Tutorial: Using the GAP (Gimp Animation Package)

This tutorial was last tested for the Gimp 2.2.12

Overview

This tutorial first explains how GIF animations are treated by the Gimp and then expands on that foundation by explaining how the Gimp Animation Package takes Gimp animation to the next level. It will explain how to install the GAP from the Redhat package--even for non-Redhat systems, how to obtain the GAP documentation that the Redhat package apparently leaves out, and, most importantly, demystifies the GAP for creating GIF animations for the Web.

It will be as complete as I can make it, providing a solid foundation for understanding how the GAP treats animations and then explaining the finer points of the package to illustrate some of its more useful features for GIF animation. My goal is to provide a one-stop tutorial for Gimp animation that goes from complete beginner to intermediate knowledge that other tutorials skip or gloss over.

Steps

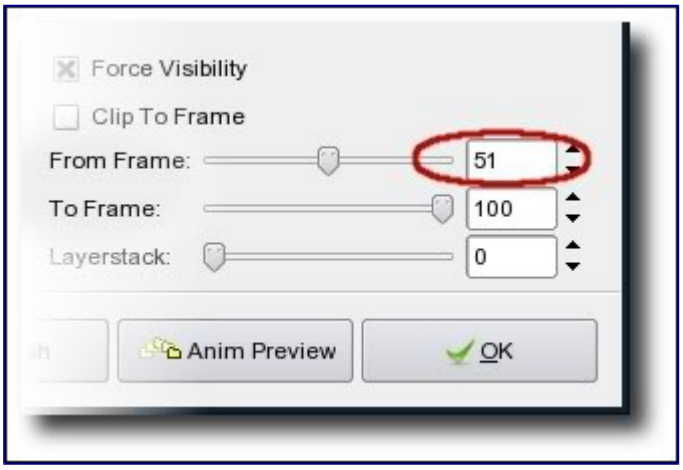
1. Simple Gimp Animations

GIF animations are sequences of Grayscale or Indexed color images with timing information attached. The Gimp allows the creation of animated GIf's by placing each image in its own layer and attaching timing information through modification of the layer comment.

The Gimp provides some filter add-ons that create animations that may be integrated with more complex GAP animations as well as a way to play animations either created by or loaded into the Gimp. These add-ons are found in the **<Image>Filters/Animation** menu. For those unfamiliar with the preceding menu path, **<Image>** refers to the window containing your image. **Filters** is a top-level menu in this window. And Animation is a submenu of the image window's **Filters** menu. To play animations in the Gimp, open the **<Image>Filters/Animation/Playback...** item. This will open a new window containing a view of the first frame of the animation along with controls for playing the animation in a loop or for stepping through it frame-by-frame.

Another useful Gimp feature for creating GIF animations is the **<Toolbox>File/Create/Logos** menu. Here you can create very cool text logos that can be animated with Gimp's built-in Animation or incorporated into GAP animations. Together with the Gimp's **Layers** dialog, these tools make creating simple GIF animations easy.

To get started, create a new Gimp image by opening the **<Toolbox>File/New...** or **<Image>File/New...** dialog, or by pressing **Ctrl+N** on the keyboard.



Alternatively, open an existing image by using the **<Toolbox>File/Open** or **<Image>File/Open** dialogs, by pressing **Ctrl+O** on the keyboard, or by dragging an image icon from your desktop to the Gimp's toolbox (my personal favorite file-opening shortcut). If the **Layers** dialog is not already open, open it by choosing the **<Toolbox>File/Dialogs/Layers** or **<Image>Dialogs/Layers** menu item, or by pressing **Ctrl+L** on the keyboard.

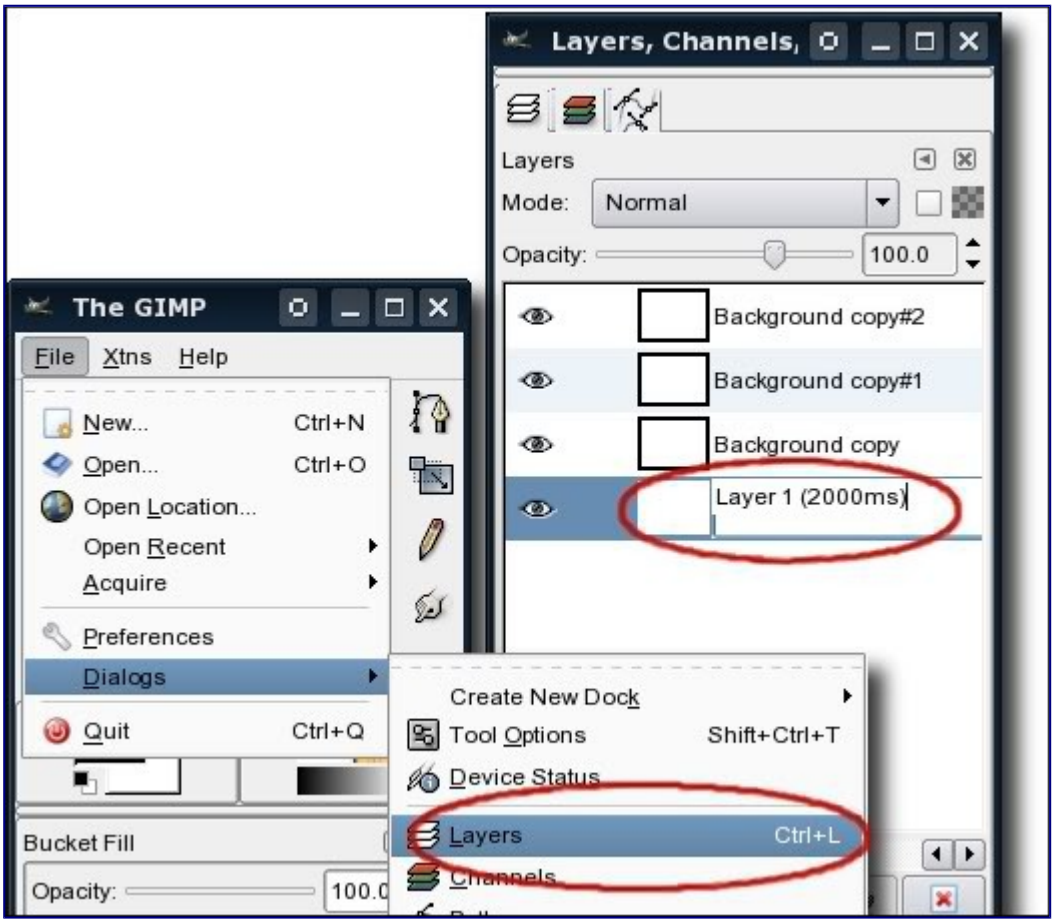
This simple example will not go into a lot of detail about hand-crafting animations other than to show you the general procedure. I only want to explain it in enough detail so that if you need to, you can fine-tune an animation once it is created by one of the other automated methods I will describe. More detailed tutorials for simple GIF animations already exist at gimp.org.

Add images to your animation by copying and pasting or by duplicating the current layer and modifying the new copy. New layers can be created with the **<Image>Layer/New Layer...** dialog or **<Image>Layer/Duplicate Layer** menu item, by pressing the **New Layer** or **Duplicate Layer** buttons in the **Layers** dialog, or, after pasting an image into your animation, by pressing the **New Layer** button in the **Layers** dialog to turn the pasted image from a floating selection (Paste Layer) into a new layer.

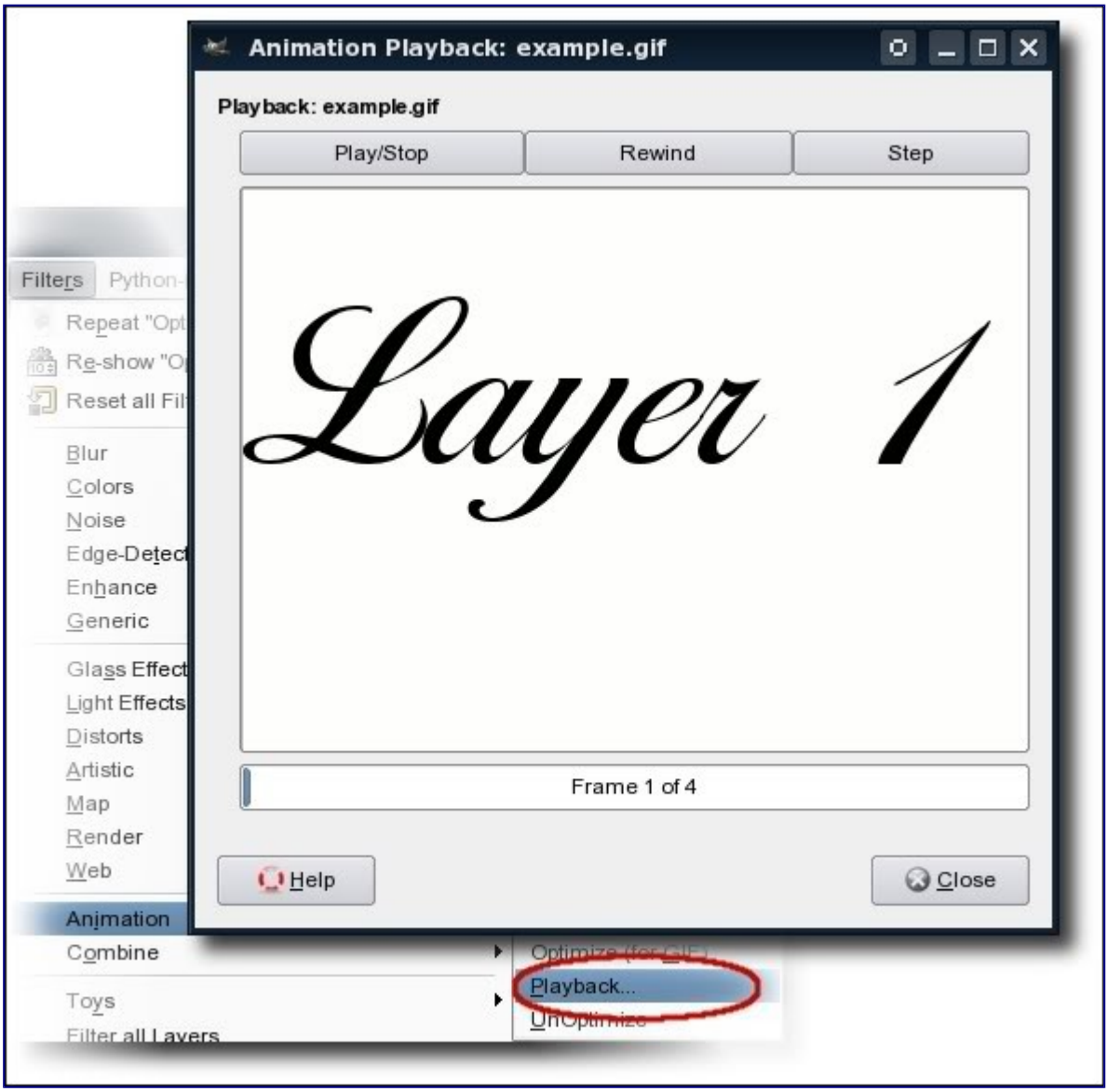
Once you have collected all of the images of your animation and pasted them as layers into your Gimp file, you can modify each layer's comment and add timing information. To do so, **double-click** the bottom layer in the **Layers** dialog, which is the first frame of the animation. This will enable you to edit the layer's comment. Timing information should be formatted as follows:

```
layer 1 (2000ms)
```

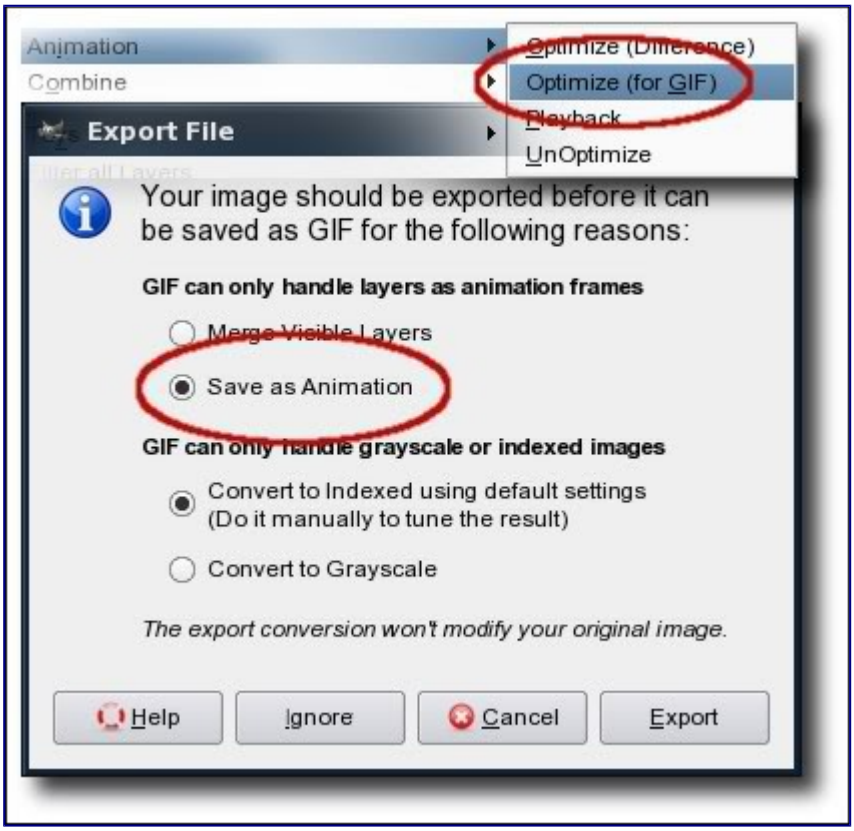
The number inside the parentheses indicates that this frame of the animation should be displayed for 2000 milliseconds, or 2 seconds. The layers can be named any way you wish, otherwise. Numbering them sequentially helps identify them, but is not strictly necessary. Press the **Enter** key on the keyboard when the comment is complete, then the **Up arrow** key, and press **Enter** again to edit the comment for each layer in turn.



When you have finished entering timing information for all of the frames you can view the results by opening the **<Image>Filters/Animation/Playback...** dialog.



When you are satisfied with the results, optimize your animation with the **<Image>Filters/Animation/Optimize (for GIF)** menu item. This will create a copy of your animation. **Save** it with a *.gif extension. Be sure to select the **Save as Animation** radio button in the following dialog. Otherwise, the Gimp will flatten the image by combining all layers into a single layer.

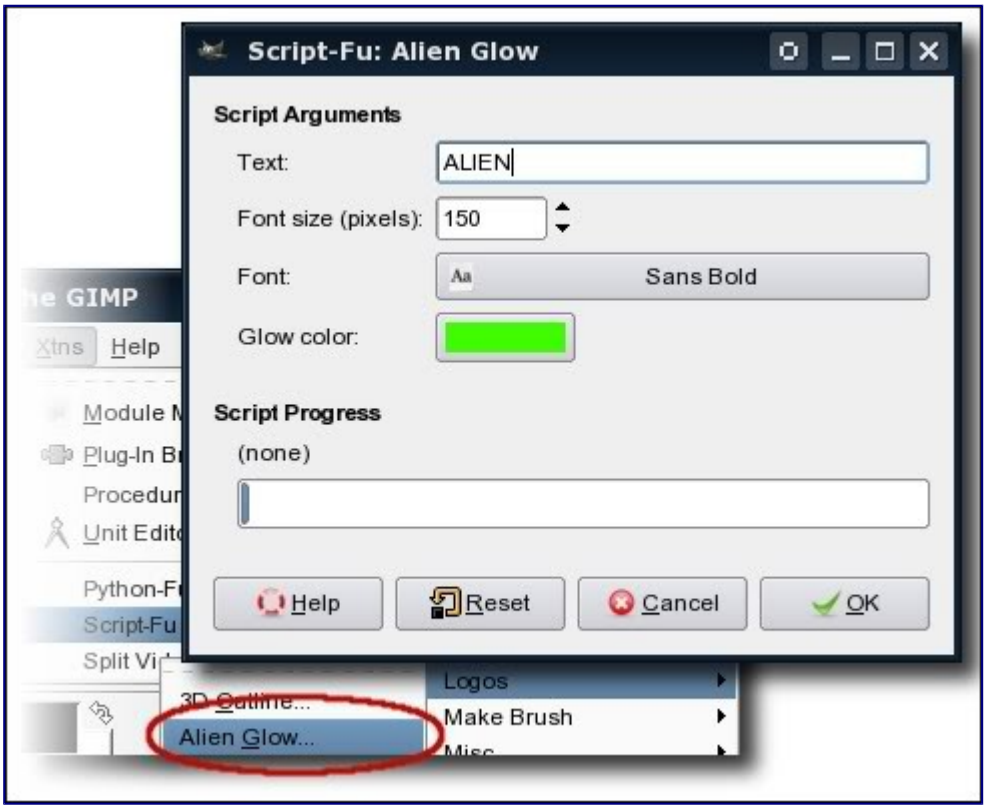


These steps, creating a Gimp image file, adding image layers, modifying the layer comment by adding timing information, optimizing for GIF, and saving as a GIF animation, are all there is to creating animations with the Gimp. Except, of course, that there is a whole lot more to it than that if you want to create ultra-cool effects and complex transitions, which we will get into next.

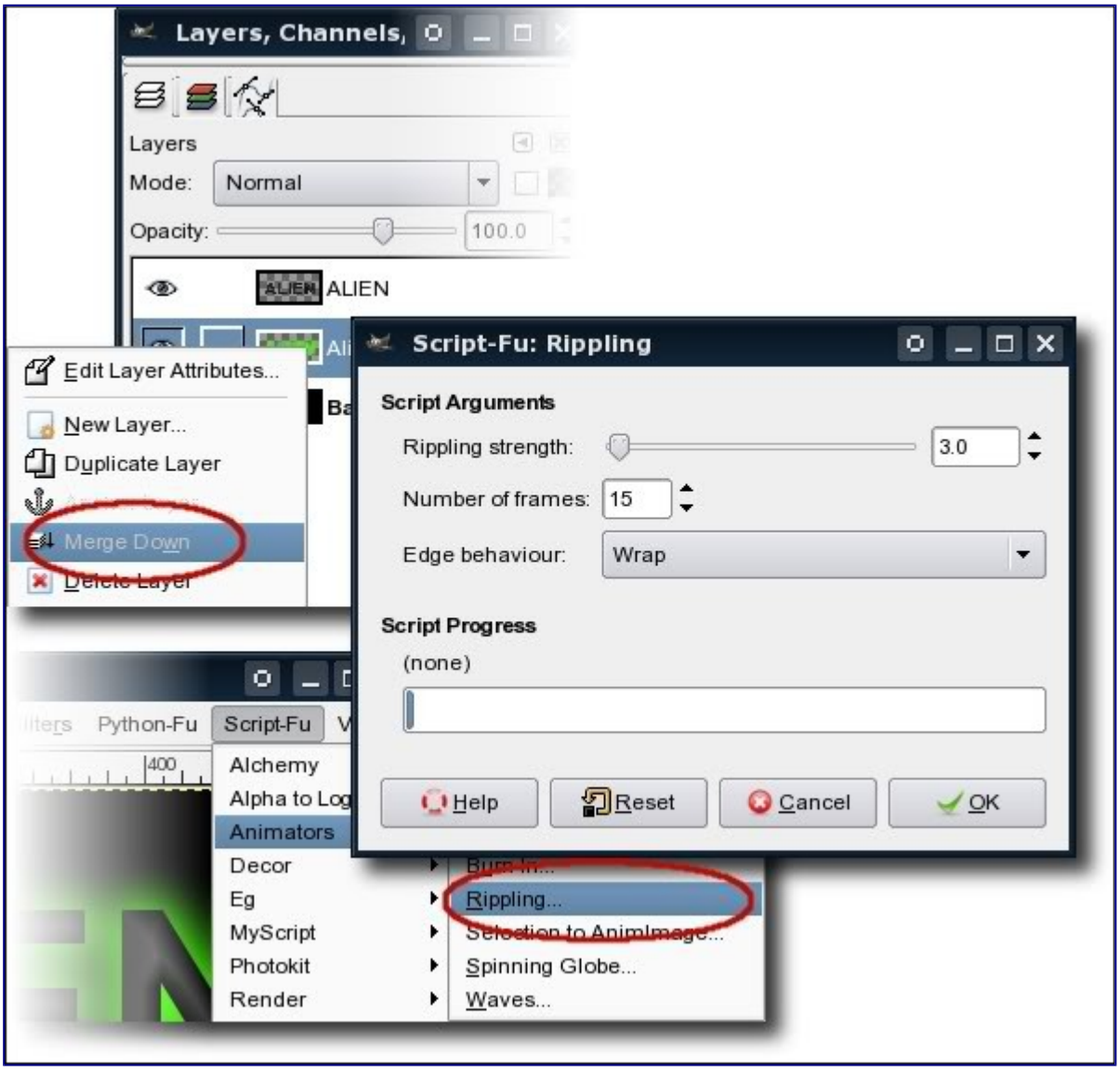
2. Simple Gimp Animation

Now we will move on to some more interesting features of the Gimp for generating animations automatically. For this process we will be taking advantage of the Gimp's logo creation filters. These scripts allow you to create and customize cool-looking text that you can animate with the Gimp's built-in animation.

Begin by opening the **<Toolbox>File/Create/Logos** menu and selecting **Alien Glow....**



For now, accept the defaults in the dialog that pops up and watch this script go to work. It will create a new image with the word ALIEN in green, glowing text on a black background. Make sure the new image's window is selected and go to the **Layers** dialog. **Right-click** on every layer and click **Merge Down** from the pop-up menu until only one layer remains. Then, from the new image, open **<Image>Filters/Animation/Rippling....**



Accept the defaults in this dialog for now. Again, a new image will be created, this time with a warped version of the ALIEN text from the first image. From this second new image, select **<Image>Filters/Animation/Playback....** A new window appears containing a view of the first frame of the animation. Click the **Play/Stop** button. The Gimp now plays back your newly-created animation. When you are done, click the **Close** button. You can now save the animation as a GIF using the procedure outlined above for creating simple Gimp animations or as a Gimp XCF file for use later in other animations.

The filters for logos offer the ability to change the text, font, and colors used for creating images and the animation filters allow you to customize the number of frames and other parameters specific to each animator. Some require your image to have multiple layers; some only work with one. Play around with both the logo and animation filters to see what kinds of cool text effects you can create and to see what other interesting animation effects you can generate.

Installing GAP

Windows users have it easy. There is a setup program available that installs the GAP at ~~http://gimp-win.sourceforge.net/stable.html~~. Red Hat users have it easy. There is an RPM package that does the same. Debian users have it easier still... Blah, blah, blah. I use SuSE, which normally has nice packages available. Not so with the GAP. The source code for GAP is at ~~ftp://ftp.gimp.org/pub/gimp/plug-ins/v2.2/gap~~. If you have development files installed on your system, you may be able to compile and install it from source:

```
$ ./configure
$ make
$ su
password:
# make install
```

An alternate method for installing the GAP on an RPM-based Linux system without a development environment is to install the Red Hat package and move the installed files to where SuSE installs the Gimp, so that the next time you start it up there is a nice, new **Video** menu added to your image windows. The RPM package can be downloaded from ~~ftp://rpmfind.net/linux/fedora/core/4/i386/os/Fedora/RPMS/gimp-gap-2.0.2-4.i386.rpm~~. It is not the most recent version of the GAP, however. After installing this package with your package manager you will find the GAP plug-ins at /usr/lib/gimp/2.0/plug-ins and the GAP scripts at /usr/share/gimp/2.0/scripts. To locate the system directories used for plug-ins and scripts by your version of the Gimp, open the **<Toolbox>File/Preferences** dialog and look in the Folders section. There will be sub-sections there for plug-ins and scripts. The Gimp's system directories will be listed there. Alternatively, you can copy the GAP files to the directories listed in the same dialog for your user account.

The RPM package neglects to include the documentation for the GAP. It is included in the source tarball for the GAP, though, so if you download and untar it from ~~ftp://ftp.gimp.org/pub/gimp/plug-ins/v2.2/gap~~, the doc files will be there. They are quite instructive once you have a basic grasp of how the GAP works.

GitHub: GNOME/gimp-gap

If everything goes smoothly, the next time you open an image in the Gimp, there will be a new menu on all of your image windows labeled **Video**. If not....

Introduction to the Gimp Animation Package

The Gimp Animation Package does much more than allow you to create GIF animations; full-blown videos can be edited with it. But for our purposes, the GAP's GIF animation features will do.

As I said earlier, the GAP takes Gimp animation to a whole new level. Where the Gimp treats each layer of a multi-layer image as a frame of an animation, the GAP treats each Gimp XCF file as a multi-layered frame of a single animation. The process of editing animations with the GAP creates as many Gimp XCF files as there are frames in your target animation. And each of those frames will contain multiple layers.

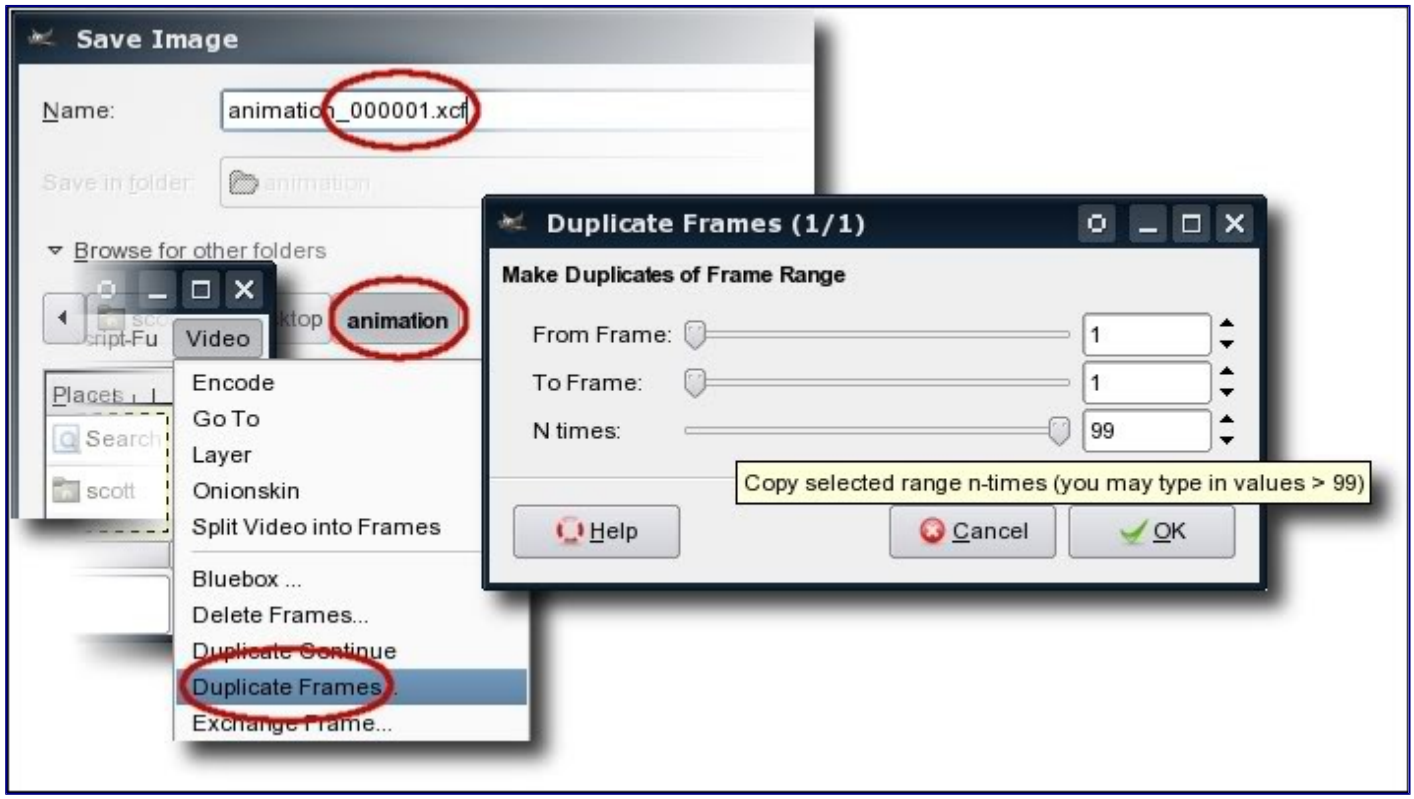
If you have ever created GIF animations with the Gimp that contained fading between different graphical elements and had to merge layers over and over for each frame by hand, you will appreciate what the GAP has to offer. It eliminates all of that by handling it automatically. Instead of having to calculate opacity changes yourself, you specify a starting opacity and an ending opacity and the number of frames for the transition. The GAP does the rest. It does the same for moving graphical elements from point to point in your animation and for perspective and rotation affects as well.

In order to create and edit animations with the GAP, your destination files will have to be able to handle layers and both source and destination files will have to have the same color mode, RGB or Indexed. Mixing the two color modes will not work. The Gimp's native XCF format is perfect for your destination file format. Source images can be any format as long as their color mode matches that of your destination frames. The GAP is very particular about the names you use for your destination files, also. The format is *any-old-filename_000001.xcf*. The part of the name it is picky about is the *_000001.xcf* part. The other part doesn't matter. If you try to operate on a file with any other file name format, the GAP will simply display an error message and exit.

Getting Started

So, to get started with the GAP, create a Gimp XCF file, end its name with *_000001.xcf*, and store it in its own folder. If you don't put it in its own folder you will end up with as many XCF files as there are frames in your animation populating whatever directory you happen to store it in. If that is your desktop, you'll have a huge mess to clean up later. Better to corral your animation in its own folder ahead of time and avoid the cleanup job altogether.

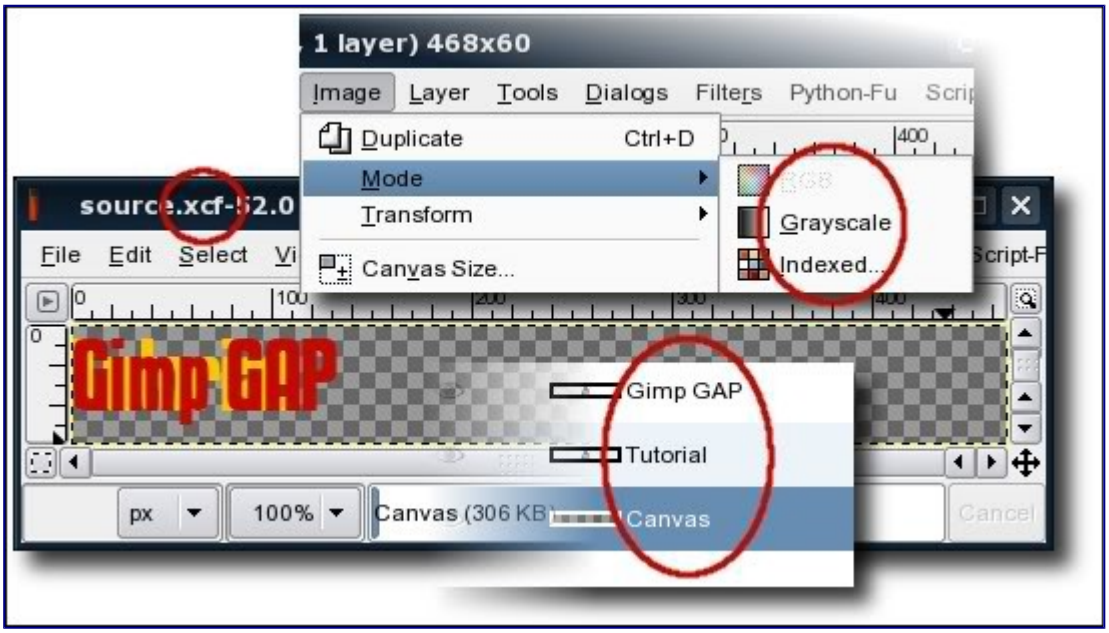
Now that you have a correctly named Gimp XCF file you need to create some frames for the GAP to work with. Remember, frames are just Gimp XCF files that have the correct file name format. You can create copies of the initial frame yourself from the shell or use the **<Image>Video/Duplicate Frames...** dialog.



The bottom slider of this dialog is labeled **N times**, and it will duplicate your animation frame as many times as you specify. So, if you want to create a 200 frame animation, set this slider to 199. Incidentally, the slider will only increase to 99, but **the spin box** next to it may be used to increase the number of frames duplicated beyond 99.

When you click the **OK** button your frames are created in the same directory where your initial frame resides without any further interaction from you. If you look in that directory, you will see many Gimp XCF files with *_000002.xcf*, *_000003.xcf* and so on as the final part of their file names.

The next step is to create a source image. This may be an XCF file or some other file format, but it may be named anything you like. You may place it in the same directory as your animation frame files. This file may contain multiple image layers, each being a different source image. Be sure that this file and your animation frame files have the same color mode set, either RGB or Indexed. Otherwise, the GAP will not recognize it as a valid source image.



This is a good place to store the logo text created with the Gimp's filters. If you delete the background layers from the images created by these logo scripts, animating them against the background layers in your animation will be much easier. Also, placing them in the upper left-hand corner of the source image will make it easier to precisely position them in your animation; the GAP calculates the upper left-hand corner of your source image's source layer from the upper left-hand corner of the image canvas, not the layer's upper left corner. I find it convenient to place **horizontal** and **vertical** guides at positions **0** and **0** on the source image canvas, so that when I move my source layers into position they snap into the upper left-hand corner. I also give them meaningful names to more easily identify them in the **GAP's Move Path** dialog, where they are identified by their **layer comment**.

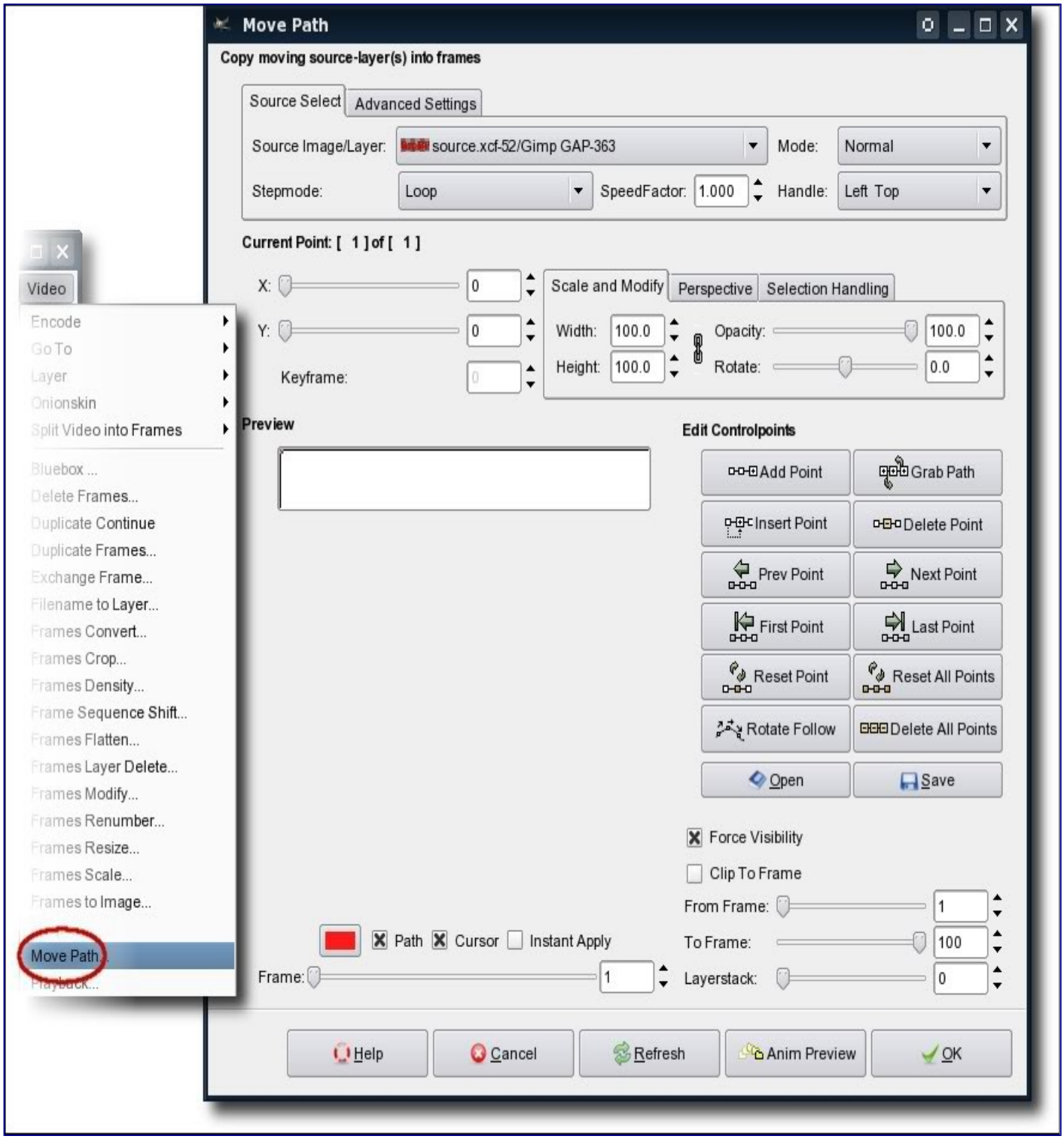
The Move Path Dialog

Once you have your source image created and populated with layers of graphics and text, it's time to start making things move. With one, and only one, of your animation frames open and one or more source images open, open the **Video** menu on the animation frame window and select **Move Path....** The reason I put it that way is that having more than one animation frame open may cause corruption of your animation files. So be sure you only have one animation frame open at a time. You can have multiple source images open. Just be sure that they and your animation frames all have the same color mode, e.g. Gimp XCF files that are all either Indexed or RGB, or Gimp XCF destination files that are Indexed and GIF source image files.

If you have followed my instructions precisely, the **Move Path** dialog should appear and the **Source Image/Layer** combo box at the top of the dialog should have one of your source layers **selected**.

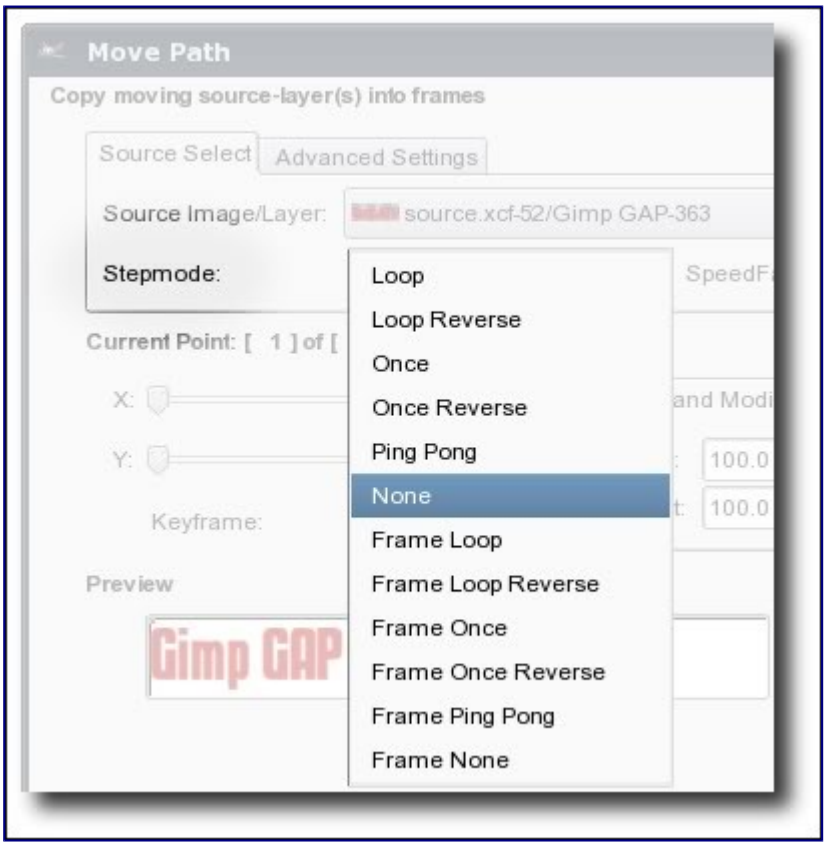
Incidentally, there is no reason to keep your source layer on screen for any of this; you will not be referring to it from here on. It only needs to be open so that the **Move Path** dialog can use it. The **Move Path** dialog will show you everything you need to see.

The **Move Path** dialog initially selects the upper-most layer of your source image. If this is not the one you want to work with, select another layer from the **Source Image/Layer** combo box. Two other settings in this dialog will make working with your source layer possible. The first is the **Instant Apply** check box found near the bottom left of the dialog.


Move Path
Copy moving source-layer(s) into frames
Source Select
Advanced Settings
Source Image/Layer:
source.xcf-52/Gimp GAP-363
Mode:
Normal
Stepmode:
Loop
SpeedFactor:
1.000
Handle:
Left Top
Current Point: [1] of [1]
X:
Y:
Keyframe:
Scale and Modify
Perspective
Selection Handling
Width:
Height:
Opacity:
Rotate:
Preview
Edit Controlpoints
Add Point
Grab Path
Insert Point
Delete Point
Prev Point
Next Point
First Point
Last Point
Reset Point
Reset All Points
Rotate Follow
Delete All Points
Open
Save
Force Visibility
Clip To Frame
From Frame:
To Frame:
Layerstack:
Path
Cursor
Instant Apply
Frame:
Video
Encode
Go To
Layer
Onionskin
Split Video into Frames
Bluebox ...
Delete Frames...
Duplicate Continue
Duplicate Frames...
Exchange Frame...
Filename to Layer...
Frames Convert...
Frames Crop...
Frames Density...
Frame Sequence Shift...
Frames Flatten...
Frames Layer Delete...
Frames Modify...
Frames Renumber...
Frames Resize...
Frames Scale...
Frames to Image...
Move Path...
Playback...
Help
Cancel
Refresh
Anim Preview
OK



This will instantly update the preview pane of your animation, which is located just above it. This allows you to see what you are doing. The second is the **Step Mode** combo box located directly below the **Source Image/Layer** combo box.



This box is always initially set to **Loop**. What this means is that the GAP will loop through each layer of your source image, mapping each layer to one frame of your animation. If your source image were an animation of its own, this might be a good setting to keep, as it would allow you to integrate an existing animation file into your GAP animation. But if what you want to do is animate a **single layer** of your source image, then set the **Step Mode** combo box to **None**.

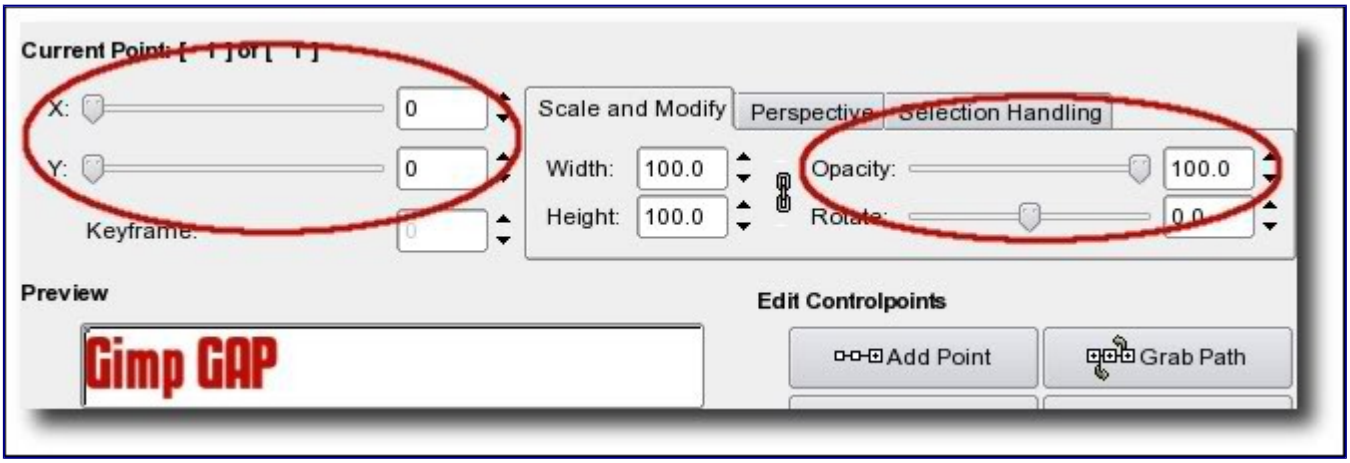
This combo box has several other settings available. They are **Loop**, **Loop Reverse**, **Once**, **Once Reverse**, **Ping Pong**, and **None**. As you might guess, these will loop through each layer of your source image (**Loop**), repeatedly mapping layers to frames, do the same thing in reverse (**Loop Reverse**), map each layer only once (**Once**), only once in reverse (**Once Reverse**), map forward and then backward repeatedly (**Ping Pong**), and none (**None**), which will stick with a single layer. The other options, which are the same as the ones above, appended with **Frame** are for integrating other GAP animations into the current GAP animation and work the same way as just described.

So, to animate a single layer of your source image, select **None** from the **Step Mode** combo box.

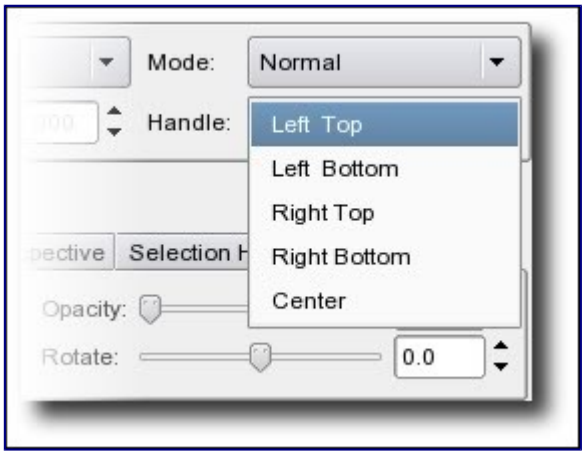
Points

The GAP operates on your animation by calculating the changes that you specify between **defined points**. A **point** is a sequentially numbered collection of attributes that defines the state of your animation at a given **point in time**. By default, the **first point** corresponds with the **first frame** of your animation and the **last point** corresponds with the **last frame**. For instance, you may specify that at **point 1** your source image is fully transparent and that at **point two** it is fully opaque. You may further specify that your source image is located at the bottom left corner at **point one** and at the upper right corner at **point 2**. This allows you to think only about the starting and ending state of your animation. You don't need to think about how to get from **point A** to **point B** (or, in GAP's terms, **point 1** to **point 2**); the GAP handles all of the details of calculating opacity changes and movement of images from one place to another. If you preview your animation at this stage, your source image will slowly come into view as it moves from the lower left corner to the upper right corner, where it will reach full opacity before the animation loops and begins again. I'll use this simple animation sequence to explain the GAP's features.

These two changes, **opacity** and **position**, are controlled by the **Opacity** slider and by the **X** and **Y** sliders.



Additionally, how your source image is placed depends upon what part of it is used to measure its position. This is controlled by the **Handle** combo box and may be any of the following values: **Left Top**, **Left Bottom**, **Right Top**, **Right Bottom**, or **Center**, which refer to the source image corners and center.

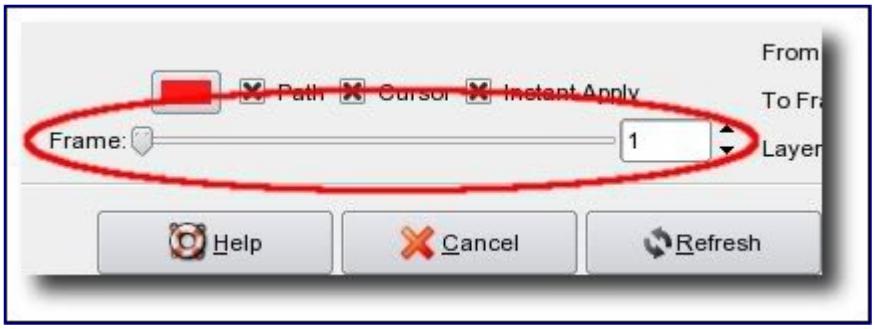


These handle positions are influenced by where in your source image the source layer resides. If your 50 pixel by 50 pixel source layer is at the bottom right corner of an image with a 300 pixel by 300 pixel canvas, the upper left corner will be at 0, 0 of the source image's canvas, not the source layer's upper left corner. And the center will be measured from that same corner of the canvas to the lower right corner of the canvas. Thus, to get the behavior you want from these settings, it is advisable to always place your source layers in the same position you expect to use as a handle in the **Move Path** dialog. For instance, if you want to use the center handle in the **Move Path** dialog, center the source layer in the source image. If you want to use the right bottom handle, place your image at the lower right corner of your source image. To center a layer in your source image, make sure it is active in the layers dialog, then cut it and immediately paste it back into the source image and click the **New Layer** button in the layers dialog. **Rename** it if you want a descriptive label for the **Move Path** dialog's **Source Image/Layer** combo box.

So, to work with one layer of your source image, set the **Step Mode** combo box to none. To position the upper left corner of the source image at the lower left corner of your animation, check the **Instant Apply** check box so you can see what you are doing and move the **X** and **Y** sliders until your source image comes into view in the preview pane at your animation's lower left corner. Adjust the **Opacity** slider to zero to make the source layer transparent. Now you have completed the settings for the first point in your animation, which is created for you automatically by the GAP.

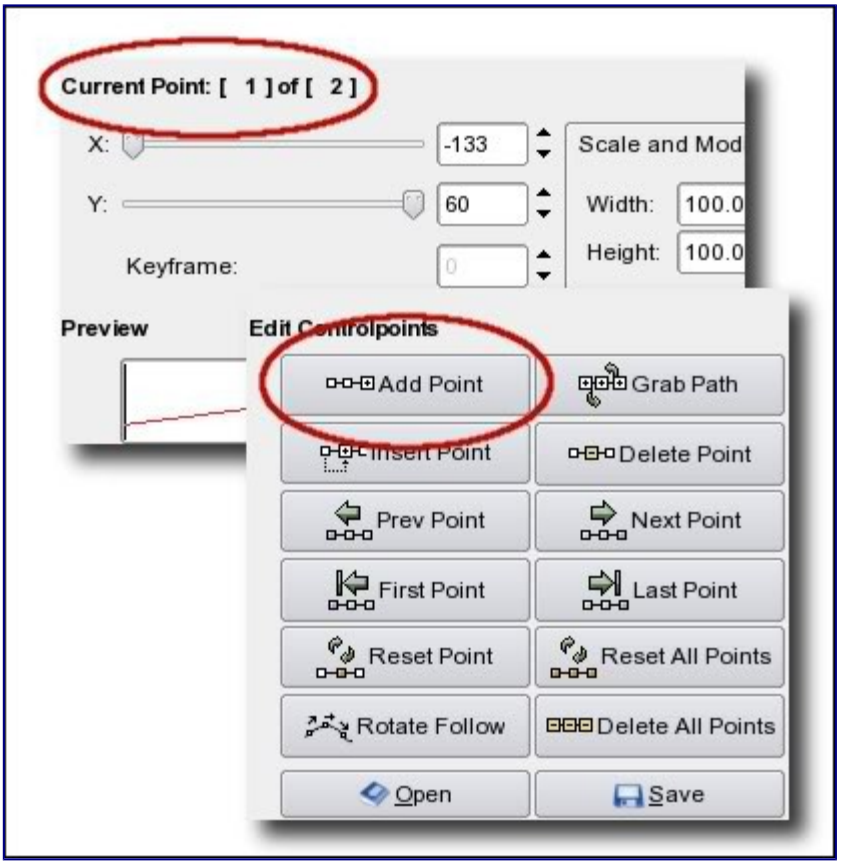
One thing you need to know about the preview pane of the **Move Path** dialog is that it does not always show you a complete view of your animation, particularly the right side and bottom edges of your animation. It sometimes appears that your source layer is beyond the right edge, when, in fact, it has not reached it yet. To move source images to the exact right edge of your animation sometimes requires knowing how many pixels wide your source layer and animation both are. Then, by using the **X** and **Y** spin boxes, you can precisely position your source layer. I usually keep a calculator close by when creating animations.

Incidentally, you can position source layers by clicking and dragging in the preview pane. If you can see how the source layer interacts with other elements of your animation at that point, this can be a convenient method of moving images. To make this easier, you can set the frame shown by the preview pane by adjusting the **Frame** slider at the bottom of the **Move Path** dialog.



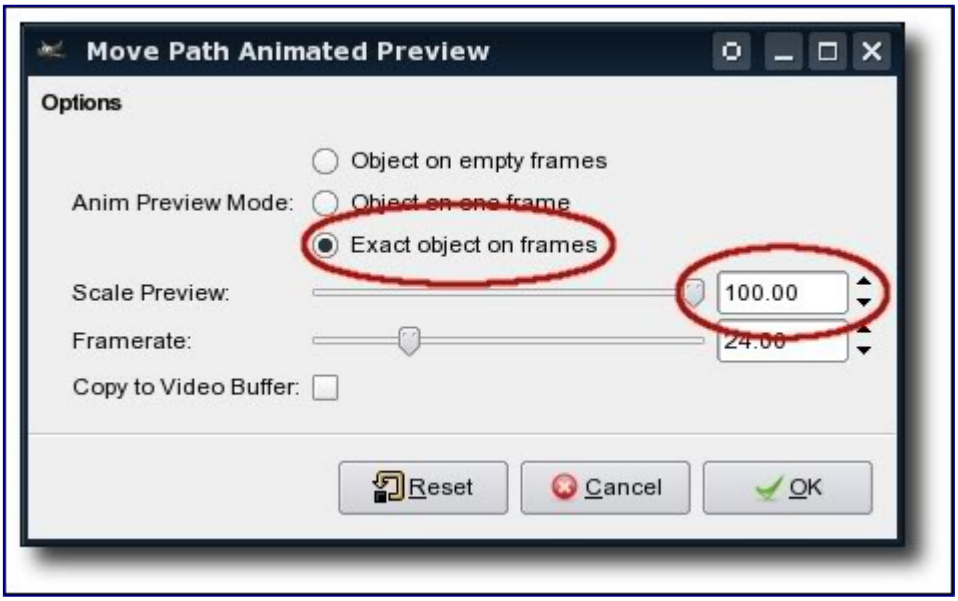
This will update the preview pane by showing you the corresponding frame of your animation. Then you can drag your current source layer to visually position it in relation to existing elements of your animation. That way you don't have to work blind.

To adjust the settings for the second point you must first create one by clicking the **Add Point** button.



When you do, the **Current Point** indicator above the **X** and **Y** sliders will read [2] of [2] and your settings from point one will be copied to point two. Now, move the **Opacity** slider back to 100 and adjust the **X** and **Y** sliders to position your source layer at the upper right corner of your animation. You are done adjusting the values for point two and are ready to preview your animation to see how it plays.

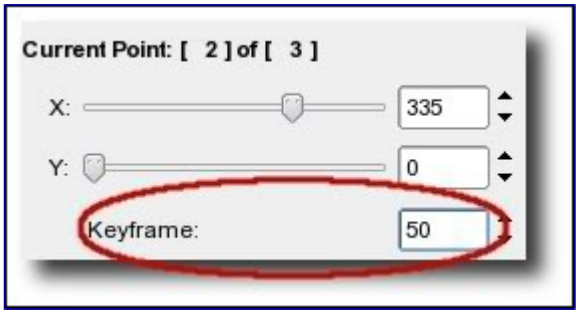
Click the **Anim Preview** button at the bottom of the dialog. Another dialog pops up.



Select **Exact Object on Frames** and set the **Scale Preview** slider to 100. Then click **OK**. The GAP creates an animation file containing your settings and brings up the **Gimp's Animation Playback** dialog. Click **Play/Stop** to play the animation. Click the **Close** button and close the file generated for the preview without saving.

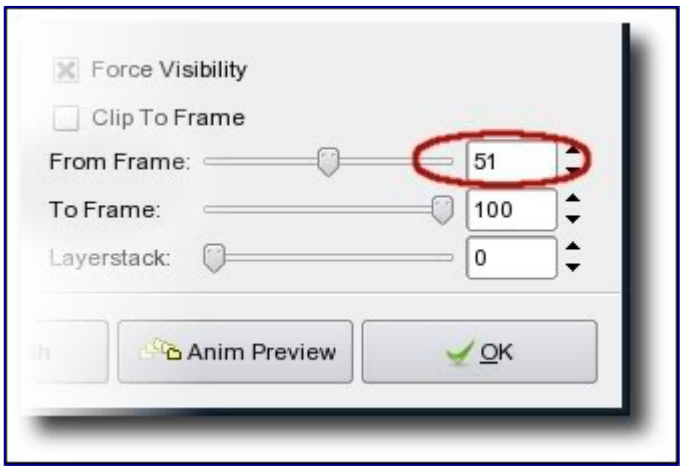
At this stage you can add more points to your animation, delete the **current** point, **delete all** points, and **insert** points. You can navigate between points with the **Next Point**, **Prev Point**, **First Point**, and **Last Point** buttons.

If you add a third point, the time between points 1 and 2, and between points 2 and 3, will be divided equally. By default, point 2 will be half way through the animation. To change this, make point 2 the **Current Point** and adjust the **Keyframe** spin box located below the **X** and **Y** sliders to make point 2 happen at a particular frame of the animation. In a 100-frame animation point 2 will usually occur at frame 50. Setting it to 25 will speed up the animation from point 1 to point 2 and slow it down between point 2 and point 3.



Keyframes can only be set for points 2 through the next to last point. So, how can you key point 1 to a frame other than frame 1 and the last point to a frame other than the last one? That is set with the **From Frame** and **To Frame** sliders in the lower right corner of the dialog. This allows you to work with a subset of your animation without affecting every frame, so that you can, for instance, insert a source image midway through your video. When working with a subset of your animation frames the **Anim Preview** button only generates previews of the subset of frames you are working with. To see a preview of your entire animation will require generating an animation file from your frames using the **<image>/Video/Frames to image...** dialog, which I will get to later. This can only be done after dismissing the **Move Path** dialog. Unfortunately, the GAP only allows you to have one of its dialogs open at a time. This is really a limitation of the Gimp, rather than GAP.

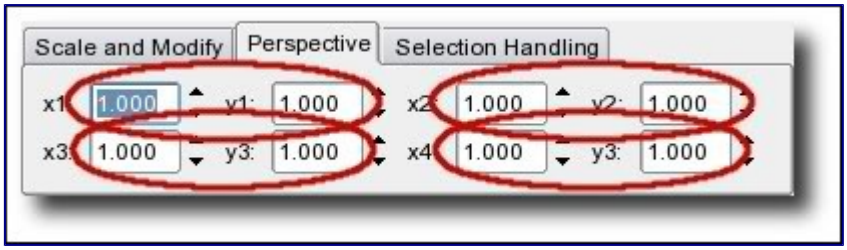
The GAP is really a set of plug-ins. Each dialog is a separate plug-in, and the Gimp only allows one plug-in to be active at a time.



Now, let's suppose you are happy with how the first source layer looks in your animation. You want to save the state of your animation by clicking the **OK** button in the **Move Path** dialog. Until you are ready to save your changes, avoid this button like the plague. You cannot easily undo your changes if you accidentally click this button prematurely. It can be done, but not automatically. Clicking this button closes the dialog and commits your changes to each frame of your animation without any further interaction from you. If you are not done adding images and text to your animation and you want to add more, that's okay. Just open the **Move Path** dialog again and select a different source layer from the **Source Image/Layer** combo box and begin again. All of the settings from your previous use of the **Move Path** dialog will be gone. It will be like starting over, only your previous work will be visible in the preview pane if you cycle through the existing frames.

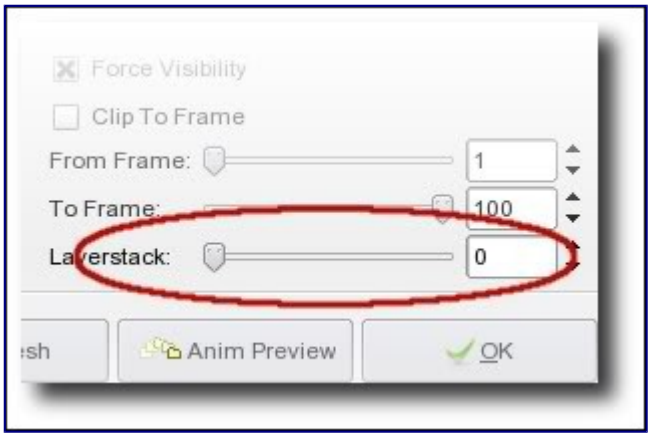
Perspective, Layer Stack, Scaling, Rotation, Paint Mode, and Selection Handling

At this stage you may want to play with the other settings the **Move Path** dialog offers. The **Perspective** tab has 8 spin boxes, one for each source layer corner's **X** and **Y** component. It will allow you to shear or adjust the source image perspective and, of course, to animate changes in perspective.



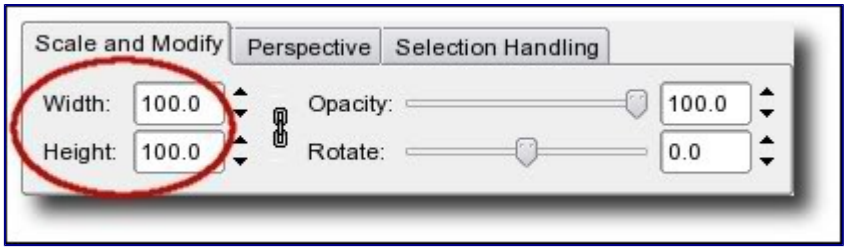
Using instant apply, you can adjust these spin boxes one at a time in small increments or decrements to see the effect on your source layer's appearance. Be careful, though, about doing so with large images. It can take a lot of processing power to use this feature with instant apply enabled. But used together with the **Opacity** slider and the **X** and **Y** position sliders, interesting effects can be created.

The **Layerstack** slider in the lower right corner of the dialog controls how your source layer is inserted into your animation.



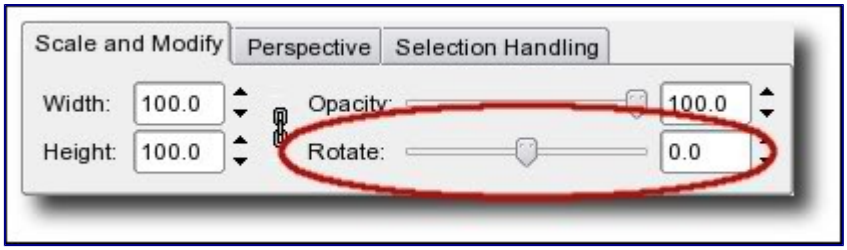
At 0, your source layer is placed above all other layers of your animation. Larger values place it progressively farther down in the stack of layers, behind other elements.

You can scale the source layer using the **Width** and **Height** spin boxes on the **Scale and Modify** tab.



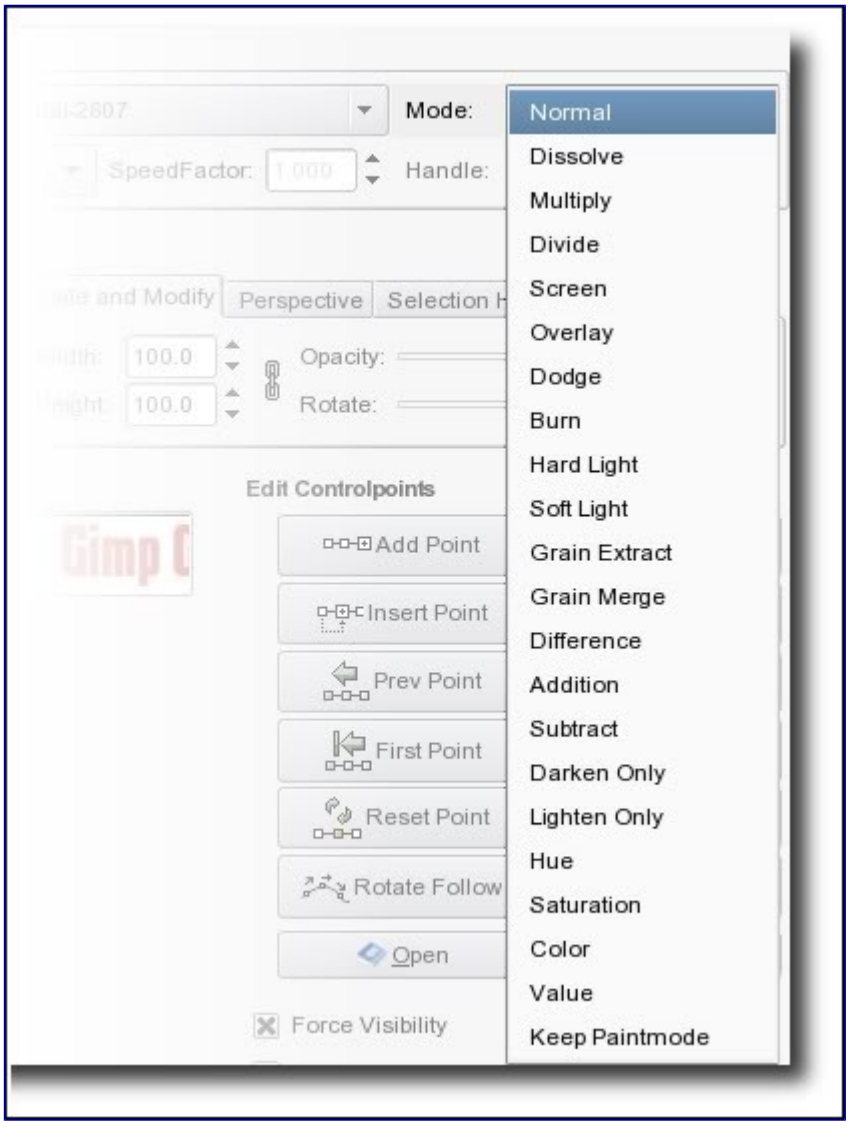
By default, these spin boxes scale the source layer to 100% of its size. You can scale it **smaller** or **larger** as you wish, and you can scale it **vertically** and **horizontally** by arbitrary amounts if you click the chain link to the right, which will allow independent adjustments to each spin box.

The **Rotate** slider, located under the **Opacity** slider on the **Scale and Modify** tab, will rotate the source layer **clockwise** or **counterclockwise** depending on whether it is given **positive** or **negative** values, respectively.



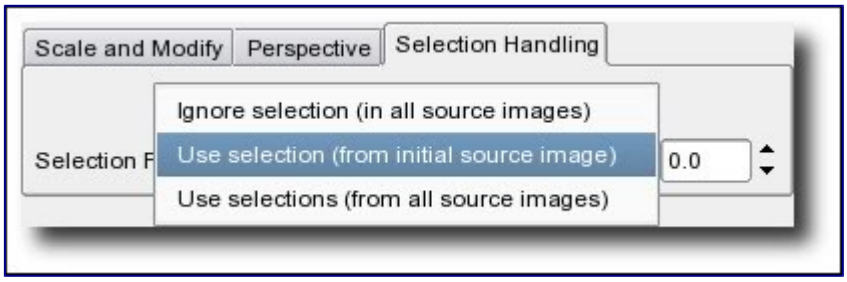
And your image may be rotated by arbitrary amounts. Amounts are measured in **degrees** of rotation and may be **multiples** or **fractions** of complete circles. The **rotation** will occur on the **Z axis**. That is, your view of the rotation will be along the line of the axis. If you want the rotation to occur from front to back/back to front, there is a rotation filter animator available from the Gimp's plug-in repository that will do that for you. Just use it to create a separate animation and integrate it with your GAP animation following the instructions I will give later in this tutorial.

The **Mode** combo box, located to the right of the **Source Image/Layer** combo box, lets you determine the **blending** mode used for the current source layer.



See the Gimp's documentation for more information about the **paint** modes available here.

If you make a **selection** in your source image, you can use just that selection in your animation by setting Use Selection (**from initial source image**) or Use Selections (**from all source images**) from the combo box on the **Selection Handling** tab.



Feathering of the selection(s) is controlled by the **Selection Feather Radius** slider on the same tab.

Tweensteps

To smooth out the appearance of rapidly moving images in your animation, there is a cool setting on the

Advanced tab of the **Move Path** dialog called **Tweensteps**. It allows you to create a **fading** trail of copies of your source image that overlap each other. This creates the illusion of smooth motion in your animation. Try a setting of between 6 and 8. Too high a setting will result in massive processing and will slow down the generation of previews and of saving your animation, and there is a diminishing return of effect beyond a certain number of steps. Experiment to find a good value.

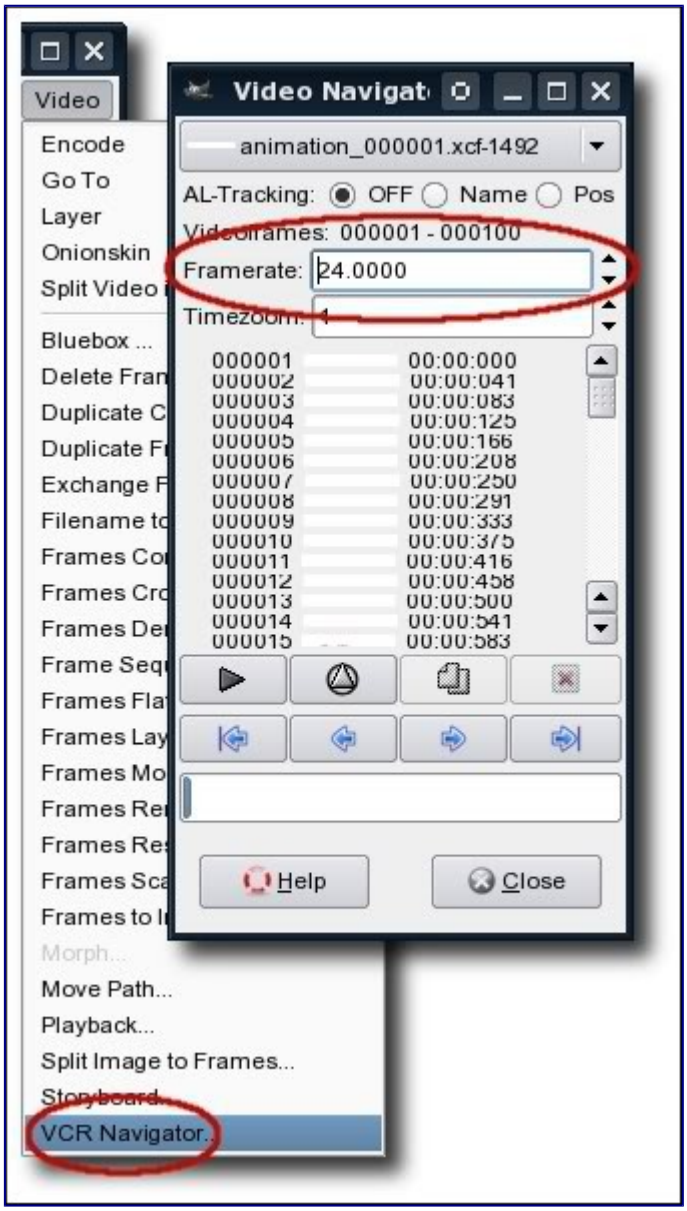


You can adjust the starting and ending opacity of the **Tweensteps**, but the defaults seem to work well.

I am frankly mystified by the **Tracelayer** and **Bluebox** settings on this tab. I understand what the Bluebox setting is supposed to do, make a particular color transparent, but I have not been able to get it to work for me. That's probably my fault. Tracelayer? I really do not understand this one. Maybe someone else can fill me in on what this does.

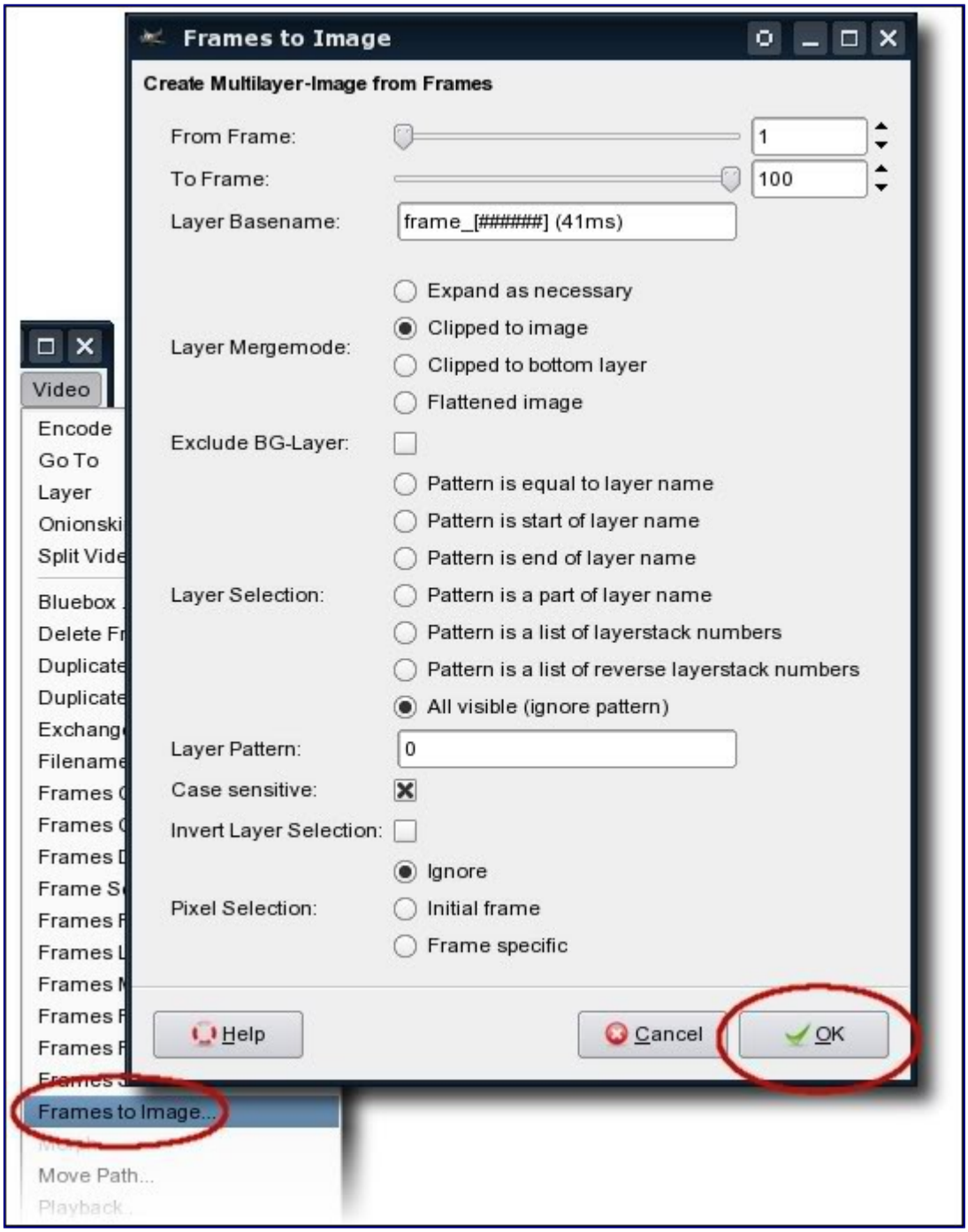
Setting the Frame Rate

When you are done adding source layers to your animation and setting points, it is time to create a real animation from your GAP frame files. The first step in this process is to open the **Video Navigator** dialog from your frame image's **<Image>Video/VCR Navigator...** menu item.



This dialog has a spin box labeled **Framerate**. Set this to the number of frames **per second** desired and close the dialog. Your setting is saved automatically.

The next step is to create an image file that contains the animation you've been working on. Open the **<Image>Video/Frames to Image...** dialog.



This dialog's default settings are appropriate for our purposes. Simply click **OK**. The gap generates an animation file and opens it.

At this stage the steps are identical to creating a simple animation. You can preview it using the Gimp's **<Image>Filters/Animation/Playback...** dialog and you can optimize it with the **<Image>Filters/Animation/Optimize (for GIF)** menu item. **Save** the resulting image as a GIF and select **Save as Animation** from the following dialog to create your animation file.

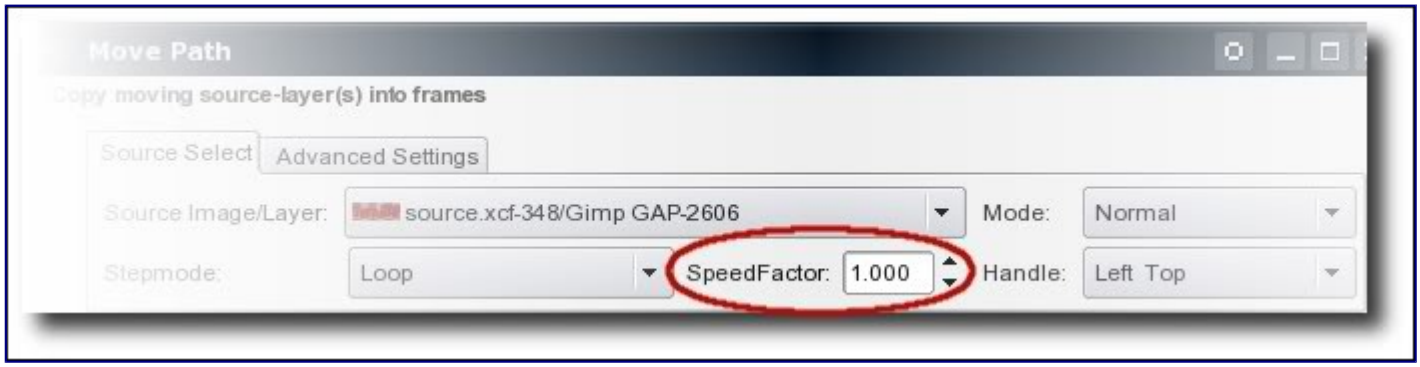
Combining Animations

One of the nice features of the Gimp is the ability to animate still images with its filter animation. These scripts create simple animation files that you can incorporate into your GAP animations. To do so, use the animation file as your source image and set the **Stepmode** combo box to something other than **None**. As

stated above, this combo box defaults to **Loop**, which will fetch one layer of your source animation and **map** it to one frame of your **target** animation and will loop repeatedly through the source image's layers until there are no more frames in your animation to apply the source image layers to. In this case there is no need to select a source layer; all layers of the source image will be used.

But it gets even better. You can incorporate other GAP animations into the current GAP animation in the same way. Just open the first frame of the other GAP animation as your source image and set the **Stepmode** to **Frame Loop** or one of the other Frame values. These settings are designed for combining GAP animations into the current animation. If you use **Frame None** as the setting, you can select a **single frame** from the source animation and insert it in its entirety into your current animation, treating a multi-layered frame as a flat image.

The **Move Path** dialog has a **Speed Factor** spin box located under the **Source Image/Layer** combo box.



This setting controls the **frame rate** of the **source** animation in relation to the **target** animation's frame rate. 1.0 exactly matches source and target frame rates. 0.5 maps one source frame to two target frames, i.e. plays the source at **half speed**. 2.0 **doubles** the source animation's speed in the target animation.

Tweaking Animations

One limitation of the automation offered by the Gimp's animation filters and of the GAP is that the timing information for all frames is uniform. You can tweak the settings for individual frames after creating an animation file from the frame image's **<Image>Video/Frames to Image...** dialog simply by editing each layer's comment in the **Layers** dialog.

You can use one of two modes for each frame of your animation, freely mixing modes from frame-to-frame--(**combine**) and (**replace**). Typed into the layer comment after the timing information exactly as shown, these modes allow your animation frame to combine with previously displayed frames or to replace them, respectively. For example, if you want to display layer 2 for 3 seconds and to completely replace layer 1, type the layer comment as follows:

```
layer 2 (3000ms)(replace)
```

(**combine**) is the default mode.

There are two general paths you can take to **optimizing** your animation. You can **optimize** it as an RGB image and then **convert** it to Indexed, or you can **convert** it to Indexed and then **optimize** the Indexed version. I suggest you try both methods to see which results in smaller images for each project.

Documentation

At this point you should be able to create nice animated logos using the GIMP's Logo filters, animate them using the filter animation, and incorporate them into GAP animations along with other text and images. The documentation that should come with the GAP (it does come with the source code) explains all of the GAP's features in detail. I'll leave the rest up to you.

Other Resources

Gimp Simple Animations Tutorial

Gimp Using GAP Tutorial

Gimp Advanced Animations Tutorial

Advanced Animation Simplified

GIMP-GAP Overview (with BlueBox)

Fading Frames With Gimp GAP

Fading Transitions With GAP

Inserting Animated GIF's

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