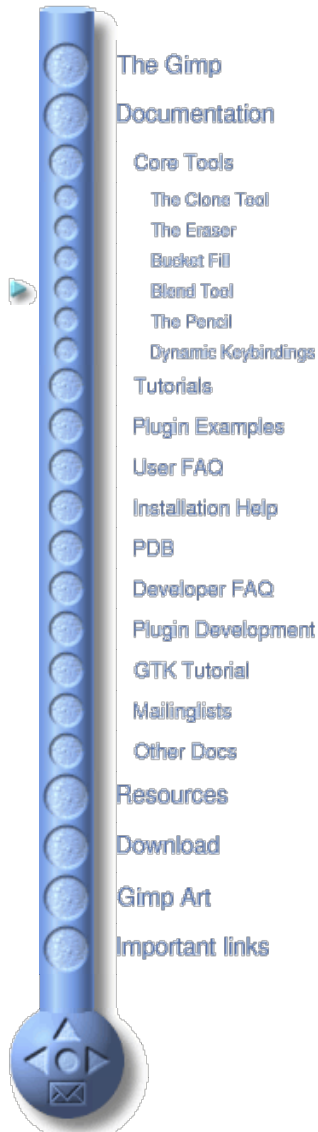


Documentation

Core Tools



The Blend Tool

The Blend Tool documentation was contributed by Steve Harvey (ej345@cleveland.freenet.edu)

► Introduction

The Blend tool allows the creation of *gradients*, or blended slopes of color. It makes possible a number of different effects, ranging from dramatic psychedelic poster art, to subtle shading effects, to sleek polished chrome and perfectly shaded 3D geometric figures. With this versatility comes a certain amount of complexity, of course, and while the Blend tool isn't difficult to use, it does require a little time to become familiar with its numerous options.

► Where it's at

The Blend tool may be accessed from the main GIMP toolbar; it looks like a rectangle shaded with bands of grey. It is located beneath the Text tool and next to the Bucket Fill tool. The Blend tool may also be selected from the right-click Tools menu, or by keyboard shortcut ('L' by default).

► Fundamentals

The Blend tool is used by clicking & dragging between two points, which draws a vector defining the direction and width of the blend. Drawing a short line will cause the resulting gradient to be a narrow band, with lots of solid color on the edges. Drawing a longer line will produce a wider, smoother blend (this behavior does not hold true for the Conical or Shapeburst gradients; see the explanation of the Gradient menu item below).

Blend acts upon an area defined with one of the selection tools, or covers the entire image layer if no selection has been defined (although read about the **FG to Transparent** option in the Blend menu item, for an explanation of how the tool can be used to quickly "draw" 3D solids, lighting effects, etc.)

The Tool Options dialogue for the Blend tool has more options than any other item in the GIMP's toolbox.

OPACITY

This slider controls (via a percentage) how opaque or transparent the drawn gradient will be when applied to the underlying image. 100% Opacity (the default) will totally cover up what's underneath, while 0% is totally invisible (and therefore not very useful). Intermediate values can produce a number of interesting effects, such as mimicking the luminous glaze effects found in traditional media such as watercolor and acrylics (see Examples below for more details).

The Opacity slider is identical in function to the Opacity control on the Layers dialogue. Sometimes it is useful to draw a gradient on its own layer, and adjust the Opacity in the Layers dialogue, rather than using the Blend tool's own Opacity control. Using a separate layer allows easier fine-tuning of the blend effect, and preserves the original image in case you later change your mind.

OFFSET

The Offset slider controls the weight of the foreground color in a drawn gradient. A low Offset will have relatively little foreground color, and a wide area of surrounding blend. An high Offset will give the foreground color a stronger presence, with less surrounding blend area. The Offset control is useful for fine tuning lighting & chrome type effects. Offset has no effect when used with the Linear and Shapeburst gradient types (see Gradient menu below).

MODE

Blends may be drawn using one of fifteen modes which determine how the gradient will interact with any existing pixels on the same layer. These modes work the same as the modes in the Layers dialogue, and are as follows:

Normal

New pixels simply overpaint existing pixels, ignoring what's already there.

Dissolve

When the Opacity of the blend is < 100%, it will be drawn with a speckled effect, similar to drybrush effects in painting. If Opacity is 100%, Dissolve mode looks the same as Normal.

Behind

The gradient will be drawn only on partially or fully transparent parts of the layer, leaving opaque pixels intact (think of drawing on the back side of a painted piece of glass). If Behind mode is used on a layer with no areas of transparency, nothing will be drawn.

Multiply

Darkens all pixels of the existing image, increasing the tonal density. Selecting part of an image and coloring it with a Multiply blend is a good way to create areas of shadow.

Screen

Screen: Screen mode is the opposite of Multiply, and lightens the value of existing pixels. It is good for creating areas of pale, bleached-out color.

Overlay

A combination of the Multiply and Screen modes, Overlay will make dark pixels darker and light pixels lighter, adding greater contrast to the image.

Difference

Subtracts the color of the drawn pixel from the underlying color (or vice versa), causing dramatic shifts in color. The result is similar to looking at a photographic negative.

Addition

Addition mode acts by adding the RGB values of the newly drawn pixel to the underlying color. The result is similar to Screen mode, and sometimes produces a "clipping" effect which causes a loss of tonal detail.

Subtract

The opposite of Addition, this mode works by subtracting the RGB value of the underlying pixel from the newly-drawn color. Subtract mode produces dark, shadowy effects like viewing the image through a piece of thick, heavily tinted glass.

Lighten Only

If the underlying pixel is darker than the new pixel, it will be made lighter. If the underlying pixel is lighter than the new pixel, it will be unchanged. Lighten Only mode is similar to Screen mode, except Screen lightens *all* pixels, while Lighten Only just affects those which are darker than the target color. Therefore, Screen will typically produce a more noticeable effect.

Darken Only

The opposite of Lighten Only. If the underlying pixel is lighter than the new pixel, it will be made darker; if the underlying pixel is already darker than the new pixel, it will be left alone. Darken Only is similar to Multiply mode, except where Multiply darkens all pixels, Darken Only just changes those which are lighter than the target color.

Hue

The hue of the underlying pixel is changed, but its saturation and value are left unchanged.

Saturation

The saturation level of the underlying pixel (the intensity of the color) is changed; the hue and value (luminosity) are left unchanged.

Color

The hue and saturation of the underlying pixel are changed, while the value is unchanged. Color mode is similar to applying an Hue gradient immediately followed by a Saturation gradient.

Value

Modifies the luminosity of the underlying pixel, without changing hue or saturation.

BLEND

Selects which method will be used to create the colors of the blend. There are four choices:

FG to BG(RGB)

The default blending method, this creates a gradient between the current foreground and background colors. The effect is similar to taking two dabs of paint and smoothly blending them together; mixing red and blue gives a gradual series of purple tones.

FG to BG (HSV)

Creates a blend between the current foreground and background colors, using the HSV (Hue, Saturation, Value) color model. Rather than simply blending the colors together as if they were pigments, this method will create a blend of all colors of the spectrum between the foreground and background colors. Blending between red and blue with this method produces a nice rainbow effect, with orange, yellow, and green in the middle (think of your old pal Roy G. Biv) If one or both of the colors are low in saturation (black, white, or grey), this blending method will look the same as the RGB blend above.

FG to Transparent

FG to Transparent: Uses the foreground color as one end of the blend, which gradually fades to transparency. This can be used to add a smoothly faded tint to an image. By setting the Gradient type to Radial or Square, it offers a quick & dirty way to instantly create nicely-shaded spheres or box shapes.

Custom (from editor)

Draws a gradient based on a selected preset from the GIMP's Gradient Editor (which can be accessed with Ctrl-G, or selected from the **Dialogs** right-click menu). The Gradient Editor is a powerful tool with which custom gradients with any number of colors and transparencies can be created. It also contains a large number of presets which give a good idea of its capabilities.

GRADIENT

Nine different gradient "shapes" may be drawn with the Blend tool, as follows:

Linear

The default option, the Linear gradient produces a smooth blend angled in the direction of the drawn vector. A large distance between the start & end points of the gradient will result in a wider area of blended color. The Offset control (see above) has no effect with a linear gradient.

Bi-Linear

Looks like two mirror-image Linear gradients placed back to back (i.e. a blend from the FG color to BG, then back to FG). Bi-Linear gradients are a good way to draw constructs which look like metal pipe.

Radial

Creates a circular gradient, with the FG color at the center of the circle (first drawn point), and the BG color at the circle's perimeter (second drawn point). With an Offset of zero, it produces a perfectly-shaded sphere. Higher Offsets look more like a planet with a foggy atmosphere, or an oncoming headlight.

Square

Creates a square-shaped gradient with the FG color at the center. The length of the drawn line controls the size of the circle, but the direction of the line is irrelevant: the Square gradient will always be drawn with its edges parallel to the edges of the screen. Looks a little like looking down on the top of a pyramid with a truncated top, or staring down a ventilation shaft. Increasing the Offset results in a larger central area (i.e. a more heavily truncated pyramid or a shorter ventilation shaft).

Conical (symmetric)

Draws a gradient similar to looking down onto a shaded cone. The direction of the drawn vector determines the shading of the cone (the foreground color points in the direction of the line between the two points). The length of the drawn vector is irrelevant; a Conical gradient will always fill the entire selection or layer.

Conical (asymmetric)

Like looking down onto a cone with one sharp edge (think of a boat rudder, round on one side and tapered to an edge on the other). This gradient type is similar to taking a Linear gradient and stretching it into a circle or party hat shape, with pure FG color at one edge of the seam and pure BG color at the other.

Shapeburst

The three Shapeburst gradients all neatly create a bevel-like effect around the edges of a complex selection (or if there is no active selection, they will fill the entire image layer with a blend similar to the Square gradient). Shapeburst is very handy for creating effects like engraved lettering or frames around an image. The Shapeburst (angular) option creates an effect like raised lettering, with the FG color at the top of the ridge and the BG color at the base. Shapeburst (spherical) is rounder, and makes the selection look like a puffy sticker. Shapeburst (dimpled) is similar to the angular option, only it looks as if the bevel were recessed into the surface, rather than protruding outwards. Since a Shapeburst will fill all available space, the direction and distance between the two drawn points of the gradient are irrelevant.

REPEAT

Causes the drawn gradient to be repeated several times, rather than leveling off to a solid color at either edge. Sawtooth wave causes the gradient to repeat in stripes of FG to BG, FG to BG, etc. (like several Linear gradients stacked side to side). Triangle wave causes the gradient to repeat in a pattern of FG to BG to FG to BG, etc. (like several parallel Bi-linear gradients.). Using the Repeat feature with a Linear gradient produces a series of colored stripes, while using it with Radial or Square gradients results in a number of concentric circles/squares (like an archery target). Repeat has no effect with the Conical or Shapeburst gradients.

ADAPTIVE SUPERSAMPLING

When this check box is enabled, the GIMP will smooth the color transitions to reduce "jaggies" and color banding. Adaptive supersampling is mostly useful when applied to complex custom gradients created with the Gradient Editor, and even then the effect is generally fairly subtle. Adaptive supersampling works by dividing each pixel into $N \times N$ sub-pixels (where N is determined by the Max depth slider), and performing a process similar to anti-aliasing to blend smoothly with surrounding pixels. The Threshold slider controls how sensitive this process is to color changes between pixels (similar to the Bucket Fill's Threshold control). The effects of

Adaptive supersampling can be seen most easily by filling a small-ish area with a custom gradient such as Mexican Flag (which contains dramatic color shifts) and looking at the result at a high level of magnification. **WARNING:** Using Adaptive supersampling is slower and more CPU-intensive than leaving the feature disabled. In particular, setting a high Max depth and a low Threshold, and plotting a gradient on a large image, is a reliable way to bring the GIMP to its knees for quite some time.

► Cheat Sheet

Action	Result
Click & drag with first mouse button:	Draws a vector (line segment) defining the start & end points of the gradient.

► Uses

The Blend tool has so many combinations of options that it would be difficult to list all of its possible applications. For illustrators, Blend may be used to make a flat image background more interesting, and to add depth to areas of solid color. Similarly, Blend should be given serious attention by web designers or anyone interested in designing user interface widgets (buttons, window controls, etc.) with a shaded or 3D look.

The Blend tool is also of use to anyone doing photo retouching, to add a professional-looking polish to an image. Those interested in using the GIMP for image composition or creating artwork from scratch will find Blend useful for creating countless effects, from sunsets and geometric figures to weird never-before-seen abstract effects.

Example:

Example #1 (simple project): A popular trend these days is to design GUIs with interchangeable "themes" or "skins", to customize the look of an application to fit in with the rest of the user's desktop (playing with such customizations is also a convenient way to avoid doing actual work). The .MP3 player **X11Amp** is a good example of this phenomenon, where the appearance of the program can be changed radically by just plugging in a different bitmap graphic.

As you might expect, the GIMP makes it easy to design such gadgets. Let's pretend a programmer friend visits us one day, asking us to design some sleek-looking menu graphics for her latest application. Create a new file by typing CTRL-N or selecting **File -> New**. Set the Width to 320, Height 200, and make sure Image Type is set to the default of RGB. Our friend's application, whatever it does, has a simple enough interface that it'll fit in a fairly small window.

Choose the Rectangular selection tool (it's in the upper left corner of the GIMP toolbox, or you can get to it from the right button pop-up **Tools** menu, or just type "R"). Click & drag to draw a rectangle that covers about a quarter of the image, leaving a margin of around a quarter inch (about 10-20 pixels) from the edge of the image. This rectangle will define the space where some particular control or button group will go in the application.

Draw two or three more rectangular selections to represent areas for other sub-controls. To add to an existing selection, hold down shift, click at one corner of the new rectangle, *release* shift, and drag the mouse to the other corner of the rectangle. If you don't release shift before you start dragging, it will constrain the selection to an equal-sided square (try it for yourself). This dual use of the shift key is confusing at first, but becomes second nature after you've done it a few times.

Keep at it until you're happy with your rectangles, making sure there is a margin of at several pixels between rectangles, and from the border of the image on all sides. When you're satisfied, choose **Select -> Invert** from the right-button menu, or just type CTRL-I. (TIP: Keyboard shortcuts in the GIMP are your friend. They take a little while to learn, but once you do, they *will* help you work faster and save you the minor distraction of hunting for things on a menu or toolbox). As the name suggests, this command inverts the selection, so instead of several separate rectangles, the selected area now covers the entire image, with several rectangular holes cut in the middle.

Choose the Blend tool, set Blend to **FG to BG**, and pick one of the **Shapeburst** Gradient types (they all look good - each of the three variants gives a slightly different effect. For this project, I like the **dimpled** variant).

Using the color picker, select a bright, pale foreground color (or white), and a very dark background color (or

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