



# Printing Transparency

## *Achieving expected results from Adobe applications*

Adobe applications use transparency technology to provide many different kinds of effects, including drop shadows and feathering. These features offer greater flexibility for designers using Adobe® InDesign®, Adobe Illustrator®, and Adobe Acrobat®, and they needn't cause difficulties for service providers. It's no secret that printing a document with transparency can be a bit more complicated than printing other files. Adobe recognizes how critical it is that service providers have the resources you need to help you understand how different settings affect transparency output—and how to get the best results—so that you and your customers can both be happy.

### Transparency must be flattened for printing

The Adobe PostScript® language, EPS, and Adobe PDF 1.3 do not support Adobe's transparency technology in its native state. Therefore, transparency information must be flattened—essentially, the overlapping elements in a stack of transparent objects are converted to a single, flat layer of opaque objects—for export to EPS or Adobe PDF 1.3 format, or for printing to PostScript desktop printers, PostScript Level 2 RIPs, and most PostScript 3 RIPs (or printing systems based on these RIPs). However, most RIPs that accept native PDF 1.4 files can process live transparency from the Adobe PDF file.

Flattening produces a document that is visually equivalent but doesn't contain transparency. Transparent content is flattened when you save the file in a non-native format (such as EPS, Adobe PDF 1.3, or an image format), or print it from its native application (Illustrator 10.x or InDesign 2.x). Additionally, transparent content is flattened when you print

### IN THIS ISSUE

#### Printing Transparency

|   |   |
|---|---|
| Transparency overview .....                               | 1 |
| Guidelines for successfully outputting transparency ..... | 2 |
| Help Adobe improve transparency technology .....          | 4 |
| Resources .....   | 4 |

Transparency features in Adobe applications excite designers, but many service providers are apprehensive about outputting files with transparency. As we've worked with print providers, we've seen that most problems with printing transparency can be avoided through better education about how transparency works, and how it interacts with different types of objects, particular workflows, and specific RIPs. In this issue, we discuss the basics of transparency, and how it affects output and workflow. We also include guidelines for outputting transparency smoothly, and offer a list of resources to help you learn more.

#### TRANSPARENCY OVERVIEW

To accurately predict the results when you output a file that contains transparency, you need to understand how transparency works.

*Continued on page 2*

from an application that supports the originating application's native format (for example, Illustrator 10.x art placed into InDesign 2.x).

### How flattening affects objects

Adobe applications that support transparency—InDesign, Illustrator, and Acrobat—use the same transparency flattener. The flattener converts all the overlapping elements in a stack of transparent objects into a format that captures the look of the original transparency for printing. To achieve this effect, the flattener examines the interactions at every point of the transparency and does the following:

- Converts the objects that interact with transparency into a new set of discrete, abutting objects called “atomic regions,” each with its own blended color. The borders of the atomic regions follow the natural shapes and object boundaries whenever possible.
- Retains the integrity of the original transparent objects whenever possible, so that vectors remain vectors and type remains type. However, depending on the complexity of a design and the flattener settings you've selected, it may rasterize type or vector objects, convert type or strokes to outlines, or expand patterns in order to flatten the objects while retaining the original appearance.
- Processes overprinting objects as it would process overlapping transparent objects, if necessary. This is especially likely if those objects set to overprint are involved with transparency.

### How flattening affects workflow and print output

When you flatten artwork, the transparency is no longer “live,” so you can no longer edit the transparency effect, and other applications won't treat the objects as transparent. In addition, some of the original objects may be transformed into less editable formats. (For example, vectors may be rasterized and type may become outlines or be rasterized.) To adjust transparency attributes and objects after flattening, you must make changes to the original file, and then export or print it (thus flattening it) again—this is similar to the process you follow when you need to make changes to placed or imported graphics.

## GUIDELINES FOR SUCCESSFULLY OUTPUTTING TRANSPARENCY

You can output most files that use transparency with few or no problems if you follow these recommendations. If your customers send you the native files, so that you have complete control over final output, you can implement these recommendations yourself. It is usually better for you to flatten documents, as flattening requires resolution settings for rasterization, and the printer defines the output resolution. However, if your customers are sending you PDF 1.3 or EPS files (formats that do not support native transparency), review these recommendations with them before they export the files for you.

### Work with live transparency as long as possible

Preserve live transparency as late in the process as possible, up to the time that you must print or save the job in a non-native file format

### Which formats support live transparency?

| Supports live transparency   | Requires flattening    |
|--|------------------------|
| Adobe PDF 1.4  | Adobe PDF 1.3          |
| Native Illustrator 10.x  | PostScript             |
| Native InDesign 2.x  | JPEG                   |
| Native Photoshop 6.x or later  | Non-Photoshop 6.0 TIFF |
| Illustrator 10.x EPS<br><i>(flattened in other applications,<br/>but live if opened in Illustrator 10.x)</i> | EPS                    |

(such as PostScript for trapping). Native formats for Adobe Illustrator 9.0 - 10.x and InDesign 2.x preserve live transparency, as does Adobe PDF 1.4 (Acrobat 5.0). Additionally, InDesign 2.x can link directly to Illustrator 10.x and PDF 1.4 files, preserving live transparency through the page-layout workflow, so all the transparent elements are flattened at the same time.

### Use Illustrator 10 EPS format with page-layout applications that don't support transparency

If you're using any page-layout application other than InDesign 2.x, save transparent artwork from Illustrator 10.x in Illustrator EPS format, especially if spot colors are involved and you intend to make separations. InDesign 2.x is the only page-layout application that can interpret unflattened transparency in native Illustrator and Adobe PDF 1.4 files. Illustrator 10 EPS is the only flattened file format that preserves spot color plates when you export from Illustrator 10.x.

Continued on page 3

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Transparency is essentially flattened when you place an Illustrator 10 EPS into another application, but if you reopen the EPS file in Illustrator, its transparency is live and editable.

#### Use the “High Resolution” flattener style in InDesign 2.x for printing

If you’re saving documents with transparency from InDesign 2.x as PostScript files or PDF 1.3 files for use with prepress tools, use the “High Resolution” flattener style. This flattener style will provide high-quality results, preserve overprinting and spot colors where possible, and result in correct separations. Alternatively, you can customize a flattener style for your devices and workflow. (Choose Edit > Transparency Flattener Styles to create or modify a style.)

#### Make sure PDF 1.3 files support spot colors and overprinting

When you export PDF 1.3 directly from Illustrator 10.x, spot colors aren’t preserved in the flattening process. To preserve spot colors and overprinting, place the Illustrator graphics into InDesign 2.x and use the appropriate PDF style. Or, to create a PDF 1.3 file from Illustrator 10.x, first export the document to Illustrator 10 EPS (or print PostScript to disk), and then use Adobe Acrobat Distiller to create the PDF 1.3 file.

#### Use transparency effects rather than filters in Illustrator

Use effects rather than filters to apply drop shadows and feathering to objects in Illustrator. Illustrator effects have settings that can be dynamically changed and fixed upon output. Filters create resolution-dependent raster objects, and their appearance is dependent on the Raster Effects Resolution in effect at the time you use the filter. (Choose Effect > Document Raster Effect Settings to change the Raster Effects Resolution.)

#### Embed EPS images in Illustrator 10.x

Embed placed EPS images rather than linking them in Illustrator 10.x if they interact with transparency. (To embed an image, de-select Link in the Place dialog box.) The flattener in Illustrator 10.x cannot read the data inside a linked EPS file, so such files involved in transparency print beneath everything else on the page. The flattener correctly processes embedded files for transparency-based effects.

#### Confirm that fonts are available before flattening

Make sure that all fonts are present and properly installed. If the flattener cannot find a font, it substitutes a font that may not fit the original text’s bounding box. This substitution cannot be corrected after flattening, unless you fix the font in the original file and then flatten it again.

#### In OPI workflows, “fatten” a document before flattening

If any low-resolution proxy images interact with transparency, include the high-resolution final images in the document before flattening.

#### Adjust color management settings

If you use color management, set the file’s working color space—or transparency blending space in InDesign 2.x—to the intended output

### SOLUTIONS TO PROBLEMS PRINTING TRANSPARENCY

Find straightforward information like this, providing explanations and solutions, in “Achieving Reliable Output from Adobe Applications Using Transparency,” a comprehensive PDF file for service providers, available from <http://partners.adobe.com/asn/service/indesign/main.html>.

**Problem:** Effects applied to objects in an Illustrator file are coarse and visually unacceptable.

**What is happening:** Some effects available in Illustrator 10.x, such as Gaussian Blur, are represented using raster rather than vector data. The resolution chosen for these raster-based effects, controlled by the Raster Effects Resolution setting, must be sufficiently high to ensure that the final output results are visually acceptable.

**Reason:** By default, Illustrator 10.x renders raster-based effects at 72 dpi, which is generally acceptable for output on-screen or on very low-resolution printing devices.

**Solution:** Increase the Raster Effects Resolution setting to higher than 72 dpi. For high-end output devices, a value between 150 and 300 dpi is more acceptable. Higher values may be used, but they increase the size of the resulting file, and the results may be indistinguishable from the results of a lower resolution.

device profiles before flattening, to ensure that transparent objects are assigned suitable in-gamut colors. Additionally, if native Illustrator or Adobe PDF 1.4 files that contain live transparency are placed in InDesign 2.x, make sure that they are in the same working color space as that being used for transparency blending.

#### Take special care with documents that contain spot colors

Flattening does not cause all spot colors to be converted to process. However, if you flatten a document with spot colors, do the following to achieve the best results:

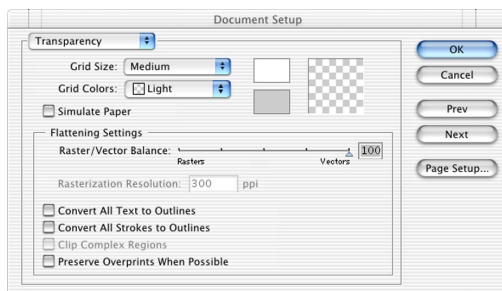
- Make sure all spot colors correspond to actual plates. Convert any that do not have corresponding plates to process colors, or in InDesign 2.x, use the Ink Manager to map the spot colors to the appropriate target plates. (Choose Ink Manager from the Swatches palette menu, or click Ink Manager in the Output panel of the Print dialog box.) The set of spot colors is fixed at flattening time and cannot be changed after flattening.
- Use Overprint Preview mode (choose View > Overprint Preview) to check overprinting carefully. If overprinting and transparency are used together in an Illustrator document, the overprinting might be simulated during flattening, and the overprinting instructions might be removed.
- Determine whether Difference, Exclusion, Hue, Color, Saturation, or Luminosity blending modes are used in the document. These blending modes may result in marking on all process plates, even those not specified in the color of the object the blending mode is assigned to.

- Ensure the PostScript Overprint setting (or similar setting) is enabled on your RIP, as flattening may generate overprints.
- Check the results of raster effects. Spot colors in certain raster effects are converted to process colors. For example, if you use Gaussian Blur in a drop shadow, the spots will be converted.

### Adjust the flattener settings for the final output conditions

Adjust the flattener settings for final output. (In Illustrator, choose File > Document Setup; flattener settings are on the Transparency pane. In InDesign, choose Edit > Transparency Flattener Styles to create or edit flattener styles.) The settings you choose can greatly affect the quality of the printed piece. For separated output, use the highest fidelity (rightmost) flattening setting for the best results. When you're printing a quick proof, lower settings might be acceptable. (In InDesign 2.x, you can override the document's flattener settings for individual spreads, using the Spread Flattening command in the Pages palette menu.)

Specify flattener settings in the Document Setup dialog box in Illustrator 10.x.



### Adjust settings for your device resolution and line screen.

In Illustrator 10.x, adjust the Rasterization Resolution and Gradient Mesh Resolution values for the resolution and line screen of the final output device. (Choose File > Document Setup; Rasterization Resolution is on the Transparency panel; Gradient Mesh Resolution is on the Printing & Export panel.) Generally, the settings should be no less than twice the intended line screen and no more than the full resolution of the intended output device, to prevent stitching artifacts.

### Adjust the Raster Effects Resolution settings for Illustrator filters

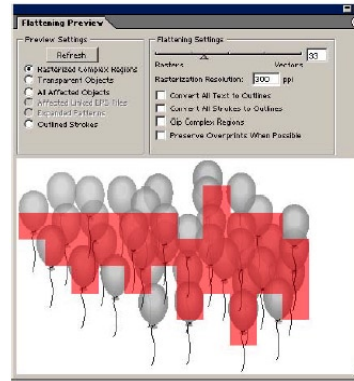
If you're using Illustrator filters, adjust the Raster Effects Resolution settings for the intended output device's resolution and line screen. (Choose Effect > Document Raster Effect Settings.) Typically, the resolution for raster effects should match the resolution you use for drop shadows created in Photoshop, and it might be lower than the resolution used for images. Certain raster effects are very dependent on resolution, so their appearance can change dramatically when their resolution changes.

### Preview the results of flattening settings in Illustrator

Install the Illustrator 10.x Flattening Preview palette plug-in to see the results of different flattener choices in Illustrator. See the document "Flattening\_Preview.pdf," which is installed with Illustrator 10.x.

### Proof flattening results before going to press

To confirm the effects that flattening will have on a document, run proofs at different flattener (and related rasterization) settings, or generate and preview separations on-screen to check the results before going to press.



The Flattening Preview palette shows you the effects of different flattener choices in Illustrator 10.x.

Enable Overprint Preview mode to see an accurate view of a flattened PDF file. Proofing documents lets you make any necessary changes to flattening options before creating the film or plates.

### HELP ADOBE IMPROVE TRANSPARENCY TECHNOLOGY

The strength of transparency features is in your ability to print them with the results you expect. That's why Adobe has made transparency a priority, investing in engineering, research, training, and testing. Perhaps most important, Adobe has been talking with print service providers to learn about your experiences with transparency, to hear how we can improve the technology, and to design appropriate resources for you and your customers. The following resources can answer most of the questions you have about printing transparency. Of course, you can work with technical support to troubleshoot unusual problems. If you have additional stories to share—whether successes or frustrations—e-mail them to [sp-resources@adobe.com](mailto:sp-resources@adobe.com).

### RESOURCES

#### "Achieving Reliable Print Output from Adobe Applications Using Transparency"

<http://partners.adobe.com/asn/service/indesign/main.html>

This comprehensive Adobe PDF file, designed specifically for service providers printing transparency, describes the flattening process used by Adobe applications, details its effect on various workflows, and offers step-by-step workarounds for possible issues. Adobe is developing a similar guide for designers, so they can learn the best ways to design for print using transparency.

#### Service Provider Toolkit

<http://partners.adobe.com/asn/service/indesign/main.html>

The Adobe Service Provider Toolkit includes all the resources service providers find most valuable when printing documents from Adobe applications. The toolkit contains a wealth of resources to help you get up-to-speed on InDesign, Illustrator, Acrobat, transparency, and much more.

#### ASN Web site

<http://partners.adobe.com/asn/service/indesign>

Check the ASN Web site frequently for the latest information on transparency and other technologies affecting Adobe applications.