Color Mechanic Pro

Reference Manual
Version 2.0

Introduction

Color Mechanic Pro is a selective color correction Photoshop plug-in from Digital Light & Color.

What makes Color Mechanic Pro so powerful is that it lets you change one or more colors in an image *without changing any other colors in the image* and *without the painstaking work of selecting the parts of the image you want to change*. This type of selective color correction goes far beyond conventional color balancing or filtration techniques that simply apply a uniform correction to the entire image or give you a few sliders to adjust.

In addition to changing the hue and saturation of selected colors, you can also use Color Mechanic Pro to lighten or darken selected colors in an image. For example, you can change the color of a sky and darken it at the same time.

Finally, Color Mechanic Pro lets you make multiple color adjustments at the same time. For example, you can correct the skin tones, sky color and clothing colors in a photograph with immediate on-screen preview of each modification as you make it. Thus you can see all your color adjustments and how they work together in your image before applying the filter at full image resolution.

To use Color Mechanic Pro you need Photoshop version 4.0 or later, however to work with 16 bit per channel images you need Photoshop 5.0 or later. Color Mechanic Pro also can also be used with Photoshop Elements, Photo Deluxe, Paintshop Pro, and various other image editing programs that support plug-ins, but most of these programs cannot handle CMYK or 16-bit images.

Quick Start

Before boring you with all the details, let's see just how easy Color Mechanic Pro is to use. The following steps assume you have already installed the plug-in by copying it to your Photoshop Plug-Ins folder. (see Installation Instructions).

Open your image and launch Color Mechanic Pro.

Open the image you want to work with and select *Filter/Digital Light & Color/ Color Mechanic Pro...* from Photoshop's main menu.

Create a new control point.

In the input image in the upper left corner of the window, click on a part of the image whose color you want to change. This creates a new control point in both color hexagons at the location corresponding to the hue and saturation of the input image at the location you selected.

Specify a Color Correction.

Click and drag the new control point in the input color hexagon to change its color. This extends a line and an arrow head from the control point in the direction you move it. Moving a control point toward or away from the center of the color hexagon reduces or increases the saturation; moving the control point clockwise or counter-clockwise changes the hue. The results of your change show up immediately in the preview in the upper right corner of the window and in the preview color hexagon.

Specify a brightness correction.

To make brightness as well as color adjustments, use the *Brightness Change* slider located between the color hexagons. Move the slider to the right to lighten or to the left to darken colors whose hue and saturation match those of the control point.

The *Brightness Change* slider is only displayed when a control point is selected—to select a control point, just click on it in the color hexagon. Each control point has its own independent brightness change setting.

Make additional corrections.

If a correction changes colors other than the ones you are trying to change, you can narrow the range of affected colors. Just create one or more additional control points by clicking on parts of the image that you want to leave unchanged. When you create a new control point and specify no color adjustment (by not dragging it to a new location or moving its brightness slider) you are telling Color Mechanic Pro not to change pixels in the input image that match the hue and saturation of the control point.

You can refine an existing correction by dragging either end of any of the control point. In most cases, you will want to drag the arrowhead and not the circle.

You can also create and adjust additional control points as necessary if you want to make any additional color corrections to the same image.

To remove a control point, option-click (Mac) or ctrl-click (PC) on the control point at either end of the arrow.

Finish.

Click *OK* to make the final, high resolution corrections. This closes Color Mechanic Pro and replaces the input image with an updated version that reflects the changes you have made. Or click *Cancel* to exit without making any changes.

How Color Mechanic Pro Works

Hue and Saturation Matching

Color Mechanic Pro uses a method of selective color correction based on hue and saturation matching. When you create a control point that tells Color Mechanic Pro to change color A to color B, it searches the input image for colors that match color A exactly, regardless of how light or dark they may be, and changes their hue and saturation to that of color B while preserving their brightness. For a pixel whose hue and saturation does not exactly match any of the control points, Color Mechanic Pro uses advanced 2-dimensional interpolation techniques to derive corrections based on how close the hue and saturation of the pixel are to those of each of the currently defined control points.

The reason this method works so well is that a colored object such as an orange has a more or less uniform surface color but, due to uneven lighting and an irregular shape, it does not appear to have uniform brightness. The parts of the orange that face away from you or that are poorly lit may look dark, while the parts that face you or are well lit may look light. By matching colors based on hue an saturation and ignoring variations in brightness, Color Mechanic Pro lets you change the entire orange in a single operation.

Brightness Changes

Normally, when a pixel whose hue and saturation match color A is changed to color B, only its hue and saturation are changed and its original brightness is retained. If you request a brightness change however, you can make it either lighter or darker as well as changing its color.

Of course, there are limits to how brightness changes are applied since, if a pixel is already as light as it can get it cannot be made brighter, or if it is already black it cannot be made darker. For example, since all the colors in the input color hexagon are as light as they can be, the *Brightness Change* slider has no effect on the output color hexagon when you move the slider to the right. When you move it to the left, however, you will see the corresponding part of the color hexagon darken.

Selections

If you use Photoshop's selection tools to select part of the input image before you invoke Color Mechanic Pro, only the selected region of the image is changed. If there are two parts of your image that have the same color and you only want to change one of them, you can use a selection to restrict changes to just the part you want to modify.
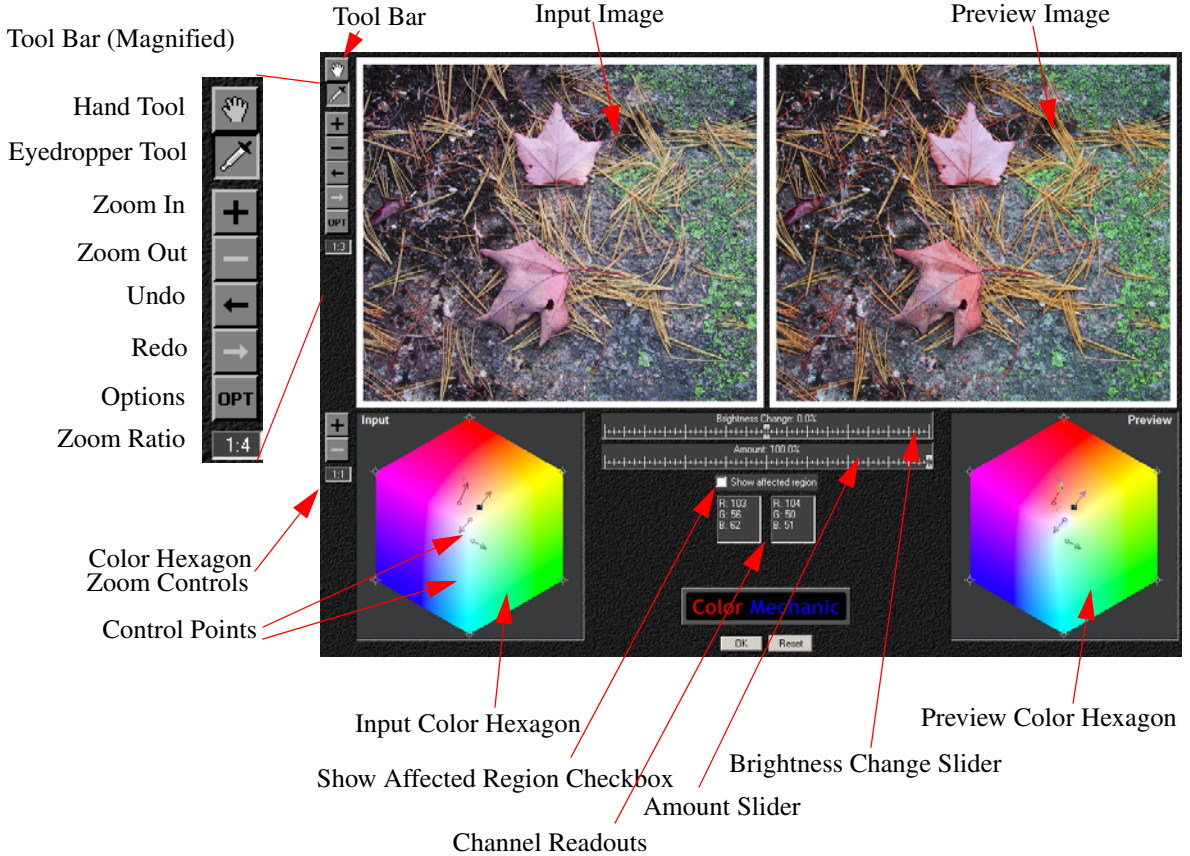
If Color Mechanic Pro detects that you have made a selection on the input image, it displays an *Ignore Selection* item in its options menu. Selecting this item overrides the current selection and applies your changes to the entire image. This feature affects both the preview image and the final, high resolution image you get when you click the *OK* button.

Density Masks

Sometimes you may wish to change colors of pixels in a particular brightness range, for example to change dark yellow to dark orange without changing bright yellow to bright orange. To achieve this effect, you can create a selection based on the brightness of the image (often called a *density mask*) before you invoke Color Mechanic Pro and this will restrict its operation to regions of the input image whose brightness levels are selected by the density mask. Note that since you can only use a single selection, whatever density mask you use will apply to all control points.

The Color Mechanic Pro Window

The following illustration identifies the various components of the Color Mechanic Pro user interface:

Tool Bar (Magnified)

Tool Bar   Input Image   Preview Image

Hand Tool
Eyedropper Tool
Zoom In
Zoom Out
Undo
Redo
Options
Zoom Ratio

Color Hexagon
Zoom Controls

Control Points

Input Color Hexagon   Preview Color Hexagon

Show Affected Region Checkbox   Brightness Change Slider

Channel Readouts   Amount Slider

Input and Preview Images

The input image shows you all or part of the image you are working on. You can zoom in or out using the + and – buttons in the tool bar, and you can scroll the display by clicking and dragging the image using the hand tool (see below).

The preview image shows you what the input image will look like after the color corrections have been made. The preview image automatically zooms and scrolls in sync with the input image so the same part of the image is always visible in both windows.

Color Mechanic Pro has an eyedropper tool and a hand tool as selected by the eyedropper and hand icons in the tool bar.

When the hand tool is selected, as you pass the mouse cursor over the input or preview image, the cursor changes to a hand indicating that clicking and dragging will scroll the input and preview images in the direction you drag. The hand tool is grayed out when the entire image is displayed since scrolling is unnecessary in this case.

When the eyedropper tool is selected, as you pass the mouse cursor over the input or preview image, the cursor changes to an eyedropper with a cross-hair. This indicates that clicking on either the input or the preview image will sample the color of the input image at the point you click and will automatically create a new control point in both color hexagons at the point corresponding to that color. The size of the opening in the eyedropper indicates the size of the area whose color will be sampled. You can change this so-called probe size via the Options menu (see below).

As a convenient keyboard shortcut, holding down the shift key or the space bar temporarily switches tools— in other words, if the eyedropper tool is selected, holding down the shift key temporarily selects the hand tool and vice versa.

As you pass the eyedropper over either the input or preview image, a small cross is also displayed in both color hexagons at the point corresponding to the color at the cursor location. This lets you see where each color in the input image lies on the color hexagon without having to create a control point.

Zoom In and Zoom Out Buttons

Clicking the + and – buttons in the tool bar zooms the input image in or out. The current zoom ratio is displayed just below the buttons.

A zoom ratio of 1:1 means that each pixel in the image corresponds to one pixel on the screen. A zoom ratio of *1:n* means that only every nth pixel is displayed—in other words, the image is reduced by a factor of n. A zoom ratio of *n:1* means that each pixel is magnified to an nxn block of solid color, thus magnifying the image by a factor of n.

When you click the + button, the input image is zoomed in (magnified) one level. If the entire image does not fit on-screen, you can use the hand tool to scroll the region of interest into view by clicking and dragging the image. You cannot zoom in beyond a 10:1 magnification ratio.

When you click the – button, the input image is zoomed out (reduced) one level. You cannot zoom out past the point where the entire image fits on the screen.

The zoom in button is grayed out when the maximum magnification is reached; the zoom out button is grayed out when the entire image is displayed.

Opt Button

Clicking the *Opt* button pops up the options menu. This menu lets you access less frequently used settings and commands. For more information on the options menu, see Options Menu below.

RGB/CMYK Channel Readouts

When you pass the cursor over either the input or the preview image or over either the input or preview color hexagon, Color Mechanic Pro displays a small box just below the *Show Affected Region* checkbox that contains the numerical values of the pixels in both the input and preview images or color hexagons at the cursor location in either RGB or CMYK coordinates, depending on the image type.

Input and Preview Color Hexagons

The two color hexagons at the bottom of the dialog box display a representation of all possible colors with 100% brightness. The colors are arranged with white in the center and the most saturated colors around the edge.

Color Mechanic Pro uses the color hexagon to establish control points you can use to define one or more color and/or brightness adjustments. The use of the color hexagon and control points is detailed in the following sections.

The input color hexagon always stays the same—the output color hexagon shows what happens when you apply the current color corrections to the input color hexagon. This provides a quick way to see what corrections are being applied to the input image and can alert you to various problems.

Brightness Change Slider

The *Brightness Change* slider lets you view or modify brightness adjustments (either positive or negative) for the currently selected control point. To select a control point, simply click on it.

Amount Slider

The *Amount* slider can be set to any value from 0% to100%. If you leave it at the default value of 100%, any color corrections you specify are applied full strength. As you decrease the amount, all color and brightness changes are reduced proportionally until, at 0%, you are left with a copy of the original image.

Show Affected Region Checkbox

The *Show Affected Region* checkbox is active whenever a control point is selected. If you check the box, Color Mechanic Pro alters the preview image to indicate what parts of the image are affected by the current control point and how much. Parts of the image that are unaffected by the current control point are blacked out; parts of the image that are fully affected are displayed normally; parts of the image that are partially affected are darkened proportionately. Unchecking the box or deselecting the control point restores the normal preview display.

There are several reasons you may find this feature useful:

1) It lets you see if a control point is altering parts of the image you do not wish to change. If this happens, you may need to use a selection to restrict Color Mechanic Pro to working on only the part of the image you want to change, or you may need to create additional control points to refine the color selection process.

2) If you have several nearby control points, it lets you see which ones are affecting which pixels.

3) It helps you understand how Color Mechanic Pro works and what each control point is doing to the image.

If you wish, you can quickly switch from one control point to the next using the *Tab* and *Shift Tab* keyboard shortcuts to see what contribution each control point is making to the final image.

Zooming the Color Hexagons

In addition to the controls on the main tool bar, there is a second set of zoom controls just to the left of the input color hexagon. These controls let you magnify or reduce the input and preview color hexagons. When making small color corrections, you may find zooming in on the color hexagons makes it easier to fine tune the effect.

When the color hexagons are magnified, Color Mechanic Pro displays scroll bars to let you move around and see the entire hexagon. The preview color hexagon is zoomed and scrolled in sync with the input color hexagon so you always see the same section of each one.

The color hexagon zoom in button is grayed out when you reach the maximum zoom factor; the zoom out button is grayed out when the entire hexagon is displayed.

OK and Cancel Buttons

Clicking *OK* causes the current corrections to be applied to the input image and the Color Mechanic Pro dialog box is closed. The original image is replaced with the corrected image. If necessary, you can restore the original image via Photoshop's *Undo* command or history palette.

Clicking *Cancel* causes any current corrections to be discarded and the dialog box is closed. The original image is remains unchanged.

If you hold down the *Alt* (PC) or *Option* (Mac) key, the *Cancel* button becomes a *Reset* button. The action of the *Reset* button is to reset all the Color Mechanic Pro settings and return to the initial defaults. This is the same as the *Clear All Settings* command on the Options Menu.

The Color Hexagon

Color Mechanic Pro makes extensive use of the color hexagon to represent all possible combinations of hue and saturation with 100% brightness.
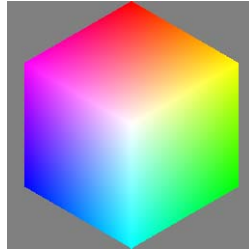
The color hexagon is based on the HSV (hue, saturation, value) single hexcone color space model.

Saturation

Saturation is the intensity of the color ranging from 0% for white to 100% for pure primary colors. Colors with low saturation appear washed out and are sometimes called pastels. In the color hexagon, colors with low saturation values are located near the center. The closer you get to the outer edge of the hexagon, the more saturated the colors. The six pure primary and secondary colors (red, yellow, green, cyan, blue, and magenta) are located at the six vertices of the hexagon, while white is at the center.

Hue

Hue varies as you move around the color hexagon either clockwise or counter-clockwise about the center.

Brightness

Every color in the color hexagon has at least one of its RGB channels maxed out at 100%. Consequently, you cannot make any of these colors brighter without changing the relative amounts of the red, green and blue channels. You can however make any of these colors darker by reducing all three channels by the same percentage. As you do this, the color hexagon gets darker and darker until at 0% brightness it goes entirely black.

Creating and Removing Control Points

To color correct an image, you create and adjust control points on the input color hexagon. You can add control points up to a maximum of 50.

Creating A New Control Point

There are two ways to create a new control point:

1. **Clicking on the input image with the eyedropper tool**

    This creates a new control point at the point in the color hexagon whose hue and saturation match those of the input image at the tip of the eyedropper. This method is usually the most natural since you are indicating the color you want to change by pointing to an example of it.

    When you click on the input image with the eyedropper, Color Mechanic Pro samples the color of the input image in a small square centered on the location you clicked at and averages the colors of all the pixels in the square. It then computes the hue and saturation of this average color and creates a control point at the spot in the input color hexagon corresponding to those computed values.

    You can control the size of the square Color Mechanic Pro averages by changing the *Probe Size* setting via the Options Menu. Averaging a small area instead of sampling a single pixel can be useful when the region you are clicking on has minor local variations.

    For convenience, Color Mechanic Pro also lets you create a new control point by clicking the eyedropper on the preview image. This has the same effect as clicking on the corresponding point in the input image. In other words it selects colors from the input image, not from the preview image.

    As you pass the eyedropper over either the input or preview image, a small cross is displayed in both color hexagons at the point corresponding to the color at the cursor location. This lets you visualize where each color in the input image lies on the color hexagon without having to create a control point.

2. **Shift-Clicking on the Input Color Hexagon**

    This creates a new control point at the location you clicked. This method is useful when you want to manipulate the color hexagon directly.

    For convenience, Color Mechanic Pro also lets you create a new control point by shift-clicking on the preview color hexagon. This has the same effect as shift-clicking on the corresponding point in the input color hexagon.

An alternate way to create new control points is to ctrl-click (Mac) or click with the right mouse button (Windows) on either color hexagon and select *Create a New Control Point* from the popup menu.

Removing a Control Point

To remove a control point, hold down the option key (Mac) or ctrl key (PC) and position the cursor over either endpoint until the cursor changes to a cross-hair with a minus sign next to it and then click on the control point. The control point will be removed and the preview will be updated automatically.

An alternate way to remove a control points is to ctrl-click (Mac) or click with the right mouse button (Windows) on the control point in either color hexagon and select *Delete Control Point* from the popup menu.

Resetting a Control Point

If you wish to reset a control point's color or brightness change without removing it, ctrl-click (Mac) or click with the right mouse button (Windows) on the control point in either color hexagon and then select *Reset Control Point Color Change* or *Reset Control Point Brightness Change* from the popup menu.

Editing Control Point Settings Manually

To modify a control point's settings manually, ctrl-click (Mac) or click with the right mouse button (Windows) on the control point in either color hexagon and then select *Edit Control Point Settings Manually* from the popup menu. This displays a dialog box (see below) that lets you enter specific numeric values for the starting color, ending color, or brightness change for the selected control point. In addition, you can set the starting or ending colors to Photoshop's current background or foreground color (as set by its eyedropper tool). By presetting the foreground or background color from another image before running Color Mechanic Pro, you can then used these saved values to match colors in the other image.
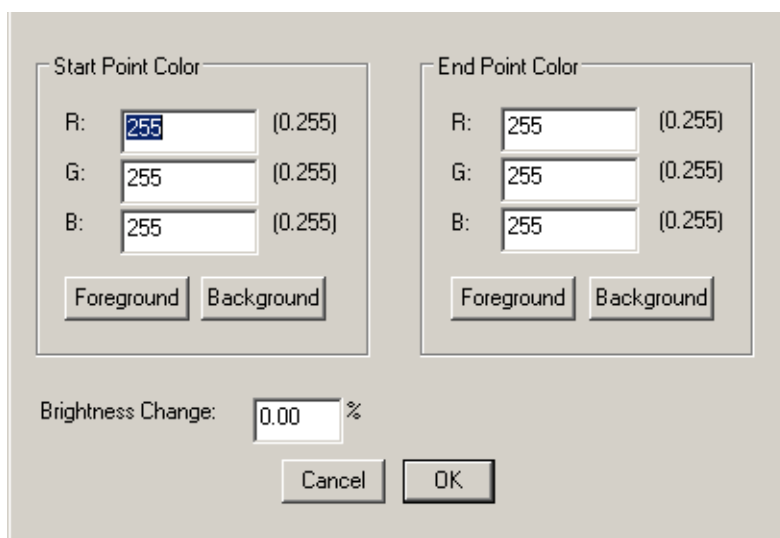
Start Point Color is the color for which the control point was created; *End Point Color* is the color to which the control point is dragged. *Brightness Change* is the value set via the *Brightness Change* slider.

Legal color values are integers from 0 to 255; legal brightness change values are floating point numbers from -100% to 100%.

Clicking the *Start Point Color Foreground* or *Background* button sets the start point color to Photoshop's current foreground or background color, and similarly for the *End Point Color Foreground* and *Background* buttons.

Working with Control Points

Each control point consists of a pair of endpoints connected by an arrow. When you create a new control point, both endpoints are in the same location, and the control point is displayed as a small circle. Setting both endpoints the same tells Color Mechanic Pro not to change colors for pixels whose hue and saturation are at or near the hue and saturation of the control point.

Making a Color Correction

To separate the two endpoints, first position the cursor over the control point you wish to modify—you can tell when you are over the control point since the cursor will change to a cross-hair. As you click and drag on the control point, an arrow will be displayed connecting the original location of the control point and the spot to which you dragged it. This tells Color Mechanic Pro to change colors whose hue and saturation match the hue and saturation corresponding to the base of the arrow to the color at the arrow head. If you wish, you can make further adjustments to the control point by dragging either endpoint.

To increase the saturation of colors for a control point, drag the arrow head away from the center of the color hexagon; to decrease the saturation, drag it toward the center. To change the hue of colors for a control point, drag the arrow head either clockwise or counter-clockwise about the center of the color hexagon.
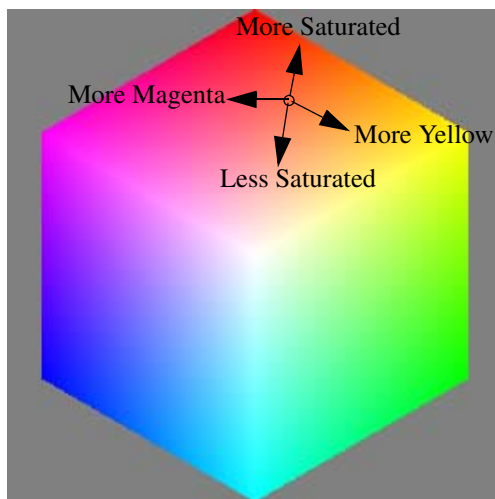
The Seven Initial Control Points

When Color Mechanic Pro starts up, it automatically places control points at each of the six vertices of the color hexagon corresponding to the fully saturated primary and secondary colors and a seventh control point in the center for pure white. You can modify or even remove any of these seven default control points, but most of the time you are better off leaving them alone as they lock down the extreme colors and preserve neutral grays. There are two exceptions to this general rule:

1. Sometimes, moving the white point can be a good way to add a color cast to the neutrals in an image, should you wish to do this deliberately.
2. If you create a new control point close to one of the seven initial control points, you may have to remove the nearby initial control point to keep it from interfering with the correction you are making.

Making Brightness Adjustments

In addition to using control points to make color adjustments, you can use also use them to make brightness adjustments. Each control point has an associated brightness change. A brightness change of 0% means no change; a positive brightness change tells Color Mechanic Pro to lighten the colors; a negative brightness change tells Color Mechanic Pro to darken the colors. The *Brightness Change* slider is displayed between the color hexagons any time a control point is selected as the *current control point*. When you create a new control point, it automatically becomes the current control point so you can go ahead and adjust its brightness change right away. You can make a control point current at any time by simply clicking on it or by using the *Tab* and *Shift Tab* keys to cycle through the control points. The current control point is displayed as a small filled-in square instead of a small open circle, so you can tell which one is selected.

Two Ways to Use Control Points

You can use control points two different ways—to tell Color Mechanic Pro you want *to change* one color to another or to tell Color Mechanic Pro *not to change* a color. You may find the second type of control point useful if some colors near a control point you have created are being changed and you want them to remain the same. To do this, just create a new control point for the color you want to stay fixed and leave it with both endpoints on top of each other.

Problems with Large Corrections

Color Mechanic Pro was designed primarily as a tool for fine tuning the colors in an image. This corresponds to moving control points by relatively small amounts and making limited brightness adjustments. While there is nothing to stop you from using Color Mechanic Pro to effect radical color or brightness changes, you may find it more difficult to do so without changing colors you did not wish to change. If this starts to happen, simply create control points for the colors you want to lock down.

Another problem you may encounter when you make large color adjustments is color fringing—a thin, colored halo around objects whose color you are changing. This happens because the pixels at the edge of the object are partly the color of the object and partly the color of the background, so they may fail to match the hue and saturation of the object closely enough to be adjusted. To some extent, this is a limitation of Color Mechanic Pro, however you may be able to greatly reduce or totally eliminate color fringes if you carefully locate the color of the edge pixels and create a control point that changes the edge color consistently with the change you are making to the object.

Selecting overlapping control points

When endpoints of several control points are near each other or near another control point, it can be difficult to lock on to the one you want to drag. To make this easier, Color Mechanic Pro always gives priority to the current control point. To make a control point current, you can select it either by clicking on one of its endpoints or you can use the *Tab* or *Shift Tab* keys to cycle through the control points until you get to the one you want to drag.

Working with CMYK images

When you make color corrections to a CMYK image, Color Mechanic Pro treats the CMY (cyan, magenta and yellow) channels as inverted RGB channels and ignores the K (black) channel. While this is a gross oversimplification of the relationship between CMY and RGB, because Color Mechanic Pro makes relative adjustments to the original colors in the image, its methods remain valid. The only difference you may notice is that control points in the color hexagon show up slightly displaced from the location you might expect based on the hue and saturation of colors in the input image. Also, large changes in color may affect image brightness slightly.

When you make a brightness change to a CMYK image, Color Mechanic Pro lightens or darkens colors by making changes to all four channels. A CMYK image really has two brightnesses -- one based on the amount of *common gray* based on CMY and one based on the K (black) channel. Color Mechanic Pro automatically apportions brightness corrections between these two components. It is possible that darkening an image or increasing its saturation significantly may cause the total ink coverage to exceed the recommended maximum for a given printing press.

Undo and Redo

As you work with Color Mechanic Pro, each time you make a change by inserting, removing or adjusting control points, this change is recorded in an *undo list*. This list contains a copy of all the settings in effect at the time you make each change, and the entries are maintained in chronological order. Color Mechanic Pro's undo and redo commands let you move backward in the list to back out of your changes one at a time or forward in the list to reapply changes you have undone.

There are two commands available via Color Mechanic Pro's tool bar or via Keyboard Shortcuts.

Undo -- Back One Step

This command moves back one step in the undo list. Using this command you can undo all your changes one at a time back to the beginning of the session.

Redo -- Ahead One Step

This command moves ahead one step in the undo list. Using this command you can redo all the changes you have undone one step at a time up to the last one.

If you make a change while you are in the middle of the undo list, Color Mechanic Pro clears all the entries in the list from that point on and inserts the new change at the end of the list. This means the previous changes at the end of the list are lost and cannot be redone. Changes prior to the current location in the undo list are retained.

A third command is also available via Keyboard Shortcuts only:

Undo/Redo

This command undoes or redoes the last change you made. By toggling the last change on and off, it makes it easy to see what effect it is having on the image.

Options Menu

When you click on the *Opt* button in the upper left corner of the Color Mechanic Pro window, the *options menu* is displayed. This menu lets you select certain less frequently used commands and settings.

Save Settings...

Selecting *Save Settings* lets you save all Color Mechanic Pro settings in a text file with the extension ".cm". This lets you save a particular set of corrections for later re-use.

Load Settings...

Selecting *Load Settings* lets you restore and apply previously saved settings from a file.

Clear All Settings

Selecting this menu item resets Color Mechanic Pro to its initial defaults, namely the seven initial control points (red, green, blue, cyan, magenta, yellow and white) with no color or brightness changes.

Restore Settings from Last Session

Selecting this menu item restores the settings in effect the last time you used Color Mechanic Pro. This lets you apply the same settings you used on the last image to the current image.

Probe Size

When you use the eyedropper tool to create a new control point, the image data in the input image is sampled at the location you clicked to determine its color. You can control the size of the region in the input image that is sampled by varying the probe size. Selecting the minimum value of 1x1 means that a single pixel in the input image is sampled. Selecting larger values such as 3x3 or 5x5 means that the average color of a 3 by 3 or 5 by 5 pixel square patch of the input image is used instead. This can be more accurate, especially if the image has a lot of fine texture. The default value is 5x5.

Probe size corresponds to the size of the eyedropper opening as displayed in the on-screen version of the input or images. While the meaning of the probe radius is thus always visually consistent, the area in the input image that it represents depends on the current zoom ratio.

Ignore Selection

This menu item is displayed only if you made a selection on the input image prior to starting Color Mechanic Pro. If *Ignore Selection* is checked, the selection is ignored and corrections are made to the entire image. If it is unchecked (the normal condition) corrections are applied only to selected areas of the input image. Selecting *Ignore Selection* toggles the setting.

Keyboard Shortcuts

Color Mechanic Pro shares many of the same keyboard shortcuts used by Photoshop. The following table summarizes the keyboard shortcuts we currently support:

TABLE 1. Keyboard Shortcuts

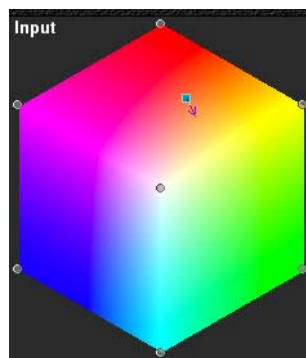| PC	Mac	Command
Space	Space	Switches from eyedropper to hand cursor
Ctrl Space or Ctrl +	Cmd Space or Cmd +	Zoom in 1 level
Alt Space or Ctrl -	Opt Space or Cmd -	Zoom out 1 level
Alt-Cancel Button	Opt-Cancel Button	Reset all settings
Tab	Tab	Select next control point
Shift Tab	Shift Tab	Select previous control point
Ctrl Alt 0	Cmd Opt 0	Zoom to 1:1
Ctrl 0	Cmd 0	Zoom to fit entire image in window
PgUp	PgUp	Scroll images up 100 pixels
PgDn	PgDn	Scroll images down 100 pixels
Shift PgUp	Shift PgUp	Scroll images up 25 pixels
Shift PgDn	Shift PgDn	Scroll images down 25 pixels
Ctrl PgUp	Cmd PgUp	Scroll images left 100 pixels
Ctrl PgDn	Cmd PgDn	Scroll images right 100 pixels
Home	Home	Scroll images to upper left corner
End	End	Scroll images to lower right corner
Ctrl Up	Ctrl Up	Nudge current control point up
Ctrl Down	Ctrl Down	Nudge current control point down
Ctrl Left	Ctrl Left	Nudge current control point left
Ctrl Right	Ctrl Right	Nudge current control point right
Alt Cancel	Opt Cancel	Reset current settings
Ctrl Z	Cmd Z	Undo/Redo
Ctrl Alt Z	Cmd Opt Z	Undo one step
Shift Alt Z	Shift Opt Z	Redo one step

Example 1: A simple skin tone correction

The skin tones in the image (*Woman in Scarf.jpg*) at the left are too red, too saturated, and too bright. The corrected version at the right shows how you can use Color Mechanic Pro to adjust the skin tones without changing the blues and purples of the scarf simply by creating a single control point.

The procedure for making this correction is as follows:

1. Click on the woman's forehead to create a control point for the skin tones.
2. Drag the control point a little toward the center of the color hexagon and a little toward yellow. This should immediately produce a visible change in the skin tones in the preview.

Feel free to experiment with different corrections, but skin tones usually only require small changes. Making such fine adjustments is usually easier if you zoom in on the color hexagon to magnify the area around the control point you are working on.

3. Leaving the skin tone control point selected, move the *Brightness Change* slider to the left to darken the woman's face. A value of roughly -10% was used to produce the corrected image above.

Example 2: Taming Velvia's Reds

Fuji Velvia is an excellent high-contrast, fine-grained transparency film for land-scape photography. It has a well-known tendency to exaggerate reds even though its rendition of neutral colors is very good. This can be great when photographing red rock in Utah, but in this sample image (*Two Dogs.jpg*), the pine needles came out too red, although the foliage, sky and rocks are just fine. A single control point created by clicking on the pine needles and dragging it about half-way back toward the center of the color hexagon fixes this problem.
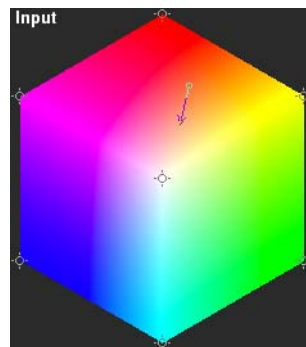
To illustrate the advantage of fixing this problem using Color Mechanic Pro's selective color correction, here is how the same image would look if the cyan filter required to tone down the reds were applied to the entire image:

Example 3: Using multiple control points

This example (*Girl.jpg*) shows how you can make a major color change without changing any of the other colors in the image. First, create a control point by clicking on the scarf and then drag it from purple over to red.
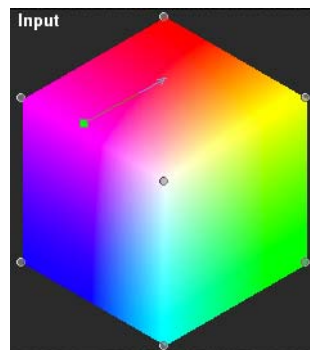

To get the bright red shown above, you will also need to set the *Brightness Change* slider to roughly +20%.

While this changes the scarf from purple to red, the change is so large it causes a small but visible reddening in the skin tones as shown below:

To preserve the skin tones from the original image, click on the face to create a new control point for the skin tones (and don't drag it). When you create this second control point, you are telling Color Mechanic Pro not to change the skin tones.
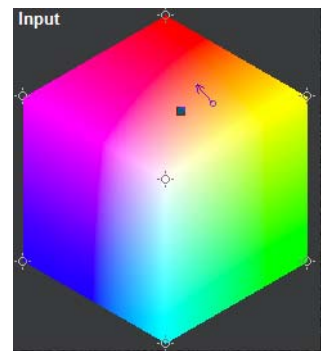

Changes scarf color

Preserves skin tones
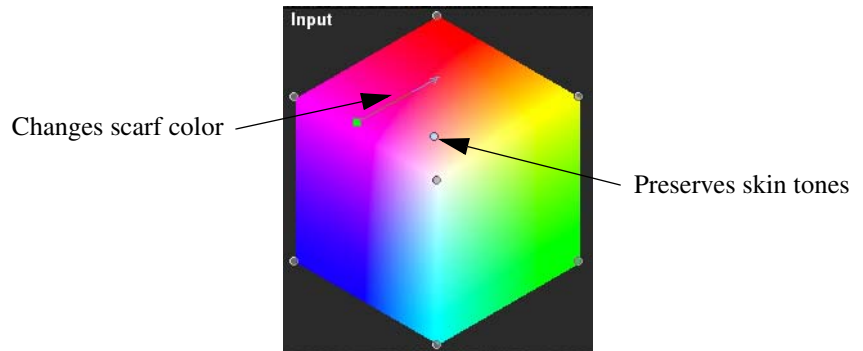
You may also have noticed there a slight lightening of the purple cap which you could eliminate by creating a third control point.

*Example 4: Multiple control points again*

This example (*House.jpg*) shows how you can alter several different color elements of an image simultaneously—in this case, the color of the house, the color of the sky and the color of the foliage.

The first step is to click on the house to create a control point for the yellow siding, and then drag the control point to change the house color. If you make a relatively large change such as the one shown above, there will be some effect on the color of the brick walkway. To avoid this, simply click on the brick to lock down its color.

Having changed the color of the house, you can repeat the process to make the sky more cyan and then again to make the foliage a deeper green:
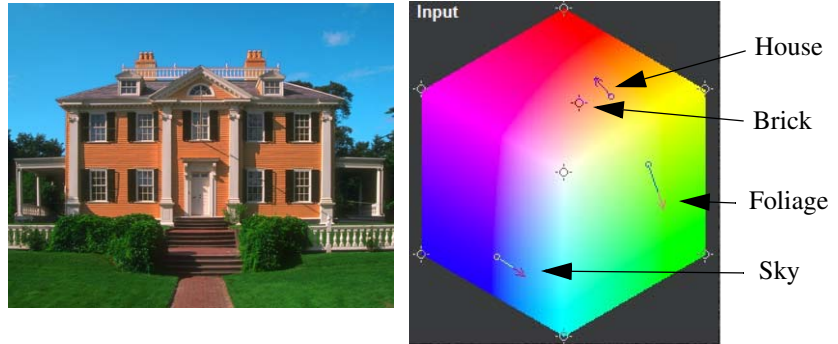

Since you can modify control points at any time, you can balance all the color elements against each other interactively until you get just the result you are looking for.

Note that none of these radical color changes have altered the white woodwork whose color is locked down by the control point in the center of the color hexagon.

You can use the *Show Affected Region* checkbox to gain a deeper understanding how control points interact. For example, let's look at what happens when you have created the first control point to change the house color but have not yet added a second control point to lock down the color of the brick. If you select the first control point and then click the *Show Affected Region* checkbox, here's what the preview looks like:
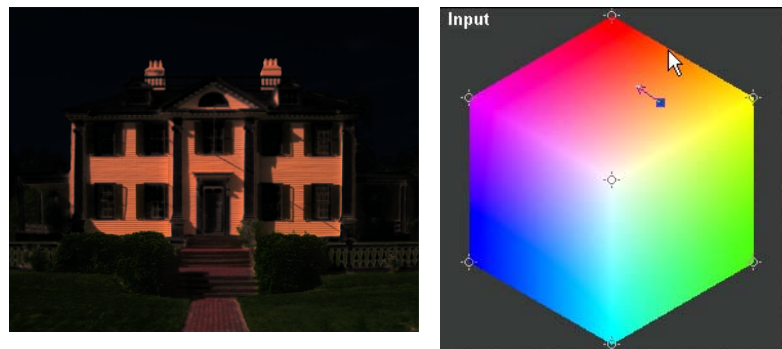
This illustrates how not only the house siding but also part of the brick is also affected when you drag the selected control point. Now, let's see how the affected region changes when a second control point is used to lock down the brick color:
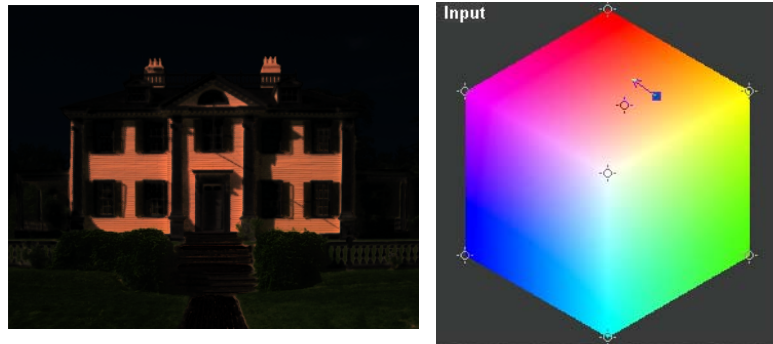
Notice how the brick has largely disappeared from the region affected by the first control point. By selecting the second control point, we can see the part of the image it affects:
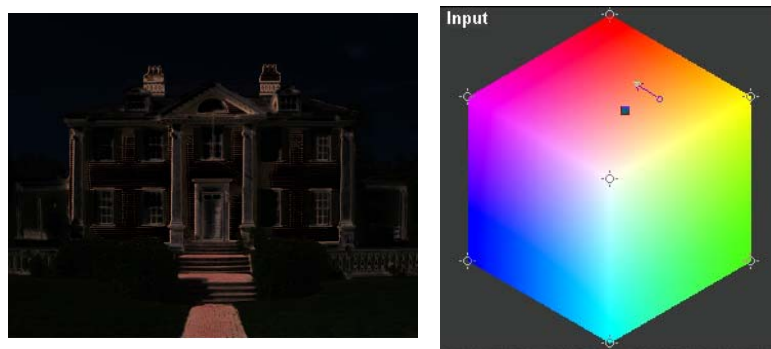
This shows how the second control point controls mostly the color of the brick walkway.

Example 5: Removing facial reflections

Photo courtesy of Scott Markman
www.folkartnewmexico.com

This portrait (*Gaby.jpg*) illustrates how Color Mechanic Pro can soften reflections from the subject's nose and forehead. One of the things that makes this tricky is that the highlights are nearly white as are the shirt and other background elements. To restrict changes to the face, first select just the facial area using Photoshop's lasso tool:

From here, the remaining steps to making the final correction are as follows:

1) Start Color Mechanic Pro and zoom in on the face to make it easier to select the highlights.

2) Click on a highlight to create a control point. Since the highlight is almost white, the new control point will be very close to the default control point that Color Mechanic Pro creates at the center of the color hexagon. To keep this default control point from interfering with corrections to the highlight, you must delete it. To delete the central control point, just Ctrl-click (PC) or Opt-click (Mac) on it.

3) Click on a part of the face adjacent to the highlight to create a control point corresponding to the skin tones. This second control point serves two purposes: it prevents the skin tones from being changed, and it defines the color the highlight should be changed to.

4) Drag the endpoint of the highlight control point over to the skin tone control point. This changes the highlights to be the same color as the adjacent skin tones.

5) Use the *Brightness Change* slider to reduce the brightness of the highlights until they blend in with the surrounding area.
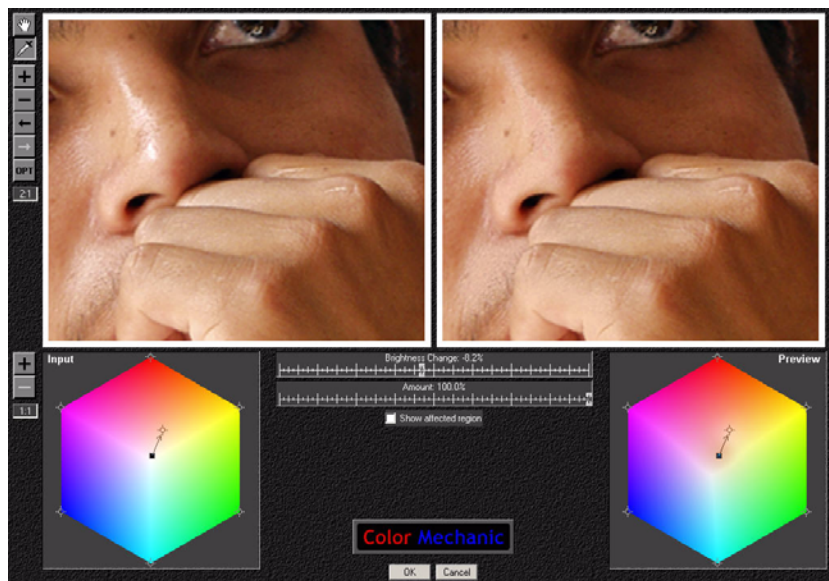
Example 6: Highlight corrections

This image (*Birch Trees.jpg*), shows how you can use Color Mechanic Pro to make highly targeted brightness adjustments—in this case to lighten just the yellow leaves.

The first thing you might try is to click on a leaf and then move the *Brightness Change* slider to the right, but here's what happens:

The problem is that the background behind the trees is not pure black. In fact, it has roughly the same hue and saturation as the foliage—it's just a lot darker. Because the background matches the hue and saturation of the foliage, when you brighten the leaves, the background also gets lighter.

The solution is to select just the lighter parts of the image before starting Color Mechanic Pro. An easy way to do this is to use Photoshop's *Select/Color Range...* command. Click on the dark background to set the color you want to select, click the *Invert* checkbox to indicate that you want to deselect that color, and then adjust

the *Fuzziness* slider until all the background turns black and the foreground is white (for this example, this happens around 120-130).
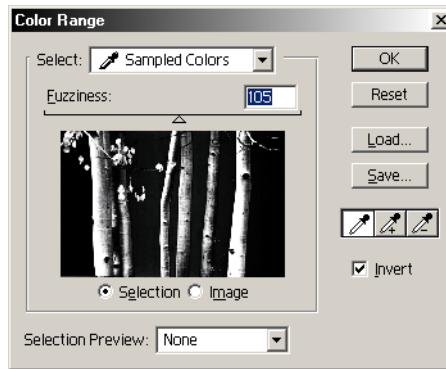
When you click *OK*, the image will now have just the light areas selected.

With the background deselected, you are now ready to restart Color Mechanic Pro. Just click on the foliage to create a control point and move the *Brightness Change* slider well to the right. This will lighten only the tree trunks and foliage—the background will remain dark. If you want to lighten just the foliage and leave the tree trunks unchanged, click once on one of the tree trunks to create a new control point and leave its brightness change set to 0%.

You can see the effect of the selection by selecting *Ignore Selection* from the options menu—this turns the selection on and off to show you what would happen if you applied the corrections to the entire input image or just the selected portions.

Technical Notes

Layers

Color Mechanic Pro modifies only the current layer of the image selected at the time it starts up. If this is an *adjustment layer*, Color Mechanic Pro issues a warning message and exits immediately since adjustment layers have no image data. The inability to process adjustment layers is unfortunately a limitation of the current plug-in architecture.

Scripting

Color Mechanic Pro is fully compatible with Photoshop scripting via the *History* and *Actions* palettes.

Please note that if you edit a recorded action from its script, the stored script parameters are not displayed in the Color Mechanic Pro dialog box as it clears all settings on start-up. To recover the stored script parameters, you need to click the *Opt* button and select *Restore Settings from Last Session*.

System Requirements

Color Mechanic Pro is available for both Macintosh (both Intel and Power PC) and Windows. It requires Photoshop or later, Photoshop LE 5.0 or later, Photoshop Elements, and a number of other programs that support Photoshop plug-ins. For the latest information on compatibility with various image editing programs, please see our web site:

http://www.colormechanic.com

Installation Instructions

To install Color Mechanic Pro, simply copy the plug-in file to the *Filters* sub-folder of your Photoshop (or Photoshop Elements) *Plug-Ins* folder. The *Plug-Ins* folder is located in the folder in which you installed Adobe Photoshop (or Photoshop Elements). The next time you run Photoshop you should be able to access Color

Mechanic from the main menu via the *Filter/Digital Light & Color/Color Mechanic...* command. Any previously installed versions of Color Mechanic or Color Mechanic Pro should either be deleted or removed from the *Plug-Ins* folder.

By default, Color Mechanic Pro runs in evaluation mode—this lets you use all of its features but does not let you save your results. To convert the evaluation version to a full working version, you must purchase and enter a serial number. Serial numbers for the Mac and Windows versions are different, so please make sure you use your serial number with the plug-in for which it was intended.

If you are upgrading from an earlier version of Color Mechanic Pro, you need to purchase an upgrade serial number. Once you enter this number, you will be asked to enter the serial number for your earlier version as well for confirmation.

Your serial number (if any) is displayed in the title bar of the Color Mechanic Pro dialog box. Please record this serial number and keep it in a safe location should you need to re-install Color Mechanic Pro at a later date, and please do not share your serial number with others.

To un-install Color Mechanic Pro, simply remove the plug-in file from your *Plug-Ins* folder.

Installation instructions for certain programs other than Photoshop can be found in the Support section of our web site:

http://www.colormechanic.com/support.html

What's New in Color Mechanic Pro Version 2.0?

Mac version: Native support for Intel processors and Photoshop CS3

The Mac version of Color Mechanic Pro now runs under Intel processors without emulation, making it fully compatible with Photoshop CS3. Color Mechanic Pro also still works with PowerPC processors and earlier versions of Photoshop.

Readouts from color hexagons

Passing the cursor over either of the color hexagons now displays the corresponding colors in the RGB (or CMYK) readouts.

Edit Control Point Settings Manually

When you right-click (Option-click on the Mac) on a control point in a color hexagon, the options menu now includes a new item: *Edit Control Point Settings Manually*. Selecting this item displays a new dialog box that lets you enter numeric values for the start color, end color, and brightness change for the selected control point. Or you can set either the start or the end color to Photoshop's foreground or background colors.

Standard version is no longer available

We no longer sell a standard version of Color Mechanic - only the Pro version.