The Printer Working Group

Printer Working Group Plenary Session

November 14, 2016

PWG Virtual Face to Face Meetings

Smith Kennedy (PWG Chair, HP Inc.)

- Administrivia
- PWG Steering Committee Updates
- PWG Workgroup Status [WG Chairs]
  - Internet Printing Protocol (IPP)
  - Semantic Model (SM)
  - Imaging Device Security (IDS)
- Liaison Status
  - Trusted Computing Group (TCG)
  - Gartner
- Next Meetings

Administrivia

- Welcome and Introductions
- Confirm Minutes Taker
- Review PWG Patent Policy
- Agenda for the Week
- Future PWG Meeting Schedule
- 2016 Membership
- PWG Officers

PWG Patent Statement

PWG standards may include the known use of essential patents and patent applications provided the PWG Chair receives assurance from the patent holder or applicant with respect to patents whose infringement is, or in the case of patent applications, potential future infringement the applicant asserts will be, unavoidable in a compliant implementation of either mandatory or optional portions of the standard. This assurance shall be provided without coercion.

This assurance shall be either:

- A general disclaimer to the effect that the patentee will not enforce any of its present or future patent(s) whose use would be required to implement either mandatory or optional portions of the proposed PWG standard against any person or entity complying with the standard; or

- A statement that a license for such implementation will be made available without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination.

PWG Patent Statement

The PWG is not in a position to give authoritative or comprehensive information about evidence, validity or scope of patents or similar rights, but it is desirable that any available information should be disclosed. Therefore, all PWG members shall, from the outset, draw PWG's attention to any relevant patents either their own or of other organizations including their Affiliates that are known to the PWG members or any of their Affiliates, although PWG is unable to verify the validity of any such information.

Inappropriate Topics for PWG Working Group Meetings

Do Not Discuss:

- The validity/essentiality of patents/patent claims
- The cost of specific patent use
- Licensing terms or conditions
- Product pricing, territorial restrictions, or market share
- Don't discuss ongoing litigation or threatened litigation

<u>DO</u> formally object if inappropriate topics are discussed

Agenda Overview

Monday, November 14

9:00 – 10:15	PWG Plenary
10:15 – 10:30	Break
10:30 – 12:30	IDS WG : HCD Protection Profile certification issues discussion
12:30 – 1:30	Lunch
1:30 – 3:00	IPP WG : Status, Finishings 2.1
3:00 – 3:15	Break
3:15 – 5:00	IPP WG: IPP Everywhere Self Certification, IPP 3D Printing Extensions

Tuesday, November 15

9:00 – 12:00	SM WG: Semantic Model 2, Semantic Model 3, 3D Printing Extensions, 3D PJT
12:00 – 1:00	Lunch
1:00 – 3:00	IPP WG: System Service, Next Steps

Future PWG Meeting Schedule

- 2017 (Tentative Dates)

  - February 14-15 : Sunnyvale, CA – Hosted by Apple Inc.

  - April 25-27 : Palo Alto, CA – Hosted by HP Inc.
                          (Joint PWG/ OpenPrinting)

  - August 8-9 : TBD

  - November 14-15 : TBD

Any companies willing to host, please contact chair@pwg.org

2016-2017 Membership

29 Members (28 Voting, 1 Non-Voting)

Apple	High North	MWA Intelligence	Thinxtream Technologies
Brother Industries	Intel	Northlake	Toshiba America Business Solutions
Canon	Konica Minolta	Oki Data	Tykodi Consulting Services LLC
Conexant Systems	Kyocera Document Solutions Inc.	Qualcomm	Xerox
Danny Brennan	Lexmark	Ricoh	YSoft
Epson	Meteor Network	Samsung	
Fuji Xerox	Microsoft	Sharp Labs	
HP Inc.	MPI Tech	Technical Interface Consulting (N-V)	

New members as of 2017 in RED

- PWG Chair: Smith Kennedy, HP Inc.

- PWG Vice-Chair: Alan Sukert, Xerox

- PWG Secretary: Ira McDonald, High North

- Github organization account:
  - https://github.com/istopwg

- Web site repository:
  - https://github.com/istopwg/website

- <u>Semantic Model Repository</u>
  - https://github.com/istopwg/pwg-semantic-model

- <u>IPP Everywhere Self Certification Tools</u>
  - https://github.com/istopwg/ippeveselfcert

- <u>IPP Registry</u>
  - https://github.com/istopwg/ippregistry

IPP Everywhere Certified Printers

- Certified Printers listed on PWG IPP Everywhere page
  - https://www.pwg.org/dynamo/eveprinters.php

- 19 printers certified so far – certify your printer today!

- Certification test suite 1.0 Update 1 available now

PWG Design Principles Whitepaper

- Purpose:
  - A document that describes the PWG's core tenets and design principles that guide the design and creation of its IPP, Semantic Model, MIBs, and other technologies

- Scope / Topics to be Covered:
  - IPP
    - Late binding principle
    - Intent vs. process for Job fidelity
    - Value of separating Job attributes from Document content
    - IPP attribute types and design patterns
      - Printer Status vs. Printer Description
      - xxx / xxx-supported / xxx-default vs. xxx / xxx-configured / xxx-supported
      - Collections vs. textual encoding of MIB sequences ("printer-finisher")
  - Semantic Model
    - Creates comprehensible view of the elements in an Imaging System, allowing better communication with other standards organizations dealing with related matters.
    - Presents the basic features necessary in communicating with imaging services, independent of the protocols used in that communication
    - Allows exploitation of the inherent parallelism between different types of imaging services (Print, Scan, Fax, etc.)
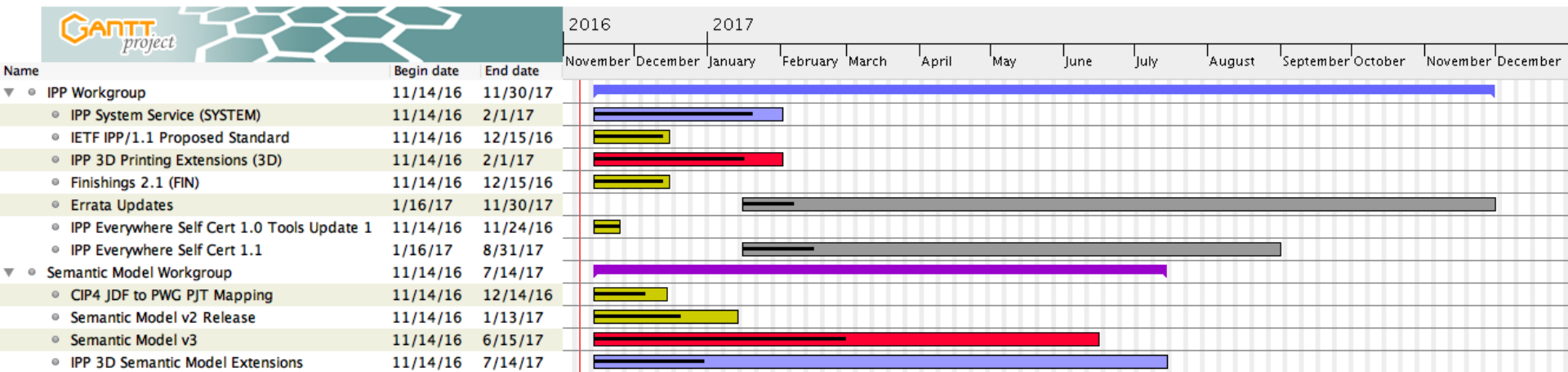
PWG Process v4.0

- Original notion: Update existing Process 3.0 to merge in subsequently published PWG process documents
    - pwg-policy-call-for-obj-last-call-formal-vote-draft-2.txt (draft)
    - ipp-registry-policy.txt
    - pwg-billing-policy-20141001.txt
    - pwg-white-policy-20140505.txt
    - pwg-charter-policy-20140407.txt
    - pwg-prototype-policy-20121029.txt
    - pwg-namespace-policy-20160820.txt (new updated draft)
- Revised notion: Refactor the Process document to describe the processes of the PWG to make them simple and obvious to the uninitiated reader:
    - Proposing new work to the PWG
    - Approving new work and assigning to a PWG work group
    - PWG approval for various document types
        - whitepaper
        - standard
        - etc.

The Printer Working Group

PWG Workgroup Status

Work In Progress

Name	Begin date	End date
IPP Workgroup	11/14/16	11/30/17
IPP System Service (SYSTEM)	11/14/16	2/1/17
IETF IPP/1.1 Proposed Standard	11/14/16	12/15/16
IPP 3D Printing Extensions (3D)	11/14/16	2/1/17
Finishings 2.1 (FIN)	11/14/16	12/15/16
Errata Updates	1/16/17	11/30/17
IPP Everywhere Self Cert 1.0 Tools Update 1	11/14/16	11/24/16
IPP Everywhere Self Cert 1.1	1/16/17	8/31/17
Semantic Model Workgroup	11/14/16	7/14/17
CIP4 JDF to PWG PJT Mapping	11/14/16	12/14/16
Semantic Model v2 Release	11/14/16	1/13/17
Semantic Model v3	11/14/16	6/15/17
IPP 3D Semantic Model Extensions	11/14/16	7/14/17

Planned   **Interim**   **Prototype**   **Prototyped**   **Stable**

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IPP Workgroup Status

Paul Tykodi (TCS), Ira McDonald (High North)

- Current charter:
  - http://ftp.pwg.org/pub/pwg/ipp/charter/ch-ipp-charter-20151225.pdf
- The Internet Printing Protocol (IPP) workgroup is chartered with the maintenance of IPP, the IETF IPP registry, and support for new clients, network architectures (Cloud, SDN), service bindings for MFDs and Imaging Systems, and emerging technologies such as 3D Printing
- In addition, we maintain the IETF Finisher MIB, Job MIB, and Printer MIB registries, and handle synchronization with changes in IPP

IPP WG: Officers

- IPP WG Co-Chairs:
  - Paul Tykodi (TCS)
  - Ira McDonald (High North)
- IPP WG Secretary:
  - Michael Sweet (Apple)
- IPP WG Document Editors:
  - Ira McDonald (High North) – IPP System Service (SYSTEM), IETF IPP/1.1
  - Michael Sweet (Apple) – IPP System Service (SYSTEM), IETF IPP/1.1, IPP 3D Printing Extensions
  - Smith Kennedy (HP Inc.) – IPP Finishings 2.1

- IETF RFCs in development:
  - IETF IPP/1.1: Encoding and Transport (obsoletes RFC 2910/3382)
    - IESG Approved, RFC Editor's queue

  - IETF IPP/1.1: Model and Semantics (obsoletes RFC 2911/3381/3382)
    - IESG Approved, RFC Editor's queue

- PWG Specifications in development:
  - IPP 3D Printing Extensions (3D) - Prototype Draft
  - IPP System Service (SYSTEM)   - Interim Draft
  - IPP Finishings 2.1 (FIN)   - Stable Draft, WG Last Call

- ## Recent Full Standard:
  - PWG 5100.12-2015: IPP 2.0, 2.1, and 2.2

- ## Recent Candidate Standards:
  - PWG 5100.20-2016: IPP Everywhere Printer Self-Certification Manual v1.0 (SELFCERT)
  - PWG 5100.19-2015: IPP Implementor's Guide v2.0 (IG)
  - PWG 5100.18-2015: IPP Shared Infrastructure Extensions (INFRA)

- ## Recent IETF RFCs:
  - RFC 7612: LDAP Schema for Printer Services
  - RFC 7472: IPP over HTTPS Transport Binding and "ipps" URI Scheme

- Up-to-date pending IANA registrations online:
  - http://www.pwg.org/ipp/ipp-registrations.xml
  - Continue to maintain this in parallel for new specifications
  - Github repository:
    - https://github.com/istopwg/ippregistry
- IPP Everywhere Printer Self-Certifications:
  - Submission page:
    - https://www.pwg.org/ippeveselfcert
  - Printer listing page:
    - https://www.pwg.org/printers
    - 19 printers currently listed
- IPP Sample Code:
  - Github repository:
    - https://github.com/istopwg/ippsample
  - Fork of CUPS code includes ippfind, ippproxy, ippserver, and ipptool

- We welcome participation from all interested parties
- IPP Working Group web page
  - http://www.pwg.org/ipp/index.html
- Subscribe to the IPP mailing list
  - https://www.pwg.org/mailman/listinfo/ipp
- IPP WG holds weekly phone conferences announced on the IPP mailing list
  - Next conference calls November 30, 2016 and December 14, 2016 at 1pm ET

The Printer Working Group

Semantic Model Workgroup

Jeremy Reitz (Xerox)

- The current Semantic Model workgroup is the latest in a series of PWG workgroups documenting and maintaining the Hard Copy Imaging System model.

- This model defines the semantic elements that constitute the imaging services and subunits of a network connected Imaging System, and the actions that operate on the objects and elements of the model, independent of a specific protocol or network environment.

- By the current workgroup charter, the primary function of the workgroup is to keep the model updated with additions and changes developed by other PWG workgroups, to make the model documentation accessible without the need for special software, and to provided for the review and approval of model updates by the PWG membership.

Project Status – Current Projects

- Mapping CIP4 JDF to PWG Print Job Ticket v1.0 (JDFMAP)
  - Current draft (ftp://ftp.pwg.org/pub/pwg/sm3/wd/wd-smjdfmap10-20150604.pdf) is at Prototype level, awaiting prototype reports.
  - Soliciting candidates to do prototyping in progress.
- Update and Finalization of Semantic Model 2
  - Produce an updated version of SM2, reflecting corrections and reasonable additions from IPP, but no Cloud or 3D aspects.
  - A compilation of IANA-registered IPP attributes has been made and potential corresponding element names were generated. (elements-IANA-registry-20160815.xlsx). The effort to finalize the gap list is still in progress and there are continuing questions which should be resolved with IPP WG help.
- Creation of Semantic Model 3
  - Start afresh with SM3 to reflect updated view of MFD, with addition of Cloud aspects and 3D Print and Scan Services.
  - Initial work posted here: https://github.com/istopwg/sm3
  - With Daniel Leaving this will require a new volunteer to continue the effort.
- New 3D Print Efforts
  - New 3D Print efforts following the IPP project are within the scope of chartered projects, but will be identified in a charter update.

PWG 3D Printing Job Ticket Efforts

- The PWG/IPP approach to printing is most effectively presented in abstract Print Service Capabilities (PSC), Print Job Ticket (PJT), and Print Job Receipt (PJR)structures.
  - It is desirable to include sample versions of these structures when presenting the PWG Model to other standards bodies. It would be appropriate to include both 2D and 3D samples in the SM web pages.

- Set of 2D Printing Structures
  - Sample Print Job Ticket exists in PWG Print Job Ticket specification section 19. A short narrative describing the intended job features will be added.
  - A sample Print Job Ticket Capabilities exists in Section 20.
  - A Sample Print Job Receipt for the same job can be generated.

- Set of 3D Printing Structures
  - The SM Workgroup has started generating a 3D Print Job Ticket example. This will be supported by:
    - A sample 3D Print Job Description
    - A sample 3D Print Service Capabilities
    - A sample 3D Print Job Receipt
  - Initial work posted here: https://github.com/istopwg/sm3

- Because of the distinct differences between 2D Printing and 3D Printing Elements, 3D Printing in the Semantic Model is represented as a distinct service.

- The IPP 3D Extensions specification provides explicit information on the additional elements needed to support 3D Printing.

- The 3D Print Service Model is created starting with the existing Print Service Model and deleting and adding elements following the information in the IPP 3D Extensions specification.

- Although the 3D Print Service is to be included in SM3, a good first cut can be made at this time when the model can be better coordinated with the IPP 3D Print effort.

Other Issues and Next Steps

- Continuing the Semantic Model effort requires the participation of more PWG members, both for active generation of material and for review. Participation is dependent on:
  - An understanding on the part of both the participant and the supporting company of the value of the semantic model.
  - Presentation of the Semantic Model documentation in a form that is easily understandable, so that participation does not require either special knowledge or software.

- The Semantic Model Workgroup has been posting "browsesable" forms of the model and the operations. We need to know if other PWG members find these forms of the documentation usable and sufficient to consider the content.

More Info/How to participate

➢ **We welcome more participation from member companies**

➢ **Much of the discussion of issues will be on the SM3 mail list. You must subscribe to the list to be able to post to the list. See http://www.pwg.org/mailman/listinfo/sm3 to subscribe.**

➢ **The group maintains a Web Page for Semantic Model that includes links to the latest documents, schema and a browse-able version of the schema at http://www.pwg.org/sm3**

➢ **Next conference call: December 7, 2016; 10:00 – 11:00 Pacific Time / 1:00 – 2:00 PM Eastern Time.**

Call-in toll-free number (US/Canada): 1-866-469-3239
Call-in toll number (US/Canada): 1-650-429-3300
Call-in toll number (US/Canada): 1-408-856-9570

https://ieee-isto.webex.com/ieee-isto/e.php?MTID=m123b376f8d9bdc7d9ff0ff43ed7d1610

The Printer Working Group

IDS Workgroup Status

Alan Sukert (Xerox)

IDS: Original Charter

- Investigate and define standards for addressing general security attributes for imaging devices and services. Our general goals are to:
    - Define standard metrics and protocol bindings to assess the health of Hardcopy Devices to gauge if they should be granted access to a network.
    - Define a set of standard security and policy attributes and values for authorizing Hard Copy Devices, their services and users in a global workspace
    - Provide a general security model for other PWG standards to reference
- Provide a path for vendors to review and contribute to the definition of Common Criteria HCD Protection Profiles

- Document Status
  - Documents in process by IDS Working Group when WG went into "hibernation" have either been approved by PWG or archived for work by other PWG Working Groups in future

- Focus now is on Common Criteria HCD Protection Profiles
  - MFP Technical Committee Meetings on Nov 1 & 3, 2016:
    - Discussion of how interpretations and resolution of HCD PP issues will be coordinated between US and Japanese Schemes
    - Discussion of issues/questions found in implementing HCD Protection Profile
  - Discussing outcomes from these MFP Technical Committee Meetings during this PWG Face to Face Meeting so we can determine next steps

The Printer Working Group

Liaison Status

Trusted Computing Group (TCG)

- **Next TCG Members Meetings**
  - 6-10 February 2017 – San Diego, CA – Ira to call in
  - 12-16 June 2017 – Hamburg, Germany – Ira to call in
- **Trusted Mobility Solutions (TMS)** – Ira is co-chair and co-editor
  - Scope: enterprise, medical, banking, virtualization, mobile mgmt
  - Formal – ETSI (NFV), Open Mobile Alliance (device mgmt), Global Platform (TEE protected environment), Mobey Forum (banking/payments, biometrics authentication, integrity)
  - Informal - 3GPP, ITU-T, Small Cell Forum (platform integrity)
- **Mobile Platform (MPWG)** – Ira is co-editor
  - Scope: mobile phones, PDAs, eBook readers, etc.
  - Formal liaisons – Global Platform (TEE), Mobey Forum (banking)
  - Multiple Stakeholder Model – TCG approved March 2016
- **Public Review Specifications**
  - http://www.trustedcomputinggroup.org/resources/specifications_in_public_review
  - TCG TPM 2.0 Library rev1.36 – ends 11/15/16
  - TCG TPM 2.0 FIPS-140 Guidance v1rev0.8 – ended 09/26/16
 - TCG Guidance for Securing Resource-Constrained Devices v1r17 – ended 09/12/16

- **Pete Basiliere – Quoted From Gartner web site:**
  - *"Pete Basiliere is Research Vice President - Imaging and Print Services. Mr. Basiliere provides research-based insights on 3D printing, digital printing systems and software applications, customer communications management (CCM), strategic document outsourcing (SDO) and automated document factory (ADF) best practices, go-to-market strategies, and technology trends."*

  - **New Article Published in August 2016** – "Innovation Insight for 3D Print Workflow Software" – https://www.gartner.com/doc/3407830

  - **Gartner – PWG Meeting** - Pete made a presentation in the last of the separate IPP 3D Teleconferences on Monday Sept 26th, 2016. He provided the PWG participants with an overview of Gartner activities in the 3D Printing space and an introduction to their publication referenced above. Pete also agreed to maintain contact with the PWG moving forward.

Other Questions / Comments
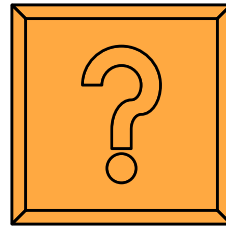
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  (Joint PWG/ OpenPrinting)

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Dates in RED are tentative…

Any companies willing to host, please contact chair@pwg.org