Tinder

User Guide for Tinder 1.1 for OFX
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Tinder 1.1 for OFX User Guide
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Introduction

Welcome to this User Guide for Tinder 1.1 for OFX.

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 The Foundry.

About this User Guide

This User Guide will tell you how to use the Tinder plug-ins. Each plug-in is described in detail in later chapters.

OFX Plug-ins

These plug-ins have been written and compiled to the OFX plug-in standard. OFX is an open plug-in API for 2D visual effects. For a current list of supported host systems see www.thefoundry.co.uk

For technical information on OFX for developers see openfx.sourceforge.net

New Features

To read about the new features, improvements and fixed bugs in this release, see the “Release Notes” on page 87 of Appendix A.
Installing Tinder

Tinder is available as a download from our web site www.thefoundry.co.uk. The downloads are in tar format for Linux and zip format for Windows machines.

Tinder on Linux

Follow these instructions if you wish to install Tinder on a Linux machine running an OFX host.
1. Download the file from our web site (www.thefoundry.co.uk)
2. Change directory to:
   /usr/OFX/Plugins/
3. Extract the files from the archive using the command:
   `tar xvzf Tinder1.1v2_OFX1.0_Linux-RH9.0.tgz`

Tinder on Windows

Follow these instructions if you wish to install Tinder on a Windows machine running an OFX host.
1. Download the file from our web site (www.thefoundry.co.uk)
2. Double click on the winzip file to unpack it. Extract the files to the directory
   `C:\Program Files\Common Files\OFX\Plugins`

Default Install Directory

The default directories searched for OFX plug-ins is as follows. For Windows:

   `C:\Program Files\Common Files\OFX\Plugins`

For Linux:

   `/usr/OFX/Plugins/`
Moving the Install Directory

You can put the OFX plug-ins anywhere as long as you set the environment variable OFX_PLUGIN_PATH to point to it.

Licensing Tinder

Without a license key, Tinder renders a watermark of coloured dots on the image.

The license key is a sequence of numbers and letters that are stored in a text file. License keys can be locked to a particular machine enabling those plug-ins to run only on that machine. Or it can be a floating license enabling any networked machine to run the plug-ins. To get floating licenses to work you need additional software installed (FLM).

The Foundry License Manager (FLM) is a collection of tools to manage and monitor floating licenses running on a server across a network of machines. The Foundry License Manager for SGI, Linux, Mac OS X or Windows machines is supplied separately and can be downloaded from our web site.

For information on installing this software and our licenses in general, please refer to the Foundry License Manager User Guide which can be downloaded from our web site.
Plug-in Contexts

How an image effect is intended to be used by an artist affects how it should interact with a host application. For example, an effect that is to be used as a transition between two clips works differently to an effect that is a simple filter. One must have two inputs and know how much to mix between the two input clips, the other has fewer constraints on it. Within OFX we have standardised several different uses and have called them contexts.

More specifically, a context mandates certain behaviours from an effect when it is described or instantiated in that context. The major issue is the number of input clips it takes, and how it can interact with those input clips.

The current contexts supported are:

1. **Generator**. This has no compulsory input clips. It is used by a host to create imagery from scratch, like a noise generator.
2. **Filter**. This has a single compulsory input clip on which the effect is applied.
3. **Transition**. This has two compulsory input clips and a compulsory 'Transition' double parameter. It is used by a host to get from one clip to another, like a dissolve.
4. **Paint**. This has two compulsory input clips, one image to paint onto, the other a mask to control where the effect happens.
5. **Retimer**. This has a single compulsory input clip, and a compulsory 'SourceTime' double parameter. It is used by a host to change the speed of a clip.
6. **General**. This has an arbitrary number of inputs. It is generally used in a 'tree' compositing environment.
Other Foundry Products

The Foundry is a leading developer of plug-in visual effects for film and video post production. Its products include Furnace, Tinder, Tinderbox, Keylight and Anvil and run on a variety of compositing platforms. For the full list of products and supported platforms see our web site www.thefoundry.co.uk

Furnace is a collection of film tools. Many of the algorithms utilise motion estimation technology to speed up common compositing tasks. Plug-ins include wire removal, rig removal, steadiness, deflicker, degrain and regrain, retiming, and texture tools.

Tinder and Tinderbox are collections of image processing effects including blurs, distortion effects, background generators, colour tools, wipes, matte tools, painterly effects, lens flares and much more.

Anvil is a collection of colour correction and colour manipulation tools originally developed by First Art.

Keylight is an award winning blue/green screen keyer giving results that look photographed not composited. The Keylight algorithm was developed by the Computer Film Company who were honoured with a technical achievement award for digital compositing from the Academy of Motion Picture Arts and Sciences.

Visit The Foundry’s web site at www.thefoundry.co.uk for further details.
Tinder Blurs

This chapter describes the blurs that are available in Tinder 1.1.

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.

Inputs

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

Contexts

Filter context.
Parameters

The parameters for this plug-in are described below.

**LensBlur**

- **Radius** - sets the strength of the blur. Increase this value for a more defocussed image. This can be manipulated using the on-screen tool.

- **Gain** - controls the brightness of the image. A value of 0.5 will halve the luminance. A value of 2 will double the luminance.

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

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

- **Rotation** - controls the rotation of the camera diaphragm. *This is only observable when the Polygonal Diaphragm is switched on.*

**Note**

- **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 Amplify** - controls the brightness of the blooming.

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

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

**Diaphragm** - controls the shape of the camera diaphragm.
- **Polygonal** - renders polygonal highlights.
- **Circular** - renders circular highlights.

**Polygon Sides** - sets the number of sides of the polygonal highlights.

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

**Masking** - switches on and off and inverts the mask used to control the blooming. The mask attenuates the bloom 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.

**Lens Type** - 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.*

**Scissoring** - switch this on to activate the diaphragm.
clipping.

![Figure 3. Christmas lights in London.](image1)

![Figure 4. With scissored highlights.](image2)

**Scissor Angle** - controls the rotation of the top clipping plane around the centre of the highlight as shown in Figure 5.

![Figure 5. Scissor Angle showing the rotation of the top clip line about the centre of the highlight.](image3)

**Show Widget** - switches on and off the on-screen radius and rotation tool.

**Common Edge Methods** - controls the value of pixels outside the crop area. (See “Edge Methods” on page 104.)
**Blending** - sets how to mix between the image effect and its original source. (See “Blending” on page 101.)

**Process Alpha** - defines how to treat the alpha channel of the source image.

**Help...** - displays the plug-in name, version number and a brief description of the plug-in in the image area.

**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. 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

![Figure 6. A well-focused scene](image-url)
flares. The image on the right shows a digital Gaussian blur. Note the difference.

![Figure 7. T_LensBlur](image1.jpg) ![Figure 8. Gaussian blur using T_Blur](image2.jpg)

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_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 9 on page 17 shows the result of using T_Silk. the

Figure 9. You’re looking gorgeous! T_Silk applied to an actor’s face.
original picture is shown in Figure 10 on page 18. The parameters used in T_Silk were Prepass on with Prepass Radius 8, Radius 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 by switching off the Use Prepass. If bypassed a fixed 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.

**Inputs**

T_Silk is a single input plug-in.

**Contexts**

Filter context.

**Parameters**

The parameters for this plug-in are described below.

**Silk**

- **Radius** - 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 blurred.

- **Show Prepass** - displays the regions that will be affected with the silk algorithm. White areas will be affected more than black areas.
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.
Controls the size and aspect of the area considered in the prepass calculations.

Prepass Radius - controls the size of the array of pixels around the current pixel.

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

Prepass Method - sets the algorithm used to compute the detail that sets the kernel size.
- H - Hue.
- S - Saturation.
- V - Value. Use this for black and white images.

Common

Edge Methods - controls the value of pixels outside the crop area. (See “Edge Methods” on page 104.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 101.)

Process Alpha - defines how to treat the alpha channel of the source image.

Help... - displays the plug-in name, version number and a
brief description of the plug-in in the image area.

Hints & Tips

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

This chapter describes each of the visual effects available in Tinder 1.1.

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 11. Before.](image1)  ![Figure 12. After. T_Bandlimit used to remove frequencies.](image2)

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. \textit{T\_Bandlimit} can be used to remove or show specified frequencies.

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.

![Image of colour bars with T_Bandlimit applied](image1.png)

Figure 17. Feature Size set to 15. Figure 18. Feature Size set to 50.

**Inputs**

T_Bandlimit has one input - a source image.

**Contexts**

Filter context.

**Parameters**

The parameters for this plug-in are described below.

**Bandlimit**

**Action**

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

**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). This parameter can be manipulated using the on-screen tool.
**Feature Spread** - controls the extent of the fall-off at the selected feature size (frequency). Increase this value for a smoother result.

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

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

**Gain** - controls the overall luminance of the effect.

**Show Widget** - switches on and off the on-screen feature size tool.

**Common**  
**Edge Methods** - controls the value of pixels outside the crop area. (See “Edge Methods” on page 104.)

**Blending** - sets how to mix between the image effect and its original source. (See “Blending” on page 101.)

**Process Alpha** - defines how to treat the alpha channel of the source image. (See “Process Alpha” on page 107.)

**Help...** - displays the plug-in name, version number and a brief description of the plug-in in the image area.
**Hints & Tips**

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

![Figure 19. Original.](image1)  ![Figure 20. T_Bandlimit ripples.](image2)

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 21. Original.](image3)  ![Figure 22. T_Bandlimit painterly effect.](image4)
Tinder Effects

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 23. Before. Figure 24. After.

Inputs
T_DiffusionFilter has one input - a source image.

Contexts
Filter context.

Parameters
The parameters for this plug-in are described below.

Diffusion
- Display - sets what to show.
- Result - renders the diffusion filter.
Highlights - displays the highlights as a grey scale image. The whites are the highlights and these areas are affected by the highlight diffusion algorithm.

Lowlights - displays the lowlights as a grey scale image. The whites are the lowlights and these areas are affected by the lowlight diffusion algorithm.

Order - sets whether to process the highlights before the lowlights.
  - Highlights First - highlights then lowlights.
  - Lowlights First - lowlights then highlights.

Show Widget - toggles the on-screen tools for highlight and lowlight softness.

Highlights - this sets the algorithm used to identify which parts of the image will be affected by the highlight glow.
  - None - switches off any highlight diffusion.
  - 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.
  - Source - 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 - allows you to specify the colour of the highlight or lowlight.
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.

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

• None - switches off any lowlight diffusion.
• 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.

- **Source** - 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** - 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.

Common

Edge Methods - controls the value of pixels outside the crop area. (See “Edge Methods” on page 104.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 101.)

Process Alpha - defines how to treat the alpha channel of the source image. (See “Process Alpha” on page 107.)

Help... - displays the plug-in name, version number and a brief description of the plug-in in the image area.
T_Rays

Description

T_Rays creates a backlit ray effect. The rays are sourced from selected areas of the image’s luminance, or from a matte. The colour of the rays can come from the source image or a fixed colour.

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 two inputs - a source image and a matte.

Contexts

Filter context.
Parameters

The parameters for this plug-in are described below.

**Rays**
- **Centre X,Y** - sets the position of the source of the rays.
- **Factor** - controls the strength of the rays. Increase this for longer rays.
- **Fall-off** - controls how the rays fade as they get longer.
  - **Linear** - equal fade over the length of the rays.
  - **Exponential** - rays fade more smoothly at their ends.
- **Colouring** - controls whether to take the colour of the rays from a fixed colour or from the colours in the image.
  - **Source** - the colours of the rays are taken from the source image.
  - **Colours** - the colours of the rays are taken from the colour box parameters.
- **Seed** - sets the randomness of the rays.
- **Matte Channel** - controls which colour channel is used to source the rays.
  - **grey** - luminance is used.
  - **alpha** - the alpha channel is used.
- **Scintillates** - switches scintillation on and off.
- **Amount** - sets the contrast of the scintillation lines. Low values give a smoother result.
Speed - sets the rate of movement.

Detail - sets the complexity (number of lines) of the scintillation.

Show Widget - switches on and off the on-screen tool to move the position of the centre of the rays.

Colours

Num. Colours - sets the number of colours in the rays. This is only active if colouring is set to colours.

Colour 1 - sets the colours in the rays if colouring is set to colours. Up to 5 colours can be used.

Common

Edge Methods - controls the value of pixels outside the crop area. (See “Edge Methods” on page 104.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 101.)

Filter - sets the quality of the filter used when processing the effect. (See “Filtering” on page 99.)

Process Alpha - defines how to treat the alpha channel of the source image. (See “Process Alpha” on page 107.)

Help... - displays the plug-in name, version number and a brief description of the plug-in in the image area.
Tinder Effects

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.

**Inputs**
T_Starburst has two inputs - a source image and a matte.

**Contexts**
Filter context.

**Parameters**
The parameters for this plug-in are described below.

- **Starburst**
  - **Presets** - select from this list as a starting point.
  - **Radius** - controls the length of the spokes.
**Gap** - controls the distance from the centre of the starburst to the start of the rays.

**Threshold** - sets the luminance level above which sparkles are added. Decrease this value to get more sparkles.

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

**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.

**Rotation** - controls the rotation of each sparkle.

**Number of Spokes** - sets the number of rays on each sparkle.

**Matt Channel** - sets how to use an input clip to attenuate the gain on the starburst. Where the matte is black there is no starburst and where the matte is white there is full starburst.
- **None** - does not attenuate the gain.
- **Source** - uses the source input to attenuate the gain.
- **Matte** - uses the second matte input to attenuate the gain.

**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.

**Show Widget** - switch on and off the on-screen radius tool.

**Common**

**Edge Methods** - controls the value of pixels outside the crop area. (See “Edge Methods” on page 104.)

**Blending** - sets how to mix between the image effect and its original source. (See “Blending” on page 101.)

**Process Alpha** - defines how to treat the alpha channel of the source image. (See “Process Alpha” on page 107.)

**Help...** - displays the plug-in name, version number and a brief description of the plug-in in the image area.
**Hints & Tips**

Here’s an example showing how the starburst can be attenuated using the second input.

![Figure 28. Test Pattern from T_Shape.](image1)

Figure 28. Test Pattern from T_Shape.

![Figure 29. With T_Starburst using a linear ramp (black at bottom, white at top) to attenuate the Gain.](image2)

Figure 29. With T_Starburst using a linear ramp (black at bottom, white at top) to attenuate the Gain.
T_Tile

Description

T_Tile translates, rotates, scales and shears the source image. It can repeat the image at the edges to form tiles. T_Tile also takes matte which can be used to attenuate the distortions as shown in Figure 31.

Figure 30. Original image. Figure 31. 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.

Contexts

Filter context.

Parameters

The parameters for this plug-in are described below.

Tile

Tile - switch this on to repeat the image at the image boundaries.
**Position X,Y** - controls the position of the tile.

Note: *The position can be manipulated using the on-screen tool. Switch on Show Widget.*

**Rotation Centre X,Y** - sets the position around which the image will be rotated.

**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.

**X Y Scales** - controls the horizontal and vertical size of the tile independently.

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.

**Show Widget** - switches on and off the move, rotate and scale on-screen tools.

**Matte Channel** - switch this on to attenuation the distortion of the image based on values in the inputs. 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.

- **None** - no attenuation of the effects takes place.
- **Source** - the source image is used to attenuate the scale and rotation.
- **Matte** - the second input is used to attenuate the scale and rotation.

**Common**

- **Edge Methods** - controls the value of pixels outside the crop area. (See “Edge Methods” on page 104.)

- **Blending** - sets how to mix between the image effect and its original source. (See “Blending” on page 101.)

- **Filter** - sets the quality of the filter used when processing the effect. (See “Filtering” on page 99.)

- **Process Alpha** - defines how to treat the alpha channel of the source image. (See “Process Alpha” on page 107.)

- **Help...** - displays the plug-in name, version number and a brief description of the plug-in in the image area.
Tinder Generators

This chapter describes each of the Tinder 1.1 plug-ins that are capable of generating images without an input.

T_Fractal

Description

T_Fractal generates organic animating patterns.

Inputs

T_Fractal takes one input.

Contexts

Filter context.

Parameters

The parameters for this plug-in are described below.
Fractal

Gain - changes the brightness of the fractals.

Spread - controls the fractal density. If you set this quite low then you can get a random movements in layers like Brownian motion.

Speed - sets the rate at which the fractals animate.

Iterations - controls the number of fractal layers.

Detail - controls the fractal complexity.

Seed - changes the fractal pattern.

Foreground Colour - the colour of the fractals.

Background Colour - the colour behind the fractals.

Figure 33. T_Fractal with Spread=7, Detail=55, Gain=5.
Common

**Blending** - sets how to mix between the image effect and its original source. (See “Blending” on page 101.)

**Process Alpha** - defines how to treat the alpha channel of the source image. (See “Process Alpha” on page 107.)

**Help...** - displays the plug-in name, version number and a brief description of the plug-in in the image area.
T_LensFlare

Description

Camera lenses are designed to focus light onto a photosensitive 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 34. T_LensFlare on a background generated by T_Sky.](image)

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 highlight 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 highlight is shown as the bright white spot in Figure 36 on page 48. The rings can be rendered in one of five styles: Halo Ring, Chromatic Ring, Chromatic Radial, Chromatic Ripple and Arc.
Note the dark intersections of the middle Chromatic Radial emanate from the highlight position and not the centre of the ring.

Figure 36. The three chromatic ring styles. From inner to outer is Chromatic Ring, Chromatic Radial and Chromatic Ripple.

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 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.

![Polygonal artifacts](image1)

**Figure 37.** Polygonal artifacts. Shown also in white is the highlight position (top left) and the pivot position (centre)

4. **Shards.** There are two bright horizontal light rays that are characteristic of lens flares from an anamorphic lens.

![Light shards](image2)

**Figure 38.** Light shards characteristic of a lens flare through an anamorphic lens.
T_LensFlare has two inputs - a source image and an obscuration matte.

Inputs

Contexts

Filter context.

Parameters

The parameters for this plug-in are described below.

Each lens flare is made by combining together several objects. In T_LensFlare up to 8 objects can be added together. These are 2 highlights, 3 rings, 1 set of polygons and 2 shards. By varying the number and type of object, different lens flares can be constructed.

Note

T_LensFlare is a complex plug-in 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.

Inputs

T_LensFlare has an optional second input used as an obscuration matte to control whether the lens flare is on or off.

LensFlare

Preset - some common lens flares.

Obscure - defines which channels of the obscuration matte to use if any. This second input controls whether the lens flare is drawn.

• Don’t Obscure - always shows the lens flare.
• **Source** - uses the first source input to attenuate the lens flare gain.
• **Matte** - uses the second matte input to attenuate the lens flare gain.

**Obscure Size** - blurs the obscuration matte so that the gain ramps in and out at matte edge boundaries. A value of zero will ensure that the lens flare switches on and off immediately on crossing a hard matte boundary.

**Highlight** - controls the position of the highlight.

**Pivot** - controls the position of the pivot point. The polygons are drawn in a line from the highlight position through the pivot point.

**Overall Gain** - controls the overall brightness of all elements in the lens flare.

**Blending** - sets how to mix between the image effect and its original source. (See “Blending” on page 101.)

**Process Alpha** - defines how to treat the alpha channel of the source image. (See “Process Alpha” on page 44.)

**Help...** - displays the plug-in name, version number and a brief description of the plug-in in the image area.

**Show Widget** - switches on and off the highlight and pivot position tools.

**Highlight 1 Mode** - controls the properties of the light rays from the
highlight. See Figure 35 on page 47.

- **None** - switches off the highlight.
- **Rays** - renders light rays of equal length and unequal spacing around the centre.
- **Spikes** - renders light rays of unequal length and unequal spacing around the centre.
- **Uniform Spikes** - renders light rays of equal length and spacing around the centre.
- **Diced Spikes** - same as Spikes but with luminance variations along each light ray. These luma variations are controlled by the Glow Radius.

**Gain** - controls the brightness of the rays.

**Offset** - controls the shift in position of the highlight from the highlight position to the pivot position.

**Radius** - controls the length of the rays.

**Aspect** - controls the horizontal and vertical weighting of the effect. (See “Aspect” on page 33.)

**Spoke Rotation** - sets the rotation of the rays around the highlight position.

**Spoke Width** - sets the width of the rays.

**Spoke Number** - sets the number of rays drawn from the highlight.

**Note**  
_If the Mode is not set to Uniform Spikes, the rays may overlap giving the appearance of less rays than set with this parameter._
Fractal Depth -

**Glow Radius** - controls the size of the bright glow at the centre of the highlight. If the Mode is set to Diced Spikes the glow disappears and is used to control the luma variations along the length of each ray. Reduce the Glow Radius to get more variations.

**Core Colour** - sets the inner colour of the glow and the rays.

**Edge Colour** - sets the outer colour of the glow and the rays.

**Addition** - sets the compositing method used to blend the lens flare components together.
- Add
- Screen
- Add Over

**Highlight 2** See “Highlight 1” on page 51. Also has an **Offset** parameter to draw the highlight between the Highlight and Pivot positions.

**Ring 1** **Ring** - sets the ring type. See Figure 36 on page 48.
- **None** - switches off the ring.
- **Halo Ring** - renders a two colour ring.
- **Chromatic Ring** - renders a rainbow coloured ring intersected with dark rays drawn from the centre of the ring.
TINDER GENERATORS

• 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 Ripple - renders a rainbow coloured ring intersected with evenly spaced dark rays drawn from the centre of the ring.

• Arc - renders a two colour arc.

**Gain** - controls the brightness of the ring.

**Offset** - controls the shift in position of the highlight from the highlight position to the pivot position.

**Radius** - controls the radius of the ring.

**Aspect** - controls the horizontal and vertical weighting of the effect. (See “Aspect” on page 33.)

**Ring Rotation** - controls the rotation of the pattern around the ring.

**Note** It does not rotate the ring around the highlight position, visible if the aspect is non-zero.

**Width** - controls the distance between the inner and outer radius of the ring. Increasing the width makes the ring thicker.

**Detail** - essentially controls the amount of detail in the chromatic rings. If the detail is set to 1, 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.

**Note**  
*Detail has no effect if the Ring is set to Halo Ring or Arc.*

**Core Colour** - sets the colour mid-way between the inner and outer edges of the ring.

**Edge Colour** - sets the colour at the inner and outer edges of the ring.

**Addition** - sets the compositing method used to blend the lens flare components together.
- Add
- Screen
- Add Over

**Ring 2**  
See “Ring 1” on page 53.

**Ring 3**  
See “Ring 1” on page 53.

**Polygons**  
The polygons are drawn from the highlight through the pivot point. See Figure 37 on page 49.

**Chromatic Polygons** - switch this on to render rainbow coloured polygons and off for two colour polygons.

**Number of Polygons** - sets the number of polygons drawn along the line between the highlight and pivot positions. To remove this element from the lens flare, simply set this parameter to zero.
Offset - shifts the position of the polygons along the line between the highlight and pivot positions.

Spacing - controls the distance between the polygons.

Radius - controls the size of the polygons.

Radius Variance - controls the deviation in polygon size. A value of zero will ensure that all polygons are the same size.

Aspect - controls the horizontal and vertical weighting of the effect. (See “Aspect” on page 33.)

Rotation - controls the rotation of each polygon about its centre.

Gain - controls the brightness of the polygons.

Gain Variance - controls the deviation in polygon brightness. A value of zero will ensure that all polygons are the same brightness.

Inner Radius - sets the radius of the circle drawn at the centre of the polygon.

Softness - controls the edge softness of the polygons.

Sides - sets the number of sides of the polygon. For example, a value of 4 will draw a square.

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.

**Core Colour** - sets the colour at the centre of the polygon.

**Edge Colour** - sets the colour at the outer edge of the polygon.

**Seed** - generates a random number sequence used to position the polygons.

**Addition** - sets the compositing method used to blend the lens flare components together.
- Add
- Screen
- Add Over

**Shard 1** See Figure 38 on page 49.

**Gain** - controls the brightness of the light shard. To remove this element of the lens flare, set the gain to zero.

**Offset** - shifts the position of the light shard along the line between the highlight and pivot positions.

**Radius** - controls the length of the shard.

**Aspect** - controls the horizontal and vertical weighting of the effect. (See “Aspect” on page 33.)

**Rotation** - controls the rotation of the shard about its
centre.

**Inner Radius** - controls the size of the central bulge of the shard.

**Width** - controls the thickness 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.

**Addition** - sets the compositing method used to blend the lens flare components together.
- Add
- Screen
- Add Over

**Shard 2**

See “Shard 1” on page 57.

**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 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 39. Simulated rainbow using T_LensFlare.
**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 40. T_Sky.](image1)
![Figure 41. T_Sky.](image2)

**Inputs**
T_Sky has no inputs.

**Contexts**
Filter context.

**Parameters**
The parameters for this plug-in are described below.

**Camera**
- **Presets** - this provides some suggested values for different effects. These can be used as a starting point when using T_Sky.

**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.

**Exposure** - controls the overall brightness of the scene.

**Noise** - controls the amount of noise added to the image.

**Sun**  
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).

**Sun 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.

**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.

**Corona Haze** - switch this on to render a hazy sun.

**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 spikeyness of the flares.

![Figure 42. Flare Sharpness = 0.](image1) ![Figure 43. Flare Sharpness = 1.](image2)

Clouds

- **Cloud Size** - controls the size of the clouds.
- **Cloud Count** - controls the number of clouds in each tile.

*Note: The size of each tile is set under Tile Scale.*

- **Cloud Colour** - sets the colour of the clouds.
- **Cloud Brightness** - controls the intensity of the clouds.
- **Sharpness** - controls the cloud definition.
- **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.

- **Cloud Speed** - controls how fast the clouds move.

- **Speed Variance** - controls the variation in speed of
different 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.

**Cloud Direction** - controls the direction of the cloud drift.

**Cloud Height** - controls the height of the clouds.

**Under Lighting** - controls the amount of light reflected from the underside of the clouds.

**Tile Scale** - controls the size of each tile repeated across the sky.

**Edge Detail** - controls the complexity of the cloud edges.

**Streaky** - switch this on to generate cirrus clouds.

**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.

**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.

The atmosphere is built using a 3-colour gradient. The colours are start, middle and end.

**Start** - first colour of the colour gradient.

**Middle** - second colour of the colour gradient.

**End** - third colour of the colour gradient.

**Mid Point** - specifies where the middle colour is drawn in the colour gradient.

**Haze Brightness** - controls the brightness of the haze.

**Haze Distance** - controls the distance between the haze and camera.

**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.

**Haze Colour** - sets the colour of the fog haze when Haze Source is set to Colour Box.

**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.

### Common

**Blending** - sets how to mix between the image effect and its original source. (See “Blending” on page 101.)

**Process Alpha** - defines how to treat the alpha channel of the source image. (See “Process Alpha” on page 107.)

**Quality** - trades off speed against quality by pixel skipping.
  - **Low** - set this for fast rendering but low quality.
  - **Medium** - select this for a compromise between quality and speed.
  - **High** - select this for high quality but slow rendering.

**Help...** - displays the plug-in name, version number and a brief description of the plug-in in the image area.

### 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.
Tinder Tools

This chapter describes Tinder 1.1 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_MatteTool

Description

T_MatteTool provides a suite of tools to manipulate mattes, in particular, the growing and eroding of edges with subpixel precision. However, it excels at providing a comprehensive set of tools for manipulating mattes pulled from blue and green screen keyers. Tools include matte clean-up while preserving edge detail.

Figure 44. Matte Input. Figure 45. Grow.
TINDER TOOLS
T_MatteTool

Inputs
T_MatteTool is a single input plug-in.

Contexts
Filter context.

Parameters
The parameters for this plug-in are described below.

MatteTool
Mode - controls how to manipulate the matte.
- Shrink/Grow - positive values grow the matte edges. Negative values erode the matte edges.
- Halo In/Out - creates a line on the inside (or Outside) edge of the matte.

Figure 46. Shrink.  Figure 47. Halo.
• **Halo** - creates a line centered on the edge of the matte.

![](image.png)

Figure 48. Split Screen showing Halo Out in orange and Halo In in white.

**Shape** - sets the profile of the filter used to erode or grow the matte edges.

• **Circle** - corners are rounded off with this algorithm.

• **Square** - sharp corners are preserved with this algorithm.

**Radius** - controls the amount of eroding or growing of the matte edges. Negative values erode the matte. Positive values grow the matte.

**Aspect** - controls the horizontal and vertical weighting of the erode or grow.
**Negate** - switch this on to invert the matte.

**Halos Cut Blurs** - this cuts into the inside or outside edges of softened In/Out halos.

![Unprocessed Matte](image1.png) ![Halo In/Out, Pixels = 6](image2.png)

![Softness = 7](image3.png) ![Halos Cut Blurs](image4.png)

**Process Red** - switch this on to apply the effect to the red channel.

**Process Green** - switch this on to apply the effect to the green channel.

**Process Blue** - switch this on to apply the effect to the blue channel.
**Process Alpha** - switch this on to apply the effect to the alpha channel. (See “Process Alpha” on page 107.)

**Softness** - controls the amount of blurring applied to the matte.

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

**Despeckle Black** - increase this to remove black pixels in white areas while preserving edges. This works by growing the surrounding white pixels into the black spots.

**Despeckle White** - increase this to remove white pixels in black areas while preserving edges. This works by growing
the surrounding black pixels into the white spots.

![Figure 55. Despeckle White = 0. Figure 56. Despeckle White = 1.](image)

**Clip Min** - 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.

**Clip Max** - 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. Clip rollback should be used to compensate.

![Figure 57. Unprocessed matte. Figure 58. With Clip Min.](image)
Clip Rollback - controls the amount of erosion of the edges of the black threshold matte when Clip Min is used to remove dust in the background.

Figure 59. Clip Max has been used to remove unwanted grey pixels in the white area.  Figure 60. Clip Rollback has been used to restore the unwanted erosion of the edge.

Common  

Edge Methods - controls the value of pixels outside the crop area. (See “Edge Methods” on page 104.)

Blending - sets how to mix between the image effect and its original source. (See “Blending” on page 101.)

Help... - displays the plug-in name, version number and a brief description of the plug-in in the image area.
T_Wipe

Description

This is a simple directional wipe used to transition between one image (A) and another (B). The wipe can be vertical or horizontal or any angle in between. The edge of the wipe can also be softened.

![Simple directional wipe with soft edge](image)

Figure 61. Simple directional wipe with soft edge

Inputs

T_Wipe has two image inputs, clip A and clip B. We wipe from clip A to clip B.

Contexts

Transition context.
Parameters

The parameters for this plug-in are described below.

**Wipe**

- **Soft Width** - sets the width of the edge of the wipe.
- **Direction** - sets the angle of the wipe. A value of zero gives a vertical wipe. A value of 90 gives a horizontal wipe.
- **Smooth Blend** - switch this on to soften the wipe edge by changing the ramping method from linear to cubic.

**A Crop**

- **A Crops** - controls the horizontal and vertical cropping of the first image and the value of pixels outside this crop area.

**B Crop**

- **B Crops** - controls the horizontal and vertical cropping of the back image and the value of pixels outside this crop area.

**Common**

- **Help...** - displays the plug-in name, version number and a brief description of the plug-in in the image area.

- **Process Alpha** - defines how to treat the alpha channel of the source image. (See “Process Alpha” on page 107.)
Tinder Warpers

This chapter describes the specialist set of tools in Tinder 1.1 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 63 on page 80) using a matte (Figure 64 on page 80). 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 62 the image is 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 63. Source image.](image)
![Figure 64. Alpha.](image)

### Inputs

T_Distorto has two inputs - a source image and a mask.

### Contexts

Filter context.

### Parameters

The parameters for this plug-in are described below.

**Distorto**

- **Display** - sets whether to show the deformation or mask.
  - **Result** - shows the source image deformed with the mask.
  - **Moved Mask** - shows the transformed mask.

- **Distort With** - sets what to take the distortion mask from.
  - **Source Luminance** - takes the luminance of the source image as the mask.
- **Source Alpha** - takes the embedded alpha in the source image as the deformation mask.
- **Mask Luminance** - takes the luminance of the second input as the mask.
- **Mask Alpha** - takes the alpha of the second input as the mask.

**Strength** - controls the amount of warping of the source image based on the settings in the Defm group.

**Softness** - controls the blur of the matte before applying the distortion. Use this to gradually ramp in the distortion.

![Figure 65. Softness = 5.](image1)  ![Figure 66. Softness = 10.](image2)

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

These deformation parameters scale, rotate and translate the source image attenuated by the matte.

**Defm. Position X,Y** - controls the position 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.

Defm. Scale X,Y - controls the size of the source attenuated by the mask.

Show Widget - toggles the on-screen tools for the deformation controls. Position, Scale and Rotation can all be adjusted.

Mask Move - These deformation parameters scale, rotate and translate the mask used as the source of the deformation.

Mask Position X,Y - controls the position of the source...
attenuated by the mask.

Figure 69. Mask Position X=0. Figure 70. Mask Position=100.

**Mask Rotation** - controls the rotation of the source attenuated by the mask.

**Mask Scale** - controls the overall size of the source attenuated by the mask.

**Mask Scale X,Y** - controls the size of the source attenuated by the mask.

**Common**

**Edge Methods** - controls the value of pixels outside the crop area. (See “Edge Methods” on page 104.)

**Blending** - sets how to mix between the image effect and its original source. (See “Blending” on page 101.)

**Filter** - sets the quality of the filter used when processing the effect. (See “Filtering” on page 99.)

**Process Alpha** - defines how to treat the alpha channel of the source image. (See “Process Alpha” on page 107.)
Help... - displays the plug-in name, version number and a brief description of the plug-in in the image area.

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.

Figure 71. Block of text.  
Figure 72. Water Caustics.  
Figure 73. T_Distorto applied to text using Caustics.
Appendix A

Release Notes
This section describes the requirements, new features, improvements, fixed bugs and known bugs & workarounds for each release of Tinder.

Tinder 1.1v2
This is a maintenance release of Tinder for OFX to add Autodesk Toxik to the list of supported hosts.

Requirements
- Built for OFX 1.0
- Foundry License Manager (FLM 3.1v3)
- Built with licensing library 3.0v7v4

Supported Host Systems
- Autodesk Toxik 1.1 (Windows and Linux)
- Nucoda FilmMaster 2.6
- FilmLight Baselight 3.0
See www.thefoundry.co.uk for the latest host systems supported.

Release Date
December 2005

New Features
1. Support for Toxik on Linux.
2. Support for FilmLight Baselight (v3.0)

**Improvements**

1. T_LensFlare. The obscuration matte is now reflected at the image boundary so that there is no longer a discontinuity as the lens flare moves off screen.

**Bug Fixes**

1. T_DiffusionFilter - Bug ID 643 - the max and min parameter values for shrink/grow have been changed to prevent large render hits.
2. T_Starburst - Bug ID 648 - the max number of spokes has been limited.

**Known Bugs and Workarounds in Tinder**

1. Some parameter names do not fit. This will be addressed in a future release.
2. T_DiffusionFilter - fails to handle the bloom thresholding of floating point images as this parameter range is clamped 0 to 1. As a workaround clamp the colour depth to 16bit or compress and expand the floating point luminance value range before and after the node.

**Known Problems in the OFX Hosts**

1. Toxik - older versions of Toxik required that you create a new Toxik database when upgrading to a new plug-in set. This seems to have been fixed in Toxik 1.1.5.
2. Toxik - T_Wipe does not appear as transition contexts are not supported in OFX plug-ins in Toxik.
3. Toxik - problems (hanging) publishing high resolution film images using OFX plug-ins.
4. Toxik - repeatable crashes if applying an OFX plug-in, deleting it and then attempting to undo.
5. Toxik - mixing resolutions and aspect ratios between the source image and its composition will result in the on-screen tools and
their associated image effect to not line up. As a workaround ensure that the composition matches the source properties.

6. Toxik - to display the OFX Help dialog for a plug-in, you should set the Msg Popup Level to Information in the manage user data panel (Settings tab).

7. Toxik - distributed rendering of OFX plug-ins on Autodesk Burn is not supported.

8. Toxik - the plug-in parameter panel may occasionally appear blank. Clicking elsewhere to refresh the interface or failing that restarting Toxik should fix this problem.

9. Toxik - T_Tile - Bug ID 649. This plug-in is very unstable. It’s a host issue known to Autodesk.

10. FilmMaster - Bug ID 642. A complex stack of OFX effects may sometimes return a small block of pixels in the bottom left of the image.

11. Toxik 1.1.5 on Linux is unstable when a composition containing an OFX plug-in is batched off for background rendering.

**Tinder 1.1v1**

This is a maintenance release of Tinder for OFX to add Autodesk Toxik to the list of supported hosts.

**Important Information for Toxik Customers**

If you are upgrading Tinder from a previously installed beta release you will need to create a new Toxik database. Failure to do this will prevent Toxik from running.

**Requirements**

- Windows XP, Linux Red Hat 9.0
- Built for OFX 1.0
- Built with licensing library 3.0v7v4
Supported Host Systems

- Nucoda, FilmMaster
- Autodesk, Toxik 1.1

See www.thefoundry.co.uk for the latest host systems supported.

Release Date
August 2005

New Features
There are no new features.

Improvements
1. T_DiffusionFilter - changed colour of one of the on-screen circle tools to differentiate it from the other.
2. Installers - windows build now has installers.

Bug Fixes
1. T_DiffusionFilter - BUG ID 293 - failed to render subregions correctly. This has been fixed.
2. T_DiffusionFilter - BUG ID 283 - softness has been clamped so it doesn’t go negative.
3. T_LensBlur - softness parameter was not wired in and has been removed in this version.
4. T_Starburst - BUG ID 336 - parameter range for Gap now has the correct maximum.
5. T_Sky - BUG ID 334 - noise failed to work. This has been fixed.
6. T_Rays - BUG ID 332 - mattes failed to work as the ray source. This has been fixed.
7. T_DiffusionFilter - a missing parameter in blending caused this plug-in to crash when used in a general context. This has been fixed.
8. T_DiffusionFilter, T_Sky - would render incorrectly when processing this plug-in in tiles over a single image. Not enough image was requested leading to black edges around the tiles. This was only observable on Baselight 8 render cluster. This has been fixed.

9. T_DiffusionFilter - Process Alpha parameter has been added.

10. T_LensFlare - the enable/disable of various parameters according to context has been fixed.

11. T_LensFlare - large inner radius values could lead to rendering errors. This has been fixed.

12. T_LensFlare - no longer clamped to between 0.0 and 1.0 for floating point images.

13. T_Rays, T_Starburst - fixed various bugs relating to mattes in these plug-ins.

14. T_Rays - number of colours now clamped to the maximum of 5.

15. T_Tile - Matte->Luminance option has been removed as the matte should be single channel.

16. T_Sky - duplicate parameter Speed Variance has been removed.

17. T_Sky - missing parameter in general context crashed the plug-in. This has been fixed.

18. T_Sky, T_Fractal - didn’t scale correctly at proxy resolutions. This has been fixed.

19. T_MatteTool - on-screen tool now shown by default.

**Known Bugs and Workarounds**

1. Some parameter names do not fit. This will be addressed in a future release.

2. T_DiffusionFilter - fails to handle the bloom thresholding of floating point images as this parameter range is clamped 0 to 1. As a workaround clamp the colour depth to 16bit or compress and expand the floating point luminance value range before and after the node.

**Other Changes**
1. Crops removed from all plug-ins. This has been left up to the host. Edge methods still supported.

2. T_Distorto - source transformations have been removed to simplify the plug-in.

**Known Problems in the OFX Hosts**

1. **Toxik** - **IMPORTANT!** - if you are upgrading Tinder from a previously installed beta release you will need to create a new Toxik database. Failure to do this will prevent Toxik from running.

2. **Toxik** - T_Wipe does not appear as transition contexts are not supported in OFX plug-ins in Toxik.

3. **Toxik** - problems (hanging) publishing high resolution film images using OFX plug-ins.

4. **Toxik** - repeatable crashes if applying an OFX plug-in, deleting it and then attempting to undo.

5. **Toxik** - mixing resolutions and aspect ratios between the source image and its composition will result in the on-screen tools and their associated image effect to not line up. As a workaround ensure that the composition matches the source properties.

6. **Toxik** - to display the OFX Help dialog for a plug-in, you should set the Msg Popup Level to Information in the manage user data panel (Settings tab).

7. **Toxik** - distributed rendering of OFX plug-ins on Autodesk Burn is not supported.

8. **Toxik** - the plug-in parameter panel may occasionally appear blank. Clicking elsewhere to refresh the interface or failing that restarting Toxik should fix this problem.

**Tinder 1.0v1**

This is the first release of Tinder for OFX.

**Requirements**

Windows XP, Linux.
Built for OFX 1.0

Built with licensing library 3.0v7

**Supported Host Systems**
Nucoda FilmMaster. See www.thefoundry.co.uk for the latest host systems supported.

**Release Date**
December 2004

**New Features**
There are 13 plug-ins in this release.

**Improvements**
Not applicable.

**Bug Fixes**
Not applicable.

**Known Bugs and Workarounds**
No known bugs.
Appendix B

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This agreement shall be governed by and construed in accordance with English Law.
Appendix C

There are many controls that are common to the Tinder 1.1 plug-ins. These are all described in detail in this appendix.

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 plug-ins have a single filter control that can be switched on or off. Other plug-ins give a choice of filtering methods. These usually are:

- **Low** - this uses point sampling. 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.

Figure 74. Low Filtering. Figure 75. High Filtering.
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.
The Foundry Tinder Box

**Blending**

Many of the Tinder plug-ins have blending controls which allow you to specify how to mix between the output of the plug-in with the image effect applied (effect image) and its original un-treated image (original image). Controls are also available to affect the gain of the effect image and its original image.

- **Blending** - sets how to blend the effect image with the original image.
  - **None** - no blending is applied and the effect image is displayed. Blend, Effect Gain and Source Gain have no affect when in this mode.
  - **Darken** - takes the darkest component of the effect image or the original image.
  - **Multiply** - multiplies the effect image and original image components together.
  - **Colour Burn** - increased contrast of the original image to match the contrast of the effect image.
  - **Linear Burn** - decreased brightness of the original image to match the brightness of the effect image.

Figure 76. T_Etch with blending set to none.

Figure 77. T_Etch with blending set to colour.
• **Lighten** - takes the brightest component of the effect image and the original image.

• **Screen** - produces a bleaching effect. Light colours have more of an effect than dark colours. \((A+B)-(A\times B)\) or if you prefer \(1-((1-A)\times(1-B))\) which is like combining the negatives of the two shots and "printing" the result.

• **Colour Dodge** - decreased contrast of the original image component to match the contrast of the effect image component.

• **Linear Dodge** - increased brightness of the original image component to match the brightness of the effect image colour.

• **Overlay** - mixes colours while preserving highlights and shadows.

• **Soft Light** - diffused spotlight effect. Less than half white is colour dodged and more than half white is colour burned.

• **Hard Light** - combination of multiply and screen (inverse multiply) depending on the magnitude of the components. Opposite of overlay and not at all related to Soft Light.

• **Linear Light** - combination of linear burn and linear dodge, depending on the magnitude of the components. Less than half white is burned by decreasing the brightness, more than half grey is dodged by increasing the brightness.

• **Difference** - subtracts the original image from the effect image.

• **Exclusion** - similar to darken but produces results with lower contrast.
- **Hue** - takes the hue of the effect image and the saturation and value of the original image.
- **Saturation** - takes the saturation of the effect image and the hue and value of the original image.
- **Colour** - takes the hue and saturation of the effect image and the luminance of the original image.
- **Luminosity** - takes the luminance of the effect image and the hue and saturation of the original image.
- **Mix** - blends the effect image and the original image.

**Blend** - sets the amount of mix between the effect image and its original image. A value of 1 will show just the effect image. A value of 0 will show just the original image.

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

**Source Gain** - sets the gain of the original image image. The result of this is used in the Blend. The Source Gain also affects the alpha of the image. Setting Source Gain to 0.5 will half the brightness of the original image and will also half the value of its alpha.

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

**Effect Gain** - sets the gain of the effect image. The result of this is used in the Blend. The Effect Gain also affects the alpha of the image. Setting Effect Gain to 0.5 will half the brightness of the effect image and will also half the value of its alpha.

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

This group of controls defines the value of pixels outside the rectangular cropping area.

**Source X Edges** - 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.

**Source Y Edges** - sets the behaviour of the image at its top and bottom 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.

**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.
Attenuation Mattes

Many Tinder plug-ins use an optional second input or source alpha channel. This matte is used to scale (attenuate) one or more of the parameters in the plug-in.

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

Figure 78. Colour.
Figure 79. Repeat.
Figure 80. Reflect.
Figure 81. Wrap.
To illustrate this effect, take a checker (Figure 82) as the input to T_Tile and the ramp (Figure 83) as the 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 Figure 84 on page 106. The attenuation matte also affects the angle parameter (Figure 85 on page 106). Again, on the left of the image there is no rotation but on the right the pixels are rotated 45 degrees.
Process Alpha

Process Alpha controls how a clip’s existing alpha channel is treated.

- **Yes** - this will apply the effect to the alpha channel as well as the RGB channels.
- **No** - this will leave the alpha channel untouched.
- **Opaque** - this will force the alpha channel to be solid.
- **Alpha Only** - only the alpha channel will be affected by the effect.
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