

PDF/X & TIFF/IT

What's Happening & Where Do We Stand?

by David Q. McDowell
Technical Standards Consultant, NPES

Exciting News: *CGATS.12/1, Graphic technology—Prepress digital data exchange—Use of PDF for composite data—Part 1: Complete exchange (PDF/X-1)*, has been approved as an ANSI standard!

Some of you will say “Huh” or “So, What Does It Mean to Me?” It is hoped that those of you who have been regular readers of *The Prepress Bulletin* will be as excited as those of us in the standards community. Let's look at what's happening to both PDF/X and to its older sister-standard TIFF/IT. I hope when you see the progress we are making in file formats for graphic arts data exchange, you will be as excited as we are.

An Opening Comment

Yes, this *Standards Update* will include a lot of technical detail. Some of you are interested in technical details, while others are anxiously awaiting the final solution. Regardless of your level of technical

understanding, all of you know what capabilities you need in order to satisfy your customers' needs.

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ment of applications we will use as our production tools of the future. This will only happen with effective cooperation of users and vendors reflected in accredited standards. We need and welcome your input, with or without technical details!

Please review the following update, keeping in mind our need for your

input, and provide comments to the appropriate people identified below or to me at mcdowell@NPES.org.

What is PDF/X-1 ?

What is PDF/X-1? To paraphrase from the introduction to the standard, PDF/X-1 defines a subset of the Adobe PDF file format and its usage, to permit the predictable dissemination of a composite entity in a form ready for final print reproduction to one or more locations using complete data exchange. A bit of a mouthful, but in standards, words become critical. Remember also we are talking about file format and not software

applications, such as Adobe Acrobat, that currently use all or parts of the defined file format.

Within this standard the term “complete data exchange” is interpreted to mean that all information necessary to process and render the document, as intended by the sender, is contained within a single electronic

exchange; therefore, prior knowledge of the sending and receiving environments is not required. This is commonly referred to as “blind” exchange.

“Composite entity” is defined to be a unit of work with all text, graphics and image elements prepared for final print reproduction. A composite entity can represent a single page for printing, a portion of a page or a combination of pages.

The approval of a standard does not mean the typical shop can start using it today. However, many of the vendors have been actively involved in the development of this standard and we anticipate that applications that will fully support PDF/X-1 will be available in the near future.

The immediate question some people ask is “Will this replace TIFF/IT-P1?” The answer is “NO.” PDF/X-1 and TIFF/IT are seen as working together. Simply put, a PDF/X-1 file can be converted to TIFF/IT through many RIP applications. In addition, a TIFF/IT-P1 file can be incorporated into a PDF/X-1 file.

Application Notes

One important step being taken by the CGATS Committee is the preparation of an Application Note that will be made available with the standard. Its purpose is to provide additional information to help with interpretation and implementation of the standard. It is primarily intended for vendors creating implementations of writers and readers of PDF/X-1 files as well as for workflow designers.

As always, if there is a conflict between the application note and the standard, the standard will take

precedence. However, it is hoped that the application note will be the vehicle by which the standards committee can pass along the thinking behind the creation of various parts of the standard. Providing these hints and comments should facilitate the implementation process.

Is This the End of PDF Standards Work?

Again an emphatic NO! Although PDF/X-1 specifies the exchange of complete material, primarily as CMYK data, with all elements present, there will be many occasions where some or all of the referenced

successful rendering of the data. For example, fonts may reside at the receiver site, high resolution images may be sent separately, etc. The ability to exchange color managed data that may be in RGB, CIELAB (defined using ICC color management), or other less device dependent color data encoding schemes is also being studied for inclusion.

The availability of Part 2 depends principally on three things. First, knowledgeable users within the industry must help define the capabilities that are needed in Part 2. Second, CGATS and TC130 must

The development of PDF/X-2 depends on the input of knowledgeable users within the industry to help define the capabilities that are needed in Part 2.

elements (e.g., contone pictures, TIFF/IT line art and/or contone files, fonts, and other resources) may be more logically present at the receiving site or exchanged at a different time. Further, additional capabilities, which are generally characterized by the requirement for communication and prior agreement between the sending and receiving parties, could better facilitate the use of PDF/X for commercial printing, packaging, etc.

PDF/X-2 which is currently under active development within CGATS, with strong input and cooperation from ISO/TC130, is intended to enable the exchange of “partial composite digital data.” Here the “partial” means that all information does not have to be contained within a single electronic exchange. This allows more flexibility but does require greater communication between the parties involved for

receive more help from technically knowledgeable people who can invent the mechanisms necessary to accomplish the capabilities defined by the users. Third, CGATS and TC130 must receive the cooperation of Adobe, who owns the PDF file format, to add those features required to enable the solutions proposed by CGATS and TC130. To date, all three areas are suffering from a lack of support.

Proposals for PDF/X-2

The philosophy around which PDF/X-2 is being developed is that the standard should include any feature that is clearly identified as being needed by a significant application area in the appropriate sector of the graphic arts industry. A PDF/X compliant reader must be capable of reading all compliant files and acting appropriately. However, it is also assumed that any file recipient (publisher, printer,

etc.) could/would identify capabilities that they were not willing to accept. Examples are JPEG compression, OPI, HC files, certain font types, etc. Further, writing applications (writers) need only be capable of providing those features desired by users, that are within the allowed features of PDF/X.

Some current proposals (yes, some of these are details, but these details have an effect on your use of the standard and are important to many of our readers) are:

• All capabilities of PDF/X-1 should be included in PDF/X-2 and uniquely identified as a subset of PDF/X-2.

• PDF/X-2 should be based on PDF 1.3 (or later), rather than on PDF 1.2 as PDF/X-1 is. This allows for the use of DeviceN color spaces and better enables embedding of CID double byte fonts than is provided by prior versions of PDF.

• PDF/X-2 should not require the embedding of font files. However, if a font is not embedded in a PDF/X file, but must be read from disk, then there are two steps in that process. The first is to identify one or more font files that match the font name requested in the PDF/X file. This is felt to be an implementation issue. The second step is to confirm that the font file that has been located matches the font file with which the document had originally been created.

• Similar issues pertain to other externally referenced files, such as those accessed through OPI constructs. It is noted that there are three steps in this process rather than the two required for an external font file, in that the type of the refer-

enced file must also be ascertained. The committee does not feel that it is necessary to restrict file names to match the obsolete 8.3 DOS format, but recommends that a length restriction be imposed (e.g. 31 characters to match that of the Macintosh). They further recommend that the PDF/X-2 standard list a set of characters that may not be included, e.g. those used as directory separators, disk volume indicators, etc., on common operating systems.

A number of approaches to confirming the identity of an external file are possible. The task force suggests that three pieces of information be recorded in the PDF/X-2 file for each non-embedded OPI referenced file:

- **FileTitle**—taken from the %% Title comment in EPS and DCS files, or tag 270 (Image Description) in TIFF and TIFF/IT files.

- **FileDate**—taken from the %% CreationDate comment in EPS and DCS files, or tag 306 (DateTime) in TIFF and TIFF/IT files.

- **FileType**—the type of the file, encoded in the same way as the Subtype key in an Embedded File object in PDF/X-1.

• Both CMYK and device-independent, profile-based workflows are perfectly valid and are capable of producing final printed matter that fulfills the quality requirements of their users. The major difference between these two approaches is where the responsibility for 'correct' reproduction is seen to lie. The committee concluded that PDF/X-2 needs to carry sufficient information to uniquely define output data (real

or virtual) related to hard copy reproduction using up to four or more colors. To achieve this goal, it was recommended that PDF/X-2 should incorporate the mechanism currently described as virtual CMYK (source data plus input and output ICC-type color management-profiles).

Do you have a comment or a proposal concerning PDF/X? If so, please provide input to Martin Bailey the chairman of CGATS/SC6 (martinb@harlequin.co.uk). He would welcome your input.

What about TIFF/IT?

TIFF/IT (ISO 12639-1998) is alive and well. Over the last year or so, the publication community has aggressively migrated from film to digital data as the preferred media for the delivery of print-ready advertising material.

Based on reports from the DDAP Association and individual publishers, it appears that many publications in the United States receive upwards of 70 percent of their advertisements digitally, with over 80 percent of these reported as being in the TIFF/IT-P1 format. Not unexpectedly, most file recipients indicate the majority of problems encountered are with files that are not in the TIFF/IT format.

For those who may have forgotten, "P1" is the designation given to a simplified conformance level which maximizes the compatibility with desktop systems. It is TIFF/IT-P1 that has seen widespread acceptance by both users and equipment vendors. However TIFF/IT, both P1 and the full standard itself, does not enable some features that many users would like to see available. ISO/TC130 has had a task force

working both to identify added features and to develop the mechanisms necessary to allow these features to become part of the standard. Part of the complexity of that task is the uncertainty associated with the directions that Adobe may take with respect to TIFF Version 7. The key features being proposed for addition are based on inputs from users and organizations such as the DDAP Association. The current list being studied and some comments on the options available, include:

•**Final Page (FP):** In the current version of TIFF/IT, the FP feature is informative only. It is important to note that standards have two parts. Normative parts lay out the requirements that must be met in order to comply with the standard. Informative parts do not contain requirements but contain added information or suggestions for the user of the standard.

The intent is to make the final page (FP) feature normative in this next version of the standard and provide enhancements that allow more than one image of each type (CT, LW, etc.) within each FP. Nesting of FPs is also being looked at as a feature desired for page/publication assembly. One goal will be to not obsolete any applications (of which there are many) which have implemented the current FP description.

•**Enhanced Color for Line Work and Spot Color:** There has been a strong demand for more than 255 colors for line work and better handling of spot color. The scheme that the task force is studying will allow up to 65535 colors as well as a more efficient run length encoding. One key issue is that the current P-1 encoding scheme must also be preserved and be a legal option within

the more sophisticated encoding structure for line work.

•**Copy-Dot Data:** There is an urgent short term demand to include pre-screened (copy-dot) data while the industry is in transition from film based data exchange to all digital data exchange. However, this need may persist some time into the future for a variety of reasons. While the capability currently exists

in TIFF/IT to handle this data type, it is not uniquely defined or identified. The current suggestion is to add a new data type for this purpose, possibly called “SD” or “SC” data.

•**Trapping Flag:** For the same reasons that a trapping flag is important as part of PDF/X it is important in TIFF/IT. A mechanism will be added that is similar in operation to that included in PDF/X.

•**Screening Intent:** A strong desire has been voiced on the part of some segments of the advertising community that provision be made to convey the screening desired for the final output and/or the screening used for the proof used to obtain customer approval. The ability to include this data is being studied.

•**Compression:** Compression of TIFF/IT files, particularly CT files, is a clear need. The intent is to follow the lead of TIFF Version 7.

•**Other Color Spaces and ICC Profiles:** The ability to carry color information in other than CMYK is mandatory in many parts of the world. In discussions of both PDF/X and TIFF/IT the committee reached the conclusion that both file formats need to have the ability to carry sufficient information to uniquely define output data (real or virtual) related to hard copy reproduction using up to four or more colors. Simply said, the sender of print-ready data must have the ability to define the desired output characteristics. The mechanism being looked at for both PDF/X and TIFF/IT would make use of the ICC color management architecture and ICC compliant profiles. Both TIFF Version 7 and the work of the ICC will be used as templates for the TC130 work in this area.

If you have thoughts or ideas to contribute concerning TIFF/IT, the chair of ISO/TC130/WG2 (which is responsible for this work) is Bob Strum who can be reached at strumrc@ei.dupont.com. He welcomes your input and your willingness to become actively involved.

When Will It Happen?

TC130 currently has a task force that is working on the TIFF/IT revision

Acronyms Defined

ANSI—American National Standards Institute

BP—Binary Picture Image Data

CGATS—Committee for Graphic Arts Technologies Standards

CID—Content ID

CIELAB—Color Space

DCS—Desktop Color Separation

DDAP—Digital Distribution of Advertising for Publications

EPS—Encapsulated PostScript

FP—Final Page

HC—High Resolution Continuous Tone Image

ICC—International Color Consortium

ISO—International Organization for Standardization

JPEG—Joint Photographic Experts Group

LW—Color LineArt Image Data

OPI—Open Prepress Interface

PDF—Portable Document Format

TIFF/IT—Tag Image File Format for Image Technology

WG—Working Group

in parallel with the PDF/X-2 work. We need additional technically knowledgeable people who can help develop the technical solutions and prepare the standard. It is hoped that the revisions to TIFF/IT will be in ISO ballot during 2000.

A Parting Reminder

Please keep in mind our need for your input, and provide comments to the appropriate people identified

above or to me. For more information about the standards process, please do not hesitate to contact me at mcdowell@npes.org. **IPA**

NPES The Association for Suppliers of Printing, Publishing and Converting Technologies serves as secretariat for CGATS and ISO TC130 activities. Further information is available from the NPES Standards Department at (703)264-7200.