



# 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](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 meeting attendee 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.
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  - TL;DR: Anything you say in a PWG meeting or email to a PWG address can be used in a PWG standard
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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 Finishings v3.0
12:00 - 12:45	Lunch
12:45 - 13:30	IPP WG: IPP Production Printing Extensions v2.0
13:30 - 14:15	IPP WG: IPP/2.0 and IPP Everywhere 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 - 12:45	Lunch
12:45 - 14:15	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 - 12:45	Lunch
12:45 - 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~~ **725** 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 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



# The Printer Working Group

Lunch Break

*Resuming at 12:45pm ET*



# IPP Production Printing Ext v2.0

- Current prototype draft:
  - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippppx20-20210817-rev.pdf>
- Updates PWG 5100.3-2001: IPP Production Printing Attributes
- Proposed schedule:
  - Stable draft in Q3 2021



# 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



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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



# The Printer Working Group

Lunch Break

*Resuming at 12:45pm 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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13:45 - 14:00	IPP WG: Next Steps



# 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~~ Q1 2022
- 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~~ Q4 2021
- IPP Finishings v3.0 (Smith)
  - Stable draft in ~~Q3 2021~~ Q4 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, September 9 and 23, 2021 at 3pm ET
  - Canceled the call scheduled for August 26, 2021