KAI'S POWER *Tools*™

MACINTOSH / POWER MACINTOSH

Version 3.0.2

EXPLORER'S GUIDE

written by Steven Frank

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LETTER FROM THE PRESIDENT

Friends and New Customers:

We are pleased to bring you Kai's Power Tools 3, a new level of tools and additions to our award-winning, industry-leading Kai's Power Tools. While many of you have unleashed the creative and productive capabilities of previous versions of Kai's Power Tools, we believe you will be very pleasantly surprised with both our implementation of features many of you requested in our earlier versions and with the phenomenal new tools that come from the creative mind of Kai and our software development team. New entrants to the creative world of Kai's Power Tools will find nothing short of the most powerful set of application plug-ins for Adobe Photoshop and other 100% Adobe Photoshop plug-in extension compatible imaging applications.

KPT Lens f/x should delight even the most seasoned pro with its realtime drag and image-processing capabilities utilizing unique custom controls that provide precise image manipulation. KPT Spheroid Designer will delight the creative senses of finding whole new ways to generate beautiful imaging utilizing that most basic shape in nature, the sphere. KPT Interform take you to a whole new level of creating and controlling moving or static textures which can be saved as Quicktime movies. We have added a whole host of improvements existing customers have requested and others we believed you would find useful.

Our goal in the development of Kai's Power Tools 3 was to once again provide our customers with a new level of performance, production and creative tools. We also wanted to push beyond the boundaries of conventional software in user interface design and the application of our advanced imaging technology. Our beta sites have provided us with excellent support, feedback and constructive input as Kai's Power Tools 3 has moved from the lab into its commercial form. The overwhelmingly positive response we

have received from them and from the creators of Adobe Photoshop are a testament to the depth and breadth of solutions and creative freedom that Kai's Power Tools 3 delivers.

As you begin the process of designing using Kai's Power Tools 3, we trust that you will enjoy some of the innovations which have been embodied in the extensions. Our real-time previewing capabilities break new ground. Our preset libraries, which include hundreds of presets and which allow you to load or save your own presets, can all be viewed and launched visually.

You now have a vast new array of image manipulation and creation techniques never before available. There also are ways of producing complex images which only the most dedicated designer (with dozens, or in some cases, hundreds, of free hours) (like we all have...) could have created with existing applications. You will find Kai's Power Tools 3 to be a serious production tool that provides you with new degrees of creative freedom.

Our team at MetaTools continues to explore new ways of expanding your visual design horizons. We trust that you will find the journey exciting and fruitful. We look forward to you constructive criticism and suggestions for ongoing development. Thank you for your continued encouragement and support.

Sincerely,

John Wilczak
Founder and CEO

FOREWORD BY KAI

Foreword to KPT 3.0 by Kai

The good old days were in 1992 in the summer.

Photoshop is just getting from 2.01 to 2.5 and Ben Weiss just joined me and John Wilczak. With a single digit number of people at HSC, ostensibly working on an computer controlled VCR project with Sony, we kind of stealthed it to do the concepts, design, artwork and code for all of KPT 1.0 in a little over 4 months(!). We found ourselves at CyberArts in November '92, cranking out floppies with hand-drawn Schnuffis on them. We had to work around the clock to make the self-imposed deadline in the end.

Skip ahead a couple of revisions, and now its the fall of 95 and with a team many times the size we are still... working around the clock to make it just barely by the deadline!

Except now they are not quite so self-imposed any more, too. We have over a hundred people, moved to Santa Barbara, and there are over a million copies out there of all the things that came after KPT 1.0

Quite a ride it has been and with all the hiccups and all the birthing pains of a company (as well as the births of three children for me and Barbara) I must say that all in all...THESE are the golden days all over again.

We poured a LOT of very fast paced work into this new baby and in many ways it is truly amazing to see how far the concept of a plug-in has come. There are entire programs now living inside the hosts, possibly larger and more complex than the early version of the hosts themselves...!

Often its hard for the 'user' to see all the details or follow all the decisions that have to be made. Trade offs have to be balanced at every step. I wish it would be possible to transfer the mindset as we sit here and try to make sane judgements of where to compromise.

With all the possible ways to focus on something as large as this there are obviously many angles to criticize and wonder about the paths taken. Maybe we can explain a little, maybe we can beg for the benefit of the doubt that they were almost always made for some concrete reason (with the obvious exception of the inevitable mishaps).

This time around we went for both Maximize and Minimize to push the limits.

As an example, when I design a plug-in interface I often times get asked why the dialogs are so large... and there is a very specific answer for that: I would LOVE to interact with the image in the way that Levels or Curves does, but the plug-in interface as of today simply will not allow it. What that leads to is simply that the plug-in gets a rectangle and is supposed to do something with the pixels in some other room and then give them back.

Therefore (and that's how the dominoes fall...) I opt to maximize the space in that other room so I can have large previews and generous real estate for the huge amount of controls, without getting into the Boeing Cockpit problem.

Most dialogs in 3.0 are therefore larger than before, with larger previews, more live items wherever possible, a full screen test apply (limited to the size of the dialog, too, another reason for the maximized layout).

It is important to understand that anything in the background of such a modal dialog, from the tool palette to the picture, the menu bar to the trash can, are all completely unreachable and its a false sense of interactivity to see them behind the dialog. On large monitors for reference that might be of interest still and so we kept that as a user pref-

erence, but mostly we decided to really fade all other distractions to black while you might lose yourself inside each filter.

That's for the maximize...

but in the middle of all that and VERY late in the schedule we also figured out some rather nifty methods to go the other way and minimize totally...I ALWAYS wanted to do one of these...:

What is called the "lenses" was in alpha known as the Dragon, as in "drag-on-the-image"

and its design concept was so simple: make a precision instrument, like a little Swiss Army knife or a watch or microscope (it was also known as the fx Scope...) which has just a few very tiny controls around a center window. In this window a number of effects could be shown exactly as they would appear, over the real image, and updated in realtime.

Its a lovely idea to keep all kinds of options hidden inside little wheels and dials that pop out to set and hide themselves during use...I think we have barely begun to use all the possibilities of that. And the actual interaction with the screen image is still a little clunky, hampered by the very illegality of bypassing the plug-in interface altogether.

This could change soon and we surely wanted to bring out even the first attempts to do things in this new minimal way. I think you will enjoy it very much and we hope to add many more new options to it, record the motion, use it like a brush, change the size on the fly, make multiple layers, in animation, etc etc etc. We surely are just as aware as our friends out there as to what all we would love to see happen. Please trust that we walked a fine line between what we could and could not do just now, and not all decisions are mere technical barriers.

I often get rather ungrateful reactions by users with a quick knee-jerk reaction of "why don't these bone-headed morons at least implement THAT thing here..? it REALLY should do THIS (animation, layers, live apply, CMYK true conversions, multiplatformness, etc etc etc) and often without a real understanding what the real-life obstacles might have been.

Sure, we can be as bone-headed as the next set of guys, yup, thank you very much, but in this case we also might have a few reasons to do what we did, or not yet do what we didn't ....

That being said, it is always useful to get the feedback from actual users in actual trenches out there, and we have gone to GREAT lengths to be in touch with our audience...

I travel an extraordinary amount, probably half a dozen globe hops each year, talk at conventions and universities and seminars all over the place and all the while we all here try to be reachable online with live chats and mail.

That too has been a really pleasurable part of the process over the last 3 years. I can now go to the ends of the earth to Vienna or Tokyo and find a hundred or a thousand people in a room clamoring for the new toys...

And something really has changed in the time span:

in the beginning we were really focused on solving production problems for production people. But then we found out that its really a totally diverse group of people doing a staggering variety of things with the tools. Often times the images might never leave the 4 walls of a user, they are simply enjoying the process of playing with their own creativity... and that's perfectly fine with us! SO often I have received mail from entire classes of school kids 10 or 12 or 16, playing with KPT or Bryce just for the pure heck of it.

Its almost as if they were playing with DOOM, except they are twirling pixels, not intestines and in the end it spits out... a CAREER maybe..?

It gives me great pleasure to find the bartender at Piatti or the waiter at the Stone House asking for the new rev, or as happened earlier this year, arriving at LAX to have the immigration officer examine my green card very closely, comparing me to the silly left-ear-exposed mugshot, looking rather sternly, only to look me in the eye and ask "so when will Bryce animate??"... This is what it was all about in a way. Sitting there at 4 in the morning staring at glowing phosphor with a cuppa tea, well its the human bits of warm and fuzzy that make it all worth while. Really not much different from creating a movie or a CD or writing a book or painting a picture.

So I want to thank all of you out there helping us along in the quest to make this stuff, and to make more of it and make it more and more powerful and faster and faster and wilder and wilder.

Where WILL it end?

We do have quite the piracy going of course, sometimes it feels like all of entire countries are quite well served by a handful of copies, thank you very much... Well, you might know my angle on this topic, its a very simple line:

No one can possibly buy everything there is just to check it out once...and so in that sense its ok if you got it from Uncle Fred to have a peek. But, the 'ethics' angle for me is: "If you use it more than once a week, or if you do any kind of professional project with it, then by all means, invest in your tools and allow the toolmakers to make them better for you"

and that seemed eminently reasonable and sensible and fair.

I have a lot of letters from folks that agreed and KPT was the first thing they ever paid for... ;)

What I also see in that sense is that if you just dabble about for fun, sure, anything goes and your entire machine is probably quite an expensive sinkhole for cash as it is. However, if you in any way at all make money with computers you really also should make sure that you have the adequate tools... I see professional graphic artists with only 10 megs of Ram or saving everything to some syquest disk or designing magazine covers on an 8 bit screen. That really is being silly and pound-foolish in my eyes... The machines have come a LONG way too, and now that Apple does not even make anything less than a Powermac any more we did have to make a few hard choices to look forward and not back...

If you are still on a 68k machine or even worse only on 8 bit graphics there will be some parts of KPT that you are not seeing in full glory. Its not your fault of course, but one can only hope that you do get to play with some of this on a 601 chip and up or a Pentium for the PC version and certainly in 24 bits. The subtlety of the moving textures, the soft shades of the spheroid lights, moving around bump maps in realtime, well all that really comes to life with the new machines.

Who knows, you might see this on your friends fast box and it tips the scales as to 'why should I get a new CPU anyway'...

I hope that if I find myself at fault to trigger your endless wallet drainage that at least you never look back and are happier for it in the end.

And maybe, if you are the waiter or the immigration officer or the lawyer in daytime, who knows... maybe this is the tool that suddenly lets you make web pages for Madonna or a new logo for the pope.

Come to think of it.. he could use a new logo

I'll get right on it

See you out there in analog molecule style soonish... short of that, come visit us on the web in our slightly largoid site: http://www.hsc.com

And of yeah, as of tomorrow morning...we are also changing our name !

HSC was always just an apocryphal accident and were meaning to change it.

So here we found ourselves at a cross road to do it and we WENT for it...!

in the spirit of all we have done over the last three years we looked at what we hope to do in the next

and the name fell in our lap: building tools

In Greek there is a word for the next level of something and its "Meta", such as the books that followed after the books on physics, they were the books on MetaPhysics.

So we chose MetaTools as our guiding metaphor, so to speak (Meta4 was taken...;)

and now we'll try to make that a name to swallow up HSC and make it something to be proud of

http://www.metatools.com should be alive as well therefore

We have a LOT of new things up our sleeves and maybe the sheer variety of new items in this gargantuan upgrade will give you a hint on what to come. 1996 should be a very interesting year

The whole team for 3.0 would like to thank all our supporters over the past 3 years and we hope to spiral up to new heights in our quest for the creation of MetaTools

greetoids from Santa Barbara, Kai and team

Getting Started

ABOUT THIS EXPLORER'S GUIDE

We've divided this Explorer's Guide into three main sections.

You are currently reading the first section, which includes Getting Started, Introduction, and a discussion of the various Apply Modes available in KPT.

The second section contains the meat of this Explorer's Guide—the detailed descriptions of all of the plug-ins within Kai's Power Tools, specifically the Spheroid Designer, Gradient Designer, Texture Explorer, Interform, Fractal Explorer, Lens f/x (in its many incarnations), and the six "Compact UI" plug-ins.

The third and final section contains Closing Thoughts, the Glossary, Index, and Troubleshooting sections, along with our Acknowledgements and the Software License Agreement.

Tips, Tricks, and Cool Techniques

Any tips, tricks, comments, etc. will appear in the outside margin in a smaller, italicized font. To help you locate these tips more easily, they will also be offset with top and bottom rules, as shown in the sidebar example.

Terms and Conventions

If you are familiar with standard Macintosh operations, most of the terms used in this Explorer's Guide will already be familiar to you.

Ticks and Trips

I remember one time when we were kids and we went to visit our grandparents in Georgia, my sister got this tick on her arm and it was sucking blood and stuff and my grandfather said to not pull it out 'cause its head would still be in her so we didn't and he got some oil and a lighter and made it hot so the tick let go and fell off. That was the only cool thing that happened during the whole trip.

(ahem...) ***Tips*** **and** ***Tricks***

Look in the sidebars for tips, tricks, and cool techniques for working with many of the new features in version 3.0 of Kai's Power Tools.

One phrase that we will be using quite a bit in this Explorer's Guide is graphical user interface, or just user interface. For the sake of brevity, we generally will use the acronym UI, for user interface, as in "the Spheroid Designer UI."

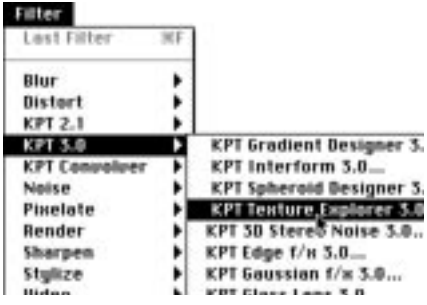
Furthermore, in this manual we make a distinction between clicking the mouse button (which is a quick press and release) and pressing the mouse button (pressing and holding the mouse button down). We will, therefore, use the term "press and drag" versus the more common, but (we believe) less accurate "click and drag."

Host Applications

For the sake of brevity, we will refer to Adobe Photoshop, Fractal Design Painter, Deneba Canvas and other applications which accept Photoshop-compatible plug-ins simply as the "host application."

Hierarchical Menus

Whenever hierarchical menus are referred to in the text we will use the form: Menu Name > Menu Command > Sub-menu Command. We would refer to the following example as Filter > KPT 3.0 > KPT Texture Explorer 3.0.



A sample hierarchical menu.

BEFORE YOU BEGIN

Since Kai's Power Tools consist of a set of extensions which add functionality to a host application program, you should be reasonably familiar with your host application program (such as Photoshop) before you begin to use these extensions. If you are new to your host program, we strongly suggest that you go through the tutorial included with your graphics program, and then come back and experiment with Kai's Power Tools.

Minimum System Requirements

Hardware. Kai's Power Tools 3.0 will run on any Power Macintosh computer, or any 68040 or greater Macintosh computer that has a math coprocessor. Eight-bit (256 color) video is necessary in order to use Kai's Power Tools.

Software. MacOS 7.1 or higher is required, and Kai's Power Tools, because they are plug-in application extensions, require a "host" application such as Adobe Photoshop or other image-editing application that fully supports the Adobe Photoshop plug-in architecture.

Memory. Kai's Power Tools require one megabyte of RAM from the host program's memory allocation (see your host program's manual for its optimal memory configuration).

We highly recommend using Kai's Power Tools with a color monitor, 24-bit video card, and Power Macintosh computer.

Installation

Disk 1 of your Kai's Power Tools 3.0 disk set contains an installer program to allow you to quickly and easily install KPT 3.0 into any or all of your host applications. For detailed instructions on the installation process, refer to the installation sheet included in the KPT 3.0 box.

Technical Support

If you are a registered user of Kai's Power Tools and would like technical assistance, the best way to reach us is via America Online. If you are not on America Online, we can also be reached via the Internet or by phone.

On America Online, we can be reached by using the keyword KPT to go to our online forum, or you may send e-mail directly to KPT Support for technical assistance and general questions. Response time is generally within 24 hours.

If you are not on America Online, you can send us e-mail via any Internet gateway (our Internet address is KPTSupport@aol.com).

If you have access to the Web, check out our website at http://www.metatools.com.

Registered users may also contact our Technical Support Department, Monday through Friday, 9:00 a.m. to 5:00 p.m. Pacific Standard Time, at (805) 566-6200.

Talk to Us Online

We invite you to get online and join the rapidly growing community of graphics professionals and enthusiasts who share knowledge and ideas in our weekly America Online live chat, often hosted by Kai himself. Currently we meet Tuesday nights at 7:30 p.m.

PST. Use keyword KPT to enter our forum, then click on the HSC Chat button to enter the fray!

Introduction

Kai's Power Tools 3 (KPT 3) is a series of plug-in application extensions (plug-ins) which extend the capabilities of Adobe Photoshop or any raster-based image-editing application that fully supports the Adobe Photoshop plug-in architecture. (If you are not sure if your host application *fully* supports Adobe Photoshop plug-ins, contact your software publisher's technical support team.) Once installed, the KPT 3 plug-ins will appear in a KPT 3 submenu in the Filter or Effects menu of your host application program.

WHAT'S NEW

New to version 3 of Kai's Power Tools are KPT Spheroid Designer and KPT Interform. In addition, some incredible new features have been added to the Gradient Designer and Texture Explorer modules from version 2.1, and all of the "one-step" filters from the previous version have been clustered into either the KPT Lens f/x plug-in or the Compact UIs, giving the user a host of previously unavailable controls such as intensity, direction, apply mode, and more.

Along with entirely new plug-ins in Kai's Power Tools 3, such as the Spheroid Designer and Interform, we've introduced a host of new features into some of your old favorites, namely the Texture Explorer and the Gradient Designer. Some of these include:

- The Info Box at the lower left hand of the interfaces. As you move your cursor, the Info Box displays text indicating the function of whatever control you pass over.
- 35 levels of undo and redo
- Graphical Presets. Now you can view your presets in a field of thumbnails on a digital contact sheet, instead of just a verbal list.
- Bigger Previews. The Preview Windows are now four times larger than they used to be.

There's much more.... each of the chapters will have opening highlights about what's new to a particular plug-in.

COMMON UI ELEMENTS

The most of the plug-in UIs share certain similar elements, such as Kai's logo, a Help button, an Options menu for accessing preferences and plug-in-specific features, a Presets menu, and standard control buttons for adding and deleting presets, and cancelling or accepting plug-in settings.

Kai Logo

In general, clicking on the Kai logo (located in the upper, left-hand corner of the UIs) will black out the UI and give you a full-screen preview of what your effect will look like when applied. For plug-ins that do not offer full-screen previews, the Kai logo will minimize the plug-in UI, allowing you to view more of your source image.

Help Button

Selecting the Help command will launch the online help system and display the help text for the extension currently in use. Once inside the online help system you can access the help text for any of the other extensions, as well as General Help and Troubleshooting.

Options Menu

Most of the KPT 3 extensions have an Options menu located near the upper, right-hand corner of the user interface. These menus contain both extension-specific options and global options, including accessing the online help system and setting preferences.

Info Bar

In the lower, left corner of all of the user interfaces is an empty area. As you move the cursor over various UI elements, text will appear in this area to let you know what the UI element that you are currently pointing at is called. Further, as you use the various controls, the Info Bar will show you the current settings for the parameter that you are changing.

Presets Menu

At the bottom center of all of the user interfaces (except for the Lens f/x interface) is a small, inverted triangle symbol. Pressing on this symbol will result in a pop-up menu of presets for the plug-in that you are currently using.

Control Buttons

In the lower, right-hand corner of each extension UI are four circle-symbol icons which are used to add or delete presets, cancel the extension UI, or accept the settings and apply them to the selection.

Delete Preset

The Delete Preset button actually activates the Presets Manager, allowing you to delete single or multiple presets, as well as perform other preset management functions.

Add Preset

The Add Preset button, when clicked on, presents you with a simple dialog box for naming and saving the settings currently in effect as a preset.

Cancel

Clicking this button cancels the extension user interface without making any changes to your selected artwork.

OK

The OK button accepts your extension settings, exits the UI, and applies your effect to the selected area(s) of your artwork.

PREFERENCES

Selecting the Preferences command from the Options menu will display the KPT 3 Preferences dialog box, where you can specify various options for your Kai's Power Tools 3 environment.

Load Gradient from Image

When selected, this option instructs the Gradient Designer or Texture Explorer plug-ins to sample a one-pixel-wide horizontal strip from the center of your image and use it as the basis for your initial gradient within these plug-ins.

Smooth Gradient from Image

This option functions exactly the same as the Load Gradient from Image option, but it smooths out any harsh color transitions in the sample gradient.

Launch to Previous State

This option tells each extension to "remember" the settings in use the last time that you applied that effect. These settings will then be intact the next time you open that extension.

Tablet Enhancement

If you are using a graphics tablet and experience odd behavior (from your tablet, that is) select this option. Some graphics tablets will perform more reliably with this option selected.

Graphical Presets

When selected, the Presets menus of the Spheroid Designer, Gradient Designer, Texture Explorer and Interform plug-ins will display a scrolling palette of graphical presets, rather than the standard text-based menus.

Blackout Screen

If this option is selected, the entire screen behind the extension UI will be filled with black, hiding the host application window. This option is designed to remove background distractions and generally look cool. This option does not apply to the Lens f/x filters, as viewing your image while you work is essential when using the Lens f/x filters.

Overriding Preferences

If you wish to temporarily override the Graphical Presets or Blackout Screen options, simply hold down the spacebar while pressing on the Presets menu (to toggle Graphical Presets) or when selecting a plug-in from the Filter menu (to toggle Blackout Screen).

PRESETS

While the primary purpose of Kai's Power Tools is to allow you to create an infinite variety of extraordinarily cool images and effects, we do include hundreds of presets for the Spheroid Designer, Gradient Designer, Texture Explorer and Interform. These presets can be used to make interesting and attractive modifications to your image when you don't have time to create your own spheres, gradients or textures.

Presets Menu

At the bottom center of most of the Kai's Power Tools user interfaces is a pop-up presets menu. Pressing on this menu will display either a text list of all available presets, or a graphical palette containing thumbnails of all available presets. (You can select whether you prefer graphical or text Presets menus in the Preferences dialog box. See Preferences, above.)

If all available presets cannot be displayed, text menus will have arrows at the top or bottom to indicate in which direction the additional choices can be found.

When using graphical palettes you can simply drag the cursor above the palette to scroll up and view more presets, or down to view more presets in that direction. Also, when you scroll to the end of the palette, it will loop around to the beginning (or end) and continue scrolling. This eliminates having to wait to go all the way from top to bottom (or vice versa).

If you hold down the Shift key and click on the Presets menu (when using Graphical Presets), the presets palette will appear and will remain on the screen without you having to keep the mouse button held down. In this state you can simply move the cursor above or below the palette to scroll, and click on a preset to select it.

Finally, your graphical presets normally scroll one row at a time. If you hold down the Control key while scrolling, your presets will scroll one preset at a time, with each preset shifting to make room for the new arrival. This lets you see new presets much faster, but you only get to see one at a time, so you are really scrolling through the entire set of presets more slowly.

Presets Manager

Importing, exporting, and deleting presets is accomplished via the Presets Manager dialog box, which can be accessed by clicking on the Delete/Preset Manager button.

Once you are in the Presets Manager, you can scroll through a list of presets, selecting individual presets, or multiple presets using the Shift or Command keys. (Shift allows multiple adjacent selections, Command allows multiple non-adjacent selections.)

To get a preview of any single preset, simply double-click on it in the list.

Importing Presets

Presets can be imported by clicking on the Import button, and then navigating the standard Open dialog box to select and open the desired presets file.

Exporting Presets

Presets can be exported by selecting all of the presets you wish to export (using the Shift and Command keys) and then clicking on the Export button. You will be presented with a standard Save dialog box, allowing you to specify the name and destination of the presets file.

Deleting Presets

Presets can be deleted by selecting single or multiple presets from the list and then clicking on the Delete button. You will be presented with an warning message to ensure that you don't delete presets unintentionally.

Apply Modes

An effect applied to the image using the Normal apply mode…

…the Procedural+ apply mode.

The original source image (from the KPT Power Photos II series, by the way), before applying the circular, gradient effect used in the following illustrations.

…the Subtract apply mode.

…the Add apply mode.

…the Procedural- apply mode.

…the Darken Only apply mode.

…the Lighten Only apply mode.

…the Multiply apply mode.

…the Screen apply mode.

…the Difference apply mode.

APPLY MODES

All of the plug-ins in Kai's Power Tools allow you to select different apply modes (also called "transfer modes" or "channel operations") to determine how a newly generated effect (such as a gradient or sphere) will interact with the underlying source image.

This section will explain how each of the different apply modes works.

Normal

In the normal apply mode, the effect is layed on top of the source, completely covering the source image. However, if any portion of the effect contains levels of transparency, those areas will allow the source image to show through (as determined by the amount of transparency in the various areas of the effect).

Procedural +

A procedural application of an effect combines the effect with the source based on the luminance value (brightness, or amount of white) of each individual pixel in the destination image . If the pixel has a moderate luminance value (128 out of a maximum of 256), then the effect is applied normally (see Normal, above) to that pixel. If the pixel is brighter than normal, then the effect will be brightened by a similar amount before being combined. If the pixel is darker than normal, the effect will be darkened before being combined.

Tip:

The Procedural+ apply mode is ideal for wrapping a colored effect onto a grayscale image.

Procedural -

The Procedural- apply mode functions like the Procedural+ apply mode, except that the roles of the destination and effect are reversed. In a standard procedural blend, it is the luminance of the destination that determines any changes to be made to the effect. In a reverse blend, it is the luminance of the effect that alters the destination.

Darken Only

The Darken Only apply mode compares, on a pixel-by-pixel basis, the individual RGB values of your source image and your effect. If a red, green, or blue value in your source is darker than the corresponding red, green, or blue value in your effect, the source image value is used. If the source image value is lighter, then the effect value is used. In short, the result is composed of the darkest pixel values (in the R, G, and B channels) from the source and the effect.

Lighten Only

The Lighten Only apply mode is the exact opposite of the Darken Only apply mode. The individual RGB values of both the source and effect pixels are compared and the lighter of the two is used.

Multiply

The Multiply apply mode takes only the darker areas of an effect and applies them to the source image. This can be an effective way to add shadows and shading to an image. A good analogy is that the effect is that of looking through two slides, so that the darker portions of one slide obscure the lighter portions of the other, giving you a much darker overall effect.

Screen

The Screen apply mode is just the opposite of multiply, adding only the lighter areas of an effect to the source.

Difference

The Difference apply mode is one of the most difficult to predict and potentially one of the most vivid in results. The individual color values in the source event are inverted based on the luminance values of the pixels in the effect. Thus, the black areas of the effect (because they have no luminance) cause no change to the source, the white areas of the effect cause the source to be completely inverted to negative color values, and where the effect is between black and white, the source is partially inverted, to a degree determined by the amount of white in each effect pixel.

Add

The Add apply mode adds the individual RGB values of the image and effect for each pixel (on a scale of 0 to 255), clipping any result of over 255 to the logical maximum of 255 (which represents white). This has the effect of blending the two images together, but causing the brighter areas to wash out to white.

Subtract

As you might imagine, the Subtract apply mode is the opposite of the Add apply mode, where the individual RGB values of the effect pixels are subtracted from the RGB values of the image pixels, with a minimum value of 0 for each color channel. Thus, subtracting yellow from red would yield black. (Red's RGB values are 255/0/0; Yellow's RGB values are 255/255/0. 255/0/0 minus 255/255/0 equals 0/0/0, or black.)

KPT Spheroid Designer


KPT Spheroid Designer
OPTIONS

KPT SPHEROID DESIGNER

The Spheroid Designer is the flagship plug-in in KPT 3. In addition to having the richest interface of any of the KPT 3 plug-ins, the Spheroid Designer brings an amazing amount of pseudo-3D-modeling power to a 2D image-manipulation program. With the Spheroid Designer you can create single or multiple spheres with multiple light sources, bump-mapped textures, opacity, different amounts of curvature, and much more.

What's New

Actually, with the Spheroid Designer, *everything* is new.

The Big Ball

The most prominent feature of the Spheroid Designer is the sample sphere at the center of the user interface. This sample sphere shows you what your sphere will look like when applied to the selection in the host application. This sample sphere is the equivalent of the Preview Window in most of the other plug-ins.

In addition to previewing the effects of your light sources, textures, opacity, etc., you can actually rotate the light shining on your sphere to see what it would look like from other angles. To do this, simply press within the sample sphere and drag in any direction. As you do this, the angle of the light within your four lamps will change to reflect the new "viewing" angle of your sphere.

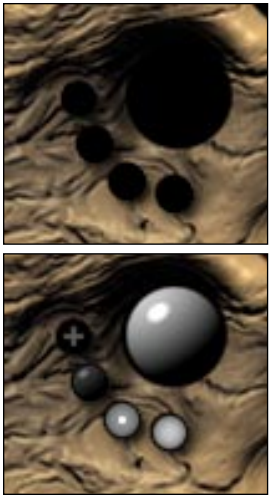
Note that your "sphere" is not a true sphere and has no back side, so you lights don't travel around a virtual sphere. When they get to the edge of the sphere, they jump to the opposite side and move from there.

First Impressions

At first glance, the Spheroid Designer interface may seem like a bunch of balls dropped into a pile of mud. This would, of course, be both a hasty and unflattering judgement, revealing to all the world your own lack of understanding in the realm of user interface design.

The Spheroid Designer is actually a bunch of spheres *dropped onto an old, stale brownie.*

Duh.



An unused Lamp (above) and an active Lamp with active control spheres.

The Lamps

Just under and to the right of the Sample Sphere are four light source globes, or "lamps." These lamps can be used to illuminate (or deluminate) your sphere.

To turn a lamp on or off, just click one time within its large, light source sphere.

To change the angle of the light shining on your sphere, simply press and drag within a lamp's light source sphere. Note that the angle reflected within the lamp is the angle from which the light will illuminate your sphere.

Next to each lamp are four smaller spherical buttons. These buttons are used to control the following four parameters for each active lamp.

Light Polarity

The first button in each group controls the polarity of the lamp. By default, most lamps have positive polarity, which means that the lamp causes light to shine onto the sphere. By clicking on the polarity button, however, you can set a lamp to have negative polarity, which will cause the lamp to actually suck light out of your sphere. The color and amount of light removed from your sphere is determined by the Light Intensity and Light Color controls for the current lamp. In general, a negative lamp sucks a particular color out of the sphere, leaving that color's spectral opposite in its place.

Light Intensity

This button controls how much light (on a scale of 0% to 200%) from a particular lamp illuminates your sphere.

Highlight Intensity

The Highlight Intensity button controls how intense the highlight effect will be.

Light Color

Pressing on this button will cause a color picker to appear, from which you can choose a new color for the light emanating from this lamp. The middle of the color picker contains a fairly standard color wheel, while the outer rim of the color picker contains a grayscale ramp, allowing you to select pure black, white, or any shade of gray.

Remember:

The color pickers within Kai's Power Tools can be used to select colors from anywhere on the screen by simply pressing on the color picker and then dragging the eyedropper cursor to the color that you want to use, even if it is located in a visible portion of a background image, part of your desktop pattern, or one of the UI elements within Kai's Power Tools.

Global Controls

The three control spheres in the lower left corner of the UI allow you to set the amount of curvature, ambience, glossiness, and transparency for your sphere.

The Global Controls: Curvature (top), Ambient/Diffuse, and Opacity.

Sphere Curvature

This sphere controls the amount of curvature in your sphere. Pressing on the Curvature Sphere and dragging to the right will increase the amount of curvature (to 100%) while pressing and dragging to the left will decrease the amount of curvature (to -100%). Negative curvature values result in a convex lens effect, rather than the concave one normally associated with spheres.

Ambient and Gloss

This sphere controls both the amount of ambient light surrounding your sphere, and the glossiness of the sphere itself (which greatly affects the highlight effects of the lamps). Pressing and dragging along the X axis will alter the Gloss value (dragging to the right

will increase it, while dragging to the left will decrease it), and pressing and dragging along the Y axis will alter the Ambient value (dragging up will increase it, while dragging down will decrease it).

Transparency

This control determines how transparent your sphere will be. Pressing on this control and dragging to the right increases the transparency (up to 100%), while dragging to the left decreases the transparency (to 0%). Transparency is, of course, the exact opposite of opacity, so a transparency of 0% would give you a completely opaque sphere.

Keep in mind…

…that fully opaque spheres require much less memory and processing to compute, since they don't have to take into account how your sphere will interact with your source image.

Four Small Dots

In the far lower left-hand corner of the UI, just under the global controls, are four small control buttons for setting the amount and color of light diffusion, and the intensity and color of ambient light surrounding your sphere.

Light Diffusion

The light diffusion (or specularity) control affects the apparent glossiness of the surface of your sphere. The lower the diffusion setting, the more glossy or shiny your sphere will seem to be. The higher the diffusion setting, the more it will seem that your sphere has a matte surface.

This control overrides local settings, so that if you set the global diffusion to 100% (totally matte) the local highlight intensity controls (for each lamp) will have no effect. Use this control as a master control for specularity.

Diffuse Hue

Pressing on this control button brings up a color picker, allowing you to change the color of the diffuse light on your sphere.

If you hold down the Option key while clicking on this control, you will get the standard Apple color picker dialog box.

Ambient Intensity

This button controls the amount of ambient light illuminating your sphere. Dragging to the right will increase the amount of ambient light, while dragging to the left will decrease the amount.

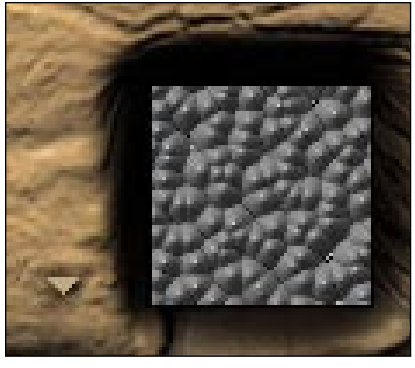
As the intensity of your ambient light increases, the effect on your sphere of the light coming from your lamps will decrease correspondingly.

Ambient Hue

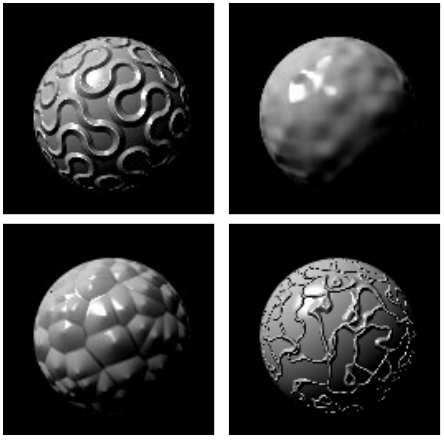
Pressing on this control button brings up a color picker, which can be used to change the color of the ambient light surrounding your sphere.

Bump Map Panel

In the lower, right-hand corner of the Spheroid Designer is the only square in the entire UI. It shows you a sample of the bump map that is being applied to your sphere. A bump map is a grayscale pattern that determines the texture of your sphere. Bump maps (and the textures they create) consist of grayscale images whose light and dark portions determine the height (or depth) of each point on your sphere.



The Bump Map panel and menu.



Four sample spheres using four different bump maps: Apollo's Thread (upper left), Basic Bump, Bubbles, and Caustic (lower right).

You can press and drag within the Bump Map Panel to move the texture around within the window, allowing you to apply a different portion of the texture to your sphere.

Bump Map Menu

Just to the left of the Bump Map Panel is the Bump Map Menu, where you can select which bump map you want to use with your sphere.

To bump maps listed at the top of the menu are the result of mathematical algorithms, and are included with the Spheroid Designer. The bump maps listed at the bottom of the menu are actually grayscale bitmapped images, which are scaled and duplicated as necessary for you to use with your sphere. Bitmapped grayscale images can be imported and exported using the Bump Map Manager option in the middle of the Bump Map menu.

The Bump Map Manager functions exactly like the Presets Manager, except that you cannot export bump maps. For more information, refer to the discussion of the Presets Manager, on page 34.

Four Small Dots

Just below and to the right of the Bump Map Panel are four control buttons for setting the polarity, height, rotation and zoom values of your bump map.

Bump Polarity

Clicking on this button inverts the positive and negative surfaces of your texture. With a simple bump map, like the Golfoid, it causes the bumps to become dimples, or the dimples to become bumps (where the texture is either raised above or cut into a neutral sur-

face). If you are working with a texture that consists of both raised and lowered sections, clicking on the Polarity control simply inverts the high and low points.

Bump Height

Use this control button to change the "distance" from the surface of the sphere to the high or low point of your texture (by pressing and dragging left or right), making positive textures taller and negative textures deeper.

Bump Rotation

This button lets you rotate your textures. Drag to the right to rotate in a clockwise direction, or to the left to rotate in a counter-clockwise direction.

Bump Zoom

This button controls the relative size of your textures. Pressing and dragging to the right increases the zoom percentage, effectively shrinking the size of the current texture.

Mutation Tree

The Mutation Tree, in the upper left-hand corner of the UI, lets you see random variations (or "mutations") of your sphere. Clicking on any of the balls in the mutation tree will produce a new sphere, with randomly determined properties. The higher up the mutation tree you go, the more variation you will see in your new, random sphere. Thus, if your current sphere is close to what you want, click low on the mutation tree for subtle variations. If you want to see something completely different, click high up on the mutation tree.

The Mutation Tree in Spheroid Designer

Mutation Menu

The Mutation Menu, located just under the Mutation Tree, lets you specify which aspects of your sphere you wish to mutate.

Mutate All, Mutate None

The default setting, Mutate All causes all sphere parameters to be randomly mutated when a ball of the Mutation Tree is clicked.

Mutate None turns off all mutations. Use this to quickly turn off all mutations so that you can turn on just one or two parameters. It's often faster than turning off individual mutation parameters.

Other Options

The other options in the Mutation Menu let you specify exactly which parameters will be affected by the mutations. Any option with a checkmark next to it will be affected. Selecting an option will toggle that parameter, adding or removing the bullet as appropriate.

The Spheroid Designer memory dots.

Memory Dots

The grid of nine buttons in the upper, right-hand corner of the Ul are Memory Dots. These dots are used to quickly and easily store settings within a Spheroid Designer session. They supplement the Spheroid Designer presets (discussed below) and have their own advantages.

Clicking on any unused (brown) memory dots loads all of the information about the current sphere into that memory dot. Clicking on a "full" memory dot resets your sphere to the settings in use when the memory dot was originally set.

To clear a "full" memory dot, hold down the Option key while clicking on it.

By loading settings into a memory dot, you can then go on and make further modifications to your sphere, knowing that you can return to previous settings with a single click of the mouse.

The primary advantage of using memory dots rather than saving presets is that using the memory dots does not require you to interrupt your workflow to save a preset. The advantage of presets, on the other hand, is that you can have more than nine of them at a time.

Apply Bubbles

Near the lower, right-hand corner of the UI are a series of brown bubble clusters. These "clusters" are actually buttons for selecting how many spheres you want created when you click the OK button. Your choices are one, 10, 50, 100, 500, or 1000, depending on which cluster you click on.

The Apply Bubbles.

In addition to the Apply Bubbles, you also have an Apply Menu (located directly below the Apply Bubbles).

Apply Menu

The Apply Menu contains options for how multiple spheres are arranged within your selection.

Apollonian Packing

The Apollonian Packing option arranges your spheres within the selected area with random sphere sizes and no overlapping. Apollonian Packing is ideal when you want to create the illusion of raindrops or or other natural effects. Because of this natural look, you may not get the full number of spheres specified with the Apply Bubbles.

Random Spheres

The Random Spheres option is similar to Apollonian Packing, but does allow overlapping spheres and produces exactly the number of spheres specified with the Apply Bubbles.

Random Ellipses

The Random Ellipses option is identical to Random Spheres, but your spheres will be randomly distorted along the X and Y axes to create ellipsoids (i.e., elliptical spheroids).

Genesis Packing

The Genesis Packing option in the Apply Menu will use the current setting specified in the Genesis Editor dialog box. With the Genesis Editor you can sphere-based trees, snowflakes, and more (see below).

Other Options

In addition to Apollonian Packing, Genesis Packing, and Random Spheres and Ellipses, we've included a few other packing modes for your amusement and experimentation. Enjoy!

Use Shadows

When this option is selected, your spheres will be applied to your source image with their own (fixed angle and amount) drop shadows.

Use Mutations

When this option is selected, each sphere will be mutated as it is applied, according to the intensity and parameters last used in the Mutation Tree and Mutation Menu. this option is especially effective with a mild mutation tree setting.

Spheres on Path

This option lets you apply your spheres to a path defined by a feathered selection. This is a great way to create subtle, natural-looking applications of your spheres.

Genesis Editor

Selecting the Genesis Editor option in the Apply menu brings up the Genesis Editor interface. The Genesis Editor is used to create fantastic, sphere-based shapes such as stars, snowflakes, DNA molecules, etc. The Genesis Editor is a very deep environment for experimenting with sphere-based shapes. In addition to creating these shapes, the Genesis Editor also lets you save animations of your shapes as QuickTime movies.

Preview

The center of the Genesis Editor is taken up by a very large preview area. While you are changing any of the controls, your preview will be updated in black and white, with sim-

ple circles representing your spheres. When you pause, however, the preview will be updated using your full-color, fully-rendered spheres.

Controls

In each of the four corners of the Genesis Editor are labels for the Amount, Spacing, Angle, and Size of the spheres in your image. Clicking on these labels activates the controls for each of these parameter sets.

Once activated, pressing on these controls and dragging left or right enables you to increase or decrease the parameter in question.

Shortcut:

Option-clicking on any of the control labels will activate all controls within the Genesis Editor.

Amount

The Amount controls include (from left to right) Total Spheres, Branch Deviation, Secondary Branching, and Initial Branching.

Spacing

The Spacing controls include Branch Length, Branching Deviation, Spheres per Branch, and Kinkiness.

Angle

The Angle controls include Rotate, Branch Twist, Branch Spread, and Branch Angle.

Size

The Size Controls include 3D Offset Vertical, 3D Offset Horizontal, Shrink/Grow, and Zoom.

Film Strip

The Film Strip along the bottom of the Genesis Editor is used to save the various Genesis settings to be animated. clicking on any of the frames loads the current settings into that frame. Option-clicking on a frame will clear that frame. Once you have loaded the desired settings into the frames, the red dots can be used to save or preview your animation.

Red Dots

Once you have at least one filmstrip frame loaded with the desired setting, clicking on the larger red dot will bring up a Save dialog box for saving your animation to disk as a QuickTime movie. Clicking on the smaller red dot will let you preview your animation onscreen. While the animation is running, clicking the mouse button will stop the animation and return you to the Genesis Editor.

Color Swatch

To the right of the red dots is a small color swatch, which can be used to set the background color for the Genesis Editor preview area. Initially black, this preview background can be changed by clicking on the color swatch, which then presents you with a standard Apple color picker dialog box.

Presets Menu

The inverted triangle icon near the lower, right-hand corner of the Genesis Editor is the Presets menu. Pressing on this icon will bring up the Presets menu, which contains several interesting Genesis shapes. These shapes can be used as is, or as a jumping off point for your own exploration and experimentation.

Cancel and Apply Buttons

In the far lower, right-hand corner are the Cancel and Apply buttons, which will exit you back to the Spheroid Designer after ignoring (Cancel) or accepting (Apply) the current Genesis Editor settings.

Options Menu

The Options Menu contains commands for accessing the online help system and preferences, and for selecting any desired channel operations.

About KPT 3.0/Help

This command brings up the online help system for KPT 3, giving access to detailed instructions on using the various features of the product without having to exit the Spheroid Designer (or any other extension).

Reset to Normal

Selecting this option (or using it's keyboard equivalent, Command-E) resets all parameters within the Spheroid Designer to their default states, yielding a single, smooth gray ball.

Apply Modes

This is where you can select which of the ten possible apply modes you want to use when your sphere is applied to your selection.

For a detailed explanation of each of these apply modes, refer to the Apply Mode section on page 37.

Preferences

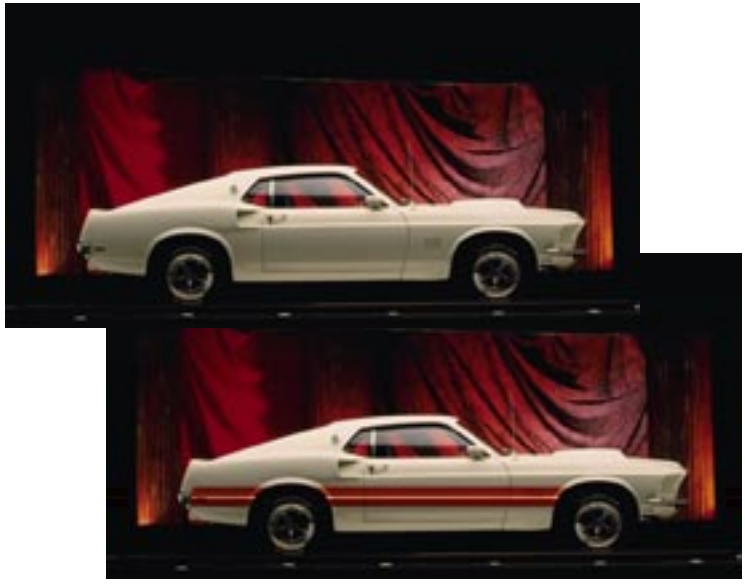
This command brings up the global Preferences dialog box. For a detailed discussion of the Preferences dialog box, refer to page 32.

Presets Menu

At the bottom center of the user interface is a triangular button for accessing the Presets menu. The Presets menu is discussed in detail on page 34.

Standard Controls

In the lower, right-hand corner of the user interface are the Delete Preset, Add Preset, Cancel, and OK buttons. For a detailed discussion of these buttons, refer to page 30.



KPT Gradient Designer


KPT Gradient Designer
OPTIONS
Mode
Loop
Repeat
Opacity
Glue
Direction
Hue
Saturation
Brightness
Contrast
Blur
Squeeze
Cycle
Squeeze Gradient

KPT GRADIENT DESIGNER

The KPT Gradient Designer is the core extension in Kai's Power Tools. It enables you to go far beyond the two-color, foreground-to-background blends available in most host applications. With the KPT Gradient Designer, you can create blends of up to 512 colors, including 256 levels of opacity, with built-in channel operations, unique shapes, and multiple repetitions.

The KPT Gradient Designer includes hundreds of preset gradients, and allows you to create your own gradients and save them into predefined or custom categories (by project, job title or client, for example) for later use.

Becoming familiar with the KPT Gradient Designer and its many presets will help you to fully utilize the KPT Texture Explorer plug-in, as the color schemes for mutated textures are built with gradients from the Gradient Designer.

What's New

This latest version of the KPT Gradient Designer has several significant enhancements over previous versions, including a much larger preview window (four times larger), tweaking controls for adjusting hues, saturation, blurring, etc., all of which can be applied to specific portions of your gradient. You also have the option of loading in specific channels (red, green, blue, and alpha) from other gradients. Enabling you to replace just the red channel (for example) of your gradient with the red channel from any of the presets.

Preview Window

The center of the Gradient Designer UI is dominated by the Preview Window. This window shows you your gradient as it will appear when applied to your selection. All parameters of your gradient are reflected in this window, including colors, opacity, shape, distortion, origin, repetitions, and channel operations. As you modify your gradient using the various controls, the Preview Window will update in realtime, so you will always know exactly what your gradient will look like. This eliminates the traditional drudgery of guessing, applying, and undoing that is required with many color-blending tools.

Gradient Bar

The Gradient Bar is the most important control in the Gradient Designer UI. This is where you will select your colors, grays, and opacities to define exactly how your gradient will look. Pressing on the Gradient Bar will bring up a combination palette containing a color picker, a grayscale ramp, and an opacity ramp. The middle section of this palette is your color picker, the upper strip is your grayscale ramp (for selecting black, white, or any shade in between), and the checkerboard strip at the bottom is your opacity ramp (with completely opaque at the far left, fading to completely transparent at the far right).

When selecting a new color (or shade of gray or degree of opacity) for your gradient, it is important to realize that you will not only be selecting a color to be used in your gradient, you will be selecting where in the gradient the color will appear. If you access the color picker by pressing on the far left-hand side of the Gradient Bar, you will set the color for the beginning of your gradient. If you press on the far right-hand side of the Gradient Bar, you will set the color for the end of your gradient.

Selecting a Color

To select a color, simply press in the Gradient Bar and drag the eyedropper cursor over the color you want. In addition to the colors in the color picker, you can also drag the eyedropper cursor over any color visible anywhere on your monitor, selecting that as your color.

Selecting a Shade of Gray

To select a shade of gray, press in the Gradient Bar to bring up your palette, and drag the eyedropper cursor to any point along the grayscale ramp (just above the color picker).

Very Useful Tip:

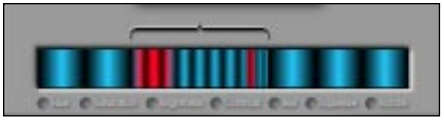
When selecting a shade of gray or a degree of opacity, hold down the Shift key as you move the mouse. This will constrain the mouse movement along the horizontal axis, so that you won't slip in and out of these two narrow strips.

Selecting a Degree of Opacity

To select a degree of opacity, press in the Gradient Bar to bring up your palette, and drag the eyedropper cursor to any point along the opacity ramp (just below the color picker). If you want to quickly choose complete transparency, drag the eyedropper cursor the the word "None" at the far left-hand side of the color picker. This selects no color, effectively giving you complete transparency.

Using the Apple Color Picker

If you prefer to use Apple's color picker (and don't mind hurting our feelings), drag the eyedropper cursor to the small color wheel in the upper, left-hand corner of the palette and let go. The Apple color picker will appear in it own dialogue box. you can select a color, and then click the OK button to return to the Gradient Designer UI. While in the Apple color picker dialog box, your Preview Window cannot be updated, but it will update as soon as you exit the Apple color picker.



The Gradient Bar with a small bracket determining the affected portion of the bracket.

Gradient Bracket

Just above the Gradient Bar is a long bracket stretching from one end of the Gradient Bar to the other. This bracket is used the define what portion of your gradient you wish to work with. By default it encompasses the entire gradient, but you can resize it and move it to work with a smaller portion of your gradient.

After resizing and moving the Gradient Bracket, use the Gradient Palette to change the color or opacity of the portion of the gradient contained within the bracket.

Note: Since the bracket defines the portion of the gradient that will be affected, the Gradient Designer will ignore any mouse activity on the Gradient Bar outside of the bracket. You must press on the portion of the Gradient Bar within the arms of the bracket.

Resizing the Bracket

The Gradient Bracket can be resized by pressing and dragging either end of the bracket.

You can also drag one end of the bracket past the other end, allow you to effectively pivot the bracket, leaving one end exactly where it began.

To reset the bracket to its default size, completely encompassing the Gradient Bar, simply double-click on the center of the bracket.

Moving the Bracket

Once the Gradient Bracket has been resized, it can be moved by pressing on the center of the bracket and dragging the mouse left or right.

Channel Arrows

To the right of the Gradient Bar are two small arrows. These are used to load the RGB or alpha channels from any of the preset gradients.

Load RGB

Click on the top arrow to see a modified version of the Presets palette. In this version, most of the attributes (type, opacity, repetition, etc.) of the presets are not shown. Instead, you are shown just the RGB values of each gradient. By clicking on any of these RGB representations, you can load just the color values of a preset into your current gradient, retaining all other attributes. This can be very useful when you have created a cool gradient, but aren't happy with the color scheme.

Load Alpha

This arrow functions exactly like the Load RGB arrow, except that you are shown the alpha channels of the preset gradients. Clicking on any of these alpha choices will apply the selected alpha channel pattern to your current gradient.

Gradient Modifiers

Underneath the Gradient Bar are seven "tweaking" controls for modifying the colors and other parameters of your gradient or a portion of your gradient. By using the bracket you can adjust the hues, saturation, brightness, contrast, etc. of any portion (or portions) of your entire gradient.

Very Cool Tip:

If you hold down the R, G, or B keys on the keyboard while clicking on the Load RGB button, you can load just the Red (R), Green (G), or Blue (B) channels from any of the preset gradients.

Hue

Pressing on this control (either the ball or the text) and dragging left or right rotates the hues for your gradient. Each hue occupies a unique spot on a virtual color wheel, and as you rotate your hues, all of the colors within your gradient rotate, allowing you to cycle through all of the possible colors in the spectrum, but maintaining each color's relative distance from every other color.

Saturation

This control is used to modify the saturation (or intensity) of the colors within your gradient. Pressing on this control and dragging to the right will increase the saturation, while dragging to the left will decrease the saturation.

Brightness

This control determines the brightness of your colors (i.e., how much white is mixed with each color). Pressing on this control and dragging to the right will increase the brightness, while dragging to the left will decrease the brightness.

Contrast

This control works by comparing the color values of individual pixels with the color values of neighboring pixels. Pressing on this control and dragging to the right will increase the contrast, exaggerating the differences between colors. Dragging to left will decrease the contrast, homogenizing your colors. You can actually reduce the contrast to the point where your entire gradient would be a uniform gray (but why?).

Blur

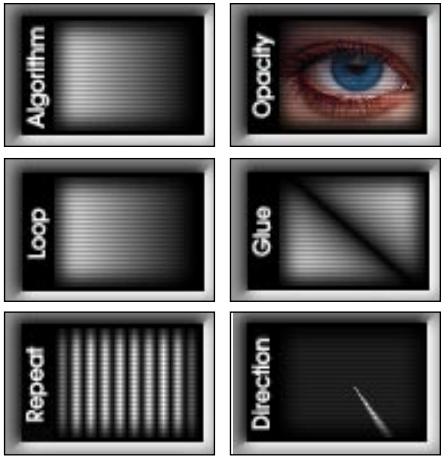
This replaces the "Post Blurring" control in earlier versions of the Gradient Designer. Pressing on this control and dragging to the right will increase the blurriness of your gradient, effectively "smudging" the edges of your colors, while dragging to the left will decrease the blurriness of your gradient.

Squeeze

Pressing on this control and dragging left or right lets you squeeze your gradient to one side or the other. The "squeeze" always starts at the center of the bracket and moves to either end. If you want to squeeze your gradient starting from somewhere other than the center you must do it manually, by holding down the Option key and pressing and dragging within the Gradient Bar itself.

Rotate

Pressing on this control and dragging left or right lets you rotate your gradient to one side or the other. Note that you are not rotating the hues within your gradient, you are rotating the gradient itself. You can do this manually by holding down the Command key while pressing and dragging within the Gradient Bar.



The six Gradient control panels.

Algorithm

The first of the six controls framing the Preview Window, the Algorithm panel allows you to choose the shape of your gradient. Pressing on the Algorithm panel provides you with a pop-up menu containing ten unique gradient shapes, plus the Gradients on Paths option. Clicking on the Algorithm panel will cycle you through all algorithm options one at a time.

Linear Blend

This option creates a standard linear transition from one end of your gradient to the other.

Circular and Elliptical Sunburst

The Circular Sunburst option creates a standard core-to-perimeter gradient available in most host applications. The Elliptical Sunburst option is similar, but the shape of the ellipse is influenced by the shape of your selection.

Radial Sweep

This gives your gradient a "radar sweep" effect, similar to a radar or sonar scope, or the motion of the hands of a clock.

Square and Rectangular Burst

Similar to the Circular/Elliptical Sunburst options, the Square Burst maintains a symmetrical aspect ratio, while the Rectangular Burst shows the influence of the shape of your selection.

Angular and Circular Shapeburst

The proprietary Shapeburst algorithms create gradients that conform to the shape of your selection. The Angular Shapeburst will have sharp edges and harsher transitions for a more crystalline look, while the Circular Shapeburst will conform gently to your selection for a more rounded, organic look.

Angular and Circular Pathburst

Both of these algorithms work like the Shapebursts described above, but affect both the inside and the outside of your selection. The outer area affected by the pathburst is determined a rectangle whose height and width is determined by the maximum height and width of the selected area (a "bounding rectangle"). If you want the pathburst to affect your whole image, just invert your selection before applying a pathburst gradient.

Gradients on Paths

The Gradients on Paths algorithm create a pathburst affect, but only within a path defined by the selection itself, not the selected area. Since most selection marquees have a one-pixel width, this makes for a very boring gradient. The solution is to only use the Gradients on Paths algorithm with a feathered selection. The gradient will then be applied within the feathered selection area.

Loop

The Looping panel controls two aspects of how the gradient looks: the direction of the gradient, and how the gradient is distorted.

Pressing on this panel will give you a pop-up menu with four different types of gradient looping and four distortion options. Clicking on this panel will cycle you through the four different loop options and the four distortion options.

Types

The four types of gradients are Sawtooth A->B or B->A, or Triangle A->B->A or B->A->B. With the understanding that A represents the left-hand edge of your Gradient Bar

and B represents the right-hand edge, plus a little experimentation, these four choices become self-evident. For example:

Sawtooth A->B is a standard gradient exactly as it appears in the Gradient Bar. It is called a "sawtooth" gradient because if it repeats, it makes a smooth transition from left to right, then drops sharply back to the left hand edge and starts another smooth transition to the right, like the teeth of a saw.

Sawtooth B->A is the opposite of the A->B variant, except that the gradient defined in the Gradient Bar is applied from right to left.

Triangle A->B->A mirrors the Gradient Bar from left to right and back again within each repetition of the applied gradient.

Triangle B->A->B mirrors the Gradient Bar from right to left and back again within each repetition of the applied gradient.

Distortions

The distortion, or pinch, options let you squeeze your gradient left or right, inward or outward. You can create these same effects (with a much greater degree of flexibility and control) by using the Squeeze control located under the Gradient Bar.

Repeat

The Repeat panel controls how many times the gradient defined in the Gradient Bar will be repeated when applied to your selection. Pressing on this panel and dragging to the right will increase the number of repetitions (up to ten), while dragging to the left will decrease the number of repetitions (down to one). As you drag left or right, keep an eye on the Preview Window to see exactly what your multiple repetitions will look like.

Opacity

The Opacity panel lets you choose different sample background images against which you can test your gradient, and it lets you determine the overall level of opacity for your gradient.

Clicking on the Opacity panel lets you cycle through all of the different sample backgrounds, giving a an opportunity to see your gradient applied to a wide variety of image types.

Pressing and holding on the Opacity panel gives you a pop-up menu of sample backgrounds, allowing you to quickly see exactly the type of background image that you want.

If you press on the Opacity panel and immediately drag the mouse left or right, the menu of sample backgrounds will not appear. Instead, you will be able to adjust your gradient's opacity by dragging to the left to make your gradient more opaque, and dragging to the right to make it more transparent.

Glue

The Glue panel allows you to select different channel operations for determining how your gradient will interact with the background image or selected area.

For a detailed discussion of how each of the apply modes works, refer to the Apply Modes discussion on page 37.

Direction

Probably the most straightforward of the gradient control panels, the Direction panel lets you change the angle of the gradient relative to your selection. Press within the Direction panel and drag to move the pointer (and your gradient) to the desired angle. This panel is only active with the Linear Blend and Radial Sweep algorithms.

Kai Logo, Help Button

As discussed in detail in the Common Features section, clicking on the Kai logo gives you a full-screen preview of your gradient, and clicking on the Help button brings up the online help system. Detailed discussions of these two buttons can be found on page 28.

Options Menu

In addition to the standard Help and Preferences commands, the Options menu in KPT Gradient Designer lets you change color spectra, alter the feathering within your gradient, and turn realtime linking on and off.

Help and Preferences

The Help and Preferences commands in the Gradient Designer are identical to the same commands in all of our UI filters. For a detailed discussion of the Help and Preferences commands, refer to page 32.

Color Picker Spectrum

Use this submenu to select from eight different spectra to determine the colors and shades presented in the Gradient Bar color picker.

Feathering

The three feathering options let you specify the amount of feathering (the transition from one area to another) when modifying a portion of your gradient. With the No Feathering option, there will be an sharp transition at the edge of the brackets from the previous state to the new state. With the Feather Half option selected, a more gradual transition will occur, starting at the edges of the brackets and ending halfway between the edges and the center. With the Feather All option, a very gradual transition will be created from the edges to the center of the bracket.

Realtime Linking

By default, this option is on (as indicated by the checkmark next to it in the menu). Selecting this option will turn off the realtime link between the various gradient parameter controls and the Preview Window. This may be useful if you are using Kai's Power Tools on a slower Macintosh.

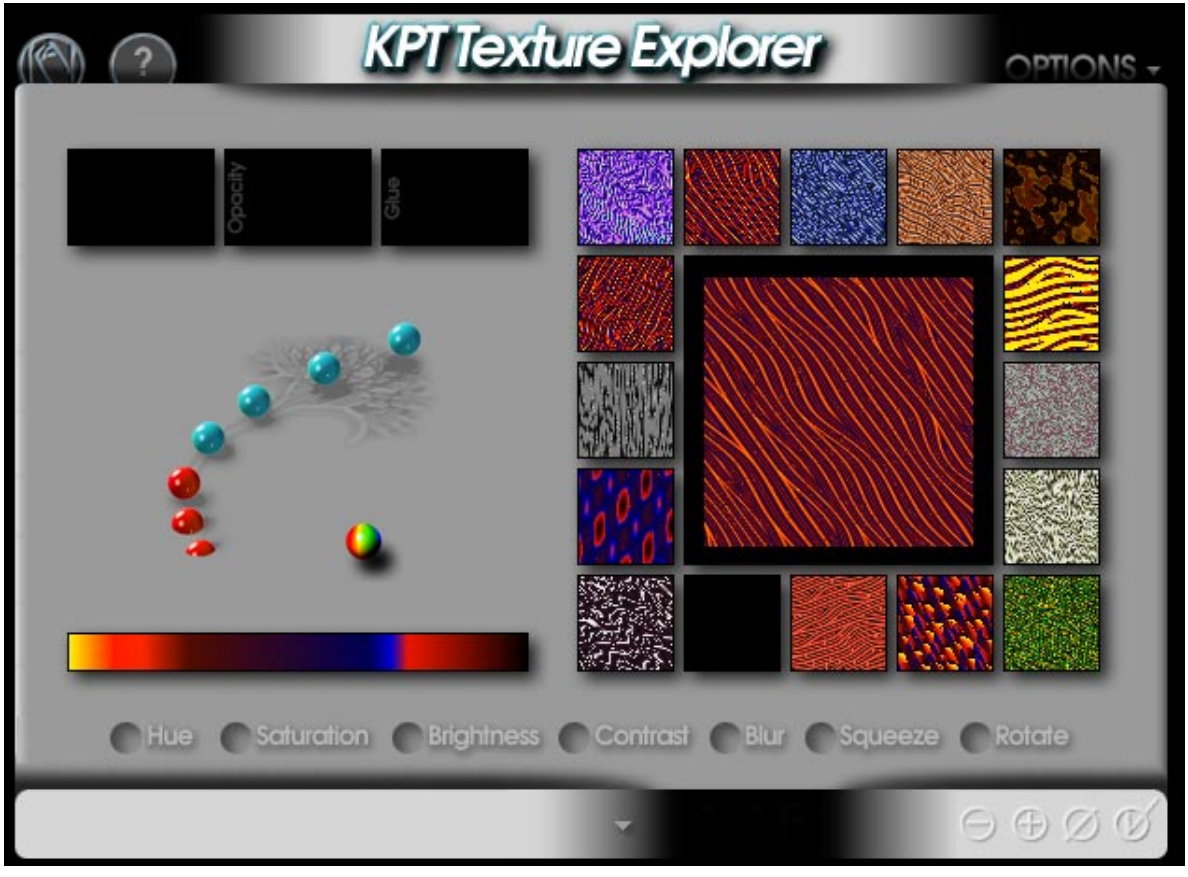
Presets Menu

At the bottom center of the user interface is a triangular button for accessing the Presets menu. The Presets menu is discussed in detail on page 34.

Standard Controls

In the lower, right-hand corner of the user interface are the Delete Preset, Add Preset, Cancel, and OK buttons. For a detailed discussion of these buttons, refer to page 30.

KPT Texture Explorer


KPT Texture Explorer
OPTIONS
Opacity
Glue
Hue
Saturation
Brightness
Contrast
Blur
Squeeze
Rotate

KPT TEXTURE EXPLORER

The KPT Texture Explorer is a texture-generation engine that generates infinite textures and backgrounds based on mathematical algorithms. All source and derivative textures that you see within the Texture Explorer are graphic, symbolic representations of mathematical formulae. Because these textures are generated mathematically, they do not require significant amounts of memory or hard drive space, and can be mutated or tweaked in realtime. Also, because of the mathematical nature of the textures, the number of possible combinations isn't limited by the number of source textures, but rather by the number of possible random mathematical variations (i.e., infinity)!

What's New

The most significant improvement to the Texture Explorer plug-in is the addition of the Tweaking Controls (also found in the new Gradient Designer). These controls let you adjust the hue, saturation, blurring, etc. of the source gradient upon which your source texture is based.

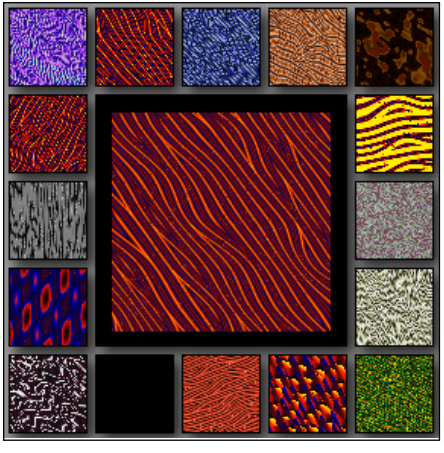
Two other improvements are the new, larger Source Texture panel (it's four times bigger than in the previous version), and the addition of four more derivative texture panels, bringing the number of new, mutated textures from 12 to 16 per mutation.

Source Texture

The large square on the right-hand side of the UI is the source texture, from which all of the derivative textures will be generated. This source texture is created by applying top-secret, if-we-told-you-we'd-have-to-kill-you algorithms to whatever gradient is shown in the Gradient Strip (more on the Gradient Strip below). Pressing on the Source Texture

and dragging the mouse lets you slide the texture within the Source Texture window. Since these textures are infinite, you can continue to slide your source texture until you get exactly the look you want.

The Zoom controls (the plus sign and minus sign in the upper and lower right-hand corners of the source texture panel) let you increase or decrease the base size of the texture before applying it to your selection.



The Source Texture (center) and its 16 derivative textures.

Derivative Textures

Around the perimeter of the Source Texture are sixteen derivative textures, each based on the source, but mutated to some degree.

Clicking on any of these derivative textures places that texture into the center window, making it the new source texture. Sixteen new derivative textures will be created based on the new source texture.

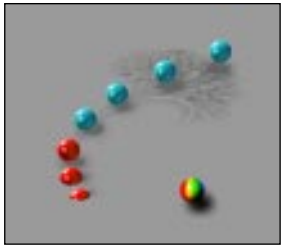
As you click on the Mutation Tree (see below) to create new sets of random derivative textures, you will occasionally see a texture that you want to protect, so that it will not change with each new set of textures. This can be accomplished easily by simply holding down the Option key while clicking on the texture to be protected. A thin red border will appear around that texture to indicate it's protected status. As you mutate your textures, any derivatives with red borders will remain unchanged. To remove the red border from a texture (and, thus, its protected status) simply Option-click on it again.

Note: You must unprotect a derivative texture before you can make it your new source texture.

Mutation Tree

In the center of the left side of the Texture Explorer UI is the Mutation Tree, a series of aqua or red balls above a drop shadow of a tree. These balls represent the degree of mutation that will be applied when creating derivative textures. Clicking on the ball closest to the bottom of the tree sets a minimal amount of mutation, resulting in derivative textures that are very closely related to the source texture. Travelling further up the tree increases the amount of mutation, so that clicking on the top ball set the maximum amount of mutation, resulting in derivative textures that look nothing like the source.

Successive clicks on a ball in the Mutation Tree result in new mutations, and new sets of derivative textures.



The Mutation Tree and Color Globe.

Color Globe

Below the Mutation Tree is a small, multi-colored globe. This globe randomizes the gradients used as the basis for each derivative texture. The net result is that your derivative textures will retain their basic forms, but the colors and color transitions will be very different. To see this in action, click on the lowest ball in the Mutation Tree, and then watch just one of your derivative textures while clicking on the Color Globe over and over.

Gradient Strip

Below the Color Globe is a rectangular strip filled with the gradient currently being used as the basis for your source texture. Pressing on this strip will result in a pop-up menu of hundreds gradients for you to choose from. These gradients are the presets from the Gradient Designer. If you save a preset of your own in the Gradient Designer, you will be able to use it as the basis for a texture in the Texture Explorer.

Gradient Modifiers

At the bottom of the Texture Explorer UI are the Gradient Modifier Controls from the Gradient Designer. These controls are used to modify the gradient upon which your source texture is based. By modifying your gradient's hue, saturation, brightness, etc. you will be changing the hue, saturation, brightness, etc. of the resulting texture.

Hue

Pressing on this control (either the circle itself, or the text label) and dragging left or right rotates the hues for your gradient. Each hue occupies a unique spot on a virtual color wheel, and as you rotate your hues, all of the colors within your gradient rotate, allowing you to cycle through all of the possible colors in the spectrum, but maintaining each color's relative distance from every other color.

Saturation

This control is used to modify the saturation (or intensity) of the colors within your gradient. Pressing on this control and dragging to the right will increase the saturation, while dragging to the left will decrease the saturation.

Brightness

This control determines the brightness of your colors (i.e., how much white is mixed with each color). Pressing on this control and dragging to the right will increase the brightness, while dragging to the left will decrease the brightness.

Contrast

This control works by comparing the color values of individual pixels with the color values of neighboring pixels. Pressing on this control and dragging to the right will increase the contrast, exaggerating the differences between colors. Dragging to left will decrease the contrast, homogenizing your colors. You can actually reduce the contrast to the point where your entire gradient would be a uniform gray (but why?).

Blur

This replaces the "Post Blurring" control in earlier versions of the Gradient Designer. Pressing on this control and dragging to the right will increase the blurriness of your gradient, effectively "smudging" the edges of your colors, while dragging to the left will decrease the blurriness of your gradient.

Squeeze

Pressing on this control and dragging left or right lets you squeeze your gradient to one side or the other. The "squeeze" always starts at the center of the bracket and moves to either end. If you want to squeeze your gradient starting from somewhere other than the center you must do it manually, by holding down the Option key and pressing and dragging within the Gradient Bar itself.

Rotate

Pressing on this control and dragging left or right lets you rotate your gradient to one side or the other. Note that you are not rotating the hues within your gradient, you are rotating the gradient itself. You can do this manually by holding down the Command key while pressing and dragging within the Gradient Bar.

Rotation

This panel is used to rotate your source texture. Simply press on the panel and drag around to change the orientation of your texture.

Opacity

The Opacity panel lets you choose different sample background images against which you can test your gradient, and it lets you determine the overall level of opacity for your gradient.

Clicking on the Opacity panel lets you cycle through all of the different sample backgrounds, giving you an opportunity to see your gradient applied to a wide variety of image types.

Pressing and holding on the Opacity panel gives you a pop-up menu of sample backgrounds, allowing you to quickly see exactly the type of background image that you want.

If you press on the Opacity panel and immediately drag the mouse left or right, the menu of sample backgrounds will not appear. Instead, you will be able to adjust your gradient's opacity by dragging to the left to make your gradient more opaque, and dragging to the right to make it more transparent.

Glue

The Glue panel allows you to select different channel operations for determining how your texture will interact with the background image or selected area.

For a detailed discussion of how each of the channel operations works, refer to the Apply Modes discussion on page 37.

Kai Logo, Help Button

As with most of the plug-ins, the Kai Logo gives you a full-screen preview of your texture, and the Help button brings up the online help system for Kai's Power Tools. For more detailed information about these features, refer to the Common Features discussion on page 28.

Options Menu

In addition to the standard Help and Preferences commands, the Options menu in KPT Gradient Designer lets you change color spectra, alter the feathering within your gradient, and turn realtime linking on and off.

Help and Preferences

The Help and Preferences commands in the Texture Explorer are identical to the same commands in all of our UI filters. For a detailed discussion of the Help and Preferences commands, refer to page 32.

Fill Selection

When selected your texture fills the selection at the magnification specified within the Texture Explorer (by using the Zoom In and Zoom Out icons in the preview window).

Scale to Selection

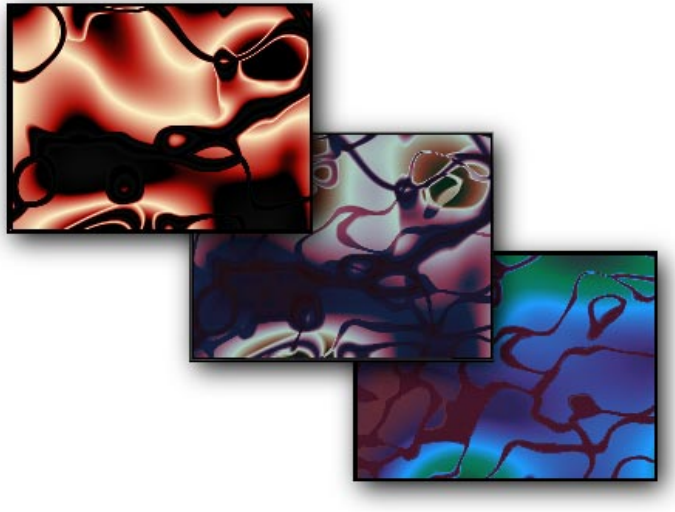
When this option is selected your texture will be scaled to fit within the selection at approximately the same ration that it fits within the preview window.

Presets Menu

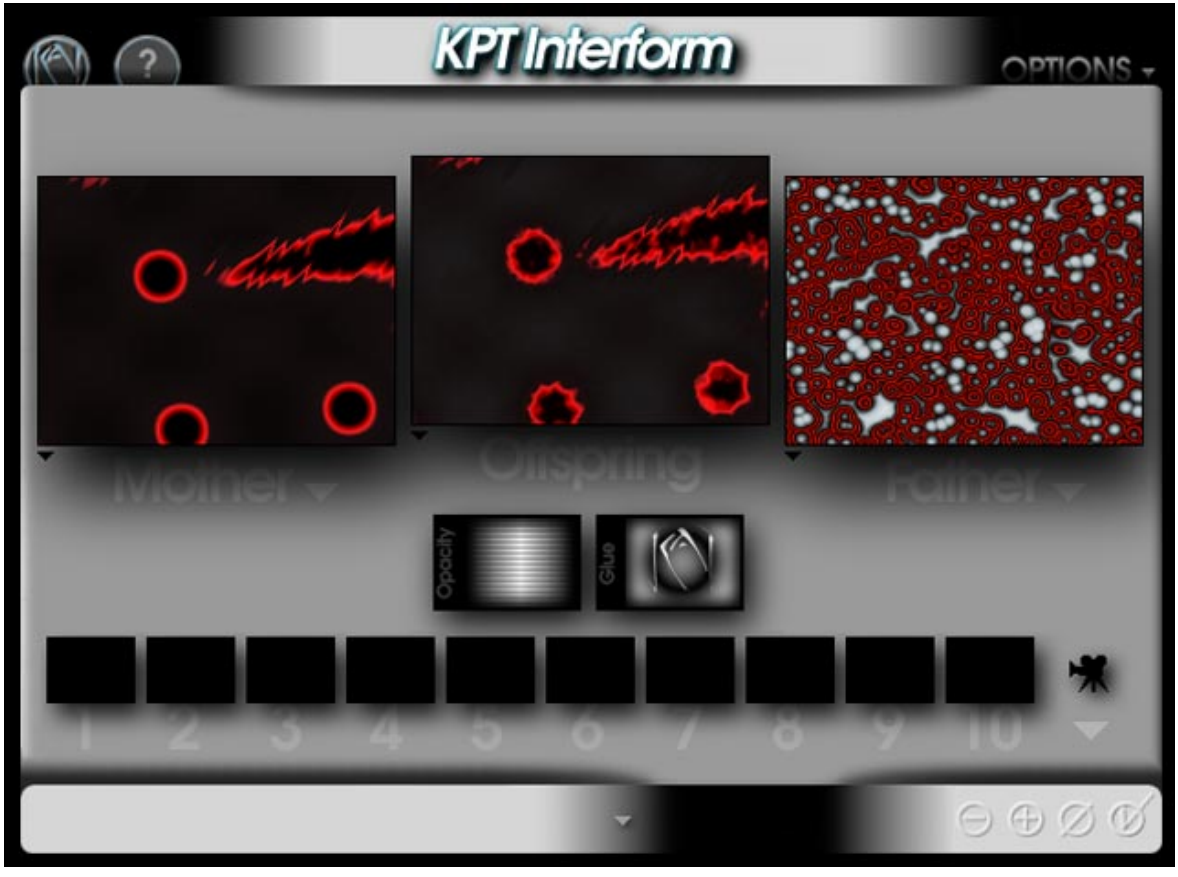
At the bottom center of the user interface is a triangular button for accessing the Presets menu. The Presets menu is discussed in detail on page 34.

Standard Controls

As in the other plug-in UIs, the four circular buttons in the lower, right-hand corner of the Texture Explorer UI let you delete or add presets, cancel the Texture Explorer, or accept the current settings and apply them to your selection.



KPT Interform


KPT Interform
OPTIONS
Mother
Offspring
Father
Opacity
Glue
1
2
3
4
5
6
7
8
9
10

KPT INTERFORM

The KPT Interform plug-in takes two Texture Explorer presets and merges them together in either a new, static texture, or in an animated QuickTime movie format.

What's New

As with the Spheroid Designer, everything about KPT Interform is new. However, one especially cool feature does merit special attention: KPT now does QuickTime! The KPT Interform plug-in can create QuickTime movies of moving, melting, textures, giving you an incredible tool for all of your animation tasks.

Mother and Father Panels

The large panels, labeled "Mother" and "Father," on the left and right sides of the Interform UI represent the two source textures which will be used as the basis for a third "Offspring" texture. Pressing on the grey, inverted triangle to the right of the text labels for either of these two panels (or on the text labels themselves) will result in a pop-up menu displaying all of the preset textures from the Texture Explorer. Selecting one of these presets will make that preset texture the new Mother or Father texture within Interform.

Parental Motion

Pressing on the black, inverted triangle to the left of the "Mother" or "Father" text will give you a pop-up menu of UniMotion™ settings for your textures. These UniMotion™ options determine the movement of each texture during the Interform process.

The first option in the UniMotion menus is Manual Scooting, which is exactly what you might think: You can press and drag in each parental texture to set the direction and speed of that texture. Each of the other options will create a distinctly different motion. When using any motion type except for Manual Scooting, pressing and dragging within a parent texture will increase or decrease the intensity of the UniMotion effect.

To stop the motion of a parent texture, first set the motion type back to Manual Scooting (if necessary), then click in the parental texture panel for the texture that you want to stop.

Once you have set your Mother and Father textures in motion with the UniMotion controls (or manually), this motion will be reflected in the animated Offspring panel, revealing an ever-changing combination of the two parents.

Offspring Panel

The Offspring panel reveals a combination of the textures and motions specified in the Mother and Father panels. The Offspring panel also lets you control how much the offspring takes after its mother or father, by pressing on the Offspring panel and dragging the mouse to the left or right. The black, inverted arrow underneath the Offspring panel can also be used to set a blending pattern other than Manual Blending, giving you an offspring that takes after each parent in different amounts at different times. To see how each of the blending patterns works, just select it and watch as your offspring panel is influenced by each parent in turn.

Opacity

The Opacity panel lets you choose different sample background images against which you can test your gradient, and it lets you determine the overall level of opacity for your gradient.

Clicking on the Opacity panel lets you cycle through all of the different sample backgrounds, giving a an opportunity to see your gradient applied to a wide variety of image types.

Pressing and holding on the Opacity panel gives you a pop-up menu of sample backgrounds, allowing you to quickly see exactly the type of background image that you want.

If you press on the Opacity panel and immediately drag the mouse left or right, the menu of sample backgrounds will not appear. Instead, you will be able to adjust your gradient's opacity by dragging to the left to make your gradient more opaque, and dragging to the right to make it more transparent.

Glue

The Glue panel allows you to select different channel operations for determining how your gradient will interact with the background image or selected area.

For a detailed discussion of how each of the apply modes works, refer to the Apply Modes discussion on page 37.

Frame Panels (1-10)

Along the bottom of the Interform user interface are 10 frame panels, which are used to store frames of a soon-to-be-created QuickTime movie. Here's how it works: After choosing Mother and Father textures and setting UniMotion parameters and amount of parental influence (i.e., how much the offspring takes after the mother or father), click one time on Frame 1. The Offspring texture (and all related data) is then loaded into the first frame. You can then select a new Mother and/or Father texture, change motion

and parental influence parameters, and repeat the process with Frame 2. When you are finished, the Record Keyframes button can be used to save your QuickTime movie.

Record Keyframes Button

Clicking on the Record Keyframes button (which looks like the silhouette of a movie camera) brings up a standard Save dialog box, allowing you to save your texture animations to disk as a QuickTime movie.

Movie Options Menu

Pressing on the grey, inverted triangle just below the Record Keyframes button reveals a pop-up menu of options for your animations.

Preview Movie

Select this option to preview your movie one time. The preview can be interrupted at any time by clicking the mouse button.

Loop Movie

Select this option to preview your animation in an unending loop. The preview can be interrupted at any time by clicking the mouse button.

Size

Select either 160x120, 320x240, 640x480, or Size of Selection to set the size of the individual frames within your animation.

Fade

Select No Fade, Quick Fade, or Slow Fade to set the transition from one frame to another in your animation.

Length

Select 1 second, 2 seconds, 5 seconds, or 10 seconds to determine the length of time each frame appears onscreen during your animation.

Kai Logo, Help Button

As with most of the plug-ins, the Kai Logo gives you a full-screen preview of your texture, and the Help button brings up the online help system for Kai's Power Tools. For more detailed information about these features, refer to page 28.

Options Menu

The Options Menu contains commands for accessing the online help system and preferences, and for selecting any desired channel operations.

About KPT 3.0/Help

This command brings up the online help system for KPT 3, giving access to detailed instructions on using the various features of the product without having to exit the Spheroid Designer (or any other extension).

Preview Quality

Speed Preview, Quick Preview, and Quality Preview are simply three different choices for trading detail for speed in your previews. Speed Preview gives you the least detail but the most speed, Quality Preview gives you the most detail but the slowest speed, and Quick Preview gives you both moderate quality and speed.

Preferences

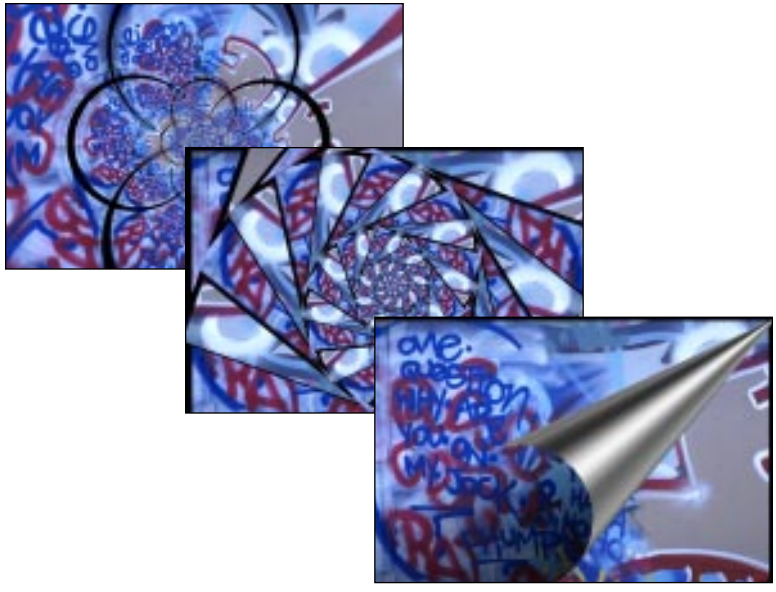
This command brings up the global Preferences dialog box. For a detailed discussion of the Preferences dialog box, refer to page 32.

Presets Menu

At the bottom center of the user interface is a triangular button for accessing the Presets menu. The Presets menu is discussed in detail on page 34. For Interform their is no graphic preview palette.

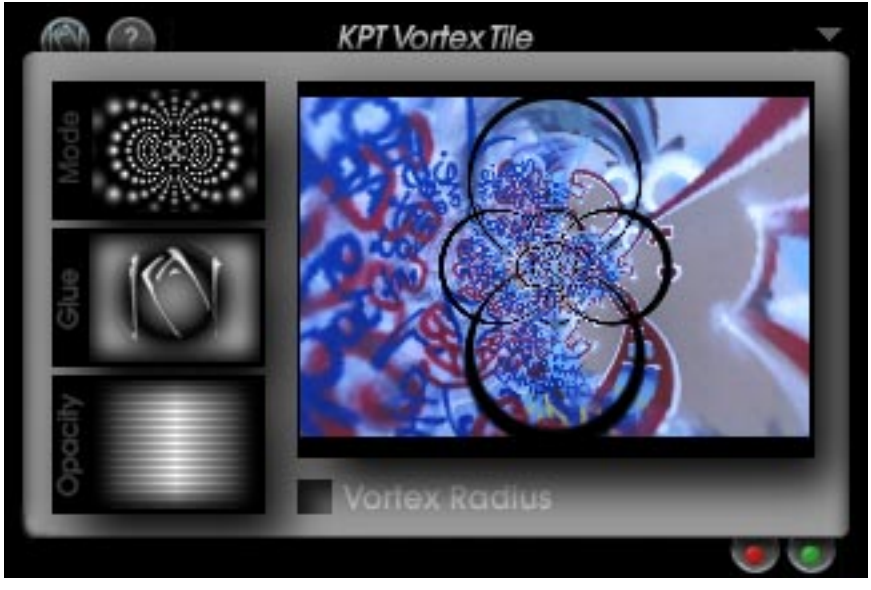
Standard Controls

As in the other plug-in UIs, the four circular button in the lower right-hand corner of the Interform UI let you delete or add presets, cancel Interform, or accept the current settings and apply them to your selection.



The Compact UIs

In the previous version of Kai's Power Tools, many of the effects that could be generated were done with what we referred to as "one-step" filter. With these effects you simply selected a command from the Filter menu and the effect was instantly applied to your image. You could control the intensity of the effect by holding down a key on the numeric keypad (1-0, or 10-100%). If you weren't happy with the intensity of the effect, you had to undo your change and then reapply the effect with a different intensity. All of that is now a thing of the past. With KPT 3 each and every effect has it's own interface, giving you full control over the effect's intensity, opacity, apply mode, etc. All of the old "one-step" filters (and some brand new ones) are presented in either a Lens f/x interface (see page 119, The Lens f/x Plug-Ins), or in a "compact" user interface. The compact user interface gives you all the controls you need in a small, economical interface. This section focuses on the elements of the compact interface, and on the plug-ins that utilize it, namely 3D Stereo Noise, Glass Lens, Page Curl, Planar Tiling, Seamless Welder, Twirl, Video Feedback, and Vortex Tiling.


KPT Vortex Tile
Mode
Glue
Opacity
Vortex Radius

COMMON ELEMENTS

While the eight plug-ins that use the compact interface have different options and parameters that can be set, they all share certain common interface features, as described below.

Preview Window

The dominant feature of the compact user interface is the Preview Window, located in the center of the UI. In addition to showing you how your image would look with the effect applied, the Preview Window is actually a control element, in which you can press and drag to set the origin, angle, etc. of the effect being applied. In the sections describing the individual plug-ins that use this interface, you will find detailed explanations of how the Preview Window can be used to control each effect.

Mode Panel

The first of the three panels on the left side of the compact UIs is the Mode Panel and is used to switch between different modes or "flavors" of a particular effect. Clicking on the Mode Panel cycles you through all of the available modes. Pressing on the Mode Panel results in a pop-up menu of all of the modes.

Glue Panel

The Glue panel is used to select an apply mode to be used when applying your effect to the underlying image. For a detailed discussion of the different apply modes, see the discussion of apply modes on page ???. Clicking on the Glue Panel cycles you through

all of the available apply modes. Pressing on the Glue Panel results in a pop-up menu of all of the apply modes.

Opacity Panel

Pressing on the Opacity Panel and dragging left or right lets you adjust the opacity level of your effect (from 0% to 100%). Dragging to the left decreases the opacity, while dragging to the right increases opacity.

Kai Logo

Clicking on the Kai Logo in the Compact UIs isn't nearly as impressive as in the main plug-in UIs. Here, clicking on the Kai Logo blacks out the interface elements to let you see your preview against an uncluttered black background.

Help Button

As in all of the plug-ins, clicking on the Help button brings up the online help system, in which you can get detailed information about virtually every aspect of whatever plug-in you are using.

Options Menu

In addition to the About KPT, Preferences, and Reset commands, the Options Menu will contain specific commands pertaining to special setting for each of the individual plug-ins. In the sections describing the individual plug-ins that use this interface, you will find explanations of Option menu commands that pertain to each effect.

About KPT 3.0

Selecting this command brings up the About box for KPT 3, which lists the credits for the KPT 3 crew.

Preferences

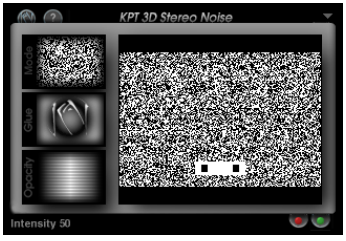
This command is used to access the Preferences dialog box for the Compact UIs. The options within the Preferences dialog box are Full Resolution Preview, Tablet Enhancement, Launch to Previous State, and Black Out Screen.

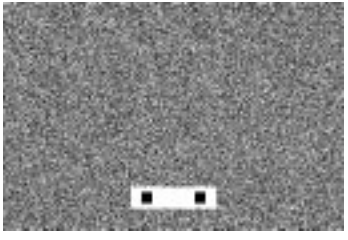
Reset to Normal

Selecting this command (or using its keyboard equivalent, Command-E) resets all effect controls to their default state.

Cancel and Apply Buttons

The red and green buttons in the lower, right corner of the UI are used to cancel (red) or apply (green) your effect.





The KPT 3D Stereo Noise interface (top), and a sample of artwork created with the 3D Stereo Noise plug-in.

KPT 3D STEREO NOISE

Well, the fad may be fading, but the fascination is still there. 3D stereoscopic images have been with us for a while, and this latest version of 3D Stereo Noise adds a couple of new twists.

A 3D stereoscopic image is created by starting with a greyscale image (slightly blurred for best effect), and then applying a 3D Stereo Noise effect to it. The darkest parts of your image will appear "deepest", with greys and whites appearing correspondingly shallower.

If you are not used to these images, they can be frustrating at first. One popular way to train your eyes to see them is to focus on a distant object (such as something across the room), and then slowly move the stereoscopic image into your line of sight. Eventually, your eyes will grow accustomed to the new focus and will "lock" onto the image encoded in the noise. Practice can be a headache, but once you get it, it is very easy to do at will.

Mode Panel

The Mode Panel in 3D Stereo Noise lets you choose between Monochrome Noise, Color Noise, and No Noise.

Note: Selecting No Noise can be useful if you want to see how your image is being offset before the noise is added.

Preview Controls

Pressing in the Preview Window and dragging left or right lets you adjust the intensity of the noise effect. Dragging to the right will increase the amount of noise, while dragging to the left will decrease the noise intensity. [correct?]

Options Menu

The only Options menu command that is specific to the 3D Stereo Noise plug-in is Draw Focus Dots, which toggles between displaying two square focus dots in the preview window or not displaying them. Some people find it easier to "lock" onto the encoded image by using the focus dots. To use the focus dots, adjust your focus until the two dots appear to become exactly three. Let your eyes rest in that state until the encoded image becomes apparent.

The KPT Glass Lens interface (top), and a sample of artwork created with the Glass Lens plug-in.

KPT GLASS LENS

The Glass Lens plug-in lets you create transparent glass lens effects for distorting an image. This lets you create sphereized text or other magnification distortions. The Spheroid Designer can be used to create spheres of incredible complexity and detail, but nothing beats the Glass Lens plug-in for quick and easy effects of this type.

The Glass Lens effect will work on both rectangular or elliptical selections. In the case of rectangular selections, an elliptical area (defined by the bounding borders of the rectangular selection) will be affected.

Mode Panel

The Glass Lens effect has three different modes, Soft, Normal, and Bright, which can be accessed from the Mode panel. These choices refer to the way that light appears to interact with your "lens." A little experimentation will quickly reveal which of the three modes will work best for a particular image.

Preview Controls

Pressing and dragging in the Preview Window lets you change the centerpoint of the light that illuminates your glass lens.

Options Menu

In addition to the standard Options menu commands, the Glass Lens Options menu contains two lens-specific commands, Black Background and Toggle Backlight.

Black Background

When this command is selected all non-sphereized areas of a rectangular selection will be rendered in black.

Toggle Backlight

When selected, this command causes your light source to strike the "back" of the lens, creating a nice backlighting effect. Pressing and dragging in the Preview Window will then move the lightsource along the back of the lens.

The KPT Page Curl interface (top), and a sample of artwork created with the Page Curl plug-in.

KPT PAGE CURL

The Page Curl plug-in provides you with an interactive environment for "curling" the corners of selected areas of your image. In it's previous incarnation, the corner to be curled and the direction that you wanted to curl it in were controlled with a combination of numeric keypad and Caps Lock key settings. By including Page Curl in the Compact UI set of plug-ins, we've provided you with an intuitive environment for creating the "curl" of your dreams.

Mode Panel

The two choices in the Mode Panel, Use Foreground Color and Use Background Color, simply let you choose whether the area revealed by curling the page will be filled with the host application's foreground or background color.

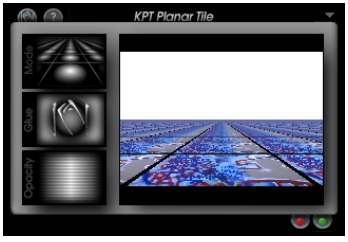
Preview Controls

Surrounding the Preview Window are eight grey arrows which allow you to choose not only the corner to be curled, but the direction that you want the curl to follow. By pressing on any of these arrows and dragging the mouse you can set the origin, direction, and amount of curl to be applied, all in realtime.

The Page Opacity swatch, in the lower left corner of the Preview Window, lets you adjust the opacity of the image under the curl. It is set to 0% by default (so that you foreground or background color shows under the curl), but you can increase the opacity by pressing on the swatch and dragging to the right. Dragging to left again decreases the opacity.

Options Menu

The Page Curl Options menu contains only the three standard options, About KPT 3.0, Preferences, and Reset to Normal. There are no options that are specific to the Page Curl plug-in.



The KPT Planar Tiling interface (top), and a sample of artwork created with the Planar Tiling plug-in.

KPT PLANAR TILING

New to version 3 of Kai's Power Tools, KPT Planar Tiling is a single-step, interactive tool for creating infinitely tiled planes. This effect can be used to create infinite ground planes with either a head-on or perspective view, perfect for creating backgrounds for composited images.

Mode Panel

The Mode panel in KPT Planar Tiling lets you switch back and forth between the Parquet Tiling and Perspective Tiling modes.

Parquet Tiling

Parquet Tiling simulates a head-on view of your infinite plane of repeating tiles. With parquet tiling you can adjust the distance and rotation of your plane.

Perspective Tiling

Perspective Tiling simulates a perspective view of your infinite plane, as if the plane were tilted down from the viewer's perspective. With perspective tiling, you can specify the angle and amount of slant given to the plane.

Preview Controls

For both the Parquet and Perspective Tiling options, the Preview Window gives you bi-directional control (i.e., dragging vertically controls one parameter, while dragging horizontally controls another).

For Parquet Tiling, dragging the mouse up increases the scale of your plane (increasing the size of the individual tiles), and dragging down decreases the scale. Dragging left rotates your plane counterclockwise, and dragging to the right rotates it clockwise.

For Planar Tiling, dragging the mouse up lowers the perspective, and dragging the mouse to the left or right slants the plane in the opposite direction.

Options Menu

The Planar Tiling Options menu contains only the three standard options, About KPT 3.0, Preferences, and Reset to Normal. There are no options that are specific to the Planar Tiling plug-in.

The KPT Seamless Weld interface (top), and a sample of artwork created with the Seamless Weld plug-in.

KPT SEAMLESS WELDER

The KPT Seamless Welder plug-in is an invaluable tool for creating seamless tiles, which can be used for making desktop patterns, bump maps for 3-D applications, textile and paper designs, and a host of other decorative and creative endeavors.

Seamless Welder does its job by reading information from outside of your selection, moving it to the opposite side, flipping it, and blending it with the edge of your selection. This process creates a tile that, when placed next to other such tiles, appears to blend seamlessly one into the other.

Note: Seamless Welder reads information from outside of your selected area. Make sure to leave some room (at least 10% of the selection size) between the outside of your selection and the edge of your image.

Mode Panel

The Seamless Welder Mode Panel lets you switch between the two types of welds, seamless and reflective.

Seamless Weld

The default type of weld, Seamless Weld reads information from outside of your selection, as described above.

Reflective Weld

If you choose Reflective Weld, your tiles will be created by reflecting information from inside of your selection, rather than blending information from outside of your selection.

Preview Controls

Pressing in the Preview Window and dragging to the right will increase the intensity of the Seamless Welder effect, while dragging to the left will decrease the intensity.

Options Menu

In addition to the standard options, the Seamless Welder Options Menu includes a Preview Edge Matching command, which lets you preview a four-tile version of your selection, enabling you to get a better idea of how your edges will look when your tiles are placed next to each other.

The KPT Twirl interface (top), and a sample of artwork created with the Twirl plug-in.

KPT TWIRL

KPT Twirl is our version of the twirling filters found in many host applications and third-party modules. The two factors that distinguish KPT Twirl from the rest are the realtime interactive previewing capabilities, and the superfast apply speed. (Not to mention the kaleidascope mode, which we haven't seen anywhere else.)

Mode Panel

The two modes in KPT Twirl are Twirl (the default) and Kaleidascope.

Twirl

The Twirl mode gives you a smooth swirling effect within the selected portion of your image.

Kaleidascope

The Kaleidascope mode divides your selection into a number of "slices," within each of which your image can be rotated to create an amazing variety of possible image effects, much like an actual kaleidascope.

Preview Controls

When in the Twirl mode, pressing in the Preview Window and dragging left or right lets you adjust the direction and intensity of the swirling effect.

When in the Kaleidascope mode, pressing on the Preview Window and dragging up will increase the number of slices, while dragging down will decrease the number of slices. Dragging left or right will change the angle of the image within each slice.

To constrain the mouse movement to either the vertical or horizontal axis, just hold down the Option key (for only vertical movement) or the Control key (for only horizontal movement).

Options Menu

The Twirl Options menu contains only the three standard options, About KPT 3.0, Preferences, and Reset to Normal. There are no options that are specific to the Twirl plug-in.

The KPT Video Feedback interface (top), and a sample of artwork created with the Video Feedback plug-in.

KPT VIDEO FEEDBACK

The KPT Video Feedback plug-in is new to version 3 of Kai's Power Tools. Video Feedback recreates the effect of aiming a video camera at a monitor which is displaying the video camera's output, creating an endlessly repeating image which disappears into itself.

Mode Panel

In KPT Video Feedback there are two different mode which can be accessed from the Mode Panel, Video and Telescopic Feedback.

Video Feedback

The default setting, Video Feedback, gives you repeating rectangular images.

Telescopic Feedback

Telescopic Feedback simply gives you repeating elliptical images, rather than the rectangular ones created by the Video Feedback option.

Preview Controls

Pressing and dragging in the Preview Window lets you change the origin of the feedback effect.

Feedback Intensity

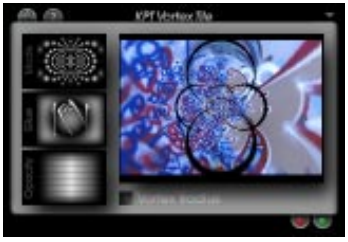
Pressing on the Intensity control and dragging to the right will increase the intensity of your feedback, giving you more repeating images

Angle

Pressing on the Angle control and dragging to the right increases each successive image's angle relative to the preceding image. Higher angle values give your feedback a more "twisted" look.

Options Menu

The Video Feedback Options menu contains only the three standard options, About KPT 3.0, Preferences, and Reset to Normal. There are no options that are specific to the Video Feedback plug-in.



The KPT Vortex Tiling interface (top), and a sample of artwork created with the Vortex Tiling plug-in.

KPT VORTEX TILING

Vortex Tiling is a singular effect which can create amazing tiling effects. The explanation of how it works definitely doesn't do justice to the effect that is produced, so read on, but dive deep into this particular plug-in.

The Vortex Tiling plug-in imagines that there is a circular area within your selection. It then swaps the image within the circle for the image outside of the circle, and tiles the result into the ensuing vortex, smoothly interpolating the whole thing.

Mode Panel

The Mode Panel in Vortex Tiling contains two modes, Normal Vortex and Pinch Vortex.

Normal Vortex

Normal Vortex is the default mode and creates a vortex as described above.

Pinch Vortex

Rather than creating a vortex by swapping the inside area of an imaginary circle with the outside, Pinch Vortex actually sucks your image into and through itself. [more] This is illegal in many states in the U.S.

Preview Controls

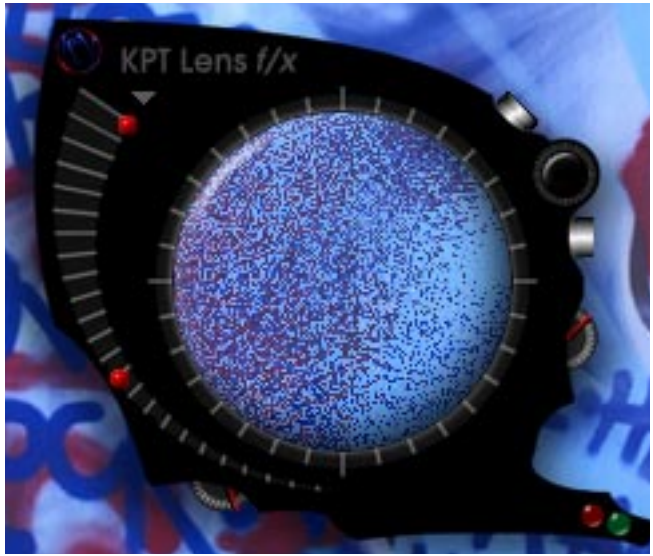
Pressing and dragging in the Preview Window lets you move the centerpoint of your vortex within your selection.

Vortex Radius

The Vortex Radius control, located just below and to the left of the Preview Window, lets you adjust the intensity of the vortex. Pressing on the Vortex Radius control and dragging to the right will increase the radius of the vortex (to 100), increasing the intensity of the vortex effect. Dragging to the left decreases the radius (to -100) which can give you a very different vortex from one with a radius of 100. As you approach 0 (from either 100 or -100) the intensity of your vortex decreases.

Options Menu

The Vortex Tiling Options menu contains only the three standard options, About KPT 3.0, Preferences, and Reset to Normal. There are no options that are specific to the Vortex Tiling plug-in.

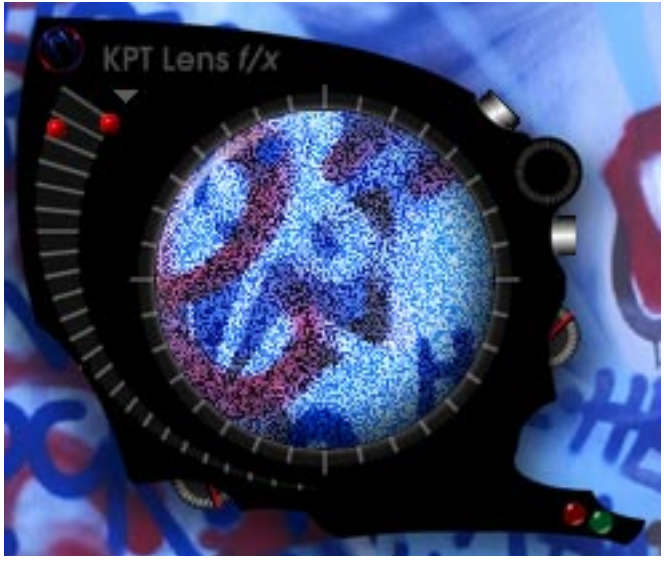


The Lens f/x UI

As mentioned earlier, all of the old "one-step" filters have been given interfaces and additional capabilities in version 3 of Kai's Power Tools. Many of these one-step filters have been reincarnated as Compact UI plug-ins, and have been described in the previous section. All of the rest of the one-step filters (as well as some brand new effects) now appear as Lens f/x plug-ins, and are described in this section.

The distinguishing trait that decided whether an effect lent itself more truly to a Compact UI implementation or to a Lens f/x implementation was how the effect affected the image. If the effect was selection-based (such as a glass lens applied to a specific area of an image), it appears as a Compact UI plug-in. If the effect was pixel-based (such as a blur or noise, which modifies individual pixel values), it appears as a Lens f/x plug-in.

As with the Compact UI plug-ins, the Lens f/x plug-ins allow you to preview your effect before applying it. The coolest thing about the Lens f/x interface, though, is that you can preview different areas of your image by dragging the interface around on the screen. In fact, you can preview different areas of your entire screen, including menu bars, tool palettes, and icons, by dragging the Lens f/x interface around.


KPT Lens f/x

COMMON ELEMENTS

While each of the plug-ins that use the Lens f/x interface have different options and parameters that can be set, they all share certain common interface features, as described below.

Intensity and Opacity Controls

Along the left side of the Lens f/x UI is a set of grey hash marks with red balls on either side. The red ball to the left of the hash marks controls effect intensity, while the red ball to the right of the hash marks controls effect opacity. Pressing on either ball and dragging up increases the intensity or opacity (to 100%), and dragging down decreases intensity or opacity (to 0%).

Direction Control

Some of the effects that can be created within the Lens f/x UI, such as smudges and drips, can be applied in a particular direction. When this is the case a third red ball will appear around the circular preview lens. Pressing on this ball and dragging in any direction will let you specify the direction of the current effect.

Lens f/x Menu

Pressing on the "Lens f/x" text near the top of the UI, or on the down arrow symbol just under the text, activates the Lens f/x menu, which allows you to switch between the different Lens f/x effects without having to exit the UI.

The Lens f/x menu contains the About KPT 3.0 and KPT 3.0 Help commands (for accessing the credits screen and the online help system) as well as commands for all of the effects that can be created from within this UI. Detailed descriptions of each of these effects are provided immediately following this "Common Elements" section.

Preview Button

The topmost silver button on the right side of the UI is the Preview button, which lets you toggle between the Lens f/x UI's two preview modes. One preview mode displays the center of your selection in the preview lens, while the other lets you view that portion of your image (or desktop, menu bar, or trash can) that is directly under your preview lens.

Options Gauge

The gauge just below the Preview Button is the Options Gauge which, when pressed, presents you with a pop-up menu of options for the current effect. If this gauge is inactive (i.e., there is no highlight on the gauge), then there are no options for the current effect and this gauge is not used.

Reset Button

The lower of the two silver buttons on the right side of the UI is the Reset button. Clicking on this button resets all controls to their default setting.

Glue Gauge

The gauge below the Reset button is used to select which apply mode you want used when your effect is applied with the source image. Pressing on this gauge produces a pop-up menu of different apply modes. Clicking on this gauge cycles you, one by one, through all of the different apply modes.

For explanations of the different apply modes, refer to the Apply Modes section on page 37.

Mode Gauge

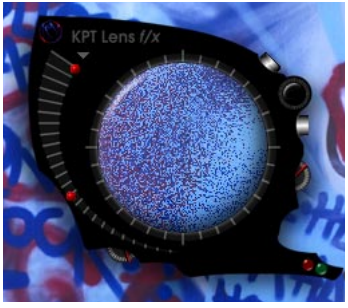
The gauge at the bottom of the Lens f/x UI is the Mode gauge, which lets you choose which mode, or "flavor" of the current effect you want to use. Pressing on this gauge produces a pop-up menu of available modes, while clicking on the gauge cycles you through all available modes.

Label Area

Near the bottom-right of the Lens f/x UI is the label area, where labels appear to identify the user interface elements as you move the mouse over them.

Cancel and Apply Buttons

In the far lower, right-hand section of the Lens f/x UI are two "lights," one red and one green. The red light is the Cancel button, exiting the Lens f/x UI without applying changes to your selection. The green light is the Apply (or Accept or OK) button, which exits the Lens f/x UI and applies the effect to your selection using the specified settings.



The Pixel f/x implementation of the KPT Lens f/x plug-in.

KPT PIXEL F/X

This plug-in treats the pixels within your image as individual grains of sand, which can be scattered or mixed up as if blown about by wind and weather.

KPT Pixel f/x combines all of the functionality of the following filters from previous versions of Kai's Power Tools: Scatter Horizontal, Diffuse More, PixelWind, PixelBreeze, PixelStorm, plus enhanced directional controls, channel operations, and intensity and opacity controls.

Modes

There are three different modes within Pixel f/x which can be accessed from the Mode gauge: Diffuse More, PixelWeather 1 and PixelWeather 2.

The Diffuse More mode scatters your pixels randomly. PixelWeather 1 and PixelWeather 2 scatter your pixels, but in a more controlled fashion, with PixelWeather 2 being a more powerful version of PixelWeather 1.

Options

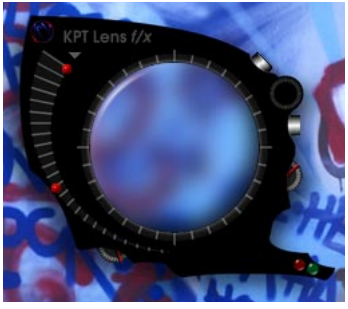
When using Pixel f/x, the Options gauge is active allowing you to choose between Unidirectional, Bidirectional, and Omnidirectional effects.

With the Omnidirectional option selected (as it is by default) your pixels will be scattered in all directions. Unidirectional scatters your pixels in only one direction, as if your pixels were scattered by a breath of air in a set direction. Bidirectional scatters your pixels along an axis. With Unidirectional and bidirectional, a direction control ball appear on the rim of the preview lens.

KPT GAUSSIAN F/X

Gaussian blurs are blur effects that can produce low-frequency, detailed blurs with a slight glowing effect. In addition to a standard Gaussian blur, you can also use the Gaussian f/x plug-in to create Gaussian weaves, blocks, and diamonds.

KPT Gaussian f/x combines all of the functionality of the following filters from previous versions of Kai's Power Tools: Gaussian Glow, Gaussian Weave, Gaussian Blur Large Scale, plus new Gaussian Blocks and Gaussian Diamonds, channel operations, and intensity and opacity controls.



The Gaussian f/x implementation of the KPT Lens f/x plug-in.

Modes

The Gaussian f/x effect has four different flavors which can be accessed from the Modes gauge: Blur, Weave, Block, and Diamond.

The Blur mode produces a standard Gaussian blur. Weave and Block produce two different types of perpendicular extrusion effects, creating the appearance that you image is somehow woven together of pale, blurred tendrils. The Diamond option produces a beautiful diamond-shaped blurring effect, perfect for simulating a starry sky or teary-eyed view of your image.

The Edge f/x implementation of the KPT Lens f/x plug-in.

KPT EDGE F/X

Edging filters find and/or outline the edges of an image based on contrasting pixel values. The effects possible with the Edge f/x implementation of the Lens f/x plug-in start with this basic premise, but take it to the extreme.

KPT Edge f/x combines all of the functionality of the following filters from previous versions of Kai's Power Tools: Find Edges Soft and Find Edges Charcoal, plus new Find Edges Directional, directional controls, channel operations, and intensity and opacity controls.

Modes

Pressing on the Mode gauge will reveal a pop-up menu from which you can select Normal edges, Soft edges, or Directional edges.

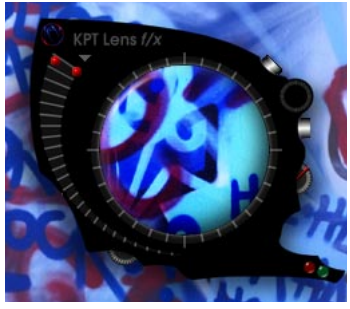
Normal and Soft edges give you two different options for the way you want your edge effect to look, with Soft being a much more muted look.

The Directional mode produces a directional control ball at the perimeter of the preview lens which can be used to change the angle of the edge effect.

KPT INTENSITY F/X

Use this filter to quickly and easily punch up the intensity and saturation of the colors in an image. While not a comprehensive color-correction tool, the Intensity f/x plug-in is a great starting point for modifying scanned images or any other files that need a little help.

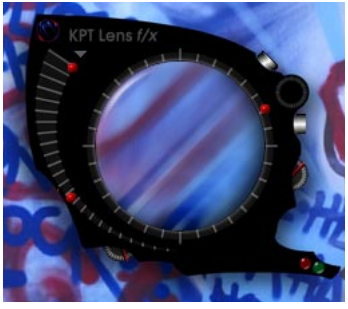
KPT Pixel f/x combines all of the functionality of the following filters from previous versions of Kai's Power Tools: Sharpen Intensity and Fade Contrast, plus channel operations, and intensity and opacity controls.



The Intensity f/x implementation of the KPT Lens f/x plug-in.

Modes

There are no Mode choices with the Intensity f/x plug-in. Just adjust the intensity as desired and click the Apply button. That's all there is to it!



The Smudge f/x implementation of the KPT Lens f/x plug-in.

KPT SMUDGE F/X

The Smudge f/x plug-in creates directional motion blurs that creates multi-level blur/blend combinations to create a smudge effect. In addition to smudging, the Smudge f/x plug-in will also let you create cool dripping effects in various colors.

KPT Pixel f/x combines all of the functionality of the following filters from previous versions of Kai's Power Tools: Smudge Darken Left, Smudge Darken Right, Smudge Lighten Left and Smudge Lighten Right, plus enhanced directional controls, channel operations, and intensity and opacity controls.

Modes

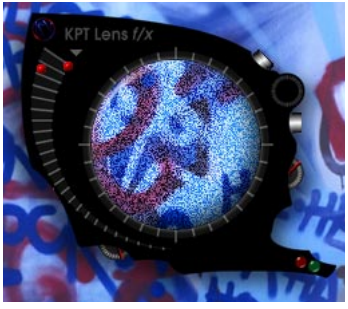
The Smudge f/x plug-in has two different modes: Smudge and Drip. Smudge works as described above. The Drip mode takes a user specified color in your image and smears it in a user-specified direction.

Because both the Smudge and Drip modes are directional, a red, direction control ball appears at the perimeter of the preview lens. In addition, the Drip mode is color-specific, so when you are in the Drip mode the Options gauge (between the silver Preview and Reset buttons) functions as a color picker. Press on the Options gauge and drag the eyedropper cursor to any color within the color picker (or anywhere else onscreen) to select a color to be smeared.

KPT NOISE F/X

The Noise f/x plug-in can be used to create subtle, textured effects by randomly dithering pixels with dark noise, colored noise, or random noise within a "protected" range of colors.

KPT Noise f/x combines all of the functionality of the following filters from previous versions of Kai's Power Tools: Grime Layer, Hue Protected Noise Minimum, Hue Protected Noise Medium, Hue Protected Noise Maximum, Special Red Noise, Special Green Noise, Special Blue Noise, plus enhanced color control, channel operations, and intensity and opacity controls.



The Noise f/x implementation of the KPT Lens f/x plug-in.

Modes

The three modes within the Noise f/x plug-in are Hue Protected, Grime Layer, and Special Color.

The Hue Protected mode is identical to the old Hue Protected Noise set from previous versions of Kai's Power Tools. Hue Protected Noise is similar to the noise filters in some host applications, except that the hue values of the noise pixels are constrained within a certain range, so that instead of random, multicolored pixels, your noise pixels are closely related (in hue) to your source pixels, giving a very subtle effect.

Grime Layer adds dark noise to your selection. Repeated applies of this effect can create interesting images, and is a great way to create a "starry night" effect.

The Special Color mode lets you select a color for your noise. When this mode is selected, the Options gauge acts as a color picker which can be used by simply pressing on the gauge and dragging to the desired color.

KPT METATOYS F/X

The KPT MetaToys f/x is a version of the KPT Lens f/x interface for accessing the Glass Lens and Twirl effects within the Lens f/x UI. These effects are identical to the what can be created with the KPT Glass Lens and KPT Twirl plug-ins (which use the Compact UIs). The lens metaphor doesn't really fit these two effects, since they are applied to the selection, rather than to individual pixels within the selection. These effects are included in the MetaToys f/x plug-in because, while not really appropriate for a lens metaphor, it looks really cool to drag the Lens f/x UI around to see what different parts of your screen look like swirled or under a glass lens.

After selecting KPT MetaToys f/x, use the Lens f/x pop-up menu to choose either Glass Lens or Twirl.

KPT GLASS LENS F/X

Selecting the Glass Lens f/x option from the Lens f/x menu lets you create a glass lens effect within your selection. Keep in mind that this glass lens effect will be applied to the entire selected area, not just to the area under the preview lens.

Modes

The Glass Lens effect has three different modes, Soft, Normal, and Bright, which can be accessed from the Mode gauge. These choices refer to the way that light appears to interact with your "lens." A little experimentation will quickly reveal which of the three modes will work best for a particular image.

Options

The two choices accessible from the Glass Lens options gauge are Frontlight and Backlight. Frontlight is the default selection, and creates a normal glass lens effect, with your lightsource striking the front of your lens. When Backlight is selected, your lightsource will strike the "back" of the lens, creating a nice backlighting effect. Pressing and dragging in the Preview Window will then move the lightsource along the back of the lens.

KPT TWIRL F/X

The KPT Twirl f/x implementation of the KPT Meta Toys f/x plug-in creates swirled or kaleidascoped images in exactly the same manner as the KPT Twirl compact UI plug-in. Twirled and kaleidascoped effects look extraordinarily cool under the Lens f/x preview lens, even though the effect will not be applied as shown. As mentioned earlier, the effect will be applied to the entire selected area. Still, if you're looking for a quick, impress-your-friends trick with KPT 3, this should fill the bill.

Modes

The two modes in KPT Twirl are Twirl (the default) and Kaleidascope.

The Twirl mode gives you a smooth swirling effect within the selected portion of your image, while the Kaleidascope mode divides your selection into a number of "slices," within each of which your image can be rotated to create an amazing variety of possible image effects, much like an actual kaleidascope.

In Closing

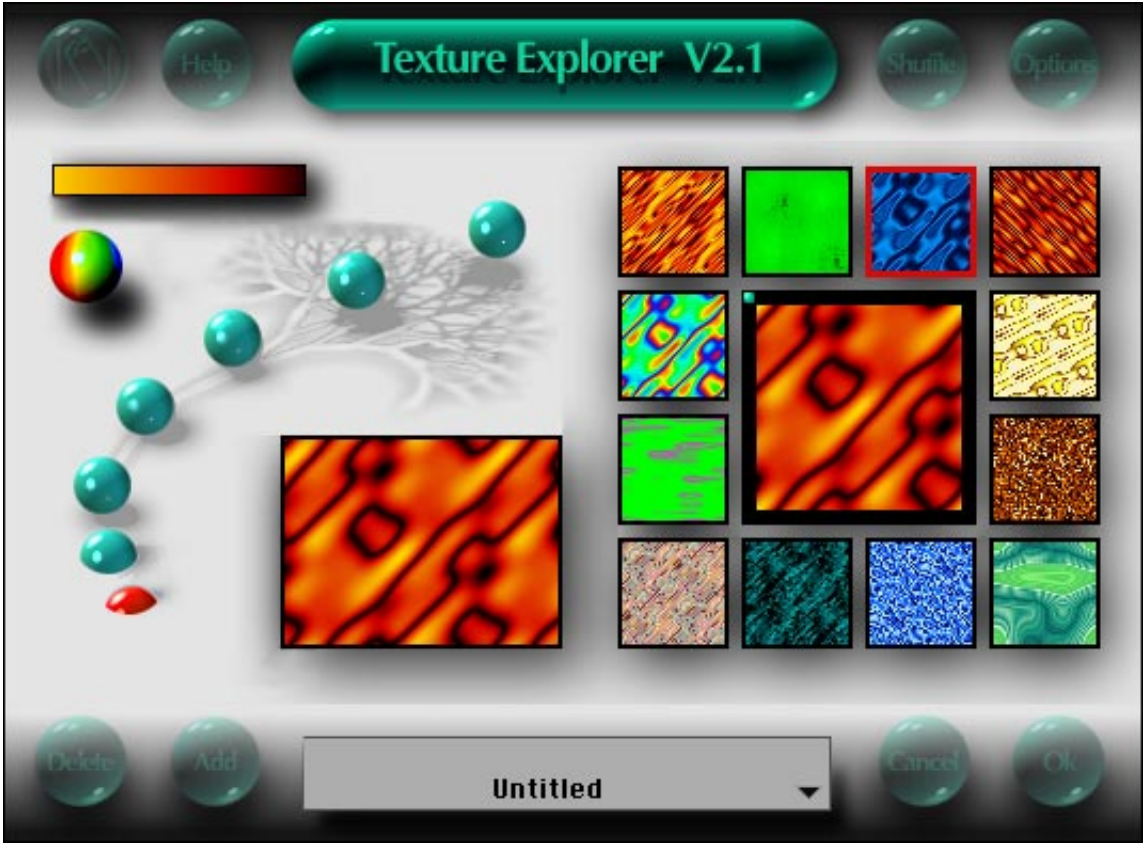
CLASSIC KPT

In addition to all of the incredibly cool features of version 3 of Kai's Power Tools, we've also included two plug-ins from Kai's Power Tools 2.1. These two plug-ins are KPT Texture Explorer 2.1 and KPT Fractal Explorer 2.1.

KPT Texture Explorer 2.1 is included for two reasons. First, the textures within KPT Texture Explorer 2.1 were not infinite like those in version 3, and so could be tiled to create repeating patterns. If this is something that you want to do, you can use the 2.1 version of Texture Explorer. The second reason for including the older version of Texture Explorer is also related to the new, infinite textures. Version 3 of the Texture Explorer cannot use presets from earlier versions, so if you have presets created with an older version of KPT, you will need the old version of Texture Explorer in order to use them.

KPT Fractal Explorer is a plug-in for creating images based on fractal mathematics. Fractals are mathematical occurring in nature that dictate seemingly random natural functions. Branches growing from trees, snowflake patterns, raindrops running down a windshield-these are all dictated by fractal mathematics. A key element of fractal mathematics is that the patterns repeat themselves endlessly as you examine them in greater and greater detail. In essence, a fractal is a way of describing infinite, repeating divisions of a finite surface. this will become more apparent as you play with the Fractal Explorer.

The following text is from the KPT 2.1 Explorer's Guide.


Texture Explorer V2.1
Help
Shuffle
Options
Delete
Add
Untitled
Cancel
Ok

KPT TEXTURE EXPLORER 2.1

Textures are 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." Now readily available, scanned marble, wood and stone have become common fare as backgrounds. The KPT Texture Explorer puts a new twist on this background texture movement.

Algorithmically Generated Textures

The Texture Explorer generates completely algorithmic mathematical output, there are no scans or pict files involved. It can render any texture it creates into the current window, selection, or feathered selection. Then use any of Photoshop or Painter's tools to further modify your textured image.

While the possible "space" of textures is vast, including a variety of natural components like woods, marbles, minerals, cloth, and clouds, the door opens to a much larger space of things not seen before, like plasma and fire and luminous blobs and alien hieroglyphs. These textures are not "scannable" since they do not exist as photographs.

The advantage to KPT's algorithmic approach is that by saving your textures as a mathematical algorithm, you aren't required to keep space-hogging bitmapped texture images on your system. Create a preset and render it to an image only when you need to.

Textures the Easy Way

Inside the heart of the Texture Explorer there are very complex math routines involving dozens of variables, parameters, and interactions. These include waves, frequency, corre-

lators, diffusions, distortions, stretches, squeezes, overlays, blends, multi layer combinations, twirliness and bumpiness, scale factors and constants, a dozen color control variables and looping, repeat, transfer modes, gradient indices, multiple alpha channels and so on. Each parameter and variable is a "gene" contributing to the final texture produced. To change the texture, mutate the genes! Our Gene mutation poses no threat to society; mutation is the way to navigate through a vast array of texture space.

Preview & Variations

You'll notice on the right of the Texture Explorer is a group of 12 small textures which surround the Current Texture. These 12 outer textures are varied on the fly every time a "mutation ball" is selected, or a new preset is chosen.

Clicking on any of the outer variant squares pops that particular texture into the middle, and the mutation process begins all over again around the outside.

The Composite Realtime Preview Window

To the immediate right of the Mutation Balls, you will see a window with the current texture in it, or, if you have chosen any Apply Mode other than "Normal Apply," you'll see portions of your Image Preview. The window updates according to the current texture and the current options for applying the texture. You'll be able to see instantly what any of the Apply Modes look like. Clicking and dragging directly in this window changes the placement of the texture.

There is an Enlarged Composite Preview in the Texture Explorer. It is accessed by clicking on the Current Texture Preview. The entire area of the Current Texture and Derivative Textures changes to one large preview area. The texture is shown applied to the selection according to the chosen Apply Mode and tiling size.

The Enlarged Composite Preview is ready for access when the little "LED" on the frame surrounding the Current Texture is green. When the light is red, it means that the Larger Composite Preview is still processing. If the image or selection is smaller than the Enlarged Composite Preview, the larger preview is not available, and the light will not show in the Texture Explorer Interface.

Combining Randomness with User Definition

A good way to begin is to divide the functions in the Texture Explorer into 2 categories: random and user-defined. The "randomizers" are the Gene Mutation Tree and the Color Mutation Ball. We'll describe them first. Then we'll jump off into areas that aren't random but are deliberately set by the user. The user-defined functions are Gradient Selection and Apply Options.

The Mutation Tree

The only control necessary for the process of exploring textures is the series of control points, represented by little balls ascending a tree. The lowest ball, partially in the ground, represents very little change. Rising higher on the tree approaches an abstract "mutation rate" of 100 percent. If we vary one percent of the genes in 100 parameters, that means in every generation, one number will have changed randomly, or "mutated."

The highest point creates vast change, or 100 percent mutation. Every time now that the Texture Explorer creates a derivative "cousin" of the current texture, it will vary every parameter by some random amount. The result: in one cycle you get 12 new textures that bear very little resemblance to the current one in the center.

What this is really doing (outside the mutation metaphor) is showing you random examples of textures, spread throughout the gigantic universe of possibilities. You get to see in random areas of the potential space what certain combinations can look like.

You can undo one step of mutation by typing -Z. The textures will revert back to the form they were in before the last round of mutation.

If you click on the lowest mutation ball you'll see another reason for the vastness: without changing a single gene or color, all you are doing is re-seeding the starting values of all our stochastics (read "random generators"). It's like buying a huge wallpaper of a texture and you see an inch section at a time. With every click in the center, just for that texture, you are looking at a new section of the wallpaper. You can do that 16 million times without repeating.

Color Mutation

The Color Mutation Ball has a special decoupled mutation function: it will keep all parameters of the texture frozen and simply change which colors are used. The Texture Explorer subscribes to the endless array of gradient presets that are available from the Gradient Designer. A quick click on the Color Mutation Ball will change gradients randomly in the variants surrounding the current texture. Typing -Z will undo the last round of color mutations.

If you make a puce-mauve-off-lilac-lime blend in the Gradient Designer, it will sooner or later show up in the color mutation process and completely redefine what happens to the current texture.

In fact, selecting different gradients can make it seem as though the variables have changed, since the way the blend is designed can have such an incredible effect on the outcome. If a blend is all black and has a little soft orange ridge at step 400-410, you will highlight a certain subrange in the texture and get certain orange swirls over black. Now if you change that in the Gradient Designer to the 300-320 step, you will see a totally different texture, possibly looking nothing like the same one with the previous blend.

Besides navigating into randomly colored textures by clicking on the Color Ball, you can directly access presets from the Gradient Designer. We've just leapt from the random area of Texture Explorer to the functions which are user-defined.

Holding down the mouse on the Gradient Preview (just above the color ball) will give you access to the hierarchical preset menu from the Gradient Designer. Like all the other Gradient Preset menus in the KPT U-I set, this menu allows you to choose a specific color gradient for your texture.

When you select a gradient, it will apply immediately to the current texture. The gradient preset which is currently being used for the texture will appear at the top of the list in grayed-out italics.

Besides choosing the specific gradient preset, you can scroll through the presets to get a feel for the range of coloring possibilities. Use the right or left arrow keys to move through the Gradient Presets starting from where it is in the current category– right arrow descends, left arrow ascends. As you scroll through the presets, observe how the the Gradient Preview, Current Preview and Composite Previews change.

The Texture Explorer, in the process of altering the parameters which make up a specific texture, may repeat or invert a gradient. If that is the case, then the Gradient Preview will be inverted or repeated (or both!)

The Mutation Balls and the Color Ball only affect the outer texture variations, whereas accessing the Gradient Presets applies the gradient directly to the current texture.

A little experimentation will show how easy it is to intelligently create gradients in the Gradient Designer for use within the Texture Explorer. Here are some loose guidelines: Complex blends will result in an abundance of detail. Simple blends will yield a smoother result, making for subtle shape transitions. Hard color shifts will create definite shapes.

Texture Protection

Texture Protection is a way to guard against the potential hazards of randomly generating textures. When you use the Texture Explorer, each time you mutate textures, you are jumping randomly into texture space. In other words, there is no guarantee that the same exact derivative textures will be rendered around the outside each time you start with, say, preset "A" and click the second ball from the bottom.

This means that there may be more than one derivative texture that you "just gotta have," and there's no certain way of going back to get those textures through the mutation process.

Here's where Texture Protection comes in. When you see more than one of the 12 outer textures that you like, you can "protect" one or more textures by option-clicking on it. A red frame will appear around the texture, indicating that it is protected. No other texture-changing operation can affect that texture, including a -Z "Undo."

When you click on the protected texture, it will pop into the center, while remaining in place as a protected texture on the outside perimeter. Option-clicking on a protected square will remove the protective frame.

You can also apply this kind of protection to the center texture. Option-clicking it will result in a red protective frame, just as with the outside ones. When you click on any of the outside derivative textures, the center and outside textures swap places. The new outside texture is framed in red, and the new center texture has the standard black frame. If you click on an outside square that has protection enabled, then the two textures swap places, and the center one remains protected

The protection lasts as long as you keep the protection square around the texture. So when you open the Texture Explorer the next time, the texture is still protected. Only by option-clicking a protected square will protection be removed.

Tiling Options

Tiling options are accessed when you click on the Current Preview Window. They are:

- Tile Size of Selection
- Tile Size 96 X 96
- Tile Size 128 X 128
- Tile Size 256 X 256
- Tile Size 512 X 512
- Tile Size 1024 X 1024

"Tile Size of Selection" will "stretch" the current texture to fit the current selection. If you have not made a selection, it defaults to the current image size. Try it at 25,000 pixels X 25,000 pixels at 1200 dpi!

The next option applies the texture as repeating seamless 96 x 96 pixel tiles. Other options recalculate the algorithm in larger seamless tiles: 128 X 128 pixels, 256 X 256 pixels, 512 X 512 pixels, 1028 X 1028 pixels.

The Current Preview Window's texture is based on the 96 x 96 pixel tile size. The Realtime Preview is, as well. The tile size used for the Realtime Composite Preview does not change when you change the setting. However, the change is reflected in the Enlarged Composite Preview.

Depending upon the type of work you're doing, tiling at larger sizes will come in handy. If you are creating high-resolution files for print work, for instance, 96 x 96 pixels may end up being too small. The detail of the texture will be lost. Selecting a larger tile size, say, 256 x 256, will enable the detail of the texture to show up when an image is around 300 pixels per inch.

In fact, for this Explorer's Guide, we created our images at 288 ppi. Look at the samples for different tile sizes to see how they reproduce in a higher resolution situation.

3D Stereo Noise Apply

This option, named "Weiss Noise" for Ben Weiss, the inventor, applies your current texture as the seed for a 3D Stereo Noise effect. Now you can take any texture (rather than just gray or colored noise) and apply it to an image for the 3D Stereo effect, and even if you can't see 3D Stereo images, it will still look cool! Note that all other options remain in effect, so if you choose "3D Stereo Noise" apply with "Difference" chosen, it will give you the difference between the 3D Stereo Apply and the image already there. Generally you'll want to have "Normal Apply" chosen, although the others are worth experimenting with.

The Options Menu

When you click on the Options Button, a pop-up menu gives you choices from two sections to allow for Apply Mode and Test Image options. Please refer to the "KPT U-I Filters Introduction" for explanation of the Apply Modes.

A Preferences dialog for the Texture Explorer can also be accessed through the Options Button.

Transparency

The Options Menu has a toggle switch which allows you to view and apply the textures with transparency. The transparent section corresponds to whatever portion of the gradient (from Gradient Designer) is transparent. The transparent portions are represented by a fine gray screen. -T is the keyboard command for transparency while you are in the Texture Explorer.

Shuffle Button

For all the other User Interface filters, the Shuffle Button randomizes the process to explore other options. Since the Texture Explorer's very nature is random exploration, the Shuffle button provides a little twist: you can customize what you mutate! The various parameters which go into mutating textures can be selected from this list. When you click on the Shuffle Button, the mutation process occurs around the outside 12 textures, the same as with the Mutation Tree. Customized parameters chosen under this menu have no effect on mutation with the Mutation Tree.

Keyboard Shortcuts: Undo/Redo

If you want to undo one round of Texture Explorer previews, type Cmd-Z. All 13 textures will revert to the previous set. Toggle between the two sets by typing Cmd-Z repeatedly. Undo will not affect any textures that have been "protected." (Those are the textures around the outside that have a red frame around them.)

Keyboard Shortcuts: Arrow Keys

To cycle through the presets in a category, you can use the arrow keys. the up and down arrows pertain to the Texture Explorer Presets, whereas the right and left arrows navigate through the Gradient Designer Presets. For the sake of simplicity, TE will indicate Texture Explorer, and GD will indicate Gradient Designer.

To navigate to:	Use these keys
Next TE preset	down arrow
Previous TE preset	up arrow
Next GD Preset	right arrow
Previous GD Preset	left arrow
Next TE category	Option+Page Dn
Previous TE category	Option+Page Up
First TE preset/category	Option+Home
Last TE preset/category	Option+End

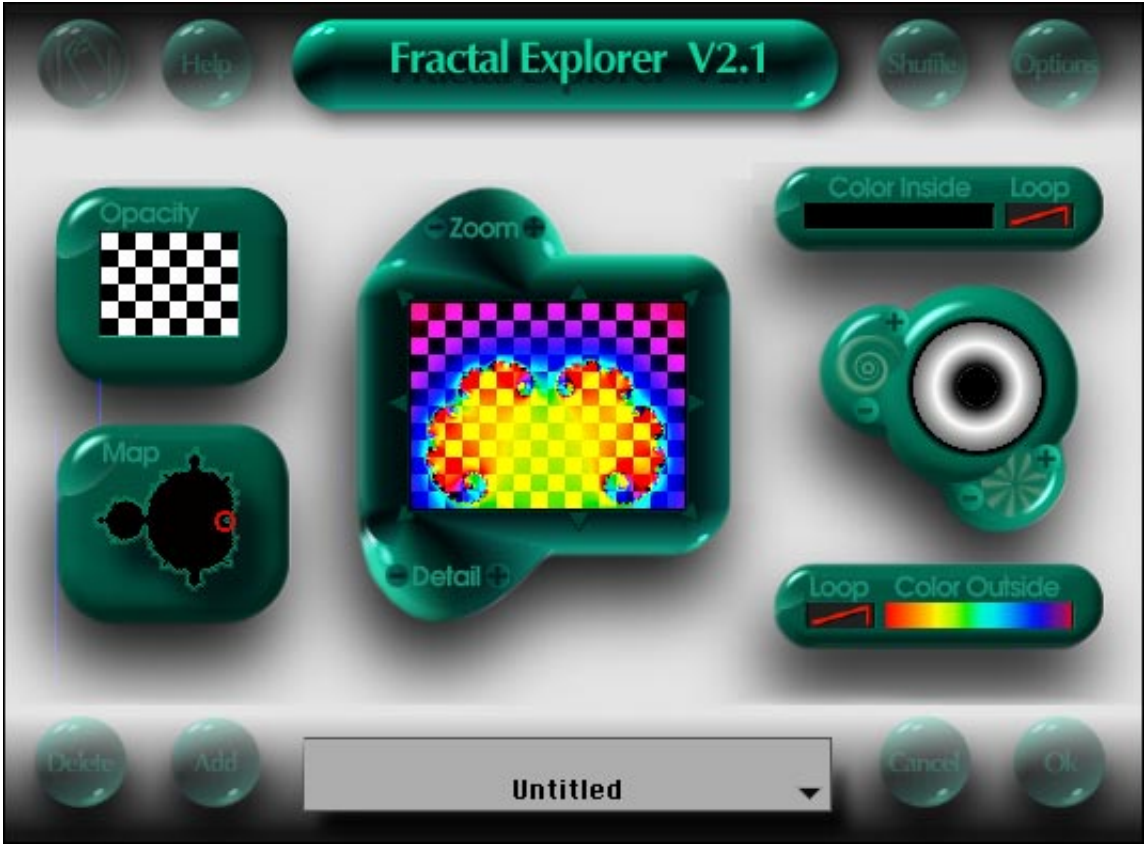
Global Transparency

Holding the number keys down when applying the filter will vary the transparency. The number keys 1…0 correspond to opacity, with 1 representing 10% , 5 representing 50% and 0 representing 100%. The number keys modulate global transparency (applied on top of whatever transparency the original texture contained) and works in all apply modes. Try holding down '6' while procedurally blending a texture onto "KPT Face to apply Textures.pict" (aka "Cyberbabe"). Much clearer 3D features are retained this way than when you use the full 100% procedural apply.

Caps Lock

With Caps Lock enabled, you will override the Tile Size setting under "Options" to be "Tile Size of Selection". However, the other aspects of apply (i.e. Difference, Transparency) will not change from the previous settings. So, if you have a white selection chosen and you use Screen, Add, or Procedural Blend with Caps Lock enabled, nothing happens. Why? Because that is the way those particular modes work with white. The thing to remember is the Preview Window will show you the effect, but will only apply to your selection. If by chance you have a selection that's smaller than the

Preview Window, it will be in the center, and default to a square surrounded by black.. Changing the Options to a different type of apply will show the effect on the black as well, but will not apply to anything outside of the selection. Go to "Options" to change the settings and they are updated in the Preview Window. The main use for Caps Lock is to give the user a quick way to turn off any tiling, but leave the apply mode untouched.


Help
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Color Inside
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Map
Detail
Loop
Color Outside
Delete
Add
Untitled
Cancel
Ok

KPT FRACTAL EXPLORER 2.1

Another major centerpiece of the KPT collection is a filter which creates and explores Julia and Mandelbrot Set fractals. For those who have not played with fractals, this will be an enjoyable, almost game-like, exploration of the space. Those familiar with fractals will welcome the easy interface and its placement inside Photoshop and Fractal Design Painter, so the output can be immediately manipulated with the tools of the application.

The fractal filters subscribe "lego block" style to the Gradient Designer blends—including the opacity alpha channel. The filter wraps the 24-bit blends around the Julia and Mandelbrot Sets, with control over looping, repeat count, and spiral angle settings.

As a plug-in for Photoshop and Painter, this is a source for fractal backgrounds, blends, and textures, taking advantage of Photoshop and/or Painter for very powerful post-processing.

Exploring Fractals

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

Special Features of KPT's Fractal Explorers

The Fractal Explorer will not only provide access to all parameters necessary to locate any published Julia or Mandelbrot Set, but also extend the vocabulary and complexity of the images with revised algorithms and proprietary extensions.

Specifically:

The color scheme is executed in full smooth 24-bit, rather than the 8-bit dwell band approach of many other programs.

The colors are taken from the complex gradients created in the KPT Gradient Designer, featuring up to 512 key colors which are interpolated at 2,000 lines, with looping controls, continuous transparency, etc. Not only can the fractals be rendered with colors from any of the gradients, but with the apply options, you can do special blends and channel calculation applies as well.

A new algorithm allows the rare case of coloring the interior of the set in addition to the exterior and, better yet, is able to utilize separate color blends for each!

In addition to the standard "equipotential" lines the algorithm can also resolve the field lines which run perpendicular outward towards infinity.

There are separate variables for the number of the field gradients and a powerful twist parameter that can vary from concentric circular modes all the way to tightly wrapped spiraling around the sets.

With these new methods, a variety of never-seen-before pictures are at your disposal. The presets supplied indicate a mere preview of the dynamics inside this most complex space.

Fractal Explorer Controls

Preview Window

The Preview Window shows what the final rendered image will be. The preview is generated by iteration so that a rough idea is visible in about a quarter of a second, with three steps of increasingly defined previews. Repeat clicks pre-empt the computation.

This allows extremely fast exploration of the space. Color choices are instantly mapped into the set.

Depending on what type of apply mode you select, you can see how the particular fractal you're working with will behave with a sample selection, or with any of our sample images. (see the chapter entitled "KPT U-I Filters Introduction" for a complete explanation of the apply modes.)

Opacity Selector

The Opacity Selector controls the view of the underlying image. It is useful when you have transparency or a special apply mode as part of your fractal. Click on it to select a sample Test Image, or a sample of your current selection.

Fractal Map

Navigate through Fractal Space using the Fractal Map. For every point on a Mandelbrot set, there is a corresponding Julia Set Space.

Click on the Black portion to access the pop-up menu. In that, you can select different fractal types: Mandelbrot, Julia, Julia II and Julia III and Mandelbrot-Julia Hybrids I and II.

Using the Command key, click and drag the small circle around the map area and watch in the preview area to see how the mapping changes. Each point on the Map corresponds to a different mathematical equation. Every equation describes a different fractal shape. As you move around the Map, the different fractal shapes are rendered on the fly in the Preview Window. (in the first version of the Fractal Explorer, you could set these numbers manually. But it would take a bizillion hours with the numbers to intelligently explore all the areas of Fractal Map Space that you can now easily navigate by dragging the small circle around!)

When you're in the Standard Mandelbrot Set, the set resembles the shape on the Fractal Map (when you're zoomed out).

Zoom Controls

Fractals have a marvelous characteristic: The deeper you go into them, the more detail you will find. Sometimes the shapes will be self-similar (the deeper you go, the samer it gets). Other times the shapes branch out into other variations as you look deeper in the set. Finding which kind of fractal does what is part of the fascination of exploring fractal space.

The Zoom Controls on the top of the Preview Window Frame allow centered zooming; clicking on the Preview Window enables zooming directly.

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

Any time your cursor is over the preview window, the arrow changes to a magnifying glass with a plus. Click on the spot you want to magnify inside the Preview Window. It will zoom in and make that spot the new center of the preview. Holding down the option key changes the magnifying cursor to "magnify-minus." Clicking with the option key held down will zoom out from that point.

Panning Control

The Panning Control allows 360° continuous panning of the Set through the Preview Window. Pan size increments can be set in the Preferences Dialog.

How to Pan

You will often find interesting regions and features. To position them "just so," you need to scroll around with the pan control.

On the outside edge of the Preview Window are small arrows. Click on any of the 8 arrows to move about as you would expect: to see a little more what's above the current picture, click on the UP arrow and a new section will come into view. You don't need to click exactly on the arrows, however. Clicking anywhere on the frame surrounding the preview will pan the fractal in that direction.

Panning is a Drag

There is a second, more intuitive way to pan around the fractal set. If you click directly on the preview and hold there for a second, the cursor changes to a small hand icon. At that point, you can drag the fractal around in the preview window for precise positioning. You needn't limit yourself to dragging within the preview area. Drag as far away as your screen will allow!

Detail Settings

Increasing the detail settings on any fractal set will give you the the ability to discern small changes, particularly inside the set's interior. The higher you set the detail, the more computational time is required.

What's happening behind the scenes is the iterative process to find the color for each pixel. This is determined by the Fractal Set formula expressing whether a given point belongs to the set or not and is colored in accordance with its potential to fall toward so-called "attractors" inside the set.

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.

You might note certain speed differences between presets. Many of examples will use closed sets and only one gradient. Here, lower detail settings are used, whereas other examples show very deep zoom levels and subtle details near the attractors. To resolve any dynamics at deep zoom levels, it's necessary to increase the detail setting accordingly.

Gradient Preview/Pop-Up Menu

On the right hand side of the Fractal Explorer dialog box, there are two gradient previews/pop-up menus. The top one governs the interior of the set, and the bottom one governs the exterior of the set (most often that is the dominant area, in most other programs the only area).

The pop-up menu for gradients is the same menu that's used by the Gradient Designer, complete with hierarchical categorization of gradient presets. (for more information about this, see this section in the chapter on the Gradient Designer) 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

Not only can a Fractal Set be colored with any particular gradient of your choosing, but you can control 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° 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. Some combinations of the settings will render lines that go straight out, others will wrap a spiral around the set, and still others will create concentric circular bands of blends.

Manipulating just these two controls will give you a ridiculously wide range of image variance. Simply click on the "+" and the "–" controls on either side to change the wrapping values. To "zero out" either one, click in the middle of the spiral or spokes.

The Spoke setting affects only the outside of the set, while the Spiral value also impacts the interior detail.

Setting the Spoke's Radial Frequency to anything other than zero may make the fractal image vulnerable to pixellation or other artifacts at certain regions of unfilled sets. The

variety and unusual nature of the images makes it well worth accepting the limitations of computability. If you find a region with artifacts, either look elsewhere or try to "close the set" by moving the map setting away from the center of the Map. Or, if all else fails, you can use Photoshop's or Painter's tools to spot clean the final image.

About the Presets

There are a large number of presets and you can add or delete as you wish. All parameters and settings are remembered including the named gradients!

The names are a little crazy sometimes, but they help you to remember what feature you were pursuing at the time. It can also evoke a certain mood or trigger associations to have a mnemonic label. Plus, it's darn fun!

Shuffle Button

The Shuffle Button allows you to select
different Fractal Explorer parameters to randomize. Check All, or None, or select from the list. Each time you click the button, the selected parameters will be shuffled.

Options

When you click on the Options Button, a menu with different Apply Modes is displayed. These Apply Modes are common to all of the User Interface filters. For a detailed description of each Apply Mode, please refer to the chapter, "KPT U-I Filters Introduction" in this Explorer's Guide.

Preferences

These options can be set in the Preferences Dialog:

- The stepsize or "Zoom Ratio." Zoom a lot or zoom a little with each click.
- Final Image: "Draw Gradient Across Top" or "Leave Strip Out of Image." You can have the gradients which created the fractal show at the top of the image's window. This is good for some special gradient designing effects. (See "How to Make More Cool Gradients from the Fractal Explorers!" below for more information.)

Other Preferences allow you to enter numeric data for any fractal set. Also, you can customize the look of the KPT Fractal Explorer Interface in the Preferences Dialog.

GLOSSARY

algorithm. A mathematical or logical step-by-step formula for solving problems or determining events or actions.

ambient. Refers to light that surrounds an object.

apply mode. A pixel-by-pixel determination of how an effect will interact with an underlying image. Also called a channel operation (or chop, for short) or transfer mode.

bracket. A Gradient Designer user interface element for selecting a part of the gradient bar to be affected by subsequent actions.

channel operation. See "apply mode."

chop. See "apply mode."

diffusion. The spreading and scattering of light from the time it leaves the source to the time it strikes an object. Determines the size of the light source's highlight on an object.

feathering. The amount of smoothness in the transition from one area of the Gradient Designer gradient bar to another.

gauge. Any of three different user interface elements within the Lens f/x UI. Gauges are small black dials with red needles.

glue. A term used to refer to an apply mode. See "apply mode."

gradient. A blend of two or more colors or opacity levels.

guage. An early misspelling of gauge and a running joke at MetaTools during the development of KPT 3. Pronounced *gwahge* (rhymes with "massage").

host. A host application. Any software program capable of running KPT 3, such as Adobe Photoshop or Fractal Design Painter.

lamp. One of four possible light sources within the Spheroid Designer.

lens f/x. A user interface designed to provide complete control over pixel-based effects and let you preview different portions of your image (or screen).

mutation. A randomly-determined variation of sphere or texture properties.

opacity. A measure of how opaque an effect is. The opposite of transparency.

packing mode. An algorithm that determines how multiple spheres will be arranges when applied to an image.

transfer mode. See "apply mode."

UI. User interface.

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