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Technical bulletin

PDF/X-1a:2001—FAQ for Prinergy Users

Prinergy version 2.1, updates 9 and later, can generate PDF/X-1a:2001. PDF/X-1a:2001 functionality is a licensed feature.

This technical bulletin answers some frequently asked questions about the PDF/X format as it relates to Prinergy.

What is PDF/X?

PDF/X is an exchange format for sending pages between a page preparation site and a printing site. PDF/X is a subset of the full PDF specification. A PDF/X file is intended to be more predictable because it has commonly agreed-on characteristics.

So is a PDF/X-compliant file guaranteed to work through a workflow?

Using PDF/X does not guarantee the process-ability or performance of a file. However, a PDF/X file will be free of certain common prepress problems such as missing fonts and images.

What are the flavors of PDF/X?

PDF/X-1 family:

- PDF/X-1:1999 – Approved by ANSI (American National Standards Institute) as PDF/X-1 in October 1999. This format is based on PDF 1.2 plus Adobe Tech Note 5188.
- PDF/X-1:2001 – Approved by ISO (International Organization for Standardization) in April 2001. This format is based on PDF 1.3. It is an updated international version.
- PDF/X-1a:2001 – Approved by ISO in April 2001. This format is based on PDF 1.3. Embedded files are not allowed. This is the version that Prinergy can refine to.
- PDF/X-1a:2003 – Not yet approved, but approval is in the works. This format is based on PDF 1.4, but will not allow such 1.4 features as transparency and JBIG2 compression.

PDF/X-2 — Not yet approved. All fonts must be embedded. PDF/X-2 does not use OPI; instead it uses a Global Unique ID (GUID) to reference an external file. The external files must be PDF/X-1 or PDF/X-3 files.

PDF/X-3:2002 — Approved by ISO in 2002. This format is based on PDF 1.3. It allows for PDF/X-1 color spaces plus L*a*b and RGB spaces.

What are the technical characteristics of PDF/X-1a:2001?

- Fonts must be embedded.
- If OPI is used, the high-resolution image must be swapped into the file and the OPI comment removed.
- Transfer functions (TR and TR2) are not allowed. Prinergy will fail pages containing custom transfer functions.
- Pre-separated pages are not allowed.
- Spot colors and CMYK are allowed; RGB and L*a*b are not allowed.
- LZW and JBIG2 compression are not allowed.
- Bounding boxes are restricted. Each page must have a MediaBox that can include either a TrimBox or an ArtBox, but not both. There can be a BleedBox or a CropBox. The TrimBox or ArtBox must be entirely inside the BleedBox or CropBox.
- Halftone issues:
    - Named Halftones are not permitted. This means you cannot use DotShop screening, since Prinergy relies on the Halftone name to choose the screening. When refining to PDF/X-1a:2001, Prinergy removes any halftone dictionary that contains a HalftoneName key, including DotShop halftone dictionaries.
    - No Halftone Phase (HTP) key.
    - Halftone Type can only be 1 or 5 (no threshold screening).
- No embedded PostScript and no PDF features beyond PDF 1.3. Thus, transparency cannot be present; Prinergy will flatten transparencies in PDF 1.4 input.
- Annotation use is limited. Annotations are allowed if they lie entirely outside the BleedBox, or outside the ArtBox or TrimBox if there is no BleedBox. The exception is the Trapnet annotation, which is allowed without restrictions. **Note:** Prinergy does not use Trapnet annotations for trapping.

When refining to PDF/X-1a:2001, Prinergy will detect and deal with all of the above issues where possible. If it is not possible to make a PDF/X-1a:2001-compliant file, Prinergy will fail the page.

Where can I find more information?

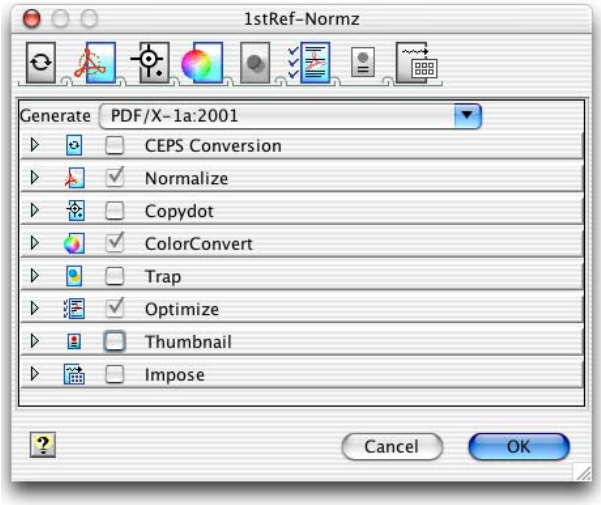
The previous information is a summary only. For more information, check the following links:

- www.npes.org/standards/cgats.html — a link to CGATS (Committee for Graphic Arts Technologies Standards), the group writing the specification
- www.direct2.time.com — Time Inc. recommendations on file submission
- www.ddap.com — Digital Distribution of Advertising for Publications (DDAP)
- www.pdf-x.com — DDAP's PDF/X website

How do I create PDF/X-1a:2001 files for sending to a printing site using my Prinergy system?

To convert an input file to PDF/X-1a:2001 output, there are two steps:

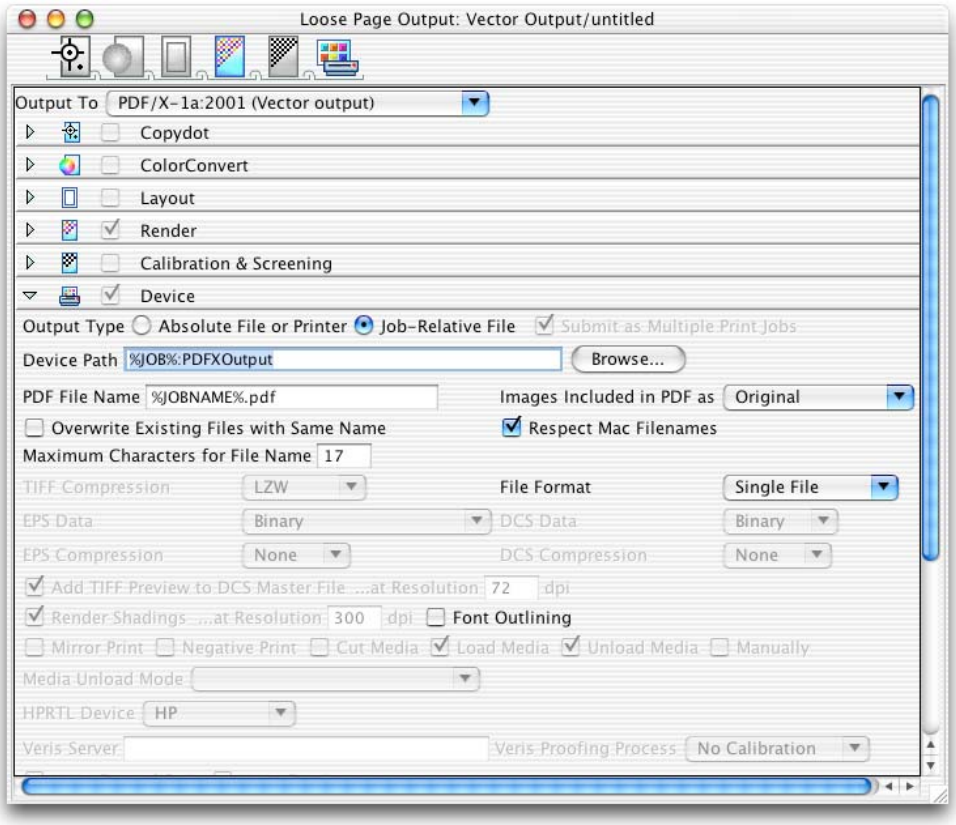
1. Refine to PDF/X-1a:2001 by selecting **PDF/X-1a:2001** in the **Generate** box at the top of the refine process plan.



Prinergy refines the input files to PDF/X-1a:2001 digital master files.

2. Output to a PDF/X-1a:2001 file by selecting one of the following:

- **PDF/X-1a:2001** in the **Output To** box at the top of an output process plan (using vector PDF output)



- the **PDF/X-1a:2001** check box in the Publish PDF Files dialog box (**File** > **Publish to PDF file**)



What happens when I select PDF/X-1a:2001 when refining in Prinergy?

Certain process plan settings are forced on. As always, Normalize and Optimize are required; ColorConvert is also required.

Within Normalize, the **Do OPI Image Replacement** option defaults to on (though this can be turned off), and the **Fail on Missing Fonts** option is forced on.

During Normalize, the key PDF/X-1a:2001 issues dealt with are:

- Fonts are embedded
- OPI replacement is done

During ColorConvert, the key PDF/X-1a:2001 issue dealt with is the input color space, which is converted to CMYK plus spot colors.

Caution: If you have a L*a*b PANTONE color library installed, the **Use Alternate Color Definition from Color Editor** option may cause Prinergy to fail the file. If **Use Alternate Color Definition from Color Editor** is off, and color recipes are defined using L*a*b, Prinergy may also fail the file. L*a*b color space is not allowed for PDF/X-1a:2001 files.

During Optimize, Prinergy checks for the remaining PDF/X-1a:2001 issues.

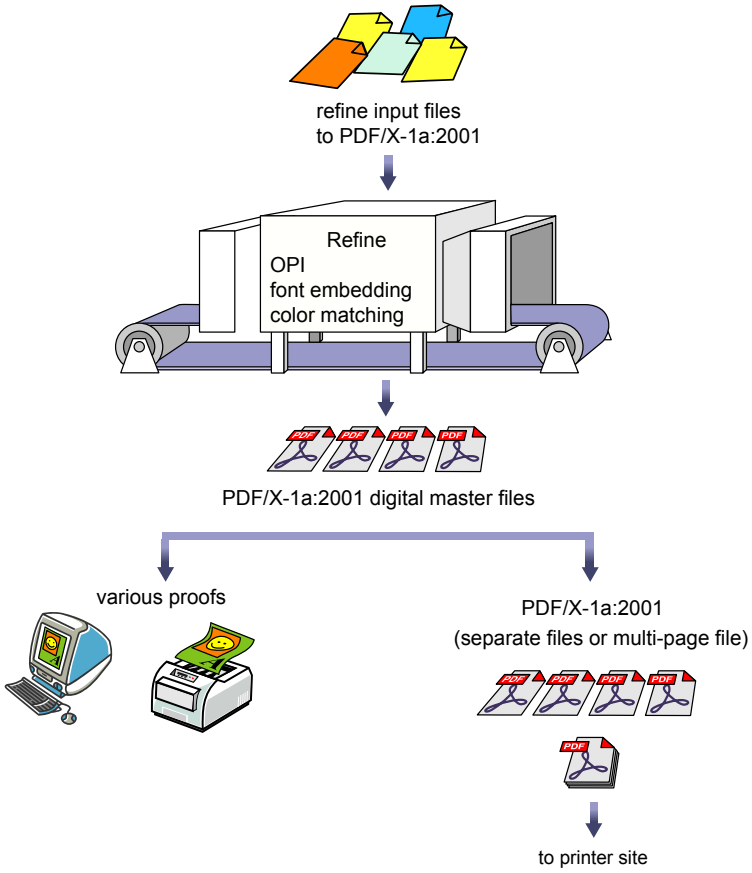
What happens when I select PDF/X-1a:2001 when outputting in Prinergy?

The selected master files are checked for PDF/X-1a:2001 conformance. This is in case a master file has been edited and a non-PDF/X-1a:2001 element or characteristic has been introduced into the file. Some issues will be corrected at this point, but some issues – including font embedding, image replacement, and color conversion – cannot be handled at this point and will cause Prinergy to fail the file. The file must be refined to PDF/X-1a:2001 again.

If you select multiple pages, then select **Save Pages to Separate Files** in the Publish PDF Files dialog box on output, the selected files are combined into one PDF/X-1a:2001 file.

What is the recommended workflow?

It is important to refine to PDF/X, because it ensures that your proof cycle is based on the same PDF/X file that is output and sent to the printer site.



Can I simply refine files to PDF as usual, and then output to PDF/X-1a:2001 on Vector JTP output?

Though it might be possible to do so in some cases, in general it's not the recommended way of working. In particular, color matching must be performed during refine. A file needing color matching will not be converted to PDF/X-1a:2001 on output if it has not been refined to PDF/X-1a:2001. Other issues addressed during refine include font embedding and OPI.

Must I do OPI replacement?

PDF/X-1a:2001 requires that files not contain OPI comments. The expectation is that OPI replacement has been done and that the receiver of the PDF/X file needs no additional external resources (fonts or images) to process the file. Prinergy's PDF/X-1a:2001 refining will, by default, do OPI replacement. There are cases where the high-resolution image has been embedded in the document but there are still OPI comments (for example, high-resolution TIFFs placed in QuarkXPress and printed fat). Prinergy will try to perform OPI replacement in these cases and generate a warning or error. If you are working in a non-OPI workflow, clear both the **Do OPI Replacement** and **Fail On Missing Images** check boxes in the refine process plan.

Can I refine a PDF/X-1a:2001 file?

Yes. Prinergy treats a PDF/X-1a:2001 file like any PDF input file. The file can be refined to regular PDF, or it can be refined to PDF/X-1a:2001 again. If refined to regular PDF, the file will no longer have the PDF/X-1a:2001 identification keys, as would be expected. If refined to PDF/X-1a:2001, Prinergy puts the file through all of the same checks as any other input file that is refined to PDF/X-1a:2001.

What about PDF/X checkers?

Creo has used the following PDF/X checkers:

- Apago PDF/X-1 Checkup, version 2.5
- DDAP PDF/X Verifier version 2.0
- Callas pdfInspektor2, version 1.0
- Enfocus PitStop, version 5.02 using Profile: PDF/X-1a:2001 v2

In our testing, our PDF/X-1a output consistently passes the Apago and DDAP checkers.

We found that pdfInspektor2 and PitStop provide error notifications in the following cases even though the file is PDF/X-1a:2001 compliant:

- Callas pdfInspektor reports in all cases that "OutputIntent Info missing," even though all PDF/X-1a:2001 required information is present.
- Callas pdfInspektor reports the use of BX and EX operators as errors, even though the PDF/X-1a:2001 specification says these are okay. What is prohibited are non-PDF 1.3 operators, even within BX and EX.
- Enfocus PitStop reports that "Document does not use modern compression mechanisms." This is generated in PitStop by the "Compression is not optimal" check, which is not related to PDF/X-1a:2001. If this check is left out, this error is not reported.
- Enfocus PitStop reports "Custom halftone function found" whenever there is a Halftone (HT) key. But the Halftone key is permitted in a PDF/X-1a:2001 file if the Halftone Type is 1 or 5.

Are there any known issues with the implementation of PDF/X-1a:2001 in Prinergy?

If a PDF/X page that has the Trapped key set to true is brought into Prinergy and refined with the Trap section of the process plan enabled, Prinergy will try to retrap the page.

When creating a PDF/X-1a:2001 output file, the Trapped key in the PDF/X-1a:2001 file is always set to false. This was because it is difficult to automatically determine if all trapping has been done.

If an input file is a PDF 1.4 file, then the master file will have the PDF 1.4 version tag in it, and possibly a Metadata key. (Note that PDF 1.4 transparency will have been flattened.) On output (using vector PDF output, or Publish PDF output), the file will have the proper PDF 1.3 version tag and no Metadata key.

If an input file is a PDF file and does not have the Title or Producer keys filled out, then the master file likewise will not have these keys filled out. On output, the Producer key is filled out, but the Title key is not.

What if I don’t want to use the PDF/X feature in Prinergy?

If you don’t want to use PDF/X format as your digital master file, simply configure your process plan to generate PDF instead of PDF/X-1a:2001. Prinergy will generate digital master files the way it always has. This will allow the Prinergy functionality that is not possible with PDF/X.

What about PDF/X-3?

Prinergy can currently handle some characteristics of PDF/X-3 input. The Prinergy operator can refine as normal and Prinergy's ColorMatcher can use the source ICC profile; however, the PDF-specified rendering intent will not be used. The user will need to specify the rendering intent, and if none is specified, then the "perceptual" rendering intent will be used by default. The OutputIntents key (potentially used to indicate a destination ICC profile) will not be honored or applied. However you can set the Prinergy ColorMatcher to convert to the Destination ICC profile of your choice.

In the Prinergy 2.2 time frame, additional functionality will be implemented to support PDF/X-3.