PhotoMorph 2

Video Special Effects for Windows

User's Guide

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Welcome to PhotoMorph 2!

The magic of Hollywood never ceases. Spectacular aquatic worlds have been brought to life, long lost starlets have been resurrected, and incredible transmogrifications bring everyday objects to life. Big budget studios spend millions to make the impossible happen. From the fluid transformations of "morphing", to Hollywood's long time friend, "blue screening", to advanced texture mapping and compositing filters, a complete palette of amazement makers can be found in PhotoMorph 2 -- millions of special effects are waiting to be discovered!

In this manual

This manual contains information on getting started with PhotoMorph 2. Following a brief overview, we'll go through most of PhotoMorph 2's functions. Then you'll be ready to create stunning special effects on your PC.

General Overview

PhotoMorph 2 creates special effects from various types of source material. Images stored in many popular formats, as well as video clips stored in the AVI file format can be used in PhotoMorph 2. If PhotoMorph 2 does not directly support the format you need, its screen capture utility can be used to import any image you want. If you can put it on your screen, you can use it with PhotoMorph 2!

Once the source materials have been loaded, they can be edited. PhotoMorph 2 has many image editing features built into it, including: cropping, scaling, framing, and rotating. Color correction tools including Contrast, Brightness, and Saturation as well as basic filter effects are provided. Video files can be edited by setting in and out points and sampling options.

After basic editing, the special effects are created. The Project Editor is the command center of PhotoMorph 2. There are areas for the start and end source materials. The six filters, Colorize, Distort, Morph, Overlay, Transition and Warp, are chosen from a drop down list. Up to three filters can be applied simultaneously. The filter's Editor, Options, Preview window and AVI Player are only a mouse click away.

Sequential effects are chained together using the Storyboard. Used in combination with the video editing options, the Storyboard can be used to perform basic non-linear video editing.

With the editing complete, the finished project can be saved and rendered. PhotoMorph 2 saves its projects as PMP files which can be reloaded and edited at a later time. Video files, (AVI) need to be rendered. AVI files can be played back on any PC using Microsoft's Video for Windows. Although you can reuse AVI files within a new PhotoMorph 2 Project, it is impossible to recreate a PMP file from an AVI file. There are a number of sample PMP files included in this package.

Once the finished video has been created, the resultant AVI file can be viewed with the AVI Player. This AVI can also be imported into most presentation packages, be edited with other video editing software, or have sound added to it. With special hardware, AVI files can be recorded on video tape.

Getting Started with PhotoMorph 2

Tutorial 1 - *Loading and Rendering an Existing PhotoMorph 2 Project*

The purpose of this tutorial is to introduce you to PhotoMorph 2 Project and video clip files. PhotoMorph 2 Project files, which take up relatively little disk space, can be loaded, edited, and saved again. Generally, video clips take up large amounts of disk space, but can be played back using the AVI Player.

To load a pre-existing PhotoMorph 2 Project and create a video:
1. Open PhotoMorph 2. The Project Editor will be on your screen.

2. Notice the row of buttons on the top of the Project Editor. The first button, the Open Project button, allows you to open **P**hoto**M**orph **P**roject (PMP) files. It is important to note that PMP files are the only files that can be loaded with this button. Image and video files are loaded elsewhere. Click on the *Open Project* button in the Project Editor Toolbar.

The Open Project Button

3. Select a PhotoMorph 2 project from the Open dialog box that appears. PhotoMorph 2 Projects have the extension PMP. If no PhotoMorph 2 Projects are showing, use the Open dialog box to change to the directory that PhotoMorph 2 has been installed in.

    Please note that during the opening of a project, all source materials for that project (images and video clips) are loaded into the main work area of PhotoMorph 2. Also notice that each window in the work area has a title bar. The current window, whether it is an image, video clip, or the Project Editor, has a different color title bar (usually dark blue). The menu items at the top of the screen change depending on the window that is current. For example, because the Filter menu can only be applied to image windows, it is not available when the Project Editor is current.

    By default, the Project Editor "floats" above all source materials. This setting can be changed in the Preferences section (Second from the right on the Project Editor tool bar) of the Project Editor.

4. Click on the *Create Animation* button in the Project Editor, which by default creates a video clip with the extension AVI. Give the video a filename, press OK, and wait as the video is generated, based on the information contained in the PMP file.

5. Once the video file (AVI) has been created, it can be loaded and played in the AVI Player. The fifth button over from the left on the project editor resembles a movie projector. Click on this button to open the AVI Player.

The AVI Player Button

6. Because no AVI file has been loaded previously, an open dialog box will appear. Open the AVI file you created in the previous steps by clicking on its filename and pressing OK.

7. Once the AVI video clip has been loaded, click on the *Play* button to view the finished video.

Tutorial 2 - *Creating a Morph Movie*

Morphing is the easiest way to create compelling digital video from still images; let's go through the process. Suppose you are making a presentation to an automobile manufacturer. The concept is to show the power of a sports car, combined with the space of a minivan. Morphing is a great way to send this message, so we'll morph the sports car into a minivan.

1. Open PhotoMorph 2. If you are already in PhotoMorph 2, select *Project, New* from the *File* menu in the upper left hand corner of your PhotoMorph 2 Window.

2. When morphing, start and an end materials are required. Notice in the Project Editor the two blank Windows, labeled Start and End. Under each Window, you will see a drop down list. Once an image is chosen for the start and end images, <<No Image>> will be replaced with the file name of the image that you are working with. To the right of both drop down lists, you will find a small file folder button. Click on the one under Start Image.
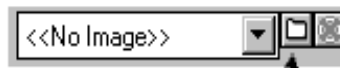
The Open Image Button

3. Now you will be opening a start image. In the Open Image dialog box, you will see where it indicates "List Files of Type". Select *JPG - JPEG Compressed*. This will allow you to load images stored with the extension .JPG into PhotoMorph 2. You may want to take a moment to note the other formats that can be loaded.

4. Locate the file **SMLCAR2.JPG** (an image of a sports car) in your PhotoMorph 2 directory. Click on it and press OK to load it as the start image in the Project Editor.

5. Next, we need to load an end image. Click on the *Open End Image* button underneath the End Image window. Choose **BIGCAR2.JPG** and press OK.

6. The <u>Project Editor</u> now appears with a sports car in the Start window and a minivan in the End window. Note that Morph has been chosen as the default in the Filter Type List. PhotoMorph 2 contains six filters: Colorize, Distort, Morph, Overlay, Transition, and Warp. For now, we'll stick to Morphing.

7. Click on the *Edit* button. This will open the <u>Morph/Warp Editor</u>. Again, the start image is located on the left and the end image is located on the right.

8. Notice the tool bar located to the left of both images. Each Button has a specific purpose:
    a. The top button places points onto the images. What points do will be explained below.
    b. The second button moves points. The currently selected point can be moved by clicking and dragging, pointing and clicking with the right mouse button, or with the cursor keys.
    c. The third button erases points.
    d. The fourth button allows you to zoom in and out upon the image. When this button is selected, click on the image to zoom in, shift-click (hold down the shift key while clicking with the left mouse button) on the image to zoom out.
    e. The bottom button is for customizing the color scheme of the points.

9. Note that this Window can be re-sized and "maximized" - just like most windows. By expanding the window, more of each image is shown.

10. Using your mouse, point to a spot on the bottom of the rear bumper of the sports car in the start image. Click with the left mouse button. A point will appear on the image and a corresponding point appears on the end image.

11. Now move the cursor over to the end image and position it over the active (red) point you just placed. Click and drag the point to the bottom of the rear bumper of the minivan.

12. Place and move points in a similar manner in the following locations:
    a. Center of rear tire
    b. Center of front tire
    c. Bottom of front bumper
    d. Top of front bumper
    e. Front of hood
    f. Bottom of windshield
    g. Top of windshield
    h. Top of back of car
    i. Top of rear bumper

13. Now you've placed all your 'Married Point Pairs'. We call them Married because they are linked together. Each point on the start image has a representation on the end image. By placing Married Points, you link the similar features of the two objects together. Once you are satisfied with your point selections, press OK.

14. Preview the video by using the <u>Preview</u> button on the <u>Project Editor</u>, sixth from the left, that resembles a Magnifying Glass. Click on it now.

The Preview Button

15. The <u>Preview</u> window appears. Use the percentage slider to look through your video's frames. Notice the other buttons in the <u>Preview</u> window. The Up Arrow updates the image, which is useful when editing a morph. The second button saves the image shown to a file; this is handy for using still PhotoMorph 2 images with other software packages. The third button saves the image to a new PhotoMorph 2 Window, which allows you to reuse or print the image in PhotoMorph 2.

16. If you want to save your PhotoMorph 2 Project, which consists of the points and images you have selected, click on the <u>Save Project</u> button in the <u>Project Editor</u>. It is the second button from the left. Save the file with the extension PMP. Note that you are not creating the finished video in this step, you are merely saving the points you have placed, so you can edit the points (or further refine this project) sometime later.

17. When you are satisfied with your preview and point placement, click on the *Create Animation* button as we did in the previous tutorial. Give the video a filename with the extension AVI.

18. Once the video is created, open the <u>AVI Player</u>. (Movie Projector, fifth from the left), load and play your video!

Although there are a number of steps involved, morphing is very easy. In fact, all of PhotoMorph 2's features are powerful, yet intuitive and easy to use. As you dig into PhotoMorph 2, you'll see just how easy it is to create incredible digital video with your PC. Welcome to the world of digital video special effects!

The Next Step... More Special Effects

We've started with Morphing, now we'll explore the other effects in PhotoMorph 2.

The Colorize Filters

The Colorize features in PhotoMorph 2 allow you to apply 19 special filters directly to images and video clips. You can use the Old Movie filter to make any video clip look like an old black and white movie. You can use the Contrast filter to add or decrease the contrast of a video clip as you would with a TV set.

Tutorial 3 - *Using the Colorize Editor*

Let's apply the old time movie filter to a video clip. We also want the filter to fade in linearly, as the video progresses. This is very easy to do with the Colorize filter.

1. Start PhotoMorph 2. If you already have PhotoMorph 2 running, choose File / New... Project. This will clear PhotoMorph 2 of any existing Projects.

2. Locate the *Open Start Image* button in the Project Editor. This button, a small file folder, is located under the start image window. Press it to access the Open Image dialog box.

3. In the Open Image dialog box, you will see where it indicates "List Files of Type". Select *AVI - Video for Windows.* This will allow you to load video clips into PhotoMorph 2. In PhotoMorph 2, video clips are treated exactly the same as images, except that video clips change over time.

4. Locate the file **CHRIS26.AVI** in your PhotoMorph 2 directory. Click on it and press OK to load it as your start image in the Project Editor. CHRIS26 is a video clip of Chris spinning on a stool in front of a Blue Screen. The Colorize Filter does not require an End image.

5. In the Project Editor, choose *Colorize* from the Filter Type drop-down list. Press *Edit* to enter the Colorize Editor.

6. On the left of the editor there are 19 different Colorize filters. Since we want to apply the Old Movie filter, choose it from the list.

7. Notice that the preview built into the Colorize Editor will indicate how the filter will transpire. Adjust the slider from left to right, to see how the filter will change over time. In this case, the Old Movie filter will fade in as Chris spins. Press OK.

8. Now lets make this into a movie. Press *Create Animation* to save this movie as an AVI file. Give it the filename **OLDMOVIE.AVI** and press OK. Once the video is finished rendering, access the AVI Player (the Movie Projector button in the Project Editor or via the View Menu), load **OLDMOVIE.AVI** and press *Play*. Chris will spin while the Old Movie filter fades in.

Holding an Filter At a Constant Rate
Suppose we wanted to have the Old Movie filter be applied evenly throughout the whole clip, instead of faded in. We can do this using the Clip Options.

(Continued from the above tutorial)
9. In the <u>Project Editor</u>, press *Options*. In the lower right hand corner of this screen, you will notice where it says *Filter Percentage*. This control is used to indicate how the filter changes over time. When set to variable, the filter changes over a period of time. If set to constant, the filter will remain at a constant level. Since we want to have the Old Movie filter applied evenly, set this control to *Constant, 100%.* This will apply Old Movie at full strength (100%) through the entire clip. Press OK.

10. Repeat Step 8 to render the new version of this movie.

You will notice that some of the Colorize filters, such as Contrast, Noise, and Trace Edges have slider controls in them, allowing precise adjustment of the filter.

The Colorize filters can be used in combination with other Filter Types to create truly beautiful results. All Colorize filters work with alpha channels, allowing you to selectively colorize only certain parts of the source material. An example of this can be found in **Tutorial 10 - Using the Image/Mask Menu to Construct Basic Alpha Channels.** It is also useful to know that you can use several Colorize filters in a single clip. You can boost the contrast of a clip with the Contrast filter, you can then use the Blur filter, and finally you can apply the Old Movie filter. You can do all this in a single clip using the multiple filters. Check out **Tutorial 8 - A Simple Example of Multiple Filter Layers** for more details.

The Transition Filters
The PhotoMorph 2 Transition Editor provides more than 256,000 combinations of video transitions. Besides providing a list of popular presets, its WYSIWYG interface allows you to create stunning scene changes with ease.

To access the Transition Editor:
1. Load a start image or video clip into the <u>Project Editor</u>.
2. Load an end image or video clip of the same dimensions as the start material. When transitioning to a solid color (such as a fade to black), an end image / video is not required.
3. Select *Transition* from the list of Filter Types in the <u>Project Editor</u>.
4. Press *Edit*.

Direction Arrows
The heart of the Transition Editor lies in the Direction Arrow buttons. The Direction Arrows specify the direction that the image or video clip will move as time passes. The left set of arrows control the transition direction for the Start image, the right set of arrows control the direction of the End image. For example, if only the 'up' arrow is specified for the Start image, the Start image will move up, revealing the End image. If both the up and down arrow are specified, it will break into two pieces; the top half will transition up and the bottom half

will transition down. This is the general method for all of the Direction Arrows. If you specify all eight direction arrows for a video clip, the clip will break into eight pieces and each will transition off of the screen in a radial direction outward. The arrows work the same for the End clip on the right hand side except that clips move from outwards to inwards.

The Faders
Faders are additional effects that can be added to the incoming and outgoing images. The Faders are Solid, Fade, Reverse Fade, Melt, Random, and Alpha.

Choosing Solid is the same as not choosing any fader.

The Fade fader causes a gradual and continuous color change to occur during the transition. It is commonly known as a dissolve.

The Reverse Fade causes the fade to operate backwards. This is usually used with one image to fade from a solid color. See Background Color, below.

Melt causes a fade based on the luminance values of the image or video clip. This causes the lighter parts of the source material to fade in first followed by the darker portions.

Random adds speckles of color that will either be the selected background color, or the color of the image beneath it, depending on the transition.

The Alpha fader is a very powerful feature and can produce wonderful transitions. The Alpha fader is used on 32-bit start images to cause the opaque part of the image to fade before the transparent part. Using this technique you can design your own transitions (checkerboards, gradient, circular, etc.). To use the Alpha channel fader it is necessary to select Alpha for both the Start and End image faders. The Start image must be a 32-bit image. For a discussion and explanation of Alpha channel images refer to tutorials 10-15, paying close attention to **Tutorial 11 - Making Custom Faders Using 32-Bit Images**.

The Background Color
The Background Color option allows you to choose background colors for transitions. These colors will also modulate some of the Faders. For instance, if you choose a background color of green and choose Random as a fader for a transition, the random speckles of color will appear green. If you only specify a start image and choose Reverse Fade, the image will fade from a shade of green into the start image.

The Transition List
The Transition List on the leftmost side of the Transition Editor lists the names of the most commonly used transitions. To use a particular transition that is listed, simply select a transition from the list.

The Overlay Filters
The Overlay Filter is used when one image or video clip is to be superimposed onto another. PhotoMorph 2 provides six different ways to create overlays: Blue Screening, Chroma

Keying, Luminance Keying, Alpha Channel Compositing, Texturizing, and Text overlays. When using the Overlay Filter, the Start and End materials must be the same size.

Color Keying
The Chroma Key, Blue Screen, and Luminance Key filters are a family of similar effects. Each filter allows you to select a range of colors or brightness values and make those colors transparent to a background image. In other words, those colors in the Start image become transparent and the End image shows through. Blue Screen is the most commonly used effect - widely used in television and films. Typically, an actor is filmed against a blue background. The film editing process removes the blue background and substitutes an exciting picture like a view over a cliff. The actor wasn't filmed hanging over a cliff, the editing process made it look that way. PhotoMorph 2 can do exactly the same effect using the three color keying filters. The differences in the filters are listed:

Blue Screen allows you to key on a range of only blue colors and pass through shadows.

Chroma Key allows you to 'key' on, or select any color.

Luminance Key allows you to key on a range of luminance values, or brightness values instead of colors.

The color key features in PhotoMorph 2 are extremely powerful and very flexible. It is possible to blue screen an AVI clip onto another AVI clip. This means that you could have a moving actor blue screened onto a moving background. You can also mix still bitmaps with video clips. Don't forget that by using multiple layers of filters in a single clip you can composite four scenes with any three filters. It is possible to use all three color key filters in the same clip. For the exciting details, refer to **Tutorial 8 - A Simple Example of Multiple Filter Layers**.

Blue Screening
The Blue Screen filter works only with blue colors. Three controls are available to adjust the key values of the blue color. That is, which shades of blue become transparent. The Lightness control allows you to set the lightest value of blue to become transparent and the Darkness control allows you to set the darkest value to become transparent. These controls allow you to set a light point and a dark point. Any shades of blue between these points become invisible. Any shades outside these values will remain visible in the resulting image of the Start and End images. The Shadow control allows a shadow in the blue screen to pass through and become a shadow in the resulting overlay. There must be a shadow in the blue color on the blue screen for this to function properly.

A common trick to producing high quality morphs is to film the objects to be morphed against a blue screen. After the morph is constructed, it is superimposed against a new background. This way, the background does not interfere with the morphing process. This effect can be duplicated exactly by combining morphing and blue screening with multiple layers of filters.

Tutorial 4 - *Creating a Blue Screen Overlay*

Suppose you had a picture of a car that was filmed against a blue backdrop that you wanted to place against an image of a setting sun. This is easy to do with PhotoMorph 2.

1. Start PhotoMorph 2. If you already have PhotoMorph 2 running, choose New... Project from the File menu.
2. In the <u>Project Editor</u>, open **BLUECAR1.JPG** as your start image. For your end image, load **SUNSET.JPG**.
3. Please note that we've already defined the blue screen for this image, **BLUECAR1.JPG**. Ideally, one would take the picture of the object against a blue screen. However, you can get acceptable results by painting the background blue on the image. When compositing video, it is highly recommended that the object be filmed against a blue screen, since it is very time consuming to hand paint every frame with a blue background.
4. Select *Overlay* as your Filter Type and press *Edit*.
5. You will notice that *Blue Screen* has defaulted in the <u>Overlay Editor</u>. A preview shows the output that will be generated - in this case, the car against the sunset. Lightness, Darkness and Shadow controls allow you to adjust the filter. When finished, press OK.
6. Lastly, create the video and play it using the <u>AVI Player</u>.

Chroma Keying

The Chroma Key filter is more powerful than the Blue Screen filter because it can key on any color. It is a more general purpose tool and can do anything the Blue Screen filter can except transfer a shadow. Because it can do more things the controls are a little different. The biggest difference is the addition of the Eyedropper tool. This tool allows you to sample a key color in either the Start or End image. To use the eyedropper to select a color key you simply click on a part of the image. Once you have sampled this color you can adjust it further with the other controls. The Chroma tool allows you to select the key color manually. The Tolerance control allows you to adjust the range of the colors to key on. If the tolerance is set to very small, or all the way left, only a single color value can become transparent. If the tolerance level is very large, or all the way to the right, all colors can pass through and the complete Starting image will be transparent. The Darkness tool will also adjust the range of colors that are key colors.

Luminance Keying

The Luminance Key filter allows you to key on a range of luminance values, or brightness, instead of actual colors. This is especially useful for keying on white, black, and shades of gray. It is also good for keying on pictures that have several colors of the same luminance. The Eyedropper tool will allow you to automatically select a starting luminance directly from an image. The Minimum control will set the darkest luminance value. The Maximum control will set the brightest luminance value. When using the eyedropper, the left mouse button selects the minimum value and the right mouse button selects the maximum value.

Note that blue screening, chroma keying, and luminance keying depend on chroma and luminance of the source material. Certain lossy compression algorithms reduce or remove this data from the images or videos being compressed. Thus, it may be difficult to get good results from materials that have been heavily compressed. For example, JPEG compression (including Motion JPEG) can cause these sorts of problems. To reduce this phenomenon, be sure to keep your compression quality settings as high as possible.

Alpha Channel

Alpha channel images can be used to create very interesting see-through and semitransparent filters. An alpha channel image is simply a 24-bit image with extra information, called a channel. Since an alpha channel uses 8 bits of information, an alpha channel image is also called a 32-bit image. The Alpha channel determines the transparency of the image with respect to other images, specifying 256 levels of transparency varying from completely transparent to completely opaque. An alpha channel image with the alpha channel set completely off would look exactly like a normal image. An alpha channel set completely on would be completely transparent to any background image. The trick to using alpha channels is deciding what becomes transparent.

Alpha channel images can be created in PhotoMorph 2 using the Colors/32-bit tool with the Image/Mask tool or specified in the Filter Options of the <u>Project Editor</u>.

A complete discussion of Alpha Channels can be found in tutorials 9-14.

Texturize

The Texturize overlay takes the texture of the start image and applies it to the end image. This can be useful for creating imprints and other nifty effects.

Text Overlay

The Text Overlay feature in PhotoMorph 2 allows titling of both video clips and images with TrueType and PostScript fonts. When using 24-bit source material, the font's color can be any of 16 Million colors. The interface allows real-time color changing, and font adjustment on the screen.

To access the Text Overlay tool, place a video clip or bitmap in the Start image of the <u>Project Editor</u>, remove any image in the End position. Select the Overlay filter and click on Edit. The Text filter appears with the Style, Alignment, Color and Text box options. The Style option allows you to choose from any installed font styles and sizes. The Alignment option allows you to position your text at one of several preset areas on the image. It also allows you to choose between right justification, centered, or left justification. The Color option allows you to select the color of your text. The Text box is where you type in the text that you wish to appear on the image. The text overlay will update the image with each keystroke. Text length is limited to one line of text.

The start image can be shown through the text by checking off the "Invert Text" option. When Alpha Channels are being used, additional options for applying text to the alpha channel are provided.

Some forms of video compression can make overlaid text (or any video content) appear fuzzy, smudged, or streaky. This is often the case with Indeo compression. If your text looks fuzzy when you play it back as an AVI file try re-rendering using Cinepak or Video 1.

Text overlay can be used to create some very interesting clips when used with other PhotoMorph 2 filters. For instance, you can overlay blue text onto a video clip or bitmap and use the Blue Screen filter to make each letter invisible to a video clip that plays behind each letter. You can get very fancy with this filter by using the Distortion filters such as Zoom In, Zoom Out, and Rotate on the text. You can also create a tilted text filter by first rotating the bitmap, overlaying the text, and rotating it back. Always use high quality to preserve the image and text quality.

The Text Overlay tool is only available when one image is selected in the <u>Project Editor</u>.

The Distortion Filters

Video Distortions

The PhotoMorph 2 Distortions provide a great way to add truly unique effects to any video clip or bitmap. There are 22 Distortions to choose from, each can be rendered in low, medium, and high quality. Low quality renders very quickly and is good for previewing the effects. High quality is recommended for studio and broadcast videos. Click on the *Animation Parameters* button to access the Quality setting in the <u>Project Editor</u>.

Several distortions can be combined in a single clip to create some really unbelievable effects. For example, the Rotation and Zoom In filters can be combined to create a spinning and growing effect. Rotation can be combined with Ripple on an Alpha Channel to make some really mind blowing pictures.

Tutorial 5 - *Using the Distortion Filters*

Let's create a simple distortion filter on an image. While we're at it, we'll take a look at the Quality Settings in Animation Parameters.

1. Start PhotoMorph 2. If you already have PhotoMorph 2 running, choose Project, New from the File menu.

2. In the <u>Project Editor</u>, load **OBOE.JPG** as your start image.

3. Choose *Distort* as your Filter Type and press *Edit*.

4. A list of 22 pre-defined distortion filters is shown on the left hand side of the <u>Distortion Editor</u>. A number of settings appear on the right. Choose the *Wave* distortion filter and press OK.

5. Rather than creating a Animation, let's use the <u>Preview</u> window to examine the Wave distortion. Open the <u>Preview</u> window by pressing its button in the <u>Project Editor</u> (or choose it from the View Menu.)

6. Use the *Percentage* slider to see how the filter occurs. The image starts undistorted, then ends at full distortion. Close or minimize the <u>Preview</u> window.

7. Suppose we wanted to start with a distorted image, and then end up with the original image. Press *Edit* in the Project Editor. Engage *Reverse Start Filter* and press OK. Now access the Preview window again. The desired effect has been achieved, the image starts at full distortion, then undistorts into the original image.

8. Now let's use the distortion filter on two images to create a cross fade while the distortion occurs. Open **GRLBRN.JPG** as the end image. Press *Edit* to access the Distortion Editor.

9. Notice the three new percentage controls on the right: Source, Merge, and Destination. These settings control cross fading during the distortion. Set Source to 33%, Merge to 34%, and Destination to 33%. Disengage Reverse Start Filter and turn on Reverse End Filter. Press OK and Preview.

10. As you slide the *Percentage* from left to right you will notice that the effect starts with **OBOE.JPG**, ends with **GRLBRN.JPG**, and waves in the middle. Why? We specified the Source (In this case, Oboe) to distort for 33%. Then a cross fade (or merge) occurs for the next 34%. Finally the last 33% is GRLBRN undistorting itself. Thus, the percentage settings control how the fade will occur. The *Reverse Start* and *Reverse End* settings control the direction the filter is going to occur.

11. Go back to the Project Editor. Access the *Animation Parameters* button; it's the third from the left and resembles a movie camera with two arrows pointing right. Once pressed, the right hand side of the Project Editor will open.

12. On the bottom right of the *Animation Parameters* section you will notice a *Quality* setting. This setting controls the quality of PhotoMorph 2's output. Low quality renders quickly but may yield pixelated results. Rendering at medium quality takes longer, but yields better results. High quality rendering takes the longest, and is best suited for final production. Set *Quality* to high and update the Preview window (using the arrow button). Notice how much better the images appear.

Some things to know about distortion effects:
1. The Distort filter can be used with either one image (load only a Start image) or two images (load Start and End images).

2. The Start and End percentages control when the Distort clip will begin and end recording to the output file.

3. If two images are being used, controls are provided for specifying different phases of the video: Source, Merge, and Destination. These controls allow sophisticated transition effects to be achieved.

4. Controls are also available for dictating the direction of the distortion:
    Forward (undistorted image => distorted image)
    or Reverse (distorted image => undistorted image).

5. Distortion filter names followed by a [F] are particularly computationally intensive and will be slow on machines without a floating point co-processor.

6. All distortion filters can be rendered at each of three speed and quality settings: Low, Medium, and High. Low quality renders four times faster than Medium, and 16 times faster than High quality. Low quality is best suited to idea testing. High quality gives substantially better image detail and is best suited for a final render. The quality settings can be found in the Project Editor's Animation Parameters.

The Warp Filter

Imagine placing an image on a sheet of rubber and having the ability to stretch that image in any way. Warping allows you to do this, to stretch an image (or video clip).

Warps begin and end with different versions of the same image, therefore, only a Start image needs to be loaded. However, an End image may be loaded for use as a reference image (see below, Tips on Positioning Warp Point Pairs).

Tutorial 6 - *Creating a Warp*

Performing a warp is very similar to morphing; points are placed on an image and adjusted. Suppose we wanted to illustrate a smart child. All we need to do is warp the child's head into an unnaturally large size. Let's try this with PhotoMorph 2.

1. Open PhotoMorph 2. If you are already in PhotoMorph 2, select File / Project / New.

2. When warping, only a start image is required. In the Project Editor you will see two blank windows, labeled Start and End. Under each Window, you will see a drop down list. Once an image is chosen for the start and end images, <<No Image>> will be replaced with the file name of the image that you are working with. To the right of both drop down lists, you will find a small file folder button. Click on the one under the Start image.

3. Now you will be opening a start image. Change the 'List Files of Type', to *JPG -JPEG Compressed*. Click on **LITLGIRL.JPG** and press OK.

4. The Project Editor now should appear with a young girl in the Start window. Choose Warp as the Filter Type.

5. Click on the *Edit* button. This will open the Morph/Warp Editor. As opposed to a morph, where both start and end images are used, a warp only stretches a single image. Thus, the End window in the Morph/Warp Editor is also filled with the image to be warped. Points are placed on the start image. As each point is placed, a second point is placed automatically on the end image. The placement of the point on the start image indicates the feature you want to stretch. By moving the point on the end image, you indicate the spot where the image is to be stretched to.

6. Notice the tool bar located to the left of both images. Each Button has a specific purpose:
    a. The top button places points onto the images as explained below.

      b.   The second button moves points. The currently selected point can be moved with the mouse or with the cursor keys.

      c.   The third button erases points.

      d.   The bottom button allows you to zoom in and out upon the image. Click on the image to zoom in, shift-click on the image to zoom out.

7. Note that this Window can be re-sized and "maximized" - just like most windows. By expanding the window, more of each image is shown.

8. The first feature we will stretch will be the forehead. Starting with a point directly under the left ear, place some points on the start image along the forehead. The last point should be directly underneath the right ear. With the exception of the two points under the ears, move the points along the forehead of the end image outward.

    This will cause the forehead to stretch outward.

9. Next, we'll tackle the hair line. Place points along the girl hair on the start image. Move those points outward on the end image, ensuring they are further outward than the points we've placed previously.

10. Finally, we want to 'anchor' the eyebrows in place so that they do not stretch out unnaturally. Place a few points just above the eyebrows of the start image. Do not move them on the end image. This anchors each point in place.

11. Press OK and check your work using <u>Preview</u>. You'll find the <u>Preview</u> button on the <u>Project Editor</u>, seventh from the left, that looks like a magnifying glass.

12. The <u>Preview</u> window appears. Use the slider to look through your video's frames.

13. Once satisfied with your warp point placement, press *Create Animation*. A Save As... dialog box will appear. Name the AVI file and press OK.

14. After the rendering is finished, locate the <u>AVI Player</u> in the <u>Project Editor</u> control bar. Load your finished AVI file and press play!

Tips on Positioning Warp Point Pairs
As in creating morph clips, a good rule of thumb to follow for a warp clip is to place points on features in the image or images.

Since the Warp filter begins and ends with different version of the same image, only a Start image needs to be loaded. However, an End image may be loaded to use as a reference.

For example, imagine that you wanted to warp an image of your face into another version which has the geometry of Arnold Schwarzenegger's face. Load the image of your face as the Start image, and load Arnold's face into the End image window. Then use the Warp Filter Editor to place points on the features of the faces, such as:

        Edges/outline of eyes
        Edges/outline of mouth
        Along the hairline
        Edges of the nose and ears
        Along the outside edge of the head
... and any other specific features that are to be changed over the course of the warp.

When you create the warp video, your original face will warp into another version which has the same configuration as Arnold's face. Note, though, that Arnold's face (since it was loaded in the End image window) never actually appears in the finished warp.

Using the Storyboard

The Storyboard is used to chain together clips of filters to create sequences of special filters. In fact, whole movies can be created using the storyboard feature of PhotoMorph 2.

Tutorial 7- *Using the Storyboard to Create a Sequence of Effects*

Suppose we wanted to create a video that does the following: morphs one car into a second, pauses for a moment, then has the second car transition back into the first. This sequence can be made using the Storyboard.

1. Start PhotoMorph 2. If you already have PhotoMorph 2 running, choose Project / New from the File menu.

2. Follow the steps in **Tutorial 2 - Creating a Morph Movie**, to create a clip of a car morphing into a second. However, you do not need to create the finished video.

3. Nestled between the Start and End image windows of the Project Editor is the *Create New Clip* button. This button resembles a film strip with an arrow pointing at it from an angle. Press it to create the second clip in this sequence. It will also open the Storyboard section of the Project Editor.

The Create New Clip Button

Please Note:

If your computer is currently in 640x480 display mode, the storyboard may not be completely visible. If this is the case, ensure the PhotoMorph 2 Window is Maximized. To automatically maximize PhotoMorph 2 on startup, choose that option from the settings button in the Project Editor. To gain additional screen real estate, turn off 'Help/Status Bar' and 'Info/Status Bar' from the File / Setttings menu item.

4. The second clip will start with the end image (**BIGCAR2.JPG**) from the previous clip. Our desired effect for this clip is simply to pause for two seconds. First we'll create the pause. Select Transition as the Filter Type and press Edit. Choose "Hold Constant" from the list of pre-defined transitions and press OK. This will hold the start image constant for the duration of the clip.

5. Now we'll set this to pause for two seconds. Open the *Animation Parameters* (see **Tutorial 5- Using the Distortion Filters** for more details). Notice the *Frames Per Second* (FPS) setting. This parameter allows you to specify the number of frames that should appear in every second of video. This setting applies to the entire video. Now notice the *Frames* setting next to the Edit button in the Project Editor. This parameter specifies the number of frames that is going to take place over the duration of the clip. This setting can be different for each clip in the storyboard. By adjusting these two parameters, the length of the clip is determined.

   For example, suppose you desired to create a clip with a duration of two seconds. First, check the Animation Parameters section to determine the FPS setting. If this is set to 20

FPS, you need 40 frames to create two seconds of video. If this the FPS is set to 15, you need 30 frames to create two seconds of video.

6. Determine the amount needed to create two seconds of video, and enter it into the *Frames* parameter in the <u>Project Editor</u>. Now the video will pause for two seconds.

7. Our final clip transitions from the second car back to the first. Press *Create New Clip*. The second car will remain as the start image. Using the drop down list under the End Image window, load the first car (**SMLCAR2.JPG**) as the End image.

8. Ensure that *Transition* is your Filter Type and press *Edit*. Choose a transition from the list (or make up your own) and press OK.

9. Change the *Frames* setting so that the transition will take one second. For example, if you are running at 20 FPS, set *Frames* to 20.

10. Press *Create Animation* to render and view your finished movie!

More features of the Storyboard

The clip which is currently loaded in the <u>Project Editor</u> is outlined in red. The clip which has been clicked on (selected) in the Storyboard is outlined in blue. A tool bar is used to manipulate the position of a clip in the Storyboard.

The Storyboard Tool Bar
(From Left to Right: Begin, Left, Load Clip, Right, End, Cut, Copy, Paste)

Begin
The Begin button moves the selected clip (blue outline) to the beginning position in the Storyboard. This clip will now begin the video.

Left
The Left button moves the selected clip (blue outline) one position to the left.

Load Clip
The Load button reloads the selected clip (blue outline) back into the <u>Project Editor</u>. The clip will now be outlined in red, as the currently-loaded clip. You may also double-click on a clip to reload it into the <u>Project Editor</u>.

Right
The Right button moves the selected clip (blue outline) one position to the right.

End
The End button moves the selected clip (blue outline) to the ending position in the Storyboard. This clip will now end the video.

Cut
The Cut button removes the selected clip (blue outline) from the sequence of clips on the Storyboard and puts it on the Windows Clipboard. It may then be pasted into a different position in the current video, or into another video.

Copy
The Copy button puts a copy of the selected clip (blue outline) on the Clipboard. This clip may now be pasted into a different position in the current video, or into another video.

Paste
The Paste button inserts a clip from the Windows Clipboard. The clip will be inserted into the currently-selected position (blue outline), and the other clips will be shifted to the right.

Toggling the Storyboard Display
One can show and hide the storyboard by pressing the Toggle Storyboard display button in the Project Editor. Note that this does not delete the contents of storyboard, it merely hides them from view. Use the Cut button to delete items from the storyboard.

Advanced Topics I: Multiple Filter Layers and Alpha Channel Compositing

This section is devoted to some of the advanced features of PhotoMorph 2. Although these features may appear intimidating at first, we have attempted to make each feature extremely powerful, while maintaining a straightforward, easy-to-use interface.

Multiple Filters

What are Filter Layers?

Imagine a composer working on a piece of music for three very talented musicians. Although each musician can play only one instrument at a time, each musician can play any of six different instruments. Because each musician is an accomplished soloist, there will be portions of the piece of music that the composer will want only one musician to play. There will be other sections, however, in which the composer may wish to have a duet, or even all three musicians playing at once.

Remember that each musician can play any of six instruments. Thus, the composer could have a section of music during which three trumpets play, then have another section in which the orchestration calls for flute, tuba, and bagpipe. Or he could have an electric guitar solo. This composer has many possibilities.

Think of each PhotoMorph 2 filter (Colorize, Distort, Morph, Overlay, Transition and Warp) as one of the six instruments, the three filter layers as the three musicians, and yourself as the composer. Just as the composer would use different instrument combinations to create various musical textures, you can use different filter combinations to create various special effects. You have many possibilities.

Changing Filters

Switching between filter layers is very easy. Next to the Filter Type in the Project Editor is a button labeled [123]. This button acts as a toggle between the three layers. The currently-selected filter is highlighted in red. The second and third filters default to <<No Filter>>.

Tutorial 8 - *A Simple Example of Multiple Filter Layers*

1. Load a Start image. Set the Filter Type for the first layer to *Colorize* and click on *Edit*. Emboss will be the default filter. Slide the preview slider in the Colorize Editor to see how the resulting video will appear. The clip will start with the original image, and change to an embossed image. Since this is the desired result for our example, press OK.

2. Press [123] to advance to the second filter. The Start image will default to <<Filter 1>>. Remember that the first layer is creating a dynamic emboss. Suppose we want to slide the image left as it embosses. Select *Transition* as the Filter Type and press *Edit*. Select *Slide Left* from the transition list and press OK.

3. Now open the Preview window and slide the *Percentage* slider. You will see that the clip starts with the original image, and as the image is being embossed, it slides to the left. If you click on *Create Animation*, you can see the finished video clip.

This simple combination illustrates multi-layered filters very clearly. The second filter is layered atop the first. We can go another step and layer a third filter atop the first and second. We leave this as an exercise to the reader. (Hint: Try setting filter layer 3 in the above example to a Rotate distortion.)

It is important to note that although the result of the previous filter defaults to being the Start image, it can be used as the End image, as both the Start and End images, or not at all. In most cases the Start image default will be the most useful. Not using it at all may not appear terribly exciting, but as you'll see below, in the section on Filter Options, previous filters can be used to create dynamic Alpha Channel Masks.

Alpha Channels and Masking

What are Alpha Channels?

Imagine looking through a stained glass window. Light shines through some areas of the window, yet no light shines though other areas. One could say that certain portions of the window are transparent, where light clearly shines through. Other portions are opaque, and no light shines through.

With PhotoMorph 2, one can construct a stained glass window atop any image or video clip. This window is known as an Alpha Channel. With an alpha channel one can control exactly which areas of an image become transparent when a second image is superimposed upon it.

Tutorial 9 - *Increase to 32-Bit, The Difference Between Opaque and Transparent*

Close any open Editor window. Load an image from the File menu, then choose the Colors menu. Under 32-Bit there are two options: Increase to 32-Bit (Opaque) and Increase to 32-Bit (Transparent). Choosing one of these options adds an alpha channel to the image. An Opaque Alpha Channel has no transparency, and therefore nothing will shine through the image. With a Transparent Alpha Channel, the image becomes completely clear, and when a second image is overlaid, the first image will disappear.

By default, PhotoMorph 2 displays "stripes" in the areas that are transparent. Thus, by selecting Increase to 32-Bit (Transparent) the entire image becomes striped. When Increase to 32-Bit (Opaque) is chosen, the image does not become striped because no area of the image is transparent. The way alpha channels are displayed on images can be specified under the File/Settings menu.

32-bit images are said to contain alpha channel information. Only a few file formats can save this information: .BMP, .DIB, .TGA, and .TIF.

Tutorial 10 - *Using the Image / Mask Menu to Construct Basic Alpha Channels*

Once an image has been designated as a 32-bit image, the Mask option under the Image menu can be used to create basic transparencies on an image. Note that using mask menu is only one way to create an alpha channel. See **Tutorial 14 - Dynamic Masks** for more details.

1. Using the steps outlined above, load an image and increase it to be *32-Bit Transparent*. This should result in the image's becoming completely transparent, which is indicated by the striping. Next, select *Mask* from the Image menu.

2. On the left is a list of preset masks. On the right, the currently-selected mask appears. There are three options that can be selected: Invert Mask, Mask Alpha Channel, and Mask Color Channel. For our example, select the *Star* mask. Ensure that *Invert Mask* is de-selected, *Mask Alpha Channel* is selected, *and Mask Color Channel* is de-selected. Click OK and look at the resulting image.

3. You will notice that the transparency, indicated by the striping, now takes the shape of the star. If you had selected Invert Mask, the opaque area of the image would be the interior of the star, and the exterior of the star would be transparent. Masking the Color Channel applies the mask to the image itself.

Now the part you've been waiting for; how to use alpha channels. We'll start with the Colorize filter.

4. Take the image created above, in which the star mask was used to create an image with some transparent portions and some opaque portions. Load this image as the Start image in the Project Editor. For your filter, choose *Colorize* and click *Edit*.

5. You will notice that Emboss is the default filter. In the Preview window, you will note that the effect is only being applied to the opaque areas of the image. The transparent areas (the areas that are striped) are not affected by the Emboss filter.

Even with this simple example, the power of alpha channels is illustrated. Portions of images can be masked out, so that specific areas of an image can be left unchanged.

Tutorial 11 -*Making Custom Faders Using 32-Bit Images*

1. With an alpha channel, one can create one's own transition fader. Use the same star image in the above examples as the Start image. Load an image that is of the same dimensions as the End image. Select *Transition* as your filter and click *Edit*.

2. The Transition Editor knows that the Start image contains an alpha channel and thus provides a fader under both images labeled Alpha. Select the *Alpha* fader under both images. Click OK and preview the video. As you slide the preview *Percentage*, you will see that the transparent areas fade between images first, then the opaque areas fade.

As you'll see below, PhotoMorph 2 can use any image or AVI file as an alpha channel mask allowing you to create an infinite variety of faders. For a fun project in the meanwhile, try doing the same effect but instead of using the star to generate the Alpha Mask, use checkers.

Alpha Channel Overlays

When using the Overlay Editor with a Start image containing an alpha channel, two more overlay types appear; Alpha and Inv. (Inverse) Alpha. These are used to provide control over the areas to be overlaid.

Tutorial 12 -*Making an Overlay With a 32-Bit Image*

1. Load the star alpha channel image used previously into the Start image window of the <u>Project Editor</u>. Load a second image of the same size into the End image window. Select *Overlay* as your Filter Type and click *Edit*. Choose *Alpha* from the Type list.

2. You will see that the End image shines through the Start image in the shaded, transparent area. In the opaque area, the Start image shows. To reverse this, choose Inv. Alpha -- the area that is transparent becomes opaque, and the opaque areas become transparent.

Slider Explanation

You will notice two (or three as explained below) sliders for alpha channel control. The first is labeled Pre-Alpha Fader. This slider controls the fade of areas that are not controlled by the Start image's alpha channel. Sliding the control to the left increases the Start image's transparency; all the way left is equivalent to 100% transparency.

The second and third sliders control the alpha channel of the resulting clip - this Overlay's output. These two sliders are useful when alpha channels need to be reused in multi-layer clips. Precise control of the resulting alpha channel is possible.

The second slider, labeled Post-Start Fader, controls the amount of transparency applied to the resultant clip, based upon the Start image's alpha channel. When the slider is placed all the way to the left, the resultant image is 100% transparent. With the slider set to the right, the resultant image will have the alpha channel from the Start image applied. Varying degrees of resultant transparencies can thus be achieved by adjusting the slider.

When the End image has an alpha channel, a third slider appears: Post-End Fader. This slider controls the amount of transparency applied to the resultant clip, based upon the End image's alpha channel. When the slider is placed all the way to the left, the resultant image's alpha channel is that of the Start image. With the slider set to the right, the resultant image has the alpha channel from the End image combined with that of the Start image such that the opaque areas of both alpha channels are combined. Varying degrees of resultant transparencies can be achieved by adjusting the slider. To use the alpha channel of the End image alone, set the Post-Start Fader slider to the left, and the Post-End Fader slider to the right.

Varying the Transparency levels

Up to this point, we have only used basic alpha channels; the area is opaque, or its transparent - there is no "middle ground". Well, there can be! As there are shades of gray between black and white, there is a gradient between transparency and opacity. Since PhotoMorph 2 reads and uses 32-bit images created with PhotoShop, PhotoStyler, and 3D Studio, users of those programs can already reap the benefits of alpha channels without further instruction; simply load those images and use them as you did the images in the above examples. Some of us, however, aren't so fortunate. That's why PhotoMorph 2 allows anyone to use any image as a dynamic mask. Read on...

Tutorial 13 -*Dynamic Masks*

Through the use of the Filter Options, any image, any AVI file, and even the previous filter can be used to create alpha channels.

1. Load Start and End images that are the same size but do not contain alpha channel information. Select *Overlay* as your Filter Type. Press *Options*.

2. Under Alpha Masks (lower left hand corner of the window) you will notice places for Start and End images. Familiar Open Image file buttons appear next to each name. In a nutshell, one can specify another image, a video clip, or a previous filter to provide the alpha channel in varying degrees of transparency.

3. Let's continue this example, and then explain what's going on. Under Start choose any image (if need be, load an image using the Open Image button next to Start). Click on OK then click *Edit* in the <u>Project Editor</u>. In the <u>Overlay Editor</u>, select <u>Alpha</u> from the type list.

4. The resulting preview might surprise you. The Start and End images are superimposed upon each other; the amount of transparency being determined by the colors of the image used as the mask. You may wish to turn off Stripe Alpha Channel in the File / Settings menu to get the whole idea here.

Suppose we had used a monochrome (black and white) image as our Alpha Mask. If we had, the black areas in the image would indicate transparent spots, and the white areas would indicate opaque spots. If the masking image had been a grayscale image, the black areas would be used to make transparent areas. The white portions would be used to create opaque areas. The shades of gray would be used to create varying transparency levels (the darker the gray level, the more transparent the area, and vice versa).

PhotoMorph 2 treated our color image as if it were a grayscale image. Thus, you will notice that where the masking image is dark in color, the End image shines through. Where the masking image is light in color, the Start image shines through. Remember, black or dark makes for a transparent area, and white or light makes for an opaque area.

Realize that any image can be used as a mask. For example, if we wanted to take one object in an image and place it on a different background, we would do the following: take a copy of the image into an image editor such as Paint. Next, paint black where you want the background to show. Paint white where you want the original image to show. After saving this image with a different filename (such as MyMask.BMP), start PhotoMorph 2. Load the original object as your start image. Load the background as the end image. Press Options and load your mask as the start mask. This will specify the transparent (black) areas and the opaque (white) areas. Finally choose Overlay as the filter type, press Edit, and choose Alpha as the Overlay type. The preview will indicate the desired result, an object in an image on a different background.

Using AVI files as Alpha Channels

Because PhotoMorph 2 can treat AVI video clips in the same way it treats still images, one can create moving alpha channels. When a video clip is loaded into the Start or End mask section of the Filter Options, the *Video Editing Options* dialog is enabled for the masking

AVI. Just like in the <u>Project Editor</u>, in and out points as well as sampling options can be specified. Consult the section on *Video Editing Options* elsewhere in this manual.

When a video clip is used as a mask, it is similar to using a color image, except the image changes over time. Where the video clip is dark in color, the End image shines through. Where the video clip is light in color, the Start image shines through. As with images, black or dark makes for a transparent area and white or light makes for an opaque area.

Tutorial 14 -*Using Other Filters as Alpha Channels*

If you use the multiple filter layers, you will see that the previous filter can be used as a mask for a subsequent filter. As with images in the <u>Project Editor</u>, <<Filter 1>> and <<Filter 2>> can be used as input into the masks of, respectively, filter layer 2 and filter layer 3.

1. From the File menu, choose Project / New to clear out the <u>Project Editor</u>. Then close the Project Editor as well as any open image windows.

2. From the File menu, choose Open and load the image (not video clip) of your choice. From the Edit menu choose Copy to place the image you just loaded onto the Clipboard.

3. From the File menu, choose Image / New. This will create a new, blank image.

4. From the Edit menu, choose *Paste*, and the image from the clipboard will be pasted into the new image window.

5. From the Image menu, choose *Mask*. From the list, choose *Star*. Ensure *Invert Mask* is de-selected, click on *Mask Color*, select *Black*, and click OK. Click OK to apply.

6. A second time, from the Image menu, choose *Mask*. From the list, choose *Star*. This time, select *Invert Mask*. Click on *Mask Color*, select *White*, and click OK. Click OK to apply the mask. The resulting image should be a white star surrounded by a black border. All we've done is create a black and white image to be used as a mask. Realize that we could have used any image editor to make this mask and that we can use any image as a mask.

7. From the View Menu, choose <u>Project Editor</u>. In the drop-down image list under the Start image of the <u>Project Editor</u>, choose *Image1* - the image that we just made.

8. Set your filter to *Distort*, click *Edit*, choose *Rotate* from the distortion list, and click OK.

9. Open the <u>Preview</u> window and use the *Percentage* slider to verify that what is occurring in the first filter is a rotating, black and white, star.

10. Press [123] to advance to the second filter layer.

11. Under Start image, <<Filter 1>> is selected by default. Instead, use the drop-down list to select the image that you originally loaded in step 2.

12. Choose *Colorize* from the filter list and click *Edit*. From the list of filters, choose *Emboss* and click OK.

13. Click *Options* to open the Filter Options.

14. Under *Filter Percentage*, choose *Constant, 100%.* This will apply the Emboss evenly throughout the video clip.

15. Under *Alpha Masks*, choose <<Filter 1>> as your *Start Alpha Mask.* This will use the rotating star that we created in the first filter layer as the alpha channel. Remember, the black areas will be transparent and the white areas will be opaque. Click OK.

16. Click *Create Animation* and give the AVI file any filename.

17. Once the AVI file is created, use the <u>AVI Player</u> to load and play.

Although there were a number of steps involved, the resulting video clip is impressive. Dynamic masks can be used to create spectacular effects. Some more experiments:

In the above example, use the same filter layer 1, but change the second layer to be a Reverse Zoom Out distortion filter applied to the first layer, <<Filter 1>>. In the third filter layer, use <<Filter 2>> as the mask against a static emboss. This way the star will zoom in from nowhere, as it is rotating.

Start with a completely white image as your Start image. Use the first filter layer to construct an Explode transition. Use the second filter layer to perform a Shear distortion onto <<Filter 1>>. For the third filter layer, use two images, Start and End, of the same size. Under Options, set the start mask to be <<Filter 2>>. Set the third filter layer to be Overlay on Alpha Channel. Render this one for a truly amazing transition.

Advanced Topics II: Motion Morphing and Warping

Motion Morphing

Motion Morphing is a feature that works with video clips. It is the same effect as single-frame morphing except that you can morph between two AVI video clips. For example, you can morph a running tiger into a moving automobile. Motion Morphing is automatically selected if either the Start or End image is an AVI file. To perform a motion morph load two AVI files into the Project Editor, select Morph in the list of Filter Types, and click Edit. Motion morphing is different from single-frame morphing. If you are morphing an AVI with 30 frames then there are 30 frames that need morph points. With single frame morphing there is only one frame. If you are new to morphing we recommend that you attempt some single-frame morphs before trying a motion morph.

The Basic Process

Place points on the important features in the first frame of the Start and End AVI clips. Use the bottom slider to advance to the final frame of the clip. Adjust the points to match the movement of the AVI files on the last frame of the Start and End AVI clips. Go back and adjust frames at infrequent intervals such as every 10 frames. Then start at the beginning and perform fine adjustments. When you are finished with point placement, you can adjust the color movement within a morph using the Project Editor/Options/ Color Shift tool. You can also adjust the morph movement speed using the Options/ Movement Speed tool. You can also create a morph which is a constant blend of the Start and End image instead of a dynamic transition from Start to End image. This is also found in the Option/Filter Percentage tool. Simply choose between Variable and Constant. Variable is the default and is most common for morphing.

Smart Points

The points that you add by hand are called Real Points and can be identified by their default color of light blue and light green. You can add a Real point anywhere in an AVI clip. PhotoMorph 2 will duplicate that point by creating Smart Points on all following frames. Smart Points have a default color of dark blue if they have not been moved or adjusted, and are dark green if they have been moved. By creating Smart Points, PhotoMorph 2 saves you the work of creating new points for each frame, letting you concentrate on the important task of fine tuning the placement of points. By doing adjustments every 10 frames or so you can make use of the automatic adjustments of the Smart Points. The Smart Points between the Real points will always adjust to the Real Points.

When deleting a Real Point or a Smart Point, all corresponding points after that point will be deleted but no points before it will be deleted. If you have a sequence in a motion morph that has a lot of movement, extra points may be needed just for that section. You can add Real Points, adjust the Smart Points for several frames, and delete the remaining points that are not needed.

Helpful Advice
To help you achieve best placement of morph points you should use the zoom tool to zoom in on a clip when placing points. Also, because motion morphing takes more time than single frame morphing you may wish to create a test morph with just a few points before spending a lot of time on a project. This process of gradual refinement is very good for starting with a rough idea and gradually perfecting it.

Motion Warping

Motion Warping is the same effect as single-frame warping except that you can warp all or some of the frames of a moving video clip. Motion Warping is automatically selected if you place an AVI clip in the Start image of the Project Editor and choose Warp from the list of Filter types.

Smart Points
The amount of effort to create a motion warp is a bit more than is needed to create a single-frame warp. If you are warping a clip with 30 frames, there are 30 frames that need warping points. Rather than make you recreate 30 frames of warping points, we have added Smart Points to help you get the job done. The process to create a motion warp is the same as creating a single-frame warp but with one additional step. First, click on Edit in the Project Editor to bring up the Morph/Warp Editor. Set your starting warp points in the first frame of your warp clip. These points that you create by hand are called Real Points. PhotoMorph 2 will create Smart Points on all following frames automatically, saving you a lot of work. You can add Real Points to any frame anywhere in a video clip, and Smart Points will be created automatically.

Helpful Advice
If you delete a Real Point or a Smart Point, only the points on following frames will be deleted. You will find that most of the effort of a motion warp is in adjusting the Smart Points so that a smooth motion is created. This is very important since video images tend to move on each frame. In order for a motion warp to look good, the points should be moving on each frame. Again, PhotoMorph 2 has several features to make your work easier. All points are color coded to help you organize your work. Colors can be assigned to the following kinds of points: Active Real Point, Active Smart Point, Moved Real Point, Moved Smart Point, Unmoved Real Point, and Unmoved Smart Point. For images that have a color that conflicts or obscures the points you can easily change the color of that point type to be something else using the point color tool.

By specifying a constant setting in Filter Options, Smart Points can be used to create very exact warps. The motion of the points will determine the exact shape the warp will take over time.

Image Editing within PhotoMorph 2
Opening Image Files

Opening an image file reads in an image from your disk and displays it. Go to the File menu and choose Open. A dialog box will appear.

To see a list of available file formats, click on the down-arrow button next to the Files of Type list. Scroll the list by clicking on the up and down scroll arrows. Click on the file format PCX - PC Paintbrush Format. PhotoMorph 2 will display all of the files in the current directory that are in the PCX format. If you want to see a list of all files in the directory, go to the top of the file formats list and choose * - List all files.

To open a file, double-click on its name in the file list. Try opening some of the sample images that are provided with your copy of PhotoMorph 2. They can be found in the VidCraft folder.

Converting, Compressing, and Saving Images

After loading an image, you can use Image / Save As... in the File menu to convert the image to other formats and save it in compressed or decompressed form. Open the file COLORS1.TGA from your PhotoMorph 2 directory. Now choose Image / Save As... from the File menu. A dialog box will appear.

If you wish to save the image to a new drive or directory, move to the new one by double-clicking with the mouse in the directories list box. Choose a new file format for the image by clicking on the new format's name in the formats list box. Try choosing the format TIF - Tagged Image File Format from the formats list box. Note that the output filename in the Filename edit box has been changed to COLORS1.TIF. You can use this edit box to change the output filename if you wish.

Instead of using the mouse to make changes, you may change the output filename and format by simply typing the new name in the Filename edit box. For example, to change the file COLORS1.TGA to a PCX file, type COLORS1.PCX in the Filename box.

You can also change the file's compression state when saving. Click on the Format>> button. Choose the Compressed radio button at the bottom to save your file in a compressed form. De-select the radio button to save the file in an uncompressed form. Note: There are some formats that cannot have their compression state changed by the user. For these formats, the Compressed radio button will be grayed out (disabled).

To save the file with your chosen parameters, click on the Save button. To cancel saving and exit the Save As... dialog box, click on the Cancel button.

In addition to being able to change filenames and compression states, the Save As... option in the File menu can change color configurations.

Color Reduction and Optimization - The Colors Menu

PhotoMorph 2 has sophisticated options for performing optimized color reductions on your images. There are two different ways to change color formats:

Use the main Colors menu or the pop-up (right click) Colors menu.

Use the Image/Save As... option in the File menu.

With both of these methods, you may choose between two color reduction algorithms, Flat Cut and Optimized Cut, and you may choose whether or not to dither the image when reducing colors.

Using the colors menu, you may quickly choose a color configuration for your current image.

Open the sample file, COLORS1.TGA. Now open the Colors menu and note that 24-Bit Color is checked. Click on another color configuration; for example, 16 Colors. Now you may choose between Flat Cut, Optimized Cut, Flat Cut with Dither, and Optimized Cut with Dither. Try choosing one of these options, then use the Undo option under the Edit menu to get the original image back. Then choose another method, then Undo, etc. This will give you an idea of the results each of the four methods will give you.

You can also try choosing Gray at the top of the Colors list to convert the image to grayscale.

For a shortcut to the Colors menu, right click on an image.

Screen Capture

The PhotoMorph 2 screen capture utility will prove very useful to you in creating screen images to use in videos.

The following sequence will capture an image of your entire screen and automatically paste it into a new PhotoMorph 2 window.

Go to the Capture menu and choose *Entire Screen*. Now click on Set Options... in the Capture menu. In the Capture group, choose *To Window*. Click OK.

Now simply hit the F11 key. PhotoMorph 2 captures an image of your screen, opens a new window, and pastes the image into it (all in one step!)

Feel free to explore the Capture menu to realize all of PhotoMorph 2's screen capture possibilities.

Printing

To print an image, simply open an image file and choose Print from the File menu. You can use the Print dialog box to scale, set print quality, and set up the printer. PhotoMorph 2 can print to any Windows-supported printing device.

If you wish to print a frame of a PhotoMorph 2 sequence, use the *Save image to new window* button in the <u>Preview</u> window. This will create a new image in the PhotoMorph 2 work area. Then, select the new image by clicking on it (close the <u>Project Editor</u> and <u>Preview</u> window if necessary) and chose *Print* from the File Menu.

The Edit Menu

Options for Cutting, Copying, and Pasting to the current image window are provided. Each menu item is detailed below.

Mistakes and Experiments: Undo

The Undo function under the Edit menu can be a lifesaver. It reverses the most recent operation performed on an image. Note that the Undo operation only applies to image windows, not to project windows!

Undo works on an image-by-image basis. In other words, if you have two images open, you can make a change to Image #1, then make a change to Image #2, then go back to Image #1, choose Undo, and get the original unchanged Image #1 back.

You can use Undo as a toggle between two versions of an image. Load an image, make a change, then use Undo to switch back to the original image. Use Undo again to see the change again, and so forth.

Undo is a great tool for trying out various operations on an image. Try loading an image and performing the different color reduction options on it (Flat Cut, Optimized Cut, and the same two with dither), using the Colors menu.

Cut

This option clears the current image window and places that image on the Windows clipboard.

Copy

This option copies image from the current image window and places that image on the Windows clipboard.

Paste

This option takes the image that has been cut or copied to the clipboard (from PhotoMorph 2 or any other image editor) and places that image into the current image window. To paste an image into a new window, choose Image, New from the file menu before pasting.

Paste Palette

This handy feature pastes the palette from the image stored on the clipboard into the current image in PhotoMorph 2. This is extremely useful for ensuring that images share the same palette on 256 color displays.

The Image Menu - Instant Image Editing

With the Image menu, you can re-orient your image by rotating, change its size by cropping or scaling, and perform a variety of other operations such as inverting colors, mirroring, framing, tiling, captioning, and masking. Controls for contrast/brightness, hue/saturation provide a means of color correction for images. By combining these operations, you can achieve great-looking special effects, too.

Digital re-sampling methods are used to create very high-quality rotated and scaled images.

Invert Image

Use this menu item to invert the colors in your image. Invert Image creates a color negative by taking each of the original image colors, computing their opposite in the color spectrum, and changing each original color to its opposite.

Flip Image

Use this menu item to flip your image along the horizontal axis.

Mirror Image

Use this menu item to flip your image along the vertical axis, creating a mirror-image of the original.

Crop

Use this option to cut off portions from the sides of your image. The Crop dialog box lets you specify portions of the image you want to cut from top, bottom, left, and/or right. A thumbnail version of the image is included in a previewing box at left. Use this to monitor your crop-line locations as you crop the image.

The Crop group in the dialog box has fields in which you can enter pixel values to crop off of the Top, Bottom, Left, and/or Right of your image. As you enter pixel values, crop lines will appear at the specified locations in the thumbnail previewing box.

Another way you can crop your image is to point with the mouse to a crop line in the previewing box (the cursor will change to a double-sided arrow), hold down the left mouse button, and drag the line to the new location. When you first open the Crop dialog, the crop lines are located at the edges of the image in the previewing box. As you drag, the pixel values in the Top, Bottom, Left, and Right fields will change dynamically. You can also point to a corner (a four-sided cursor appears) and drag the corner, to move two crop lines simultaneously. To move the entire crop-line box around the image, just point anywhere inside the box (the cursor will change to a hand), click, and drag the box to its new location.

The new dimensions (in pixels) of the image will be displayed in the Dimensions group. The Dimensions group allows you to enter new pixel dimensions for the image in the Width and Height edit boxes. By default, the crop lines will be centered on the image. For example, if you enter a Width value that is 20 pixels less than your original image's width, crop lines will appear 10 pixels in from the left and right edges of the image.

The Dimensions group is quite useful if you want your final cropped image to be of a specific size. Just enter the final dimensions in the Width and Height boxes. Then, if the crop lines are not where you'd like them to be, you can use the hand cursor to move the crop box around.

The Display group allows you to choose whether or not to preview your image at actual size. If your image is small enough that it fits entirely within the previewing box, the Show Real Size radio button will be permanently selected (since your image will automatically be previewed at full size).

Scale
The Scale Image dialog box allows you to: set a new width and/or height for the image; scale by percentage; choose high-quality or high-speed scaling; choose different units of measurement; specify dots-per-inch for different devices (allowing you to create predictable image sizes for particular devices, such as printers); and correct aspect ratio and resolution problems.

You may specify a new image size by typing values into the Width and/or Height fields. Use the Maintain Aspect check-box to choose whether or not to maintain the image's original aspect ratio (in this instance, aspect ratio means the ratio of image height to image width). If you select the Maintain Aspect check-box and then change either the Width or the Height value, the other value will change automatically, to preserve the same aspect ratio. If you de-select the Maintain Aspect check- box, and you enter Width and Height values that do not preserve the original aspect ratio, the result will generally be an image that looks squashed or elongated.

The Measure list box allows you to change the resolution by which the scaled image is measured, enabling you to create images which are of a predictable size for a particular device. There are three choices: Screen (x, y), Printer (x, y), and Custom. The values in parentheses represent dots-per-inch (horizontal, vertical) for the chosen device.

The Quality list box lets you choose between High or Low quality for your scaled image. If you choose Low quality, the scaling operation will be fast, and the resulting image will not be as good as it could be. With Low quality, the scaled image will be created in the same color configuration (bits-per-pixel) as the original image. In a High quality scaling operation, the scaled image will be created in 24-bit color (for color images) or in 8-bit grayscale (for gray or monochrome images).

Rotate
Use this menu item to rotate your image by any number of degrees, positive or negative, and to choose a background color for the rotated image.

Choose Custom, 90, 180, or 270 for degrees of rotation. If you choose Custom, you may enter any integer in the Amount edit box, and your image will be rotated by that number of degrees. Rotation is to the right (clockwise) if the integer is positive, to the left

(counterclockwise) if the integer is negative. You may use the Quality list box to choose between High and Low quality for the final rotated image.

If you are rotating the image by 90, 180, or 270 degrees, the quality will always be High (in other words, there will be no difference in appearance of the image or in speed of the operation, whether you choose High or Low quality). If you choose 90, 180, or 270 for degrees of rotation, the rotated image will be created in the same color configuration (bits-per-pixel) as the original image. For instance, if your original image was a 4-bit (16-color) image and you rotate it by 180 degrees, the rotated image will be created as a 4-bit (16-color) image.

If you are rotating the image by any other number of degrees, you will be performing a Custom rotation. If you choose Low quality for a Custom rotation, the rotation operation will be fast, and the resulting image will not be as good as it can be. With Low quality, the resulting image will be stored in the same color configuration (bits-per-pixel) as the original image. If you choose High quality for a Custom rotation, the rotation operation will be slower, but the resulting image will look much better. In a High quality rotation, the rotated image will be created in 24-bit color (for color images) or in 8-bit grayscale (for gray or monochrome images).

The final quality of the rotated image is dependent on the image's resolution. One way to increase an image's resolution is to first use the Scale... operation to enlarge your image (say to 300%, or 3 times original size), then perform the Rotate... operation, and finally scale the image back down to its original size. Working with the image at a higher resolution (larger size) will increase the quality of the image when it is shrunk back to its original size.

In a Custom rotation, the rotated image's dimensions will be larger than the original image's dimensions. (Rotate... draws a rectangle around the rotated image, with edges tangent to the rotated image's corners. You will thus have portions of "background" showing behind the rotated image.) You may choose a background color for the rotated image by clicking on the Color button. The background color may be chosen from a palette corresponding to your original image's color configuration (for monochrome images, choose black or white; for 4-bit images, choose among 16 colors; etc.). If your original image was in 24-bit color, you may choose any color for the background.

When you click on the Color button, a color-chooser dialog box for the present color configuration appears (except for monochrome, where the color toggles between black and white). For 4-bit and 8-bit files, the color palette will have 16 colors and 256 colors to choose from, respectively. For 24-bit files, the standard Windows color-chooser dialog box appears. Note: If you are choosing a color for a 24-bit image, remember to check the luminance value in the color-chooser dialog (this can be adjusted with the slider on the far right). If luminance is set to 0, your color will always come out black, and if it is set to 240 (the highest value), your color will always come out white.

Frame/Caption
Use this menu item to create a custom frame and to add a caption to an image.

In the Frame/Caption Image dialog box, you will find options for choosing a frame style; specifying a framed image's final dimensions; specifying and previewing frame margin measurements; adding caption text; and choosing colors for frame fill, frame outline, and text.

From the Style list box, you may choose Filled or Outline as the frame style. Filled creates a frame filled with a specified color. Outline creates a frame with a one-pixel outline of a different color from the fill color. (Use the Color button to name a color for frame fill and frame outlines.)

In the Final Dimensions group, you may enter the dimensions, in pixels, of the finished image (picture plus frame). As you enter the picture's final dimensions, the Frame Margin values (see Frame Margins below) will change dynamically, centering the image within the frame. Please note: The Final Dimensions width and height values cannot be smaller than the width and height of the image you wish to frame. In other words, the frame cannot cover any part of the image but must only wrap around the outside of the image. If you want the finished dimensions to be smaller, you should first use Crop... or Scale... to cut down the size of the image before framing it.

In the Frame Margins group, you may specify the width of the frame, in pixels, at the Top, Bottom, Left, and Right of the image. As you alter these values, the Final Dimensions values will change dynamically to show you the final height and width of the framed image. A previewing box at the top right also changes dynamically as the Frame Margins values change. (The frame you've specified appears in black, while the hatch-marked area represents the framed image.)

Use the Colors group to choose colors for frame fill, frame outline, and caption text. In the drop-down list box, choose the area for which you want to pick a color (Fill Color, Outline Color, or Text Color), then choose the color with the Color button. Colors may be chosen from a palette corresponding to the original image's color configuration (except for 24-bit images, for which any color may be chosen).

When you click on the Color button, a color-chooser dialog box for the present color configuration appears (except for monochrome, where the color toggles between black and white). For 4-bit and 8-bit files, the color palette will have 16 colors and 256 colors to choose from, respectively. For 24-bit files, the standard Windows color-chooser dialog box appears. Note: If you are choosing a color for a 24-bit image, check the luminance value in this dialog (adjust with the slider on the far right). If luminance is set to 0, your color will always be black, and if it is set to 240 (the highest value), your color will always come out white.

In the Caption (x, y) group, you may enter any text you wish to overlay upon the image. (You are not required to create a frame in order to place text upon your image.) The x and y values that are displayed next to the word Caption represent the width and height (in pixels) of the caption that you create. This allows you to create a frame in which your caption will

fit. If your caption does not fit in your frame or on your picture, the text will be truncated, not wrapped.

Click the Style button to select your font, font style (bold, italic, etc.), size, and effects. Choose a text color with the drop-down list box in the Colors group, click on Text Color, then pick a color with the Color button. (See above for information on the Color button.)

Click the Align button to position your text along the horizontal and vertical axes. Choose Left, Center, or Right align in the Horizontal group, and Top, Center, or Bottom align in the Vertical group.

You should also consider the special effects you can achieve by combining various operations in the Image menu. For instance, to run a caption diagonally across your image, first rotate the image by 45 degrees, caption it, then rotate back to its original orientation.

The final appearance and quality of the framed image and caption text is dependent on the image's resolution. One way to increase an image's resolution is to use the Scale... operation to enlarge the image (say to 300%, or 3 times original size), then frame and/or caption it, and finally scale the image back down to its original size. Working with the image at a higher resolution (larger size) will increase the quality of the image when it returns to its original size.

Tile
Use this menu item to create multiple copies (tiles) of your original image and organize them in an array (as though the images were tiles being laid).

The Tile Image dialog box provides you with a Width and a Height field. Use these fields to specify how many tiles of the image you want along the horizontal (Width) and vertical (Height) dimensions.

Select the Mirror Tiles option to create mirror effects. This option will mirror tiles both along the horizontal and along the vertical axes. If you wish to mirror only along one axis, first tile along the mirrored axis with Mirror Tiles selected; then tile along the non-mirrored axis with Mirror Tiles de-selected.

Mask
Use this menu item to create special effects by masking out (hiding) parts of your image with the figures and patterns provided.

In the Mask Image dialog box, you can choose from an assortment of shapes for your mask. The Shape box at right will display the shape you choose from the Name list at left. By default, the black areas in the Shape box will be the areas through which your original image will show, and the white areas will be masked. If you select the Invert Mask option, however, the white areas in the preview box will be the areas through which your image will show, and the black areas will be masked. Selecting Mask Alpha Channel will apply the mask only to

the channel of a 32-bit image. Selecting Color Channel masks only the color part of a 32-bit image.

Use the Mask Color... button to choose a color for the masked parts of the final image. Colors may be chosen from a palette corresponding to your image's color configuration (i.e., black or white for a monochrome image, 256 colors for an 8-bit image, etc.). If the original image is in 24-bit color, any color may be chosen for the mask color.

When you click on the Color button, a color-chooser dialog box for the present color configuration appears (except for monochrome, where the color toggles between black and white). For 4-bit and 8-bit files, the color palette will have 16 colors and 256 colors to choose from, respectively. For 24-bit files, the standard Windows color- chooser dialog box appears. Note: If you are choosing a color for a 24-bit image, remember to check the luminance value in the color-chooser dialog (this can be adjusted with the slider on the far right). If luminance is set to 0, your color will always come out black, and if it is set to 240 (the highest value), your color will always come out white.

The final quality of the masked image is dependent on the image's resolution. One way to increase an image's resolution is to first use the Scale... operation to enlarge your image (say to 300%, or 3 times original size), then mask the image, and finally scale the image back down to its original size. Working with the image at a higher resolution (larger size) will increase the quality of the image when it is reduced to its original size.

Contrast/Brightness
Use these menu items to increase the contrast and brightness of the selected image. Contrast will make dark parts of an image darker and will make light colors lighter. Brightness will make the entire image lighter. Use the slider controls to change the contrast and brightness on the preview image which is displayed. Then select OK to apply those changes to the image. You can use Channel to select the specific color plane you wish to modify or you can select RGB and change all colors with a single operation.

Hue/Saturation
Use the Hue and Saturation controls to change to overall Hue and Saturation of an image.

The Filter Menu
PhotoMorph 2 comes with 11 filter effects which can give an image additional distinction and flair. A filter is applied to the image in the active window. This process can be repeated several times to give more of an effect. All filters work with images having 16 or more colors. If an image is only black and white, or monochrome, the filter menus will appear grayed out and will not be applicable. If you really need to apply a filter to a black-and-white image you can promote the image to color using the Colors menu. The filter menu does not apply to AVI files. Use the Colorize effect to filter AVI files.

The Filter menu's effects appear in the following order:
Sharpen
The Sharpen filter makes a blurred image look more crisp. The opposite of Sharpen is Blur.

Sharpen Lines
The Sharpen Lines filter will accentuate lines and finer detail in an image.

Despeckle
The Despeckle filter will remove stray points of very different colors. This has a subtle smoothing effects.

Emboss
The Emboss is a very interesting effect which can make an image look like a three-dimensional relief, or sculpture.

Blur
The Blur effect gives an image a blurry appearance. It is especially noticeable on very detailed images. As with all filters, it can be used repeatedly on an image to make it very blurry or a little blurry.

Median
The Median filter is used to create a Posterize effect where a few colors dominate an image.

Trace Edges
The Trace Edges filter will remove all features from an image accept its edges. Because of the nature of the filter, the colors it creates are very bright. These colors can be toned down or simply converted to gray using the Contrast/Brightness or Hue/Saturation controls in the Image menu.

Noise
The Noise filter will add an amount of randomly colored pixels or 'visual noise' evenly over an image. If more noise is desired, the filter can be repeatedly applied as needed.

Maximum
The Maximum filter will increase bright or light colored areas in an image. Repeatedly applying this filter will spread the bright colors over an image much like water colors or finger paints.

Minimum
The Minimum filter is much like the Maximum filter except that it spreads dark colors.

Old Movie
The Old Movie filter makes the image look like it was taken using and old style movie camera. This is also known as 'Sepia Tone'.

More Options: Video Editing and Filter Options
Video Editing Options
The Video Editing Options tool allows you to specify a segment of frames to use within the current AVI file. The tool is located under the start and end image in the Project Editor and

will become automatically enabled when an AVI video clip is loaded in that window. By setting the In Point and the Out Point, the portion of the clip to be used is specified, providing a means of performing simple editing, thus eliminating the need to use a separate editing program for anything but advanced editing. Also included in the Video Editing Options is the ability to specify how the source video is to be sampled. There are 3 options for sampling: By Time, By Frames and Whole Clip.

Sampling by Time means that PhotoMorph 2 should attempt to use the same amount of source video (in seconds) that is going to be created in the clip. If the clip contains 30 frames and is going to be written at 20 frames-per-second, PhotoMorph 2 would try to take 1.5 seconds of video from the input AVI starting at the in-point. If there are not enough frames between the in-point and the out-point to sample the proper amount of time, PhotoMorph 2 will switch over the Whole Clip sampling.

Sampling by Frames means that PhotoMorph 2 should attempt to match the input with the output frame-for-frame. If the output is going to be 30 frames, PhotoMorph 2 should use 30 frames of the input video starting at the in-point. If there are not enough frames between the in-point and the out-point to sample the proper amount of time, PhotoMorph 2 will switch over the Whole Clip sampling.

Sampling Whole Clip means that PhotoMorph 2 will resample the frames between the in-point and the out-point to match the number of frames that is going to be created by the clip. For example, if there are 10 frames between the in-point and the out-point and the clip is going to output 30 frames, each frame of the input video will be used 3 times.

Clip Options

The Clip Options dialog box has several features which can provide for greater control of the filters.

Color Shift

The Color Shift control will adjust the speed that colors shift from the Start image to the End image. This is normally a linear transition but this too can be speed up or slowed down. A setting of 100 starts slowly and ends quickly. A setting of -100 starts quickly and ends slowly.

Movement Speed

Movement Speed is used to add acceleration or deceleration to a clip and for creating natural movements. A setting of 100 starts slowly and ends quickly; -100 starts quickly and ends slowly.

Filter Percentage

The Filter Percentage control determines how much of an effect will be applied. With the Variable setting, the filter will gradually increase from 0% to 100% across a clip. The Constant setting will fix a filter at a set percentage for the duration of the clip. This is useful for situations where you wish to hold a filter level constant over the duration of an entire clip

(like embossing and entire AVI file at 100%). Even though the filter level is kept constant the AVI file will still be sampled normally.

Alpha Masks
Alpha Masks allow you to use any image or AVI file as a temporary alpha channel without having to keep the alpha channel merged inside the source materials. Start allows you to specify an Alpha channel for the Start image, End allows you to specify an Alpha channel for the End image. When AVI's are used to provide alpha channel information, the Video Editing Options for that AVI will be enabled.

A Guide to the Tutorials

Here is a list of the tutorials contained in this manual.

Tutorial 1 - Loading and Rendering an Existing PhotoMorph 2 Project
Primary Topic:
     Loading and using PhotoMorph 2 Project (PMP) files
Other Topics Covered:
     Create Animation
     <u>AVI Player</u>

Tutorial 2 - Creating a Morph Movie
Primary Topic:
     <u>The Morph Editor</u>
Other Topics Covered:
     Loading Start and End images
     Morph Points
     The <u>Preview</u> window
     Saving PhotoMorph 2 Project (PMP) files
     Create Animation
     <u>AVI Player</u>

Tutorial 3 - Using the Colorize Editor
Primary Topic:
     <u>The Colorize Editor</u>
Other Topics Covered:
     Loading Video Clips into the <u>Project Editor</u>
     Clip Options, Holding an filter at a constant percentage
Tutorial 4 - Creating a Blue Screen Overlay
Primary Topic:
     <u>The Overlay Editor</u>
Other Topics Covered:
     Acquiring objects on a blue background.

Tutorial 5 - Using the Distortion Filters
Primary Topic:
     <u>The Distortion Editor</u>
Other Topics Covered:
     Animation Parameters - Quality Setting

Tutorial 6- Creating a Warp
Primary Topic:
     <u>The Warp Editor</u>
Other Topics Covered:
     The <u>Preview</u> window

Tutorial 7 - Using the Storyboard to Create a Sequence of Effects

Primary Topic:
    The Storyboard
Other Topics Covered:
    Morphing
    Creating Pauses in the Movie
    Frames verses Frames Per Second
    Transition Filters

Tutorial 8 - A Simple Example of Multiple Filter Layers
Primary Topic:
    Multiple Filter Layers
Other Topics Covered:
    Colorize & Transition Filters

Tutorial 9 - Increase to 32-Bit, The Difference Between Opaque and Transparent
Primary Topic:
    The Colors Menu and Alpha Channels

Tutorial 10 - Using the Image / Mask Menu to Construct Basic Alpha Channels
Primary Topic:
    The Mask Menu Item and 32-Bit images
Other Topics Covered:
    Colorizing 32-Bit Images

Tutorial 11 - Making Custom Faders Using 32-Bit Images
Primary Topic:
    Alpha Faders in the Transition Filters

Tutorial 12 - Making an Overlay With a 32-Bit Image
Primary Topic:
    Alpha & Inv. Alpha in the Overlay Editor

Tutorial 13 - Dynamic Masks
Primary Topic:
    Using Clip Options to Specify the Alpha Channel

Tutorial 14 - Using Other Filters as Alpha Channels
Primary Topic:
    Multiple Filters as Alpha Channels
Other Topics:
    Image / Mask Menu
    Distortion and Colorize Filters