



The Printer Working Group

PWG November 2023 Face-to-Face
Plenary Session

Jeremy Leber, PWG Chair
November 15, 2023

Plenary Agenda



- **Please Note: This PWG Meeting is Being Recorded**
- 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.



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)

Wednesday, November 15

10:00 – 10:45	PWG Plenary
10:45 – 12:00	IDS WG: Status and Discussion
12:00 – 12:45	Break/Lunch
12:45 – 2:00	IDS WG: Liaison Status, PWG Hardcopy Device Security Guidelines v1.0

Agenda Overview – Day 2



(All times Eastern Standard Time)

Thursday, November 16

10:00 – 10:15	IPP WG: Status
10:15 – 11:00	IPP WG: IPP Enterprise Printing Extensions v2.0
11:00 – 12:00	IPP WG: IPP OAuth Extensions v1.0
12:00 – 12:45	Break/Lunch
12:45 – 2:15	IPP WG: 3D Printing Liaisons – Status and Guidance
2:15 – 2:30	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

2023 is a PWG Officers election year. Selection of officers begins in Fall 2023. Those interested in serving in PWG Officer roles should contact chair@pwg.org.

2023 Membership



28 Members

Alan Sukert	 Epson	 Kyocera	 PaperCut Software	 Leading Innovation >>> Toshiba Business Solutions
 Apple Inc.	 FUJIFILM Business Innovation Corp.	 Lakeside Robotics	 PrinterLogic	 Tykodi Consulting Services LLC
 Brother Industries, Ltd.	 Google	 Lexmark	 Qualcomm	 Xerox
 Canon	 High North, Inc.	 Meteor Network	 Ricoh	
Danny Brennan	 HP Inc.	 Microsoft	 Synaptics	
 Digital Check Corp	 Konica Minolta	 Ok Electric Industry Co., Ltd	Technical Interface Consulting	

Welcome to our newest member, Fiery, LLC!

Thank You For Participating!



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

Future Meeting Schedule



2024

- February 7-8 – Virtual
- May 6-8 (?) – Lexington? Sunnyvale? (Joint with OP)
- August 6-8 – Virtual
- November 12 -14 - Virtual

2025

- February 4-6 – Virtual

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>
- **1235** printers now certified!
 - <https://www.pwg.org/printers/>
 - New printers from Canon, Digital Check, OKI, HP, Lexmark, Ricoh, and Samsung
 - **More on the way!**
- IPP Everywhere™ Self Certification 1.1 Update 4
 - Announced Sept. 2, 2022
 - **IPP Everywhere v1.0 Certifications no longer accepted**



Projects on GitHub

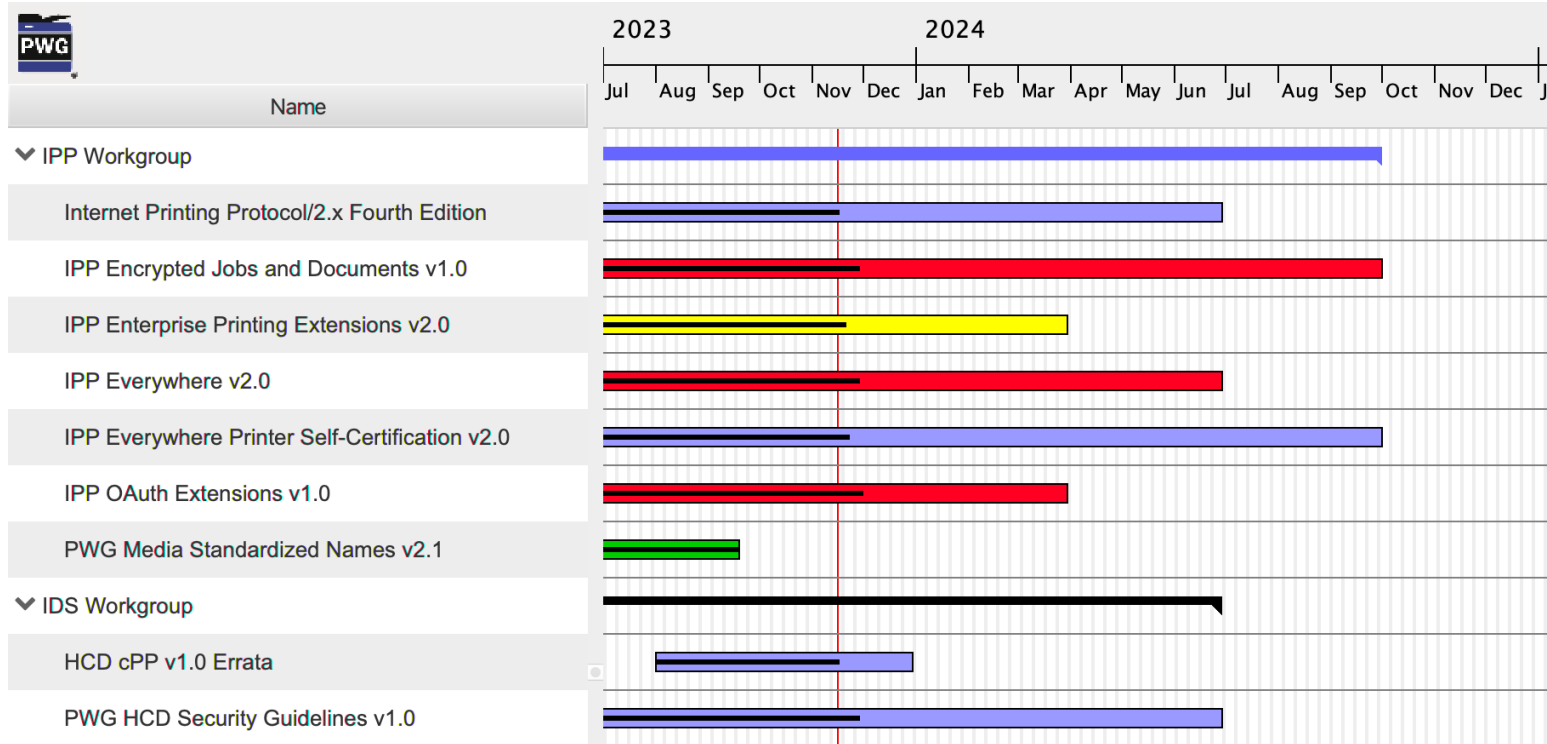
- PWG on GitHub:
 - <https://github.com/istopwg>
- IPP Sample Code
 - <https://github.com/istopwg/ippsample>
- IPP Everywhere Self Certification Tools
 - <https://github.com/istopwg/ippeveselfcert>
- IPP Registry
 - <https://github.com/istopwg/ippregistry>
- PWG Books:
 - <https://github.com/istopwg/pwg-books>



The Printer Working Group

Workgroup Status

Work in Progress





The Printer Working Group

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 August 10, 2023, IDS WG Meetings held on 8/24, 9/17, 9/21, 10/5 and 10/19 in 2023
 - Next IDS WG Meeting scheduled for 11/30/2023

IDS: Current Status



- HCD international Technical Committee (iTC):
 - Since the publishing of HCD cPP v1.0 and HCD SD 1.0 on 10/31/22, the HCD iTC now holds HCD iTC Meetings once every month
 - Will discuss the current status of the HCD iTC, the status of the HCD Interpretation Team (HIT) and plans for future updates to the published HCD cPP and HCD SD at the IDS F2F Session on Wednesday, November 15th
- 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 topics reviewing the Common Criteria User Forum's Fall 2023 Workshop, the recently held 2023 International Common Criteria Conference and the presentation given to the 2023 ASTM International Conference on Advanced Manufacturing (ICAM)
- 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, November 30, 2023 at 3pm ET



The Printer Working Group

IPP Workgroup Status

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

IPP WG: Officers



- 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 OAuth Extensions v1.0
 - Smith Kennedy (HP Inc.) – 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 Encrypted Jobs and Documents v1.0 (Prototype)
 - IPP Enterprise Printing Extensions v2.0 (Stable)
 - IPP Everywhere™ v2.0 (Prototype)
 - IPP Everywhere™ Printer Self-Certification Manual v2.0 (Interim)
 - IPP OAuth Extensions v1.0 (Prototype)
- Recently approved:
 - PWG 5100.3-2023: IPP Production Printing Extensions v2.0 (PPX)
 - PWG 5100.7-2023: IPP Job Extensions v2.1 (JOBEXT)
 - PWG 5100.13-2023: IPP Driver Replacement Extensions v2.0 (NODRIVER)
 - PWG 5101.1-2023: PWG Media Standardized Names v2.1 (MSN)
- Up-to-date pending IANA registrations online:
 - <https://www.pwg.org/ipp/ipp-registrations.xml>
 - Continue to maintain this in parallel for new specifications

IPP WG: More Information



- We welcome participation from all interested parties
- IPP workgroup 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, December 7, 2023 and January 4, 2024 at 3pm ET

3MF Consortium



- Duann Scott (Bits to Atoms) is the Executive Director of the 3MF Consortium
- Mike Sweet (Lakeside Robotics) is the PWG liaison to the 3MF
- No updates since the August 2023 virtual Face-to-Face meeting



The Printer Working Group

Liaison Status – November 2023



Linux Foundation OpenPrinting (1 of 2)

- **OpenPrinting CUPS (Zdenek Dohnal, RedHat)**
 - Current v2.x release is OP CUPS v2.4.7 on 20 October 2023
<https://openprinting.github.io/cups-2.4.7>
 - Current v3.x beta release is OP CUPS v3.0b2 on 5 October 2023
<https://github.com/OpenPrinting/libcups/releases/v3.0b2>
- **OpenPrinting CUPS Filters (Till)**
 - Current v1.x release is OP CUPS Filters v1.28.17 on 24 January 2023
<https://github.com/OpenPrinting/cups-filters/releases/tag/1.28.17>
 - Current v2.x final release is OP CUPS Filters v2.0.0 on 22 September 2023
<https://openprinting.github.io/cups-filters-Second-Generation-Final-2.0.0-Release/>
- **OpenPrinting PAPPL (Printer Application) (Mike)**
 - Current release is PAPPL v1.4.2 on 16 October 2023
<https://github.com/michaelsweet/pappl/releases/tag/v1.4.2>
- **OpenPrinting LPrint Label Printer Application (Mike)**
 - Current release is LPrint v1.2.0 on 31 December 2022
<https://github.com/michaelsweet/lprint/releases/tag/v1.2.0>
- **OpenPrinting PostScript, Ghostscript, Gutenprint, HPLIP Printer Apps (Till)**
 - **Printer Applications**
<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)**
 - **Retrofitting Printer Applications**
<https://github.com/OpenPrinting/pappl-retrofit>



Linux Foundation OpenPrinting (2 of 2)

- **OpenPrinting Website, News, and Minutes**
 - OpenPrinting Website
<https://openprinting.github.io/>
 - OpenPrinting Monthly News
<https://openprinting.github.io/news/>
 - OpenPrinting Monthly Minutes
<http://ftp.pwg.org/pub/pwg/liaison/openprinting/minutes/>
- **OpenPrinting Google Summer of Code 2023 (Aveek/Till)**
 - Coding started 29 May 2023 and ended 30 October 2023 (with extensions) – 4 contributors passed / 1 contributor failed
<https://developers.google.com/open-source/gsoc/timeline>
 - Akarshan Kapoor – PAPPL Scanning
<https://dev.to/kappuccino111/sandboxing-scanners-a-leap-into-the-driverless-realm-gsoc-23-report-3eci>
 - Kushagra Sharma – CPDB in Chromium Print Dialog
<https://github.com/kushagra20251/GSoC/>
 - Mohit Verma – New Architecture support in GNOME Control Center
<https://openprinting.github.io/OpenPrinting-News-September-2023/>
 - Pratyush Ranjan – CI testing in libcupsfilters
<https://github.com/pranjanpr/GSoC-23>
- **OpenPrinting Google Summer of Code 2024 (Aveek/Till)**
 - GSoC 2024 Timeline
<https://developers.google.com/open-source/gsoc/timeline>
 - 22 January to 6 February 2024 – GSoC 2024 Mentoring Organization Applications
 - 21 February 2024 – GSoC 2024 List of Accepted Mentoring Organizations
 - 18 March to 2 April 2024 – GSoC 2024 Contributor Applications
 - 27 May 2024 – GSoC 2024 Coding Officially Begins



- Anthony Suarez (Kyocera): Mopria Alliance liaison to PWG
- Smith Kennedy (HP Inc.): PWG liaison to Mopria Alliance
- PWG to present "Recent Significant Changes to IPP" at Mopria Member Meeting November 9 3-4pm local time (Japan) / 11pm PT / 2am ET.
- No active collaboration efforts but opportunities exist

3MF Consortium



- Duann Scott (Bits to Atoms) is the Executive Director of the 3MF Consortium
- Mike Sweet (Lakeside Robotics) is the PWG liaison to the 3MF
- No updates since the May 2023 Face-to-Face meeting

3D / Additive Manufacturing Liaisons



- American Concrete Institute Committee 564 - 3-D Printing with Cementitious Materials
 - https://www.concrete.org/committees/directoryofcommittees/acommitteehome.aspx?committee_code=C0056400
 - On Monday October 30th, 2023, Paul Tykodi attended the ACI Committee 564 meeting at the ACI Fall Conference in Boston, MA. The purpose was to investigate 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 an ACI Training Webinar.
 - Answer from ACI Committee 564 was that he should update the PWG presentation slides from fall 2019, to clearly focus on the use case that Safe G-Code supports, and the committee would then decide whether to accept the proposal or not. If the committee agrees a webinar seems useful, it will decide whether to sponsor the webinar itself or not.
- 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 participated in the AMSC version 3 update activities. ANSI announced publication of version 3 on July 17th, 2023.
- ASTM Committee F42 on Additive Manufacturing Technologies -
 - <https://www.astm.org/COMMITTEE/F42.htm>

3D / Additive Manufacturing Liaisons



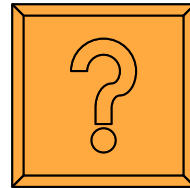
- The ASTM International Conference on Additive Manufacturing (ICAM 2023 – Oct 30- Nov 3, 2023 – Washington DC) -
 - <https://amcoe.org/event/icam2023/>
 - Alan Sukert chairperson of the IEEE-ISTO PWG Imaging Device Security(IDS) Workgroup participated in the **Industry 4.0: Security Aspects of AM** track within the 2023 ICAM conference. The title of his presentation was "*Developing Cyber Security Certification for the Additive Manufacturing Process*".
 - Alan's presentation leveraged some new capabilities recently added to the Common Criteria standard, which can be used to develop Common Criteria certification for a whole digital thread workflow. The new capabilities can be used to validate some of the latest Additive Manufacturing Security efforts being undertaken by NIST.
- 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

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
 - Current PDF Standards Supporting 3D Content
 - ISO 32000-2:2020 PDF 2.0 <https://pdfa.org/resource/iso-32000-pdf/#pdf-2>
 - ISO 21757 (ECMAScript for PDF) <https://pdfa.org/resource/iso-21757-ecmascript/>
 - ISO 14739-1:2014 PRC <https://pdfa.org/resource/3d-formats/#prc-1>
 - ISO/TS 24064:2023 STEP (AP242) <https://www.iso.org/standard/77686.html>
 - In Process PDF Standards Supporting 3D Content
 - ISO/CD TS 32007 Document management — Portable Document Format — RichMedia annotations conforming to gITF assets <https://www.iso.org/standard/45880.html>

Other Questions / Comments



Next PWG Face-to-Face Meeting



February 7-8, 2024: Virtual

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

