Vancouver Response Center
T. 604.451.2727
Toll free T. 1.800.451.2727
F. 604.451.2713
Toll free T. 1.800.767.2736

Customer support email:
callcentre@creo.com

www.creo.com

Document number: 78-0096A-D
Release date: 25 June 2002

Technical bulletin

PDF 1.4 and Acrobat 5: Implications and Solutions for Creo Workflow Customers

PDF 1.4 is a recently-released PDF specification that includes new features such as transparency and JBIG2 compression that may cause short-term problems for the graphic arts industry. This document describes how the release of Adobe Acrobat 5 software and the PDF 1.4 file specification may affect Creo customers, and how PDF 1.4 files will be handled within each Creo workflow product.

Although Adobe Illustrator 9 allowed users to save files as PDF 1.4 as early as May 2000, Acrobat 5 is the first version of the PDF viewer that can correctly display PDF 1.4 files that use the new features. More recently, Adobe InDesign 2 added transparency support to its page layout ability, and Illustrator 10 continued its support for transparency, including a "flattening preview" function.

The applications that now create, view and/or can flatten PDF 1.4-style transparency:

- Adobe Illustrator 9
- Adobe Illustrator 10
- Adobe InDesign 2
- Adobe Acrobat 5

What's new in PDF 1.4?

- Transparency – this is probably the most significant of the PDF 1.4 changes for the graphics industry. Transparency is described more fully later.
- JBIG2 compression – this may eventually produce better compression on copydot data and may result in smaller PDF sizes.
- OpenType support in Distiller – this is a new multi-platform font format.
- Tiling – this means that Acrobat can break a large page into overlapping tiles, designed for sending output from Acrobat directly to imagesetters.
- Marks – this allows users to add crop marks and other marks to a page. This should help people who want to make film directly from Acrobat.
- PDF Consultant – this lets users remove non-graphic content from their PDF.
- Clearer definition of the boxes defined in PDF – this includes a way to select different crop boxes for viewing than for printing. This may help reduce any confusion that non-graphics-industry people might have when trying to understand what "bleed" means.

What is transparency in PDF?

You may already be familiar with transparency in CT/LW, where “windows” in linework are transparent so that the contone images are visible. Transparency in PDF and throughout the new Adobe imaging model includes *Variable* Transparency, where almost any object can be varied not only in color, but also in the degree to which you can see things behind it.

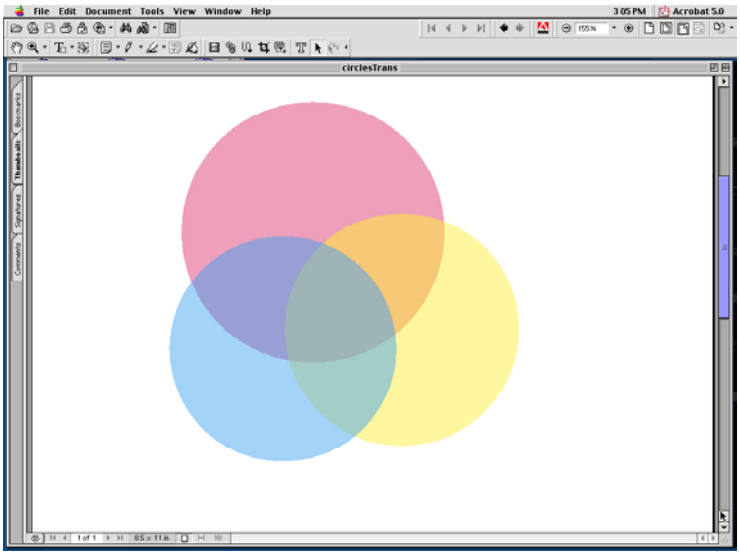


Figure 1: Three semi-transparent objects overlapping

The simplest way to think of transparency is like a tinted glass window, with a control that adjusts it from clear to totally opaque. It is a mathematical model, based on opacity (or opaqueness).

Variable Transparency has been available in raster image editors such as Adobe Photoshop for several years. With the introduction of Macromedia’s Flash and Adobe’s LiveMotion, creators of web content have also had tools to create web content with transparency. Vector editors available to the printing industry have not had an underlying transparency model until Illustrator 9 introduced the Adobe’s model.

Is variable transparency the same as overprint?

No. Overprint and Transparency are separate. The ability to view Transparency in Acrobat 5 will not allow you to preview overprinting objects. For example, if you have a document with overprints, but not transparency, Acrobat will not display with the overprints by default.

However, Acrobat 5 also includes a feature called Overprint Preview, which gives users an image of what this PDF would look like when printed through a Creo RIP and when the plates are put on the press. Previously, overprint was only visible if you RIPed the page on the PS/M or Brisque, if you output to VPS (Virtual Proofing System), or if you used the Separation Viewer plug-in for Acrobat in Prinergy. Note that Overprint Preview will not allow you to toggle individual separations on and off.

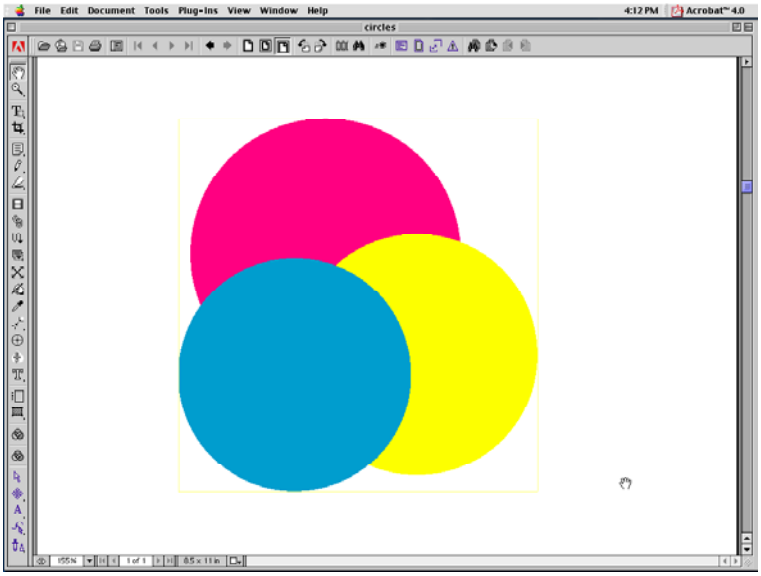


Figure 2: How three overprint objects appeared in Acrobat 4

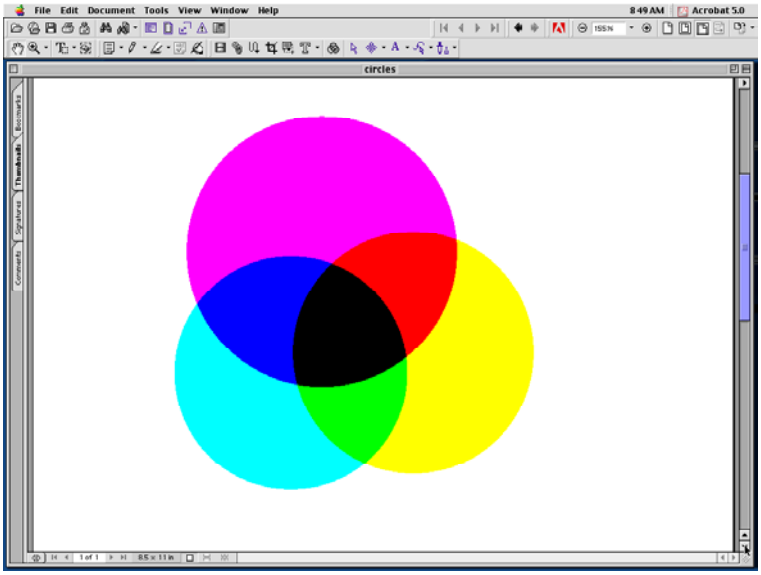


Figure 3: Overprinting objects seen with Overprint Preview enabled in Acrobat 5

How will variable transparency affect my RIPs and workflows?

Variable Transparency cannot be represented in PostScript of PDF 1.3, where colors are opaque. Submitting a PDF 1.4 file to a PostScript 3 or PDF 1.3 RIP without any flattening step (by user or by workflow) will result in all transparent objects turning opaque.

Another problem is that if the user manually flattens the file (say, when saving an Illustrator document as an EPS), the user may not choose a high enough quality setting. This could result in adverse image degradation; for example, text elements getting converted to a bitmap image. Content creators would have to be educated to pick the Highest Quality flattening setting. In Illustrator 9, the default flattening setting is Medium, so they will have to actively change the flattening setting. In Illustrator 10, the default flattening setting is Highest, so if the user doesn't accidentally change the flattening setting to lower, the default behavior is the recommended setting.

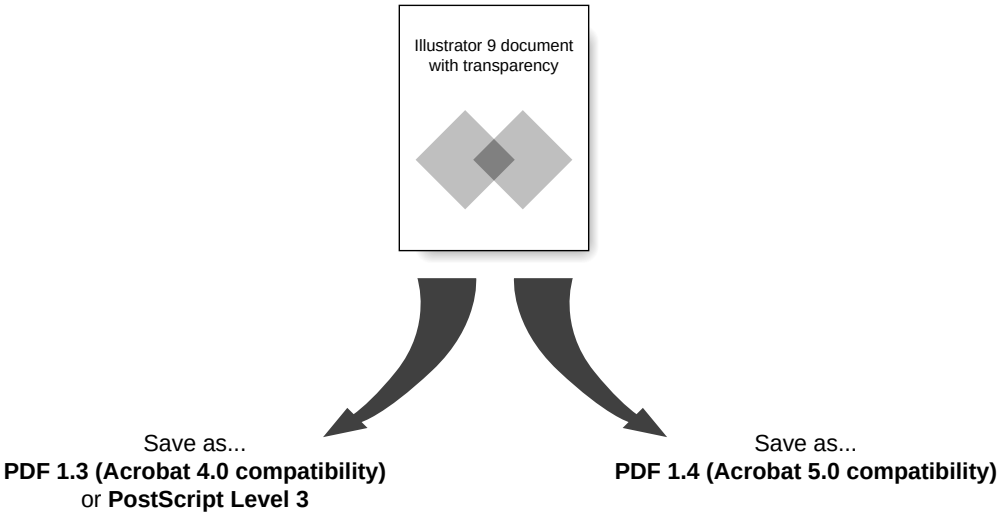
Proofs should be reviewed carefully. High resolution proofs, such as Spectrum proofs, are recommended, because a lower resolution proof might not show adverse flattening effects. For example, a proof based on a 300 dpi rendered page is unlikely to show that some text had been flattened to a 300 dpi bitmap by Illustrator.

What solution can I use independent of workflow?

You can save a document with transparency as a PostScript, EPS, or PDF 1.3 file from the creating application (Illustrator 9/10, InDesign 2, or Acrobat 5). This results in "flattening", where the overlaps between transparent objects are written as separate opaque objects. On the downside, this results in less ability to edit transparent objects in the PDF file later in the workflow. For example, you can no longer copy-correct text that was transparent.

However, flattening files to PDF 1.3 or PostScript in the creating application or to PostScript in Acrobat 5 is a good solution that will allow the processing of pages that contained PDF 1.4. Like any new software functionality, we urge caution when using the flattening capability of Illustrator or Acrobat. Check your output carefully. Note that handling spot colors with transparency should be done in the creating application, because mapping spot colors to process colors outside of the creating application may yield unexpected results.

When flattening in the creating application, ensure that you use the Highest Quality/Slowest Speed setting. This will ensure that the document is flattened with the highest quality possible and stopping vector data from being rasterized. For the latest Adobe recommendations on flattening transparency, consult the Adobe website (www.adobe.com).



- ✓ Save pages as Illustrator 9 EPS, not Illustrator 8 EPS. If you save files as Illustrator 8 or any other vector format besides Illustrator 9 EPS, your text will be converted to outlines and any spot colors converted to process colors.

- ✓ Embed linked EPS files that interact with transparency before print time. DCS files or duotones will not work if they interact with transparency.

Is it likely that I will receive files that are PDF 1.4?

You will quite likely receive EPS, PS, or PDF 1.3 files that contain Variable Transparency and that have been flattened. You will less likely receive a PDF 1.4 file with transparency. Here are a couple of cases you may encounter and what to do in each case:

- If you are supplied PDF pages from Illustrator, take care to check what version of PDF was produced. If PDF 1.4, you'll have to flatten the files to preserve the transparency. If the files are PDF 1.3, flattening will have already occurred, and you should check that the flattened settings are appropriate to your application.
- If you are supplied EPS pages, or have EPS files placed inside other documents, flattening will have already occurred. Again, check that the flattening settings are appropriate to ensure that, for example, text hasn't been rasterized. Note that the unflattened artwork remains in the EPS file, so the designer can still edit it, or the prepress operator can open the EPS file in Illustrator and resave with a higher flattening quality setting.

PDFs that contain JBIG2 compression are probably less likely to occur. No publishing industry applications currently create files with JBIG2 compression.

What happens when I use different workflow products with different PDF file formats?

LEGEND

Acceptable Solution: Should work within the limitations listed. Always check output carefully.
Use Caution: Yields unexpected result.

Product	PDF 1.3 or PostScript Level 3 (flattened) file	PDF 1.4 file
Acrobat 4.0	Okay, but reduced editing ability.	No good – transparency is lost (all objects are opaque).
Acrobat 5.0	Okay, but reduced editing ability.	Okay. Transparency appears as transparent.
Brisque 3.0 and 4.0	Okay, but reduced editing ability.	No good – transparency is lost (all objects are opaque). Use a Pitstop Action/Profile to detect PDF 1.4 files. User must flatten in Acrobat or Illustrator.
Brisque 4.1	Okay, but reduced editing ability.	Brisque will flatten PDF 1.4 transparency prior to RIP.
iMPAct	Must be PostScript (doesn't handle PDF in native form). Okay, but reduced editing ability.	Not possible – doesn't handle PDF in native form.
Prinergy 2.0.5 and earlier	Okay, but reduced editing ability.	No good – transparency is lost (all objects are opaque). Use a Pitstop Action/Profile to detect PDF 1.4 files. User must flatten in Acrobat or Illustrator.
Prinergy 2.0.7	Okay, but reduced editing ability.	Prinergy will detect PDF 1.4 transparency and warn user. User must flatten in Acrobat or Illustrator.
Prinergy 2.1	Okay, but reduced editing ability.	Prinergy will detect PDF 1.4 transparency and flatten it during Refine.
PS/M 7.0 and earlier	Okay, but reduced editing ability.	No good – transparency is lost (all objects are opaque). User must configure pre-flight tools to detect PDF 1.4 transparency, and then flatten in Acrobat or Illustrator.
PS/M 7.1	Okay, but reduced editing ability.	PS/M will detect PDF 1.4 and flatten prior to RIP.
PS/M 7.5	Okay, but reduced editing ability.	PS/M will flatten PDF 1.4 in-RIP.

How will workflow products handle PDF 1.4 input?

Brisque – 3.0 and 4.0

PDF 1.4 files with transparency that are sent to Brisque 4 will result in the transparency turning opaque. The recommended workaround is to flatten the PDF file to PostScript in either Illustrator 9/10 or Acrobat 5. Note that this will determine which image components get represented in LW and which components get represented in CT. Set up Pitstop Actions/Profiles to detect PDF 1.4 files.

Brisque – 4.1

Brisque will detect and flatten PDF 1.4 files.

iMPAct

Because iMPAct and the Allegro RIP use PostScript only and don't handle native PDF files, PDF 1.4 should not be an issue. iMPAct users will have to convert PDF files of any specification to PostScript before bringing the page into the workflow – typically by using Adobe Acrobat to flatten the PDF 1.4 to PostScript. You must open the PDF 1.4 file with transparency using Acrobat 5.0 and export as EPS with the Transparency Quality/Speed set to Highest/Slowest.

Prinergy– 2.0.5 and earlier

PDF 1.4 files with transparency that are sent to Prinergy 2.0.5 will result in the transparency turning opaque. The recommended workaround is to flatten the PDF file to PostScript in either Illustrator 9 or Acrobat 5.

Prinergy – 2.0.7

Prinergy will detect and warn whether incoming PDF files conform to the PDF 1.4 specification and contain either transparency operators or JBIG compression. The user would then have to flatten the PDF 1.4 file to PDF 1.3 or PostScript 3 using Acrobat 5. Testing of Prinergy plug-ins with Acrobat 5 is in progress.

Prinergy – 2.1

Prinergy will detect whether incoming PDF files conform to the PDF 1.4 specification and contain transparency operators or JBIG compression. Prinergy will then remove the JBIG compression, replace it with a PDF 1.3-compliant compression, and flatten the transparency.

PS/M – 7.0 and earlier

Because the PS/M doesn't have its own preflight or normalizing stages, users must use an off-the-shelf PDF preflight tool such as Creo Synapse or Enfocus Pitstop to detect a PDF 1.4 file and prevent it from being sent to the PS/M. The recommended file format is EPS PostScript Level 3.

PS/M – 7.1

PS/M 7.1 will detect and flatten PDF 1.4 files using its PDF V1.4 Checker and PDF2PS v2.0 Utility.

PS/M – 7.5

PS/M 7.5 will use a version of the RIP which will flatten PDF 1.4 files in-RIP without a separate flattening stage.

Conclusion

The adoption rate is as yet unknown but it's impossible to prevent people from using the new features of Abode Acrobat or Illustrator.

Acrobat 5, Illustrator 9/10, and InDesign 2 can read PDF 1.4 and save as PostScript 3 or EPS using "flattening" technology. Use the Highest Quality/Slowest Speed setting when flattening to retain image quality.

Use caution when dealing with PDF 1.4 files or files with transparency. As with any new software, we recommend extra caution and early testing cycles. Check output carefully to ensure that flattening errors have not occurred.

As well, a PDF 1.3 RIP will ignore all transparency operators in an incoming PDF 1.4 file, rendering them opaque. Check output carefully before making plates or putting a job on the press.

For the latest Adobe recommendations on flattening Illustrator 9 transparency, consult the Adobe website (www.adobe.com).