

IPP Working Group Session

19 October 2010

Lexington, KY - PWG F2F Meeting

IPP WG Meeting Agenda



2:45 - 3:00	Introductions, Minute Taker, Agenda Review
3:00 - 3:15	Current IPP WG status
3:15 - 3:45	Discuss IPP/2.0 Second Edition
3:45 - 4:45	Discuss IPP Everywhere
4:45 - 5:00	Action Items and Next Steps

IPP WG Officers



- IPP WG Chairs:
 - Paul Tykodi (TCS)
 - Ira McDonald (High North)
- IPP WG Secretary:
 - Michael Sweet (Apple)
- IPP WG Document Editors:
 - Tom Hastings (retired Xerox) – IPP JPS2
 - Ira McDonald (High North) – IPP Version 2.0
 - Michael Sweet (Apple) – IPP Version 2.0

IPP WG Current Status



- IPP Version 2.0 First Edition
 - PWG Candidate Standard – defines IPP/2.0 and IPP/2.1
 - <ftp://ftp.pwg.org/pub/pwg/candidates/cs-ipp20-20090731-5100.10.pdf>
- IPP Printer State Extensions (PSX)
 - PWG Candidate Standard – IPP Printer/Finisher alerts
 - <ftp://ftp.pwg.org/pub/pwg/candidates/cs-ippstate10-20090731-5100.9.pdf>

IPP WG Current Status



- IPP Job and Printer Operations Set2 (JPS2)
 - PWG formal vote
 - <ftp://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippjobprinterext10-20100927.pdf>
- IPP Version 2.0 Project Charter
 - PWG SC Approved – adds IPP Job and Printer Operations Set2
 - <ftp://ftp.pwg.org/pub/pwg/ipp/charter/ch-ippv2-20090819.pdf>
- IPP/2.0 SE
 - PWG last call
 - <ftp://ftp.pwg.org/pub/pwg/ipp/wd/wd-ipp20-20100926.pdf>
- IPP Everywhere Project Charter
 - PWG SC Approved
 - <ftp://ftp.pwg.org/pub/pwg/ipp/charter/ch-ippeverywhere-charter-20100930.pdf>

IPP JPS2 Status



- Now in PWG Formal Vote
 - Ends Saturday 30 October 2010

IPP/2.0 SE Status



- PWG Last Call
 - Ends Saturday 30 October 2010

IPP Everywhere Status



- Recently updated the charter to include a third document
 - Working title: IPP Job and Printer Extensions Set 3 (JPS3)
 - Will cover all of the extension attributes, values, and operations (if any)
 - Based on IPP Everywhere Requirements
- Currently scoping IPP Everywhere Requirements
- IPP Everywhere specification will reference Requirements and JPS3

CUPS ipptool



- <http://www.cups.org/software.php>
- IPP/1.1, IPP/2.0, and IPP/2.1 conformance tests
- Binaries available for Linux, Mac OS X, and Windows
- Thousands of downloads since April
- Features in October release:
 - “Continue past errors” mode
 - Conditional tests based on success/failure of previous test
 - Timeout, authentication, and ipps: support

CUPS ipptool



- Simple text-based test files:

```
{  
  NAME "Name of test"  
  OPERATION Get-Printer-Attributes  
  GROUP operation-attributes-tag  
  ATTR charset attributes-charset "utf-8"  
  ATTR naturalLanguage attributes-natural-language "en"  
  ATTR uri printer-uri "$uri"  
  STATUS successful-ok  
  EXPECT printer-uri-supported OF-TYPE uri  
}
```

IPP Everywhere

IPP Everywhere Definitions



- Clients
 - Mobile Internet Device
 - Notebook computer
 - Desktop computer
 - Server application
 - Other network-enabled device (refridgerators, TVs, etc.)
 - No printer/vendor-specific drivers
- Printers
 - Low-cost personal inkjet/laser
 - Mid-range workgroup inkjet/laser
 - High-end enterprise inkjet/laser
 - Kiosks/Printing services

IPP Everywhere Definitions



- Content:
 - Photos
 - Web pages
 - Email
 - Reports/presentations
 - Books
 - Local and remote storage

IPP Everywhere Use Cases



- Pete is traveling and wants to print a list of local pubs to visit to a printer in the hotel he is staying at. He discovers the printer by geographic location.
- Jane wants to print a photo from her IP-enabled phone to a photo printer. She discovers the printer on the local network and chooses it based on photo printing capabilities.

IPP Everywhere Use Cases



- Joe wants to print a document at a coffee shop. He discovers a paid print service offered by the coffee shop and uses third-party identification and authorization to complete the transaction and collect his document.

- Ira wants to print a secure document from his Mobile Internet device to a secure printer. He chooses a local printer with the appropriate security capabilities.

IPP Everywhere Requirements



- Discovery Protocol
 - LAN or global discovery
 - Wi-Fi/Wi-Max/G3/Wi-Fi Direct (peer-to-peer) compatible
 - Must not depend on managed infrastructure, but should take advantage of it
 - Discovery should provide basic capabilities (color, duplex, photo, etc.), security features (TLS, etc.), geolocation (optional), and whether the printer is free or pay-to-print
 - DNS-SD, Multicast-DNS, and Zero-Configuration Networking (aka " Bonjour")

IPP Everywhere Requirements



- Transport Protocol
 - HTTP/1.1 and IPP/2.0 for baseline implementation
 - Should not preclude other transport mappings
 - Encryption for secure printing

IPP Everywhere Requirements



- Attributes:

- Require existing job template attributes (media/media-col, sides, print-quality, etc.)
- Expose geolocation information based on RFC 1876
- "Human" location attributes based on X.509 and LDAP - "printer-organization (1setOf text(MAX))" and "printer-organizational-unit (1setOf text(MAX))"
- Map Printer MIB properties to IPP attributes, similar to how printer state extensions was done
- Job accounting/cost information
- Job, printer, subscription, and document UUIDs
- Job/printer information for paid printing?
- Look at job-ticket and job-receipt for "real" job ticket info?
- PIN printing, other attributes for paid printing

IPP Everywhere Requirements



- Attributes (con't):
 - Provide icon(s) representing the printer in standard format (PNG), e.g. "printer-icons (1setOf uri)"?
 - Color: rendering intent for out-of-gamut colors, device ICC color profile(s) for soft proofing
 - "output-mode (type2 keyword)" to pick between color and monochrome?
 - Additional finishings enums for roll-fed printers: trim-after-pages, trim-after-documents, trim-after-job
 - Additional media-col member attributes:
 - media-bottom-margin (integer), media-left-margin (integer), media-right-margin (integer), media-top-margin (integer) to provide document margins (printer can choose proper mode to satisfy?)
 - media-source (type3 keyword) to specify the input source/tray

IPP Everywhere Requirements



- Attributes (con't):
 - Media size, type, source, and margins often go together, but should these be first-class attributes?
 - Also media-*-supported first-class attributes to list supported values?
 - PWG 5100.6: Page Overrides
 - PWG 5100.11: Job and Printer Operations Set 2 (for media-col-database)
 - Extensions to Get-Printer-Attributes to support filtering
 - Already supported for document-format
 - Useful for getting answers like "what are the supported media/margins for duplex printing?"
 - Add "get-printer-attributes-supported (1setOf keyword)" attribute to list the attributes that are supported for filtering?

IPP Everywhere Requirements



- Document Formats:
 - Require support for raster format(s)
 - One lossless, multipage format + (maybe) one lossy format
 - Must be low overhead for client and printer
 - Make support for vector format(s) optional
 - Need to investigate DRM issues
 - Need to think about format version support
 - PDF 1.4/1.5 for vector format
 - IPP provides supplemental document compression - make recommended but not required
 - Proposal for CUPS Raster (v2) as the lossless format and JPEG (W3C JFIF, EXIF) for lossy/photo printing
 - Other proposed raster formats pending

IPP Everywhere Requirements



- Other extensions/changes:
 - Register "ipps" URI scheme (already in common use, dedicated SSL/TLS for connection)
 - Draft sent to IETF
 - Update Bonjour printing specification
 - Include TLS key to indicate whether SSL/TLS + HTTP Upgrade is supported
 - Include `_ipps._tcp` regtype
 - Draft under review at Apple

IPP WG Next Steps

- IPP Job and Printer Operations Set2 (JPS2)
 - PWG Format Vote ends 30 October 2010
- IPP Version 2.0 Second Edition
 - PWG Last Call ends 30 October 2010
- IPP 2.0/2.1/2.2 Interoperability Testing
 - Interoperability event in Q3/Q4 2010
- IPP Everywhere
 - Requirements in Q4 2010
 - Initial draft specification in Q4 2010
 - PWG Last Call of Requirements in Q1 2011
 - Prototype draft specification in Q2 2011
 - Interoperability in Q3 2011

IPP WG Info / Participation



- We welcome participation from all interested parties
- IPP Working Group web page
 - <http://www.pwg.org/ipp/index.html>
- IPP Working Group wiki
 - <http://pwg-wiki.wikispaces.com/IPP>
- Subscribe to the IPP mailing list
 - <http://www.pwg.org/mailhelp.html>
- IPP WG holds bi-weekly phone conferences announced on the IPP mailing list