IPP Working Group Session

August 7, 2012

Redmond, WA

PWG F2F Meeting

IPP WG Meeting Agenda

Tuesday, August 7

1:30 - 1:35	Introductions, Minute Taker, Agenda Review
1:35 - 1:45	Current IPP WG status
1:45 - 2:00	Updated Results of IPP/2.0 Interoperability
2:00 - 3:30	PWG Media Standardized Names 2.0 (MSN2)
3:30 - 3:45	Break
3:45 - 4:45	IPP Everywhere
4:45 - 5:00	Next Steps

IPP WG Officers

- IPP WG Co-Chairs:
  - Paul Tykodi (TCS)
  - Ira McDonald (High North)
- IPP WG Secretary:
  - Michael Sweet (Apple)
- IPP WG Document Editors:
  - Ira McDonald (High North) – IPP Everywhere, IPP Scan Service, IPP over HTTPS Transport Binding and "ipps" URI Scheme, LDAP Schema for Printer Services
  - Michael Sweet (Apple) – IPP Everywhere, PWG Media Standardized Names 2.0, IPP over HTTPS Transport Binding and "ipps" URI Scheme, LDAP Schema for Printer Services, IPP FaxOut Service

IPP WG Status

- **IPP Everywhere specs in development:**
  - IPP Everywhere (PWG Last Call until August 24)
  - IETF IPP over HTTPS Transport Binding and "ipps" URI Scheme
  - IETF LDAP Schema for Printer Services (updates RFC 3712)
  - PWG Media Standardized Names 2.0 (MSN2)

- **IPP Multifunction specs in development:**
  - IPP Scan Service
  - IPP FaxOut Service

- **IPP Cloud binding specs in development:**
  - None (yet)

IPP WG Status

- Candidate Standards:
  - IPP: Job and Printer Extensions - Set 3 (JPS3)
  - PWG Raster Format

- Up-to-date pending IANA registrations online:
  - http://www.pwg.org/ipp/ipp-registrations.xml
  - Will maintain this in parallel for new specifications
  - Also have some MIB registrations pending

Document Editors Needed

- As we complete our work on IPP Everywhere, we need to identify editors for the IPP Multifunction specifications

- Need a new editor for IPP Scan Service since Andrew is no longer able to serve as editor

- Additional multifunction services need to be addressed: FaxIn, Copy, System Control, Transform
  - These should be relatively easy since they are essentially binding specs that reference the corresponding Semantic Model specs
  - See FaxOut for an example of how easy it will be

- IPP Multifunction spec will likely be an update of IPP Everywhere with pointers to the corresponding service specifications

IPP Interoperability Event

- During the August 2011 F2F we decided the IPP/2.0 interoperability event will be virtual using the CUPS ipptool program and conformance test files
- February 2012 release of ipptool covers:
  - All required operations and attributes for IPP/2.0
  - Partial coverage of operations and attributes for IPP/2.1
  - Basic testing for existence of IPP/2.2 operations and attributes
- Future update to include tests for undefined attribute and group tags, plus additions to IPP/2.1 and IPP/2.2 tests and new tests for IPP Everywhere and PWG Raster Format
- Test results to be sent to Mike Sweet (msweet@apple.com) for presentation at future F2F's
  - "Final" results for IPP/2.0 today!

IPP Interoperability Event

- Thus far Mike has not received testing results from any vendor

  - … so he tested a bunch of shipping printers himself!

- We need independent testing results to make this event a success

- We want results from printers regardless of their level of conformance

  - Important to understand where the issues are!

  - Results will be collated and reported anonymously!

"Final" Results

- Tested 43 shipping printers from 10 vendors
  - 14 IPP/1.1 printers
  - 29 IPP/2.0 printers
- Omitted most of the higher-level print job tests for this set of runs
- All printers completed the tests
  - Previous incomplete results were an ipptool problem, will be releasing an update soon
- Summary:
  - Average score was 81% correct responses
  - Worst was 47%
  - Best was 97%

"Final" Results (part 1)

Vendor	A	A	A	A	B	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
Printer/Test	A1	A2	A3	A4	B5	C6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20	D21	D22
IPP Version	2.0	2.0	2.0	2.0	2.0	2.0	1.1	1.1	1.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.1	2.0
RFC 2911 section 3.1.1: Bad request-id value 0	P	P	P	P	P	P	F	F	F	P	P	P	P	P	P	P	P	P	P	P	F	P
RFC 2911 section 3.1.4: No Operation Attributes	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
RFC 2911 section 3.1.4: attributes-charset	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
RFC 2911 section 3.1.4: attributes-natural-language	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
RFC 2911 section 3.1.4: attributes-natural-language + attributes-cha	P	P	P	P	P	P	F	F	F	P	P	P	P	P	P	P	P	P	P	P	F	P
RFC 2911 section 3.1.4: attributes-charset + attributes-natural-lang	P	P	P	P	P	P	F	F	F	P	P	P	P	P	P	P	P	P	P	P	F	P
RFC 2911 section 3.1.8: Unsupported IPP version 0.0	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
RFC 2911 section 3.2: No printer-uri operation attribute	P	P	P	P	P	P	F	F	F	P	P	P	P	P	P	P	P	P	P	P	P	P
RFC 2911 section 3.2.1: Print-Job Operation	F	F	F	P	P	P	P	P	P	F	P	P	P	P	P	P	P	P	P	P	P	P
RFC 2911 section 3.2.3: Validate-Job Operation	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
RFC 2911 section 3.2.5: Get-Printer-Attributes Operation (default)	P	P	P	P	P	P	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
RFC 2911 section 3.2.5: Get-Printer-Attributes Operation (requested-	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	F	P
RFC 2911 section 3.2.6: Get-Jobs Operation (default)	P	P	P	P	P	P	F	F	P	P	P	P	P	P	P	P	P	P	P	P	P	P
RFC 2911 section 3.2.6: Get-Jobs Operation (requested-attributes)	F	F	F	F	P	P	S	S	S	P	F	F	F	F	P	F	F	P	P	P	S	P
RFC 2911 section 3.2.6: Get-Jobs Operation (my-jobs)	P	P	P	P	P	P	S	S	S	P	P	F	F	F	P	F	F	P	P	P	S	P
RFC 2911 section 3.2.6: Get-Jobs Operation (my-jobs different user)	P	P	P	P	P	P	S	S	S	P	P	P	P	P	P	P	P	P	P	P	S	P
RFC 2911 section 3.2.6: Get-Jobs Operation (which-jobs=not-completed)	P	P	P	P	P	P	S	S	S	P	P	F	F	F	P	F	F	P	P	P	P	P
Get-Job-Attributes Until Job Complete	F	F	F	F	P	P	F	F	F	F	F	P	P	P	P	S	P	F	P	P	F	P
RFC 2911 section 3.2.6: Get-Jobs Operation (which-jobs=completed)	P	P	P	F	P	P	F	F	P	P	F	P	P	P	P	P	P	P	P	P	P	P
RFC 2911 section 3.2.6: Get-Jobs Operation (which-jobs, requested-at	F	F	F	F	P	P	S	S	S	P	F	P	P	P	F	F	P	F	F	S	P	
RFC 2911 section 3.3.3: Cancel-Job Operation (completed job)	P	P	P	F	P	P	P	P	P	P	F	P	P	P	P	P	P	P	P	P	P	P
RFC 2911 section 3.3.3: Cancel-Job Operation (pending/processing job)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
RFC 2911 section 3.3.4: Get-Job-Attributes Operation	F	F	F	F	P	P	F	F	F	P	F	P	P	P	P	P	P	P	P	P	F	P
RFC 2911 section 3.2.2: Print-URI Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Print-URI with bad URI: Print-URI Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
RFC 2911 section 3.2.4: Create-Job Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
RFC 2911 section 3.3.1: Send-Document Operation	S	S	S	S	S	S	S	S	S	S	P	S	S	S	S	S	S	S	S	S	S	S
Send-Document missing last-document: Create-Job Operation	S	S	S	S	S	S	S	S	S	S	F	S	S	S	S	S	S	S	S	S	S	S
Send-Document missing last-document: Send-Document Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
RFC 2911 section 3.3.3: Cancel-Job Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
RFC 2911 section 3.3.2: Send-URI Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Send-URI with bad URI: Create-Job Operation	S	S	S	S	S	S	S	S	S	S	F	S	S	S	P	P	S	S	P	P	S	S
Send-URI with bad URI: Send-URI Operation (bad URI)	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Send-URI with bad URI: Cancel-Job Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	F	F	S	S	S
Print-Job with copies	F	F	F	P	P	P	S	S	S	F	S	S	S	S	P	P	P	P	P	P	S	S
PWG 5100.12 section 6.2 - Required Printer Description Attributes	F	F	F	F	F	F				F	F	F	F	F	F	F	F	F	F	F		F
Total Passes	18	18	18	18	24	24	9	9	10	20	17	19	19	19	23	19	20	22	23	23	10	22
Total Failures	7	7	7	7	1	1	9	9	8	5	10	5	5	4	7	5	3	4	4	4	8	2
Total Skips	11	11	11	11	11	11	17	17	17	11	9	12	12	12	9	10	11	11	9	9	17	12
Scores	81%	81%	81%	81%	97%	97%	74%	74%	77%	86%	72%	86%	86%	86%	89%	81%	86%	92%	89%	89%	77%	94%

PASS FAIL SKIP

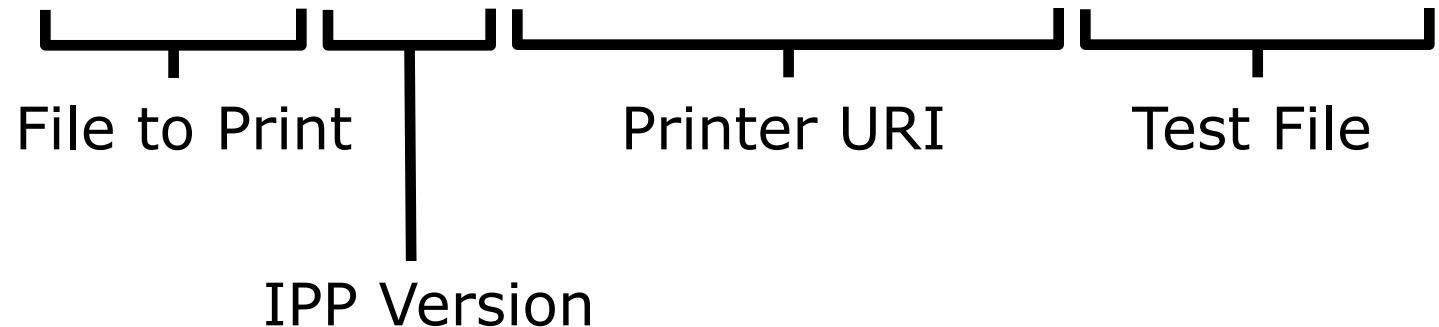| Printer/Test	D23	D24	D25	D26	D27	D28	D29	D30	E31	E32	E33	E34	E35	F36	F37	G38	H39	H40	I41	I42	J43	AVG
IPP Version	1.1	2.0	2.0	2.0	2.0	2.0	2.0	1.1	1.1	2.0	2.0	1.1	2.0	2.0	1.1	2.0	1.1	1.1	1.1	1.1	1.1	
RFC 2911 section 3.1.1: Bad request-id value 0	F	F	P	P	P	P	F	F	F	P	P	F	P	P	P	P	F	F	F	F	F	
RFC 2911 section 3.1.4: No Operation Attributes	P	P	P	P	P	P	P	P	F	P	P	F	P	P	P	P	P	P	P	P	P	
RFC 2911 section 3.1.4: attributes-charset	P	P	P	P	P	P	P	P	F	P	P	F	P	P	P	P	P	P	P	P	P	
RFC 2911 section 3.1.4: attributes-natural-language	P	P	P	P	P	P	P	P	F	P	P	F	P	P	P	P	P	P	P	P	P	
RFC 2911 section 3.1.4: attributes-natural-language + attributes-cha	F	F	P	P	P	P	F	F	P	P	P	F	P	P	P	P	F	F	F	F	P	
RFC 2911 section 3.1.4: attributes-charset + attributes-natural-lang	F	P	P	P	P	P	P	F	F	P	P	F	P	P	F	P	F	F	F	F	P	
RFC 2911 section 3.1.8: Unsupported IPP version 0.0	P	F	P	P	P	P	F	P	P	P	P	P	P	P	F	P	P	P	P	P	F	
RFC 2911 section 3.2: No printer-uri operation attribute	F	F	P	P	P	P	F	F	F	P	P	P	P	F	F	P	F	F	F	F	F	
RFC 2911 section 3.2.1: Print-Job Operation	F	F	P	P	P	P	F	F	F	P	P	F	P	P	F	P	P	P	P	F	F	
RFC 2911 section 3.2.3: Validate-Job Operation	P	F	P	P	P	P	P	P	P	P	P	P	P	P	F	P	P	P	P	P	F	
RFC 2911 section 3.2.5: Get-Printer-Attributes Operation (default)	F	F	F	F	F	F	F	P	F	F	F	P	F	F	F	P	F	F	F	F	F	
RFC 2911 section 3.2.5: Get-Printer-Attributes Operation (requested-	P	P	P	P	P	P	P	P	P	P	P	P	P	P	F	P	P	F	P	P	P	
RFC 2911 section 3.2.6: Get-Jobs Operation (default)	P	F	P	P	P	P	P	P	P	P	P	P	P	P	F	P	P	P	F	P	P	
RFC 2911 section 3.2.6: Get-Jobs Operation (requested-attributes)	F	F	F	P	P	P	F	S	P	P	P	P	P	P	F	P	F	F	S	F	F	
RFC 2911 section 3.2.6: Get-Jobs Operation (my-jobs)	P	F	F	P	P	F	P	S	P	P	P	P	P	P	F	P	P	P	S	P	P	
RFC 2911 section 3.2.6: Get-Jobs Operation (my-jobs different user)	P	F	P	P	P	P	P	S	P	P	P	P	P	P	F	P	P	P	S	P	P	
RFC 2911 section 3.2.6: Get-Jobs Operation (which-jobs=not-completed)	P	F	F	P	P	P	P	S	P	P	P	P	P	P	F	P	P	P	S	P	F	
Get-Job-Attributes Until Job Complete	F	S	P	P	P	P	F	F	P	F	F	P	P	F	S	F	P	P	F	F	S	
RFC 2911 section 3.2.6: Get-Jobs Operation (which-jobs=completed)	F	F	P	P	P	P	F	P	P	F	F	P	P	P	P	P	P	P	F	F	F	
RFC 2911 section 3.2.6: Get-Jobs Operation (which-jobs, requested-at	F	F	P	P	P	P	F	S	P	F	F	P	P	F	P	P	P	S	F	F		
RFC 2911 section 3.3.3: Cancel-Job Operation (completed job)	F	F	P	P	P	P	F	P	F	F	P	P	P	F	P	P	P	P	P	F	F	
RFC 2911 section 3.3.3: Cancel-Job Operation (pending/processing job)	F	F	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	F	
RFC 2911 section 3.3.4: Get-Job-Attributes Operation	F	F	P	P	P	P	F	F	F	P	P	F	P	P	F	P	P	F	F	F	F	
RFC 2911 section 3.2.2: Print-URI Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Print-URI with bad URI: Print-URI Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
RFC 2911 section 3.2.4: Create-Job Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
RFC 2911 section 3.3.1: Send-Document Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Send-Document missing last-document: Create-Job Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Send-Document missing last-document: Send-Document Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
RFC 2911 section 3.3.3: Cancel-Job Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
RFC 2911 section 3.3.2: Send-URI Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Send-URI with bad URI: Create-Job Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Send-URI with bad URI: Send-URI Operation (bad URI)	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Send-URI with bad URI: Cancel-Job Operation	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
Print-Job with copies	S	S	S	S	S	S	S	S	F	P	P	F	P	P	S	P	S	S	S	S	S	
PWG 5100.12 section 6.2 - Required Printer Description Attributes		F	F	F	F	F	F			F	F			F	F		F			F		
Total Passes	10	4	19	22	22	21	12	10	13	19	20	13	23	22	11	23	16	15	9	11	8	17
Total Failures	13	19	5	2	2	3	8	11	11	6	5	11	2	3	11	2	7	8	9	12	14	7
Total Skips	12	13	12	12	12	12	12	17	11	11	11	11	11	11	13	11	12	12	17	12	13	12
Scores	63%	47%	86%	94%	94%	92%	67%	77%	69%	83%	86%	69%	94%	92%	69%	94%	80%	77%	74%	66%	60%	81%

PASS · FAIL · SKIP

"Final" Results

- Common Problems:
  - Supporting Create-Job but not Send-Document
    - These printers typically did support Send-URI
  - Reporting support for Create-Job and Send-Document but it didn't work
  - Not validating request-id, order and type of attributes
  - Returning wrong status codes
  - Supporting Print-URI/Send-URI but not "ftp" URIs
  - Using http: URIs for printer-uri-supported
  - Reporting duplicate Printer attributes
  - Not reporting media-size-supported and other media-col Printer attributes
  - Missing job history

Where to Get CUPS ipptool

- http://www.cups.org/software.php
- Binaries available for Linux, Mac OS X, and Windows
- See the file "IPPTOOL.txt" for instructions on running the conformance tests
- Additional documentation in man-ipptool.html and man-ipptoolfile.html

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How to Use ipptool

ipptool -It*f file.ext* -V 2.x *ipp://address/path* ipp-2.x.test

File to Print   Printer URI   Test File

IPP Version

Example for IPP/2.0 printer with PDF support:

```
ipptool -Itf testfile.pdf -V 2.0 ipp://192.168.0.1/ipp \
    ipp-2.0.test | tee make-model-2.0-results.log
```

How to Send ipptool Results

- Send an email to "msweet@apple.com"
- Subject: IPP/<version> Test Results-<company name>-<last name>-<Pass/Fail>
- Attach the output from ipptool to the email
- Include any comments you like
- Example:

  To: msweet@apple.com
  Subject: IPP/2.0 Test Results-Acme-Doe-Pass

  Found no issues with our implementation.

  <acme-uberprinter-2.0-results.log>

PWG Media Standardized Names 2.0 (MSN2)

- Current (prototype) draft:
  - ftp://ftp.pwg.org/pub/pwg/ipp/wd/wd-pwgmsn20-2012MMYY-rev.pdf

- Proposed Schedule:
  - WG Last Call during September 2012
  - Stable draft and PWG Last Call to span October 2012 F2F
  - PWG Formal Vote starting in November 2012

IPP Everywhere

- Current (stable) draft at:
  - ftp://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippeve10-2012MMDD-rev.pdf
  - PWG Last Call until August 24, 2012
- Proposed Schedule:
  - PWG Formal Vote starting in September 2012

IPP WG Next Steps

- IPP Everywhere
  - Last Call and Formal Vote Q3 2012
  - Virtual interoperability event for IPP Everywhere starting in Q4 2012

- IPP Multifunction
  - Interim working drafts of IPP Scan Service and IPP FaxOut Service in Q3/Q4 2012
  - Initial working drafts of other specifications starting in Q3 2012

- IPP Shared Infrastructure Extensions starting in Q4 2012?

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
  - Next conference call is August 20, 2012 at 3pm (EST)