Internet Printing Protocol Meeting Minutes
August 6-7, 2024

Meeting was called to order at 11:00am ET on August 6 and 7.

Attendees

Charles Armstrong (Canon)
Benjamin Gordon (Google)
Tsutomu Iwasaki (OKI)
Smith Kennedy (HP)
Jeremy Leber (Lexmark)
Jing Lin (Apple)
Ira McDonald (High North)
Anthony Suarez (Kyocera)
Mike Sweet (Lakeside Robotics)
Paul Tykodi (TCS)
Bill Wagner (TIC)
Uli Wehner (Ricoh)
Michael Ziller (Microsoft)

Agenda Items

1. PWG IP policy, minute taker, administrivia
2. Status
   - https://ftp.pwg.org/pub/pwg/ipp/slides/ipp-wg-agenda-august-24.pdf
   - IPP OAuth Extensions v1.0
     - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippoauth10-20240624-rev.pdf
     - Section 7:
       - Mike: We'll add more as the rest of the CUPS/PAPPL implementations are completed
     - Metadata: Need to have Client/Printer report that the authorization server is lacking metadata ("not compatible")
       - Smith: Who gets the blame?
         - Mike: Required by spec, but worth talking more about since not all Clients/Printers would implement the synthesized metadata
   - IPP Encrypted Jobs and Documents
     - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ipptrustnoone10-20210519-rev.pdf
     - Mike: Issues with streaming SMIME containers with initial prototyping
       - Smith: Problems with spec?
         - Mike: No, just implementation/efficiency

- Smith: Need spooling server
  - Mike: Possibly, yes
- Uli: Why would printers implement this beyond just TLS>
  - Mike: This provide protection from untrusted intermediaries as well as a signature of the original document data to prevent tampering along the way (to avoid printing defective parts or legal documents with subtle changes)
- Bill: This will be a special printer that will have the necessary storage to process the jobs and documents it gets
- Mike: No multiple-document jobs
- Smith: WRT multiple-document jobs, what if the client sent smaller pieces? Would it be faster, etc?
  - Mike: Speed might not be the primary concern since you want it to print securely…
  - Smith: Plus for user-secured containers the job won't be printed until released at the printer
    - Bill: Release printing is probably the most common use case?
    - Smith: Depends on the usage, protection from intermediaries
    - Bill: Printer in secure room?
    - Smith: Sure
    - Mike: Also that one of the use cases is protecting the print data from alteration on the way to the printer, so that protection of the printed output is a separate concern or "out of scope"
- IPP Wi-Fi Configurations Extensions v1.0
  - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippwifi10-20240731-rev.pdf
  - Smith: Add 802.11x support? Probably no
    - Mike: No, this is intended for the consumer space with simple Wi-Fi networks
  - Smith: Process?
    - Mike: This is a registration so we just need an IPP WG Last Call

3. IPP System Service v1.1
  - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippsystem11-20240731-rev.pdf
  - Section 7.2.28: Should say "system-asset-tag"
4. Firmware Updates
  - Smith: HP supports client-initiated and autonomous updates, but user/owner has to opt-in to have printer contact the HP cloud service
    - Do we have a way for the owner of the device to approve ToS/EULA?
    - Mike: IPP Privacy Attributes provides a URL to the ToS/EULA but no way to accept it
  - Smith: Privacy considerations need to be discussed
  - Charles: What target device? Home, office, any?
    - Smith: Any printer, can provide UI

- Mike: Fleet management uses, too
- Charles: How does this relate to cloud printing?
    - Mike: Not directly, but a Proxy could get a notification and relay the firmware update to the local Printer
- Smith: A lot of this is common between methods - how does the Printer/System get the update and what triggers the update? Also staggering updates (test the update on one printer, then roll out to others)
- Mike: Options for local caching of updates to minimize congestion
- Uli: Benefits for customers with multi-vendor fleets to be able to monitor things from one application instead of N applications
- Mike: Manual Firmware Updates (i.e. USB stick or some other physical interaction) with the same attributes/values to tell the Admin when an update is available that must be installed manually/physically
- Mike: "Install-Firmware-Update" operation could have an attribute that specified when the update is to be installed
- Smith: Does System resource stuff include the notion of validation?
    - Mike: Yes, at each step along the way, up to the install resource operation which can do the usual image testing and abort the resource if it cannot be verified/installed
- Smith: Probably not going to get vendors to change firmware formats
    - Mike: Don't expect that, don't want to dictate "how the sausage is made" but rather have a way for clients to know there are firmware updates and be able to specify "this is a firmware image"
- Smith: printer-firmware-update-uri: link to local or remote web page?
    - Mike: Do we have N values (ith value corresponds to ith printer-firmware-name, printer-firmware-update-string-version, etc.)
- Mike: Do we need a way to specify urgency of updates? "printer-firmware-update-priority (integer(1:100))"?
    - Smith: Hadn't thought of this
    - Uli: Do we need to scare the users?
- Goals:
    - Know when firmware updates are available, have some information about what is contained in the firmware updates
    - Schedule firmware updates from Client (immediate, tonight at midnight, etc.)
    - Some indication about the success/failure of most recent update?
    - Don't try to standardize firmware update image/package formats
    - Maybe provide non-normative guidance on firmware update best practices - verification, rollback support for broken updates, pointers to EU/US guidance/regulations?
- IETF SUIT WG (software updates) and TEAP WG RFCs nearing publication
    - May push minimum requirements for IoT
    - Also requires support for remote attestation
- Next steps:
    - Do firmware updates as an IPP registration document
    - Smith will be the document editor

5. IPP Shared Infrastructure Extensions v1.1
   - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippinfra11-20240726-rev.pdf
   - Update slides to show prototype status…
   - Section 4.2.7:
     - "… or HOSTED by the …"
   - Section 5.3, line 1282, missing open quote on 'job-fetchable'
   - Section 5.4:
     - Ira: This note about Register/Update is confusing - talks about adding association when Deregister-Output-Device is about removing the association
     - Think about word-smithing this or moving elsewhere (section 4?) to avoid the confusion
   - Section 5.7: Restart numbering of second list
   - Sections 5.10, 5.10.1, and 5.10.2: Fix excess whitespace between them
   - Section 7.4.4: Bold text for 'release-action' value
   - Mike will finish prototyping of printer-mode-xxx in PAPPL and then issue a stable draft
6. Internet Printing Protocol/2.x: Fourth Edition
   - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippbase23-20240803-rev.pdf
   - Section 6.4:
     - Add other 4xx status codes can be returned in the list
     - Say something about other 1xx (no), 2xx (200 if no auth and have complete request), and 3xx (no redirection with IPP) status codes
   - New work on Link-Local URI support:
     - https://www.ietf.org/archive/id/draft-schinazi-httpbis-link-local-uri-bcp-03.html
   - Mike will put out a new stable draft before the next concall so we can start an IPP WG last call
7. 3D Printing Liaisons/Discussion
   - Formnext:
     - Paul will be going to the Spring 2025 conference in Chicago, but agenda hasn't been published yet…
8. Next Steps
   - IPP Wi-Fi Configuration Extensions and IPP/2.x Fourth Edition will start IPP WG Last Call at next concall
   - More discussion/first registration draft of firmware updates work

Next Steps / Open Actions

- Next conference calls on August 29 and September 12, 2024 at 3pm
- Start WG last calls of IPP WIFI and BASE (at next concall after new stable drafts are posted)
- Talk about more "Strong Device Identity" at future (soon) concall, determine requirements/use cases
- Action: Mike to update the IPP How-To Guide and post to IPP list for discussion

(PENDING)
- Action: Paul to review existing 3D use cases and identify any gaps (PENDING)
- Action: Mike to update IPP Everywhere 2.0 test files (PENDING - started work on it)