



The Printer Working Group

Printer Working Group Plenary Session

August 23, 2016

PWG Face to Face Meeting

Camas, Washington– Hosted by Sharp Labs

Smith Kennedy (HP Inc.)



Plenary Agenda

- 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)
 - Drupa & 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.

PWG Patent Statement



- 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

DO formally object if inappropriate topics are discussed

Agenda Overview



Tuesday, August 23

9:00 - 10:15	PWG Plenary
10:15 - 10:30	Break
10:30 - 12:00	IPP: Status, IPP Everywhere Self Certification
12:00 - 1:30	Lunch
1:00 - 5:00	IPP: System Service, 3D Printing Extensions

Wednesday, August 24

9:00 - 11:00	IDS: HCD Protection Profile and certification issues discussion
11:00 - 12:00	IPP: Finishings 2.1
12:00 - 1:00	Lunch
1:00 - 3:00	Semantic Model: SM2, SM3, 3D Extensions



Future PWG Meeting Schedule

- 2016
 - November 15-16: Lexington, KY – Hosted by Lexmark Inc.
- 2017 (Tentative Dates)
 - February 7-8: Boise, ID – Hosted by HP Inc.
 - May 2-4: Cupertino, CA – Hosted by Apple Inc.
(Joint PWG/ OpenPrinting)
 - August ??? : ???
 - October / November ??? : ???

2016 Membership



28 Members (27 Voting, 1 Non-Voting)

Apple	High North	MWA Intelligence	Thinstream 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	
Epson	Meteor Network	Samsung	
Fuji Xerox	Microsoft	Sharp Labs	
HP Inc.	MPI Tech	Technical Interface Consulting (N-V)	



PWG Officers (2015-2017 Term)

- PWG Chair: Smith Kennedy, HP Inc.
- PWG Vice-Chair: Alan Sukert, Xerox
- PWG Secretary: Ira McDonald, High North

Github Organization and Repositories



- Github organization account:
 - <https://github.com/istopwg>
- Web site repository:
 - <https://github.com/istopwg/website>
- Semantic Model Repository
 - <https://github.com/istopwg/pwg-semantic-model>
- IPP Everywhere Self Certification Tools
 - <https://github.com/istopwg/ippeveselfcert>
- IPP Registry
 - <https://github.com/istopwg/ippregistry>

PWG Design Philosophy Whitepaper



- Purpose:
 - To provide newcomers to the PWG and the PWG members and officers themselves with simple, high-level definitions of the set of tenets and design principles held by the PWG that guide the design and creation of its technologies
- Content:
 - Value of late binding (best fidelity in Cloud servers, enables job redirection)
 - Intent vs. process for output fidelity
 - Value of separating job ticket / job information from document content
 - IPP design patterns?

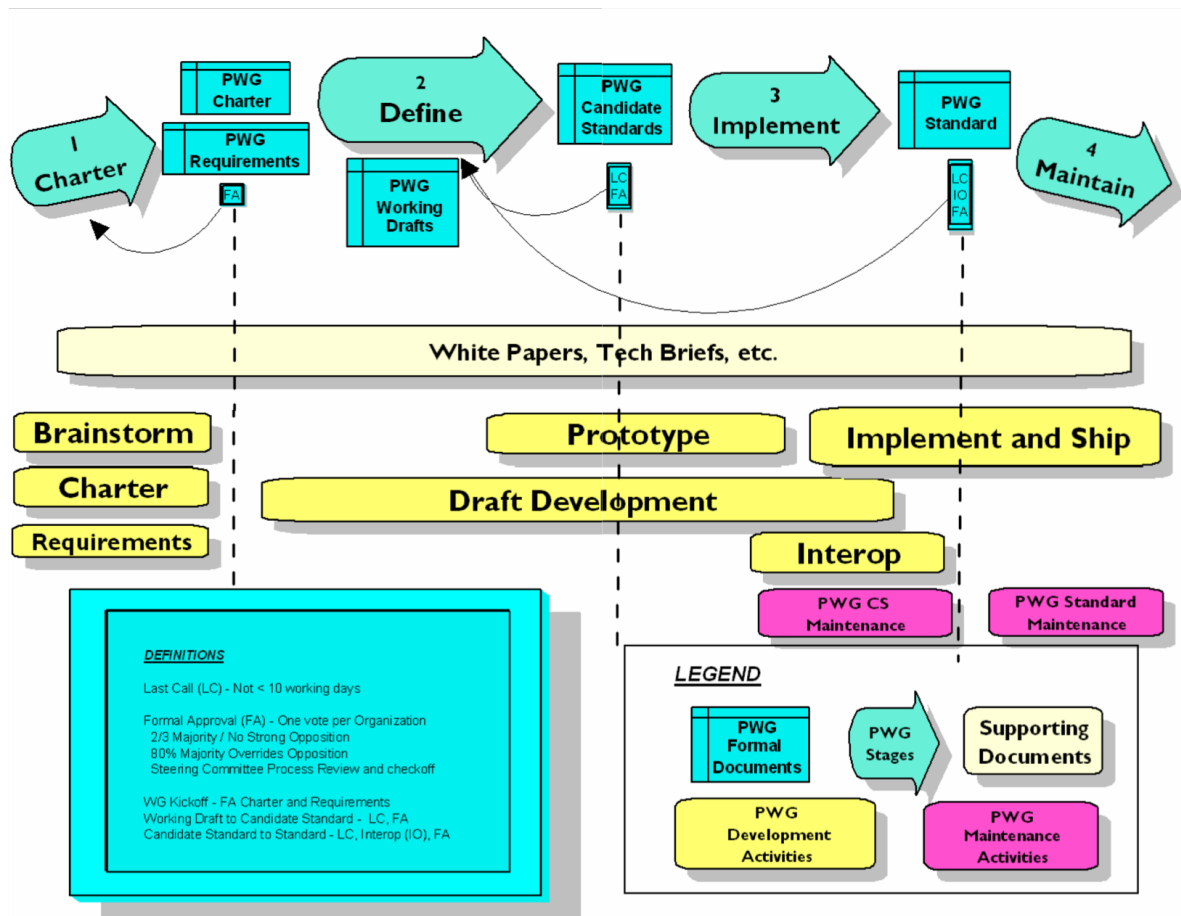


- Original notion: Update existing Process 3.0 to merge in subsequently published PWG process documents
 - [pwg-policy-call-for-obj-last-call-formal-vote-draft-2.txt](#) (draft)
 - [ipp-registry-policy.txt](#)
 - [pwg-billing-policy-20141001.txt](#)
 - [pwg-white-policy-20140505.txt](#)
 - [pwg-charter-policy-20140407.txt](#)
 - [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.

PWG Process v4.0



- Process 3.0 diagram





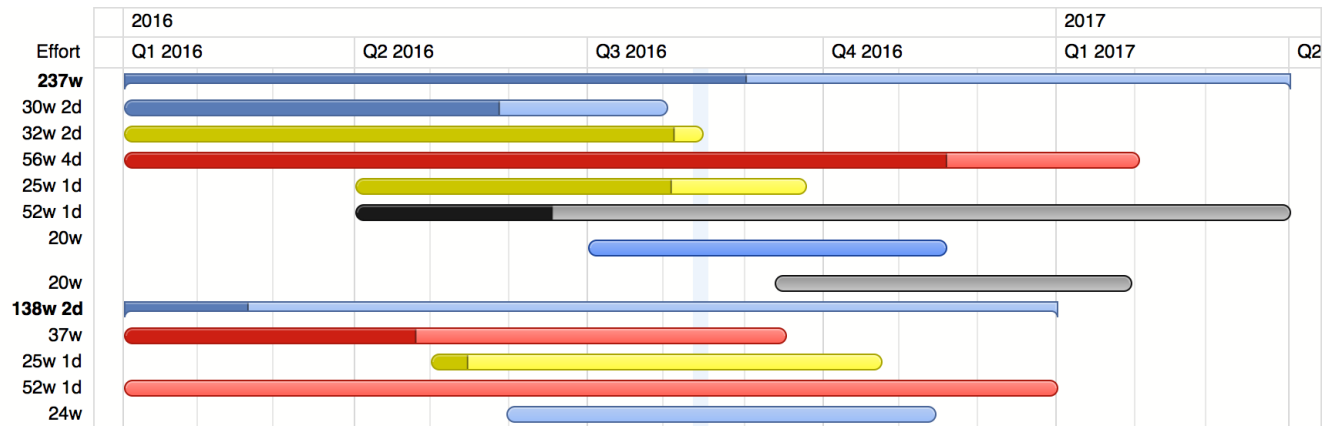
The Printer Working Group

PWG Workgroup Status

Work In Progress



- Task
- **1) IPP Workgroup**
 - 1.1) IPP System Service (SYSTEM)
 - 1.2) IETF IPP/1.1 Proposed Standard
 - 1.3) IPP 3D Printing Extensions (3D)
 - 1.4) Finishings 2.1 (FIN)
 - 1.5) Errata Updates
 - 1.6) IPP Everywhere Self Cert 1.0 Tools Update
 - 1.7) IPP Everywhere Self Cert 1.1
 - **2) Semantic Model Workgroup**
 - 2.1) CIP4 JDF to PWG PJT Mapping
 - 2.2) Semantic Model v2 Release
 - 2.3) Semantic Model v3
 - 2.4) IPP 3D SM Extensions



Planned

Interim

Prototype

Prototyped

Stable



The Printer Working Group

IPP Workgroup Status

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



IPP WG: Charter

- 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



IPP WG: Status (1/3)

- IETF RFCs in development:
 - IETF IPP/1.1: Encoding and Transport (obsoletes RFC 2910/3382)
→ **APPROVED**
 - IETF IPP/1.1: Model and Semantics (obsoletes RFC 2911/3381/3382)
→ IETF Last Call until Sept. 6, 2016
- PWG Specifications in development:
 - IPP 3D Printing Extensions (3D) - Prototype Draft
 - IPP System Service (SYSTEM) - Interim Draft
 - IPP Finishings 2.1 (FIN) - Stable Draft



IPP WG: Status (2/3)

- 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



IPP WG: Status (3/3)

- 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>
 - Still waiting for our first submission!
- IPP Sample Code:
 - Github repository:
 - <https://github.com/istopwg/ippsample>
 - Fork of CUPS code includes ippfind, ippproxy, ippserver, and ipptool



IPP WG: More Information

- 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 September 12, 2016 at 3pm ET and September 19, 2016 at 4pm ET to discuss 3D Printing



The Printer Working Group

Semantic Model Workgroup

Daniel Manchala (Xerox)



Introduction

- 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 provide 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](#)). 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.
- 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



3D Print Service Efforts

- 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 “browsable” 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: September 5, 2016; 12:00 – 1:00 Pacific Time / 3:00 – 4:00 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



- The IDS workgroup is currently in “hibernation”
 - Will be revived as needed
 - 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
- Common Criteria HCD Protection Profiles
 - Some issues have been found in implementing Sep 2015 HCD Protection Profile
 - Discussing issues during this PWG Face to Face Meeting so we can provide feedback on them to US and Japanese Schemes
 - Want resolution of these issues by both Schemes in a timely manner



The Printer Working Group

Liaison Status



Trusted Computing Group (TCG)

- **Next TCG Members Meetings**

- 17-21 October 2016 – Seoul, South Korea – 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 rev135 – ends 09/17/16
- TCG Guidance for Securing Resource-Constrained Devices v1r17 – ends 09/12/17

Drupa Tradeshow – Düsseldorf Germany

May 31st – June 10th, 2016



- **Drupa Tradeshow 2016** – Paul Tykodi (Co-Chair of the IPP Working Group) delivered two IPP 3D related presentations at the 3D fab+print sponsored Touchpoint in Hall 7a

Drupa Tradeshow – Düsseldorf Germany

May 31st – June 10th, 2016



- **Drupa Tradeshow 2016** – Paul Tykodi (Co-Chair of the IPP Working Group) delivered two IPP 3D related presentations at Drupa in early June of 2016. The Drupa tradeshow exhibitors were spread throughout almost 20 different buildings.



• **PWG Member Drupa Tradeshow 2016 Highlights**

- HP Promoted its Jet Fusion line of 3D Printing Devices for industrial applications
 - Initial products are controlled by software developed by Siemens for HP
- Ricoh displayed its first internally developed 3D printing device the Ricoh AM S5500P
- Canon announced a partnership with 3D Systems to begin selling certain 3D Systems manufactured equipment through the existing 2D device focused Canon Sales Distribution network for office equipment
- **Note:** - Interest declared by manufacturers visited by Mr. Tykodi during his time at the tradeshow, regarding the PWG IPP 3D effort, was most pronounced in the areas of job ticketing, job receipts, and retrieval of job processing log files.

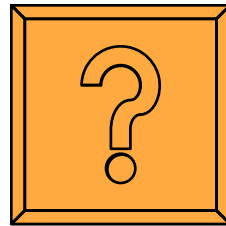
Gartner Report on the Future Need for 3D Printing Workflow Software Products



- **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>
- **Future PWG Meeting (TBD)** - Pete has agreed to remotely attend either a future IPP 3D teleconference or a special PWG meeting to further discuss 3D printing topics.

Other Questions / Comments





Next PWG Meetings

- November 15-16, 2016: Lexington, KY – hosted by Lexmark
- February 7-8, 2017: Boise, ID – Hosted by HP Inc.
- May 2-4, 2017: Cupertino, CA – Hosted by Apple Inc.
(Joint PWG/ OpenPrinting)
- August ???, 2017: ???
- October / November ???, 2017 : ???

Dates in RED are tentative...