

IPP Working Group Session

April 5, 2011

Cupertino, CA

PWG F2F Meeting

IPP WG Meeting Agenda



1:00 - 1:10	Introductions, Minute Taker, Agenda Review
1:10 - 1:30	Current IPP WG status, charter update
1:30 - 3:00	IPP Everywhere Specification review
3:00 - 3:15	Break
3:15 - 4:45	JPS3 Specification review
4:45 - 5:00	Break
5:00 - 5:45	PWG Raster review
5:45 - 6:00	Next steps, wrap-up

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 Version 2.0, IPP Everywhere, IPP JPS3, IPP Scan, IPP over HTTPS Transport Binding and “ipps” URI Scheme, LDAP Schema for Printer Services
 - Michael Sweet (Apple) – IPP Version 2.0, IPP Everywhere, IPP JPS3, PWG Raster, IPP over HTTPS Transport Binding and “ipps” URI Scheme, LDAP Schema for Printer Services
 - Andrew Mitchell (HP) - IPP Scan, LDAP Schema for Printer Services

IPP WG Status



- PWG Formal Vote for IPP/2.0 SE passed
- Revised IPP Everywhere charter:
 - Two phases of development: first edition for printing, second edition for multifunction support
- Several IPP Everywhere specs in development:
 - IPP Everywhere First Edition (EVEPRT)
 - IPP: Job and Printer Extensions - Set 3 (JPS3)
 - IPP over HTTPS Transport Binding and "ipps" URI Scheme
 - PWG Raster
 - IPP Scan
- Up-to-date pending IANA registrations now online:
 - <http://www.pwg.org/ipp/ipp-registrations.html> (+ .txt)
 - Will maintain this in parallel due to IANA processing time

Parallel IPP Everywhere Efforts



- IPP over USB specification (Andrew Mitchell - HP)
 - Proposal from HP to the USB-IF
 - Extension of current Printing Device class to provide endpoints for reading and writing IPP (and HTTP) requests and responses over USB
 - Addresses both direct-connect to client and connection to USB network print servers/Wi-Fi access points
 - Specification will be posted to IPP mailing list...

CUPS ipptool



- <http://www.cups.org/software.php>
- IPP/1.1, IPP/2.0, and IPP/2.1 conformance tests
 - Working on IPP/2.2 conformance test
- Binaries available for Linux, Mac OS X, and Windows
- Thousands of downloads since April
- New release coming soon:
 - Validate-Job tests
 - Tests for some PWG 5100.x specifications
 - IPP/2.2 conformance test?

CUPS ippserver



- Sample IPP/2.0 conforming server implementation
 - Current implementation saves jobs to a directory/folder
 - Also provides Bonjour service registration and simple HTTP status page
 - Ultimate goal is to provide as part of CUPS library and have it abstract away the basic semantic model data and behaviors with entry points that actually do the work (print, cancel, etc.)
 - LGPL2
- Part of the CUPS 1.5 developer snapshots at:
 - <http://www.cups.org/software.php>

IPP Everywhere First Edition Specification



- Initial draft:
 - <ftp://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippeve10-20110326.pdf>
- Abstract: This standard defines a superset of IPP/2.0 to support network printing without vendor-specific driver software, including the transport (IPP/2.0), various discovery protocols (DNS-SD, LDAP, and SLP), and standard document formats.

IPP Everywhere First Edition Specification



- Known Issues:
 - Need paid print key for TXT records (chargeuri?)
 - Add normative reference to PWG 5100.6 (Page Overrides)
 - Use case: Printing envelope + cover page + letter (common office automation document) requires page overrides
 - Interoperability:
 - RFC 2911 says in section 4.4.18 "charset-supported" (REQUIRED) that 'utf-8' MUST be supported by all IPP Printers.
 - But RFC 2911 in section 4.4.17 "charset-configured" (REQUIRED) is silent about any default value.
 - I think that IPP Everywhere should say that "charset-configured" MUST default to 'utf-8' - for compatibility with printing gateways, RESTful/SOAPy XML schema, and modern SNMP MIBs which all use SnmpAdminString (UTF-8 fixed charset) for localized text.

IPP Everywhere First Edition Specification



- Known Issues:
 - Add “ipp-everywhere-supported (boolean)” attribute to specify that IPP Everywhere is supported?
 - Add “ipp-discovery-supported (1setOf type2 keyword)” attribute to specify the (one or more) discovery protocols that are supported?

IPP: Job and Printer Extensions - Set 3 (JPS3)



- Current draft:
 - <ftp://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippjobprinterext10v3-20110330-rev.pdf>
- Abstract: This standard defines IPP attributes and operations that support driverless and mobile printing.

IPP: Job and Printer Extensions - Set 3 (JPS3)



- Known Issues:
 - How should we express an unknown printer-geo-location?
 - Need well-known URIs for standard colorspace profiles
 - How do we register media-col member attributes with IANA?
 - Need to flesh out the conformance requirements for the printer-supply attribute
 - Still have some section 3 content to fill in and finalize

PWG Raster Format



- Current draft:
 - <ftp://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippraster10-20110327-rev.pdf>
- Abstract: This standard defines a simple raster format for printing, scanning, and facsimile. The format includes support for a small set of standard and device color spaces and bit depths, and defines Printer description attributes for IPP that enable a Client to generate or request a supported raster stream.

PWG Raster Format



- Samples files at:
 - Currently at <http://ftp.easysw.com/pub/cups/examples/PWGRasterSamples.zip>
 - WARNING: 40MB download, 80MB worth of data
 - 150dpi files for black-1, cmyk-8, sgray-8, sgray-16, srgb-8, and srgb-16
 - Representative documents for email, line art, maps, photos, and web pages

PWG Raster Format



- Known Issues:
 - Would be nice to have total page count (if known), coordinate space of image (flip/rotate on back side), and the bounding rectangle of any content to be imaged on the page
 - Some confusion about why we need pwg-raster-resolutions-supported - will be adding explanatory text to the definition
 - Some confusion about the compression algorithm - will be adding examples for 1-bit grayscale and 32-bit CMYK images

Total Page Count



- Proposal:
 - Add PageCount (integer, 0 to $2^{31}-1$) to page header
 - 0 means "I don't know how many pages"
 - > 0 means "this is how many pages are in the entire file"
 - Every page gets the same value
- Would use the "cupsInteger[0]" slot from the CUPS Raster definition; this slot is already used by several printer drivers for this information
- The "cupsInteger[n]" ($n = 0$ to 15) slots in the CUPS Raster page header are there for driver-specific stuff, so we can re-use them however we like...

Bitmap Coordinate Space



- Proposal:
 - Add HorizontalTransform(integer, -1 or 1) and VerticalTransform(integer, -1 or 1) to the page header
 - "Normal" pages have values of 1 and 1
 - "Rotated" pages have values of -1 and -1 (180 degree rotation)
 - "Flipped" pages have values of 1 and -1 (vertical flip) or -1 and 1 (horizontal flip)
- Would use the "cupsInteger[1]" and "cupsInteger[2]" slots from the CUPS Raster definition

Image Box



- Proposal 1:
 - Use existing ImagingBBox (4 x integer) from page header
 - Simple bounding box in (integer) points
- Proposal 2:
 - Add ImageBottom (integer, $0-2^{32}-1$), ImageLeft (integer, $0-2^{32}-1$), ImageRight (integer, $0-2^{32}-1$), and ImageTop (integer, $0-2^{32}-1$) to the page header
 - Simple bounding box in pixels/lines
- Proposal 2 would use the "cupsInteger[3]" through "cupsInteger[6]" slots from the CUPS Raster definition

IPP WG Next Steps



- IPP 2.0/2.1/2.2 Interoperability Testing
 - Interoperability event in Q2/Q3 2011
- IPP Everywhere First Edition
 - Initial working draft of updated LDAP Schema for Printer Services in Q2 2011
 - Initial working draft of IPP Scan in Q2 2011
 - Prototype draft specifications in Q3/Q4 2011
 - Interoperability event for IPP Everywhere First Edition in Q2 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 April 18, 2011 at 1pm (EST)