.

Fielded

Controls whether to process as frames or fields. The options are:

- **No**
- **Even Dominant**
- **Odd Dominant**

Process

Controls when to process the effect. The default setting is Penup. The options are:

- **Preview** - will only render the image if the Process button is pressed.
- **Penup** - will render the image when you release the mouse button or pen.
- **Drag Small** - will continually render a proxy image as you alter a parameter value.
- **Drag** - will continually render the whole image as you alter a parameter value.

Reset

Enables the default spark values to be restored. Undo and Redo functions are also included in this group. The options are:

- **Reset All** - will restore default values to all parameters on all pages.
- **Reset Page** - will restore default values just to the current page.
- **Redo** - will restore the last parameter change.
- **Undo** - will remove the effect of the last parameter change.

Note *The reset buttons will not remove keyframes in the animation curves. They will simply restore the default values to the parameters at the current frame.*

Lighting

Some plug-ins include controls for adding lighting effects. These allow the selection of a light position and brightness. Not all

parameters are available for each plug-in. The complete lighting parameter list is included here.

Figure 13. T_Droplet lighting off

Figure 14. T_Droplet lighting on

Light Type - controls the light model used.

- **Local** - assumes the light source is a finite distance from the xy image plane as defined by the Distance parameter.
- **Infinite** - assumes the light source is infinitely far from the xy image plane and will produce parallel light rays.
- **None** - switches off the lighting.

Light Direction - controls where the light is coming from. It is defined to be the angle between the light and the horizontal x axis in the xy image plane.

Light Elevation - controls the height of the light above the image plane. It is defined to be the angle between the light and an axis perpendicular to the image plane. Values between 0 and 180 will be visible. A value of 90 will set the light directly above the image plane. A value of 0 denotes a light source flush with the image plane.

Note *For many effects, Light Elevation values between 180 and 360 degrees will show no effect as this denotes a light source which is behind the image plane.*

Light Distance - sets the distance the local light source is from the object.

Light Strength - controls the brightness of the light source. The higher the value the brighter the light.

Light Fall-off - controls how quickly the light fades away with distance from the light source. The higher the value, the tighter the highlights.

Light Colour - sets the colour of the light source.

Colour Gradient

Several Tinder 5.3 sparks use colours from a colour gradient or ramp. To show the colour gradient, select Full Image Widget. (See “Display Tools” on page 5.)

The colour ramp at the top is used to create, delete and position the

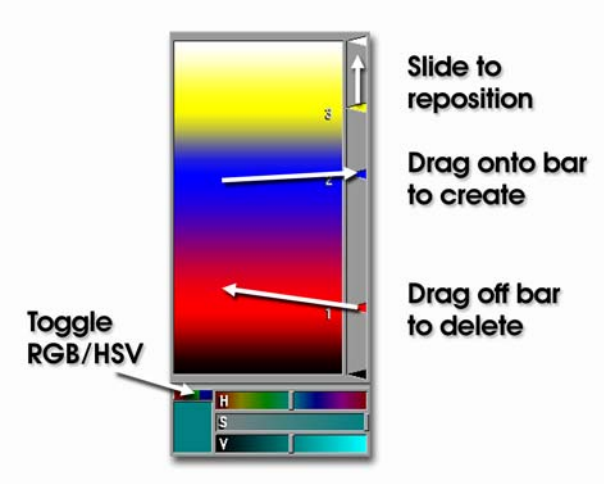

Figure 15. Colour Gradient Tool

individual colours. The colour chooser below allows you to change the colour of the currently selected tag.

Note *The tags on the extreme top and bottom cannot be moved or deleted but their colours can be modified.*

Changing a Colour

Select a tag by clicking on it. It will become highlighted and its colour will appear in the colour chooser. Modify the colour by using the sliders. Toggle the colour sliders between RGB and HSV by turning on and off the red, green and blue button above the current colour display.

Moving a Colour

Select a tag by clicking on it and dragging it up and down.

Note *The tags at the extreme top and bottom cannot be moved.*

Adding a Colour

A tag is created by moving the cursor into the colour ramp area where a tag will appear. Click the mouse and drag the tag onto the tag bar.

Deleting a Colour

Select the tag you want to delete by clicking on it and dragging it into the colour ramp area.

Smooth Gradient

When switched on, cubic interpolation between adjacent colours will be used producing a smoother ramp. When it is switched off a linear interpolation is used, which can give hard edges between colours.

Cyclic Gradient

When switched on, the colour gradient will wrap back around upon itself. In this case the two end colours will be forced to be the same. Changing one will automatically change the other.

Note *Switching Cyclic Gradient on when there are no intermediary colours set in the colour ramp will result in a single colour image.*

Cyclic Shift

This is used to shift the position of the colour ramp in the effect.

Note *Cyclic Shift only has an effect when in Cyclic Gradient mode.*

Copies

Sets the number of times to repeat the colour ramp in the effect.

Note *If you are repeating the colour ramp in an effect when Cyclic Gradient is switched off, you will get a harsh colour transition between the cycles.*

Dithered

When Dithered is switched on, noise is added to the gradient to reduce the effect of undesirable colour banding between smoothly shaded colours.

Filtering

Filtering is used to control the quality of your processed images by reducing the jagged lines characteristic of pixel devices. To render high quality images you should switch filtering on. With all image processing you have a trade off between quality and time. Filtering will increase the quality of your image but will also increase the time it takes to process the image. Some sparks have a single filter

Figure 16. Low Filtering

Figure 17. High Filtering

control that can be switched on or off. Other sparks give a choice of filtering methods. These are

- **Low** - highly distorted images may show jaggies. This is the fastest option.
- **Medium** - this uses a Bilinear filter.
- **High** - this uses a MIP Bilinear filter. This is the slowest option but gives the best results.

Filter Sharpness - depending on the effect being filtered, the high filtering option may over-soften the image. To combat this, the filter sharpness control can be used to compensate. The default value of 100 is normal sharpness, increasing it will sharpen up the result, decreasing it will soften further.

Note *Filter Sharpness only has an effect when using the High filtering option.*

Blending

Many of the Tinder plug-ins have blending controls which allow you to specify how to mix between the image effect and its original source. Controls are also available to affect the gain of the image effect and its original source.

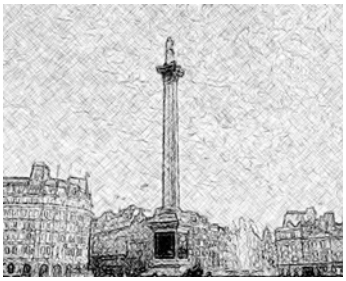

Figure 18. T_Etch with blend set to none

Figure 19. T_Etch with blend set to colour

T_Mix uses these blending controls on two input images.

Blending - sets how to blend the image effect with its original source.

- **HardLight** - lightens highlights and darkens shadows. If the pixel value in the original image is lighter than 50% grey, the result lightens as if it were screened. If the pixel value in the original image is darker than 50% grey, the result is darkened as if it were multiplied.
- **Overlay** - mixes colours while preserving highlights and shadows.
- **Difference** - displays a mix by finding the difference between the two images. Dark colours will produce a more subtle effect than bright colours.
- **Subtract** - displays a mix by subtracting the image effect from the original source.
- **Add** - displays a mix by adding the two images together.
- **Multiply** - displays a mix by multiplying the two images together.
- **Screen** - produces a bleaching effect. Light colours have more of an effect than dark colours. (A+B)-(A*B) or if you prefer 1-((1-A)*(1-B)) which is like combining the negatives of the two shots and "printing" the result.
- **Lighten** - displays a mix by taking the brighter of either the effect image or the original source.
- **Darken** - displays a mix by taking the darker of either the effect image or the original source.
- **Colour** - displays a mix using the hue and saturation of the original source and the value of the image effect.

Note *The Colour Blending method is the inverse of the Value Blending method.*

- **Value** - displays a mix using the value of the original source and the hue and saturation of the image effect.
- **Saturation** - displays a mix using the saturation of the original source and the hue and value of the image effect.
- **Hue** - displays a mix using the hue of the original source and the saturation and value of the image effect.
- **Chroma** - displays a mix using the chroma of the original source and the luminance of the image effect.
- **Luminance** - displays a mix using the luminance of the original source and the chroma of the image effect.
- **Mix** - displays a mix between the pixel colour values.
- **None** - no blending is applied.

Note *Blend, Effect Gain and Source Gain have no affect when in this mode.*

Blend - sets the percentage mix between the image effect and its original source. A value of 100% will show just the image effect. A value of 0% will show just the original source.

Note *This control will have no affect if the Blending Method is set to None.*

Note *The inputs to this Blend are affected by the values set for Effect Gain and Source Gain.*

Source Gain - sets the gain of the original source. The result of this is used in the Blend. The Source Gain also affects the alpha of the image. Setting Source Gain to 50% will half the brightness of the original source and will also half the value of its alpha. This will result in the underlying layers, or black if there are none, appearing through the original source.

Note *This control will have no affect if the Blending Method is set to None.*

Result Gain - sets the gain of the image effect. The result of this is used in the Blend. The Effect Gain also affects the alpha of the image. Setting Effect Gain to 50% will half the brightness of the effect image and will also half the value of its alpha. This will result in the underlying layers, or black if there are none, appearing through the effect image.

Note *This control will have no affect if the Blending Method is set to None.*

Roto/Matte Tool

This tool is common to several sparks that take a matte input clip. Its purpose is to produce a rough matte for the effect. It will either process the matte input clip, or create and process a roto in place of that clip. No matter if you are using the roto or the clip, you can process the resulting image with a variety of tools.

For your effect you can choose to use nothing, the matte clip or the roto. The controls and tools that are displayed depend on which of these you select.

The Roto Tool

The roto tool is quite straight forward to use. There are several parts to the tool's interface:

- the roto's outline, control points and tangents. See Figure 20.
- the roto's axis, controlling its translation (red cross hairs), rotation (green arrow) and scale (blue box). See Figure 20.

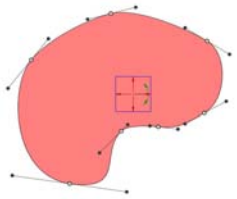

Figure 20. Roto Shape.

- the roto's animation timeline, and keyframes as shown in

Figure 21. Roto Timeline.

Figure 21.

- the buttons on the Roto/Matte control page to manipulate the roto.

Creating a Shape

To create a new roto, you simply draw the shape you want by pressing down and dragging the pen. A green line will trace your pen's path. Once you release the pen, a roto will be created that has the minimum number of control points that accurately matches the shape you drew.

If you want a simple shape to start with, choose one from the Shape popup. See Figure 22 and Figure 23.

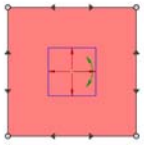

Figure 22. Square Roto.

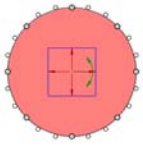

Figure 23. Circular Roto.

Control Points

Control points are drawn as small circles around the roto shape (or squares if the 'Bezier' toggle is not turned on). If a control point is currently selected it will be drawn with a red centre.

To **move** a control point, simply click and drag it.

To **select multiple** control points, drag a selection box over the points you want.

To **move multiple** control points, simply click on any one of the selected points and move it.

To **deselect** control points, click on the screen away any selected points.

To **delete** control points, click on one of the selected points and drop it in the rubbish bin at the bottom left of the screen. The bin will only appear when the control point gets close. The cursor turns into a red '-' shape and the bin's lid will raise when you have reached the bin.

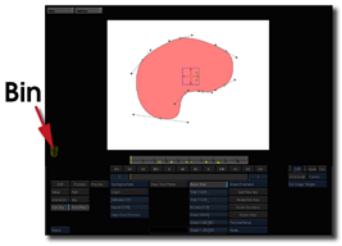

Figure 24. Bin/Trash to delete control points.

To **add** a new control point, move your cursor over the edge of the curve and it will turn into a green '+' shape and a ghostly green key will appear. Now, simply click on the outline of the curve and a new point will be created with automatic tangents.

Tangents

If your roto is a Bezier shape, then it will have a pair of tangents displayed at each control point. These control how smooth the curve is between control points. To move a tangent, simply click and drag on it. You can only modify one tangent at a time.

There are three types of tangents:

1. **Split Tangents** - drawn with solid lines and triangular ends; paired tangents are independant so that changing one will not change the other. Use these to get sharp corners.
2. **Linked Tangents** - drawn with solid lines and solid circular ends; paired tangents point 180 degrees away from each other; dragging one

tangent will change the angle but not the length of the other tangent so that is always 180 degrees away.

3. **Automatic Tangents** - drawn with dashed lines and hollow circular ends; paired tangents point 180 degrees away from each other; there is no user control over these tangents; the length and angle of the tangents are automatically calculated to make a smooth curve by looking at the position of nearby control points. Moving any of these control points will change the tangent.

To **change** the tangent type, you quickly click on the tangent end without moving it. The tangent will then cycle between the various types.

If you have an automatic tangent and you drag it, it will always turn into a linked tangent (otherwise you couldn't move it).

Rotation, Animation and Timeline

The roto shape can animate, saving the whole shape at each key, points, tangents and tangent types. For frames where there are no keys, a shape will be interpolated using the surrounding two keyframes.

If the roto has any animation, the outline will be drawn solid if there is a key at the current frame, otherwise it will be drawn dashed.

If the 'AutoKey' button is on, every time you manipulate the roto, a keyframe will be added. You can also **add a key** at the current frame by clicking the 'Add Roto Key' button.

If there is a key at the current frame, you can **delete** it by clicking on the Delete Roto Key. The button, Delete Animation, will remove all roto keys.

Just above the Spark's timeline, we display the roto timeline. We do this to show the location of the keyframes. Each keyframe is drawn as a small triangle, with the current frame being drawn as a yellow bar.

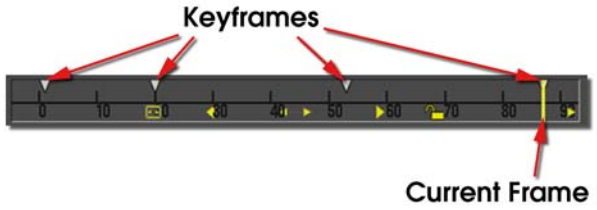

Figure 25. Roto Timeline.

You can change the frame a key is on simply by clicking and dragging it in the timeline, its frame number will be displayed next to it.

The range of frames being displayed in the timeline can be changed using the tools inside it (Figure 26 on page 21). They are:

- a **lock** icon, which indicates that the displayed timeline is locked to the Discreet timeline.
- a **frame all** icon, which will break the lock to the Discreet timeline, and set the range so that all keys are visible.
- a **pan** icon, which will break the lock to the Discreet timeline, and slide the range of visible frames up and down.
- two **zoom** icons, which will zoom into and out of the timeline.
- two arrow icons at the very end of the timeline, which indicate that **more keys** are off the end of the timeline and not visible. Click on these and the timeline will re-arrange itself so that all keys off that side are now visible.

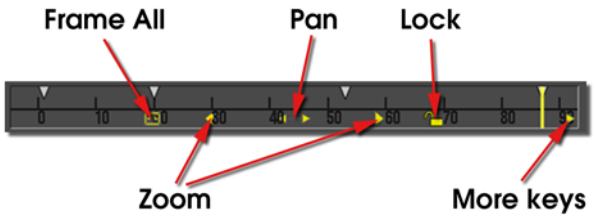

Figure 26. Roto Tools.

Roto Axis The axis allows you to move, rotate and scale the roto. It is drawn in the image overlay as a red cross hair with a blue box and green anchor-like handle. The red cross hair allows you to move the roto

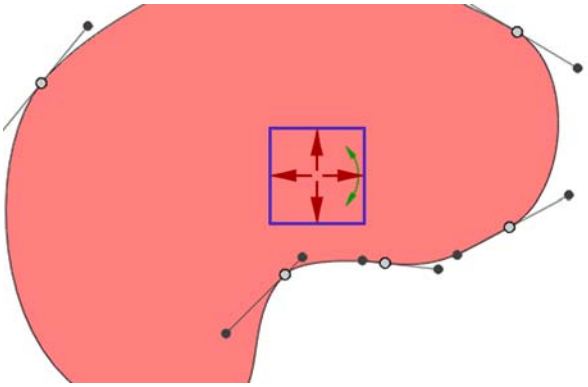

Figure 27. Roto Axis Controls.

by clicking and dragging it. If you select just one of the arms, you will move the roto only in that direction. This is linked to the Translate X and Translate Y parameters on the Roto/Matte control page.

The blue rectangular box allows you to scale the roto about the centre of the axis. If you select a corner you will scale in x and y, if

you choose a single side, you will scale only in that direction. This is linked to the Scale, Scale X, and Scale Y parameters on the Roto/Matte control page.

The green anchor allows you to rotate the roto about the centre of the axis. This is linked to the Rotate parameter on the Roto/Matte control page.

Roto Data Storage

Rotos are saved by encoding them into a Discreet animation curve. If you look in the animation sheet, you will see a folder called PrivateData. This is where they are stored. Do not open this folder and do not attempt to modify the keys inside, it can and will cause problems with the roto.

Roto Parameters

The parameters for the roto group are described here. and shown in Figure 28.

Figure 28. Roto Parameters.

Masking - this usually specifies whether the effect will use a roto shape, external matte, or something else.

- **Roto** - the spark uses the roto shape.
- **Matte** - the spark uses the matte input.
- **None** - the spark ignores any matte or roto shape.

Invert - switch this on to invert the Roto or Matte.

Softness - sets the amount of blurring applied to the Roto/Matte.

Aspect - controls the horizontal and vertical weighting of the blur. 100% blurs only in X, -100% blurs only in Y whilst 0% blurs equally in X and Y.

Edges - this controls edge treatment of the matte.

- **Don't Process** - no edge treatment,
- **Shrink/Grow** - erodes or enlarges the Roto/Matte by the Edge Push parameter. Negative values shrink it, positive values grow it.

- **Halo In/Out** - extracts only the edges of the Roto/Matte, if Edge Push is negative, only the inside edge is extracted, if Edge Push is postive, outside edges are extracted.
- **Halo** - extracts the edges of the matte that is Edge Push pixels wide.

Edge Push - how far to push the edges of the processed Roto/Matte. Exactly what is done with the edges is controlled by the Edges parameter.

Blur Inside Haloes - if 'Edges' is set to 'Halo In/Out', any softness applied works on the side being grown.

Show Roto/Matte - this toggles the rendered output to be either the processed roto/matte or the result of the effect. Use this to display the Roto/Matte whilst you are tweaking it for your effect.

Colour - sets the colour of the roto's overlay, in case the default black colour is difficult to see against your image.

Matte-Only Controls

Clip Min - if processing the matte input clip, this sets the black level of the matte.

Clip Max - if processing the matte input clip, this sets the white level of the matte.

Roto-Only Controls

Shape - sets the initial shape of the roto. When you select this, the current roto will be destroyed.

- **Circle** - creates a circular roto shape. See Figure 23 on page 18.
- **Square** - creates a square roto shape. See Figure 22 on page 18.
- **Freehand** - select this to draw an irregular shape. You should click and drag on-screen to draw out the shape rather than click repeatedly to define control points for the spline. See Figure 20 on page 18.

Bezier Roto - switch this on for a smooth Bezier curve between the control points Figure 29, or switch it off for a polygon Figure 30.

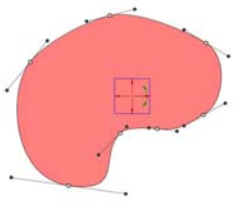

Figure 29. Bezier.

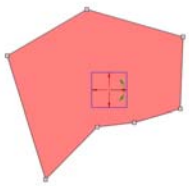

Figure 30. Polygon.

Tran X - sets the horizontal position of the roto shape. Change this to move the shape right and left. This is linked to the on-screen red cross hair.

Tran Y - sets the vertical position of the roto shape. Change this to move the shape up and down. This is linked to the on-screen red cross hair.

Rotation - this controls the rotation of the roto and is linked to the on-screen green anchor in the roto axis.

Scale - sets the size of the roto shape. Change this to make the shape bigger and smaller. This is linked to the on-screen blue rectangle.

Scale X - sets the horizontal size of the roto shape. Increase this to stretch the shape width. This is linked to the vertical edges of the on-screen blue rectangle.

Scale Y - sets the vertical size of the roto shape. Increase this to stretch the shape height. This is linked to the horizontal edges of the on-screen blue rectangle.

Add Roto Key - this will add a keyframe to the roto's animation at the current frame.

Delete Roto Key - this will delete a keyframe from the roto's animation if one exists at the current frame.

Delete Animation - this will delete all keyframes from the roto's animation, but it will keep the current roto.

Delete Roto - this will delete all keyframes from the roto's animation and delete the current roto as well.

Crops

This group of seven controls (Figure 31) enables the image to be cropped and defines the value of pixels outside the rectangular cropping area.

Figure 31. Crop Controls.

X Crop - sets the behaviour of the image at its left and right boundaries.

- **Wrap** - uses the pixels from the opposite edge.
- **Reflect** - mirrors the image at the boundary.
- **Repeat** - repeats the last line of pixels at the boundary.
- **Colour** - uses a solid colour. This colour is set by the colour pot at the bottom of this group of controls.

Y Crop - sets the behaviour of the image at its top and bottom boundaries.

- **Wrap** - uses the pixels from the opposite edge. Figure 35 on page 26.
- **Reflect** - mirrors the image at the boundary. Figure 34 on page 26.
- **Repeat** - repeats the last line of pixels at the boundary. Figure 33 on page 26
- **Colour** - uses a solid colour. Figure 32 on page 26. This colour is set by the colour pot at the bottom of this group of controls.

Left - sets the position of the left crop.

Right - sets the position of the right crop.

Bottom - sets the position of the bottom crop.

Top - sets the position of the top crop.

Colour - sets the colour that will fill the image outside the crop boundaries, if the cropping method is set to Colour.

In the example below, the image of the elephant has been cropped

on all sides. The behaviour of the pixels is shown for all four cropping methods.

Figure 32. Colour

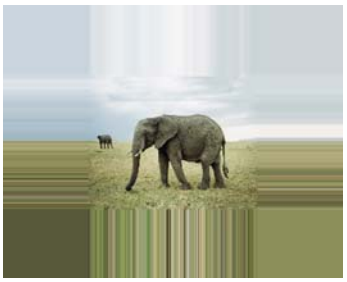

Figure 33. Repeat

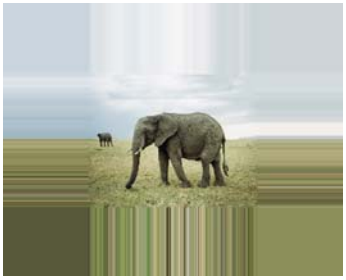

Figure 34. Reflect

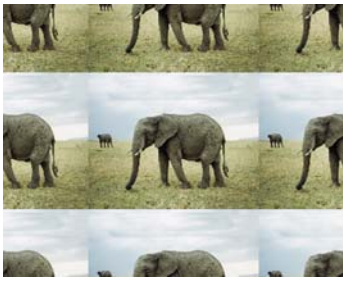

Figure 35. Wrap

Box

The area sampled for motion or texture is defined by the red rectangular box shown on-screen when Display is set to Full Image Widget. The size and position of this box can be altered using the on-screen tools, or by changing the following parameters:

Sample Left - the left position of sample region.

Sample Right - the right position of sample region.

Sample Top – the top position of sample region.

Sample Bottom - the bottom position of sample region.

Compositing

Some Tinder 5.3 sparks take 3 inputs (front, back and matte) which can be composited within the spark. There are three basic ways in which the clips can be composited: Punch front, Punch back, and Punch Both. Some sparks additionally have a Colour Switch mode to reduce the colour spill at edges when using mattes extracted from blue or green screen keys.

- **Punch Both** - produces a standard composite by mixing the front and back images based on values in the matte. If the matte is black, you'll see the background, and if white you'll see the foreground. This method is typically used to composite unpremultiplied images.
- **Punch Front** - uses the matte to cut a hole in the foreground before mixing with the background.
- **Punch Back** - uses the inverted matte to cut a hole in the background before mixing in the foreground. This method is used to composite premultiplied images.

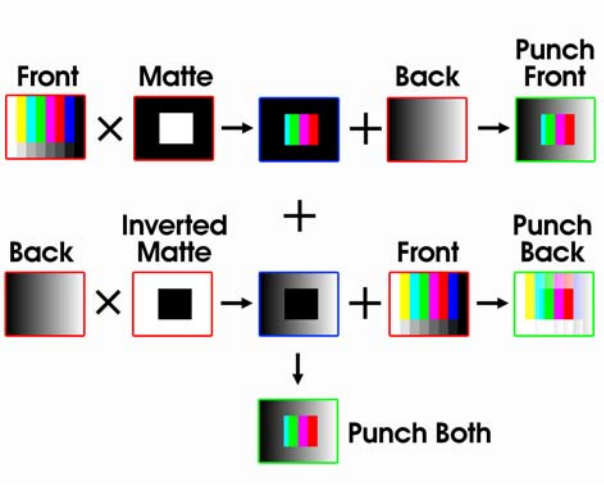

Figure 36. Diagram of Compositing Methods

- **Colour Switch** - produces a standard composite by mixing the front and back images based on values in the matte; but, for mattes that have been pulled from a chroma key, this method helps suppress the blue spill at the matte edges. The Chroma Blend controls the amount of spill suppression.

Chroma Blend - controls the amount of spill suppression when Composite is set to Colour Switch. In grey areas of the matte, luminance is taken from the foreground image and chroma from the background image. A Chroma Blend value of zero will produce the same result as Punch Both.

Note *Negative values take chroma from the foreground and luminance from the background.*

Channels

Controls which of the colour channels will be affected by the effect. The options are:

- **Chroma** - the hue and saturation of the video will be affected.
- **V** - only the v video signal will be affected.

- **U** - only the u video signal will be affected.
- **Luminance** - a weighted average of the red, green and blue components, commonly used to describe the brightness of the image, will be affected.
- **Blue** - only the blue channel will be affected.
- **Green** - only the green channel with be affected.
- **Red** - only the red channel will be affected.
- **Grey** - the affects the result of (red+green+blue)/3.
- **RGB** - the red, green and blue channels will all be affected.

Attenuation Masks

Many Tinder plug-ins have an optional second input for a mask. This mask is used to scale (attenuate) one or more of the parameters in the plug-in.

Where the mask is black, the parameters will be multiplied by zero and the effect will not be seen in these areas of the matte. Where the mask is white, the parameters will be multiplied by one, and the effect will be seen. Grey areas of the attenuation mask will scale the parameters accordingly.

To illustrate this effect, take a checker as the input to T_Tile and the ramp as the second (attenuation mask) input.

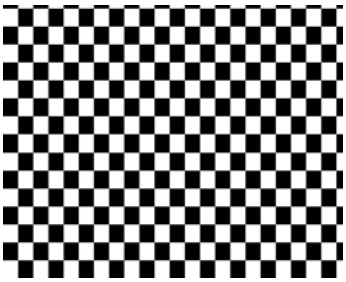

Figure 37. Checker

Figure 38. Ramp used as an attenuation matte

Then, scale the image using the parameters in T_Tile. Note that the image is not scaled on the left where the mask is black, and fully scaled on the right where the mask is white. Values in between are linearly ramped to give the result shown below. The attenuation mask also affects the angle parameter. Again, on the left there is no

rotation but on the right the pixels are rotated 45 degrees.

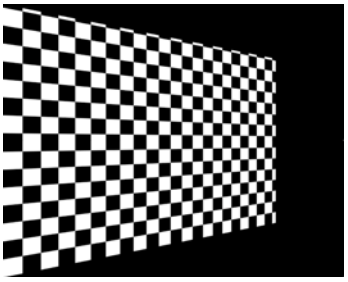

Figure 39. Attenuating scale

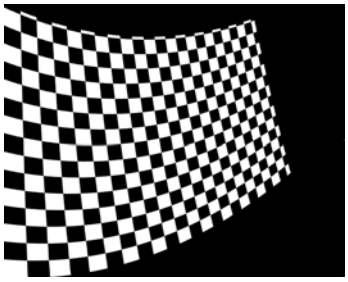

Figure 40. Attenuating scale and rotation

TINDER BLURS

This chapter describes the wide variety of blurs that are available in Tinder 5.3.

T_Blur

Description

T_Blur is a time constant, sub-pixel, Gaussian blur. It is very fast even for very large blurs.

Figure 41. Original Image.

Figure 42. T_Blur with blur set to 30.

T_Blur can be applied to individual colour channels or the complete image. Also included are 14 blending methods to mix the original image and the blurred image. T_Blur can also be used to sharpen an image.

Figure 43. T_Blur with blending set to Add.

Figure 44. T_Blur used to sharpen an image.

Inputs

T_Blur has one input - a source image.

Blur

Mode - controls whether to blur or sharpen the image.

- **Blur** - defocuses the image.
- **Sharpen** - emphasises the edges within the image.

Radius - sets the strength of the blur. Increase this value to increase the effect.

Aspect - controls the horizontal and vertical weighting of the effect. A value of zero has equal horizontal and vertical weighting. Positive values will blur horizontally. Negative values will blur vertically.

Channels (string) - selects which colour channels will be affected.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

Hints & Tips

T_Blur does a lot more than just defocus images quickly. Using the blending methods interesting effects can be achieved and it can also be used to sharpen images.

If you want to blur along a particular direction see “T_DirBlur” on page 39, for radial blurs (crash zooms) see “T_RadialBlur” on page 49, for circular blurs see “T_CircBlur” on page 37 and for a blur that models the defocusing characteristics of a camera lens see “T_LensBlur” on page 43.

T_BlurChannels

Description

T_BlurChannels defocuses the individual colour channels of an image.

Figure 45. Blue channel only blurred.

Inputs

T_BlurChannels has one input - a source image.

Blur

Mode - controls whether to blur or sharpen the image.

- **Blur** - defocuses the image.
- **Sharpen** - emphasises the edges within the image.

Red Blur - controls the blur on the red channel.

Red Aspect - controls the horizontal and vertical weighting of the blur.

Green Blur - controls the blur on the green channel.

Green Aspect - controls the horizontal and vertical weighting of the blur.

Blue Blur - controls the blur on the blue channel.

Blue Aspect - controls the horizontal and vertical weighting of the blur.

Blending - sets how to mix between the image effect and its

original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

Hints & Tips

T_BlurChannels can be used to soften the red channel of a digitally created image and blend the result back into the original. This is useful for simulating certain filmstocks that have layered red, green and blue emulsions where the focusing of the image captured on the film is subtely different for each layer (or channel).

For a very fast gaussian blur see “T_Blur” on page 30. This blur can be applied to an individual colour channel or the whole image.

T_BlurMasked

Description

T_BlurMasked takes a source image and a mask and blurs the image based on values in the mask. It does not blur the whole image and then composite the foreground through the mask. In some circumstances it can be used to simulate depth of field. Where the mask is black no blurring will take place. Where the mask is white the blur parameter value is used. Mask values in between black and white scale the blur value accordingly.

Figure 46. Blurred Masks using a circular attenuation mask (black in the middle fading out to white).

T_BlurMasked uses a Gaussian blur and being sub-pixel accurate can be smoothly animated over time.

Inputs

T_BlurMasked has two inputs - a source image and a matte.

Blur

Mode - controls whether to blur or sharpen the image.

- **Blur** - defocuses the image.
- **Sharpen** - emphasises the edges within the image.

Radius - sets the strength of the blur. Increase this value to increase the defocusing or sharpening.

Aspect - controls the horizontal and vertical weighting of the effect.

Channels (string) - selects which colour channels will be affected. (See “Channels” on page 27.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Roto/Matte

The matte attenuates the Radius parameter. See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

Hints & Tips

If you are not using an attenuation matte and simply want to blur an image, you should use T_Blur which is much faster for large blurs. See “T_Blur” on page 30.

If you need to add depth of field to a composition, you will need a filter that can use a graduated mask to selectively defocus objects that are in the distance. In some circumstances BlurMasked can be used to do this. In the images below, a linear ramp is used on some computer generated planets to simulate depth of field. The final

Figure 47. CGI Planets

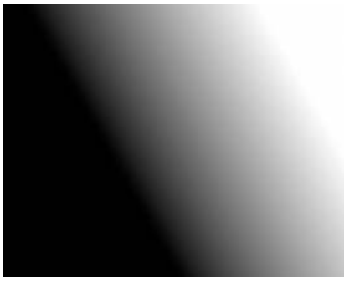

Figure 48. T_Grad Linear Ramp

effect using T_BlurMasked is shown below.

Figure 49. CGI planets with simulated depth of field.

BlurMasked can also be used to great effect when the source image is also used as the mask input.

T_CircBlur

Description

T_CircBlur smears an image around a point giving the appearance of motion blur on a rotating object. It takes a matte which is used to

Figure 50. Lotus Elise.

Figure 51. Wheel spin with T_CircBlur.

attenuate the amount of smearing, but it is slower to render than T_SpinBlur. See also “T_SpinBlur” on page 54.

Inputs

T_CircBlur has two inputs - a source image and a matte.

Blur

Amount - controls the amount of smearing.

X Centre - controls the horizontal position of the circular blur centre.

Y Centre - controls the vertical position of the circular blur centre.

Aspect - controls the horizontal and vertical weighting of the effect.

Bias - controls the weighting of the blur along the direction of blurring. A bias of zero will smear pixels equally forwards and backwards.

Holdout Radius - controls the size of the circle in which no blurring takes place. The holdout circle is centered around X Centre and Y Centre.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Dither - switch this on to add noise to the image to reduce the appearance of colour banding.

Blur Profile - sets the blur algorithm used.

- **Gaussian** - high quality but slower than Box.
- **Box** - faster than Gaussian but poorer quality.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Roto/Matte

The matte allows for the blurring of the image based on luminance values in the matte.Where the matte is black no blurring takes place. Where the matte is white the blur is at the level set by its parameter. Values in-between are scaled accordingly. See “Roto/Matte Tool” on page 17.

Figure 52. Attenuation matte.

Figure 53. T_CircBlur with matte.

Crops

See “Crops” on page 25.

Hints & Tips

See also “T_SpinBlur” on page 54. For radial blurs see “T_RadialBlur” on page 49.

T_DirBlur

Description

This directional blur smears an image in a given direction. The optional matte is used to attenuate the blurring.

Figure 54. Stationary Caterham.

Figure 55. With directional blur applied to the background and a circular blur on the wheel.

Inputs

T_DirBlur has two inputs - a source image and a matte.

Blur

Mode - sets how to compute the length and direction of the blur.

- **Track** - in this mode the length and direction of the blur are computed indirectly from positional keyframes (X/Y Centre) set by the user. This mode is useful if you wish the directional blur to follow some object movement in the clip. Rather than set length and rotation key frames the position of the object can be tracked (by setting keyframes for X/Y Centre) and the resultant motion vector used to set the directional blur.
- **Angle/Length** - in this mode the direction and length of the blur is explicitly taken from the Rotation and Length parameters.

Track Parameters

X Centre - sets the horizontal position of the track.

Y Centre - sets the vertical position of the track.

Track Scale - controls how much to boost the computed blur length.

Angle/Length Parameters

Length - controls the amount of smearing.

Rotation - controls the direction of the blur. The parameter values are calibrated in degrees. A value of zero blurs the image horizontally and a value of ninety blurs vertically.

Bias - controls the weighting of the blur along the direction of blurring. A bias of zero will smear pixels equally forwards and backwards.

Dither - switch this on to add noise to the image to reduce the appearance of colour banding.

Blur Profile - sets the blur algorithm used.

- **Gaussian** - high quality but slower than Box.
- **Box** - faster than Gaussian but poorer quality.

Filter - switches filtering on or off. Toggle the filter on to improve the quality of the rendered image. (See “Filtering” on page 14.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Roto/Matte

The matte allows for the blurring of the image based on luminance values in the matte.Where the matte is black no blurring takes place. Where the matte is white the blur is at the level set by its parameter. Values in-between are scaled accordingly. See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

Hints & Tips

For circular blurs see “T_CircBlur” on page 37 and for radial blurs see “T_RadialBlur” on page 49.

T_GradientBlur

Description

T_GradientBlur analyses the luminance in the second input and maps the gradients. These gradient vectors are used to selectively blur the source image either along or perpendicular to the vectors. Blurring does not take place in areas that have no gradient. In the

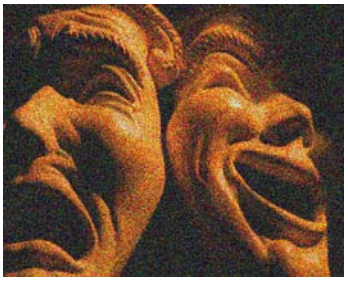

Figure 56. Source Image.

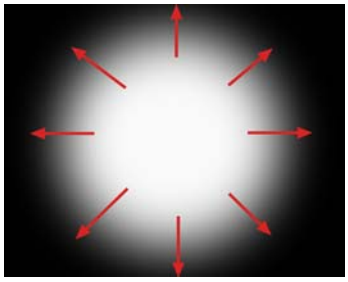

Figure 57. Matte.

images above the mask has no gradient in the centre where it is pure white and at the edges where it is pure black. The gradient direction vectors are shown by the red arrows. In the images directly above

Figure 58. Blurring along the gradient.

Figure 59. Blurring across the gradient.

the blurring only takes place in the grey areas where there is a gradient. The left image has a direction set to zero and the blurring is radial. The right image has a direction set to ninety degrees and the blurring is across the gradient vector direction.

You can also get painterly effects by using the same picture as the

source and matte as shown in Figure 60 and Figure 61.

Figure 60. Before.

Figure 61. After.

Inputs

T_GradientBlur has two inputs - a source image and a matte.

Blur

Length - controls the amount of blurring along the gradient vector.

Bias - controls the weighting of the blur along the direction of blurring. A bias of zero will smear pixels equally forwards and backwards.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Gaussian - switch this on to use a high quality Gaussian blur rather than the default poorer quality box blur.

Softness - controls the amount of blurring applied to the gradient before the vectors are calculated.

Blur Direction - controls the direction of blur along the gradient vectors. A value of 0 blurs along the vectors. A value of 90 blurs across the vectors.

Length - controls the amount of blurring.

- **Scaled by Gradient** - the amount of blurring set in the Length parameter is continuously scaled by the gradient.
- **Uniform** - uses the Length parameter to set the amount of blurring.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

T_LensBlur

Description

T_LensBlur simulates the true defocusing properties of a camera lens to give realistic focus pulls. It includes controls for the shape of the camera diaphragm, highlight blooming and chromatic aberration.

Figure 62. Car head lamps at night

Figure 63. LensBlur defocus showing blooming on the highlights

The second input is an attenuation mask used to control the threshold. If the mask is white the threshold is set at the current bloom threshold value. If the mask is black the threshold is set to 100.

Inputs

T_LensBlur has two inputs - a source image and a matte.

Blur

Radius - sets the strength of the blur. Increase this value to defocus the image.

Aspect - controls the horizontal and vertical weighting of the blur.

Softness - controls the amount of blurring applied to the diaphragm to defocus the sharp edges of the bloomed highlights.

Aberration - controls the defects of the lens that causes the image to display coloured fringes.

Gain - controls the brightness of the image. A value of 50 will halve the luminance. A value of 200 will double the luminance.

Diaphragm - controls the shape of the camera diaphragm.

- **Polygonal** - renders polygonal highlights.
- **Circular** - renders circular highlights.

Num Blades - sets the number of sides of the polygonal highlights.

Note *This is only active if the Diaphragm is set to Polygonal.*

Diaphragm Rotation - controls the rotation of the camera diaphragm.

Note *This is only observable when the Polygonal Diaphragm is switched on.*

Lens - sets the type of lens used.

- **Catadiatropic** - the light is reflected by mirrors before reaching the film. This method produces a dark circle at the centre of the highlight.
- **Normal** - the light is refracted through the lens before exposure onto the film.

Catadiatropic Size - controls the size of the dark circle at the centre of the highlight.

Note *This is only active if the Lens is set to Catadiatropic.*

Blooming - switch this on to allow the overexposure of highlights on the film.

Bloom Threshold - controls the luminance level above which pixels will bloom.

Bloom Gain - controls the brightness of the blooming.

Bloom Clamp - controls the value of pixels outside the legal range.

- **Pixel Max** - the blooming will produce colours up to peak white.
- **Image Max** - the brightest pixels of the output image will not exceed the brightest pixels of the original image.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

Hints & Tips

Digital Gaussian blurs are commonly used to simulate out-of-focus elements. This can be perfectly acceptable in many situations, but if a true camera defocus is required a filter that will bloom highlights

ought to be used. The picture below shows a well-focused scene.

Figure 64. A well-focused scene.

Now look at the two images below. On the left we have changed the focus of the lens so that the image is no longer sharp. Note what happens to the candle flames and the sparkles from the candle holders. They exhibit noticeable blooming rather than just a softening and take on the characteristic shape of the camera's aperture. Note also that the edges are well defined. You can often see these polygonal shapes in lens flares. The image on the right shows a digital Gaussian blur. Note the difference.

Figure 65. T_LensBlur.

Figure 66. Gaussian blur using T_Blur.

A common cinematic technique to get the viewer to shift their attention between objects in the scene, is to change the focus between a foreground element and a background element. This is known as a rack focus.

You should be aware that changing the focus of a lens causes a slight change in the focal length of the lens. This produces a scale change in the image during defocusing and is dependent on the type of lens used.

T_LensBlurComp

Description

T_LensBlurComp is similar to T_LensBlur by simulating the true defocusing properties of a camera lens, but it also enables the input images to be composited using the input matte.

Figure 67. Front.

Figure 68. Back.

Where the matte is black the back image (background) is visible. Where the matte is white the front image (foreground) is visible. Matte values in between control the mix between the front and back images.

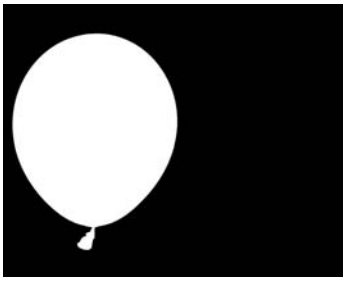

Figure 69. Matte.

Figure 70. T_LensBlurComp showing background defocus and blooming.

Inputs

T_LensBlurComp has three inputs - a front image, a back image and a matte.

Blur

Front Radius - sets the strength of the blur on the front image. Increase this value to defocus the foreground.

Back Radius - sets the strength of the blur on the back image. Increase this value to defocus the background.

Aspect - controls the horizontal and vertical weighting of the blur.

Softness - controls the amount of blurring applied to the diaphragm

to defocus the sharp edges of the bloomed highlights.

Aberration - controls the defects of the lens that causes the image to display coloured fringes.

Front Gain - controls the brightness of the foreground. A value of 50 will halve the luminance. A value of 200 will double the luminance.

Back Gain - controls the brightness of the foreground. A value of 50 will halve the luminance. A value of 200 will double the luminance.

Diaphragm - controls the shape of the camera diaphragm.

- **Polygonal** - renders polygonal highlights.
- **Circular** - renders circular highlights.

Num Blades - sets the number of sides of the polygonal highlights.

Note *This is only active if the Diaphragm is set to Polygonal.*

Diaphragm Rotation - controls the rotation of the camera diaphragm.

Note *This is only observable when the Polygonal Diaphragm is switched on.*

Lens - sets the type of lens used.

- **Catadiatropic** - the light is reflected by mirrors before reaching the film. This method produces a dark circle at the centre of the highlight.
- **Normal** - the light is refracted through the lens before exposure onto the film.

Catadiatropic Size - controls the size of the dark circle at the centre of the highlight.

Note *This is only active if the Lens is set to Catadiatropic.*

Blooming - switch this on to allow the overexposure of highlights on both the front and back plates.

Bloom Threshold - controls the luminance level above which pixels will bloom.

Bloom Gain - controls the brightness of the blooming.

Bloom Clamp - controls the value of pixels outside the legal range.

- **Pixel Max** - the blooming will produce colours up to peak white.
- **Image Max** - the brightest pixels of the output image will not exceed the brightest pixels of the original image.

Composite - controls how the front and back images are blended together using the matte. (See “Roto/Matte Tool” on page 17.)

- **Punch Both** - produces a standard composite by mixing the front and back images based on values in the matte. If the matte is black you’ll see the background, and if white you’ll see the foreground. This method is typically used to composite unpremultiplied images.
- **Punch Front** - uses the matte to cut a hole in the foreground before mixing with the background.
- **Punch Back** - uses the inverted matte to cut a hole in the background before mixing in the foreground. This method is used to composite premultiplied images.

Roto/Matte See “Roto/Matte Tool” on page 17.

Crops See “Crops” on page 25.

Hints & Tips See also “T_LensBlur” on page 43.

T_RadialBlur

Description

T_RadialBlur smears pixels in all directions from a point. Radial blurs are sometimes known as crash zooms (see “T_CrashZoom” on page 75) and can be used to transition between one clip and another.

Figure 71. Monster.

Figure 72. With Radial Blur.

They can also be used to simulate light rays. T_RadialBlur is much slower than T_CrashZoom but it does take a matte input. Where the matte is black no blurring takes place. Where the matte is white the blur is at the level set by its parameter. Values in-between are scaled accordingly.

Inputs

T_RadialBlur has two inputs - a source image and a matte.

Blur

Blur - controls the amount of smearing.

X Centre - controls the horizontal position of the radial blur centre.

Y Centre - controls the vertical position of the radial blur centre.

Aspect - controls the horizontal and vertical weighting of the effect.

Bias - controls the weighting of the blur along the direction of blurring. A bias of zero will smear pixels equally forwards and backwards.

Holdout Radius - controls the size of the circle in which no blurring takes place. The holdout circle is centered around X Centre and Y Centre.

Blending - **sets how to mix between the image effect and its original source.**

Dither - breaks up banding in 8 bits images.

Blur Profile - sets the blur algorithm used.

- **Gaussian** - high quality but slower than Box.
- **Box** - faster than Gaussian but poorer quality.

Filter - switches filtering on or off. Toggle the filter on to improve the quality of the rendered image. (See “Filtering” on page 14.)

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

Hints & Tips

T_RadialBlur can take a long time to render. While setting up the effect you should set the Blur Profile to Box and the Filtering to Low, then switch to Gaussian and High for the final render.

If you want to boost the apparent length of the blur, try altering the Bias control.

T_RadialBlur can be used as an effective transition between clips or to simulate crash zooms.

It can also provide an effective simulation of light rays. Make sure you set the blending method to Add to composite the original image and the rays. See also “T_Rays” on page 121. See also

Figure 73. Stained Glass.

Figure 74. Simulated rays using RadialBlur.

“T_CrashZoom” on page 75.

T_Silk

Description

T_Silk is digital wrinkle cream. It is used to reduce wrinkles, freckles and minor blemishes in actors' faces. The clever bit is that it doesn't require mattes to retain detail.

T_Silk is a tolerance blur with a variable blur size that can be used to maintain edges and smooth off regions of a similar hue. T_Silk is effectively a smart blur.

Figure 75 on page 51 shows the result of using T_Silk. the original

Figure 75. You're looking gorgeous! T_Silk applied to an actor's face.

picture is shown in Figure 76 on page 51. The parameters used in

Figure 76. Rough cut. Here's the original image.

T_Silk were Prepass on with Prepass Size 8, Size 40, Tolerance 4.2, Blending Mix.

There are two passes to this filter.

The first "prepass" phase analyses the image looking at detail and working out the size of the blur per pixel that will be used in the second pass. This phase can be bypassed using the Use Prepass switch. If bypassed a simple edgedetect based blur size is used later.

The second "tolerance" phase uses the blur size computed in the prepass to blur the image. However, this blur is restricted using the tolerance parameter so that edge details are maintained. If Use Prepass is switched off and the Tolerance is set to 100, a box blur across the whole image will be seen.

When fine tuning the effect, it’s worth switching on the Show Prepass button to see the edges that will be preserved, shown in white.

Inputs

T_Silk is a single input plug-in.

Silk

Size - this controls the maximum amount of blurring (smoothing) applied to the image. With prepass switched on, the actual amount of blurring is dependent on the detail around each pixel. This parameter can be controlled using the radius on-screen tool.

Aspect - controls the horizontal and vertical weighting of the blur.

Tolerance - restricts the pixels used in the blur calculations. If a pixel falls outside the tolerance range it is excluded from the calculations. The tolerance is used to prevent blurring at edges within the image. If the tolerance is increased too much the whole image will appear uniformly blurred.

Use Prepass - the prepass analyses the image working out the best size for the blur by considering the detail around each pixel in the image. If this is switched off a fixed blur size, as set by the Size parameter, is used to smooth out the wrinkles leading to a harsher result.

Prepass

Controls the size and aspect of the area considered in the prepass calculations.

Prepass Size - controls the size of the array of pixels around the

current pixel.

Aspect - controls the shape of the area considered. This should not normally need to be changed from its default value.

Use - sets the algorithm used to compute the detail that sets the kernel size.

Note *For black and white pictures you will need to set the prepass method to value.*

Show Prepass - displays the regions that will be affected with the silk algorithm. Black areas will be affected more than white areas.

Blending - sets how to mix between the image effect and its original source. It is well worth mixing back the original image to get a more subtle look. “Blending” on page 16

Crops

See “Crops” on page 25.

Hints & Tips

Good results can be achieved by creating quite an extreme smoothing and then mixing back the original using the blending controls.

T_SpinBlur

Description

T_SpinBlur smears an image around a point giving the appearance of motion blur on a rotating object. It is much faster to render than

Figure 77. Lotus Elise.

Figure 78. Wheel spin with T_SpinBlur.

T_CircBlur but does not take a matte input. See also “T_CircBlur” on page 37.

Inputs

T_SpinBlur has one input - a source image.

Blur

Blur - controls the amount of smearing.

X Centre - controls the horizontal position of the circular blur centre.

Y Centre - controls the vertical position of the circular blur centre.

Aspect - controls the horizontal and vertical weighting of the effect.

Holdout Radius - controls the size of the circle in which no blurring takes place. The holdout circle is centered around X Centre and Y Centre.

Blur Profile - sets the blur algorithm used.

- **Gaussian** - high quality but slower than Box.
- **Box** - faster than Gaussian but poorer quality.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops See “Crops” on page 25.

Hints & Tips T_SpinBlur is much faster than T_CircBlur, but it doesn’t have a matte input.

TINDER EFFECTS

This chapter describes each of the visual effects available in Tinder.

T_BadTV

Description

This plug-in processes a clip to make it look as though it was being broadcast on a television suffering from poor reception. There is a master control to alter the signal quality to get vertical rolls, edge distortions, colour loss, ghosting, creeping lines, picture breakup and other interference patterns associated with poor signals.

Figure 79. Preset: Colour TV.

Figure 80. Preset: Security Camera.

Inputs

T_BadTV has one input - a source image.

General

Presets

- **Aerial SpyCam** - covert camera image.
- **Bad B&W TV** - black and white with distortions.
- **Bad Colour TV** - colour with distortions.
- **Night Vision** - green tinted image.
- **Security Camera** - reduced resolution and colour with visible scan lines and lens distortion.
- **Offset Guns** - CRT gun misalignment.
- **Cable Out** - complete picture loss. Only static rendered.
- **Good TV** - this resets the parameters to give you a good TV picture. This is useful as a starting point to add BadTV effects from the BadTV preset, e.g. if you only want snow on your picture, its quicker to start with a good picture and add snow rather than a BadTV and remove ghosts and lines etc.

TV Type - sets the base television type.

- **Colour** - Colour pictures.
- **B & W** - Black & White pictures.
- **Tint** - colour tinted pictures.

Tint Colour - sets the tint colour when the TV Type is set to Tint.

Contrast - controls the ratio of the brightest tones to the darkest tones. Increase this value to make the shadows darker and the highlights brighter.

Brightness - controls the picture luminance.

Colour - controls the colour saturation of the picture.

Master Breakup - controls the overall degradation of the TV signal.Use this parameter to ramp in the picture breakup. This parameter is modified by the Breakup Variation parameter. A Master Breakup value of zero will give the input picture regardless of the settings of any other parameter except the following: White Dot, Blur, Resolution, scaline Width, Contrast, Brightness, Colour, Breakup Variation and Guns.

Breakup Variation - controls the variation of the Master Breakup.

Breakup Speed - the deterioration of the signal oscillates from poor to good. This parameter controls the rate of this fluctuation. A value of 100 will give one cycle per second.

Blur - defocuses the image with a gaussian blur.

Resolution - controls the number of pixels in the image. 100 is full resolution. 50 halves the resolution by skipping every other pixel.

Scanline Width - controls the emphasis of the horizontal scan lines. You can get very convincing simulated picture lines using this parameter.

White Dot - controls the scaling and distortion of the image to simulate power loss to the monitor.

Seed - this number generates a number sequence that is used to randomly vary the television interference.

Guns

The red, green and blue guns in a cathode ray tube fire streams of electrons at the phosphor coating on the television screen to produce

a picture. The electron streams are bent using magnets through the shadow mask. If the shadow mask is misaligned a colour shift in the image will be produced. The controls on this property page are used to simulate CRT problems.

Red Brightness - controls the strength of the red gun.

Green Brightness - controls the strength of the green gun.

Blue Brightness - controls the strength of the blue gun.

Red Gun Align X - causes the horizontal displacement of the red gun.

Red Gun Align Y - causes the vertical displacement of the red gun.

Green Gun Align X - causes the horizontal displacement of the green gun.

Green Gun Align Y - causes the vertical displacement of the green gun.

Blue Gun Align X - causes the horizontal displacement of the blue gun.

Blue Gun Align Y - causes the vertical displacement of the blue gun.

Breakup

This property page sets colour loss, snow, ghosting, edge breakup, creeping lines and vertical roll on the picture.

Figure 81. Snow.

Figure 82. Ghosting.

Ghost Images - sets the number of repeated images.

Ghost Strength - controls the brightness of the ghosted images.

Ghost Speed - the ghosting oscillates from poor to good as the signal is lost and found. This parameter controls the rate of this fluctuation. A value of 100 will give one cycle per second.

Ghost Threshold - controls the Master Breakup level above which ghosting starts to appear.

Ghost Distance - controls the maximum image displacement when Master Breakup is at a maximum.

Snow Max - controls the amount of snow added when Master Breakup is at a maximum. Snow refers to the noise that appears on the picture due to a poor signal.

Snow Softness - controls the blur on the snow.

Snow Sparseness - controls the density of the snow. Increase this value to thin out the snow.

Snow Threshold - controls the Master Breakup level above which snow begins to appear.

Line Angle - controls the angle of the lines to the horizontal.

Line Spacing - controls the separation of the creeping lines.

Line Speed - controls the speed of creeping lines when Master Breakup is at a maximum.

Line Threshold - controls the Master Breakup level above which the creeping lines begin to appear.

Edge Distortion - controls the amount of edge distortion when Master Breakup is at a maximum.

Edge Jaggedness - controls the sharpness of the edge distortion.

Edge Speed - the edge distortion oscillates from poor to good as the signal is lost and found. This parameter controls the rate of this fluctuation. A value of 100 will give one cycle per second.

Edge Threshold - controls the Master Breakup level above which the edge begins to degrade.

Figure 83. Edge Distortion.

Figure 84. Vertical Roll.

Max Vert Offset - controls the amount of vertical displacement when Master Breakup is at a maximum.

Offset Threshold - controls the Master Breakup level above which the picture begins to be offset.

Vert Roll Speed - controls the maximum vertical roll speed when Master Breakup is at a maximum.

Roll Threshold - controls the Master Breakup level above which the picture begins to roll.

Colour Degrade - controls the amount of colour loss when Master Breakup is at a maximum.

Colour Threshold - controls the Master Breakup level above which colour begins to degrade.

Effects

This property page has controls for multiple types of electronic noise.

Play Mode - sets how to simulate fast forward and rewind image distortions.

- **Video** - horizontal tape head image distortions are applied when altering the play speed. This value is best quickly ramped in rather than flicked on and off.
- **DVD** - no distortion to the image is applied during vary-speed.

Play Speed - controls the speed of the clip. 0 is paused, 1 is play at normal speed, greater than 1 is fast forward and less than zero is rewind.

EM Interference - controls dark horizontal bands on the picture to

simulate electromagnetic interference on the cables.

Figure 85. Fast forward video.

Figure 86. EM Interference.

Lens Effect - switch this on to warp the picture to simulate camera lens distortions from security cameras that have very wide angle lenses.

Lens Strength - controls the amount of light distortion through the lens.

Lens Radius - control the size of the warping.

Filter - switches filtering on or off. Toggle the filter on to improve the quality of the rendered image.

Shash Type - sets the type of noise produced.

- **Type 1-5** - five different shash types. Pick the one you like or let the plug-in decide with random selected.
- **Random** - randomly selects one of the above formats for a duration set by the Shash Period.

Shash Period - sets the number of seconds each type of shash is rendered when the Shash Type is Random.

Max Shash - controls the maximum amount of electronic noise when Master Breakup is at a maximum.

Shash Threshold - controls the Master Breakup level above which the picture begins to show this noise.

Repeat Frames - control frame repetition to give a jerky feel to the playback. Useful for simulating poor VHS.

Source Crops - controls the horizontal and vertical cropping of the source image and the value of pixels outside this crop area. See “Crops” on page 25.

T_Bandlimit

Description

This plug-in converts an image into fourier space, removes or keeps user specified frequencies, then converts it back into an image. High, low or intermediate frequencies can be removed or retained. What you get is a very stylized result.

Figure 87. Masks.

Figure 88. T_Bandlimit used to remove information from the image.

It may help to say a little about frequency space. For example, a black to white ramp would be a low frequency image (large features), whereas a frame of video noise is a good example of a high frequency image (small features). Noise over a ramp would have both high and low frequencies. T_Bandlimit can be used to

Figure 89. Low frequency ramp.

Figure 90. High & low frequency noisy ramp.

remove or show specified frequencies.

Figure 91. Showing the high frequency noise but not the ramp.

Figure 92. Showing the low frequency ramp but not the noise.

Ringing (banding) is a by-product of this technique and can lead to some interesting visual effects. On the images below, T_Bandlimit has been applied to colour bars.

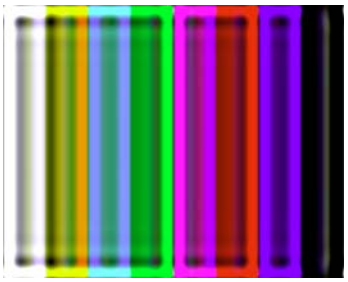

Figure 93. Feature Size set to 15

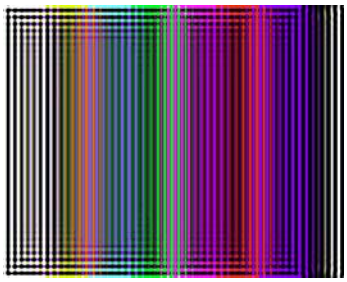

Figure 94. Feature Size set to 50

Inputs

T_Bandlimit has one input - a source image.

Bandlimit

Feature Size - controls the particular size of the image features that are to be shown or removed. Low values correspond to small features (high frequencies). High values correspond to large features (low frequencies).

Feature Spread - controls the extent of the fall-off at the selected feature size (frequency). Increase this value for a smoother result.

Gain - controls the overall luminance of the effect.

Aspect - controls the horizontal and vertical weighting of the effect.

Effect

- **Remove** - removes the specified spread of frequencies and shows what's left.
- **Show** - shows only the specified spread of frequencies.

Maintain Luminance - toggle this on to preserve the original luminance level.

Blending - sets how to mix between the image effect and its original source. (See "Blending" on page 16.)

Crops

See "Crops" on page 25.

Hints & Tips

T_Bandlimit can give interesting ripple effects on text. Set Effect to

Figure 95. Original

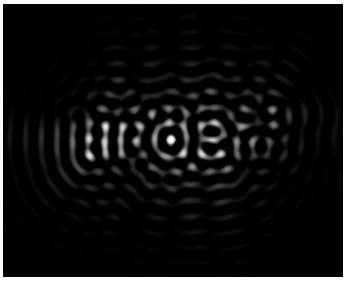

Figure 96. T_Bandlimit ripples

Remove.

In some images, T_Bandlimit can be used to give a soft painterly effect by setting the Feature Size and Spread to low values with Effect set to Show.

Figure 97. Original.

Figure 98. T_Bandlimit painterly effect.

T_BumpShade

Description

T_BumpShade gives a 3D look to images by indenting the source image using information in the bump and outline mattes and lighting the result. Cartoons can benefit from this technique. The bump can

Figure 99. Original cartoon artwork.

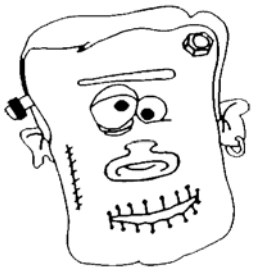

Figure 100. Outline matte.

be indented or out dented. There are three components to the lighting, ambient, diffuse and specular.

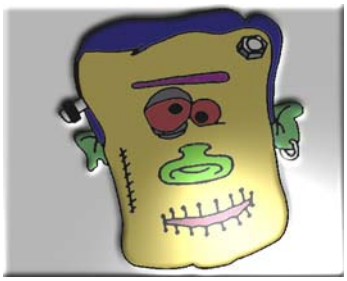

Figure 101. T_BumpShade with solid matte.

Figure 102. T_BumpShade with outline matte.

Inputs

T_BumpShade has three inputs - a source image and two masks.

Bump

Light Type - sets the light model used.

- **Infinite**
- **Local**

Light Direction - controls the direction the light is coming from. A value of zero will shine light from right to left.

Light Elevation - controls the elevation of the light. Specifically, it is the angle between the image plane and the light source. A value of 90 will set the light directly above the image plane.

Light Distance - sets the distance the local light source is from the

object.

Bump - switch this on to use the second input as a bump mask. The bumping is restricted to white areas of the outline matte when the outline is switched on.

Bump Amount - controls the apparent depth of the indentations.

Bump Softness - controls the pre-blur of the mask before being used as the bump source. Increasing this parameter will smooth the edges of the bump.

Bump Aspect - controls the horizontal and vertical weighting of the bump softness.

Bump Min - pixels at or below this luminance value are set to black.

Bump Max - pixels at or above this luminance value are set to white.

Lighting

This group controls the lighting characteristics of the image.

Ambient light produces a constant illumination on all surfaces regardless of their orientation

Dull surfaces scatter light equally in all directions so that the surfaces appear to have the same brightness from all viewing angles. These surfaces exhibit diffuse reflection.

Specular or highlight reflection is observed on any shiny surface. Illuminate a shiny metal sphere and the highlight is caused by specular reflection while the light reflected from the rest of the sphere is caused by diffuse reflection.

Ambient - controls how to apply the ambient lighting.

- **Source & Colour** - switches on ambient lighting and uses the source image and ambient colour in the ambient colour calculations.
- **Source** - switches on ambient lighting and uses the source image in the ambient colour calculations.
- **Colour** - switches on ambient lighting and uses the ambient colour in the ambient colour calculations.
- **None** - switches off ambient lighting.

Ambient Colour - sets the colour used in the ambient light calculations.

Strength - controls the amount of ambient light.

Diffuse - controls how to apply the diffuse lighting.

- **Source & Colour** - switches on diffuse lighting and uses the source image and diffuse colour in the diffuse colour calculations.
- **Source** - switches on diffuse lighting and uses the source image in the diffuse colour calculations.
- **Colour** - switches on diffuse lighting and uses the diffuse colour in the diffuse colour calculations.
- **None** - switches off diffuse lighting.

Diffuse Colour - sets the colour used in the diffuse light calculations.

Strength - controls the amount of reflected diffuse light.

Specular - controls how to apply the specular lighting.

- **Source & Colour** - switches on specular lighting and uses the source image and specular colour in the specular colour calculations.
- **Source** - switches on specular lighting and uses the source image in the specular colour calculations.
- **Colour** - switches on specular lighting and uses the specular colour in the specular colour calculations.
- **None** - switches off specular lighting.

Specular Colour - sets the colour of the specular highlights.

Strength - controls the amount of reflected specular light.

Fall-off - controls the shininess of the surface.

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

T_Cartoon

Description

T_Cartoon flattens colour and adds edge lines to give a handdrawn cartoon-look to images. The algorithm takes each pixel, looks in the

Figure 103. Original.

Figure 104. Cartoon.

region around this and gathers together similarly coloured pixels. These regions are then further combined together using the Segment Merge parameter.

Inputs

T_Cartoon has one input - a source image.

Cartoon

Search Radius - defines the size of the circle searched for similar pixels.

Aspect - controls the horizontal and vertical weighting of the search area.

Colour Range - defines the range of colours thought to be the same. Increase this to flatten out more colours.

Block Scale - this is a proxy resolution scale. At 100 each pixel is used in the calculations. At 50 every other pixel is used.

Search Type - defines the shape of the search region.

- **Gaussian** - uses a weighted circular region where the central pixels are more likely to be included in the amalgamated region than outlying pixels.
- **Circular** - uses a circular search region.
- **Box** - uses a rectangular search region.

Segment Merge - takes adjacent regions calculated from the first pass and merges them together. Increase this value to merge more

regions as shown in Figure 105 and Figure 106.

Figure 105. Segment Merge=10.

Figure 106. Segment Merge=35.

Min. Region - removes spots of colour. If the region has fewer pixels than the min region it is absorbed into the surrounding regions.

Softening - blurs the image before applying the algorithm.

Saturation - changes the colour strength (saturation) of the image.

Brightness - changes the brightness of the image.

Draw Lines - switch this on to draw lines around the edges of objects.

Line Probability - increase this to make it more likely that a line is drawn.

Line Strength - increase this for stronger more visible lines.

Line Width - changes the thickness ofthe lines.

Line Colour - changes the line colour.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

T_Chromatic

Description

T_Chromatic blurs and separates the colour components of an image. It is most effective on black and white images.

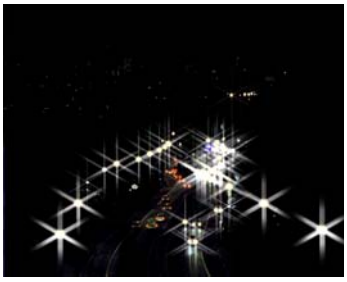

Figure 107. Car head lamps with starburst filter.

Figure 108. T_Chromatic applied.

Inputs

T_Chromatic has one input - a source image.

Chromatic

Preset - sets the colour gradient which defines the chromatic effect. To make the colour gradient visible and editable, select Full Image Widget. (See “Display Tools” on page 5.)

- Fat White Outer
- Fat BGR Outer
- Fat RGB Outer
- Fat White
- Fat BGR
- Fat RGB
- White Outer
- BGR Outer
- RGB Outer
- White
- BGR
- RGB

Radius - controls the blur and separation of the colour components.

Aspect - **controls the horizontal and vertical weighting of the effect.**

Luminance Correct - toggle this on to compensate for the luminance drop.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops See “Crops” on page 25.

T_Condensation

Description

Renders thousands of water particles that clump together into water droplets. The droplets are used to distort the source image giving the appearance of water condensation. There are lighting controls and the effect auto-animates.

Figure 109. Droplets applied to window.

Inputs

T_Condensation has two inputs - a source image and a matte.

Drops

Particle Size - controls the size of the particles that make up a water droplet.

Aspect - controls the horizontal and vertical weighting of the effect. Alter this value to generate oval shaped particles.

Num Particles - sets the maximum number of particles that will clump together to form a single water droplet.

Note *Don't make this too large unless you have a very fast machine.*

Total Drops - sets the number of water droplets rendered.

Show Drop Mask - switch this on to display the water droplet mask. It can be useful to view this prior to lighting the droplets.

Bump - controls the amount of image distortion through the water droplets.

Drop Transparency - sets the transparency of the drops. Increase

this to make the colour of the drops more see-through. The water drops will still distort the image even with the transparency set to 100.

Lighting - switches on the light source. (See “Lighting” on page 11.)

Seed - sets the random number sequence from which the drops are generated. Different seed values will produce completely different random drop patterns.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Colour - sets the colour of the water drops.

Speed - controls the rate at which the water droplets move.

Direction - sets the direction of motion of the water droplets. Minus 90 degrees is down the screen.

Wander - controls how far the drops are allowed to be displaced from their path.

Movers - sets the percentage of drops that will animate.

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

T_Contour

Description

T_Contour draws closed lines along pixels of similar luminance. There are controls to change the number and quality of lines drawn.

Figure 110. Contours on a church.

Figure 111. T_Contour with increased Step Level and Softness.

Inputs

T_Contour has one input - a source image.

Contour

Step Level - controls the number of contours. Increase this value to reduce the number of contours.

Quantise Offset - shifts the contour position up and down the luminance map.

Contour Grow - controls the thickness of the contour lines.

Amplify Contours - controls the strength of the contour lines. Increase this for darker lines.

Softness - controls the smoothness of the contour lines. Increase this to smooth out tight curves in the lines.

Background Colour - sets the colour behind the contour lines.

Foreground Colour - sets the colour of the contour lines.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

Hints & Tips

(See “T_Etch” on page 86.)

T_CrashZoom

Description

T_CrashZoom smears pixels in all directions from a point. They are also called radial blurs and can be used to transition between one clip and another or simulate light rays. T_CrashZoom is much faster

Figure 112. Monster.

Figure 113. T_CrashZoom.

to render than T_RadialBlur but does not take a matte input. See also “T_RadialBlur” on page 49.

Inputs

T_CrashZoom has one input - a source image.

Blur

Blur - controls the amount of smearing.

X Centre - controls the horizontal position of the radial blur centre.

Y Centre - controls the vertical position of the radial blur centre.

Holdout Radius - controls the size of the circle in which no blurring takes place. The holdout circle is centered around X Centre and Y Centre.

Fall-off - sets the blur algorithm used.

- **Gaussian** - high quality but slower than Box.
- **Box** - faster than Gaussian but poorer quality.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

Hints & Tips

T_CrashZoom is much faster than T_RadialBlur, but it doesn’t have a matte input.

T_Diffuse

Description

T_Diffuse randomly scatters pixels in an image. Optional second and third inputs can be used to composite the pixel scattering over a background using a matte.

Figure 114. Nelson's column in London.

Figure 115. Pixel scattering with T_Diffuse.

Inputs

T_Diffuse has three inputs - a source image, a back image and a matte.

Diffuse

Size - controls the distance the pixels will scatter. This parameter can be attenuated by the optional matte input when Style is set to Matte.

Aspect - controls the horizontal and vertical weighting of the effect.

Freeze Diffusion - toggle this on to keep the same scattering pattern from frame to frame.

Roto/Matte

See "Roto/Matte Tool" on page 17.

Composite - switch this on to scatter pixels on the front image and composite this over the back image using the matte.

Composite - controls how the front and back images are blended together using the matte if Style is set to Comp. (See "Roto/Matte Tool" on page 17.)

- **Colour Switch** - produces a standard composite by mixing the front and back images based on values in the matte; but, for mattes that have been pulled from a blue screen key, this method helps suppress the blue spill at the matte edges. The Chroma Blend controls the amount of spill suppression.

- **Punch Both** - produces a standard composite by mixing the front and back images based on values in the matte. If the matte is black you'll see the background, and if white you'll see the foreground. This method is typically used to composite unpremultiplied images.
- **Punch Front** - uses the matte to cut a hole in the foreground before mixing with the background.
- **Punch Back** - uses the inverted matte to cut a hole in the background before mixing in the foreground. This method is used to composite premultiplied images.

Chroma Blend - controls the amount of spill suppression when Composite is set to Colour Switch. In grey areas of the matte, luminance is taken from the foreground image and chroma from the background image. A Chroma Blend value of zero will produce the same result as Punch Both.

Note *Negative values take chroma from the foreground and luminance from the background.*

Crops

See "Crops" on page 25.

Hints & Tips

You can get some interesting scratchy effects by combining T_Diffuse with T_DirBlur. (See "T_DirBlur" on page 39.)

Figure 116. T_Diffuse and T_DirBlur.

T_DiffusionFilter

Description

This is an optical glow effect that can be applied to highlights to give the impression of radiating heat or light. The lowlights can also be treated with this diffusion filter and both can be colour tinted.

Figure 117. Original.

Figure 118. T_DiffusionFilter.

Inputs

T_DiffusionFilter has one input - a source image.

Highlights

Highlights - this sets the algorithm used to identify which parts of the image will be affected by the highlight glow.

- RGB - analyses the image based on the maximum channel value for each pixel. Thus a pixel that is white and one that is pure blue will be equally affected by the glow.
- Colour - analyses the image based on the luminance value for each pixel. The luminance is a weighted average of the channels making up the pixel colour. Thus a white pixel will be affected when a pure blue one will not.
- None - switches off any highlight diffusion.

Colour - allows you to specify the colour of the highlight.

Min Threshold - the two threshold parameters compress the dynamic range of the matte channel used to generate the highlight glows which enables you to control which parts of the image are affected by the diffusion filter. Values below the Min Threshold will not be affected by the glow. Values above the Max Threshold are fully affected by the glow. Values between the Min and Max Thresholds are used to ramp in the glow.

Max Threshold - values above the Max Threshold are fully affected by the glow. Decrease this value to glow more of the highlights.

Softness - controls the softness of the highlight glow. Increase this parameter to blur the glow.

Aspect - controls the horizontal and vertical weighting of the blur.

Strength - controls the strength of the glow. Increase this to make the glow more obvious.

Shrink/Grow - this erodes or grows the matte generated from the threshold values. values above zero will grow the matte which will make the highlights bigger. Values below zero will erode the matte making the highlights smaller.

Display - when adjusting the filter use this to show the areas affected before rendering with display set to result.

- **Highlights** - shows the areas affected by the highlight filter in white.
- **Lowlights** - shows the areas affected by the lowlight filter in white.
- **Result** - renders the diffusion filter.

Order - slightly different results are seen if the lowlights are calculated first. Use this to set the order of procssing.

Lowlights

Lowlights - this sets the algorithm used to identify which parts of the image will be affected by the lowlight glow.

- **RGB** - analyses the image based on the maximum channel value for each pixel. Thus a pixel that is white and one that is pure blue will be equally affected by the glow.
- **Colour** - analyses the image based on the luminance value for each pixel. The luminance is a weighted average of the channels making up the pixel colour. Thus a white pixel will be affected when a pure blue one will not.
- **None** - switches off any lowlight diffusion.

Colour - allows you to specify the colour of the lowlight.

Min Threshold - the two threshold parameters compress the dynamic range of the matte channel used to generate the lowlight glows which enables you to control which parts of the image are affected by the diffusion filter. Values below the Min Threshold are fully affected by the glow. Values above the Max Threshold are not affected by the glow. Values between the Min and Max Thresholds are used to ramp in the glow.

Max Threshold - values above the Max Threshold are not affected by the glow. Increase this value to glow more of the lowlights.

Softness - controls the softness of the lowlight glow. Increase this

parameter to blur the glow.

Aspect - controls the horizontal and vertical weighting of the blur.

Strength - controls the strength of the glow. Increase this to make the glow more obvious.

Shrink/Grow - this erodes or grows the matte generated from the threshold values. values above zero will grow the matte which will make the lowlights bigger. Values below zero will erode the matte making the lowlights smaller.

Crops

See “Crops” on page 25.

T_DoubleVision

Description

T_DoubleVision blends multiple copies of the input image with offsets to give a double vision look.

Figure 119. T_DoubleVision

Inputs

T_DoubleVision has one input - a source image.

DoubleVision

Repeats - sets the number of times the source image is repeated.

Master Gain - controls the overall brightness of the result.

Speed - controls how fast the image offsets animate.

Detail - sets the amount of fractal detail to add to the motion paths. Increase this value for a more erratic animation.

Seed - sets the random number sequence from which the motion paths are generated. Different seed values will produce completely different random movements.

Min Gain - sets the minimum brightness for a layer.

Min Scale - sets the minimum size for a layer.

Min Aspect - sets the minimum value of aspect for a layer. The aspect controls the weighting of the horizontal and vertical scales.

Filter - sets the quality of the filter used when processing the effect.

(See “Filtering” on page 14.)

Max Gain - sets the maximum brightness for a layer.

Max Scale - sets the maximum size of a layer.

Max Aspect - sets the maximum value of aspect for a layer. The aspect controls the weighting of the horizontal and vertical scales.

Max X Offset - sets the maximum horizontal displacement of a layer.

Max Y Offset - sets the maximum vertical displacement of a layer.

Max Rotation - sets the maximum rotation of a layer.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

T_EdgeBlock

Description

T_EdgeBlock posterises an image localised to detected edges within the image.

Figure 120. Original Image.

Figure 121. T_EdgeBlock.

Inputs

T_EdgeBlock has one input - a source image.

Edges

Radius - controls how far the posterisation extends from the edges.

Aspect - controls the horizontal and vertical weighting of the effect.

Shape - sets the filter shape.

- **Square** - gives a blocky look to the effect.
- **Circle** - gives a smoother look to the effect.

Crops

See “Crops” on page 25.

T_EdgeDetect

Description

This spark finds edges in images.

Figure 122. Original.

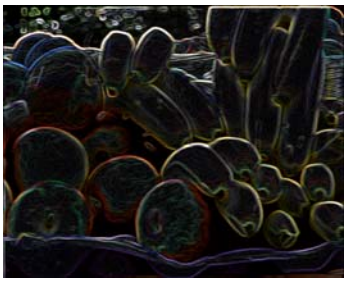

Figure 123. T_EdgeDetect, Mode:RGB.

Inputs

T_EdgeDetect has one input - a source image.

Edges

Mode - sets the edge detection algorithm.

- **RGB** - produces coloured lines.
- **Colour** - takes the line colour from the Colour parameter.

Colour - sets the colour used when the Mode is set to Colour.

Softness - controls the amount of blurring applied to the image.

Gain - controls the brightness of the lines.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

T_Etch

Description

T_Etch simulates a hand drawn picture using charcoal. Lines are drawn along edges and cross hatching is used to shade the gaps.

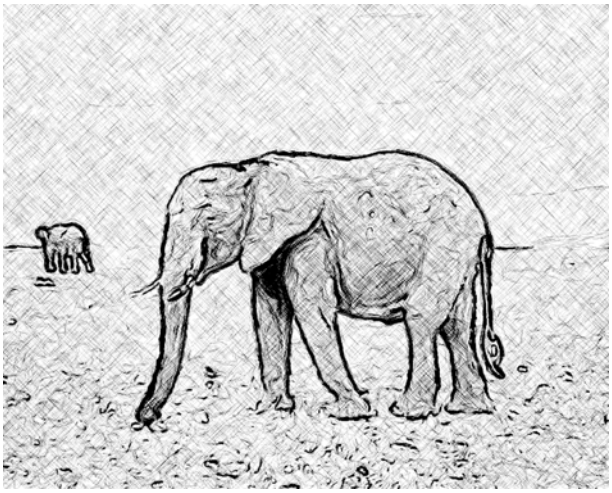

Figure 124. T_Etch using outline and shade.

Inputs

T_Etch has one input - a source image.

Etch

Outline Threshold - controls what is considered an edge and therefore whether a line is drawn. Increase this value for more lines.

Outline Density - controls the pressure of the pen strokes. Increase this for darker lines. This does not change the width of the lines.

Outline Softness - controls the softness of the lines. Increase this value to give the impression that a fat charcoal stick was used and less lines drawn.

Outline Length - sets the length of the straight lines that form the outlines.

Outline Separation - controls the gap between the lines drawn.

Shade Threshold - controls what is considered an edge and therefore where to apply shading.

Shade Density - controls the pressure of the shading stokes. Increase this for darker shading.

Shade Softness - controls the pre-blur of the image before the shading algorithm is used.

Shade Length - controls the length of the lines used in the cross hatching. Increase this for longer lines giving a darker result.

Shade Separation - controls the gap between the shading lines.

Seed - sets the random number used to generate the pen parameters.

Seed Method - controls the randomness of the pen strokes. This randomness determines whether a pen stroke is applied and what the pen strokes look like.

- **Pixel** - the randomness is based on the colour of each pixel only and the seed value is ignored.
- **Fixed** - the randomness is purely dependent on the seed value. If this value is not animated the randomness will not change on any frame.
- **Frame** - the randomness depends on both the frame number and the seed value and thus changes on each frame of the clip.

Etch - controls what to render.

- **Shade** - just draws the cross hatching.
- **Outline** - just draws outlines.
- **Outline and Shade** - draws both lines and cross hatching.

Colour - sets the colour behind the lines. The paper colour.

Colour - sets the colour of the lines. The pen colour.

Blank Threshold - switch this on to remove cross hatching in areas of similar luminance.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

Examples

A variety of effects can be created by using T_Etch with different blending methods.

Figure 125. Nelson’s column in Trafalgar Square in London.

Figure 126. T_Etch with blending method set to colour.

Figure 127. Car in Piccadilly Circus.

Figure 128. T_Etch with blending method set to add.

T_Flatten

Description

T_Flatten merges nearby regions of an image with similar luminance to provide a flatter output image. This removes fine detail giving a painterly effect on some images. See also “T_Paint” on page 113 and “T_Turner” on page 138.

Figure 129. Original Image.

Figure 130. Paint effect with T_Flatten.

Inputs

T_Flatten has one input - a source image.

Flatten

Size - controls the size of the flat regions. Increase this for a more dramatic effect.

Crops

See “Crops” on page 25.

T_Glass

Description

T_Glass gives the impression of viewing an image through a layer of distorting glass. Lighting effects are included.

Figure 131. Text used as the glass source.

Figure 132. Fruit used as image and glass.

Inputs

T_Glass has three inputs - a source image, a mask for the glass distortion and an attenuation mask.

Glass

Bump Amount - controls the amount the glass matte appears to deform the image. Positive values push out from the screen. Negative values indent.

Distortion Scale - controls the amount light rays are bent when entering the glass. This is also known as the refractive index of the glass. Changing this parameter alters the amount of distortion of the source image in the glass.

Glass ClipMin - pixels at or below this luminance value are set to black

Glass ClipMax - pixels at or above this luminance value are set to white.

Glass Softness - controls the amount of blurring applied to the glass mask before the image deformation is calculated.

Glass Aspect - controls the horizontal and vertical weighting of the blur on the glass.

Use Clipped Glass - switch this on to clip the output image using the second (glass) input. This button only appears if Roto/Matte is set to none.

Image Softness - controls the amount of blurring applied to the

image. This gives the effect of pulling the glass into focus and the entire background out of focus.

Image Aspect - controls the horizontal and vertical weighting of the blur on the image.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Light Type - controls the illumination of the image. For information on the lighting parameters see “Lighting” on page 11.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

Figure 133. Stained glass window

Figure 134. As seen through T_Glass

T_Glow

Description

T_Glow is an animatable glow/fire effect that is applied to an image. The glow has breakup parameters to make it less like a glow and more like fire.

Figure 135. Neon effect.

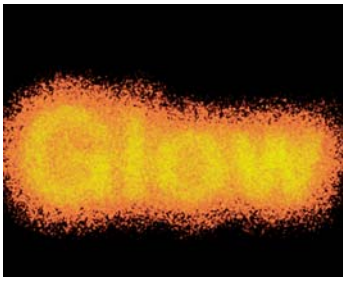

Figure 136. With breakup.

Inputs

T_Glow has three inputs - a glow mask, a background image and an attenuation mask.

Glow

Method - selects the glow method

- **Two Point Glow** - this glow uses just 2 colours in the colour gradient and has the same functionality as the Tinder 2 glow much loved by our customers.
- **Grad Glow** - this glow uses the colours in the colour gradient.

Brightness - controls the strength of the glow.

Spread - controls the softening and expansion of the glow.

Aspect - controls the horizontal and vertical weighting of the effect.

Burnout - controls the overall brightness of the glow. Increase this to make the glow hotter.

Edge Softness - controls the amount of blur applied to the edge. Increasing this softens and erodes the edges.

Note *This parameter is only available for Method: Grad Glow.*

Core Position - controls the weighting of the 2 colours in the glow. A value of 100% shows only the top colour in the gradient.

Note *This parameter is only available for Method: Two Point Glow.*

Breakup - controls the amount of fractal perturbation added to the glow shape.

Breakup Aspect - controls the horizontal and vertical weighting of the breakup.

Time Constant Breakup - switch this on to freeze the scatter pattern on each frame.

Halo - switch this on to produce a glow outline.

Dither - switch this on to add noise to the colour gradient to reduce the appearance of banding.

Masking - controls how to use the mask input.

- **Before & After** - performs the "Before Glow" operation followed by the "After Glow".
- **After Glow** - cuts out the glow using the mask input. Only the parts of the glow mask that overlap with peak white in the mask are displayed.
- **Before Glow** - applies the mathematical operator AND to the glass and mask inputs and uses the result as the glow source.
- **None** - disables the mask input.

ClipMin - pixels at or below this luminance value are set to black

ClipMax - pixels at or above this luminance value are set to white.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Figure 137. Glow on an image.

Figure 138. Glow with Blending set to Add.

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

T_HeatHaze

Description

T_HeatHaze simulates the rippling distortion of an image which is characteristic of viewing it through hot air.

Figure 139. T_HeatHaze.

Inputs

T_HeatHaze has two inputs - a source image and a matte.

HeatHaze

Displacement - controls the amount of image distortion.

Wavelength - controls the distance between wave peaks.

Aspect - controls the horizontal and vertical weighting of the effect.

Franticness - controls the speed of the boiling. The higher this value is set, the hotter it will appear.

Wave Count - controls the number of waves in each layer.

Layers - sets the number of distorting layers which are blended together.

Distort Matte - switch this on to use the heat haze to breakup the edges of the matte.

Direction - controls the direction of the simulated hot air. If set to 90 the distortion will appear to rise up the screen.

Speed - controls how quickly the hot air will move.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Roto/Matte See “Roto/Matte Tool” on page 17.

Crops See “Crops” on page 25.

Hints & Tips Heat haze is usually visible in the distance and not on objects in the foreground. To simulate realistic heat haze, create a matte of any foreground objects and use this to attenuate the effect.

T_Kaleid

Description

T_Kaleid produces a classic triangular prism kaleidoscope effect on an image. This is achieved by simulating the inter-reflections of a triangular prism over the picture.

Figure 140. Original image.

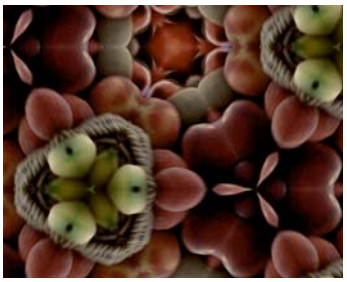

Figure 141. T_Kaleid.

Inputs

T_Kaleid has one input - a source image.

Kaleid

Prism X Centre - controls the horizontal position of the prism.

Prism Y Centre - controls the vertical position of the prism.

Prism Size - controls the scale of the effect. Increase this value for a larger triangular prism.

Prism Rotation - controls the rotation of the prism.

Image X Position - controls the horizontal position of the centre of the image.

Image Y Position - controls the vertical position of the centre of the image.

Image Size - controls the image size.

Image Rotation - controls the rotation of the image.

Filter - switches filtering on or off. Toggle the filter on to improve the quality of the rendered image.

Show Source Image - switch this on to remove the effect of the prism while you manipulate the image.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

T_MeltTime

Description

T_MeltTime applies a temporal distortion of the image based on values in a mask. Where the mask is white, pixels in the output will be taken from "Range Forward" frames ahead of the current frame. Where the mask is black, pixels in the output will be taken from "Range Backward" frames before the current frame.

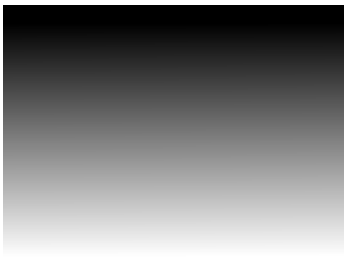

Figure 142. Gradient used as the mask in T_MeltTime.

Figure 143. The output of T_MeltTime on a bus moving left to right with the Gradient mask shown on the left.

Inputs

T_MeltTime has two inputs - a source image and a matte.

Melt

Range Forward - sets the number of frames ahead of the current frame from which pixels are taken for white values in the mask.

Range Backward - sets the number of frames before the current frame from which pixels are taken for black values in the mask.

Note *Grey values in the mask scale the pixel interpolation between the values specified in Range Forward and Range Backward.*

Output - controls the number of output frames. Increase this value to reduce the output clip length. The amount represents the frames skipped.

Input - controls the number of input frames used. This can speed up rendering at the cost of some quality. The amount represents the frames skipped.

Interpolate - switch this on to interpolate between the sections of images that make up each frame.

Filter Width - controls the extent to which the interpolation overlaps the sections of images that make up each frame. Increase this value for a smoother result.

Deband - switch this on to reduce the banding in the mask.

Quantise Level - controls the level at which debanding will occur. Increase this to reduce the banding.

Blur - controls the amount of defocusing applied to smooth the bands.

Noise - controls the amount of noise added to smooth the bands.

Note *Try and keep the blur and noise to a minimum.*

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

T_Mix

Description

T_Mix mixes two images together using a variety of blending methods. The images below show a mix between GenArts Logo and

Figure 144. Method:Difference

Figure 145. Method:Lighten

Colour Bars.

Inputs

T_Mix has two inputs - a front image and a back image.

Mix

Method - controls how to mix the two images. For more information on the blending algorithms see “Blending” on page 16.

Mix - controls the mix between the two images. A value of 100% shows the Back image.

Front Gain - controls the brightness of the Front image.

Back Gain - controls the brightness of the Back image.

Crops

See “Crops” on page 25.

Hints & Tips

For logic operators see “T_MixMatte” on page 220.

T_Mosaic

Description

T_Mosaic creates a block pattern effect using a variety of shapes including the standard square mosaic.

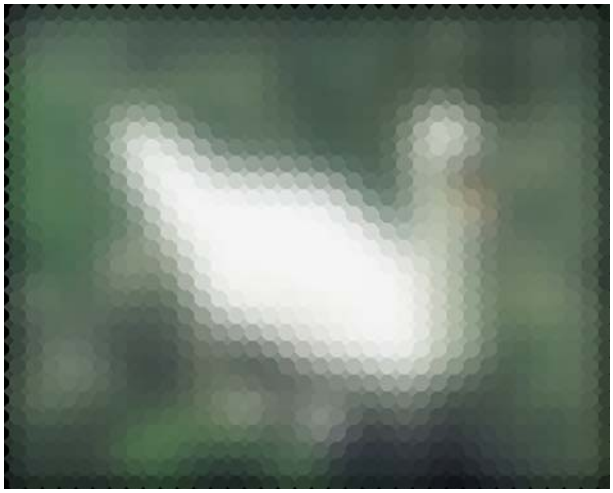

Figure 146. T_Mosaic with a pre-blur applied

Inputs

T_Mosaic has one input - a source image.

Mosaic

Pattern X Offset - controls the horizontal position of the pattern.

Pattern Y Offset - controls the vertical position of the pattern.

Pattern Rotation - controls the rotation of the pattern. This parameter is calibrated in degrees and can be manipulated using the on-screen tool.

Pattern Size - controls the size of the pattern.

Pattern Aspect - controls the horizontal and vertical weighting of the effect.

Pre Blur - controls the blurring of the image before the mosaic effect is applied.

Pattern - controls the shape of the mosaic pattern.

- TheOtherOne
- Octogons
- Triangles

- Circles
- Squares

Filter - switches filtering on or off. Toggle the filter on to improve the quality of the rendered image. (See “Filtering” on page 14.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

T_Newsprint

Description

T_Newsprint converts images into their constituent dot patterns that can be characteristic of printed matter. There are three different print colour methods. Two Tone produces black and white dot patterns,

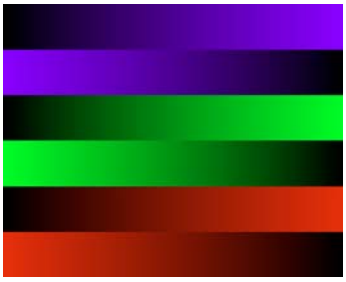

Figure 147. RGB Crossed Ramps.

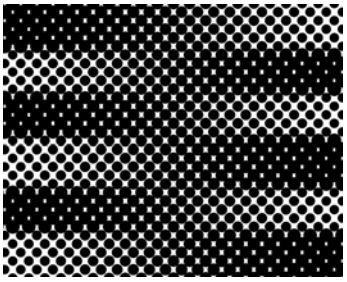

Figure 148. Two Tone.

CMY reproduces the standard colour printing method using cyan, magenta and yellow dots, and RGB that uses red, green and blue dots to re-create the image.

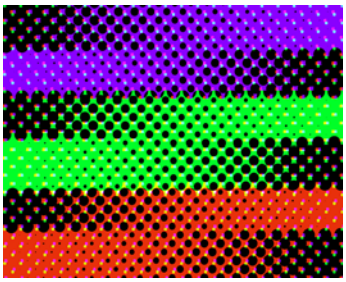

Figure 149. CMY.

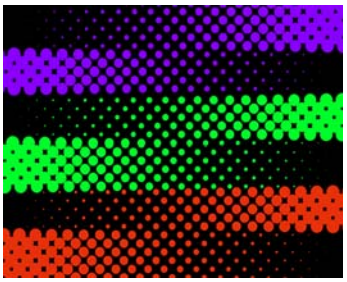

Figure 150. RGB.

Inputs

T_Newsprint has one input - a source image.

Print

Size - controls the size of the dots.

Aspect - controls the horizontal and vertical weighting of the effect.

Rotation - controls the rotation of each dot.

Print Shift in X - controls the horizontal position of the sampling point within the region of interest. This is usually the centre of the square bounding a dot.

Print Shift in Y - controls the vertical position of the sampling point within the region of interest. This is usually the centre of the square bounding a dot.

Bleed - controls the overlap of the dots.

Note *This only takes effect when the Print Style is set to Standard.*

Dot Colour - sets the colour of the dots.

Paper Colour - sets the colour behind the dots.

Print Colour - sets the method by which the colour in the image is converted into dots.

- **RGB** - produces a colour images based on the superposition of three primary coloured dots.
- **CMY** - produces a colour image based on the superposition of three complementary coloured dots, cyan, magenta and yellow. This method is used in print.
- **Two Tone** - produces a black and white image composed of dots. The size of the dots correspond to the brightness of the image.

Print Style - sets the method by which the dots are constructed.

- **Coarse** - the circles are clipped at luma boundaries.
- **Standard** - the circles are preserved across luma boundaries.

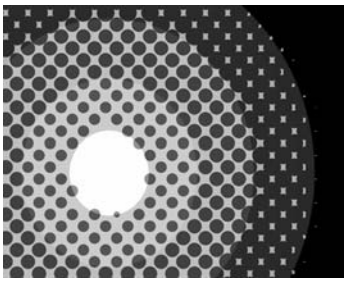

Figure 151. Standard.

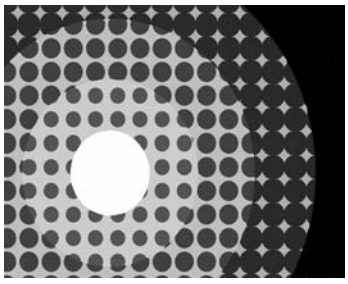

Figure 152. Coarse.

The images above show a circular luminance pattern to which the Standard and Course print styles have been applied. (The dot patterns have been mixed back with the original image for clarity)

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Pre-Blur - controls the amount of blurring applied to the image before the dots are computed.

Crops

See “Crops” on page 25.

Hints & Tips

Animating the size of the dots from large to small is an interesting method of bringing objects into view.

As well as RGB and CMY, colour can be brought into a newsprint pattern by using Two Tone but using the built in blending methods to mix back the original footage.

With heavily back-lit black and white footage, you can get a rather undesirable bobbly look to edges if the Print Colour is set to RGB. This is because the RGB algorithm is making large white dots to

Figure 153. Original back-lit image.

capture the bright highlights. In such circumstances you can get a better result using Two Tone.

Figure 154. "Bobbling" on edges using RGB.

Figure 155. Better result using Two Tone.

T_OldFilm

Description

T_OldFilm converts contemporary video footage into images that look as though they have been shot on film and left to degrade over time. Scratches, hair and dirt have been statistically modelled. There are controls to colour the image, add grain, remove fields and apply camera/sprocket shake.

Inputs

T_OldFilm has one input - a source image.

General

Presets - several presets ship with T_OldFilm including Black &

Figure 156. Original Image

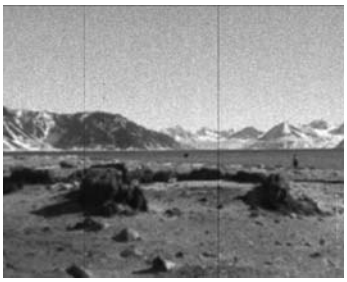

Figure 157. Preset: Black & White 3

White, Sepia, Forties Colour, Modern Film and Techno Colour. A few are shown here with the original image for comparison.

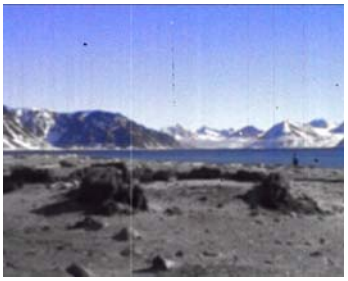

Figure 158. Preset: Forties Colour

Figure 159. Preset: Techno Colour

Tint Colour - sets the colour used when tinting the image.

Tint Amount - controls the amount of the tint colour washed into the source image.

Film Type - sets the base colour type before defects are added.

- **Colour** - colour information is retained in the image.

- **B & W** - the image is converted to black and white.
- **Tinted** - the image is washed with the tint colour.

Brightness - controls the luminance of the image.

Contrast - controls the ratio of the brightest to darkest tones in the image. Increase this value for more contrast.

Saturation - controls colour purity. Decrease this value to wash out the colours.
Old film that has undergone uneven development in the film lab will exhibit brightness variations. These are simulated with the flicker parameters.

Flicker - switch this on to add luminance flicker to the clip.

Amount - controls how the brightness could vary.

Flicker Speed - controls how fast the brightness varies.

The camera shake parameters simulate the frame vibrations and horizontal jumping from missing sprockets as the film is drawn through the projector.

Camera Shake - switch this on to apply simulated camera shake to the image. The shake algorithm is XY Translational.

Shake X - controls the maximum horizontal movement of the image. The actual amount will vary.

Shake Y - controls the maximum vertical movement of the image. The actual amount will vary.

Shake Speed - controls how fast the camera shakes.

The defocus parameters simulate the random defocusing of the image that occurs when the film is loaded badly in the camera or projector.

Defocus - controls the gaussian blur applied to the image. The actual blur will vary if the Defocus Variation parameter is greater than zero.

Defocus Variation - controls the percentage of variation of the blur. A value of 100 means that the blur could vary between zero and double the defocus amount.

Defocus Speed - the blur will increase and decrease in cyclic waves over time. The speed controls the number of oscillations per second

of this defocus. The actual oscillations are random (fractal).

Jerkiness - controls the temporal jerkiness of the clip. Old films tend to have a very staccato movement.

- **None** - no frame duplication.
- **Double Frames** - if we represent an input clip as frames 1,2,3,4,5,6,7,8 then the output clip will be 1,1,3,3,5,5,7,7.
- **Triple Frames** - if we represent an input clip as frames 1,2,3,4,5,6,7,8 then the output clip will be 1,1,1,4,4,4,7,7

Streakiness - controls the amount of vertical streaks on the image.

Seed - this number generates a number sequence that is used to randomly vary other parameters. For example, the number and positions of the scratches.

Highlight Diffusion - switch this on to apply this effect.

Clip Min - pixels at or below this luma value will not be diffused.

Clip Max - pixels at or above this value will be fully diffused to white.

Highlight Amount - controls the strength of the diffusion applied.

Highlight Softness - controls the softness of the diffusion filter.

Defects

This edit group has controls to add those long vertical scratches that occur on old film that has run through the projector too many times.

Figure 160. Before

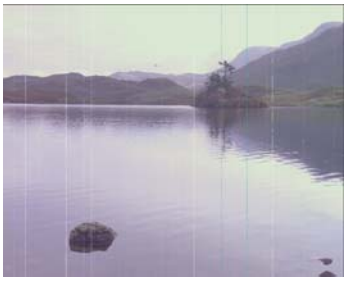

Figure 161. After, with print scratches

There are also parameters to add organic dirt, flickering hair and fading at the edges due to light leak on the film.

Scratch Type - vertical scratches can occur when the film (negative or print) passes through the cutter or projector.

- **None** - no scratches are drawn.

- **Print** - bright scratches due to wear on the print after it has been passed through the projector multiple times.
- **Negative** - dark scratches on the film negative. These are much less common than print scratches as the negative is handled infrequently.
- **Print & Neg,** - both types but weighted towards bright scratches.

Scratches - controls the number of scratches.

Scratch Opacity - controls the maximum opacity of the scratches. Increase this value to make them less transparent.

Scratch Width - controls the maximum horizontal width of a scratch. The actual width will vary.

Max Movement - controls the maximum horizontal movement of a scratch as a proportion of the screen width.

Scratch Speed - controls the oscillations per second.

Lifetime - controls the maximum lifetime of a scratch. The actual lifetime will vary.

Random Scratches - controls the maximum number random scratches per second. Random scratches are both transient and shorter than normal scratches.

Dirt Type - controls the organic dirt added to the image.
- **None** - no dirt is drawn.
- **Print** - bright dirt marks on the print.
- **Negative** - dark dirt marks on the film negative.
- **Print and Negative** - both types.

Dirt - controls the maximum amount of dirt added.

Dirt Size - controls the maximum size of the dirt. The actual size will vary.

Figure 162. Before

Figure 163. After, with dirt

Large Defects - controls the number of horizontal lines and pitting that represent large film defects on badly stored film.

Large Defect Scale - controls the size of the defects.

Figure 164. Before

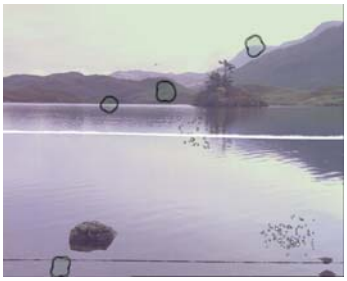

Figure 165. After, with large defects

Hair Type - these parameters control the small number of hairs that are stuck to the negative or print as a result of handling.

- **None** - no hairs are drawn.
- **Print** - bright hairs on the print.
- **Negative** - dark hairs on the film negative.
- **Print and Negative** - both types.

Hair - the average number of hairs per second.

Hair Size - controls the maximum size (length) of the hairs.

Figure 166. Before

Figure 167. After, with hair

Stain - controls the number of splotches of colour added to the image. Stains simulate the mildew and colour damage from storing film poorly in damp conditions.

Stain Size - controls the size of the stains.

Stain Opacity - controls the maximum opacity of the stains. The actual opacity will vary.

Vignette - switch this on to apply the fading at the screen edges.

Radius - controls the size of the circular vignette.

Falloff Width - controls the softness of the circular vignette.

X Centre - controls the horizontal position of the middle of the circular vignette.

Y Centre - controls the vertical position of the middle of the circular vignette.

Figure 168. Before

Figure 169. After, with sepia preset & vignette

Grain/Col

Colour - switch this on to apply the colour corrections.

Colour Ageing - controls the degradation of colour information in aged film.

CMY Process - controls a complex multi-faceted colouring algorithm. Best used with a bit of trial and error.

Red Brightness - controls the luminance of the red channel in the image.

Red Contrast - controls the ratio of the brightest to darkest red tones in the image.

Red Saturation - controls the purity of the red channel in the image.

Green Brightness - controls the luminance of the green channel in the image.

Green Contrast - controls the ratio of the brightest to darkest green tones in the image.

Green Saturation - controls the purity of the green channel in the image.

Blue Brightness - controls the luminance of the blue channel in the image.

Blue Contrast - controls the ratio of the brightest to darkest blue tones in the image.

Blue Saturation - controls the purity of the blue channel in the image.

The particles of silver halide in film are known as grain. These particles are sensitive to light and are visible when the film is projected. Different film stocks have different grain characteristics. Film stocks that rely on the camera lens focussing the image differently for each layer of coloured emulsion, due to the finite depth of the layered emulsions, will exhibit a slight defocusing on the red, green and blue grain. This is simulated with the softness parameters.

Grain - switch this on to apply grain to the image.

Grain Max - controls the overall size of the grain particles.

Grain Softness - controls the overall defocusing of the grain.

Red Grain - controls the size of the red grain particles.

Red Grain Softness - controls the defocusing of the red grain particles exhibited on some colour film stock.

Green Grain - controls the size of the green grain particles.

Green Grain Softness - controls the defocusing of the green grain particles exhibited on some colour film stock.

Blue Grain - controls the size of the blue grain particles.

Blue Grain Softness - controls the defocusing of the blue grain particles exhibited on some colour film stock.

Burn/Field

Burn Through - switch this on to simulate the film sticking in the gate and burning.

Figure 170. Before

Figure 171. After, with film burn through

Burn Colour - sets the colour under the film.

Burn Frame - sets the frame first ignited.

Hold Frames - sets the number of frames that are repeated, when the film is stuck in the gate, before the burn starts.

Burn Length - controls the number of frames it takes to burn the film.

Defield - switch this on to convert field images to frames.

Method - sets the algorithm that is used to generate the missing field.

- Duplicate - the missing line is simply copied from the previous line. This is very quick but of lower quality than the interpolation methods.
- Interpolate - simple interpolation from the previous and next lines.
- Wide Interpolate - weighted interpolation using a wider range of lines than just the previous and next. This gives very subtle differences between the Interpolation method.
- Slope Adaptive - complex interpolation of the missing lines. This method gives a particularly good result on slopes. It produces the same result on vertical lines as Interpolate, and a slightly better result on horizontal lines.

Field - sets the field that is kept.

- Odd - the odd field is retained.
- Even - the even field is retained.

Source Crops - controls the horizontal and vertical cropping of the source image and the value of pixels outside this crop area. See “Crops” on page 25.

T_Paint

Description

T_Paint processes images into ones that look as though they had been painted with acrylics. The algorithm paints brush strokes along

Figure 172. Swan processed with T_Paint.

contour lines in the image. By varying the parameters stippled effects or sweeping brush strokes can be achieved. For a different painterly look see “T_Turner” on page 138.

Inputs

T_Paint has two inputs - a source image and a matte.

Paint

Stroke Max Length - sets the maximum length of a brush stroke. The actual length will be random.

Brush Width Max - sets the maximum width of a brush stroke. The actual width will be random.

Stroke Separation - sets the distance on the canvas between successive applications of paint.

Softness - controls the amount of blurring of the image prior to painting. Increase this value for smoother brush lines.

Rotate - controls the maximum of amount of rotation applied to the brush strokes. The actual amount will be random.

Luminance Variation - controls the brightness variation of the paint applied between each brush stroke.

Preset - half a dozen presets to get you started.

Stroke Min Length - sets the minimum length of a brush stroke. The actual length will be random.

Brush Width Min - sets the minimum width of a brush stroke. The actual width will be random.

Bleed - controls the amount of paint that is allowed to run.

Edge Tolerance - controls the amount of paint that is allowed to deviate from the image contours.

Seed Method - controls the randomness of the paint brushes. This randomness controls whether a paint stroke is applied and what the brush strokes look like.

- **Frame** - the randomness depends on both the frame number and the seed value and thus changes on each frame of the clip.
- **Fixed** - the randomness is purely dependent on the seed value. If this value is not animated the randomness will not change on any frame.
- **Pixel** - the randomness is based on the colour of each pixel only and the seed value is ignored. In some circumstances this may result in no brush strokes being applied to the canvas. If this is the case the Boost Pixel Seed parameter can help.

Seed - sets the number used to generate the random number sequence.

Pre Copy Source - switch this on to paint over the original image. When switched off you'll see paint strokes over a black background.

Boost Pixel Seed - controls the range of possible seed values used. Increasing this parameter increases the probability of a paint stroke being applied.

Smear - controls the amount of paint smearing as a percentage of the stroke width.

Drag - controls the amount of paint drag from earlier strokes as a percentage of stroke width.

Blending - sets how to mix between the image effect and its original source. (See "Blending" on page 16.)

Roto/Matte

See "Roto/Matte Tool" on page 17.

Crops

See “Crops” on page 25.

Hints & Tips

T_Paint does not take into account movement over time when applying paint strokes, making it more suitable to producing single

Figure 173. Digitally painted swan composited into a scene

images. Some feature films, like The Thomas Crown Affair, require pictures of art for some of the shots and these re sometimes specially commissioned works used a physical props. In some circumstances, T_Paint could be used instead to quickly produce impressionist works which can then be corner pinned into a black picture frame hung on the wall.

See also “T_Turner” on page 138 and “T_Flatten” on page 89.

T_Pong

Description

This spark's just for fun. When you're working late into the night and need a break, just fire up T_Pong and test your skill at this classic computer game. You only have control over the paddle

Figure 174. Mid-way through an exciting game....

position. Just move your mouse/pen and the paddle will follow. The object of the game, in case you were too young to have played this when it first came out, is to prevent the ball from exiting the screen on the right by putting your paddle in the way.

Note *You must keep your mouse/pen moving for the bat and ball to move.*

Inputs

T_Pong has no inputs.

Main

Ball Speed - controls how fast the ball moves. Increase this if you fancy your chances.

Position - this records the current vertical paddle position.

Paddle Speed - controls how fast the paddle can move. Decrease this if you want to make the game that little bit more tricky.

Paddle Length - controls the size of your paddle. A value of 50 is the default. Decrease it for a harder game. Anything over 200 and you're cheating.

Hints & Tips

To pause the game, just stop moving your mouse.

T_PseudoColour

Description

T_PseudoColour maps the colours of an image to a colour ramp to give a false colour effect. The colours can be mapped from

Figure 175. Nice Hair.

Figure 176. Enhanced with T_PseudoColour.

luminance levels in the source image or from the hue, saturation or value.

Inputs

T_PseudoColour has one input - a source image.

Colour

The colour gradient widget sets the colours that are used in the colour ramp. The coloured ramp is used to add, remove and move the individual colours in the gradient by manipulating the small triangular colour tags.The colour picker allows you to change the colour of the currently selected tag. (See “Colour Gradient” on page 13.)

MapWith - sets how the colours are mapped from the source to the target.

- **Value** - the value of the image is analysed and mapped to the colour ramp. This is similar to brightness (max of R, G or B).
- **Saturation** - the saturation (colour purity) of the image is analysed and mapped to the colour ramp.
- **Hue** - the hue (colour) of the image is analysed and mapped to the colour ramp.
- **Luminance** - the brightness of the image is analysed and mapped to the colour ramp.

Clip Min - controls the luminance level of the image which is mapped to the bottom-most colour tag in the Colour Gradient

Clip Max - controls the luminance of the image which is mapped to

the top-most colour tag in the Colour Gradient.

Grad - controls how to interpolate between colours in the colour ramp.

- **Cubic** - sets cubic interpolation between adjacent colours in the colour ramp. This will produce a smoother ramp than linear interpolation.
- **Linear** - sets linear interpolation between adjacent colours in the colour ramp.

Cyclic Grad - sets the colour of top-most colour tag to that of the bottom-most colour tag. This is used in conjunction with Cyclic Shift.

Cyclic Shift - moves the colours up and down the colour ramp. Colour tags that reach the end of the ramp will wrap round.

Note *This is only active when Cyclic Grad is switched on.*

Copies - sets the number of times the colour gradient is repeated across the luminance spectrum.

Blending - sets how to mix between the image effect and the original source. (See “Blending” on page 16.)

Filter - switches filtering on or off. Toggle the filter on to improve the quality of the rendered image. (See “Filtering” on page 14.)

Crops

See “Crops” on page 25.

Hints and Tips

With the careful selection of colour, a thermal camera effect can be simulated.

Figure 177. Original image.

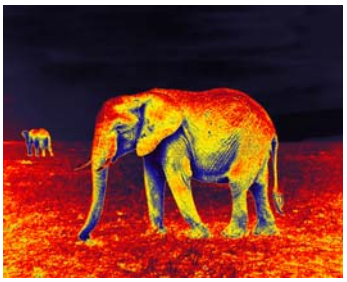

Figure 178. Thermal camera effect.

T_Qube

Description

Generates patterns of tiles within tiles. The mask input can be used to attenuate the number of repeated squares.

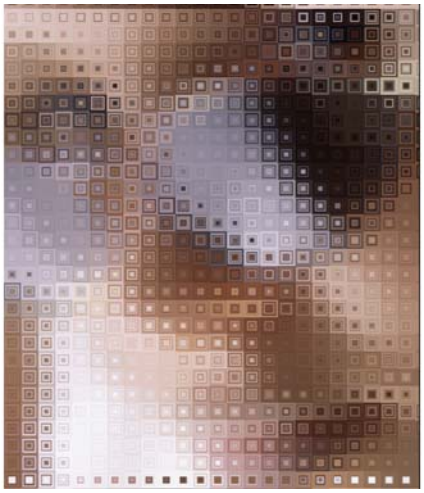

Figure 179. T_Qube.

Inputs

T_Qube has two inputs - a source image and a matte.

Qube

Size - controls the tile size. The higher the value the larger the tile.

Aspect - controls the horizontal and vertical weighting of the effect.

Rotation - controls the amount of tile rotation. This does not rotate the picture underneath.

X Shear - controls the amount of horizontal skew.

Y Shear - controls the amount of vertical skew.

Depth - sets the number of inner squares drawn. This parameter can be attenuated by the mask.

Core - sets the size of the inner squares.

X Position - controls the horizontal position of the tiles.

Y Position - controls the vertical position of the tiles.

Filter - sets the quality of the filter used when processing the effect.

(See “Filtering” on page 14.)

Pre-Blur - controls the amount of blurring before the effect is applied.

Post-Blur - controls the amount of blurring after the effect is applied.

X Sample - sets the horizontal point within the base tile for the sample colour.

Y Sample - sets the vertical point within the base tile for the sample colour.

Roto/Matte

See “Roto/Matte Tool” on page 17. This matte is used to attenuate the Depth parameter. Where the matte is black the depth value is set to zero. Where the matte is white the full depth value is used. Values in between are scaled accordingly.

Crops

See “Crops” on page 25.

Hints & Tips

T_Qube can look very effective when combined with other plug-ins. A tiled mosaic look can be achieved with T_Qube and T_BumpShade. (See “T_BumpShade” on page 65.)

Figure 180. T_Qube and T_BumpShade.

T_Rays

Description

T_Rays has been superceeded by T_Shaft (page 125) which we recommend you now use.

T_Rays creates a backlit light ray effect. There are three inputs: Front, Back and Matte. The rays are drawn over the Back input. The colour of the rays is taken either from a fixed colour or from colours in the Front input. The light rays are sourced from white areas of the Matte input.

Figure 181. Soho at night

Figure 182. Enhanced with T_Rays

Note *Before altering the ray parameters you should view and manipulate the matte as this defines the source of any rays generated. White areas of the matte will emit rays, black areas will not.*

Inputs

T_Rays has three inputs - a source image, a back image and a matte.

Rays

Ray Type - controls the type of rays generated.

- **Directional** - directional rays are parallel to each other and their direction is set by an angle.
- **Point** - point rays all appear to fan out from a single point on the screen.

X Centre - sets the horizontal position of the source of the point rays.

Y Centre - sets the vertical position of the source of the point rays.

Factor - controls the length of the point rays.

Note *X Centre, Y Centre and Factor are only available for ray Type: Point*

Direction - sets the direction of the directional rays only. The value is a number in degrees.

Length - controls the length of the directional rays.

Note *Direction and Length are only available for Ray Type: Directional*

Bias - shifts the start point of the rays.

Ray Colouring - controls the method of colouring the rays.

- **Colour** - takes the ray colour from the fixed colour box.
- **Front** - takes the ray colours from corresponding pixels in the front input.

Colour - sets the colour of the rays.

Note *This is only active if the Ray Colouring is set to Colour.*

Ray Fall-off - controls how the rays fade away in the distance.

- **Gaussian** - slower but higher quality.
- **Linear** - quick but poorer quality.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

Hints & Tips

The rays can sometimes appear a little faint. To boost the rays increase the Ray Mix parameter.

Below is an image showing T_Rays applied to a picture of stained glass. The rays are from a point and the matte is the image itself. the colour of the rays are also picked up from the image.

Figure 183. Stained Glass Window.

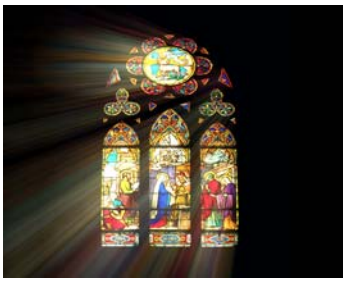

Figure 184. With T_Rays.

See also “T_Shaft” on page 125.

T_RomanMosaic

Description

T_RomanMosaic breaks an image up into irregular tiles.

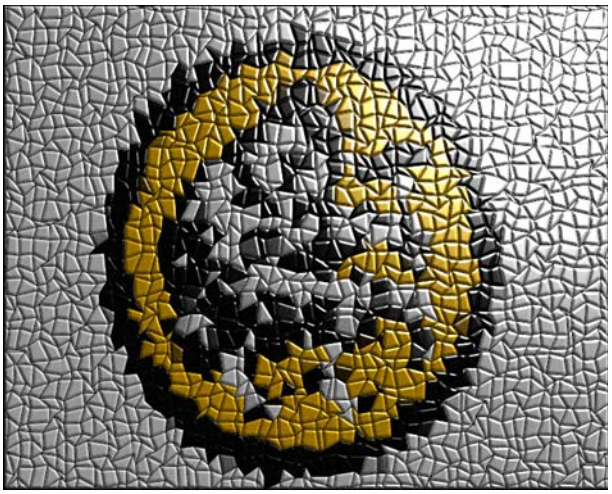

Figure 185. T_RomanMosaic

Inputs

T_RomanMosaic has one input - a source image.

Mosaic

Max Size - controls the size of the tiles. Increase this parameter for bigger tiles.

Aspect - controls the horizontal and vertical weighting of the effect.

Dirt - controls the amount of noise added to the tiles. A value of 0 gives a very clean look. Increase this value to add more dirt texture. If **Bump** is switched on the dirt will react to the lighting to give a pitted effect.

Edge - sets the method by which the tiles are positioned.

- **Seek Edges** - tiles try to line up with edges within the source image.
- **Random Edges** - tiles are drawn randomly over the image.

Grouting Colour - the colour of the grout between the tile edges.

Grout Width - the size of the gap between the tiles.

Note *processor intensive for large values.*

Border Width - the size of the border around the image.

Seed - sets the random number sequence from which the tiles are generated. Different seed values will produce completely different tile patterns.

Seed Method - controls the randomness of the tiles.

- **Frame** - the randomness depends on both the frame number and the seed value and thus changes on each frame of the clip.
- **Fixed** - the randomness is purely dependent on the seed value. If this value is not animated the randomness will not change on any frame.

The standard **lighting** controls are included in this spark. For information on these parameters see “Lighting” on page 11.

Groove Depth - controls the apparent depth of the groove between the tiles.

Edge Softness - controls the smoothness of the edge of the tile.

Thickness - controls the thickness of the tiles.

- **Diverse** - the thickness of a tile is a function of the pixel luminance. The brighter the pixel the thicker the tile. Where the image is black the tile thickness is zero and will not be drawn. As a by product of this, any dirt on the tile will react with the light to give the appearance of a pitted surface.
- **Uniform** - each tile has the same thickness.

Crops

See “Crops” on page 25.

Hints & Tips

See also “T_Qube” on page 119 and “T_Mosaic” on page 100.

T_Shaft

Description

T_Shaft creates a backlit light ray effect. There are three inputs: Source, Back and Matte. The light rays are created from the Source input and combined with the Back input using the blending methods. You will often use the same image for the Source and Back inputs. The strength of the rays is optionally attenuated by the third Matte input or a roto. The colour of the rays is taken either from a colour gradient or from colours in the Source input.

Figure 186. Soho at night.

Figure 187. Enhanced with T_Shaft.

If the rays are looking faint, increase the Result Gain, see Figure 195 on page 127.

Inputs

T_Shaft has three inputs - a source image, a back image and a matte.

Rays

Source X - sets the horizontal position of the source of the rays.

Source Y - sets the vertical position of the source of the rays.

Factor - controls the length of the rays. To increase the strength of the rays increase the Result Gain (Figure 195 on page 127).

Seed - sets the random number sequence which is used in some of the parameters.

Ray Colouring - controls the method of colouring the rays.

- **Gradient** - takes the ray colours from the colour gradient.
- **Source** - takes the ray colours from corresponding pixels in the source input.

Fall-off - controls how the rays fade away in the distance.

- **Exponential** - rays fade the further they are from the source.

- **Linear** - rays do not fade as they get further from the source.

Figure 188. Linear.

Figure 189. Exponential.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Smoke - switch this on to breakup the rays with smoke.

Scintillation - switch this on to breakup the rays with lines.

Figure 190. Normal.

Figure 191. Scintillation.

Blending - sets how to mix between the rays and the second back input. (See “Blending” on page 16.)

Roto/Matte

The rays are sourced from the luminance of the Source input, but you can attenuate this by applying a roto or using the matte input.

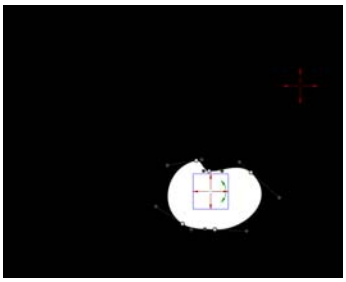

Figure 192. Roto Matte.

Figure 193. Attenuating the rays.

Crops

See “Crops” on page 25.

Hints & Tips

You may find that the rays are a bit subtle. To boost the rays simply increase the Result Gain as shown in Figure 195.

Figure 194. Result Gain=100.

Figure 195. Result Gain=500.

T_Starburst

Description

T_Starburst adds sparkle rays to highlights. Chromatic fringing can be added to the sparkles using the aberration parameter. The mask is used to attenuate the gain on the sparkles.

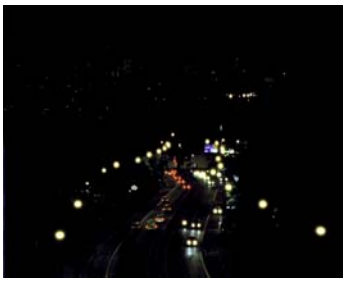

Figure 196. Car head lamps.

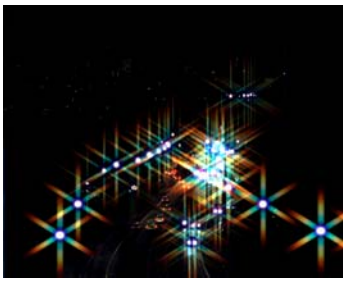

Figure 197. T_Starburst.

Inputs

T_Starburst has two inputs - a source image and a matte.

Stars

Size - controls the length of the spokes.

Holdout Radius - controls the distance from the centre of the starburst to the start of the rays.

Aspect - controls the horizontal and vertical weighting of the effect.

Rotation - controls the rotation of each sparkle.

Num Spokes - sets the number of rays on each sparkle.

Keep Spoke Brightness - switch this on to keep the brightness of each *individual* sparkle constant. As the number of spokes increases the *overall* brightness will increase. If you wish to vary the number of spokes and keep the *overall* brightness constant, switch off this parameter.

Presets - use these as a starting point.

Threshold - sets the luminance level above which sparkles are added. Decrease this value to get more sparkles.

Gain - controls the brightness of the starburst. This parameter is attenuated using the mask.

Aberration - splits the white light into its coloured components to

give a rainbow look.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Roto/Matte

Sets how to use the attenuation mask to alter the gain on the starburst. See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

Hints & Tips

Here’s an example showing how the starburst can be attenuated using a mask.

Figure 198. Test Pattern from T_Shape

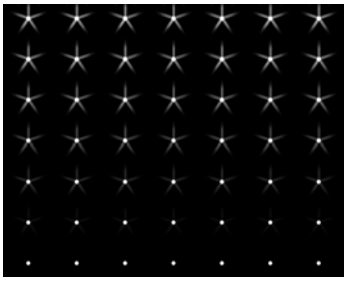

Figure 199. With T_Starburst using a ramp mask to attenuate the Gain

T_Strobe

Description

T_Strobe flickers an image using a regular pulse or by duplicating the luma flickers from an input clip.

Inputs

T_Strobe has three inputs - a source image to which the flicker is applied, a flicker image that is sampled for luminance variations and a matte.

Strobe

Flicker Style - selects the method used to flicker the source image.

- **From Image** - samples the luma variations of the flicker input and applies these to the source input.
- **Fractal** - applies a random flicker to the source input.
- **Cyclic** - applies a smooth oscillating luma variation to the source input.

Amount - exaggerates the brightness changes that make up the flicker.

Cycle Length - defines the length in frames between luma peaks when Flicker Style Cyclic is switched on.

Seed - sets the random number sequence from which the variations in luminance are generated when the Flicker Style is set to Fractal.

Clamping - controls how pixel values are clipped when very bright.

- **By Value** - the red, green and blue pixels values are increased equally then clamped individually if they exceed the maximum pixel value. This can lead to changes in the original colour of the image.
- **By Luminance** - the red, green and blue pixel values are increased in a way that tries to preserve the original colour while not exceeding the maximum pixel value.

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

Hints & Tips

See also “T_Deflicker” on page 207.

T_Stutter

Description

T_Stutter randomly jumbles up the frames of a clip. The new frame order is chosen by first picking a random frame and then preserving the original frame order at that point for a specified duration. The random frame is chosen from a specified range of frames around the current frame using the Seek Range, then the original frame order is preserved for a duration defined by Frame Hold. This process is repeated until the number of frames in the output clip matches the input clip.

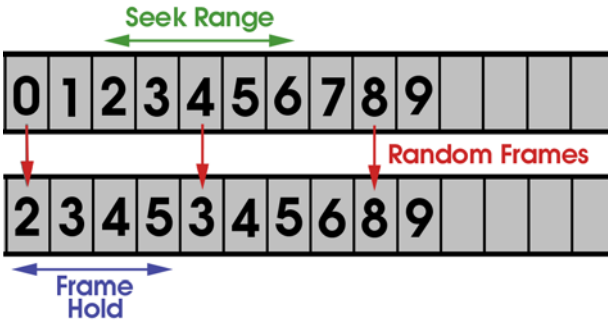

Figure 200. Numbered frames before and after Stutter is applied.

Inputs

T_Stutter has one input - a source image.

Stutter

Seek Range - sets the number of frames, either side of the current frame, from which to pick the random output frame.

Frame Hold - sets the number of frames of the original clip that are preserved in the output clip after the random output frame has been picked.

Hold Randomness - this allows the Frame Hold to change by a random number throughout the sequence.

Seed - random number generator that sets the pattern of frames.

Crops

See “Crops” on page 25.

T_Tile

Description

T_Tile translates, rotates, scales and shears the source image. There are controls to crop the source and matte inputs.

T_Tile also includes an attenuation matte. This optional second input can be used to attenuate the distortions.

Figure 201. Original image.

Figure 202. T_Tile scaling and rotating the image with a black to white horizontal ramp as the attenuation mask.

Inputs

T_Tile has two inputs - a source image and a matte.

Tile

X Centre - controls the horizontal position of the centre of the tile. Increase this value to move the image to the right.

Y Centre - controls the vertical positions of the centre of the tile. Increase this value to move the image up.

Note *The X and Y Centre can be positioned using the on-screen tool. Switch the Display Tools to Full Image Widget to show the tool.*

Rotation - controls the rotation of the image tile.

Note *The Rotation can be manipulated using the on-screen tool.*

Scale - controls the overall size of the tile.

Scale X - controls the horizontal size of the tile.

Scale Y - controls the vertical size of the tile.

Note *All the scale parameters can be manipulated using the on-screen tools.*

Shear X - controls the amount of horizontal shear.

Shear Y - controls the amount of vertical shear.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Roto/Matte

Use this to attenuation the distortion of the image based on luminance values in the matte. Where the matte is black no distortion takes place. Where the matte is white the distortion is at the level set by the effect parameters. Values in-between are scaled accordingly. See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

T_Tint

Description

T_Tint applies a colour wash to an image. Tints are applied to the low, mid and high luma points.

Figure 203. Original image

Figure 204. T_Tint

Inputs

T_Tint has one input - a source image.

Tint

Highlight Colour - sets the tint colour of the pixels with the highest luma value.

Tint Colour - sets the tint colour at the luma mid point.

Shadow Colour - sets the tint colour of the pixels with the lowest luma value.

Softness - controls the amount of blurring applied to the image before tinting.

Mid Point - sets the halfway location between the minimum and maximum luminance.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

HInts & Tips

T_Tint can also be used to invert colours and soften the blending of the tint into the result.

Figure 205. Original image.

Figure 206. T_Tint inverting colours and softening.

T_Trail

Description

T_Trail simulates video feedback by blending and transforming frames from a clip.

Figure 207. Trail with rotation, scale and fall-off.

Inputs

T_Trail has one input - a source image.

Trail

Method - controls how the front and back images are blended together.

- **Punch Back** - uses the inverted matte to cut a hole in the background before mixing in the foreground. This method is used to composite premultiplied images.
- **Punch Both** - produces a standard composite by mixing the front and back images based on values in the matte. If the matte is black you'll see the background, and if white you'll see the foreground. This method is typically used to composite unpremultiplied images.
- **Average Front** - blends whole frames together from the front input.

Frames - sets the number of temporal frames to use in the trail. For example, if Frames is set to 3 and the current frame is N, then trail blends N-3, N-2, N-1, N together.

Repeat Each Frame - controls the number of times the frame will be repeated between the original frame and the final transformed frame.

Fall-off - controls the extent to which the trail fades away as the distance from the source increases.

X Centre - controls the horizontal position of the final transformed frame.

Y Centre - controls the horizontal position of the final transformed frame.

Rotation - controls the rotation of the final transformed frame.

Scale - controls the size of the final transformed frame.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Crops

See “Crops” on page 25.

T_Turner

Description

T_Turner is a painterly effect that generates noise artifacts in your images giving it the look of a faded, mottled painting.

Figure 208. Lake.

Figure 209. With T_Tint and T_Turner.

Inputs

T_Turner has one input - a source image.

Turner

Cleanness - controls the turner effect.

Colour - controls the colour contrast.

Highlights - controls the brightness of the highlights.

Lowlights - controls the brightness of the shadows.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

Hints & Tips

See also “T_Paint” on page 113 and “T_Flatten” on page 89.

T_TVdots

Description

T_TVdots simulates a television picture by breaking up the image into the pattern of phosphor dots that form the surface of the cathode ray tube. Different dot patterns are provided for triple dot and striped tubes.

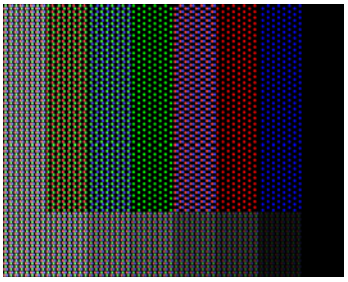

Figure 210. Dot Triad.

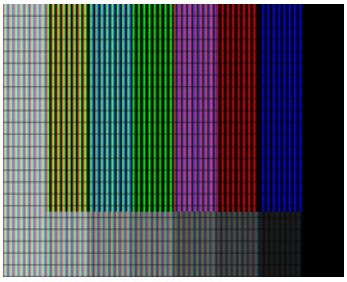

Figure 211. Vertical Lines.

Inputs

T_TVdots has one input - a source image.

TV

Size - controls the size of the pattern.

Aspect - controls the horizontal and vertical weighting of the effect.

Bleed - controls the overlap of the phosphor dots.

Desaturate - controls the saturation of colours.

Element Gap - controls the horizontal distance between the pixels.

Scan Line Gap - controls the vertical distance between scan lines.

Colour - sets the colour behind the dots

X Position - controls the horizontal offset of a dot.

Y Position - controls the vertical offset of a dot.

Formation - sets whether to vary the overall picture brightness using the luminance of the dots or the size of the dots.

- **Size** - the phosphor dots vary in size according to the brightness of the image.
- **Luminance** - the phosphor dots vary in luminance according to the brightness of the image.

Pattern - sets the position of the phosphor dots.

- **Square Triad** - Dot Triad tubes deliver excellent vertical, horizontal and diagonal definition due to the triangular arrangement of the phosphor dots. Square Triad uses square dots.
- **Dot Triad** - Dot Triad tubes deliver excellent vertical, horizontal and diagonal definition due to the triangular arrangement of the phosphor dots. Dot Triad uses circular dots.
- **Aperture Grille** - Aperture Grille cathode ray tubes deliver superior vertical definition as a result of the striped phosphor alignment.
- **Bars (Horizontal)** - the dots are made from three horizontal stripes of red, green and blue phosphor.
- **Bars (Vertical)** - the dots are made from three vertical stripes of red, green and blue phosphor.
- **Circles** - triangular array of red, green and blue circles.
- **Squares** - triangular array of red, green and blue squares.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

PreBlur - controls the amount of blurring applied to the source image before the dots are constructed.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

Hints & Tips

See also “T_Newsprint” on page 102.

TINDER GENERATORS

This chapter describes each of the Tinder 5.3 plug-ins that are capable of generating images without an input.

T_Beam

Description

T_Beam draws a spotlight in 3D space. The position of the light source can be animated and the beam can be rotated in all directions. The beam can blended with the source image or used to generate a new image.

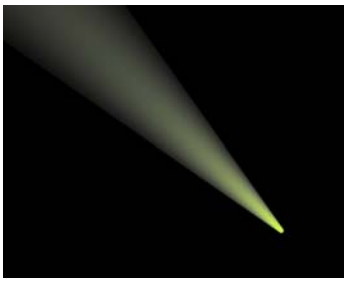

Figure 212. Narrow beam.

Figure 213. Wide beam.

Inputs

T_Beam has one input - a source image.

Beam

X Centre - controls the horizontal position of the emitting disc.

Y Centre - controls the vertical position of the emitting disc.

Rotation - controls the direction of the beam. With a value of 0 the beam points right. With a value of 180 the beam points left. With a value of 90 the beam points towards the camera. With a value of 270 the beam points away from the camera. This parameter is calibrated in degrees.

Elevation - controls the vertical pitch of the beam. With a value of 0 the beam will be horizontal. This parameter is calibrated in degrees.

Note *The position, rotation and elevation of the beam can be controlled with the on-screen tools.*

Cone Angle - controls the spread of light from the emitting disc. Small values produce narrow focussed beams. Large values produce wide spread out beams.

Radius - controls the size of the light emitting disc producing the beam.

Intensity - controls the brightness of the beam. Large values produce brighter beams.

Fall-off - controls the extent to which the light fades away with distance from the light source.

Remove Light Source - removes the disc of light used to generate the beam. Removing this is most noticeable when the beam is pointing directly towards the camera.

Beam Colour - sets the colour of the center of the beam.

Corona Colour - sets the colour of the outer part of the beam.

Background Colour - sets the background colour which will be used when the beam is not being composited over a background layer.

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

Hints & Tips

In the example below, the beam is applied to a lighthouse.

Figure 214. Lighthouse.

Figure 215. T_Beam.

T_Blob

Description

T_Blob renders smoothly shaded blobs that gloop together when they get close to one another.

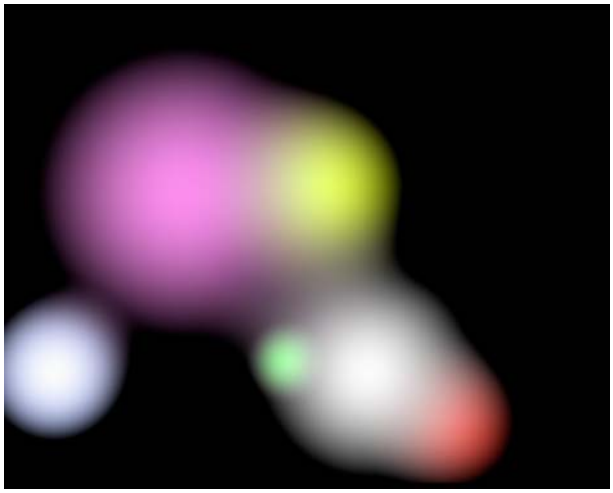

Figure 216. T_Blob

Inputs

T_Blob has one input - a source image.

Blobs 1-2

Colours - sets the colour of the blobs

- **Colour Gradient** - each blob takes its colours from the Colour Gradient.
- **Colour per Blob** - each blob has its own colour.
- **Grey** - all blobs are shades of black and white.

Softness - controls the extent to which adjacent blobs gloop together.

Hard Edges - switch this on to render the blobs with sharply defined edges.

Filter - switches filtering on or off. Toggle the filter on to improve the quality of the rendered image. (See “Filtering” on page 14.)

Dithered - switch this on to add noise to the gradient to reduce the effect of undesirable colour banding between smoothly shaded colours.

Smooth Gradient - switch this on to use cubic interpolation

between adjacent colours. When switched off linear interpolation is used.

Blob 1 - switch this on to render the first blob.

X Centre - controls the horizontal position of the centre of this blob.

Y Centre - controls the vertical position of the centre of this blob.

Radius - controls the size of this blob.

Colour - sets the colour of this blob.

Blob 2 - See “Blob 1 - switch this on to render the first blob.” on page 144.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Blobs 3-6 See “Blob 1 - switch this on to render the first blob.” on page 144.

Blobs 7-8 See “Blob 1 - switch this on to render the first blob.” on page 144.

Crop See “Crops” on page 25.

Hints & Tips

T_Blobs can be used to produce interesting distortion effects when combined with T_Glass (See “T_Glass” on page 90.) or T_Distorto (See “T_Distorto” on page 236.).

Figure 217. Blobs and Glass.

T_Caustic

Description

T_Caustic simulates the patterns created when light rays are reflected or refracted by a curved surface. Caustics can often be seen at the bottom of a swimming pool in bright sunlight.

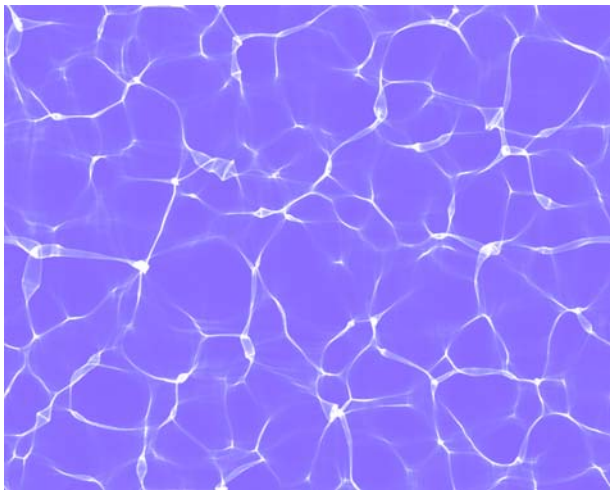

Figure 218. T_Caustic

Inputs

T_Caustic has one input - a source image.

Caustic

Size - controls the scale of the image. Increase this to move closer to the water surface so that the caustics appear closer.

Note *Increasing the size may de focus the image. Increase the focus parameter to compensate.*

Fractals - controls the number of fractals used to generate the lines. Increase this for more detail and complexity in the lines.

Speed - controls the rate at which the caustics move.

Seed - sets the random number used to generate the caustic pattern.

Brightness - controls the luminance of the lines. Increase this for brighter lines.

Focus - controls the focussing of the lines used in the algorithm. Values close to zero will be out of focus or blurred. Increase this parameter to make the lines sharper.

Samples - controls the quality of the lines. Increase this parameter

for smoother lines.

Foreground Colour - sets the colour of the caustic lines.

Background Colour - sets the colour behind the lines.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Hints & Tips

To composite the caustics over the source image use the blending methods.

T_Elements

Description

T_Elements is an organic evolving shape generator constructed from thousands of particles and can be used to simulate fire, smoke and water. The fundamental shape of the cloud particles is a cone as shown in Figure 219. However, the parameters can be altered to

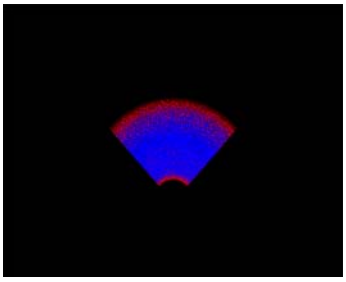

Figure 219. Cone.

give a very wide variety of particle looks. A number of presets are supplied.

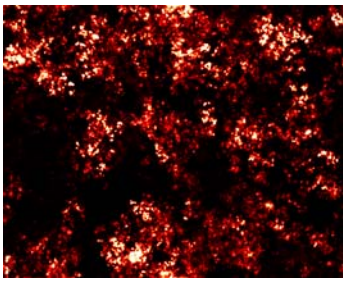

Figure 220. Boil.

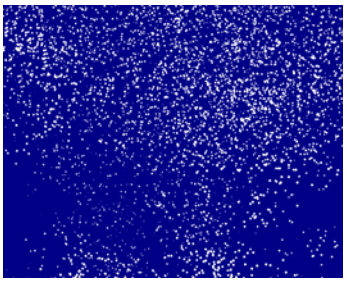

Figure 221. Snow.

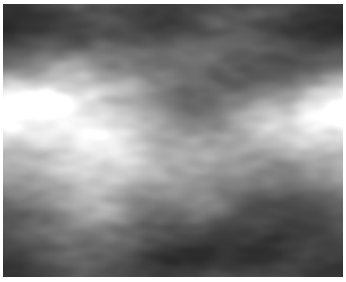

Figure 222. Fog.

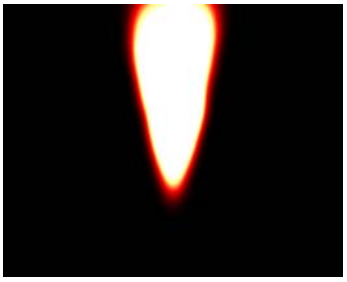

Figure 223. Candle.

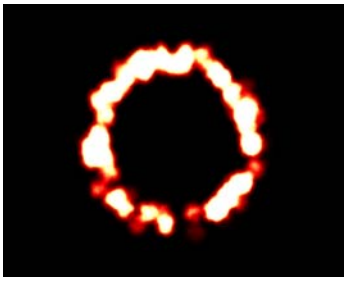

Figure 224. Ring of Fire.

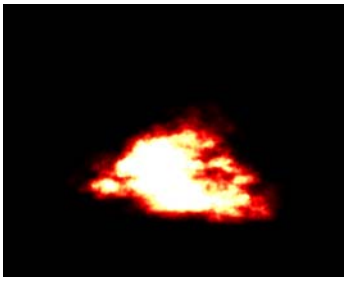

Figure 225. Fire.

Inputs

T_Elements has one input - a source image.

Elements

Preset - loads a set of parameters that control the look of the particles.

- Boil
- Snow
- Water
- Fog
- Candle
- Smoke
- Ring of Fire
- Cloud
- Fire

Radius - controls the cone length. In general terms this controls the overall size of the particles.

Bunching - controls the fractal detail of the particles. Increase this for a more random effect.

Total Dots - sets the total number of particles that are used in the cone.

Gain - controls the brightness of the particles.

Seed - sets the random number sequence from which the particles are generated. Different seed values will produce completely different random particle patterns.

Wrap - switch this on to ensure that particles that disappear off one side of the image will reappear on the opposite side.

Spin - controls the rotation of the individual particles within the cone about the cone centre (X,Y) to give a swirling effect.

Evaporation - controls the rate at which particles are emitted from the cone centre.

Direction - sets the direction of the cone. A value of zero will point right and a value of ninety will point up. In general this defines the direction of particle motion.

Direction Variation - sets the cone angle.

Filter - switches filtering on or off. Toggle the filter on to improve the quality of the rendered image. (See “Filtering” on page 14.)

Smooth - controls the amount of blurring applied to the cloud particles.

Smoothing - controls how the particle blurring is computed.

- **Auto** - blurring is automatic.
- **Manual** - the blurring is set by the Smooth value.

Edge Colour - sets the colour of the particles at the cone edges.

Core Colour - sets the colour of the particles in the cone body.

Background Colour- sets the background colour.

X - sets the horizontal position of the cone centre.

Y - sets the vertical position of the cone centre.

Centre Radius - sets the inner cone radius (holdout radius). Particles are not generated in this inner cone.

Aspect - controls the horizontal and vertical weighting of the effect.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

T_Fire

Description

T_Fire generates animating flames.

Figure 226. Top Row: Candle, Oil, Gas. Bottom Row: Inferno.

Inputs

T_Fire has two inputs - a source image and a matte. The source image is used as the background for the flames and the mask is used as the source position of the flames.

Fire

Preset - use these four presets as a starting point.

- **Inferno** - line of yellow flames.
- **Gas** - tall blue flame.
- **Oil** - turbulent orange flame.
- **Candle** - still yellow flame.

Flame Type - there are four types of flame.

- **Nozzle Flame** - left flame in Figure 227.
- **Camp Fire** - right flame in Figure 227.
- **Torch** - left flame in Figure 228.

- **Candle** - right flame in Figure 228.

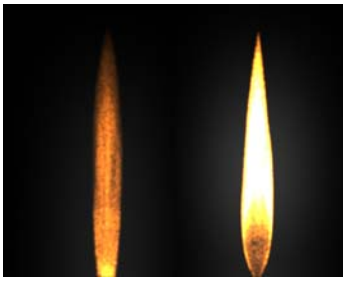

Figure 227. Nozzle. Camp Fire.

Figure 228. Torch. Candle.

Use Source Matte - use the luminance values of the input matte (Fire Src) as the source position of the flames. The actual position is chosen at random (using the Seed parameter) from any non black pixel.

Source X - the horizontal position of the source of the flame.

Source Y - the vertical position of the source of the flame.

Flames - the number of flames rendered.

Separation - the distance between multiple flames when flames > 1 and Use Source Matte is switched off.

Particle Size - the size of the particles that form the flames.

Intensity - the brightness of the particles that form the flame.

Gamma - the brightness of the mid-tone particles.

Post Gain - the overall brightness of the flames.

Glow Size - the size of the bright glow around the flame.

Glow Strength - the brightness of the glow.

Glow Colour - the colour of the glow around the flames but not part of the flames themselves.

The flames are coloured using a 3-colour gradient between the bright colour, mid colour and black. The bright and mid colours can be edited.

Bright Colour - the colour of the brightest part of the flame.

Mid Colour - the colour of the mid point of the flame.

Mid Point - the position of the mid colour in the colour gradient.

Pre-roll - the number of frames that have passed before rendering the first frame.

Render Splines - switch this on to render a line rather than a flame. This can be used to tweak the animation of the flames.

Seed - varies the random number sequence used to describe the flames and set their position when Use Source Matte is switched on.

Bright Colour 2 - second bright colour for flames with two colour gradients.

Mid Colour 2 - second mid colour.

Mid Point 2 - the position of the mid colour 2 in the second colour gradient.

Flames

Flame Width - the width of the flame. Increase this for a fatter flame.

Flame Height - the height of the flame. Increase this for a tall flame.

Flame Activity - the amount the flames move around their axes. Increase this for a more flickery flame.

Flame Buoyancy - the speed at which the flames rise.

Source Speed X - this simulates the horizontal bending of the flame due to horizontal movement of the source of the flame.

Source Speed Y -this simulates the vertical compression of the flame due to vertical movement of the source of the flame.

Flame Angle - for vertical flames set this to 90. For horizontal flames set this to 0.

Breaking - switch this on to allow small flames to break away from the fire.

Break Frames - the number of frames a flame will take to break away from the fire.

Min Break Life - the minimum lifespan of the breakaway flames in seconds.

Max Break Life - the maximum lifespan of the breakaway flames in

seconds.

Av Break Prop - the average height, as a proportion of the flame height, at which flames break free.

Break Range Prop - the height range, as a proportion of the flame height, over which flames break free.

Break Frequency - the rate at which small flames break away from the fire.

Noise Speed - the speed of the noise in the fire.

Noise Amount - the amount of noise in the fire.

Noise Variation X - the horizontal variation in the noise.

Noise Variation Y - the vertical variation in the noise.

Fractal Scale - the detail in the noise.

Wind

Two wind fields are available that interact with the flames.

Wind Type - there are four types of wind generator.

- **Sink** - sucks air towards it.
- **Source** - blows air away from it.
- **Vortex** - swirls air around it.
- **Uniform** - blows air in a particular direction.
- **None** - switches the wind off.

Wind Source X - the horizontal position of the wind source.

Wind Source Y - the vertical position of the wind source.

Wind Strength - the amount that the wind displaces the flames.

Wind Angle - the direction of the wind when wind type is set to uniform.

Wind Fall-off - the amount the strength of the wind decreases as a function of the distance from the wind source when the wind type is set to uniform.

Turbulence - sets how much the flame is broken up.

Turbulence Speed - the rate of disturbance.

Turbulence Scale - the size of the disturbence.

Cubic Turbulence

Crops

See “Crops” on page 25.

Hints & Tips

See also T_Elements.

T_Fractal

Description

T_Fractal generates organic animating patterns.

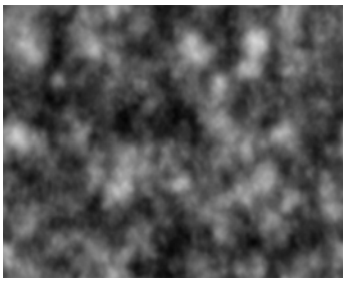

Figure 229. T_Fractal.

Inputs

T_Fractal has one input - a source image.

Fractal

Gain - changes the brightness of the fractals.

Spread - controls the fractal size/density. If you set this quite low

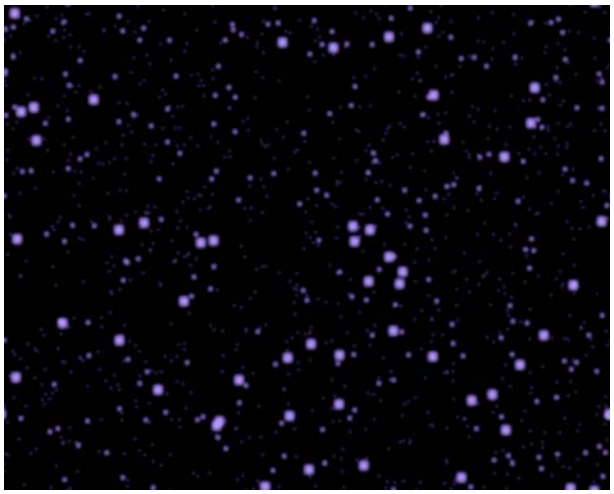

Figure 230. T_Fractal with Spread=7, Detail=55, Gain=500.

then you can get a random movements in layers like Brownian motion.

Speed - sets the rate at which the fractals animate.

Iteractions - controls the number of fractal layers.

Detail - controls the fractal complexity.

Pattern Seed - changes the fractal pattern.

Colour - sets the background colour.

Colour - sets the colour of the fractal foreground.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops See “Crops” on page 25.

T_Grad

Description

T_Grad creates colour gradients (ramps). Gradients are often used as mattes to control other effects. The result of T_Grad can either be composited over the source image using the mask, blended with its source image or used to generate a new image.

Figure 231. Directional T_Grad

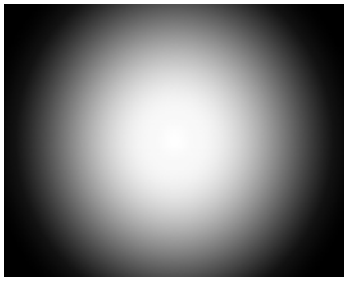

Figure 232. Circular T_Grad

Inputs

T_Grad has one input - a source image.

Grad

The colour gradient widget sets the colours that are used in the colour ramp. The coloured ramp is used to add, remove and move the individual colours in the gradient by manipulating the small triangular colour tags.The colour picker allows you to change the colour of the currently selected tag. (See “Colour Gradient” on page 13.)

Type - sets the gradient pattern.

- **Polygonal**
- **Radial**
- **Circular**
- **Linear**

X1 - sets the horizontal position of one point in the linear gradient and the centre of the other gradients.

Y1 - sets the vertical position of one point in the linear gradient and the centre of the other gradients.

X2 - sets the horizontal position of the other point in the linear gradient.

Y2 - sets the vertical position of the other point in the linear gradient.

Note *X2 and Y2 are not visible when polygonal, radial or circular gradients are selected.*

Filter - switches filtering on or off. Toggle the filter on to improve the quality of the rendered image. (See “Filtering” on page 14.)

Cyclic Grad - switch this on to set the colour of top-most colour tag to that of the bottom-most colour tag. This is used in conjunction with Cyclic Shift.

Cyclic Shift - moves the colours up and down the colour ramp. Colour tags that reach the end of the ramp will wrap round.

Note *This is only active when Cyclic Grad is switched on.*

Copies - sets the number of times the colour gradient is repeated across the ramp.

Radius - controls how far the gradient extends.

Note *Radius only works when in Circular or Polygonal mode.*

Aspect - controls the horizontal and vertical weighting of the effect.

Rotation - controls the rotation of the gradient in degrees.

Note *Rotation only works when in Circular, Radial or Polygonal mode. When in Circular mode, Rotation will only have an effect if the Aspect is not set to 0.*

Number of Sides - sets the number of sides (max 12) of the polygon when in Polygon mode.

Dither - switch this on to add noise to the colour gradient to reduce the appearance of banding.

Grad - controls how to interpolate between colours in the colour ramp.

- **Cubic** - sets cubic interpolation between adjacent colours in the colour ramp. This will produce a smoother ramp than linear interpolation.
- **Linear** - sets linear interpolation between adjacent colours in the colour ramp.

Style - sets how to use the mask and source images with the colour ramp.

- **Composite** - the colour ramp is composited over the source image using the mask. Areas of the mask that are white will show the ramp and areas that are black will show the source image.
- **Normal** - ignores the mask and renders just the colour ramp.

Blending - sets how to mix between the image effect and its original

source. (See “Blending” on page 16.)

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

Hints & Tips

T_Grad can be used to create mattes which can then be used to control other effects such as colour correction or blurs. It can also be

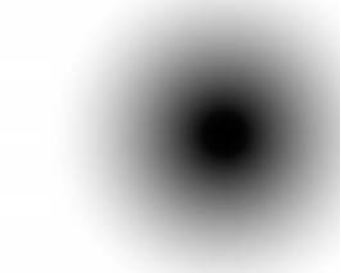

Figure 233. Matte created by T_Grad...

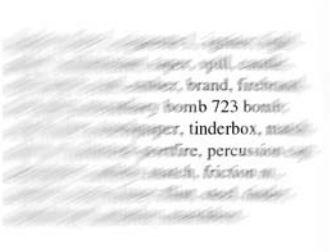

Figure 234. ...and used to attenuate T_DirBlur

used to make rainbows.

On-screen tools...

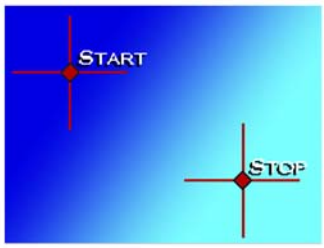

Figure 235. Directional on-screen tools.

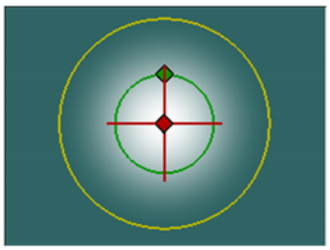

Figure 236. Circular on-screen tools.

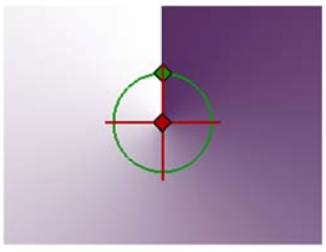

Figure 237. Radial on-screen tools.

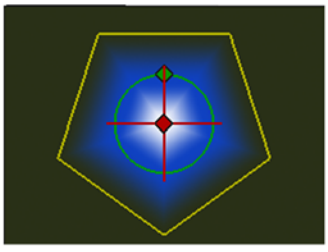

Figure 238. Polygonal on-screen tools.

T_Laser

Description

T_Laser generates animating laser bolts between two points. The start and end points can be set manually or tracked using information from the second and third inputs. There are controls for core and edge colour, breakup and more..

Figure 239. Meteor

Inputs

T_Laser has three inputs - a source image and two mask inputs.

Laser

Mode - sets how the laser start and stop positions are calculated. If Fixed Start/Stop or Track Start/Stop are selected, T_Laser will analyse the luminance of the Start and Stop input clips and select the brightest spot. This will be used to set the laser positions.

- **Fixed Start/Stop** - the X and Y Start parameters are taken from the first frame of the Start input clip. The X and Y Stop parameters are taken from the last frame of the Stop input clip.
- **Track Start/Stop** - the Start and Stop input clips are tracked and the positions used to set the X and Y Start and Stop parameters for each frame of the laser animation.
- **Manual** - the X and Y Start and Stop parameters are set manually and the Start and Stop input clips are ignored.

Find Level - controls the luminance threshold used to find the laser positions in the Start and Stop input clips.

Note *Make sure you are displaying the on-screen tools that show the position of the start and stop points. This will make it easier to adjust the find level.*

X Start - controls the horizontal position of the start of the laser bolt.

Y Start - controls the vertical position of the start of the laser bolt.

X Stop - controls the horizontal position of the end of the laser bolt.

Y Stop - controls the vertical position of the end of the laser bolt.

Perspective - controls the transformation of the laser bolt to make it appear to go into or come out of the screen. Positive values give the appearance of the bolt firing away from the viewer.

Start Frame - sets the frame at which the laser bolt will appear.

Stop Frame - sets the frame at which the laser bolt will disappear.

Shape - sets the shape of the laser bolt.
- **Spike To**
- **Spike From**
- **Spear**
- **Rounded**

Length - controls the length of the laser bolt.

Width - controls the width of the laser bolt.

Colour - the colour of the center of the laser.

Colour - the colour of the edges of the laser.

Colour Balance - controls the weighting of the core and edge colours. Increase this to see more of the core colour.

Gain - controls the overall brightness of the laser bolt.

Breakup - controls the scattering of the edges of the laser bolt.

Blur - controls the amount of blurring applied to the laser bolt.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

Figure 240. Smoke trail.

Figure 241. Laser bolt.

To composite the laser bolt over a background you can use the Blending controls.

T_LensFlare

Description

Camera lenses are designed to focus light onto a photo-sensitive surface. The lens housing often contains many individual glass lenses through which the light is refracted. However, a small percentage of light is reflected from the surface of the lenses and this reflected light forms the lens flare patterns we see on the photographed image. Lens flares are most noticeable when the lens is pointed towards a very bright light.

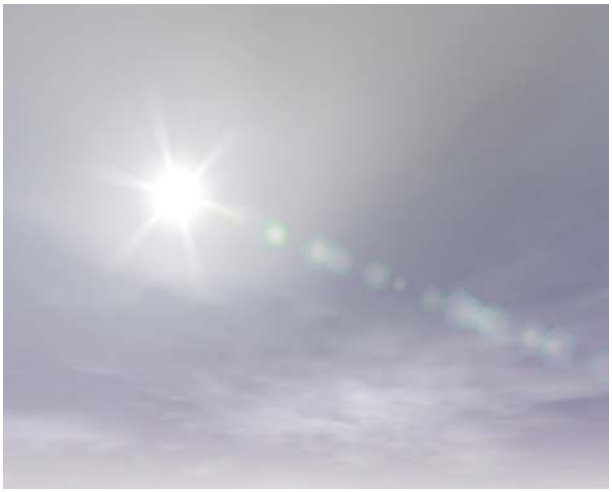

Figure 242. T_LensFlare on a background generated by T_Sky.

T_LensFlare generates realistic and highly customized lens flares. It can be used over a background image or to generate an image from scratch. The lens flare is made up from four components:

1. **Highlight**. There are two highlights. These are the bright soft glows that represent overexposure on the photosensitive surface as the camera

points at the bright light source. There are four different types of high-

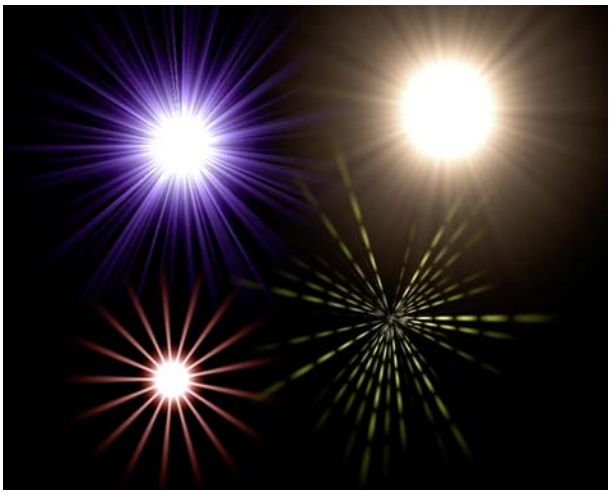

Figure 243. There are four different types of highlight. Clockwise, starting top left. Spikes, Rays, Uniform Spikes and Diced Spikes.

light in each of the highlight elements. These are shown above. Spikes (top left) have unequal light rays, Rays (top right) have equal length light rays, Uniform Spikes (bottom left) have equal length light rays and are equally spaced round the glow, Diced Spikes (bottom right) have unequal length light rays and are striped.

2. **Rings.** There are three rings which form around the highlight. The rings

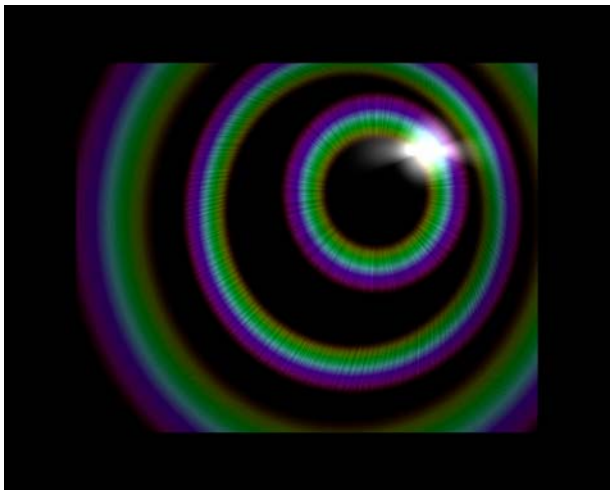

Figure 244. The three chromatic ring styles. From inner to outer is Chromatic Ring, Chromatic Radial and Chromatic Ripple. The highlight position is shown as a bright white spot top right. Note the dark intersections of the middle Chromatic Radial emanate from the highlight position and not the centre of the ring.

can be rendered in one of five styles: Halo Ring, Chromatic Ring, Chromatic Radial, Chromatic Ripple and Arc.

3. **Polygons**. These are the circular or polygonal coloured glows that lie on a line from the center of the highlight through the pivot point. The

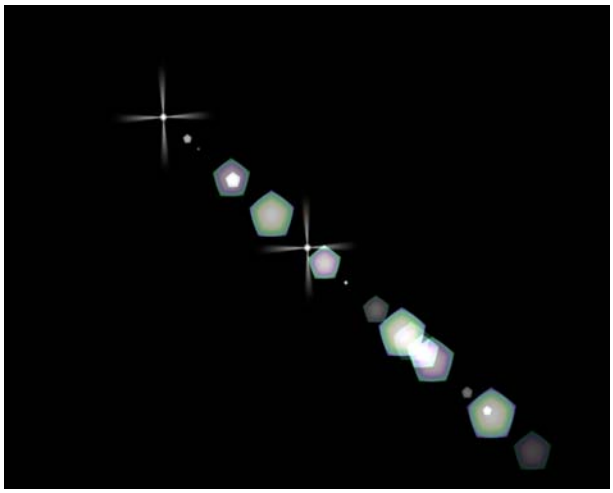

Figure 245. Polygonal artifacts. Shown also in white is the highlight position (top left) and the pivot position (centre)

shape of the polygons are defined by the shape of the iris that forms the camera aperture. The iris is built from a series of interconnected metal blades. If the aperture is opened wide the blades form a circle and when stopped down they form a polygon.

4. **Shards**. There are two bright horizontal light rays that are characteristic of lens flares from an anamorphic lens.

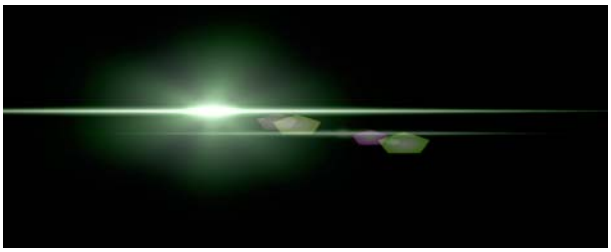

Figure 246. Light shards characteristic of a lens flare through an anamorphic lens.

Inputs

T_LensFlare has two inputs - a source image and an obscuration matte.

Each lens flare is made by combining together seven objects. In T_LensFlare up to 8 objects can be added together. By varying the number and type of object, different lens flares can be constructed.

Note *T_LensFlare is a complex spark with a large number of parameters. This user guide will first describe the types of object available and the parameters associated with that object, before describing the remaining controls in each of the parameter groups.*

There are 16 different types of object. These can be selected using the Mode popup. Each type will reveal a number of associated parameters that control the individual look of that object type.

Mode - sets the type of object rendered.

- **Chroma Polygons** - renders multiple chromatic polygons.
- **Chroma Polygon** - renders a single chromatic polygon.
- **Polygons** - renders multiple colour graded polygons.
- **Polygon** - renders a single colour graded polygon.
- **Diced Spikes** - same as Spikes but with luminance variations along each light ray. These luma variations are controlled by the Glow Radius.
- **Uniform Spikes** - renders light rays of equal length and spacing around the centre of the highlight.
- **Spikes** - renders light rays of unequal length and unequal spacing around the centre of the highlight.
- **Rays** - renders light rays of equal length and unequal spacing around the centre of the highlight.
- **Chromatic Ripple** - renders a rainbow coloured ring intersected with evenly spaced dark rays drawn from the centre of the ring.

- **Chromatic Radial** - renders a rainbow coloured ring intersected with dark rays drawn from the highlight position.

Note *The difference between Chromatic Ring and Chromatic Radial only becomes apparent when the Offset is non-zero.*

- **Chromatic Ring** - renders a rainbow coloured ring intersected with dark rays drawn from the centre of the ring.
- **Arc** - renders a two colour arc.
- **Halo Ring** - renders a two colour ring.
- **Glow** - renders a bright soft sphere.
- **Light Shard** - renders a soft horizontal line that is characteristic of lens flares seen through anamorphic lenses.
- **None** - switches off the object.

Chroma Polygons, Chroma Polygon, Polygons, Polygon.

Offset - shifts the position of the polygons along the line between the highlight and pivot positions.

Radius - controls the size of the polygons.

Rotation - controls the rotation of each polygon about its centre.

Inner Radius - sets the radius of the circle drawn at the centre of the polygon.

Sides - sets the number of sides of the polygon. For example, a value of 4 will draw a square.

Core Colour - sets the colour at the centre of the polygon.

Edge Colour - sets the colour at the outer edge of the polygon.

Gain - controls the brightness of the polygons.

Curvature - controls the bending of the lines drawn between the polygon vertices. Increase this value to bow out the poly sides. High values will render circles.

Softness - controls the edge softness of the polygons.

Diced Spikes.

Offset - controls the shift in position of the spikes from the highlight position to the pivot position.

Radius - controls the length of the rays.

Rotation - sets the rotation of the rays around the spike centre.

Dice Size - controls the number of bands that intersect the rays giving a diced appearance.

Number - sets the number of rays drawn from the highlight.

Core Colour - sets the inner colour of the glow and the rays.

Edge Colour - sets the outer colour of the glow and the rays.

Gain - controls the brightness of the rays.

Spoke Width - sets the width of the rays.

Fractal Depth - essentially controls the amount of fractal detail within the rays.

Uniform Spikes, Spikes, Rays.

Offset - controls the shift in position of the spikes from the highlight position to the pivot position.

Radius - controls the length of the rays.

Rotation - sets the rotation of the rays around the spike centre.

Glow Radius - controls the size of the bright glow at the centre of the highlight.

Number - sets the number of rays drawn from the highlight.

Core Colour - sets the inner colour of the glow and the rays.

Edge Colour - sets the outer colour of the glow and the rays.

Gain - controls the brightness of the rays.

Spoke Width - sets the width of the rays.

Fractal Depth - essentially controls the amount of fractal detail within the rays.

Chromatic Ripple, Chromatic Radial, Chromatic Ring.

Offset - controls the shift in position of the centre of the ring from the highlight position to the pivot position.

Radius - controls the radius of the ring.

Rotation - controls the rotation of the ring about its centre.

Detail - essentially controls the amount of detail in the chromatic rings. The nature of these gaps forms the difference between the types of chromatic ring. If the detail is set to 0, a smooth rainbow

coloured ring is drawn. As the detail is increased soft gaps appear in the ring. As the detail increases further the gaps become more numerous and are thinner.

Gain - controls the brightness of the ring.

Width - controls the distance between the inner and outer radius of the ring. Increasing the width makes the ring thicker.

Arc

Offset - controls the shift in position of the centre of the arc from the highlight position to the pivot position.

Radius - controls the radius of the arc.

Rotation - controls the rotation of the arc about its centre.

Core Colour - sets the inner colour of the glow and the rays.

Edge Colour - sets the outer colour of the glow and the rays.

Gain - controls the brightness of the arc.

Width - controls the distance between the inner and outer radius of the arc. Increasing the width makes the arc thicker.

Halo Ring

Offset - controls the shift in position of the centre of the ring from the highlight position to the pivot position.

Radius - controls the radius of the ring.

Core Colour - sets the inner colour of the glow and the rays.

Edge Colour - sets the outer colour of the glow and the rays.

Gain - controls the brightness of the ring.

Width - controls the distance between the inner and outer radius of the ring. Increasing the width makes the ring thicker.

Glow

Offset - controls the shift in position of the centre of the glow from the highlight position to the pivot position.

Radius - controls the overall radius of the glow.

Inner Radius - controls the radius of the core colour in the glow.

Core Colour - sets the inner colour of the glow and the rays.

Edge Colour - sets the outer colour of the glow and the rays.

Gain - controls the brightness of the glow.

Light Shard

Offset - shifts the position of the light shard along the line between the highlight and pivot positions.

Radius - controls the length of the shard.

Rotation - controls the rotation of the shard about its centre.

Inner Radius - controls the size of the central bulge of the shard.

Core Colour - sets the colour of the inner part of the shard.

Edge Colour - set the colour of the outer part of the shard.

Gain - controls the brightness of the light shard.

Line Width - controls the thickness of the shard.

Object 1&2

Preset - a number of built in lens flares are supplied. Use these presets as a starting point.

Aspect - controls the horizontal and vertical weighting of the effect.

Master Gain - controls the overall brightness of all elements in the lens flare.

Object 3&4

Obscure - controls how to use the mask to obscure the lens flare. The mask attenuates the master gain.

- **on White** - select this to obscure the lens flare in the white areas of the mask and show in black areas.
- **on Black** - select this to obscure the lens flare in the black areas of the mask and show in white areas.
- **Don’t Obscure** - don’t use the mask to obscure the lens flare.

Obscure Radius - controls the extent to which the matte will have an affect on the lens flare.

Object 5&6

X Highlight - controls the horizontal position of the highlight.

Y Highlight - controls the vertical position of the highlight.

Object 7&8

X Pivot - controls the horizontal position of the pivot point.

Y Pivot - controls the vertical position of the pivot point.

Note *The polygons are drawn in a line from the highlight position through the pivot point.*

Hints & Tips

The introduction of a lens flare when creating a scene with a bright light source is quite common. It can play an important part in making the scene look right.

Real lens flares can be shot against a black background and composited into your scene. However, it can be tricky and expensive to match the camera moves of the two sequences so that the lens flare appears correct. Digital lens flares are fast and can easily be animated to track the movement of the light source in your scene.

Lens flares occur when a bright light is shone directly into the camera lens. Each lens flare has a bright highlight caused by the overexposure of the light on the film and a trail of polygons caused by the multiple reflections of the light rays in the lenses that form the focussing assembly of a camera. The shape of the iris that forms the camera's aperture is responsible for the shape of the polygons formed in the lens flare. Since lens flares are constructed inside the camera, when you come to digitally creating them they should always be composited over everything else in your scene.

The precise form of the lens flare comes from the lens properties and not the light source. This is particularly apparent for anamorphic lenses which produce horizontal lens flares. These can be recreated using the Light Shard element of the Tinderbox LensFlare.

You should also be aware that the polygons will move at different speeds relative to each other whenever the light source or camera is moving. This is caused by the different position of the lenses within the lens assembly. When animating T_LensFlare you should keep the pivot position static in the centre of the image and animate the highlight position. The relative positions of the rings and polygons will automatically animate in relation to these two coordinates.

It is worth spending time looking at real lens flares to get a feel for the shapes, colours and movement. Just spending an evening in watching television will doubtless prove fruitful in this quest. You should note that lens flares have very subtle imperfections and tend to flicker over time.

You can use T_LensFlare to create rainbows. Switch everything off

apart from one chromatic ring.

Figure 247. Simulated rainbow using T_LensFlare

T_Lightning

Description

This plug-in generates both realistic lightning bolts and electric plasma discharge effects.

Figure 248. Lightning.

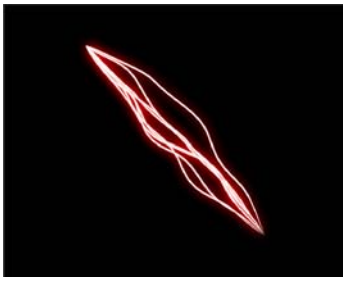

Figure 249. Plasma.

Inputs

T_Lightning has four inputs - a Start Mask, End Mask, Avoid Mask and Back. The start and end masks can be used to position the start and end of the lightning bolts. The avoid mask is used to restrict the path of the bolts. The bolts are blended with the Back image using the blending controls.

Lightning

Type - sets the type of line drawn.

- **Lightning** - renders lightning bolts.
- **Plasma** - renders plasma/electric discharge bolts.

Start X - sets the horizontal position of the start of the lightning bolt.

Start Y - sets the vertical position of the start of the lightning bolt.

Start Radius - defines the size of the circle, centered on the Start X/Y position, in which the position of the start of the lightning bolt can be found. The actual position is random and based on the Seed value.

End X - sets the horizontal position of the end of the lightning bolt.

End Y - sets the vertical position of the end of the lightning bolt.

End Radius - defines the size of the circle, centered on the End X/Y position, in which the position of the end of the lightning bolt can be found. The actual position is random and based on the Seed value.

Lightning Only Parameters

Jaggedness - controls the amount of sharp projecting notches along the lightning bolt.

Jaggedness Detail - controls the amount of fractal detail in the lightning bolt.

Min Split Distance - sets the distance between the start position and the beginning of the jaggedness.

Max Split Distance - sets the distance between the end position and the end of the jaggedness.

Plasma Only Parameters

Range - controls the tautness of the plasma lines. Increase this value to allow the bolts to deviate from the straight line connecting the start and end positions.

Twist - controls the tension of the plasma bolts at the start and end points. With a value of zero the bolts will always approach the start and end points along the line that connects them. In other words they are tightly clamped. Increasing the Twist slakens off the tension allowing the bolts to flop around the start and end.

Noise Level - controls the amplitude of the noise applied to the plasma bolts. This gives the bulge between the start and end points.

Noise Freq - controls the frequency (wavelength) of the waves in the plasma bolts. Increase this to get more oscillations between the start and end points.

Noise Detail - controls the amount of plasma detail.

Noise Bias - shifts the bulge from the start (-100) to the end (100) of the plasma bolt.

Seed - this number generates a number sequence that is used to randomly vary the bolts.

Number of Bolts - sets the number of bolts drawn between the start and end positions.

Movement Speed - how fast the bolt animates.

Presets - useful starting point.

- **Forked Lightning** - creates forked lightning.
- **Sheet Lightning** - creates sheet lightning.
- **Plasma Strike** - creates a plasma strike.
- **Plasma Ball** - creates a plasma ball.

Form/Colour

Fork Seed - this number generates a number sequence that is used to randomly vary

Min Fork Angle - sets the minimum angle between the fork and the bolt.

Max Fork Angle - sets the maximum angle between the fork and the bolt.

Min Fork Size - sets the minimum size of the forks.

Max Fork Size - sets the maximum size of the forks.

Max Fork Depth - the number of levels to which the bolt can fork.

Grow - controls how the bolt and forks animate.

- **By Order** - the main bolt is first animated and then the forks are added.
- **By Length** - the bolt and forks are animated according to the length of the bolt.

Main Forks - controls the number of "branches" off the main lightning bolt.

Smaller Forks - controls the number of "twigs" off the branches.

Start Range - controls the distance between the start position and the first branch.

End Range - controls the distance between the end position and the last branch.

Fork Fineness - controls the branch fall-off.

Percent Complete - controls the animation of the bolt. A value of 100 will be complete. A value of 50 will be half finished.

Max Width - sets the maximum thickness of the lightning bolt. The actual thickness will vary along the length of the bolt if Taper is

greater than zero.

Width Variation - controls the amount of width changes along the lightning bolt. This parameter is usually set to zero.

Vary Speed - controls the rate of change of width variations.

Vary Size - controls the length of the width variations along the length of the bolt.

Note *Only visible if the Width Variation is greater than zero.*

Taper - controls how to reduce the width of the bolt towards the end position.

Tapered Length - controls the percentage of the bolt length that is tapered. If zero, no tapering is performed. If 100 the bolt is tapered from start to end.

Bolt Colour - the colour of the bolt core.

Glow Colour - the colour of the glow around the bolt.

Intensity - the strength of the light emitted from the bolt.

Glow Radius - the size of the glow around the bolt.

Glow Intensity - the strength of the glow around the bolt.

Avoidance

Sets the matte used to deflect the lightning bolts.

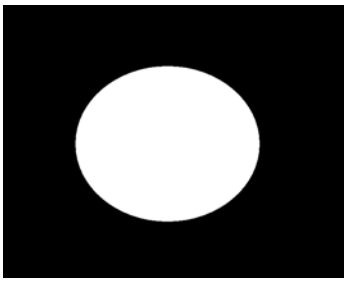

Figure 250. Avoidance Mask

Figure 251. Lightning with avoidance

See “Roto/Matte Tool” on page 17.

Mask/Blend

Start Mask - select how to process the mask.

- **Haloed Mask** - this creates a halo (outline) from the mask input which is then used to determine the start position of the bolts.

- **Mask** - select this to take the start position of the lightning bolt from the start mask input.
- **None** - select this to ignore the mask input and take the start position from the parameters in the Lightning edit group.

Start Points Seed - this number generates a number sequence that is used to randomly vary the start position if several possible start positions are found in the start mask.

Start ClipMin - pixels at or below this luminance value are set to black

Start ClipMax - pixels at or above this luminance value are set to white.

Start Halo Width - controls the thickness of the halo when the Start Mask is set to Haloed Mask.

Show Mask - switch this on to show the processed start mask.

End Mask - select how to process the mask.

- **Haloed Mask** - this creates a halo (outline) from the mask input which is then used to determine the end position of the bolts.
- **Mask** - select this to take the end position of the lightning bolt from the end mask input.
- **None** - select this to ignore the mask input and take the end position from the parameters in the Lightning edit group.

End Points Seed - this number generates a number sequence that is used to randomly vary the end position if several possible end positions are found in the end mask.

End ClipMin - pixels at or below this luminance value are set to black

End ClipMax - pixels at or above this luminance value are set to white.

End Halo Width - controls the thickness of the halo when the End Mask is set to Haloed Mask.

Show Mask - switch this on to show the processed end mask.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

T_MuzzleFlash

Description

This plug-in generates muzzle flashes for a variety of guns.You should position the X and Y Centre at the end of the gun barrel and vary the Gun Type and other parameters to give the look you're after. Animating the flash has to be done by hand.

The shape of the flash is made from two components: the long shaft of light and multiple secondary shafts that branch out from the end of the gun barrel.

Figure 252. Muzzle flash with 4 secondaries.

Inputs

T_MuzzleFlash has one input - a source image.

Flash

X Centre - the horizontal position of the start of the flash. This should be positioned at the end of the gun barrel.

Y Centre - the vertical position of the start of the flash. This should be positioned at the end of the gun barrel.

Rotation - the rotation of the flash around the y-axis. A value of 90 will point towards you.

Elevation - the rotation of the flash around the z-axis.

Offset - moves the start of the flash away from the end of the gun barrel.

Softness - post rendering blur applied to the flash.

Colour - colour of the muzzel flash.

Seed - the value that is used to generate the random number sequence used to vary the look of the muzzle flash.

Gun Type - select from this list to change the muzzle flash type.

Flash Width - the width of the main shaft of light.

Flash Length - the length of the main shaft of light.

Intensity - the brightness of the main shaft of light.

Noise Amount - models the breakup of the shaft of light.

Noise Detail - longitudinal breakup.

Secondaries - the number of short flashes that branch off the end of the gun barrel.

Gun Type - select from this list to change the shape of the secondary flashes.

Secondary Width - width.

Secondary Length - length.

Secondary Intensity - brightness.

Secondary Noise - breakup.

Rotation - the rotation of the secondaries. A value of 0 will lie along the main shaft. A value of 90 will be perpendicular to the main shaft.

Blend/Crops

See “Blending” on page 16. See “Crops” on page 25.

T_NightSky

Description

T_NightSky renders the brightest 9000 stars visible from Earth. It uses real data so you get to see the constellations in their correct positions and with their correct colour. There are controls to

Figure 253. T_NightSky showing The Plough.

manipulate the rotation of the camera and the twinkle of the stars.

Note *The camera is actually positioned at the centre of the Sun rather than on the Earth.*

Inputs

T_NightSky has one input - a source image.

Stars

Altitude - controls the elevation of your telescope.

Azimuth - controls the horizontal direction of your telescope.

Note *The telescope is in a fixed location at the centre of the sun. In practical compositing terms, there is no difference in viewing stars from the sun or the earth.*

Twist - controls the rotation of your telescope about an axis along the length of the telescope.

F.O.V. - Field of View. This controls how much of the night sky you can see. Increase this for a wide angle lens.

Brightness - controls the overall brightness of the stars. The brightness of individual stars may vary.

Brightness Spread - controls the range of star brightnesses generated.

Saturation - controls the colour saturation of the stars. A value of zero will render the stars with no colour. The colour of the stars are taken from the star database.

Maximum Size - sets the maximum size of a star.

Size Spread - sets the range of star sizes generated. a value of zero will force every star to be the same size. Increasing this value will increase the difference in scale between the largest and smallest star.

Jitter - controls the small random variations in position of the stars. Increasing this value increases the amount the stars move from their default position.

Flicker Rate - controls the speed of luminance variation of the stars.

Flicker Amount - controls the amount of luminance variation during flickering.

Star Shape - sets the geometry of the star.

- Circular Dot
- Many Pointed
- 8 Pointed
- 6 Pointed
- 5 Pointed
- 4 Pointed

Preset - sets the camera parameters to display some well-known constellations.

- Canis Major
- Hercules
- Scorpio
- Alpha Centauri
- Taurus
- Auriga
- Cygnus
- Pegasus
- Cassiopia
- The Plough
- Southern Cross
- Orion

Filter - switches filtering on or off. Toggle the filter on to improve the quality of the rendered image.

Background Colour - sets the colour behind the stars.

Background

- **Image** - renders the stars over the source image.
- **Colour** - renders the stars on the background colour.

Crops

See “Crops” on page 25.

Hints & Tips

NightSky uses real data - position and colour - that is mapped onto a virtual sphere with the Earth at the centre. If you want a general star background as viewed from space, remember to turn the star flickering off as this represents atmospheric distortion.

It is not a random star generator and is not designed for fly-throughs. For that see “T_Starfield” on page 196.

T_Pattern

Description

T_Pattern generates a large number of animating wipe patterns. This spark can be used to render black and white mattes or wipe between the two inputs.

Figure 254. T_Pattern used as a wipe

Figure 255. T_Pattern used to generate a matte

Inputs

T_Pattern has two inputs - a front and back image.

Pattern

Wipe - sets the wipe pattern generated.

- Venetian Grid
- Venetian Fan
- Venetian Square
- Venetian Circle
- Clock
- Snake Left-Right
- Snake Top-Bottom
- Venetian Left-Right
- Venetian Top-Bottom
- Stripe Left-Right
- Stripe Top-Bottom

Percent Completed - controls the how much of the wipe has been completed. To animate the wipe you should set key frames for this parameter. A value of 0 will display the front input. A value of 50 will display half of the front image and half the back image. A value of 100 will display the back image only.

Number of Passes - controls the number of bands in the wipe.

Type - sets whether to generate black and white mattes or wipe between the inputs.

- **Wiper** - wipes between front and back inputs.

- **Generator** - generates mattes.

Uniformity - controls the rate of scaling of the bands in the venetian wipes. If set to 100 all the bands will scale at the same rate and complete together. If set to 50 the bands will finish scaling at different times giving a more interesting trickle down effect.

Rotation - controls the rotation of the pattern.

Autoscale - toggle this on to ensure that the wipe covers the back image. If rotating the venetian square wipe the front image will not completely obscure the back image. Switching autoscale on will scale the image to fit.

Scale - controls the size of the pattern.

X Scale - controls the horizontal size of the pattern.

Y Scale - controls the vertical size of the pattern.

Softness - controls the amount of blurring applied to the matte.

Crops

See “Crops” on page 25.

T_Plasma

Description

T_Plasma produces animating organic patterns.

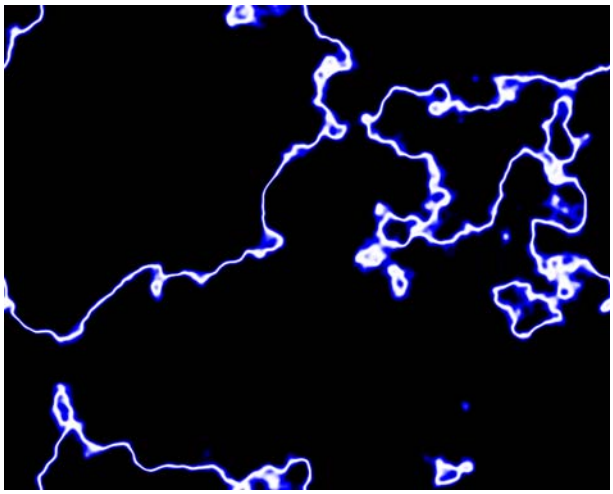

Figure 256. T_Plasma: Electric

Inputs

T_Plasma has one input - a source image.

Plasma

The colour gradient widget sets the colours that are used in the colour ramp. The coloured ramp is used to add, remove and move the individual colours in the gradient by manipulating the small triangular colour tags.The colour picker allows you to change the colour of the currently selected tag. (See “Colour Gradient” on page 13.)

Size - controls the scale of the image. Increase this to move closer to the plasma surface so that the pattern appears closer.

Fractals - controls the number of fractals used to deform the shapes. Increase this for more detail and complexity in the shapes.

Sharpness - controls the focussing of the plasma pattern. Values close to zero will be out of focus. Increase this parameter to make the lines sharper.

Seed - sets the random number used to generate the plasma pattern.

Speed - controls the rate at which the pattern moves.

Impulses - controls the number of shapes that are used to seed the

plasma pattern.

Accelerate High Freqs - switch this on to make the plasma boil more by accelerating the smaller particles.

Blending - sets how to mix between the image effect and its original source.

Preset - four built in parameter sets are included.

- Oil on Water
- Sun Spot
- Lava Lamp
- Electric

Crops

See “Crops” on page 25.

Hints & Tips

To get a cell-like structure, try setting the Size to 10, Fractals to 1, and Impulses to 50.

T_Rain

Description

This plug-in simulates two dimensional rain. It does not interact with surfaces (splashes) and is not 3D rain. It loops very well. Just

Figure 257. Los Angeles.

Figure 258. Manchester.

render 10 frames and repeat.

Inputs

T_Rain has two inputs - a source image and a matte.

Rain

Rain Density - sets the amount of rain falling.

Drop Length - simulates the motion blur on the drops. Increase this for fast rain.

Rain Direction - vertical rain is -90, down and to the right is -45, down and to the left is -135.

Intensity - sets the brightness of the rain. This value is attenuated by the matte (Figure 259 and Figure 260) or roto.

Figure 259. Attenuation Matte.

Figure 260. Attenuated Rain.

Source image highlights can be put through a diffusion filter. The Diffusion Min and Max values set the luminance range over which the filter varies.

Diffusion Min - sets the value below which highlights will not be

diffused.

Diffusion Max - sets the value above which highlights will be fully diffused.

Seed - sets the random number sequence used to generate the particles of rain.

Presets - choose from these presets ranked light rain (drizzle) to heavy rain (cats & dogs).

Roto/Matte See “Roto/Matte Tool” on page 17.

Crops See “Crops” on page 25.

T_Shape

Description

T_Shape generates simple geometric shapes that can be used as mattes or to transition between two clips. There are a very large number of shapes that can be created using this plug-in.

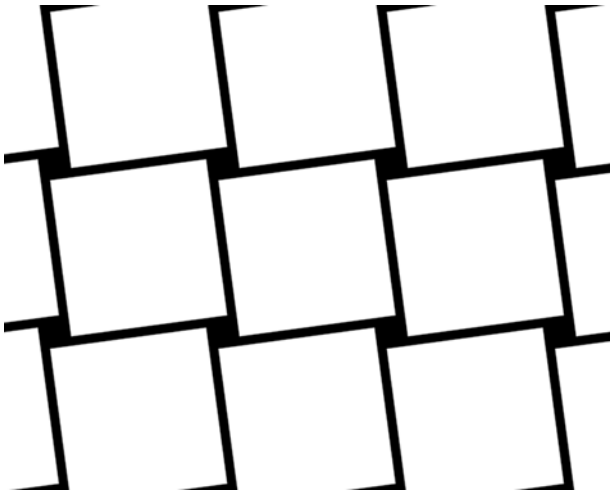

Figure 261. One of the many patterns that can be created in T_Shape.

Inputs

T_Shape has two inputs - a front and back image.

Shape

Grid X Scale - controls the horizontal size of the grid.

Grid Y Scale - controls the vertical size of the grid.

Grid Rotation - controls the rotation of the grid.

Grid X Centre - controls the horizontal movement of the grid.

Grid Y Centre - controls the vertical movement of the grid.

Layout - sets how the shapes are positioned on the screen.
- Rings
- Radial
- Grid

Shape Scale -controls the size of the shapes.

Shape Rotation -controls the rotation of the shapes about their own centres.

X Number -sets the number of shapes repeated horizontally.

Y Number -sets the number of shapes repeated vertically.

X Separation -controls the horizontal gaps between shapes.

Y Separation -controls the vertical gaps between shapes.

Shape - sets the shape used.

- Pentagon
- Blobs
- 8 Point Star
- 7 Point Star
- 6 Point Star
- 5 Point Star
- Box Star
- Triangle
- Square Doughnut
- Doughnut
- Cross
- Circle
- Rectangle

Shape Aspect -controls the stretching of the shape horizontally and vertically. Thus rectangles can be made from squares.

Shape Parameter - controls the thickness of a subset of the shapes.

Note *Only available on Cross, Doughnuts, Point Stars and Blobs.*

Type - sets whether to generate a matte or use the shapes to wipe between the input images.

- **Wiper**
- **Generator**

Crops

See “Crops” on page 25.

T_Sky

Description

T_Sky generates realistic evolving sky backgrounds. This plug-in has a great number of parameters which can give a wide variety of results.

Figure 262. The dawn sky.

Figure 263. Sun and clouds.

Inputs

T_Sky has two inputs a source image and mask.

Sun/Camera

There are three components of the sun. The sun itself, the bright glow around the sun (corona) and the radial light streaks that simulate the overexposure and internal reflections of bright light within the camera lens (flares).

Preset - this provides some suggested values for different effects. These can be used as a starting point when using T_Sky.

Colour - sets the colour of the sun.

Sun Brightness - controls the intensity of the light emitted from the sun.

Sun Direction - sets the location of the sun in the sky.

Note *If the Sun Direction and the Camera Direction are the same, the sun will appear in the centre of the screen (horizontally).*

Sun Elevation - sets the height of the sun in the sky.

Sun Fall-off - controls the extent to which the brightness of the light fades away with distance.

Filter - switches filtering on or off. Toggle the filter on to improve the quality of the rendered image. (See “Filtering” on page 14.)

Flare Spokes - controls the number of flares around the sun.

Flare Brightness - controls the intensity of the light flares.

Flare Fall-off - controls the extent to which the brightness of the flares fade away with distance. The higher this value, the faster the light will fade.

Rotation - controls the rotation of the flares around the sun.

Flare Sharpness - controls the smoothness of the flares.

Corona Brightness - controls the intensity of the light glow around the sun.

Corona Fall-off - controls the extent to which the brightness of the corona light fades away with distance. The higher this value, the faster the light will fade.

Direction - sets the direction the camera is pointing in degrees.

Elevation - sets the height at which the camera is pointing.

F.O.V - sets the field of view of the camera in degrees. This affects how much of the sky is visible through the camera.

From X - controls the camera's horizontal position.

From Y - controls the camera's vertical position.

From Z - controls the camera's distance from the sky.

Clouds

Colour - sets the colour of the clouds.

Cloud Brightness - controls the intensity of the clouds.

Cloud Speed - controls how fast the clouds move.

Speed Variance - controls the variation in speed of different clouds.

Cloud Direction - controls the direction of the cloud drift.

Cloud Height - controls the height of the clouds.

Tile Scale - controls the size of each tile repeated across the sky.

Cloud Size - controls the size of the clouds.

Sharpness - controls the cloud definition.

Cloud Count - controls the number of clouds in each tile.

Note *The size of each tile is set under Tile Scale.*

Exposure - controls the overall brightness of the scene.

Density - controls the thickness of the clouds. A value of zero removes all clouds.

Seed - this is a random number generator used to choose the cloud pattern.

Streaky - switch this on to generate cirrus clouds.

Under Lighting - controls the amount of light reflected from the underside of the clouds.

Bump Scale - controls the apparent depth of the clouds. Increase this for cumulus clouds.

Bump Soft - controls the cloud softness which affects the reflected light.

Light Edges - switch this on for under cloud lighting.

Noise - controls the amount of noise added to the image.

Edge Detail - controls the complexity of the cloud edges.

Atmosphere

The sky or atmosphere is actually a rendered dome with the camera at the centre. You may find it helpful to think of this model when you are altering parameters. The colour gradient sets the colours of the sky. The bottom colour tag is the colour of the sky at the horizon. The top colour tag is the colour of the sky when you look directly upwards. (See “Colour Gradient” on page 13.)

Haze Fall-off - controls the extent to which the brightness of the haze falls away with distance. The higher this value, the shorter the distance the haze brightness will penetrate.

Corona Haze - switch this on to render a hazy sun.

Colour Box - sets the colour of the fog haze when Haze Source is set to Colour Box.

Haze Brightness - controls the brightness of the haze.

Haze Distance - controls the distance between the haze and camera.

Haze Source - sets where the haze takes its colour from.

- **Gradient** - the colour of the haze is taken from the bottom colour of the gradient. This colour is the colour of the sky at the horizon. This gradient is visible when the Display Tools are switched to Full Image Widget.
- **Colour Box** - the colour of the haze is taken from the Colour Box.

Atmos Brightness - controls the amount of light in the atmosphere.

Red Shift - controls the amount of red light in the atmosphere. This is useful for sky simulations at dawn or sunset.

Crops - cropping parameters for the source picture. See “Crops” on page 25.

Roto/Matte

See “Roto/Matte Tool” on page 17.

Hints & Tips

As well as using T_Sky to create complete new skies, it can be used to add detail and contrast to an existing sky.

T_Starfield

Description

T_Starfield renders an infinite three dimensional field of stars. You can move through it and either look in a particular direction or lock the camera to a fixed point.

Figure 264. T_Starfield

Inputs

T_Starfield has no inputs.

Camera

Camera - sets the camera direction vector.

- **Free** - the camera looks down the negative Z axis. Controls become available to rotate the camera away from this initial direction.
- **Target** - the camera always looks at the point of interest (POI). A parameter to roll the camera about this direction vector becomes available.

Position X,Y,Z - controls the position of the camera in 3D space.

POI X, Y, Z - controls the point of interest in 3D space at which the camera is pointing. These parameters are active if the Camera is set to Target.

Rotation X, Y, Z - controls the rotation of the camera about the negative Z axis. These parameters are active if the Camera is set to Free.

Roll - controls the twist of the camera around the axis between the camera and the look at point.

Auto - sets how to automatically animate the camera.

- **Pos & Rot** - both position and rotation are animated.
- **Rotation** - just rotation is animated.
- **Position** - just position is animated.
- **Off**

Auto Rot Speed - controls the speed at which the camera will rotate through the star field.

Auto Pos Speed - controls the speed at which the camera moves through the star field.

Filter - switches filtering on or off. Toggle the filter on to improve the quality of the rendered image. (See “Filtering” on page 14.)

N Samples - controls the number of samples that are used when calculating the motion blur. Increase this value for higher quality blurring at the expense of rendering time.

Shutter - controls how long the camera shutter is open as a percentage of a frame. Increase this value for more motion blur on the stars.

FOV - sets the field of view of the camera. Increase this for a wide angle lens.

Far Clip - controls the position of the far clipping plane. Stars beyond the far clip are not drawn.

Seed - sets the random number used to generate the star field pattern.

Star

Star Shape - sets the shape of a star.

- Round Dots
- Many Points
- 8 Points
- 6 Points
- 5 Points
- 4 Points

Star Size - controls the overall size of the stars. Individual star sizes will vary.

Brightness - controls the overall brightness of the stars. The brightness of individual stars may vary.

Saturation - controls the colour saturation of the stars. A value of zero will render stars with no colour.

Density - controls the density of the star field. Decrease this to thin out the stars.

Hints & Tips

Cartoon stars can be created by setting the Star Shape to 4 Points with a large Star Size.

TINDER TOOLS

This chapter describes Tinder 5.3 plug-ins that are used as general tools in the compositing process. For example, to correct defects or manipulate images as an intermediate stage in a particular effect.

T_Compare

Description

T_Compare takes two images and allows you to view them side by side. Pixel values in both images are displayed for comparison.

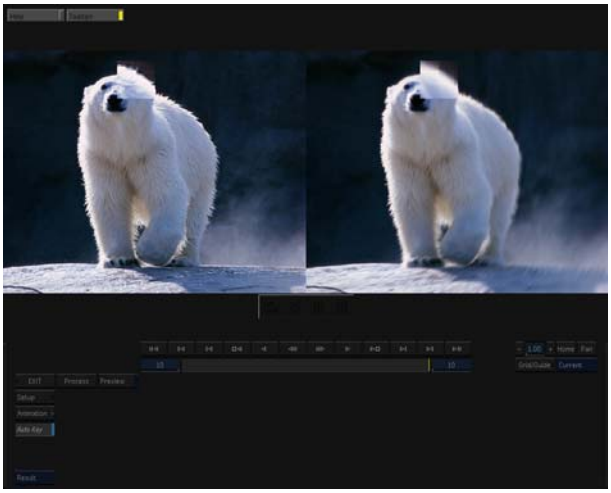

Figure 265. T_Compare.

Inputs

T_Compare has two inputs - a left and right image.

There are no controls in T_Compare. Just drag the cursor over either image to view a close up of that, and the corresponding area in the other image. The pixel values at the current cursor position are displayed as Red, Green and Blue values.

Hints & Tips

(See “T_Split” on page 231.)

T_CompareMotion

Description

T_CompareMotion takes two clips and allows you to view and render them side by side. It’s designed for a quick comparison of

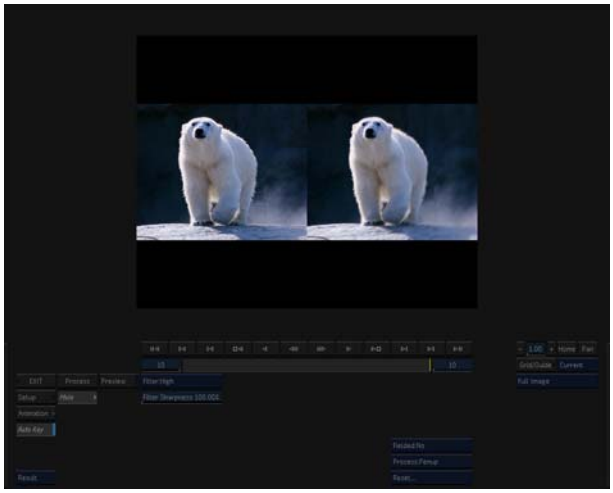

Figure 266. T_CompareMotion.

different versions of a render you may have done.

Inputs

T_CompareMotion has two inputs - a left and right clip.

Compare

There is only one parameter.

Filtering - sets the quality of the filter used when processing the effect.

T_Copyflicker

Description

T_Copyflicker copies the luma flicker from one clip into another.

A single frame of the *Source* clip is selected and against this, the luma variations are measured. A rectangular subregion of the source clip can be selected to restrict the analysis of the flicker. This can be useful if objects move in the way of areas that would otherwise display the flicker clearly. These differences are then applied to the *Target* clip.

Inputs

T_Copyflicker has two inputs - an image clip that displays the luminance flicker (Source) and another image clip that will have the luminance flicker applied to it (Target).

Analyse

Examine Frame - sets the reference frame of the source clip for the analysis of the flicker.

- **Current** - sets the reference frame to the current frame.
- **Specified** - sets the reference frame to that specified in the Source Frame parameter.

Mode - sets the method used to analyse the source clip.

- Histogram - this is a more sophisticated algorithm than the others and is the default. This computes a luminance histogram of the source image and changes the target to match.
- Greyscale Offset
- Colour Offset
- Greyscale Gain
- Colour Gain
- Greyscale Gamma
- Colour Gamma

Reference Frame - sets the reference frame of the source clip.

Note *This is only used if the Examine Frame parameter is set to Specified. If the Reference Frame is greater than the number of frames in the clip, the last frame is used.*

Box X Centre - controls the horizontal centre of the rectangular subregion that restricts the analysis of the source clip.

Box Y Centre - controls the vertical centre of the rectangular subregion that restricts the analysis of the source clip.

Box X Size - controls the horizontal length of the rectangular

subregion reference area.

Box Y Size - controls the vertical height of the rectangular subregion reference area.

Crops

See “Crops” on page 25.

Hints & Tips

The success of T_Copyflicker is highly dependent on the position of the analysis box and the mode selected. The mode selected has to match the type of variation within the source clip. This, of course, may well not be known and it will be necessary to try several different modes in order to get the best result. Histogram is the most sophisticated algorithm and should be used before others are tried.

The analysis box must define an area where there is little or no movement throughout the entire clip. Watch out for shadows or light reflections passing over this region.

T_Deband

Description

Digitally generated images, particularly 8 bit images that have gradual colour changes can appear to have colour bands where there should be a smooth colour gradient. T_Deband intelligently smooths out these bands.

Figure 267. Banded image.

Figure 268. Smooth image after processing with T_Deband.

Inputs

T_Deband has one input - a source image.

Deband

Quantise Level - controls the level at which debanding will occur. Increase this to reduce the banding.

Blur Amount - controls the amount of defocusing applied to smooth the bands.

Noise - controls the amount of noise added to smooth the bands.

Note *Try and keep the blur and noise to a minimum.*

Show Original - toggle this on to show the source clip. When looking at the slight differences before and after debanding, it is useful to be able to show and hide the result without taking your eyes off the screen. This single toggle allow you to do this.

Crops

See “Crops” on page 25.

Hints & Tips

Keep the blur and noise to a minimum. You need just enough to remove the appearance of banding without altering the image to much.

T_Defield

Description

T_Defield generates frames from fields. A number of sophisticated algorithms are supplied to interpolate the missing fields.

For each interlaced frame in the input clip, a single output frame is generated using either the odd or even field. Alternatively, both fields can be output separately to create an output clip twice as long as the input clip. A motion matte can also be generated and then used to limit the defielding to those parts of the image that are moving. The motion matte can be thresholded, softened, eroded and grown.

Background

It might help to give a little background information on fields before describing the parameters in T_Defield.

A frame of video is made up of a number of scan lines. For NTSC, the US standard, there are 525 lines although only 486 lines contain image information. To display a single frame of video, every other scan line is first displayed, followed by the scan lines that have been missed out. Both passes create an image with the correct height but half the number of scan lines. These half-frames are known as fields and are displayed twice as quickly as the frame rate. So for NTSC video which has a frame rate of 30 frames per second, each field is displayed for 1/60th of a second. This rather complicated arrangement has the advantage of producing no perceptible flicker to the viewer.

Images that are composed of two fields are commonly known as interlaced frames. Interlaced frames have greater temporal resolution. Objects that quickly move horizontally across the screen will display less strobing than the same animation displayed as progressive scans.

When working on interlaced clips it is sometimes necessary to convert the images to frames before continuing. For example, if you were given an interlaced clip of a fast moving object, it would be impossible to accurately draw along its edges to isolate it as a matte. You would first have to deinterlace the fields producing a clip of twice the length of the original, then rotoscope this new clip and finally re-interlace.

Defielding is also necessary when taking elements shot on video and compositing them into a shot for a film.

Inputs

T_Defield has one input - a source image.

Defield

Method - sets the algorithm that is used to generate the missing fields. Only the duplicate method generates a missing line by copying from the previous line. All the other methods interpolate the missing line

- **Slope Adaptive** - complex interpolation of the missing lines. This method gives a particularly good result on slopes. It produces the same result on vertical lines as Interpolate, and a slightly better result on horizontal lines.
- **Wide Interpolate** - weighted interpolation using a wider range of lines than just the previous and next. This gives very subtle differences between the Interpolation method.
- **Interpolate** - simple interpolation from the previous and next lines.
- **Duplicate** - the missing line is simply copied from the previous line. This is very quick but of lower quality than the interpolation methods.

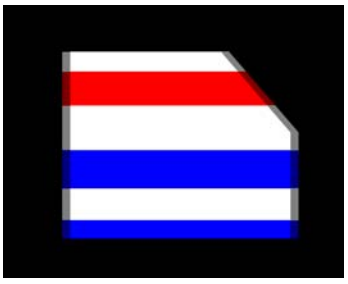

Figure 269. Original Fielded Image.

Figure 270. Close up of fields.

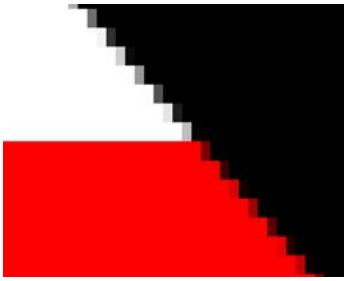

Figure 271. Duplicate - the fields are simply doubled up.

Figure 272. Slope Adaptive - complex interpolation of lines giving good results on slopes.

Figure 273. Interpolate. Simple interpolation between previous and next lines.

Figure 274. Wide Interpolation. Weighted interpolation over several lines.

Keep Field - sets the field that is kept and used to generate the missing field.

- **Even** - the even field is retained.
- **Odd** - the odd field is retained.
- **Odd & Even** - the odd field is followed by the even field.
- **Even & Odd** - the even field is followed by the odd field.

Motion - controls whether to use a motion matte to restrict the interpolation.

- **Show Matte** - displays the matte of moving parts of the image.
- **On** - uses the matte to restrict the interpolation. Areas that are white are interpolated, areas that are black are not.
- **Off** - switches off the motion matte so that the interpolation is on the whole frame and not restricted by the motion matte.

Hard Motion-Matte - switch this on to force the motion matte to have no grey values before it is treated with the threshold, grow and softness parameters.

Clip Min - pixels at or below this luminance value are set to black.

Clip Max - pixels at or above this luminance value are set to white.

Grow - controls the amount the edges are grown or shrunk. Negative value erode the matte edges. Positive values grow the edges.

Softness - controls the amount of blurring applied to the matte.

Note *Clip Min, Clip Max Grow and Softness are only available when Motion is On.*

T_Deflicker

Description

T_Deflicker is designed to remove colour or luma flicker in a clip. The flicker may be as a result of lighting variations during stop motion photography, or it could have been introduced in some transfer process prior to its arrival on your system.

A reference frame is nominated as a base line from which the luma variations are measured and removed. A rectangular analysis area restricts the pixels considered in the calculations. The box should be positioned over an area of the image that shows the flicker but is not obscured by moving objects. It may be necessary to animate this box to achieve this goal.

Inputs

T_Deflicker has one input - a source image.

Analyse

Reference Frame - sets the reference frame of the source clip.

Mode - sets the method used to analyse the source clip.

- Histogram - this is a more sophisticated algorithm than the others and is the default. This computes a luminance histogram of the source image and changes the target to match.
- Greyscale Offset
- Colour Offset
- Greyscale Gain
- Colour Gain
- Greyscale Gamma
- Colour Gamma

Box X Centre - controls the horizontal centre of the rectangular subregion that restricts the analysis of the source clip.

Box Y Centre - controls the vertical centre of the rectangular subregion that restricts the analysis of the source clip.

Box X Size - controls the horizontal length of the rectangular subregion reference area.

Box Y Size - controls the vertical height of the rectangular subregion reference area.

Crops

See “Crops” on page 25.

T_Degrain

Description

T_Degrain removes grain from an image. Degraining tools are often used to clean up blue screen before keying. T_Degrain is based on a hybrid median filter which analyses a neighbourhood of pixels and sets the center pixel to the median value of that region. This removes any pixels that show a sudden change in intensity which is typical of grain.

Figure 275. Original grainy image on the left, and
Figure 276. T_Degrain applied on the right

Inputs

T_Degrain has one input - a source image.

Degrain

Mode - sets the degrain method.

- **Luminance** - degrains the image based on the luminance and preserves chroma information.
- **RGB** - degrains each colour channel individually.

Apply - controls the number of times this process is repeated. Increase this value to remove more grain.

Note *You should keep this value as low as possible to reducing the de focussing of the image.*

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Hints & Tips

See also “T_Median” on page 217. To add grain see “T_Grain” on page 215 and “T_Noise” on page 223.

Also see Furnace F_DeGrain for a higher quality degrain using temporal information.

T_Dilate

Description

T_Dilate composites a foreground and background image using a matte, but concentrates on providing a comprehensive set of tools for manipulating the matte to provide a perfect result.

It can grow or erode edges, or extract outlines. T_Dilate is sub-pixel

Figure 277. Matte Input.

Figure 278. Grow.

Figure 279. Shrink.

Figure 280. Halo.

giving precise control over matte edges. In the examples above an orange coloured frame is composited over colour bars using the matte.

Inputs

T_Dilate takes three inputs - a foreground (Front), a background (Back) and a matte.

Dilate

Mode - controls how to manipulate the matte.

- **Halo** - creates a line centered on the edge of the matte.
- **Halo In/Out** - creates a line on the inside (or Outside) edge of the matte.

- **Shrink/Grow** - positive values grow the matte edges. Negative values erode the matte edges.

Figure 281. Split Screen showing Halo Out in orange and Halo In in white.

Grow - controls the amount of eroding or growing of the matte edges.

Softness - controls the amount of blurring applied to the matte.

Feather - controls how much to simplify the matte. It coagulates similar regions so that, for example, black specks in the white matte can be absorbed by the surrounding white areas. Positive values remove white dots in black areas, negative values remove black dots in white areas.

Aspect - controls the horizontal and vertical weighting of the blur.

Negative - switch this on to invert the matte.

Shape - sets the profile of the filter used to erode/grow the matte edges.

- **Square**
- **Circle**

Show - controls what is displayed.

- **Foreground** - shows the foreground (Front) image.
- **Quantised** - shows the matte as 3 levels of grey so that white, black and any grey areas are distinct.
- **Matte** - shows the matte after it has been processed.

- **Composite** - shows the result of compositing the foreground and background using the matte. Areas of the matte that are white reveal the foreground.

ClipMin - pixels at or below this luminance value are set to black When compositing, this parameter can be used to improve the background image if parts of the foreground are showing through.

Roll Back Min - controls the amount of erosion of the edges of the black threshold matte when Clip Min is used to remove dust in the background.

ClipMax - pixels at or above this luminance value are set to white. When compositing, this parameter can be used to firm up the centre of the matte making it less transparent to the background. Increasing this value too much will affect the edges of your matte. Roll Back Max should be used to compensate.

Roll Back Max - controls the amount of erosion of the edges of the white threshold matte when Clip Max is used. Roll Back Max preserves edges if Clip Max has been used to produce a more opaque foreground.

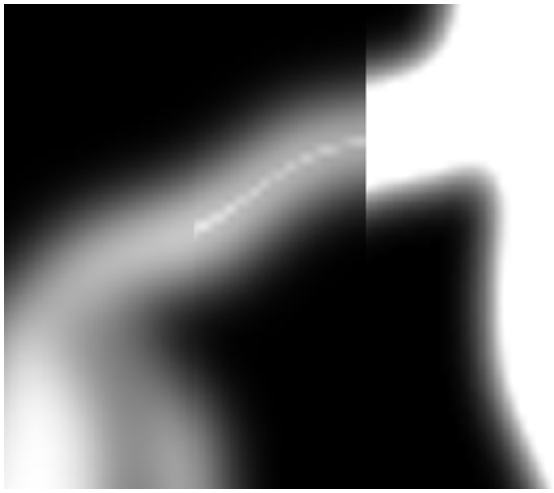

Figure 282. 3-way vertical split screen showing the original matte on the left, the modified Matte using Clip Max on the right and the Rolled Backed Matte in the middle. Note that the Rolled Back Matte recovers the original edges while firming up the foreground matte. For additional clarity a horizontal split screen of the same images is shown below.

Figure 283. 3-way horizontal split screen showing top to bottom the ClipMax, Roll Back and Original Matte.

Front Premultiplied - switch this on if the foreground image is premultiplied.

The following parameters only appear if Show is set to Foreground or Composite.

Blur Front - controls the amount of blurring on the foreground image.

Front Aspect - controls the horizontal and vertical weighting of the blur.

Use Front Colour - switch this on to use a single colour instead of the foreground image.

Front Colour - the colour used instead of the foreground image if Use Front Colour is switched on.

Defringe Radius - when compositing, pixels up to this distance from the edge of the matte have colour fringing from the screen colour removed from them. The screen colour is estimated from the pixels where the matte is completely black.

Defringe Amount - controls how much of the screen colour is removed during defringing.

Defringe Shrinks Matte - the defringing process can also be allowed to shrink the matte, based on how much of the screen colour has been removed.

Blur Back - controls the amount of blurring on the foreground

image.

Back Aspect - controls the horizontal and vertical weighting of the blur.

Use Back Colour - switch this on to use a single colour instead of the foreground image.

Back Colour - the colour used instead of the foreground image if Use Front Colour is switched on.

Roto/Matte See “Roto/Matte Tool” on page 17.

Crops See “Crops” on page 25.

T_Grain

Description

T_Grain simulates the scattering of film grain on images. The film grain is made of tiny rendered grain particles. With a grain size of 100% they are approximately three pixels across. The visibility of the grain is controlled using the blend parameter.

There are controls the alter the size, density and gain on each of the colour channels independently.

Inputs

T_Grain has one input - a source image.

Grain

Samples Per Grain - controls how accurately the grains are rendered.

Grain Size - controls the overall size of the grain particles. The overall size is not allowed to exceed 100%.

Red (Green & Blue) **Grain Size** - controls the size of the red (green and blue) grain particles.

Density - controls the spacing between grain particles. Reduce this value to thin out the particles. The density is not allowed to exceed 100%.

Red (Green & Blue) **Density** - controls the spacing of the red (green and blue) particles.

Gain - controls the brightness of the grain.

Red (Green & Blue) **Gain** - controls the brightness of the red (green and blue) particles.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

Hints & Tips

See “T_Degrain” on page 208. See “T_Noise” on page 223.

See also Furnace F_ReGrain.

T_Median

Description

T_Median applies a median filter to an image. For each pixel in an image, the median filter takes its neighbouring pixels and sorts them by brightness. The median (centre value) of this sorted array replaces the original pixel. Thus median filters do an excellent job of removing single pixel noise from an image while only causing a slight reduction in the sharpness. See image below.

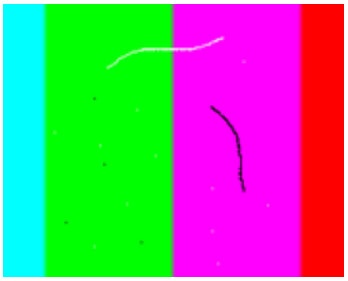

Figure 284. Specks and Scratches

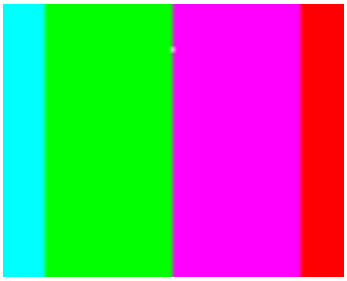

Figure 285. Cleaned up with T_Median

Inputs

T_Median has one input - a source image.

Median

Radius - controls how many pixels are considered in the median calculation.

Subpixel Accurate - switch this on to render with subpixel accuracy so that fractional radius values will work.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

T_MinMax

Description

T_MinMax is used to grow or shrink mattes. For each pixel in an image the MinMax filter takes a surrounding region of pixels and picks the brightest or darkest pixel and blends that with the original image. Positive radius values will grow white areas of the image over dark areas. Negative values grow dark areas over bright areas.

Figure 286. Growing white over black.

Figure 287. Growing black over white.

Inputs

T_MinMax has one input - a source image.

Min/Max

Radius - controls how much to grow or shrink a matte. Positive values grow the matte edges. Negative values erode the matte edges.

Aspect - controls the horizontal and vertical weighting of the blur.

Shape - controls the shape of the neighbourhood of pixels used in the calculations.

- **Square** - tends to preserve angular edges of a matte.
- **Circle** - tends to bevel off angular edges of a matte.

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Crops

See “Crops” on page 25.

Hints & Tips

T_MinMax can give some interesting effects on images as well as mattes.

Figure 288. Positive radius using circle.

Figure 289. Negative radius using square.

T_MixMatte

Description

T_MixMatte combines two mattes using a variety of logical operators. While designed to use mattes, colour images can also be used to achieve interesting effects.

Inputs

T_MixMatte has two matte inputs.

Mix

Logic - controls how to combine the mattes.

- Neg Intersect
- Neg B F
- Neg F B
- Neg Either Or
- Neg Union
- B F
- F B
- Either Or
- Union
- Intersect

Mix - controls the mix between the two images. A value of 100% shows the Back image.

Front Gain - controls the brightness of the Front image.

Back Gain - controls the brightness of the Back image.

Crops

See “Crops” on page 25.

Hints & Tips

For a plug-in to mix between input images using the standard Tinder blending methods see “T_Mix” on page 99.

To visually show the difference between all the logic operators, here

is the output of T_MixMatte on a circle (Front) and square (Back).

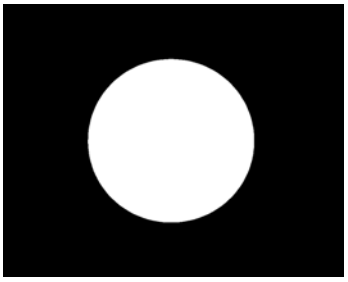

Figure 290. Front Input.

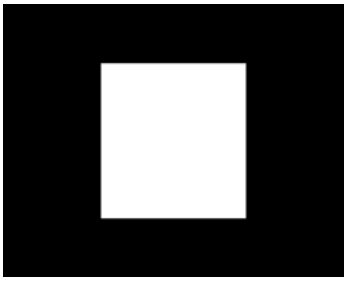

Figure 291. Back Input.

The negatives are shown on the left hand side with the corresponding positive on the right.

Figure 292. Neg Intersect

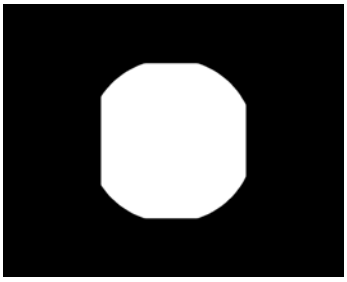

Figure 293. Intersect

Figure 294. Neg FB

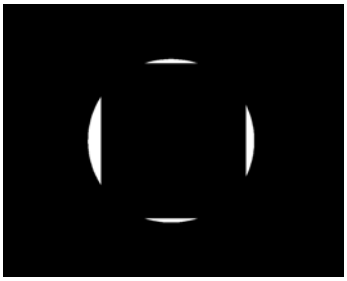

Figure 295. FB

Figure 296. Neg BF

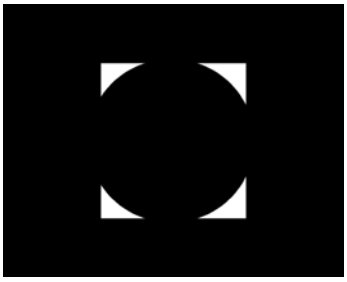

Figure 297. BF

Figure 298. Neg Union

Figure 299. Union

Figure 300. Neg Either Or

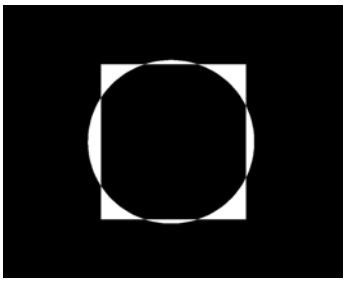

Figure 301. Either Or

T_Noise

Description

T_Noise adds simulated video noise to an image. There are controls

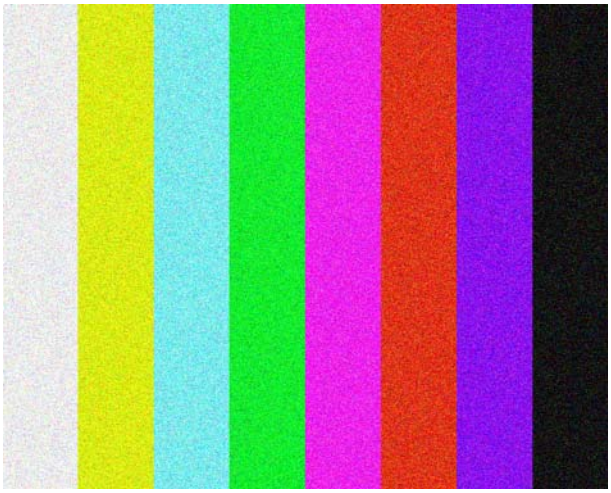

Figure 302. T_Noise added to colour bars.

to limit the application of noise to specific luminance ranges. This mimics some aspects of grain on film. (See “T_Grain” on page 215.)

Inputs

T_Noise has three inputs - a front image, a back image and a matte.

Noise

Max - controls the amount of noise added. Increase this value for more noise.

Min - controls the amount of noise subtracted.

Note *Only available if Even Noise is switch off.*

Even Noise - switch this on to ensure that equal amounts of random adding and subtracting will occur. If switched off, the balance of noise added and subtracted is controlled separately using the Max and Min parameters.

Note *If abs(Max) > abs(Min) more noise will be added than subtracted and the image will become brighter.*

Noise R - controls the amount of noise added to the red channel of the image.

Noise G - controls the amount of noise added to the green channel of the image.

Noise B - controls the amount of noise added to the blue channel of the image.

Type - controls which noise algorithm to apply.

- **Coloured Noise** - uses the single noise colour.
- **RGB Noise** - uses noise in all colour channels.
- **Grey Noise** - uses luminance noise only.

Noise Colour - sets the colour of the noise when Type is set to Coloured Noise.

Time Varying - switch this on to ensure that the random noise pattern changes on each frame.

Note *Since video noise is different on each frame, this should normally be left switched on.*

Softness - controls the amount of blurring of the noise before it is applied to the image.

Soft R - controls the amount of blurring of the red noise only.

Soft G - controls the amount of blurring of the green noise only.

Soft B - controls the amount of blurring of the blue noise only.

Mimic Grain Response - switch this on to use a luminance response curve to selectively add noise to parts of the image. The shape of the curve is defined by three parameters - the filmic peak, spread and minimum.

Filmic Peak - sets the luma level at which the noise is applied.

Filmic Spread - sets the range of luma values on either side of the luminance that are affected by the noise.

Filmic Minimum - sets the background level of noise applied to the

image regardless of the luma level.

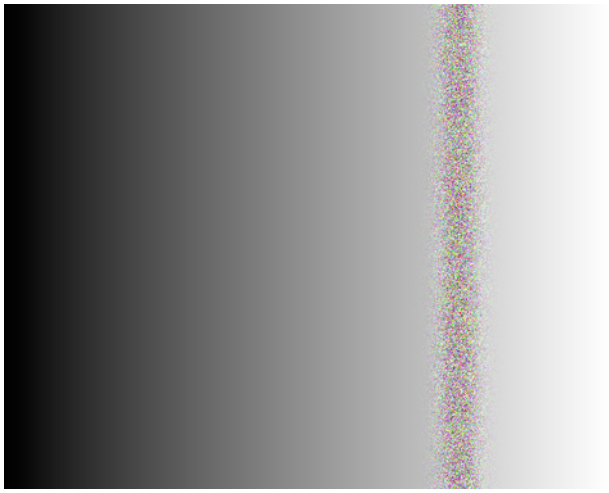

Figure 303. Ramp with noise added using the luma response curve. The Filmic Peak = 75, Spread = 5, Minimum = 0.

Style - sets how to use the second and third inputs.

- **Composite** - applies noise to the front image and composites this over the back image using the matte. Areas in the matte that are black show the background and areas that are white show the foreground.
- **Masked** - applies noise to the front image and blends this with the matte so that areas in the matte that are white show the front image and areas that are black show the matte.
- **Normal** - applies noise to the front image and ignores the other two inputs.

Composite - controls how the front and back images are blended together using the matte if Style is set to Comp. (See “Roto/Matte Tool” on page 17.)

- **Colour Switch** - produces a standard composite by mixing the front and back images based on values in the matte; but, for mattes that have been pulled from a chroma key, this method helps suppress the blue spill at the matte edges. The Chroma Blend controls the amount of spill suppression.
- **Punch Both** - produces a standard composite by mixing the front and back images based on values in the matte. If the matte is black you’ll see the background, and if white you’ll see the foreground. This method is typically used to composite unpremultiplied images.
- **Punch Front** - uses the matte to cut a hole in the foreground before mixing with the background.

- **Punch Back** - uses the inverted matte to cut a hole in the background before mixing in the foreground. This method is used to composite premultiplied images.

Chroma Blend - controls the amount of spill suppression when Composite is set to Colour Switch. In grey areas of the matte, luminance is taken from the foreground image and chroma from the background image. A Chroma Blend value of zero will produce the same result as Punch Both.

Note *Negative values take chroma from the foreground and luminance from the background.*

Noise Layer - sets which input to apply the noise.

- **Back**
- **Front**

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

T_Rewire

Description

T_Rewire is used to map, in any order, the colour channels of the three input clips into the colour channels of the output clip. The output channels can be set to RGB, YUV or HSV colour space.

Inputs

T_Rewire has three image inputs.

Output Space allows you to pick the output image's colour channels either RGB, HSV or YUV. The channel selectors then allow you to pick which colour channel from which image you wish to map to each of the output channels.

In Figure 304the output image has its red channel values taken from

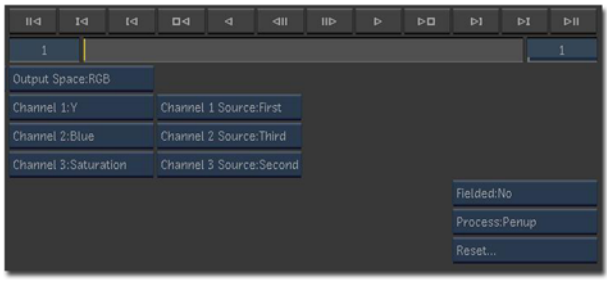

Figure 304. Screenshot of user interface.

the first input's Y channel (luminance). It's green channel from the third input's blue channel. It's blue channel from the second input's saturation channel.

Rewire

Output Space - sets the type of colour space used in the output image.

- **HSV** - Hue, Saturation and Value. H (Hue) is the colour. S (Saturation) is the purity of the colour. V (Value) approximates to brightness.
- **YUV** - Y is the brightness. U and V are colour difference signals.
- **RGB** - R (Red) is the amount of red. G (Green) is the amount of green. B (Blue) is the amount of blue.

Channel 1 - sets the channel type of the first channel of the output image. In RGB space the first channel would be the red channel. In HSV it would be the Hue channel.

Channel 2 - sets the second channel of the output image.

Channel 3 - sets the third channel of the output image.

Channel 1 Source - sets the input to use (First, Second or Third) as the first channel of the input. In RGB space the first channel would be the red channel.

Channel 2 Source - sets the input to use as the second channel of the input.

Channel 3 Source - sets the input to use as the third channel of the input.

Crops

See “Crops” on page 25.

T_Sonic

Description

This spark analyses a sound file and creates five animation channels in a range of frequencies from bass to treble. These curves can then be copied and pasted into other sparks to animate parameters. So, for example, a rhythmic bass beat could be sampled and used to animate the scale of an image so that the image pulses in time with the music.

Workflow

1. Apply T_Sonic to a clip that has audio attached or select any clip and load the audio from within the spark.
2. Set the Input to embedded or imported audio.
3. Press Analyse Audio.
4. View the animation channels. Select Left Amp 1 through to Right Amp 5 until you can pick out the beat you're intested in.
5. If you wish to use this channel to drive an opacity parameter that varies between 0 and 100, press Update Scaling to re-scale the channels.
6. Select the animation channel you want and copy it.
7. Exit and load another spark. In the channel editor select the opacity parameter and paste in the channel from T_Sonic.
8. Play the clip and watch the image beat in time to the music.

By default, T_Sonic will scale the input image according to the values in the sampled audio file. When processing or playing you should see your image getting bigger and smaller.

Inputs

T_Sonic has one input - a source image.

Sonic

Input - sets whether to use the audio attached to the input clip or an audio file loaded independently.

- **Embedded Audio**
- **Imported Audio**

Load - loads the sound file from a standard discreet file browser. Only aiff files are supported.

Analyse Audio - press this to analyse the audio from the Audio In point for a length of Audio Duration.

Update Scaling - scales the sampled audio channels between the Scale Min and Scale Max values. This enables you to cut and paste the channel you're interested in and use elsewhere.

Audio In - sets where to start sampling the audio. This value is in frames. For example, if set to 30 (assuming 30fps) then the audio will be sampled 1 second into the track.

Scale Min - when Update Scaling is pressed the sampled audio channels are re-scaled such that the smallest amplitude is set to this Scale Min value.

Audio Duration - sets how much of the audio track is sampled. This value is in frames.

Scale Max - when Update Scaling is pressed the sampled audio channels are re-scaled such that the largest amplitude is set to this Scale Max value.

Left

This edit group stores data for the left audio channel. The Left Amp parameter stores the sampled amplitude of the audio between a minimum and maximum frequency as defined by Left Min and Left Max.

The left audio channel is sampled in 5 frequency ranges from bass (Left Amp 1) through to treble (Left Amp 5).

Right

This edit group stores data for the right audio channel. The Right Amp parameter stores the sampled amplitude of the audio between a minimum and maximum frequency as defined by Right Min and Right Max.

The right audio channel is sampled in 5 frequency ranges from bass (Right Amp 1) through to treble (Right Amp 5).

Crops

See “Crops” on page 25.

Hints & Tips

You can practise using T_Sonic on a test stereo file you can download from our web site.

T_Split

Description

T_Split produces a split screen of two inputs so that comparisons between the two can be made. This tool is not designed for rendering clips, but is a convenient way of judging differences between similar images. (See “T_Compare” on page 199.)

Inputs

T_Split has two inputs - a left image and a right image.

Split

Wipe - controls the position of the vertical dividing line.

Left Frame Shift - advances (or retreats) displayed frames in the left clip so that subtle temporal frame differences can be observed.

Right Frame Shift - advances (or retreats) displayed frames in the right clip so that subtle temporal frame differences can be observed.

Show Right - toggle this on to show the right input clip. When looking at slight differences between clips it is useful to be able to show and hide the clip without taking your eyes off the screen. This single toggle allow you to do this.

T_Wipe

Description

This is a simple directional wipe used to transition between one image and another. The wipe can be vertical or horizontal or any angle in between. The edge of the wipe can also be softened. The wipe parameter is not automatically animated. Keys need to be inserted to see the effect.

Figure 305. Simple directional wipe with soft edge.

Inputs

T_Wipe has two image inputs - a front and a back image.

Wipe

Wipe - controls the extent of the transition. Zero shows the front input only. 100 reveals the back input only.

Note *If you have a high Soft Width value then you may need to animate the Wipe parameter to a value larger than 100 to completely reveal the background.*

Direction - sets the angle of the wipe. A value of zero gives a vertical wipe. A value of 90 gives a horizontal wipe.

Soft Width - sets the width of the edge of the wipe.

Smooth Blend - this softens the wipe edge by changing the ramping method from linear to cubic.

Crops

See “Crops” on page 25.

T_Wobble

Description

T_Wobble simulates camera shake on a clip or random vibrations on an object. Frames can be translated, rotated and scaled randomly and motion blur can be applied.

A random motion path is generated from the seed value. This path is constrained within the area defined by Wobble X and Wobble Y. Small fractal perturbations (X Detail and Y Detail) are added to the path to make the movement more interesting. There is a choice of 2 motion paths - Independent and Orbit. In the Independent method

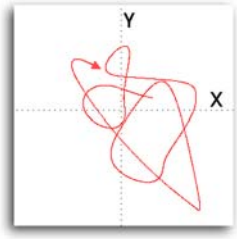

Figure 306. Independent

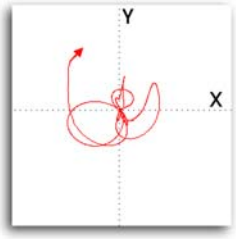

Figure 307. Orbit

the x and y coordinates will move around independently of one another to give a random motion path about a central position. In the Orbit method the x and y coordinates are linked so that the position moves in and out of the center in arcs.

Inputs

T_Wobble has one input - a source image.

Wobble

Wobble Method - sets the wobble algorithm.

- **Complex** - selecting this displays additional parameters which override the simple wobble parameters.
- **Simple** - this method is suitable for most purposes and has fewer parameters.

Speed - controls the rate at which the image moves along the path. Increase this for a more rapid movement.

Style - sets the algorithm used to displace the image position.

- **Independent** - the x and y coordinates will move around independently of one another to give a random motion path about a central position.
- **Orbit** - the x and y coordinates are linked so that the position moves in and out of the center in arcs.

Wobble X - sets the width of the rectangular area within which the random path is constrained.

Wobble Y - sets the height of the rectangular area within which the random path is constrained.

Trans Speed - controls the speed of the translations.

Trans Detail - controls the detail in the translation path.

Seed - sets the random number used to generate the path.

Wobble Rotation - sets the maximum amount of rotation. The actual amount is random.

Speed of Rotation - controls the rate at which the image rotates.

Detail Rotation - sets the amount of small rotational perturbations added to the underlying rotational movement.

Filtering - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Wobble Scale - sets the maximum amount of scaling. The actual amount is random.

Wobble X Scale - sets the maximum amount of horizontal scaling. The actual amount is random.

Wobble Y Scale - sets the maximum amount of vertical scaling. The actual amount is random.

Speed of Scale - controls the rate at which the image is scaled.

Detail Scale - sets the amount of small scaling perturbations added to the underlying scaling motion.

Shutter - controls the time the camera shutter is open. Increase this value for a more blurry image.

Note *This parameter will only work if the Wobble Method is Simple. For Complex Wobbles, the Samples parameter provides the motion blur.*

Samples - sets the number of sub-samples per frame. Increase this for more realistic motion blur.

Zoom - controls the overall size of the image. This can be used to clip out edge effects when shaking.

Crops

See “Crops” on page 25.

Hints & Tips

T_Wobble can be used to apply camera shake to a clip. If you’re simulating an earthquake or explosion this can be a useful method of applying motion blurred and random shaking to the image. There are example clips on the CD.

Moving the image, during a simulated camera shake, will introduce black pixels at the edges. This can be eliminated by either setting the Source Crops Edge Methods to Reflect or using the Zoom parameter. The first method will remove any black pixels by reflecting pixels at the image edges. The second method increases the size of the image to remove the unwanted black pixels, but will soften the image.

TINDER WARPERS

This chapter describes the specialist set of tools in Tinder 5.3 that warp images by moving pixels around. Lighting controls are available for some of these plug-ins to assist in creating a three dimensional look.

T_Distorto

Description

T_Distorto distorts an image (Figure 309 on page 236) using a matte (Figure 310 on page 236). The amount of distortion corresponds to the brightness of the matte, and the distortion takes the form of a scale, translation or rotation of the image. In Figure 308 the image is

Figure 308. Distorto.

being distorted by scaling.

Where the matte is black there is no distortion. Where the matte is white the full distortion is applied. A matte with smooth changes in luminance will gently ramp in the distortion to give fluid like effects.

Figure 309. Source image.

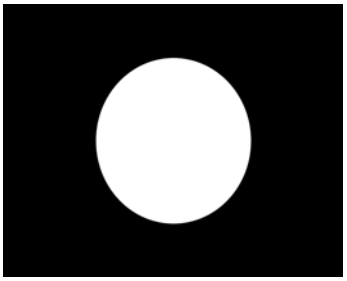

Figure 310. Alpha.

Inputs

T_Distorto has two inputs - a source image and a matte.

Distortion

Distortion - controls the amount of warping of the source image based on the settings in the Defm group.

ClipMin - pixels at or below this luminance value are set to black

ClipMax - pixels at or above this luminance value are set to white.

Softness - controls the blur of the matte before applying the distortion. Use this to gradually ramp in the distortion.

Figure 311. Softness = 5.

Figure 312. Softness = 30.

Aspect - controls the horizontal and vertical weighting of the blur..

Defm X Offset - controls the horizontal offset of the source attenuated by the mask.

Defm Y Offset - controls the vertical offset of the source attenuated by the mask.

Defm Rotation - controls the rotation of the source attenuated by the mask.

Defm Scale - controls the overall size of the source attenuated by the mask.

Figure 313. Defm Scale = 80.

Figure 314. Defm. Scale = 50.

Defm X Scale - controls the horizontal stretch of the source attenuated by the mask.

Defm Y Scale - controls the vertical stretch of the source attenuated by the mask.

Mask X Offset - controls the horizontal offset of the mask.

Figure 315. Mask X Offset = 0.

Figure 316. Mask X Offset = 100.

Mask Y Offset - controls the vertical offset of the mask.

Mask Rotation - controls the rotation of the mask.

Mask Scale - controls the overall size of the mask.

Mask X Scale - controls the horizontal size of the mask.

Mask Y Scale - controls the vertical size of the mask.

Filtering - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Src Defm

Source X - controls the horizontal offset of the source image.

Figure 317. Source X Offset = 0.

Figure 318. Source X Offset = 100.

Source Y - controls the vertical offset of the source image.

Source Rotation - controls the rotation of the source image.

Source Scale - controls the overall size of the source image.

Source X Scale - controls the horizontal size of the source image.

Source Y Scale - controls the vertical size of the source image.

Roto/Matte See “Roto/Matte Tool” on page 17.

Crops See “Crops” on page 25.

Hints & Tips

T_Distorto is used extensively in post production to fake and control reflections in curved surfaces. Computer generated 3D objects need to interact with their surroundings to give the impression the scene has been filmed and not created from separate elements. T_Distorto enables compositors to control reflections at the compositing stage rather than taking the video footage and using it as environment maps in 3D.

T_Distorto can be used to breakup objects as though they are underwater. Try using T_Distorto with a matte created by T_Caustics.

lighter, fire-l., cigarette l., igniter, light, pilot l., illuminant, taper, spill, candle, 420 torch; coal, ember, brand, firebrand, fire ship, incendiary bomb 723 bomb; wick, fuse, touchpaper, tinderbox, match, slow m., linstock portfire, percussion cap, detonator; safety match, friction m., lucifer, vesta, fusee; flint, steel, tinder, touchwood, amadou, matchbox.

Figure 319. Block of text.

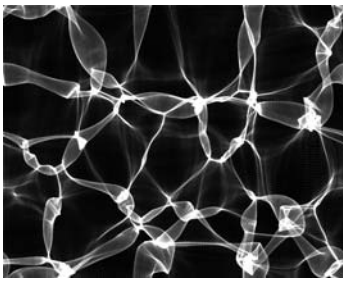

Figure 320. Water Caustics.

Figure 321. T_Distorto applied to text using Caustics.

T_Droplet

Description

T_Droplet is a distorting plug-in that creates a ring of waves simulating the effect of a droplet of water splashing into a fluid.

Figure 322. T_Droplet with lighting

Inputs

T_Droplet has two inputs - a source image and a matte.

Droplet

X Centre - sets the horizontal position of the centre of the droplet circle.

Y Centre - sets the vertical position of the centre of the droplet circle.

Radius - sets the distance of the outer droplet ring from the centre of the droplet. Or if you prefer, the circle size.

Aspect - controls the horizontal and vertical weighting of the effect. This will squeeze the circles into an ellipses.

Rotation (degrees) - sets the rotation on the droplet rings.

Note *Rotation is only visible if the Aspect is not set to 0%.*

Wavelength - sets the distance between the wave peaks.

Number of Waves - sets the number of waves which make up the droplet.

Amount - sets the strength of the distortion of the source image.

This parameter is attenuated by the matte.

Mode - sets how to distort the image.

- **Displacement** - warps pixels perpendicular to the direction of radial motion of the waves..
- **Direction** - warps pixels in the fixed direction set by the Shift Angle.
- **Compression** - warps pixels radially.

Shift Angle - sets the direction to shift the pixels in.

Note *Shift Angle is used in combination with the Mode:Direction.*

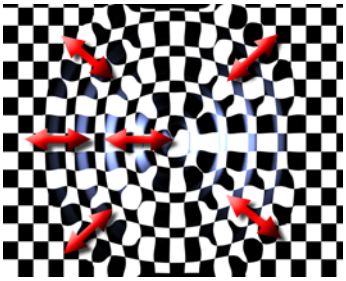

Figure 323. Compression.

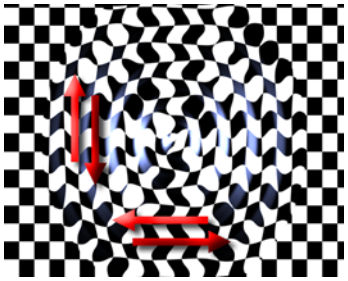

Figure 324. Displacement.

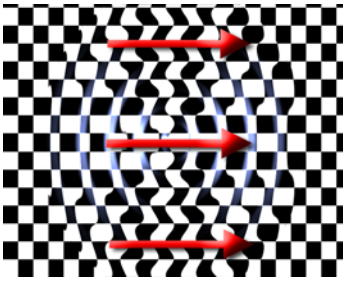

Figure 325. Directional, Shift Angle 0.

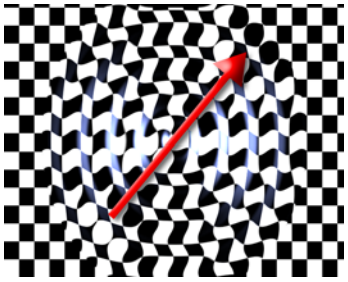

Figure 326. Directional, Shift Angle 45.

Filtering - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Filter Sharpness - this can be used to sharpen the image when Filtering is set to High. (See “Filtering” on page 14.)

Lighting - switch this on to illuminate the droplet. (See “Lighting” on page 11.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Roto/Matte This matte will attenuate the distortion amount. See “Roto/Matte Tool” on page 17.

Crops See “Crops” on page 25.

T_Lens

Description

T_Lens is a distorting plug-in that creates a fish-eye lens or wide angle lens effect. The bulge can be applied into or out of the image using the power parameter.

Figure 327. Original image.

Figure 328. T_Lens applied.

The optional mask (or roto) is used to attenuate the distortion.

Inputs

T_Lens has two inputs - a source image and a matte.

Lens

X Centre - sets the horizontal position of the centre of the lens.

Y Centre - sets the vertical position of the centre of the lens.

Radius - controls the size of the lens. It is defined as the distance in pixels between the centre and the lens circumference.

Aspect - controls the horizontal and vertical weighting of the effect.

Rotation - sets the rotation of the effect.

Note *Rotation is only visible if the Aspect is not set to 0%.*

Power - controls the strength of the effect. Negative values squeeze

the image instead of magnifying it.

Figure 329. Power parameter set to 80.

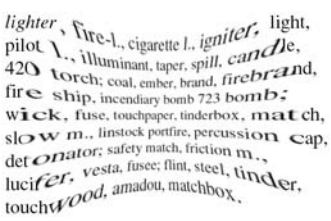

Figure 330. Power parameter set to -40.

Figure 331. Original image.

Figure 332. T_Lens with Aspect set to -50.

Filtering - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Filter Sharpness - this can be used to sharpen the image when Filtering is set to High. (See “Filtering” on page 14.)

Lighting - switch this on to illuminate the lens. (See “Lighting” on page 11.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Roto/Matte See “Roto/Matte Tool” on page 17.

Crops See “Crops” on page 25.

T_Polar

Description

T_Polar produces a circular distortion of the source image.

Figure 333. T_Polar on a London bus.

Inputs

T_Polar has two inputs - a source image and a matte. The matte allows the polar distortion to be composited with the undistorted image.

Polar

X Centre - sets the horizontal position of the centre of the circular distortion.

Y Centre - sets the vertical position of the centre of the circular distortion.

Radius - controls the radius of the circular polar distortion.

Aspect - controls the horizontal and vertical weighting of the effect.

Rotation - controls the rotation of the circle around the centre.

Number - sets the number of times the source image is repeated horizontally before the polar distortion is applied.

Offset - controls the vertical offset of the image before the polar distortion is applied.

Filtering - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Roto/Mask See “Roto/Matte Tool” on page 17.

Crops See “Crops” on page 25.

T_Pond

Description

T_Pond is a distorting effect that simulates the circular wave patterns generated by a continuous stream of droplets falling into a fluid. An optional attenuation matte (or roto) can be used to control the amount of wave distortion by scaling the Amount parameter.

Figure 334. Still lake.

Figure 335. With a rock thrown in.

Inputs

T_Pond has two inputs - a source image and a matte.

Pond

X Centre - controls the horizontal position of the wave epicenter.

Y Centre -controls the vertical position of the wave epicenter.

Radius - controls the radius of the ring of waves. The distance between the epicenter and the furthest wave measured in pixels.

Aspect **- controls the horizontal and vertical weighting of the effect.**

Rotation - controls the rotation of the waves around the epicenter.

Note *This is only apparent if the aspect is not 1.*

Fall-off - controls the how much the amount of distortion reduces as the distance from the centre increases. This is also known as damping.

Wavelength - controls the distance between the wave peaks.

Phase - shifts the position of the waves along the direction of wave motion.

Speed - controls how fast the waves ripple out from the centre.

Mode - sets how to distort the image.

- **Displacement** - warps pixels perpendicular to the direction of radial motion of the waves..
- **Direction** - warps pixels in the fixed direction set by the Shift Angle.
- **Compression** - warps pixels radially.

Shift Angle - sets the direction to shift the pixels in.

Note *Shift Angle is used in combination with the Mode:Direction.*

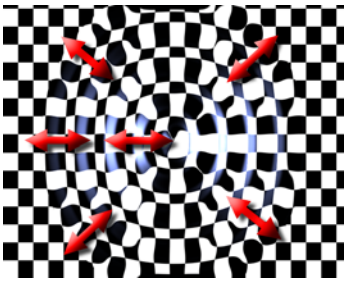

Figure 336. Compression

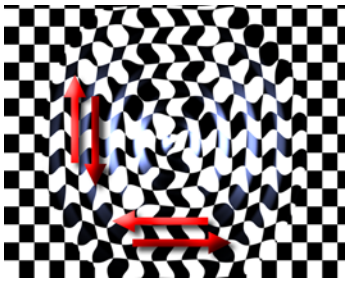

Figure 337. Displacement

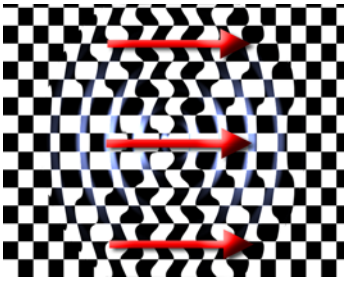

Figure 338. Directional, Shift Angle 0

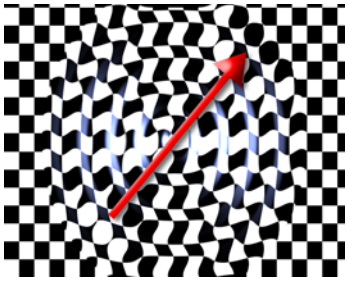

Figure 339. Directional, Shift Angle 45

Amount - controls the amount of distortion of the source image.

Lighting - switch this on to illuminate the effect. (See “Lighting” on page 11.)

Filtering - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

T_Ripple

Description

T_Ripple distorts an image using a series of parallel waves travelling in the same direction. An optional attenuation matte can be used to control the amount of wave distortion.

Figure 340. Compression waves.

Inputs

T_Ripple has two inputs - a source image and a matte.

Ripple

Amount - sets the strength of the distortion of the source image.

Wavelength - controls the distance between the wave peaks.

Direction - controls the direction of the waves. This parameter is calibrated in degrees.

Phase - shifts the position of the waves along the direction of wave motion.

Speed - controls how fast the waves move.

Filtering - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Mode - sets how to distort the image.

- **Displacement** - warps pixels perpendicular to the direction.

- **Compression** - warps pixels parallel to the direction.

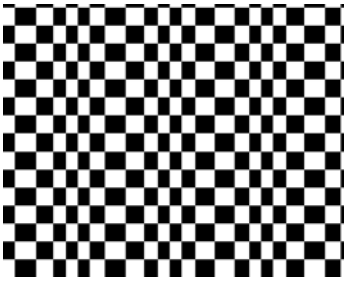

Figure 341. Compression

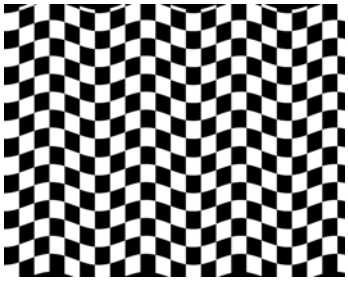

Figure 342. Displacement

Lighting - switch this on to illuminate the effect. (See “Lighting” on page 11.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Roto/Matte See “Roto/Matte Tool” on page 17.

Crops See “Crops” on page 25.

T_Swirl

Description

T_Swirl is a distorting plug-in that twists an image around a point. There are two types of distortion - Swirl and Vortex.

Figure 343. Original Image.

Figure 344. Swirl with attenuation matte.

Inputs

T_Swirl has two inputs - a source image and a matte.

Swirl

X Centre - sets the horizontal position of the centre of the distortion.

Y Centre - sets the vertical position of the centre of the distortion.

Radius - sets the size of the effect. The radius is the distance in pixels between the center and the circumference of the effect.

Aspect - controls the horizontal and vertical weighting of the effect.

Rotation - controls the rotation of rendered effect. This is only apparent if the Aspect is set to something other than zero.

Mode

- **Vortex** - is a logarithmic swirl. At the circumference there is no rotation. Half-way to the centre the rotation is the Swirl amount. Half-way again is another rotation by this amount and so on.

- **Swirl** - the centre of the distortion is rotated by the Swirl amount.

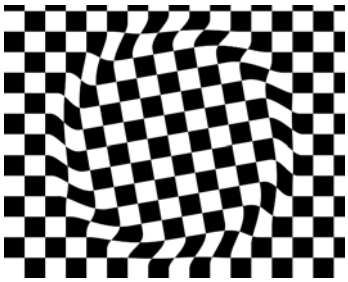

Figure 345. Swirl.

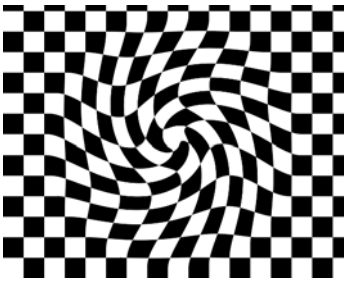

Figure 346. Vortex.

Ease - controls how the effect is ramped at the edges.

- **In and Out**
- **Out** - smooth transition at the centre.
- **In** - smooth transition at the circumference.
- **None**

Swirl - controls how much to distort the image. The value is expressed as an angle in degrees.

Swirl Range - controls the extent of the distortion when the mode is set to Swirl. The effect is split into two sections. The inner circle is a rotation without distortion. The outer ring is the swirling effect. The Swirl Range parameter controls the extent of the swirl ring. A value of 100 will just give a rotated disc. A value of 75 will give a large rotated disc and a small swirled ring.

Filtering - sets the quality of the filter used when processing the effect. (See “Filtering” on page 14.)

Filter Sharpness - this can be used to sharpen the image when Filtering is set to High. (See “Filtering” on page 14.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 16.)

Roto/Matte

See “Roto/Matte Tool” on page 17.

Crops

See “Crops” on page 25.

Hints & Tips

Swirl can be used as a transition between clips. Use the Swirl parameter to twist the first clip and the Swirl Range to untwist as the cross fade kicks in.

APPENDIX A

Release Notes

This section describes the fixed bugs and known bugs & workarounds for this release of Tinder.

Known Bugs & Workarounds

Known Bugs & Workarounds

1. The following plug-ins do not display the correct Preset name on a Reset All. (T_Sky, T_NightSky, T_BadTV, T_Chromatic, T_Elements, T_Fire, T_LensFlare, T_OldFilm, T_Rain)
2. T_Bandlimit - proxy - changing the proxy resolution between full, half and quarter give different images and it should not. There is no workaround other than using the spark at full resolution.
3. T_Silk - may crash if applying it to an SD image after using it on an HD image. As a workaround, reset the spark before applying it to the smaller image.

Appendix B

GENARTS TINDER PLUG-INS

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