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Introduction

Chromatica™ is a next generation toolkit for day to day selection and color editing tasks. Consisting of two separate plug-ins, Chromatica lets you select and recolor images effortlessly, and create spectacular color effects by swapping color schemes between images.

The Technology

Chroma Graphics' patented technology, developed by Fred Young, Ph.D., is based on genetic research and fractal mathematics. Dr. Young was dissatisfied with the tools available to color fractals (mathematical forms that mimic the complex forms found in natural objects), and his determination to overcome these existing coloring limitations led to years of intensive research. Dr. Young created a solution that, when applied to any image, results in natural and spectacular recoloring that takes full advantage of the complex colors found in natural objects. Dr. Young's discoveries led to the founding of Chroma Graphics, Inc. in 1995 to develop real world applications for his breakthrough technology.

Chromatica is the first in a series of products planned for the graphics market. Look for new plug-ins and stand-alone applications soon that will revolutionize the way you select objects and work with images.

Welcome to Chromatica

Chromatica was developed to meet the challenge of editing complex color images on the computer. Since the computer presents images as a combination of pixels with each pixel representing a color, but unrelated to the pixels surrounding it, changing colors pixel by pixel produces disappointing results. The subtlety of color images is compromised when the computer cannot support:

- complex ranges of shades found in natural objects
- seamless blending of images from foreground to background
- complex color palettes.

Chromatica edits color the way your eye perceives color--recognizing borders of color, blending edges from the foreground to the background, selecting color by ranges that incorporate all the subtle variations and nuances that prevent edits from looking flat and lifeless, and allowing experimentation with entirely new palettes of colors in images.

System Requirements and Installation

To use Chromatica, you need the following equipment and software:

Macintosh

- An Apple® Macintosh® or compatible computer
- Adobe® Photoshop® 2.5 or later, or other applications that support Adobe's Photoshop plug-in standard version 2.5 or later.

Windows

- A Windows computer running Microsoft® Windows® 95 or Windows NT®
- Adobe Photoshop 3.0.5 or later, or other applications that support Adobe's Photoshop plug-in standard version 3.0 or later

To install Chromatica for Macintosh:

1. Insert the Chromatica disc into your CD-ROM drive.
2. Double-click the Chromatica icon that appears on your desktop.
3. Double-click the Installer icon and follow the instructions that appear on your screen.

To install Chromatica for Windows:

1. Insert the Chromatica disc into your CD-ROM drive.
2. Choose Run from the Windows 95 Start menu.
3. Type d:\setup.exe where d represents your CD-ROM drive. Click OK.
4. Follow the instructions that appear on your screen.

Loading additional Palettes

1. Locate the additional palette files in the "Palettes" folder on your Chromatica CD-ROM.
2. Select the palettes you wish to use.
3. Drag the palette files to the "Chromatica Palettes" folder located in the Chromatica folder, which can be found in Photoshop's plug-in folder.
4. Restart Chromatica and you will see the new palettes when you click on the "Load Palette" button in the ChromaPalette plug-in.

Registration and Activation

Register with Chroma

Registering your Chromatica software entitles you to automatic notification of new products, special pricing on upgrades, and access to free technical support. To register, simply complete the enclosed registration card and drop it in the mail. Or, fax the card to Chroma Graphics at 650/ 685.6818.

Registration Numbers

Your registration number is located on the front of your Quick Guide or envelope. This number is different for Macintosh and Windows. Be sure to use the correct OS labels. This number should be entered the first time you use Chromatica to activate the software. If you did not receive a label call Customer Support at 650/ 685.6800.

3.5" Disks

If you need 3.5" disks call Customer Support at 650/ 685.6800.

On-Line

Chromatica information is also available through on-line services and our web site at <http://www.chromagraphics.com>.

Technical Support

If you have a question or problem that is not addressed in the on-line help, please call technical support at 650/ 685-6806 Monday through Friday, between the hours of 8:30 and 5:00 PST. When calling technical support, please be at your computer and have the following information available:

- Your Chromatica registration number
- Your computer configuration
- Your question or a description of the difficulty you're experiencing--what specifically occurs and when. Write down any displayed error numbers or messages and any other information you think may be helpful.

Answers to frequently asked questions are also available in the "Common Questions" section of the on-line help or on our web site at <http://www.chromagraphics.com>.

Suggestions

We'd love to hear your comments about Chromatica, suggestions for improvements, and ideas for new plug-ins. Please e-mail suggestions to info@chromagraphics.com.

Navigation Quick Guide

Start Chromatica

To start Chromatica, launch Adobe Photoshop, open an image, and select Chromatica from the pull-down “Filters” menu. You can work with either the whole image or a portion of the image. To select only a portion of the image, use the Photoshop tools to select an area. If you make no selection, Chromatica loads the complete image. (For illustration, we will be referring to the Flower image provided in Photoshop 3.0.5’s “Tutorial” folder.) Chromatica supports images in RGB and Lab format only. Chromatica also supports layers.



Preview Pane Controls

Both Chromatica plug-ins feature a flexible preview pane design that makes image editing faster and easier. The preview pane supports zoom and pan control, and you can resize it to fit any monitor.

NOTE: Chromatica is very similar on both Windows and Macintosh operating systems. However key commands do vary. Windows Quick Keys are shown throughout this manual in bold italic.



Pan tool

Click on the hand tool icon, and the open hand icon becomes your cursor as you move it over the image preview area. You then can click and drag to move the image within the preview display.



Zoom tool

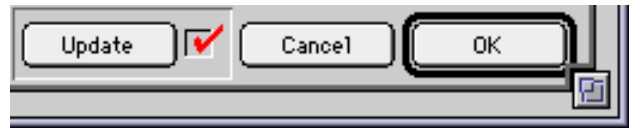
Click on the zoom tool icon to turn the cursor into the magnifying glass when over the image preview area. You can click (option-click) to magnify (reduce) the image by a factor of two. (*Windows: You can click (Alt-click) to magnify (reduce) the image by a factor of two.*) The zoom factor is displayed to the right of the tool. The maximum ratio is 16:1. Double click the zoom tool icon, or press the Command and 0 (zero) keys to return the zoom factor to 1:1. (*Double click the zoom tool icon, or press the Control and 0 (zero) keys to return the zoom factor to 1:1.*)

Update/auto update option

Use Update to display changes as you make them. The image preview

display will update immediately when you make any change. Auto Update is on when the red checkmark appears in the box next to the word Update.

(To turn Auto Update off, click the red checkmark. You then can decide when to update the preview display. A red cursor will blink under the update button whenever you can update the image preview.)



OK and Cancel

Click OK to apply Chromatica's changes to your original image. Cancel leaves your original image unchanged. If you click the OK button after using the ChromaMask tool, any ChromaMask you have created will be saved to Photoshop as a "quickmask" selection. [Note: This feature is only available with Photoshop 3.0.5 and above.]

Resize controls

Click and drag the bottom right corner of the image preview display to resize as required. Click the maximize button in the menu bar (*title bar*) to automatically resize the window to fit your entire screen. These controls allow you to take full advantage of your monitor configuration.

ChromaColor™

The ChromaColor plug-in lets you select an object in an image and choose new color for the defined area. Its new masking tool, ChromaMask™, can replace traditional selection tools like the magic wand and lasso, or can be used in combination with them. With ChromaMask, you select an area or object based on a range of color and settings that you define. To create realistic edges and color boundaries, the EdgeWizard™ "remembers" these settings and blends the changed foreground with the background automatically.

Use the ChromaColor Plug-In to....

- Select an object or area quickly (like a flower or a sweater)
- Replace or edit specific colors in an object
- Save color ranges from scanned samples, spot colors, or calibrated sliders
- Blend new foreground and background colors automatically

ChromaMask™

Select Chromatica from the Filters menu. Choose ChromaColor from the sub-menu, and the ChromaMask window will appear. In the left pane, there are three tabs through which you access ChromaMask, ChromaColor, and the on-line help system. In the right pane, you see the image you have selected. Click the maximize button in the menu bar (*title bar*) to automatically resize the window to fit your entire screen if you wish. Another option is to retain the original size of the screen and move the ChromaMask desktop to one side so you can see your original Photoshop image in the background.



Use the ChromaMask tool to select a color range and mask an object or area. Simply select (by clicking and dragging) a representative sample of the target object that you want to mask, and then adjust the ranges of Hue, Saturation and Value to fine-tune the selection. While using ChromaMask, you can always undo your last action by:

Holding down the command key and pressing Z (CMD-Z).

Holding down the control key and pressing Z (CTL-Z).

Once a ChromaMask has been created, clicking OK will return it to Photoshop as a “quickmask” selection.



ChromaMask tool

The ChromaMask tool is the primary means of selecting the color range to be masked. Click on the tool icon to create a mask.

- Position the cursor over a portion of the selected object, and then click, or click and drag to marquee a representative area. ChromaMask automatically calculates the region of color to be masked.

- Add more pixels to the current selection by holding down the shift key while clicking (or click-dragging) the cursor over additional pixels. If you want to cancel the masking operation at any time, hold down the Command key and press period (*press the escape key*). ChromaMask uses the maximum and minimum Hue, Saturation, and Value (HSV) values of the sampled pixels to perform the calculation. You can watch the progress of the calculation as a blue color bar moves across the words “Infinite Color” under the Chroma logo.
- Holding down the Option key (*Alt*) will mask the selected region without recalculating the color range. The Control key will “unmask” the selected region without recalculating the color range.

NOTE: The ChromaMask tool is more effective the larger the selection you make. Ideally, click and drag the ChromaMask tool to marquee as large a portion of the “object” you wish to mask as possible.

To modify a selection you have created using ChromaMask, you can either hit the Reset button to start over, or hold down one of the modifier keys described in this manual.



Eraser tool

The Eraser enables you to edit the mask without adjusting the ChromaMask settings. Use the Eraser tool to mask and unmask specific pixels.

- Click on a masked pixel to unmask it.
- Option-clicking (*Alt-clicking*) will mask a pixel.
- You also can hold down the mouse button as you move the eraser over an area to be unmasked.

The speed of operation depends primarily on the speed of your computer and the zoom factor of the image preview display.

- To make the eraser faster, zoom into the image. To set the size of the eraser tool, use the “sample size” pop-up menu.

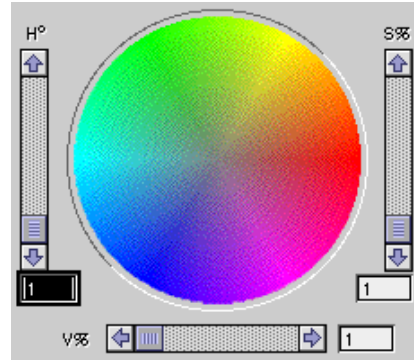
TIP: A good strategy is to perform major edits of the mask using the Option and Control (*Alt*) modifier keys with the ChromaMask tool, then to fine-tune these edits using the eraser tool, starting with a 10 by 10 size setting and finishing with smaller settings.

Color wheel display

The color wheel interactively displays the range of colors selected for masking. As ChromaMask calculates the region of color to be masked, the preview image highlights the individual pixels that fall within this color range. You see only the selected hue and saturation range in the preview image. You can set a value range to fine-tune the selection.

Hue, Saturation and Value range sliders

ChromaMask works best when masking a single contiguous region of color space that contains a single primary color. For example, the color might be red, green, or blue. On the other hand, masking a region that spans multiple color groupings limits the control you have as you recolor the target object. Use the three sliders arranged around the color wheel to set the color range for masking.



These sliders initially are set to “1” if you have not yet selected a color range, or to the actual range of Hue, Saturation, and Value in the sampled pixels. The readouts correspond to the range of HSV values being masked (shown as plus or minus around the target color). For example, if you have sampled pixels that contain Hue values from 250 to 280, Saturation 40 to 80, and Value 50 to 80, then the HSV sliders will be set to H 15, S 20, and V 15. The maximum settings are 180 for Hue and 100 for Saturation and Value.

Target color button

The Target button has two functions:

- **To see the mid-point color for the selected color range**
- **To activate the Color Picker**

When you open ChromaMask, the Target button displays a gray and white pattern to show that no color range has been set. Once you have set a color range (for example, by using the ChromaMask tool), then this button displays the color that is spatially in the center of this color range. When you click on the Target button, the Color Picker is displayed.

The Color Picker

The Color Picker has two functions:

- **To inspect the value of the current target color**
- **To set a new target color manually**

The displayed Color Picker will either be Photoshop’s Picker or the Apple

(*Windows*) Color Picker, depending on what you have set in your Photoshop preferences. The Color Picker shows the RGB, HSV or CMYK value of the target color. Use the circular cursor to work within the Color Picker. In the center of the circular cursor, you will see the color you can analyze. Click the mouse button and all the values for that particular selection display. With the Photoshop Picker, you can visually compare the range just selected against the original range using the box within the Color Picker itself. You can also select a custom color range.

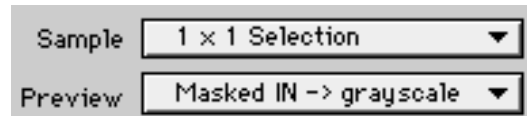
Custom Colors in Photoshop

To select a specific Pantone® color for recoloring, choose Custom in the Photoshop Color Picker dialog box.

- The Custom Colors dialog appears and displays a range of seven Pantone colors around the target color. A black box outlines the Pantone color for the target color.
- Use the mouse button or the arrow keys to select a different Pantone color. The target color box shows two colors to compare visually the new selection with the original target color.
- Click OK to set the new color range or Cancel to return to the ChromaMask screen with no changes.

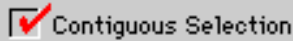
Sample and masking options

The Sample pop-up menu controls the size of the pixel sample gathered when you click on the preview image with the ChromaMask tool or with the Eraser tool.



The available options are (in pixels) point sample, 3 by 3, 5 by 5, and 10 by 10. These sample sizes are centered on the cross hair of the selected tool.

The Preview pop-up menu controls how Chromatica highlights the masked pixels. You can choose between highlighting pixels masked IN (that is, selected for later recoloring) or masked OUT (that is, will be ignored when recoloring). In either case, you can specify that the highlighted pixels be shown as: grayscale, black, white, gray, or “other.” If you select “other,” then you can click the adjacent button to bring up the Color Picker and choose whatever masking color you want. Hitting the space bar will toggle the current masking option on and off [Make sure you have your cursor over the image preview to use this feature.].



Contiguous Selection

Contiguous Selection controls which pixels are masked. Contiguous Selection can be checked or unchecked. If Contiguous Selection is checked, pixels that physically connect to and fall within the color mask range of the original sample will be masked. If Contiguous Selection is not checked, any pixel that falls within the color range will be masked.

TIP: If the contiguous setting still does not completely exclude undesired pixels, then return to Photoshop and roughly lasso the area to be masked, taking care to exclude the troublesome pixels.

Save Range, Load Range

Save Range and Load Range allow you to save and reload ChromaMask settings. These buttons save or load the mask settings but not any edits you may have made to the mask using, for example, the eraser tool.

TIP: Remember that the ChromaMask is not specific to pixel position but to color range. You can therefore use a single mask for a series of images (such as a video sequence) where each unique image may be similar in color content.

Reset

A rectangular button with the text "Reset Pane" inside.

This resets the pane to undo any masking that has been performed. It will not affect the ChromaColor pane.

Selecting an Object

ChromaMask can replace conventional selection tools like the magic wand and lasso, or can be used in combination with them. With ChromaMask, you select an area or object based on a range of color and settings that you define. To create realistic edges and color boundaries, the EdgeWizard™ “remembers” these settings and blends the changed foreground with the background automatically.

NOTE: The images used in this and following sections of the manual can be found in Photoshop 3.0.5's tutorial folder.

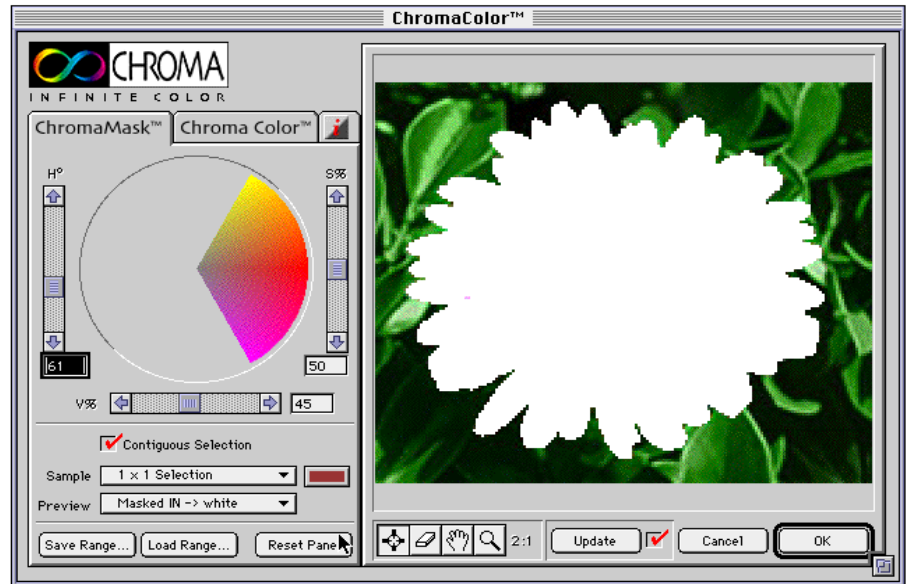
To Create a ChromaMask...

1. **Select one or more portions of the image.**
If you do not make a selection, the filter is applied to the entire image.

2. **Select Chromatica from Photoshop's pull-down "Filters" menu.**
Choose ChromaColor from the sub-menu. The ChromaMask window appears.

3. **Click on the ChromaMask tool in the image preview display pane.**
The cursor changes to the ChromaMask cursor.

4. **Select colors to be masked.**
To mask a specific color only, click on the target color button and select



the specific color to be masked. Otherwise, position cursor over a representative area of the object to be masked. Click and drag the cursor to marquee a sample area of the object. The colors in your selection will be displayed in the color wheel. You can add colors by holding down the shift key while clicking on the image.

5. **Review ChromaMask.**
Select the desired masking option from the Preview pop-up menu. Click the Update button, or check the auto update box to see the masked pixels in the preview display. Hit the space bar to toggle the masking option on and off [Make sure your cursor is over the preview display before using this feature.]
6. **Refine ChromaMask.**
For major adjustments, use the HSV sliders to change the size of the color range for masking. For minor adjustments, select the appropriate sample size from the Sample pop-up menu, and shift-click on the specific unmasked pixels that you want to add to the ChromaMask.

ChromaMask Settings

To Save a ChromaMask Setting...

1. **Create the ChromaMask as desired.**

2. **Click the Save Range button.**
The Save dialog box appears.
3. **Enter a name for the Chroma Selection Range.**
4. **Click the OK button.**

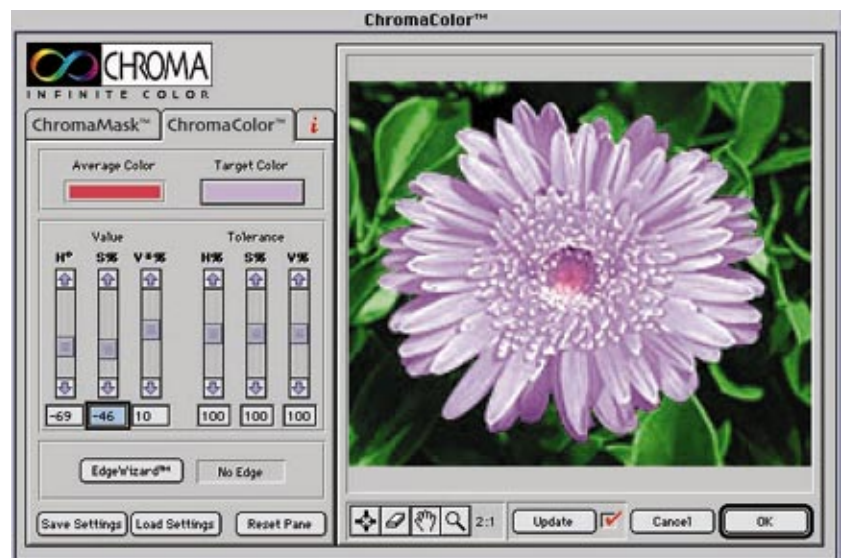
To Load or Edit a ChromaMask Setting. . .

1. **Click the Load Range button.**
The Select Range dialog box appears.
2. **Select the ChromaMask Range to load.**
3. **Click the OK button.**

ChromaColor

ChromaColor allows you to recolor an object selected using ChromaMask or selected in Photoshop. ChromaColor retains all the subtlety and details present in the original image. You can experiment with new colors or load color details you have saved from another image.

The EdgeWizard tool then automatically blends the edges of a recolored object seamlessly into the background.



Average color and Target color

The Average color is calculated as the average color of the pixels in the ChromaMask selection (or the entire image if no ChromaMask has been created). Think of the Average and Target colors as simplified representations of the full range of colors in the original and recolored images respectively. The

Target color is initially the same as the Average color and is updated when you choose a new target color. Clicking the Target color button brings up the

Color Picker. This shows the RGB, HSV or CMYK value of the Target color. It also allows you to reset the target color to any other value, or to a specific Pantone color, for example.

Value sliders

These Hue, Saturation, and Value sliders provide control over the Target color settings relative to the Average color. You can either move the sliders to achieve the desired color shift, or type specific shift values directly into the edit fields under each slider. All sliders are initially centered at 0. Moving each slider up (down) sets the Target color to a greater (smaller) HSV value than the Average color. The Hue and Saturation sliders are calibrated in degrees of Hue and percentage Saturation, respectively, and range from +180 to -180 for Hue and +100 to -100 for Saturation. The Value slider also is calibrated from -100% to +100%, but it represents the ratio of Target color to Average color. A setting of +100% doubles the brightness of each pixel, -100% halves the brightness. This approach preserves the extreme blacks and whites in the image much more effectively than simply shifting all grayscale values by the same amount.

Tolerance sliders

These provide control over the entire range of HSV values in the recolored image. The sliders are centered at 100 and range from 0% to +200%. A setting of 200% (0%) doubles (halves) the range of H, S, or V in the recolored image. These sliders allow you to alter the dynamic range of the original image to better approximate another texture or effect, or for artistic purposes. Generally, HSV settings above 100 will make the image look richer, settings below 100 will make it look flatter.

TIP: These sliders are especially useful to alter the “perceptual color” of an image. You can quickly tone down an image that looks harsh by moving these sliders down. By contrast, a relatively “lifeless” image can be quickly rejuvenated by moving these sliders up.

EdgeWizard

The EdgeWizard calculates an edge around the recolored region and then colors these edge pixels to blend the recolored region smoothly into the background. The EdgeWizard automatically calculates how deep the edge needs to be at every point in the outline, generating a short, hard edge for rapid color changes and a longer, softer edge for subtle blends. By setting the slider, you control how far out from the recolored region the edge blend will go. The slider setting represents the maximum depth of the edge in pixels. Starting with the default setting is best; adjust it only if you need a deeper or shallower edge.

Setting the slider to values less than one pixel will still generate an edge of one pixel in depth. As the setting approaches zero, however, the recolored edge will be weighted to favor the background color. The EdgeWizard also will calculate a fixed edge width if you simply click to remove the check from the box labeled “Variable Edge Width” (the default).

Save Settings, Load Settings

These buttons allow you to save and load ChromaColor settings. Chromatica saves the Target color and Tolerance settings. When you load a setting, Chromatica updates the Target color and recalculates the Value slider settings. These buttons allow you to save the color information from any image rapidly, and then use it to recolor any other image.

TIP: You can use Chromatica to automatically recolor an object to look like another object (“target object”).

- Select a representative portion of the target object in Photoshop and open ChromaColor.
- Click on the Save Settings button, and Chromatica will automatically save the required color information from the target object.
- Load the image you want to recolor, mask it as necessary using ChromaMask, then simply load the saved color setting in the ChromaColor window. Chromatica will automatically recolor your image to look like the target object.

Reset button

This resets the pane to undo any recoloring changes. It will not affect the ChromaMask.

Recoloring an Image

ChromaColor allows you to recolor an object selected using ChromaMask or selected in Photoshop. ChromaColor retains all the subtlety and details present in the original after recoloring. You can experiment with new colors or load color details you have saved from another image. The EdgeWizard tool then automatically blends the edges of a recolored object seamlessly into the background.

To Use ChromaColor...

1. **Select one or more portions of the image.**
If you do not make a selection, the filter is applied to the entire image.
2. **Select Chromatica from Photoshop’s pull-down “Filters” menu and choose ChromaColor from the sub-menu.**

The ChromaMask window appears. Mask the image as described in "Select an Object."

3. **Click on the ChromaColor tab.**

The ChromaColor window appears. The image preview shows the original image without the ChromaMask. If you want to view or edit the ChromaMask anytime, click on the ChromaMask tab or the ChromaMask tool icon.

4. **Select a target color.**

To select a specific target color, click on the Target color button. The Color Picker will appear, and you can select the desired color. Clicking OK will update the Target color and automatically calculate the settings for the HSV value sliders. Otherwise, drag the Target HSV sliders until the desired color appears in the Target color button.

Alternatively, you can load a desired color setting by clicking the "Load Settings" button.

5. **Recolor your image.**

If you have the Auto Update box checked, the image will be recolored automatically when you have set the new Target color. Alternatively, click the Update button, and the image will be recolored. The Update button will show a red flashing cursor (*blink*) when the image can be updated. You can cancel the recolor process anytime by pressing the escape key.

6. **Blend the edges.**

Blend the edges of the recolored region into the background by clicking the EdgeWizard button. This brings up the EdgeWizard dialog box.

- Select "Calculate Edge" to create an edge or update an existing edge.

- Adjust the slider setting to control the maximum depth (in pixels) that the edge will extend into the background. Soft edges (for example, the edge of a sweater) may require a relatively high setting. Hard edges will require a low setting. In certain cases, no edge is required as the transition between the recolored region and the background is very abrupt.



- The EdgeWizard also will calculate a fixed edge width if you simply click to remove the check from the box labeled “Variable Edge Width” (the default). Select “No Edge” to remove an edge that has already been calculated.

ChromaColor Settings

To Save a ChromaColor Setting

1. **Recolor the image as desired.**

Note: You do not need to recolor the image to save a target color. You can load an image into Chromatica purely to save its colors to use as a target for another image.

2. **Click the Save Settings button.**
The Save dialog box appears.
3. **Enter a name for the Chroma Selection Range.**
4. **Click the OK button.**

To Load a ChromaColor Setting

1. **Click the Load Settings button.**
The Load Set dialog box appears
2. **Select the ChromaColor range to load.**
3. **Click the OK button.**

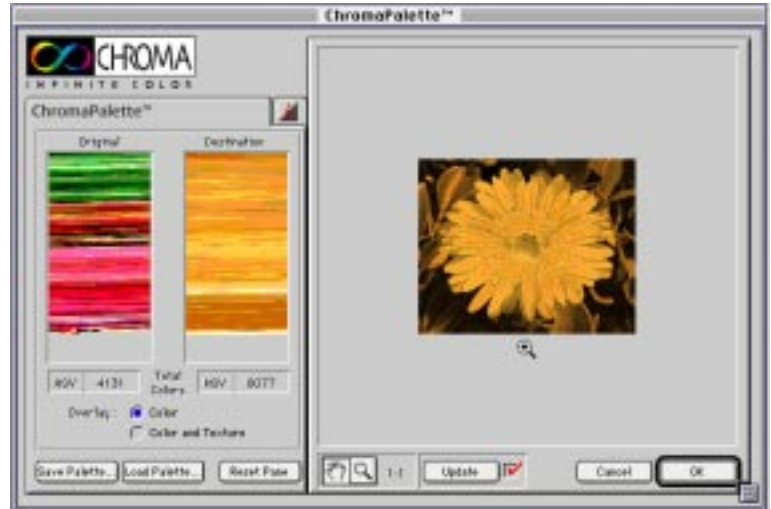
ChromaPalette™

ChromaPalette allows you to extract the colors from any image and replace them with the colors from any other image. You control the number of colors you extract from an image and how the colors are swapped.

Use the ChromaPalette Plug-In to....

- Take colors from any image and use them to recolor another image


- Explore how nature uses colors, then apply the same colors to your artwork. For example, you can transform textures and backgrounds by recoloring them with palettes from nature.
- Apply the palette of a great artist to any image and create an instant masterpiece.
- Replace or edit colors in an “object” that has a variety of colors, such as an eye, leaves, grass, skies, or fractals.
- Apply the same color scheme to all photographs, line art, web graphics, etc.



Create Palettes

ChromaPalette allows you to extract the colors from any image and replace them with the colors from any other image. You control the number of colors you extract from an image and how the colors are swapped.

Create Palette

 Click on this button to extract the colors from your image. You can Option-click (*Alt-click*) this button to load a palette that you have previously created for this image.) The Create Palette dialog will be displayed. This dialog displays the total number of colors in the image and allows you to select how large a palette to create from these colors. The palette size slider offers the following alternatives:



ALL

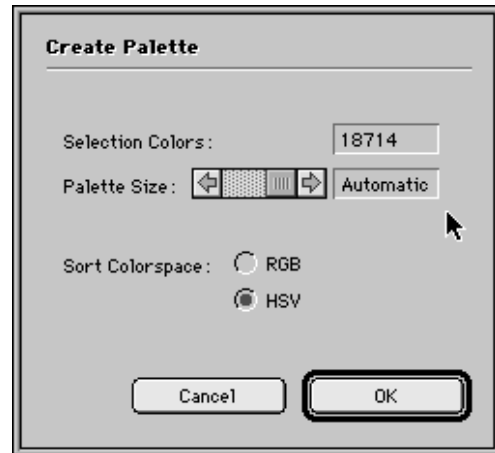
The palette will contain all the colors in the image.

AUTOMATIC

Chromatica will automatically reduce the colors using a standard setting. Specific values range from 256 to 262,144. These settings control how large a palette Chromatica will create from the image. The size of the palette created varies in proportion to the setting (that is, higher settings make larger palettes).

RGB/HSV

You also can choose between RGB and HSV as the sort option for the palette. The default is HSV and should yield the best results in most circumstances.



NOTE: The time required to create a palette increases significantly as the palette's size increases. You can cancel the Create Palette process anytime by pressing the escape key.

TIP: This is one of those rare instances where more is not better. Besides bringing your favorite Cray supercomputer to its knees, trying to create a palette from ALL of the colors in a 20 Mb truecolor image will not really buy you anything. Start by creating only small palettes (settings of 256 to 16,384) and explore the range of effects you can achieve by swapping in palettes from the library of palettes supplied with Chromatica.

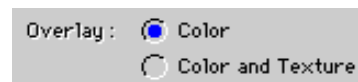
TIP: In general, if you create a palette with a small number of colors, swapping in a palette that has many more colors will yield a smooth effect with less color complexity. Conversely, if you create a large palette and then swap in a small palette, you will get a much noisier effect that has wilder color fluctuations across the image.

Save and Load Palette

These buttons allow you to save a palette you have just created, or to load a previously saved palette. Save Palette will save the "original" palette to disk. Load Palette will load a previously saved palette into "destination." When you click Update, Chromatica uses the "destination" palette to recolor the image.

Color and Texture

The Overlay radio buttons determine how Chromatica recolors the image with the "destination" palette. By selecting Color, Chromatica will swap in only the color information from the "destination" palette, leaving the grayscale information in the image unchanged. This is the default setting and should be used for most images. Mathematically generated (ordered) images such as fractals or textures can be recolored using the Color and Texture setting. The Color and Texture setting usually will yield better results for these mathematically ordered images.



Selecting Color and Texture also will turn any photographic image into a complex texture.

Reset

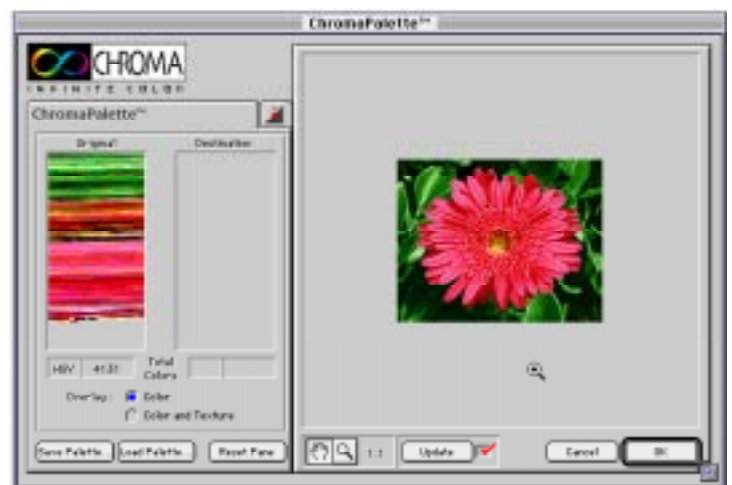
This resets the pane to undo any recoloring changes.

Creating and Swapping Palettes

To Create a Palette

- Select one or more portions of the image**
If you do not make a selection, the filter is applied to the entire image.
- Select Chromatica from Photoshop's pull-down "Filters" menu and choose ChromaPalette from the sub-menu.**
The ChromaPalette dialog appears.
- Click on the Create Palette button.**
The create Palette dialog appears. Alternatively, you can option-click (*alt-click*) this button to load a palette that you have previously created for this image. This will bring up the Load Palette dialog and allow you to load a previously created palette.
- Select the desired palette size and color space.**
If you are unsure, just leave the default settings of "Automatic" and HSV. Chromatica will generate a palette, sorted using Chroma's proprietary technology, and display the palette in the "Original" palette display.
- Click on the Save Palette button.**
The Save Palette dialog appears. Select an appropriate name for your new palette.

Chromatica automatically displays the palette size and color space information when you load palettes, so recording this information accurately in the palette's name is not necessary.



To Swap a Palette

1. **Create a Palette for your image as described above.**
2. **Select Destination Palette.**
Click the Load Palette button. The Load dialog box appears. You can preview the palettes you have already created (make sure the Preview box is checked).

Click OK after selecting the desired palette.

3. **Swap Palettes.**
If you have the Auto Update box checked, the image will automatically be recolored with the Destination Palette when you have loaded the Destination Palette.

Alternatively, click the Update button and the image will be recolored. The Update button will show a red flashing cursor (*blink*) when the image can be updated.

4. **Select Color or Color and Texture.**
You can choose the method used for swapping palettes by clicking the Overlay radio button. Selecting Color will replace the color information in the image with the color information from the Destination Palette. Selecting Color and Texture will replace both color and grayscale information in the image with values from the Destination Palette.

TIP: For a duotone effect, try loading one of the monochromatic palettes included (like "vermilion") and applying it to any photograph or image. You can achieve a wide array of monochromatic or duotone effects with this method, often changing the mood or tone of an image.

Additional Color Palettes

You will find over 1000 palettes on the Chromatica CD-ROM to get you started. They are divided into a number of different categories (e.g., Artists, Food, Nature, People) and range in size from 45 colors to more than 175,000 colors.

Sharing Palettes Between Platforms

A palette "converter" has been included to facilitate cross platform use. The palette converter is a Macintosh-only utility and is automatically installed in

your “Chromatica” folder when you install the Chromatica software on the Macintosh. When used, it will “toggle” the palette from its current format to the opposite format, without moving the palette from its original location.

MACINTOSH

To convert a Macintosh palette to the Windows format:

1. Select one (or more) palettes to be converted
2. Drag and drop the palette file(s) onto the converter icon

The palette(s) will remain in their original location. You will notice that the palette converter has filled any spaces in the palette name with an underscore character, and added a file extension of .PAL.

WINDOWS

To convert a Windows palette to the Macintosh format:

Chromatica for Windows can read any palette created by Chromatica for Macintosh 1.3 or later -- no conversion is required. However, when in doubt about the version number of your Chromatica for Macintosh software, use the palette converter. It is a good practice to use the converter as it preserves the .PAL convention.

1. Move the palettes to be converted to the Macintosh computer
2. Select one (or more) palettes to be converted
3. Drag and drop the palette file(s) onto the converter icon

The palette(s) will remain in their original location. You will notice that the palette converter has removed the .PAL extension.

Glossary

These are terms that you might reasonably encounter while using Chromatica; many are not Chromatica-specific, but should prove helpful nonetheless.

bitmapped

An image formed by a rectangular grid of pixels. The computer assigns a value to each pixel, from one bit of information (black or white), to as much as 24 bits per pixel for full color images.

CMYK

(Cyan, Magenta, Yellow, Black) The subtractive primaries, or process colors, used in color printing. Black (K) is usually added to enhance contrast and to print a true black.

channel

A channel stores the color information for an image; for example, the R, G, and B channels store the red, green, and blue information for an image.

ChromaColor™

A plug-in that lets you mask an object in an image and recolor it while keeping all the detail and nuance of the original image.

ChromaMask™

Used within ChromaColor to select an area or object based on its commonality of color, using color ranges and settings that you define.

ChromaPalette™

A plug-in that allows you to extract the colors from any image and replace them with the colors from any other image.

chrominance

The component of color that represents hue and saturation.

color correction

Changing the colors of pixels in an image to achieve optimum printed results.

color space

A relational representation of colors ordered along color difference dimensions. Specific color spaces are used in computer graphics, such as RGB and HSV.

contrast

The relationship between the lightest and darkest areas of an image.

custom colors

Custom colors allows you to choose a custom Pantone® color, for example, in the Color Picker dialog box.

edge detection

Process of finding edges in a scene through sensors that respond to the differences in the grayscale intensity in an image. Detection of an edge occurs when these differences exceed a specified value.

EdgeWizard™

Used within ChromaColor to blend a changed foreground with the background, automatically creating realistic edges and color boundaries.

fill

To paint a selected area with a gray shade, a color, or a pattern.

filter

A filter is an effect applied to an image by a menu command that affects the pixel data in the image.

floating selection

Set using the Float command in the Select menu (Photoshop). It floats above the pixels in the underlying image until it is deselected and can be moved without affecting the underlying image.

fractals

Mathematical forms that mimic the complex forms found in natural objects.

gradient fill

A fill that displays a gradual transition from the foreground to the background color.

grayscale

The depiction of gray tones between black and white.

hue

The main attribute of a color that distinguishes it from other colors.

image

A graphic or illustration that you view using Photoshop (and many other applications).

HSV (often HSB)

HSV allows you to choose a color with a hue value from 0° to 360° and a saturation and brightness value from 1% to 100%. The hue value is based on the color wheel, with 0 referring to the red value on the color wheel. For example, if the hue is set to 250, a blue value is displayed since blue is 250 degrees clockwise from red on the color wheel.

Lab

The Lab color model is based on the original color model proposed by the Commission Internationale d'Eclairage (CIE) in 1931 as an international standard for color measurement.

luminance

The brightness of the transmitted image from black to white. Also, the intensity value of a pixel.

masking

The process of selecting or isolating certain areas or objects within an image.

object

An object is an individual item in a document that can be moved, altered, and even saved separately from the document. Editing an object might consist of applying a filter (such as Chromatica) to it, painting over it, or any other operation that changes the object's pixel data.

palette

A specific set of colors for application to images.

Pantone®

A standardized set of color palettes.

pixel

(picture element) The smallest distinct unit of a bitmapped image.

plug-in

See filter.

raster image

See bitmapped.

RGB

(Red, Green, Blue) The additive primary colors used for computer monitor displays. The RGB color mode allows you to choose a color with red, green, and blue values ranging from 0 to 255.

saturation

The strength or purity of color. Saturation represents the amount of gray in proportion to the hue and is measured as a percentage from 0% (gray) to 100% (fully saturated).

swatches

The term swatch typically refers to a small square of color on a color palette. We've also used it in the context of matching a specific "swatch" of color fabric, for example.

texture

The regular or random repetition of spatial features across an image. Texture is dependent on the spatial distribution of the gray shades and discrete tonal features.

value

Brightness or lightness. The term is used to describe differences in the intensity of light reflected from or transmitted through an image independent of its hue and saturation.

vector image

A vector image is different from a bitmap (raster) image. A vector image is an image composed of shapes saved as mathematical relations to each other, e.g., points and lines.

Common Questions

How can I improve Chromatica's performance/speed?

Before launching Chromatica, draw a rough lasso such that the region or object to be recolored is completely contained within the selection.

For Macintosh Users, allocate as much memory as you can to Photoshop.

How can I create ChromaMasks more quickly?

Use point samples and small rectangular marquees to under sample rather than over sample. Use the point sample or rectangular marquee with shift-click on the unselected regions of color you want to add to the selection. If the selection grows too large, you can always use the undo feature to revert to the previous stage.

Macintosh (CMD-Z)

Windows (CTL-Z)

How can I add "life" to a relatively dull image or photo?

To make any image more lively and dynamic, simply move up the HSV tolerance sliders in Chromatica. Alternatively, you can quickly tone down any image that appears harsh by moving these sliders down.

How can I recolor an object (e.g., a sweater) to match a specific swatch of fabric?

To recolor any object to resemble any other object (a "target object"), you first should select a representative portion of the target object using the ChromaMask tool and click on the ChromaColor tab. In the ChromaColor window, simply click on the Save Settings button, and Chromatica will automatically save the required color information from the target object. Now load the image you want to recolor, mask it as necessary using ChromaMask, then simply load the saved color setting in the ChromaColor window. Chromatica will automatically recolor your image to look like the target object.

How can I recolor a single object that visually reflects multiple color ranges?

To recolor a single object with two or more major color ranges (say, a dress that is much darker on the left than on the right), mask and recolor each region separately, and then blend the regions seamlessly with the EdgeWizard.

How do I adjust the overall brightness of an image without completely washing it out or making everything too dark?

Use the value slider in Chromatica to adjust the overall brightness of an image rapidly without compromising the contrast. Chromatica uses a special algorithm that preserves the extreme blacks and whites in the image much more effectively than simply shifting all grayscale values by the same amount.

How can I print images effectively that I have created with Chromatica?

Bear in mind that ChromaColor or ChromaPalette may add colors outside the range of the relatively restricted CMYK color space. In ChromaColor, you can always use the tolerance sliders to reduce the color range to a printable range. Or, better still, simply use Photoshop to convert the image from Lab to CMYK after using the modules in Chromatica.

How can I create really subtle, elegant images or textures with ChromaPalette?

Create a palette with a small number of colors (i.e., 4,096 or fewer), and then swap in a palette that has many more colors. This should generate a smooth,

elegant effect with little color complexity. Alternatively, if you want to produce a really wild, noisy image, simply create a large palette (i.e., with more than 4,096 colors), and swap in a smaller palette.

When should I use the EdgeWizard?

In cases where the transition between a recolored object and background is very abrupt, no edge is required. You should use the EdgeWizard, however, whenever the transition between a recolored object or region and background is not very abrupt. In other words, whenever you need to blend a recolored object or area smoothly, seamlessly into the background. The EdgeWizard automatically calculates how deep the edge needs to be at every point, generating a short, hard edge for rapid color changes and a longer, softer edge for subtle blends (the edge of a sweater, for example). Start with the default slider setting, and adjust it only if you need a deeper or shallower edge.

What does setting EdgeWizard at less than 1 pixel do?

Setting the slider to values less than one pixel will still generate an edge of one pixel in depth. As the setting approaches zero, however, the recolored edge will be weighted to resemble the background color.

Do you have more questions? Let us know, we'll be happy to help you.

The CHROMATICA TEAM

Cool Things

We do not want you to miss...

In this section, we are assuming that you already understand the fundamentals of Chromatica. If not, please refer to the on-line Help or manual, which provide everything you need to know to get started in Chromatica. Once you have mastered the basics, be sure to try out some of these fantastic things you can do with Chromatica.

NOTE: The images used in this and previous sections of the manual can be found in Photoshop 3.0.5's tutorial folder.

Fine tune your recoloring

You can use the Value and Tolerance sliders in ChromaColor to make adjustments your recoloring. The Value sliders represent the Target color's Hue, Saturation, and Value settings relative to the Average color. The Tolerance sliders provide control over the entire range of HSV values in the recolored image. For example:

1. Open the Flower image in Photoshop's tutorial folder.

2. Select Chromatica from the pull-down "Filters" menu and choose ChromaColor. The ChromaMask dialog appears.
3. Click on the ChromaMask tool in the image preview pane and the cursor changes to the ChromaMask cursor.
4. Position your cursor over the flower. Click and drag to marquee a sample area of the flower. The flower will now be masked in gray and its colors displayed in the color wheel. You can add colors by holding down the shift key while clicking on the image. Subtract colors using the Eraser tool.
5. Click on the Save Range button and name the Color Selection Set you have created. (Remember that the ChromaMask is not specific to pixel position but to color range.)
6. Click on the ChromaColor tab and adjust the Hue Value slider to 80°, changing the color of the flower from pink to yellow.
7. To eliminate the tiny amount of pink color remaining in the petals of the flower, adjust the Hue Tolerance slider down to 0.
8. Click on the Save Settings button and name the Color Shift Set you have created.
9. The next time you select ChromaColor you will find that these settings are available for you to reuse. Try them!

Recolor objects to match a specific color

With ChromaColor you can recolor an object within an image to match a Pantone color, a swatch of fabric, or any other object. For example:

1. Open the Fruit image in Photoshop's tutorial folder.
2. Select Chromatica from the pull-down "Filters" menu and choose ChromaColor. The ChromaMask dialog appears.
3. Click on the ChromaMask tool in the image preview pane and the cursor changes to the ChromaMask cursor.
4. Position your cursor over the orange rose. Click and drag to marquee a sample area of the rose.
5. Click on the ChromaColor tab and then the Save Settings button. Save the Color Shift Set as Orange Rose.

6. Click on ChromaMask tab and then the Reset Pane button.
7. Now mask the yellow rose. Using the Preview pop-up menu, choose Mask IN-> black so that it will be easier to determine whether or not you have masked the entire rose. You can add colors by holding down the shift key while clicking on the image. Subtract colors by using the Eraser tool.
8. Click on the ChromaColor tab. Click on the Load Settings button and select the Orange Rose setting, changing the yellow rose so that its color resembles the orange rose.
9. Click on the EdgeWizard button and choose .9 pixels to blend the new foreground color of the rose into the background. (When you choose .9, the EdgeWizard will still generate an edge of one pixel in depth, but the recolored edge will be weighted to resemble the background color.)
10. To brighten up your new orange rose, move the Value slider down to 0. Now there is no difference between the original yellow Value and the new orange Value. (You don't have to worry about compromising the contrast because Chromatica uses a special algorithm that preserves the extreme blacks and whites in the image much more effectively than simply shifting all grayscale values by the same amount.)

Swap palettes for an incredible range of color effects

You can achieve a wide variety of color effects with ChromaPalette depending upon the sizes of the palettes you use. For example, swapping a very large palette for a small one (i.e., 4,096 or fewer colors) will give your image a smoother, monochromatic look. For example:

1. Open the Café image in Photoshop's tutorial folder.
2. From the Mode menu in Photoshop, choose RGB Color.
3. Select Chromatica from the pull-down "Filters" menu and choose ChromaPalette.
4. Click on the Create Palette button. When the Create Palette dialog appears, choose the smallest possible palette -- 256 colors.
5. To select a Destination Palette, click on the Load Palette button and open the Cabernet Grapes palette.

6. If you have the Auto Update box checked, the image will automatically be recolored with the Destination Palette. If not, click the Update button and the image will be recolored.

For a dramatic effect with more color complexity, swap in a small palette for a much larger one as in this example:

1. Open the Café image in Photoshop's tutorial folder.
2. From the Mode menu in Photoshop, choose RGB Color.
3. Select Chromatica from the pull-down "Filters" menu and choose ChromaPalette.
4. Click on the Create Palette button. When the Create Palette dialog appears, choose a larger palette of 16,384 colors or more this time.
5. To select a Destination Palette, click on the Load Palette button and open Van Gogh's The Starry Night palette, which has only 275 colors.
6. If you have the Auto Update box checked, the image will automatically be recolored with the destination palette. If not, click the Update button and the image will be recolored.

Note: You may also want to experiment with the Overlay radio button, which lets you replace both the color and the grayscale information in an image with new values from the Destination Palette. This method of swapping palettes is especially effective when working with complex textures or fractals.