

# Internet Printing Protocol Workgroup Meeting Minutes November 15-16, 2017

Meeting was called to order at approximately 11:00am MT on November 15, 2017 and 11:45am MT on November 16, 2017.

## Attendees

Gupta Gyaneshwar (Oki Data)  
Smith Kennedy (HP)  
Jeremy Leber (Lexmark)  
Ira McDonald (High North)  
Michael Sweet (Apple)  
Paul Tykodi (TCS)  
Bill Wagner (TIC)  
Rick Yardumian (Canon)

## Agenda Items

1. IP Policy and Minute Taker
  - IP policy accepted, Smith taking minutes
2. Slides
  - <http://ftp.pwg.org/pub/pwg/ipp/slides/ipp-wg-agenda-november-17.pdf>
  - Q: Should we put out a list of potential projects on the IPP WG list?
    - A: Yes, start working on a list
    - Also 2018 Google Summer of Code projects
    - Continue discussion during Thursday session...
  - Slide 9:
    - IPP Everywhere Printer Self-Certification Manual v1.1 in 2018 (not 2017)
  - CUPS License change, do we use Apache License v2 for PWG source code?
    - Process? SC decision since they decided in the first place
    - Probably want ISTO sign-off
      - Smith has pending action to get confirmation from Jessica
      - Will discuss again during next steps on Thursday
  - Slide 13: Fix URL for IPP Presets document
  - Slide 15: Fix URL for IPP System Service document
3. IPP Presets
  - <https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ipppreset-20171108-rev.pdf>
  - Canon is happy with changes for Clients to copy all Job Template attributes
  - Start IPP WG Last Call tomorrow until Friday, December 1st, for approval during Dec 7th meeting.
4. IPP System Service

- <http://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippsystem10-20171113-rev.pdf>
- Section 6.1.2:
  - Q: Move Create-Printer to section 6.4 (System Operations)?
    - A: Consensus is yes, move it
- Section 6.2.2:
  - Move Create-Resource to section 6.4 (System Operations)
- Section 6.3.1:
  - Move Create-Resource-Subscriptions to section 6.1 (Resource Operations)
- Section 6.3.2:
  - Move Create-System-Subscriptions to section 6.4 (System Operations)
- Section 6.3: Remove (two operations moved elsewhere)
- Section 6.4.8:
  - Come up with diagram for Restart-System
  - Smith: maybe a PlantUML diagram?
  - Mike: or maybe a simple flow chart showing the steps, with system-state/-reasons values along each step
  - Action: Mike to produce state diagram for Restart-System, add to IPP System
- Section 8.x:
  - Use extension format from IPP INFRA spec.
- Section 8.1:
  - Split into three separate sections.
- Section 9.1:
  - Add resource and system keywords patterned off printer notifications, maybe "resource-installed", etc.
    - Action: Mike to add resource and system notify-events keywords in IPP System
  - Mike will issue next draft with his changes
- 5. IPP Get-User-Printer-Attributes
  - <http://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippgupa-20171108-rev.pdf>
  - Section 4:
    - Replace "non-TLS" with "HTTP connection without TLS"
    - Add missing reference for RFC 5246 (TLS 1.2) after [RFC2817]
  - Section 7:
    - Replace "non-TLS" with "HTTP connection without TLS"
  - Section 8.1:
    - Add RFC 5246
  - Post updated draft and start IPP WG Last Call until Friday, December 1st, for approval during Dec 7th meeting.
  - <http://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippgupa-20171116-rev.pdf>
    - Section 7: Add reference to [RFC5246]
    - Section 8.1: Drop reference to System service spec.
    - Smith to post a quick update
- 6. IPP Authentication Methods
  - <http://ftp.pwg.org/pub/pwg/ipp/whitepaper/tb-ippauth-20170803.pdf>

- Much live discussion of the OAuth2 sequence diagram, with corrections and additions for token introspection. Smith will post an update
  - Section 3.1.5:
    - "End HTTP Negotiate Authentication"
  - Section 4
    - Client and Printer subsections
    - 4.1 Client Recommendations:
      - General:
        - PII and passwords should be stored securely at rest [look for standard references]
        - Secure connections should be used, per RFC 8010/8011
        - Local policies or controls for reuse of credentials - save username and/or password, etc.?
        - Reference TLS best current practices for X.509 validation of printer certs, policies, trust-on-first-use (TOFU) and/or trusted roots?
          - Some of this should be in section 6 (security considerations)
      - OAuth2:
        - User experience considerations
        - Reference native app best practices and PKCE RFCs
          - web view out of process/isolated to avoid information leaks and spoofing attacks (RFC 7636 for PKCE and RFC 8252 for Native Apps recommendations)
      - Negotiate:
    - 4.2 Printer Recommendations:
      - General:
        - PII and passwords should be stored securely at rest [look for standard references] or not stored at all
        - Secure connections should be used, per RFC 8010/8011
        - Say something about X.509 certs - point to best practices, recommend longer expiration dates for self-signed certs, CA-signed certs, "Let's Encrypts" CA support?
      - OAuth2:
        - PKCE (RFC 7636), OAuth 2.0 Device Flow
      - Negotiate:
7. Extended Printer States (printer-state-reasons)
  - Don't have many printer-state-reasons for non-critical/temporary states like "cooling down" or "warming up"
  - White paper or part of MFD Alerts update?
    - Good fit for MFD Alerts
    - Also note that host resources MIB status bits are garbage and don't use them (wrong since RFC 1759)

- Maybe go through MFD alerts and add missing temporary/don't panic keywords for the fuser, subunits, etc.
  - Explore whether temporary/process states should be recorded/alerted?
  - Chronic non-critical states might indicate a bigger problem? Do we switch to a different (critical) state reasons keyword?

## 8. Liaison Status

-

## 9. Future Work

- IPP Everywhere MFD/2.0?
  - Do we need it? New specs don't have widespread adoption yet, already have IPP Everywhere requirements baked in...
  - But what about self-certification tools/specs?
    - Do we need a full suite and portal, or just ipptool test files?
    - Just a basic ipptool test file testing supported attributes/operations - basic validation
      - Host in ippsample Github project
      - Publish on FTP server
      - Could be used as part of future/third-party certification suites/programs?
      - Develop in parallel with spec, informative reference to the file on the FTP server
      - Go back through existing specs and make a prioritized short list that need to be done
        - PWG 5100.21-2017: IPP 3D Printing Extensions v1.0 (3D)
        - PWG 5100.1-2017: IPP Finishings 2.1 (FIN)
        - PWG 5100.18-2015: IPP Shared Infrastructure Extensions (INFRA)
      - Do tests for all future specs/registrations
    - Is the lack of certification preventing/inhibiting adoption?
  - IPP 3D:
    - Getting adoption, how to get vendors to use it and get away from the printer-driver/app style of things
    - Materials: what to add? Paul's working on that
    - Update in 2018?
      - Only if needed, new values can just be registered
  - Potential ippsample work:
    - PWG Raster "lint" program
      - Issue #29 in ippsample project
    - ippserver and attribute files
      - ipptool now supports writing them from Get-Printer-Attributes responses
      - but Smith having some issues with some attribute types/values (1setOf textWithoutLanguage)
        - ippserver-data-type-test.conf shows issues (see commented out ATTR lines)

- IPP Everywhere Client Self-Certification?
- IPP Transform Service?
- MFD Alerts Errata update
  - As discussed above
- Shift from specification focus to reference implementation & certification focus?

## **Next Steps / Open Actions**

- Next IPP WG F2F meetings on Wednesday, November 15 at 10:30am MT and Thursday, November 16, 2017 at 11am MT
- Next IPP WG conference call on Thursday, December 7, 2017 from 3:00-4:30pm ET
- Action: Mike to produce state diagram for Restart-System, add to IPP System
- Action: Mike to add resource and system notify-events keywords in IPP System
- Action: Ira, Mike, and Paul to check and fix the IEEE organizations listed in the August F2F minutes (ONGOING)
- Action: Mike/Ira to request IESG change of status for RFC 8010/8011 to Internet Standard (PENDING)
- Action: Mike to document ippserver setup on Raspberry Pi for 3D (IN PROGRESS)
- Action: Mike to look at document template to fix level 3 headings which are not bold (ONGOING - template is correct, Mike will look at the System Service document instead)