# The Printer Working Group

## IPP Workgroup Session

November 12, 2024

# 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 Document
  - (but please do read the IP policy above if you haven't done so)
- **This meeting is being recorded to assist in preparation of minutes but will not be published**

# Agenda

## November 12, 2024 (US Eastern Standard Time)

| When | What |
|---|---|
| 10:00 - 11:00 | PWG Plenary |
| 11:00 - 12:00 | IPP WG: Status |
| 12:00 - 12:45 | Lunch Break |
| 12:45 - 14:00 | IPP WG: IPP Everywhere v2.0 |

## November 13, 2024 (US Eastern Standard Time)

| When | What |
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| 10:00 - 11:30 | IDS WG |
| 11:30 - 12:00 | IPP WG: IPP Firmware Update Extensions v1.0 (FWUPDATE) |
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| 12:45 - 13:45 | IPP WG: 3D Printing Discussions |
| 13:45 - 14:00 | IPP WG: Next Steps |

# Charter

- Current charter:
  - https://ftp.pwg.org/pub/pwg/ipp/charter/ch-ipp-charter-20240510.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

# Errata

- Pending:
  - PWG 5100.6-2003 (IPP Page Overrides v1.0): 2 issues
  - PWG 5100.8-2003 (IPP "-actuals" v1.0): 1 issue
  - PWG 5100.9-2009 (IPP Printer State Extensions v1.0): 2 issues
  - PWG 5100.15-2014 (IPP FaxOut v1.0): 2 issues
  - PWG 5100.19-2015 (IPP Implementor's Guide v2.0): 9 issues
  - PWG 5107.3-2019 (MFD Alerts v1.1): 1 issue
- In-Progress:
  - PWG 5100.12-2015 (IPP 2.0, 2.1, and 2.2): 2 issues
  - PWG 5100.14-2020 (IPP Everywhere v1.1): 4 issues
  - PWG 5100.18-2015 (IPP Shared Infrastructure Extensions v1.0): 8 issues
  - PWG 5100.20-2020 (IPP Everywhere v1.1 Self-Cert): 1 issue
  - PWG 5100.22-2019 (IPP System Service v1.0): 3 issues

# IPP/2.x Fourth Edition (BASE)

- Stable draft:
  - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippbase23-20240912-rev.pdf
- PWG Call for Objections ended November 8, 2024
  - Result: Passed with no objection
- Proposed schedule:
  - Publish as PWG Standard 5100.12-2024 in Q4 2024

# Active Working Drafts

- IPP OAuth Extensions v1.0 (OAUTH)
  - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippoauth10-20240624-rev.pdf
  - Stable draft
  - Prototyped in CUPS and PAPPL
  - PWG Last Call Q1 2025
- IPP Shared Infrastructure Extensions v1.1 (INFRA)
  - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippinfra11-20240807-rev.pdf
  - Stable draft
  - Prototyped in PAPPL
  - Needs IPP WG Last Call
- IPP System Service v1.1 (SERVICE)
  - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippsystem11-20241011-rev.pdf
  - Stable draft
  - Prototyped in PAPPL
  - Needs IPP WG Last Call

# Other Active Working Drafts

- IPP Encrypted Jobs and Documents v1.0 (TRUSTNOONE)
  - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ipptrustnoone10-20210519.pdf
  - Prototype draft
  - Initial prototyping in CUPS branch, still needs work
- ACME-Based Provisioning of IoT Devices:
  - https://datatracker.ietf.org/doc/draft-sweet-iot-acme/
  - Still awaiting decision from IETF Area Directors
  - Mike is continuing discussion with interested parties within IETF
  - At IETF-121's "alldispatch" meeting, discussions on a related Internet Draft raised more questions about whether the work fits within an existing working group, requires a new working group, or should be referred to the IRTF to come up with a satisfactory solution

# Registration of New Media Size Names

- In a recent thread on the IPP mailing list, Charles Armstrong (Canon) has requested the registration of media size names with duplicate dimensions:
  - https://www.pwg.org/pipermail/ipp/2024/021721.html
  - https://ftp.pwg.org/pub/pwg/ipp/slides/canon-adding-multiple-identical-media-sizes-rev02.pdf
  - C4 (iso_c4_229x324mm) has the same dimensions as the proposed Kaku20 Envelope
  - C5 (iso_c5_162x229mm) has the same dimensions as the proposed Kaku6 Envelope
  - C6 (iso_c6_114x162mm) has the same dimensions as the proposed You2 Envelope
  - Chou3 (jpn_chou3_120x235mm) has the same dimensions as the proposed YouChou3 Envelope
  - The primary difference is the location of the flap - long or short edge
    - Kakugata ("square") envelopes have a length < 2*width with the flap on the short edge
    - Chou ("long") envelopes have a length > 2*width with the flap on the short edge
    - You ("western") envelopes with the flap on the long edge
- The policy in section 5 of PWG 5101.1-2023 specifies that only one media size name be registered for a particular width and length:
  - https://ftp.pwg.org/pub/pwg/candidates/cs-pwgmsn21-20230915-5101.1.pdf#page=18

# Registration of New Media Size Names (con't)

- Normally we do not distinguish media variants (type/color/etc.) in the media size name
  - The localized name normally indicates that certain sizes are envelopes, but not where the flaps go, etc.
  - Except for roll-fed media, media size names are always expressed in portrait orientation (width < length)
- The current "media-col" Job/Document Template collection member attributes do not provide information on the envelope flap location
- ISO 269:1985 defines the C-series envelope sizes
  - **This standard has been withdrawn by the ISO!**
  - This 4-page (including boilerplate) standard defines the C0 through C8 sizes as well as two "types" of envelopes: banker shape when the flap is on the long edge and pocket shape when the flap is on the short edge
  - Banker shape corresponds to the Japanese "You" designation while pocket shape corresponds to the Japanese "Kakugata" designation

- Discussion: Should the PWG add variant size names for C-series envelopes?
  - Dimensions would still be provided in portrait orientation (width < length)
  - Examples: "iso_c4-long-edge_229x324mm" and "iso_c4-short-edge_229x324mm"

- Discussion: What about selecting envelopes via "media-col"?
  - The existing "media-source-properties" and "media-source-feed-orientation" member attributes could be used to indicate the location of the flap (portrait == top, landscape == left, etc.)
  - However, "media-source-properties" is currently just for "media-col-database" and "media-col-ready" - ideally it should be possible to specify the location of the flap for the envelope
  - Another option is to add a separate "media-orientation" member attribute that specifies the orientation of flaps, distinguishing marks, cutouts, tabs, etc. that are part of the media

# The Printer Working Group

Lunch Break

November 12, 2024

*IPP workgroup resuming at 12:45pm ET*

# IPP Everywhere v2.0

- IPP Everywhere v2.0 (EVE):
  - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippeve20-20240426-rev.pdf
  - Prototype draft
- IPP Everywhere Printer Self-Certification Manual v2.0 (EVESELFCERT)
  - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippeveselfcert20-20220510-rev.pdf
  - Interim draft
  - Still working on new self-certification tools/UI
- IPP Everywhere Printer Self-Certification Tools
  - https://github.com/istopwg/ippeveselfcert
    - "master" branch has Flutter/Dart-based "ippevetool" to run tests (still very alpha)
  - https://github.com/OpenPrinting/libcups
    - Submodule of ippeveselfcert repository
    - New modular IPP tests for individual specifications handle print/no-print and required/not-required

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# IPP Firmware Update Extensions v1.0 (FWUPDATE)

- Interim draft:
    - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippfwupdate-20241024-rev.pdf
- Registration for monitoring and managing firmware updates
- Proposed schedule:
    - Prototype draft Q1 2025
- High-level goals:
    - Good user experience
    - Simple Client interface
    - Secure/safe updates
- Discussion:
    - Are firmware updates installed monolithically or as separate components?
    - Do we want to support updates by name/URI?
    - What category of printers do we want to support?
    - How complex do we want this registration?

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Lunch Break

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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)
  - PWG 5199.7-2019: PWG Safe G-Code Subset for 3D Printing v1.0
- Discussion:
  - 3D Concrete Printing
  - 3MF Prototyping/Sample Files
  - VDMA OPC UA

- 3MF Consortium and PWG wish to collaborate:
  - Produce sample 3MF files for printing with an embedded PJT3D (XML) Job Ticket
  - Coordinate prototyping with one or more printer vendors - IPP 3D and out-of-band submission of these sample 3MF files
- Issues to discuss:
  - Lack of resources - volunteers and time
  - What kinds of printers to prototype with?
  - What kinds of files/objects to use?
  - Priorities?
  - Schedule?

- Some Standards Organizations Involved with 3D Concrete Printing:
  - AASHTO – The American Association of State Highway and Transportation Officials
    - Transportation Infrastructure Codes & Standards
  - ASTM
    - Committee C01 on Cement, C01.22 – Workability
    - Committee C09 on Concrete and Concrete Aggregates, C09.25 - Organic Materials for Bonding
    - Committee F42 on Additive Manufacturing Technologies, F42.07.07 - Construction
  - The International Federation for Structural Concrete (fib)
    - TG2.11 Structures Made by Digital Fabrication
  - ISO Technical Committee/261 – Additive Manufacturing
    - ISO/TC 261/JG 80 - Joint ISO/TC 261-ASTM F42 Group: Quality requirements for additive manufacturing in building & construction (structural and infrastructure elements)
  - NIST – National Institute of Standards and Technology
    - Data Management and Fusion for AM Industrialization
  - Infrastructure Materials Group
    - Metrology
  - RILEM - International Union of Laboratories and Experts in Construction Materials, Systems and Structures
    - Digital Fabrication
  - UL Solutions
    - UL 3401 - Outline of Investigation for 3D Printed Building Construction

# VDMA OPC UA

- VDMA OPC UA for Additive Manufacturing - Joint Working Group 40540
  - 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
  - The next scheduled meeting, to review the latest release draft, will occur on November 27th, 2024
- Prepare for attending Formnext 2025?

# The Printer Working Group

Next Steps

# Next Steps

- IPP OAuth Extensions v1.0 (Mike/Piotr)
  - PWG Last Call in Q1 2025
- IPP Shared Infrastructure Extensions v1.1 (Mike)
  - IPP WG Last Call Q4 2024/Q1 2025
- IPP System Service v1.1 (Mike)
  - IPP WG Last Call Q4 2024/Q1 2025
- IPP Everywhere v2.0/Printer Self-Certification Manual v2.0/Self-Certification Tools v2.0
  - Restart development Q1/Q2 2025
- 3MF Sample Files/Prototyping
  - ???

# 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, December 5 and 19, 2024 at 3pm ET