

**ISO/TC 130/WG2/TF3 — Variable Data Printing
Minutes of 4th Meeting
Tokyo, Japan
25 September 2007**

1 Call to Order - Welcome - Introductions, Roll Call of Experts, Announcements

The meeting was called to order at 9:00 a.m. by David McDowell, Convener of WG2. The following technical experts were in attendance and introduced themselves:

| | | |
|------------------------|--|-----------------|
| Tim Donahue, Chair TF3 | Eastman Kodak Company | USA |
| T Aiba | Canon | Japan |
| Martin Bailey | Global Graphics | UK |
| Gustvo Gil Barros | Tetra Pak Carton Ambient AB | Sweden |
| Joanna Cheng | HKDI | Hong Kong/China |
| Wong Chi Chung | GAAHK | Hong Kong/China |
| Dov Isaacs | Adobe Sstems | USA |
| Chan Pui Kay-Ken | GAAHK | Hong Kong/China |
| Chang Chak Leung | HKDI | Hong Kong/China |
| Wynnie Man | APTEC | Hong Kong/China |
| Makoto Matsuki | NTT Quatis | Japan |
| David McDowell, | NPES | USA |
| Bruno Mortara | ABTG | Brazil |
| Yutka Myoki | Canon | Japan |
| Brenda Pang | Institute of Print Media Professionals | Hong Kong/China |
| Rainer Prosi | Heidelberg | Germany |
| Dave Prouty | Hewlett Packard | USA |
| Craig Revie | Fujifilm | UK |
| Santi Songsermsawas | Thai Color Group | Thailand |
| Supree Thongpetch | TISI | Thailand |
| Victor Tsang | HKDI | Hong Kong/China |
| Mark Wilton | Kodak/CIP4 | Canada |
| Tomonori Yuasa | Muroran Institute of Technology | Japan |

The attendance sign-in sheet is WG2/TF3 N 041.

2. Review and approve agenda (WG2/TF3 N 038)

The draft agenda, which had been distributed as WG2/TF3 N 038, was reviewed and approved.

3. Report on ISO 16612-2 (VPDF/X) NWI ballot

McDowell reported that the New Work Item (NWI) for ISO 16612-2 was approved, with 6 National Bodies saying that they will work on the standard. There were no negative votes on the NWI ballot. The proposed title of the NWI is ISO 16612-2, *Graphic technology — Variable data exchange — Part 2: Using PDF/X-4 and PDF/X-5 (vPDF-1:200x)*.

4. Discussion of TF3 organization

McDowell noted that, as Convener WG2, he recommended that Tim Donahue continue as chair of TF3 and that Dov Isaacs be approved as assistant chair and be asked to share the editing role. The motion was approved by acclamation.

5. Review of the NWI proposal

Donahue and McDowell noted that no comments had been returned with the NWI ballot. Revie then noted that there was a UK comment to the effect that previous VDP implementations of standards have been rather poor, especially with respect to interoperability. Donahue and Prouty agreed, but noted that the market is now more mature and that vendors now understand the need for interoperability much better than they used to. There is a desire to involve as many vendors of both creation and consumption products as possible in the development of the standard.

Mortara asked if this document has come from CGATS; it was stated that it has not. The current draft was prepared, at the request of McDowell, by Donahue and Isaacs (with input from Rosenthal). Mortara also asked about the intended schedule. The response from McDowell and Donahue was that it should be as fast as the technical community is comfortable with.

6 Technical discussion

6.1 Requirements and background

Donahue gave a presentation (TC130/WG2/TF3 N 042) setting out the requirements behind the NWI.

Some discussions ensued around the relationship between vPDF and JDF. The vPDF is intended as a content asset/resource for a job where the job itself is defined by a job ticket such as JDF. Unlike PPML/VDX, no JDF data is embedded within the VDP data stream and the standard specifies no conformance requirements for its use.

The proposal does not include explicit metadata for hinting caching requirements. More specifically, it has no provision that requires the vPDF data to list rendering requirements for a given content element that is used multiple times across pages.

It was discussed that working out what data is repeated, or reused across multiple pages, needs to be done somewhere in the workflow, either in creation or in production. It was felt best to push the identification of content elements having a graphical rendition that is repeated across multiple pages (e.g. scale, rotation, transparency blend mode applied to the element definition) into the production workflow rather than make it the responsibility of the creator. This seems reasonable because different reader implementations serving different print applications may have different RIP optimization requirements that require slightly different metadata. The proposed use of PDF XObjects suffices to specify content elements reused across multiple different pages.

Discussion of how very large jobs could be handled: Jobs having a large number of records and pages can be specified in either a single vPDF instance, or as a series of vPDF chunks. Since a JDF job ticket defines the production process, it may reference a single vPDF file, or the various vPDF chunks in sequence. Alternatively, the JDF can specify a series of print production runs where each run uses a different record sub-range of the same large vPDF instance.

It was noted that reused content elements (XObjects) that appear on pages of multiple vPDF chunks may be specified in one (or a small set) of PDF files and referenced from the vPDF files using reference XObjects. The vPDF files themselves would contain the variable (single use) content.

The task force agreed that we can't predict the full implications for performance, etc., of various approaches at this point, so including flexibility at this stage is important. On the other hand, it was noted that too much flexibility can be dangerous in damaging interoperability of products.

Revie asked what kind of relationship there is likely to be between PODi and this Task Force. Donahue noted that PODi's technical working group is working with CIP4 to help develop VDP control structures as well as supplemental domain expertise. Revie suggested that they should be invited to participate in this Task Force. There was a suggestion that Donahue or McDowell, or TC130 as a whole, should invite PODi to participate.

Action Item 07-01: Donahue & McDowell to determine correct level of PODi to solicit an invitation to their technical membership to participate in ISO TC130 WG2/TF3 and draft a letter. It must be noted in the letter that all PODi members wishing to participate need to be registered through their National Bodies as participants in TF3.

Discussion of Print Production Metadata (PPM): It was discussed that PPM is associated with unique ranges of pages defined in a vPDF file. It is used to store recipient information as well as information used to describe document structuring semantics. Donahue noted that all such metadata is intended to be accessible to a referencing JDF job ticket where it is used to drive dynamic production rules.

After initial review of the PPM concept, it was suggested that "print production metadata" be renamed to "document structure metadata" to clarify the relationship with JDF control.

ISSUE 1: Achieve consensus on terminology for what is currently referred to as PPM.

The question was asked as to whether multiple conformance levels would be included, e.g. for consumers that can only accept single file submissions and not have to support resolving of file references in support of reference XObjects. This may well be aligned with usage of PDF/X-4 and PDF/X-5g / PDF/X-5gp. No conclusion was reached either way as to whether or not there should be both a single and multiple file conformance definition for vPDF-1.

ISSUE 2: Achieve consensus on conformance levels: Should vPDF-1 define two conformance levels - Single PDF file conformance and multiple PDF file conformance?

Donahue noted that vPDF files should be archivable. There was a discussion about relationships of vPDF with PDF/A. It seems likely that a vPDF single file submission could probably be PDF/A conformant as well, while a multiple file set is more problematic.

Discussion of PPM registry: Given the nature of PPM as proposed, there is a possibility that certain PPM keys and values for keys could be defined in a public registry. Suggested bodies identified in the discussion include CIP4 and AIIM.

It was noted that single file vPDF files as currently proposed may already be opened and viewed in current PDF viewers. Multiple file instances will, however, show only FPOs for referenced XObjects in (most?) current viewers. It was noted that some existing RIPs will resolve the external file references of reference XObjects. A PDF file containing recurring element data that is referred from one or more vPDF files could also be opened in current viewers, allowing proofing and approval of that recurring element data in advance of the full print run.

Identification of re-used elements. Products must be able to interpret PDF in order to identify re-used elements. The only use case that the Task Force could think of at that moment that requires such identification, is for proofing of re-used data, especially where re-used data must be proofed at all sizes/orientations/clipping, etc. used.

It was suggested that they look at PDF/X-5g rules for checking which version of the target is used. There may be reasons to continue to need to support both original and "some version of" approaches as currently supported.

Question: Should we think about restricting reference XObject targets to PDF/X-4, and not include PDF/X-1a, etc.? The Task Force could not immediately think of any reasons to do so.

ISSUE 3: Should we think about restricting reference XObject targets to PDF/X-4, and not include PDF/X-1a etc?

Question: Should the number of levels of indirection through reference XObjects be limited? No real decision was made, but there was a general feeling that the standard must be simple enough to get implemented, which may mean only one level. There may be an interaction here with a requirement for the use of JDF (not intended); no JDF may point to a need for two indirections.

ISSUE 4: Should a limit be placed on the number of levels of indirection through reference XObjects?

The question was raised about whose job is it to recognize record breaks as identified by PPM (e.g. to notice that a record contains 3 pages and is being printed duplex so that a blank page must be inserted)? If a job ticket such as JDF is used, it was agreed that the JDF has the responsibility (based on the scope of the binding or print operations etc as specified in the JDF data, for example). If a job ticket with a rich enough set of semantics like JDF is not in use, then it may be necessary to require the writer to add pad pages where appropriate.

The question was raised as to where the database should be. Donahue and Isaacs said that database record information could be added to the outline tree as PPM within the PDF file, but doing so is not required; other solutions may be used. If the outline tree is used, then CJK characters may be included using Unicode strings.

It was suggested that the PPM entry should include a set of standard keys. Given that the Outline Dictionary only has a Dest key that identifies the first page, the NPages PPM key suggested by Donahue and Isaacs makes sense. It was further pointed out that a pre-defined “identifier” key would be useful to assist with interoperability. It was pointed out that some data is important for production (e.g. zip codes, to enable sorting), while others are more arbitrary and informational in nature. We should consider adding sub-dictionaries to the Outline dictionary to further classify two types of PPM. For example, the class of PPM data that is used by JDF for to express document structure such as RecordNo and NPages, and another for driving operational process rules such as record information.

There was discussion whether the PPM data should be encoded in the vPDF file in XML/XMP rather than as COS objects. It was noted that XML probably has a performance overhead and would require both XML and PDF parsers. It was pointed out that it’s not hard to translate between key-value pairs in COS and XML if there is a need to copy data from the outline tree to an external database or vice versa.

There was some reconsideration of the idea of using multiple levels of hierarchy in the outline tree. Although this makes some database connectivity harder, it may be required to work around PDF array/dict size limits. Hierarchy could also be displayed in a viewer, allowing easier manual selection of a single record. The Task Force seemed to generally accept that it would probably be necessary to support multiple levels of hierarchy.

6.2 Discussion of WD1 of ISO 16612-2 (N 039)

Donahue displayed the current draft to the Task Force and made edits to the draft as agreements were made during the discussion.

The title of the draft suggests naming the file format vPDF, but it was suggested that this is “just another standard based on PDF”, and might make sense to call it “PDF/V” instead. No conclusion was reached.

ISSUE 5: Achieve consensus on the “nickname” for the ISO 16612-2 standard. Currently proposed as the extensible name: vPDF-1

During discussion of the Introduction the following changes were made:

- Rearranged several paragraphs.
- Emphasized support for the PDF transparency graphics model.
- Added the possibility of the use of vPDF in hybrid VDP production approaches that combines offset printing (for creating preprinted shells) and digital printing (for imprinting variable content). Could consider the use of PDF Layers in such an approach.

Question: What are the requirements that need to be satisfied for vPDF to properly support hybrid printing?

There was a long discussion about the need for multiple conformance levels. Should there be a "light" version that supports only single file exchanges, or one that does not depend on the use of JDF (or equivalent job ticket format)? It was not completely clear how such a conformance level would differ from PDF/X-4 support.

Isaacs insisted that there should be some verifiable support for source element re-use optimization (i.e. use of XObjects), but Bailey noted that many consumers are already optimized for such things to gain performance in simple PDF workflows. Donahue pointed out that some VDP producer applications that support PDF output already do factor out reused source elements as XObjects and refer to this type of PDF as "Optimized PDF".

Prouty noted that it is unlikely that a multi-function printer (MFP) would/could act on the outline dictionary in order to control in-line finishing, which means that a primary target for such a conformance level probably could not take advantage of it. Further discussion suggested that the reader in such cases could be an interactive or batch application running on a workstation or server computer just upstream of the print device itself. Such a reader may be "required" to read and appropriately process the Outline dictionary as a proxy. Such a situation may be suitable for a separate conformance level, if they are expected to want to act on only single-file exchange. Appropriate processing by the proxy might be to add blank pages after a vPDF instance with an odd number of pages that is being printed duplex, or might be to construct imposed 'pages' for bookletting. The output stream sent on to the printer could be PDF (potentially one PDF per document instance (although that would lose much of the re-use benefits), or could be a PostScript stream, etc.).

Question: Would it then be required for a creator to always include the outline tree? That might be useful to enable products to add marketing differentiation and to encourage development/use of suitably optimized and controlled file sets (e.g. PrintShop Mail vs MS Word mail merge, or a 3rd party macro for use in MS Word, etc). No conclusion was reached.

ISSUE 6: Decide whether or not a conforming vPDF-1 file must always contain an Outline dictionary.

Later discussion identified that a "single file" exchange could be PDF/X-4p or PDF/X-5n (one PDF file with an external ICC profile).

Question: Does that re-open the question of a need for a "single file" conformance level?

The revised working draft of ISO 16612-2 resulting from the discussions of this meeting is WG2/TF3 N 044.

6.3 Discussion of document schedule and work assignments

Donahue proposed the Task Force hold routine electronic meetings to keep the work moving ahead with a goal of a CD draft by the conclusion of the Paris meeting in May 2008. The Task Force agreed that this would be helpful in moving the work along in a more efficient manner.

Donahue proposed that another face-to-face meeting be held in Paris. It was suggested that this be a two-day meeting given the goal of getting to CD.

Action Item 07-02: Prouty and Donahue will look at Yahoo groups, etc., for email and file exchange repository. Isaacs will set up Adobe Connect for phone and shared document conferencing.

The Task Force agreed that conferences should be held roughly on a monthly basis, targeting the middle of each month.

Action item 07-03: Donahue will propose and get consensus on an electronic meeting schedule.

7. Adjournment

The meeting was adjourned by Donahue who thanked all participants for attending and for their contributions. The committee also thanked the Japanese Printing Machinery Association (JPMA) and the Japanese ISO/TC 130 Mirror Committee for the support of the meeting. They especially thanked Genji Tao for his organization of the meetings.