



***GenArts Companion Monsters V5.0 for  
Autodesk Advanced Products on Linux***

***32 bit versions:***

***Flame 9.0 – 9.4***

***Flint 9.0 – 9.4***

***Smoke 6.5 – 6.9***

***64 bit versions:***

***Flame 9.5+ (e.g. Flame 2009)***

***Flint 9.5+ (e.g. Flint 2009)***

***Smoke 7.0+ (e.g. Smoke 2009)***

***18–April–2009***



# Table of Contents

<b>1 GenArts Companion Monsters V5.0 for Autodesk Advanced Products on Linux.....</b>	<b>1</b>
1.1 Introduction.....	1
1.2 Installation.....	1
1.3 Licensing Your Monsters.....	3
1.4 Un-installing the Monsters.....	4
1.5 List of Monsters in Alphabetical Order.....	4
1.6 Support.....	6
<b>2 SpeedSix.AiffExtract.....</b>	<b>7</b>
<b>3 SpeedSix.Aurora2 (Discreet Box19).....</b>	<b>11</b>
<b>4 SpeedSix.BitsFly (Discreet Box12).....</b>	<b>16</b>
<b>5 SpeedSix.Brush (Discreet Box3).....</b>	<b>21</b>
<b>6 SpeedSix.Bubbles (Discreet Box6).....</b>	<b>25</b>
<b>7 SpeedSix.Burn (Discreet Box10).....</b>	<b>31</b>
<b>8 SpeedSix.Candle (Discreet Box9).....</b>	<b>33</b>
<b>9 SpeedSix.CCTV (Discreet Box19).....</b>	<b>36</b>
<b>10 SpeedSix.Clean (Discreet Box1).....</b>	<b>43</b>
<b>11 SpeedSix.Cumulo (Discreet Box12).....</b>	<b>44</b>
<b>12 SpeedSix.Dots (Discreet Box11).....</b>	<b>51</b>
<b>13 SpeedSix.EdgeLeak (Discreet Box11).....</b>	<b>54</b>
<b>14 SpeedSix.FireBall (Discreet Box9).....</b>	<b>56</b>
<b>15 SpeedSix.Fireworks (Discreet Box7).....</b>	<b>59</b>
<b>16 SpeedSix.Flare (Discreet Box1).....</b>	<b>66</b>
<b>17 SpeedSix.Flock (Discreet Box12).....</b>	<b>69</b>
<b>18 SpeedSix.Glass (Discreet Box4).....</b>	<b>75</b>
<b>19 SpeedSix.HeatHaze (Discreet Box20).....</b>	<b>78</b>

## Table of Contents

<u>20 SpeedSix.InfraRed (Discreet Box22)</u> .....	80
<u>21 SpeedSix.Jaws</u> .....	83
<u>22 SpeedSix.LightLeak (Discreet Box11)</u> .....	88
<u>23 SpeedSix.Luna (Discreet Box19)</u> .....	90
<u>24 SpeedSix.Movie (Discreet Box10)</u> .....	94
<u>25 SpeedSix.NightSky (Discreet Box19)</u> .....	100
<u>26 SpeedSix.NightVision (Discreet Box19)</u> .....	112
<u>27 SpeedSix.Numbers (Discreet Box11)</u> .....	115
<u>28 SpeedSix.Particles (Discreet Box5)</u> .....	117
<u>29 SpeedSix.PatchTex (Discreet Box22)</u> .....	125
<u>30 SpeedSix.PixFlow (Discreet Box6)</u> .....	128
<u>31 SpeedSix.PixFly (Discreet Box6)</u> .....	131
<u>32 SpeedSix.Pool3D (Discreet Box21)</u> .....	136
<u>33 SpeedSix.Projection (Discreet Box10)</u> .....	139
<u>34 SpeedSix.Puddle (Discreet Box4)</u> .....	141
<u>35 SpeedSix.Puddle3D (Discreet Box21)</u> .....	144
<u>36 SpeedSix.Rain (Discreet Box4)</u> .....	148
<u>37 SpeedSix.Rainbow (Discreet Box9)</u> .....	153
<u>38 SpeedSix.RainDrops (Discreet Box22)</u> .....	155
<u>39 SpeedSix.RemGrain2 (Discreet Box2)</u> .....	160
<u>40 SpeedSix.Ripple (Discreet Box4)</u> .....	162
<u>41 SpeedSix.Ripple3D (Discreet Box21)</u> .....	165

## Table of Contents

<u>42 SpeedSix.Smoke (Discreet Box4).....</u>	<u>168</u>
<u>43 SpeedSix.Snow (Discreet Box4).....</u>	<u>172</u>
<u>44 SpeedSix.SpinBlur (Discreet Box19).....</u>	<u>177</u>
<u>45 SpeedSix.Thermo (Discreet Box11).....</u>	<u>179</u>
<u>46 SpeedSix.TrailKey.....</u>	<u>182</u>
<u>47 SpeedSix.TrailPath.....</u>	<u>184</u>
<u>48 SpeedSix.Turbulo (Discreet Box9).....</u>	<u>186</u>
<u>49 SpeedSix.TV (Discreet Box10).....</u>	<u>188</u>
<u>50 SpeedSix.TVWall (Discreet Box12).....</u>	<u>194</u>
<u>51 SpeedSix.Type.....</u>	<u>197</u>

# 1 GenArts Companion Monsters V5.0 for Autodesk Advanced Products on Linux

## 1.1 Introduction

Welcome to GenArts Companion Monsters V5.0 for Autodesk "Advanced Products" on Linux!

This is intended to provide a selection of 50 Monsters plugins that complement the GenArts Sapphire plugins.

## 1.2 Installation

### 1.2.1 Before Installing Monsters

Please ensure that your Autodesk/Discreet software is an appropriate version. The 32 bit versions of the Monsters are intended for use with these 32 bit programs:

- Flint V9.0 – V9.4.
- Flame V9.0 – V9.4.
- Smoke V6.5 – V6.9.

The following Autodesk/Discreet products are 64 bit programs and need the 64 bit version of the plugins:

- Flint V9.5 and higher.
- Flame V9.5 and higher.
- Smoke V7.0 and higher.
- Inferno V6.5 and higher.

Please note that Monsters V5.0 setup files will not generally be compatible with setup files created by earlier Monsters versions.

A full installation of the Monsters will require about 200MBytes free space on the /usr filesystem.

You will also need at least 200MBytes of additional free space for temporary storage during installation (i.e. to unpack the compressed TAR file containing the distribution).

## 1.2.2 Installing Your Monsters

To install the V5.0 Companion Monsters proceed as follows.

1. Obtain the file: `Companion64_V5.0.nnn_linux.tar.gz` for 64 bit systems or `Companion_V5.0.nnn_linux.tar.gz` for 32 bit systems. (The nnn will be some 3 digit number indicating the build. e.g. 900). Please substitute the appropriate file name for the name shown in the examples below.

2. Copy the distribution file from its current location to the temporary directory. E.g.

```
your_prompt> cp /somedisk/mydownloads/Companion64_V5.0.900_linux.tar.gz /tmp
```

3. Go to the temporary directory:

```
your_prompt> cd /tmp
```

4. Unpack the distribution file:

```
your_prompt> tar xzvf Companion64_V5.0.900_linux.tar.gz
```

5. Become super-user if you have not already done so:

```
your_prompt> su
Password: <enter your root password>
```

6. Start the installation procedure:

```
root_prompt> cd autodesk*companion*
root_prompt> ./install_s6
```

7. You will be asked if you are ready to read the License Agreement. Respond **y[enter]** or **n[enter]** Installation will end at this point if you choose **n[enter]**.
8. After reading the License Agreement you will be asked if you accept it or not. Choose **y[enter]** or **n[enter]** Installation will end at this point if you choose **n[enter]**.
9. Everything needed will then be automatically installed.

10. The installer checks if you have a valid license for each box and bundle, and copies an appropriate proxy image. This will appear when browsing for Sparks in proxy mode in your Autodesk application and lets you easily tell which plugins you have licenses for.

### 1.2.3 After Installation

When the Monsters have been installed, you will have the following:

- `/usr/discreet/sparks/GenArts_Companion_Monsters_V5.0_64` is where you will find the new Monsters Sparks. This is where you should browse to to load a Spark from within the Discreet software.
- `/usr/local/SpeedSix/Licenses` is where Monsters licenses live. When you get a license file from GenArts, it should be copied **unaltered** to this directory. See below for more information.
- `/usr/local/SpeedSix/jaws2.4/JawsInput` has some sample EPS data for use with the Jaws Monster. You may wish to browse to this directory and pick the sample EPS file when trying out Jaws.
- `/usr/local/SpeedSix/dl/data` contains essential data for some Monsters.
- `/usr/local/SpeedSix/bin` contains utility programs – mainly for licensing. See below for more information.
- `/usr/local/SpeedSix/dl/help` contains extensive HTML format help for every plugin. This is accessible via the **Help** button in each Monster when running your Discreet product, or you can browse it "offline" using any Web browser. The master index page is:  
`/usr/local/SpeedSix/dl/help/index1.htm`
- `/usr/local/SpeedSix/Docs` contains a PDF format manual for the Monsters (derived from the HTML help), which you can view with (for example) `xpdf` or print. The manual is located at:  
`/usr/local/SpeedSix/Docs/AutodeskCompanionLinuxMonsters.pdf`

## 1.3 Licensing Your Monsters

You do not need a license key to run the software for evaluation purposes, but the images it creates will be watermarked.

To remove the watermarks, you will need a license file. This will be provided when you purchase the software.

Your Monsters license is tied to the MAC address of the `eth0` Ethernet adaptor of your machine. The easiest way of displaying this number in the right format is to use:

```
your_prompt> /usr/local/SpeedSix/bin/ssid
```

after you have installed the Monsters.

Alternatively, you can use this Linux command:

```
your_prompt> /sbin/ifconfig eth0
```

and send us the **HWaddr**: **xx:yy:zz:aa:bb:cc** part of the output.

GenArts (or your reseller) will send you your license as an email attachment. Proceed as follows:

1. Save the attachment as a file. This *is* the license – ***please keep a copy in a safe place.***
2. Copy the file to the following directory on the machine to be licensed:

```
/usr/local/SpeedSix/Licenses
```

Your Monsters are now licensed and will render without watermarks next time you start the Discreet application and load a Monsters plugin.

#### PLEASE NOTE

Do not edit the license files provided in any way. The licenser searches all the files in the License directory to find valid licenses, so more than one license file can be added to the directory if Monsters Boxes are purchased separately.

After adding licenses, you might want to update your proxy images to reflect the new licenses. To do that, run the CHECK\_LICENSE script as follows:

```
your_prompt> /usr/local/SpeedSix/bin/CHECK_LICENSE_COMPANION_LINUX_64
```

## 1.4 Un-installing the Monsters

To remove V5.0 Monsters from your machine, proceed as follows.

```
your_prompt> cd /usr/local/SpeedSix/bin  
your_prompt> ./uninstall-autodesk-linux-companion-monsters-64
```

## 1.5 List of Monsters in Alphabetical Order

AiffExtract
Aurora2
BitsFly
Brush
Bubbles
Burn
Candle
CCTV
Clean



Cumulo
Dots
EdgeLeak
FireBall
Fireworks
Flare
Flock
Glass
HeatHaze
InfraRed
Jaws
LightLeak
Luna
Movie
NightSky
NightVision
Numbers
Particles
PatchTex
PixFlow
PixFly
Pool3D
Projection
Puddle
Puddle3D
Rain
Rainbow
RainDrops
RemGrain2
Ripple
Ripple3D
Smoke
Snow
SpinBlur
Thermo
TrailKey
TrailPath
Turbulo
TV
TVWall
Typo

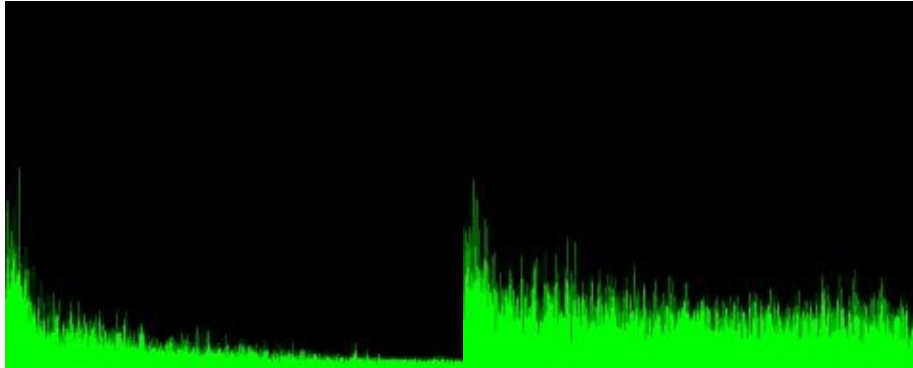
## 1.6 Support

In the event of any difficulties with the installation or the software please contact [support@genarts.com](mailto:support@genarts.com)

## 2 SpeedSix.AiffExtract

### PURPOSE

AiffExtract processes an audio file input and generates control channels from the audio data. For each frame it analyses the audio for that frame and splits it into its component frequencies, shown in the spectrum display generated as an output frame. Eleven frequency bands can be set up to record frame-by-frame changes in the sound levels into amplitude channels in the channel editor. These control channels can then be saved to file for future use.



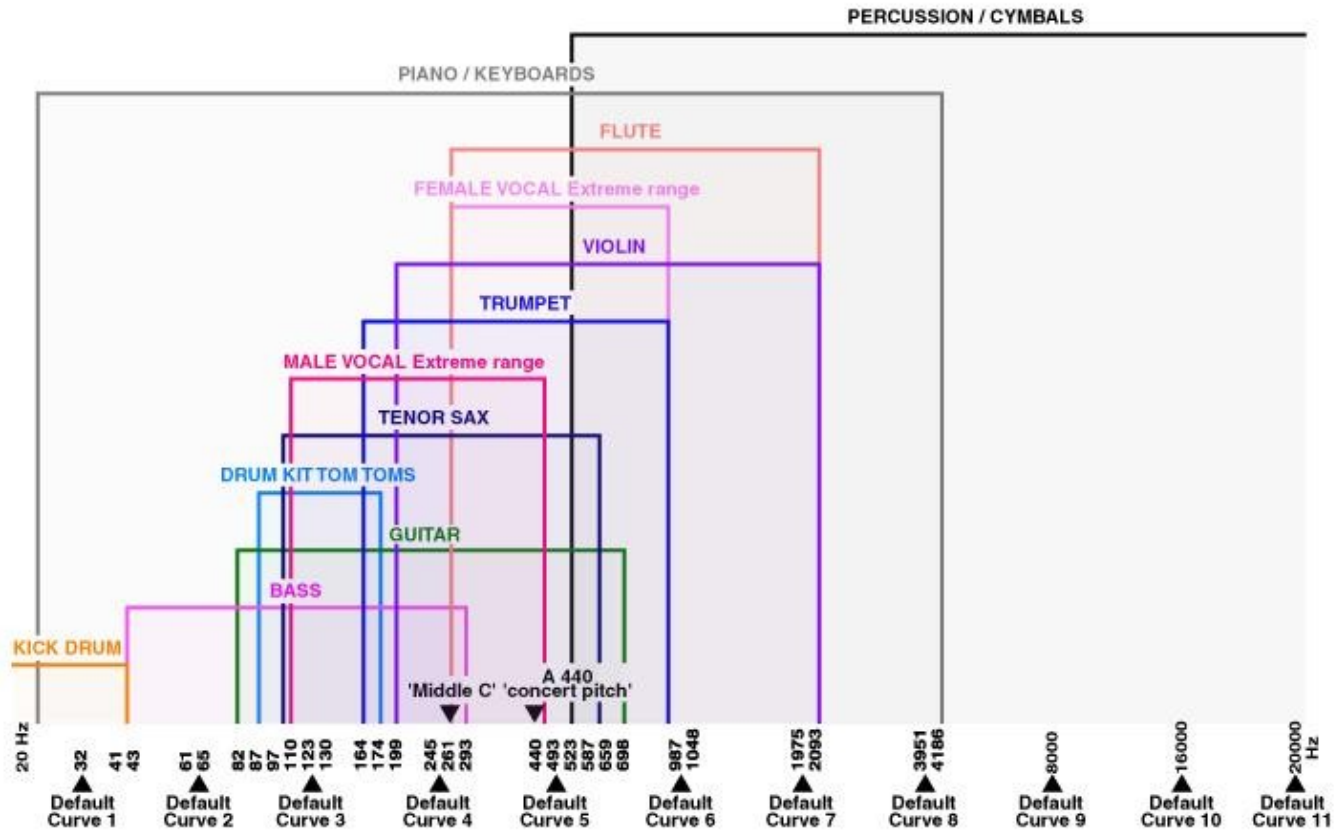
### INPUT CLIP

#### Ctrl 1

This page selects the frequency bands used to generate the channel amplitudes in the channel editor.

#### Frequency (no input)

Display only, showing the frequency corresponding to the cursor position in spectrum display result (image area normally) and may help picking out interesting frequencies.



The diagram shows what range of frequencies each 'voice' may cover. However this is the fundamental pitch of each note and does not reflect the harmonic overtones.

**Audio f-slip** (Min: 0 Max: 20000 Default: 0)

The audio frame slip is the offset, in video frames, into the audio file.

**Frequency Scale** (Min: 1.0 Max: 1000.0 Default: 10.0)

**Frequency Offset** (Min: -1000.0 Max: 1000.0 Default: 0.0)

These controls set the range of the channel amplitudes generated (but don't affect the spectrum display). If you are going to use the copy and paste facility to transfer channel data to *Action* you will want to prescale the channel amplitudes to the range expected in *Action*. If you are going to save the data to disk for use within another SpeedSix Monster, you should not change the default settings.

**Minimum Frequency 1 – 11** (Min: 0.0 Max: 20000.0) **Maximum Frequency 1 – 11** (Min: 0.0 Max: 20000.0) These set the frequency bands used to generate the 11 channel amplitudes. The bands are shown in the overlay beneath the spectrum window, and can also be adjusted from the overlay. The amplitude result is an average of the spectrum values shown for the frequency range.

**Spectrum Gain** (Min: 0.01 Max: 10.0 Default: 0.2)

**Spectrum Scale** (Min: 0.0 Max: 1000.0 Default: 200.0)

Scaling factors for the spectrum output and hence channel amplitudes. The output is multiplied by the gain factor and then raised to the power of the scale factor. Adjust these if it's difficult to pick out the peaks in the spectrum display.

**Rectangular/Hamming/Hanning/Bartlett/Blackman**(Default: Rectangular)

Different windowing functions can be used to pre-process the audio to compensate for inaccuracies caused by splitting

## 2 SpeedSix.AiffExtract

the audio waveform into windows for processing. It is best to experiment to find the window most suitable for the selected audio. Rectangular does no pre-processing.

Ctrl 2

Audio File selection and the saving of channel data.

### Load Audio File

Click here to open the file browser allowing an audio file to be selected for processing. File formats are those supported by the Silicon Graphics Audio File Library:

- Extended AIFF-C standard
- AIFF (older version)
- NeXT/Sun SND/AU
- WAVE (RIFF)
- Berkeley/IRCAM/CARL SoundFile
- MPEG1 audio bitstream
- Sound Designer II
- Audio Visual Research
- Amiga IFF/8SVX
- SampleVision
- VOC
- SoundFont2

### File Name

### Channels

### Sample Rate

### Number of Frames

These are display only controls, showing information about the selected file. The number of frames is calculated from the length of the audio file and the selected video frame rate. The spark cannot set the length of the output directly, but you can use this value to set the sequence length.

### IN Frame

### OUT Frame

Sets the range of frame numbers within which control channels will be generated. On selecting a new file these are reset to the full length of the file.

Frame rate **24 fps/25 fps/30 fps non-drop/30 fps drop frame** (Default: 25 fps)

Selects the video frame rate. The effect needs to know this for the generated control channels to be synchronised properly.

### Save File Name

Click here and specify a file name for saving an amplitude channel to. **Save Amplitude 1 – 11**

On selection the selected channel amplitude control values are saved to a file of the given name; for future use by other SpeedSix Monsters...

Note: it is the selection process from the pop-up list which activates the saving to file. You must re-select to save the same channel again.

### Load Amplitude 1 – 11

Brings up a file browser. If the file selected has been generated by **Save amplitude** then the control values are loaded into the selected channel amplitude. (Not really much use here – just an example of how to load a channel, but I suppose you could load one, modify it and save a new version.)

## 2 SpeedSix.AiffExtract

### TRANSFERRING CHANNEL DATA

Once you have a licence for SpeedSix.AiffExtract you will be able to copy and paste channel data from AiffExtract to *Action*. Remember to scale your chosen channel to a suitable range to match with the desired *Action* channel or it will be truncated when you paste it back.

Note: Until you have a licence from SpeedSix for this Monster the channels will always default to the same value when you process the sequence.

Copying channel data between sparks should also work fine with copy and paste. In the distant past, it did not work. This is why the **Save amplitude** facility has been added. The channel data is saved to disk and then on *Ctrl4* of all the SpeedSix.Monsters in version 3.0 onwards, you will find a load channel data button. This will load in data saved in SpeedSix.AiffExtract. You can then scale, invert, refine the AiffExtract data, copy it and paste it to the desired animation channel of the current Monster.

**HELP** gets you here!

**Reset** sets default values for the current frame.

### OVERLAYS



Scale marks = vertical white lines.

Frequency bands = red bars.

The overlay shows the scale of the spectrum display and the selected frequency bands. The white lines are scale marks, at 1000Hz intervals, from 0 at the left to 20000 at the right.

The red bars show the frequency bands – top bar is frequency 1, going down to frequency 11 at the bottom. The ends of the bands can be picked up and dragged to the positions of interest, matching up with the spectrum display.

## 3 SpeedSix.Aurora2 (Discreet Box19)

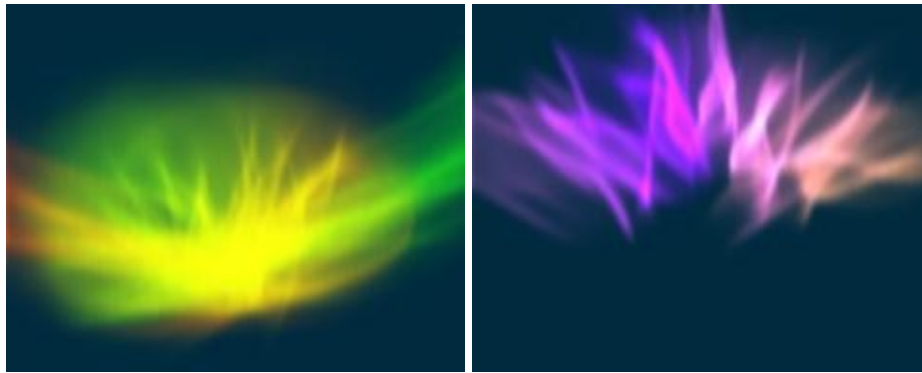
---

### PURPOSE

Along the line defined by the control points a band of light points is created blending from the start colour to the end colour. This set of points is then forced through some turbulence to swirl it around. For each Swirl Repeat a different pattern, or family of disturbed points is created and drawn. As time elapses, the XYZ Speed controls the corresponding rate of movement.

Add in Suction and the light points are dragged towards the center of the zone of suction and thrown out again. This will stretch the streamers of light and add another dimension to the visual effect. Twirling rotates the movement around the suction centre.

The Lighting will intensify the brightness of the light points within the zone affected. Switching on the Track Light will automatically position the light source on the control line and this bright spot will then move along this line by a percentage of its length.



---

### INPUT CLIPS

**1: Sky** : The Aurora could be drawn over this clip or over a plain background colour.

**2: Matte** : Aurora could be drawn within this clip or modulated by this clip.

---

### *Aurora2* CONTROL PAGE

**Swirl Magnitude X** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 132.0)

**Swirl Magnitude Y** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 168.0)

XY Magnitude of swirly thing drawn. The higher the values the further the light points are thrown out from the base line.

**Swirl Brightness** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 66.0)

Brightness of the of swirly thing drawn

**Swirl Repeat** (Number Min: 1, Max: 16, Default: 3)

How many families of disturbed light points to draw.

**Swirl Speed X** (Number Min: -100.0, Max: 100.0, Default: 1.0)

**Swirl Speed Y** (Number Min: -100.0, Max: 100.0, Default: 1.0)

**Swirl Speed Z** (Number Min: -100.0, Max: 100.0, Default: 1.0)

X/Y/Z Speed of movement in each direction of the swirly thing drawn.

**Swirl Density X** (Number Min: 0.0, Max: 200.0, Default: 7.0)

**Swirl Density Y** (Number Min: 0.0, Max: 200.0, Default: 7.0)

**Swirl Density Z** (Number Min: 0.0, Max: 10.0, Default: 0.5)

X/Y/Z density of the turbulence through which the light points pass. The higher the value the greater the detail in the turbulence pattern.

**Note:** the Z density has little visual effect as only a slice through the turbulence is drawn.

**Use Sky Colour** (Checkbox Default: On)

Use the selected flat colour instead of the background clip.

**Sky Colour** (Colour Box Default: R: 20, G: 20, B: 20, A: 35535)

Sky colour.

**Use Matte** (Checkbox Default: Off)

The luminance of this clip is used to modulate the whole effect. Where white it is drawn at full intensity; black the effect will not be seen.

**Invert Matte** (Checkbox Default: Off)

Reverse the application of Black to White

**Display** (List Box Options: Key | Turb | Final, Default: Final)

**Key:** draws the base line, useful for checking things but it disables many of the controls as they will no longer have any effect on the viewed result.

**Turb:** draws the disturbed light points, unaffected by the lighting.

**Final:** all activated controls come in to play and the swirling is drawn over the chosen background with any lighting asked for.

**Smoothing** (Checkbox Default: On)

Activates smoothing using a Gaussian blur.

**Smooth in X** (Number Min: 0.0, Max: 100.0, Default: 5.0)

**Smooth in Y** (Number Min: 0.0, Max: 100.0, Default: 4.0)

The amount of smoothing in either direction.

**Stroke Width** (Number Min: 0.0, Max: 20.0, Default: 6.36)

This is the width of the base line created from which the light points evolve.



**Drawing Mode** (List Box **Options:** Br Hard | Br Soft, **Default:** Br Hard)

There are two modes of drawing the light points. Stick to the default unless you have time to spare. **Hard** is much faster and useful for setting the movement up. Combine with **Smoothing** to soften the effect. **Soft** draws each light pixel with a soft brush stroke; **be warned** though, *this may take some time to render depending on the number of light points to be drawn.*

**Softness** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

When **Br Soft** is on this controls the softness of drawn light points and can be slow! You have been warned.

**Demos** (List Box **Options:** Lights 1 | Lights 2 | Lights 3 | Lights 4 | Lights 5 | Lights 6 | Lights 7, **Default:** Lights 1)

Select a preset to get you going.

---

## **Light CONTROL PAGE**

**Use Light** (Checkbox **Default:** Off)

Use the lighting parameters to illuminate the swirls.

**Light** (Position **Default:** 0.2,0.2)

Light position.

**Light** (Colour Box **Default:** R: 65535, G: 65535, B: 65535, A: 65535)

Light colour.

**Light Brightness** (Number **Min:** 0.00, **Max:** 1000.0, **Default:** 100.0)

The brightness of the light.

**Bright Radius** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 0.1)

Light radius full intensity

**Dim Radius** (Number **Min:** 0.0, **Max:** 2.5, **Default:** 0.8)

Light radius to drop off of intensity from Bright Radius to here.

**Track Light** (Checkbox **Default:** Off)

The light flows along the path.

**On:** the light is positioned along the path defined. Ignore the overlay position.

**Off:** the light takes its position from the drawn overlay position.

**Track Percent** (Number **Min:** 0.0, **Max:** 100.00, **Default:** 20.00)

Light position along the path by percentage of line length. The light XY position will be ignored in favour of the track position.

**Lighting** (List Box **Options:** Illuminate | Add, **Default:** Add)

Lighting application technique.

**Add:** the brightness is added to the scene.

**Illuminate:** the light radius governs what is lit and seen.

**Minimum Light** (Number **Min:** 0.00, **Max:** 200.0, **Default:** 100.0)

Background brightness when in illumination mode.

---

## **Suck CONTROL PAGE**

**Suction** (Checkbox **Default:** Off)

Turns on a zone of suction; dragging the light points towards its centre or expelling them outwards.

**Suction Position** (Position **Default:** 0.5,0.26)

Suck from here.

**Suction Radius** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 0.3)

Radius of suction influence.

**Suction** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 1.82)

The strength of the suction used.

**PreSuck** (Number **Min:** 0, **Max:** 500, **Default:** 31)

The light points will be forced through this number of frames of movement prior to being drawn. This gives a build up to the effect without having to render unwanted frames.

**Twirling** (Number **Min:** -100.0, **Max:** 100.0, **Default:** -26.26)

The light points rotate around the centre of suction.

**Freeze Suction** (Checkbox **Default:** Off)

Freezes sucked position for evolving from here. A cheated perspective effect. After the Pre Suck has been applied the suction no longer has any effect. The light points are set in this location as a starting point for any swirling or twirling.

---

## **Lines CONTROL PAGE**

**Point 1** (Position **Default:** 0.3,0.41)

**Point 2** (Position **Default:** 0.4,0.62)

**Point 3** (Position **Default:** 0.6,0.61)

**Point 4** (Position **Default:** 0.68,0.39)

**Point 5** (Position **Default:** 0.55,0.6)

**Point 6** (Position **Default:** 0.55,0.8)

The points which form the spline line from which the aurora evolves.

**Start Colour** (Colour Box **Default:** R: 65535, G: 0, B: 65535, A: 65535)

Start colour to blend through to....

**End Colour** (Colour Box **Default:** R: 65535, G: 65535, B: 0, A: 65535)

.....the end colour.

**Colour Cycle** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

Cycle the colours through the aurora.

**Points** (Number **Min:** 3, **Max:** 6, **Default:** 4)

Number of points required to create the desired key line for the aurora.

**Smoothing Points** (Number **Min:** 10, **Max:** 4000, **Default:** 60)

Points required for a smooth line. If too few points are used the base control bands will be angular.

**Seed** (Number **Min:** 1, **Max:** 999, **Default:** 665)

Change for new patterns.

## 4 SpeedSix.BitsFly (Discreet Box12)

---

### PURPOSE

Twirls away tiles of the image. Interesting effects can be achieved with mattes and light sources. The effect is nearly 3D; the tiles move in all 3 directions, X,Y and Z, with a camera observing the scene.



### INPUT CLIPS

- 1: **Disintegrate** : The clip will be broken into tiles which twirl away. You can choose the size of each tile.
  - 2: **Background** : As the tiles twirl they reveal the background clip.
  - 3: **2D Matte** : The clip is not affected by any movement and can be used to composite selected areas of the twirling clip over the background.
  - 4: **3D Matte** : This matte will move in sync with the disintegrating clip.
- 

### *BitsFly* CONTROL PAGE

**X Elements** (Number Min: 1, Max: 100, Default: 12)

**Y Elements** (Number Min: 1, Max: 100, Default: 9)

The number of elements, or tiles, that the disintegrating images is made up of. If the initial tile falls outside the image area, the tile is filled with wrapped region of the disintegrating clip. ***Change either of these values and the sequence will restart.***

**Foreground Z** (Number Min: -4000.0, Max: -1.0, Default: -192.0)

The disintegrating image, the foreground, is positioned away from the camera. As you move it away from or towards the camera, it does not get smaller or larger, in screen. Any lighting, and the time it takes them to reach the camera, will be affected.

***Change the position of the image plane and the sequence will restart.***

**Maximum Z** (Number **Min:** -4000.0, **Max:** -1.0, **Default:** -12.0)

This acts as a clipping plane. Tiles which reach this z position are either left to hover here or they pop off. The clipping plane is forced to be in front of the camera, but it can be behind the foreground. This does give an odd effect though.

***Change the position of the clipping plane and the sequence will restart.***

**Z Pop Off** (Checkbox **Default:** Off)

**Off:** when a tile hits the Maximum Z position it cannot move any further forward and hovers in this location; gravity, or other active forces, may drag it out of view.

**On:** when the tile reaches this Z position it pops off, and is not rendered.

**Omni Z Direction** (Checkbox **Default:** Off)

**Off:** the tiles can move both towards and away from the camera.

**On:** the tiles are forced to move either towards or away from the camera

**Z Sort** (Checkbox **Default:** Off)

Sort into z depth order prior to final process. Furthest away will be rendered first.

**X Speed** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

**Y Speed** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

**Z Speed** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 5.0)

X,Y and Z translational speed.

**X Speed Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

**Y Speed Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

**Z Speed Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

This is the deviation from the basic rate set. The higher the variation value the more dissimilar the speed of each tile from one another. The variation is only set up once, when the sequence starts off.

**Demos** (List Box **Options:** Explosion | Confetti | VenetianV | VenetianH, **Default:** Explosion)

Select a preset to get you going.

**X Rot. Speed** (Number **Min:** -360.0, **Max:** 360.0, **Default:** 60.0)

**Y Rot. Speed** (Number **Min:** -360.0, **Max:** 360.0, **Default:** 60.0)

**Z Rot. Speed** (Number **Min:** -360.0, **Max:** 360.0, **Default:** 60.0)

X, Y and Z rotation speed.

**X Rot. Speed Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

**Y Rot. Speed Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

**Z Rot. Speed Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

This is the deviation from the basic rate set. The higher the variation value the more dissimilar the rotation speed of each tile from one another. The variation is only set up once, when the sequence starts off.

**Seed** (Number **Min:** 1, **Max:** 999, **Default:** 200)

Changing this results in a different move; still based on the same set up, but an alternative set of random numbers is used to modify the motion. If you keep the same seed value and change nothing else, you can repeat exactly the sequence rendered previously.

**Restart Bitsfly** (Pushbutton)

Restart the sequence using the current settings.

**Render Quality** (List Box **Options:** High Quality | Med Quality | Low Quality | Wireframe, **Default:** Med Quality)

**Wireframe:** wire frame is automatically selected when using SpeedSix.Bitsfly. It lets you quickly see the movement of each tile.

**Low Quality:** renders each tile but does no anti-aliasing along each tile edge and does not map the image in 3D space prior to mapping it on the tile. This is useful for lighting checks and is faster than either of the next two options.

**Medium Quality:** does all the image transformations but no anti-aliasing. You can see what you will get but the edges will be ragged.

**High Quality:** final output quality with edges anti-aliased.

---

## ***Light* CONTROL PAGE**

**Use Light** (Checkbox **Default:** Off)

Turn on the lighting.

**Light** (Position **Default:** 0.2,0.8)

**LightZ** (Number **Min:** -5.0, **Max:** 5.0, **Default:** 0.2)

Where the light is relative to the image plane.

**Light Brightness** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 1.0)

How brightly the sun is shining.

**Gloss** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 44.0)

The shininess of the image surface.

**Light Colour** (Colour Box **Default:** white)

The colour of the light source.

**Lit Background** (Checkbox **Default:** Off)

Is the background image lit?

**Background Z** (Number **Min:** -5.0, **Max:** -0.0001, **Default:** -0.9)

The background will not change in size; it will always fill the frame. Its location in Z will determine

how the light effects it.

**Use 2D Matte** (Checkbox Default: Off)

The 2D matte will only render tiles within the matte area.

**Invert 2D Matte** (Checkbox Default: Off)

Invert the effect of the 2D Matte.

**Use 3D Matte** (Checkbox Default: Off)

The 3D matte is transformed along with the disintegrating clip.

**Invert 3D Matte** (Checkbox Default: Off)

Invert the effect of the 3D Matte.

**Restart Bitsfly** (Pushbutton)

Restart the sequence using the current settings.

---

## ***Forces* CONTROL PAGE**

**Use Wind** (Checkbox Default: Off)

Turn on the wind feature.

**Wind Source** (Position Default: 0.9,0.4)

**Wind Target** (Position Default: 0.1,0.4)

**Wind Spread** (Number Min: 0.0, Max: 180.0, Default: 10.0)

The wind blows from the source to the target within the cone defined by the spread.

**Wind Speed** (Number Min: 0.0, Max: 180.0, Default: 5.0)

How strongly the wind is blowing.

**Use Repulsion** (Checkbox Default: Off)

Turn on the repulsion feature.

**Repulsion** (Position Default: 0.4,0.3)

Tiles will move away from this location.

**Rep. Strength** (Number Min: 0.0, Max: 100.0, Default: 10.0)

How strongly the tiles are repulsed.

**Use Gravity** (Checkbox Default: Off)

Turn on the gravity feature.

**Gravity** (Number **Min:** 0.0, **Max:** 30.0, **Default:** 1.0)

The strength of gravity dragging the tiles in the given direction.

**Gravity Angle** (Number **Min:** 0.0, **Max:** 360.0, **Default:** 270.0)

The direction in which gravity acts. 270.0 is downwards.

**Use Attraction** (Checkbox **Default:** Off)

Turn on the attraction feature.

**Attraction** (Position **Default:** 0.8,0.8)

The point towards which the tiles move.

**Attr. Strength** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

How strongly they are attracted to this point.

**Use Swirling** (Checkbox **Default:** Off)

Turn on the swirling feature.

**Swirl Density** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 6.0)

The coarseness of the turbulence field. The higher the value the more bumps and wiggles the turbulence creates. Low numbers give broad sweeping swirls.

**Swirl Magnitude** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 2.0)

How wildly the tiles react when they hit the turbulence.

**Restart Bitsfly** (Pushbutton)

Restart the sequence using the current settings.

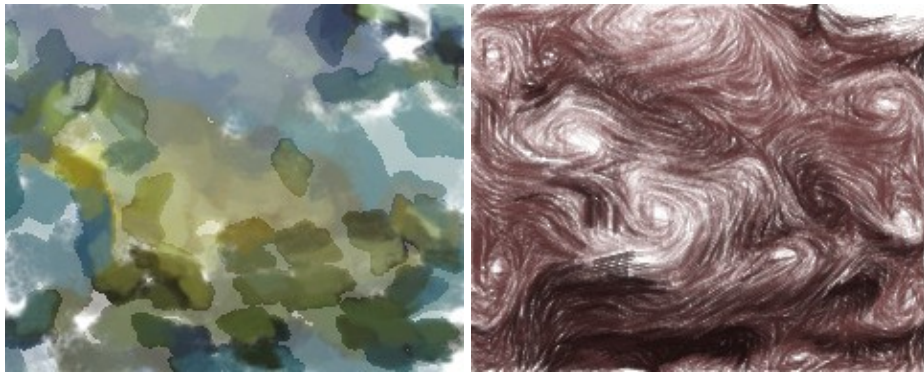


## 5 SpeedSix.Brush (Discreet Box3)

---

### PURPOSE

Creates an artistic impression of an image based on one of several styles of paint application. The input image is recreated by reproducing it using several brush texture images, laid down at positions and densities, and in colours, sizes and orientations determined by the selected style and by features detected in the input image.

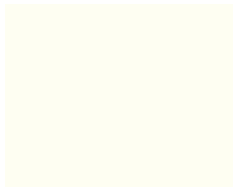


### INPUT CLIPS



Example : Painting

**1: Painting** : What you want to paint a picture of! From the example image above, it is a portrait.



Example : Canvas

**2: Canvas** : The canvas or paper on which to paint. Start off with a piece of white paper to help you see what is going on.



Example : Matte

**3: Matte** : Painting can be restricted to this area. If the Red component of this image is NOT black, then a brush will be applied to the canvas.



Example : Control

**4: Control** : The gradients within this image control the direction of the brush. Usually the image to be painted is a natural choice.

---

## **Brush CONTROL PAGE**

**Style** ([List Box](#) **Options:** Felt tip | Splat | Water | Stipple | Pencil | Pastel | Chalk | Splodge | Oil | Cubic, **Default:** Chalk)

The style setting will give a 'base level' starting point for each style of painting

**Brush** ([List Box](#) **Options:** Felt tip | Splat | Water | Stipple | Pencil | Pastel | Chalk | Splodge | Oil | Cubic, **Default:** Chalk)

Brush style for the painting. The default setting uses a matching brush but you can use a 'chalk' mark in a 'cubist' painting if you wish.

**Influence** ([Number](#) **Min:** 0.0, **Max:** 100.00, **Default:** 0.0)

Controls the extent to which the painting is biased towards the (Colour). Set this to zero to prevent any bias.

**BoxCol** ([Colour Box](#) **Default:** R: 65535, G: 65535, B: 65535, A: 65535)

You can choose to give the painting a bias towards this colour (see Influence). Choose a bright colour for a full range of tones.

**Min Brush Size** ([Number](#) **Min:** 1, **Max:** 100, **Default:** 5)

**Max Brush Size** ([Number](#) **Min:** 1, **Max:** 100, **Default:** 10)

**Brush Sizes** ([Number](#) **Min:** 3, **Max:** 100, **Default:** 21)

These control the range of brush sizes available for painting with. The three brushes are reproduced internally in a range of sizes, with different sizes being used for each painting level –

generally, smaller sizes with higher levels.

**Start Angle** (Number **Min:** -360.0, **Max:** 360.00, **Default:** -180.0)

**End Angle** (Number **Min:** -360.0, **Max:** 360.00, **Default:** 180.0)

**Angles** (Number **Min:** 1, **Max:** 90, **Default:** 16)

These control the range of brush orientations that will be used. Internally, the brushes used for a painting are reproduced at a number of rotations. The orientation used during painting depends on the gradients in the brush orientation control image. Given a wide enough latitude in angles (set by this control) the brushes can be made to follow features in the image being painted.

**Use Random** (Checkbox **Default:** Off)

**Off:** continuity between output frames in a clip will be maximised. The total effect should be reproducible from frame to frame, given that no parameters change with time. Turning Random off will also effect the behaviour of the style dependent Factor 3, which in random mode normally adds a roughness to the medium we are painting on.

**On:** a random selection of brush strokes will take place and there will be no continuity between frames. Factor 3 will also change in behaviour.

**Quantity** (Number **Min:** 1, **Max:** 20, **Default:** 1)

How much paint to use. The higher the value the more strokes applied....and slower.

**Colour steps** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 100.0)

Reduce the numbers of colours in the image to be painted – flatten it out.

**Detailing** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 4.0)

Smoothing out the detail to create interesting gradients.

**Reset Style** (Pushbutton)

Set the currently selected style defaults.

**Demos** (List Box **Options:** Water1 | Water2 | Water3 | Water4 | Oil1 | Oil2 | Oil3 | Oil4 | Chalk1 | Chalk2 | Chalk3 | Chalk4 | FeltTip1 | FeltTip2, **Default:** Water1)

Select a preset to get you going.

**More Demos** (List Box **Options:** Pastel1 | Pastel2 | Pencil1 | Pencil2 | Pencil3 | Pencil4 | Splat1 | Splat2 | Stipple1 | Stipple2 | Splodge1 | Splode2 | Cubic1 | Cubic2, **Default:** Pastel1)

Select a preset to get you going.

---

## **Tweaks CONTROL PAGE**

**Reverse Bias** (Checkbox **Default:** Off)

Reverse brush ordering of sizes

**Max Levels** (Number **Min:** 1, **Max:** 10, **Default:** 7)

How many layers of paint to be applied.

**Start Level** (Number **Min:** 1, **Max:** 10, **Default:** 1)

Start painting at level x, skipping the larger brushes

**End Level** (Number **Min:** 1, **Max:** 10, **Default:** 7)

End painting at level x, skipping the smaller brushes

**Skip Level** (Number **Min:** 1, **Max:** 20, **Default:** 1)

Skip intermediary levels.

**Start Factor 1** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 0.5)

Paint thickness possibly, depending on the style selected.

**Start Factor 2** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 0.0)

Paint dryness possibly, depending on the style selected.

**Start Factor 3** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 0.0)

Paint quality possibly, depending on the style selected.

**Use Matte** (Checkbox **Default:** Off)

Turn on to activate the matte clip to limit where a mark is made.

**Invert Matte** (Checkbox **Default:** Off)

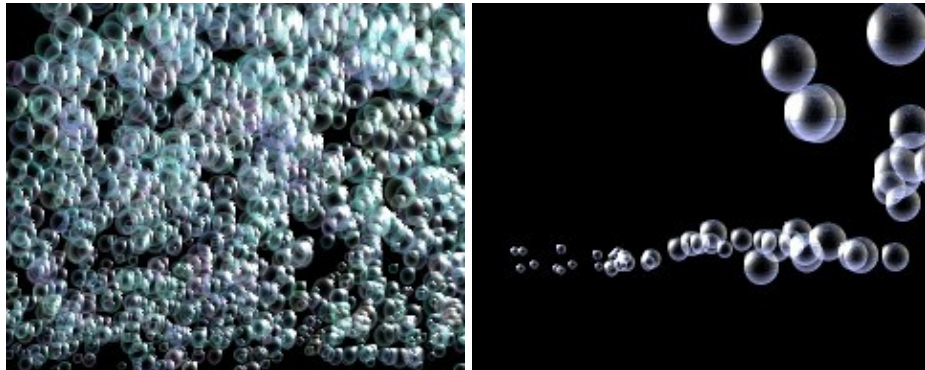
Reverse the application of Black to White

## 6 SpeedSix.Bubbles (Discreet Box6)

---

### PURPOSE

Simulates several different kinds of bubbles, modelling their motion, and rendering them with optional reflection maps and other effects. The bubbles are meant to resemble those found in liquids (e.g. fairly small, numerous, with various types of growth and motion), rather than one (or a few) very large bubble(s). These other types of bubbles might require different modelling and rendering techniques (e.g. vibrating surfaces, thin film interference).



---

### INPUT CLIPS

**1: Background**

**2: Birth** : Bubbles will only be created within the non-black regions of this clip. Make sure the birth zone covers the region,

**3: Burst/Gather** : Bubbles can either gather and or burst within the non black regions of this clip.,

**4: Reflection** : Chose something 'oily' to reflect in the surface of the bubbles.

---

### *Bubbles* CONTROL PAGE

**Restart** ([Pushbutton](#))

Restarts the bubble sequence using the current settings. This control will be found on several pages to help you quickly see the results of any changes to the birth properties of each bubble.

**Restart+PreRoll** ([Pushbutton](#))

Restarts and pre-rolls the bubbles for the current value of **PreRoll**

**Do PreRoll** ([Pushbutton](#))

To see further into the evolution of the bubbles, do another preroll.

**PreRoll** (Number **Min:** 1, **Max:** 1000, **Default:** 20)

Run the particle system for the specified number of pre-roll frames before generating the first frame of the output clip.

**Advance** (Pushbutton)

Click to advance the bubbles one frame without changing frames or other settings. Useful for checking frame by frame evolution and motion speeds.

**Left** (Position **Default:** 0.01,0.01)

Left (nominally) end of bubble generation region.

**Lifetime** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 200.0)

How long each bubble will live for.

**TimeMaxSize** (Number **Min:** 1, **Max:** 500, **Default:** 25)

When the bubbles are set to grow or shrink during their lifetime, this is the number of frames it will take to reach the maximum/minimum size.

**Use Birth Matte** (Checkbox **Default:** Off)

**Off:** uses only the position 'lozenge' to generate the bubbles.

**On:** uses the Birth clip to generate bubbles only if covered by the birth position lozenge.

**Density** (Number **Min:** 0.0, **Max:** 10000.0, **Default:** 20.0)

How many bubbles will be created each frame.

**Position Var** (Number **Min:** 0.0, **Max:** 3.0, **Default:** 0.01)

The region within which bubbles will be created.

**Right** (Position **Default:** 0.9,0.01)

Right (nominally) end of bubble generation region.

**Initial Velocity** (Number **Min:** -2000.0, **Max:** 2000.0, **Default:** 200.0)

The initial speed of a bubble.

**Velocity Var** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Scale of random variations in initial speed of a bubble.

**Vel Dir** (Number **Min:** 0.0, **Max:** 360.0, **Default:** 90.0)

Velocity direction in degrees. 0.0 to the right, 90.0 upwards, 180.0 to the left and 270.0 downwards.

**Growth Mode** (List Box **Options:** Assorted | Shrinking | Variable Growth | Linear Growth, **Default:** Linear Growth)

Assorted: randomly selected birth sizes.

**Shrinking:** the bubbles will shrink with time.

**Variable Growth:** bubbles expand over time, and the smaller bubbles will start to move more quickly.

**Linear Growth:** the bubbles expand over time moving at the given rate.

**Bubble Size** (Number **Min:** 1.0, **Max:** 40.0, **Default:** 20.0)

Maximum size for a bubble to be at birth or grow to.

**Bubble Size Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Scale of variation in size of a bubble up to it's maximum size.

**Seed** (Number **Min:** 1, **Max:** 999999, **Default:** 785)

Change the random number sequencing for different bubble patterns.

**Demos** (List Box **Options:** Basic | Soap | Champagne | Under Water | Floating | Bubbly | Swirly | Gathering | Flurry | Pipe, **Default:** Basic)

Select a preset to get you going.

---

## **Forces CONTROL PAGE**

**Restart** (Pushbutton)

**Restart+PreRoll** (Pushbutton)

**Do PreRoll** (Pushbutton)

See description above.

**Turbulence** (Checkbox **Default:** On)

Turn on the turbulence feature.

**SwirlDens** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 60.0)

How many bumps there are in the atmosphere from one edge of the frame to the other. The bubbles swirl as they run into these bumps.

**SwirlAmp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 1.0)

How powerful the bumps in the atmosphere are.

**SwlMaxTim** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Frames over which the swirl amplitude builds up to its maximum value (set by SwirlAmp).

**Friction** (Checkbox **Default:** On)

Turn on the friction feature.

**Friction** (Number **Min:** 0.0, **Max:** 1.0, **Default:** 0.05)

Controls the frictional force of the atmosphere on the bubbles as a percentage of the bubble velocity lost per frame. i.e. slows the bubbles down.

**Gravity** (Checkbox **Default:** Off)

Turn on the gravity feature.

**Gravity** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 0.2)

Scales the strength of the gravitational force.

**GravAngle** (Number **Min:** 0.0, **Max:** 360.0, **Default:** 90.0)

Controls the angle at which gravity acts, measured in degrees clockwise from due East. The default [270.0] is towards the bottom of the image.

**Bubbles Burst** (Checkbox **Default:** Off)

Activates the use of the Burst/Gather clip.

**Burst Probability** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

How likely it is that the bubbles burst when they are over a non black region of the Burst clip.

**Burst Quantity** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 80.0)

How much of a 'sparkling effect' is rendered on a bubble bursting.

**Burst Extent** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 5.0)

The radius out to which the 'sparkling effect' of a bursting bubble will persist.

**Afterlife** (Number **Min:** 0, **Max:** 100, **Default:** 3)

How many frames the bursting sparkle will last for.

**Congregate** (Checkbox **Default:** Off)

Activate the gathering feature using the Burst/Gather clip. Bubbles slow and jostle when they reach the gathering zone, a non black area in the control clip.

---

## Colour CONTROL PAGE

**Restart** (Pushbutton)

**Restart+PreRoll** (Pushbutton)

**Do PreRoll** (Pushbutton)

See description above.

**ColourVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Percentage of random variation in the colour of the bubbles.

**MonoVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Percentage of random variation in the brightness / density of the bubbles.

**BubbleColour** (Colour Box **Default:** white)



Base colour of a bubble.

**Fade Mode** (List Box **Options:** Col+Dens | Colour | Density, **Default:** Density)

This control affects how the bubbles composite with one another and with the background image and has a great effect on the final appearance.

---

## **Light CONTROL PAGE**

**Light** (Checkbox **Default:** Off)

Turn on the light feature.

**Light Colour** (Colour Box **Default:** white)

The colour of the light.

**Reflections** (Checkbox **Default:** Off)

Activate reflections.

**Ref Intensity** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Scales the contribution to the bubble surface brightness made by the reflection map image (if selected with Reflections On).

**Light Source** (Position **Default:** 0.5,0.9)

Position of the light.

**Light Target** (Position **Default:** 0.5,0.01)

Where the light is pointing at.

**Light Inten** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 50.0)

Intensity of the light illuminating the bubble surface (added to Minimum Brightness, so the degree of 'shading' depends on the relationship between these two controls.

**Light Spread** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 90)

Light Specifies the angle (in degrees) of a cone of illumination (centred on the illumination direction) within which the light shines.

**Glisten Tight** (Number **Min:** 0.0, **Max:** 1000.0, **Default:** 30.0)

How concentrated the light will be about the direction of illumination.

**Light Z** (Number **Min:** -1.0, **Max:** 1.0, **Default:** 0.0)

The location of the light source relative to the image plane.

**Min. Bright** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 60.0)

Brightness of the darkest portion of a rendered bubble.

**Shine** (Number **Min:** 1.0, **Max:** 200.0, **Default:** 45.0)

Controls how dense a bubble gets in areas where it will be bright due to the light. This is used to get a reasonable appearance for rendered bubbles composited over the background and each other.

**Highlight** (Number **Min:** 1.0, **Max:** 200.0, **Default:** 10.0)

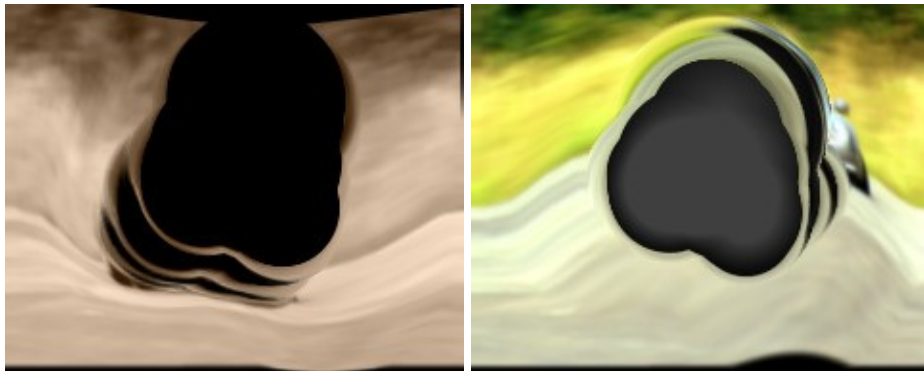
How tight the highlight due to the light shining on the bubble surface is to be.

## 7 SpeedSix.Burn (Discreet Box10)

---

### PURPOSE

Add a movie style 'Burn' to the clip. The chosen 'burn' frame is frozen, held, and it disintegrates in a stylised way. The effect relies on a single frame being held and repeatedly affected. You should always run the sequence from the start. Never skip about as the result will not necessarily be correct or as desired.



### INPUT CLIPS

1: Input Clip

---

### ***Burn*** CONTROL PAGE

**Burn** (Checkbox **Default:** Off)

Toggles the burn on/off. Once you turn the burn on, play the clip sequentially. Do not skip about as this is an accumulating effect.

**Starts** (Number **Min:** 2, **Max:** 2000, **Default:** 10)

The frame to start the burn effect from.

**Duration** (Number **Min:** 1, **Max:** 200, **Default:** 10)

Duration of burning in frames.

**Direction** (List Box **Options:** Bottom Left | Bottom Right | Top Right | Top Left, **Default:** Bottom Left)

General bias in direction of the burn.

**Burn** (List Box **Options:** To Black | To White, **Default:** To Black)

The colour to reveal when the film is completely burnt through.

---

## ***Colour* CONTROL PAGE**

**Lift** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

Balance the overall luminance of the input.

**BW Film** (Checkbox **Default:** Off)

See also: **Colour Film**, **Tint Film**

**Colour Film** (Checkbox **Default:** On)

See also: **BW Film**, **Tint Film**

**Tint Film** (Checkbox **Default:** Off)

See also: **BW Film**, **Colour Film**

Select the colour type of the input to work with.

**Brightness** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

Increase/decrease the brightness of the input clip.

**Tint Red** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 115.0)

**Tint Green** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 105.0)

**Tint Blue** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Tint the film.

**Red** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

**Green** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

**Blue** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

In **Colour** mode, RGB balancing.

**Saturation** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

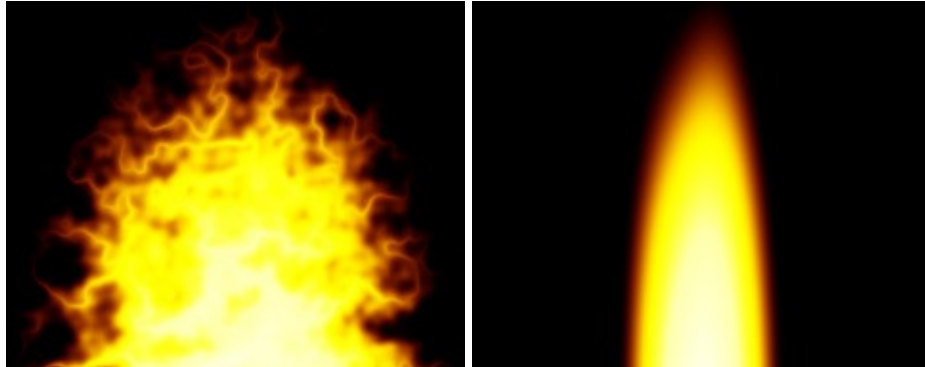
Increase/decrease the saturation of the input.

## 8 SpeedSix.Candle (Discreet Box9)

---

### PURPOSE

Simulating a flame; from a single guttering candle flame to an inferno.



### INPUT CLIPS

1: **Background** : Clip over which flames are to appear.

2: **Matte** : Clip that can be used to control where the flames appear.

---

### *Candle* CONTROL PAGE

**Offset** (Position **Default:** 0.5,0.5)

**Width** (Number **Min:** 0.001, **Max:** 5.0, **Default:** 0.6)

**Use Matte** (Checkbox **Default:** Off)

Modulate the density of the flames using the luminance of the matte clip.

**Invert Matte** (Checkbox **Default:** Off)

Reverse the luminance and thus the resulting densities of the flames.

**Seed** (Number **Min:** 1, **Max:** 999, **Default:** 22)

Change for a different starting point within the turbulence. Keep the same seed for repeatability.

**Top** (Number **Min:** -5.0, **Max:** 5.0, **Default:** 0.3)

These controls define the flame generation area. Flames are created within this box but subsequent forces such as wind, may cause them to over-shoot this box.

**Bottom1** (Number **Min:** -5.0, **Max:** 5.0, **Default:** 0.3)

**Bottom2** (Number **Min:** -5.0, **Max:** 5.0, **Default:** 0.35)

**Bottom3** (Number **Min:** -5.0, **Max:** 5.0, **Default:** 0.4)

**Bottom4** (Number **Min:** -5.0, **Max:** 5.0, **Default:** 0.25)

These points define the base profile of the flame.

**Base Softness** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

Softens the base of the flames.

**Edge Softness** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 30.0)

Softens the edges of the flames.

**Flame Density** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Overall opacity of the flame.

**Convection** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 40.0)

The speed with which the flames move upwards through the turbulence.

**Flicker Speed** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

The speed with which the flames move forwards through the turbulence. If the Convection is set to 0.0 then the flames will still evolve (if Flicker is greater than 0.0) but with no upwards motion.

**Turbulence** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 40.0)

Turbulence disturbs the flame; at 0.0 a pure steady flame, distorting the flame as it increases.

**Frequency 1** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 30.0)

**Frequency 2** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 70.0)

Defines the internal features of the turbulence of the flame. The ratio of the two frequencies defines the structure combined with the turbulence value. Swapping frequency values results in the same flame patterns.

**Tip:** If the turbulence is low and both the frequencies are low the flames are broad and sweeping; with the turbulence high and both frequencies high the flames are finely detailed. As the frequencies become closer together the detailing gets less.

**Demos** (List Box **Options:** Evens | Edge | Centre | Still | Soft | Wiggly | Wild | Fluffy, **Default:** Evens)

Select a preset to get you going.

---

## **Wind CONTROL PAGE**

**Wind** (Checkbox **Default:** Off)

Turn on the wind feature.

**Wind Source** (Position **Default:** 0.95,0.15)

**Wind Target** (Position **Default:** 0.3,0.4)

**Wind Spread** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 60.0)

The wind blows from the source, towards the target within the cone defined by the spread.

**Wind Speed** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 30.0)

How forcefully the wind is blowing.

---

## **Colour CONTROL PAGE**

**Core Colour** (Colour Box **Default:** R: 65535, G: 65535, B: 65535, A: 35535)

**Proportion Col 1** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

**Centre Colour** (Colour Box **Default:** R: 64320, G: 64320, B: 320, A: 35535)

**Proportion Col 2** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

**Edge Colour** (Colour Box **Default:** R: 65535, G: 320, B: 320, A: 35535)

**Proportion Col 3** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

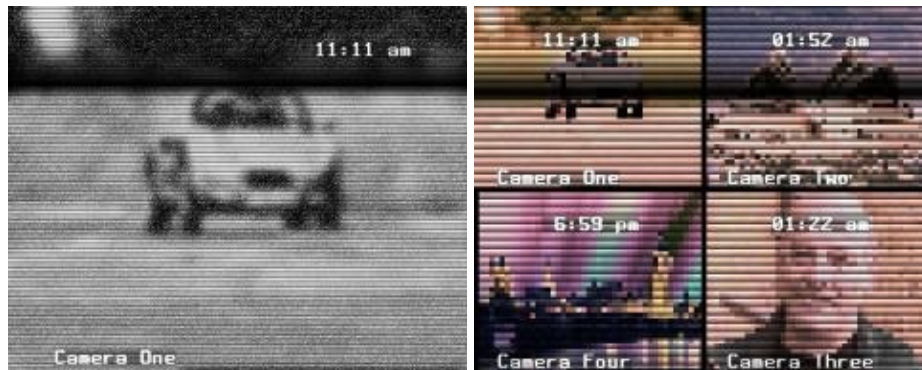
The flames comprise of 3 colour regions in varying proportions. The distribution of the flame colours can be weighted. With all three at 50.0 the three colours are distributed evenly throughout the flame. The ratio of the three numbers will change the balance of distribution. e.g. to extend the core colour, increase **Proportion Col 1**.

## 9 SpeedSix.CCTV (Discreet Box19)

---

### PURPOSE

Make the input look like it was recorded and displayed on a CCTV (Closed Circuit Television ) system, of the type often used for security surveillance operations.



### INPUT CLIPS

- 1: **Clip 1** : The first of four clips that may appear in the output.
  - 2: **Clip 2** : The second of four clips that may appear in the output.
  - 3: **Clip 3** : The third of four clips that may appear in the output.
  - 4: **Clip 4** : The fourth of four clips that may appear in the output.
- 

### Monitor CONTROL PAGE

**DispMode** (List Box Options: 1-way | 4-way, **Default:** 4-way)

Selects the mode of displaying the resultant image.

**1-way:** Output only one of the clips into result. Select the clip to view with the **Show Camera** buttons.

**Brightness** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 90.0)

Monitor lift and brightness controls.

**Roll** (Checkbox **Default:** Off)

Roll on/off.

**Roll Offset** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 10.0)

Controls the offset of the band. Measured from the top of the screen in terms of the percentage



of the image height.

**Roll Speed** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 15.0)

Controls the speed of the band.

**Roll Width** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 15.0)

Controls the spread of the band. This simulates the effect of recording material off a tv screen so that the relative frequencies of updating and recording are visible to the human eye. Value is in terms of a percentage of the image height.

**Roll Dim** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Controls the darkness of the band. High values result in clearly defined dark bands across the image. Lower value yield a more natural looking fade at the top and bottom edges.

**Resolution** (List Box **Options:** Highest Res | High Res | Med High Res | Med Low Res | Low Res | Lowest Res, **Default:** Med High Res)

Controls the perceived resolution of the clip. This control is different from the standard resolution control wherein the size of the processed image is scaled down. Here, it controls the *perceived* resolution of the input clip(s). Changing this value **does not** speed up/down the processing time since the rest of the processing is still done on the selected image size.

**Lift** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

**Scan Lines** (Checkbox **Default:** On)

Toggles the appearance of scan lines in the resultant image.

**Scan Width** (Number **Min:** 0.10, **Max:** 50.00, **Default:** 0.70)

Controls the width of perceived scan lines. Value is given in terms of percentage of image height.

**Scan Bright** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 20.0)

Controls the brightness of perceived scan lines.

**Border Width** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 1.2)

Controls the size of the border that is applied to the 4-way split scenario; percentage of the image width.

**BW Monitor** (Checkbox **Default:** Off)

See also: **Colour Monitor**

Which type of monitor do you want?

**Colour Monitor** (Checkbox **Default:** On)

See also: **BW Monitor**

**Red** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

**Green** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

**Blue** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

RGB controls.

**Saturation** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 60.0)

Colour saturation when using a colour monitor.

**Force Update** (Pushbutton)

If the hold values for each of the cameras are greater than 1 then this plugin will only update (parts of) the image from the source clips when a frame is due for refreshing. This control forces the plugin to re-read the input frames again and reset the reference time from the current time

---

## **Camera1&2 CONTROL PAGE**

**Show C1** (Checkbox **Default:** On)

Selecting this generates a CCTV'd version of the clip in the result. By selecting more than one clip the output image is split into 4 region much like in TV wall and all 4 clips are then selected.

**C1 Blur** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 0.0)

Controls the blur of Camera 1

**C1 Snow** (Checkbox **Default:** Off)

Snow on/off.

**Show C2** (Checkbox **Default:** Off)

Selecting this generates a CCTV'd version of the clip in the result. By selecting more than one clip the output image is split into 4 region much like in TV wall and all 4 clips are then selected.

**C2 Blur** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 0.0)

Controls the blur of Camera 2

**C2 Snow** (Checkbox **Default:** Off)

Snow on/off.

**C1 Bright** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

Controls the brightness of Camera 1

**C1 Hold Offset** (Number **Min:** 0, **Max:** 100, **Default:** 0)

Controls the offset of the clip. Measured from the current position. This is only displayed in the 4-way mode. Breaks up the times at which changes in the image are made. Useful for when the repeat frames values are noticeable.

**C1 Snow Soft** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 0.0)

Softens the appearance of the snow; the larger the value the softer the snow and longer processing time!

**C2 Bright** (Number Min: 0.0, Max: 500.0, Default: 100.0)

Controls the brightness of Camera 2

**C2 Hold Offset** (Number Min: 0, Max: 100, Default: 0)

Controls the offset of the clip. Measured from the current position. This is only displayed in the 4-way mode. Breaks up the times at which changes in the image are made. Useful for when the repeat frames values are noticeable.

**C2 Snow Soft** (Number Min: 0.0, Max: 2.0, Default: 0.0)

Softens the appearance of the snow; the larger the value the softer the snow and longer processing time!

**C1 Lift** (Number Min: -100.0, Max: 100.0, Default: 0.0)

Controls the lift of Camera 1

**C1 Hold Frames** (Number Min: 1, Max: 100, Default: 1)

Camera 1: This controls the number of frames that are held constant over a clip when processing. For example: a value of one means that the output is updated every frame, two means the output is updated every 2nd frame etc.

**C1 Snow Bright** (Number Min: 0.0, Max: 100.0, Default: 30.0)

Snow Intensity.

**C2 Lift** (Number Min: -100.0, Max: 100.0, Default: 0.0)

Controls the lift of Camera 2

**C2 Hold Frames** (Number Min: 1, Max: 100, Default: 1)

Camera 2: This controls the number of frames that are held constant over a clip when processing. For example: a value of one means that the output is updated every frame, two means the output is updated every 2nd frame etc.

**C2 Snow Bright** (Number Min: 0.0, Max: 100.0, Default: 30.0)

Snow Intensity.

**Force Update** (Pushbutton)

If the hold values for each of the cameras are greater than 1 then this plugin will only update (parts of) the image from the source clips when a frame is due for refreshing. This control forces the plugin to re-read the input frames again and reset the reference time from the current time

---

## **Camera3&4 CONTROL PAGE**

**Show C3** (Checkbox Default: Off)

Selecting this generates a CCTV'd version of the clip in the result. By selecting more than one

clip the output image is split into 4 region much like in TV wall and all 4 clips are then selected.

**C3 Blur** (Number Min: 0.0, Max: 2.0, Default: 0.0)

Controls the blur of Camera 3

**C3 Snow** (Checkbox Default: Off)

Snow on/off.

**Show C4** (Checkbox Default: Off)

Selecting this generates a CCTV'd version of the clip in the result. By selecting more than one clip the output image is split into 4 region much like in TV wall and all 4 clips are then selected.

**C4 Blur** (Number Min: 0.0, Max: 2.0, Default: 0.0)

Controls the blur of Camera 4

**C4 Snow** (Checkbox Default: Off)

Snow on/off.

**C3 Bright** (Number Min: 0.0, Max: 500.0, Default: 100.0)

Controls the brightness of Camera 3

**C3 Hold Offset** (Number Min: 0, Max: 100, Default: 0)

Controls the offset of the clip. Measured from the current position. This is only displayed in the 4-way mode. Breaks up the times at which changes in the image are made. Useful for when the repeat frames values are noticeable.

**C3 Snow Soft** (Number Min: 0.0, Max: 2.0, Default: 0.0)

Softens the appearance of the snow; the larger the value the softer the snow and longer processing time!

**C4 Bright** (Number Min: 0.0, Max: 500.0, Default: 100.0)

Controls the brightness of Camera 4

**C4 Hold Offset** (Number Min: 0, Max: 100, Default: 0)

Controls the offset of the clip. Measured from the current position. This is only displayed in the 4-way mode. Breaks up the times at which changes in the image are made. Useful for when the repeat frames values are noticeable.

**C4 Snow Soft** (Number Min: 0.0, Max: 2.0, Default: 0.0)

Softens the appearance of the snow; the larger the value the softer the snow and longer processing time!

**C3 Lift** (Number Min: -100.0, Max: 100.0, Default: 0.0)

Controls the lift of Camera 3

**C3 Hold Frames** (Number Min: 1, Max: 100, Default: 1)

Camera 3: This controls the number of frames that are held constant over a clip when processing. For example: a value of one means that the output is updated every frame, two means the output is updated every 2nd frame etc.

**C3 Snow Bright** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 30.0)

Snow Intensity. If you set this to zero then the image will not have any snow added. This is useful if you want to smoothly animate the appearance/disappearance of the snow effect in one go. However, this still executes the snow generating routines so slowing down the processing. If you do not want any snow to appear in the image then use the **Snow** control.

**C4 Lift** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

Controls the lift of Camera 4

**C4 Hold Frames** (Number **Min:** 1, **Max:** 100, **Default:** 1)

Camera 4: This controls the number of frames that are held constant over a clip when processing. For example: a value of one means that the output is updated every frame, two means the output is updated every 2nd frame etc.

**C4 Snow Bright** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 30.0)

Snow Intensity.

**Force Update** (Pushbutton)

If the hold values for each of the cameras are greater than 1 then this plugin will only update (parts of) the image from the source clips when a frame is due for refreshing. This control forces the plugin to re-read the input frames again and reset the reference time from the current time

## ***Text* CONTROL PAGE**

**Add Text** (Checkbox **Default:** Off)

Toggles the inclusion of text on the output image.

**C1** (Text String)

**C2** (Text String)

**C3** (Text String)

**C4** (Text String)

These controls contain the text that will appear in the output image. You cannot animate this!.

**Text Position** (Position **Default:** 0.1,0.02)

Controls the position of the static text in the output image. In the 4-way split mode this governs the position of bounding boxes for each of the 4 texts.

**TimeCode (hh:mm:ss:fr)** (Checkbox **Default:** Off)

Toggles the inclusion of text animatable numeric text on the output image

**TC1** (Text String)

**TC2** (Text String)

**TC3** (Text String)

**TC4** (Text String)

These controls contain the text that will appear in the output image.

**TimeCode Posn.** (Position **Default:** 0.7,0.9)

Controls the position of the timecode text in the output image. In the 4-way split mode this governs the position of bounding boxes for each of the 4 texts.

**TimeCode** (List Box **Options:** hh:mm am/pm | hh:mm | hh:mm:ss | hh:mm:ss:fr, **Default:** hh:mm am/pm)

Controls the format in which **Time** gets displayed. The standard format is hh:mm:ss:fr, so that 012345 will be interpreted as 01 hours, 23 minutes, 45 seconds and 11 seconds. No checks are made on the validity of the data (eg > 24 hours ) and only 99 frames per second are allowed.

**fps** (Number **Min:** 1, **Max:** 100, **Default:** 25)

This determines the number of frames displayed in a second. This affects the way the time code text is incremented; values for frame number higher than this increment the **seconds** value.

**Text Scale** (Number **Min:** 0.2, **Max:** 5.0, **Default:** 1.0)

Controls the size of the displayed text.

**Text Blend** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 70.0)

Determines how dim the background behind the text is, this region is determined by the text bounding overlays. A value of 100 corresponds to a black text background, 0 is totally transparent.

## 10 SpeedSix.Clean (Discreet Box1)

---

### PURPOSE

Removes small features (typically around the size of a pixel) from an image. Can be useful for reducing (even eliminating, on a good day) certain kinds of noise. Also known as median filtering.



### INPUT CLIPS

**1: Clip to Clean** : Small features (typically around the size of a pixel) may disappear from this image.

---

### *Clean* CONTROL PAGE

**Horizontal Radius** (Number **Min:** 1, **Max:** 120, **Default:** 2)

**Vertical Radius** (Number **Min:** 1, **Max:** 120, **Default:** 2)

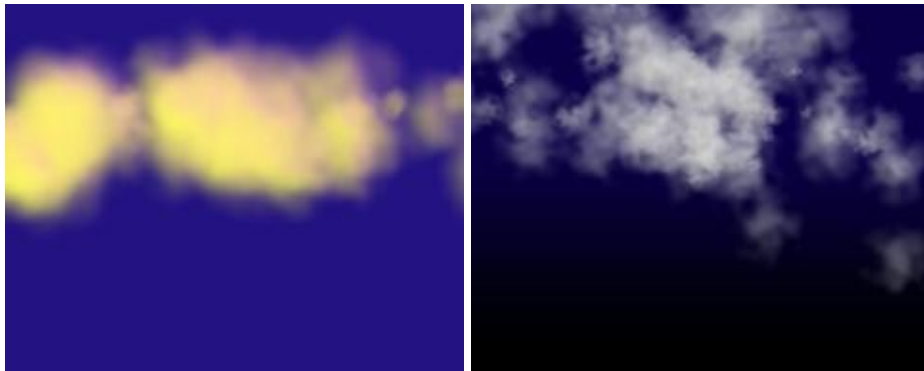
Sets the box dimension within which filtering is done. This 'box' is centred on every pixel of the image and its contents are used to find the corresponding output pixel.

# 11 SpeedSix.Cumulo (Discreet Box12)

---

## PURPOSE

Fluffy cloud simulation in almost 3D space. Rolling clouds, fluffy drifting clouds and sky writing are just a few uses.



## INPUT CLIPS

- 1: **Background Clip** : The clouds are drawn over this clip.
  - 2: **Birth Clip** : Use to limit the region within which the clouds are formed.
- 

## Cumulo CONTROL PAGE

### **Restart** (Pushbutton)

Delete the current cloud[s] and restart.

### **Restart+PreRoll** (Pushbutton)

Delete the current cloud[s], restart and preroll.

### **PreRoll** (Pushbutton)

Run the sequence for the number of PreRoll frames with the current cloud formation.

### **PreRoll** (Number **Min:** 1, **Max:** 1000, **Default:** 40)

How many frames to pre-calculate before rendering the output.

### **Quantity** (Number **Min:** 0.0, **Max:** 5000.0, **Default:** 20.0)

Base number of cloud forms to create each frame.

### **Continuity** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 25.0)



Percentage chance of full quantity of cloud forms being created each frame. Have periods of low continuity to create clusters of clouds.

**Lifetime** (Number **Min:** 1.0, **Max:** 5000.0, **Default:** 200.0)

How long, in frames, each cloud will exist for. When it has been around for the given lifetime it will disappear. By using the Styling control **Use Fading** you can ensure they fade in and out and not just pop off.

**Birth** (Position **Default:** -125,0.8)

Location where the clouds originate; are born.

**Birth Radius** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 0.3)

The size of the region within which clouds can be created. This should cover the birth matte region if using a birth matte to confine the area within which clouds can be created.

**Cloud Size** (Number **Min:** 1.0, **Max:** 40.0, **Default:** 20.0)

Base size for a cloud element. If growing then this is the biggest size a cloud element can grow to be.

**Cloud Size Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 20.0)

Variation in cloud element size.

**Seed** (Number **Min:** 1, **Max:** 999, **Default:** 165)

Change for a different pattern of development.

**Use Birth Matte** (Checkbox **Default:** Off)

**Off:** the clouds are born anywhere within the birth radius.

**On:** the clouds are born within the birth radius but only where the red channel of the birth clip is greater than 0.0 ( i.e. non black ).

**Invert Birth Matte** (Checkbox **Default:** Off)

Reverses the matte i.e. black becomes white.

**Grow/Shrink** (Checkbox **Default:** Off)

**Off:** the clouds remain a constant size after they are created.

**On:** the clouds grow and shrink as they age and die. The next 3 controls govern the growing/shrinking effect.

**Grow(Life)** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

The percentage of the cloud's lifetime during which it grows.

**Shrink(Life)** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

The percentage of the cloud's lifetime during which it shrinks.

**Min Size** (Number **Min:** 1.0, **Max:** 40.0, **Default:** 20.0)

When created and **Grow/Shrink** is on, this is the minimum size they be or can become.

**Mode** (List Box **Options:** Render | Wireframe, **Default:** Wireframe)

Draw wire frame [overlay] or output with rendering parameters.

**Demos** (List Box **Options:** Drift | Constraints | Simple 3D | Bombard | Sunset | Sky Writing | Billow, **Default:** Drift)

Select a preset to get you going.

---

## **Forces CONTROL PAGE**

**Restart** (Pushbutton)

Delete the current cloud[s] and restart.

**Restart+PreRoll** (Pushbutton)

Delete the current cloud[s], restart and preroll.

**PreRoll** (Pushbutton)

Run the sequence for the number of PreRoll frames with current cloud formation.

**Use Gravity** (Checkbox **Default:** Off)

Turn the effect of gravity on or off.

**Gravity** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

Increase to drag the clouds in the direction of the gravity angle.

**Gravity Angle** (Number **Min:** -360.0, **Max:** 360.0, **Default:** 90.0)

The direction in which gravity is acting.

**Gravity 90 to Wind** (Checkbox **Default:** Off)

**On:** Gravity will automatically act at 90 degrees to the wind direction.

**Use Swirling** (Checkbox **Default:** Off)

Turn on turbulence.

**Swirl Density** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

The coarseness of the turbulence field. The higher the value the more bumps and wiggles the turbulence creates. Low numbers give broad sweeping swirls.

**Swirl Magnitude** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 5.0)

How wildly the clouds react when they hit the turbulence.

**Swirl to Max** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 40.0)

How many frames it takes for the maximum swirling to build up.

**Use Friction** (Checkbox **Default:** Off)

Turn on to let friction slow down the movement.

**Friction** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 2.0)

Higher values will cause the movement to slow more quickly.

**Use Constraints** (Checkbox **Default:** Off)

Use Constraints. This is best used in 2D mode only. There is little visible effect in 3D mode.

**Use Wind** (Checkbox **Default:** On)

Use Wind.

**Wind Source** (Position **Default:** 0.0,0.75)

**Wind Target** (Position **Default:** 0.5,0.75)

The wind blows from the source towards the target.

**Wind Speed** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 12.0)

The strength of the wind.

**Constraint Angle** (Number **Min:** 0.0, **Max:** 89.5, **Default:** 6.0)

When constraints are in use, the clouds try to stay in a mass, moving in the direction of the wind and swirling through the turbulence but not escaping from a region the diameter of the birth radius. Imagine a tube, or very long wind sock; the clouds try to stay within it's bounds. As the angle increases the region of constraint gets wider and wider away from the birth position. At maximum value the constraints become negligible.

**Mode** (List Box **Options:** Render | Wireframe, **Default:** Wireframe)

Draw wire frame [overlay] or output with rendering parameters.

---

## **Light CONTROL PAGE**

**Restart** (Pushbutton)

Delete the current cloud[s] and restart.

**Restart+PreRoll** (Pushbutton)

Delete the current cloud[s], restart and preroll.

**PreRoll** (Pushbutton)

Run the sequence for the number of PreRoll frames with the current cloud formation.

**Cloud Colour** (Colour Box **Default:** yellow)

The base colour of the cloud elements.

**Use Light** (Checkbox **Default:** Off)  
Use a light source.

**Light** (Colour Box **Default:** white)  
The colour of the light source.

**Light Source** (Position **Default:** 0.5,0.0)  
Where the light is positioned.

**Light Target** (Position **Default:** 0.5,0.4)  
Where the light is pointing at.

**Density** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 25.0)  
How solid each cloud is over all its area. Reduce the density and the whole cloud is affected.

**Fluffiness** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 12.0)  
How soft the edges of each cloud are. Increase the fluffiness and the edge of cloud becomes thinner, more transparent.

**Contrast** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 50.0)  
How sharply the light drops off when hitting the cloud. The higher the contrast the more defined the transition between light and cloud colour.

**Brightness** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)  
The greater the brightness the more dominance the light colour has. At maximum the light colour will flood each cloud.

**Z Light Source** (Number **Min:** -1.0, **Max:** 1.0, **Default:** 0.3)  
The "height" of the light source (out of the image plane), shining from the source towards the target.

**Mode** (List Box **Options:** Render | Wireframe, **Default:** Wireframe)  
Draw wire frame [overlay] or output with rendering parameters.

---

## **Depth CONTROL PAGE**

**Restart** (Pushbutton)  
Delete the current cloud[s] and restart.

**Restart+PreRoll** (Pushbutton)  
Delete the current cloud[s], restart and preroll.

**PreRoll** (Pushbutton)  
Run the sequence for the number of PreRoll frames with the current cloud formation.

**Use Fading** (Checkbox **Default:** Off)

**Off:** the clouds pop on at birth and pop off when they die. This may be satisfactory if both events occur off screen.

**On:** the clouds will now fade in and out as specified, during their lifetime

**In(Life)** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

**Out(Life)** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

With the default values the clouds will fade in over 10% of their lives and fade out for 10%. Vary the percentages to vary the balance of fading in and out for each cloud, over its lifetime.

**Use Textured** (Checkbox **Default:** Off)

The spherical clouds are fast to render and give you a good idea to the feel of the cloud formation but it is too uniform. Adding in texturing will give each cloud turbulence, breaking up it's form. But this will add a time overhead; patience is required! Do not be too enthusiastic as to the number of clouds born each frame.

**Texture Mag** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 40.0)

The higher the magnification the more holey the clouds. Each cloud is deformed into the texture field. Reduce the magnification and the deformation is reduced.

**Texture X** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 25.0)

**Texture Y** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 25.0)

The texture in each direction can be scaled independently. If both are increased by similar amounts then the texture will be finer in detail. Increasing the Y over the X gives a horizontal texture; increasing the X over the Y, a vertical texture.

**Seethe** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Seethe the texture within each little cloud shape.

**Perspective** (Checkbox **Default:** Off)

Turn on perspective. The clouds now move in Z but it is cheated. You control their size change, via the Grow/Shrink options. It must be on for the full effect. This gives the illusion of the clouds growing as they come towards you.

**Camera Distance** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 100.0)

Where you are looking from in perspective mode. The clouds will pop off the minute they hit the camera plane.

**VanishP** (Position **Default:** 0.5,0.5)

This give the clouds a trajectory to follow as they come towards you. Try changing the position and you will soon see the effect. The closer the vanishing point is to the birth center the more steeply the clouds will approach.

**Z Speed** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 5.0)

This is the speed the clouds will move toward you. At 0.0 they will hover where they are born. Increase the speed and watch them move forward.

**Z Range** (Number **Min:** 0.5, **Max:** 100.0, **Default:** 50.0)

This is a percentage of the birth radius and gives a Z value to the birth position. At the lowest, 0.5, all the clouds are born in very nearly the same Z plane. This slight variation allows them to be depth sorted successfully so that they are drawn in the right order.

**Mode** (List Box **Options:** Render | Wireframe, **Default:** Wireframe)

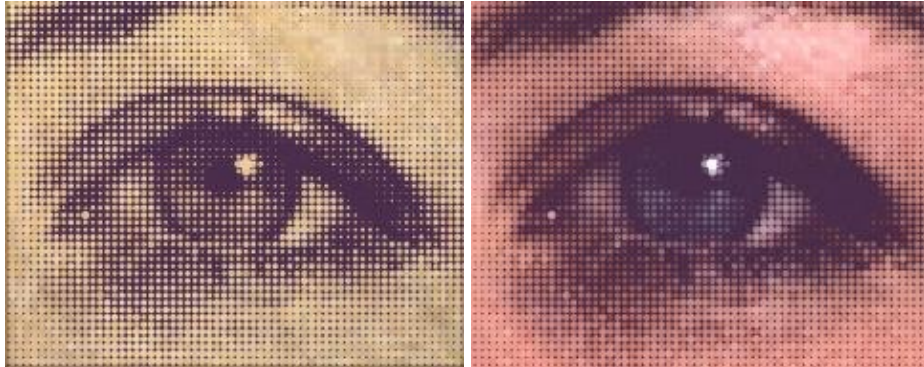
Draw wire frame [overlay] or output with rendering parameters

## 12 SpeedSix.Dots (Discreet Box11)

---

### PURPOSE

Image screened with dots or alternative patterns.



### INPUT CLIPS

- 1: Intensity Levels** : The dot size and distribution is controlled by the intensity levels in this clip.
  - 2: Background** : The dots can either be drawn on a plain coloured background or on this clip.
  - 3: Matte** : Dots will be modulated by this clip.
  - 4: Colours** : The colour of the dots can be taken from this clip.
- 

### *Dots* CONTROL PAGE

**Dots** (Number **Min:** 0, **Max:** 500, **Default:** 60)

The number of dots across the width of the image. The maximum will vary depending on the input resolution of the picture.

**Scale Dots** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

The base size of the dots can be reduced/enlarged without affecting the number of dots used.

**Dots** (List Box **Options:** Plain Dots | Back Dots | Aux Dots, **Default:** Plain Dots)

**Plain Dots:** the dots are drawn with the chosen colour.

**Back Dots:** the dots use the background image as reference for the colour to use.

**Aux Dots:** the dots uses the 4th input clip for colour reference.

**Dot Colour** (Colour Box **Default:** **R:** 0, **G:** 0, **B:** 0, **A:** 35535)

The dots are drawn using this colour in **Plain** mode.

**Invert Intensity** (Checkbox **Default:** Off)

Reverses the intensity of the first input image.

**Paper** (List Box **Options:** on Plain Paper | on Back Image, **Default:** on Plain Paper)

**Plain Paper:** the dots are drawn onto the chosen flat paper colour.

**Back Image:** the dots are drawn on to the background image.

**Paper Colour** (Colour Box **Default:** white)

The dots are drawn onto a plain background colour in **Plain Paper** mode..

**Use Matte** (Checkbox **Default:** Off)

Dots will only be drawn in the white areas of the Matte. The dots are scaled within the 'grey' areas.

**Invert Matte** (Checkbox **Default:** Off)

Dots will only be drawn in the black areas of the Matte. The dots are scaled within the 'grey' areas.

---

## ***Disturb* CONTROL PAGE**

**Form** (List Box **Options:** Regular | Noise | Turbulence, **Default:** Regular)

**Regular:** straight grid pattern.

**Noise:** the dots are disturbed by a noise function.

**Turbulence:** the dots are disturbed by a turbulence function.

**Speed Z** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

This controls how fast a disturbed grid structure will wave.

**Turbulence** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 40.0)

This controls the amplitude of the waves.

**Seed** (Number **Min:** 1, **Max:** 9999999, **Default:** 1000)

Change this to create a new, random turbulence/noise structure. .

**Frequency 1** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 13.0)

**Frequency 2** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 14.0)

Defines the internal features of the turbulence of the grid structure. The ratio of the two frequencies defines the structure combined with the turbulence value. Swapping frequency values results in the same grid structure.

**Speed X** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 40.0)



**Speed Y** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

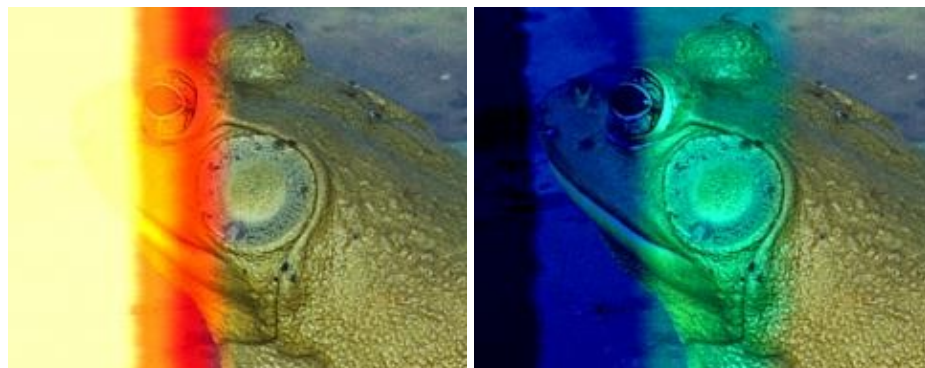
Defines the movement of the overlaid wave disturbance in the X and Y directions.

## 13 SpeedSix.EdgeLeak (Discreet Box11)

---

### PURPOSE

Light has leaked into the film stock at the edge.



---

### INPUT CLIPS

1: Input

---

### *EdgeLeak* CONTROL PAGE

**Red Soft** (Number Min: 0.0, Max: 100.0, Default: 20.0)

**Yellow Soft** (Number Min: 0.0, Max: 100.0, Default: 20.0)

**White Soft** (Number Min: 0.0, Max: 100.0, Default: 20.0)

Softens the edge of each region of fogging.

**Fog** (Number Min: 0.0, Max: 100.0, Default: 20.0)

Changes the intensity of the light reaching the film.

**Negative** (Checkbox Default: Off)

On: Negative colours are leaked into the clip.

**Red X** (Number Min: -1.000, Max: 2.000, Default: 0.500)

**Yellow X** (Number Min: -1.000, Max: 2.000, Default: 0.400)

**White X** (Number Min: -1.000, Max: 2.000, Default: 0.300)

The extent of each region.

**Thickness** (Number Min: 0.0, Max: 1000.0, Default: 10.0)

The density of the resulting fogging.

**Dir** (List Box **Options:** Left->Right | Right->Left, **Default:** Left->Right)

Direction of the light leak; which side of the film has been fogged.

**Wobbliness** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

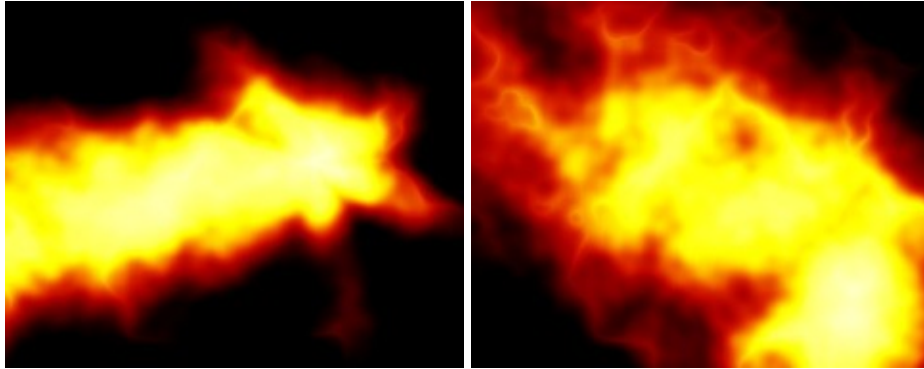
How ragged the edge of the colours are.

## 14 SpeedSix.FireBall (Discreet Box9)

---

### PURPOSE

A ball of fire with a tail.



### INPUT CLIPS

1: Background Clip

2: Matte

---

### *FireBall* CONTROL PAGE

**Origin** (Position **Default:** 0.5,0.5)

The centre of the fireball.

**Radius** (Number **Min:** 0.0, **Max:** 5.0, **Default:** 0.1)

The size of the ball.

**Use Matte** (Checkbox **Default:** Off)

Modulate the density of the flames by the luminance of this clip.

**Invert Matte** (Checkbox **Default:** Off)

Invert the luminance of the matte clip.

**Seed** (Number **Min:** 1, **Max:** 999, **Default:** 100)

Changing the seed creates a completely new fireball structure.

**Tail** (Position **Default:** 0.3,0.3)

The length and direction of the tail.

**Flares** (Number **Min:** 0, **Max:** 1000, **Default:** 0)

How many flares the fireball can have.

**Flare Size** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 2.0)

The extent of the flares.

**Edge Softness** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

Softens the edges of the fireball and flares.

**TMode** (List Box **Options:** Turbulence | Noise, **Default:** Turbulence)

A choice of flame structuring.

**Density** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

The opacity of the fireball.

**Interior Flicker** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 40.0)

The speed of flicker in the central region of the ball.

**Flare Flicker** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 40.0)

When flares are active this sets the speed of flickering of the flares.

**Turbulence** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 40.0)

Turbulence disturbs the flames in the fireball; at 0.0 a smooth fireball, distorting the ball as it increases.

**Frequency 1** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 30.0)

**Frequency 2** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 70.0)

Define the internal features of the turbulence of the flames. The ratio of the two frequencies creates the structure combined with the turbulence value. Swapping frequency values results in the same flame patterns.

**Tip:** If the turbulence is low and the both frequencies are low the flames are broad and sweeping; with the turbulence high and both frequencies high the flames are finely detailed. As the frequencies become closer together the detailing gets less.

---

## Colour CONTROL PAGE

**Core** (Colour Box **Default:** white)

**Proportion 1** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

**Centre** (Colour Box **Default:** R: 65535, G: 65535, B: 320, A: 35535)

**Proportion 2** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

**Edge** (Colour Box **Default: R: 65535, G: 535, B: 320, A: 35535**)

**Proportion 3** (Number **Min: 0.0, Max: 100.0, Default: 50.0**)

The fireball comprise of 3 colour regions in varing proportions. The distribution of the fireball colours can be weighted. With all three at 50.0 the three colours are distributed evenly throughout the fireball. The ratio of the three numbers will change the balance of distribution. e.g. to extend the core colour, increase **Proportion Col 1**.

# 15 SpeedSix.Fireworks (Discreet Box7)

---

## PURPOSE

Simulate a firework display.

Fireworks must be set up in a completely different way to "normal" effects. All animation values are ignored throughout the sequence! Only when you click on **Make Firework** will the parameter values be used, at the current frame, to create a firework. If you set values at any other frame they will be COMPLETELY IGNORED!

Imagine that when you click on Make Firework that the firework you want is being filled with explosives, as specified by the current values. When you light the firework, i.e. process, play or generate a frame, the effect evolves.

The firework you make comprises of:

### LAUNCH

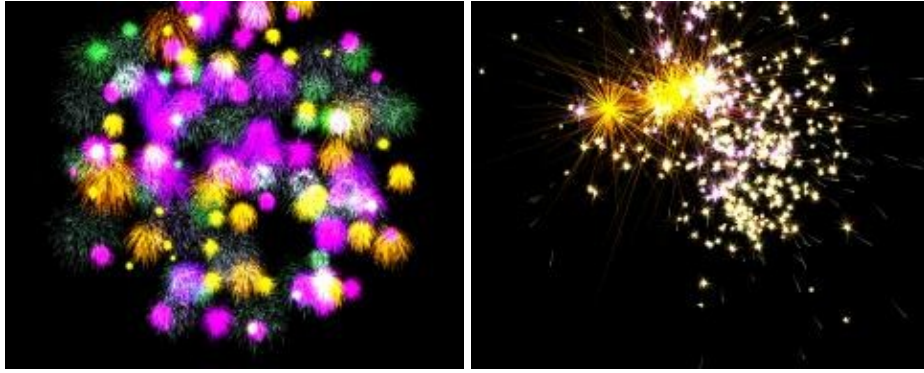
- choose a launch style
- the lifetime of the launch particles
- how many launch particles
- set the firework position
- set the height the firework reaches
- decide how many frames it takes to get to the top

### STAGES

Add up to 3 different effects for three stages:

- choose a style for the stage
- how many bursts you would like
- the time to start the stage
- the lifetime of the stage
- select the colours for birth and death
- the density of the particles for the stage
- some force factors

The firework is ready, light the touch paper and stand back – play the sequence. Sorry there are no sound effects yet!



---

## INPUT CLIPS

1: Background Clip

---

## *Fireworks* CONTROL PAGE

### **Make Firework** (Pushbutton)

Extinguish previous Firework and build a new one. Build the firework you specify. All currently living firework particles are destroyed and a new firework created using the specified values.

### **Make+PreRoll** (Pushbutton)

Rebuild the firework and preroll. The selected number of frames are executed prior to rendering. Therefore you do not have to view/render all the frames up to this point.

### **Do PreRoll** (Pushbutton)

Start firework rendering after the **PreRoll** frame is reached. Run the firework simulation for the specified number of preroll frames before rendering a frame. If you have not switched on **Make Firework**, the current firework will advance by the specified number of **PreRoll** frames.

### **PreRoll** (Number **Min:** 1, **Max:** 1000, **Default:** 50)

The number of frames to calculate before rendering.

### **Position Var** (Number **Min:** 0.0, **Max:** 1.0, **Default:** 0.01)

The diameter of the firework.

### **Centre** (Position **Default:** 0.5,0.1)

Where the firework is put.

### **LaunchSwirl** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 80.0)

How broad or fine the turbulence swirl is.

### **LaunchSwirlAmp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 2.0)



The amplitude of the turbulence swirl. The larger the amplitude the wilder the effect.

**LaunchVelVar** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 0.5)

At 0.0 the launch particles move with the same velocity. Increasing this value changes the potential for the launch particles to move at different speeds.

**Intensity** (Number **Min:** 0.0, **Max:** 400.0, **Default:** 100.0)

How bright the launch particles may become.

**Condensation** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

If less than 1.0, the particles will be reduced in intensity at birth then gradually increase to the specified intensity.

**Height** (Position **Default:** 0.5,0.36)

How high the firework reaches.

**Phase Birth** (Checkbox **Default:** Off)

**Off:** each burst of the stage will occur at the given frame.

**On:** the bursts will take place at or later than the given frame up to a maximum of the total lifetime of that stage. This is a global control; all stages will be either phased or not.

**Damp Squib** (Checkbox **Default:** Off)

**Off:** the bursts will have their given life expectancy.

**On:** a global control, which will randomly change the life expectancy of each burst. The lifetime is always reduced.

**Seed** (Number **Min:** 1, **Max:** 999, **Default:** 573)

Change for a different pattern.

**Demos** (List Box **Options:** Arch Flower | Arch Rosette | Arch Sparkle | Arch Spray | Arch Spray&Sparkle | Ball Flower | Ball Rosette | Ball Sparkle | Ball Spray | Ball Spray&Sparkle | Rocket1 | Rocket2 | Rocket3 | Rocket4 | Rocket5 | Chrysthanemum | Screamer | Bang | Crystal | Twirly, **Default:** Arch Flower)

Select a preset to get you going.

---

## **Launch&1 CONTROL PAGE**

**Launch Mode** (List Box **Options:** Rocket | Blast | Arch | Ball, **Default:** Ball)

Each firework needs some power and direction to blast the stages into the sky. Your choice of launch style will affect the force, direction and position of the stages launched.

**Rocket:** Carries the effect straight up to the apex then blasts the launch particles to break them up and start swirling downwards. The swirling is controlled by **LaunchSwirl** and **LaunchSwirlAmp**.

*Hint:* set the timing of the stages to be after reaching the apex.

**Blast:** The launch particles are given turbulence from birth, swirling them up to the apex and scattering the stages from the start.

**Arch:** The launch particles carry the stages up to form an arch at the apex. The radius of the arch can be defined by **ArchExtent**.

**Ball:** The launch particles cruise up to the apex and fall to earth. At the chosen stage start time the stages burst into a spherical display of desired radius – use **BallScale** to set the radius.

**FramesToApex** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 30.0)

The chosen number of frames from the center to the apex (height) will dictate the speed with which the launch particles travel.

**Quantity** (Number **Min:** 0.0, **Max:** 5000.0, **Default:** 88.0)

How many launch particles there are.

**Lifetime** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 120.0)

How many frames the launch particles exist for.

**ArchExtent** (Number **Min:** 0.0, **Max:** 1.0, **Default:** 0.2)

0.0 gives a complete circle, 0.5 a semi circle, 0.25 90 degrees etc. This comes into effect only if **Arch** is chosen for the launch style.

**Begin1** (Colour Box **Default:** red)

Initial colour for the launch particles.

**End1** (Colour Box **Default:** yellow)

Final colour for the launch particles.

**StageStyle1** (List Box **Options:** Flower | Spray | Rosette | Sparkle, **Default:** Flower)

**Flower:** A radial burst.

**Spray:** A trail of particles.

**Rosette:** A spiral evolving.

**Sparkle:** A twinkling burst.

**Fx1 Start** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 35.0)

Effect starts at this frame.

**Bursts1** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 12.0)

How many of the chosen style may appear.

**Lifetime1** (Number **Min:** 1.0, **Max:** 500.0, **Default:** 40.0)

Lifetime of first stage.

**Quantity1** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

Scale the amount of particles created for this stage. Each style has a set amount of pixels

assigned to it, which you can boost or reduce as required.

**Begin2** (Colour Box **Default:** cyan)

Initial colour of the first stage.

**End2** (Colour Box **Default:** magenta)

Final colour of the first stage.

**TailScale1** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

Scale the length of the rendered particle.

**BallScale1** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

If the chosen launch style is **Ball** the radius of the launch sphere is scaled. The stage 1 fx will be created within this radius. At 1.0 the radius is 100 pixels.

**Blast1** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

Scale the force with which the stage is born.

---

## **Stage2 CONTROL PAGE**

**StageStyle2** (List Box **Options:** Flower | Spray | Rosette | Sparkle, **Default:** Flower)

**Flower:** A radial burst.

**Spray:** A trail of particles.

**Rosette:** A spiral evolving.

**Sparkle:** A twinkling burst.

**Fx2 Start** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 45.0)

Effect starts at this frame.

**Bursts2** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 12.0)

How many bursts for stage 2.

**Lifetime2** (Number **Min:** 1.0, **Max:** 500.0, **Default:** 60.0)

Lifetime of second stage.

**Quantity2** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

Scale the amount of particles created for this stage. Each style has a set amount of pixels assigned to it, which you can boost or reduce as required.

**Begin3** (Colour Box **Default:** orange)

Initial colour.

**End3** (Colour Box **Default:** yellow)

Final colour.

**Blast2** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

Scale the force with which the stage is born.

**TailScale2** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

Scale the length of the rendered particle.

**BallScale2** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

If the chosen launch style is **Ball** the radius of the launch sphere is scaled. The stage 1 fx will be created within this radius. At 1.0 the radius is 100 pixels.

**Follow Fx1** (Checkbox **Default:** Off)

**On:** if the start frame of stage2 is after the start of stage1, the birth position and characteristics of stage2 is based on the current state of stage1.

**Off:** a direct result of the launch characteristic.

---

## **Stage3 CONTROL PAGE**

**StageStyle3** (List Box **Options:** Flower | Spray | Rosette | Sparkle, **Default:** Flower)

**Flower:** A radial burst.

**Spray:** A trail of particles.

**Rosette:** A spiral evolving.

**Sparkle:** A twinkling burst.

**Fx3 Start** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 65.0)

Effect starts at this frame.

**Bursts3** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 12.0)

How many bursts for stage three.

**Lifetime3** (Number **Min:** 1.0, **Max:** 500.0, **Default:** 50.0)

Lifetime of third stage.

**Quantity3** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

Scale the amount of particles created for this stage. Each style has a set amount of pixels assigned to it, which you can boost or reduce as required.

**Launch Begin** (Colour Box **Default:** white)

Initial colour.

**Launch End** (Colour Box **Default:** yellow)

Final colour.

**Blast3** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

Scale the force with which the stage is born.

**TailScale3** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

Scale the length of the rendered particle.

**BallScale3** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

If the chosen launch style is **Ball** the radius of the launch sphere is scaled. The stage 1 fx will be created within this radius. At 1.0 the radius is 100 pixels.

**Follow Fx2** (Checkbox **Default:** Off)

**On:** if the start frame of stage3 is after the start of stage2, the birth position and characteristics of stage3 are based on the current state of stage2.

**Off:** A direct result of the launch characteristic.

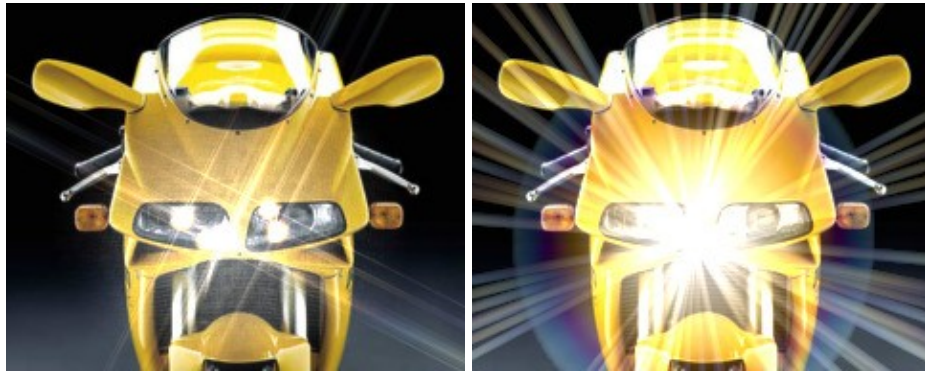
*Summary* If both **Follow Stage1** and **Follow Stage2** are on, Stage1 particles are born from the launch characteristics: Stage2 from Stage1 and Stage3 from Stage2. If neither are on, then all the particles are a direct result of the launch style.

# 16 SpeedSix.Flare (Discreet Box1)

---

## PURPOSE

Uses a variety of tricks for mimicking the appearance of bright lights in a scene viewed by eye or by a camera. Ideally it requires as input a light map which has pixels set to the colour of lights (i.e. it contains only the light emitting surfaces in a scene).



## INPUT CLIPS

**1: Light Map** : Using this clip flares will be created for **every** pixel at the chosen intensity level. Select judiciously.

**2: Background** : The flares will be drawn on this clip.

---

## ROI CONTROL PAGE

**Light Map Only** (Checkbox **Default: On**)

**On:** When starting to use this effect Light Map Only is always **On**. This displays pixels within the bounding box and within the Low and High range you can see very quickly which pixels will be used for the flare generation.

**Off:** Use when you have found the pixels you want for the full flare effect. Be prepared for a wait if your chosen area is densely packed!

**Match Scales** (Checkbox **Default: On**)

Match Scales

**Scale X** (Number **Min: 0.01, Max: 2.00, Default: 0.20**)

**Centre** (Position **Default: 0.2,0.3**)

**Scale Y** (Number **Min: 0.01, Max: 2.00, Default: 0.20**)

Delimits the bounding box. Only pixels within the box will be considered for flares.

**Low** (Colour Box **Default: R: 58982, G: 58982, B: 58982, A: 0**)

**Low Light** (Number **Min: 0.000, Max: 100.000, Default: 90.0**)

**High Light** (Number **Min: 0.000, Max: 100.000, Default: 100.000**)

**High** (Colour Box **Default: R: 65535, G: 65535, B: 65535, A: 0**)

Use to bound the intensity levels to consider when creating the flares.

## **Flares CONTROL PAGE**

**Aperture (mm)** (Number **Min: 0.1, Max: 20.1, Default: 4.0**)

Controls the diameter of lens or eye pupil aperture. The smaller this is, the wider the 'rainbow' halo diffraction effect will be.

**Halo Fringes** (Number **Min: 0, Max: 100, Default: 100**)

This controls the number of radial lines eating in to the central halo. It is combined with random weightings to give the final effect. In the eye, the central brightest part of a light source image often looks as if it has been 'eaten into' by radial lines, so it's no longer symmetrical and smooth (even when the original light source is). This is due mainly to inconsistencies in the material of the eye. It doesn't happen with artificial lenses.

**HaloStrength** (Number **Min: 0.1, Max: 100.0, Default: 50.0**)

Adjusts the relative importance of the halo effect.

**Halo FrnStr** (Number **Min: 0.0, Max: 100.0, Default: 50.0**)

Controls how much (on average) each radial line halo fringe eats in to the central halo.

**Contrast** (Number **Min: 0.50, Max: 300.00, Default: 135.0**)

Controls the overall contrast of the combined flare effects before they are composited over the background image. Can usually be left at the default, or perhaps lowered to make the effect more subtle.

**Streaks** (Number **Min: 0, Max: 1000, Default: 2**)

Specifies the number of streaks to use. These are centred on the light source and are somewhat random in orientation and length (but consistent from frame to frame throughout a sequence!).

**Mono Streak** (Number **Min: 0.0, Max: 100.00, Default: 5.0**)

Increases or reduces the colour content of the streaks.

**Streak Length** (Number **Min: 0, Max: 1000, Default: 75**)

Sets the maximum streak length. They can be up to 50% shorter.

**Streak Rot** (Number **Min: 0.0, Max: 360.0, Default: 0.0**)

Animating this will give some of the effects seen in streaks when the observer moves.

**Streak Strength** (Number **Min:** 0.1, **Max:** 100.0, **Default:** 10.0)

Adjusts the relative importance of the streak effect.

**Glow Radius** (Number **Min:** 1.0, **Max:** 200.0, **Default:** 10.0)

Controls the radius of the glow effect around each pixel in the light map. These separate glow effects add up to form the overall glow around an extended light source.

**Glow Strength** (Number **Min:** 0.1, **Max:** 100.0, **Default:** 40.0)

Adjusts the relative importance of the glow effect.

**Reflections** (Number **Min:** 0, **Max:** 10, **Default:** 0)

Controls how many times a light source is reflected. In reality, this depends on the number of surfaces (e.g. lens elements) there are in the path of the light.

**Reflectivity** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 20.0)

How much of the light source intensity is reflected at each reflecting surface.

**Refl Scale** (Number **Min:** 10.0, **Max:** 1000.0, **Default:** 100.0)

How reflected positions of lights are scaled about the center of the image. The reflecting surfaces are treated as a set of evenly spaced parallel plates. Animating this control can add a bit more interest.



## 17 SpeedSix.Flock (Discreet Box12)

---

### PURPOSE

The little flocking characters with attitude, are controlled by hunger and fear; they quest for food while trying to avoid the predator and avoid obstacles. Sometimes they like each other, but other times ...



### INPUT CLIPS

- 1: Background Clip** : The characters flock over this clip.
  - 2: Shape Colour** : An image can be your flocking character.
  - 3: Shape Matte** : A matte for the flocking character to composite the 2nd input clip shape nicely over the background.
  - 4: Birth Matte** : Limit the area where the characters are created. They will only be born in non-black areas.
  - 5: Avoidance Matte** : The flock may not want to enter this area. When used the characters can only stay in non black areas.
- 

### *Flock* CONTROL PAGE

#### **Restart** (Pushbutton)

Kill off all the flocking characters and start again.

#### **Restart+PreRoll** (Pushbutton)

Kill them off and start again after computing the required PreRoll length.

#### **PreRoll** (Pushbutton)

Compute the number of PreRoll frames before rendering.

**PreRoll** (Number Min: 1, Max: 1000, Default: 40)

The number of frames to compute before rendering.

**Advance** (Pushbutton)

Generate next position.

**Flock Size** (Number Min: 1, Max: 5000, Default: 20)

How many flocking characters to create on restarting the sequence.

**Seed** (Number Min: 1, Max: 999, Default: 165)

If you keep the same seed and do not change any of the other values which may use random numbers, you can recreate the same sequence. Changing the seed will result in a different birth position and pattern of movement.

**Birth** (Position Default: 0.84,0.84)

Location of the birth zone.

**Birth Radius** (Number Min: 0.0, Max: 2.0, Default: 0.5)

Radius of the birth zone.

**Use Birth Matte** (Checkbox Default: Off)

On limits the area where characters can be created.

**On:** characters will only be born within the non black areas of the birth matte.

**Off:** characters will be born anywhere within the birth circle.

**Invert Birth Matte** (Checkbox Default: Off)

Reverse the effect of the birth matte.

---

## **Shape CONTROL PAGE**

**Restart** (Pushbutton)

Kill off all the flocking characters and start again.

**Restart+PreRoll** (Pushbutton)

Kill them off and start again after computing the required PreRoll length.

**PreRoll** (Pushbutton)

Compute the number of PreRoll frames before rendering.

**Texturing Cycle** (Checkbox Default: Off)

**On:** The clips for the colour and the matte of your character will cycle for the length of the sequence over the specified number of frames. e.g. your character is a beetle and it's legs move with 5 positions in a walk cycle. These 5 frames will be re-used throughout the sequence so your beetle will walk as it chases the food.

**Off:** the colour and matte character clips will be read in sequentially, holding on the last available frame.

**Random Start** (Checkbox **Default:** Off)

**Off:** all the characters take their shape from the first frame of the Cols and Matte clips.

**On:** a number is chosen at random in the range set by Frames in Cycle for the start shape of each character. This way each one gets its own starting position, and then the cycle commences from this frame.

**Frames in Cycle** (Number **Min:** 1, **Max:** 10000, **Default:** 5)

Set the number of frames the character can cycle over. If it is longer than the sequence of frames available then the last frame will be repeated when necessary.

**Shape** (List Box **Options:** Blob | Rectangle | Triangle | Diamond | Four Point Star | Five Point Star | Cols with Matte | Matte over Cols | Colour in Matte, **Default:** Blob)

Choose a flocking character. The geometric shapes are pretty obvious. The characters will take the shape specified.

**Cols with Matte:** the second clip image, **Cols**, will be scaled and used with the scaled **Matte**, specified by clip 3, to create the characters. Probably the most fun.

**Matte over Cols:** the **Cols** clip is not scaled but the **Matte** is. As the characters move over the **Cols** clip their colour comes from the this clip.

**Colour in Matte:** the scaled Matte clip can be re-coloured using the colour controls.

**Shape Width** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 72.0)

Width of the chosen character.

**Shape Height** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 57.0)

Height of the chosen character.

**Random Sizes** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 60.0)

Higher values for more disparate sizes.

**Star Sharpness** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 50.0)

Higher values for more angular stars.

**Living Rotate** (Checkbox **Default:** Off)

**On:** the particles rotate to suit the direction they are going in. Set the **Base Angle** value to a constant value if you need to re-orientate the input clip direction. For example, if you use living rotate, and the characters are scuttling sideways (and they are not crabs!) set the base rotation to 90, to set them going in the correct direction.

You will need to generate 2 frames from restart to get the characters correctly orientated to the direction they are going. When they are born in the first frame, they do not know where they are coming from or going to! Generate the second frame and they orientate themselves nicely.

**Off:** you control the direction in which the characters rotate.

**Base Rotation** (Number **Min:** -360.0, **Max:** 360.0, **Default:** 0.0)

Orientate the characters.

**Shape Colour** (Colour Box **Default:** white)

The colour the characters.

**Random Colours** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Add a randomness to the colour of each character. The colour is randomly selected with the range controlled by the original shape colour. The higher the value the more distinct the colour range will be.

The colour is given at birth. Restart the sequence if you change the colour settings.

**Shape Density** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

The density of the character composited over the background. This does not affect the character matte density.

**Use Shapes over Cols** (Checkbox **Default:** Off)

**On:** the geometric shapes will use the colour found in the Cols clip.

**Off:** the geometric shapes will take the colour from colour controls.

**Render Mode** (List Box **Options:** Render | Wireframe, **Default:** Wireframe)

**Wireframe:** for speed.

**Render:** renders the characters in the chosen style.

---

## ***Influence* CONTROL PAGE**

**Restart** (Pushbutton)

Kill off all the flocking characters and start again.

**Restart+PreRoll** (Pushbutton)

Kill them off and start again after computing the required PreRoll length.

**PreRoll** (Pushbutton)

Compute the number of PreRoll frames before rendering.

**Avoid Predator** (Checkbox **Default:** Off)

Avoid Predator.

**Predator** (Position **Default:** 0.4,0.4)

The characters must steer clear of the predator; they move away from its circle of influence, hurriedly.

**On:** they move away from the predator.

**Off:** the predator icon disappears and the characters are not worried.

**Fear of Predator** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 18.0)

The area around the predator where the characters become scared and will change direction to try to move away from it. The nearer they are born to it, the more frightened they become and the faster they will run away.

### **Hunt Food** (Checkbox **Default:** On)

The characters like to hunt for food; they are attracted to the food icon's location.

**On:** they chase after the food.

**Off:** the food icon disappears and the characters react to different stimuli.

### **Food** (Position **Default:** 0.2,0.15)

Where the food can be found. Animating the food position makes the characters follow the scent.

### **Use Avoid Matte** (Checkbox **Default:** Off)

The last input clip can dictate areas where the characters should not go. Use it to limit the region they can wander about in. However very narrow passages with sharp corners will tend to leave them stuck, unable to move. Be gentle with them and give them broad sweeping regions to roam in.

**On:** the characters will try to keep out of the black areas of the clip. If both Avoid and Birth Matte are used then no one is born within the black areas of the avoid matte.

**Off:** they roam where they will.

### **Avoid Forward** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 10.0)

### **Avoid Sides** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 5.0)

The character looks around to see if there any regions it should not enter within the range of these values. The further it looks about the more like it will not get stuck in a tight corner, but it may think there is nowhere left to go and just dither about.

### **Match Velocity** (Checkbox **Default:** Off)

The Speed and Acceleration, though influencing the characters generally (see below), will affect how they move as a team as well.

**On:** when one character reacts to something, for example changing direction to avoid the predator, the characters may change direction too. They try to move as a whole, not individuals. If the team leader backs off, then they all back away.

**Off:** each character finds its own way, reacting to circumstances which affect it.

### **Speed** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 20.0)

The speed at which a character can move when searching for food, or escaping from the predator.

### **Acceleration** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 3.5)

How forcefully something will affect the character. With a low acceleration the characters gently move away from the predator and circle round the food when they find it. The higher the acceleration the more dramatic the reaction to the predator and the stronger the lure of the food.

### **Avoid Others** (Checkbox **Default:** Off)

**On:** so they don't like their neighbours and move away.

**Off:** they don't mind rubbing shoulders.

**Personal Space** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 15.0)

How much room each character would like. If they are born close together the first thing they do is move away.

**Flock Gathering** (Checkbox **Default:** Off)

**On:** really they would like to stay as close to one another as possible. If they are born far apart they try to gather together.

**Off:** they have no real ties.

**Flock Grouping** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

How keen they are to get together.

---

## **Presets CONTROL PAGE**

**Restart** (Pushbutton)

Kill off all the flocking characters and start again.

**Restart+PreRoll** (Pushbutton)

Kill them off and start again after computing the required PreRoll length.

**PreRoll** (Pushbutton)

Compute the number of PreRoll frames before rendering.

**Add Match Velocity** (Checkbox **Default:** Off)

**Add Predator** (Checkbox **Default:** Off)

**Add Living Rotate** (Checkbox **Default:** Off)

**Add Personal Space** (Checkbox **Default:** Off)

**Add Flock Centring** (Checkbox **Default:** Off)

**Simple Food Hunt** (Pushbutton)

Start with this simple food hunting flock then add in the other influences to see what happens.

## 18 SpeedSix.Glass (Discreet Box4)

---

### PURPOSE

Glass simulates the refraction caused by a sheet of glass whose thickness varies from point to point. You can visualise its operation by thinking about what would happen if you took a photograph and placed a ripply sheet of glass some fixed distance above it then looked through the glass at the photograph. In our case, the 'ripples' in the glass are precisely controlled by the luminance of an image, which in effect determines the thickness of the glass at every pixel. You can get all sorts of watery and lens-like effects by choosing the control image appropriately.



### INPUT CLIPS

- 1: Glass** : Imagine a piece of textured glass through which you are looking.  
**2: Behind Glass** : The scene beyond the glass which will be distorted depending on the 'thickness' of the glass. The thickness is controlled by the luminance of this clip.
- 

### *Glass* CONTROL PAGE

**BlackHeight** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

Glass thickness corresponding to black in the Glass image. The units are multiples of the image width. i.e. for this purpose, the image is considered to be 1 unit wide.

**WhiteHeight** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 20.0)

Glass thickness corresponding to white in the Glass image.

**Index** (Number **Min:** 1.0, **Max:** 10.0, **Default:** 1.4)

Refractive index of the glass. The higher this number, the more the light will be bent.

**Invert map** (Checkbox **Default:** Off)

Invert the effect of black through white in the 'glass' clip.

**ImageFill** (List Box **Options:** Duplicate | Black | Wrap, **Default:** Duplicate)

Controls how areas of the output image that should be (partially) filled by areas of the input image, are to be filled.

**Edge Duplication:** which repeats the contents of the nearest edge of the input image.

**Black:** fills input image regions with black. This is often useful, and looks most like real glass (where you get total internal reflection).

**Wrap:** treats the input image as an infinite repeat tiling, so regions that would be just off the left hand edge get mapped to just in the right hand edge for example.

**Smoothing** (Number **Min:** 0, **Max:** 10, **Default:** 0)

Specifies the smoothing factor to apply to the glass height image. Since this image can only have 256 or 32768 distinct levels, 'steps' can become visible in the output image. This is because finding 'normals' to the glass surface is very sensitive and picks up very small changes in brightness. This control sets the spacing between points on the image (in pixels) used to calculate the surface normal. If you want a smooth result (e.g. you have modelled a lens with a suitable grade image) you should increase this until you see no stepping effects.

**ChromaticAb** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 0.0)

Adds colour distortion if values are greater than 0.0

**Note:** if you are not using chromatic aberration effects make sure the value is set to 0.0 to turn it off and speed up the processing.

**Light Active** (Checkbox **Default:** Off)

**On:** to enable the light settings.

**Off:** to disable the lighting without losing your settings.

**Brightness** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

How bright the light is. Values over 100.0 will start to burn out.

**Light** (Position **Default:** 0.5,0.5)

The light source position.

**LightZ** (Number **Min:** 0.05, **Max:** 5.0, **Default:** 0.5)

Defining the angle at which the light hits the glass surface.

**Gloss** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 45.0)

Sets how sharp the specular lighting highlights on the glass surface will be. The higher the number, the tighter they will be.

**Back Bright** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Controls the relative contrast of the lighting highlights and the image seen through the glass.

**Light** (Colour Box **Default:** white)



The colour of the light.

## 19 SpeedSix.HeatHaze (Discreet Box20)

---

### PURPOSE

Produces the effect of a hot, hazy day, adding heat shimmers to the image. Viewing objects in the distance, the air currents disturb your vision, giving a quivering and wobbly appearance to the details of the scene.



### INPUT CLIPS

**1: Background** : The heat will affect this clip.

**2: ROI Matte** : The extent of the heat haze can be modulated by the intensity of this clip.

---

### *HeatHaze* CONTROL PAGE

**Display** (List Box **Options:** Heat Map | Result, **Default:** Result)

**Heat Map:** Display the heat map.

**Result:** Display the image with the heathaze effect added.

**Atmos Detail** (Number **Min:** 1.0, **Max:** 10.00, **Default:** 1.50)

Determines the detail of the turbulence structure. The higher the value, the finer the detailing, but it takes longer to process so it is recommended to use the default setting.

**Atmos Contrast** (Number **Min:** -100.0, **Max:** 100.00, **Default:** 0.0)

Controls the contrast of the turbulence, enhancing the light to dark ratio.

**Atmos Density** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

Brightens or darkens the resulting turbulent texture.

**Smoothly** (Checkbox **Default:** Off)

Toggles the use of smoothing in the effect to minimise any pixelation at the cost of render time.

**Atmos Seed** (Number **Min:** 1, **Max:** 999, **Default:** 797)

Changes the pattern of the heat haze.

**Atmos Detail X** (Number **Min:** 0.01, **Max:** 1000.00, **Default:** 40.00)

**Atmos Detail Y** (Number **Min:** 0.01, **Max:** 1000.00, **Default:** 80.00)

Sets the structure of the turbulence. The higher the values, the more densely packed the turbulence becomes. The relationship between the X and Y stretches the turbulence in either direction.

**Flutter X** (Number **Min:** 0.000, **Max:** 100.000, **Default:** 20.000)

**Flutter Y** (Number **Min:** 0.000, **Max:** 100.000, **Default:** 10.000)

Exaggerates the movement within the background clip created by the turbulence map. Changing these controls also gives directionality to the turbulence.

**Use Matte** (Checkbox **Default:** Off)

Toggles the use of the matte during the processing to limit and modulate the heathaze, limiting to a chosen area.

**Atmos Rate X** (Number **Min:** -100.000, **Max:** +100.000, **Default:** 2.000)

**Atmos Rate Y** (Number **Min:** -100.000, **Max:** +100.000, **Default:** 10.000)

**Atmos Rate Z** (Number **Min:** -100.000, **Max:** +100.000, **Default:** 25.000)

Sets the amount of movement of the heat haze.

**Trim** (Number **Min:** 0.0, **Max:** 50.0, **Default:** 5.0)

Ignores the image outside the trim zone to minimise dross at image extremes.

**Demos** (List Box **Options:** Warm 1 | Hot 1 | Smooth 1 | Warm 2 | Hot 2 | Smooth 2, **Default:** Warm 1)

Select a preset to get you going.

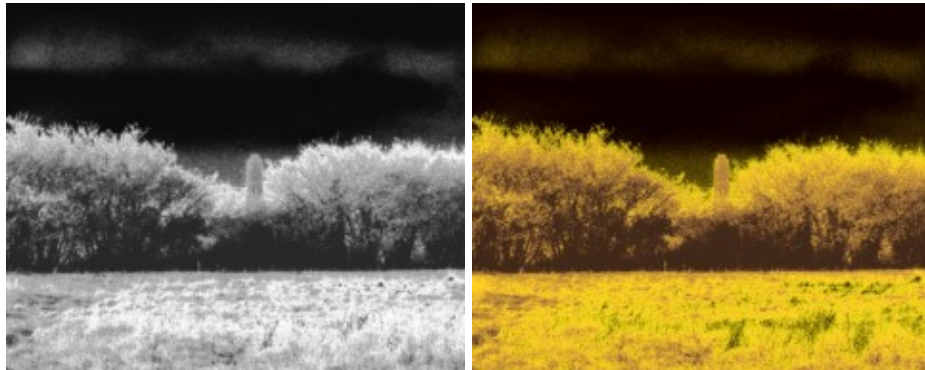
## 20 SpeedSix.InfraRed (Discreet Box22)

---

### PURPOSE

Simulate infra red responding film.

By the time the data gets to your screen any infrared information is long gone – sorry – but we can cheat! The concept is based on InfraRed BW Film where blues, browns and shadowed greens become darker while red, white and green become lighter. It is simply colour mapping. See also the **Thermo** plugin.



---

### INPUT CLIPS

- 1: InfraRed Clip
- 2: Background

---

### *InfraRed* CONTROL PAGE

**Soften** (Checkbox **Default:** On)

The information used to asses the colour balance is defocused before use to minimise noise interference.

**Softening** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 8.0)

The amount of softening of the reference image. Active when **Soften** is on.

**BW** (Checkbox **Default:** Off)

BW output.

**Demos** (List Box **Options:** Landscape1 | Landscape2 | Landscape3 | MoonLight, **Default:** Landscape1)

Select a preset to get you going.

---

## **Red CONTROL PAGE**

**Red1** (Position **Default:** 0.0, 0.28)

**Red2** (Position **Default:** 0.26, 0.63)

**Red3** (Position **Default:** 0.43, 0.767)

**Red4** (Position **Default:** 0.77, 0.99)

**Red5** (Position **Default:** 0.94, 0.85)

**Red6** (Position **Default:** 1.0, 0.12)

Positions of the 6 control points in the overlay that define the red curve data.

**Inv Red** (Pushbutton)

**Flip Red** (Pushbutton)

Invert [up/down] or flip [left/right] the red curve.

---

## **Green CONTROL PAGE**

**Green1** (Position **Default:** 0.0,0.18)

**Green2** (Position **Default:** 0.16,0.44)

**Green3** (Position **Default:** 0.38, 0.58)

**Green4** (Position **Default:** 0.69,0.795)

**Green5** (Position **Default:** 0.92, 0.78)

**Green6** (Position **Default:** 0.99,0.05)

Positions of the 6 control points in the overlay that define the green curve data.

**Inv Green** (Pushbutton)

**Flip Green** (Pushbutton)

Invert [up/down] or flip [left/right] the green curve.

---

## **Blue CONTROL PAGE**

**Blue1** (Position **Default:** 0.001,0.11)

**Blue2** (Position **Default:** 0.22,0.23)

**Blue3** (Position **Default:** 0.39,0.21)

**Blue4** (Position **Default:** 0.55,0.15)

**Blue5** (Position **Default:** 0.76,0.085)

**Blue6** (Position **Default:** 0.998,0.005)

Positions of the 6 control points in the overlay that define the blue curve data.

**Inv Blue** (Pushbutton)

**Flip Blue** (Pushbutton)

Invert [up/down] or flip [left/right] the blue curve.

# 21 SpeedSix.Jaws

## PURPOSE

Renders images described by Encapsulated PostScript Format (EPSF) files. Image quality is not lost with zooms, rotation and pans of the image.



## INPUT CLIP

**Select Any Clip:** the input clip is totally ignored but **Jaws** need a base to work from.

## CONTROLS

### SELECTING THE EPS FILE

**File Search** (Default: Off)

Click for a file browser to locate the epsf file you want to render. The file chosen will be displayed in the EPS File box.

**EPS File** (Default: no file yet)

Displays the name of the EPS (or PostScript) file being processed. You cannot type directly into this text box.

### FILE OPTIONS

**From Macintosh?** (Default: Off)

Turn **On** if the EPSF file was created on a Macintosh. This causes Macintosh end of line conventions to be processed correctly.

**Read Thumbnails** (Default: On)

**On:** try to read thumbnail images. **SpeedSix.Jaws** can only cope with TIFF format thumbnails in EPSF files with a Windows binary header, or with "device independent" thumbnails supposedly found in EPSI files. Actually, the "device independent" thumbnails in EPSI files possibility hasn't been tested, because we cannot find anything that generates EPSI files! Shows how much the world really values portability, I guess.

**Show Thumbnail Only** (Default: Off)

Instead of trying to process the EPS in the file, just display its thumbnail. This is handy for getting an idea of what is in a file. Unfortunately, many (most?) EPSF files do not contain thumbnails. **SpeedSix.Jaws** also does not currently understand PICT format thumbnails found in some EPSF files created on Macintoshes.

**Try with PS** (Default: On)

Try to process PostScript (i.e. PostScript data intended to describe one or more whole pages as usually sent to printers, etc., as opposed to a set of graphic elements intended for inclusion in another "document"). While this will usually work,

it is impossible for the translations, rotations and scales specified in **SpeedSix.Jaws** to work correctly, since there are transformations embedded in PostScript files which cannot be "undone".

Also, ALL PAGES of the input file will be processed and the results superimposed on one another! This is generally not a good idea... To stand a chance of working, the PostScript file MUST contain a valid bounding box specification (as all EPSF files do).

## TRANSFORMATIONS

### **Zoom/Transform** (Default: Off)

Apply the geometric transformations you have specified to the EPSF file when rendering it.

**Off:** the entire EPSF graphic (or PostScript page) will be rendered centred in the output image at the largest scale at which it will entirely fit inside the output image. This is a good starting point. Based on this, you can use the overlay tools to draw a box around the part of the graphic that you want to fill the output image. You can also specify a spin as described below.

**On:** when you have selected the region you want to fill the output image, turn **Zoom/Transform ON** and the transformations will be applied. The overlay region selection box and spin controls are available only when **Zoom/Transform** is OFF, as that is the only time at which they make sense.

Note: transformations cannot work correctly with PostScript (i.e. non-EPSF) input files.

### **Rotation** (Default: 0.0 )

Specifies the spin applied to the selected region when **Zoom/Transform** is ON. The region selected is first translated and scaled until it fills the output image. The output image (in effect) is then rotated about its center by the spin amount.

### **Center XY** (Default: center)

The center of the region selection box on the untransformed input EPSF graphic.

### **Match Zooms** (Default: On)

Match the X and Y zoom factors, preserving the aspect ratios of elements in the input EPSF graphic.

### **Zoom XY** (Min: 0.01 Max: 1000.0 Default: 1.0)

X/Y scale factor. This is normally found by interactively adjusting the input region selection box drawn in the overlay.

## RENDERING

### **Anti Aliasing Samples** (Min: 1 Max: 5 Default: 4)

Oversampling factor to use when rendering. Setting this to 4 or 5 is recommended, as Jaws isn't significantly slower doing good anti-aliasing than not (in most cases).

## FIELDS

### **Fields** (Default: Off)

**Off:** rendering is done in frames.

**On:** rendering is done in fields.

### **Odd First** (Default: Off)

**Off:** usually what you want.

**On:** reverses the field ordering.

### **FULL...1/32** (Default: FULL)

Use lower resolutions for faster results but less detail.



## SOUND

Channel curves from **SpeedSix.AiffExtract** can be imported into the **Amplitude Import** curve to control any of the animation channels.

**Import Amplitude File**

Using the file browser select the file you saved in **SpeedSix.AiffExtract**. The data is then loaded into the **Amplitude Import** channel.

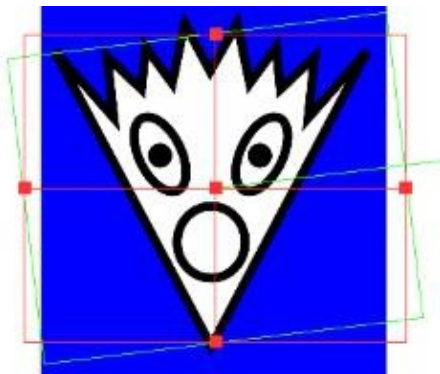
**Amplitude Import** ( Min: -1000.0 Max: 1000.0)

The value range of this channel matches the potential range within **SpeedSix.AiffExtract**. Scale and translate the imported channel data to match the value range of your target channel. Use the usual *copy* and *paste* controls to get the sound information into the desired animation channel.

**HELP** gets you here!

**Reset** sets default values for the current frame.

## OVERLAYS



Setting up the desired output region.

Output image area = red rectangle.

Scaling handles = red squares on the red rectangle.

Output image center = red square in the center of the red rectangle.

Rotated output image area = green rectangle.

Rotation handle = green dot.



The result of **Zoom/Transform** being rendered.

## THINGS YOU MIGHT LIKE TO KNOW

**Working with images**

If you have a really high resolution image and you would like to pan around in and/or zoom into it at TV resolution, **SpeedSix.Jaws** is just what you need! You can see the whole image and then set up the desired region and orientation; key framing the sequence to create the output clip. **SpeedSix.Jaws** renders the output using the full input resolution. However the input image must be in epsf format. If you do not have conversion tools please contact SpeedSix.

**EPSF Files**

EPSF can be output by a large number of useful packages such as Iris Showcase on the Silicon Graphics platform and Adobe Illustrator on Macintoshes and PC's. EPSF contains "vector descriptions" of graphical objects, which can be rendered at, for example, large magnifications, while retaining their integrity. This does not apply to all raster images, which can also be represented in EPSF files. The source image epsf file must be very high resolution and you want to render areas of it at TV resolution (see above, **Working with images**).

EPSF graphics can be positioned anywhere in the output image and subjected to translations, rotations and scales. EPSF files are rendered to images by the SpeedSix Jaws PostScript interpreter and RIP, which is fully Level 2 compliant.

Jaws (the RIP) is supplied with **SpeedSix.Jaws** (the plug-in). **SpeedSix.Jaws** will not work if Jaws has not been installed.

**PS Files**

Although **SpeedSix.Jaws** will attempt to render PostScript (PS) files (and will usually succeed!), these files describe the placement of graphics on one or more pages, and contain their own internal transformations to position things correctly on the pages. **SpeedSix.Jaws** cannot "undo" these transformations, so translating, rotating and scaling specified on PostScript files will not work correctly.

To have any hope of working, the PostScript file must contain a valid bounding box specification. Most PostScript files do have this.

**About Fonts**

In order to render text correctly, Jaws must have access to the fonts used when the document was created. This means these fonts must be present on the machine running DL FFI. If the required font is not available when an item of text is rendered, it will be drawn using the **Helvetica** font, and it is very likely that the character spacing will be totally wrong.

Jaws uses fonts in Adobe Type 1 format stored in the directory:

`/usr/local/jaws/fonts`

**SpeedSix.Jaws** comes with 67 Type 1 fonts. You can add other fonts to `/usr/local/jaws/fonts` at any time. They must, however, be in Unix Adobe Type 1 format. Type 1 fonts are often supplied in Macintosh or PC format rather than Unix format.

Two very simple command line programs are supplied that convert Macintosh and PC Type 1 fonts to Unix format. These are called *mac2ps* and *pc2ps* respectively. To use them, you must transfer the font file to convert from your Macintosh or PC to your SGI machine using some method, which does not corrupt the contents (e.g. use binary mode FTP rather than ASCII mode). Unfortunately, we cannot advise you on the specifics of transferring data between PC's and (especially!) Macintoshes and SGI machines.

As an example, to convert a Type 1 font file from a PC environment, containing the Times–Roman font and called "TIB\_\_\_\_.PFB", you would use:

```
pc2ps TIB____.PFB
```

This will create a file in the current directory which is the name of the font contained in the font definition. In this case, the file will be called "Times–Roman". You then copy this file to `/usr/local/jaws/fonts`, and Times–Roman will then be available. (Times–Roman is, of course, one of the fonts supplied with **SpeedSix.Jaws**, but you get the idea...).

## 21 SpeedSix.Jaws

*pc2ps* and *mac2ps* are installed in the `/usr/local/jaws/bin` directory, so you will need to have this in your PATH, or type the full name to run these programs.

Please note that FONTS ARE COPYRIGHT. We cannot supply any fonts other than those that come with Jaws (and hence with **SpeedSix.Jaws**). Please respect the licensing agreements of other font suppliers.

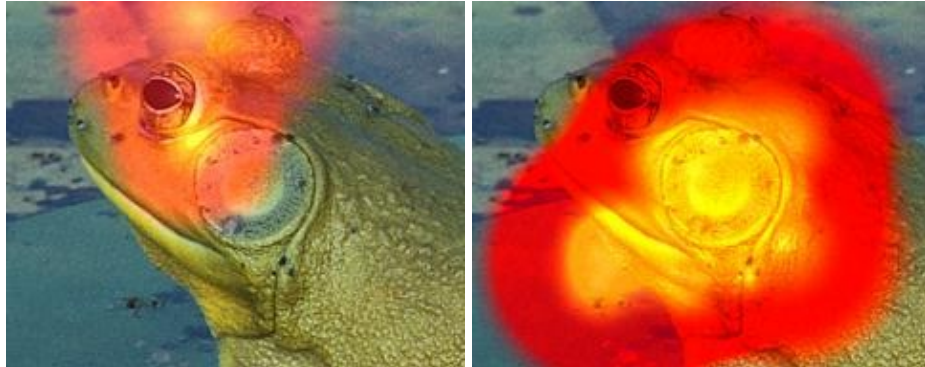
Having to have matching fonts on the creating and rendering machines is definitely a nuisance. While you can include representations of fonts in PostScript documents sometimes, this is not generally true of EPSF files. There is simply no way around this. Problems with fonts are part of the reason Adobe invented the PDF format!

## 22 SpeedSix.LightLeak (Discreet Box11)

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### PURPOSE

Light has spoilt the film stock; pinholes in the black bag.



### INPUT CLIPS

1: Input

---

### *LightLeak* CONTROL PAGE

**Red Spread** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

**Yellow Spread** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

**White Spread** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 20.0)

The extent of each region of fogging up to the size dictated by **Pattern Size** and modulated by **Pattern Size Variance**.

**Fog** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 20.0)

Changes the intensity of the light reaching the film.

**Negative** (Checkbox **Default:** Off)

**On:** Negative colours are leaked into the clip.

**Red Soft** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 40.0)

**Yellow Soft** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 60.0)

**White Soft** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 80.0)

The softness of the edge of each region.

**Thickness** (Number **Min:** 0.0, **Max:** 1000.0, **Default:** 10.0)

The density of the resulting fogging.

**Light Pattern** (Number **Min:** 1, **Max:** 99999, **Default:** 650)

Seeds the random numbers. If kept the same throughout the sequence the same pattern will be used. Change the value for a different pattern.

**Pattern Size** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 50.0)

The general radius of the effect. This will be affected by **Pattern Size Variance** and **Grouping**. The smaller the pattern size the smaller the blobs.

**Pat Size Var** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Percentage of variance in the pattern size.

**Grouping** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 10.0)

The smaller this value the closer together the blobs of light will gather.

**Core Pos** (Position **Default:** 0.4,0.4)

Where the blobs of light will gather together.

**Light Spots** (Number **Min:** 1, **Max:** 20, **Default:** 3)

How many blobs of light will gather together. The more there are, the slower the processing.

**Add Randomness** (Checkbox **Default:** Off)

Random variation in spot position and size can be added. The basic Light Pattern remains the same.

**Size Wobble** (Number **Min:** 0.000, **Max:** 100.000, **Default:** 10.000)

**Spot Wobble** (Number **Min:** 0.000, **Max:** 100.000, **Default:** 10.000)

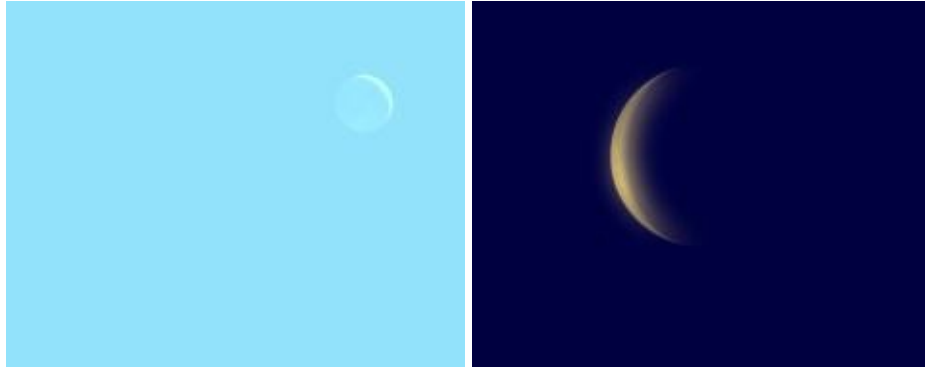
The percentage of possible change for the size and position of the light spots when **Add Randomness** is on.

## 23 SpeedSix.Luna (Discreet Box19)

---

### PURPOSE

Creates an image of the moon at a specified date.



### INPUT CLIPS

1: **Sky** : Image over which the moon is to appear.

---

### *Moon /* CONTROL PAGE

**Centre** (Position **Default:** 0.5 0.5)

The location of the moon.

**Moon Radius** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 0.4)

The size of the moon

**Dark** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 80.0)

How dark the moon is where no sunlight is reflecting off it.

**Smooth** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Defocus the moon image

**Current Date:** (Text String)

Enter the date you want to see the phase of the moon for.

**Phase** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 40.0)

The orientation of the moon and the sun to the earth. Or how much of the moon is lit by the sun.

**Phase Soft** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 20.0)

Softens the shadow edge.

**Phase Angle** (Number **Min:** 0.0, **Max:** 359.0, **Default:** 0.0)

Rotates the shadow on the moon.

**Phase Black** (Checkbox **Default:** Off)

On ensures the non lit areas of the moon are unaffected by the moon colouring and lighting controls.

**Daylight** (Checkbox **Default:** Off)

Makes the moon translucent. Useful for light daytime skys to get just a hint of a moon.

**Date Format :** (Text String)

Helps you remember the date format to enter.

**Current Date:** (Text String)

Set the date you want to see the phase of the moon for.

**Do Glow** (Checkbox **Default:** On)

On: Adds a glow to the moon.

**Glow Rad** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

How far the glow extends.

**Glow Bright** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 20.0)

The brightness of the moon glow.

---

## ***Moon II* CONTROL PAGE**

**Use Sky Colour** (Checkbox **Default:** On)

Use flat colour instead of the background clip.

**Sky Colour** (Colour Box **Default:** R: 25535, G: 25535, B: 35535, A: 35535)

Chosen sky colour.

**Do Ring** (Checkbox **Default:** On)

On: Draws a ring around the moon.

**Ring Colour** (Colour Box **Default:** white)

The colour of the ring around the moon

**RingRad** (Number **Min:** 0.0, **Max:** 1.0, **Default:** 0.45)

Radius of the ring around the moon.

**Ring Size** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

Width of the ring around the moon.

**Ring Bright** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 20.0)

Brightness of the ring around the moon.

**Split Ring** (Checkbox **Default:** Off)

Split the ring around the moon into colour components for chromatic effect.

---

## ***Colour* CONTROL PAGE**

**Lift** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

Adds/subtracts brightness to/from the moon.

**BW Moon** (Checkbox **Default:** Off)

See also: **Colour Moon**, **Tint Moon**

**Colour Moon** (Checkbox **Default:** On)

See also: **BW Moon**, **Tint Moon**

**Tint Moon** (Checkbox **Default:** Off)

See also: **BW Moon**, **Colour Moon**

Choose which colouring model you want to use to colour the moon.

**Brightness** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

Increase/decrease the brightness of the moon.

**Tint Red** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 115.0)

Tint Red.

**Tint Green** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 105.0)

Tint Green.

**Tint Blue** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Tint Blue.

**Moon Red** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

**Moon Green** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

**Moon Blue** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

The base colour of the moon. The moon's colour is influenced by the background colour, therefore a colour picker may be misleading in this instance. Use the RGB sliders to achieve the desired moon colour.



**Saturation** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Saturation of the colour given to the moon.

**Moon Colour** (Colour Box **Default:** white)

The colour of the moon; perhaps a glorious harvest gold.

---

## ***Presets* CONTROL PAGE**

**Demos** (List Box **Options:** Warm Cresent | Dark Full | Bright Full | Large Cresent | Harvest1 | Harvest2 | Full | Golden | Thin Cresent | Angled Cresent | Full | Small Cresent | Hint of a Moon, **Default:** Warm Cresent)

Select a preset to get you going.

## 24 SpeedSix.Movie (Discreet Box10)

---

### PURPOSE

Simulating an old, well used and much abused can of film. By adding together a range of singular effects:

- scratches,
- colouring,
- focus,
- dirt,
- grain,
- projection dimming and flickering,
- hairs in the gate,
- mould,
- film and sprocket wear,

the effect is created. However the character of the movement within old film footage is not catered for here.



---

### INPUT CLIPS

1: Input Clip

---

### *Movie* CONTROL PAGE

**Grain** (Checkbox **Default:** On)

Activates the Grain effect. Varying quantities and intensities of grain can be added to the sequence.

**Grain Red** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 5.88)

**Grain Green** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 9.8)

**Grain Blue** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 1.98)

With colour film the amount of grain for each colour can vary. With BW film only the **Grain Red** value is used.

**Defocus** (Checkbox **Default:** Off)

Activates the Defocus effect. Either the input sequence can be defocused, or added grain, or both.

**Image Focus** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 2.0)

At 0.0 the image will not be defocused. With higher values and Defocus ON the image will be defocused. This is an image degrading effect and is not intended to be a full focusing effect. If you want fuzzier input images or realistic defocus effects then pre-process the input sequence with SpeedSix.Defocus or SpeedSix.RackDefocus (for example).

**Grain Focus** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 2.0)

At 0.0 any grain asked for will not be defocused. With higher values and **Defocus ON** and **Grain ON** the grain field will be defocused before being added to the image.

**Luminance Bias** (Checkbox **Default:** Off)

**Off:** The grain is added uniformly.

**On:** The grain is more noticeable in the darker areas.

**Dirt** (Checkbox **Default:** On)

Dirt is little bits of dirt added randomly, frame by frame.

**Dirty** (List Box **Options:** Print | Negative | Print & Neg, **Default:** Print & Neg)

**Dirty PRINT:** The dirt is basically black – no light getting through the print where the dirt is.

**Dirty NEG:** The dirt is white – the print was not exposed where the dirt is.

**Dirty P&N:** A bit of both, dirty print and dirty neg.

**Quantity** (Number **Min:** 0, **Max:** 100, **Default:** 10)

A random quantity of bits of dirt which are added to each frame. With **Dirty P&N** you will get twice as much dirt.

**Spread** (Number **Min:** 0, **Max:** 500, **Default:** 50)

Each bit of dirt has a randomly determined maximum size.

**Intensity** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 25.0)

How bright or dark each bit of dirt may be. Again randomly selected up to the intensity specified.

**Mould** (Checkbox **Default:** Off)

The mould darkens or lightens blobby areas of the image as though there is something nasty randomly growing on the film emulsion.

**Mouldy** ([List Box](#) **Options:** Print | Negative | Print & Neg, **Default:** Print & Neg)

**Mouldy PRINT:** The mould is basically black – no light getting through the print because of the mould on it.

**Mouldy NEG:** The mould is white – the print was not exposed where the mould is on the negative.

**Mouldy P&N:** A bit of both, mouldy print and mouldy neg

**Mould** ([Position](#) **Default:** 0.4,0.4)

This is the point from which the mould will spread. The units are normalised co-ordinates with 0.0, 0.0 bottom left and 1.0 1.0 top right.

**Mouldiness** ([Number](#) **Min:** 0, **Max:** 20, **Default:** 4)

How many spores of mould have spread from the initial seed location. The mouldier it is the more varied and intense the effect (tempered with **Mould Density**). Large values will take longer to process.

**Spread** ([Number](#) **Min:** 0.0, **Max:** 2.0, **Default:** 0.5)

How much of the image area is covered by the mould.

**Density** ([Number](#) **Min:** 0.0, **Max:** 200.0, **Default:** 60.0)

Controls how visible the mould effect is. At 0.0 you will not see any mould.

**Demos** ([List Box](#) **Options:** No Change | All Off | Sepia Tones | 1897 | 1921 | 1951, **Default:** No Change)

Select a preset to get you going.

---

## **Scratch CONTROL PAGE**

**Scratch One** ([Checkbox](#) **Default:** On)

There two sets of scratches available. Scratches have both birth and evolving characteristics which are specified below.

**Drift** ([Number](#) **Min:** -1.0, **Max:** 2.0, **Default:** 0.35)

Animates over time.

The set of scratches can move left and right over the frame. The units are measured in proportion to the width of the image. 0.0 = left, 1.0 = right. As the scratches drift it gives the illusion of the scratches moving diagonally across the screen.

**HowMany** ([Number](#) **Min:** 0, **Max:** 100, **Default:** 10)

Birth parameter.

Specifies how many scratches are created when a new set of scratches is needed.

**Scratch Two** ([Checkbox](#) **Default:** Off)

**Drift** (Number **Min:** -1.0, **Max:** 2.0, **Default:** 0.7)

**HowMany** (Number **Min:** 0, **Max:** 100, **Default:** 10)

**Scratch** (List Box **Options:** Print | Negative, **Default:** Negative)

**Scratched PRINT:** Gouges in the projected film emulsion, letting extra light through, creating bright lines.

**Scratched NEG:** The negative was scratched and therefore the projected print will have darker lines running through it.

**Spread** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 0.45)

Birth parameter.

When a new set of scratches is made they are created within the range of the **Spread**. i.e. the width of the image area covered in scratches. From this birth position they can drift (with a little variation) over the image.

**MaxLife** (Number **Min:** 1, **Max:** 1000, **Default:** 50)

Birth parameter.

Each scratch created has random lifetime of up to the **Maximum Life** value. As the sequence progresses the scratches will disappear after their specified lifetime.

**Scratch** (List Box **Options:** Print | Negative, **Default:** Negative)

**Spread** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 0.2)

**MaxLife** (Number **Min:** 1, **Max:** 1000, **Default:** 50)

**MaxDepth** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 50.0)

Birth parameter.

Each scratch will vary in depth from frame to frame up to (give or take a little artistic licence) the maximum depth. The deeper the scratches the more visible they become (believe it or not).

**NewSet** (Number **Min:** 0, **Max:** 1, **Default:** 1)

A new set of scratches is made whenever this time line value is 1. If set to 1 throughout the sequence then a new batch will be created and drawn at every frame which will cause a lack of continuity. Therefore when you want a new set of scratches to appear set the key frame value to 1 and all subsequent frames to 0.

**MaxDepth** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 50.0)

**NewSet** (Number **Min:** 0, **Max:** 1, **Default:** 0)

See descriptions for first set of scratches.

---

## **Colour CONTROL PAGE**

**Contrast** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

**BW Film** (Checkbox **Default:** Off)

See also: **Tint Film**, **Colour Film**

Converts the input to black and white.

**Brightness** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

Standard contrast and brightness controls which will affect all film types.

**Tint Film** (Checkbox **Default:** Off)

See also: **BW Film**, **Colour Film**

Monochromatic; add a colour tint to a BW film e.g. a sepia tone for really old stock.

**Tint Red** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 115.0)

**Tint Green** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 105.0)

**Tint Blue** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

When **Tint Film** is selected the RGB values are added to a pre-calculated BW image.

**Colour Film** (Checkbox **Default:** On)

See also: **BW Film**, **Tint Film**

Uses the input sequence with any of the effects applied.

**Red** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

**Green** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

**Blue** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

When **Colour Film** is selected each colour component can be increased or decreased.

**Saturation** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

When **Colour Film** is selected the colour saturation can be increased or decreased.

---

## P&H CONTROL PAGE

**Projection** (Checkbox **Default:** On)

Activate the **Projection effect**. The projector light can be set to dim the images at the edges of the gate and add an overall change in intensity to the whole image as the projection lamp flickers.

**Dim** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 80.0)

At 0.0 the image region outside the **Dimming Radius** will receive no light i.e. it will become black. 1.0 gives full light and therefore no effect. Oscillating this value will give a flickering effect. This can be done automatically on an alternate frame basis; see **Auto Flicker**. However a hand crafted irregular effect is nicer.

**Radius** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 0.9)

This defines the radius from the center of the screen which will remain at full intensity. The default gives just the corners darkened. At 1.0 a circular region, radius half the image width is defined.

**Auto Flicker** (Checkbox **Default:** Off)

**On:** the **Projection Dim** value is randomly increased/decreased a little bit every other frame.

**Wear & Weave** (Checkbox **Default:** Off)

Activates the Wear and Weave. The motion of the film can be affected in two ways; either the sprockets on the projector are worn giving a cyclic displacement or the sprocket holes on the film are well worn giving a random displacement, or both can be in effect.

**Sprocket Wear** (Number **Min:** 0.0, **Max:** 5.0, **Default:** 2.5)

0.0 gives no movement. The scale of the movement gradually increases with the value. The movement is a 16 frame cycle based on the SMPTE logo. (I.e. the sprocket wheel shown therein.)

**Film Weave** (Number **Min:** 0.0, **Max:** 5.0, **Default:** 0.5)

As with **Sprocket Wear** but the displacement is random.

**Hair** (Checkbox **Default:** On)

A squiggle bit of film swarf can appear stuck either side of the gate. It will waggle and jump around. Each hair created will be different.

**Size** (Number **Min:** 5.0, **Max:** 150.0, **Default:** 50.0)

A hair size of 0.2 will cover approximately 20% of the image width. At the maximum value it will cover all of the screen plus some (150%)

**Mode** (List Box **Options:** On Left | On Right, **Default:** On Left)

Which side do you want the hair to come from?

**New Hair** (Number **Min:** 0, **Max:** 1, **Default:** 0)

At 0 the same hair pattern will be used until set to 1 when a new pattern will be generated.

**Visible** (Number **Min:** 0, **Max:** 1, **Default:** 1)

At 0 the hair will not be drawn; at 1 it will be drawn.

## 25 SpeedSix.NightSky (Discreet Box19)

---

### PURPOSE

The night sky as viewed from a given location on Earth. The star positions, magnitude and spectral properties are taken from public databases. Graphic twinkles can be added.



---

### INPUT CLIPS

1: Background

---

### NightSky CONTROL PAGE

**Longitude D** (Number **Min:** -180, **Max:** 180, **Default:** 0)

**Longitude M** (Number **Min:** -60.0, **Max:** 60.0, **Default:** -10.0)

**Latitude D** (Number **Min:** -90, **Max:** 90, **Default:** 51)

**Latitude M** (Number **Min:** -60.0, **Max:** 60.0, **Default:** 30.0)

If you know the location required in Degrees and Minutes, Longitude and Latitude on the Earth's surface, enter them here. These values will be overwritten when you enter a text location.

**Altitude** (Number **Min:** -90.0, **Max:** 90.0, **Default:** 0.0)

The distance an object appears to be above the horizon. The angle is measured up from the closest point on the horizon.

**Azimuth** (Number **Min:** 0.0, **Max:** 360.0, **Default:** 0.0)

The **Azimuth** of an object is the angular distance along the horizon to the location of the object. By convention, azimuth is measured from north towards the east along the horizon.

**Location** (Text String)

A string representation of the location in terms of the major cities in the world. Enter *Country:City*



(usually) in here if you do not know the exact longitude/latitude co-ordinates. For example *UK:London*. The major cities in the world have been included, although there are some odd omissions and inclusions. Not to mention mis-spellings. Here is the full list of valid values:

- Afghanistan:Kabul
- Albania:Tirane
- Algeria:Sidi bel Abbas
- Andorra:Andorra
- Angola:Luanda
- Argentina:Buenos Aires
- Ascension Is
- Australia:Adelaide
- Australia:Alice Springs
- Australia:Brisbane
- Australia:Canberra
- Australia:Darwin
- Australia:Fremantle
- Australia:Hobart
- Australia:Melbourne
- Australia:Perth
- Australia:Sydney
- Austria:Graz
- Austria:Innsbruck
- Austria:Leibnitz
- Austria:Linz
- Austria:Salzburg
- Austria:Vienna
- Azerbaydzan:Baku
- Bahamas:Nassau
- Barbados
- Belgium:Antwerp
- Belgium:Brussels
- Belgium:Gent
- Belgium:Liège
- Belgium:Zeebrugge
- Bermuda
- Bolivia:La Paz
- Brasil:Brasilia
- Brazil:Rio de Janeiro
- Byelorussia:Minsk
- Cambodia:Phnom Penh
- Canada:Amherst NS
- Canada:Antigonish NS
- Canada:Beaverbank NS
- Canada:Binbrook ON
- Canada:Bridgewater NS
- Canada:Calgary AL
- Canada:Charlottetown PEI
- Canada:Corner Brook NF

- Canada:Edmonton AL
- Canada:Fingal ON
- Canada:Flamborough ON
- Canada:Fredericton NB
- Canada:Fundy Nat. Park NB
- Canada:Goose Bay NF
- Canada:Halifax NS
- Canada:Hamilton ON
- Canada:Kentville NS
- Canada:London ON
- Canada:Moncton NB
- Canada:Montreal QU
- Canada:Musquodoboit Hbr N
- Canada:New Glasgow NS
- Canada:Ottawa ON
- Canada:Quebec QU
- Canada:Regina SK
- Canada:Saint John NB
- Canada:Saskatoon SK
- Canada:Sept–Iles QU
- Canada:St John's NF
- Canada:St. Croix NS
- Canada:Summerside PEI
- Canada:Sydney NS
- Canada:Thunder Bay ON
- Canada:Toronto ON
- Canada:Truro NS
- Canada:Vancouver BC
- Canada:Victoria BC
- Canada:Windsor ON
- Canada:Winnipeg MN
- Canada:Yarmouth NS
- Canary Is
- Cayman Is
- Chile:Santiago
- China:Nan–ching
- Colombia:Bogota
- Colombia:Medellin
- Cuba:Havana
- Cyprus:Nicosia
- Czechoslovakia:Bratislava
- Czechoslovakia:Praha
- Denmark:Aalborg
- Denmark:Aarhus
- Denmark:Copenhagen
- Denmark:Odense
- Easter Is
- Egypt:Aswan
- Egypt:Cairo

- Egypt:Luxor
- El Salvador:San Salvador
- Ethiopia:Addis Ababa
- Falkland Is
- Fiji Is
- Finland:Helsinki
- Finland:Inari
- Finland:Oulu
- Finland:Tampere
- Finland:Turku
- Finland:Vaasa
- France:Angers
- France:Bordeaux
- France:Brest
- France:Calais
- France:Cherbourg
- France:Dieppe
- France:Dijon
- France:Grenoble
- France:Haguenau
- France:Le Havre
- France:Le Mans
- France:Limoges
- France:Lyon
- France:Marseille
- France:Metz
- France:Molsheim
- France:Nancy
- France:Nantes
- France:Nice
- France:Paris
- France:Reims
- France:Rennes
- France:Rouen
- France:Strasbourg
- France:Selestat
- France:Toulouse
- France:Wissembourg
- Georgia:Tbilisi
- Germany:Alfeld
- Germany:Berlin
- Germany:Bonn
- Germany:Bremen
- Germany:Dortmund
- Germany:Dresden
- Germany:Dusseldorf
- Germany:Frankfurt
- Germany:Freiburg
- Germany:Hamburg

- Germany:Hannover
- Germany:Karlsruhe
- Germany:Kassel
- Germany:Kiel
- Germany:Leipzig
- Germany:Munchen
- Germany:Nurenberg
- Germany:Potsdam
- Germany:Regensburg
- Germany:Rostock
- Germany:Stuttgart
- Germany:Wurzburg
- Greece:Athens
- Greece:Thessalonika
- Hong Kong
- Hungary:Budapest
- Iceland:Reykjavik
- India:Bangalore
- India:Bombay
- India:Calcutta
- India:Jaipur
- India:Madras
- India:New Delhi
- India:Poona
- Indonesia:Djakarta
- Iran:Abadan
- Iran:Qum
- Iran:Tehran
- Iraq:Baghdad
- Ireland:Cork
- Ireland:Dublin
- Ireland:Galway
- Ireland:Limerick
- Ireland:Waterford
- Israel:Haifa
- Israel:Jerusalem
- Israel:Tel Aviv
- Italy:Bari
- Italy:Cagliari
- Italy:Florence
- Italy:Foggia
- Italy:Genoa
- Italy:Milan
- Italy:Naples
- Italy:Palermo
- Italy:Pisa
- Italy:Rimini
- Italy:Rome
- Italy:Taranto

- Italy:Trieste
- Italy:Turin
- Italy:Venice
- Jamaica
- Japan:Kyoto
- Japan:Osaka
- Japan:Tokyo
- Kennesaw GA
- Kenya:Mombassa
- Kenya:Nairobi
- Latvia:Riga
- Lebanon:Beirut
- Leeward Is
- Luxembourg:Luxembourg
- Malaysia:Kuala Lumpur
- Malaysia:Singapore
- Martinique
- Mexico:Acapulco
- Mexico:Mexico City
- Midway Is
- Monaco:Monte Carlo
- Mongolia:Altan Bulag
- Mongolia:Ulaan Baatar
- Morocca:Marrakech
- Morocco:Tanger
- Nepal:Katmandu
- Netherlands:Amsterdam
- Netherlands:Apeldoorn
- Netherlands:Maastricht
- Netherlands:Nijmegen
- Netherlands:Rotterdam
- Netherlands:The Hague
- New Hebrides
- New Zealand:Auckland
- New Zealand:Christchurch
- New Zealand:Dunedin
- New Zealand:Hamilton
- New Zealand:Invercargill
- New Zealand:Napier
- New Zealand:Nelson
- New Zealand:New Plymouth
- New Zealand:Timaru
- New Zealand:Wellington
- Nigeria:Lagos
- North Pole
- Norway:Bergen
- Norway:Narvik
- Norway:Oslo
- Norway:Stavager

- Norway:Tromso
- Norway:Trondheim
- Pakistan:Karachi
- Pakistan:Lahore
- Paraguay:Asuncion
- Peru:Lima
- Philippines:Baguio
- Philippines:Manila
- Pitcairn Is
- Poland:Gdansk
- Poland:Krakow
- Poland:Lodz
- Poland:Warsaw
- Portugal:Lisbon
- Portugal:Pôrto
- Romania:Bacau
- Romania:Bucharest
- Russia:Arkhangel'sk
- Russia:Frunze
- Russia:Irkutsk
- Russia:Khar'kov
- Russia:L'vov
- Russia:Moscow
- Russia:Murmansk
- Russia:Odessa
- Russia:Omsk
- Russia:Samarkand
- Russia:Sevastopol'
- Russia:Smolensk
- Russia:St Petersburg
- Russia:Stanislav
- Russia:Tashkent
- Russia:Tomsk
- Russia:Vladivostok
- Russia:Volgograd
- Samoa Is
- Saudi Arabia:Ar Riyad
- Senegal:Dakar
- Seychelles Is
- Solomon Is
- South Africa:Bloemfontein
- South Africa:Cape Town
- South Africa:Durban
- South Africa:East London
- South Africa:Johannesburg
- South Africa:Port Elizabe
- South Africa:Pretoria
- South Korea:Seoul
- South Pole

- Spain:Barcelona
- Spain:Bilboa
- Spain:Cadiz
- Spain:Cordoba
- Spain:Gibraltar
- Spain:Madrid
- Spain:Malaga
- Spain:Santander
- Spain:Seville
- Spain:Valencia
- Sudan:Khartoum
- Sweden:Goteborg
- Sweden:Malmö
- Sweden:Stockholm
- Sweden:Uppsala
- Switzerland:Bale
- Switzerland:Basel
- Switzerland:Bern
- Switzerland:Geneva
- Switzerland:Lucerne
- Switzerland:Zürich
- Taiwan:T'aipei
- Tanzania:Dar es Salaam
- Tibet:Lhasa
- Tonga Is
- Tunisia:Tunis
- Turkey:Ankara
- Turkey:Istanbul
- Uganda:Entebbe
- Uganda:Kampala
- UK:Belfast
- UK:Birmingham
- UK:Brighton
- UK:Bristol
- UK:Cardiff
- UK:Carlisle
- UK:Douglas,Isle of Man
- UK:Edinburgh
- UK:Glasgow
- UK:Gloucester
- UK:Ipswich
- UK:Leeds
- UK:Leicester
- UK:Liverpool
- UK:London
- UK:Londonderry
- UK:Manchester
- UK:Middlesborough
- UK:Newcastle-upon-Tyne

- UK:Norwich
- UK:Nottingham
- UK:Oxford
- UK:Plymouth
- UK:Sheffield
- UK:Southampton
- UK:St Helier,Jersey
- UK:Swansea
- UK:York
- Ukraine:Kiev
- Uruguay:Montivideo
- USA:Albuquerque NM
- USA:Anchorage AK
- USA:Atlanta GA
- USA:Baltimore MD
- USA:Boise ID
- USA:Boston MA
- USA:Buffalo NY
- USA:Chicago IL
- USA:Dallas TX
- USA:Denver CO
- USA:Detroit MI
- USA:Hartford CT
- USA:Houston TX
- USA:Lafayette IN
- USA:Lancaster PA
- USA:Las Vegas NV
- USA:Los Alamos NM
- USA:Los Angeles CA
- USA:Memphis TN
- USA:Miami FL
- USA:Milwaukee MN
- USA:Minneapolis MN
- USA:Monterey CA
- USA:Nashville TN
- USA:New Orleans LA
- USA:New York NY
- USA:Newark NJ
- USA:Nome AK
- USA:Oakland CA
- USA:Oklahoma City OK
- USA:Omaha NB
- USA:Oregon City OR
- USA:Orlando FL
- USA:Pasadena CA
- USA:Pensacola GA
- USA:Peoria IL
- USA:Philadelphia PA
- USA:Phoenix AZ



- USA:Pittsburg PA
- USA:Portland OR
- USA:Puerto Rico
- USA:Richmond VA
- USA:Roanoke VA
- USA:Sacramento CA
- USA:Salt Lake City UT
- USA:San Antonio TX
- USA:San Diego CA
- USA:San Francisco CA
- USA:Seattle WA
- USA:Spokane WA
- USA:Syracuse NY
- USA:Tallahassee FL
- USA:Tampa FL
- USA:Topeka KS
- USA:Tucson AZ
- USA:Tulsa OK
- USA:Valdez AK
- USA:Washington DC
- USA:Wichita Falls TX
- USA:Wichita KS
- USA:WSP FL
- Venezuela:Caracas
- Vietman:Da Nang
- Vietnam:Hanoi
- Vietnam:Saigon–Cholon
- Virgin Is
- Yugoslavia:Dubrovnik
- Yugoslavia:Mostar
- Yugoslavia:Sarajevo
- Yugoslavia:Split
- Yugoslavia:Zagreb
- Zambia:Lusaka
- Zimbabwe:Bulawayo
- Zimbabwe:Que Que

**Year** (Number Min: 1900, Max: 2297, Default: 2001)

**Month** (Number Min: 1, Max: 12, Default: 1)

**Day** (Number Min: 1, Max: 31, Default: 1)

**Hour** (Number Min: 0, Max: 23, Default: 0)

**Minute** (Number Min: 0, Max: 59, Default: 0)

Enter the time and date of when you want to look at the sky.

*Note:* You can determine the end of the world with this effect.

**UT Offset** (Number Min: -12, Max: 12, Default: 0)

Universal time Offset, the time given in the **Year, Month, Day, Hour, Minute** fields is the time relative to the Prime Meridian running through Greenwich, England. If you have entered a location city and it has been accepted, then this value will be adjusted automatically.

**Magnitude** (Number **Min:** 1, **Max:** 16, **Default:** 16)

Stars smaller than the magnitude setting will not be drawn. The stars database includes stars from magnitude 1 [biggest] to magnitude 16 [smallest]. Smaller stars are not normally visible to the naked eye and you have not got a telescope in this effect.

**MagScale** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

This scales the range of the magnitude. At 0.0 all the stars will be drawn at the same size. At the maximum of 100.0 the smallest stars will be much smaller than the largest. The higher the value the more difference in size between the smallest and the largest. The star size can then be scaled by the global Scale value to suit your desires.

**VField** (Number **Min:** 0.5, **Max:** 179.0, **Default:** 50.0)

The field of view; the bigger the value the wider the angle of view.

**IgnoreMag** (Checkbox **Default:** Off)

This is only active in points mode. All the stars will be the same intensity.

**IgnoreSpec** (Checkbox **Default:** Off)

**Off:** the stars use their given spectral value to given them colour.

**On:** all the stars are white.

**Scale** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

Globally scale the soft stars from their magnitude value.

**Sharpen** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 20.0)

Sharpen the bright cores of the **Bright Point** stars.

**Demos** (List Box **Options:** Plough Bold | Plough Subtle | Pole Bold | Pole Subtle | Max Angle | Wide Angle | North Pole | South Pole | Gentle | Bolder | Bright | Wild, **Default:** Plough Bold)

Select a preset to get you going.

**DrawStyle** (List Box **Options:** Points | Soft Stars | Bright Point, **Default:** Soft Stars)

Styles of rendering of the star field.

**Points:** are literally a single pixel representation of the star. The intensity and colour are controlled by the Magnitude and Spectral settings. Animation of the movement of the stars with this setting will result in the stars stepping along the lines and pixels rather than moving smoothly; but it is fast.

**Soft Stars:** are drawn with an aliased brush, the size and colour determined by the Magnitude and Spectral settings. These move smoothly.

**Bright Point:** stars are similar to the Soft Stars but a central pure white core is added.

## ***Twinkle* CONTROL PAGE**

### **Add Twinkle** (Checkbox **Default:** Off)

Turn on some twinkles for the stars.

### **Twinkles** (Number **Min:** 0, **Max:** 8, **Default:** 8)

Points on the star.

### **Streak Length** (Number **Min:** 0, **Max:** 1000, **Default:** 14)

Maximum length of the twinkle shards.

### **Streak Str** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 25.0)

Brightness of the twinkle.

### **Synchronise Orientation** (Checkbox **Default:** Off)

**Off:** the twinkles are orientated differently.

**On:** all the twinkles are at the same angle.

### **Streak Rot** (Number **Min:** 0.0, **Max:** 360.0, **Default:** 3.0)

Angle of rotation for all twinkles.

### **Range** (Number **Min:** 1, **Max:** 16, **Default:** 4)

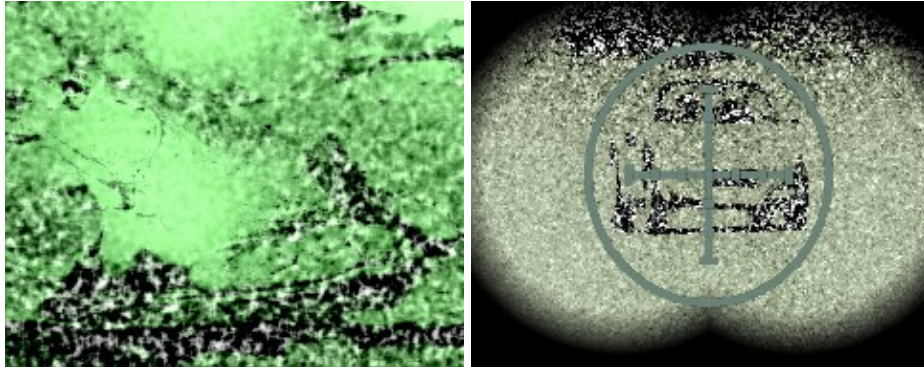
Remember reading about Magnitude? Only stars with a magnitude smaller than the value will get a twinkle.

## 26 SpeedSix.NightVision (Discreet Box19)

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### PURPOSE

Night sights: tinted, contrasty, blurred images. Badger watching or 007 at work.



### INPUT CLIPS

1: Input

---

### *Filters* CONTROL PAGE

**Contrast** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

Enhance the input image contrast.

**Brightness** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

Brighthen or darken the image.

**Lift** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

Add or subtract intensity to or from the image

**Tint** (Colour Box **Default:** R: 0, G: 65535, B: 0, A: 0)

Tint the image to the desired nightvision colour

**Do Highlight** (Checkbox **Default:** Off)

Bright areas of the image can be burnt out above a chosen level.

**Range** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 90.0)

Burns out the image at intensity levels ABOVE chosen percentage.

**Softness** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

The burnt out area can be softened by defocusing.

**Highlight Boost** (Number **Min:** 0.0, **Max:** 1000.0, **Default:** 100.0)

The intensity of the burnt out region can be boosted for emphasis.

**Do Defocus** (Checkbox **Default:** Off)

Defocus of the complete image. Toggle on or off to see how this option affects the overall result.

**Defocus** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 5.0)

Amount of blurring to apply.

**Add Grain** (Checkbox **Default:** Off)

Toggle on and off to see how your grain settings affect the image.

**Grain Amt** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

Amount of grain to add.

**Grain Size** (Number **Min:** 1, **Max:** 10, **Default:** 1)

Size of the grain.

**Do Grain Defocus** (Checkbox **Default:** Off)

Toggle to see how the defocus setting affect the result.

**Grain Defocus** (Number **Min:** 0.0, **Max:** 20.0, **Default:** 10.0)

How much to blur the grain.

**Luminance Bias** (Checkbox **Default:** Off)

**On:** there is more grain in darker areas.

**Off:** is uniform grain distribution.

**Demos** (List Box **Options:** A | B | C | D | E | F | G | H, **Default:** A)

Select a preset to get you going.

---

## **Device CONTROL PAGE**

**Do Border** (Checkbox **Default:** Off)

Turn on the telescopic/binocular vision limitation masks.

**Clear Radius** (Number **Min:** 0.01, **Max:** 2.0, **Default:** 0.7)

Radius of the chosen device.

**Edge Softness** (Number **Min:** 0.1, **Max:** 100.0, **Default:** 30.0)

Defocus the outer rim of the device.

**Border Type** (List Box **Options:** Monocular | Binocular, **Default:** Monocular)

Choose a telescopic sight or a pair of binoculars

**Separation** (Number **Min:** 0.1, **Max:** 2.0, **Default:** 0.5)

Using binoculars? then adjust the separation of the lenses.

**Reticle Type** (List Box **Options:** None | Type 1 | Type 2 | Type 3 | Type 4 | Type 5, **Default:** None)

Various designs of the 'cross hair' you line up the target on. Military applications in the main:—)

**Size** (Number **Min:** 0.01, **Max:** 2.0, **Default:** 0.6)

The radius of the reticle.

**Position** (Position **Default:** 0.5, 0.5)

Where you are looking at if the border option or reticle option is chosen.

**Use Default Thickness** (Checkbox **Default:** On)

**On:** uses the default thickness settings;

**Off:** allows you to set your preferred values.

**Thickness 1** (Number **Min:** 0.1, **Max:** 100, **Default:** 2.0)

**Thickness 2** (Number **Min:** 0.1, **Max:** 100, **Default:** 6.0)

**Thickness 3** (Number **Min:** 0.1, **Max:** 100, **Default:** 8.0)

User preferred values for the reticle components.

**Colour** (Colour Box **Default:** R: 32767, G: 32767, B: 32767, A: 65535)

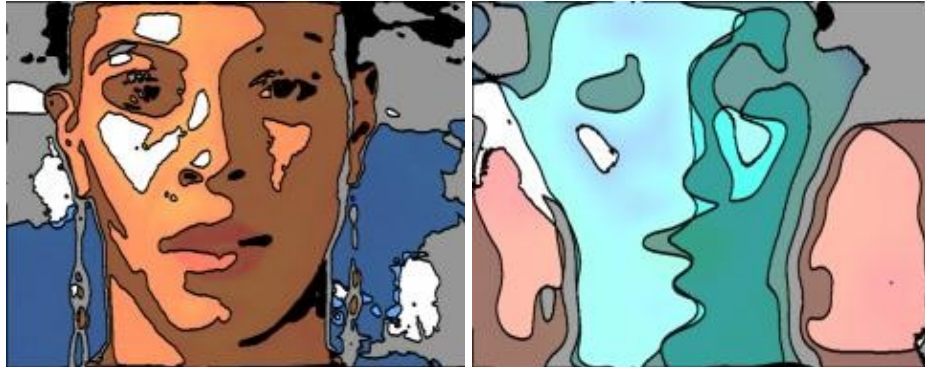
The monocolour used for the reticle drawing.

## 27 SpeedSix.Numbers (Discreet Box11)

---

### PURPOSE

Painting by numbers.



### INPUT CLIPS

1: Clip to Paint

---

### *Numbers* CONTROL PAGE

**Sat Levels** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

How many distinct levels of saturation may be in the output image.

**Val Levels** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

How many distinct levels of brightness may be in the output image.

**Colour Shift** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0)

The colours are offset by this value. Imagine a colour wheel rotating.

**Soften** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 2.0)

The image can be softened, thus minimising noise, prior to 'painting'.

**Boost Sat** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Controls the saturation of the original image.

**Boost Val** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Controls the brightness of the original image.

**Gamma** (Number **Min:** 0.1, **Max:** 10.0, **Default:** 1.0)

Controls the gamma of the original image.

**Softer Brushes** (Checkbox **Default:** Off)

**Off:** non aliased brushes are used to draw the outlines.

**On:** softer brushes are used with anti aliased-edged. They are somewhat larger.

**Outlines** (List Box **Options:** No Outlines | Hard Lines | Brush | | Brush – | Brush \ | Brush / | Brush ., **Default:** Hard Lines)

Choose which style and direction of the brush you want to define the regions found.

**Brush** (Colour Box **Default:** R: 0, G: 0, B: 0, A: 35535)

Brush colour to draw the outlines in.



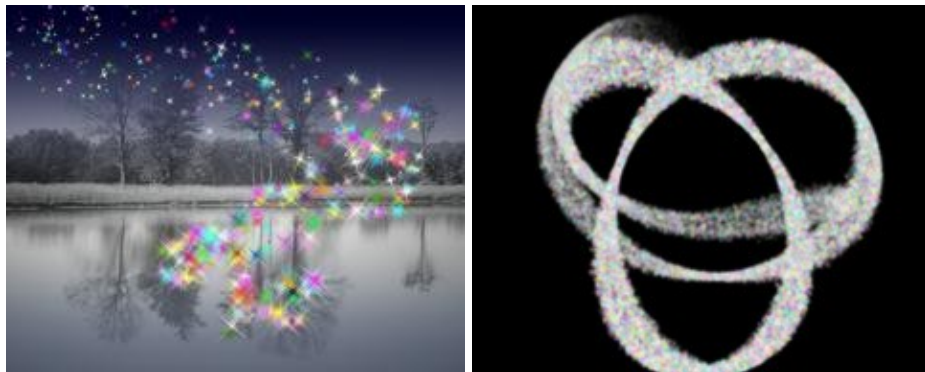
## 28 SpeedSix.Particles (Discreet Box5)

---

### PURPOSE

Provides a comprehensive, general purpose, 2D particle system simulator and renderer. A variety of natural phenomena can be modelled using this, and many interesting effects can be achieved. This system is much more flexible than the specific particle based Monsters (Snow, Rain etc), though those are to be when you want the particular effects they were designed to produce.

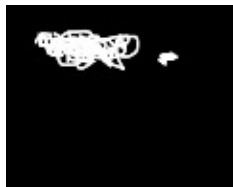
A set of tutorial exercises is included to help you get some idea of how this system works. Just reading about it makes it sound unduly complicated! Try the exercises at the end of this chapter and you will understand the principles involved.



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### INPUT CLIPS

#### 1: Background



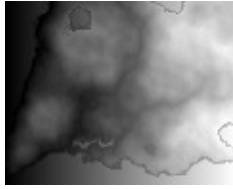
Example : Birth

**2: Birth** : Particles will only be created within the non-black regions of this clip. Make sure the birth zone covers the region,



Example : Bounce

**3: Bounce** : Particles will bounce off the non-black regions of this clip.



Example : Turbulence

**4: Turbulence** : Particles will be influenced by the gradients of the luminance in this clip. The particles will flow over the features.

**5: Alternative Colours** : Each particle, when born, will take its colour from the corresponding location within this clip.

**6: Particle Image** : A particle can be this image! Use with caution as rendering many particles as an image will <i>take some time</i>.

## Particles CONTROL PAGE

### **Kill All Parts** (Pushbutton)

Deletes all the current particles ready to start again. This control will be found on several pages to help you quickly see the results of any changes to the birth properties.

### **Restart+PreRoll** (Pushbutton)

Restarts and pre-rolls the particle system for the current value of **PreRoll**.

### **Do PreRoll** (Pushbutton)

To see further into the evolution of the particles, do another preroll by pressing this button.

### **PreRoll** (Number **Min:** 1, **Max:** 1000, **Default:** 50)

Run the particle system for the specified number of pre-roll frames before generating the first frame of the output clip.

### **Advance** (Pushbutton)

Click to advance system one frame without changing frames or other settings. Useful for checking frame by frame evolution and motion speeds.

### **Position** (Position **Default:** 0.5,0.5)

### **Position Var** (Number **Min:** 0.001, **Max:** 2.0, **Default:** 0.1)

The particles are born within the region of **Position** plus and minus **Position Var**. See also **Birth matte**, however.

### **Lifetime** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 150.0)

The average number of frames for which a particle will live. It will definitely be killed after it has lived this number of frames (plus or minus the **Lifetime Var** below). They may die younger (see **Extinction**).

**Lifetime Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 5.0)

The actual lifetime of a particle is the average lifetime plus or minus a random number ranging up to **LifetimeVar**.

**Use Birth Matte** (Checkbox **Default:** Off)

**On:** particles will only be born in the intersection of the birth circle and non-black regions of the images in the birth matte clip you select.

**Fecundity** (Number **Min:** 0.0, **Max:** 10000.0, **Default:** 100.0)

**Fecund Var** (Number **Min:** 0.0, **Max:** 1000.0, **Default:** 10.0)

The actual number of particles born at each frame is the average number specified by **Fecundity** plus or minus a random amount ranging up to the specified **Fecundity Variance**.

*Note:* if you are using a birth matte you may not get the full amount as checks are made on the probability of finding a suitable place to create a particle. Without this the particle system could try indefinitely to create the particles and you would not like that!

**Scale Fecundity** (Checkbox **Default:** On)

**On:** when you change your working resolution on the **Settings** page, the number of particles born is scaled accordingly. Lower resolution equals fewer particles. This is for clarity and speed.

**Off:** whatever the resolution the same quantities of particles are created.

**Extinction** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 150.0)

**Extinct Var** (Number **Min:** 0.0, **Max:** 1000.0, **Default:** 20.0)

Each particle will gradually fade out as it gets older. Making the extinction twice the lifetime will ensure they do not disappear, but pop off if still in screen.

**Seed** (Number **Min:** 0, **Max:** 999, **Default:** 127)

Change to have a different selection of particles.

**Tutorials** (List Box **Options:** Birth Velocity | Gravity | Friction | Turbulence | Wind1 | Wind2 | Bouncing | Suction1 | Suction2 | Suction3 | Turbulence1 | Turbulence2 | Turbulence3, **Default:** Birth Velocity)

Work through the /I/BParticles Tutorial/b/i.

**Demos** (List Box **Options:** Candy Floss | Fountain | Geyser | Simple Vapour | Smoke | Soft Smoke | Smoke+Wind | Tunnel, **Default:** Candy Floss)

Select a preset to get you going.

---

## **Motion CONTROL PAGE**

**Kill All Parts** (Pushbutton)

**Restart+PreRoll** (Pushbutton)

**Do PreRoll** (Pushbutton)

See **Particles CONTROL PAGE** descriptions.

**Use Turbulence Map** (Checkbox **Default:** Off)

**Turbulence** (List Box **Options:** Attraction | Direction | Accumulation, **Default:** Attraction)

**Dir Magnitude** (Number **Min:** -500.0, **Max:** 500.0, **Default:** 10.0)

**Flow Magnitude** (Number **Min:** -500.0, **Max:** 500.0, **Default:** 10.0)

These are experimental effects originally written to a beloved customer's specification many moons ago. The effects worked for them, and they may work for you. The 4th input clip is used as a turbulence field which will affect the progress of the particles. Words cannot easily explain what you will see. Try it.

**Motion** (List Box **Options:** Motion | Constant | Motion+Constant, **Default:** Constant)

This is the initial velocity with which each particle moves.

**Motion:** derives the speed and direction from the motion of the **Birth Position**. You should set up a movement path for the birth position to see the full effect. With no motion set up, the particles will have no initial movement. This is the same as using **Constant** with 0.0 **Initial Velocity**. Use it to eject particles along the path of the motion.

**Constant:** the motion of the birth position is ignored and only the **Initial Velocity** value is used.

**Motion+Constant:** the motion velocity and the initial velocity are combined.

**Initial Velocity** (Number **Min:** 0.0, **Max:** 5000.0, **Default:** 1000.0)

This is the velocity with which the particles are emitted from the birth position. This is disabled when **Motion** is selected as it will have no effect.

**Vel Scale** (Number **Min:** -5000.0, **Max:** 5000.0, **Default:** 100.0)

Used for very extreme initial velocity requirements in **Constant** mode and to direct the particles in **Motion** mode. Positive values with **Motion** will throw the particles in the direction of the movement; negative values throws the particles in the opposite direction to the motion.

**Vel Mag Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

A random amount, plus or minus the initial velocity, is added to vary the initial velocity.

**Vel Dir** (Number **Min:** 0.0, **Max:** 360.0, **Default:** 0.0)

The direction in which the particles are moving, measured in degrees. 0 being East, 90 North, 180 West and 270 South.

**Vel Dir Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

At 100.0 percent the particles will travel in all directions. 0.0 they will follow the direction set. And anywhere in-between...

**Sink** (Checkbox **Default:** Off)

**Sink** (Position **Default:** 0.8,0.8)

**Sink Radius** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 0.1)

**Sink Strength** (Number **Min:** -50.0, **Max:** 50.0, **Default:** 5.0)

**Strength Rate** (Number **Min:** 0.01, **Max:** 100.0, **Default:** 1.0)

**Hole Radius** (Number **Min:** 0.0, **Max:** 1.0, **Default:** 0.01)

**Sink Swirl** (Number **Min:** -10.0, **Max:** 10.0, **Default:** 3.0)

Any particles within the sink circle are attracted towards the center with the given [positive] **Sink Strength**. At the outer circumference the strength is negligible, increasing to the set value as the particle approaches the center. Use the **Sink Rate** to bias the acceleration of the particles. Values above 1.0 will cause the particles to move more slowly towards the circumference and speed up to the **Sink Strength** value as they near the centre. Below 1.0 and they start with the **Sink Strength** which increases as they near the center. Reverse this movement if the **Sink Strength** value is negative.

When a particle enters the **Hole Radius** area then it has 'gone down the plughole' and disappears. Add in a **Swirl** to twist the particles around the center.

**Use Bounce Regions** (Checkbox **Default:** Off)

**Bounce Rebound** (Number **Min:** -200.0, **Max:** 200.0, **Default:** 10.0)

**Off:** the 3rd input clip is ignored. No bouncing will occur.

**On:** information in the 3rd input clip deflects the particles as they hit a non black area of this image. The particles bounce off this 'surface' with a **Rebound** factor. This adds to the velocity of the particle, shooting it off at an angle. The higher the rebound value the more impetus each particle is given and the greater the reaction. This is not extremely scientific but rather artistic license to exaggerate the response. Negative values gives the impression of pouring over the surface rather than bouncing off it. Here the vertical motion is stopped, the horizontal motion continues waiting for gravity to pull on it again.

## Forces CONTROL PAGE

**Kill All Parts** (Pushbutton)

**Restart+PreRoll** (Pushbutton)

**Do PreRoll** (Pushbutton)

See **Particles CONTROL PAGE** descriptions.

**Turbulence** (Checkbox **Default:** On)

**SwirlDens** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 60.0)

**SwirlAmp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 1.0)

**SwlMaxTim** (Number **Min:** 0.0, **Max:** 1000.0, **Default:** 0.0)

For natural swirls and eddies of the air through which the particles move you need turbulence. The **Density** is the fineness of the turbulence patterns. The lower the **Density** value the broader the sweeps of turbulence are. High values give rapid changes in direction. The motion can be exaggerated with the **Amplitude** setting, dramatically forcing the particles around or subtly twisting them as they move. The effect of the turbulence can be built up using **Swirl Maximum Time**. At 0.0 the particles are influenced by the turbulence immediately. Otherwise it takes that number of frames from birth for the turbulence to build up.

**Friction** (Checkbox **Default:** On)

**Friction** (Number **Min:** 0.0, **Max:** 1.0, **Default:** 0.05)

**Friction** slows things down. Rubbing against the air and each other, friction will reduce the momentum of the particles,

**Gravity** (Checkbox **Default:** On)

**Gravity** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 0.2)

**Grav Angle** (Number **Min:** 0.0, **Max:** 359.0, **Default:** 270.0)

At values over 0.0 gravity acts on the particles dragging them in the direction set by the **Gravity Angle**. A setting of 270.0 degrees is downwards. A natural choice, but varying the angle can bias the movement for artistic purposes.

**Multi Directional** (Checkbox **Default:** Off)

**Wind** (Checkbox **Default:** Off)

**Wind** (Position **Default:** 0.2,0.4)

**Wind Target** (Position **Default:** 0.8,0.4)

**Wind Spread** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 10.0)

**Wind Speed** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 5.0)

Add in **Wind** when you want to blow the particles, or some of them, in a specific direction. Drag the wind source to where you want to blow from and the target sets the direction or extent of influence depending on **MultiDirectional**. When **Off** the wind has a cone of influence and the wind does not stop blowing at the target location. The **Spread** governs how far the affect of the wind reaches. When a particle enters the cone, the wind starts to take effect which gradually builds up towards the center of the cone, and then dies away again. Turn **MultiDirectional On** and the wind blows outward from the center, gradually loosing speed as it reaches the target perimeter. **Speed** is how fast the wind is blowing. It can be nice to animate this to give gusts.

**Flow Scale Speed** (Number **Min:** 10.0, **Max:** 500.0, **Default:** 100.0)

If the motion you have set up is too fast or slow then use this global speed change control to adjust the pace of the particles. It will not change any of your set values, but scales them appropriately behind the scenes for you.

*Note:* this will not affect **Turbulence Map** options.

## Look CONTROL PAGE

**Kill All Parts** (Pushbutton)

**Restart+PreRoll** (Pushbutton)

**Do PreRoll** (Pushbutton)

See **Particles CONTROL PAGE** descriptions.

**Init Dens** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

**Condensation** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

The density of each particle at birth can be reduced and then the rate of condensation, or 'solidifying' is applied. Think of smoke, at the source you hardly see it until, as it cools it becomes more visible, then turbulence dissipates it. Changing the **Condensation** will have an immediate effect on all the particles as it is based on the time each particle has been alive. To see an **Initial Density** change you need to re-run the sequence.

**ColourVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

**MonoVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

**Initial Colour** (Colour Box **Default:** white)

Each particle can take its colour from the colour box which is then changed by the **Colour Variance** and the saturation by the **Monochrome Variance**. Thus you can have various colours for your particles if you feel like it.

**Fade** (List Box **Options:** Col+Dens | Colour | Density, **Default:** Col+Dens)

Choose the compositing mode you prefer. **Density** will make the most use of **Density**, **Condensation** and **Extinction** factors. **Colour** on its own, the least.

**Particle** (List Box **Options:** Point | Soft Point | Streak | Lump | Star | Image, **Default:** Streak)

Chose the style of particle you want to draw with.

**Point:** a single pixel.

**Soft Point:** this softened pixel will need a great many particles to be seen, but probably the nicest if you have the time.

**Streak:** pixels drawn between the current and previous position to give directionality to the movement. Often helpful to see exactly what is happening.

**Lump:** soft blobs of a given size.

**Star:** well they are stars!

**Image:** the last input clip can be used as an image to be drawn wherever a particle is needed. When it is read in, the image area is clipped to a bounding box based on the image being on a black background. The complete image can be used if needed.

*Note:* once read in and loaded it is not replaced on processing a clip.

**Streak Scale** (Number **Min:** 0.1, **Max:** 1000.0, **Default:** 100.0)

When **Streak** is selected the 'tail' can be scaled to exaggerate the motion.

**Lump Rad** (Number **Min:** 1.0, **Max:** 40.0, **Default:** 30.0)

**Lump RadVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

When lump, star or image is used they are scaled to the **Lump Radius** plus or minus a random **Radius Variance**.

**Use Image Colours** (Checkbox **Default:** Off)

A particle's colour is set using it's birth location in the 5th input clip. The Box colour and variances

are ignored.

**Image** (List Box **Options:** Stamp | Punch Front&Back | Punch Back, **Default:** Stamp)

Using the 6th input as a particle Image chose the method of compositing the shape in the scene.

**Stamp:** replaces the background.

**Punch Front & Back:** uses the luminance of the image to composite it into the scene.

**Punch Back:** uses the luminance to add it into the scene.

*Note:* The aspect ratio of this input clip should match the background aspect ratio to avoid distortion.

**Reacquire** (Pushbutton)

The 6th input need only be one frame. Currently this effect does not reload a new image for each frame in the sequence. Once loaded it is used throughout. If you change the input to the 6th clip nothing will happen until you activate the **Reacquire** button. The old image is then replace with the new. Currently alive particles will now be drawn with the new image.

*Note:* if you want this to be handled on a frame to frame update basis please email [support@speedsix.com](mailto:support@speedsix.com)



## 29 SpeedSix.PatchTex (Discreet Box22)

---

### PURPOSE

Try to assemble a visually seamless, but not entirely repetitive, texture as the output image by "intelligently" selecting small regions of the input image and "intelligently" combining them. The size and approximate location of the "small regions" from the input image is user controlled. For background information, see "**Image Quilting for Texture Synthesis and Transfer**", Efros & Freeman, *Computer Graphics Proceedings, Annual Conference Series, 2001*.



---

### INPUT CLIPS

- 1: Texture Input** : A selected area from this image is used as the texture tile.
  - 2: Matte** : Modulate the texture with the luminance of this clip.
- 

### *PatchTex* CONTROL PAGE

**ROI Centre** (Position **Default:** 0.5, 0.5)  
The centre of the Textural region of interest

**ROI Block SizeX** (Number **Min:** 0.001, **Max:** 0.20, **Default:** 0.05)  
Controls the size of the texture block from which synthesis is performed

**ROI Block SizeY** (Number **Min:** 0.001, **Max:** 0.20, **Default:** 0.05)  
Controls the size of the texture block from which synthesis is performed

**ROI Search SizeX** (Number **Min:** 0.001, **Max:** 0.500, **Default:** 0.070)  
Controls the size of the supporting search region

**ROI Search SizeY** (Number **Min:** 0.001, **Max:** 0.500, **Default:** 0.070)

Controls the size of the supporting search region

**Normalise Sample** (Checkbox **Default:** Off)

Normalise the texture sample. This is really only useful for stochastic textures.

**Detail** (Number **Min:** 0.00, **Max:** 0.50, **Default:** 0.20)

Controls the amount of detail that is preserved in the **Set** image to obtain the background illumination. Setting this to a low value will result in quite a heavy loss of detail in the normalised set image. Animating this value can result in some interesting effects.

**Use Matte** (Checkbox **Default:** Off)

Filter the generated texture with the Matte image.

**Invert Matte** (Checkbox **Default:** Off)

Flip the Matte.

## **Advanced CONTROL PAGE**

**Advanced Settings** (Checkbox **Default:** Off)

Displays advanced settings for those who know what they are doing here.

**Block Overlap** (Number **Min:** 0.20, **Max:** 0.50, **Default:** 0.25)

Controls the amount of overlap in each block.

**Search Scale** (Number **Min:** 0.00, **Max:** 1.00, **Default:** 0.85)

Controls how accurately the search is performed. High values imply that more candidates are examined but the processing speed is slow and vice versa.

**BlurPath Radius** (Number **Min:** 0, **Max:** 4, **Default:** 0)

Control to activate the blurring of the quilt path. In pixels, this is a bit draconian at the moment since we are using the box filter.

**Orientation** (List Box **Options:** Vertical | Horizontal | Isotropic, **Default:** Isotropic)

If the texture has a given orientation then select appropriately. We might do something nifty here in the Fourier domain to see if there are any dominant directions present. We don't in this release.

**Tolerance +/-** (Number **Min:** 0.0001, **Max:** 1.0000, **Default:** 0.2010)

Controls the tolerance to which possible patch candidates must fall into before being considered. ( Value presented in terms of the +/- % of the minimum error over all possibilities ). A small value is useful for deterministic/coarse-grained textures such as brick walls etc, whilst better results are often obtain with a high value for stochastic/fine-grained textures such as sand as this avoids excessive repeatedness.

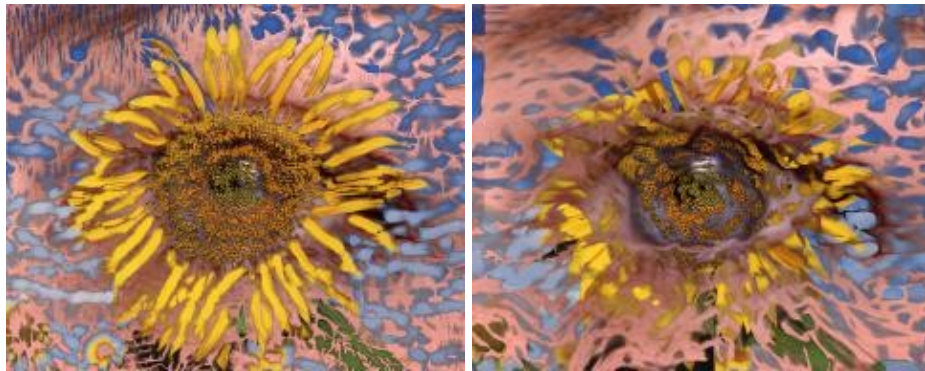


## 30 SpeedSix.PixFlow (Discreet Box6)

---

### PURPOSE

Produces an effect in which the colours of an image 'flow' out of their pixels in a fluid manner. The colours flow along vectors found at each pixel from the gradients of a control image. The colours mix together as they go. The effect is useful for novel transitions, as well as for creating animating texture maps for use in other software (e.g. planetary atmosphere textures). The effect is applied to the current frame of the input clip. This is flowed under the influence of a control image (which can animate, if desired) to produce a sequence of output frames.



---

### INPUT CLIPS

- 1: **Clip to Flow** : The pixels in this clip will flow according to the luminance in the second clip.
  - 2: **Luminance** : The luminance in this clip will control the flow and cause the pixels in the first clip to move.
  - 3: **Background** : If desired, as the first clip flows and leaves 'spaces' this clip will be revealed.
- 

### *PixFlow* CONTROL PAGE

#### **RestartFlow** ([Pushbutton](#))

Initialise the state with the Foreground image not having flowed anywhere yet. You will need to restart the flow after making any adjustments and process a few frames to see the result of any changes.

#### **Front Thin** ([Number](#) **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Controls an overall reduction in density of the flowed image. At 100.0 the flowed image would be transparent everywhere, revealing the background image. Use this to ensure all the Foreground image has gone by the desired frame.

**Flow Rate** (Number **Min:** 0.0, **Max:** 5.0, **Default:** 1.0)

Maximum radius a pixel colour can flow to, between output frames.

**Mode** (List Box **Options:** Black | Reveal, **Default:** Black)

Select **Thin** to see what is happening.

**Black:** as the pixels flow, black is revealed not the background image.

**Reveal:** colour flows off revealing the background image.

**Density** (List Box **Options:** Thin | Stretch, **Default:** Stretch)

**Thin:** when colour flows out of a pixel, the pixel is left partially (or wholly) empty. The pixel gets less dense, so (if options are selected appropriately) you can see the background through it.

**Stretch:** when colour flows out of a pixel, the material in the pixel stretches without the pixel emptying.

**Look** (List Box **Options:** Opaque | Luminous, **Default:** Opaque)

**Opaque:** the 'stuff' that colours the pixel and flows out of it can be thought of as reflecting light to give colour.

**Luminous:** the 'stuff' that colours the pixel and flows out of it can be thought of as emitting light. As colour flows into a pixel, it will get brighter.

**Edge** (List Box **Options:** Wrap | Black, **Default:** Wrap)

**Wrap:** if colour flows off the edge of the image, it flows in again at the opposite edge (think of the image as being wrapped so that the left and right edges are taped together, and similarly, the top and bottom edges).

**Black:** colour flows off into oblivion and black flows in to fill partially empty edge pixels.

**Flow Mode** (List Box **Options:** Flow Once | Flow Each, **Default:** Flow Once)

**Flow Once:** the flow field is calculated once, from the current image in the Control clip and applied to the current image in the Foreground clip (when Restart Pixflow is pressed).

**Flow Each:** the flow field is computed for each frame of the Control clip and used to flow the Foreground image.

**Img Smooth** (Number **Min:** 1, **Max:** 50, **Default:** 5)

Specifies how far apart to look on the control image (in pixels) when finding the control image gradients. Small values tend to give spurious gradients due to only having 256 (or 32768) possible luminance levels. Large values may smear the gradients too much, however.

**Average Pass** (Number **Min:** 0, **Max:** 10, **Default:** 1)

How many smoothing (averaging) passes are made on the flow field derived from the control

image gradients. Some averaging is recommended, because flow fields are very sensitive to almost insignificant variations in the control image

**ImageGrad** (List Box **Options:** Gradients | Tangents, **Default:** Gradients)

**Gradients:** the direction of movement is from dark to light areas in the control image.

**Tangents:** the direction of movement is at right angles to the gradients. Tangents tend to give swirly flow, while gradients give straighter paths.

**Normalize** (List Box **Options:** Mag+Dir | Dir Only, **Default:** Dir Only)

The control image gradients are used to form a field of vectors, which controls the flow of the fluid.

**Dir Only:** all vectors are the same length, and only the field direction changes. For many control images, Dir Only gives nicer results. Fluid otherwise tends to settle quickly in 'flat' regions of the control image.

**Mag + Dir.:** the length of the vectors is found from the strength of the gradient and is used to control how quickly the fluid flows, as well as the direction it flows in.

**Flow Dir** (List Box **Options:** Forward | Reverse, **Default:** Forward)

Reverses the directions of the flow field vectors after they have been found.

**Turbulence** (Checkbox **Default:** Off)

Turn on the turbulence feature.

**Swirl Dens** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 20.0)

Number of bumps across the frame width in a turbulence field, which can optionally be added to the flow field (derived from the control field) to add further interest. This must be greater than zero to apply any turbulence.

**Swirl Amp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 1.0)

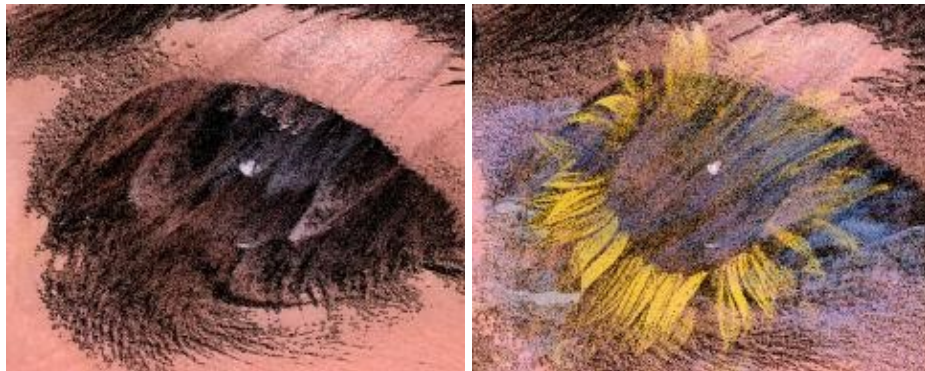
Controls the strength of the bumps in the turbulence. The sum of the turbulence (if any) and image gradient-derived flow fields, is normalised then scaled to the flow rate. Making this value large will make turbulence entirely dominate the flow field.

## 31 SpeedSix.PixFly (Discreet Box6)

---

### PURPOSE

Disintegrates the image into its constituent pixels, each of which then flies off independently under the influence of various forces revealing the background clip. The time at which a pixel comes 'loose' from the image can optionally be controlled by the luminance of a control image (the time matte). Think of grains of sand being blown away.



### INPUT CLIPS

- 1: **Clip to Fly** : This clip will fly away over time depending on the forces applied.
  - 2: **Time Matte** : This clip control when a pixel will start to move. The luminance levels are mapped to time.
  - 3: **Clip to Reveal** : As the pixels fly away this clip can be revealed.
- 

### *Pixfly* CONTROL PAGE

#### **Restart Sand** ([Pushbutton](#))

Restart the sequence using the current settings. These controls are also on the other pages to help you quickly see the result of any changes.

#### **Restart+PreRoll** ([Pushbutton](#))

Restart and run the particle system for the specified number of pre-roll frames before generating the first frame of the output clip.

#### **Do PreRoll** ([Pushbutton](#))

Run the particle system for the specified number of pre-roll frames, from the current position, before generating the current frame of the output clip.

**PreRoll** (Number **Min:** 1, **Max:** 1000, **Default:** 5)

Sets the number of pre-roll frames to be processed before generating the first frame of the output clip.

**Back Image** (List Box **Options:** On Black | Reveal, **Default:** On Black)

**On:** as the pixels fly away the background clip is revealed.

**Off:** the flying pixels reveal a black background.

**Vel Jitter** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 40.0)

How much random jitter is added to the initial velocities of newly loose pixels. More than zero is recommended to break up the 'banding' effect that results if a bunch of pixels come loose at the same time, travelling at the same speed.

**Use Time Matte** (Checkbox **Default:** Off)

**Off:** the Time Matte has no on effect on the image flow.

**On:** the luminance of the TM image will control the flow based on the luminance values. The brighter the luminance of time matte the sooner the pixels will start to move. See

**TMFullRangeFrom.**

**TM Invert** (Checkbox **Default:** Off)

Reverses the role of black and white in the time matte; the brighter the luminance of the TM the later the pixels start to fly away.

**TM Jitter** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 1.0)

Adds random jitter to the 'coming loose times' derived from the time matte. Useful to prevent obvious banding.

**TM Fixed** (Checkbox **Default:** Off)

**On:** causes pixels with time matte luminances greater than **TM Fixed From** to never come loose. Therefore you can ensure that certain areas of your Foreground clip never fly away.

**TM Fixed From** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 90.0)

Time matte luminances above this value will be such that pixels won't come loose in those areas if **TM Fixed** is On. e.g. if the **TM Fixed From** is 90.0, then pixels brighter than 90% of the maximum luminance or greater will never fly away.

**TM RangeStretch** (Checkbox **Default:** Off)

Pre-processes the time matte image at every frame so that its darkest pixel maps to black, and its lightest to white. If the luminance of the TM is only over a limited range of values you can force it to cover the full range.

**TMFullRangeFrom** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 25.0)

Number of frames from restart, before all pixels can start moving. e.g. **TMFullRangeFr** = 50. The time matte will be split into 50 intensity levels and it will take 50 frames for all the pixels to come loose.



**Particle** ([List Box](#) **Options:** Pixel | Smear | Single | Evap, **Default:** Pixel)

Controls how loose pixels are rendered and change in density with time.

**Pixel:** Pixels arriving at the same output location are averaged to give the final value.

**Smear:** Moving input pixels add to an accumulating output image. The output image builds up over the sequence, usually into a smeary mess.

**Single:** if several pixels arrive at the same output location the last pixel to arrive wins!

**Evaporate:** As Pixel, but the density of moving pixels decreases with time, so that they 'evaporate away'.

**Smear Fade** ([Number](#) **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

In **Smear** mode, the previous (accumulating) output image is first attenuated by this factor before new moving pixel colours are added to it.

**Evap After** ([Number](#) **Min:** 1.0, **Max:** 1000.0, **Default:** 25.0)

In **Evap** mode this is the number of frames for which a pixel may be seen before it evaporates away entirely.

**Demos** ([List Box](#) **Options:** Basic | Wind | Swirl | Wind+Swirl | Suction | Time Matte | Reveal, **Default:** Basic)

Select a preset to get you going.

---

## **Forces CONTROL PAGE**

**Restart Sand** ([Pushbutton](#))

**Restart+PreRoll** ([Pushbutton](#))

See initial descriptions.

**Do PreRoll** ([Pushbutton](#))

**Turbulence** ([Checkbox](#) **Default:** On)

Turn on the turbulence feature.

**Swirl Dens** ([Number](#) **Min:** 0.0, **Max:** 100.0, **Default:** 60.0)

How many bumps there are in the atmosphere from one edge of the frame to the other. The pixels swirl as they run into these bumps.

**Swirl Amp** ([Number](#) **Min:** 0.0, **Max:** 100.0, **Default:** 1.0)

How powerful the bumps in the atmosphere are.

**SwlMaxTim** ([Number](#) **Min:** 0.0, **Max:** 1000.0, **Default:** 0.0)

Frames over which the swirl amplitude builds up to its maximum value (set by **SwirlAmp**).

**Friction** ([Checkbox](#) **Default:** On)

Turn on the friction feature.

**Friction** (Number **Min:** 0.0, **Max:** 1.0, **Default:** 0.1)

Controls the frictional force of the atmosphere on the pixels as a percentage of the pixel velocity lost per frame. i.e. slows the pixels down.

**Gravity** (Checkbox **Default:** On)

Turn on the gravity feature.

**Gravity** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

Scales the strength of the gravitational force.

**GravAngle** (Number **Min:** 0.0, **Max:** 359.0, **Default:** 270)

Controls the angle at which gravity acts, measured in degrees clockwise from due East. The default [270.0] is towards the bottom of the image.

**Multi Directional** (Checkbox **Default:** Off)

**On:** The wind blows with equal force in all directions.

**Off:** The wind blows within a cone of strength in the given direction.

**Wind** (Checkbox **Default:** Off)

Turn on the wind feature.

**Wind Source** (Position **Default:** 0.25,0.5)

Where the wind blows from.

**Wind Target** (Position **Default:** 0.8,0.8)

The direction in which the wind blows if **Multi Directional** is off.

**Wind Spread** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 40.0)

The cone of influence of the wind when in directional mode.

**Wind Speed** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 5.0)

How strongly the wind blows.

---

## ***Suction* CONTROL PAGE**

**Restart Sand** (Pushbutton)

**Restart+PreRoll** (Pushbutton)

See initial descriptions.

**Do PreRoll** (Pushbutton)

**Sink** (Checkbox **Default:** Off)

Turn on the suction feature.

**Suction** (Position **Default:** 0.5,0.5)

Sets the XY co-ordinates of center of suction. Loose pixels will be sucked towards or repelled away from this point.

**Sink Radius** (Number **Min:** 0.001, **Max:** 5.0, **Default:** 0.2)

Within this radius the pixels will be affected by any suction.

**Sink Strength** (Number **Min:** -180.0, **Max:** 180.0, **Default:** 2.0)

How strong the suction is. Negative numbers repel the pixels.

**Strength Rate** (Number **Min:** 0.01, **Max:** 100.0, **Default:** 1.0)

Strength of suction building up as a pixel nears the centre.

**Hole Radius** (Number **Min:** 0.0, **Max:** 1.0, **Default:** 0.01)

If a sucked pixel lands within this radius it is killed.

The position and radius can be defined by clicking and dragging on the dark red circles and the centre cross.

**Sink Swirl** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 3.0)

How tightly the pixels will swirl towards the suction centre.

## 32 SpeedSix.Pool3D (Discreet Box21)

---

### PURPOSE

Simulates pools, swirls, radial twirls mapped onto a 3D plane.



### INPUT CLIPS

- 1: Pool Surface
  - 2: Regional Matte
- 

### *Pool* CONTROL PAGE

**Center** (Position **Default:** 0.5, 0.5)  
Location of the pool center.

**Radius** (Number **Min:** 0.001, **Max:** 10.0, **Default:** 0.5)  
Radius of the pool.

**Frequency** (Number **Min:** 0.01, **Max:** 100.0, **Default:** 8.0)  
The number of ripples in the pool.

**Phase** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)  
The motion between one peak and the next; controls the movement of the waves by changing the way in which the frequency values are displaced from their default positions. Animating this makes the wave appear to 'move'. If you animate this and the Radius together, the wave will appear to spread out (or contract in) from (to) the Centre point.

**Height** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)  
Sets the maximum height of the wave before it begins fading away.

**FillMode** (List Box **Options:** EdgeDup | Black | Wrap, **Default:** EdgeDup)

What is used to fill the output image when a region beyond the edges of the input image is needed.

**Edge Duplicate:** the nearest edge of the input image is used.

**Black:** the output image areas are filled with black.

**Wrap:** the input image is treated, as it were an infinitely repeating tiling of the actual input image.

**PoolMode** (List Box **Options:** Pond | Swirl | Central | Twirl+Tightness, **Default:** Pond)

Sets the style of wave to be used.

**Pond:** is a circular wave.

**Swirl:** is a radial wave, like a ballerina's skirt.

**Central:** a corkscrew or snail shell wave.

**Twirl+Tightness:** is a helical wave whose tightness and twist direction is controlled by the **Tightness** control.

**Tightness** (Number **Min:** -20.0, **Max:** 20.0, **Default:** 4.0)

Controls how tightly curled up the Twirl version of the wave is. You can make it twirl clockwise by making this negative, otherwise it will twirl anti- clockwise.

**Use Matte** (Checkbox **Default:** Off)

The luminance of this clip is used to modulate the whole effect. Where white it is drawn at full intensity; black the effect will not be seen.

**Invert Matte** (Checkbox **Default:** Off)

Reverse the application of Black to White.

---

## **Light CONTROL PAGE**

**ChromaticAb** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 0.0)

Interesting colour anomalies caused by diverging the RGB channels when refracting the light.

**Lighting** (Checkbox **Default:** Off)

Turn on the lighting effects.

**Light Bright** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

The brightness of the light.

**Light** (Position **Default:** 0.75, 0.75)

**LightZ** (Number **Min:** 0.05, **Max:** 5.0, **Default:** 0.5)

Position of the light in X, Y and Z

**Gloss** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 45.0)

How shiney the surface is.

**Contrast** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Reduces the intensity of the input clip, leaving the ripples paramount.

**Light Colour** (Colour Box **Default:** white)

The light source colour.

---

## ***Perspective* CONTROL PAGE**

**Use Perspective** (Checkbox **Default:** On)

Turn on perspective mapping.

**Top Left** (Position **Default:** 0.2,0.5)

**Bottom Left** (Position **Default:** 0.0,0.0)

**Top Right** (Position **Default:** 0.8, 0.5)

**Bottom Right** (Position **Default:** 1.0,0.0)

The four corners of the mapped plane.

## 33 SpeedSix.Projection (Discreet Box10)

---

### PURPOSE

Add a movie style projection vignette to the clip with wear and weave.



### INPUT CLIPS

1: Input Clip

---

### *Projection* CONTROL PAGE

**Projection** (Checkbox **Default:** On)

Activate the projection settings.

**Auto Flicker** (Checkbox **Default:** Off)

Activate a random flickering; changes in the intensity of the vignette.

**Radius** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 0.9)

Radius of the vignette.

**Dim** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 80.0)

Intensity of the vignette.

**Sprocket Wear** (Number **Min:** 0.0, **Max:** 5.0, **Default:** 2.5)

**Film Weave** (Number **Min:** 0.0, **Max:** 5.0, **Default:** 0.5)

How much film sprocket wear and film weaving [cyclical]? Up to 5% of the image size is possible.

---

## ***Colour* CONTROL PAGE**

**Lift** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

Balance the overall luminance of the input.

**BW Film** (Checkbox **Default:** Off)

See also: **Tint Film**, **Colour Film**

**Brightness** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

Increase/decrease the brightness of the input clip.

**Tint Film** (Checkbox **Default:** Off)

See also: **BW Film**, **Colour Film**

Select the colour type of the input to work with.

**Tint Red** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 115.0)

**Tint Green** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 105.0)

**Tint Blue** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Tint the film.

**Colour Film** (Checkbox **Default:** On)

See also: **BW Film**, **Tint Film**

**Red** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

**Green** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

**Blue** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

In **Colour** mode, RGB balancing.

**Saturation** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Increase/decrease the saturation of the input.



## 34 SpeedSix.Puddle (Discreet Box4)

---

### PURPOSE

Simulates rain falling on to water.



### INPUT CLIPS

**1: Puddle Surface**

**2: Regional Matte** : Modulate the intensity of the rain drops by the luminance of the matte clip.  
Useful for limiting the area rainfall.

---

### *Puddle* CONTROL PAGE

#### Restart Rain (Pushbutton)

Restart simulation. Several of the controls [marked \*] will NOT re-process and have no effect until the 'Restart' is hit.

#### Rain Freq (Number **Min:** 0.0, **Max:** 200.0, **Default:** 5.0)

[\*]Rain frequency – drops created per frame.

#### Rain Impact (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

[\*]Rain impact – wave frequency. The higher the value the more the ripples are seen per drop

#### Rain Radius (Number **Min:** 0.0, **Max:** 200.0, **Default:** 10.0)

[\*]Rain radius – maximum spread at death.

#### Rain Endurance (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

[\*]Rain endurance – time to death in seconds.

**Rain Wave Ht** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

Rain amplitude – wave height.

**Refract Index** (Number **Min:** –10.0, **Max:** 10.0, **Default:** 1.2)

Refractive index of the material into which the drops fall. At 1.0 there is no distortion of the image.

**Restart From** (Number **Min:** –1000, **Max:** 0, **Default:** –14)

[\*]Restart from the nominated frame. Negative numbers will cut into the sequence having been raining for that many frames.

**FillMode** (List Box **Options:** EdgeDup | Black | Wrap, **Default:** EdgeDup)

If the rippling needs information from outside the image area the chosen option is used to fill in the missing information.

**Output Map** (Checkbox **Default:** Off)

Output is the grey level ripple information.

**Seed** (Number **Min:** 0, **Max:** 999, **Default:** 567)

Change to generate a different sequence of drops falling.

**ChromaticAb** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 0.0)

Interesting colour anomalies caused by diverging the RGB channels when refracting the light.

**Use Matte** (Checkbox **Default:** Off)

Use the matte input to limit the area of the effect.

**Invert Matte** (Checkbox **Default:** Off)

Invert intensity of the matte clip: black→white and white→black.

**Demos** (List Box **Options:** Pit–a–Pat | Broillies Up | Plip–Plop | Flood Alert, **Default:** Pit–a–Pat)

Select a preset to get you going.

---

## **Light CONTROL PAGE**

**Lighting** (Checkbox **Default:** Off)

Turn on the lighting effects.

**Light Bright** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

The brightness of the light.

**Light** (Position **Default:** 0.75, 0.75)

The XY light position.

**LightZ** (Number **Min:** 0.05, **Max:** 5.0, **Default:** 0.5)

Position of the light in Z.

**Gloss** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 45.0)

How shiny the surface is.

**Contrast** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Reduces the intensity of the input clip, leaving the ripples paramount.

**Light Colour** (Colour Box **Default:** white)

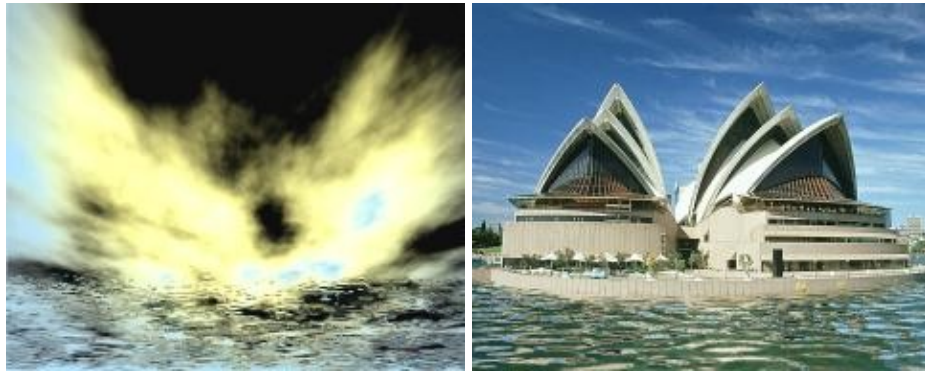
The light source colour.

## 35 SpeedSix.Puddle3D (Discreet Box21)

---

### PURPOSE

Simulates rain falling on to water in a 3D plane. The perspective of the water plane can be set to match the surface in the scene you are working with. The working method is exactly the same as the 2D Puddle.



### INPUT CLIPS

- 1: **Clip to Rain on** : Clip to Rain on
  - 2: **Regional Matte** : Matte to limit droplet area
- 

### *Rain* CONTROL PAGE

**Rain Freq** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 5.0)

[\*]Drops created per frame. A random number of drops are created up to the maximum chosen.

**Rain Impact** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

[\*]The higher the value more the ripples are seen per drop.

**Rain Radius** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 10.0)

[\*]Maximum spread at death of each drop. By the time the ripples spread out to this size they will have disappeared.

**Rain Endurance** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

[\*]Time to death in seconds. After the chosen time span is reached, (taken from the birth frame) the ripples will have faded away.

**Rain Wave Ht** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

Rain amplitude or wave height. The higher the value the deeper the ripples appear to be.

**Restart Rain** (Pushbutton)

Restart the simulation. Several of the controls marked [\*], will NOT re-process and have no effect until the 'Restart' is hit.

**Restart From** (Number **Min:** -1000, **Max:** 0, **Default:** -14)

[\*]Restart from the nominated frame. Negative numbers will cut into the sequence having been raining for that many frames.

**Seed** (Number **Min:** 0, **Max:** 999, **Default:** 567)

Change to generate a different sequence of drops falling.

**FillMode** (List Box **Options:** EdgeDup | Black | Wrap, **Default:** EdgeDup)

If the rippling needs information from outside the image area the chosen option is used to fill in the missing information.

**Output Map** (Checkbox **Default:** Off)

Output is the grey level ripple information only.

**Use Matte** (Checkbox **Default:** Off)

Use the matte input to limit the area of the affect.

**Invert Matte** (Checkbox **Default:** Off)

Invert intensity of the matte clip: black->white and white->black.

**Demos** (List Box **Options:** Pit-A-Pat | Brollies Up | Plip-Plop | Flood Alert, **Default:** Pit-A-Pat)

Select a preset to get you going.

---

## ***Light* CONTROL PAGE**

**ChromaticAb** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 0.0)

Interesting colour anomalies caused by diverging the RGB channels when refracting the light.

**Lighting** (Checkbox **Default:** Off)

Turn on the lighting effects.

**Light Bright** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

The brightness of the light.

**Light** (Position **Default:** 0.75, 0.75)

**Light Z** (Number **Min:** 0.05, **Max:** 5.0, **Default:** 0.5)

Position of the light in X, Y and Z

**Refract Index** (Number **Min:** -10.0, **Max:** 10.0, **Default:** 1.2)

Refractive index of the material into which the drops fall. At 1.0 there is no distortion of the image.

**Gloss** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 45.0)

How shiney the surface is.

**Contrast** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Reduces the intensity of the input clip, leaving the ripples paramount.

**Light Colour** (Colour Box **Default:** white)

The light source colour.

---

## ***Perspective* CONTROL PAGE**

**Use Perspective** (Checkbox **Default:** On)

Turn on perspective mapping.

**Top Left** (Position **Default:** 0.2,0.5)

**Bottom Left** (Position **Default:** 0.0,0.0)

**Top Right** (Position **Default:** 0.8, 0.5)

**Bottom Right** (Position **Default:** 1.0,0.0)

The positions defining the 4 corners of the 3D plane.

**Fade Dir** (List Box **Options:** Up | Down | Right | Left, **Default:** Up)

The ripples in 3D space may become confused and noisy if the angle of view is very steep. To reduce the 'boiling' you can fade out the intensity of the ripples. The direction chosen relates to the initial starting point of the 4 corner positions.

**Fade End** (Number **Min:** 0.0, **Max:** 2000.0, **Default:** 100.0)

Here the ripples will no longer be visible. At 100.0, this will be in sync with the line defining the chosen direction.

**Extend in X** (Number **Min:** 0.05, **Max:** 2000.0, **Default:** 100.0)

[\*]Extend in X droplet zone outside of drawn perspective plane.

**Extend in Y** (Number **Min:** 0.05, **Max:** 2000.0, **Default:** 100.0)

[\*]Extend in Y droplet zone outside of drawn perspective plane.

**Fade Start** (Number **Min:** 0.0, **Max:** 2000.0, **Default:** 0.0)

Start of fading out of the ripples. At 0.0 the fade will start from the defining line in the plane relating to the direction chosen.

## 36 SpeedSix.Rain (Discreet Box4)

---

### PURPOSE

Rain is a time based effect; the characteristics a particle of rain is born with, will evolve over time (every frame generated) to create the effect.



### INPUT CLIPS

#### 1: Background Clip



Example : Birth

**2: Birth** : The rain can be optionally created only within the non-black areas of this clip. For example limiting the creation of the rain to a cloudy area.



Example : Bounce

**3: Bounce** : The rain can optionally 'bounce' when it reaches a non-black area of this clip.

---

### *Rain* CONTROL PAGE



**Restart Rain** (Pushbutton)

Restarts the rain sequence using the current settings. This control will be found on several pages to help you quickly see the results of any changes to the birth properties of each rain drop.

**Restart+PreRoll** (Pushbutton)

Restarts and pre-rolls the rain for the current value of **PreRoll**

**Do PreRoll** (Pushbutton)

To see further into the evolution of the particles, do another preroll.

**PreRoll** (Number **Min:** 1, **Max:** 1000, **Default:** 50)

Run the particle system for the specified number of pre-roll frames before generating the first frame of the output clip.

**Advance** (Pushbutton)

Click to advance the rainstorm one frame without changing frames or other settings. Useful for checking frame by frame evolution and motion speeds.

**Left** (Position **Default:** 0.2,0.8)

**Lifetime** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 80.0)

How long each rain drop will live for.

**Extinction** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 180.0)

How long each drop takes to fade away during its lifetime.

**Use Birth Matte** (Checkbox **Default:** Off)

**Off:** uses only the position 'lozenge' to generate the rain particles.

**On:** uses the Birth clip to generate rain only if covered by the position lozenge.

**Density** (Number **Min:** 0.0, **Max:** 10000.0, **Default:** 40.0)

How many raindrops will be created each frame.

**Position Var** (Number **Min:** 0.0, **Max:** 1000.0, **Default:** 20.0)

The region within which rain particles will be created.

**Right** (Position **Default:** 0.8,0.8)

**Initial Velocity** (Number **Min:** -80.0, **Max:** 80.0, **Default:** -5.0)

The initial speed of a rain drop. The direction is always in the direction of gravity.

**Velocity Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Size of random variations in initial speed of a raindrop. The direction is always in the direction of gravity.

**Streak Scale** (Number **Min:** 0.1, **Max:** 1000.0, **Default:** 100.0)

Raindrops are always drawn as streaks (with a blob at the leading end, if they are glistening). (Streaks are anti-aliased lines). Normally, the streaks extend from the position of the drop in the last frame, to its position in this, getting denser along the path towards the current frame. This parameter lets the length of the streak be scaled from its normal length (distance covered between frames).

**Puddle Bounce** (Checkbox **Default:** Off)

Activates the bouncing feature. When the rain hits non black areas in the Bounce clip, they react – bouncing off it.

**Puddle Rebound** (Number **Min:** -200.0, **Max:** 200.0, **Default:** 10.0)

Controls the loss of velocity of a rain drop each time it bounces.

**Bounces** (Number **Min:** 1, **Max:** 200, **Default:** 26)

How many times the rain bounces.

**Demos** (List Box **Options:** Rain | Drizzle | Squall | Sheet | Light | BounceA | BounceB | Movement | Bouncing, **Default:** Rain)

Select a preset to get you going.

---

## **Forces CONTROL PAGE**

**Restart Rain** (Pushbutton)

**Restart+PreRoll** (Pushbutton)

**Do PreRoll** (Pushbutton)

See start descriptions.

**Turbulence** (Checkbox **Default:** On)

Turns on the turbulence feature.

**SwirlDens** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 4.4)

How many bumps there are in the atmosphere from one edge of the frame to the other. The rain swirls as it runs into these bumps.

**SwirlAmp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 1.29)

How powerful the bumps in the atmosphere are.

**SwlMaxTim** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 0.0)

Frames over which the swirl amplitude builds up to its maximum value (set by SwirlAmp).

**Friction** (Checkbox **Default:** On)

Turn on the friction feature.

**Friction** (Number **Min:** 0.0, **Max:** 1.0, **Default:** 0.01)

Controls the frictional force of the atmosphere on the drops as a percentage of the drops velocity lost per frame. i.e. slows the rain down.

**Gravity** (Checkbox **Default:** On)

Turn on the gravity feature.

**Gravity** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

Scales the strength of the gravitational force.

**Grav Angle** (Number **Min:** 0.0, **Max:** 359.0, **Default:** 270.0)

Controls the angle at which gravity acts, measured in degrees clockwise from due East. The default [270.0] is towards the bottom of the image.

**Wind** (Checkbox **Default:** Off)

Turn on the wind feature.

**Wind** (Position **Default:** 0.2,0.4)

**Target** (Position **Default:** 0.8,0.4)

**Wind Spread** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 90.0)

**Wind Speed** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 2.0)

The wind, when active, blows from the **Source** to the **Target** within a cone defined by the **WindSpread** with the strength of the **WindSpeed**.

## **Colour CONTROL PAGE**

**Restart Rain** (Pushbutton)

**Restart+PreRoll** (Pushbutton)

**Do PreRoll** (Pushbutton)

See start descriptions.

**Init Intensity** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Initial intensity (or brightness) at birth of a raindrop.

**Condensation** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 25.0)

When born, a raindrop can be transparent. This controls how quickly it becomes denser and more visible.

**ColourVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Random variation in the colour of the raindrops.

**MonoVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Random variation in the brightness / density of the raindrops.

**Rain Colour** (Colour Box **Default:** white)

Base rain clour.

**FadeMode** (List Box **Options:** Col+Dens | Colour | Density, **Default:** Density)

This control affects how the raindrops composite with one another and with the background image and has a great effect on the final appearance. For rain, using Density is usually best.

---

## ***Light* CONTROL PAGE**

**Light** (Checkbox **Default:** Off)

Turn on the light feature.

**Light Colour** (Colour Box **Default:** white)

The colour of the light.

**Light** (Position **Default:** 0.9,0.5)

**Light Target** (Position **Default:** 0.1,0.5)

The light shines from the source towards the target.

**Light Inten** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 50.0)

Sets the brightness of a light source illuminating the raindrops. If this is zero, 0.0, the drops are treated as semi-transparent objects, and the lighting controls have no effect.

**Light Spread** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 90.0)

Angle of a cone within which the light is shining. The cone's axis is along the direction of the light. Outside the cone, the light intensity is zero. It reaches maximum intensity within 10% of the angle from the edges of the cone.

**Glisten Tight** (Number **Min:** 0.0, **Max:** 1000.0, **Default:** 30.0)

Controls a region around the direction in which the light is shining, in which the drops will be given a glistening effect.

**Min. Bright** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 60.0)

Sets the minimum brightness of a raindrop when drops are being lit by a light source but not within the main beam of light.

## 37 SpeedSix.Rainbow (Discreet Box9)

---

### PURPOSE

Simulates rainbows (no gold however).



### INPUT CLIPS

1: **Background** : Background

2: **Atmosphere** : Atmosphere

---

### *Rainbow* CONTROL PAGE

**Bow count** (Number **Min:** 1, **Max:** 10, **Default:** 3)

Sets the number of ``orders'' or rainbows. Usually, you only see the first order rainbow in real life. You can sometimes see the second order (higher and more spread out than the first, and with the order of the colours reversed). There can be higher orders, too, but they are almost always too dim to see. Each order comes from light being reflected a different number of times within the raindrops before emerging to be viewed by the observer --- the first order comes from 1 reflection, the second from 2, and so on.

**Centre** (Position **Default:** 0.5,0.5)

Centre of the arc of the rainbow.

**Radius** (Number **Min:** 0.01, **Max:** 2.0, **Default:** 0.3)

Radius of the arc of the rainbow.

**Prim Width** (Number **Min:** 0.001, **Max:** 1.0, **Default:** 0.1)

Sets the width of the primary (first order – the one you usually see!) bow.

**Width Scale** (Number **Min:** 50.0, **Max:** 500.0, **Default:** 75.0)

Sets the width of higher order bows as a scaling of the preceding order bow width. If less than 1.0, bows will get narrower as their order increases. If greater than 1.0, they will get wider. This latter is the behaviour observed in real life, but the default is for them to get narrower for artistic reasons.

**Gap Scale** (Number **Min:** 100.0, **Max:** 1000.0, **Default:** 200.0)

Sets the gap to the next bow order as a scale of the bow width.

**Fade** (List Box **Options:** Full Circle | Linear Arc | Hermite Arc, **Default:** Linear Arc)

How the bow will fade off near the start and end angle positions.

**Brightness** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Controls the relative brightness of the primary bow.

**Density** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Sets the density of the rainbow. This controls the extent to which it obscures the background image.

**StartAng** (Number **Min:** -360.0, **Max:** 360.0, **Default:** 0.0)

**EndAng** (Number **Min:** -360.0, **Max:** 360.0, **Default:** 180.0)

**DelAng** (Number **Min:** 0, **Max:** 180, **Default:** 10)

These controls set the arc of the rainbow and over what region the bow fades out.

**Drop Off** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 30.0)

Controls the relative brightness and density of higher order bows. This is a scaling of the brightness and density of the preceding bow order.

**Atmosphere** (Checkbox **Default:** Off)

The atmosphere clip controls the areas in which the rainbow will appear. If you use something like a cloud image the bows will be thinned by the luminosity of this clip. Or you can use it to mask out parts of the rainbow.

**Vignette** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Setting this to more than 0.0 will cause the background image to be attenuated or darkened (cumulatively) beyond each successive bow order. This gives a nice artistic effect.

**WidenBowBy** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 0.0)

Controls the relative width of the rightmost near-vertical part of the bow compared to the width of the bow at its highest point. The higher this number, the (relatively) wider the bow will get as it reaches the ground.

## 38 SpeedSix.RainDrops (Discreet Box22)

---

### PURPOSE

Water falling onto a surface and running down.



### INPUT CLIPS

- 1: Background Clip
  - 2: Birth
- 

### *RainDrops* CONTROL PAGE

#### **Restart+PreRoll** (Pushbutton)

Restarts and pre-rolls the rain for the current value of **PreRoll**.

#### **PreRoll** (Number **Min:** 1, **Max:** 1000, **Default:** 20)

Rain for the specified number of pre-roll frames before generating the first frame of the output clip.

#### **Inter Frames** (Number **Min:** 0, **Max:** 50, **Default:** 6)

**On:** Position of drops rendered inbetween frame positions. Use for fast movements.

#### **Drops** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 5.0)

#### **Drop Vary** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

The actual number of drops born at each frame is the average number specified by basic birth rate plus or minus a random amount ranging up to the specified variance.

*Note:* if you are using a birth matte you may not get the full amount as checks are made on the probability of finding a suitable place to create a particle. Without this the particle system could try indefinitely to create the **RainDrops** and you would not like that!

**Scale Fecundity** (Checkbox **Default:** On)

**On:** when you change your working resolution on the Settings page, the number of drops born is scaled accordingly. Lower resolution equals fewer drops. This is for clarity and speed.

**Off:** whatever the resolution the same quantities of drops are created.

**Advance** (Pushbutton)

Click to advance system one frame without changing frames or other settings. Useful for checking frame by frame evolution and motion speeds.

**Initial Velocity** (Number **Min:** 0.0, **Max:** 50.0, **Default:** 2.0)

This is the remaining velocity the drops have after hitting the surface.

**Vel Mag Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

A random amount, plus or minus the initial velocity, is added to vary the initial velocity.

**Vel Dir** (Number **Min:** 0.0, **Max:** 360.0, **Default:** 270.0)

The direction in which the drops are moving, measured in degrees. 0 being East, 90 North, 180 West and 270 South.

**Flow Scale Speed** (Number **Min:** 10.0, **Max:** 500.0, **Default:** 100.0)

If the motion you have set up is too fast or slow then use this global speed change control to adjust the pace of the drops. It will not change any of your set values, but scales them appropriately behind the scenes for you.

*Note:* this will not affect Turbulence Map options.

**Seed** (Number **Min:** 0, **Max:** 999, **Default:** 127)

Change to have a different pattern of rain drops.

**Use Birth Matte** (Checkbox **Default:** Off)

**On:** Drops will only be born in the non-black regions of the images in the birth matte clip.

**Lifetime** (Number **Min:** 1.0, **Max:** 5000.0, **Default:** 500.0)

The average number of frames for which a drop will live. It will definitely be killed after it has lived this number of frames (plus or minus the **Lifetime Var** below).

**Lifetime Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

The actual lifetime of a drop is the average lifetime plus or minus a random number ranging up to **LifetimeVar**.

**Lump Rad** (Number **Min:** 1.0, **Max:** 40.0, **Default:** 5.0)

**Lump RadVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

The size of each drop is scaled to the **Lump Radius** plus or minus a random **Radius Variance**.

**MonoVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)



The base density of each drop is modulated by the variance. At 0.0 they are all the same maximum intensity [nearly white]; at 100.0 they range from 0.0 [black] to the maximum intensity.

**Fade Out** (Number **Min:** 50.0, **Max:** 100.0, **Default:** 95.0)

The rate at which the trail created by the drop running down the surface fades away. The higher the value the slower the fading. Lower values minimise the trail effect.

**Demos** (List Box **Options:** Default | Light Shower | Another Shower | Heavy Static | Heavy Runny | Steamy, **Default:** Default)

Select a preset to get you going.

---

## **Forces CONTROL PAGE**

**Restart+PreRoll** (Pushbutton)

Restarts and pre-rolls the rain for the current value of **PreRoll**.

**Gravity** (Checkbox **Default:** On)

**Gravity** (Number **Min:** 0.0, **Max:** 50.0, **Default:** 4.5)

**Grav Angle** (Number **Min:** 0.0, **Max:** 359.0, **Default:** 270.0)

At values over 0.0 gravity acts on the **RainDrops** dragging them in the direction set by the Gravity Angle. A setting of 270.0 degrees is downwards. A natural choice, but varying the angle can bias the movement for artistic purposes.

**Dribble Chance** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Percentage chance of a drop rolling down the glass.

**Dribble Wait** (Number **Min:** 0, **Max:** 500, **Default:** 0)

A wait time [in frames] before any dribbling starts.

**Dribble Speed** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 1.0)

Random variation of the speed of the dribble.

**Friction** (Checkbox **Default:** On)

**Friction** (Number **Min:** 0.0, **Max:** 1.0, **Default:** 0.05)

Friction slows things down. Rubbing against the air and each other, friction will reduce the momentum of the drops,

**Turbulence** (Checkbox **Default:** On)

**SwirlDens** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

**SwirlAmp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 14.0)

**SwlMaxTim** (Number **Min:** 0.0, **Max:** 1000.0, **Default:** 0.0)

For natural swirls and eddies of the air through which the **RainDrops** move you need turbulence. The **Density** is the fineness of the turbulence patterns. The lower the **Density** value the broader the

sweeps of turbulence are. High values give rapid changes in direction. The motion can be exaggerated with the amplitude setting, dramatically forcing the **RainDrops** around or subtly twisting them as they move. The effect of the turbulence can be built up using **Swirl Maximum Time**. At 0.0 the **RainDrops** are influenced by the turbulence immediately. Otherwise it takes that number of frames from birth for the turbulence to build up.

---

## **Glass CONTROL PAGE**

### **Restart+PreRoll** (Pushbutton)

Restarts and pre-rolls the rain for the current value of **PreRoll**.

### **Distort** (Checkbox **Default:** Off)

**On:** Turn on to see what will happen when a **Glass** effect is added after this effect. For more flexibility use the basic output of this effect and combine it with a **Glass** node.

### **Distortion** (Number **Min:** 1.0, **Max:** 10.0, **Default:** 1.2)

How much the droplets distort the background image. Smaller values are subtle but effective.

### **Light Active** (Checkbox **Default:** Off)

**On:** to enable the light settings.

**Off:** to disable the lighting without losing your settings.

### **Light** (Position **Default:** 0.95,0.95)

The light source position.

### **LightZ** (Number **Min:** -5.0, **Max:** 5.0, **Default:** 0.05)

Defining the angle at which the light hits the glass surface.

### **Brightness** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

How bright the light is. Values over 100.0 will start to burn out.

### **Gloss** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 45.0)

Sets how sharp the specular lighting highlights on the glass surface will be. The higher the number, the tighter they will be.

### **Light** (Colour Box **Default:** white)

The colour of the light.

### **Steamy Glass** (Checkbox **Default:** Off)

**On:** Activate the steam over the surface.

### **Blurring** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 26.0)

Gently soften the background image, not too much though.

**Lift** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 26.0)

**Brightness** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 82.0)

Use Lift and Brightness to gently lighten the image.

**Mix** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 24.0)

Mix the lightened, defocused image back over the original.

## 39 SpeedSix.RemGrain2 (Discreet Box2)

---

### PURPOSE

Grain removal; a different and in most cases a better algorithm than the original **RemGrain**. **RemGrain2** works by first calculating a map of where edges are in the input image. It then creates separately blurred versions of the red, green and blue channels. You control how much they are blurred. It then blends between the original image and the blurred image using the edge map. You get the original (sharp) image where there are edges (and hence real detail) and the blurred image where there are no edges – which kills off the film grain. You can weight the process towards preserving sharpness in edge regions while possibly keeping some unwanted grain, or killing grain at the possible cost of blurring genuinely important image detail. This is the purpose of the sharpness controls.

---

### INPUT CLIPS

1: Input

---

### *RemGrain2* CONTROL PAGE

**RGB** (List Box Options: Mix | Exclusive, Default: Mix)

Work with a mixture of the rgb channels or each one exclusively. After tuning each channel switch back to **Mix** mode to reveal the completed grain removal.

**Pos2** (Position Default: 0.6,0.6)

**Pos1** (Position Default: 0.4,0.4)

**ROI box** (Checkbox Default: Off)

Switch on to examine a particular area, leaving pixels outside unaffected.

**R** (Checkbox Default: On)

**G** (Checkbox Default: On)

**B** (Checkbox Default: On)

In **Mix** mode all channels are active initially though you can toggle them on and off to see the resultant colour component. In **Exclusive** mode the grey level of each channel is displayed so you can work on perfecting the settings for the channel chosen.

**R** (Checkbox Default: On)

See also: **G**, **B**

View only the **red** channel – in both **Mix** and **Exclusive** modes.

**G** (Checkbox **Default:** Off)

See also: **R, B**

View only the **green** channel – in both **Mix** and **Exclusive** modes.

**B** (Checkbox **Default:** Off)

See also: **R, G**

View only the **blue** channel – in both **Mix** and **Exclusive** modes.

**Red Blur** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 5.0)

**Green Blur** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 5.0)

**Blue Blur** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 5.0)

Gently blur each channel to even out the grain and then.....

**Red Sharp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 1.0)

**Green Sharp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 1.0)

**Blue Sharp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 1.0)

.....set the sharpening level for each channel to bring back into focus.

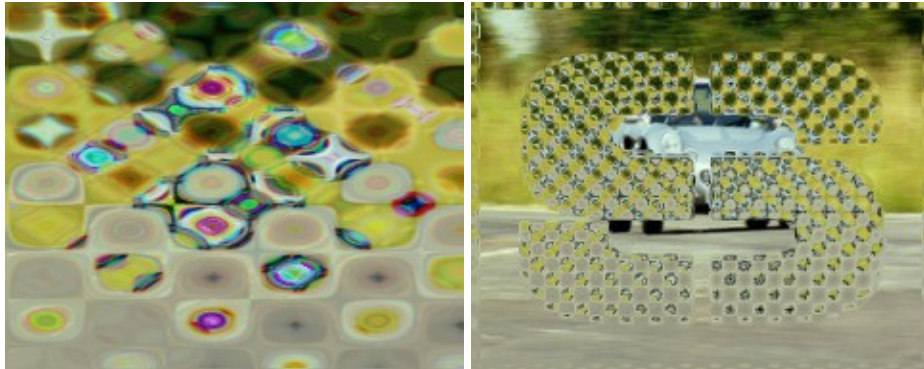
**Hint:** The default sharpness is usually too low. Try working down from the maximum to get the best results.

## 40 SpeedSix.Ripple (Discreet Box4)

---

### PURPOSE

Simulates the movement of two planes of water waves at right angles to one another, and distorts an input clip as viewed through the water. The refraction due to the wavy water surface is simulated.



### INPUT CLIPS

**1: Clip to Ripple**

**2: Matte** : Modulate the intensity of the ripples by the luminance of the matte clip. Useful for limiting the rippling area.

---

### *Ripple* CONTROL PAGE

**X Amp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 20.0)

Wave amplitude [height] in X direction.

**Y Amp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 20.0)

Wave amplitude [height] in Y direction.

**FillMode** (List Box **Options:** EdgeDup | Black | Wrap, **Default:** EdgeDup)

What to use when the ripple needs information from outside the image area.

**EdgeDup**: the nearest edge of the input image is used.

**Black**: the output image areas are filled with black.

**Wrap**: the input image is treated, as if it were an infinitely repeating tiling of the actual input image.

**X Freq** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 4.0)

How many ripples in X.

**Y Freq** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 4.0)

How many ripples in Y.

**Refract Index** (Number **Min:** 1.0, **Max:** 10.0, **Default:** 1.45)

The density of the refractive medium.

**X Phase** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Horizontal motion

**Y Phase** (Number **Min:** 0.0, **Max:** 100, **Default:** 0.0)

Vertical motion

**ChromaticAb** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 0.0)

Interesting colour anomalies caused by diverging the RGB channels when refracting the light.

**Use Matte** (Checkbox **Default:** Off)

Modulate the effect by the intensity of the Matte control clip.

**Invert Matte** (Checkbox **Default:** Off)

Invert intensity of the Matte control clip.

---

## **Light CONTROL PAGE**

**Lighting** (Checkbox **Default:** Off)

Turn on the lighting effects.

**Light** (Position **Default:** 0.5, 0.5)

The XY light position.

**LightZ** (Number **Min:** 0.05, **Max:** 5.0, **Default:** 0.5)

Light in Z defining the angle at which the light strikes the surface..

**Light Bright** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

The brightness of the light when turned on.

**Gloss** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 45.0)

How shiny the surface is.

**Contrast** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Controls the relative brightness of the specular highlights and the input image refracted through the wave surface. At 100.0, the image is at full brightness.

**Light Colour** (Colour Box **Default:** white)  
The colour of the light.



## 41 SpeedSix.Ripple3D (Discreet Box21)

---

### PURPOSE

Simulates the movement of two planes of waves at right angles to one another, and distorts an input clip as viewed through the water. The perspective of the plane can be set to match the surface in the scene you are working with. The working method is exactly the same as the 2D Ripple.



### INPUT CLIPS

- 1: Clip to Ripple
  - 2: Matte
- 

### *Ripple* CONTROL PAGE

**X Wave Height** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 20.0)  
Wave amplitude [height] in X direction.

**Y Wave Height** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 20.0)  
Wave amplitude [height] in Y direction.

**FillMode** (List Box **Options:** EdgeDup | Black | Wrap, **Default:** EdgeDup)

What to do when the ripple needs information outside the image area.

**XY X Freq** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)  
How many ripples in X.

**XY Y Freq** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)  
How many ripples in Y

**Refract Index** (Number **Min:** 1.0, **Max:** 10.0, **Default:** 1.45)

The 'thickness' of the refractive medium.

**XY X Phase** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Horizontal motion [phase offset]. Starting point in the cycle of the X wave. Animating this will make the X wave 'move'.

**XY Y Phase** (Number **Min:** 0.0, **Max:** 100, **Default:** 0.0)

Vertical motion [phase offset]. Starting point in the cycle of the Y wave. Animating this will make the Y wave 'move'.

**ChromaticAb** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 0.0)

Interesting colour anomalies caused by diverging the RGB channels when refracting the light.

**Use Matte** (Checkbox **Default:** Off)

Use the matte input to limit the area of the effect.

**Invert Matte** (Checkbox **Default:** Off)

Invert intensity of the matte clip: black->white and white->black.

---

## **Lights CONTROL PAGE**

**Lighting** (Checkbox **Default:** Off)

Turn on the lighting effects.

**Light** (Position **Default:** 0.5, 0.5)

**LightZ** (Number **Min:** 0.05, **Max:** 5.0, **Default:** 0.5)

Light in X, Y and Z.

**Light Bright** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

The brightness of the light when turned on.

**Gloss** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 45.0)

How shiny the surface is.

**Contrast** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Reduces the intensity of the input clip, leaving the ripples paramount.

**Light Colour** (Colour Box **Default:** white)

The colour of the light.

---

## ***Perspective* CONTROL PAGE**

**Use Perspective** (Checkbox **Default:** On)

Turn on perspective mapping.

**Radial Fade** (Checkbox **Default:** Off)

Turn on a radial trim to remove noise.

**Fade Radius** (Number **Min:** 0.0, **Max:** 1000.0, **Default:** 200.0)

The height of the ripples starts to drop from this point to help minimise noise.

**Top Left** (Position **Default:** 0.2,0.5)

**Bottom Left** (Position **Default:** 0.06,0.1)

**Top Right** (Position **Default:** 0.8, 0.5)

**Bottom Right** (Position **Default:** 0.94,0.1)

The four corners of the mapped plane.

## 42 SpeedSix.Smoke (Discreet Box4)

---

### PURPOSE

Smoke simulation using a particle system.

Smoke is a time based effect; the characteristics a particle is born with will evolve over time (every frame generated) to create the effect.



---

### INPUT CLIPS

**1: Background Clip**

**2: Birth Clip** : The smoke can be optionally created only within the non-black areas of this clip. For example limiting the creation of the smoke to the fireplace.

---

### *Smoke* CONTROL PAGE

**Restart Smoke** (Pushbutton)

Restarts the smoke sequence using the current settings. This control will be found on several pages to help you quickly see the results of any changes to the birth properties of each smoke particle.

**Restart+PreRoll** (Pushbutton)

Restarts and pre-rolls the smoke for the current value of **PreRoll**

**Do PreRoll** (Pushbutton)

To see further into the evolution of the particles, do another preroll.

**PreRoll** (Number **Min:** 1, **Max:** 1000, **Default:** 50)

Run the particle system for the specified number of pre-roll frames before generating the first frame of the output clip.

**Advance** (Pushbutton)

Click to advance the smoke one frame without changing frames or other settings. Useful for checking frame by frame evolution and motion speeds.

**Left** (Position **Default:** 0.5,0.1)

**Right** (Position **Default:** 0.5,0.3)

**Position Var** (Number **Min:** 0.0, **Max:** 2.0, **Default:** 0.02)

The region within which smoke particles will be created.

**Lifetime** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 80.0)

How long each smoke particle will live for.

**Extinction** (Number **Min:** 1.0, **Max:** 1000.0, **Default:** 80.0)

How long each particle of smoke takes to fade away during its lifetime.

**Use Birth Matte** (Checkbox **Default:** Off)

**Off:** uses only the position 'lozenge' to generate the smoke particles.

**On:** uses the **Birth clip** to generate smoke in the union of the **Birth clip** white areas and the birth position lozenge.

**Density** (Number **Min:** 0.0, **Max:** 10000.0, **Default:** 800.0)

How many smoke particles will be created each frame.

**Initial Heat** (Number **Min:** -80.0, **Max:** 80.0, **Default:** 8.0)

The initial speed of a smoke particle. The direction is always in the direction of gravity.

**Velocity Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Size of random variations in initial speed of a smoke particle. The direction is always in the direction of gravity.

**Demos** (List Box **Options:** Dry Ice | Puff | Wisp | Steam | Gentle Smoke | Busy Smoke | Soft Swirl | Billow | Smoke Stack | Chimney | Slow Wisp | Swamp, **Default:** Dry Ice)

Select a preset to get you going.

---

## **Forces CONTROL PAGE**

**Restart Smoke** (Pushbutton)

**Restart+PreRoll** (Pushbutton)

**Do PreRoll** (Pushbutton)

See start descriptions.

**Turbulence** (Checkbox **Default:** On)

Turn on the turbulence feature.

**SwirlDens** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 28.8)

How many bumps there are in the atmosphere from one edge of the frame to the other. The smoke swirls as it runs into these bumps.

**SwirlAmp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 3.2)

How powerful the bumps in the atmosphere are.

**SwlMaxTim** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 25.0)

Frames over which the swirl amplitude builds up to its maximum value (set by **SwirlAmp**).

**Friction** (Checkbox **Default:** On)

Turn on the friction feature.

**Friction** (Number **Min:** 0.0, **Max:** 1.0, **Default:** 0.01)

Controls the frictional force of the atmosphere on the smoke as a percentage of the smoke velocity lost per frame. Slows the smoke down.

**Gravity** (Checkbox **Default:** On)

Turn on the gravity feature.

**Gravity** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 0.001)

Scales the strength of the gravitational force.

**Grav Angle** (Number **Min:** 0.0, **Max:** 359.0, **Default:** 270.0)

Controls the angle at which gravity acts, measured in degrees clockwise from due East. The default [270.0] is towards the bottom of the image.

**Wind** (Checkbox **Default:** Off)

Turn on the wind feature.

**Wind** (Position **Default:** 0.2,0.4)

**Target** (Position **Default:** 0.8,0.4)

**Wind Spread** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 33.0)

**Wind Speed** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 16.0)

The wind blows from the **Source** to the **Target** within a cone defined by the **WindSpread** with the strength of the **WindSpeed**.

---

## **Look CONTROL PAGE**

**Restart Smoke** (Pushbutton)

**Restart+PreRoll** (Pushbutton)

**Do PreRoll** (Pushbutton)

See start descriptions.

**Init Intensity** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 25.0)

Initial intensity (or brightness) at birth of a smoke particle.

**Condensation** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

When born, a smoke particle can be transparent. This controls how quickly it becomes denser and more visible.

**ColourVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Random variation in the colour of the smoke particles.

**MonoVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Random variation in the brightness / density of the smoke particles.

**Smoke Colour** (Colour Box **Default:** white)

Base smoke colour.

**FadeMode** (List Box **Options:** Col+Dens | Colour | Density, **Default:** Density)

This control affects how the smoke particles composite with one another and with the background image, and has a great effect on the final appearance.

**Look** (List Box **Options:** Point | Streak | Puff, **Default:** Puff)

How the smoke particles are drawn.

**PointBlur** (Number **Min:** 0.0, **Max:** 5.0, **Default:** 0.0)

When in **Point** mode the particles are blurred and thus softened. You will need a great many smoke particles to see softened points but it can be worth the wait.

**Puff Size** (Number **Min:** 1.0, **Max:** 20.0, **Default:** 2.0)

When in **Puff** mode this is the maximum size a puff of smoke can be.

**Puff Size Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

How varied the puff sizes are. At 0.0 they will all be of a similar size.

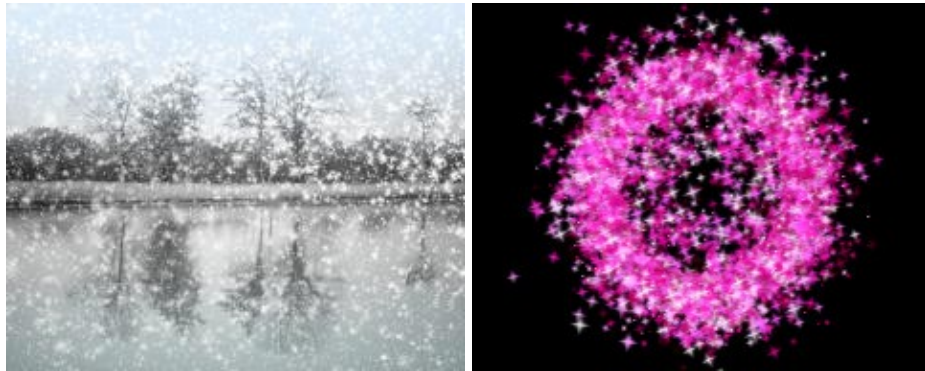
## 43 SpeedSix.Snow (Discreet Box4)

---

### PURPOSE

Snow simulation using particles.

Snow is a time based effect; the characteristics a particle is born with will evolve over time (every frame generated) to create the effect.



### INPUT CLIPS

**1: Background Clip**

**2: Settle Clip** : The snow can settle on non black areas within this clip. However you do need to have a static shot for this to succeed.

---

### *Snow* CONTROL PAGE

**Restart Snowstorm** ([Pushbutton](#))

Restarts the snow sequence using the current settings. This control will be found on several pages to help you quickly see the results of any changes to the birth properties of each snow flake.

**Restart+PreRoll** ([Pushbutton](#))

Restarts and pre-rolls the snow for the current value of **PreRoll**

**Do PreRoll** ([Pushbutton](#))

To see further into the evolution of the particles, do another preroll.

**PreRoll** ([Number](#) **Min:** 1, **Max:** 1000, **Default:** 150)

Run the particle system for the specified number of pre-roll frames before generating the first frame of the output clip.



**Advance** (Pushbutton)

Click to advance the snow one frame without changing frames or other settings. Useful for checking frame by frame evolution and motion speeds.

**Left** (Position Default: 0.2,0.8)

**Right** (Position Default: 0.8,0.8)

**Position Var** (Number Min: 0.0, Max: 2.0, Default: 0.02)

The region within which snow particles will be created.

**Lifetime** (Number Min: 1.0, Max: 1000.0, Default: 200.0)

How long each snow particle drop will live for.

**Density** (Number Min: 0.0, Max: 10000.0, Default: 20.0)

How many smoke particles will be created each frame.

**Initial Velocity** (Number Min: -20.0, Max: 20.0, Default: -3.0)

The initial speed of a snow particle. The direction is always in the direction of gravity.

**Velocity Var** (Number Min: 0.0, Max: 100.0, Default: 50.0)

Size of random variations in initial speed of a snow particle. The direction is always in the direction of gravity.

**Snow Settle** (Checkbox Default: Off)

Allows the snow to settle on non-black areas of the settle clip.

**Probability** (Number Min: 0.0, Max: 100.0, Default: 50.0)

How likely it is that the snow will settle.

**Bias** (Checkbox Default: Off)

Turn on the bias to wet or dry snow feature.

**Dry Snow** (List Box Options: Wet | Dry, Default: Wet)

Select the type of snow your prefer.

**On:** smaller flakes will fall more quickly.

**Off:** Larger flakes will fall more quickly.

**Size Bias** (Number Min: 1.0, Max: 20.0, Default: 1.0)

The speed the snowflakes can fall at varies with size. At 0.0 there is no bias. As the value increases the larger flakes will fall faster than the smaller flakes. But if **Dry Snow** is **On**, then the small flakes fall faster than the larger flakes.

**Demos** (List Box Options: Blizzard | Base | Fine | Heavy | Avoid | Divert | Glitter | Pink | Vomit | Amorphous | Pastel | Stream, Default: Blizzard)

Select a preset to get you going.

---

## **Forces CONTROL PAGE**

**Restart Snowstorm** (Pushbutton)

**Restart+PreRoll** (Pushbutton)

**Do PreRoll** (Pushbutton)

See start descriptions.

**Turbulence** (Checkbox **Default:** On)

Turn on the turbulence feature.

**SwirlDens** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 60.0)

How many bumps there are in the atmosphere from one edge of the frame to the other. The snow swirls as it runs into these bumps.

**SwirlAmp** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 1.0)

How powerful the bumps in the atmosphere are.

**SwlMaxTim** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Frames over which the swirl amplitude builds up to its maximum value (set by **SwirlAmp**).

**Friction** (Checkbox **Default:** On)

Turn on the friction feature.

**Friction** (Number **Min:** 0.0, **Max:** 1.0, **Default:** 0.05)

Controls the frictional force of the atmosphere on the snow as a percentage of the snow velocity lost per frame. Slows the snow down.

**Gravity** (Checkbox **Default:** On)

Turn on the gravity feature.

**Gravity** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 0.2)

Scales the strength of the gravitational force.

**Grav Angle** (Number **Min:** 0.0, **Max:** 359.0, **Default:** 270.0)

Controls the angle at which gravity acts, measured in degrees clockwise from due East. The default [270.0] is towards the bottom of the image.

**Multi Directional** (Checkbox **Default:** Off)

**Wind** (Position **Default:** 0.2,0.4)

**Wind Target** (Position **Default:** 0.8,0.4)

**Wind Spread** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 10.0)

**Wind Speed** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 5.0)

The wind when active, and not **Multi-directional**, blows from the **Source** to the **Target** within a cone defined by the **WindSpread** with the strength of the **WindSpeed**. Turn on **Multi-Directional** and the wind will blow equally in all directions.

**Wind** (Checkbox **Default:** Off)

Turn on the wind feature.

---

## **Look CONTROL PAGE**

**Restart Snowstorm** (Pushbutton)

**Restart+PreRoll** (Pushbutton)

**Do PreRoll** (Pushbutton)

See start descriptions.

**ColourVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Random variation in the colour of the snow particles.

**MonoVar** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Random variation in the brightness / density of the snow particles.

**Snow Colour** (Colour Box **Default:** white)

Bases snow colour.

**FadeMode** (List Box **Options:** Col+Dens | Colour | Density, **Default:** Density)

This control affects how the snow particles composite with one another and with the background image and has a great effect on the final appearance.

**Look** (List Box **Options:** Point | Streak | Flake | Star, **Default:** Flake)

How the snow particles are drawn.

**Size** (Number **Min:** 1.0, **Max:** 20.0, **Default:** 4.0)

When in **Flake** mode this is the maximum size a snow flake can be.

**Size Var** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

How varied the flake sizes are. At 0.0 they will all be of a similar size.

---

## **Glints CONTROL PAGE**

**Glints** (Checkbox **Default:** Off)

Turn on the glint feature.

**Glint Target** (Position **Default:** 0.1,0.5)

**Glint** (Position **Default:** 0.9,0.5)

**Glint Prob** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 50.0)

**Glint Zone** (Number **Min:** 0.0, **Max:** 180.0, **Default:** 90.0)

**Glint Tight** (Number **Min:** 0.0, **Max:** 1000.0, **Default:** 30.0)

**Glint Colour** (Colour Box **Default:** white)

With the glint feature on, the snow can catch the light as it passes through the region defined by the glint parameters.

**Colour** (List Box **Options:** Box Colour | Snow Colour | Random Colour, **Default:** Box Colour)

The choice of the colour source for the glints.

**Box Colour:** User selected single colour.

**Snow Colour:** The colour is taken from the snowflake.

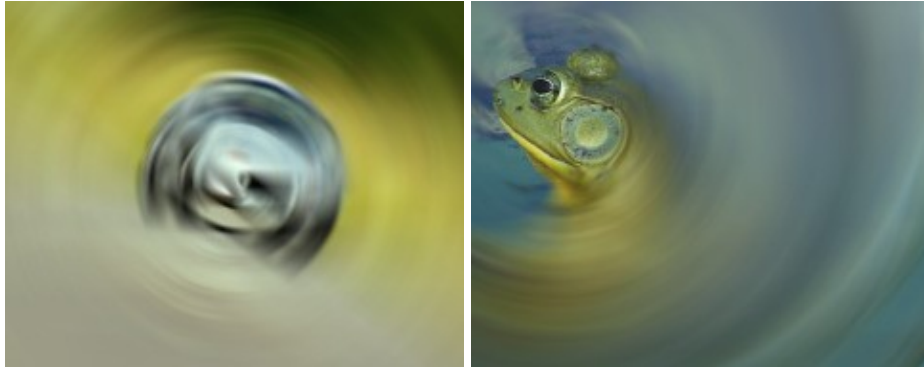
**Random Colour:** A randomly chosen colour.

## 44 SpeedSix.SpinBlur (Discreet Box19)

---

### PURPOSE

Apply a circular blurring effect.



### INPUT CLIPS

1: **Input** : Image to be blurred.

2: **Matte** : Optionally controls where the blurring is done.

---

### *SpinBlur* CONTROL PAGE

**Centre** (Position **Default:** 0.5, 0.5)

Centre of rotation.

**Inner Radius** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 0.1)

The start of the blurring.

**Outer Radius** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 0.4)

The end of the blurred region.

**Soft Radius** (Number **Min:** 0.0, **Max:** 0.5, **Default:** 0.1)

Control for the way the blur is applied in the blurring region. A value of 0 blurs the entire blurring region with equal strength. Values greater than 0 provide varying degrees of softness of the transition through the blurring region so that circles closer to the middle of the blurring region receive more blur.

**Speed** (Number **Min:** -360.0, **Max:** 360.0, **Default:** 10.0)

How much the selected region gets blurred. A higher value means more samples are used along

the circle going through the current pixel.

*Note:* Large values are likely to slow down the processing speed quite significantly.

**Blur Style** (List Box **Options:** Linear | Fade | Twirl In | Twirl Out, **Default:** Linear)

**Linear:** the blurring steadily builds up from the centre.

**Fade:** the overlay indicates the extent of the blurring. Building up from the Inner Radius to the maximum by the time it reaches the associated Soft Radius. Continuous till the outer Soft Radius is reached; then dropping off to the Outer Radius.

**Twirl In:** the blurring increases from the centre at the rate set by the Twirl value.

**Twirl Out:** the blurring increases towards the centre at the rate set by the Twirl value.

**Use Matte** (Checkbox **Default:** Off)

The luminance of this clip is used to modulate the whole effect. Where white it is drawn at full intensity; black the effect will not be seen.

**Invert Matte** (Checkbox **Default:** Off)

Reverse the application of Black to White in the **Matte** clip.

**Skippy** (Number **Min:** 1.0, **Max:** 100.0, **Default:** 5.0)

To speed up rendering time every nth pixel is used. 1 gives the highest quality but you can get away with higher values if the effect you desire is fast and furious.

**Twirl** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 2.0)

This is the rate of build up of the blurring. 0.0 is equivalent to Linear.

**Edge Duplicate** (Checkbox **Default:** On)

Fills outside with black or duplicates the edges as necessary.

**Trim** (Number **Min:** 0, **Max:** 100, **Default:** 1)

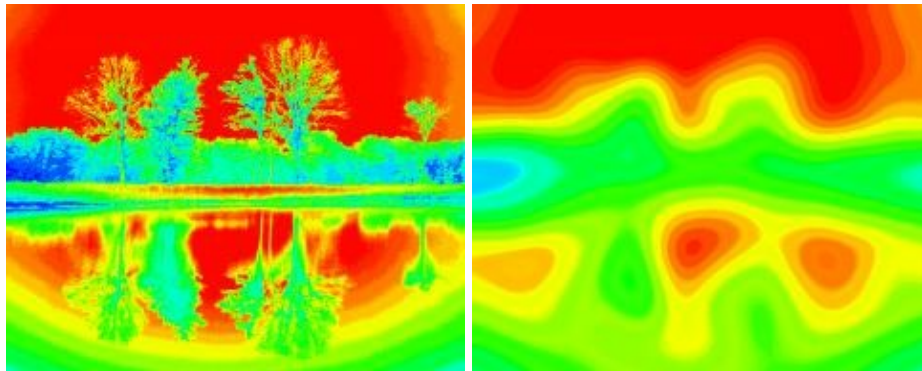
If the extremes of the input contain dross – e.g. missing 1/2 scan lines of video input – the edges of the input can be trimmed back to give a clean line for duplication.

## 45 SpeedSix.Thermo (Discreet Box11)

---

### PURPOSE

Simulate an electronic thermal imaging camera. Contrast with **InfraRed** which simulates infrared sensitive film.



### INPUT CLIPS

1: Thermo Clip

---

### *Thermo* CONTROL PAGE

**Soften** (Checkbox Default: On)  
Activate the pre-softening effect.

**Softening** (Number Min: 0.0, Max: 100.0, Default: 8.0)  
The amount of softening of the thermal image. **Soften** must be **On** to see the effect.

**Luminance Boost** (Number Min: 0.0, Max: 200.0, Default: 100.0)  
Vary the luminance of the input.

**Gamma** (Number Min: 0.0, Max: 10.0, Default: 1.0)  
Vary the gamma of the input.

**Basic** (Pushbutton)  
A basic preset.

**Ripple** (Pushbutton)  
Presets everything for a "ripply" looking result. Well, you have to be there ... :-)

**Cold** (Pushbutton)

Presets everything for a "cold" looking result.

**Hot** (Pushbutton)

Presets everything for a "hot" looking result.

---

## ***Temperature* CONTROL PAGE**

**Temperature1** (Position Default: 0.143,0.143)

**Temperature4** (Position Default: 0.571,0.571)

**Temperature2** (Position Default: 0.286,0.286)

**Temperature5** (Position Default: 0.714,0.714)

**Temperature3** (Position Default: 0.429,0.429)

**Temperature6** (Position Default: 0.98,0.98)

Positions of the 6 control points in the overlay that define the temperature curve data.

**Inv Temperature** (Pushbutton)

**Flip Temperature** (Pushbutton)

Invert [up/down] or flip [left/right] the temperature curve.

---

## ***Intensity* CONTROL PAGE**

**Intensity1** (Position Default: 0.143,0.5)

**Intensity4** (Position Default: 0.571,0.9)

**Intensity2** (Position Default: 0.286,0.5)

**Intensity5** (Position Default: 0.714,0.9)

**Intensity3** (Position Default: 0.429,0.5)

**Intensity6** (Position Default: 0.857,0.9)

Positions of the 6 control points in the overlay that define the luminance curve data.



**Inv Intensity** (Pushbutton)

**Flip Intensity** (Pushbutton)

Invert [up/down] or flip [left/right] the intensity curve.

## 46 SpeedSix.TrailKey

### PURPOSE

Draws a trailing brush along a path set by key frames.



### INPUT CLIPS

**TrailKey Clip:** to draw the trail on.

**Brush Clip:** to create brush from.

### Setting Up

- FIRST set you sequence length if different to the input length.
- YOU MUST SET **Sequence Length** to match. If at any time they differ, the value in the control box will take precedence. (The api tells you the 'user set sequence length' up to the point of processing and then it reverts back to the actual input length – if you wanted to know why you have to set the value.)
- work through the clip setting **X/Y Key** frames as necessary to track the area of the image you want to draw a trail on. (OK so you want to have this automated, well I'm on the case and hopefully you will get an automatic trailer soon. )
- you will see a path drawn over the clip representing the path the trail will follow. Adjust the path using the timelines created at the key frames set.
- The length of the trail is set by **Head/Tail Fade**; the number of frames positions along the path to fade out over.
- by default the **Peak** of the trail intensity follows the frame by frame position on the curve. move it around with the **Peak Offset** control.
- the **Path Resolution** will set the smoothness of the curve of the path. The minimum it can be is double the sequence length or mayhem ensues.

That is the basic setup to trail the default brush.

### The Brush

- you can set the **Size, Orientation and Intensity**; though the orientation will only become really noticeable when you use a brush other than **Blob**.
- the **Seed** will only have a minor affect on the basic **Blob** brush patterning.
- the colour of the trail can be set either using **Own Colours** which are taken directly from the colours in the brush chosen, or from the RGB settings. With **Trail Only** you get a trail of the one chosen colour, while with **Blended** you can have a change of colour over the trail length.
- you can read in an **Image** to be your brush mark or select a paint **Brush** to draw with. Make your choice and use the **Browse** button to select the desired brush.
- if you want to you can cut out part of the second input clip to use as the brush. Select **Boxed Luminance** and a magenta overlay appears.
- Drag this into position to define the brush.
- select for **Over or Add** for the way the trail is composited with the background image.

**Adding Depth** Beware this can slow things up! but adds another dimension to the trail.

- for each key (or anywhere if you prefer) set a value for **Z Key** going from -5.0 (furthest away from you) to 5.0 (nearest).
- as the distance away changes a smaller/larger brush is drawn. The trail can then appear to grow/shrink along its path.
- the size calculated always refers to the **Base Size** setting as a starting point.
- switch from **Basic** to **With Z Depth** and observe.

### Rotating the Brush

- set up key frames for the **Orientation** control.
- select **With Rotation** and the brush is rotated along the path adding a swirly motion.
- the **Z Key** information will be ignored!
- put both the Z scaling and the rotations together with **Both Z and Rotation**. As you can imagine a lot of brushes have to be scaled and rotated at this point so things can slow down.....

### FULL...1/32 (Default: FULL)

Use lower resolutions for faster results but less detail.

### SOUND

Channel curves from **SpeedSix.AiffExtract** can be imported into the **Amplitude Import** curve to control any of the animation channels.

### Import Amplitude File

Using the file browser select the file you saved in **SpeedSix.AiffExtract**. The data is then loaded into the **Amplitude Import** channel.

### Amplitude Import ( Min: -1000.0 Max: 1000.0)

The value range of this channel matches the potential range within **SpeedSix.AiffExtract**. Scale and translate the imported channel data to match the value range of your target channel. Use the usual *copy* and *paste* controls to get the sound information into the desired animation channel.

**HELP** gets you here!

**Reset** sets default values for the current frame.

## 47 SpeedSix.TrailPath

### PURPOSE

Draws a trailing brush along a path set by up to 7 key points. A whizzy whacky trail not necessarily related to the input action.



### INPUT CLIP

**TrailPath Clip:** to draw the trail on.

**Brush Clip:** to create brush from.

### Setting Up

- originally there are only 3 points displayed to be used to create the path along which the trail swoops.
- drag them around to suit.
- turn on more points as you will, and set up the path to follow.
- there are default **Z Point** values set but they will not be used unless called for. Read on.
- the length of the trail is set by **Head/Tail Fade**; the number of frames positions along the path to fade out over.
- **Peak Position** controls how far along the trail path the brightest point of the brush is, measured in percentage of the line length.
- the **Path Resolution** will set the smoothness of the curve of the path. The minimum is 5 but that is rather an angular path missing some of the control points!.

That is the basic setup to trail the default brush.

### The Brush

- you can set the **Size, Orientation and Intensity**; though the orientation will only become really noticeable when you use a brush other than **Blob**.
- the **Seed** will only have a minor affect on the basic **Blob** brush patterning.
- the colour of the trail can be set either using **Own Colours** which are taken directly from the colours in the brush chosen, or from the RGB settings. With **Trail Only** you get a trail of the one chosen colour, while with **Blended** you can have a change of colour over the trail length.
- you can read in an **Image** to be your brush mark or select a paint **Brush** to draw with. Make your choice and use the **Browse** button to select the desired brush.
- if you want to you can cut out part of the second input clip to use as the brush. Select **Boxed Luminance** and a magenta overlay appears.
- Drag this into position to define the brush.
- select for **Over or Add** for the way the trail is composited with the background image.

**Adding Depth** Beware this can slow things up! but adds another dimension to the trail.

- for each point used set a value for **Z Key** going from -5.0 (furthest away from you) to 5.0 (nearest). The overlay circles will change size a little to give you an idea of which point is where in Z.
- as the distance away changes a smaller/larger brush is drawn. The trail can then appear to grow/shrink along its path.
- the size calculated always refers to the **Base Size** setting as a starting point.

- switch from **Basic** to **With Z Depth** and observe.

### Rotating the Brush

- set up key frames for the **Orientation** control.
- select **With Rotation** and the brush is rotated along the path adding a swirly motion.
- the **Z Key** information will be ignored!
- put both the Z scaling and the rotations together with **Both Z and Rotation**. As you can imagine a lot of brushes have to be scaled and rotated at this point so things can slow down.....

### FULL...1/32 (Default: FULL)

Use lower resolutions for faster results but less detail.

### SOUND

Channel curves from **SpeedSix.AiffExtract** can be imported into the **Amplitude Import** curve to control any of the animation channels.

### Import Amplitude File

Using the file browser select the file you saved in **SpeedSix.AiffExtract**. The data is then loaded into the **Amplitude Import** channel.

### Amplitude Import ( Min: -1000.0 Max: 1000.0)

The value range of this channel matches the potential range within **SpeedSix.AiffExtract**. Scale and translate the imported channel data to match the value range of your target channel. Use the usual *copy* and *paste* controls to get the sound information into the desired animation channel.

**HELP** gets you here!

**Reset** sets default values for the current frame.

## 48 SpeedSix.Turbulo (Discreet Box9)

---

### PURPOSE

Distortion of the input clip through turbulence (a sort of procedural noise function). The amplitude of the turbulence at each point on the image determines the degree and direction of a local warping of the image.



### INPUT CLIPS

- 1: Turbulate** : This clip will be pushed through the turbulence, distorting it.
  - 2: Background** : If you can see beyond the distorted clip you can optionally reveal this clip, the **Background** clip.
  - 3: Straight Matte** : To reveal the background use this matte, undisturbed by any turbulence to composite the distorted clip onto the background.
  - 4: Turbulated Matte** : This clip will also be turbulated before composting the distorted clip onto the background.
- 

### *Turbulo* CONTROL PAGE

**Speed X** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

**Speed Y** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

Speed of movement over the turbulence.

**Speed Z** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 50.0)

Speed of movement through the turbulence.

**Frequency 1** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

**Frequency 2** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 15.0)

Defines the internal features of the turbulence. The ratio of the two frequencies creates the

structure combined with the turbulence value. Swapping frequency values results in the same patterns.

**Seed** (Number **Min:** 1, **Max:** 999, **Default:** 100)

Changing the seed creates a completely new structure.

**Use Matte** (Checkbox **Default:** Off)

The third input clip can be used to define where the turbulence is seen. Where the matte clip is black the turbulence is totally transparent, and where white fully visible.

**Invert Matte** (Checkbox **Default:** Off)

Reverses the effect of the straight matte clip; white becomes black etc.

**Mode** (List Box **Options:** Turbulence | Noise, **Default:** Turbulence)

A choice of function for the structuring.

**Edge Wrap** (Checkbox **Default:** Off)

**On:** the turbulence image will wrap round.

**Off:** the background, second clip, is revealed where the turbulence image is dragged from the edge.

**Turbulence** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 90.0)

The detailing of the turbulence applied to the clip. 0.0 has no effect; low numbers create broad swirls; high numbers fine wiggles.

**Use Turb Matte** (Checkbox **Default:** Off)

The fourth input clip can be used to define where the turbulence is seen. Similar to the matte, in that it is used to composite the first clip over the second, but here the control clip has the turbulence applied to it also.

**Invert Turb Matte** (Checkbox **Default:** Off)

Reverses the effect of the turbulated matte clip; white becomes black etc.

**Soften Turb Matte** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 0.0)

Blurs the control image and thus softens the edges of the turbulence.

**Demos** (List Box **Options:** Style1 | Style2 | Style3 | Style4, **Default:** Style1)

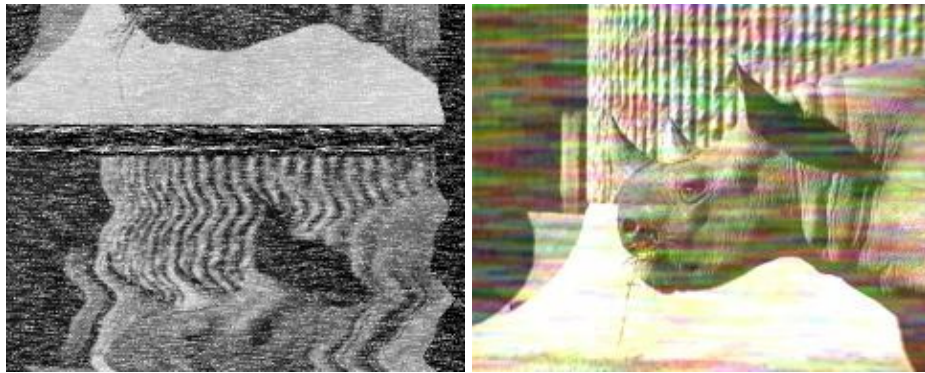
Select a preset to get you going.

## 49 SpeedSix.TV (Discreet Box10)

---

### PURPOSE

Simulate watching TV; from a very old B/W set with bad reception onwards. There is also a picture roll facility for recording a TV screen and a fast forward play option for a video tape. A range of tuning features can optionally affect the quality of the broadcast. These effects are added together – ghosting with edge enhancement, horizontal hold, horizontal wrap, vertical roll, snow (noise), input resolution, the usual colour and contrast controls, gun alignment, scan lines and recording roll – till the desired effect is created. Added to this the sequence can be fast forwarded and the TV set turned off giving the old white dot (if you can remember this effect!). There is also an aerial provided which you can move around and rotate. This will affect a selection of the parameters depending on where it is and its orientation. But like all aerials it may well depend on the weather as to what you get.



### INPUT CLIPS

1: Input

---

### TV CONTROL PAGE

**BW TV** (Checkbox **Default:** On)

See also: **Colour TV**

It is a black and white television or a black and white film shown on a colour set.

**Colour TV** (Checkbox **Default:** Off)

See also: **BW TV**

A colour television.

**Default** (Pushbutton)



Revert to default values for the TV settings

**Scan Lines** (Checkbox **Default:** Off)

This breaks up the image into discrete bands giving the effect of low resolution transmissions.

**Default** (Pushbutton)

Revert to default values for the Scan Lines settings

**Scan Width** (Number **Min:** 1, **Max:** 800, **Default:** 3)

How many lines in the current image represents one in the output. This is not pixel and line replication but an intensity effect.

**Brightness** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

Scales the brightness of the resulting scanned image.

**Contrast** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

Adjust the contrast of the television

**Lift** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 0.0)

Adjust the lift of the television

**Brightness** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

Adjust the brightness of the television

**Colour** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

Adjust the amount of colour present in the image

**Red** (Number **Min:** 0.00, **Max:** 200.00, **Default:** 100.00)

Adjust the amount of red present in the image

**Green** (Number **Min:** 0.00, **Max:** 200.00, **Default:** 100.00)

Adjust the amount of green present in the image.

**Blue** (Number **Min:** 0.00, **Max:** 200.00, **Default:** 100.00)

Adjust the amount of blue present in the image

**Snow** (Checkbox **Default:** On)

Add noise to the image.

**Default** (Pushbutton)

Revert to default values for the TVSnow settings

**Snow Brightness** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

The brightness of the noise.

**Snow Density** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

The density of the noise.

**Snow Styling** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 1.0)

Low numbers give longer lines of noise; high numbers pixel sized noise.

**Fuzzy Snow** (Number **Min:** 0.0, **Max:** 10.0, **Default:** 0.0)

Defocus the noise.

**Demos** (List Box **Options:** Bad Colour | BW Ghosts | Horizontal Hold | Fast Fix | BW Aerial | Colour Aerial | Overload | Repair, **Default:** Bad Colour)

Select a preset to get you going.

---

## ***Ghost+* CONTROL PAGE**

**Ghosts** (Checkbox **Default:** Off)

Include ghosts or not.

**Default** (Pushbutton)

Revert to default values for the Ghost settings

**Ghosts** (Number **Min:** 0, **Max:** 10, **Default:** 4)

A value of 0 gives no ghosting. This is similar to turning ghosts off but you can dynamically add in ghosting during the sequence by animating the value. Ghosts greater than about 4 are hard to see (it will depend on the other parameters). If you can trim the number of visible ghosts it will speed things up a little.

**Ghost Offset** (Number **Min:** -400.0, **Max:** 400.0, **Default:** 12.0)

Specifies the maximum offset for the first ghost. Subsequent ghosts are proportional to this.

**Ghost Bright** (Number **Min:** 0.0, **Max:** 500.0, **Default:** 100.0)

How intense the ghosts may be.

**Negative Ghosts** (Checkbox **Default:** Off)

With Negative Ghosts selected the ghosts are sucked out of the image rather than added to it.

**Edges** (Checkbox **Default:** Off)

Turns the edging effect on/off.

**Default** (Pushbutton)

Revert to default values for the Edge settings

**Edge Width** (Number **Min:** 0.01, **Max:** 10.00, **Default:** 3.00)

The width of the edging effect.

**Edge Depth** (Number **Min:** 1.0, **Max:** 500.0, **Default:** 60.0)

The intensity of the edging effect.

**Aerial Position** (Position **Default:** 0.500, 0.500)

**Aerial Angle** (Number **Min:** 0.0, **Max:** 360.0, **Default:** 0.0)

The aerial can be dragged around and rotated. Various effects will change as you move it about, depending of course on what is turned on. There is no telling what the aerial will do, as mentioned before, atmospheric conditions will affect these things unless you are in a very good reception area – i.e. the center of the screen pointing east.

**Roll** (Checkbox **Default:** Off)

When you shoot the screen off a TV you often get the illusion of a dark band rolling down the image.

**Default** (Pushbutton)

Revert to default values for the Record Roll settings

**Roll Speed** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 15.0)

The speed in lines per frame, with which the effect moves down the screen.

**Roll Width** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 15.0)

How many lines the roller band affects.

**Roll Dim** (Number **Min:** 0.0, **Max:** 200.0, **Default:** 100.0)

As the dim value increases the roller region becomes darker.

**Roll Offset** (Number **Min:** -100.0, **Max:** 100.0, **Default:** 10.0)

The offset added to the current roller position.

---

## **Hold+ CONTROL PAGE**

**HzHold** (Checkbox **Default:** On)

Simulate losing control of your horizontal hold. The image is offset horizontally by two interacting wave forms which can be shifted across and rolled down the screen.

**Default** (Pushbutton)

Revert to default values for the HzHold settings

**Scale 1** (Number **Min:** 0.0, **Max:** 600.0, **Default:** 12.0)

**Scale 2** (Number **Min:** 0.0, **Max:** 600.0, **Default:** 37.0)

The two scales amplify the the wave form. If both are 0.0 there is no horizontal hold effect.

**Phase 1** (Number **Min:** 0.0, **Max:** 600.0, **Default:** 55.0)

**Phase 2** (Number **Min:** 0.0, **Max:** 600.0, **Default:** 6.0)

The number of cycles in each wave form. Having a 2:1 ratio gives a nice oscillation. The higher the numbers the wigglier the waves.

**Roll 1** (Number **Min:** 0, **Max:** 1024, **Default:** 0)

**Roll 2** (Number **Min:** 0, **Max:** 1024, **Default:** 0)

As the sequence progresses the horizontal wave forms move down the screen by the roll value per frame.

**Shift** (Number **Min:** -1500, **Max:** 1500, **Default:** 0)

Shift and wraps the whole wave form left or right.

**Wave** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 100.0)

Scales the effect of the wave form down the screen. At 0.0 it starts at nothing and builds up down the screen.

**HWrap** (Checkbox **Default:** Off)

Simulate losing control of your horizontal hold. Each line of the signal overflows and image appears to wrap round.

**Default** (Pushbutton)

Revert to default values for the HWrap settings

**Coarse** (Number **Min:** 0.0, **Max:** 1000.0, **Default:** 100.0)

**Fine** (Number **Min:** 0, **Max:** 1024, **Default:** 8)

These are the **Coarse** and **Fine** adjustments to the scan line overflow. Changing the **Fine** value extends the line in pixel increments; the **Coarse** in line length increments.

---

## **Roll+ CONTROL PAGE**

**V Roll** (Checkbox **Default:** Off)

Simulate losing control of your vertical hold. The image rolls up or down the screen, wrapping round.

**Default** (Pushbutton)

Revert to default values for the VRoll settings

**Roll Speed** (Number **Min:** -1024, **Max:** 1024, **Default:** 5)

The speed in pixels per frame at which the image is rolled round.

**Roll Offset** (Number **Min:** 0, **Max:** 5000, **Default:** 100)

This offset is added to the current position. Animating the offset can counteract the roll speed causing the roll to reverse direction.

**Fast Forward** (Checkbox **Default:** Off)

Simulation of what happens when a tape is fast forward with the playing head still on.

**Default** (Pushbutton)

Revert to default values for the Fast Forward settings

**With Bars** (Checkbox **Default:** On)

User request option to have black bars or not.

**Gun** (Checkbox **Default:** Off)

Gun (mis)alignment distortion effect

**Default** (Pushbutton)

Revert to default values for the Gun settings

**Red Gun** (Number **Min:** 5.0, **Max:** 200.0, **Default:** 110.0)

Scales the image red gun provides, thus misaligning the images.

**Green Gun** (Number **Min:** 5.0, **Max:** 200.0, **Default:** 105.0)

Scales the image green gun provides, thus misaligning the images.

**Blue Gun** (Number **Min:** 5.0, **Max:** 200.0, **Default:** 100.0)

Scales the image blue gun provides, thus misaligning the images.

**Speed** (Number **Min:** 1, **Max:** 100, **Default:** 1)

Which frames to use; 1 = all, 6 = every 6th etc [simulated due to api issues in certain products.]

**Smear** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 10.0)

Accentuate the speed.

**White Dot** (Checkbox **Default:** Off)

Simulation of the White Dot effect – powering down old TV screens, can you remember that one?

**Default** (Pushbutton)

Revert to default values for the White Dot settings.

**White Dot** (Number **Min:** 0.00, **Max:** 1.00, **Default:** 0.4)

At 1.0 the picture will not be affected. As the values decrease the image is squashed into a circle and the brightness increased to white.

**Blur Rate** (Number **Min:** 0.00, **Max:** 50.00, **Default:** 0.0)

Fuzzing the white dot.

# 50 SpeedSix.TVWall (Discreet Box12)

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## PURPOSE

A wall of televisions.



## INPUT CLIPS

- 1: **Clip 1** : The first clip to be seen in the tv screen
- 2: **Clip 2** : Alternative clip or combine with Clip 1 to form patterns
- 3: **Background** : The clip seen behind the wall of tv sets.

---

## TVWall CONTROL PAGE

**Pattern** (List Box **Options:** All Clip 1 | All Clip 2 | Chessboard | Vertical | Horizontal | Squares, **Default:** Chessboard)

- All Clip 1:** only clip 1 is used to fill the screens.
- All Clip 2:** only clip 2 is used to fill the screens.
- Chessboard:** both clips are used in alternate screens.
- Vertical:** both clips are used in alternate columns of screens.
- Horizontal:** both clips are used in alternate rows of screens.
- Squares:** both clips are used in concentric rings of screens.

**Match Scales** (Checkbox **Default:** On)

**Off:** differing numbers of screens can be used in the X and Y directions. This will distort the input clip, stretching and squashing as necessary.

**On:** the number of screens in X and Y is kept the same; thus keep the aspect ratio of the input clips.

**Screens in X** (Number **Min:** 1, **Max:** 10, **Default:** 7)

**Screens in Y** (Number **Min:** 1, **Max:** 10, **Default:** 7)

How many screens are used.

**Percentage Gap** (Number **Min:** 0.0, **Max:** 100.0, **Default:** 5.0)

At 0.0 the screens are packed as tightly as possible together. Increase the gap to see in between the screens.

**Balance Gaps** (Checkbox **Default:** Off)

Activate to compensate for aspect ratio on the grid. It may distort the TV programs.

**Split Clip** (Checkbox **Default:** Off)

**Off:** The images are scaled down to the size of the screens.

**On:** the full image is cut up to fit the screens.

**Clip 1 Slip** (Number **Min:** -10000, **Max:** 10000, **Default:** 0)

**Clip 2 Slip** (Number **Min:** -10000, **Max:** 10000, **Default:** 0)

This sets the starting position offset of either clip.

**Clip 1 Offset** (Number **Min:** 0, **Max:** 10000, **Default:** 0)

**Clip 2 Offset** (Number **Min:** 0, **Max:** 10000, **Default:** 0)

At 0 each screen contains the same input frame from the required clip. As the Offset increases, each screen in the current frame uses a sequential frame from the input clip, calculated using this value. e.g. with an Offset of 1 the screens will use input frames 1, 2, 3, 4, etc from the appropriate clip.

**Flat Colour Back** (Checkbox **Default:** Off)

**Off:** the background if seen, uses the 3rd input clip.

**On:** the background is filled with the chosen flat colour.

**Back Colour** (Colour Box **Default:** R: 65535, G: 65535, B: 65535, A: 65535)

The desired background colour.

---

## **Light CONTROL PAGE**

**Use Light** (Checkbox **Default:** Off)

The screens can be lit to give the illusion of individual surfaces.

**Off:** the lighting parameters will be ignored and the surfaces not lit.

**On:** the screens are lit.

**Light Position** (Position **Default:** 0.5,0.5)

**Light Position Z** (Number **Min:** 0.05, **Max:** 5.0, **Default:** 0.5)

The position of the light.

**Light Colour** (Colour Box **Default: R: 65535, G: 65535, B: 65535, A: 65535**)  
The colour of your light bulb.

**Brightness** (Number **Min: 0.0, Max: 200.0, Default: 100.0**)  
Turn up/down the wattage.

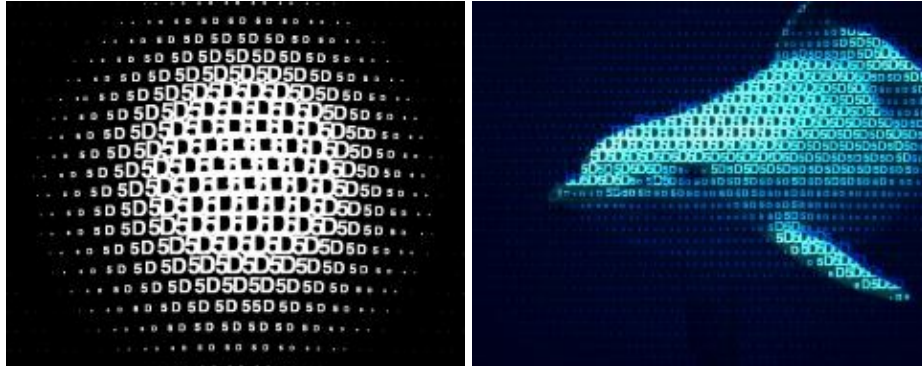
**Gloss** (Number **Min: 1.0, Max: 1000.0, Default: 44.0**)  
The higher the gloss value the tighter the highlight.



# 51 SpeedSix.Typo

## PURPOSE

Purpose Generates an output image from the characters of a text message, repeated as required to fill the output image. Each character is scaled according to the *luminance of the input image* at the point at which the character is drawn. This creates a novel representation of the input image. There are several options for combining the information in the input image with the characters drawn in the output image.



## INPUT CLIP

**Text Texture Clip:** an input image used to control the size of the output characters and, optionally, their colour. The input image can also be revealed through the characters drawn in the output image.

## CONTROLS

### TYPE SETTING

**Base Size** (Min: 3.0 Max: 50.0 Default: 20.0)

The height of a capital letter in pixels.

**Black Scale** (Min: 0.01 Max: 50.0 Default: 0.01)

Scaling factor applied to the base size for black regions of the input image.

**White Scale** (Min: 0.01 Max: 50.0 Default: 3.0)

Scaling factor applied to the base size for white regions of the input image. Output character sizes will range from **Black Scale** times **Base Size** to **White Scale** times **Base Size** pixels.

**Line Spacing** (Min: 0.1 Max: 10.0 Default: 1.5)

Distance between lines in multiples of **Base Size**.

### Font List

A popup menu which lists the fonts available to draw characters in. All characters are drawn in the same font. The entries in this list are the names of files found in the directory /usr/local/jaws/fonts when SpeedSix.Typo is loaded. These should contain Unix format Adobe Type 1 font definitions as discussed below. Due to limitations on the size of a popup menu, the fonts are presented in groups of 18. Use the "**More Fonts**" button to get the next set of 18 available fonts.

### More Fonts

Find the next 18 available fonts and update the entries in the **Font List** popup menu with their names. Clicking this will

eventually cause the names to cycle around.

**Message** (Default: hello)

The message to be drawn. Characters from this message are used, cycling as needed, to fill the output image.

#### APPEARANCE

**Plain/Cols on Plain/Plain on Cols/Lift/Emboss/Emboss Plain** (Default: Plain)

Select the rendering style.

**Plain:** draws the characters as constant foreground colour shapes on the background color.

**Cols on Plain:** the input image is revealed through the shapes of the characters. Outside the characters, the background colour is used.

**Plain on Cols:** the input image is revealed through areas outside the shapes of the characters. The insides of the characters are coloured with the foreground color.

**Lift:** The brightness of the input images is increased inside the characters and decreased outside. See **Fore Bright** and **Back Bright**.

**Emboss:** The characters are used to emboss the input image.

**Emboss Plain:** The characters are used to emboss a plain grey image.

**Emboss Angle** (Min: 0.0 Max: 360.0 Default: 0.0)

The angle from which embossed text is lit measured widdershins in degrees from zero at due East.

**Emboss Depth** (Min: 0.0 Max: 10.0 Default: 1.0)

Depth to which the text is embossed. The higher the value, the greater the embossing strength.

**Invert Image** (Default: Off)

Reverses the luminance of the input image for the purposes of determining character scaling.

**1st colour box** (Default: white)

The *foreground* colour (see rendering styles, above)

**2nd colour box** (Default: black)

The *background* colour (see rendering styles, above)

**Fore Bright** (Min: 0.0 Max: 3.0 Default: 1.0)

In **Lift** mode, maximum scaling of the input image luminance inside a character.

**Back Bright** (Min: 0.0 Max: 1.0 Default: 0.3)

In **Lift** mode, minimum scaling of the input image luminance outside a character.

#### REGION TO RENDER

Only the area within the magenta rectangle will be used for rendering characters.

**Match Scales** (Default: On)

**On:** will give proportional scaling of the ROI box.

**Scale XY** (Min: 0.01 Max: 1.0 Default: 1.0)

The size of the ROI box. Drag the magenta squares.

**XY Center** (Default: center)

The center of the ROI box. Drag the white cross.

**RENDERING**

The output image is rendered by Jaws, the SpeedSix PostScript interpreter and RIP. This is capable of very high quality anti-aliased output.

**Anti Aliasing Samples** (Min: 1 Max: 5 Default: 4)

Oversampling factor to use when rendering. Setting this to 4 or 5 is recommended, as Jaws isn't significantly slower doing good anti-aliasing than not (in most cases).

**FULL...1/32** (Default: FULL)

Use lower resolutions for faster results but less detail.

**SOUND**

Channel curves from **SpeedSix.AiffExtract** can be imported into the **Amplitude Import** curve to control any of the animation channels.

**Import Amplitude File**

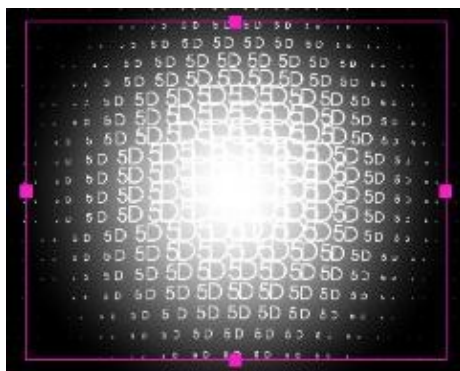
Using the file browser select the file you saved in **SpeedSix.AiffExtract**. The data is then loaded into the **Amplitude Import** channel.

**Amplitude Import** ( Min: -1000.0 Max: 1000.0)

The value range of this channel matches the potential range within **SpeedSix.AiffExtract**. Scale and translate the imported channel data to match the value range of your target channel. Use the usual *copy* and *paste* controls to get the sound information into the desired animation channel.

**HELP** gets you here!

**Reset** sets default values for the current frame.

**OVERLAYS**

Size of the region of interest to render = magenta rectangle.

Center of the region of interest = white cross.

### About Fonts

In order to render text correctly, Jaws must have access to the fonts used when the document was created. This means these fonts must be present on the machine running DL FFI. If the required font is not available when an item of text is rendered, it will be drawn using the **Helvetica** font, and it is very likely that the character spacing will be totally wrong.

Jaws uses fonts in Adobe Type 1 format stored in the directory:

`/usr/local/jaws/fonts`

**SpeedSix.Typo** comes with 67 Type 1 fonts. You can add other fonts to `/usr/local/jaws/fonts` at any time. They must, however, be in Unix Adobe Type 1 format. Type 1 fonts are often supplied in Macintosh or PC format rather than Unix format.

Two very simple command line programs are supplied that convert Macintosh and PC Type 1 fonts to Unix format. These are called *mac2ps* and *pc2ps* respectively. To use them, you must transfer the font file to convert from your Macintosh or PC to your SGI machine using some method, which does not corrupt the contents (e.g. use binary mode FTP rather than ASCII mode). Unfortunately, we cannot advise you on the specifics of transferring data between PC's and (especially!) Macintoshes and SGI machines.

As an example, to convert a Type 1 font file from a PC environment, containing the Times–Roman font and called "TIB\_\_\_\_.PFB", you would use:

*pc2ps TIB\_\_\_\_.PFB*

This will create a file in the current directory which is the name of the font contained in the font definition. In this case, the file will be called "Times–Roman". You then copy this file to `/usr/local/jaws/fonts`, and Times–Roman will then be available. (Times–Roman is, of course, one of the fonts supplied with **SpeedSix.Typo**, but you get the idea...).

*pc2ps* and *mac2ps* are installed in the `/usr/local/jaws/bin` directory, so you will need to have this in your PATH, or type the full name to run these programs.

Please note that FONTS ARE COPYRIGHT. We cannot supply any fonts other than those that come with Jaws (and hence with **SpeedSix.Typo**). Please respect the licensing agreements of other font suppliers.