



The Printer Working Group

IPP Workgroup Session

August 17, 2021



Before We Begin...

- **PWG Antitrust Policy:**
 - https://www.pwg.org/chair/membership_docs/pwg-antitrust-policy.pdf
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Agenda (1/3)



August 17, 2021 (US Eastern Daylight Time)

When	What
10:00 - 10:45	PWG Plenary
10:45 - 11:15	IPP WG: Status
11:15 - 12:00	IPP WG: IPP/2.0 and IPP Everywhere v2.0
12:00 - 12:30	Lunch
12:30 - 13:15	IPP WG: IPP Production Printing Extensions v2.0
13:15 - 14:00	IPP WG: IPP Finishings v2.0

Agenda (2/3)



August 18, 2021 (US Eastern Daylight Time)

When	What
10:00 - 10:30	OpenPrinting: GSoC Status
10:30 - 12:00	IPP WG: IPP Driverless Printing Extensions v2.0
12:00 - 12:30	Lunch
12:30 - 14:00	IPP WG: IPP Enterprise Printing Extensions v2.0

Agenda (3/3)



August 19, 2021 (US Eastern Daylight Time)

When	What
10:00 - 12:00	IDS WG: Status and Discussion
12:00 - 12:30	Lunch
12:30 - 13:45	IPP WG: 3D Printing and Scanning Discussions
13:45 - 14:00	IPP WG: Next Steps



- Current charter:
 - <https://ftp.pwg.org/pub/pwg/ipp/charter/ch-ipp-charter-20210409.pdf>
- The Internet Printing Protocol (IPP) workgroup is chartered with the maintenance of IPP and the IETF IPP registry, and support for new clients, network architectures (Cloud, SDN), MFD/Imaging service bindings, and emerging technologies such as 3D Printing
- In addition, we maintain the IETF Finisher MIB, Job MIB, and Printer MIB registries, the PWG MIBs, the PWG Semantic Model schema, and handle synchronization with changes in IPP



- **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 Production Printing Extensions v2.0
 - Smith Kennedy (HP Inc.) – IPP Driverless Printing Extensions v2.0, IPP Encrypted Jobs and Documents v1.0, IPP Enterprise Printing Extensions v2.0, IPP Finishings v3.0

Status (1/3)



- PWG Specifications in development:
 - Internet Printing Protocol/2.x Fourth Edition - Interim
 - IPP Driverless Printing Extensions v2.0 - Interim
 - IPP Encrypted Jobs and Documents v1.0 - Prototype
 - IPP Enterprise Printing Extensions v2.0 - Prototype
 - IPP Finishings v3.0 - Prototype
 - IPP Production Printing Extensions v2.0 - Prototype
- Recently published:
 - PWG 5199.11-2021: Job Accounting with IPP v1.0
 - IPP Label Printing Extensions v1.0 (registration)
 - IPP System Service Discovery v1.0 (registration)
 - PWG 5100.14-2020: IPP Everywhere v1.1
 - PWG 5100.16-2020: IPP Transaction-Based Printing Extensions v1.1
 - PWG 5100.20-2020: IPP Everywhere Printer Self-Certification Manual v1.1

Status (2/3)



- 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 Everywhere Printer Self-Certifications:
 - <https://www.pwg.org/printers>
 - **692** printers currently listed from HP and Lexmark
 - 1.1 self-certification tools update 3 approved June 2021
 - *Update 4 in progress*
- IPP Sample Code:
 - Github repository:
 - <https://github.com/istopwg/ippsample>
 - Fork of CUPS code includes ipp3dprinter, ippeveprinter, ippfind, ippproxy, ippserver, ipptool, ipptransform, and ipptransform3d



- Pending Errata:

- PWG 5100.5-2019 (Document Object v1.1): 4 issues
- PWG 5100.6-2003 (Page Overrides v1.0): 2 issues
- PWG 5100.7-2019 (Job Extensions v2.0): 5 issues
- PWG 5100.8-2003 ("-actuals" v1.0): 1 issue
- PWG 5100.9-2009 (Printer State Extensions v1.0): 2 issues
- PWG 5100.15-2014 (FaxOut v1.0): 2 issues
- PWG 5100.18-2015 (Infrastructure Extensions v1.0): 6 issues
- PWG 5100.19-2015 (Implementor's Guide v2.0): 6 issues
- PWG 5100.22-2019 (System Service v1.0): 2 issues
- PWG 5107.3-2019 (MFD Alerts v1.1): 1 issue

- In-Progress Errata:

- PWG 5100.1-2017 (Finishings v2.1): 3 issues
- PWG 5100.3-2001 (Production Printing): 2 issues
- PWG 5100.11-2010 (JPS2 - Enterprise Printing): 7 issues
- PWG 5100.12-2015 (IPP 2.0, 2.1, and 2.2): 2 issues
- PWG 5100.13-2012 (JPS3 - Driverless Printing): 15 issues

IPP Encrypted Jobs and Documents v1.0 (TRUSTNOONE)



- Current prototype draft:
 - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ipptrustnoone10-20210428-rev.pdf>
- Uses Public Key Encryption to provide confidentiality and integrity checking (signatures)
 - Previous draft only allowed OpenPGP since S/MIME 3.x and earlier had unresolvable cryptographic weaknesses that were exposed by EFAIL, but things have changed...
- Waiting on prototyping
- Proposed schedule:
 - Stable draft in Q1 2022

IPP Everywhere Self-Certification (1/2)



- Resources:

- <https://www.pwg.org/ipp/everywhere.html> (for info)
- <https://www.pwg.org/ippeveselfcert> (tools and submission instructions)
- <https://www.pwg.org/printers> (printer list)
- <https://github.com/istopwg/ippeveselfcert> (Github repo)
- <https://ftp.pwg.org/pub/pwg/general/logos/ipp-everywhere-color.zip>
- <https://ftp.pwg.org/pub/pwg/general/logos/ipp-everywhere-gray.zip>

- Approved v1.1 Update 3 tools on June 16th, 2021

- v1.1 tracks OpenPrinting CUPS 2.4.x (current development branch)
- Future update 4 will address an issue identified by Lexmark in the ippevesubmit program (workaround available)

IPP Everywhere Self-Certification (2/2)



Current Color Logo



Everywhere™

Current Grayscale Logo



Everywhere™

Proposed B&W Logo



Everywhere™



IPP/2.x Fourth Edition

- Current interim draft:
 - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippbase23-20210424-rev.pdf>
- Errata update of PWG 5100.12-2015:
 - Updated document references, including an informative reference to IPP Everywhere
 - Simplified reference tables and conformance requirements
 - New history of the development of the Internet Printing Protocol content to explain how we ended up with different protocol versions with the same encoding
- Proposed schedule:
 - Prototype draft after EPX 2.0, FIN 3.0, and PPX 2.0



IPP Everywhere v2.0 Evolution

- Mandate support for valuable features that were added as recommendations in IPP Everywhere v1.1:
 - TLS, privacy, job accounting
- Add feature definitions for important "vertical solution" use cases:
 - Cloud printing, finishings, authentication with different methods (e.g. Basic, Digest, OAuth2), Job Release, Job Storage
- Define a complete IPP Everywhere MFD by adding new IPP Everywhere service definitions?
- Define tests to self-certify standard common features:
 - Sides
 - Variations in page orientation (e.g. mixed portrait / landscape pages in source document tested with both short and long edge feed media)
- Proposed schedule:
 - Initial draft when NODRIVER reaches prototype status



The Printer Working Group

Lunch Break

Resuming at 12:30pm ET



IPP Production Printing Ext v2.0

- Current prototype draft:
 - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippppx20-20210424-rev.pdf>
- Updates PWG 5100.3-2001: IPP Production Printing Attributes
- Proposed schedule:
 - Stable draft in Q3 2021



IPP Finishings v3.0

- Current prototype draft:
 - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippfinishings30-20210808-rev.pdf>
- Updates PWG 5100.1-2017: IPP Finishings v2.1
 - Major version bump to address pending conformance changes
- Proposed schedule:
 - Stable draft in Q3/Q4 2021



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IPP Driverless Printing Ext v2.0

- Current interim draft:
 - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippnodriver20-20201029-rev.pdf>
- Updates PWG 5100.13-2012: IPP Job and Printer Extensions - Set 3 (JPS3)
- Proposed schedule:
 - Prototype draft in Q3/Q4 2021



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Lunch Break

Resuming at 12:30pm ET



- Current prototype draft:
 - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippepx20-20210423-rev.pdf>
- Update of PWG 5100.11-2010: IPP Job and Printer Extensions - Set 2 (JPS2)
 - Obsoleted "job-save-disposition (collection)", replaced by new Job Storage feature
 - Obsoleted "pages-per-subset (1setOf integer(0:MAX))", replaced by "job-pages-per-subset (integer(1:MAX))" in 5100.1
 - Deprecated "proof-print (collection)", replaced by "proof-copies (integer(1:MAX))"
 - Obsoleted "sheet-collate (type2 keyword)" - base attribute from RFC 3381 is obsolete
 - Added "job-release-action (type2 keyword)" to support Job Release
 - Some non-enterprise-specific attributes were moved to PWG 5100.7
- Proposed schedule:
 - Stable draft in Q3 2021



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3D Printing and Scanning Discussions

- Current documents:
 - PWG 5100.21-2019: IPP 3D Printing Extensions v1.1
 - PWG 5199.5-2017: PWG 3D Print Job Ticket and Associated Capabilities v1.0 (PJT3D)
- Proposed future work (2021-2022):
 - IPP 3D Scan Service v1.0 specification to address 3D scanning
 - IPP 3D Production Printing Extensions v1.0 specification to address AMSC AMNOW efforts
 - Updated PWG 3D Print Job Ticket and Associated Capabilities v2.0 (PJT3D) best practice to incorporate production extensions and IPP 3D v1.1



3D Printing Organizations/Liaisons

- 3MF Consortium: <https://www.3mf.io>
- AMSC: <https://www.americamakes.us/>
 - AMNOW: <https://www.americamakes.us/ncdmm-and-catalyst-connection-announce-next-phase-of-amnow-program-to-support-additive-manufacturing-technology-insertion-into-the-u-s-army-supply-chain/>
- ASTM Committee F42: <https://www.astm.org/COMMITTEE/F42.htm>
- INCITS: <https://www.incits.org>
 - Potential 3D Printing Protection Profile (with IDS workgroup)
 - Looking at AMSC-identified gaps, particularly 3D scanning
- ISO/IEC JTC 1 WG 12: <https://www.iso.org/committee/45020.html>
 - ISO TR 22100-4: Best Practice document already published
- PDF Association + ISO/IEC TC171: <https://www.iso.org/committee/53674.html>
- SAE ITC Additive Manufacturing Data Consortium: <https://www.sae-itc.com/amdc>
- SME iRAMP: <https://www.sme.org/iramp/>



The Printer Working Group

Next Steps



Next Steps

- IPP/2.x Fourth Edition (Mike)
 - Prototype draft in Q3 2021
- IPP Driverless Printing Extensions v2.0 (Smith)
 - Prototype draft in Q3/Q4 2021
- IPP Encrypted Jobs and Documents v1.0 (Mike/Smith)
 - Stable draft in Q1 2022
- IPP Enterprise Printing Extensions v2.0 (Smith)
 - Stable draft in Q3 2021
- IPP Finishings v3.0 (Smith)
 - Stable draft in Q3 2021
- IPP Production Printing Extensions v2.0 (Mike)
 - Stable draft in Q3 2021



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 26, 2021 and September 9, 2021 at 3pm ET