



The Printer Working Group

IPP Workgroup Session, Day 1

April 29, 2015

PWG F2F Meeting

Sunnyvale, CA (hosted by Apple)

IPP WG Meeting Agenda, Day 1



April 29, 2015

When	What
2:45 - 3:00	IPP Workgroup Status
3:00 - 4:00	IPP Shared Infrastructure Extensions (INFRA)
4:00 - 5:00	IPP Implementor's Guide 2.0 (IG)

IPP WG Meeting Agenda, Day 2



April 30, 2015

When	What
9:00 - 10:15	IPP System Service (SYSTEM)
10:15 - 10:30	Break
10:30 - 12:00	IPP Everywhere Printer Self-Certification
12:00 - 1:00	Lunch
1:00 - 2:00	IETF IPP/1.1
2:00 - 3:00	IEEE IPP/2.0
3:00 - 3:15	Break
3:15 - 4:15	Proposals
4:15 - 4:30	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 Shared Infrastructure Extensions (INFRA), IPP System Service (SYSTEM), IETF IPP/1.1, IEEE IPP/2.0, LDAP Schema for Printer Services
 - Michael Sweet (Apple) – IPP Shared Infrastructure Extensions (INFRA), IPP System Service (SYSTEM), IETF IPP/1.1, IEEE IPP/2.0, LDAP Schema for Printer Services
 - Smith Kennedy (HP) - IPP Implementor's Guide 2.0 (IG)



IPP WG Status (1/3)

- IETF RFCs in development:
 - IETF IPP/1.1: Encoding and Transport (obsoletes RFC 2910/3382)
 - IETF IPP/1.1: Model and Semantics (obsoletes RFC 2911/3382)
 - IETF LDAP Schema for Printer Services (updates RFC 3712)
 - IETF + IANA Approved, RFC Editor's Queue
- PWG Specifications in development:
 - IPP 2.0, 2.1, and 2.2
 - Stable Draft
 - IPP Everywhere Printer Self-Certification Manual 1.0 (SELF CERT)
 - Prototype Draft
 - IPP Implementors Guide 2.0 (IG)
 - Stable Draft, in PWG Last Call
 - IPP Shared Infrastructure Extensions (INFRA)
 - Stable Draft (PWG Last Call concluded)
 - IPP System Service (SYSTEM)
 - Interim Draft



IPP WG Status (2/3)

- **Recent Candidate Standards:**
 - PWG 5100.15-2014: IPP FaxOut Service (errata)
 - PWG 5100.17-2014: IPP Scan Service (SCAN)
 - PWG 5100.1-2014: IPP Finishings 2.0 (FIN)
- **Recent IETF RFCs:**
 - RFC 7472: IPP over HTTPS Transport Binding and "ipps" URI Scheme



IPP WG Status (3/3)

- Up-to-date pending IANA registrations online:
 - <http://www.pwg.org/ipp/ipp-registrations.xml>
 - Continue to maintain this in parallel for new specifications
 - PWG version includes draft specifications that have reached prototype status
- Also pending errata for PWG 5100.9 and 5107.3 to correct xxx-error usage (per WG mailing list discussion)
 - Explain issues and update registry for IANA Printer MIB (ASN.1 comments)
 - Update IANA IPP registry for keywords that do not require "-error" on the end

IPP Shared Infrastructure Extensions (INFRA)



- Current stable draft at:
 - <http://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippinfra10-20150416-rev.pdf>
- PWG Last Call concluded March 9, 2015
 - 10 responses
 - 68 comments
 - <http://ftp.pwg.org/pub/pwg/ipp/wd/lcrc-ippinfra10.txt>
- Proposed schedule:
 - Start PWG Formal Vote after this F2F



IPP Implementor's Guide 2.0 (IG)

- Current stable draft at:
 - <http://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippig20-20150303-rev.pdf>
- Have prototype experience from Apple
- In PWG Last Call Q2 2015 until May 8, 2015
 - <http://www.pwg.org/pipermail/pwg-announce/2015/003655.html>
 - Please provide your response!
- Proposed schedule:
 - PWG Formal Vote Q2/Q3 2015



The Printer Working Group

IPP Workgroup Session, Day 2

April 30, 2015

PWG F2F Meeting

Sunnyvale, CA (hosted by Apple)



IPP WG Meeting Agenda, Day 2

April 30, 2015

When	What
9:00 - 10:15	IPP System Service (SYSTEM)
10:15 - 10:30	Break
10:30 - 12:00	IPP Everywhere Printer Self-Certification
12:00 - 1:00	Lunch
1:00 - 2:00	IETF IPP/1.1
2:00 - 3:00	IEEE IPP/2.0
3:00 - 3:15	Break
3:15 - 4:15	Proposals
4:15 - 4:30	Next Steps

IPP System Service



- Current interim draft at:
 - <http://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippsystem10-20150315-rev.pdf>
- Proposed Schedule:
 - Prototype draft in Q3/Q4 2015



Create-Printer

Request	Response
<p>Operation attributes group:</p> <ul style="list-style-type: none">attributes-charsetattributes-natural-languagesystem-urirequesting-user-name/uriprinter-is-accepting-jobsprinter-service-typeprinter-state <p>Printer attributes group:</p> <ul style="list-style-type: none">printer-nameprinter-info... other printer attributes ...	<p>Operation attributes:</p> <ul style="list-style-type: none">attributes-charsetattributes-natural-language <p>Printer attributes group:</p> <ul style="list-style-type: none">printer-is-accepting-jobsprinter-stateprinter-state-reasonsprinter-uri-supported



System Service Operations

- **New Printer Status (and operation) attribute:**
 - printer-service-type (type2 keyword), values 'print', 'scan', 'faxout', etc.
- **New System attribute:**
 - printer-service-type-supported (1setOf type2 keyword)
- **Issues for Create-Printer:**
 - How to provide resources? (icons, localization files, etc.)
 - How to associate with subunits?
 - Easy to specify list of IPP Printers (services) for fan-out/"printer pools"
 - Could use output-device/-uuid to name a device/set of subunits
 - or CUPS "device-uri" attribute to point to device and have the system service pick a driver, etc. for that device, automatically?
 - ... or do we leave that as completely implementation-specific?
 - e.g., CUPS supports printer pools, PPDs, and interface scripts, with a "device-uri" attribute pointing to the output device (PPD/interface script is used for driver)



Get-Printers

Request	Response
<p>Operation attributes group:</p> <ul style="list-style-type: none">attributes-charsetattributes-natural-languagesystem-urirequesting-user-name/urirequested-attributes<i>first-index?</i><i>limit?</i><i>my-printers?</i><i>printer-[geo]-location?</i><i>printer-is-accepting-jobs?</i><i>printer-service-type?</i><i>printer-state?</i>	<p>Operation attributes group:</p> <ul style="list-style-type: none">attributes-charsetattributes-natural-language <p>Printer attributes group 1:</p> <ul style="list-style-type: none">printer-service-typeprinter-uri-supported... other printer attributes ... <p>...</p> <p>Printer attributes group N:</p> <ul style="list-style-type: none">printer-service-typeprinter-uri-supported... other printer attributes ...



System Service Operations

- Do we want some basic limiting/filtering control?
 - CUPS supports limit/first-index functionality, as well as filtering on capabilities (color, duplex, staple, etc.), location, state, and access limits/ACLs



Register-Output-Device

Request	Response
<p>Operation attributes group:</p> <ul style="list-style-type: none">attributes-charsetattributes-natural-languagesystem-urioutput-deviceoutput-device-uuidconfigured-service-typesprinter-static-resource-k-octets-requestedrequesting-user-name/uri <p>System attributes group:</p> <ul style="list-style-type: none">system-user-name/-uri... plus other system attributes ...	<p>Operation attributes group:</p> <ul style="list-style-type: none">attributes-charsetattributes-natural-language <p>System attributes group:</p> <ul style="list-style-type: none">printer-static-resource-directory-uriprinter-static-resource-k-octets-supportedprinter-static-resource-k-octets-used <p>Printer attributes group 1-N:</p> <ul style="list-style-type: none">printer-service-typeprinter-uri-supported (uri no-value)



System Service Operations

- Cloud SystemUuid is IPP "output-device-uuid"
- Cloud ConfiguredServices is IPP "configured-service-types (1setOf type2 keyword)"
 - or do we want "printer-service-types-configured"?
- Cloud RegisterSystem operation includes a lot of System elements, but how to expose from IPP System Service?



Create-Resource

Request	Response
<p>Operation attributes group:</p> <ul style="list-style-type: none">attributes-charsetattributes-natural-languagesystem-urirequesting-user-name/uriresource-categoryresource-inforesource-k-octetsresource-nameresource-type <p>Resource attributes group:</p> <ul style="list-style-type: none">... other resource description stuff...<i>retain-until-date-time?</i>	<p>Operation attributes group:</p> <ul style="list-style-type: none">attributes-charsetattributes-natural-language <p>Resource attributes group:</p> <ul style="list-style-type: none">system-uriresource-id<i>date-time-of-expiration?</i><i>time-of-expiration?</i>



Send?-Resource

Request	Response
<p>Operation attributes group:</p> <ul style="list-style-type: none">attributes-charsetattributes-natural-languagesystem-uriresource-idrequesting-user-nameresource-formatcompression <p>... Resource data ...</p>	<p>Operation attributes group:</p> <ul style="list-style-type: none">attributes-charsetattributes-natural-language <p>Resource attributes group:</p> <ul style="list-style-type: none">system-uriresource-idresource-data-uri



System Service Operations

- Slightly different from SM Network Resource service
 - StoreResource is Create-Resource followed by Send-Resource
- Do we need/want ReplaceResource or SetResource?
 - It would just be a Send-Resource request
 - But there can be race conditions - maybe better to just have create and delete/cancel resource operations with no set/replace operation?
- Do we really need expiring resources?
 - What is the use case?



The Printer Working Group

Break

IPP Everywhere Printer Self-Certification Status



- Current prototype draft and tools:
 - <http://ftp.pwg.org/pub/pwg/ipp/wd/wd-ippeveselfcert10-20150415.pdf>
 - <http://www.pwg.org/ipp/everywhere.html> (for tools)
- Received some beta test feedback
 - ... but no test results submission to beta site
- Proposed schedule:
 - Publish stable draft - Q2 2015
 - WG Last Call Q2/Q3 2015
 - PWG Last Call Q3 2015



The Printer Working Group

Demo

IPP Everywhere Printer Self-Certification Web Site



The Printer Working Group

Lunch Break



- Developing two new RFCs to replace (obsolete) RFCs 2910, 2911, and 3382 (collection attribute syntax)
- Preliminary drafts:
 - <http://tools.ietf.org/html/draft-sweet-rfc2910bis>
 - <http://tools.ietf.org/html/draft-sweet-rfc2911bis>
- Goals:
 - Advance IPP/1.1 to Internet Standard
 - Reference new "ipp" and "ipps" URI scheme definitions
 - Update TLS references and requirements
- Proposed schedule:
 - IETF Last Call - Q3 2015
 - IESG Approval - Q1 2016



- Updating PWG 5100.12-2011: IPP/2.0 Second Edition to full IEEE standard
- Stable draft at:
 - <http://ftp.pwg.org/pub/pwg/ipp/wd/wd-ipp20-20150417.docx>
- Goals:
 - Advance IPP/2.0 to full IEEE standard
 - Reference new "ipps" URI scheme definition
 - Update TLS references and requirements
- Proposed schedule:
 - WG Last Call - Q2 2015
 - PWG Last Call - Q3 2015 (before next F2F)
 - PWG Formal Vote - Q3 2015



The Printer Working Group

Break

Proposal 1: Adopt IPP 3D Printing Extensions



- Michael Sweet (Apple) has prepared a white paper for an IPP extension to support 3D Printing
 - <http://ftp.pwg.org/pub/pwg/BOFs/3d-printing/wd-apple-ipp3d-20150413.pdf>
- Discussion: do we want to adopt this white paper as new work in the IPP WG?
- Process for adopting new work:
 - Prepare white paper outlining the scope of work - completed
 - Do a PWG Formal Vote to approve the addition of new work to the IPP WG charter - pending
- Proposed schedule:
 - PWG Formal Vote for addition to IPP WG charter in Q3 2015
 - Prototype draft in Q3 2016



Proposal 2: Job Accounting Attributes

- Proposal from Xerox to add attributes for accounting color/monochrome/duplex pages via IPP
 - The Counter MIB (PWG 5106.3) and Semantic Model already define them
 - Map "Images" in Counter MIB to "pages" in IPP
 - IPP already defines the "total" counters
 - Rather than do a full spec, looking to simply register the new attributes based on the existing specs
- Discussion: do we want to register attributes for all of the Counter MIB properties (beyond what follows)?
- Process for registering new attributes:
 - IPP WG review and approval
- Proposed schedule:
 - Preparation of registration request in Q3 2015
 - IPP WG review in Q3 2015



Job Description Attributes

- **job-impressions-col (collection)**
 - blank(integer(0:MAX))
 - blank-two-sided (integer(0:MAX))
 - full-color (integer(0:MAX))
 - full-color-two-sided (integer(0:MAX))
 - highlight-color (integer(0:MAX))
 - highlight-color-two-sided (integer(0:MAX))
 - monochrome (integer(0:MAX))
 - monochrome-two-sided (integer(0:MAX))
- **job-impressions-completed-col (collection), job-media-sheets-col (collection), job-media-sheets-completed-col (collection)**
 - Same as job-impressions-col



Job Description Attributes (con't)

- **job-pages-col (collection)**
 - full-color (integer(0:MAX))
 - monochrome (integer(0:MAX))
- **job-pages-completed-col (collection)**
 - Same as job-pages-col



Document Description Attributes

- impressions-col (collection)
 - blank (integer(0:MAX))
 - blank-two-sided (integer(0:MAX))
 - full-color (integer(0:MAX))
 - full-color-two-sided (integer(0:MAX))
 - highlight-color (integer(0:MAX))
 - highlight-color-two-sided (integer(0:MAX))
 - monochrome (integer(0:MAX))
 - monochrome-two-sided (integer(0:MAX))
- impressions-completed-col (collection), media-sheets-col (collection), media-sheets-completed-col (collection)
 - Same as impressions-col

Document Description Attributes (con't)



- pages-col (collection)
 - full-color (integer(0:MAX))
 - monochrome (integer(0:MAX))
- pages-col-completed (collection)
 - Same as pages-col

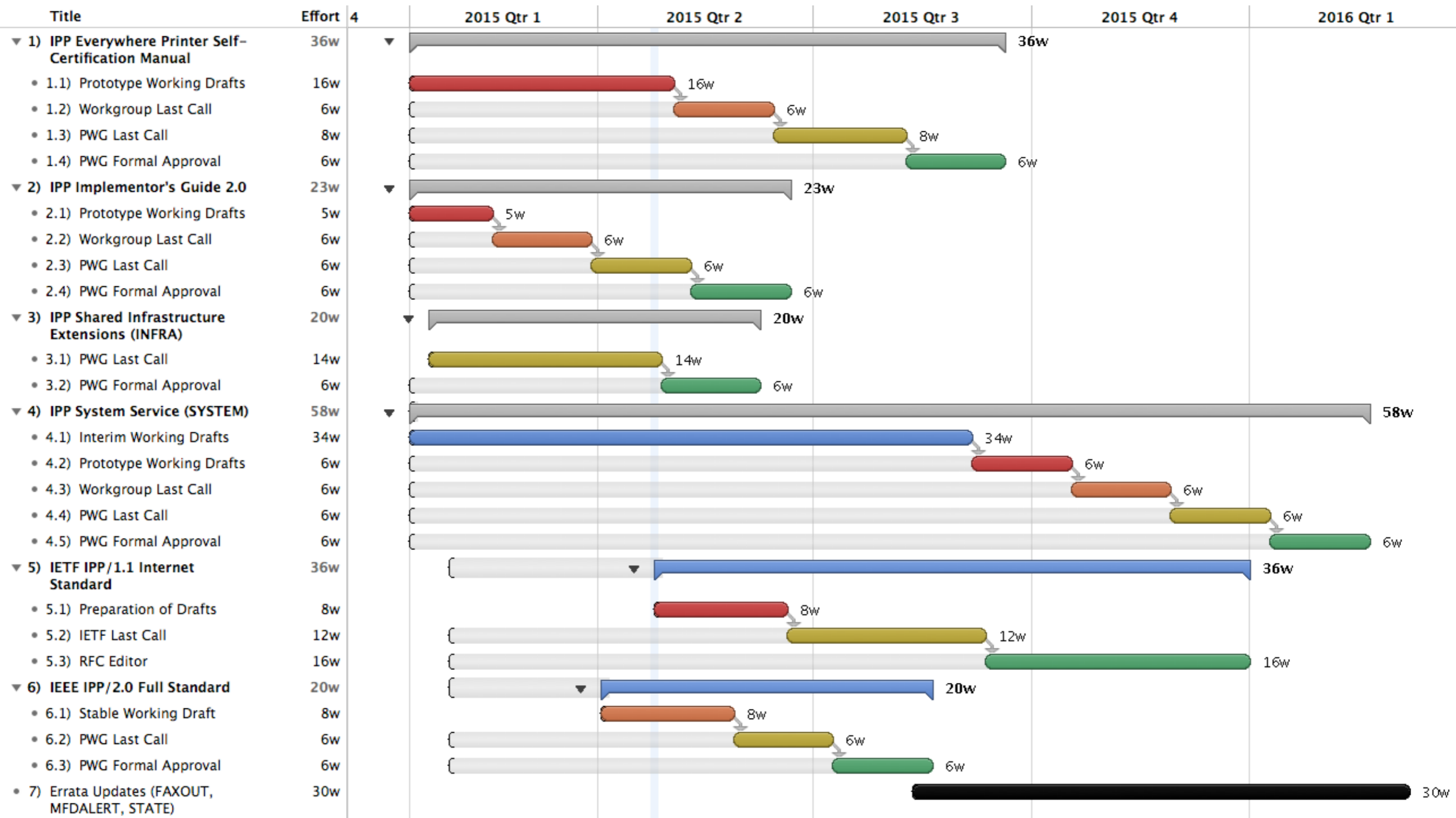


The Printer Working Group

Next Steps



IPP WG Next Steps





IPP WG Next Steps (1/2)

- **IPP Everywhere Printer Self-Certification Manual 1.0**
 - Stable draft and WG Last Call in Q2/Q3 2015
 - PWG Last Call in Q3 2015 (Possibly before the next F2F)
- **IPP Implementor's Guide 2.0 (IG)**
 - PWG Formal Vote in Q2/Q3 2015
- **IPP Shared Infrastructure Extensions (INFRA)**
 - PWG Formal Vote Q2 2015
- **IPP System Service (Mike/Ira)**
 - Prototype working draft in Q3/Q4 2015



IPP WG Next Steps (2/2)

- **Advance IPP/1.1 to Internet Standard**
 - IPP/1.1 requires a “fast track” IETF WG - Ira is working with Barry Leiba
 - Stable drafts in Q2/Q3 2015
 - IETF Last Call in Q3 2015 (~15 year anniversary of IPP/1.1)
- **Advance IPP/2.0 to Full IEEE Standard**
 - IPP/2.0 just needs PWG Last Call and Formal Vote
 - PWG Last Call in Q2/Q3 2015 (before the next F2F)
 - PWG Formal Vote in Q3 2015 (~15 year anniversary of IPP/1.1)



IPP WG Info / Participation

- We welcome participation from all interested parties
- IPP Working Group web page
 - <http://www.pwg.org/ipp/index.html>
- Subscribe to the IPP mailing list
 - <https://www.pwg.org/mailman/listinfo/ipp>
- IPP WG holds bi-weekly phone conferences announced on the IPP mailing list
 - Next conference calls May 11 and June 1, 2015 at 3pm ET
 - Skipping May 25, 2015 due to Memorial Day
 - Held on opposite weeks of Cloud Imaging Model WG
 - Held on same weeks of Imaging Device Security WG