

Kodak Colorflow

Custom Color Tools

Version

3.1

.....
SELECTIVE COLOR EDIT PROCESS FOR KODAK
APPROVAL





Kodak and ColorFlow are trademarks of Eastman Kodak Company.
Document No. 301-108101- ____ Printed in USA 02/05

Introduction

Purpose

This Guide outlines the Selective Color Edit process for ICC device link editing using KODAK Custom Color Tools with KODAK APPROVAL PS, APPROVAL XP/XP4, and APPROVAL NX Proofing Systems. Using these procedures, you create and edit an ICC device link profile that is custom-designed for your site. You can then use the profile you created with the ICC-compatible color management capability of your front-end system. (A front-end system, typically associated with RIP software, processes image files before sending them to the proofing system. Among front-end products used with the APPROVAL system are the Rampage system, Creo Brisque, Screen Trueflow, Nexus software, and other products.)

What it does. Custom Color Tools provides a color proofing system with the following:

Fine-tuned color matching that exceeds the already excellent matching capability available with the Approval dot gain manager.

Easy-to-use tools and techniques that allow the identification of specific color zones (such as neutrals, fleshtones, or reds) and adjustment of color balance solely within these zones.

The high degree of selectivity of Custom Color Tools tools enables the same kind of precise color matching that would be available working directly with a set of color separations. Unlike the one-dimensional color adjustment capability of the dot gain manager, Custom Color Tools works with just those colors where fine-tuning is necessary. And, Custom Color Tools is a **Photoshop plug-in module**, making it an easy addition to your standard set of tools for color control.

Read this Guide first. This Guide gives the specific recommendations and procedures that apply when using the ICC Professional Color Management Tools with the APPROVAL proofing system. Based on the information in this Guide, turn to the other specialized manuals provided with the system, particularly *User's Guide*, *Custom Color Tools*, version 3.1.

In addition, refer to documentation provided with Photoshop software for detailed information on the specific color adjustment tools recommended in this Guide. User documentation on using the ICC

Color Management capability of each type of front-end system is available from the front-end system supplier.

Tools needed	<p>APPLE Macintosh workstation running OS X, with Adobe Photoshop software, version 7.x or Photoshop CS.</p> <p>ICC-compatible color management capability from the front-end system.</p>
Skills needed	<p>Photoshop know-how. Effective use of this tool requires capable handling of Photoshop software. This includes the ability to use tools within Photoshop that manipulate color space.</p> <p>Action tool. Because building color profiles requires that you selectively repeat color adjustments, familiarity with the Action tool in Photoshop software has particular value.</p> <p>Half-tone color knowledge. A reasonable degree of color expertise is needed to create ICC profiles and to use them effectively.</p> <p>Knowledge of front-end color management operation.</p>
What's provided	<p>Custom Color Tools Software. This software installs from CD as a Photoshop plug-in. Follow instructions provided with the software.</p> <p>Color target file. The recommended color target is the familiar CALR target that is available from the installation CD.</p>
Guidelines for use	<p>Calibrate first. Before using this software, perform an initial calibration using the standard dot gain manager and density adjustment provided with the APPROVAL system.</p> <p>Effective use of this Custom Color Tools software requires that the standard APPROVAL calibration be correctly performed and that its results be evaluated over a range of proofs and over a period of time. Careful setup and assessment of the color performance of the proofing system in your environment helps to familiarize you with the overall capability and range of colors available and gives you time to clearly identify specific areas where color adjustment will be beneficial. Then, with specific color behavior in mind, you can proceed with the color adjustments described here to help to fine-tune the color match your digital proofing system provides.</p>

	<p>Use only the Photoshop tools recommended here. Some of the color tuning utilities available in Photoshop software could cause unwanted effects for halftone color proofing. For example, some utilities might violate “dot fidelity” by adding process color dots where there are none in the original image data. Or, these utilities could incorrectly tint a process color solid. To avoid these problems (and preserve dot fidelity), use only the tools recommended in the procedures that follow.</p>
<p>Recommendations for color tuning</p>	<ol style="list-style-type: none"> 1. Color tuning is an iterative procedure, usually requiring several repetitions before satisfactory results are achieved. Expect to repeat this procedure a few times, but establish a reasonable limit for fine-tuning. 2. Use the “No Color Management” ICC device profile. Observe the requirement to begin with this “null” device link as a starting-point with each iteration. Then, as instructed, repeat your color adjustments from previous sessions from this “null” base point (using the Actions feature of Photoshop software). Otherwise, rounding errors from each successive session can accumulate and frustrate your attempts to achieve fine-tuning (and degrade the quality of the device link). 3. Color tuning is necessarily inexact. You cannot shift a single point in color space without affecting its neighbors, since colors must make reasonable transitions for natural appearance. To free the user from detailed involvement with the underlying mathematics of color theory, Photoshop applies algorithms that effectively “smooth” color transitions so that your edits shift colors uniformly. With this consideration, apply this tool where necessary and set limits on how much effort is worthwhile for achieving a perfect match.

By default, the Custom Color Tools software installs an initial set of profiles in the default ICC profile directory or folder, depending on the version of Photoshop software and operating system. For Macintosh OSX systems, this default folder is found in **Library, ColorSync, Profiles**.

Procedure

Note: For the procedures that follow, a number of selectable parameters have more than one possible setting. However, use only those settings indicated in this document when using the Custom Color Tools plug-in for the Approval XP/NX Digital Proofing system.

Step 1: Launch Plug-in and Specify Profile and Reference Image

1. Start Adobe Photoshop.

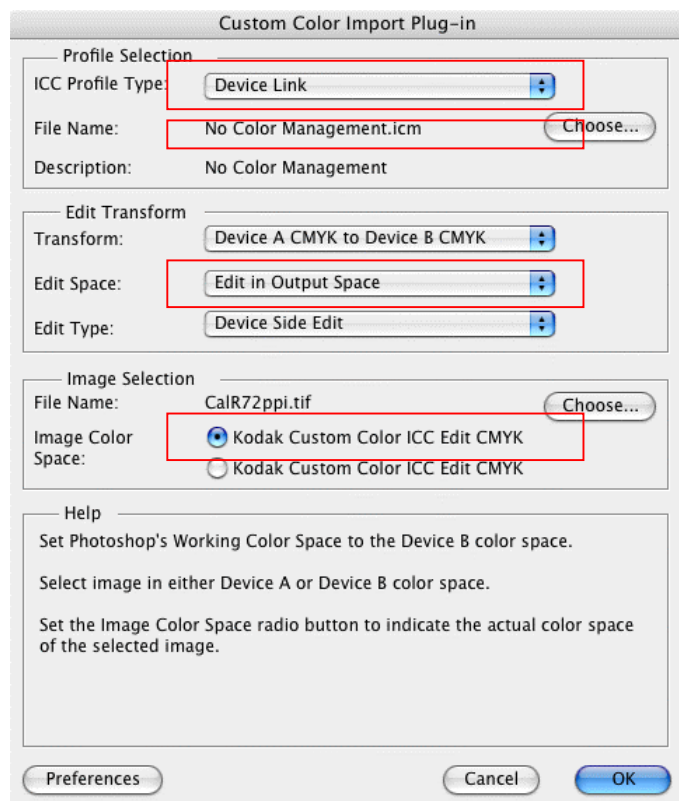
Recommended: Before beginning a tuning session, quit Photoshop, then restart it. This helps to allocate sufficient memory for the procedures that follow.

2. Make this main menu selection:

File → Import → Custom Color Profile Edit...

The Custom Color Import Plug-in window of Figure 1 displays.

Figure 1. Custom Color Import Plug-in



3. Under **File Name**, specify the **No Color Management.icm** profile. To select this entry, follow this procedure:
 - In the Profile Selection box, specify **ICC Profile Type: Device Link**.
 - Click **Choose...** Then, from the window of Figure 2, highlight the **No Color Management.icm** entry and click **Open** to specify this file.

Note: The **No Color Management.icm** profile gives a starting point, providing a “null” device profile that would perform no color management until edited. This start-point profile is installed in the default ICC Profiles folder or directory for the client workstation.

4. From the plug-in window, in the **Edit Transform** box, make the selections shown in Figure 1. The procedures that follow edit the Output Space component (the B component) of the Device Link profile.
5. From the plug-in window, specify a Reference Image in the **Image Selection** box. Use the **Choose...** button to browse for a Reference Image.

Figure 2. File Name Selection Window

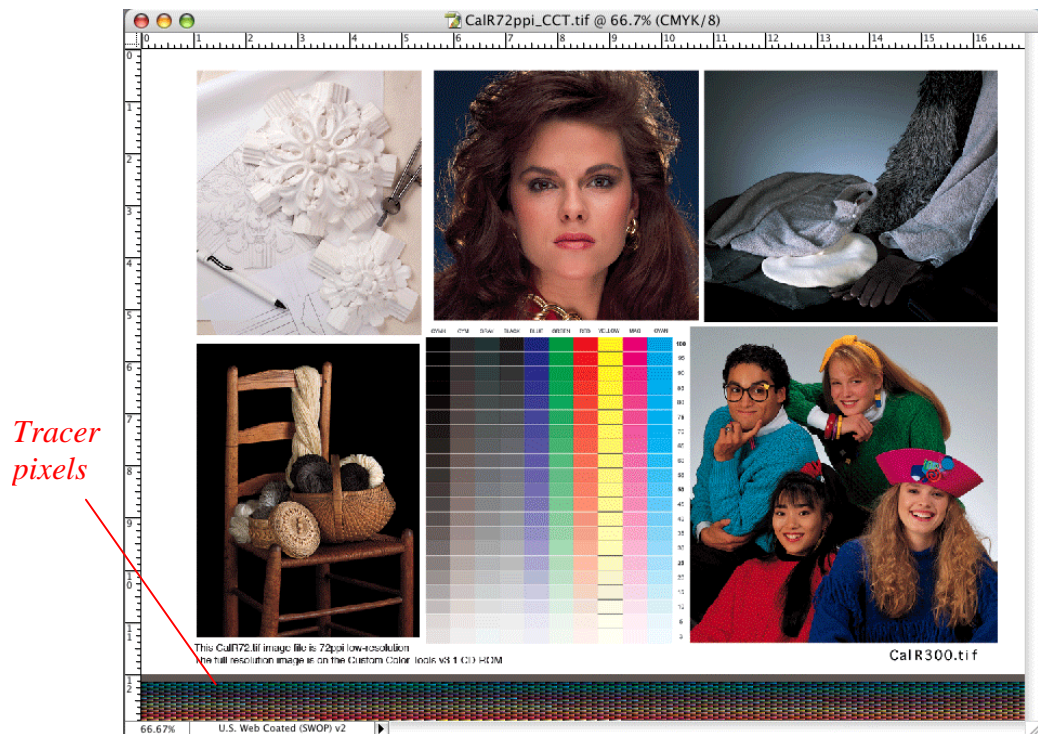


The recommended reference image is the CALR image familiar to APPROVAL users. This image is installed in the folder named **Reference Images** with the application. Alternately, select another image used as a standard target at this site. (The target must be a TIFF image, CMYK color format. For display on the color monitor, 72 dpi is sufficient. The recommended file is Calr72.tif, or some variant of this file.) Highlight this file name and click **Open**.

6. Click the **upper** radio button labeled **Kodak Custom Color ICC Edit CMYK**.
7. From the plug-in window, click **OK**.

In response, the reference image displays in Photoshop. The plug-in displays a strip of tracer pixels beneath the reference image, as is shown in Figure 3. These pixels represent the full spectrum of available colors (and indicate that the reference image is loaded for use with the Custom Color Tools plug-in).

Figure 3. Reference Image Displayed for Color Tuning



Step 2: Start the Actions Utility

Use the optional Actions utility as a convenient tool for saving your color edits, session to session. The Actions utility automatically records all edits performed during a session that creates a Device Link. Using this tool, it then becomes possible to replay editing steps as well as to alter, delete, or add edits.

If you don't want to use the Actions utility, separately record each color adjustment you make. Observe the recommendation to begin with a null settings and repeat successful adjustments each time.

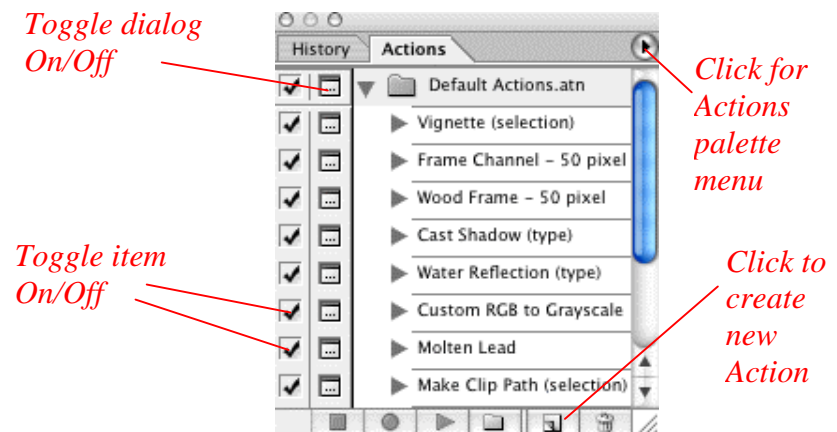
Use these steps to start this feature:

1. Make this Photoshop main menu selection:

Window → Actions

The Actions palette of Figure 4 displays

Figure 4. Actions Palette



By default, the Actions palette displays in list mode, as shown in Figure 4. (This is the preferred mode.) Icons on the bottom of the Actions palette can be used to start or stop recording, to play an Action, and for other Actions management functions. These functions are also available using the pull-down Actions palette menu.

2. Disable Button mode.

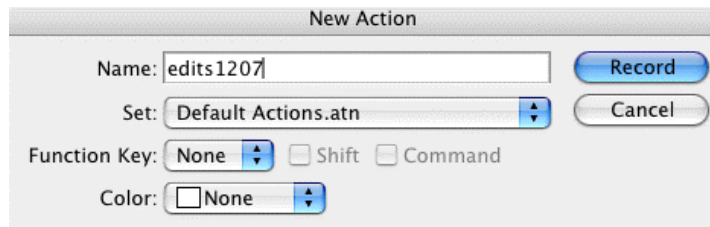
Do this from the pull-down Actions palette menu (see Figure 4). Verify that the **Button mode** menu entry is not checked.

3. Start a New Action.

To do this from the pull-down Actions palette menu, select **New Action...** Optionally, click the icon indicated in Figure 4.

In response, the window of Figure 5 displays.

Figure 5. Prompt for Creating New Action



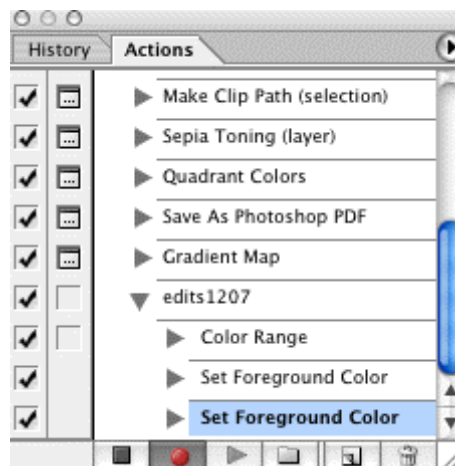
4. Name the Action and click **Record**.

The Action window displays the new Action and lists the editing utilities used, as shown in Figure 6. The Action utility records these specific adjustments for later repetition.

Note that each displayed Action has enabling toggle buttons on the left side of the Actions palette. The item toggle enables or disables an Action for replay. The dialog toggle enables the dialog window for the Action to display before executing the Action, requiring operator interaction (such as clicking the **OK** button) in order to continue.

Recommended: There are a number of ways to use the Action tool. For help with overall approaches and strategies, see the *User's Guide, Custom Color Tools, version 3.1*.

Figure 6. Display of New Action in Actions Palette



Step 3: Edit the Device Link Profile Using the Reference Image

Note: The procedures that follow apply edits to the ICC device link profile, **not** to the reference image itself.

The following steps include recommendations for the specific tools that are used for this purpose.

Note: When used properly, Custom Color Tools create a device link profile that *preserves dot fidelity*, allowing subtle color changes to an existing setup for an image. Use only the Photoshop color adjustment tools specified in this Step. The tools specified here preserve dot fidelity for an image.

Other Photoshop color adjustment tools may violate dot fidelity. As a safeguard, this software checks and warns against any attempt to Export a device link in which dot fidelity is violated for a solid process color or solid overprint color (100% C,M,Y, or K, or combination of these). You have the option to Cancel or Continue the Export operation.

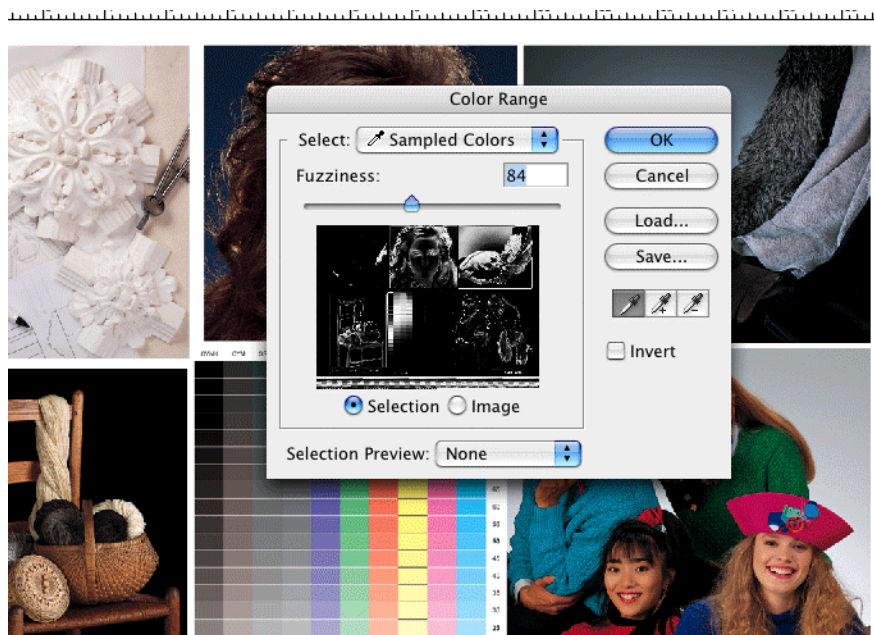
- 1. Identify** the colors to adjust. For the best tool to identify colors to manipulate, use the following main menu selection:

Select --> Color Range...

Figure 7 shows the Color Range selection window, with recommended settings.

This tool allows you to point to areas on the color target where color adjustment is necessary.

Figure 7. Color Range Selection



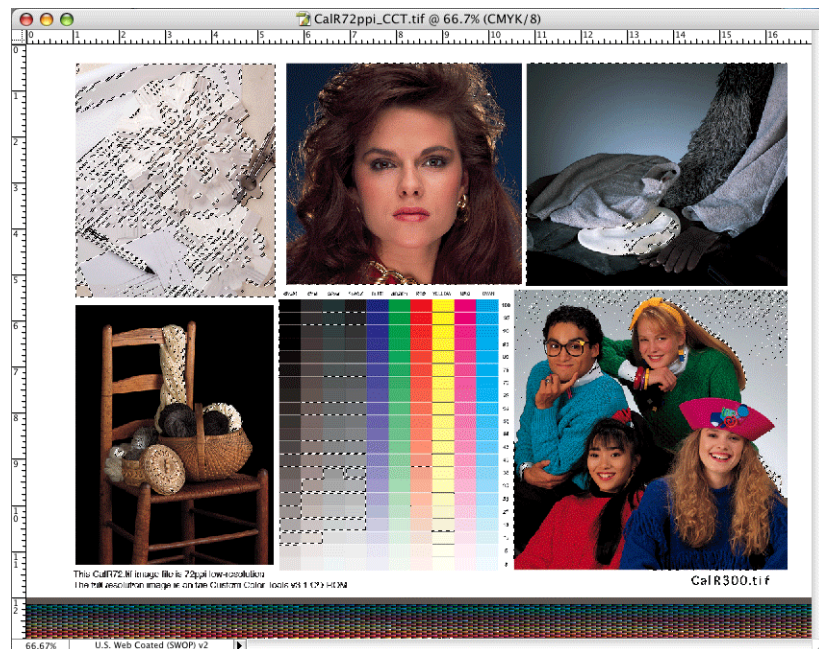
Hints

Hints for using the Color Range selection tool include the following:

- Use the **Fuzziness** adjustment for identifying the relative size of the area in color space that is of interest.
- Use the eyedropper tool to specify a color.
- Use the “+” eyedropper tool to add an additional color to those already selected.
- Use the **Load...** or **Save...** functions to load or save color range selections for use with results of other color editing sessions.
- Use the menu selection **View** → **Extras** to eliminate pixel traces, if distracting.

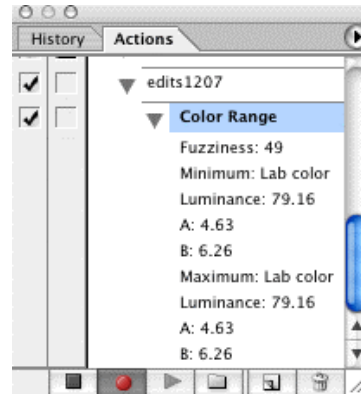
Click **OK** to enable the selected colors. Areas using these colors are then outlined as is shown in Figure 8.

Figure 8. Color Range Selection Enabled



Note that the Actions palette displays the results of this color selection step, as shown in the example of Figure 9.

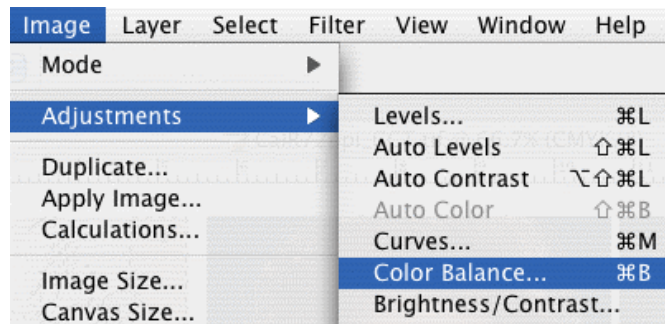
Figure 9. Action Palette Display for Color Range Selection



2. **Adjust** the color as necessary. The best tool for this purpose is available using the following main menu selection, as shown in Figure 10:

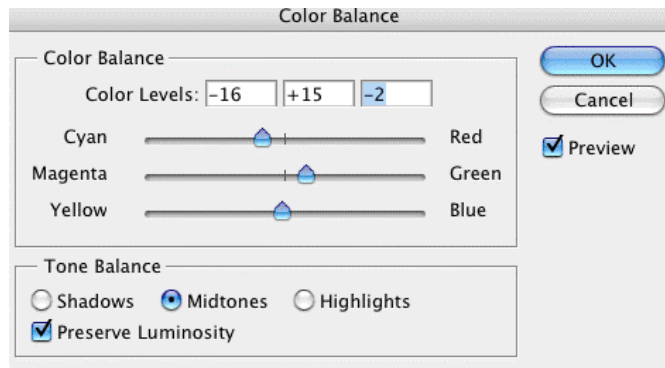
Image → Adjustments → Color Balance...

Figure 10. Making Color Balance Menu Selection



In response, the Color Balance entry window of Figure 11 displays.

Figure 11. Color Balance Window



Use settings in the Color Balance window as follows:

Tone Balance. Specify a range for color balance adjustment by clicking the appropriate button labeled **Shadows**, **Midtones**, or **Highlights**.

Color Levels. Use the slide bar controls to manipulate the color levels for Cyan, Magenta, and Yellow.

Preserve Luminosity. When checked, automatically adjusts all color channels in response to a change in a single color channel. When unchecked, changes are constrained to the single color channel itself.

View the effects of these changes on the reference image. Edits also apply to the tracer pixels area (but may be difficult to detect on this portion of the display). Use the **Preview** toggle to compare your modified version with the original.

Note that the Actions palette shows results of color balance editing, as in the example of Figure 12.

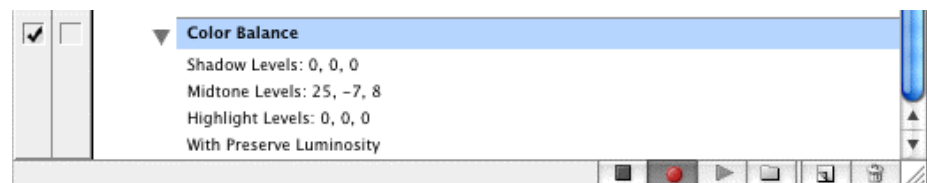
Notes for Color Balance Editing

These general notes apply for using the Color Balance editing tools most effectively:

Limit the number of individual edits to specific color areas. A smaller number of general edits is easier to manage.

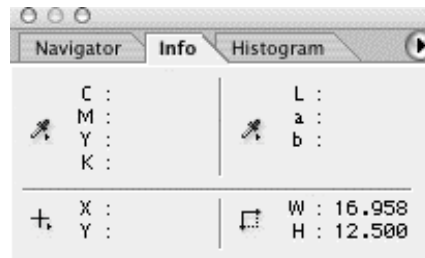
At the completion of color editing, de-select the color range using **Select→Deselect**. Then, repeat procedures given in 1 and 2 of Step 3 for the new edits.

Figure 12. Actions Palette for Color Balance Adjustments



Another useful tool for monitoring color values during color tuning is the Photoshop information tool of Figure 13. To display its window, select **Window** from the main menu. Check **Info**.

Figure 13 Information Tool Window



Depending on the operation being performed, this window shows current values or before/after values for the selected color area.

Step 4: Stop Actions

Once your edits are complete, make this selection from the Action window of Figure 4.

Stop Recording

With this command, the Actions (started and named in STEP 2 above) are preserved and ready for your next tuning session with this image.

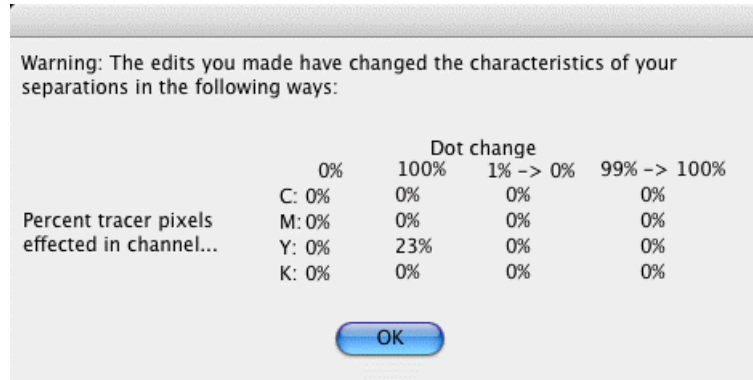
Step 5: Export The Tuned Device Link Profile

1. Make this main menu selection:

File → Export → Custom Color Profile Export...

In response, the window of Figure 14 displays.

Figure 14. Export Information and Prompt Window



2. Review the displayed information. If acceptable, click **OK**.

In response, the prompt of Figure 15 displays.

Figure 15. Profile Description Entry Window

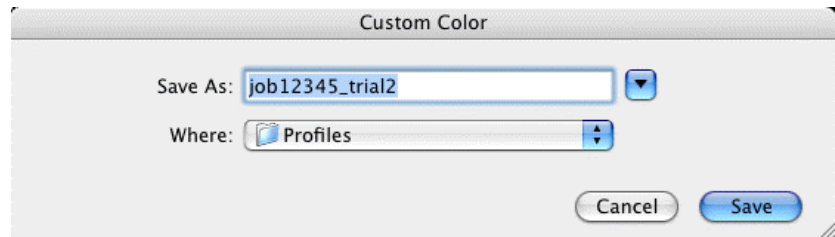


3. Enter a description for the profile.

Recommended: Use the same text for description in this step and file name in the step that follows. The description displays when selecting a profile.

The prompt of Figure 16 displays.

Figure 16. File Name Prompt Window



4. Enter a filename following the **Save As:** prompt. Then click **Save**.

Recommended: Save the Actions with the profile.

Recommended: Use a description and naming convention that allows easy identification and matching of both files. This will prove to be especially handy for troubleshooting problems with color matching or with the proofing system.

Step 6: Apply The Device Link To A Proof

This step applies the new ICC device link profile you created to a proofed image.

1. Move the ICC device link to the RIP.
2. Follow front end RIP procedure to install and enable the ICC device link on the front end.
3. Make a new proof with the ICC device link enabled.
4. Assess the color match achieved.

Repeating the Color Tuning Procedure

Typically, color tuning requires a few iterations of the color tuning performed in Steps 1–6 given above. For best results, **do not attempt to further tune the profile generated and saved using the above procedure.** Instead, use this sequence:

1. Always start the procedure with a “null” device link (the “No Color Management” selection in Step 1).
2. Edit individual steps in the Action to modify color settings. (Optionally, you can review steps for an earlier Action on-screen as you perform edits saved as a new Action.)
3. Repeat the edit sequence recorded earlier using the Actions feature.

This strategy helps to prevent “rounding” errors that can occur when complex transforms being executed by the Photoshop software adjust the numerous color space coordinates that are affected by even simple color shifts. (As a side benefit, this method also helps to prevent clutter from storing numerous interim versions of device link files.)

Strategy for achieving a closer match:

1. Start with “No Color Management” each time. (This provides a null device link as a starting-point.)
2. Use the **Actions** tool to record and replay successful edits. Then, do additional editing after applying these saved Actions.

Notes