



# The Printer Working Group

IPP Workgroup Session, Day 1

February 9, 2021

# PWG IP Policy



- "This meeting is being held in accordance with the PWG Intellectual Property Policy"
  - [http://www.pwg.org/chair/membership\\_docs/pwg-ip-policy.pdf](http://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)

# Agenda (1/3)



## February 9, 2021 (US Eastern Standard Time)

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

# Agenda (2/3)



## February 10, 2021 (US Eastern Standard Time)

When	What
10:00 - 12:00	IDS WG: Status and Discussion
12:00 - 12:30	Lunch
12:30 - 14:00	IPP WG: IPP Enterprise Printing Extensions v2.0

# Agenda (3/3)



## February 11, 2021 (US Eastern Standard Time)

When	What
10:00 - 12:00	IPP WG: IPP Finishings v2.2
12:00 - 12:30	Lunch
12:30 - 13:45	IPP WG: 3D Liaisons: Status and Guidance
13:45 - 14:00	IPP WG: Next Steps



- Current charter:
  - <https://ftp.pwg.org/pub/pwg/ipp/charter/ch-ipp-charter-20170615.pdf>
- Proposed charter in PWG Call for Objections:
  - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ipp-charter-20210125-rev.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, the PWG MIBs, 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:**
  - Ira McDonald (High North) - IPP WG Charter
  - Michael Sweet (Lakeside Robotics) – 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 v2.2

# Status (1/3)



- PWG Specifications in development:

- IPP Driverless Printing Extensions v2.0 - Interim
- IPP Encrypted Jobs and Documents v1.0 - Prototype
- IPP Enterprise Printing Extensions v2.0 - Interim
- IPP Finishings v2.2 - Interim
- 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>
  - ~~625~~ **629** printers currently listed from HP and Lexmark
  - 1.0 self-certification tools update 5 approved August 2020, can be used until June 30, 2021
  - 1.1 self-certification tools update 2 approved October 2020
- 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 5100.12-2015 (IPP 2.0, 2.1, and 2.2): 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 5100.13-2012 (JPS3 - Driverless Printing): 15 issues



# IPP Everywhere Self-Certification

- 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)
- Released v1.0 Update 5 of self-certification tools on June 17th, 2020 (approved on August 13th, 2020)
  - v1.0 is tracking CUPS 2.2.x (previous stable branch)
  - v1.0 certifications will be accepted until June 30, 2021
- Released v1.1 Update 2 tools on October 7th, 2020 (approved on October 22nd, 2020)
  - v1.1 tracks CUPS 2.3.x (current stable branch)
  - Future update 3 will address document format test issues identified by Lexmark



# 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 Q2 2021



- **Wiki Page Summarizes Future Plans:**
  - <https://github.com/istopwg/ippsample/wiki/Planned-PWG-Errata-Updates>
- **Internet Printing Protocol/2.0: Fourth Edition**
  - Updates PWG 5100.12-2015: IPP 2.0, 2.1, and 2.2
  - Normalize the document version. Each document has used the name "ipp20" which doesn't match the file naming policy for the PWG. Because this will be the third update to 2.0, working drafts should be named "wd-ipp23-yyyymmdd[-rev].ext".
  - Keep the IPP/2.0 conformance level as-is - IPP/1.1 + collections + MSN2 (basically STD92 with protocol version 2.0)
  - Redefine the IPP/2.1 conformance level as Enterprise Printers that SHOULD conform to EPX 2.0
  - Redefine the IPP/2.2 conformance level as Production Printers that SHOULD conform to PPX 2.0
  - Provide non-normative references to NODRIVER 2.0 (for ipp-features-supported) and text that explains that the old hammer of IPP version is no longer used to identify major features.



# IPP Evolution (con't)

- IPP Everywhere v2.0, IPP Everywhere Printer Self-Certification Manual v2.0
  - Mandate support for valuable features that were added as recommendations in IPP Everywhere v1.1:
    - TLS 1.2, 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:
    - Scan? FaxOut? System?
  - Define tests to 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)



# The Printer Working Group

Lunch Break

*Resuming at 12:30 EST*

# IPP INFRA and Cloud Proxy Registration



- Working on IPP Registration to address:
  - X.509 certificate registration via Register-Output-Device extension to IPP SYSTEM
  - X.509 certificate authentication for Proxy operations in IPP INFRA
- Want to ensure that our work addresses the use case/ requirements for Microsoft's Universal Print Service
  - IPP INFRA-based
  - Currently RESTful service to handle IPP SYSTEM equivalent functions
  - MS service accepts an X.509 Certificate Signing Request and generates an X.509 Certificate for the Proxy
    - With MS UPS, the X.509 certificate is used to authenticate the OAuth service connection to obtain a Bearer token for authorizing Proxy requests
  - IPP INFRA service uses OAuth to authorize Proxy requests
- If we adopt using CSRs in the Register-Output-Device request, need to ensure we support algorithm agility!





# IPP Production Printing Ext v2.0

- Prototype draft:
  - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippppx20-20201029-rev.pdf>
- Awaiting prototyping
- Proposed schedule:
  - Stable draft and last call Q1 2021



# The Printer Working Group

IPP Workgroup Session, Day 2  
February 10, 2021

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- Current interim draft:
  - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippepx20-20201029-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:
  - Prototype draft in Q1 2021



# The Printer Working Group

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13:45 - 14:00	IPP WG: Next Steps





# IPP Finishings v2.2

- Interim draft:
  - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippfinishings22-20210108-rev.pdf>
- Errata update of IPP Finishings v2.1
  - Clarification of printer-finishers and printer-finisher-supplies
  - Removal of obsolete attributes
  - Other editorial changes
- Proposed schedule:
  - Prototype draft Q2 2021



# The Printer Working Group

Lunch Break

*Resuming at 12:30 EST*



# 3D Printing Discussions

- Organizations and workgroups:
  - 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>
  - ISO/IEC JTC 1 WG 12: <https://www.iso.org/committee/45020.html>
  - PDF Association + ISO/IEC TC171: <https://www.iso.org/committee/53674.html>
  - SME iRAMP: <https://www.sme.org/iramp/>



# 3D Printing Discussions (con't)

- **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 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



# The Printer Working Group

## Next Steps



# Next Steps

- IPP Workgroup Charter Update (Ira)
  - PWG Call for Objections in Q1 2021
- IPP 2.0, 2.1, and 2.2 Update (Mike/Ira)
  - Initial draft in Q3 2021
- IPP Driverless Printing Extensions v2.0 (Smith)
  - Prototype draft in Q2 2021
- IPP Encrypted Jobs and Documents v1.0 (Mike/Smith)
  - Prototyping/stable draft in Q3 2021
- IPP Enterprise Printing Extensions v2.0 (Smith)
  - Prototype draft in Q1 2021
- IPP Finishings v2.2 (Smith)
  - Prototype draft in Q2 2021
- IPP Production Printing Extensions v2.0 (Mike)
  - Stable draft in Q1 2021
- Cloud Registration with X.509 Certificates (Cihan/Mike)
  - Initial draft in Q2 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, February 25, 2021 and March 11, 2021 at 3pm ET