The Printer Working Group

February 2017 Face to Face Plenary Session

February 14, 2017

Sunnyvale, CA – Hosted by Apple Inc.

Smith Kennedy (HP Inc.)

Plenary Agenda

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

- Welcome and Introductions
- Confirm Minutes Taker
- Review PWG Patent Policy
- Agenda for the Week
- Future PWG Meeting Schedule
- 2017 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 WG 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 for the Week

Tuesday, February 14

- 9:00 – 12:00   Semantic Model
- 12:00 –   1:00   Lunch
- 1:00 –   2:15   PWG Plenary
- 2:15 –   2:45   IPP WG : Status
- 2:45 –   3:00   Break
- 3:00 –   5:00   IPP WG : System Service, New Proposals

Wednesday, February 15

- 9:00 –   9:45   IPP : Finishings 2.1 review
- 9:45 – 11:45   IPP : IPP 3D review and discussion
- 11:45 – 12:00   IPP : Next Steps
- 12:00 –   1:00   Lunch

Future PWG Meeting Schedule

2017 Meetings
- April 25 – 27 (Sunnyvale, hosted by PWG)
    - Joint PWG/OpenPrinting
- August 8 – 9 (TBD)
- October 17 – 18 (TBD)

- Future meetings
    - Offers to host?

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 for 2017 in RED

- PWG Chair: Smith Kennedy, HP Inc.

- PWG Vice Chair: Alan Sukert, Xerox

- PWG Secretary: Ira McDonald, High North
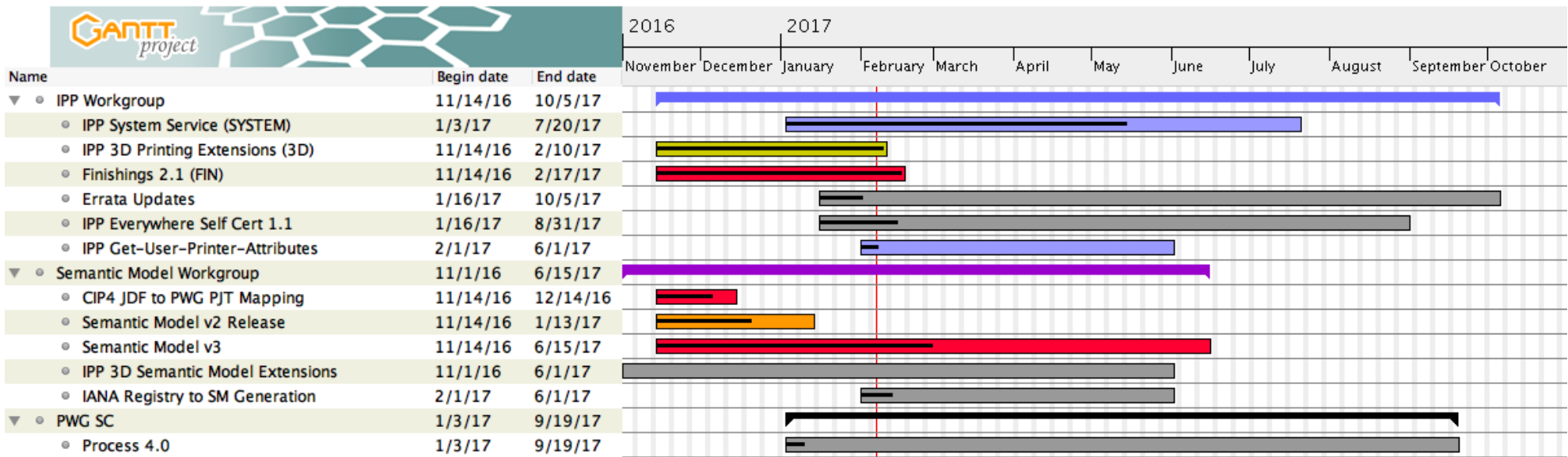
Github Organization and Repositories

- Github PWG 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

- IPP Sample
  - https://github.com/istopwg/ippsample

The Printer Working Group

Workgroup Status

Work In Progress

Name	Begin date	End date
▼ ○ IPP Workgroup	11/14/16	10/5/17
○ IPP System Service (SYSTEM)	1/3/17	7/20/17
○ IPP 3D Printing Extensions (3D)	11/14/16	2/10/17
○ Finishings 2.1 (FIN)	11/14/16	2/17/17
○ Errata Updates	1/16/17	10/5/17
○ IPP Everywhere Self Cert 1.1	1/16/17	8/31/17
○ IPP Get-User-Printer-Attributes	2/1/17	6/1/17
▼ ○ Semantic Model Workgroup	11/1/16	6/15/17
○ 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	11/1/16	6/1/17
○ IANA Registry to SM Generation	2/1/17	6/1/17
▼ ○ PWG SC	1/3/17	9/19/17
○ Process 4.0	1/3/17	9/19/17

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

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

IDS: Status

- 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
  - Discussed outcomes from these Meetings during November 2016 PWG Face to Face Meeting. Generated next steps:
    - Update IDS Charter to focus the IDS WG on outreach with other standards bodies involved in HCD security issues.
    - Determine what other standards bodies IDS WG could outreach with.

The Printer Working Group

Semantic Model Workgroup Status

Jeremy Reitz (Xerox)

Semantic Model Workgroup

- Semantic Model Workgroup Officers
  - Chair: Jeremy Reitz (Xerox)
  - Vice-Chair: Paul Tykodi (TCS)
  - Secretary: Bill Wagner (TIC)
- Document Editors:
  - Jeremy Reitz (Xerox) – SM2, SM3 Schema
  - Pete Zehler (Xerox) – Print3D Model
  - Ira McDonald (High North) – JDFMAP (awaiting prototype)
  - Rick Yardumian (Canon) – JDFMAP (awaiting prototype)

- The PWG Semantic 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 Semantic Model 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.

- The intent of maintaining an abstract model in parallel with the IPP protocol is to document the Imaging Technology-specific aspects of defining a Imaging Job, describing an Imaging Service, and communicating the status of these two types of objects in readily comprehensible way.

Projects and 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.
  - Effort to solicit candidates to do prototyping appears to have been unsuccessful.
  - It was decided in the previous SM Meeting session to: _____

- ## Print3D Service
  - In accord with the SM Workgroup charter, the information in the IPP 3D Printing Extensions draft was abstracted to add a Print3D Service to the current Semantic Model. This included the definition of a Print3D Job Ticket.
  - The Semantic Model including the Print3D Service is in Schema 2.909 (ftp://ftp.pwg.org/pub/pwg/sm3/schemas/pwg-semantic-model-master2.909.zip). The model needs to be reviewed and the additions made to the IPP extension during Last Call and Vote need to be added.
  - It is to be determined whether specific Print 3D Operations and operations elements need to be modeled.

- ## Update and Finalization of Semantic Model 2
  - The defined project was to produce an updated version of SM2, reflecting corrections and reasonable additions from IPP, but no Cloud or 3D aspects, to finalize and document this version and subject it to an approval process.
  - The effort of comparing the IANA-Registered IPP attributes with the Gap analysis is still in progress. The continuance of this project depends upon Schema maintenance approach.

- SM 3
  - The intent was to produce an updated version of SM2, reflecting corrections and reasonable additions from IPP, but no Cloud or 3D aspects. This was to complete the MFD Model. A follow on SM3 project was to refine the MFD model and add the Cloud printing semantics, and more recent IPP additions including Infra, extended finishing and 3D Printing.
  - Because of the interest in 3D Printing and the lack of resources to complete SM2 in a timely manner, 3D Printing was added to the basic SM2 model before update. Although the current Schema could be developed into a updated SM2 and an SM3 version, it is unclear that there the interest or the resources to do this.
  - Therefore the SM3 project, as differentiated from SM2 update, has been suspended pending a decision on how to proceed.

- Update of the Semantic Model Web Pages
  - It had been discussed that the SM parts of the PWG Web page should be expanded to:
    - Give clear examples of the 2D Print Service Capabilities (PSC), Print Job Ticket (PJT), and Print Job Receipt (PJR)structures, including a narrative description.
    - Provide parallel information for 3D imaging
    - Reference the Web-browsable pictorial representations of schema for both completed/approved models and in-process model developments, so that viewers unfamiliar with the PWG Imaging System models may clearly understand, comment on and contribute to what we have done and the new things we are working on.
    - How and whether we will work on this activity has yet to be decided.

- The primary chartered responsibility of the SM Workgroup is to maintain a model consistent with the evolving IPP protocol. Indeed, the SM2 update project has become a time-consuming manual correlation of IANA Attributes with the Model elements.

- Michael Sweet has developed "Proof-of-concept" code to generate SM schema from the IPP registry. This approach is promising, as will be evident by comparing the registry-derived schema with the current generated schema.

- The use of this capability in fulfilling the Semantic Model Workgroup Charter has been discussed in the previous session.

- The ability of the WG to act on chartered projects and provide a realistic plan and schedule for those projects depends upon having reliable, competent resources for execution and review.

- There have been insufficient resources to proceed with the projects in a timely manner and insufficient participation in SM conference calls to review the work that has been done.

- How to Proceed

  - As discussed in the previous session, the derivation of a Semantic Model from the IPP Registry by Michael's code provides a way to satisfy charter requirements without requiring extensive resources.

  - There are questions relating to:

    - the degree this derivation capability should be enhanced to approach the full capability of the current model.

    - The handling of the other identified SM WG projects

    - What workgroup should take on maintenance of the Model Schema, and who is responsible

    - Should the SM Workgroup be suspended

    - And others

  - Tentative answers from the previous session are: _____

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: To be announced on the SM3 mail list.**

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=m8f8fab044b3f41be0f376cb7745eca40

The Printer Working Group

IPP Workgroup Status

Ira McDonald (High North)
Paul Tykodi (TCS)

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 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)
  - Michael Sweet (Apple) – IPP System Service (SYSTEM), IPP 3D Printing Extensions
  - Smith Kennedy (HP Inc.) – IPP Finishings 2.1

- PWG Specifications in development:
  - IPP 3D Printing Extensions (3D) - Completed PWG Formal Vote
  - IPP Finishings 2.1 (FIN)   - PWG Formal Vote
  - IPP System Service (SYSTEM)   - Interim Draft

- Recent Candidate Standards:
  - PWG 5100.20-2016: IPP Everywhere Printer Self-Certification Manual v1.0 (SELFCERT)

- Recent IETF RFCs:
  - RFC 8010: Internet Printing Protocol/1.1: Encoding and Transport
  - RFC 8011: Internet Printing Protocol/1.1: Model and Semantics

- 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:
  - https://www.pwg.org/printers
  - 25 printers currently listed
  - 1.0 self-certification tools update released in October 2016

- 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
  - Discuss: Move IPP calls to Thursdays at 2pm or 3pm ET?
  - Next conference calls currently scheduled for Wednesday, March 1, 2017 and March 15, 2017 at 1pm ET

The Printer Working Group

Liaison Status

Trusted Computing Group (TCG)

- **Next TCG Members Meetings**
  - 12-16 June 2017 – Hamburg, Germany – Ira to call in
  - 23-27 October 2017 – Vancouver, BC – 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), Global Platform (TEE and SE), Open Mobile Alliance (device mgmt), Mobey Forum (platform integrity banking/payments, biometrics authentication)
  - 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 v1.38 – publication approved February 2017
  - TCG FIPS 140-2 Guidance TPM 2.0 – published February 2017
  - TCG TPM 2.0 PC Client Platform TPM Profile – review January 2017

- **America Makes – Quoted From their web site:**
  - *"Established in 2012 and based in Youngstown, Ohio, America Makes is the flagship Institute for Manufacturing USA, the National Network for Manufacturing Innovation, infrastructure of up to 45 Institutes to follow and is driven by the National Center for Defense Manufacturing and Machining (NCDMM)."*
  - America Makes is a membership driven public – private partnership. While it collaborates with SDO's (Standards Developing Organizations), it does not develop standards itself. Much of the information created as part of different America Makes sponsored projects is only made available to paying members.
  - **America Makes & ANSI Additive Manufacturing Standardization Collaborative (AMSC)** – https://www.ansi.org/standards_activities/standards_boards_panels/amsc/Default?menuid=3 . The IEEE-ISTO Printer Working Group is participating in the AMSC initiative.
  - **Additive Manufacturing Standardization Forum: Accelerating Standards & Specs Development –** Occurring May 9th, 2017 at the RAPID conference sponsored by SME – Pittsburgh, PA

- **ISO/IEC JTC 1 3D Printing and Scanning Study Group**
  - Active from Jan 2017 through early Sept 2017
  - Must deliver a final report to JTC 1
  - Reviewing whether JTC 1 standards development activities are needed to support the IT aspects of Additive Manufacturing
  - ISO TC261 Additive Manufacturing has a liaison connection to the Study Group
  - The members of the study group are meeting monthly via teleconference and a face to face meeting has been proposed to occur in Korea during the late May 2017 timeframe
  - The 3D related activities of the PWG were uncovered by an initial survey performed by JTC 1.
  - Paul Tykodi, representing his PWG member company (TCS), has been accepted into the study group to represent the PWG

- **ISO/IEC JTC 1 3D Printing and Scanning Study Group (cont.)**
  - Many of the participants in the JTC 1 study group have affiliations with other ISO work groups. From a semantic heritage point of view, the PWG efforts began with ISO/IEC 10175 (Document Printing Application – DPA) authored by *SC18 - Document processing and related communication* in 1996. Subsequently the SC18 work group ceased operations and the responsibility for the DPA set of standards was transferred to JTC 1 SC6 (telecommunications) because the standards referred to OSI Standards.

  - **Action Items for PWG**
    - Explain why the PWG believes today's PWG semantics are a relevant contribution to the Additive Manufacturing ecosystem given the semantic link back to the set of ISO 10175 documents
    - Update the PWG 3D activities information in the initial ISO/IEC JTC 1 3D Printing and Scanning work group survey

Other Questions / Comments
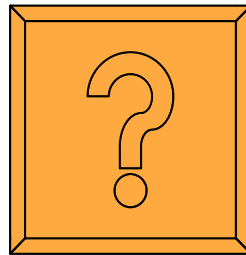
Next PWG Meetings

- April 25 - 27 (Sunnyvale, CA hosted by PWG)
  - Joint PWG / OpenPrinting event

- August 8 – 9 (location TBD)

- October 17 – 18 (location TBD)