

PANTONE[®] Hexachrome[®] Workflows for KODAK Approval[™] XP/XP4 Proofing Systems

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	Page
Purpose of this document.....	1
What is Hexachrome?.....	1
PANTONE HexWare [®] 2.0	1
Hexachrome Digital File Preparation	2
Using PANTONE HexImage 2.0.....	2
Using PANTONE HexVector 2.0.....	2
Using QuarkXPress 4.x for Hexachrome Output	3
Kodak Approval XP/XP4 Setup and Workflow.....	5
Kodak Approval RIP-A version 1	6
Kodak Approval RIP HQ version 5.1 and Scatterproof version 2.5	7
Brisque interface for Kodak Approval.....	7
Rampage	8
Kodak Approval RIP HQ version 5.3	6

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Purpose of this document

This document is for users who are familiar with 4/C process prepress workflows and the KODAK Approval System (including various RIP options), and want to learn more about PANTONE Hexachrome workflows. It describes how to create and print Hexachrome files, and recommends which workflows to use for printing to a Kodak Approval System.

What is Hexachrome?

Hexachrome is a high fidelity six-color process printing system developed by Pantone, Inc. In Hexachrome, the existing CMYK primaries are modified into more chromatic inks, with orange and green primaries added. The large color gamut of Hexachrome accurately reproduces vibrant and subtle colors that previously could not be duplicated with 4/C process printing. Hexachrome can produce 90% of the PANTONE MATCHING SYSTEM® Colors.

A Hexachrome digital file consists of six separations with the following separation names:

- Hexachrome Cyan
- Hexachrome Magenta
- Hexachrome Yellow
- Hexachrome Black
- Hexachrome Orange
- Hexachrome Green

Because PANTONE Hexachrome is a distinctly unique colorspace, you must create Hexachrome files using color management tools and ICC profiles. PANTONE Inc. has released PANTONE HexWare® software to streamline this task, allowing users to use familiar workflows (i.e. Illustrator® Adobe® and Photoshop®) for creating Hexachrome colors.

PANTONE HexWare® 2.0

PANTONE HexWare 2.0 is a software plug-in toolset which allows users to easily convert files into Hexachrome color space. Two plug-ins are included in the HexWare set:

- **PANTONE HexVector® 2.0** is an Adobe® Illustrator® 9.x plug-in used to convert vector graphics and line art to Hexachrome.
- **PANTONE HexImage® 2.0** is an Adobe Photoshop® 6.x plug-in that converts raster images into Hexachrome six-color DCS2.0 files

The HexWare toolset allows users to create and edit color palettes, perform color corrections, and view soft proof output in Hexachrome. For more information, see the *PANTONE Designer Hexachrome Primer* (filename HexWareArticle_11-17.pdf) or *PANTONE HexWare 2.0 User Manual* (filename HexWare(R) User Manual.pdf).

Hexachrome Digital File Preparation

This section describes how to use PANTONE HexWare software on a Macintosh computer. The instructions contained herein are provided as an overview only and are not intended to replace the PANTONE HexWare 2.0 User Manual. It is assumed that the HexWare software has already been installed.

Using PANTONE HexImage 2.0

To convert a PhotoShop file to Hexachrome:

1. In Photoshop 6.x, open an RGB, CMYK or L*a*b* image.
2. Select the command File➤Automate➤PANTONE HexImage.
3. Specify the source profile of the image. If you don't know the source profile, experiment with the profiles supplied with Photoshop, such as the Pantone recommended Adobe RGB (1998) for RGB.
4. Specify a Hexachrome Separation Profile for the digital color output device. If the specific device profile is not available, PANTONE recommends selecting the Computer to Plate Coated Hvy profile (CTP Coated Hvy).
5. Specify the rendering intent. (Perceptual is recommended.)
6. Click Separate. A Hexachrome image (with 6 Hexachrome separations, or channels) is created in a new image window, leaving the original image window unchanged.
7. Save the new image as a DCS file.

Using PANTONE HexVector 2.0

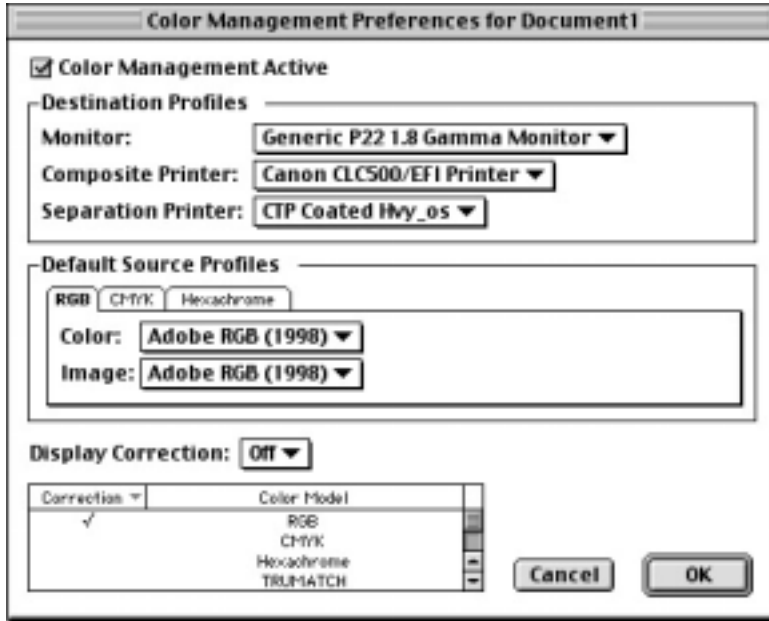
To convert a CMYK or RGB Illustrator file to Hexachrome:

1. Create or open an artwork file in Illustrator 9.x.
2. If the file has spot colors, convert them to process. (If you wish to retain spot colors, see *PANTONE HexWare 2.0 User Manual*.)
3. Select the command Window➤PANTONE® HexVector®➤Show PANTONE® Hexachrome® Profiles.
4. For a CMYK file, check the Match CMYK colors to Hexachrome box and select the CMYK Source Profile from the pull-down menu. For an RGB file, select the RGB Source Profile from the pull-down menu.
5. Select a Separation Profile from the pull-down menu (i.e.: CTP Coated Hvy).
6. Click the Convert All button.
7. Click the Make Proof button.
8. To save the file, select File➤Export as HexVector®. Choose EPS as the file type (not Illustrator) and set the options as you desire (however, do not choose the CMYK option).

Using QuarkXPress 4.x for Hexachrome Output

To output Hexachrome separations from QuarkXPress, you must have the Quark CMS Xtension loaded and color management enabled. If it is not available in the application (look for Quark CMS in Utilities➤Extension Manager), install the CMS Xtension from the QuarkXPress software CD using custom install, and selecting only the CMS Xtension.

To enable Color Management, select Edit➤Preferences➤Color Management. Click the check box for Color Management Active.



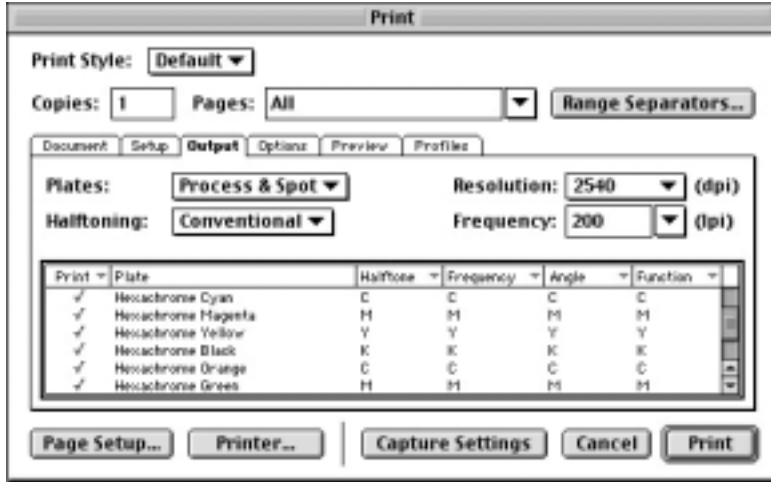
Set the Separation Printer to a Hexachrome Profile, such as CTP Coated Hvy_os or PANTONE® Hexachrome® Coated. All other options in the Color Management Preferences window have no effect on Kodak Approval output.

Create a Hexachrome QuarkXpress page by placing Hexachrome DCS2.0 images (created with HexImage) and Hexachrome EPS artwork (created with HexVector) on the page. Hexachrome colors will not be automatically added to the Quark color palette. However, the placed images will print correctly.

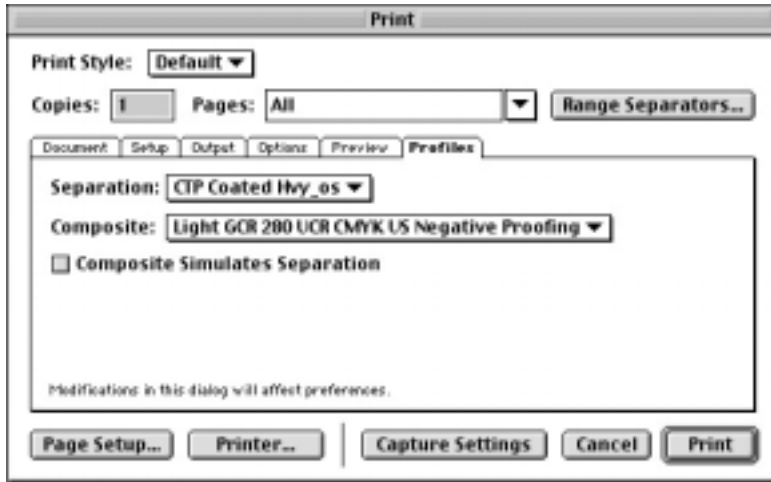
For text and objects created in QuarkXpress, Hexachrome colors must be added to the Quark color palette. Define colors using the Multi-Ink, Hexachrome Coated, or Hexachrome Uncoated color model. For Black text, make sure to use Hexachrome Black, not process Black. If process Black is used, it will be separated into a “rich” CMYK black when printed, resulting in ten separations instead of six.

To print the QuarkXpress page, Separations must be checked on in the Document tab of the Print window. Hexachrome is a separated workflow—composite printing is not an option.

When separations are enabled and a Hexachrome separation profile is selected in Color Management Preferences (as described above), the Output tab of the Print window shows which separations will print. Hexachrome colors appear with check marks in the print column.



The Profiles tab of the Print window shows the current profile. Normally, no change is needed for this setting. The Separation profile is used for separated output.



Kodak Approval XP/XP4 Setup and Workflow

Kodak Approval can proof Hexachrome printing by substituting Cyan, Magenta, Yellow, Black, Orange and Green donor in place of the Hexachrome separations. The substitution is made at the RIP (or ScatterProof) using recipe colors or color aliasing with the following mapping:

<u>SEPARATION NAME</u>		<u>APPROVAL DONOR</u>
Hexachrome Cyan	⇒	Process Cyan
Hexachrome Magenta	⇒	Process Magenta
Hexachrome Yellow	⇒	Process Yellow
Hexachrome Black	⇒	Process Black
Hexachrome Orange	⇒	Orange DO01
Hexachrome Green	⇒	Green DG01

Because Kodak Approval allows substantial latitude for adjusting color to meet a variety of different proofing requirements, always adjust donor density and dot gain according to an established target. If a PANTONE Hexachrome target has not been established, use the parameters below as a starting point:

<u>SEPARATION NAME</u>	<u>PROOF DENSITY</u>	<u>DOT ANGLE</u>
Hexachrome Yellow	0.95	0°
Hexachrome Orange	1.44	15°
Hexachrome Magenta	1.52	75°
Hexachrome Green	1.62	75°
Hexachrome Cyan	1.42	15°
Hexachrome Black	1.80	45°

Density measurements were acquired from an X-Rite 428, Status T without polarization filter. Use the cyan filter for the Green measurement, and use the yellow filter for the Orange measurement. When assigning screen angles, the rule of thumb is to assign Hexachrome Green the same angle as Hexachrome Magenta, and Hexachrome Orange the same angle as Hexachrome Cyan.

Kodak Approval RIP-A version 1

The Kodak Approval RIP-A v.1 uses Recipe Colors to proof Hexachrome output. Define six Recipe Colors with the following names:

- Hexachrome Cyan
- Hexachrome Magenta
- Hexachrome Yellow
- Hexachrome Black
- Hexachrome Orange
- Hexachrome Green

For dot gain, make sure to differentiate the angles of Hexachrome Orange and Hexachrome Green, as you normally would for a recipe color job.

Kodak Approval RIP HQ version 5.3

The easiest way to proof Hexachrome color on the Kodak RIP HQ v5.3 is to alias the Hexachrome colors to specific donors. In the Approval Configuration Utility (ACU), use the Color Aliases tab to set up the following colors:

<u>ALIAS</u>		<u>TREAT AS</u>
Hexachrome Cyan	⇒	Cyan
Hexachrome Magenta	⇒	Magenta
Hexachrome Yellow	⇒	Yellow
Hexachrome Black	⇒	Black
Hexachrome Orange	⇒	Orange DO01
Hexachrome Green	⇒	Green DG01

To set up dot gain for Kodak Approval RIP HQ v5.3, you must have Dot Gain Manager version 2.1 or higher. Enable the Version 2 - 'N' Color option for saving files. Add Orange DO01 and Green DG01 to the Active Colors list. Adjust each separation dot gain curve individually.

Kodak Approval RIP HQ version 5.1 and Scatterproof version 2.5

Because no more than 5 Recipe Colors can be run at one time, it is not possible to run Hexachrome files directly to the Kodak Approval RIP HQ v5.1. However, with ScatterProof version 2.5, the Color Mapping feature can be used to map the Hexachrome colors to process colors. Process the Hexachrome postscript file through ScatterProof software in order to map the following colors:

<u>INPUT SEPARATION</u>		<u>OUTPUT SEPARATION</u>
Hexachrome Cyan	⇒	Process Cyan
Hexachrome Magenta	⇒	Process Magenta
Hexachrome Yellow	⇒	Process Yellow
Hexachrome Black	⇒	Process Black
Hexachrome Orange	⇒	Orange DO01
Hexachrome Green	⇒	Green DG01

You cannot set up ScatterProof to run automatically for this workflow. You must adjust the color mapping of each Hexachrome page.

To set up dot gain for Kodak Approval RIP HQ v5.1, you must have Dot Gain Manager version 2.1 or higher. Enable the Version 2 - 'N' Color option for saving files. Add Orange DO01 and Green DG01 to the Active Colors list. Adjust each separation dot gain curve individually.

Brisque interface for Kodak Approval

The Brisque interface for Kodak Approval uses Recipe Colors to proof Hexachrome. Define six Recipe Colors with the following names:

- Hexachrome Cyan
- Hexachrome Magenta
- Hexachrome Yellow
- Hexachrome Black
- Hexachrome Orange
- Hexachrome Green

To set up dot gain for the Recipe Colors, create a new Tone Reproduction curve. Select Others in the Seps drop-down list. Highlight the name "Others" in the text entry field, replace it with the donor name "Orange DO01" and hit the Enter key. (The enter key puts it in the Seps drop-down list.) Add "Green DG01" the same way. Adjust the "Required on Press" and "Measured on Press" values for Cyan, Magenta, Yellow, Black, Orange DO01, and Green DG01. Save the tone curve, giving it an appropriate name (i.e., "hex_all").

Before running a calibrated proof, modify each Hexachrome recipe color to use the Tone Curve. In the Modify Spot Color window, check the box for Use Tone Rep. Click on List and select the tone reproduction curve (hex_all). Save the color.

Rampage

The Rampage interface for Kodak Approval uses Recipe Colors to proof Hexachrome. Because the input file format for Rampage is EPS, the Hexachrome workflow has some limitations.

The following Hexachrome file types are acceptable for Rampage:

- A DCS2 file created with HexImage (Photoshop 6.x)
- An EPS file created with HexVector (Illustrator 9.x)
- An EPS file created with the Save Page as EPS option in QuarkXpress, if the page contains only the two file types listed above. (Note: the OPI option Omit Tiff and EPS should be selected when saving the EPS.)

Define six Recipe Colors with the following names:

- Hexachrome Cyan
- Hexachrome Magenta
- Hexachrome Yellow
- Hexachrome Black
- Hexachrome Orange
- Hexachrome Green

RIP the Hexachrome EPS like any other input file. You can view the prescan information and see the Hexachrome spot colors listed.

Because the Hexachrome colors are recipes, you must assign the linearization curves to each proof individually. In the Queues tab of the Job Manager window, check Modify Proof Parameters, then click Do It. In the next window, select a Press Lin. A. (actual) curve and a Press Lin. D. (desired) curve for each Hexachrome separation.