

# Internet Printing Protocol Meeting Minutes

## February 14 and 15, 2024

Meeting was called to order at 11:30am ET on February 14 and 10:30am on February 15, 2024.

### Attendees

Benjamin Gordon (Google)  
Smith Kennedy (HP)  
Jeremy Leber (Lexmark)  
Ira McDonald (High North)  
Michael Rhines (Qualcomm)  
Chris Rizzo (Xerox)  
Anthony Suarez (Kyocera)  
Michael Sweet (Lakeside Robotics)  
Tsotomu Iwasaki (OKI)  
Paul Tykodi (TCS)  
Bill Wagner (TIC)  
Steven Young (Canon)  
Michael Ziller (Microsoft)

### Agenda Items

1. Antitrust and IP policies, minute taker
  - [https://www.pwg.org/chair/membership\\_docs/pwg-ip-policy.pdf](https://www.pwg.org/chair/membership_docs/pwg-ip-policy.pdf)
  - [https://www.pwg.org/chair/membership\\_docs/pwg-antitrust-policy.pdf](https://www.pwg.org/chair/membership_docs/pwg-antitrust-policy.pdf)
  - Antitrust and IP policies accepted, Mike taking minutes
2. Status
  - <https://ftp.pwg.org/pub/pwg/ipp/slides/ipp-wg-agenda-february-24.pdf>
3. IPP WG Charter Review (Ira)
  - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ipp-charter-20240213-rev.pdf>
  - Add "trust models and authentication technologies" to intro paragraph
  - TRUSTNOONE: Drop "Template" from Job and Document attributes
  - BASE: 5100.5-2024, 5100.13-2023 (has colon), drop 5100.18 (INFRA), 5100.22 (SYSTEM) since they aren't referenced
  - Add page breaks as needed (e.g. before Potential IPP WG Projects) after accepting changes
  - OOS-3: Reword to avoid confusion with OBJ-2 (Ira: "Don't bury a new transport binding in an IPP extension.")
  - TRUSTNOONE-2: Q4 2024?
4. IPP Enterprise Printing Extensions v2.0 Last Call Review (Smith)
  - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippepx20-20240210-rev.pdf>
  - <https://ftp.pwg.org/pub/pwg/ipp/wd/lcrc-epx-20-20240210.txt>

- Section 4.1:
  - Broken reference (section 0)
  - Benjamin: What are the authentication challenge options?
    - Smith: Any regular IPP mechanism as supplied in the uri-authentication-supported attribute from STD92
  - Line 602: Space before period
  - Lines 757-763: Add reference to IPPAUTH, something like "The IPP Authentication Methods v1.0 [PWG5199.nn] provide guidance for making and responding to authentication challenges." or something like that
  - Figure 1:
    - Title: "Sequence Diagram for Use Case 3.2.7 - Bob's Experience"
    - "Set print intent and UI choices from default and supported values"
    - "IPP Print Policy" -> "Job Print Policy"
    - "Update print intent and UI choices from Get-User-Printer-Attributes response"
  - Figure 2:
    - Similar changes from figure 1
  - Figure 3:
    - Similar changes from figure 1
    - Fix/move green note that is overlapping step 7
- References:
  - RFC URLs should use datatracker, e.g., "<https://datatracker.ietf.org/doc/html/rfcNNNN>"
  - STD92 should provide RFC 8010/8011 links (see template)
  - Use shorter (non-versioned) Unicode TR links but provide current dates/versions in the textual reference
- Smith will prepare a new draft for a Formal Vote
- Action: Mike to start EPX formal vote starting Feb 19ish and ending March 15

## 5. Strong Device Identity BoF

- Motivation is "how to trust local printer"
- Smith: How well does Attestation scale down?
  - Ira: IETF work for low-end IoT hardware, automotive hardware, etc.
  - Smith: Important to look at what is available in home IoT, not industrial/enterprise IoT
  - Ira: Also "ambient IoT" that has no independent power sources
  - Smith: Matter doesn't use standard attestation protocols?
- How do we get all network devices to connect securely to home networks?
  - Mike: Important to keep manufacturer/device certificate (used for identity/attestation) separate from TLS X.509 certificate provisioned on your network
    - Devices get sold, hacked, etc.
    - Need to be able to establish mutual trust (both you and the service are trusted on the network)

- Hard to do for open source software/developer software - what are the minimum requirements for trust?
  - Smith: Can we make a list of items for trust?
    - Manufacturer
    - Model
    - Identifying number (serial number, etc.)
    - Physical proximity/identification
    - Hard wired vs. wireless
  - Chris: Does trust include phoning home?
    - No, separate issue
  - Smith: What about the printer trusting the client?
    - Might be part of registration process (to claim ownership, etc.)
  - Mike:
    - Layers of security (onion)
    - Open network == no security
    - Closed network == some security
    - Trusted network connection == better security
    - Other things can add to/increase level of trust (key exchange, trusted certificates, etc.)
    - Need trusted network connection to establish an identity (X.509 certificate with trusted root) that can be passed as part of the TLS negotiation
    - Can't fix network identity/trust without fixing the network
    - Security is a spectrum of trust (none to perfect) with most solutions somewhere in the middle
  - Smith: No organization seems to be focused on fixing home networks?!? How can we make the home more trustworthy?
    - Ira: IETF CORE and SUIT are targeting home networks, might offer solutions
  - IEEE 802.1AR/TPM
    - Mike: Might be useful for secure identity but we need to be able to do a security validation (to prove possession of private key) and can't be used directly for TLS
    - Smith: some places don't have DNS names
6. IPP Shared Infrastructure Extensions v1.1 Review (Mike)
- <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippinfra11-20240102-rev.pdf>
  - Add section 1.1 Related Specifications:
    - Add references to IPP System Service and IPP OAuth Extensions v1.0
  - Section 2.2:
    - Update intro from latest wd template
    - Fix broken references - authenticated user, end user, job owner
    - Add references to EPX for each of the definitions imported from EPX
    - Add STD92 references to device definitions
  - Figure 5: Make it clearer that job is held and then released with a semi-

complex process, job-state='pending-held' initially, show more time passing with release process happening, add note that lists the ways

- Smith: PlantUML has a way to show passage of time?
  - Benjamin: which actions are supported?
    - Mike: Printer advertises, also printer might enforce a value ("always require owner-authorized")
    - Add note about the different ways that job-release-action might be assigned
  - Section 4.2:
    - Bill: Would there be a problem with Output Devices being driven by multiple Proxies?
      - Mike: I don't think do, same as multiple Clients talking to local Output Devices - the device has to manage access, might get mixed output, etc.
  - Section 5.3: Fix numbering
  - Global: Fix "The authenticated user ..." to be "The Authenticated User" (defined term)
  - Turn line numbers on
  - Smith: Where did we land with the new UUID formats?
    - Mike: Don't think we ended up wanting to recommend a particular format, but can continue discussing that at another time
  - Sections 7.4.4 and 7.4.5:
    - Smith: "infrastructure-printer-mode-xxx"?
      - Not specific to infra printers
    - Smith: Doesn't that conflict/interfere with job-release-action?
      - Mike: Could have job-release-action-default/-supported set to a single value to force job release mode
    - Smith: Seems weird that this is being driven by the Proxy, malicious proxy could bypass restrictions
      - Mike: True, but no other way for the Infrastructure Printer to know what the End User is doing at the printer console
  - Section 12: Update list numbers
7. IPP System Service v1.1 Review (Mike)
- <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippssystem11-20240214-rev.pdf>
  - Section 4.1:
    - Ira: Do we have anything saying that authenticating/using TLS will yield more trustworthy values from Get-System-Attributes
      - Mike: Not here, but maybe in the IPPS URI scheme RFC?
      - Maybe add note for security considerations about the use of TLS?
  - Global: Fix Authorized User term usage
  - Include examples for x509-request/certificate formats
  - Ira: Base64 WRT X.509 is ambiguous
    - Mike: Will make sure we identify these attributes as using PEM encoding with appropriate reference
8. 3D Printing Discussions
- Did not get to this

## 9. Next Steps

- SELFCERT: Slip to Q2 2024
- Mike might miss the March 14 concall

## **Next Steps / Open Actions**

- Next conference calls on February 29 and March 14, 2024 at 3pm
- Action: Mike to start EPX formal vote starting Feb 19ish and ending March 15
- Action: Mike to update/fix the working draft templates in section 2.2 (DONE)
- Action: Ira to prepare slides to show options for doing remote attestation for IPP (DONE)
- Action: Paul to review existing 3D use cases and identify any gaps (PENDING)
- Action: Mike to post registration updates for marker printer-state-reasons to IANA IPP Registry and IANA Printer MIB (DONE)
- Action; Mike to address 5100.3 and 5100.16 editorial errata (DONE)
- Action: Mike to update IPP Everywhere 2.0 test files (PENDING - started work on it)