Adobe® PDF in a Print Production Workflow

WHO SHOULD READ THIS PAPER

This paper focuses on creating print-ready PDF files. Creative professionals who want to preserve the design intent of their documents and distribute their PDF files reliably for print production should read this paper. Print providers who want to streamline the production process, manage designers' expectations, and reduce errors in the files they receive should also read this paper.

There are many reasons to use Adobe PDF in a print workflow. An Adobe PDF file can contain all of the components of a print job, captured in a single file. Working with Adobe PDF settings files and preflight profiles supplied by the print service provider, creative professionals can be certain that their PDF files meet their printers' requirements—and print service providers won't be required to chase down missing fonts or graphics. Additionally, Adobe Acrobat® Pro includes the print production tools needed to prepare the file for printing.

You'll have the best results, whether you're a print service provider or a creative professional, if you follow some standard guidelines when working with PDF files. In this document, we discuss the variables to consider when choosing a workflow, and the roles that creative professionals and print service providers play in a successful Adobe PDF workflow. The resources listed at the end of this document can help you implement the workflow you choose.

Adobe PDF—a standard for the print industry

More than twenty years ago, Adobe introduced Adobe PostScript®, a revolutionary, device-independent page description language that would soon become the industry standard for printing rich text and graphical content. In 1993, Adobe took PostScript further with the introduction of Adobe Acrobat and the Portable Document Format (PDF). Founded on shared concepts and components, both PostScript and Acrobat supported the creation of device-independent, rich page content; their only difference was the final output destination. PDF is now a formal open standard known as ISO 32000. Maintained by the International Organization for Standardization, ISO 32000 will continue to be developed with the objective of protecting the integrity and longevity of PDF, providing an open standard for the more than one billion PDF files in existence today.
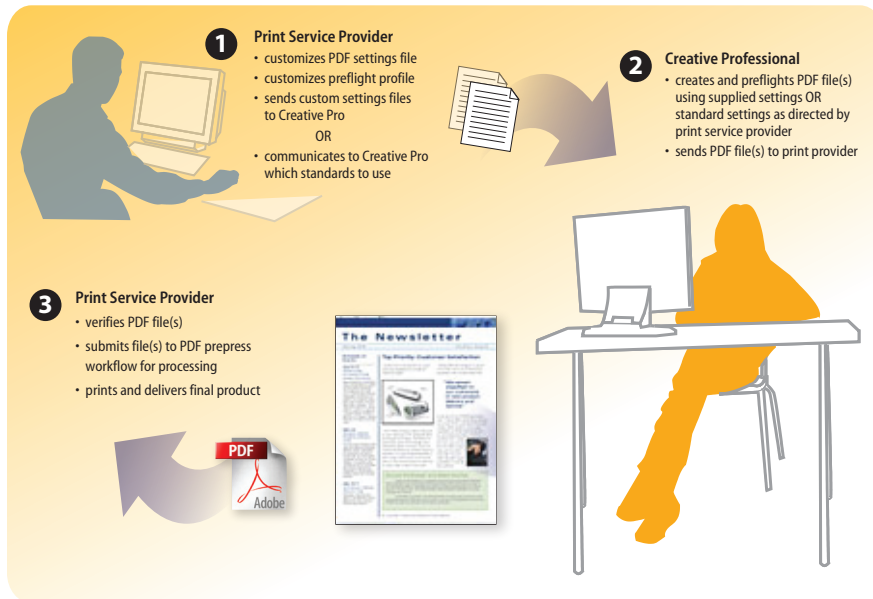
The professional print industry has long recognized the advantages of Adobe PDF. Properly prepared client PDF files contained all the fonts and color space information, enabling printers to further automate their workflows and reduce the time and costs once spent correcting customers' native files. And because a PDF file can be validated for compliance with a set of specifications or standards, the file can move rapidly through the production process and get to press more quickly. PDF usage has steadily risen, and is expected to increase as more companies look to automate print processes and move to digital printing technologies.

PDF workflow overview

For most print jobs, Adobe PDF offers many benefits for both the creative professional and the print service provider. Simply having all the fonts, graphics, and content in one neat package is a tremendous advantage. By using the recommended PDF settings and preflight profile, or custom PDF settings and preflight profile supplied by the print provider, the creative professional has a high level of assurance that the resulting PDF corresponds to print production requirements, minimizing delays and rework.

1 Print Service Provider
- customizes PDF settings file
- customizes preflight profile
- sends custom settings files to Creative Pro
  OR
- communicates to Creative Pro which standards to use

2 Creative Professional
- creates and preflights PDF file(s) using supplied settings OR standard settings as directed by print service provider
- sends PDF file(s) to print provider

3 Print Service Provider
- verifies PDF file(s)
- submits file(s) to PDF prepress workflow for processing
- prints and delivers final product

A PDF workflow takes full advantage of Adobe Creative Suite and Acrobat Pro features.

## The creative professional's role in a PDF workflow

In any print workflow, it's important for the designer and the print service provider to communicate early in the process about the job requirements and the manufacturing process that will be used. Designing files for print to be submitted as PDF is no different than designing files to be submitted in native format—only the reliability and efficiency of the workflow is changed—for the better.

Design for the highest quality and resolution

This flexible workflow starts with the highest requirements for image resolution, the largest gamut of colors, and so forth. Then you can create PDF documents for other uses with lesser resolution and gamut requirements. With this approach, you can easily convert the original art in a high-resolution RGB format to other project collateral, such as offset or digital print, black-and-white newsprint ads, e-brochures, web ads, and so on. Be aware that if you start with high-resolution artwork, you can downsample it by simply selecting other PDF settings, without compromising image quality. But if you begin with low-resolution artwork, you cannot upsample it and maintain image quality.

Bleeds

Always define your document size as the true trimmed product size. If your job contains bleeds, always define them using the bleed definition entries of your document setup:
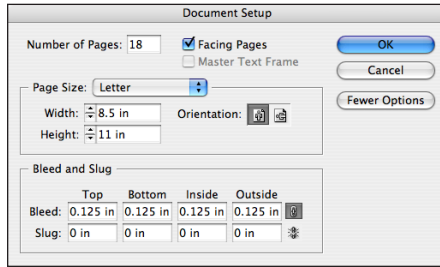
InDesign document setup dialog.

When bleed amounts are undefined and instead incorporated into the document size, for example, a page size of 8.75x11.25" and bleed amounts of 0", the print service provider may be obliged to make manual adjustments to the page positions in the imposition, causing extra and unnecessary work.

Managing color

A color management system maps colors from the color gamut of one device, such as a monitor, to a device with a different color gamut, such as a printing press, with the intent that the colors on the monitor, when properly calibrated, will then represent colors that the final device can reproduce. Color management profiles, which describe the colors available to each device or color model, are used to map colors from the range of colors available on one device to the range available on another.

If you are working in Creative Suite applications, leave color management enabled (it's on by default). Using Adobe Bridge in the Adobe Creative Suite, you can synchronize color management settings across all Adobe Creative Suite applications.

For step-by-step instructions on working with color management in Adobe applications, see "Color Workflows for Adobe Creative Suite 3":
www.adobe.com/designcenter/creativesuite/articles/cs3ap_colorworkflows_03.html.

Working with transparency

Transparent content in files (for example, drop shadows or blending modes) can be either *live*—editable and interactive with underlying objects—or flattened. Live transparency can be edited and can interact with underlying objects, so it is best to keep transparency live as long as possible. Flattened transparency, on the other hand, cannot be modified using the source application nor any application into which the file is imported.

At its simplest, flattening converts all overlapping areas in a stack of transparent objects, plus all text and graphics that interact with transparency, into opaque objects that retain the appearance of the original transparent objects. Flattening cuts apart transparent art to represent overlapping areas as discrete pieces that are either vector objects or rasterized areas. As artwork becomes more complex (mixing images, vectors, type, spot colors, overprinting, and so on), so does the flattening and its results. Flattening transparency accurately reproduces—by using opaque objects—the visual effect of transparency on printed output or in exported file formats that don't support live transparency. To see which objects are affected by transparency, use the Flattener Preview palette in InDesign or Illustrator, or the Flattener Preview feature in Acrobat Pro.

All transparency must be flattened before printing and when exporting in non-native formats (PostScript®, EPS, DCS, Adobe PDF 1.3, GIF, JPEG, BMP, and TIFF images created prior to Photoshop 6.0) and on generating a PostScript file—including all PDF files created by Acrobat Distiller®.

To create a PDF with live transparency, export a PDF 1.4 (or later) file directly from an Adobe Creative Suite application, such as InDesign. Transparency remains live in the PDF file, and your print service provider can then flatten it as necessary. The best way to guarantee live transparency is to use PDF/X-4, an ISO standard that provides for native PDF rendering without the use of intermediate PostScript. PDF/X-4 is built into the Adobe Creative Suite 3 applications, and print workflows powered by the Adobe PDF Print Engine, enabling you to maintain the highest quality and output flexibility from beginning to end in an Adobe PDF workflow.

To learn more about working with transparency, see "Transparency for Print Output in Adobe Creative Suite 3":
www.adobe.com/designcenter/creativesuite/articles/cs3ip_transp.html#Introduction.

Creative Suite default PDF settings

Preset	Compatibility	Settings	Usage
PDF/X-1a: 2001	Acrobat 4/ PDF 1.3	• Convert RGB color to CMYK (spot colors allowed) • Transparency flattened	PDF/X-1a ensures that the files are ready for print production—fonts are embedded, colors must be CMYK or spot, layers and transparency are flattened. Note that there is no minimum resolution required for PDF/X.
PDF/X-1a:2003	Acrobat 5/ PDF 1.4		
PDF/X-3: 2002	Acrobat 4/ PDF 1.3	• Leave RGB and CIELab color unchanged (profiles allowed) • Transparency flattened	PDF/X-3 has all the benefits of PDF/X-1a plus it allows color managed workflows.
PDF/X-3: 2003	Acrobat 5/ PDF 1.4		
PDF/X-4: 2008	Acrobat 7/ PDF 1.6	• Leave RGB and CIELab color unchanged (profiles allowed) • Live (unflattened) transparency • Layers allowed	Has all the benefits of PDF/X-3 plus it allows live (unflattened) transparency and layers for versioning. Print workflows based on the Adobe PDF Print Engine will be able to process PDF/X-4 jobs natively, without flattening artwork or converting to PostScript.
PDF/X-4p: 2008	Acrobat 7/ PDF 1.6		Use PDF/X-4p when a required ICC profile is unambiguously identified and supplied separately.
Press Quality	Acrobat 5/ PDF 1.4	• Convert RGB color to CMYK (spot colors allowed) • Live (unflattened) transparency	High quality commercial printing. Use this when sending files to a printer and one of the above PDF/X versions is not an option.
High Quality Print	Acrobat 5/ PDF 1.4	• Leave RGB and CIELab color unchanged (profiles allowed) • Live (unflattened) transparency	Quality printing on desktop printers and proofers. Similar to PDF/X-4 but without the standards-based requirements.
Smallest File Size	Acrobat 5/ PDF 1.4	• Convert CMYK color to sRGB • Live (unflattened) transparency	Use these settings to create Adobe PDF documents best suited for on-screen display, email and the Internet. Also great for client review.

About PDF/X standards

It is very likely that your print service provider will recommend one of the PDF/X presets, or will supply you with a customized PDF preset based on a PDF/X standard. PDF/X is a subset of the PDF file format designed for the blind exchange of final print-ready pages. Using PDF/X-compliant files eliminates the most common errors in file preparation: fonts that aren't embedded, incorrect color spaces, missing images, and overprinting issues. PDF/X makes it possible for designers to deliver files ready for print production with the highest possible confidence that they will print as intended.

The PDF/X-1a standard addresses blind exchanges where all files must be delivered in CMYK, spot colors, or both, with no RGB or device-independent (color-managed) data. In general, PDF/X-1a is the best choice for jobs that require absolute control over the color appearance.

PDF/X-3 is less restrictive than PDF/X-1a, in that it supports and requires color-managed workflows and allows RGB and CIELab images, as long as they include enough information to be treated as device-independent. PDF/X-3 is useful for transferring data in CIELab or RGB color spaces, when conversion to CMYK occurs later. Use PDF/X-3 for jobs that will be sent to digital presses or other color-managed environments, or when color reproduction is optimized for the specific printing environment.

PDF/X-4 maintains live transparency and layers. Adobe recommends that designers not flatten transparency, but rather leave that to the print service provider, as this will enable the highest quality reproduction of transparency. Print workflow systems powered by the Adobe PDF Print Engine are able to process PDF/X-4 jobs natively, without flattening artwork or converting to PostScript.

To learn more about creating and working with PDF/X files, see PDF/X Files and Adobe Creative Suite 3 at
http://www.adobe.com/designcenter/acrobat/articles/acr8ap_pdfx.html.

Loading customized PDF settings

If your print service provider supplies a custom Adobe PDF settings file, it will be named with a **.joboptions** extension. Double-click the .joboptions file to install it. Distiller starts automatically and loads the file to the default location, making it available to all Adobe Creative Suite applications. Alternatively, you can drag the .joboptions file onto Distiller.

The .joboptions files can be found in the following location:

Windows: **Documents and Settings/All Users/Shared Documents/Adobe PDF/Settings**
Mac: **Users/(username)/Library/Application Support/Adobe/Adobe PDF/Settings**

Before creating the PDF

Before converting files created in InDesign, Illustrator, or Photoshop to PDF, do the following:

• Verify that all the fonts used in the document are available on the system and allow embedding. All fonts should be embedded.

• Make sure that links to images are current, and that they are high-resolution images.

• Make sure that all images are in the correct color mode: for PDF/X-1a files, CMYK and/or spot colors; for PDF/X-3 or PDF/X-4 files, RGB colors if color profiles are included, CIELab, and/or CMYK.

Creating the PDF file

Adobe Creative Suite components use an internal PDF library to create PDF files; they do not use Distiller when you use the Save As or Export commands. Unless you export to PDF 1.3 format or a PDF/X-1a or X-3 file, Adobe Creative Suite applications do not automatically flatten transparency.
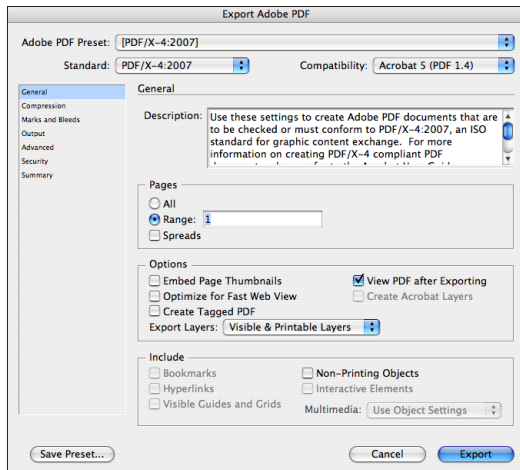
Create an Adobe PDF file directly from InDesign, Illustrator, or Photoshop.

Alternatively, from almost any application, you can use the Adobe PDF printer, installed with Acrobat Pro, to create a PDF file. However, be aware that the Adobe PDF printer uses Distiller to create PDF files, and so transparency will be automatically flattened.

The Adobe PDF printer automatically uses the PDF settings file last used in Distiller. Select a different PDF settings file in the Properties/Printer section of the Print dialog box. Make sure you've selected the PDF settings file recommended by your print service provider.

Note: The "Save As PDF" option of Mac OS X does NOT use the Adobe PDF printer, and is not appropriate for PDF files for print.

Preflighting the PDF file

Before you submit the PDF file to your service provider, preflight the file in Acrobat Pro using the default preflight profile recommended by your print service provider, or a supplied customized profile.

Note: You must use the same version of Acrobat (or higher) as the one used to create the custom preflight profile.

The print service provider's role in a PDF workflow

Communication between the print service provider and customer is key to successful printing, especially when the creative professional provides an Adobe PDF file. As the print service provider, you know best what the requirements for the PDF file are. To help your customer meet those requirements, communicate the recommended default settings file, or supply a custom PDF settings file. If your customer has Acrobat Pro, you can recommend a default preflight profile or supply a customized one, to better ensure that the PDF files you receive are print ready.

Customizing PDF settings

The PDF settings files installed with the Adobe Creative Suite applications are locked and cannot be edited, but you can use one as the basis for a custom PDF settings file. To customize a PDF preset, do one of the following:

- InDesign: **File** > **Adobe PDF Presets** > **Define**, and click **New**.
- Illustrator or Photoshop: **Edit** > **Adobe PDF Presets** > **Define**, and click **New**.
- Distiller: select a settings file, and then choose **Settings** > **Edit Adobe PDF Settings**
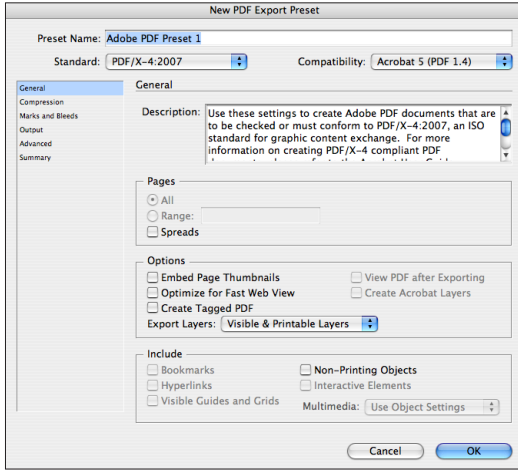
InDesign: customize an Adobe PDF settings file using a PDF/X standard.

Adobe PDF custom settings files are named with a .joboptions extension and are found in the following location on Windows:
**Documents and Settings/All Users/Shared Documents/Adobe PDF/Settings**
and this location on Mac:
Users/(username)/Library/Application Support/Adobe/Adobe PDF/Settings

Customizing preflight profiles

Many service providers find it easiest to create a custom profile that includes criteria specific to their workflow and then share that profile with customers. To customize a preflight profile in Acrobat Pro:

1. Choose **Advanced** > **Print Production** > **Preflight**.
2. Select the profile you want to base a profile on, and click **Edit**.
3. Click the icon to **Duplicate** the selected profile, rename it, and then edit it.
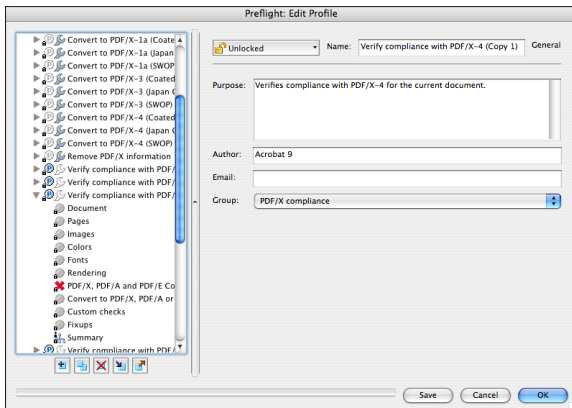
Customize a preflight profile to check for the criteria that are important in your workflow.

Opening the file and verifying standards

If your customer used one of the default PDF/X presets, or a customized PDF/X preset that you supplied, Acrobat 9 Pro enables you to easily and quickly check the file's conformance to standards. Click the PDF-info icon to display the Standards pane:
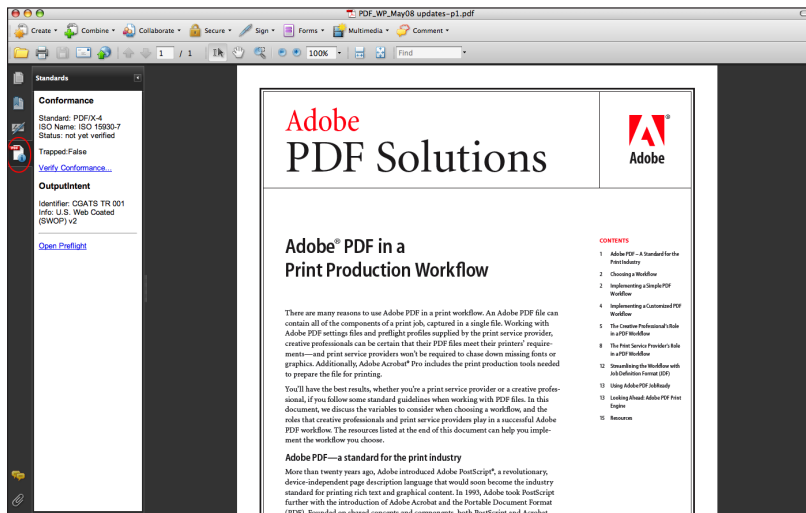
Enabling automatic overprint preview

Acrobat 9 Pro (and also Adobe Reader 9) enable you to easily and reliably preview how overlapping elements will display and print using intelligent Overprint Preview. This functionality is controlled from the **Preferences** > **Page Display** dialog:
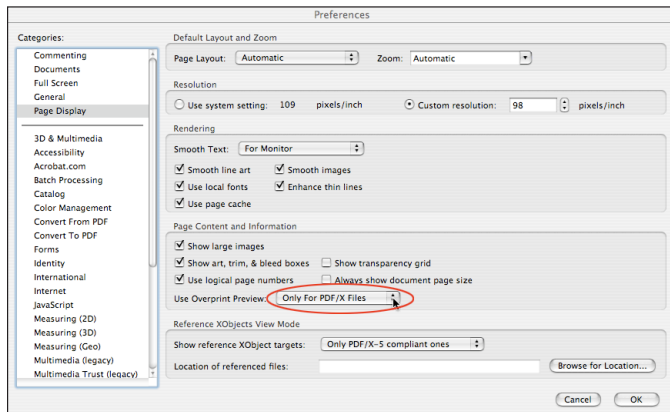
Acrobat 9 Pro Overprint Preview Preferences

Preflighting the file

Upon receiving a PDF file from a customer, ensure that the file meets your printing requirements. The Preflight feature in Acrobat Pro analyzes the file for any problems, based on the criteria in the preflight profile or the single check selected. You can preflight a single document or preflight multiple files automatically using a preflight droplet, a small application that runs a preflight profile you specify.

If the file has been verified as PDF/X compliant using the Standards pane, it still needs to be preflighted to ensure that it was created for the correct characterized printing condition (such as SWOP), that the trim and bleed settings are appropriate for the job, and that image

resolution is appropriate. Although verifying that the file meets the PDF/X standard eliminates many common file preparation errors, it does not eliminate them all. For example, the PDF/X standard does not require a minimum resolution and it places no limit on the number of plates used.

Applying fixups

Although it is best to work with a PDF file that has no problems in it, Acrobat Pro allows you to fix a variety of problems with Preflight Fixups. A Fixup is an automated correction rule, and it is designed to correct common problems you suspect incoming PDF files might have. Fixups can be applied to the PDF as a part of the preflight process, or can be applied separately. Acrobat 9 Pro offers the ability to perform single Fixups:
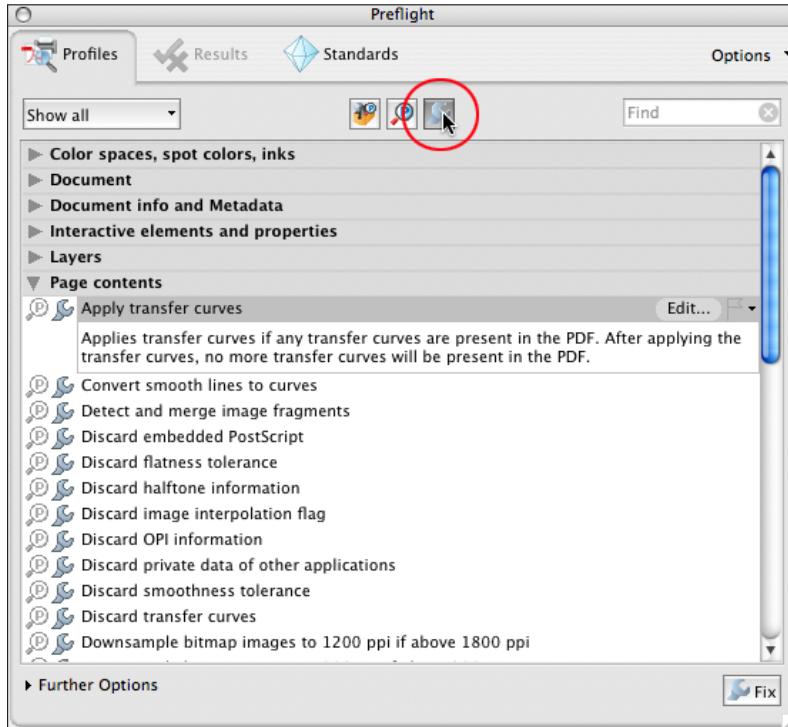

Click the Single Fixups button to access Acrobat 9 Pro's default single fixup actions or create your own.

Fixups may not be able to solve every problem—for example, if a PDF file contains graphics that are too low in resolution, they cannot be corrected with a Fixup. Use Fixups when necessary, but then be sure your customer knows what they did wrong that caused the problem and help them to avoid problems before they submit another PDF file to you.

Converting colors

Any color issues that require special handling after preflight can be handled with the Convert Colors functionality of Acrobat Pro. You can convert colors to CMYK for a single image, object, page, or an entire document. Acrobat Pro uses the source color spaces of objects in the document to determine what (if any) color conversion is required. It also manages the colors using embedded profiles, if they exist, or default color spaces. Moreover, you can preserve black, promote gray to CMYK black, and convert from one color system to another accurately—for example, switch from Euroscale coated to SWOP coated. You can also use the Ink Manager within the Convert Colors dialog to map spot colors to other spot colors or to convert them to process colors.

You can specify different conversion options for different color spaces and colorants. For example, you can embed separate color profiles to transform color for Grayscale, RGB, and CMYK objects. This option may be useful if your RIP color-manages PDF files or if you share PDF files with others.
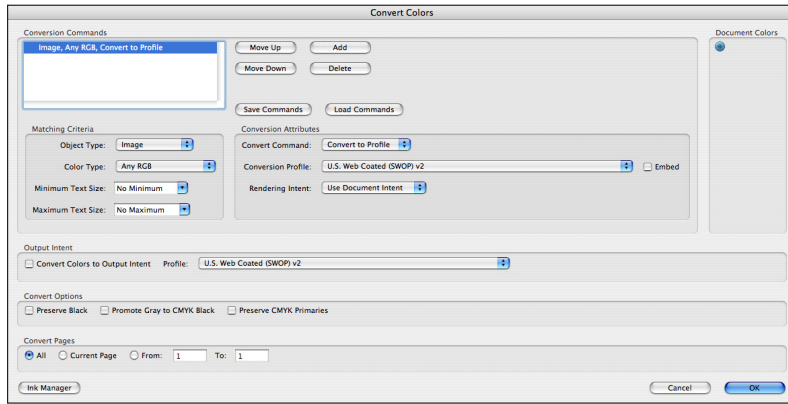

Convert colors on one or more pages in a PDF document to CMYK in Acrobat 9 Pro.

Depending on the color spaces you select, the Convert Colors command preserves, converts, or maps color values from the source color space to the specified destination space. Select Preserve Black to ensure that text and other black objects separate on the black plate only, not as rich black.

Accessing the Ink Manager from the Convert Colors dialog

When you access the Ink Manager from the Convert Colors dialog, you can map spot colors. Unlike the behavior of the Ink Manager when accessed from the Print Production menu, *changes are applied immediately* when you click OK on the Convert Colors dialog.
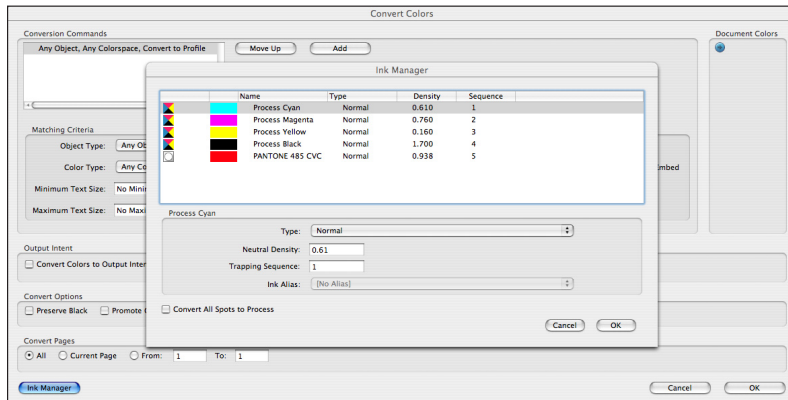
Map spot colors using the Ink Manager button on the Convert Colors dialog. Changes are applied immediately.

Flattening transparency

It may not be obvious that a PDF file includes transparency. Transparency can be applied to an object in an Adobe Creative Suite application by reducing its opacity using the Transparency palette. But blending modes, drop shadows, feathering, live effects, styles, and brushes are also sources of transparency. Transparency attributes are considered live as

long as transparent objects can interact with objects beneath them, allowing those objects to show through the transparency.

Transparency information must be flattened for export to most formats, or for printing to PostScript desktop printers, PostScript Level 2 RIPs, and some PostScript 3 RIPs (or printing systems based on these RIPs). However, most RIPs that accept native PDF 1.4 files can flatten live transparency from the Adobe PDF file. On the other hand, direct export to PDF does not depend on PostScript and can preserve native elements in the resulting PDF. The new PDF/X-4 fully supports live transparency and color management.

Note: Because the PostScript language does not support live transparency, PDF files produced by Distiller—even PDF 1.4 or higher—will not contain live transparency. All transparency is flattened in the process of PostScript generation. Ensure that you use the appropriate flattener settings when you create a PostScript file for use with Distiller.

In Acrobat Pro, you can flatten transparency at any time. However, Adobe recommends working with live transparency as long as possible. Ideally, customers should provide files with live transparency so that you can control resolution and flattening settings. Flatten transparency before printing only if your workflow requires it.

Note: Be sure to perform any necessary color conversions before flattening the file.

After you flatten artwork, the transparency is no longer live, so you can't edit the transparency effect. In addition, some of the original objects may be transformed into less editable formats. For example, vectors and type may become outlines or be rasterized. To adjust transparency attributes and objects after flattening, you must go back and make changes to the original native application file. This process is similar to the one you follow when you need to make changes to preseparated files.

To see which objects interact with transparency, use the Flattener Preview in Acrobat Pro. Use the Flattener Preview to see which vector objects will be rasterized, which text will be converted to outlines, and other ways that artwork will be affected by specific flattener settings.
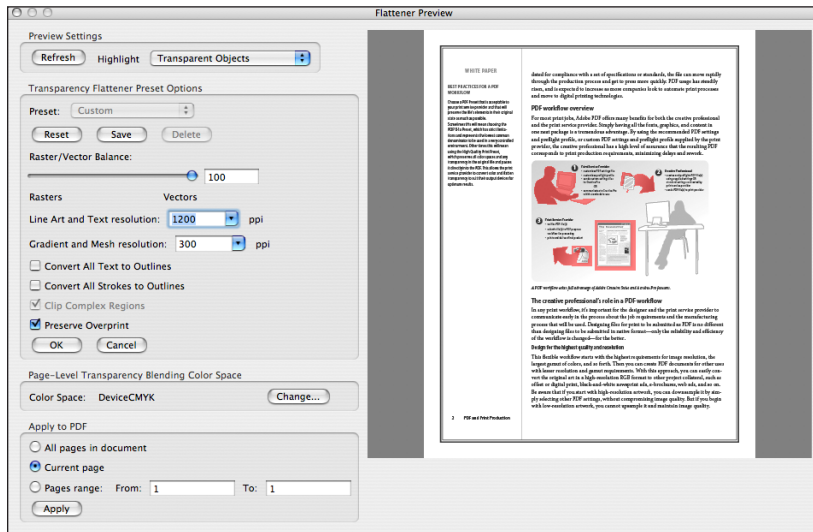

Use the Flattener Preview in Acrobat Pro to identify areas that interact with transparency, and to see how flattener settings affect them.

For comprehensive information about working with transparency in Acrobat and other Adobe applications, see *Transparency for Print Output in Adobe Creative Suite 3* at http://www.adobe.com/designcenter/creativesuite/articles/cs3ip_transp_16.html.

Previewing output

In the Output Preview dialog box in Acrobat Pro, you can preview color separations, check for incorrect colors and RGB images, view color warnings, alias or convert inks in the Ink Manager, and soft-proof documents using a color management profile. Changes you make in the Ink Manager are reflected in the Print dialog box, so settings you use to preview the inks are used when you print. With the new Object Inspector, you can review all the properties of the selected object in the main document window: their color space, blending mode, transparency attributes, and much more.
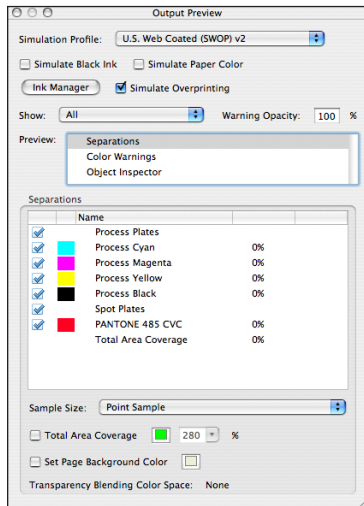
Use the Output Preview feature in Acrobat Pro to view color separations or color warnings.

Each of the three categories, Separations, Color Warnings, and Object Inspector, report on attributes of the selected area in the main document window. To preview color separations, choose Separations then select the separations you want to view. To check ink coverage for a specific area, position the pointer over an area in the document window. The ink coverage percentage appears next to each ink name in the ink list. Click the Ink Manager button to convert one or more spot colors to process and/or to map spot colors to other colors.

To check the attributes of a specific object in the main document window, choose Object Inspector then position the pointer over the object and click. A detailed report appears with all the object's attributes.

To see where rich black inks and overprinting effects appear, select the profile from the Simulation Profile menu that describes your target output device. Then, choose Color Warnings from the Preview list, and select a color warning. Acrobat Pro highlights the affected areas in the document window.

If you use a color-managed workflow, you can soft-proof a PDF document on your monitor. Before you soft-proof, verify the settings in the Color Management panel of the Preferences dialog box. You can choose to simulate ink black to preview the actual dynamic range defined by the proof profile, or simulate paper white to preview the specific shade of white for the print medium described by the proof profile.

Note: *If color management information is embedded in an Adobe PDF file, it takes precedence over the color settings file (CSF) you choose.*

Defining page boundary boxes

In Acrobat Pro, you can change the page size (media box) of a PDF document. The Crop Pages dialog box also lets you define the trim, bleed, art, and crop boxes for the document. The preview shows the content that appears when the page is displayed or printed.

Outputting the file

The Acrobat Pro Print dialog box includes options for color separations, transparency flattening, and other print settings. The appropriate settings depend on the PDF file and the output device.

Outputting a PDF/X file is no more complicated than outputting any other PDF file. However, there are a few things to keep in mind:

- Set your output device to print using the fonts embedded in the PDF/X file, rather than those that are installed on the device.
- Ensure that overprinting will be applied as defined in the PDF specification. You may need to modify the default settings on a RIP.
- If you print a proof, use a proofing system that is set up to match the characterized printing condition for which the file was created. If you're proofing a PDF/X-3 file, use the ICC profile embedded in the file as an emulation profile for the most accurate results.

Streamlining the workflow with Job Definition Format (JDF)

Job Definition Format (JDF) is a job-ticketing file format that provides a mechanism to communicate and control processes in print production, from job submission through prepress, press, and post-press. As a broadly accepted industry standard, JDF can be used to describe every part of the workflow and enables each production process to be connected to the others, independent of the vendor. JDF places individual actions into a greater context, so that each element is recognized as part of the whole. In the same way that PostScript describes pages and Adobe PDF describes documents, JDF describes jobs.

Acrobat Pro is an ideal tool for initial JDF job ticket creation because it's available to both creative professionals and print service providers. The JDF editor built into Acrobat 9 Pro enables a print service provider to start collecting information about a job during an initial phone call and then send the JDF template to the customer. Templates include media specifications, PDF conversion settings, and preflight profiles. The creative professional adds content directly to that JDF file, and the embedded PDF settings file ensures that the resulting PDF meets the print service provider's specifications. Once the PDF has been generated, Acrobat Pro preflights it using the embedded preflight profile. As well, Acrobat Pro compares the job description with the properties of the assigned files and displays an error message if it finds discrepancies in page size, inks, or the number of pages available in the associated documents.

For more information about creating and using JDF in Acrobat Pro, download the Adobe JDF White Paper at http://www.adobe.com/products/jdf/.

Using Adobe PDF JobReady

Adobe PDF JobReady™ takes advantage of the Adobe PDF file format and the JDF standard to ensure a file meets the printer's specifications before it arrives in the shop. PDF JobReady includes seamless, one-click, "print-ready" Adobe PDF creation from any authoring application based on pre-configured settings from the service provider. It also provides the ability

to proof print jobs from the desktop and secure 40-bit encryption file delivery. The ultimate goal of PDF JobReady is to have the file come from the customer over the Internet or intranet and move through the printer's workflow with little or no intervention.

PDF JobReady includes two components, a customized client for customers and a server application for the service provider. PDF JobReady is distributed as an SDK (Software Development Kit) by Datalogics Inc. to OEM channels, integrators, and enterprise IT developers. For more information about Adobe PDF JobReady, visit http://www.adobe.com/products/pdfjobready/.

Adobe PDF Print Engine: powering advanced PDF print workflows

Adobe PDF files are a valuable tool in print workflows today, and their value will increase dramatically in the coming years. A PDF file provides a convenient way to move content from a native application to a standard workflow, including all the components necessary to provide offset and digital printing. PostScript provides no direct support for some elements that PDF supports, including live transparency. So, when PDF files are converted to PostScript before rendering, transparency must be flattened and other elements must also be converted for printing. The Adobe PDF Print Engine overcomes those constraints with the ability to process PDF files natively, without unnecessary conversions.

Adobe licenses the Adobe PDF Print Engine to OEM partners who incorporate it into software and hardware printing solutions. These end-to-end native PDF workflow solutions dramatically improve the printing process by increasing flexibility, predictability, and reliability—which, in turn, improve productivity and profitability for print service providers.

Using a previewing or soft-proofing application that incorporates the Adobe PDF Print Engine makes it possible to accurately emulate the final results on screen. Designers can see how their changes affect the printed documents early in the process, and printers don't need to run multiple proofing cycles to confirm that the job will print as expected. Complex content prints correctly the first time. Fewer complications and more accurate previews result in a faster, more efficient workflow, and the potential for greater profits.

When customers require last-minute changes to content, you can satisfy their needs easily. With workflows powered by the Adobe PDF Print Engine, you can maintain content in its original form, delaying device constraints as long as possible. In addition to changing content, you can opt to use a different output device, or help your customer repurpose the document.

Adobe PDF Print Engine 2: powering the next generation of PDF print workflows

Adobe PDF Print Engine 2 builds on the proven success of version 1. Adobe PDF Print Engine 2 enables integrated, end-to-end PDF workflows for printing graphically rich content, including variable content for personalized publishing. Adobe OEM partners are building the technology into the next generation of prepress and print solutions, which will streamline print production by utilizing a single workflow for all job types—offset, short-run digital, and Variable Data Publishing (VDP)—maximizing reliability and flexibility and providing new opportunities for growth. It provides printers with an easy on-ramp to add personalized publishing to their existing workflows.

With new features designed for personalized publishing, Adobe PDF Print Engine 2 delivers unprecedented freedom of collaboration for designers, printers, and marketers. Creative professionals can design personalization directly into their content, producing PDF master

files that flow through the entire print process without unnecessary intervention. Print solutions powered by Adobe PDF Print Engine 2 allow PDF files to be rendered natively, using the same technology as Adobe Acrobat and Creative Suite software, helping to ensure that complex designs and effects, even variable print elements with transparency, are efficiently and reliably reproduced.

JDF integration

Adobe PDF Print Engine 2 provides JDF control for late binding flexibility. Device-dependent processes such as color management, trapping, and imposition can be driven by JDF instructions inside the Adobe PDF Print Engine and thus deferred until jobs are ready to be rendered. This architecture, which decouples content (PDF) from process (JDF), allows print production professionals to quickly accommodate last-minute changes and easily configure PDF jobs for various types of devices and presses. Designers are freed to focus their energies on the creative presentation of content, producing a single digital master that can be repurposed for other publishing platforms such as web, e-mail, and mobile.

Benefits

- Unifies offset and digital print workflows
- Reduces unwanted surprises and disruptive, last-minute prepress fix-ups
- Preserves PDF content in the form it was created and passes it through every step of the workflow with minimal conversions
- Lowers the long-standing hurdles of integrating variable data into production print runs, justifying a higher per-unit value
- Provides enhanced flexibility and automation by decoupling content (PDF) from process (JDF), which allows in-RIP ICC color management, trapping, and imposition
- Leverages existing offset PDF workflow expertise, facilitating the implementation of hybrid and/or digital press workflows

For more information about the Adobe PDF Print Engine, visit www.adobe.com/products/pdfprintengine/.

Resources

To learn more about Adobe Acrobat Pro, PDF/X, transparency, color management, JDF, and other topics covered in this document, refer to the following resources:

Adobe Print Resource Center

www.adobe.com/studio/print/

The latest white papers, printing guides, and other technical information about Adobe software for print professionals.

Adobe PDF Print Engine

www.adobe.com/products/pdfprintengine

Information about Adobe PDF Print Engine, the underlying technology of solutions developed by Adobe partners.

Adobe PDF in creative workflows

http://www.adobe.com/designcenter/creativesuite/articles/cs3ip_pdfworkflows.pdf

All about Adobe PDF in creative workflows for print and cross media publishing.

Color workflows for Adobe Creative Suite 3

http://www.adobe.com/studio/print/pdfs/CS3_color_workflows.pdf

Introduction to the concepts of color management, step-by-step instructions for print and online color workflows using Adobe Creative Suite 3, and a glossary of terms. This is a great resource for designers and service providers alike.

PDF/X Files and Adobe Creative Suite 3

http://www.adobe.com/designcenter/creativesuite/articles/cs3ip_pdfx.pdf

In-depth information about creating and working with PDF/X files in Adobe Creative Suite 3 components.

PDF/X resources, tools, and links

http://www.gwg.org

The Ghent PDF Workgroup website. The Ghent PDF Workgroup (GWG) is an international assembly of industry associations whose goal is to establish and disseminate process specifications for best practices in graphic arts workflows.

Transparency in Adobe applications: a print production guide

http://www.adobe.com/designcenter/creativesuite/articles/cs3ip_printprodtrans.pdf

A reference and troubleshooting guide for print service providers.

A designer's guide to transparency for print output

http://www.adobe.com/designcenter/creativesuite/articles/cs3ip_transguide.pdf

In-depth information about properly creating transparent effects, and exporting and printing effectively.

Creating reliable JDF with Adobe Creative Suite using Acrobat 9 Pro

http://www.adobe.com/products/jdf/pdfs/jdf_whitepaper.pdf

Information about using JDF in a print workflow.

Adobe JDF website

www.adobe.com/products/jdf/index.html

More information about JDF, as well as links to partner sites and articles about JDF.

Adobe PDF JobReady

www.adobe.com/products/pdfjobready/index.html

Information about this job-delivery software and the Adobe partners who make it available.