



The Printer Working Group

PWG August 2018 Face-to-Face Plenary Session

Smith Kennedy, PWG Chair
August 15, 2018



Plenary Agenda

- Administrivia
- PWG Steering Committee Updates
- PWG Workgroup Status [WG Chairs]
 - Imaging Device Security (IDS)
 - Internet Printing Protocol (IPP)
- Liaison Status
 - Trusted Computing Group (TCG)
 - Internet Engineering Task Force (IETF)
 - Mopria
 - Additive Manufacturing Liaisons
- Next Meetings

Administrivia



- Welcome and Introductions
- Confirm Minutes Taker
- Review PWG Patent Policy
- Agenda for the Week
- Future PWG Meeting Schedule
- 2018 Membership
- PWG Officers



- "This meeting is being held in accordance with the PWG Intellectual Property Policy"
 - https://www.pwg.org/chair/membership_docs/pwg-ip-policy.pdf
- TL;DR: Anything you say in a PWG meeting or email to a PWG address can be used in a PWG standard
 - (but please do read the IP policy above if you haven't done so)



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 raise an objection if inappropriate topics are discussed



Agenda Overview – Day 1

(All times Mountain Daylight Time)

Wednesday, August 15

9:00 – 10:00	PWG Plenary
10:00 – 10:30	IPP WG : Status
10:30 – 11:00	IPP WG : IPP Everywhere v1.1
11:00 – 11:30	Break / Lunch
11:30 – 12:30	IPP WG: Job Reprint Password
12:30 – 2:00	IPP WG: System Service

Agenda Overview – Day 2



(All times Mountain Daylight Time)

Thursday, August 16

9:00 – 10:30	IDS WG: Status and Discussion
10:30 – 11:00	IPP WG: TLS 1.3 and PWG
11:00 – 11:30	Break / Lunch
11:30 – 12:30	IPP WG: IPP Authentication Methods
12:30 – 1:45	IPP WG: IPP 3D v1.1 · PWG Safe G-Code · PWG / AMSC / ISO 3D Liaison Discussion
1:45 – 2:00	IPP WG: Next Steps



Future PWG Meeting Schedule

- 2018
 - November 14-15 : Virtual
- 2019 (Tentative Dates)
 - February 13-14 : Virtual
 - May 14-16: Sunnyvale? Lexington KY?
 - August 27-28: Virtual?
 - November 13-14 : Virtual?

Contact chair@pwg.org if you are interested in hosting

2018 Membership



26 Members (25 Voting, 1 Non-Voting)

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



PWG Officers (2017-2019 Term)

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



IPP Everywhere™ Certified Printers

- <https://www.pwg.org/ipp/everywhere.html>
- IPP Everywhere™ Self Certification 1.0 Update 2
→ Current certification toolset available on PWG website
- 272 printers now certified!
 - <https://www.pwg.org/dynamo/eveprinters.php>
 - More on the way
- More to come
 - IPP Everywhere™ Self Certification 1.0 Update 3 - Q3 2018
 - IPP Everywhere™ v1.1 – Q4 2018
 - IPP Everywhere™ Self Certification 1.1 – Q2 2019



PWG Projects on GitHub

- PWG on GitHub:
 - <https://github.com/istopwg>
- IPP Sample
 - <https://github.com/istopwg/ippsample>
- IPP Everywhere Self Certification Tools
 - <https://github.com/istopwg/ippeveselfcert>
- IPP Registry
 - <https://github.com/istopwg/ippregistry>
- PWG Books:
 - <https://github.com/istopwg/pwg-books>

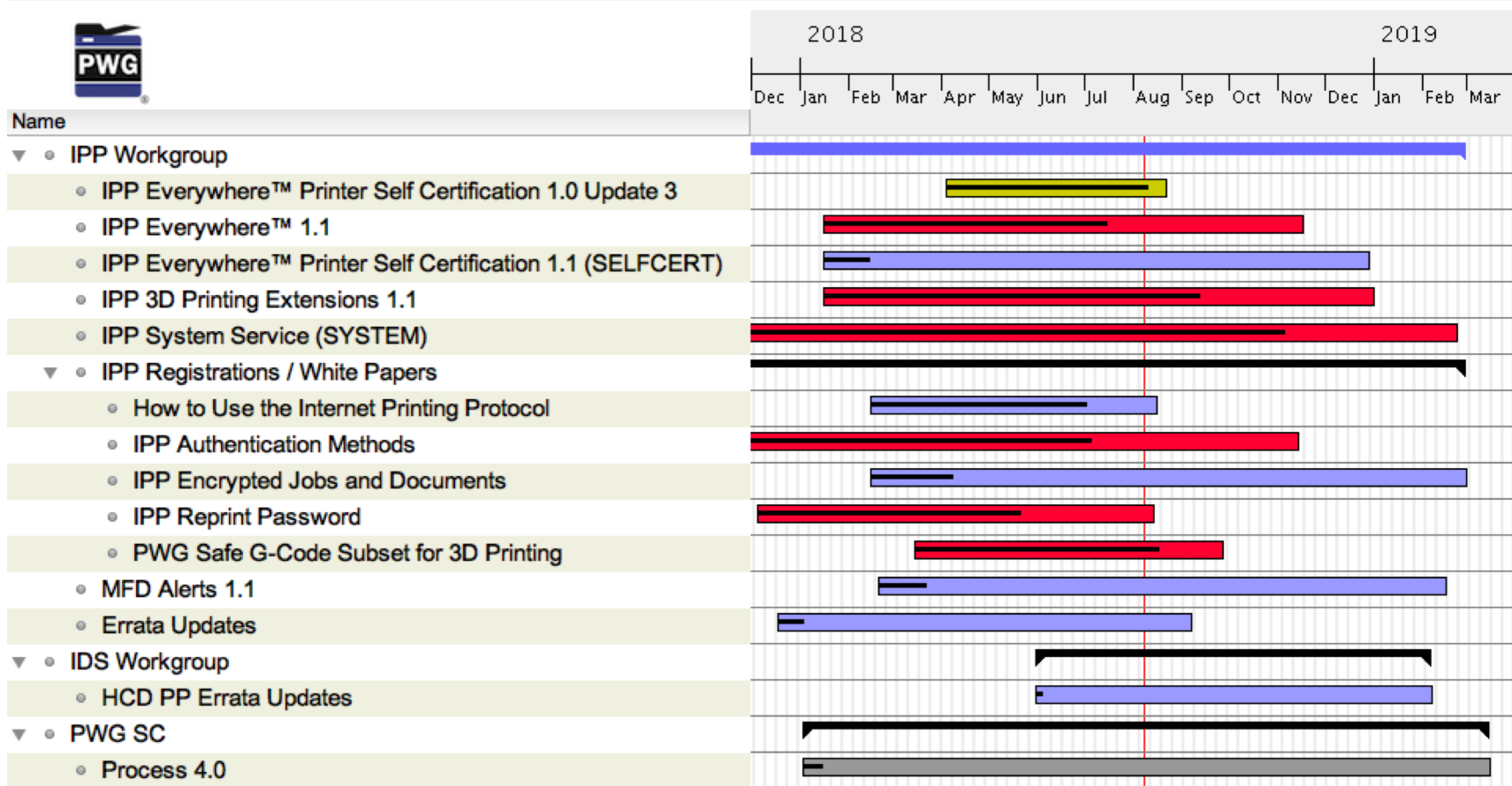


The Printer Working Group

PWG Workgroup Status



Work In Progress



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: Current Status

- Focus now is on Common Criteria HCD Protection Profiles
 - IDS Charter updated to focus the IDS WG on outreach with other standards bodies involved in HCD security issues.
 - Need to determine other applicable standards bodies that IDS WG could/should outreach with
 - HCD Technical Committee (TC) Meetings:
 - HCD TC Face-to-Face Meeting to held as part of the Oct 24-26, 29 CCUF Workshop in Amsterdam Holland
 - Status of HCD TC and HCD PP Version 1.1 will be discussed at the IDS WG Session on Thursday, Aug 16th



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-20170615.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
 - Michael Sweet (Apple) – How to Use the Internet Printing Protocol, IPP 3D Printing Extensions v1.1, IPP Encrypted Jobs and Documents, IPP Everywhere v1.1, IPP Everywhere Printer Self-Certification Manual v1.1, IPP System Service, PWG Safe G-Code
 - Smith Kennedy (HP Inc.) – How to Use the Internet Printing Protocol, IPP Authentication Methods, IPP Encrypted Jobs and Documents, IPP Job Reprint Password
 - Peter Zehler (Xerox) - How to Use the Internet Printing Protocol



IPP WG: Status Summary

- PWG Specifications in development:
 - IPP 3D Printing Extensions v1.1 - Prototype Draft
 - IPP Everywhere v1.1 - Prototype Draft
 - IPP Everywhere Printer Self-Certification Manual v1.1 - Prototype Draft
 - IPP System Service v1.0 - Prototype Draft
- IPP Registration Documents in development:
 - IPP Job Reprint Password - Stable Draft
- IPP Best Practices in development:
 - IPP Authentication Methods - Interim Draft
 - IPP Encrypted Jobs and Documents - Interim Draft
 - PWG Safe G-Code Subset for 3D Printing - Stable Draft
- IPP Book in development:
 - How to Use the Internet Printing Protocol - Interim Draft



IPP WG: More Information

- We welcome participation from all interested parties
- IPP Working Group web page
 - <https://www.pwg.org/ipp/index.html>
- Subscribe to the IPP mailing list
 - <https://www.pwg.org/mailman/listinfo/ipp>
- IPP WG holds bi-weekly phone conferences announced on the IPP mailing list
 - Next conference calls scheduled for Thursday, August 30 and September 13, 2018 at 3pm ET



The Printer Working Group

Liaison Status



Trusted Computing Group (TCG)

- **Next TCG Members Meetings**

- 15-19 October 2018 – Lisbon, Portugal – Ira to call in
- 25-28 February 2019 – Seoul, South Korea – Ira to call in

- **Trusted Mobility Solutions (TMS)** – Ira is co-chair and co-editor

- Scope: mobile phones, telecom networks, enterprise/financial BYOD
- Formal liaisons – ATIS (5G Security), ETSI (NFV), Global Platform (TEE and SE), OMA (device mgmt)
- [ATIS/TCG MoU – completed in July 2018 – major collaboration plans](#)
- Informal liaisons – 3GPP, ITU-T, SAE, IETF TLS, IETF SACM, US NIST
- *TCG TMS Use Cases v2 – to be published in September 2018*

- **Mobile Platform (MPWG)** – Ira is co-editor

- Scope: mobile phones, PDAs, eBook readers, etc.
- Formal liaisons – Global Platform (TEE), Mobey Forum (banking)
- Mobile Runtime Integrity Preservation – public review in Q1 2019
- *TCG/GP collaboration – Integrating GP and TCG Security Technologies*

- **Recent Specifications**

- <http://www.trustedcomputinggroup.org/resources>
- TCG SNMP MIB for TPM-based Attestation – public review July 2018
- TCG PC Client Platform Firmware Profile – public review July 2018
- TCG Storage Interface Interactions (SIIS) – public review May 2018
- TCG Storage Security Subsystem Class Ruby v1 – public review April 2018
- TCG Storage Security Subsystem Class Pyrite v2 – public review April 2018
- TCG Device Identifier Composition Engine – published March 2018



Internet Engineering Task Force (IETF)

- **Next IETF Members Meetings**

- IETF 103 – 3-9 November 2018 – Bangkok, Thailand – Ira to call in
- IETF 104 – 23-20 March 2019 – Prague, Czech Republic – Ira to call in

- **Transport Layer Security (TLS)**

- TLS/1.3 – RFC Editor’s Queue Auth48– IESG approved – draft-28 – March 2018
<https://datatracker.ietf.org/doc/draft-ietf-tls-tls13/>

- **Security Automation and Continuous Monitoring (SACM)**

- S/W Inventory Message & Attributes for PA-TNC – RFC 8412 – July 2018
<https://www.rfc-editor.org/info/rfc8412>
- Concise Software Identifiers – draft-06 – July 2018
<https://datatracker.ietf.org/doc/draft-ietf-sacm-coswid/>

- **Concise Binary Object Representation (CBOR)**

- Concise Binary Object Representation (CBOR) – draft-02 – March 2018
<https://datatracker.ietf.org/doc/draft-ietf-cbor-7049bis/>
- Concise Data Definition Language (CDDL) – draft-03 – July 2018
<https://datatracker.ietf.org/doc/draft-ietf-cbor-cddl/> - JSON/CBOR schema

- **Constrained RESTful Environments (CORE)**

- CBOR Encoding of Data Modeled with YANG – draft-06 – February 2018
<https://datatracker.ietf.org/doc/draft-ietf-core-yang-cbor/>

- **IRTF Crypto Forum Research Group (CFRG)** – future algorithms

- Extended Hash-Based Signatures – RFC 8391 – May 2018
<https://datatracker.ietf.org/doc/rfc8391/>



Linux OpenPrinting Google Summer of Code 2018

- Lots of good work and contributions to a number of the PWG's GitHub projects
- Close reading of a number of specifications revealed some additional errata
- Thanks to Linux OpenPrinting coordinators, all the students (and their mentors) for your hard work and contributions!



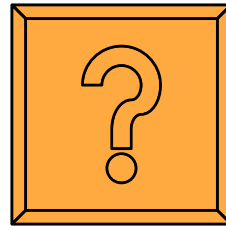
- PWG presentation at Mopria F2F
 - “IPP 2018 State of the Union”
 - Presented to Mopria Technical Working Group via teleconference July 26 during their F2F meeting session
 - <https://ftp.pwg.org/pub/pwg/general/presentations/PWG-2018-IPP-Overview-20180726.pdf>
 - Well received and positive feedback
- Mopria liaison to the PWG : Jeremy Reitz (Xerox)
 - Smith has asked for a Mopria presentation; awaiting a response



Additive Manufacturing Liaisons

- America Makes & ANSI Additive Manufacturing Standardization Collaborative (AMSC) -
 - www.ansi.org/standards_activities/standards_boards_panels/amsc/Default?menuid=3. The IEEE-ISTO Printer Working Group is participating in the AMSC initiative.
- IEEE Consumer 3D Printing Working Group (P3030)
 - standards.ieee.org/develop/wg/C3DP.html This effort currently seems to be in hibernation.
- ISO/IEC JTC 1 3D Printing and Scanning Study Group
 - www.iso.org/committee/45020.html The IEEE-ISTO Printer Working Group is participating in the ISO initiative.
- Society of Manufacturing Engineers (ITEAM)
 - www.sme.org/iteam/
- 3D PDF Consortium
 - www.3dpdfconsortium.org
- 3MF Consortium
 - 3mf.io

Other Questions / Comments





Next PWG Face-to-Face Meeting

November 14-15 : Virtual

Monitor pwg-announce@pwg.org or the [PWG meeting page](#) for more info.

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



The Printer Working Group

Backup



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.)



- 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.