

KPT Basics

This section provides basic information you'll need to use all the filters. It covers the general procedure for using the controls you'll find in the various filters, as well as suggestions on how to get the most out of Kai's Power Tools.

Accessing Filters

KPT filters can be applied to any selection or layer of your image file.

NoTe

KPT only works with RGB images.

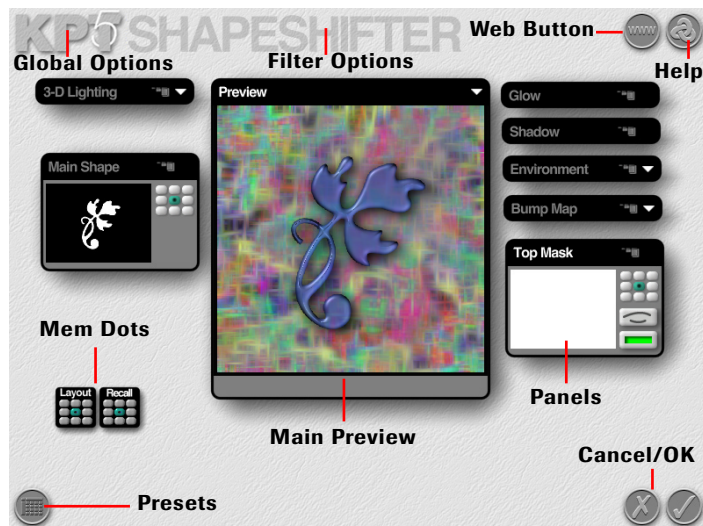
To apply a filter:

- 1 In the host application, open the image you want to apply the filter to.
 - If you want to apply the filter to the entire image, make sure nothing is selected.
 - If you want to apply the filter to a specific area, make a selection.
 - If you want to apply the filter to a specific layer, select it.
- 2 From the Filter menu, choose the KPT 5 sub-menu and then the effect you want to use.

When you select a filter, its window appears.

The KPT Workspace

All the KPT 5 filters are based on the same user interface. There's a main workspace with panels that float over it. The workspace has a number of controls that you can use in any filter.



The KPT workspace.

KPT 5 Title

The KPT logo accesses global options that let you change how the workspace looks. You can also open the About box.

Filter Title

The title of each filter lets you access options for the current filter. These options only affect the active filter. The types of preferences available vary between filters.

Web Button

The @ symbol lets you jump to the Kai's Power Tools Web page on the MetaCreations Website.

MetaCreations Logo

Accesses the on-line documentation for the current filter.

Presets

The heart-shaped button at the bottom of the workspace lets you access the Presets Library. Refer to ["Working with the Presets Library" on page 38](#) for more on using presets.

Cancel/OK

The checkmark at the bottom of the workspace is the OK button. The X is the Cancel button.

Memory Dots

The memory dots that appear on the main workspace let you store the positions of the filter panels and all the values in a filter (i.e. all the values in all the panels.) Refer to ["Using Memory Dots" on page 23](#) for more on memory dots.

Setting Workspace Size

You can control the size of the KPT 5 workspace using the keyboard keys. If you make the workspace smaller than your display, you'll be able to see your desktop.

Resize to 640 x 480	Ctrl/Command - 1
Resize to 800 x 600	Ctrl/Command - 2
Resize to 1024 x 768	Ctrl/Command - 3
Resize to 1152 x 870	Ctrl/Command - 4
Resize to 1280 x 1024	Ctrl/Command - 5
Resize to Full Screen	Ctrl/Command - 0

Setting KPT 5 Options

KPT 5 lets you set several options that control how all the KPT 5 filters appears, as well as providing options that only affect specific filters.

Setting Global Options

The Global Options control how the appearance of the KPT Workspace. These options affect all the filters in KPT 5.



Click the KPT 5 title to access the Global Options menu.

Black Out Screen

This option lets you black out the desktop of your operating system.

Smileys!

This option toggles between Cancel/OK buttons. When the option is enabled, Cancel is represented by a sad face and OK is a happy face (cute no?). When disabled, the standard checkmark and X icons appear.

About KPT 5

This option displays the KPT 5 About box.

Setting Filter Options

The Filter Option menu lets you control how a filter's panels behave in the workspace. These options only affect the current filter.



Click the filter title to access the Filter Options menu.

Panel Auto Popup

When this option is enabled, panels automatically expand as you pass your cursor over them. When you move the cursor to a different location, the panel automatically collapses to its Preview-Only state.

Panel Manual Popup

When this option is enabled, panels only expand and contract when you click them. A cyclers icon appears that lets you cycle through the panel states.



Click the cyclers icon to move between panel states.

Panel Solo Mode

When this option is enabled, only the panel you're currently working with expands. All the other panels are collapsed. This helps you isolate the controls you're working with.

Using Common Controls

Although each KPT filter is unique, they all share similar controls. This section describes some of the controls you'll find in the various KPT filters.

Using Memory Dots

Memory dots let you store and recall values with a single click of your mouse. There are three types of memory dots in KPT: Layout, Recall and panel dots.

The Layout memory dots that appear on the KPT workspace store the state of the interface. You can use them to setup different working environments. For example, you could have all the advanced controls for a filter displayed so that you don't have to expand each control individually.



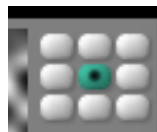
Layout dots.

The Recall memory dots let you retrieve all the values for all the panels in the filter. You can quickly set up all your panels by just clicking a dot. You can also use the Recall dots to store the various stages of your effect as you change settings.



Recall dots.

Each panel also has a set of memory dots that let you store values for an individual control. You can use these dots to return to different stages of an effect.



Memory dots on a panel.

To store interface positions in a memory dot:

- 1 Set up the interface the you want it.

- 2 Click an empty Layout dot. Empty dots are grey.

To store all filter values in a memory dot:

- 1 Set up the values in each of the panels you want to store.
- 2 Click an empty Recall dot. Empty dots are grey.

To store a panel's values:

- 1 Enter the values you want to store in the panel.
- 2 Click an empty dot on the panel.

To recall a memory dot setting:

- 1 Click on a full dot. Full dots appear green.
- 2 The selected dot turns yellow.

To clear a memory dot:

- ⌘ Option/Alt-click a full memory dot. It turns grey to indicate that it's empty.

Restoring Panels to Default

The memory dots on a panel have a reset button. The dot in the center lets you reset all the values in the panel to their factory default values.

To restore a panel to default:

- ⌘ Click the center memory dot. The recall dot has a black dot in the middle.

Working with the Main Preview Window

The Main Preview window is the area that displays the results of the filter. As you change settings, the preview window updates to show you the results.

The behavior of the Main Preview window changes from one filter to another. In most cases, it displays a preview of the effect. However, in some filters, you can click-and-drag inside the Main Preview window to change your view of the effect or rotate an object. These unique behaviors are explained in the filter sections.



The Main Preview window in different filters.

The bar across the bottom of the window can contain navigation controls, like those found in KPT FraxPlorer. Refer to [“Using Navigation Controls” on page 86](#) for more on these controls.

To reposition the Main Preview window:

- ⌘ Drag the window's title bar to any position on the screen.

Preview Window Options

The Main Preview window has three size options: Small, Medium and Large.

The different sizes are designed to let you see the largest possible preview within your display.



The options menu can also contain output options or rendering options. Refer to “Applying KPT Effects” on page 40 for more on output options.

To set Main Preview window size:

- ⌘ Click the triangle icon at the top of the Main Preview window and choose either Small, Medium or Large from the menu.

Working with Preview Modes

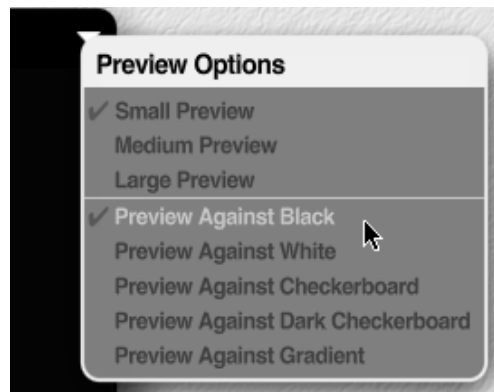
Usually, when you enter a filter, the filter effect is previewed on top of the background image. For some of the more complex filters, this can slow down preview render time. To help you speed up your preview, some filters have preview modes that can replace the background image with flat patterns or colors that make previewing faster.



Preview modes do not affect the final render, only the preview of the effect.

To choose a preview mode:

- ⌘ Click the triangle icon at the top of the Main Preview window and choose a mode from the menu.



The Preview Option menu on the Main Preview window.

Preview Against Black

The filter effect is displayed on a solid black background.



KPT Blurrrrr using the Preview Against Black mode.

Preview Against White

The filter effect is displayed on a solid white background.



KPT Blurrrrr using the Preview Against White mode.

Preview Against Checkerboard

The background image is replaced by a pattern of gray squares.



KPT Blurrrrr using the Preview Against Checkerboard mode.

Preview Against Dark Checkerboard

The background is replaced by a pattern of dark gray squares.



KPT Blurrrrr using the Preview Against Dark Checkerboard mode.

Preview Against Gradient

The background is replaced by a grayscale gradient.



KPT Blurrrr using the Preview Against Gradient mode.

Working with Panels

All of the controls for a filter are divided into panels. These panels float over the filter window and can be repositioned to best suit the way you work.

Setting Panel States

Each panel has four states: collapsed, preview-only, standard and expanded. The states are designed to help you focus on a task by hiding unrequired controls.

Collapsed State

A Collapsed panel appears as a small black bar with the name of the control. This is the state you'll use to store controls you're not currently using.



KPT filter panels in their Collapsed state.

To collapse a panel:

- ⌘ Double-click the panel's title bar.

Preview-Only State

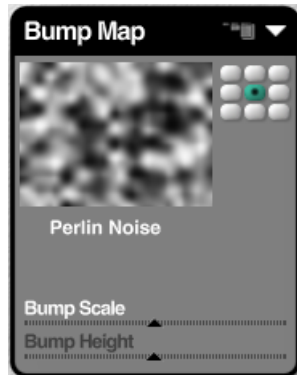
In Preview-Only state, the panel displays a preview thumbnail of any imported images, masks or presets you're currently using. The name of the file appears below the preview.



A KPT panel in Preview-Only state.

Standard State

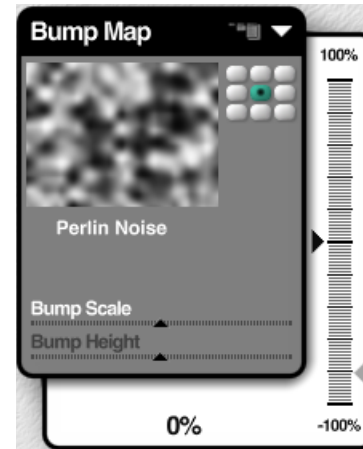
In the Standard state, the panel displays a preview of any imported images, as well as any parameter controls available.



A KPT panel in its Standard state.

Expanded State

In the Expanded state a panel displays two controls that let you set precise values for each control in the panel.



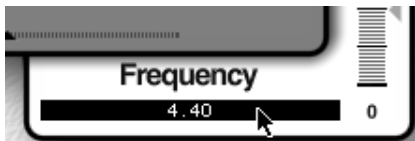
A KPT panel in its Expanded state.

The vertical ruler acts a precise slider. It lets you adjust the value of a control in minute increments. The small ghosted arrow indicates the last value you entered.

To adjust a control in small increments:

- 1 Click the control you want to set.
- 2 Drag the marker up or down. The ticks on the ruler let you see the amount of adjustment you're applying.

The numerical value act as a text entry field. You can type any value you want to replace the displayed numbers.



Click the numerical display on the extended slider to enter a value manually.

To enter numerical values for a control:

- 1 Click the control you want to set.
- 2 Click the number displayed on the panel.
- 3 Enter the desired value.

Setting Panel Options

Each panel has an Options menu. The contents of the menu vary from panel to panel. However, there are several options that are common to all panels.

Load

When this option appears, you can use it to load a file into the panel. For example, in the Environment panel you can load an image to use as an environment map.

Load Preset

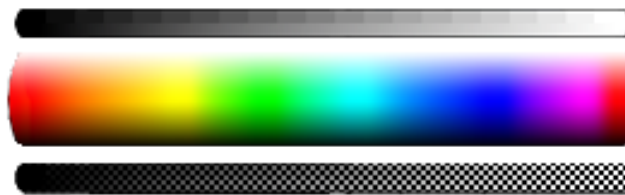
This option let you load a file from the Presets Library. Refer to [“Working with the Presets Library” on page 38](#) for more on the library.

Save Preset

This option lets you save the image or object currently in the panel’s preview window to the Presets Library.

Using the Color Picker

The Color Picker lets you set a color for an object. If you see a color dot next to an item in a panel, it means that you can set the item’s color using the Color Picker.



The KPT Color Picker.

The picker appears as three floating bars. The top bar displays shades of gray from black to white. The center bar displays a spectrum of colors and shades. The bottom bar displays opacity settings.

The grayscale bar is divided into two sections. The top area of the sections is broken down into increments of grayscale values to make it easier to choose precise grayscale shades. The bottom of the bar is a continuous blend of grays.



The two sections of the grayscale bar.

To choose a color:

- ✱ Click a color dot on a panel. The Color Picker appears. While holding down the mouse button, drag over the color you want to use from the center bar.

When you release the mouse button, the color is selected.

As you move over the colors, the color dot shows you both the new color and the original color.

To choose a shade of gray:

- ✱ Drag the cursor along the top bar in the Color Picker.

To choose an opacity setting:

- ✱ Drag your cursor along the bottom bar in the Color Picker.

Using Common Panels

Several of the panels in KPT are common to several filters. For the most part, these panels work the same wherever they appear. In some cases, a panel may have one or two extra controls that are unique to a filter.

3D Lighting Panel

The 3D Lighting panel lets you position light sources in 3D space and set their colors and brightness. The panel appears in any filter that renders objects in 3D, like KPT Orb-It and KPT Frax4D.



The 3D Lighting panel.

Adding and Deleting Lights

When you first access the 3D Lighting panel, it has a number of lights. You can add more lights to illuminate the image from a number of different angles, or to mix light colors on the surface of your object.

To add a light source:

- ✱ Click the Add Light icon.



Add Light icon.

To delete a light source:

- 1 Select a light source in the light preview.
- 2 Press Option/Alt and click the Add Light icon or press Delete.

Setting Up Light Properties

KPT's light model not only lets you add a light source, but it also offers different types of lights that can be used to create a much more complex lighting effect. Your lights can be either Soft or Sharp, Positive or Negative.

Highlight Types

The two Highlight types determine how your light source casts light. Soft Highlights cast soft-edged, or fuzzy, highlights on your objects. Sharp Highlights cast hard-edged highlights.

To set a light type:

- 1 Click on a light.
- 2 Click the Sharp/Soft toggle button.



Highlight type toggle.

Positive and Negative Lights

The Positive/Negative toggle button lets you control a light's behavior. A positive light source projects regular light that produces highlights.

A negative light source draws light out of an object. The amount of light drawn out is determined by the light's brightness settings. A negative light's color draws out a specific color, leaving its spectral opposite in its place.

To set a light as negative or positive:

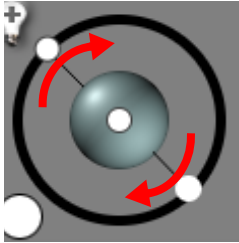
- 1 Click on a light.
- 2 Click the Positive/Negative toggle button.



Positive/Negative light toggle.

Positioning Lights

The graphic in the center of the control represents your object in three-dimensional space. The balls surrounding the large graphic in the center represent light sources.



Drag the circles to reposition lights.

By dragging these light sources to different positions around the ball, you can adjust the lighting angle on your object.



You can also drag the large sphere to reposition all the lights at once.

Sending Lights to the Back or Front of an Object

The Front/Back button lets you quickly move the light to the front or the back of your object.

To send a light to the back of an object:

- 1 Click on a light.
- 2 Click the Front/Back button.



Front/Back light button.

Setting Light Color

A light's color can tint the color of all the objects you're working with. Light color appears in object highlights.

You can also mix light colors. For example, if you have a blue light source and a yellow light, your objects will have a greenish highlight.

To change a light's color:

- 1 Click one of the light sources in the light control.
- 2 Click the color dot. The Color Picker appears. While pressing the mouse button, drag over the color you want to use.

When you release the mouse button, the color is selected.



Light color dot.

Setting Light Brightness

The overall brightness of a light is controlled by the brightness of the light itself as well as the brightness and size of the highlight.

The Light Brightness slider controls the intensity of the light. The Highlight Spread slider controls the size of the highlight that appears on objects. The Highlight Sheen slider controls the intensity of the highlight.



Use these sliders to set light properties.

By combining these three settings, you can completely control how a light affects your objects. For example, larger highlights combined with higher Brightness values can make your objects appear very bright.

You can also create different types of effects with these controls. For example, small bright highlights can make your objects look very shiny or metallic.

To set light brightness:

- 1 Click a light source.
- 2 Drag the Light Brightness slider. Drag to the right to increase brightness, or left to decrease it.

To set highlight size:

- 1 Click a light source.
- 2 Drag the Highlight Spread slider. Drag to the right to increase highlight size, or left to decrease it.

To set highlight brightness:

- 1 Click a light source.
- 2 Drag the Highlight Sheen slider. Drag to the right to increase highlight brightness, or left to decrease it.

Setting Ambient Glow

When there are no specific light sources selected, the 3D lighting panel lets you control the brightness of the ambient light. Unlike light cast from a light source, ambient light comes from all directions.

To set ambient glow:

- 1 Make sure there are no lights selected.
- 2 Drag the Ambient Glow slider.

Environment Panel

The Environment panel lets you load images that are used as environment reflection maps. An environment map image is reflected in an object's surface.

TIPS

Because of the way KPT maps images onto an object, it's not necessary to create large environment map images for larger objects. Your environment map should be no larger than 512 x 512 pixels. In fact, a 256 x 256 pixel image will work fine in most cases.



The Environment panel.

This panel appears in any filter that renders 3D objects with a surface, like KPT ShapeShifter and KPT Frax4D. It may have additional controls that are unique to a particular filter. This section describes the common controls. For descriptions of unique panel controls, see the sections on specific filters.

Loading an Environment Map Image

An environment map image can be any RGB or grayscale image stored on your system. If you want a more natural-looking effect, use a photo-realistic image. You can also load presets from the Environment library.

To load an environment map image:

- 1 In the Environment panel, click the preview window. The Open dialog appears.
You can also click the arrow icon at the top of the panel and choose Load from the options menu.
- 2 Locate the file you want to use and click OK. A preview of the image appears in the panel.

Blending an Environment Map

The Mix Environment control on the panel controls how much the environment map affects the surface of your object. At high settings the image is completely visible in any reflection. At lower settings the image appears faded.

Tinting an Environment Map

A tint shifts all the colors in an image toward a uniform color. For example, if you use blue as a tint color, the more tint you apply, the more blue you'll see in your image until the entire image is just shades of blue.

The Mix Tinting Color value controls how much tint is applied to your image. The higher the tint value, the more the image shifts towards the tint color. At 100%, the image is completely made up of shades of the tint color.

To choose a tint color:

- ✱ Click the color dot on the panel. The Color Picker appears. While holding down the mouse button, drag over the color you want to use from the center bar.

When you release the mouse button, the color is selected.

Adding a Metallic Surface

When you enable the Metallic Surface option, the reflections from the surface of your objects are tinted with the Tint color giving them a metallic look. When it's disabled, reflections look dull, like those made by a plastic surface.

To give objects a metallic surface:

- ✱ Click the Metallic Surface toggle button. When "Plastic" is displayed on the button, metallic surface is disabled.



Metallic Surface toggle button.

Adding Refraction to a Surface

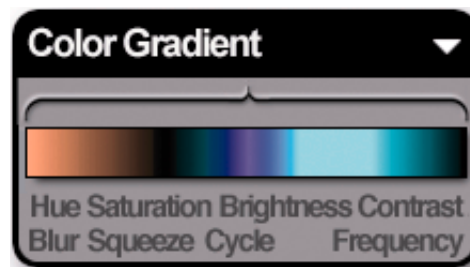
When Refraction is applied to an object's surface, it distorts the reflections, giving it a glass-like look.

To add refraction to a surface:

- ✱ Adjust the position of the Glass Refraction slider. The higher the refraction value, the more distorted the reflections appear.

Color Gradient Panel

The Color Gradient panel lets you design color gradients. Gradients can be used to color many of the objects generated by the filters such as fibers in KPT FiberOptix or fractals in KPT FraxPloer and KPT Frax4D.



The Color Gradient panel.

With the Color Gradient panel, you can create blends of up to 512 colors, including 256 levels of opacity. The current gradient is displayed in the bar at the center of the panel. As you choose different colors, the bar updates to show the new gradient.

You can also load gradient presets to use in the panel, or you can save the contents of the panel as a new preset.

To increase the size of the panel:

- ✱ Click the triangle icon at the top of the panel and choose Large Gradient Bar from the menu.

Choosing Colors for a Gradient

The bar that appears at the top of the panel, called the Gradient bar, is where you'll choose colors and edit your gradient.

When selecting a new color for your gradient, remember that you're not just selecting a color for the gradient, but also its position within the blend.

If you add a color on the far left side of the Gradient bar, you're setting the color for the beginning of your gradient. If you press on the far right side of the bar, you are setting the color for the end of your gradient.

To select a color:

- 1 Click a point on the Gradient bar and drag the cursor over the color you want.

In addition to the colors in the Color Picker, you can also drag the cursor over any color visible on your monitor, and select that as your color.

Editing a Gradient

The Gradient bracket, located above the Gradient bar, can be used to isolate an area of your gradient for editing. Any changes you make to a gradient only affect the area within the bracket. You can use this feature to create more complex gradients. For example, you can create several smaller gradients within a gradient.



The Gradient bracket.

By default, the bracket encompasses the entire gradient, but you can resize it and move it to work with a smaller portion of your gradient.

To resize the bracket:

- ⌘ Drag either end of the bracket.

If you drag one end of the bracket past the other end, it pivots, leaving one end exactly where it began.

To reset the bracket:

- ⌘ Double-click on the center of the bracket.

To reposition the bracket:

- ⌘ Click the center of the bracket and drag to the left or right.

To cut and paste parts of a gradient:

- 1 Make sure the part of the gradient you want to copy is within the Gradient bracket.
- 2 Click the triangle icon at the top of the panel and choose Copy from the menu.
- 3 Reposition the bracket and choose Paste from the menu.

To flip a gradient:

- ⌘ Choose Flip from the Gradient panel options menu. KPT flips everything within the Gradient bracket.

Gradient Modifiers

There are eight “tweaking” controls you can use to modify the colors and other parameters of your gradient or a portion of your gradient.

To use a modifier:

- ⌘ Drag over the text label for the control you want to use.

Drag to the right to increase a modifier's effect, or to the left to decrease it.

As you drag, the expanded slider appears to help you set the modifier values precisely.

Hue

This control rotates the hues for your gradient. Each hue occupies a unique spot on a virtual color wheel. 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.

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. Increasing the contrast exaggerates the differences between colors.

Decreasing the contrast homogenizes your colors. You can actually reduce the contrast to the point where your entire gradient would be a uniform gray.

Blur

This control increase or decreases the blurriness of your gradient. Increasing the blurriness of a gradient effectively smudges the edges of your colors.

Squeeze

Dragging over this control squeezes your gradient to one side or the other. The "squeeze" always starts at the center of the Gradient bracket and moves to either end. If you want to squeeze your gradient starting from somewhere other than the center you have to do it manually: hold down Option/Alt and drag within the Gradient bar itself.

Cycle

Dragging over this control lets you reposition the entire gradient so that colors appear in different locations.



Colors repositioned using the Cycle control.

Frequency

This control sets how many iterations of the gradient appear within the gradient itself.



A gradient with a high Frequency setting.

Working with the Presets Library

The KPT Presets Library stores preset images you can use as backgrounds, environment maps, masks, bump maps and more.

Presets are divided into categories. Each category contains 24 presets. Presets are displayed as thumbnail images. The currently selected preset appears in a larger preview at the top of the library. Its name and description appears across the top of the library.



The Presets Library window.

You can add or delete categories, and import or export presets. The library is a great way of saving your own images for later use in other filters.

Global vs. Component Presets

Depending on how you access the Presets Library, it will display global presets for the entire filter, or component presets for a specific panel.

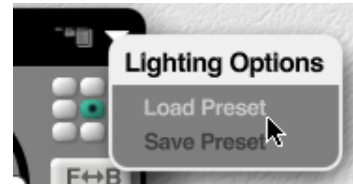
If you access the Presets Library from the main KPT Workspace, the library contains Global presets which, when loaded, set the values in all the filter's panels and load all the images necessary to reproduce the preset exactly.



Click this icon to open the Presets Library.

For example, if you load a global preset for KPT ShapeShifter, all the masks, background images, bump maps, and environment maps that make up the shape are automatically loaded. Also, all the values and options needed to recreate the preset are also loaded in the various panels.

If you access the Presets Library from a panel, it displays presets specifically suited to that control. For example, if you access the Presets Library from the Bump Map panel, a series of bump map images are displayed.



Accessing the Presets Library from a panel's Options menu.

Loading Presets

Loading either a global or a component preset is only a matter of locating the preset you want to use and clicking its thumbnail.

To load a preset:

- 1 Click the heart-shaped icon in the KPT Workspace to load a global preset.
 - To load a component preset, click the triangle icon at the top of a panel and choose Load Preset from the options menu. The Presets Library appears.
- 2 Click on a category name on the right side of the library. A set of 24 thumbnails appears.
- 3 Click the preset you want to use.
- 4 Click the OK icon.

Adding and Deleting Presets

As with loading presets, you can save global presets, by accessing the Presets Library from the KPT workspace or you can save a specific component by accessing the library from a panel.

The library lets you save any files into a specific category or you can create your own.



You can only save 24 presets in a category. If there are no open spots in a specific category, you'll have to save your new preset to another category or create a new category.

When you add files you can also add a title and comments to each image. This information appears every time you click the preset.

To add a global preset:

- 1 Click the heart-shaped button. The Presets Library appears.
- 2 Click the category where you want to add the preset.
- 3 Click the Add Preset text label. The Add Preset dialog appears.
- 4 Enter a name for the new preset and click OK. The new preset appears at the end of the category.

To add a new preset from a panel:

- ✱ Open the panel options menu and choose Save Preset. The current image in the preview window is saved as a preset.

To add a new category in the Presets Library:

- 1 In the Presets Library, click the options menu icon and choose Add New Category. The Add Category dialog appears.
- 2 Enter a name for the category and click OK.

To delete a preset:

- 1 In the Presets Library, choose the category and preset you want to delete.
- 2 Click the Delete Preset text label. The preset is removed from the library.

Editing Preset Information

You can edit the name of any preset or change the comments attached to an image.

To edit a preset's title or comment:

- 1 Click the preset you want to edit. Click the title and a text field appears.
- 2 Enter a new name or comment.

Importing and Exporting Presets

You can import images to use as components in a filter, or export completed effects as complete images.

The Import command lets you choose a file to import from any location on your system.



The images you import must be RGB, Black and White, or Grayscale.

The Export command lets you export any of the presets in the library as images.

To import a preset:

- 1 If you want to import the image into a specific category, click the category name to make it active.
- 2 Click an empty spot in the category.
- 3 Click the Import text label at the bottom of the library. An Open dialog appears.
- 4 Locate the file you want to import and click Open.

- 5 The image appears in the selected spot.

To export a preset:

- 1 Click the category for the preset you want to export.
- 2 Click the preset's thumbnail.
- 3 Click the Export text label at the bottom of the library. A Save dialog appears.
- 4 Select a name and location for the preset and click Save.

Applying KPT Effects

By default, KPT 5 filters are applied to the background image. If you made a selection before entering the filter, then the effect is applied only to the selection.

Applying KPT Effects to Layers

KPT ShapeShifter, KPT FiberOptix, and KPT Orb-It have different output options that control how KPT applies the results of a filter to a layer:

- Composite in Layer
The result of the filter is added to the other elements in the layer.
- Clear Layer before Render
The results of the filter replace all the other elements in the layer.

To choose an output option:

- Click the arrow icon at the top of the Main Preview window and choose an option from the menu that appears.