The Printer Working Group

PWG November 2022 Face-to-Face Plenary Session

Jeremy Leber, PWG Chair
November 15, 2022

- Administrivia

- PWG Steering Committee Updates

- PWG Workgroup Status [WG Chairs]

- Liaison Status

- Questions / Next Meeting / Any Other Business

Administrivia

- Welcome and Introductions
- Confirm Minutes Taker
- Review PWG Antitrust Policy, PWG IP Policy and Inappropriate Topics
- Agenda

PWG Antitrust Policy

- "This meeting is being held in accordance with the PWG Antitrust Policy"
    - https://www.pwg.org/chair/membership_docs/pwg-antitrust-policy.pdf

- The IEEE-ISTO Printer Working Group ("PWG") will not become involved in the business decisions of its Members. The PWG strictly complies with applicable antitrust laws. Every PWG Member shall comply with this policy. The PWG Officers and PWG Workgroup Officers are responsible to ensure that this policy is adhered to in all PWG activities.

- "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:

- Validity or essentiality of patents or patent claims
- Cost of specific patent use
- Licensing terms or conditions
- Product pricing, territorial restrictions, or market share
- Ongoing litigation or threatened litigation

DO raise an objection if inappropriate topics are discussed

Agenda Overview – Day 1

(All times Eastern Standard Time)

Tuesday, November 15

10:00 – 10:45   PWG Plenary

10:45 – 11:00   IPP WG : Status

11:00 – 12:00   IPP WG : Prototype Ready Specifications

12:00 – 12:45   Break / Lunch

12:45 –   2:00   IPP WG : Evolution of IPP/2.0 and IPP Everywhere 2.0

Agenda Overview – Day 2

(All times Eastern Standard Time)

Wednesday, November 16

    10:00 – 11:00   IPP WG : IPP Production Printing Extensions v2.0

    11:00 – 12:00   IPP WG : IPP Driverless Printing Extensions v2.0

    12:00 – 12:45   Break / Lunch

    12:45 –   2:30   IPP WG : Evolution of OAuth and IPP

(All times Eastern Standard Time)

Thursday, November 17

10:00 – 12:00	IDS WG : Status and Discussion – PWG Hardcopy Device Security Guidelines v1.0
12:00 – 12:45	Break / Lunch
12:45 – 1:45	IPP WG : 3D Printing Liaisons – Status & Guidance
12:45 – 2:00	IPP WG : Next Steps

The Printer Working Group

Steering Committee Updates

Officers (2021-2023 Term)

- PWG Chair: Jeremy Leber, Lexmark

- PWG Vice Chair: Smith Kennedy, HP Inc.

- PWG Secretary: Ira McDonald, High North

30 Members

Alan Sukert	directprint.io	(intel) Intel	**Microsoft**® Microsoft	**SNBC** SNBC
🍎 Apple Inc.	**EPSON** Epson	KONICA MINOLTA Konica Minolta	**OKI** PRINTING SOLUTIONS Oki Electric Industry Co., Ltd	⬡ synaptics· Synaptics
brother at your side Brother Industries, Ltd.	**FUJIFILM** FUJIFILM Business Innovation Corp.	◪ KYOCERA Kyocera	PaperCut▪ PaperCut Software	Technical Interface Consulting
Canon Canon	Google Google	Lakeside Robotics Lakeside Robotics	PrinterLogic	**TOSHIBA** Leading Innovation ››› Toshiba Business Solutions
Danny Brennan	*High North Inc* High North, Inc.	◆ Lexmark™ Lexmark	Qualcomm Qualcomm	*TCS* Tykodi Consulting Services LLC. Tykodi Consulting Services LLC
DIGITAL CHECK® Digital Check Corp	*hp* HP Inc.	meteor network Meteor Network	**RICOH** Ricoh	**xerox**™ Xerox

Welcome to our newest member, PrinterLogic!

Thanks to all of you for contributing your time and efforts to the PWG!

2023

- February 7-9 – Virtual

- May 16-18 (Joint w/ OpenPrinting - TBD – Lexington?)

- August 8-10 – Virtual? TBD

- November 14-16 – Virtual? TBD

Contact chair@pwg.org if you are interested in hosting a PWG F2F event

IPP Everywhere™ Certified Printers

- <https://www.pwg.org/ipp/everywhere.html>

- **943** printers now certified!
  - <https://www.pwg.org/printers/>
  - New printers from Digital Check, OKI, HP, Lexmark, and Samsung (via HP)
  - More on the way!

- IPP Everywhere™ Self Certification 1.1 Update 4
  - → Announced Sept. 2, 2022
  - → **IPP Everywhere v1.0 Certifications no longer accepted**

Process 4.0 and Policy Updates

- Process v4.0
  - Multi-year effort to update Process 3.0
  - Latest Stable draft: wd-pwg-process-4-20221104.pdf
    - Ready for broader review and approval procedures
  - Detailed definitions moved to separate PWG Policy documents to simplify update approval process
    - PWG Roles and Responsibilities Policy
    - PWG Document Management Policy
    - PWG Meetings Policy
    - PWG Workgroup Decisions Policy

- PWG Policy Document Status
  - **PWG Roles and Responsibilities Policy : Stable Draft (20221104)**
  - PWG Communications Infrastructure : Interim Draft
  - PWG IPP Everywhere Logo Policy: 2022-05-16
  - PWG Officer Elections : 2021-04-21
  - PWG Antitrust Policy : 2021-02-01
  - PWG Press Release Review Policy: 2020-09-08
  - PWG Namespace Policy : 2020-07-20
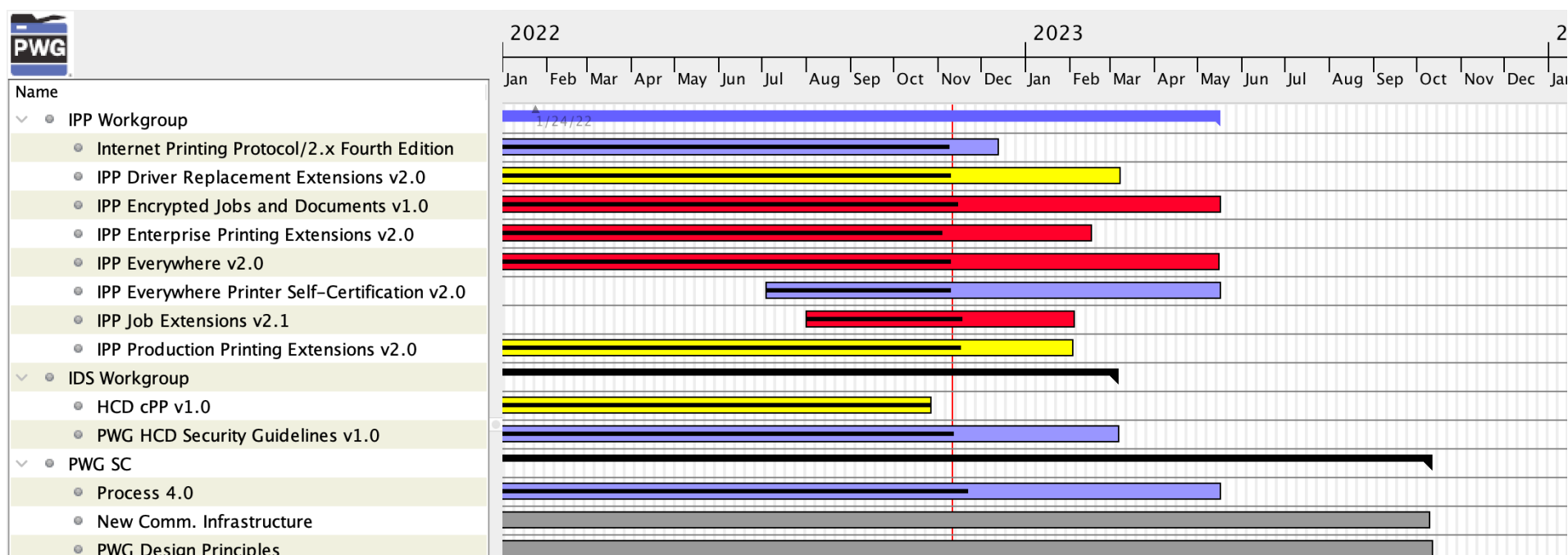 - PWG IPP Registry Policy : 2020-05-18

Projects on GitHub

- PWG on GitHub:
  - https://github.com/istopwg

- IPP Sample Code
  - 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

Workgroup Status

Work in Progress

	2022	2023
Name	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan
IPP Workgroup		
Internet Printing Protocol/2.x Fourth Edition		
IPP Driver Replacement Extensions v2.0		
IPP Encrypted Jobs and Documents v1.0		
IPP Enterprise Printing Extensions v2.0		
IPP Everywhere v2.0		
IPP Everywhere Printer–Self Certification v2.0		
IPP Job Extensions v2.1		
IPP Production Printing Extensions v2.0		
IDS Workgroup		
HCD cPP v1.0		
PWG HCD Security Guidelines v1.0		
PWG SC		
Process 4.0		
New Comm. Infrastructure		
PWG Design Principles		

Planned **Interim** **Prototype** **Stable** **Approved**

IDS Workgroup Status

Alan Sukert

IDS WG: Officers

- **IDS WG Chair:**
  - Alan Sukert
- **IDS WG Vice-Chair**
  - TBD
- **IDS WG Secretary:**
  - Alan Sukert
- **IDS WG Document Editors:**
  - Ira – HCD Security Guidelines

- IDS Charter updated to reflect development of Hardcopy Device (HCD) Security Guidelines by Ira and new focus on Common Criteria HCD Protection Profiles (PPs), HCD Security Guidelines and Hardcopy Device security standards
  - Want to focus the IDS WG on outreach with standards bodies involved in HCD security issues.
    - Monitoring development of Hardcopy Device collaborative PP (cPP) / Supporting Document (SD)
    - Looking at initiating interface with other standards efforts related to hardcopy devices
  - IDS WG Meetings
    - Since last IDS F2F on Nov 18, 2022, IDS WG Meetings held on 9/9, 9/22, 10/6 & 10/20 in 2022
    - Next IDS WG Meeting scheduled for 12/1/22

IDS: Current Status

- HCD international Technical Committee (iTC):
  - HCD iTC holds weekly HCD iTC Meetings; HCD cPP/SD v1.0 published on 10/31/2022
  - Will discuss the results of the weekly HCD iTC Meetings held since last IDS F2F in Aug 2022 and the current HCD cPP/SD v1.0 status at the IDS F2F Session on Thursday November 17th

- Developing HCD Security Guidelines to provide guidance on current HCD security technology and security issues

  - Will review the latest status at the IDS F2F session

- IDS F2F Session will have a special topic summarizing the presentation Alan just gave at the 2022 ASTM International Conference on Additive Manufacturing

- Finally, IDS F2F Session will review current status of HCD-related standards efforts of the Trusted Computing Group (TCG) and Internet Engineering Task Force (IETF)

IDS WG: More Information

- We welcome participation from all interested parties
- IDS Working Group web page
  - https://www.pwg.org/ids/
- Subscribe to the IDS mailing list
  - https://www.pwg.org/mailman/listinfo/ids
- IDS WG holds bi-weekly meetings via WebEx announced on the IDS mailing list
  - Next meeting is scheduled for Thursday, Dec 1, 2022 at 3pm ET

The Printer Working Group

IPP Workgroup Status

Paul Tykodi (TCS), Ira McDonald (High North),
Michael Sweet (Lakeside Robotics)

- **IPP WG Co-Chairs:**
  - Paul Tykodi (TCS)
  - Ira McDonald (High North)
- **IPP WG Secretary:**
  - Michael Sweet (Lakeside Robotics)
- **IPP WG Document Editors:**
  - Michael Sweet (Lakeside Robotics) – Internet Printing Protocol/2.x Fourth Edition, IPP Encrypted Jobs and Documents v1.0, IPP Everywhere v2.0, IPP Job Extensions v2.1, IPP Production Printing Extensions v2.0
  - Smith Kennedy (HP Inc.) – IPP Driver Replacement Extensions v2.0, IPP Encrypted Jobs and Documents v1.0, IPP Enterprise Printing Extensions v2.0

IPP WG: Status

- PWG Specifications in development:
  - Internet Printing Protocol/2.x Fourth Edition   - Interim
  - IPP Driver Replacement Extensions v2.0   - PWG Last Call
  - IPP Encrypted Jobs and Documents v1.0   - Prototype
  - IPP Enterprise Printing Extensions v2.0   - Prototype
  - IPP Everywhere™ v2.0   - Interim
  - IPP Everywhere™ Printer Self-Certification Manual v2.0
    - Interim
  - IPP Job Extensions v2.1   - Initial
  - IPP Production Printing Extensions v2.0   - PWG LC Completed

- Up-to-date pending IANA registrations online:
  - https://www.pwg.org/ipp/ipp-registrations.xml
  - Continue to maintain this in parallel for new specifications
  - Github repository: https://github.com/istopwg/ippregistry

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, November 24 and December 8, 2022 at 3pm ET

The Printer Working Group

Liaison Status – November 2022

Linux Foundation OpenPrinting

- **OpenPrintingGoogle Summer of Code 2022 (Aveek/Till)**
  - **https://developers.google.com/open-source/gsoc/timeline**
  - **Aveek/Till are the coordinators for all Linux Foundation projects**
  - **Coding started 13 June 2022 and ended 24 October 2022 (extended four to six weeks)**
- **OpenPrinting CUPS (Zdenek Dohnal, RedHat)**
  - **https://openprinting.github.io/cups-2.4.2/**
  - **Current stable release is OP CUPS v2.4.2 on 26 May 2022.**
- **OpenPrinting CUPS Filters (Till)**
  - **https://github.com/OpenPrinting/cups-filters/releases/tag/1.28.16**
  - **Current release is OP CUPS Filters v1.28.16 on 24 August 2022.**
- **OpenPrinting PAPPL (Printer Application) (Mike)**
  - **https://github.com/michaelrsweet/pappl/releases/tag/v1.2.3**
  - **Current release is PAPPL v1.2.3 on 8 October 2022.**
- **OpenPrinting LPrint Label Printer Application (Mike)**
  - **https://github.com/michaelrsweet/lprint/releases/tag/v1.1.0**
  - **Current release is LPrint v1.1.0 on 23 December 2021**
- **OpenPrinting PostScript, Ghostscript, Gutenprint, HPLIP Printer Apps (Till)**
  - **https://github.com/OpenPrinting/ps-printer-app**
  - **https://github.com/OpenPrinting/ghostscript-printer-app**
  - **https://github.com/OpenPrinting/gutenprint-printer-app**
  - **https://github.com/OpenPrinting/hplip-printer-app**
- **OpenPrinting CUPS Legacy Driver Retro-Fitting Printer Applications (Till)**
  - **https://github.com/OpenPrinting/pappl-retrofit**

Mopria Alliance

- Mopria Alliance liaison to PWG: Michael Rhines (Qualcomm)

- Liaison agreement addendum signed May 10, 2022
  - Renews liaison agreement and auto-renews it until one or both parties cancel it

- [PWG State of the Union 2022](#) presentation made at the Mopria October 2022 Member Meeting
  - Summarized activities from IDS and IPP Workgroups
  - Discussed OAuth 2.0 and NODRIVER (including its confusing title which has been recently changed)

3MF Consortium

- 3MF Consortium liaison to PWG: Luis Baldez (Meta)

- Leadership from both organizations met in early October and identified several collaboration opportunities
  - Job ticketing
  - Printer capabilities detection including 3MF feature detection

- Updated liaison agreement signed October 30, 2022
  - Auto-renews it until one or both parties cancel it

3D / Additive Manufacturing Liaisons

- America Makes & ANSI Additive Manufacturing Standardization Collaborative (AMSC) -
    - https://www.ansi.org/standards-coordination/collaboratives-activities/additive-manufacturing-collaborative.
        - The IEEE-ISTO Printer Working Group is participating in the AMSC version 3 update. The proposed schedule has version 3 being published in June 2023.

- ASTM Committee F42 on Additive Manufacturing Technologies -
    - https://www.astm.org/COMMITTEE/F42.htm

- The ASTM International Conference on Additive Manufacturing (ICAM 2022 – Friday November 4th, 2022 – Orlando Florida) -
    - https://amcoe.org/event/icam2022/
        - Alan Sukert chairperson of the IEEE-ISTO PWG Imaging Device Security(IDS) Workgroup participated in the **Industry 4.0: Cyber Security Aspects of AM** track within the ICAM conference.
        - Alan delivered a presentation on behalf of the IEEE-ISTO PWG titled: *"Developing Common Criteria Based 3D Printing Equipment Cyber Security Certification"*

- INCITS Digital Manufacturing Technical Committee -
 - https://www.incits.org/committees/digitalmanufacturing
    - INCITS has disbanded this committee. The PWG will follow the appropriate process to terminate the existing liaison agreement.

- INCITS Expert Group of Digital Manufacturing -
  - URL for the new group will be forthcoming soon
    - The expert group will be assigned TAG responsibility for JTC 1 - WG 12 going forward. Membership will be free and open to any interested party, which includes even those outside of the INCITS community. Paul Tykodi will represent the IEEE-ISTO Printer Working Group in the activities of the new INCITS Expert Group of Digital Manufacturing as an individual member of the new group.

- American Concrete Institute Committee 564 - 3-D Printing with Cementitious Materials
  - https://www.concrete.org/committees/directoryofcommittees/acommitteehome.aspx?committee_code=C0056400
    - Paul Tykodi is investigating whether it might be possible for the IEEE-ISTO Printer Working Group to make a presentation on its Safe G-Code best practice document to ACI 564 members via a session at the upcoming Transportation Research Board 2nd International Conference on 3D Printing and Transportation to be held at the TRB facility in Anaheim, CA in May of 2023.

3D / Additive Manufacturing Liaisons

- 3D PDF at the PDF Association -
    - https://www.pdfa.org/3d-pdf-at-the-pdf-association/
        - Paul Tykodi is representing the IEEE-ISTO Printer Working Group in the activities of the PDF Association 3D PDF Technical Working Group (TWG) and as time permits the 3D PDF User Liaison Working Group (LWG) as well.
            - Participation in the work of the PDF Association allows the PWG to monitor the activities of ISO TC171 SC2 - *Document file formats, EDMS systems and authenticity of information* https://www.iso.org/committee/53674.html, which is the committee responsible for PDF file format standardization

- VDMA OPC UA for Additive Manufacturing - Joint Working Group 40 540
    - https://www.vdma.org/events-trade-fairs/-/event/view/70649
        - Paul Tykodi is representing the IEEE-ISTO Printer Working Group in the activities of the Joint Working Group. The JWG has a potential interest in referencing IPP 3D standard for secure remote job submission

Other Questions / Comments
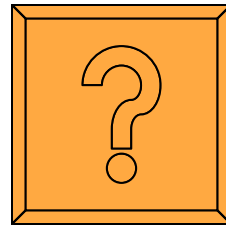
Next PWG Face-to-Face Meeting

February 7 – 9: Virtual

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