



# The Printer Working Group

## PWG 2022 State of the Union

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# PWG 2022 State of the Union



- Imaging Device Security (IDS) Workgroup
  - Status and Activities
- PWG Internet Printing Protocol (IPP) Workgroup
  - Core IPP Specifications
  - Recently Approved or Updated PWG Specifications
  - PWG IPP Work In Progress
- Q & A



# The Printer Working Group

Imaging Device Security (IDS)  
Workgroup



# PWG Imaging Device Security

- Secure the Client and Printer to establish and maintain customer faith in the printing ecosystem
  - Protecting data being communicated to/from the device
  - Protecting data stored at rest
- Define standards and guidelines to make the imaging device (printer) and the act of printing more trusted
  - Protects User Data (document content), Job data (job ticket) and TSF Data (login credentials, encryption keys)
  - Hardcopy Device collaborative Protection Profile (HCD cPP) in development
    - Expected to be published Q4 2022
    - PWG IDS Workgroup contributes to this effort
- PWG Hardcopy Device Security Guidelines v1.0 (HCDSEC):
  - <https://ftp.pwg.org/pub/pwg/ids/wd/wd-idshcdsec10-20201101.pdf>



# Core IDS Specifications

- PWG 5110.1-2013: PWG Hardcopy Device Health Assessment Attributes
- PWG 5110.2-2013: PWG Hardcopy Device Health Assessment Network Access Protection Protocol Binding
- PWG 5110.3-2013: Common Log Format
- PWG 5110.4-2015: Hardcopy Device Health Assessment Trusted Network Connect Binding (HCD-TNC)



# The Printer Working Group

Internet Printing Protocol (IPP)  
Workgroup



# Core IPP Specifications

Lines in **RED** have updates pending; lines in **BLUE** were ratified in the last 2 years

- IETF STD 92: IPP/1.1 (RFC 8010 and RFC 8011)
- **PWG 5100.12-2015: IPP Version 2.0, 2.1, and 2.2**
- **PWG 5100.1-2022: IPP Finishings 3.0 (FIN)**
- **PWG 5100.3-2001: Production Printing Attributes – Set 1**
- **PWG 5100.7-2019: IPP Job Extensions v2.0 (JOBEXT)**
- **PWG 5100.11-2010: IPP: Job and Printer Extensions - Set 2 (JPS2)**
- **PWG 5100.13-2012: IPP: Job and Printer Extensions – Set 3 (JPS3)**
- **PWG 5100.14-2020: IPP Everywhere™ v1.1**
  - **PWG 5100.20-2020: IPP Everywhere™ Printer Self-Certification Manual v1.1 (SELCERT)**
  - **IPP Everywhere v2.0 In development**
- **PWG 5100.15-2014: IPP FaxOut Service**
- **PWG 5100.16-2020: IPP Transaction-Based Printing Extensions v1.1**
- **PWG 5100.17-2014: IPP Scan Service**
- **PWG 5100.18-2015: IPP Shared Infrastructure Extensions (INFRA)**
- **PWG 5100.19-2015: IPP Implementor's Guide v2.0 (IG)**
- **PWG 5100.22-2019: IPP System Service v1.0 (SYSTEM)**
- **PWG 5101.1-2013: PWG Media Standardized Names 2.0**
- **PWG 5102.4-2012: PWG Raster Format**



# IPP Everywhere™ Certified Printers

- <https://www.pwg.org/ipp/everywhere.html>
- **941** printer models now certified!
  - <https://www.pwg.org/printers/>
  - More on the way!
- IPP Everywhere™ Self Certification v1.1 Update 4  
→ Released August 19, 2022, approved September 2, 2022
- IPP Everywhere v2.0 development under way
  - Latest draft: <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippeve20-20220510.pdf>





# Recently Approved

- 2022
  - PWG 5100.1-2022: IPP Finishings 3.0 (FIN)
- 2021
  - PWG 5199.11-2021: Job Accounting with IPP v1.0
  - Deprecating IPP Print by Reference v1.0 Registration
- 2020
  - PWG 5100.14-2020: IPP Everywhere™ v1.1
  - PWG 5100.20-2020: IPP Everywhere™ Printer Self-Certification Manual v1.1 (SELFCERT)
  - PWG 5100.16-2020: IPP Transaction-Based Printing Extensions v1.1



# Work in Progress 2021-2022

- IPP Production Printing Extensions v2.0 (PPX)
  - Stable draft reached; nearing PWG Last Call
- IPP Driverless Printing Extensions v2.0 (NODRIVER)
  - Stable draft reached; nearing Workgroup Last Call
- IPP Enterprise Printing Extensions v2.0 (EPX)
  - Stable draft in Q4 2022; prototyping in progress
- IPP Encrypted Jobs and Documents v1.0 (TRUSTNOONE)
  - Stable draft in Q1 2023; awaiting prototyping
- IPP Job Extensions v2.1 (JOBEXT)
  - Stable draft in Q2 2023
- IPP Everywhere v2.0 (EVE) / IPP Everywhere™ Printer Self-Certification Manual v2.0 (SELFCERT)
  - Stable draft in Q3 2023
- Internet Printing Protocol/2.x Fourth Edition (CORE)
  - Stable draft in Q4 2023



**The Printer Working Group**

OAuth 2.0 and IPP



# OAuth 2.0 and IPP

- Workflow defined in IPP Authentication Methods v1.0 (PWG 5199.10-2019)
- Updates needed in response to detailed feedback from several members (HP Inc., Microsoft, Google, Lakeside Robotics)
  - Feedback requested from Mopria and from members' Mopria representatives
  - Discussed at the August 2022 F2F and several IPP Workgroup teleconferences
  - Wiki page available that captures the state of consensus
    - <https://github.com/istopwg/ippsample/wiki/IPP-and-OAuth>
- Engagement from members and partners is **greatly encouraged**



**The Printer Working Group**

**Work in Progress 2022: Details**

# PWG Hardcopy Device Security Guidelines v1.0 (HCDSEC)



- Provides implementation guidance for securing Hardcopy Devices using existing network security and system management protocols, local secure peripherals, and system architecture approaches that support channel isolation and process isolation.
- Status: Interim
- Latest draft: <https://ftp.pwg.org/pub/pwg/ids/wd/wd-idshcdsec10-20220208.pdf>

# IPP Encrypted Jobs and Documents v1.0 (TRUSTNOONE)



- Defines new encrypted IPP message formats and operations that provide IPP with end-to-end encryption of IPP Job attributes, Document attributes, and Document data
  - Currently proposal uses S/MIME 4.0
  - Can also use PGP
- Status: Awaiting Prototype
- Latest draft: <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ipptrustnoone10-20210519.pdf>

# IPP Production Printing Extensions v2.0 (PPX)



- Updating PWG 5100.3-2001
- Status: Awaiting Prototype
- Changes
  - Added
    - "image-orientation"
    - "date-time-at-completed-estimated", "date-time-at-processing-estimated", "time-at-completed-estimated", and "time-at-processing-estimated"
    - "job-complete-before" and "job-complete-before-time"
  - New Requirements
    - Required:
      - "insert-sheet", "job-error-sheet", "job-message-to-operator", "job-sheet-message", "page-delivery", "separator-sheets", "x-image-position", "x-image-shift", "x-side1-image-shift", "x-side2-image-shift", "y-image-position", "y-image-shift", "y-side1-image-shift", and "y-side2-image-shift"
    - Deprecated
      - "job-accounting-sheets", "media-input-tray-check", "presentation-direction-number-up" / "presentation-direction-number-up-default" / "presentation-direction-number-up-supported"
    - Obsolete
      - "page-order-received" / "page-order-received-default" / "page-order-received-supported", "current-page-order", "insert-after-page-number-supported", "job-accounting-output-bin-default", "job-recipient-name-default", and "user-defined-values-supported"
  - Moved to IPP Finishings 2.1 [PWG 5100.1-2017]
    - "finishings-col"
  - Moved to IPP Job Extensions v2.0 [PWG 5100.7]
    - "job-account-id", "job-accounting-user-id", "job-sheets-col", and "media-col"
- Latest draft: <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippv20-20220708.pdf>



# IPP Enterprise Printing Extensions v2.0 (EPX)



- Updating PWG 5100.11-2010
- Status: Prototyping in progress
- Changes
  - New Features
    - Job Storage feature (section 4.2), which provides "stored jobs" with more clearly defined semantics than the legacy Job Save and Reprint feature (now OBSOLETE)
    - Job Proof and Suspend feature (section 4.4.1) provides a simpler proof printing solution that is more congruent with vendor proof printing implementations already in the marketplace, replacing the legacy Job Proof Print feature (section 4.4.2), which is now DEPRECATED
    - Job Release feature (section 4.1) extends the legacy Secure Print feature and now interoperates with the Job Storage and Job Proof and Suspend feature to better support complex enterprise print workflow solutions
    - The Job Print Policy feature (section 4.3) was added by adopting the Get-User-Printer-Attributes operation registered in 2017;
  - Moved to IPP Job Extensions v2.0 [PWG5100.7]
    - Many attributes and keywords (see slide 10) because they don't specifically apply to the new "enterprise printing" focus of this specification
  - Moved to IPP Production Printing Extensions v2.0 (PPX)
    - "job-phone-number", "job-phone-number-default", "job-phone-number-supported", "job-recipient-name", "job-recipient-name-default", and "job-recipient-name-supported"
- Latest draft: <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippepx20-20211101.pdf>

# IPP Driverless Printing Extensions v2.0 (NODRIVER)



- Updating PWG 5100.13-2012
- Status: Stable, candidate for approval, nearing Workgroup Last Call
- Changes
  - New Features
    - Job Presets adopted from the registration document where it was originally defined
    - Print Quality extends presets to support vendor print quality color customization
    - Color Modes support Printer color transformations with client-side previews
    - Message Catalog extensions to allow the Printer to supply "tooltips" and inline links to external help resources
    - "client-info" - replaces "document-format-details" for reporting client accounting information
    - Other minor enhancements
  - Received from IPP Transaction Based Printing Extensions (TRANS) [PWG5100.16-2013]
    - "jpeg-k-octets-supported", "jpeg-x-dimension-supported", "jpeg-y-dimension-supported", "pdf-k-octets-supported", "pdf-versions-supported", "print-scaling-default", "print-scaling-supported", "printer-dns-sd-name", and "printer-kind"
- Latest draft: <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippnodriver20-20220817.pdf>