



## Printer Working Group Plenary Meeting

Portland, Oregon  
June 24 –28, 2002

### 1 Time and Place

Chairman Harry Lewis convened the PWG Extended Plenary meeting at 8:30 PDT on 27 June at the Hilton Portland hotel in Portland, Oregon. The Extended Plenary meeting was a full day meeting scheduled to address a set of subjects of interest to all PWG groups. It was one of a set of PWG group meetings held the week of June 24 through 28, including:

- Monday - XHTML-Print
- Tuesday - UPnP Imaging (UPnP Members ONLY)
- Wednesday - Print Services Interface
- Thursday – All Day Plenary
- Friday – IPP-FAX

The meeting generally followed the published schedule for the Extended Plenary:

- 8:30-9:45 – Next meeting and Project Updates
- 10-11 - Linux and Free Software Group
- 11-11:45 - PWG Semantic Model Charter
- 11:45-1pm - Lunch
- 1-2:00 - Adobe TIFF, PDF, Licensing
- 2:15-4:15 PWG Semantic Model Review

The Extended Plenary meeting was intended to address certain subjects brought up at the April PWG Plenary Meeting:

- PWG for collecting/establishing common industry semantics
- Streamlined representation of IPP model (Peter Zehler will streamline IPP model into a more abstract PWG Printing Model)
- PWG web links to pertinent industry activities (e.g., Linux Print API)
- Correlation among PWG projects
  - UPDF schema use in PSI
    - Offramp capabilities resource object
    - Alignment with IPP
    - How dynamic can it be
  - Add resource object container to IPP
    - Capabilities Resource Object
    - JDF Job Ticket
- Possible new topic: Management by some means other than SNMP?
  - New management approach.
  - Described by XML service to service communication Different transport

### Meeting Attendees

Attendee	Company	Email Address
Albright, Shivaun	HP	<a href="mailto:shivaun_albright@hp.com">shivaun_albright@hp.com</a>
Berkema, Alan	HP	<a href="mailto:alan-berkema@hp.com">alan-berkema@hp.com</a>
Farrell, Lee	Canon	<a href="mailto:lfarrell@cis.canon.com">lfarrell@cis.canon.com</a>
Hall, David	HP	<a href="mailto:dhall@hp.com">dhall@hp.com</a>
Hamzy, Mark	IBM	<a href="mailto:hamzy@us.ibm.com">hamzy@us.ibm.com</a>
Lewis, Harry	IBM	<a href="mailto:harryl@us.ibm.com">harryl@us.ibm.com</a>
Nagasaka, Fumio	Epson	<a href="mailto:nagasaka.fumio@exc.epson.co.jp">nagasaka.fumio@exc.epson.co.jp</a>
Ota, Koichiro	Epson	<a href="mailto:Koichiro.Ota@exc.epson.co.jp">Koichiro.Ota@exc.epson.co.jp</a>
Pulera, John	Minolta	<a href="mailto:jpulera@minolta-mil.com">jpulera@minolta-mil.com</a>
Rowley,	Stuart	<a href="mailto:Kyocera/Mita">Kyocera/Mita</a>
Schade, Norbert	Oak	<a href="mailto:norbertschade@attbi.com">norbertschade@attbi.com</a>
Seeler, Rick	Adobe	<a href="mailto:rseeler@adobe.com">rseeler@adobe.com</a>
Shahindoust, Amir	Toshiba	<a href="mailto:amir.shahindoust@tabs.toshiba.com">amir.shahindoust@tabs.toshiba.com</a>
Sommer, Jim	Granite Systems	<a href="mailto:sommer@granitesystems.com">sommer@granitesystems.com</a>
Songer, Gail	Netreon	<a href="mailto:gsonger@peerless.com">gsonger@peerless.com</a>
Taylor, Bob	HP	<a href="mailto:robertt@vcd.hp.com">robertt@vcd.hp.com</a>
Takahashi, Kazuki	Sharp Labs of America	<a href="mailto:ktakahashi@sharplabs.com">ktakahashi@sharplabs.com</a>
Tronson, Ted	Novell	<a href="mailto:ttronson@novell.com">ttronson@novell.com</a>
Uchino, Atsushi	Epson	<a href="mailto:uchino@eitc.epson.com">uchino@eitc.epson.com</a>
Wagner, William	NetSilicon	<a href="mailto:wwagner@netsilicon.com">wwagner@netsilicon.com</a>
Whittle, Craig	Sharplabs	<a href="mailto:cwhittle@sharplabs.com">cwhittle@sharplabs.com</a>
Wright, Don	Lexmark	<a href="mailto:don@lexmark.com">don@lexmark.com</a>
Yang, Yiruo	Epson	<a href="mailto:yyang@eitc.epson.com">yyang@eitc.epson.com</a>
Zehler, Peter	Xerox	<a href="mailto:pzehler@crt.xerox.com">pzehler@crt.xerox.com</a>

### 3 Next Meetings

The PWG and associated group meetings scheduled for the rest of 2002 are:

August 26-30	Santa Fe, NM
November 4-8	New Orleans, LA

Specific locations have not yet been established. The IEEE-ISTO will be communicating specifics for the August meeting shortly.

Considering meeting for 2003, Harry suggested the following tentative schedule and locations.

Week of	Location
January 20	Maui, Hawaii
April 21	Washington, D.C.
July 14	Vancouver B.C.
October 6	N.Y.C.
December 8	San Diego, California

## **4 Working Groups Status**

Standard Plenary reports  
IPP Update - Harry Lewis  
Printer MIB Update - Harry Lewis  
XHTML-Print Status - Don Wright  
PSI Status - Alan Berkema  
UPDF Status - Norbert Schade  
IPP-FAX Status - Gail Songer  
Misc and Related - As needed

### **4.1 UPDF**

Norbert Shade, technical lead for the UPDF group, presented a UPDF summary and distributed two documents. “The 10 Commandments of UPDF” and “UPDF Tutorial”, an outline of a proposed training class. These documents will be made available on the UPDF page of the PWG web site.

As to status, the Group and completed definition of the level 1 implementation and needs application samples. The UDPF group solicits interested companies to provide one device description per company to verify the level 1 implementation.

Several significant features of level 1 were identified, including the handling of Optional add-ons. With traditional drivers, such components can be handled only if known about when the driver is written. But it typically would require a new driver to accommodate third party add-ons that appeared after the device was deployed. UPDF describes add-ons in separate descriptions and uses a “connector concept” (configuration file) which allows independent descriptions of main and ancillary units to be combined. To avoid need for manual inclusion, it requires that such optional units have primary device readable Device ID’s

A question was presented relative to the use of UPDF for other imaging device capabilities definition requirements, specifically: “Can the format be used to present current configuration and current settings?”. The answer was that this could be added in the next level of UPDF capabilities, which would include a bi-directional capability”

The UDPF Group has prepared a two-day tutorial and has a business plan for presentation.

### **4.2 XHTML-Print**

Don Wright indicated that there were some details of the specification that are still being worked through. This includes:

1. Conversion to HTML format.
2. Separate format from style.
3. Table to describe which elements are supported, etc.

However, they do not change the core functionality. Because of format and style changes made to encourage W3C adoption, last call is expected some time after Santa Fe Meeting

### **4.3 IPPFAX**

Gail Songer presented a basic outline of current activity. This included a re-review of the basic requirement and a relook at data format in light of Adobe position on TIFF FX.

Outstanding questions are:

- a. Is IPPFAX intended to be extended to general mechanism for Driverless printing?
- b. How important is the alignment with IFAX? With PSTN Fax?
- c. What is the IPPFAX Relation to web services.

### **4.4 PSI**

Alan Berkema indicated that the activity has advanced to considering use cases. Some complexity issues have come up including job flow, security. The objective is to try to get basic functionality in version 1.0 and then address problems and extensions on basis of field experience with initial release

Schedule objective

- |      |  |                        |
|------|--|------------------------|
| V.95 | (all functions defined, editorial cleanup) | by end of 02           |
| V 1  | interoperability testing                   | by first quarter of 03 |

### **4.5 MIB**

Harry outlined current status:

There have been requests to add items to the Printer MIB:

Prt ChannelType – add chSntp

LangCALCOMP

LangDoD dept of defense CALS1, Cals2, C4

LangVersatec S etc

### **4.6 IPP**

Ask if IPP wants meeting

Tom Hastings report

### **4.7 Facilitation/Coordination group**

Hastings, Bob Tailor

Upnp, PSI, XHTML

Application Multiplex – Bob Herriot UPNP addresses issues but is languishing  
IPP IETF

## 5 Semantic Model

Peter Zehler Charter discussion

[ftp://pwg.org/pub/pwg/Semantic\\_model/PWG-Semantic-Model-Charter-Proposal.pdf](ftp://pwg.org/pub/pwg/Semantic_model/PWG-Semantic-Model-Charter-Proposal.pdf)

Add process for update, extending the model  
Minor grammatical corrections

Intent

"ftp://pwg.org/pub/pwg/Semantic\_model/PWG-Semantic-Model-Overview.pdf"

PWG Semantics

Objects – Jobs, Documents

Attributes of and actions related to these objects

IPP – model and protocol documents, plus ancillary documents in 20 pages or so.

[ftp://ftp.pwg.org/pub/pwg/Semantic\\_model/PWG-Semantic-Mode-06-020617.pdf](ftp://ftp.pwg.org/pub/pwg/Semantic_model/PWG-Semantic-Mode-06-020617.pdf)

[ftp://ftp.pwg.org/pub/pwg/Semantic\\_model/PWG-Semantic-Mode-06-020617.doc](ftp://ftp.pwg.org/pub/pwg/Semantic_model/PWG-Semantic-Mode-06-020617.doc)

upnp is a simple implementation of pwg semantics

JDF also has sections that relates to pwg semantics

Objective is to use same semantics or Define mapping between PWG and other environments

Model describe

Adobe call half

Adobe will propose  
of TIFF FX

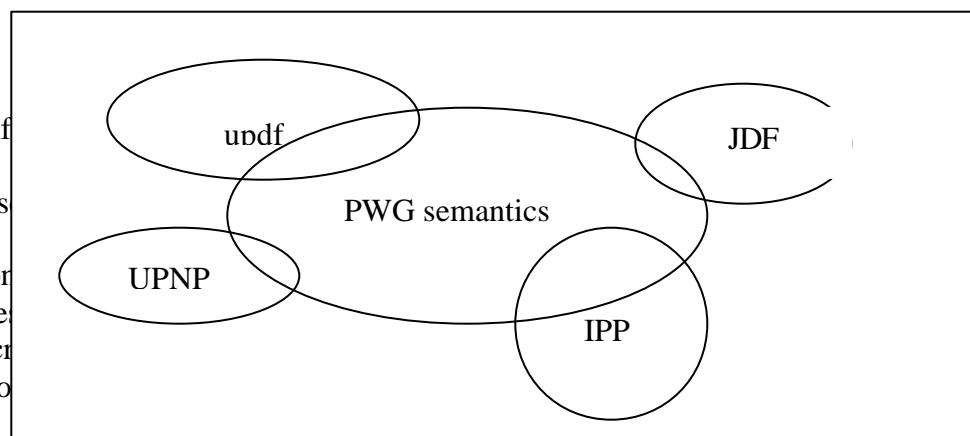
PDL compression

Avoids legal issue

Viewable with Acrobat

JBig 2 compression

Jpeg



JPEG 2000 4X jpeg

Single pass data

Nor more than single page buffering..- partial streaming

Random access not required to print

Separate PDF for each page

+ &-

new subformat

modify existing format so that must order information  
could be PDF/X ISO standard

+ &-

format spec proposal

PDF1.4 book

Sample

Keyword – register at adobe

Define objects

Present in order to be rendered

Cross reference not necessary for streaming application

Compare to scalable vector graphics

Any IP on JIBG 2, JPEG, JEPG2000?

Could improve upon compression of you have more storage by doing global objects.

XML document showing definition of semantics

Adding to it. Mechanism but not process. – Add to charter

Short term to define, but needs to be maintained, updated.

The Print semantics that we defined in IPP are being used throughout the industry. The print system may be less functional (e.g. UPnP) or much more complex (e.g. JDF DigitalPrinting). The important point is that whenever possible the semantics are being reused. The reuse is a great benefit to Printer manufacturers. It simplifies the logic necessary to incorporate our devices into these various network environments. It speeds the definition of printing protocols/systems since the semantics of common features need not be reargued. One of the barriers to the use of the PWG print model is its tight association with IPP. In the definition of IPP we clearly separated the model from the protocol. RFC2911 covers the base semantics. We also have extensions to the model defined in some Internet Drafts and IEEE-ISTO PWG standards. I believe we should split the IPP semantic model from the IPP protocol. Using the "PWG Semantic Model" in discussions around industry wide agreed upon print semantics avoids the "IPP baggage". I believe the separation will foster reuse in various network printing environments and standards. The separation will not affect compatibility with IPP. To begin the conversation I thought we might start with the definition of a "PrintJob Ticket". The existing semantics has the Job Template Attributes that cover most of a PrintJob Ticket. These cover the semantics of the production instructions. There are some additional descriptive and control attributes that are required. Examples include "jobName", "jobRequestingUserName" and "attributeFidelity". These attributes are normally held in an operation's Operational Attributes. Often there is a direct mapping to a Job's Description Attribute as with "jobName". There are cases where the mapping is simple between the Operational Attribute and the Description Attribute as with "JobRequestingUserName" mapping to "JobOriginatingUserName". We even have cases where there is no mapping such as with "attributeFidelity". We have already agreed on the semantics. We need to work out what a freestanding PrintJob Ticket will look like for the PWG. I have uploaded an XML schema definition for RFC2911. The schema includes some types (e.g. rangeOfInteger), a Job and the elements that compose a Job, namely Job Description and Job Template elements. Included is a sample PrintJob Ticket based on the Job Template. I thought a conversation around a Print Job and a PrintJob Ticket would be appropriate. > Some rules I used in the schema mapping: > 1) Data types are simplified where ever possible. ("nameWithLanguage" > becomes "string" with a length restriction) > 2) For attributes (and operations) the '-' character is dropped and the > following character is capitalized. ("job-name" becomes "jobName") > 3) Attribute value strings remain the same. > ("job-state-reasons"='job-printing' becomes > "jobStateReasons"='job-printing') > 4) Any attribute with the string "ipp" has the "ipp" string removed. > ("ipp-attribute-fidelity" becomes "attributeFidelity") > 5) All IPP attributes are represented as XML elements. > 6) All attribute groups are represented as an ordered set of elements > (i.e. sequence) > 7) All enums are represented as strings

using the string associated with > the integer value. ("job-state"='3' becomes "jobState"="pending") > 8) All type 1 enums are represented as a "string" type with an > enumerations restriction. (i.e. can not be extended) > 9) All type 2 and 3 are represented as a "string". The standardized > values are captured as appinfo annotations. (i.e. allows vendor and site > extensions) > 10) Multivalue attributes are represented as a single instance of an > element that contains a sequence of elements (see "finishings" in sample > PrintJobTicket or JobTemplate schema) > 11) shema allows addition of new elements via "xsd:any" and places no > restriction on namespace of addition. > > > > Some PWG specific types: > "ftp://pwg.org/pub/pwg/Semantic\_model/typesPwg.xsd" > The Job: > "ftp://pwg.org/pub/pwg/Semantic\_model/Job.xsd" > The Job Description attributes(i.e. XML elements) for the Job: > "ftp://pwg.org/pub/pwg/Semantic\_model/JobDescription.xsd" > The Job Template attributes(i.e. XML elements) for the Job: > "ftp://pwg.org/pub/pwg/Semantic\_model/JobDescription.xsd" > A Sample Print Job Ticket based on Job Template attributes: > "ftp://pwg.org/pub/pwg/Semantic\_model/PrintJobTicket.xml" > > I also have a 21 page PWG Semantic Model Overview document that I will send out tomorrow. This version is limited to RFC2911. It is a very concise semantic guide for those of us who are not IPP experts. It describes the model, objects, attributes and actions as briefly as possible. It contains references to RFC2911 sections for those who want the bloody details.

Discussion of semantic model

### **5.1.1 Plan of the rest of the day**

Review document originated by Peter, modified by others

RFC2911

Add document as true object

Question of content vs structure- need both? Schema and instance

Will change!

Self contained or reference to origin of semantics

#### ***5.1.1.1 Work to do***

Review

Subdivide attribute groups, more groups\

Mode functions

#### ***5.1.1.2 Semantics and guidelines?***

Schema-



What is the vision?? UPDF and PWG semantics– resolve representation question

IPP was Starting Point –how will it evolve?

Composite feature vs collection

Job ticket?? XML list of Job template

Start with IPP and scale up?

JDF – sets up resources that will be applied to the job, then applies them.

Eventing. Notification.

End 4:15

## **5.2 UPDF**

Norbert Shade, technical lead for the UPDF group, presented a UPDF status summary and distributed a list of what is done and what has been considered but not implemented in UPDF Level 1.

With recent additions additions, halftoning and raster description are covered. There are no more open issues identified.

The design allows flexibility of configuration. Connectors allow component files to be added to the base configuration file. The UPDF design allows the creation of composite features (e.g., high quality, draft), which may then be presented to the user. The mechanism is easy to extend in features and locales. Locale does not change functional description

The UPDF group solicits interested companies to provide a device description per company to verify the level 1 implementation.

Norbert considered that the group would need one or two more meetings, perhaps skipping the Portland meeting.

## **5.3 XHTML-Print**

Don Wright indicated that there were some details to the specification that still need to be worked through. However, they do not change the core functionality. Last call is expected by end of June.

## **5.4 IPPFAX**

Gail Songer reported that group is planning to wrap up. The IFX document <ftp://ftp.pwg.org/pub/pwg/QUALDOCS/ifx-spec-10.doc> is basically done. The Universal Image Format (UIF) <ftp://ftp.pwg.org/pub/pwg/QUALDOCS/uif-spec-10.doc> is complete, assuming that there are no problems related to the Adobe license question. The understanding is that IETF believes that there is no problem and is proceeding with TIFF-FX definition. IPPFAX wants to add some items but wishes to operate under the IETF license. This subject was discussed further and Harry Lewis, as PWG chairman, has submitted a request to Adobe to review the UIF specification and respond with any necessary licensing terms and conditions not included as a natural course in referencing RFC 2301.

## **5.5 PSI**

Harry Lewis briefly outlined the PSI Web services approach to printing, including WSDL descriptions to accommodate multiple users. The standard final draft last call is projected to be at end of third quarter, 2002.

## **5.6 MIB**

Ron Bergman summarized the current status of the outstanding MIB RFC's. All review comments are addressed and all questions are resolved. As of the last communications, the IESG will re-review the Finisher MIB in October and the Printer MIB in December. After that, drafts should go to RFC editor's queue. A six-month wait is expected once in the queue.

Media names spec is done, closed, and complete. The link is on PWG Main Web Site, [IEEE-ISTO PWG Standard 5101.1-2001](#).

## **5.7 IPP**

There has been a spate of messages relative to mandatory notification method. Some confusion resulted from the PWG reflector spam filter preventing Ned Freed from distributing comments to the mail list. A new policy has been instituted whereby all rejected messages go to Carl-Uno for review.

Tom Hastings issued an email on 10 April listing the status of all outstanding IPP documents. It was suggested that three experimental documents should be reissued as informational to align with IPP1.1. The decision was not to do anything because this might just further confuse the situation.

Mandatory notification and other items are being handled on the mail list. The PWG will ask the IPP working group whether they would like a face-to-face meeting to assist in resolving any remaining issues.

## Linux and Free Software Group Update

CUPS, PAPI <ftp://ftp.pwg.org/pub/pwg/Related/Linux/papi.pdf>

.IPP Job Ticket and Capabilities Object Extension

[ftp://ftp.pwg.org/pub/pwg/ipp/new\\_JTCO/JTCO\\_RoughDraft.pdf](ftp://ftp.pwg.org/pub/pwg/ipp/new_JTCO/JTCO_RoughDraft.pdf)

Job Ticket API <ftp://ftp.pwg.org/pub/pwg/Related/FSGOpen/>

.PWG Job Ticket

[ftp://ftp.pwg.org/pub/pwg/Semantic\\_model/PrintJobTicket.xml](ftp://ftp.pwg.org/pub/pwg/Semantic_model/PrintJobTicket.xml)

JDF Job Ticket

[ftp://ftp.pwg.org/pub/pwg/Semantic\\_model/Simple\\_JDF\\_JT.xml](ftp://ftp.pwg.org/pub/pwg/Semantic_model/Simple_JDF_JT.xml)

Job Ticket Type supported attribute

## PWG Semantic Model (Overview and Charter)

Role Of PWG

Other groups, other models

Role of Job Ticket, Capabilities Object

[ftp://ftp.pwg.org/pub/pwg/Semantic\\_model/PWG-Semantic-Model-Charter-Proposal.pdf](ftp://ftp.pwg.org/pub/pwg/Semantic_model/PWG-Semantic-Model-Charter-Proposal.pdf)

[ftp://ftp.pwg.org/pub/pwg/Semantic\\_model/PWG-Semantic-Model-Overview.pdf](ftp://ftp.pwg.org/pub/pwg/Semantic_model/PWG-Semantic-Model-Overview.pdf)

## AFTERNOON

Adobe Presentation

TIFF-FX vs. PDF as a common PDL

Applicability to IETF IFAX, IPP-FAX, other

Licensing

PWG Semantic Model (Review)

[ftp://ftp.pwg.org/pub/pwg/Semantic\\_model/PWG-Semantic-Model1161402.pdf](ftp://ftp.pwg.org/pub/pwg/Semantic_model/PWG-Semantic-Model1161402.pdf)

Correlation IPP, IPP-FAX, UPDF, PSI, XHTML-Print