

Printers' Guide

Basics of print data preparation II

Nowadays, a large variety of different faults may occur during the transfer of data from the agency or the layouter to the printing house. They are partly ignored or not recognized at all, but may be a reason for costly and time-consuming complaints.

This is why Part I of the **Basics of Print Data**

Preparation already explains essential data faults occurring with the selected ICC profile.

However, besides the color profile, the selected PDF version plays an important role. In many cases, it is explicitly fixed by the printing house. Nevertheless, the prepress user must make himself acquainted with the resulting changes and/or problems that may occur.

As a matter of principle, all print data should be selected for a PDF/X version since it is specifically adapted to the printing industry and must not contain, e.g., any elements that cannot be printed, for instance, video or audio data.

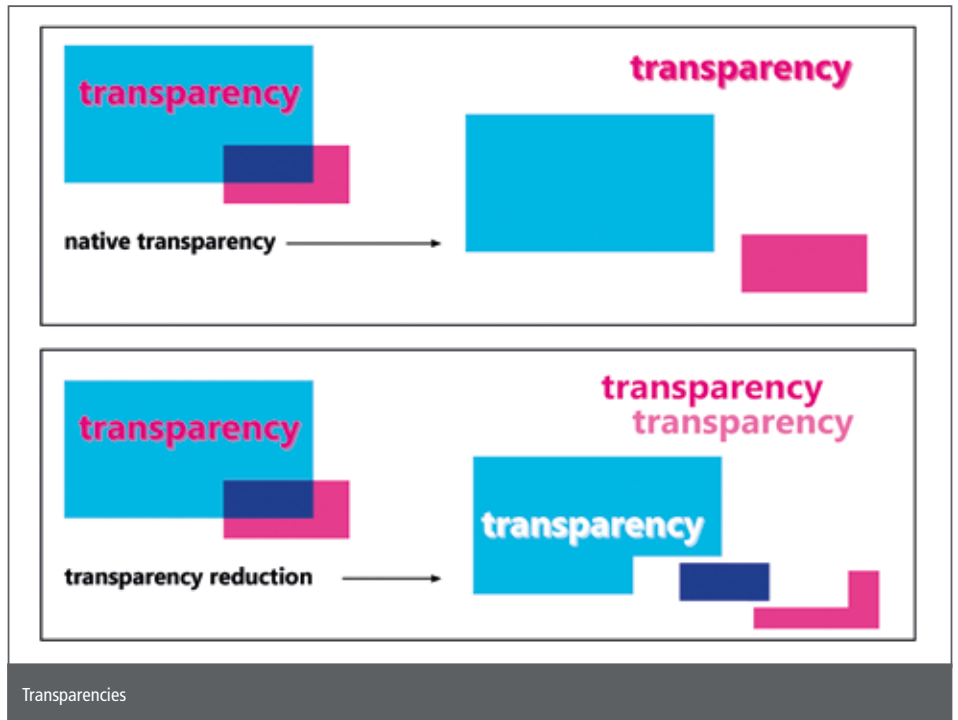
The mostly used PDF/X variants are PDF/X-1a, PDF/X-3 and PDF/X-4. Newer versions of the PDF/X series and/or PDF 2.0 are not yet widely used.

In order to be able to differentiate between the different variants, basic understanding of transparencies and colour management is needed.

Transparencies are defined as effects and settings which make it possible to place see-through objects on top of each other and let underlying objects shine through. Examples are drop shadows, opacity effects or feathered edges.

In the course of the preparation of print data, transparencies can be transferred as native transparencies or flattened and converted into new objects. PDF/X-1a and PDF/X-3 still use flattening, i.e., all transparencies are no longer contained as native transparencies, but were converted into many different single objects, as, for instance pixel images or vector graphics. In this case, it is no longer possible to process and move these transparencies as a whole later-on and flattening may cause unwanted image faults. This should later be checked by the user. The PDF/X-4 version, however, can process native transparencies which means that the latter can be contained in the print data as transparencies and can be processed as a whole. Normally no faults occur.

A second important fact is the capability to work with two different ICC profiles, which means that colour



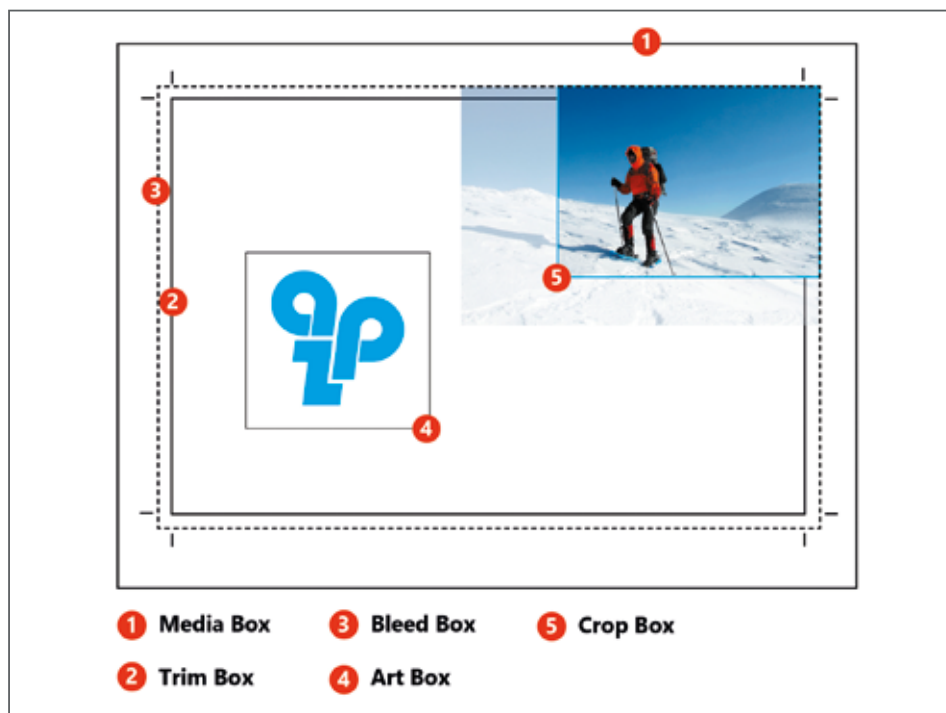
	Transparency reduction	Colour management capability
PDF/X-1a	Yes	No
PDF/X-3	Yes	Yes
PDF/X-4	No	Yes

management capability is provided. PDF/X-1a cannot do that. In this case, the objects embedded in the PDF must be consistent with the output intent. The advantage for the prepress user is that wrong or even RGB images cannot be embedded inadvertently. For the device and media independent workflow (late binding), it may be desirable to leave all objects, i.e., texts, images and graphics in their original colour profile until the requested target profile has been determined. This is not possible with PDF/X-3 and PDF/X-4. So, theoretically, I can create a PDF/X-4 with the Output Intent PS0coated_v3.icc, in which further colour profiles like ISOuncoated_v2 or sRGB are still

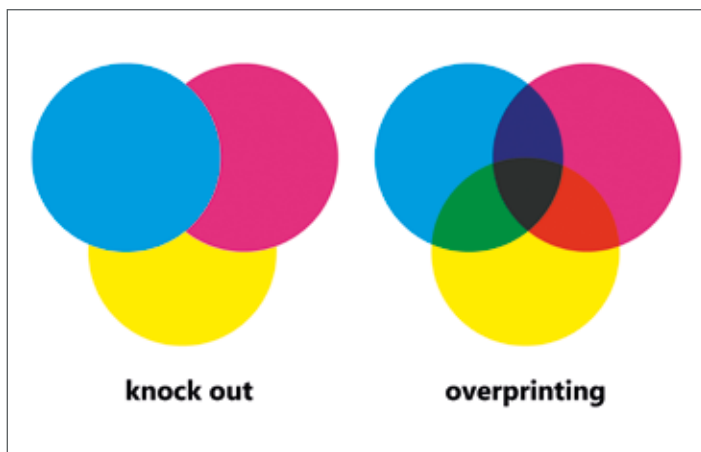
embedded. If this is not desired, unwanted faults and often unnoticed faults may occur in the PDF/X-3 and PDF/X-4 due to wrong software settings. If no variant has been fixed by the printing company, the prepress user must choose one. To a wide extent, PDF/X-3 has been replaced with PDF/X-4. Therefore, there is the option of creating PDF/X-1a and then checking for potential transparency reduction faults later-on or creating a PDF/X-4 and checking for potential undesired colour profile faults later-on.

Another point in print data preparation is the required bleed in order to be able to print edge-to-edge objects without any white gaps. Normally it is 5 mm wide and should be taken into account in the preparation of the layout right from the start. In the PDF preparation, crop marks need not be added since the required dimensions ideally are provided in the framework information given for PDF/X.

The Media Box and the Trim Box, i.e., the size of the medium and the actual final format, must be defined in every PDF. Furthermore, the type of Crop Box as well as, above all, Bleed Box which defines the crop of the print file. These details are embedded in the PDF, are transferred accordingly and can be processed.



Further important aspects in print data preparation are the overprint settings. When two areas lying on top of each other are set for overprinting, they are overprinted as solid areas and/or with the defined tonal values. If, however, knockouts have been preset, the area beneath is left blank and the area lying above is printed on. The following graphic describes these facts quite accurately:



Due to the different software settings, e.g., in InDesign, of different PDF variants and their application of ICC profiles, a wide range of problems may occur in the preparation of print data. Often there is not just one correct approach. Therefore, it is important to check the finished print data for faults manually or with the assistance of a preflight. Here as well, the user must know which criteria need to be checked. Important manual tools, as, for instance, output preview or reduction preview, can be found in Adobe Acrobat. Furthermore, a preflight check, e.g. in Acrobat or with Enfocus PitStop, is recommendable.

Below is a list of possible faults that should be paid attention to by the prepress operator:

- 4-c output of black text
- Solid areas are 4-c screened, frequently by means of a CMYK-CMYK conversion
- Wrong overprint behaviour
- Undesired colour profiles or colour spaces, e.g., embedded RGB images result in wrong maximum colour application or wrong tonal value increase
- Wrong frame definition or general lack of bleed
- Transparency reduction fault due to unsuited PDF/X version
- Image resolution is too low; depending on the screen ruling, it should at least be 300 ppi
- Chromaticity of print data, perhaps they contain, by mistake, special colours
- And, and, and ...

In many cases, these parameters are fixed by the printing company in order to help the customer in the preparation of print data and in order to make these processes more uniform in general.

In practice, often faulty print data are nonetheless accepted, are corrected automatically or changed afterwards in consultation with the customer. Some faults aren't even noticed by the end customer since he simply doesn't have the specialist knowledge. But everybody who wishes to prevent faults in advance for time and cost reasons as well as, of course, for quality reasons should examine what is explained above.

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