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# A Quick Tour of the User-Interface

**Common Items for all of the User-Interface Filters**
The most unique feature of Kais Power Tools for Windows is the intuitive User-Interface.   The following items are common to Gradient Designer, Gradients on Paths, Texture Explorer and Fractal Explorer.

Moveable Interface

Temporary Re-size Option

Options Button

Shuffle Button

Add Button

Delete Button

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Keyboard Shortcuts

# The Gradient Designer

**Basics**

The Gradient Designer allows you to design complex, multi-color 24 bit gradients, save them (as presets), and/or apply them to your image.   It is the cornerstone of Kais Power Tools.   The architecture of Kais Power Tools allows gradients saved as presets in the Gradient Designer to be used, or subscribed to, by all other U-I filters.   Because other U-I filters parse this gradient data through their own proprietary algorithms, many new variations of existing gradients are created.   Most of these gradients could not be created by using the Gradient Designer by itself.   To capture this new gradient data, (for new presets), and to allow greater user control over textures and fractals, **<Control G>** brings up the Gradient Designer in the Texture Explorer and Fractal Explorer; a powerful combination.

A couple of hints:

- When you find a gradient you like, (**anytime** the Gradient Designer is active) **SAVE** it.
- Dont forget that None is a color. Different levels of None (varying levels of opacity and translucency) allow for some great special effects.
- All Gradient Designer presets are available to you in all other KPT User-Interface Filters.

A Tour of the Gradient Designer U-I

Using the Gradient Designer

Keyboard Shortcuts for the Gradient Designer

# Using the Gradient Designer

**Basics**
Using the Gradient Designer is as easy as point and click.   Move the cursor over the gradient bar, click (the cursor turns into a color picker), and watch as the colors are instantly interpolated over the entire gradient bar.

Use the selection bar to focus on a specific area of the gradient bar.

Change the shape algorithm, loop control (how the gradient repeats the base colors), repeat values (how many times the loop control values repeat) for interesting effects.

Change opacity levels for the entire gradient bar, or just for small selected areas.

Use NONE as a color for masks, transparencies, frames, fogs, etc.

Save gradient data, including Algorithm Control, Looping Control, Direction and Blur Control as a presets. Create new categories and preset files.

Use one of the many KPT presets.

# Apply Modes Explained

[Normal Apply](#)

[Procedural Blend](#)

[Lighten Only](#)

[Darken Only](#)

[Add](#)

[Subtract](#)

[Multiply](#)

[Screen](#)

[Difference](#)

[Tie Me Up/Tie Me Down](#)

# Darken Only

The algorithm for Darken Only Apply Mode reads the luminance values of both the original image and the gradient, texture or fractal image and compares them.   It then adds the gradient, texture or fractal only in those areas where the gradient, texture or fractal is darker than the underlying image.

# Add

The algorithm for the Add Apply Mode sums the underlying image and the gradient, texture or fractal you wish to apply and clips them at white.   In many cases it may resemble a blend function, but not always.

# Subtract

The algorithm for the Subtract Apply Mode compares the underlying image and the gradient, texture or fractal and combines them using subtractive color theory. For instance, if the image is white and a green effect is applied, the subtract mode will yield a magenta. (Subtract Green from RGB yields Red + Blue or purple.)

# Multiply

The Multiply Apply Mode uses an algorithm which takes only the dark components of the gradient, texture or fractal and adds only those dark components to the underlying image.   Everything that is white is ignored, and everything that is black is added proportionately according to its luminance values.

# Screen

The screen Apply Mode algorithm measures the light components in both the underlying image and the gradient, texture or fractal.   The lighter components are added to the image, and the darker components discarded or ignored.   Everything in between appears to be blended.

# Difference

The Difference Apply Mode is probably the most dramatic of the apply modes.   This algorithm uses both the underlying image and gradient, texture or fractal color ranges to their fullest, and measures the difference between the two.

## Tie Me Up/Tie Me Down

An apply mode which uses modulo arithmetic for color manipulation.   The apply mode function is similar to Add and Subtract, with the distinction that instead of clipping to black or white, the result which would have been clipped is retained and used as color data.   When dealing with a lot of black or white within either the underlying image or selection, or within the gradient itself, Tie Me Up/Tie Me Down will not yield anything surprising. On the other hand, some results will be astonishing with polarized sheens and kaleidoscopic type effects.

## Add Button

Hit A to save a [preset](#) name or start a new preset category in the Gradient Designer, Gradients on Paths, Texture Explorer and Fractal Explorer.

# Delete Button

Hit the letter D or click on the delete button to delete a preset or a category in any of the U-I filters.

# Preset Menu

The Preset Menu is where all of the named or saved Gradients, Textures and Fractals are stored.   When you press the letter A or click on Add a dialog box will allow options for item names, category names, and preset files.   Each U-I is allow up to five different preset files.

# Options Menu (Button)

The Options Menu Button appears on all of the U-I filters.   The first major set of options which appears on all the U-I filters is the **Apply Mode** option.   There are 12 different apply modes.

The second major set of options which appears on the Gradient Designer, Gradients on Paths, and Texture Explorer is the **Background Preview** option.   The background preview option allows 9 different backgrounds to the gradient or texture you have designed.   This allows you to test various apply modes against different color backgrounds for the best effect.

The third set of options deals with **Real-time Linking** and **Preferences**.   Real-time Linking allows you to view the changes you are making as they happen in the preview window.   When Real-time Linking is disabled, the preview window will only update after the mouse button has been released, i.e. when you have completed an action.

The Preferences choice is only active in the Gradient Designer and Gradients on Paths.   The preference choices here are Load Normal Gradient from Image, Load Smooth Gradient from Image, and Return to Previous State.
- Load Normal Gradient from Image loads color data drawn from a horizontal selection across the center of the image.
- Load Smooth Gradient from Image loads the color data from a horizontal selection across the center of the image, and interpolates, or smoothes, the color data across the Gradient Bar. If, however, there are hard edges in the selection area, those hard edges are still represented in the Gradient Bar.
- Return to Previous State remembers the last gradient in the Gradient Bar and displays that gradient at start up.

Apply Modes Explained

# Presets

A general rule of thumb for KPT is when you see something you like, SAVE IT!   A preset in KPT is much the same as a preset on a digital radio.   It allows immediate access to an item you have already tuned, or created.   Instead of later trying to recreate a gradient, texture or fractal, save it as a preset.   Then it is always available.   To save a preset, just hit the A key on your keyboard, or use the Add Button.   The U-I then prompts you for a preset name.   You may also add additional categories and create up to four additional preset files for each U-I.

# Gradients on Paths

**Basics**

Gradients on Paths can "wrap" any blend extremely smoothly around a free-form user path. This creates unique effects like glows, halos, rainbows, metallic tubes, lasers, fogs and complex type outlines. All the gradients used by Gradients on Paths are presets from the Gradient Designer.   Gradients on Paths uses two blends, one for color and one as an alpha channel to fade in and out and blend with the original image in any Photoshop and Painter document.   A quick reminder on some KPT basics:

- If you find a combination you like, save it.
- Dont forget to try this in an exclusive alpha channel.

**Accessing Gradients on Paths**

There are two ways to access Gradients on Paths.   First, from the Gradient Designer, select Gradients on Paths from the Algorithm Control menu.   Second, invoke Gradients on Paths directly from the plug-ins selection menu.

In all plug-in compatible programs, to use Gradients on Paths you must make some type of feathered selection, or path.   If your plug-in program does not have the ability to feather a selection or path, Gradients on Paths will not work.   In Photoshop, for instance, you could make a selection through the lasso/marquee tool or make a path/selection   Then feather the selection.   In Painter create and feather a frisket.   Follow selection/feathering instructions for other applications using plug-in architecture..

**Using Gradients on Paths**
**A Tour of the Gradients on Paths U-I**

# Texture Explorer

**Basics**

Textures have become a staple component in graphic arts creation. As technology has progressed, it has become standard practice to embellish components with more than trivial color. The term "Texture" encompasses anything that "fills a shape with something more than a simple flat color." Readily available textures such as scanned marble, wood and stone have become common fare as backgrounds. The Texture Explorer puts a new twist on this background texture movement.

Here are some basic ideas worth remembering and exploring:

- The Texture Explorer installs with over 200 presets. Roam through them and choose a preset name that looks interesting.   It will render the primary texture with twelve derivatives along the outside edge.
- Click on a mutation ball. The derivative cousins change. If one of the twelve intrigues you, click on it and it becomes your new current texture, drawn full-size in the center preview window.   The mutation process now starts again.   You get both the original texture and twelve derivative cousins. This cycle may be repeated indefinitely creating an infinite number of textures.
- If you are interested in a particular texture, save it.   The process is the same as saving a gradient. After you have saved the preset, move down the Mutation Tree and look at smaller variations of the main theme.   Clicking lower on the mutation tree reduces the amount of mutation.   Clicking higher increases it.
- Any time you see something you like, even one of the derivative cousins, you may freeze that item by ALT clicking on it.   An ALT click on a derivative cousin will place a red box around it.   The red box signifies it is locked out, and will not change when the mutation balls are activated.   At anytime that you're exploring textures you may save the center selection. The process of saving the texture only takes up a few hundred bytes on your hard drive. You may save as many as you like for future use.   Saving presets is encouraged.   You may never see a particular pattern again.

[Using Texture Explorer](#)
[A Tour of the Texture Explorer U-I](#)

# Fractal Explorer

**Basics**
The Fractal Explorer is a major U-I for the KPT set of filters.   Fractal Explorer for KPT 2.0 takes all of the fractal explorers and wraps them into a single U-I. The new ease of use U-I is welcomed by both beginners and experienced fractologists.

These fractal filters use the Gradient Designer blends including opacity and alpha channel. The filter wraps 24-bit blends around the Julia and Mandelbrot Sets, with control over loop, repeat count, and spiral angle settings.   In addition to the traditional Mandelbrot and Julia Set explorers, you will find two hybrids with new algorithms for more unique and exciting results.

At every point of the famous Mandelbrot Set, there exists another four-dimensional complex space inside which lays an infinite domain of Julia Sets. These may resemble Mandelbrot fractals, but are often more complex and asymmetrical, varying from needle shapes to circular regions to dragon-like twists.

A Tour/Using the Fractal Explorer

# 3-D Stereo Noise

A researcher at Bell Labs discovered an algorithm which creates a special dithered noise where certain points will be seen by both eyes as if they converge on a plane. The result has incredible stereo 3-D depth properties and can be seen without special glasses.

The images that produce the best results with the 3-D Stereo Noise filter use gray levels, are blurred slightly, and don't use extreme contrast. The filter generates a pixellated noise pattern that has horizontal frequencies that correspond to the gray levels of the initial image. This means that white maps to the highest frequency and appears closest to the viewer; black maps to the lowest frequency, appearing furthest away.

Create a gray scale image that uses text and simple objects. Although the filter will apply in all modes, the best images use gray levels initially. The smaller and more detailed the image you choose, the harder it will be to focus the stereo image. Applying a standard "Blur filter will soften the edges of the image for easier viewing. Apply the 3-D Stereo Noise filter to the entire image. The results appear to be a random array of black and white noise.

## Viewing 3-D Stereo Noise pictures

After you have created a stereo noise picture, it is time to focus your eyes and energy on seeing the image. Don't feel bad if you don't see it right away; it may take a few tries. There are several ways to view the image in-depth. Try placing two black dots about a half-inch apart at the bottom of the image. Unfocus your eyes and gaze through the image as if you were looking in the distance. The dots you placed at the bottom will separate into four. If you focus so the middle two dots fuse, depth should pop in or out. Another way is to try crossing your eyes to fuse the four dots into three. You may also try holding a thin object like a floppy disk or your hand between your eyes to separate each eye's vision.

## Controlling Depth in Stereo Images

When you see a 3-D object close-up, the object seems to be in a slightly different place depending on which eye looks at it. Hold your finger about five inches from your computer monitor and look at it with one eye, then the other. Observe how it seems to move left and right with respect to objects on the screen. This discrepancy gives your brain information on how far away the object is. Against the background of your screen, for instance, your finger that is five inches away is displaced about one inch depending on which eye views it.

The amount of depth is modulated by the keypad, using keys "1" through "9." The default setting is "5." Using the "1" key setting is very shallow, whereas "9" is so deep that it can be very difficult to see the effect up close.

## RGB Files

This filter may be applied to individual channels as well as entire documents. For best results, create your image in gray scale mode and then convert to RGB mode. Apply the filter to each channel (Red, Green, Blue) in your document (be sure that you only write to the channel you are working on). When you are done, you have a tri-colored noise image.

## Diffuse More

This is an example of an improvement to an already useful standard Photoshop tool. Photoshop's Diffuse shuffles the pixels in a small cell area of less than 25 pixels.   Diffuse More simply gives you a bigger brush, set to about 4 times the cell size.   This is not simply saving you three repeats of the normal Diffuse filter. No matter how many times a Diffuse filter is applied, the pixels affected will always be within a 25 x 25 pixel cell size.   Diffuse More operates on a much larger set of pixels at once, so the diffusion effect will take place on a broader basis.   Number key and keypad controls ranging from "1"(least) to "0"(representing 10, the most ) will vary the intensity of the Diffuse More effect.

# Fade Contrast

This filter measures the underlying image values and fades and contrasts accordingly. It is the virtual opposite of Sharpen Intensity.

# Find Edges and Invert/Charcoal/Soft

Find Edges and Invert is a very simple filter combining the Photoshop Find Edges filter and an Invert function in a single one-step filter, undo-able on the fly.

Find Edges Charcoal, with alternate settings in the algorithm, will also invert the image. On a full color RGB scan often the results are faint grayish lines on white wherever the edges pass a certain threshold. While this can look strikingly like gray charcoal on white paper and earn its name, do not forget that these are algorithmic operations processing your existing image and the result will vary tremendously with different source material.

Find Edges Soft is a softer algorithm than the original Photoshop Find Edges, creating an effect that is less harsh and intense.   This one will, for instance, not create full rectangles around single bright pixels, but rather smooth edge outlines.

**Number key and keypad controls** (1 = 10 percent - 0 = 100 percent) will vary the intensity of the Find Edges effect from very light to very intense.   Use the **CAPS LOCK** key to toggle the invert function on and off.

# Glass Lens

The KPT filters go further than any previous spherical filter that takes a selection and "bumps" it outward to the front. The Glass Lens filters actually use a special-case ray tracer, complete with a 10 position user-defined, shadow casting 3-D light source and ambient light.
The result will look like an anti-aliased 3-D rendered ball.
There are three versions:
>Glass Lens Bright
>Glass Lens Normal
>Glass Lens Soft

Bright has a low ambiance setting, medium aliasing and high intensity spotlight, casting a "hot" spot.

Normal reduces the intensity of the light to about 60%, resulting in less harsh lighting and contrast. Smooth spheres with small highlights and soft, rich shadows can be easily created.

Soft has very soft settings of a low intensity sun (<15%) and higher ambiance, creating less hot spot and softer shadows on the sphere.

**Keyboard Settings**
The Keypad controls the direction of the ambient light.   Holding down the number nine produces a bright spot in the upper right hand portion of the globe, while holding down the number one produces a bottom left highlight.

Special eclipse effects use the **Scroll Lock** key.   With the scroll lock key down, all of the numbers produce the effect in the same basic area, only with an eclipse result.   Holding down the number five key with the scroll lock active backlights the sphere for a full eclipse effect.

Due to memory limitations in the Windows environment, Glass Lens will only work on files smaller than 16 MB.

# Grime Layer

Grime Layer applies a special dark transparent noise over the current area, subtly different from what normal noise would produce. It is handy as a quick way to add texture to an area and a starting point for scratch textures.

A simple example of an implied effect: use Grime Layer on a plain white background and repeat 4-5 times. The dark regions will obscure more and more space and choke the white area into a perfect "star field" background.

**Using Grime Layer**
Start with a new document and apply   Grime Layer several times. Try using the Smudge filters repeatedly to create needle-like effects. Try inverting the document.
Grime Layer will create nice fogs when used in moderate amounts and blurred.

**Keypad controls**
1 = 10 percent, or a faint gray haze while 0 = 100 percent, a thick layer of gray.

# Hue Protected Noise:   Maximum-Medium-Minimum

Hue Protected Noise works with the existing hues of the selection area and creates a random dithering of similar hues as opposed to a random RGB smattering of pixels.   This is very effective when color must be preserved, such as original scans or skin tones.   These filters work in CMYK, RGB, Lab, and Gray scale modes in Photoshop. Each of the Hue Protected Noise filters can be controlled using the number keys or the keypad to vary the effect about 20% more or less intense.

**Using Hue Protected Noise**
Use the number keys 1 = 10 percent, 0 = 100 percent to control the amount of noise applied to the image.

The Maximum setting will create a serious amount of noise. The default is set at about 80% noise and may be controlled with the number keys "1" to "0" to cover a range of about 60-100% noise. The apply curve is weighted to preserve bright whites and blacks. This subtle feature makes a big difference as all previous noise generators would affect both highlights and background in black with high contrast opposite colors.

The Medium setting, about 50%, will generate noise with the same characteristics as the Maximum, but the resulting noise will be visible yet not harsh. The variable range that can be obtained using the number keys is 30-70%.

The Minimum setting is at about 20% and is barely visible in most cases. That is exactly the purpose: an extremely fine control for ever-so-little texturizing. The variable range that can be obtained using the number keys is 1-40%.

# Page Curl

**Basics/Using Page Curl**

Page Curl simulates the effect of a page being peeled back, with a highlight running along the center of the curl and a shadow being thrown from beneath the image. (if your image is light enough to see the shadow.)

The curl begins in one corner of your selection and follows a perfect diagonal line to the opposite corner of the selection.   You may also notice a slight transparency to the curl if there is any pattern or texture in the selected portion of your image.   If do not want the opacity in the curl, hold down the Space Bar.

The origination point of the curl is controlled by using   the numeric keypad.   The placement of the numbers on the keypad is analogous to the corner that will be affected.   The vertical or horizontal orientation of the curl is controlled by the caps lock key.

To curl this corner:        Press this key
      Upper left        7
      Upper right        9
      Lower left        1
      Lower right        3

Caps Lock key is: - curl orientation is:
      up (off)        Vertical
      down (on)        Horizontal

Because of Windows memory limitations this filter will only work on files smaller than 16 MB.

# Pixel Storm/Wind/Breeze

### Basics/Using Pixel Storm/Wind/Breeze
Pixel Storm is a super diffusion process that takes each pixel on the screen and disperses it by a factor of 200 pixels over the current selection area. It also includes a darkening apply transfer mode. Repeated application in small areas can suck in neighboring colors and intensity and dissolve them in a veritable pixel storm, hence the name.

PixelStorm diffuses pixels based on a 200 pixel size and uses a darken apply mode, PixelWind uses approximately 80 pixels but features a different apply mode that diffuses and enhances the image. So, two to three times PixelWind is not identical to one PixelStorm.
PixelBreeze is set at 30 pixels diffusion size. It features a lighten apply transfer mode, which will add light and fade the selection in repeated applies.
On feathered selections, different variations may be achieved by holding down the Caps Lock key. PixelBreeze will act similarly to PixelStorm with the Caps Lock key down. The amount of diffusion is controlled using the keyboard or keypad, as in PixelStorm and PixelWind.
Each of the PixelBreeze/Wind/Storm filters has a unique character in repeated application and will yield subtly different effects.

### Pixel Storm/Wind/Breeze Apply Modes
On feathered selections, a different variation of PixelStorm and PixelBreeze can be achieved by holding down the Caps Lock key. By default, PixelStorm/Breeze will decrease the amount of the effect on a feathered selection but will retain the color of the moved pixels. When the Caps Lock is applied, the effect will fade out over the feathered area, actually blurring and blending the pixels for a subtle effect. The difference is most noticeable on color documents.
The amount of diffusion can be controlled by using keys "0" through "9" on the keyboard or keypad. "1" is assigned as the lowest amount of diffusion and "0" the greatest.

# Seamless Welder

This filter employs user defined selections to develop tiles with smooth edges and transitions between the tiles.   The filter uses pixel data from the edge of the selection to create smooth transitions on all four sides.

**Using Seamless Welder**
Define a pattern with a selection tool.   Run Seamless Welder.   While the selection is still active go to Edit>Define Pattern (Photoshop menu).   Then Select>All (or Control + A).   Finally, Edit>Fill, using the pattern as the fill.

# Smudge Lighten/Darken

These Smudge filters are two sets of symmetrical effects de coupled as standalone. They are directional motion blurs that take the current selection and create a multi-layer blend using a transfer mode (either lighten or darken). They are unlike Photoshop's Motion Blur in that the latter extends in both directions and has no apply mode. They are also totally unlike other blur filters in that they are constrained to horizontal features, not cell-based, and utilize lighten and darken apply modes.

You can easily create subtle trailing motion and wind effects, as well as interesting alterations of textures.

The Darken version will slowly build up the dark content in the selection. After about 4-6 repeat applies the image converges on black. Repeated Darken works particularly well on a mostly light background with black speckled noise. Darken creates smooth trails which eventually result in needle-like structures.

Smudge Darken Right is a complement to the left version. Note that a Right after a Left Smudge will not recreate the original image. In the multi-layer process, information is irretrievably lost.

The Smudge Lighten filters are the same except they use a lighten transfer mode. The combination of darken and lighten can be very effective.

## Special Noises:   Red/Green/Blue

Here we have a trio of plug-ins providing unusual noises. These actually subscribe to the gradients.

Large feathered selections of Special Noise, when copied and pasted, then altered using paste controls can yield very new and subtle images. Also try processing the noises with the Smudge and Find Edges filters.

Each filter uses a different gradient with an alpha channel.   The method of deriving the Noise from the Gradient presets implies that each one has unique alpha channel opacity behavior. This is not simply one noise filter with three hue settings.

# Sharpen Intensity

Sharpen Intensity applied to an image will yield stronger contrast and brighter colors. This is a good tool for brightening up an image. Use it as a first step. For correcting scanned images it will "punch up" the colors. In the best situations, the resulting image will look so much more vivid, that an undo to the previous version will seem as if it had a drab hazy gauze layer over it.
Repeated applies of Sharpen Intensity will posterize an image. With extreme repetition you may converge on black and over saturate your image, but used in controlled dosage the filter is extremely effective.

**Using Sharpen Intensity**
Modulating Sharpen Intensity:   The degree of Sharpen Intensity's effect is controlled with the keyboard/keypad where 0 is equal to 100 percent (the most correction) and 1 is equal to 10% (the smallest amount of correction.)   The default value, with no numerical key held down, is 50 percent.

## Scatter Horizontal

Scatter Horizontal is an special case filter which diffuses only on the horizontal axis with a lighten apply mode. The real power is evident with several repeated applies, stretching a selection and swallowing certain features while bringing out others. A unique streaking trailing effect can result.

The degree of effect obtained with Scatter Horizontal is controlled by holding down one of the number/keypad keys. 1 = 10 percent and renders a faint effect, while 0 = 100 percent, an extreme effect.

## Moveable Interface

The User-Interface filters may be moved around the screen at any time.   To move the U-I click and hold on the **Title Bar**.   When the U-I is minimized, hold down the shift key (<Shift>) click and hold to drag the U-I.

## Temporary Re-size Option

Double clicking on the Kai Logo will minimize the User-Interface.   In Gradient Designer and Gradients on Paths the minimize function reduces the U-I to the gradient bar.   The gradient bar is still **hot,** that is, still active.   In fact, the gradient bar by itself functions as the full Gradient Designer U-I without the preview window, looping, direction and blur controls.   You may make changes, including saving and deleting presets in this mode.   Also notice, when either the Texture Explorer or the Fractal Explorer are active and you bring up the Gradient Designer (CTRL-G), all changes made to the gradient are immediately reflected in both preview windows.

The Texture Explorer and the Fractal Explorer both reduce to their preview window.   This preview window is **hot**.   When you bring up the Gradient Designer in conjunction with the Texture Explorer or the Fractal Explorer any changes you make to the gradient will be reflected in the minimized preview window of the Texture Explorer and Fractal Explorer.

# Shuffle Button

The Shuffle Button exchanges user defined parameters within a given U-I filter.   Common shuffle elements for all U-I filters are Colors, Apply Modes and Test Image.   Specific U-I shuffle parameters are:

        ***Gradient Designer and Gradients on Paths***
                Algorithm Control
                Looping Control
                Origin Control
                Direction Control
        ***Texture Explorer***
                Feature Size
                Rotation
                Distortion
                Random Seed
        ***Fractal Explorer***
                Exterior Color and Looping
                Interior Color and Looping
                Equipotential Speed
                Radial Speed

In all cases, the user may elect to use all, some, or none of the shuffle parameters by selecting or de-selecting the options by clicking on the Shuffle Button. .

## Cancel Button

Any time you want to cancel or end an action within any of the U-I filters, press the Cancel button.   Using the Escape Key does the same thing, and works on the non-U-I or one-step filters also.

# Apply Button

When you have complete your task in any of the U-I filters, click on the Apply Button to apply the gradient, texture or fractal, with appropriate apply mode to the underlying image.   Using the Enter Key will accomplish the same task.

# Keyboard Shortcuts for the Gradient Designer

Keyboard Shortcuts for the Gradient Designer are:
  *Gradient Bar Specific:*
  - Control+X          Cut current gradient selection.
  - Control+C          Copy current gradient selection.
  - Control+V          Paste.
  - Contorl+F          Flip gradient (within selection bracket.)
  - Control+I          Invert colors in gradient (with **CAPS** lock key down, **ALPHA** channel
                       will be **inverted**.)
  - Left Arrow         Move selection bracket left one pixel.
  - Shift+left arrow   Moves selection bracket left by width of bracket
  - Right Arrow        Moves selection bracket right one pixel.
  - Shift+right arrow  Moves selection bracket right by width of bracket.
  - R                  dynamically toggles the Real-time preview state.
  - Shift + Left Mouse Button   moves left side of the bracket to that position.
  - ALT + Left Mouse Button    moves right side of the bracket to that position.
  - Number Keys       Control opacity level while selecting colors from the color picker.   With CAPS
  LOCK down (engaged) the number keys represent the opacity for the entire gradient.
  - ALT held down while selecting a color forces entire selection to that color with hard edges.
  - Control + Left Mouse Button        Rotates the gradient as you drag in the Gradient Bar.
  - ALT + Left Mouse Button            Distorts the gradient as you drag in the Gradient Bar.

  **Note:**   As you drag and distort or rotate the gradient in the Gradient Bar, the numbers 1,2,3 and 4
  respectively represent Red, Green, Blue and Alpha channels. I.E., tapping the 1 key after pressing
  Control + Left Mouse Button in the Gradient Bar (hand appears) will rotate just the Red channel,
  tapping the 2 key rotates just the Green channel.   Tapping multiple keys will rotate or distort those
  that are selected.   Selecting none of the keys will rotate and distort everything.

# OK Button

Click on OK or hit the Enter Key to accept and end the current action.

# Keyboard Shortcuts

General Keyboard Shortcuts are:

### *When launching a filter*

- Control            Aborts sub sampling the entire image into the preview window.
           (Saves time with very large files.)
- Space Bar         Brings up the U-I with a black background.

### *While in the U-I:*

- Up Arrow          Previous Preset (in current category.)
- Down Arrow       Next Preset (in current category.)
- Page Up           First Preset (in current category.)
- Page Down        Last Preset (in current category.)
- Home              First Category (also first preset in category.)
- End                Last Category (also first preset in category.)
- Control+Right Arrow   Moves apply mode to next mode.
- Control+Left Arrow    Moves apply mode to previous mode.
- Control-Z           Undo
- S                   Shuffles Parameters (user defined apply mode, color, etc.)
- OK                Enter Key
- NO                Escape Key
- HELP             ? or Shift + ?

# Previews and Controls

### Color Gradient Bar

As in the Gradient Designer, the Color Gradient Bar contains three distinct areas which allow the user choices in color channel and alpha channel.   Located just above the main preview area of the color gradient bar is the color bar.   Clicking on the color bar will bring up the preset menu and allow the choice of any gradient designer preset.   The color bar accepts the **color only**.   It does not affect the alpha channel or opacity levels.   Located below the main preview area of the color gradient bar is the Alpha Channel Gradient Bar.   The Alpha Channel Gradient Bar functions much the same as the Color Bar.   Again, clicking on this part of the Color Gradient Bar will bring up the user presets for the Gradient Designer.   Unlike the Color Bar, the Alpha Channel Bar only displays **the alpha channel settings** of a particular gradient. The two items are then blended, one for color, one for alpha channel settings, and the combination is displayed in the largest part of the Color Gradient Bar.

### Algorithm Control

The left most box in the U-I is the Algorithm Control Menu.   In essence, algorithm control dictates the shape or form the gradient will take when rendered.   The selected shape is rendered in gray scale in the small preview window for reference.

### Looping Control

Looping Control affects the number of times and the direction in which a gradient repeats itself.

### Composite Real-time Preview

The Real-time Preview feature for Gradients on Paths will not show you the actual application of the gradient on the feathered path, but rather the interaction between the components selected for Gradients on Paths and the underlying image.

### Post Blurring Control

Post Blurring Control dictates how much blurring will be allowed **in the gradient** being used for Gradients on Paths.

### Menu Items

Clicking on the main Preview Window brings up the noise menu.   Enable noise by clicking on **Noise Apply Mode.**   Selections available are Inside, Outside and Inside and Outside.

### *Apply Modes*

# A Tour of the Gradient Designer U-I

### *Color Gradient Bar*
Directly below the Real-time Preview Window, the Color Gradient Bar is the most prominent item in the Gradient Designer U-I.   It contains three distinct areas which allow the user choices in color channel and alpha channel.   Located just above the main preview area of the color gradient bar is the color bar.   Clicking on the color bar will bring up the preset menu and allow the choice of any gradient designer preset.   The color bar accepts the **color only**.   It does not affect the alpha channel or opacity levels.   Located below the main preview area of the color gradient bar is the Alpha Channel Gradient Bar.   The Alpha Channel Gradient Bar functions much the same as the Color Bar. Again, clicking on this part of the Color Gradient Bar will bring up the user presets for the Gradient Designer.   Unlike the Color Bar, the Alpha Channel Bar only displays **only the alpha channel settings** of a particular gradient preset. The two items are then blended, one for color, one for alpha channel settings, and are displayed in the main color gradient bar preview.

### *Algorithm Control*
The left most box in the U-I is the Algorithm Control Menu.   In essence, algorithm control dictates the shape or form the gradient will take when rendered.   The selected shape is rendered in gray scale in the small preview window for reference.

Algorithm Menu Selections

### *Looping Control*
Looping Control affects the number of times and the direction in which a gradient repeats itself.

Looping Menu Selections

### *Composite Real-time Preview*
The Real-time Preview feature for Gradients Gradient Designer shows a composite preview of the underlying image (or the preview option you have chosen.) selection area, gradient, and the interaction between the two, including apply modes.

### *Post Blurring Control*
Post Blurring Control dictates how much blurring will be allowed **in the gradient**   (between the color interpolation.)

### *Gradient Direction*
When using the Linear and Radial Algorithm Control settings, the direction of the gradient may be set by clicking and moving the Gradient Direction bar.

# Algorithm Menu Selections

Algorithm Control Menu determines the actual shape of the gradient you have chosen.   Algorithm Menu Selections are:

- Linear Blend
- Circular Sunburst
- Elliptical Sunburst
- Radial Sweep
- Square Burst/Rectangular Burst
- Angular Shapeburst/Circular Shapeburst
- Angular Pathburst/Circular Pathburst

## Looping Control Menu Selections

Determines the repeat rate of the selected gradient.   The choice is previewed in the Looping Menu Preview Window.

Sawtooth A→B
Sawtooth B→A
Triangle A→B→A
Triangle B→A→B

Other menu selections under the Looping Control Menu Selections include:

- No Distortion
- Pinch Right
- Pinch Left
- Pinch Inward
- Pinch Outward

The third selection deals with the number of times the gradient will repeat, using the above menu selections.

## Using Gradients on Paths

Using Gradients on Paths requires a feathered selection.   Once a feathered selection is created, choose the color gradient from the preset menu, or design your own.   Next, choose the opacity level desired. Again, you may choose the opacity level from an existing preset or you may choose your own.   The opacity selection bar is the lower part of the Color Bar.

Set the Apply Mode.
Set the Looping Control.
Set any blurring or noise levels.   (Clicking on the Realtime Preview Menu brings up noise level options.)
Click on the OK button to apply.

# Using Texture Explorer

Using the Texture Explorer is as easy as click and apply.   To create a texture simply click on the Mutation Tree and watch as the Texture Explorer immediately provides you with 12 new textures to examine, explore further, or save as presets.

**Quick Notes:**
- All textures generated by the Texture Explorer may be saved at any time as presets.
- Changing the gradient will greatly alter the look and feel of the Texture.
- Use the Gradient Designer in the same window (same session) as the Texture Explorer by Pressing Control G.
- Use the combination of Texture Explorer and Gradient Designer to save new and complex gradients designed by the Texture Explorer as it changes the gradient data algorithmically.
- Use the Equalizer for greater control over the basic texture bump maps by pressing Control E.
- Anytime you find something interesting, save it as a preset.
- Use the KPT 2.0 presets as a starting point to understanding how to predict what the Texture Explorer will do.

# A Tour of the Texture Explorer U-I

**Algorithmically Generated Textures**
The Texture Explorer generates completely algorithmic mathematical output. There are no scans or .bmp or .tif files involved. It can render any texture it creates into the current window, selection, or feathered selection. All of the tools in your application are capable of processing the textures.

**Color Mutation Ball**

**Preview & Variations**

**Texture Protection**

**The Mutation Tree**

**The Options Menu**

**Tiling Options**

**Texture Explorer and the Gradient Designer**

**The Equalizer**

# A Tour/Using the Fractal Explorer

**Using the Fractal Explorer**
If you are an experienced fractologist you are probably deep inside the Fractal Explorer and enjoying yourself.   If you are new at fractology, welcome.

The easiest way to start exploring fractals with the Fractal Explorer is to load a preset and start clicking and moving the controls.   The following tour of the U-I provides a detailed explanation of the various controls and how they affect the final image.

**About the Presets**
There are a large number of fractal presets.   They may be added to at any time.   All parameters and settings are remembered, including the named gradient and apply modes.

**Preview Window**

**Opacity Selector**

**Fractal Map**

**Zoom Controls**

**Panning Control**

**Detail Settings**

**Gradient Preview/Pop-Up Menu**

**Gradient Wrapping Control**

**Options Button**

**Shuffle Button**

**Fractal Explorer and the Gradient Designer**

## Linear Blend

The straight forward application of the gradient from A to B.   Additional options include the entire Looping Control Menu, Blur Control and Direction Control.

## Circular Sunburst

Circular Sunburst is very similar to the Radial blend in Photoshop.   It renders in a circle, fading to the edges.    All Looping Menu Options may be added (for great effects), as well as Blur Control and Direction Control.

# Elliptical Sunburst

Elliptical Sunburst follows the basic pattern of the Circular Sunburst except for the ellipse shape following the size of the image or selection.   It creates circles no matter what the aspect ratio of the selection area is.    All Looping Menu Options may be added (for great effects), as well as Blur Control and Direction Control.

# Radial Sweep

Radial Sweep looks like a radar screen, with the sweep drawing 360 degrees. All Looping Menu Options may be added (for great effects), as well as Blur Control and Direction Control.

## Square Burst/Rectangular Burst

Square Burst/Rectangular Burst render the gradient in a square or rectangle.   Square maintains the aspect ratio (and will be cut off without a perfectly square selection), whereas Rectangular Burst follows the proportions of the selection or image.   A great way to create framing effects.

## Angular Shapeburst/Circular Shapeburst

Angular and Circular Shapeburst create gradients which follow the contours of a selection.   Circular and Angular refer to the type of form the gradient takes when the selections contours intersect with one another.   Angular creates sharp edges, while circular creates a rounder, more natural effect.

## Angular Pathburst/Circular Pathburst

Angular and Circular Pathburst are similar to their Shapeburst cousins, and accordingly follow the selection contours.   Unlike Shapeburst, Pathburst renders the gradient to both the interior and exterior of the selection follow the filter rectangle, or bounding rectangle, as define by the graphics program you are using.   Inverting the selection fills the entire area with a Pathburst gradient.

# Color Mutation Ball

The Color Only Mutation Ball has a special de coupled mutation function.   It   will keep all parameters of the texture frozen and simply change the colors.   The twelve cousins around the outside are not variations of the center texture, but only variations of the centers color. The Texture Explorer uses Gradient Designer presets for all the color combinations used by the Color Mutation Ball.
If the textures look interesting, but the color isn't quite right, use the color mutation ball.

If you like the color and want to mutate just the texture press Control L which locks the gradient from further change and mutates the underlying texture values only.

## Texture Protection

Any time a derivative cousin contains a texture worth further exploration, or is worth saving as a preset, it may be protected by ALT clicking on it.   ALT clicking on the texture changes the outside border from black to red.   The Mutation Tree and Color Mutation options have no effect on textures that have been protected.   If the center texture has been protected, you may exchange it with any other protected texture by clicking on the derivative cousin that is also protected.   The two will exchange places, and neither will mutate as long as the Gradient Designer **is not active**.

## The Mutation Tree

The primary control for the process of exploring textures.   The lowest ball on the Mutation Tree (partially in the ground) represents very little change, while the highest represents chaotic change.

The highest point creates vast change.   Every time the Texture Explorer creates a derivative "cousin" of the current texture, it will vary every parameter by a random amount. The result: in one cycle you get 12 new textures that bear very little resemblance to the current one in the center.

Control Z undoes one level of mutation.

ALT-Clicking on a derivative cousin provides protection against further mutation.   If you see something you like but cannot take the time to save the main texture as a preset and pop a new one into the middle, just ALT-Click on the derivative cousin.   A red box appears around the outside informing you that it is now protected.

# The Options Menu

The Options Menu for the Texture Explorer has four sections that cover the Apply Mode Options, the Test Image Preview Options, 3-D Stereo Noise and Use Transparency options.

**3D Stereo Noise**

This option applies the current texture as the seed for a 3D Stereo Noise effect.   Any texture can be applied to an image for the 3D Stereo effect.

**Transparency**

Transparency is toggled off and on with Control T.   Selecting transparency allows the Texture to use any transparency existing in the currently selected gradient.   The underlying image is then visible through that alpha channel.

## Tiling Options

There are six options here.   Tile sizes are:
        Tile Size of Selection (stretches the texture to fit the current selection.)
        Tile Size 96 X 96 (96 pixels by 96 pixels.)
        Tile Size 128 X 128
        Tile Size 256 X 256
        Tile Size 512 X 512
        Tile Size 1024 X 1024

## Normal Apply

Normal Apply applies the gradient, texture or fractal without regard to the underlying image. All underlying image data is destroyed by this process. Transparency in general is not available in this mode unless the gradient, texture or fractal has some level of transparency. Those areas underneath the transparency will show through, everything else will be covered with the selected gradient, texture or fractal.

## Procedural Blend

A power application for a gradient, texture or fractal.   An algorithm is executed for each pixel based upon its luminance value.   If the original pixel has a luminance value in the medium range (128 +/- on a scale from 0-255) the apply is normal.   If the luminance value is brighter (200+/-) the apply effect will be brightened by that amount.   If the original pixel is darker, the apply effect will be proportionately darker. The effect is to wrap a gradient, texture or fractal around the underlying gray scale image, based upon luminance values.   Any areas of pure white or pure black will show through as pure white and pure black, as the luminance values dictate a full brightening or darkening to maximum values, black and white.

# Lighten Only

The algorithm for Lighten Only Apply Mode reads the luminance values of both the original image and the gradient, texture or fractal image and compares them. It then adds the gradient, texture or fractal only in those areas where the gradient, texture or fractal is lighter than the underlying image.

## Preview Window

The Realtime Preview Window shows the fractal interacting with the underlying image. The preview is generated by iteration so a rough idea is visible in the preview window very quickly, followed by three steps of increasingly refined views. Repeat clicks preempt the computation allowing fast exploration of the fractal space. Color choices are instantly mapped onto the set.

## Opacity Selector

The Opacity Selector controls the underlying image view. It is useful when there is a special apply mode or transparency in the gradient that is part of the fractal. Click on it to sample a Test Image, to view the underlying image, or to view the contents of the clipboard.

# Fractal Map

The fractal map is represented by the shape of a traditional Mandelbrot set.   When the cursor is over the fractal map it changes to a small arrow next to a menu.   Clicking while the menu cursor is visible yields a dialog selection which corresponds to the type of fractal space you wish to explore.

Press the Control key and click and drag the small circle around the fractal space inside of the Fractal Map. The Realtime Preview window displays the changes immediately, without having to manually input any numbers. As you move around the fractal map you may stop and zoom at any time.

# Zoom Controls

Zooming within the Fractal Explorer is accomplished a number of different ways.   The easiest method of zooming is to simply place the cursor in the Realtime Preview window and click.   The Zoom Controls on the top of the Preview Window Frame allow centered zooming and clicking on the Preview Window enables direct zooming.

**Centered Zooming**
Use the two controls on the upper left of the Preview Window frame. "+" zooms in; "-" zooms out, with the center of the window staying constant. If you click on the word "Zoom" on the interface, a pop-up slider will appear. Drag the slider in either direction to zoom in large steps. This is a fast way to zoom all the way in or all the way out.

**Direct Zooming**
Whenever the cursor is over the preview window, the arrow changes to a magnifying glass with a plus. Click on the spot to magnify inside the Preview Window and it zooms in to that spot and makes it the new center of the preview. Holding down the ALT key changes the magnifying cursor to "magnify-minus." Clicking with the ALT key held down will zoom out from that point.

# Panning Control

The   Panning Control allows 360 degrees of continuous panning of the Set through the Preview Window.

**How to Pan**
On the outside edge of the Preview Window are eight small arrows. Click on any of the arrows to move the main preview window in that direction. Clicking anywhere on the frame surrounding the preview (in between the arrows) moves the fractal in that direction.

**Drag Panning**
A Control click and hold turns the cursor into a hand which allows the fractal to be "dragged" around the Preview Window for precise positioning. Limitations don't end at the Preview Window boundaries.   Drag as far away as the screen allows.

## Detail Settings

Increasing the detail settings on any fractal set adds new elements to the fractal set. Repeated zooms on a fractal set seem to eventually zoom "through" the fractal to nothing. Increasing the detail settings fills the space by increasing the ability to discern small changes, particularly inside the set's interior. The higher the detail is set however,   the more computational time is required to render. Use the two controls on the lower left of the Preview Window frame to control the detail in the fractal image. "+" increases detail; "-" decreases detail.   Clicking on the word "Detail" shows a slider for more precise detail settings.

## Gradient Preview/Pop-Up Menu

On the right hand side of the Fractal Explorer dialog box are two gradient preview/pop-up menu dialogs. The top gradient dialog governs the interior of the set, and the bottom one governs the exterior of the set (most often the dominant area, in other fractal programs the only area). The pop-up menu for gradients is the same menu that is used by the Gradient Designer, complete with hierarchical categorization of gradient presets. The triangle/sawtooth icon shows the looping control and further affects the way that the gradient is mapped to the Fractal Set.

## Gradient Wrapping Control

The fractal set may be colored with any gradient of choice. More interesting renders with the same gradient are obtained by controlling the repetition of the gradient as it applies to the set in two different directions. There are two controls for mapping the gradient frequency to the Fractal Set.   The Spiral Setting, on the upper left, controls how fast the color cycles as it moves from one equipotential line to the next.   (The lines are expressing the potential of any point in 4-D space to fall towards the attractors, roughly analogous to space around an electric charge with equal attraction to their electrostatic center. Within a ring, the electrostatic pull is the same and there can be many such rings moving toward the center of the charge.)   The Spoke Setting, on the lower right of the Wrapping Control, determines how often the gradient will be repeated over the entire 360 degree circle around the set. This is the Radial Control. These two settings interact with each other. Variations in the Spiral setting will result in widely divergent effects.

# Shuffle Button

The Shuffle Button allows selection of different Fractal Explorer parameters to randomize. Check All, or None, or select from the list. Each time the shuffle button is clicked, the selected parameters are shuffled. The parameters that can be shuffled are:

- Exterior Colors
- Interior Colors
- Exterior Looping
- Interior Looping
- Apply Mode
- Test Image
- Equipotential Speed
- Radial Speed

## Fractal Explorer and the Gradient Designer

While the Fractal Explorer is active, the Gradient Designer may be launched by pressing Control-G.   All of the data contained within the gradient bar is instantly wrapped around the fractal image according to the control settings of the Fractal Explorer.

On low resolution screens, it may be necessary to minimize either the Gradient Designer or the Fractal Explorer.

The Fractal Explorer minimizes to its Realtime Preview Window. It may be moved by holding down the Shift key and clicking and holding until the move is complete. The "click-zoom" and "Option-unzoom" features still work. Clicking too quickly on zoom or unzoom maximizes the U-I.

# Vortex Tiling

Vortex Tiling is a filter that distorts an image in a two step process. First the image is seamlessly mirrored across a flat infinite plane, and then an imaginary circle is drawn around the center of the selection or image. The image is then turned inside out using the circle line as the fulcrum. What was outside the circle is now inside and vice versa. What you see in the center is an infinite vortex as the multitude of mirrored images are mapped into the center of the circle. That is, after processing the image, the area in the center of the circle shows what used to be outside the circle (tiled many times), and the area outside the circle shows what used to be inside.

It appears as though the center recedes into an infinite vortex.

**Keypad Controls**
The keyboard/keypad controls the degree of Vortex Tiling effect. The numeric setting affects the size of the imaginary circle that acts as the flipping fulcrum. Pressing the 1 key while selecting Vortex Tiling filter creates a small circle, whereas holding down the 0 key (stands for 10) creates a large circle. The default setting is 5.
(Note: The size of the circle is fixed according to the number of pixels in the image. The circle is not calculated relative to the file size. For large files, to get a similar effect (compared to a smaller file), use a larger number. The settings for the filter apply to a specific number of pixels, and different file sizes require larger selections for the same effect at higher resolution.
Another way to think of the numeric settings is as a zoom control. What was just inside circle #1 is just outside of circle #2.

Lower settings, with the smaller central circle results in a smaller portion of the image being distorted around the outside of the flipping fulcrum.

Larger selections (higher numbers) can be far beyond the boundaries of the image resulting in a highly symmetrical pattern reminiscent of Cathedral Rosette Stained Glass Windows or Arabic Mosaic patterns.

Vortex Tiling remembers the last setting and automatically applies at that level unless requested otherwise.

Due to Windows memory limitations, Vortex Tiling only works on files smaller than 16 MB.

## Texture Explorer and the Gradient Designer

When the Texture Explorer is active, the Gradient Designer may be launched into the same window by pressing Control G.   Control of the window belongs to the U-I which is active, or in front.

With the Gradient Designer active all gradient information held in the gradient bar is instantly displayed and interpolated in the Texture Explorer.   Conversely, any changes the Texture Explorer makes to an existing gradient may be captured in the Gradient Designer and saved as a preset.

Working with small resolution sizes like 640 X 480 is a problem with both U-Is present in the same window.   Minimizing the Texture Explorer yields the Texture Explorer Preview Window.   All changes made in the Gradient Designer are immediately reflected here.

Minimizing the Gradient Designer leaves just the gradient bar, color picker, and add/delete/pick preset menu.   All are available and active when the Gradient Designer (in minimized position) is active.

# The Equalizer

The Equalizer brings new and unprecedented control to the Texture explorer.   The Equalizer allows you to control Course Features, Fine Features, Feature Angles, Detail levels and Diffusion.

Launch the Equalizer from within the Texture Explorer by pressing Control E.

**The Equalizer Interface**

The top box controls Course Features.   Click and hold on the Floating Control Knob to move.   All changes are immediately viewed in the Texture Preview Window.   Numerical output allows for the duplication of patterns from the Texture Explorer presets.

The box immediately below the top box controls the Fine Features.   Again, click move.   All changes are immediately viewed.

The Angle Control is the blue button with red indicator lines.   It controls the X-Y axis of both the fine and coarse controls.   These angle settings manipulate the underlying gray scale feature set.

The Equalizer has two modes.   The first is the constrained mode.   It works with safe numbers.   These numbers are constrained to insure that all of the Textures created are seamless.   Toggle to the second or unconstrained mode with Control S.   The numerical readouts change and the results can be unpredictable.   Some of the Texture space will no longer be seamless, and in some cases appears fractured or torn.   Use the Equalizer Control to change the angles and minimize the irregular tiling.

# Options Button

Clicking on the Options Button displays a menu with the Apply Modes common to all U-I filters and three other options.   Those options are:

**Wrap Image instead of Gradient**
This option allows the user to grab color data from an opacity preview mode which can be the underlying image, the Windows clipboard, or a selection. The Fractal Explorer uses the color data contained in the selection, image or clipboard and wraps that color around the gradient. For more control over the color input to the Fractal Explorer, press Control G and launch the Gradient Designer.

**Numerical Input**
Numerical Input allows for the experienced "Fractologist" to find previously explored spaces or explore new fractal spaces by "hard coding" the algorithm variables.

**Draw Gradient Across Top**
"Draw Gradient Across Top"   allows the capture of the gradient data for inclusion to the Gradient Designer by painting the actual gradient across the top of the rendered fractal.   Using the selection tool and selecting that strip and launching the gradient designer in the "Load Smooth" or "Load Normal Gradient from Image" will allow the capture of the gradient data.   An easier method allows not only the capture of the gradient data, but the full interaction between the Gradient Designer and the Fractal Explorer.

Press Control-G and the Gradient Designer becomes active in the window. All gradient data is now available, and all changes made in the gradient bar are automatically reflected in the Fractal Explorer's preview window.   In particular, use the Control and ALT + cursor in the gradient bar to cycle the existing gradient bar colors through the Fractal Explorer.   Control + I and Control + 1, 2, 3, or 4 also yield interesting results.

## Preview & Variations

In the center of the preview box is the current texture, shown at 96 x 96 pixels. Around the preview, notice twelve small previews produced on the fly.   These are the **derivative cousins**.   These twelve outer previews change depending on which mutation level is selected.

Clicking on any of the outer preview squares moves that particular texture into the middle, and the mutation process begins again.