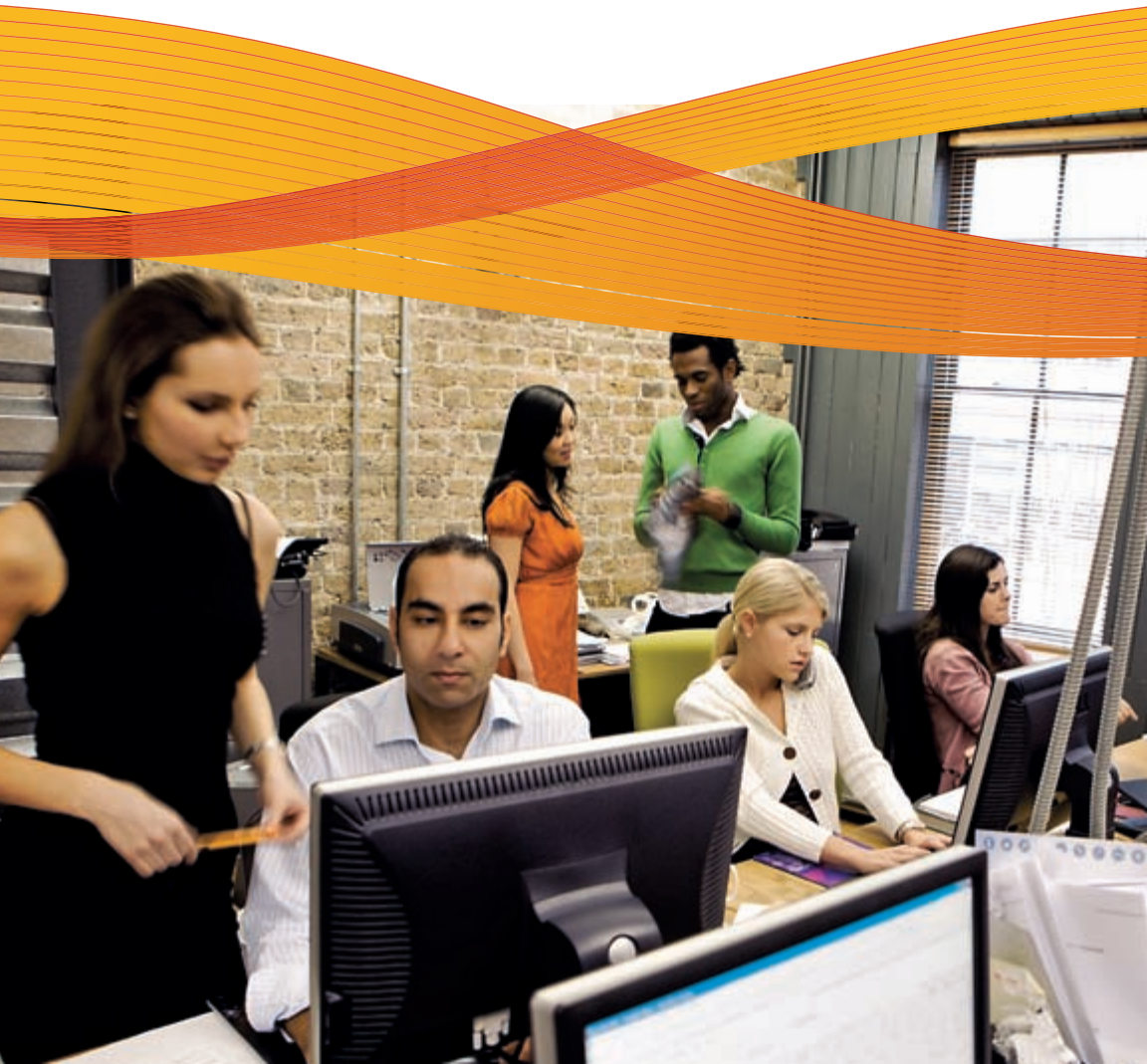


Xerox iGen4 Job Preparation Guide for Designers





Best of show

Keiger Printing Company



Xerox Job Preparation Guide for Designers Digital Printing Reference

Xerox Corporation
Global Knowledge & Language Services
Webster, NY 14580

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Version 3.0, May 28, 2008

Xerox Job Preparation Guide for Designers

Digital Printing Reference



Creative Know-How

Want to stand out in a crowd? Digital print can get your attention with vibrant colors, short runs, on-press proofs and fast turnaround. And though it sounds that easy, you'll need to master your craft in order to achieve success.

With this book in hand, consider yourself an expert in the art of designing for digital print. It has the tools you need to turn jobs around fast—and with better color consistency.

The examples in this book are intended to be printed from an iGen3 press. Viewing this document on the monitor or from prints off a different output device may not render the printing characteristics of the iGen3 accurately. See the end matter of this guide to determine if this copy was printed on the iGen3®.

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Intro—Digital Production Color

- Introducing the Production Color Line-Up
- Benefits
- Specifications

Introducing The Xerox Digital Production Press

The Xerox Digital Production Color Portfolio uses revolutionary imaging technology and gives your business an enormous edge through new services that you can offer to your clients. For starters, printers can easily produce on-press proofs on the fly. This means that proofs can be made with short turnaround times and are the exact output of the job, on the same stock. This eliminates the need for simulated proofs traditionally produced by offline proofing devices. The Digital Press further expands its features with automated intermixing of different insert and cover stocks within a job, with no waiting for ink to dry. Colors remain vivid across all papers, even uncoated stocks. Furthermore, the Digital Press has a tremendous ability to handle the most basic to the most complex variable information printing jobs. Variable can enable you to support high-value customer marketing programs that will grab the audience's attention and increase customer loyalty and/or response rates.

Benefits of Xerox Digital Color Production Presses

New business opportunities, new revenue streams

- longer short-run digital color jobs
- fast turnaround
- personalized, customized communications

Versatile, high quality print

- print quality that rivals offset
- wide array of stocks, weight and sheet sizes
- mixed stocks in a single run

Increased Return on Investment (ROI) for your marketing dollars

- sell more effectively
- get your message to market faster
- competitive advantage

Rapid turnaround of jobs

- on-demand, on-press proofs
- speeds up to 6,600 impressions per hour, auto duplex
- no drying time

Reduced operating costs

- elimination of warehousing costs and inventory disposal rates
- automatic collation with offset stack delivery
- no hazardous waste

Inside the Xerox iGen3[®] (Our Flagship Product)

Specifications

Printing Speed: Up to 6,600 full process color A4 (letter) 4/0 impressions per hour (110 impressions per minute); 1,500 A3 (tabloid) 4/4 sheets per hour

Image Quality: Resolution 600 x 4800 dpi

Line Screens: 150 lpi, 175 lpi, 200 lpi, 300 lpi: 256 levels of gray



Process Colors: Cyan, Magenta, Yellow, Black

Stock Format: Maximum sheet size 14.33 in. x 20.5 in. (364 x 521 mm); Extra Large Paper Option: 14.33 in. x 22.5 in. (364 x 571 mm); Minimum sheet size 7 in. x 7 in. (178 x 178 mm)

Image Format: Maximum image area 14.2 in. x 20.4 in. (361 x 519 mm); Optional: 14.2 in. x 22.4 in. (361 x 569 mm)

Stock Weight: 60 gsm up to 350 gsm (16 lb Bond to 130 lb Cover)







Choosing Stock

- Stock Properties
 - Brightness
 - Finish
 - Shade
 - Formation
 - Impurities
 - Opacity
- Size & Weight Specifications
- Stock Recommendations

Stock Properties

The type of stock used for digital printing has a significant effect on color reproduction. Paper reflects unabsorbed light back to the eye of the viewer, so the more reflective the paper's surface, such as coated paper, the wider the range of colors perceived that can be produced.

Choosing the right paper calls for a strong knowledge of paper characteristics and how they relate to the specific print technology. Xerox Digital Presses use dry ink, which is a very fine powder. The following stock properties interact with the dry ink to determine the quality of color images.

Brightness

Brightness is the measure of blue light at 457 nm. Brighter papers produce images with higher contrast. Be aware that some artificial brighteners can affect color reproduction by reflecting colors unevenly. A bright blue-white paper may reflect more blue and less red and green, affecting how the eye perceives the paper color.

Blue-white papers contain ultraviolet (UV) brighteners that break down over time when exposed to UV light. As UV brighteners break down, the paper shade may change from bright white to a warm white (yellow cast). UV light exists naturally indoors and outdoors.

Recommendations for Brightness

- As a general rule, use brighter papers when printing documents with photographs, halftone images or complex graphics.

Finish/Smoothness

Finish is the smoothness or roughness of a paper's surface. Paper is processed to have a specific type of finish, ranging from very smooth to highly textured. Finish can significantly impact image quality. If paper is too rough, light patches and graininess appear in solid areas. Halftone images also appear grainy. Dry ink may not fuse properly to extremely rough paper, which may cause deletions where the ink rubs or flakes off. Smooth and coated papers produce sharp images because they reflect light more directly than rougher papers.

Sheffield is a test that is used to measure the smoothness of paper. It measures the rate of air flow over the surface of a sheet. The lower the Sheffield smoothness number, the smoother the sheet.

The following two tables provide descriptions of the paper finish categories and descriptions of the coating categories.

Table 1-1 Paper finish categories

Finish	Description	Examples
Smooth	All Coated Papers	<ul style="list-style-type: none">• Coated Text• Coated Cover
Regular	All uncoated papers with Sheffield smoothness between 40 and 225	<ul style="list-style-type: none">• Uncoated papers that are highly calendared or very smooth• Papers with low texture (vellum)• Uncoated papers for digital color printing
Rough	All uncoated papers with Sheffield smoothness above 225	<ul style="list-style-type: none">• Papers with highly textured finishes (felt, linen)• Bristol papers• Index papers

Table 1-2 Paper coating categories

Paper Coating Types	Common Names/ Descriptions	Gloss Range (% Reflectance)
High Gloss	Cast, Chrome coated, C1S/C2S, Cast coated and any other high gloss special process media	Gloss range = 80+
Gloss	Gloss, Enamel, Art	Gloss range = 50 to 80
Semi-Gloss	Dull, Silk	Gloss range = 35 to 50
Satin	Satin, Velvet	Gloss range = 23 to 35
Matte	Matte, Reply Card	Gloss range = 10 to 25

The gloss ranges in Table 1-2 are measured at a 75 degree angle with the TAPPI test method T 480. Gloss ranges are not rigidly fixed, which accounts for the slight overlap in values. You can normally use the name or description of the finish to determine the coating type. Note that paper mills may not be consistent in how they describe coatings.

Recommendations for Finish/Smoothness

- Use smooth or coated papers for proper dry ink transfer to ensure the best color density and image detail, and to increase the appearance of glossiness. Using a very smooth paper is especially important when printing fine lines and detailed images.

Shade

Shade is the color of the paper. Paper shade may change the colors of printed images because dry ink is applied in dot patterns that allow the paper shade to show through. Lighter images reveal more of the paper color than darker images.

Recommendations for Shade

- Select a true white for the truest colors and natural looking skin tones.
- Be aware that shaded paper will affect image colors and overall hues.
- Remember that paper shades can vary significantly among brands and lots.

Formation

Formation is the distribution of fibers and fillers in paper. Fibers and fillers should be distributed evenly throughout the sheet. Although formation is not included in the manufacturer's specifications, you can check it by holding a sheet up to a light. If the sheet looks even throughout, it has good formation. If you see uneven light and dark areas, formation is poor.

Good formation is especially important when documents include halftone images of photographs or high ink coverage. Halftone images appear sharper on paper with good formation. Solid images can appear uneven or spotty when printed on paper with poor formation.

Recommendations for Formation

- Choose paper with good formation to ensure uniformity of color images.

Impurities

Impurities in the paper-making process can leave tiny specks in some stocks. The specks can appear as marks or spots in printed images, especially in high resolution images, fine type and fine lines.

Impurities in recycled papers consist of inks and adhesives (from window envelopes, stick-on notes, labels, etc.), which are difficult to remove during the recycling process.

Recommendations for Impurities

- Use high quality, non-recycled papers when the best image quality is required.

Opacity

Opacity impacts the ability of a printed image to show through from the opposite side of a sheet or from another sheet below it. To increase a paper's opacity, filler may be added to increase thickness or be applied as a coating.

Opacity is measured according to how much light a sheet blocks and is expressed as a percentage between 0 and 100. Most papers fall within the 80% to 90% range. However, an opacity of 98% will prevent a printed image from showing through on the opposite side of the sheet.

Recommendations for Opacity

- Choose paper with high opacity when printing on both sides of the paper or when heavy dry ink coverage will be applied.

Size and Weight Specifications

The following links provide the locations of a number of digital press specifications sheets.

iGen3®

<http://www.xerox.com/digital-printing/digital-printing-press/color-printing/xerox-igen3-110-90/spec-enin.html>

DocuColor® 7000AP/8000AP

<http://www.xerox.com/digital-printing/digital-printing-press/color-printing/docucolor-8000ap/spec-enin.html>

DocuColor 5000

<http://www.xerox.com/digital-printing/printers/digital-press/docucolor-5000/spec-enin.html>

DocuColor 260

<http://www.office.xerox.com/multifunction-printer/color-multifunction/docucolor-242-252-260/spec-enin.html>

Stock Recommendations

There is a long list of stocks that can be printed on a digital press. See your printer or service bureau for a list of the supported media.

Table 1-5 Stocks that can be run on a digital press

Stock Types Recommended	
• Bond	• Perforated and scored paper
• Bristol	• Preprinted
• Cover weight coated and uncoated	• Recycled
• Drilled Paper	• Synthetic papers and plastics
• Index	• Text weight coated and uncoated
• Label Stock	• Tabs

Xerox takes extra steps to ensure consistent quality among our offerings. See www.xerox.com/supplies

The following stocks are not recommended for a digital press:

Table 1-6 Stocks that should not be run

Stock Types Not Recommended
Highly conductive papers, such as foil-backed papers
Stocks with melting points at or below 365° F (185° C)
Stocks outside the size and weight ranges listed on the product specification sheets
Non-paper backed transparent stocks (iGen3® only)
Stocks with caliper greater than 500 microns (18 pt)
Stocks containing talc or plasticizer
Preprinted sheets printed with non-laser compatible inks or inks that are not sufficiently cured
Preprinted sheets that were dried with offset drying powder



2

Before You Begin

- Which Color Model to Use
- Color Consistency
 - Adobe Creative Suite
 - Freehand
 - QuarkXPress
- Soft Proofing

Which Color Model to Use?

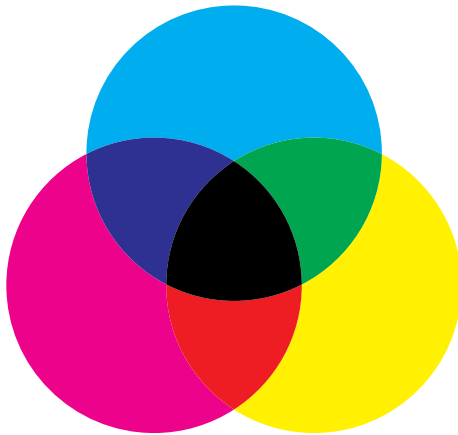
Each color space has a defined gamut—a range of possible colors. There is no single color space that can reproduce all the possible colors from the entire spectrum. Some color spaces can reproduce more shades of red, but fewer blues, while other spaces can produce a wide range of blues but fewer reds.

A digital press can produce many colors that are outside the gamut of traditional SWOP offset systems such as vivid blues, bright purples and brilliant magentas. Keeping to an RGB color space such as Adobe RGB allows designers to take advantage of the digital press's wider color gamut. The answer is not so simple, however, because there are benefits to working in CMYK as well.

CMYK

CMYK color spaces typically have color gamuts that are smaller than RGB spaces. That means fewer colors and usually less vivid colors. The benefit, however, is that a color space such as SWOP CMYK has a color gamut that is achievable by most CMYK printing devices. This is helpful in terms of color consistency if jobs are to be printed across different print devices. Preserving or editing the black channel (or curve) is also possible when the color space is CMYK.

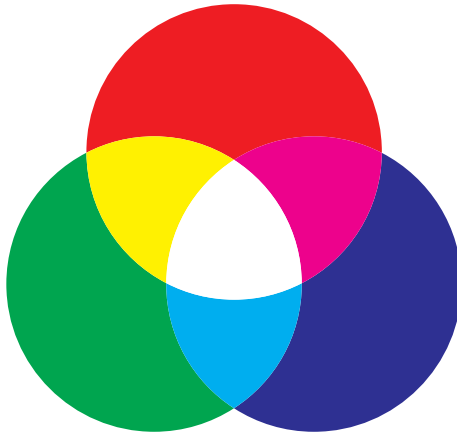
Figure 2-1 CMYK



RGB

RGB color spaces are typically larger than CMYK spaces and are becoming more popular as the preferred color space to use when jobs are sent to the printer. Generally, larger color spaces are able to reproduce more colors that are brighter and saturated in color. Keeping files in RGB also allows for greater repurposing to a diverse range of output processes such as web, digital media or printing. Most print devices use CMYK inks, so at some point the RGB elements will be converted to CMYK. The print shop can do the conversion at the RIP just prior to printing and this will generally yield the most pleasing results.

Figure 2-2 RGB



Color Decisions

When in doubt, always consult with the printer and use their recommendations. Sometimes it's possible to design artwork using CMYK colors to yield more precise matches and yet keep images in RGB spaces in order to retain more vivid color when repurposing. RGB and CMYK elements can then be placed into page layout applications such as QuarkXPress® or Adobe InDesign® and output in such a way that no colors get converted until they get to the digital press. In optimized workflows, color conversions are generally delayed as late as possible. Be sure to discuss the details with the print provider.

Figure 2-3 Example of CMYK and RGB image color spaces



CMYK



RGB

photo credit: Michael Ribeseth

Color Consistency

You will have greater predictability and consistency of what the output will look like when you use color preference settings that are consistent with the print provider's recommendations. When the print provider is unknown or not available, apply the following Adobe® Creative Suite 3 (CS3) recommendations to all of your Adobe applications and other graphics applications.

Color Settings for Adobe CS3

1. Launch the Bridge application and click on [Color Management] located at the bottom center of the window or from the Bridge menu [Edit: Creative Suite Color Settings...].
2. Choose [North American Prepress 2]. This is a good color setting to use for high-end printing when you want to have all your images and/or documents in one particular color space. Using this default setting will always prompt you when an image or document is tagged with an ICC profile that does not match the current application working space.
3. Click [Apply] to activate these settings for all of the Adobe CS3 applications (with the exception of Adobe Acrobat® 7.0; it is not yet synchronized so you will have to set your color preferences manually).

Figure 2-4 Adobe Bridge (CS3), Suite Color Settings



Notes:

- You can also create your own custom setting file within Adobe Photoshop® and apply that setting throughout the suite (with the exception of Acrobat) using the Bridge application.
- If you are using the Adobe® Creative Suite 1, you will need to set up all of the applications individually.

Create Your Own Custom Color Settings for Adobe CS3

Sometimes you may need to modify the default settings to better fit your needs. Only do so if you've discussed the workflow with your print provider first.

1. Use Photoshop CS3 to create a custom color setting as it provides the most complete set of parameters to set. From the menu bar in Photoshop, select [Edit: Color Settings...].
2. Make settings adjustments as directed by your print provider.
3. [Save...] this set of options using a name such as "XeroxDigitalPress."
4. Be sure to check the [Preview] box so that images will display correctly.
5. Use the Bridge application to synchronize all of the Adobe CS3 applications (with the exception of Adobe Acrobat 7.0; it is not yet synchronized so you will have to set your color preferences manually).

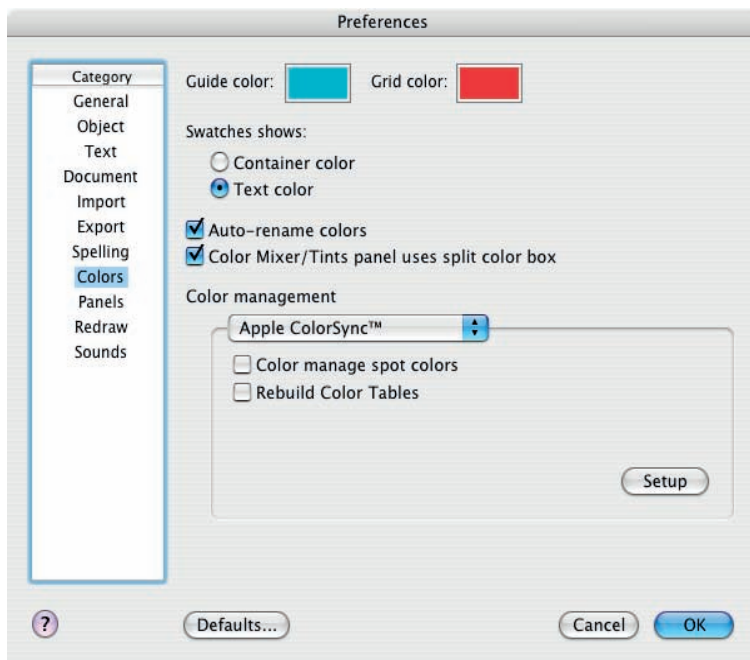
Figure 2-5 An example of Adobe CS3 custom Color Settings based on North American Prepress2



Freehand® MX Color Settings

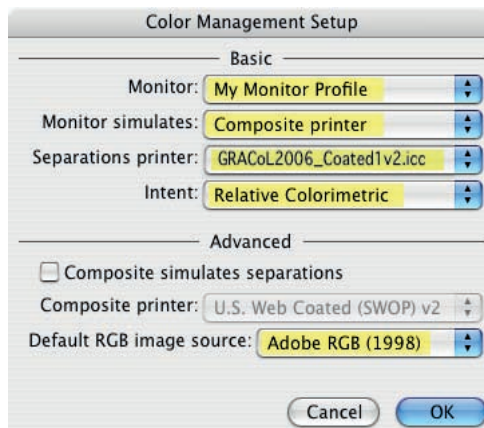
For consistency, apply the same color settings from the Adobe Creative Suite color settings to Freehand (make sure all the profiles are the same).

Figure 2-7 Freehand color preferences



Color Preferences can be found by selecting [Freehand MX: Preferences: Colors]. Select Apple ColorSync (or Kodak Digital Science for PC clients) for the Color Management type and then click the Setup button to set the specific color spaces.

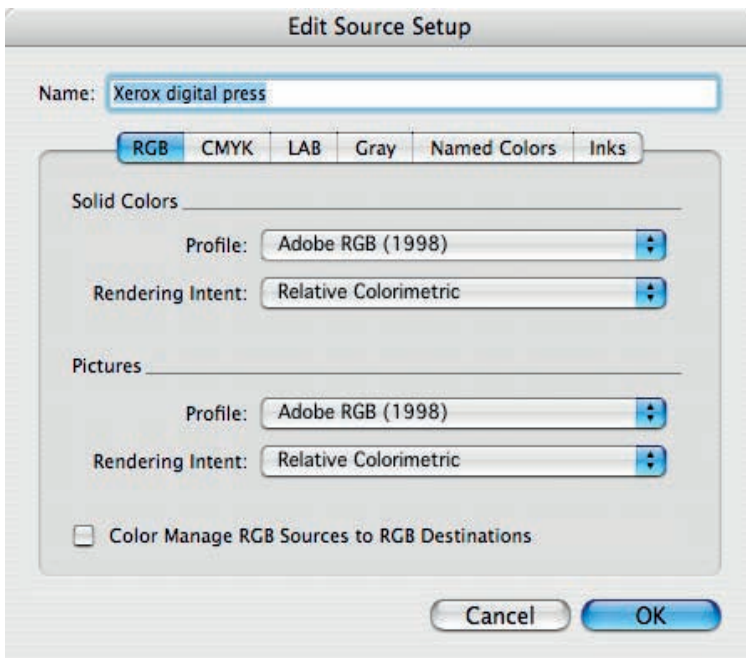
Figure 2-8 Freehand Color Management



QuarkXPress 7 Color Settings

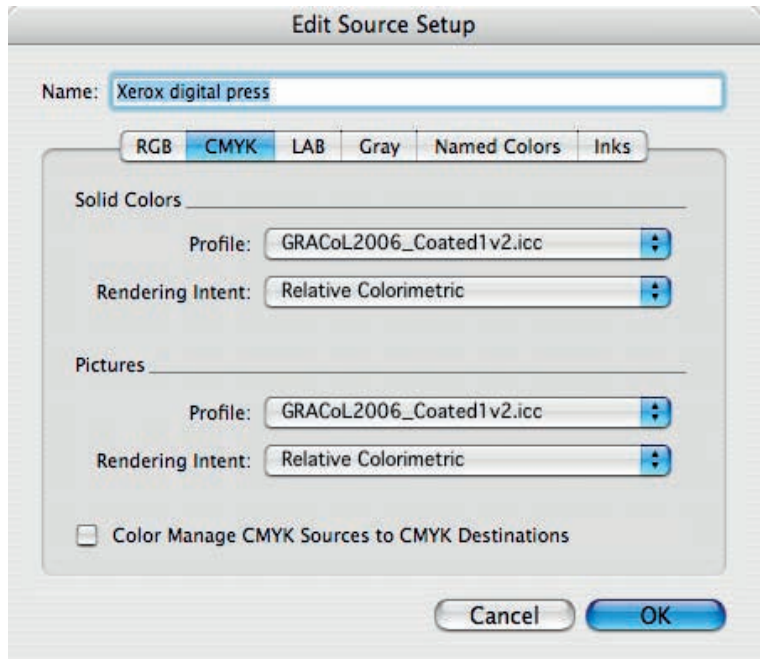
For consistency, apply the same color settings from the Adobe Creative Suite color settings to QuarkXPress.

Figure 2-9 QuarkXPress color source set-up – RGB



The Color Management window can be found by selecting [QuarkXPress: Preferences: Quark CMS].

Figure 2-10 QuarkXPress color source set-up – CMYK



Soft Proofing

Soft proofing is often used to make color-critical decisions from the monitor by both designers and prepress operators. Computer monitors use the RGB (additive) model to display colors. In order to display correctly, a captured image is translated into pixels (picture elements) that can be projected as rays of red, green and blue light. Since not all monitors are exactly the same, you will see differences in color from one monitor to another.

Digital presses use the CMYK (subtractive) model to produce colors. Cyan, magenta and yellow inks are placed on white reflective paper. Each then absorbs, or subtracts, its opposite color from the white light that it reflects back. Black (K) is primarily used to change the color's luminosity value (lightness or darkness). With the inherent differences between additive and subtractive systems, you will see differences in color from the monitor to the printed output.

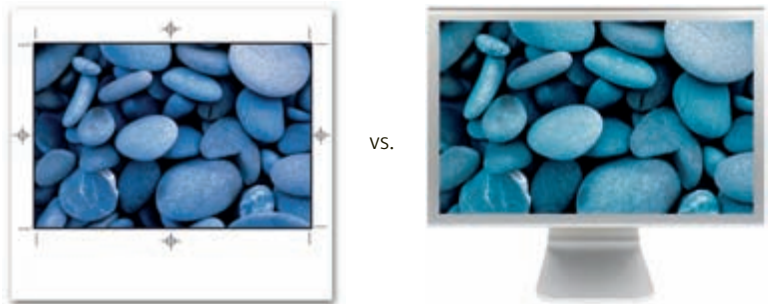
Since most print providers have unique workflows, check with your print provider for the best method on implementing soft proofing in your environment.

Monitor Calibration and Characterization

To achieve optimal soft proofing, you should calibrate and characterize the monitor. Calibration can generally be done through a tool resident in the operating system. Characterization generally requires special color management software and hardware (e.g., colorimeter), though it is well worth the small investment and is usually easy to use.

Your print provider may be able to provide recommendations on which tools or methods to use.

Figure 2-11 Example of a poor monitor to print match. Use of monitor characterization may improve situations like these.





3

Things to Consider

- Design Considerations
 - Text
 - Graphics
 - Transparency
 - Images
 - Saving Files
- Microsoft Office Design
- Variable Print Design

Text Considerations

General

- Include all fonts in both page layout and vector graphics files.
- Supported font types include PostScript Type 0, 1, 3, OpenType, TrueType (PostScript Type 42), Multiple Master, Kanji and more.
- When possible, select fonts from the Font menu and use caution when working with stylized fonts from the Style menu.
- Preserve text as a font; do not rasterize text in the application.

Type Color

- Create solid black text with 100% K only for the most dense black. The iGen3 produces high quality solid text. Compared to offset, black text is especially sharp due to the iGen3 black toner being very dense.
- As with any digital or offset printing system, saturated text presents the best appearance. When a tint is used, the halftone screen may be visible on the edge and cause a jagged appearance. Text containing at least one ink of 100% C or M or K presents the best appearance with solid, rich colors. The examples in Figures 3-1 and 3-8 show some samples of text reproduction.
- RGB solid text, such as 100% red, may reproduce as a tint. Define solid color text in CMYK if possible.
- Avoid mixing RGB and CMYK text color if you want them to match or are using transparency blending space in either RGB/CMYK keep RGB/CMYK consistent to that mode.

Figure 3-1 Colored text examples

An example of saturated text
(C91, M55, Y3, K0)

An example of unsaturated text
(C25, M0, Y3, K20)

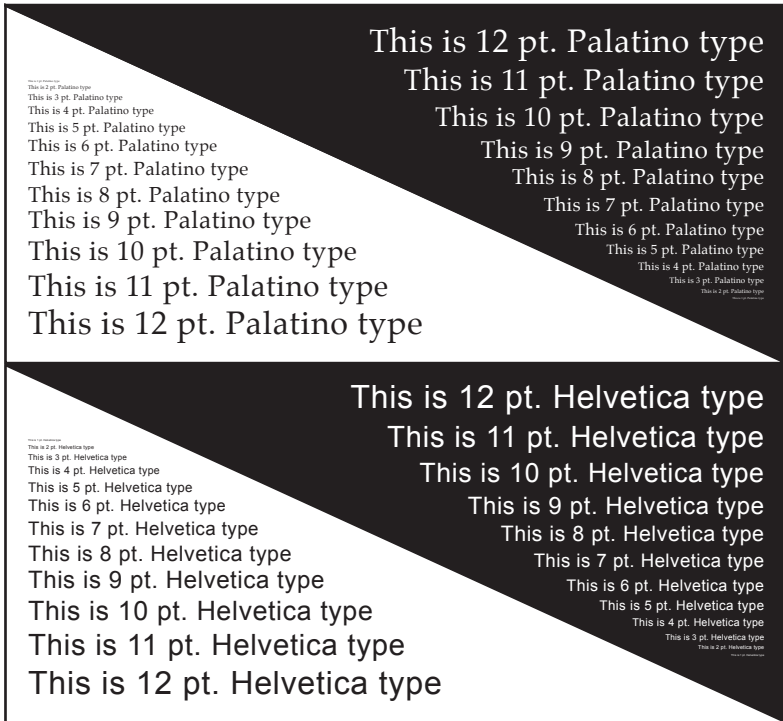
An example of text containing at least one solid
(C100, M22, Y3, K0)

Examples of gray text
10, 20, 30, 40, 50, 60, 70, 80, 90, 100
(K only)

Type Size

- For positive solid text, use a minimum of 2 point and 3 point for reverse.
- For positive tinted text, use a minimum of 4 point and 6 point for reverse.
- When using Kanji fonts in either positive and reverse/negative text, the minimum type size should be 8 point or larger for best results.
- With smaller text, sans serif fonts are recommended.

Figure 3-2 Serif text and sans serif text



Graphics Considerations

Color in Graphics

- Colors for fine rules or small graphics, such as bullets and icons, print best when at least one color separation (other than yellow) is set to a solid or near solid color (e.g., 90-100%).

Color Consistency Across Stocks

A unique characteristic to digital press dry ink systems is that color consistency can be maintained very closely across stock types.

- If you are creating a job that will be printed on a mix of papers through the digital press, you can be more confident that the colors will be fairly consistent across the stocks.
- If you plan to print your job on both an digital press and an offset press, you will want to work with the print provider to decide on stocks that will allow for the best matches.

Figure 3-3 An example of the same color printed on a variety of stocks on iGen3® (top) and offset (bottom)



Spot Colors (PANTONE®)

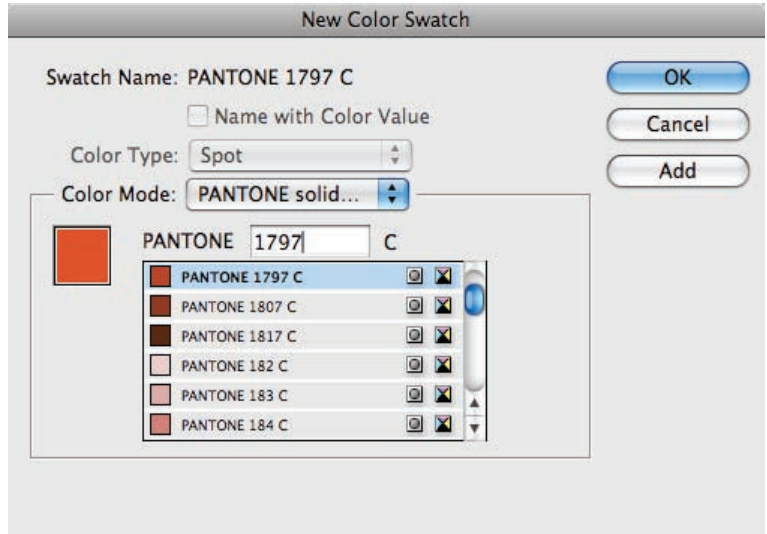
- Select PANTONE colors by choosing them from the PANTONE color library.
- Do not change the name of PANTONE colors (e.g., PANTONE 106C to Sunshine Yellow or to PANTONE 106C copy).
- When PANTONE colors are desired, refer to a printed press sample provided by the print shop.
- Be sure to specify the color as a [Spot] color. This will allow the digital press to provide the best spot color accuracy within the limitations of the printer. See Figures 3-4 and 3-5.

Figure 3-4 Pantone 266 and 402 designated as Spot and Process colors



- When you need to use CMYK values to match PANTONE colors, acquire them from the print shop. The values stored in the RIP will generally provide the closest matches to PANTONE colors since each printer gamut is unique.

Figure 3-5 QuarkXPress Edit Color



Gray

- Gray text, graphics and gradients will be best produced if they are created with K only in a CMYK working space.
- Gray balance is dependant upon selections made at the printer. If you are creating gray colors with RGB or CMYK combinations, consult your print shop for the appropriate values needed to achieve good neutrals.

Black (iGen3® only)

- The Xerox iGen3 produces the most dense black with 100% K only. Adding C, M or Y to 100% K will generally lighten blacks. This means that Rich Blacks may not produce the results you normally expect with traditional printing.
- When printing black on uncoated substrates, add a small amount of C, M or Y to improve uniformity and minimize paper texture. It may, however, produce a black slightly less dense than just 100% K only on an iGen3 press.
- The iGen3 can produce a varnish effect by contrasting 100% K with graphic elements that are almost solid (e.g., 95-98% K). See last example below. Let your print provider know if you want to create this effect.
- Black overprint is not usually recommended. Consult your print provider.

Figure 3-6 Effects with Black

All boxes are filled with 100% K only; circles are filled with colors noted below.



100K, 40C



100K, 40M



100K, 40Y



100K, 60C,
40M, 40Y



100 C,M,Y



96K

Tint Uniformity

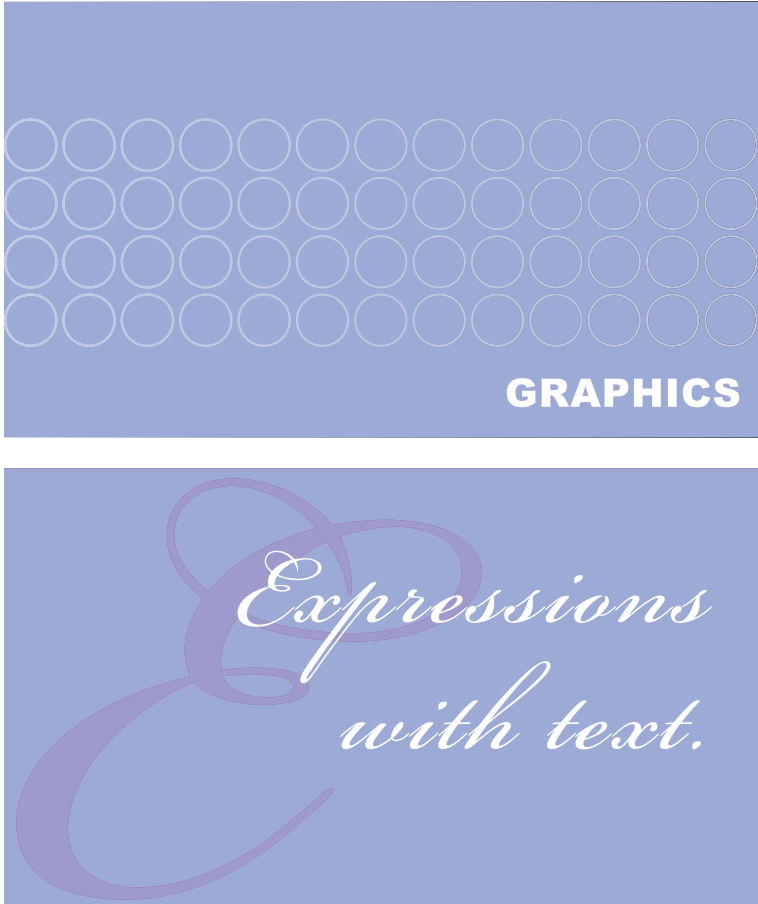
Digital printing systems, in general, may show slight variations in color within large areas of mid-density tints. Color variation may be emphasized with coated stock due to smoothness of the paper.

- Design with smaller areas when using tints and/or design with colors that are less than 40% or greater than 70% in value.
- Sensitivity to color variations may be reduced by introducing a texture or by adding text or graphic objects. See Figure 3-8.

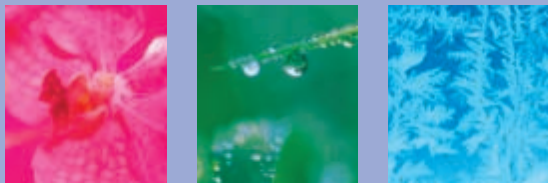
Figure 3-7 Example of a poorly reproduced uniform tint



Figure 3-8 Four examples of reducing sensitivity to color variations



Photoshop filter effects



i m a g i n e i m a g e s

Graphic Edges

- Edges of tinted areas may also have a jagged appearance, dependent on line frequency and the angle of the halftone screen with respect to the angle of the edge. When selecting the color for fine rules or elements, better results will be achieved by choosing saturated colors or setting at least one separation (other than yellow) to 100%.

Lines

- With a digital press, lines can be printed from sizes of 0.03 points and larger. Reverse lines will be preserved from 0.09 points and larger. Note, however, that lines with less than 0.3 points of separation may print as a uniform screen tint instead of an individual line.

Figure 3-9 Examples of gradients 5 & 11 in. (normal) and 11 in. with added noise



Gradients

The best produced gradients will be produced when using vector gradient tools in programs such as Illustrator that take advantage of PostScript Language Level 3 and PDF 1.3 smooth shading operations. Following are suggestions for achieving the smoothest gradients:

- To ensure enough gray levels, gradients length should be <7.5 in.
- Use a color change of 100 % for at least one color separation for gradients < 7.5 in. long and a change of 50 % for gradients < 3.25 in.
- Adding Noise or a Gaussian blur can improve gradients in Photoshop.
- Saturated colors generally produce the smoothest blends.
- Avoid creating gradients that blend from a very dark color (e.g., navy blue) to white. They have a tendency to have more banding.
- For gradients blending to white, set the same color to 0 %. Do not use white. Example: first color PANTONE 032C: 100 %, second color PANTONE 032C: 0 %.

Overprinting

By default, overprinting is enabled for both InDesign and Illustrator. We recommend that you turn this feature off when printing to a digital press.

Overprinting in InDesign

- Turn 100% black overprinting off.
- Attributes of page objects set to off.
- InDesign > Preferences > Appearance of Black.

Figure 3-10 Attributes

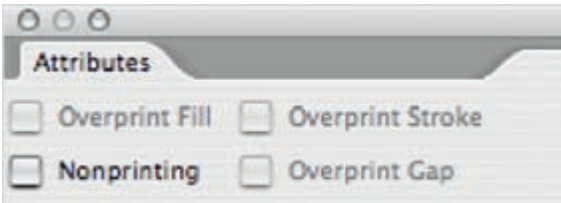
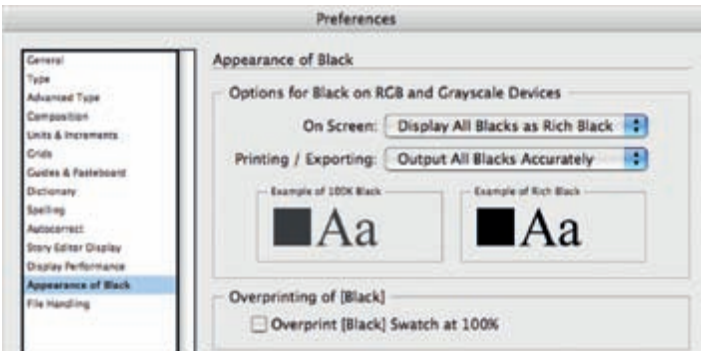


Figure 3-11 Preferences



Overprinting in Illustrator

- Choose Filter > Colors > Overprint Black.
- Attributes palette.

Figure 3-12 Attributes

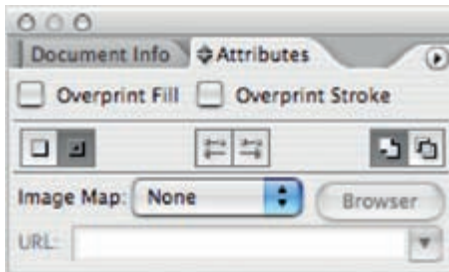
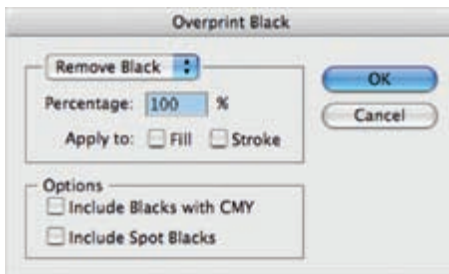


Figure 3-13 Overprint Black



Transparency

Transparency features in graphics applications allow users to create elements with drop shadows, overlays, blends and feathering. Because transparency effects can be complex, be sure to consult your print provider for best results.

Figure 3-14 Examples of transparency



Transparency in Illustrator

- Select [File: Document Color Mode] and choose [CMYK Color].
- Set the [Effect: Document Raster Effects Settings] Color Model to [CMYK] and the Resolution to [High (300 ppi)]. Any effects that require rasterization will use the value specified here.
- Use the Transparency palette and [Effect] stylize menu to control transparency effects. Note that [Filters] can produce unpredictable results.
- The [File: Document Setup: Transparency: Preset] should also be set to [High Resolution].
- The Flattener Preview palette [Window: Flattener Preview] can identify areas that have transparency applied or are affected by other objects.
- Be sure to enable [View: Overprint Preview] for the most accurate display of what the final design will look like.

Transparency in InDesign

- Select the [Edit: Transparency Blend Space] to [Document CMYK].
- Use the Transparency palette to control transparency effects.
- The Flattener Preview palette [Window: Output: Flattener Preview] can identify areas that have transparency applied or are affected by other objects.
- Be sure to enable [View: Overprint Preview] for the most accurate display of what the final design will look like.

Printing with Transparency

- In the printing or exporting windows, always select [High Resolution] for the Transparency Flattener.
- Printers often define flattening settings or flatten artwork themselves. Consult your print provider to determine if your work should be submitted flattened or with live transparency. Note that transparency effects will always flatten when printing to PostScript or EPS, or if they are exported using the Acrobat 4 (PDF 1.3) format. Transparency effects will remain “live” only if exported using the Acrobat PDF 1.4 or higher.

Cautions

- Use spot colors in transparency effects with discretion. When spot colors contact CMYK objects with transparency, the best practice is to make sure they are on the top of the stacking order.
- Avoid transparency designs that contain both RGB and CMYK content.
- QuarkXPress 7 and higher does have built-in support for transparency.

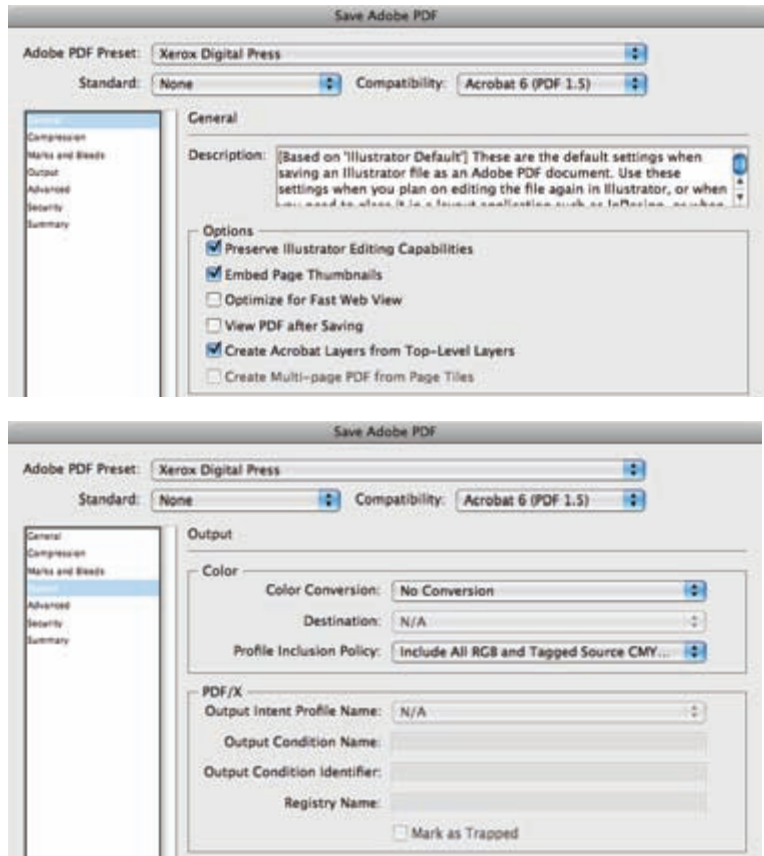
Saving Graphics Files

While you are working on files, you'll want to save them in the application's native file format (e.g., Adobe Illustrator Document). When you are ready to place them in the page layout application, however, you might want to consider the PDF format for the best portability.

Saving Illustrator CS3 files

- Use the Save As feature to save files as PDF.
- Consult your print provider to determine if your work should be submitted flattened or with live transparency. By selecting [Acrobat 4 (PDF 1.3)] you will automatically flatten any transparency effects present in the file. Acrobat PDF 1.4 or higher formats will preserve live transparency attributes.
- PDF files can be edited later if the [Preserve Illustrator Editing Capabilities] option is selected.
- The PDF format can often provide better previews (than EPS) when placed in page layout applications.

Figure 3-15 Illustrator Save As PDF options General and Output



Follow the recommendations for Acrobat Distiller in Chapter 5 when setting up the Save As Adobe PDF function from Illustrator. Create your own setting and call it Xerox Digital Press.

Saving Freehand MX Files

Use the Export feature, not Save As, to export files as PDF from Freehand.

- Click the [Setup] button and use those recommendations shown in Figure 3-17.
- In the [Convert Colors To:] pull down menu, be sure to select [CMYK and RGB]. Freehand will not modify CMYK images or RGB & CMYK native elements (note that it will, however, convert any RGB placed images to CMYK). Choosing [CMYK] will convert all RGB content to CMYK.
- Consult your print provider to determine if your work should be submitted flattened or with live transparency. By selecting [Acrobat 4 (PDF 1.3)], you will automatically flatten any transparency effects present in the file. Acrobat PDF 1.4 or higher formats will preserve live transparency attributes.
- Using a PDF format can provide better previews (than EPS) when placed in page layout applications.

Follow the recommendations for Acrobat Distiller in Chapter 5 when setting up the Export Adobe PDF function from Freehand. Create your own setting and call it Xerox Digital Press.

Figure 3-16 PDF Export files as PDF

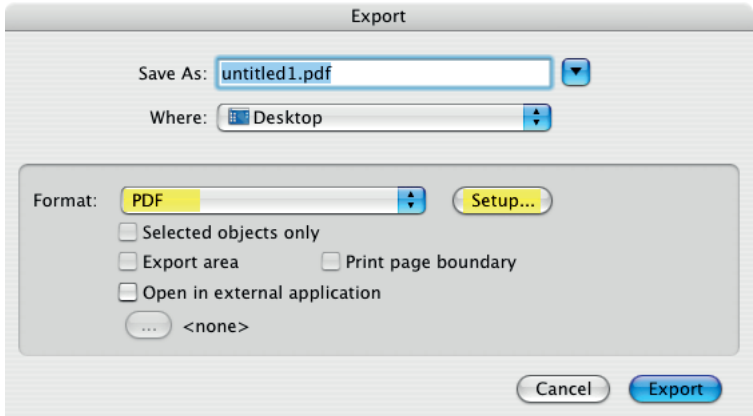
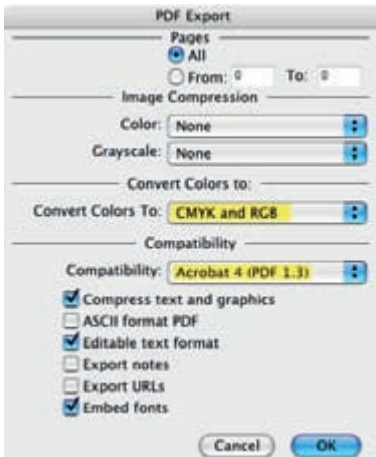


Figure 3-17 Freehand PDF Export setup



Saving Graphics or Page Layouts as EPS Files

Though the PDF format is preferred, occasionally you may need to save files from Illustrator, Freehand, InDesign or QuarkXPress in the EPS file format.

When saving graphics or page layouts, the following are recommended:

- Use TIFF 8-bit color preview.
- Do not assign a color space when possible and select [Leave Unchanged] or [As Is].
- Use [Transparency: High Resolution] when flattening graphics with transparency.
- Embed all or complete fonts.
- Send all image data.
- Include CMYK PostScript in RGB files.
- Only use OPI if the printer requests it.
- Use Binary format.
- Use Adobe PostScript Language Level 3.

Figure 3-18 Illustrator Save As EPS Options

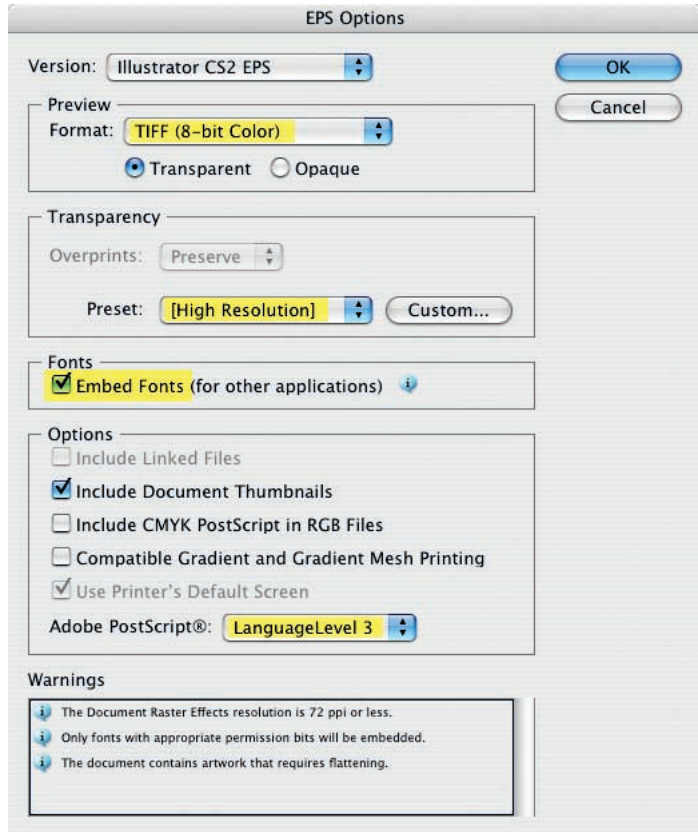


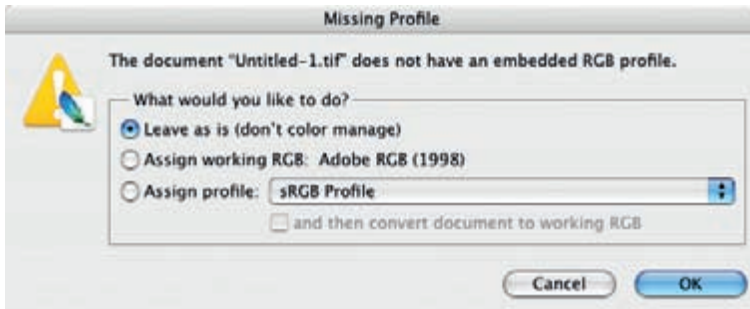
Image Considerations

Opening Image Files

Though most images are either acquired through a digital camera or scanner, Photoshop is generally the first step in assigning the color space of an image. If images come from an outside source, you might want to request that they always be supplied with an embedded ICC profile (of the source color space).

If the Color Settings in Photoshop are set to [Ask When Opening] for Missing Profiles, you may encounter a window asking how to handle the color of an image being opened.

Figure 3-19 Missing Profile



If no embedded profile is detected when the file is opened, you may choose one of the following options:

- **Leave as is**—will not embed a color profile into the image. However, for operations that require a color space definition, Photoshop will use the RGB or CMYK Working Space defined in the Color Settings preferences (for example, when performing a Mode change between RGB and CMYK).
- **Assign Working Space**—assign the profile of the Working Space defined in the Color Settings preferences. Select this option when you want to consistently use one working space or if the working space matches the source space of the received file.
- **Assign Profile**—assign a specific profile if the source color space is known when the image file is opened.

Talk with your printer about which workflow to use. Assigning the right color space from the start will give you a better idea of how the file will look in print. Remember to implement monitor calibration and characterization as guided by your printer.

Things to consider in choosing a source profile:

- If the RGB or CMYK source space of the image is known, you can assign the profile that matches that color space or you can convert to the assigned working space.
- RGB images without the source color space information may require guesswork to determine the most appropriate source color space. sRGB has a smaller gamut, but is a universal working space ideal for images coming from digital cameras and the Internet (or destined for the Internet). Adobe RGB has a wider color gamut and may work best for images that contain vivid colors.
- For Unknown CMYK images, we recommend SWOP (v2) or GRACoL for US markets and Fogra ISO or Euroscale for Europe.
- When working with documents that contain images from a variety of sources, discuss with your print provider if one working space should be assigned to all the images or if the original source color spaces should be assigned individually.

Figure 3-20 Example of Adobe RGB 1998 and sRGB IEC61966-2.1 images



Adobe RGB



sRGB

photo credit: Michael Riebesehl

If an ICC profile is detected, you can either:

- Use the embedded profile. Photoshop will automatically use the embedded profile when the Color Settings are set to [Preserve] under the Color Management Policies.
- Discard the embedded profile. If the embedded profile is believed to be inaccurate, convert to either an assigned profile or to the working space.

Size and Scale

- All images should be edited, rotated, cropped and sized in an imaging software application such as Adobe Photoshop. Do not re-size, crop, rotate or adjust images in page layout applications, if possible. Place images into the page layout at 100%.
- In order to obtain high-quality output, the recommended image resolution should be 300 dpi at the actual finished size. Scale images with bicubic sampling and crop all images in Photoshop. Do not use page layout applications such as QuarkXPress to make image size adjustments.
- Also note that submitting images with higher than needed resolution adds unnecessary processing time, creates larger files and may degrade image quality.
- For the best print quality, do not include transfer functions or screen angles unless directed to do so by the print provider. If the job requires specific screen angles or transfer functions, make sure to consult with your print provider to create the best results.

Figure 3-21



300 dpi resolution

72 dpi resolution

photo credit: Michael Rebesch

Design

Total Ink and Dot Gain

- The Xerox iGen3 is designed to expect a total ink limit of 325% and the traditional commercial print amount of dot gain (this is set by default when the North American Prepress 2 color settings are used in CS3).
- No special considerations are necessary.

Saving Image Files

Embedding Color Spaces

All images have a source color space. Whenever possible, discuss with your print provider if you should embed that source color space (such as the camera or scanner profile). This can allow the RIP to perform the color conversion from the assigned color space to the printer's color space (e.g., iGen3® or DocuColor® 8000). This workflow can provide good color matches.

- Embed the correct source color space with each image saved in either TIFF or EPS file format. Note that some printers may request images in JPEG format for jobs that are Variable or require faster productivity.
- ICC profiles in TIFF files generally cannot be embedded into the PostScript code on print. They are mainly used for output previews and to convert from one color space to another within applications such as Photoshop and QuarkXPress. The EPS format, however, can embed the color information (CSA) into the PostScript code and then be picked up by the RIP at the printer.
- Some printers opt not to utilize the embedded profiles and may end up stripping them from files. Be sure to talk over the color management settings and strategies with your printer.

Saving Photoshop CS3 Files—Photoshop EPS Format

- If you want to embed the source color space of an image, use the EPS format.
- Embed both the ICC Color Profile and PostScript Color Management (PSCM) Color Space Array (CSA) (see Figures 3-22 and 3-23).
- Using the EPS format can also preserve colors that may otherwise be converted by an application such as Microsoft PowerPoint. When images are saved as TIFF or JPEG, the color may be converted prematurely in the page layout application. Colors in EPS format are generally preserved.

Figure 3-22 Bottom half of Photoshop EPS Save As

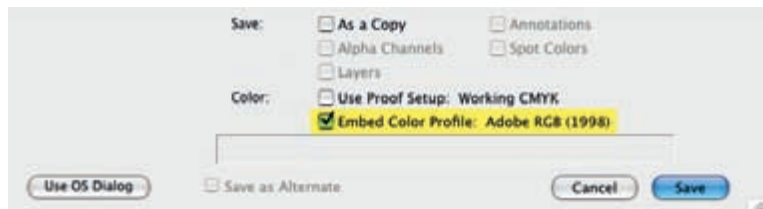
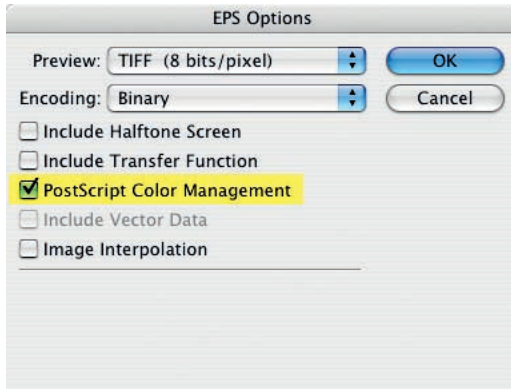


Figure 3-23 Photoshop EPS Options



The CSA remains with the image when the EPS file is placed in the page layout application (or even with applications that are not color managed, such as Microsoft Word). The RIP can then be set to recognize the embedded CSA in the PostScript stream and perform the conversion from that embedded color space to the printer's final destination color space (e.g., iGen3 CMYK).

Note:

- Always make your print provider aware that you have embedded color profiles in your files.

Photoshop TIFF Format

- When saving images as TIFF files, embed the ICC Color Profile, if possible.
- Save the file in TIFF format without LZW compression.
- Check [Embed Color Profile] in the Save As window.

Figure 3-24 Photoshop TIFF Options

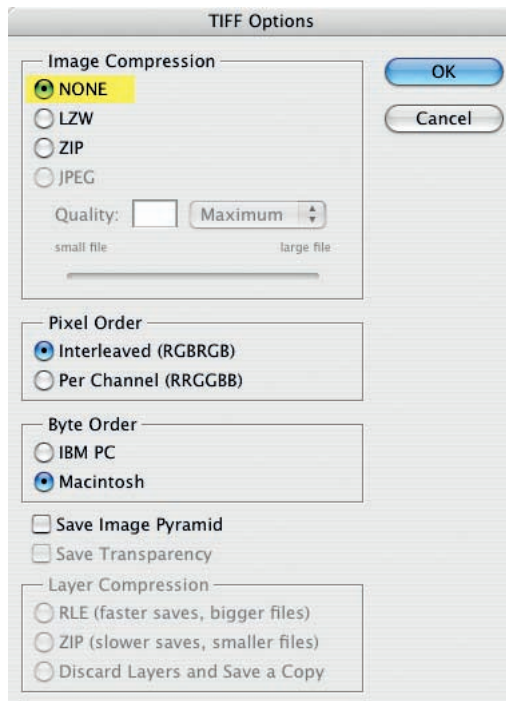


Image Compression

- It is recommended that you use JPEG compression only when necessary as the last step when exporting to PDF as it may cause unpredictable results.
- If upsampling is required, although this is not recommended, use bicubic.
- Images higher than 450 dpi should be downsampled using bicubic sampling.

Figure 3-25 Example of no compression, 300 dpi



photo credit: Michael Riebesehl

Figure 3-26 Example of JPEG low quality (maximum compression), 300 dpi



photo credit: Michael Riebeschl

Figure 3-27 Example of bicubic upsampling from 72 dpi to 300 dpi



photo credit: Michael Riebeschl

Microsoft Office Design Considerations

Images

Microsoft Office applications will send RGB data to the printer, unlike page layout applications that send CMYK data. Images can be in TIFF, EPS or JPEG file formats (JPEG compression is not recommended). CMYK images, however, will be converted to RGB unless they are in the EPS file format.

Black Text and Graphics

Microsoft uses an RGB color model (unlike other graphics applications that use CMYK) and creates black text using equal amounts of red, green and blue. This can be problematic as the saturation of dry ink in a small area can produce a halo. One option is to export the file to PDF and all instances of black will be converted to gray. Make sure the Adobe PDF PostScript printer driver is properly configured to use PostScript Gray for text and vector graphics for R=G=B. Consult your print provider to ensure the best black text and graphics rendering.

Approximating PANTONE® and CMYK Colors

To create a close match to a PANTONE color within Microsoft Office applications:

- Ask your print provider for the exact CMYK PANTONE color values needed, or go to www.PANTONE.com and select [Support: Color Library Updates] for a close approximation. Download the PDF Color Chart and Value List for your system to obtain the latest 1,089 PANTONE equivalent values.
- Using Photoshop, create a new color with the corresponding CMYK PANTONE values to determine the RGB equivalents. Make sure the Color Setting in Photoshop is set to [sRGB] for the RGB working space and [SWOP CMYK] for the CMYK working space, unless otherwise directed by your print provider.
- Use RGB values from Photoshop to create new color equivalents in MS Office.

Gradients

When printing a Microsoft Office file that contains a gradient fill within non-EPS graphics or vector objects, banding may occur in the printed output. Office does not render gradient fills into PostScript gradients. Instead, Office uses the Microsoft Windows Graphical Device Interface (GDI) to generate halftone steps that are then sent to the press.

The banding effect may appear more obvious with larger gradients and depend on the percentage of colors used. For the smoothest gradients, you may want to create them in Illustrator CS3 and in the [File] menu select [Save for Microsoft Office]. This gradient.png file can then be placed into the Microsoft Office document. Also, processing an Office file into a PDF with [Convert Gradients to Smooth Shades] selected in Acrobat Distiller may improve smoothness or reduce banding. Experimentation is recommended.

Designing for Variable Print

What is Variable Information (VI)?

Variable information, as defined by Adobe, is a digital print run where each printed page is different and personalized because the page content relates to customer information in a database. This type of information is also referred to as Personalization, 1:1 marketing, Variable Data Printing (VDP), Versioning, Direct Marketing, Mass Customization and others.

Personalized documents are created by extracting names, addresses, purchase information or other account data from records in a database. The data fields such as last name, zip code and even images, are called variables because they change, or vary, for each record.



Generating Variable Information Jobs

There are a variety of Variable Data Printing (VDP) applications in the marketplace offering a broad range of capabilities. They range from mail merge applications to multi-user enterprise systems. Some are simply a plug-in to Quark (Darwin, DesignMerge) or InDesign (uCreate component of XMPie) while others are standalone applications (Lytrod, PageFlex), web-based (iWay), with multiple components for design, database logic and production (XMPie). Common output formats include XML, VIPP, VPS, PPML or optimized PostScript and PDF. Output can be in the form of email, dynamic web pages or a file to be printed.

The VDP applications are designed to meet various needs. For example, XMPie is geared toward cross media Direct Mail or one-to-one marketing and Printshop Mail allows an easy way to create mail. Another application for mainframe users is Exstream Dialogue, which is designed to build transactional documents for statements and billing traditionally associated with health care or financial services industries.

Benefits of Using Variable Information Applications

The output file is created such that static elements should get ripped only once and reused as needed. Both static and variable images, graphics and text can be printed on the same page. In many cases, large elements such as images, are not embedded in the output file, similar to an OPI workflow (referred to APR by Creo). This allows the output file to be much smaller.

Designing Documents with Variable Information

Unlike designing documents for offset presses, careful consideration must be given to the placement of static versus variable information. Graphic artists should have a good understanding of database and printing technology. They must also understand the capabilities of the software and hardware they are using in order to successfully design a variable document.

Layout and Design Considerations

- Avoid using Quark frames on elements that contain variable information.
- When designing VI documents, keep in mind that trapping text at the RIP may not be applied to variable elements.
- When using variable imposition, ensure that all document pages are the same size and orientation.
- Printing documents containing simplex and duplex pages within the same document may not be supported. If documents must be printed with simplex and duplex pages within the same document, insert blank pages in the original layout and duplex the entire document.
- Whenever possible, embed all fonts or else the font must have the exact match at the RIP. However, OpenType fonts are cross-platform compatible.
- Type 1 fonts may have problems with kerning (may not be able to supply the kerning file).
- Some VI applications that create VIPP will take PDF resources and convert them to EPS but the result can be unpredictable. When creating resources (e.g., images, graphics) to be used in applications that create VIPP, create EPS according to the guidelines specified in Chapter 3.

Image Quality Considerations

- For the best performance, ensure that all images are set at 300 dpi. Using a different resolution may slow down the RIP or reduce image quality.
- Ensure that all images are at their final resolution, size and orientation. All variable elements for a specific area should be cropped to the same size. Rotating, scaling and clipping images during the RIP will slow down performance and could cause improper placement or scaling.
- Do not save TIFF images with LZW compression.

Variable Formats

- Some VI languages may not comprehend layering.
- If the VI authoring tool allows, position variable elements above static objects (bring to the front).
- When using APR with variable images, ensure that the names of the variable images conform to the same naming restrictions associated with APR and static images.



Preflight

4

Preparing to Print

- Trapping
- Bleeds
- Imposition
- Preflighting
- PDF: Acrobat Distiller
- Export PDF

Preparing to Print

Once the layout and design of a job is complete, you'll need to decide how to hand off your files. The printer may prefer a single PDF or all the source files. Either way, you'll want to run through a preflight checklist.

Preflight Checklist... Are You Ready?

- Ensure that all graphics and images are in their final size and correct resolution, 100% at 300 dpi.
- Rotate, scale and edit images and graphics prior to placing them in page layout applications.
- Image file formats should be EPS or TIFF (not JPEG) and verify that all source files are linked properly.
- All spot colors should be designated as spot colors and not as CMYK recipes.
- Spell check your document.
- Remove any trapping (allow the printer to apply trapping).
- Check for transparency and either flatten or notify the printer so they can flatten the file.
- All bleeds should generally be set to 0.125 in. (3 mm).
- Gather all source files: fonts, graphics, images and layout documents, if requested. Use the [Package] feature in InDesign or the [Collect for Output] in QuarkXPress.
- Perform a visual preflight using overprint preview, color separations preview and transparency flattener preview.
- Prepare a mock-up to give the printer as a finished sample.

Trapping

- For best results, trapping should be applied by the printer and not in the application. Trapping settings made in the application are not included in the PostScript when printing with the Composite mode.
- Avoid instances where trapping to gradients or images is required (the change in color may not reproduce well).

Bleeds

- It is recommended that you do not design sheets to be printed to the edge. The press is designated to maintain a small blank band around the edge of the sheet. This prevents excess dry ink from contaminating later sheets.
- For full bleeds, use a larger paper and trim to the finish size.
- Include a 0.125 in. (approximately 3 mm) bleed for all areas that extend off the page when trimming is required.

Imposition

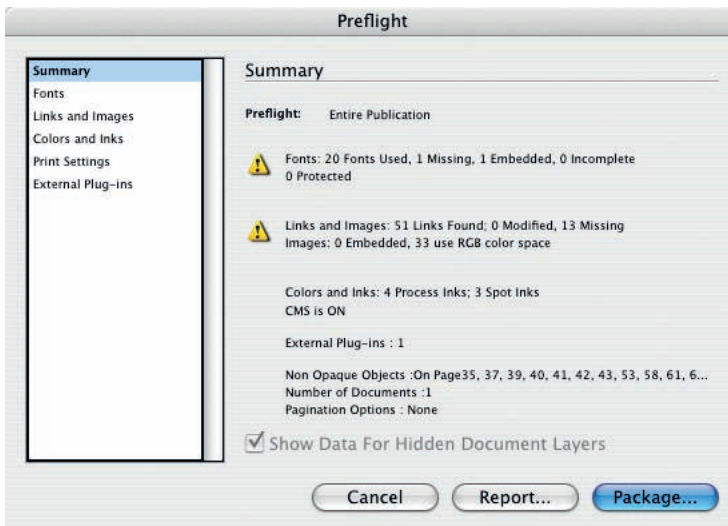
- Basic imposition can usually be performed by the RIP of the iGen3®. Your print provider can work with you on setting up for multi-up jobs.
- If you plan to use binding, leave ample room for the gutter.

InDesign CS3 Prepare to Print

Preflighting

Use the [Preflight] feature under the File menu to make sure all fonts, graphics and image links are present.

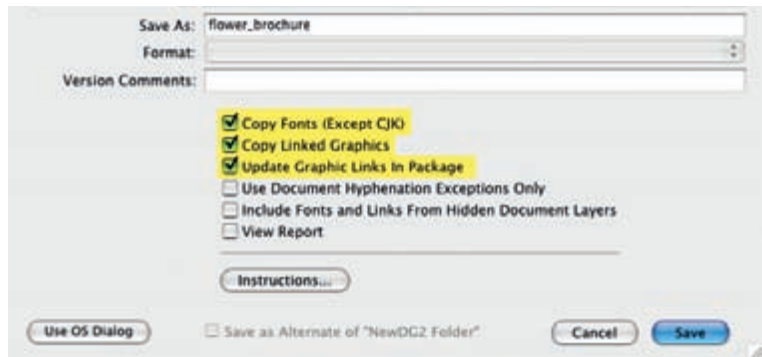
Figure 4-1 Preflight summary



Packaging

Use the [Package] feature under the File menu to collect all fonts, graphics and images used in the job. This will ensure that all elements are collected when the job is delivered to your print provider. Instructions and contact information can also be included by the designer for the print provider.

Figure 4-2 Bottom half of InDesign Packaging settings

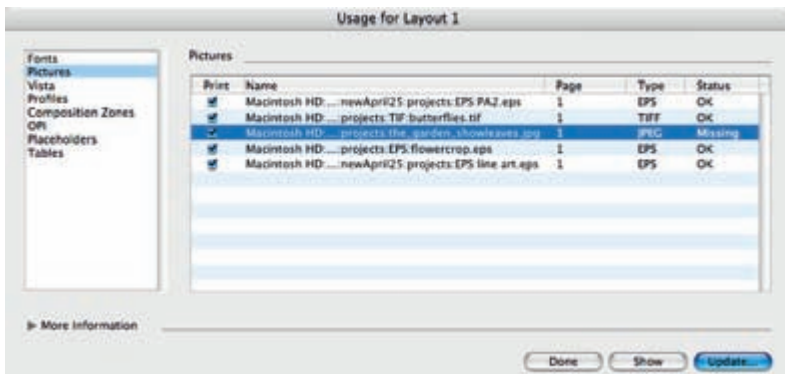


QuarkXpress 7.0 Prepare to Print

Usage...

Use the [Usage...] feature in the Utilities menu of QuarkXPress to review that all fonts, graphics and images are linked correctly in the file.

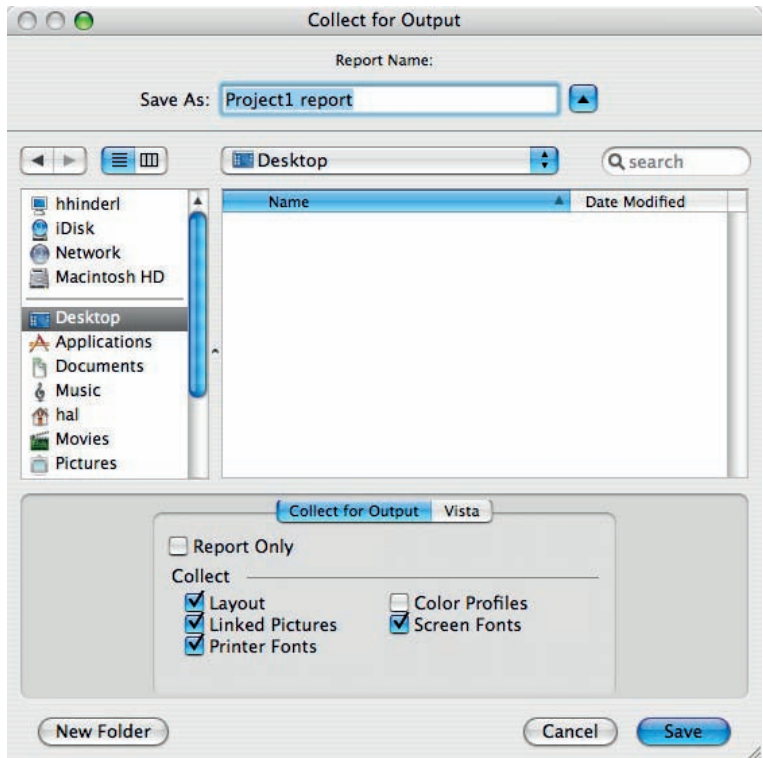
Figure 4-3 Usage... Pictures



Collect for Output

Use the [Collect for Output] feature in QuarkXPress to gather all fonts, graphics and images used in the job. This will ensure that all elements are collected when the job is delivered to the print provider. Note, however, that you will need to gather fonts from imported EPS or PDF pictures manually unless they are already imbedded into the EPS or PDF file.

Figure 4-4 Collect for Output



Acrobat Distiller 8 Settings

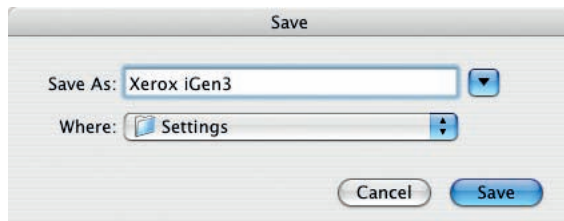
Consult with your print providers to learn their preferred workflow for PDF creation and also to obtain their preferred PDF settings. You can otherwise use the following custom Distiller recommended settings when creating PDF files from PostScript.

- Create PostScript from the source application using the Acrobat Distiller PPD.
- Be sure to use the Binary data format and include all fonts.
- Use the Smooth Shading feature in Acrobat Distiller.
- The Save As features in PDF Writer/Maker or the Mac OS X Save As PDF feature should be used with caution.

The following recommended settings have been optimized for high image quality printing. In some instances, productivity may take priority over image quality and, therefore, require different settings (such as adjustments in compression).

Open Acrobat Distiller and go to the Settings menu. Select [Edit: Adobe PDF Settings...]. Create a custom set choosing the following recommended settings and select [Save As...] using a new file name (e.g., “iGen3®” or “DocuColor® 8000”). Distiller will save the file in the right place so it can be accessed as a new Job Option set. The following pages reflect the settings for an iGen3 Digital Production Press, but you can use these settings regardless of what Xerox Production Print Device you have.

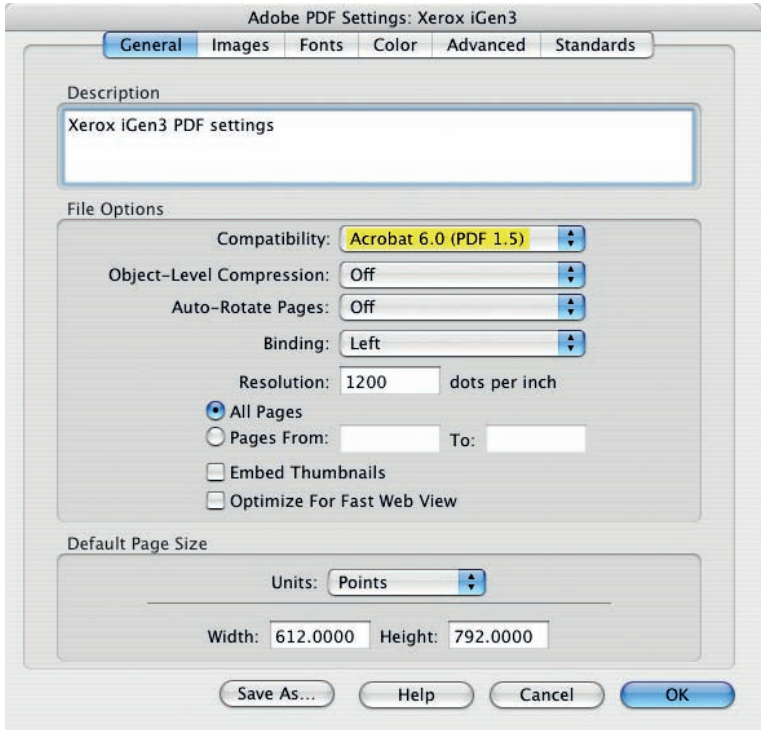
Figure 4-5 Acrobat Distiller



General

- Select Acrobat 6.0 (PDF 1.5) for the best compatibility. If you are working with a PostScript file, there is no need to select Acrobat 4.0 compatibility for transparency concerns (writing files to PostScript always flattens any transparency effects).
- To ensure that the orientation of the pages prints correctly, do not select the Auto-Rotate Pages feature.
- Embed Thumbnails is optional. Versions of Acrobat 5 and higher are able to dynamically create thumbnails on the fly.
- The Optimize for Fast Web View feature may cause files to take longer to distill. Consult with your print provider if this function is preferred on or off.

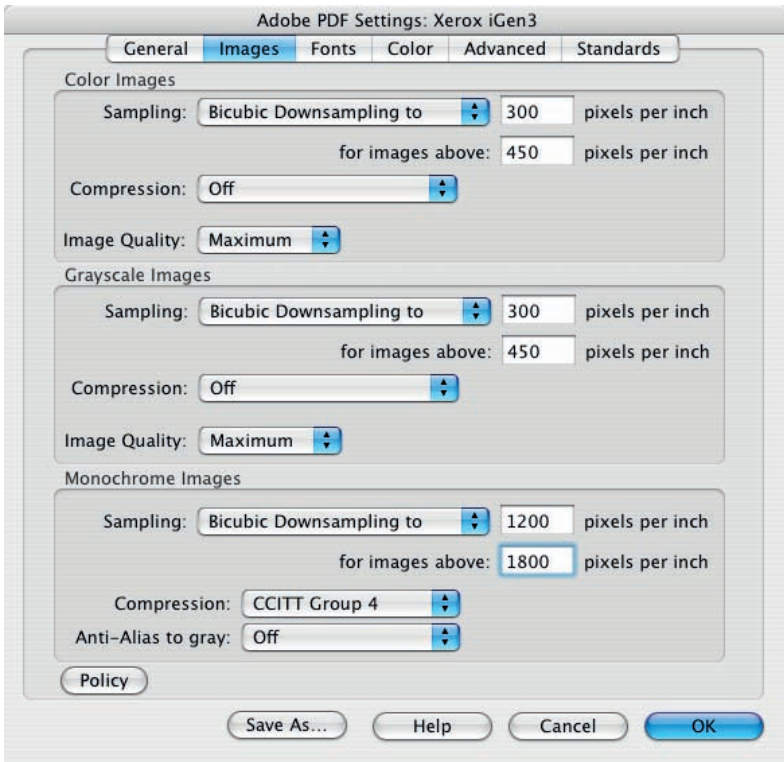
Figure 4-6 Acrobat Distiller General Settings



Images

To preserve the best image quality, compression is generally not recommended. If compression is needed, consult with your print providers and get their preferred settings.

Figure 4-7 Acrobat Distiller Images Settings



Distiller 8 contains a Policy button. You will need to decide the threshold of what level of resolution is appropriate for the quality of the job and if the job should pass, fail or warn the user.

Figure 4-8 Policy Settings

The screenshot shows a dialog box titled "Policy Settings" with three sections:

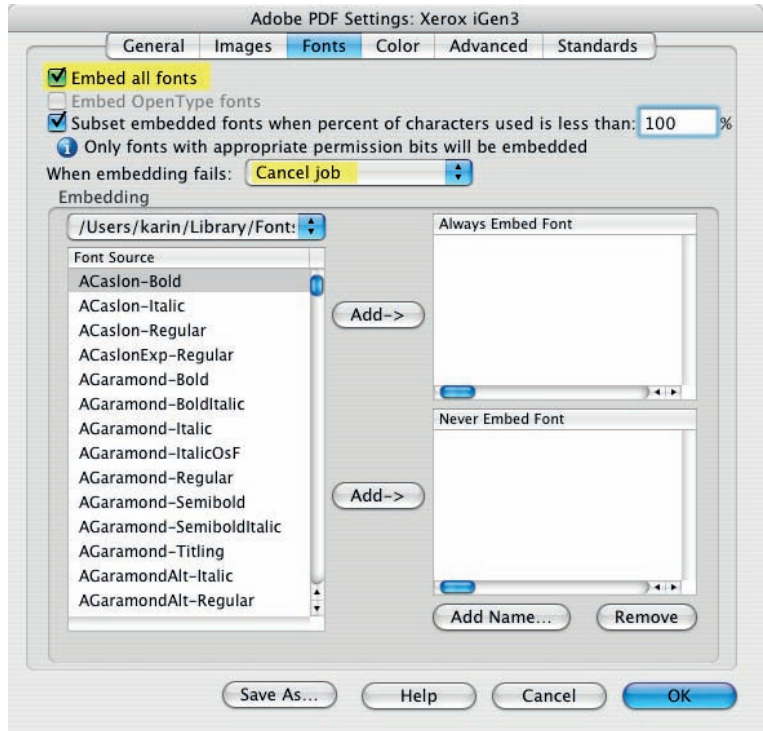
- Color Image Policy:** "When image resolution is below: 200 pixels per inch" with a dropdown menu set to "Warn and continue".
- Grayscale Image Policy:** "When image resolution is below: 200 pixels per inch" with a dropdown menu set to "Warn and continue".
- Monochrome Image Policy:** "When image resolution is below: 600 pixels per inch" with a dropdown menu set to "Warn and continue".

At the bottom of the dialog are "Cancel" and "OK" buttons.

Fonts

- If jobs fail while distilling, check the job for missing fonts. The following settings recommend canceling the job when fonts are missing to ensure the document prints correctly.
- To guarantee the font information is successfully included in the Adobe PDF file and will view properly on the monitor, the required fonts should reside either in the system folder of the computer or in the PostScript file.
- A higher percentage value is generally recommended for [Subset embedded fonts...].

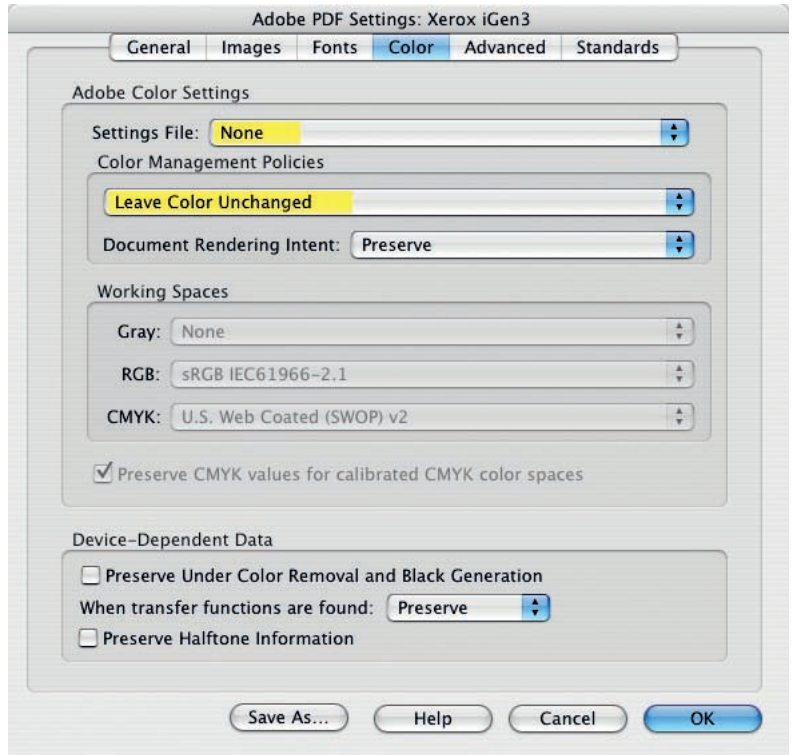
Figure 4-9 Acrobat Distiller Fonts Settings



Color

- The Settings File selection under Adobe Color Settings should usually be set to [None], [Leave Color Unchanged].

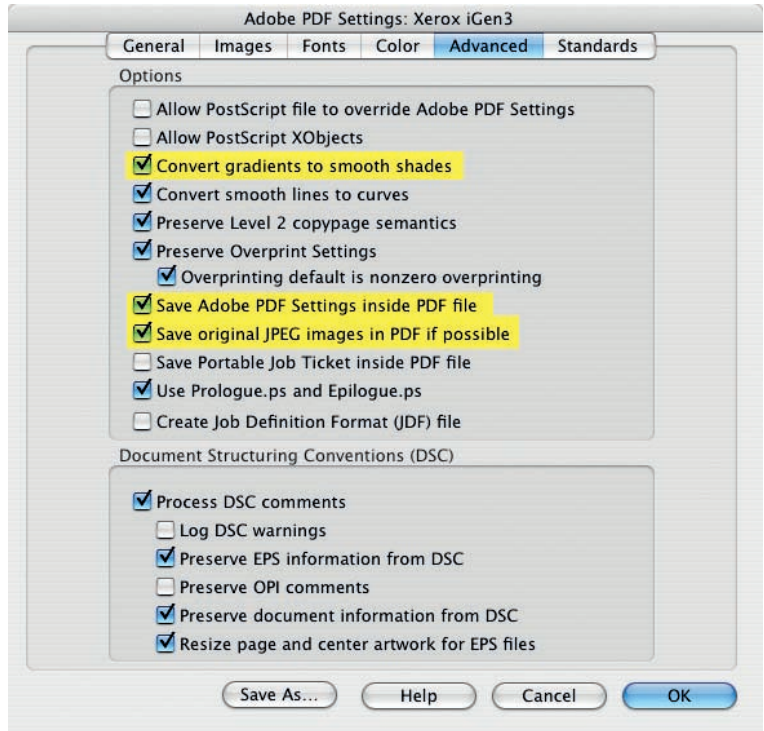
Figure 4-10 Acrobat Distiller Color Settings



Advanced

- Many of the Advanced settings are dependent on the preferences recommended by your print providers. Always consult with them for best results.
- The Convert Gradients to Smooth Shades feature can help smooth vignettes/sweeps/gradients with Vector-based programs such as Adobe Illustrator or QuarkXPress. Using this feature with Microsoft Office jobs may or may not improve the job due to the way sweeps are generated in those applications.
- As a precautionary measure, use the Save Adobe PDF Settings Inside PDF File feature. The recipient of the PDF may be able to troubleshoot problem files more easily if the settings are included with the job.

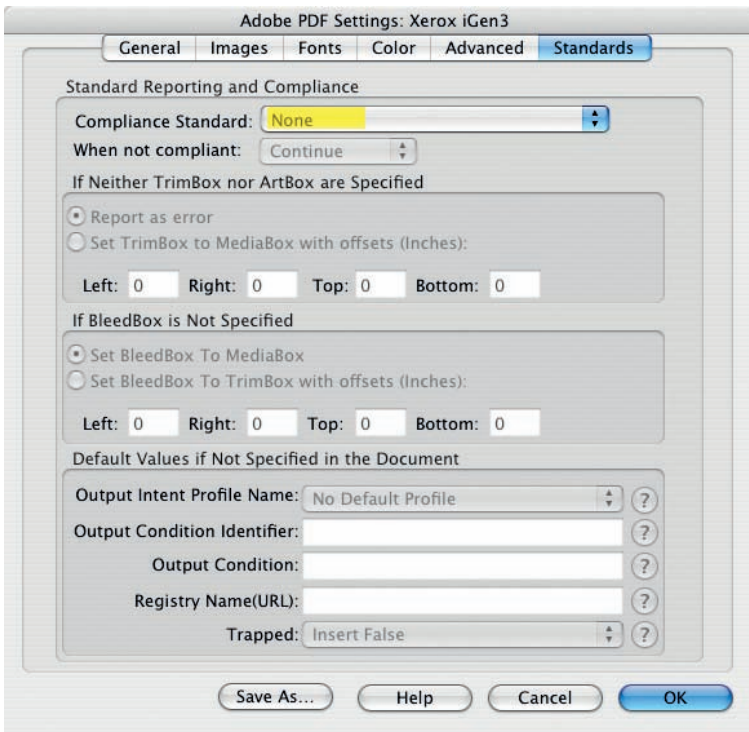
Figure 4-11 Acrobat Distiller Advanced Settings



PDF/X

- Talk with your print provider to determine if PDF/X-1a or PDF/X-3 settings are appropriate.

Figure 4-12 Acrobat Distiller PDF/X Settings



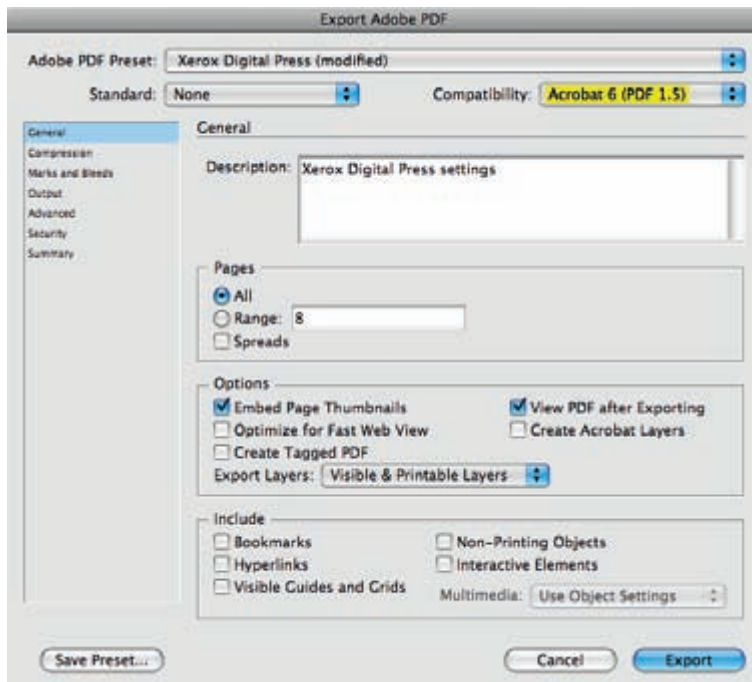
Exporting PDF Files

When exporting files from InDesign or QuarkXPress, you can apply many of the same Acrobat Distiller recommendations discussed previously.

InDesign CS3—Export PDF

The PDF options for InDesign are fairly similar to those in Acrobat Distiller. If there is a custom set saved from Distiller, it will be selectable from the PDF Export dialog box. Follow the settings previously discussed in this chapter. There is one additional group of settings, [Marks and Bleeds], that can be set to your preference.

Figure 4-13 InDesign Export Adobe PDF



Consult your print provider to determine if your work should be submitted flattened or with live transparency. Note that transparency effects will always flatten if they are exported using the Acrobat 4 (PDF 1.3) format, but will remain live in the PDF 1.4 or higher formats.

QuarkXPress 7.0—Export PDF

In QuarkXPress, be sure to click on the [Options...] button to access all of the available controls over PDF settings.

Figure 4-14 QuarkXPress Export as PDF

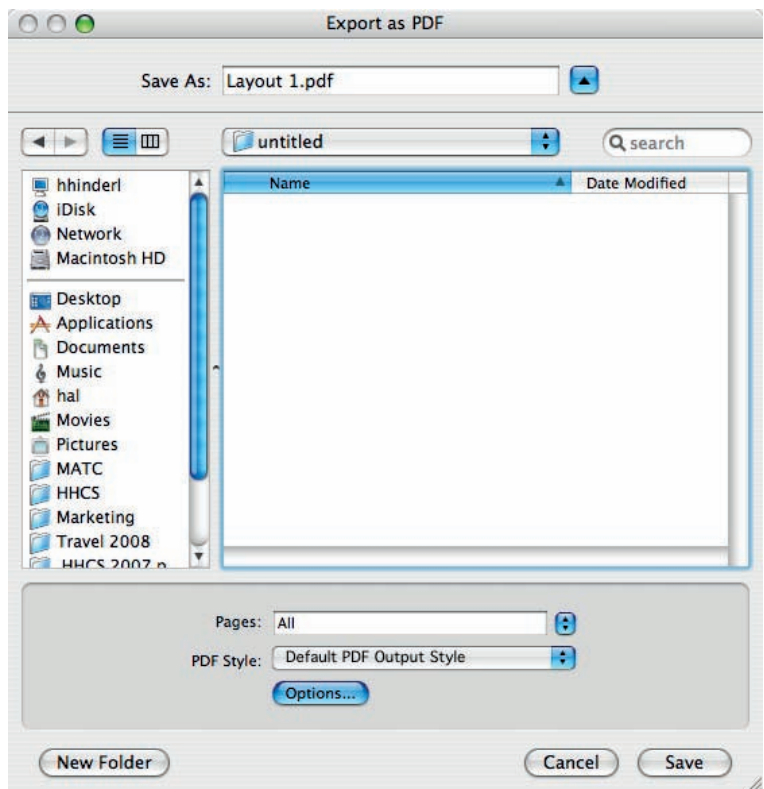
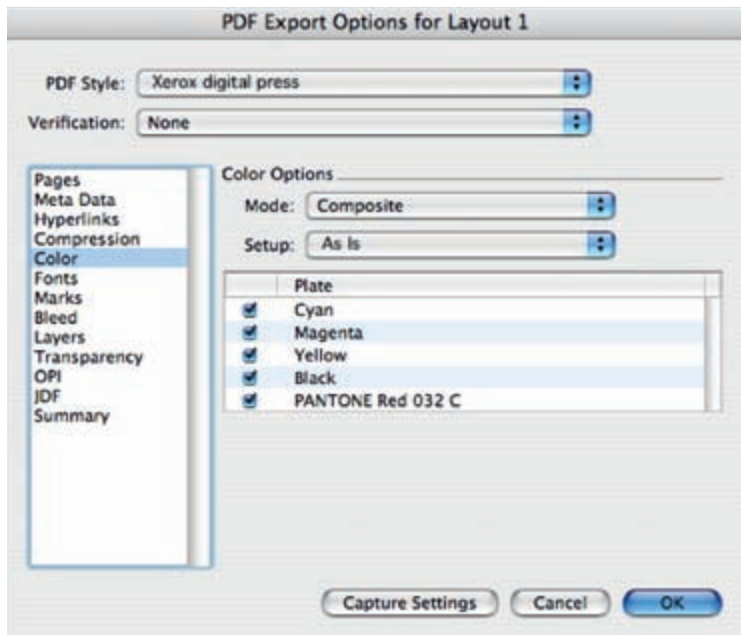


Figure 4-15 QuarkXPress PDF Export Options



You will want to check the options under the Job Options and the Output tab. Take special care to ensure the Color [Output Type] is set to [Composite] and that [Print Colors] is set to [As Is].

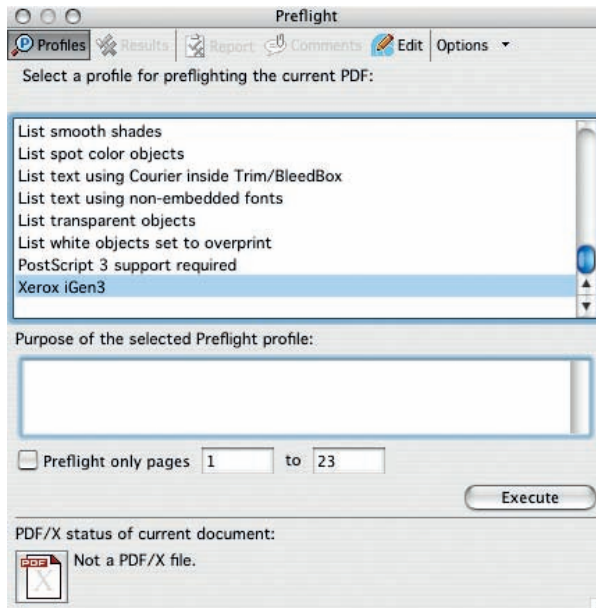
Spot colors in QuarkXpress 7 will print correctly whether the selected output style is "Composite CMYK and Spot" or "As Is".

Preflighting PDF Files

Preflighting PDF Files

In Adobe Acrobat 6 or higher, you can use the Preflight tool to create your own custom preflight profile or use one of the default profiles. If you are not familiar with this tool, you may want to talk with your print providers first. They may be able to provide you with a customized profile or walk you through the process. Also refer to the Adobe documentation provided with Acrobat.

Figure 4-16 Acrobat Preflight





5

Final Results

- File Formats Supported
- Print Settings
- Finishing Options

Printing

When creating PostScript or PDF files for print, consult your print provider for the recommended settings to use. When the print provider is unknown or unavailable, the guidelines that follow can be used. Keep in mind that there may be special settings such as imposition or bleeds that may be unique to the printer's preferences—always discuss printing specifics with them first.

File formats supported by Xerox Digital Presses

- PostScript Language Level 1, 2 and 3
- Portable Document Format (PDF) version 1.3 and above
- TIFF (Tag Image File Format)
- JPEG *
- Xerox FreeFlow® Variable Information Suite 6.0
- PPML 2.1 *
- TIFF/I
- PDF/X-1a through PDF/X-3
- Brisque *
- Prinergy *
- DCS 2.0
- CT/LW *
- Microsoft Native file formats (e.g., .doc, .xls)

* Several file formats supported are unique to a specific configuration or are available only as options. Check with your print provider or Service Bureau for their preferred formats.

Color Spaces Supported

Any color space (RGB, CMYK, CIE Lab Indexed, and PANTONE)

Selecting Your Print Settings

If you send PostScript or PDF files to your printer, use the following general print settings in your applications. InDesign and QuarkXPress printing information follows next.

- Use either the printer's (e.g., iGen3® or DocuColor® 8000) PPD or Acrobat Distiller PPD for the Printer Description setting.
- Print a composite file (not separations).
- Be sure the paper size in the Page Setup is the same as in the Print dialog box.
- Set bleeds to 0.125 in. (3 mm) or desired size, if applicable.
- Do not apply color conversions when printing unless the print provider instructs you to do so.
- Send all data (graphics and images) in binary format, when possible.
- Images should be full resolution. Do not use sampling.
- Always download all fonts.
- Always use PostScript Language Level 3.
- Set the Transparency flattening level to the highest quality setting.

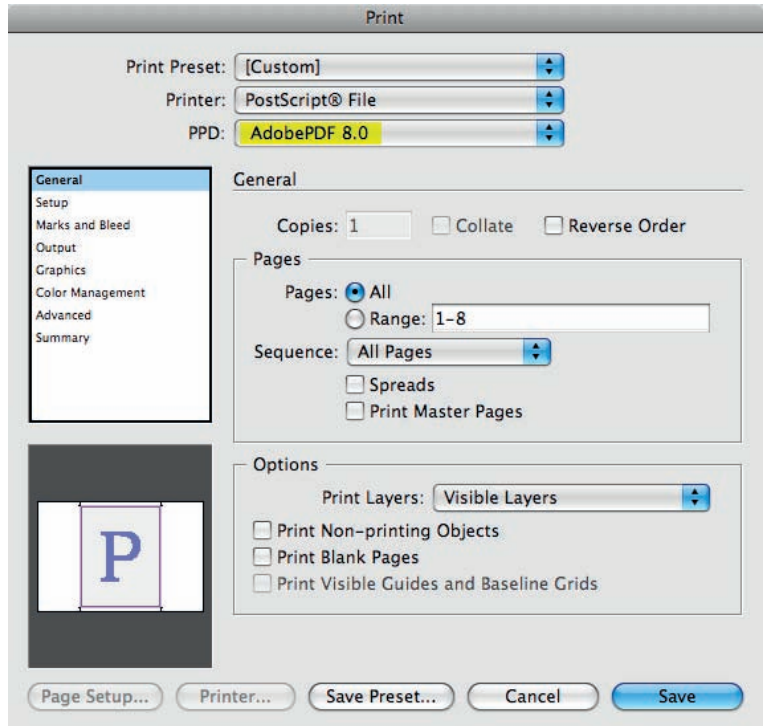
InDesign CS3 Print Settings

Use the following print settings for InDesign when sending files to the Xerox Production Press or when preparing PostScript files for PDF.

General

- Use either the printer's (e.g., iGen3® or DocuColor® 8000) PPD (supplied by your print provider) or the Acrobat Distiller PPD for your Printer Description (PPD).

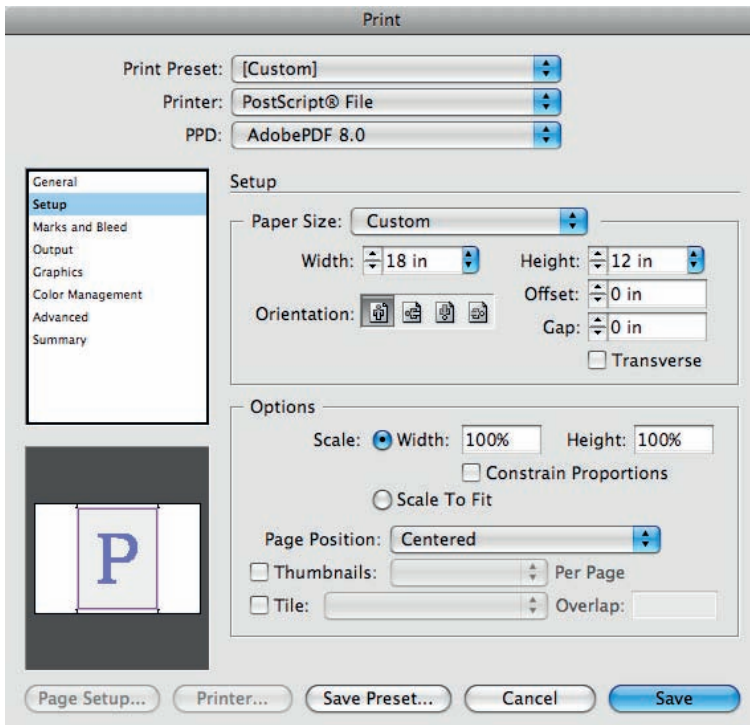
Figure 5-1 InDesign General Settings



Setup

- Be sure the paper size under both the [Paper Size] in the Print Dialog box and the [Paper] in the Page Setup dialog box match. This will ensure that your document prints correctly. Also, check that the orientation is correct.

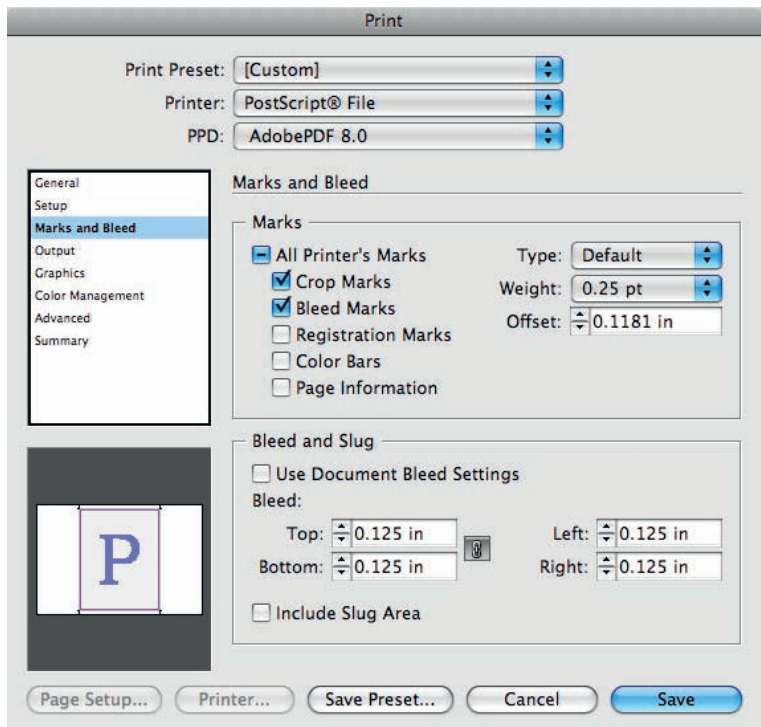
Figure 5-2 InDesign Setup Settings



Marks and Bleeds

- If bleeds are used, 0.125 in. (3 mm) is generally recommended for printing on Xerox Digital Presses, like most other printing systems.

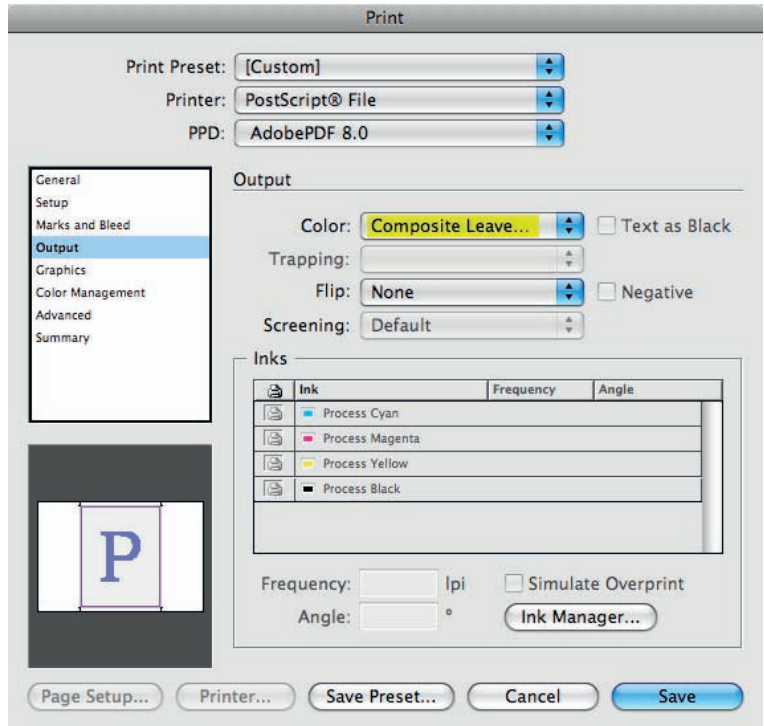
Figure 5-3 InDesign Marks and Bleed Settings



Output

- Always print with Output Color set to [Composite Leave Unchanged] to prevent any color conversions. This allows the RIP to convert both RGB and CMYK objects to the printer's color instead of InDesign. Only use [Composite CMYK or RGB] if the preference is to have the entire job in one single color space.
- Do not use [Text as Black]. This will convert all color text to black. This feature should only be used for quick proofing.
- Do not use [Simulate Overprint]. This should be used for low-end proofing only as it may convert spot colors to process.

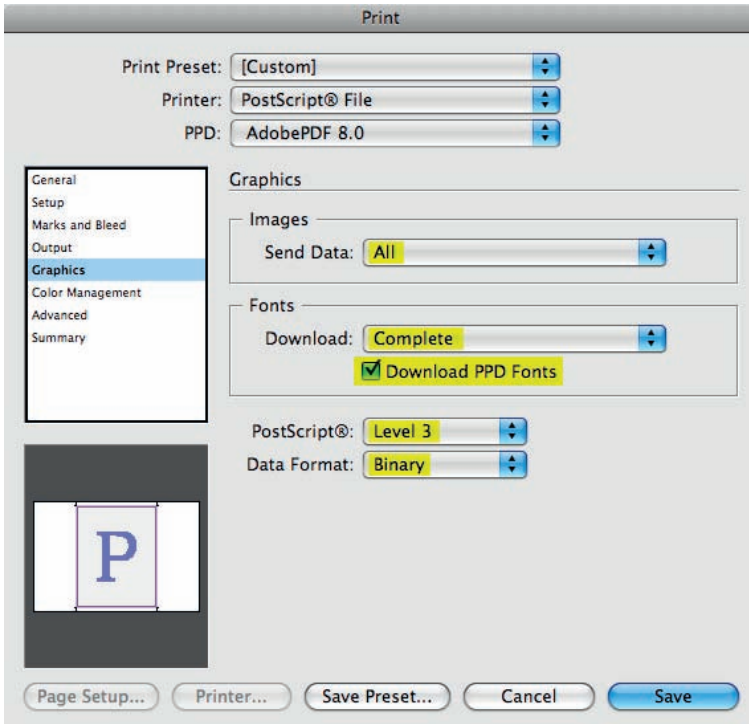
Figure 5-4 InDesign Output Settings



Graphics

- Use Send Data [All] for Graphics, Images.
- Always Download [Complete] fonts.
- Check [Download PPD Fonts] to preserve all fonts.
- Always use PostScript [Level 3].

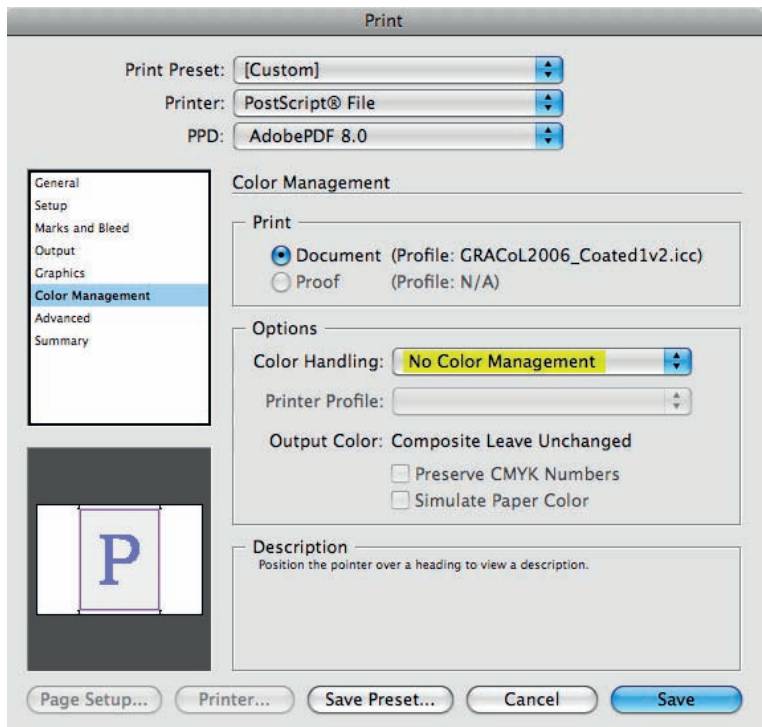
Figure 5-5 InDesign Graphics Settings



Color Management

- Color Handling should be set to [No Color Management] to prevent colors from converting.

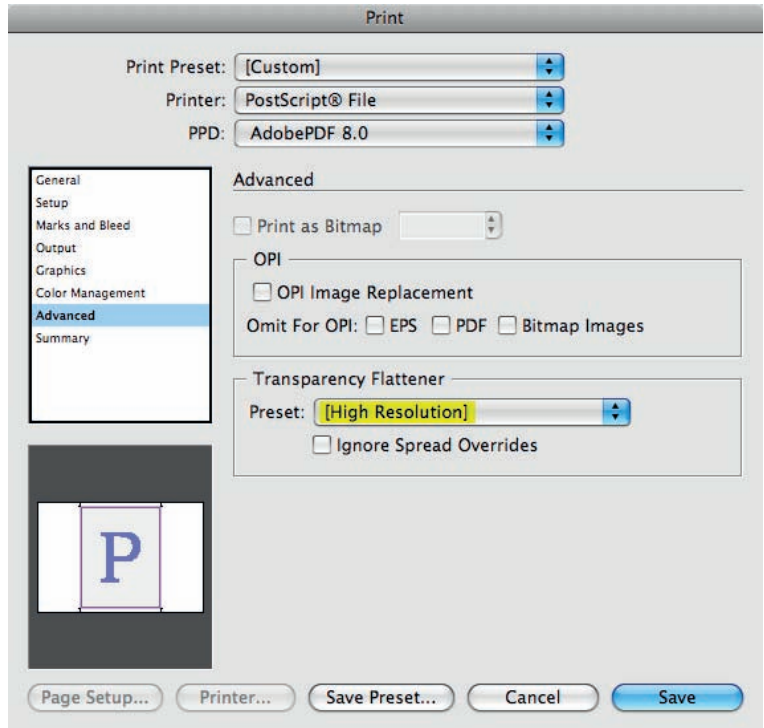
Figure 5-6 InDesign Color Management Settings



Advanced

- Only enable OPI if your print provider requests it.
- Set the Transparency Flattener Preset to [High Resolution].
- Use [Ignore Spread Overrides] if styles are thought to be set incorrectly.
When checked, a single transparency flattener style will be applied to the document and will override all other flattening settings.

Figure 5-7 InDesign Advanced Settings



QuarkXPress 7.0 Print Settings

Use the following print settings for QuarkXPress when sending files to the printer or when preparing PostScript files for PDF.

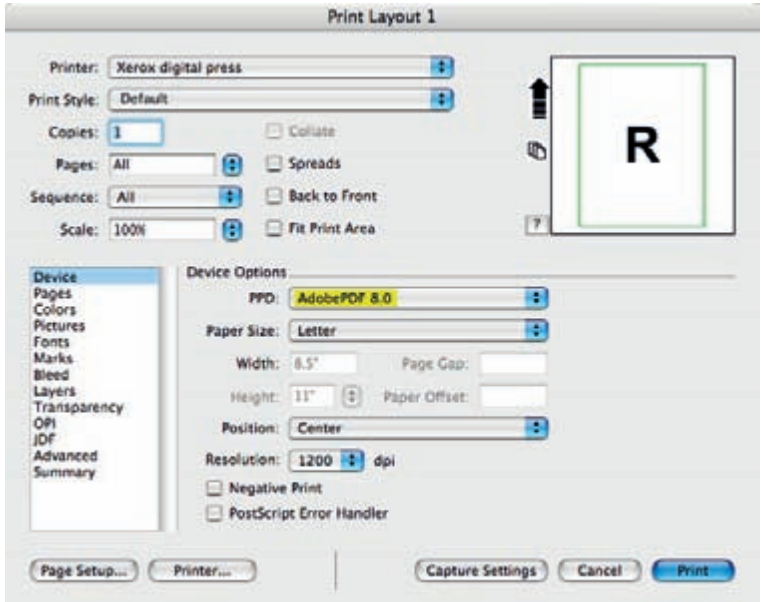
Note:

- When using Mac OS 10.4.x to create PostScript files you will need to enable [Create PostScript File for Later Distilling]. This setting can be found in the pull down menu [QuarkXPress: Preferences: PDF]. When this radio button is selected, Quark will generate a PostScript file instead of a PDF file whenever [Export: Layout as PDF] is selected from the File menu. Mac OS 10.3.x users are able to create PostScript files as usual—without making any changes to the QuarkXPress preferences. In the print window, simply select [Output Options] in the pull-down menu and select [Save as File, Format: PostScript].

Layout

- Do NOT print with Separations.
- For duplex printing, select [Print Blank Pages]. This will ensure that chapters start on the right-hand page.
- If bleeds are used, 0.125 inch (3 mm) is generally recommended for printing on Xerox Digital Presses as with most other printing systems.

Figure 5-8 QuarkXPress Device Settings



Device

- Use either the printer's (e.g., iGen3®) PPD (supplied by your print provider) or the Acrobat Distiller PPD for your Printer Description.
- Be sure the paper size under both the [Paper Size] in the print window and the [Paper] in the Page Setup window match. This will ensure that your document prints correctly. Also, check that the orientation is correct.

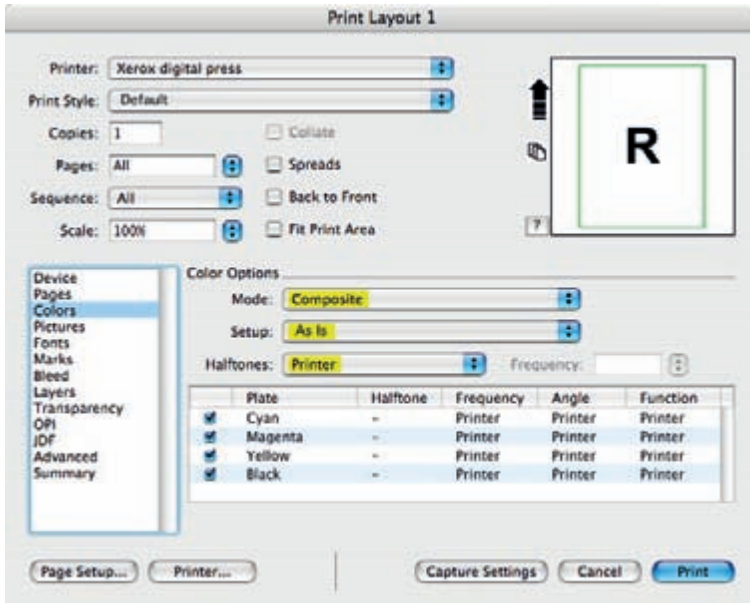
Output

- Always Print Colors [As Is] to maintain original source color. Using a setting such as [Composite CMYK] will convert any non-CMYK colors (e.g., RGB images and graphic elements) to the Composite CMYK profile selected under Profiles tab. Instead, allow the printer (e.g., iGen3® or DocuColor® 8000) to convert all colors (RGB and CMYK) from its source spaces to the printer's destination space to render the best output.
- Halftoning will be determined at the RIP.

Note:

- When Blends are made with PANTONE® colors in Quark 7, they will print as RGB when the Print Colors selection is set to [As Is]. To preserve PANTONE Blends, set Print Colors to [Device N]. Using [Device N] will, however, convert any RGB text, objects and images to CMYK.

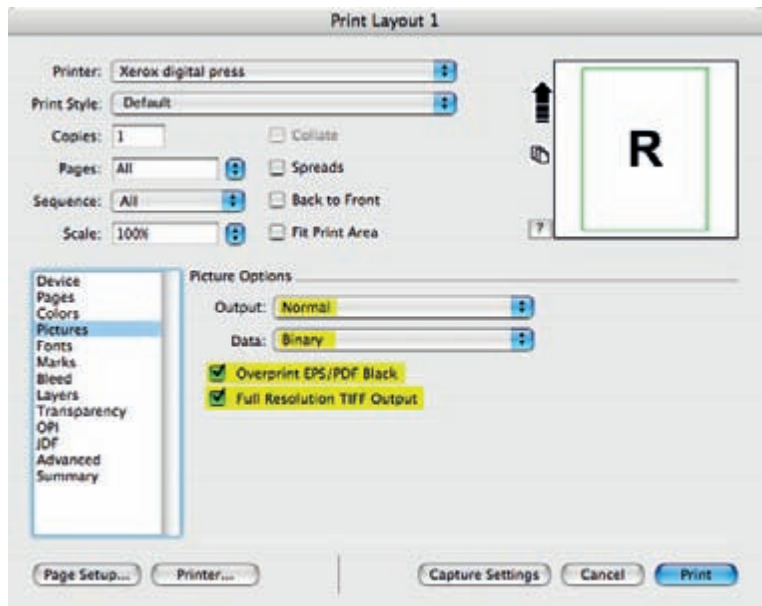
Figure 5-10 QuarkXPress Colors



Options

- Pictures Output should be set to [Normal] for high resolution printing.
- Always use [Binary] Data.
- Consult with your print provider if [Overprint EPS Black] should be used.
- Select [Full Resolution TIFF Output].

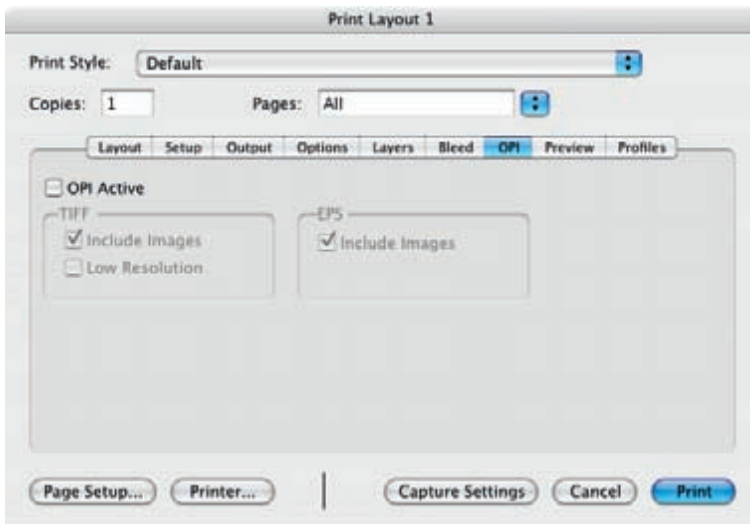
Figure 5-11 QuarkXPress Pictures Settings



OPI

Do not enable OPI unless instructed to do so by the print providers. Follow their recommendations.

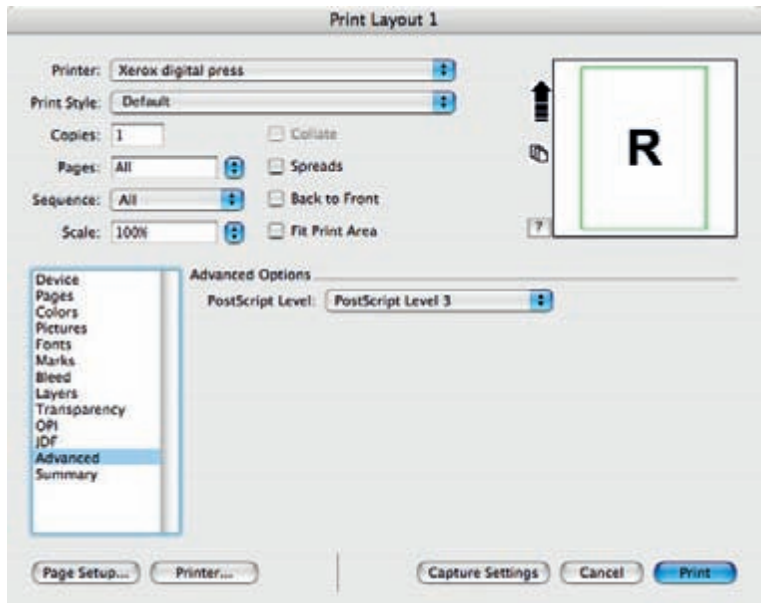
Figure 5-12 QuarkXPress OPI Settings



Profiles

- The Separation and Composite profiles should be set to [None].
- Do NOT use [Composite Simulates Separation] unless instructed to do so by the print provider. This feature is used for proofing to printers other than the final output device. One of the many benefits of Xerox Digital Presses is that proofs can be made on the same output device.

Figure 5-13 QuarkXPress Profiles Settings



Finishing Options

How the final design is finished is up to you. Virtually any finishing option that would be available for a commercial print job is a possibility.

Coating and Laminating

As with traditional lithographic printed pieces, coating and laminating are excellent ways to improve the durability of digital output for end uses such as direct mail, transport or heavy usage. Choosing between coating and laminating is a trade-off between cost and the requirements of the piece. In general, laminating is 10 times the cost of coating, but provides much stronger protection.

Optimal coating considerations:

- The paper type does affect coating performance. Coated, glossy stocks at weights above 148 gsm typically provide the best results.
- Uncoated stocks tend to absorb the coating material, which may curl lighter weight papers. UV coatings are not recommended for uncoated substrates.

Optimal laminate considerations:

- Uncoated stocks yield a better laminate film-to-paper bond than coated stocks and are more cost effective.

Booklet Making

The production of saddle-stitched, folded and possibly trimmed booklets is an important job type for the Xerox digital press and the feature set makes it easy to do. Job programming at the front end enables the automatic imposition of pages into signatures with just a few keystrokes using pre-built templates. When in-line finishing equipment is installed, the system can deliver fully-collated sets ready to be finished into booklets to the stacker. This finishing option is best suited to low page count publications.

Optimized booklet making considerations:

- Dry ink can cause cracking on the paper fold. This can be avoided by designing the piece so that dry ink is not placed on the fold. If this is not possible, cracking can be minimized by scoring the sheet and/or laminating or UV coating it.

Perfect Binding

Perfect binding is most often used for larger page counts and is common in textbooks, software documentation and paperback novels. The image may crack at the cover folds with repeated use of the book. The best way to avoid this is to design the cover image to eliminate image in the cover fold areas, if possible. Alternatively, reverse creasing may yield acceptable results.

Optimal binding strength considerations:

- For body sheet design, a 2-3 mm image free gutter at the binding edge, if possible, will optimize bind force.
- For cover design, the inside surface should be free-of-image, where the cover interfaces to the spine of the book block plus 2-3 mm at front and back edges to allow for good adhesive to substrate engagement. Toner in this area will yield a low-bind force, as the adhesive doesn't bond well to it. Minimize image bleed into the spine as much as possible.
- Uncoated stock (or C1S for cover) will yield better adhesion characteristics.
- If coated stock is required, matte/silk versions have higher bond strength than gloss versions.

Lightfastness

In accelerated lightfastness testing, the iGen3® prints are exposed to intense radiation that simulates about four years of typical office environment exposure or around two weeks in a south-facing window. Cyan, yellow and black dry inks are extremely stable and exhibit barely any perceptible shifts in color. The magenta dry ink changes somewhat more, with a moderate loss of saturation. This compares favorably with lithographic inks, where magenta, cyan and black are relatively stable while yellow fades almost completely away in similar tests.

Durability

For the most part, images will be durable and resistant to erasure. However, scratch resistance can vary by stock used. Depending on the end use, coatings may be needed to improve durability.

Mailing Operations Guidelines

Typical post office equipment includes friction feed mechanisms that may stress digital output. Uncoated stocks will perform better than coated stocks. Knowledgeable design and /or coating/ laminating of the piece can improve results.

- Certain postal processing steps may be avoided by following United States Postal Service pre-sort guidelines (<http://www.usps.com/businessmail101>). If bar coding is to be used, it is recommended that you print it with the address as part of the variable data print job.
- In Europe, local postal services should be contacted for mail regulations.
- To ensure a successful mailing, especially for a large run, the process should be tested. In the United States, there is no charge for this testing by the USPS.



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Michael Riebesehl – Subject Matter Expert



Michael is a Photo & Applications Project Manager in the Color Line of Business at Xerox Corporation. He targets Image Quality levels for product development, creates and promotes Business Development tools and helps Xerox customers integrate digital print.

Michael was the technical author for the *Xerox Job Preparation Guide for Designers* and coauthored the book *The Art & Science of Digital Printing*, *The Parsons Guide to Getting it Right* together with the Parsons New School University. His color expertise and technical knowledge contribute to Xerox's commitment to build strong relationships with their Graphic Communications Partners.

Michael has over 25 years experience in the Printing industry. He is an Adobe Solutions Partner member, presenting at many of Adobe's creative conferences. He is also an accomplished freelance photographer applying his knowledge to the art of digital photography.

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This book was printed on a Xerox iGen4 Digital Production Press.
The cover for this book was printed on 12 pt. C2S Carolina cover stock.
The interior pages were printed on Futura Laser 80 lb. text, dull finish.