

IPP Model and Semantics

IPP WG

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est Effort

ISSUE: “best-effort” is a parameter, not a Job Template attribute. Make it a Job Template attribute. Also make positive, not negative

RESOLUTION: “best-effort” becomes “ipp-attribute-fidelity”. Parameters are a confusion notion - they become “operational attributes”. All attributes have the same encoding. It is no longer necessary to have a “parameters” section and an “attributes” section in the encoding of the operation.

document-name"

ISSUE: Should "document-name" be a parameter? Should "document-format" be a Document Attribute rather than a Job Template Attribute.

RESOLUTION: "document-name" becomes an optional operation attribute. If missing, the Printer generates a name for the Document object. Add "document-format", "document-k-octets", "document-impressions", and "document-media-sheets" as Document Template attributes.

Persistence of ignored attributes

ISSUE: Does “best-effort” mean ignore or substitute the default value for unsupported attributes supplied by the client in a create request?

RESOLUTION: For “best effort” printing (now “ipp-attribute-fidelity” = ‘false’), the implementation may ignore the requested attribute, substitute the default value, or substitute any other reasonable value (na-lett for A4, staple for bind, etc.)

Job Problems

ISSUE: Clarify the meaning of ‘job-problems’ in the “notify-events” attribute?

RESOLUTION: Whenever the job enters or leaves the ‘processing-held’ state. Job states are ‘pending’, ‘pending-held’, ‘processing’, ‘processing-held’, ‘completed’, ‘aborted’, and ‘canceled’

Printer Problems

ISSUE: Clarify what is meant by the value of 'printer-problems' in the "notify-events" attribute?

RESOLUTION: The implementation can notify for any event, some of which may be the addition or removal of new reasons to "job-state-reasons" or "printer-state-reasons"

ompression

ISSUE: What are the values and references for the “compression” attribute?

RESOLUTION: Action item to look at other standards and used already enumerated values. Add the reference to the standard(s).

Alignment with Job MIB

ISSUE: Why are “job-k-octets”, “job-impressions”, and “job-media-sheets” different between Job MIB and IPP

RESOLUTION: They should be the same and will be aligned. IPP will add the same 3 attributes as “document-xxx” attributes.

MANDATORY Job Attributes

ISSUE: There are some Job attributes that are identified as MANDATORY that should be OPTIONAL.

RESOLUTION: All of the “time-since-xxx” attributes will be OPTIONAL. “number-of-intervening-jobs” will also be OPTIONAL. “job-name” will become MANDATORY (OPTIONALLY supplied by client, generated by Printer if not supplied). “job-originating-user” and “job-originating-host” to become “job-originating-id” MANDATORY for Printer to fill this in from the security service.

Human Language and Character Set

ISSUE: Should “user-char-set” and “printer-char-set” remain or should IPP mandate the use of UTF-8?

RESOLUTION: IPP will mandate the use of UTF-8. However, keep the “human language” attributes which will be mapped to “accept headers” in the HTTP mapping.

rocessing

ISSUE: Why does IPP use ‘processing’ as a state name rather than ‘printing’?

RESOLUTION: IPP is modeling both logical and physical printers and other types of devices. Keep ‘processing’ and add more detailed “job-state-reasons” and show a better mapping between states and reasons.

Job State Reasons

ISSUE: Fix the some of the keyword values to agree more with the semantics of the corresponding value.

RESOLUTION: Agreed. Also, remove the value referring to “logfiles”.

umber-of-intervening-jobs

ISSUE: Should we remove this attribute?

RESOLUTION: Make it optional, and keep it.

two attributes for more info

ISSUE: “printer-uri-user” and “printer-more-info-site” seem to be redundant.

RESOLUTION: Yes, rename to “printer-more-info” and delete one. Do the same for the Job.

job-uri

ISSUE: Should we keep “job-uri”?

RESOLUTION: Most existing systems (and APIs) use the concept of “job-id (4 byte OCTET STRING)” more than “job-uri (URI)”. Hence, IPP will remove the notion “job-uri” and introduce a “job-id” attribute. ALL operations are directed at the Printer’s URI. For Job operations, the operation attributes will contain the “job-id”. The Printer will perform the operation on the correct Job.

CONDITIONALLY MANDATORY

ISSUE: The whole notion of **CONDITIONALLY MANDATORY** is confusion and conflicted throughout the entire document. This needs to be cleaned up.

RESOLUTION: There will be a core set of **MANDATORY** objects, operations, and attributes. There will be additional **OPTIONAL** operations and attributes. The I-D will be re-edited to focus on what must be implemented in order to realize certain specific functional components. Both types of implementations (optional yes and optional no) will interoperate

MANDATORY Job Attributes

ISSUE: Which Job Template attributes are MANDATORY?

RESOLUTION: If the Printer supports a Job Template attribute (“xxx” default value attribute and “xxx-supported” supported values) AND the client supplies the “xxx” attribute in the create request, the implementation SHALL associate “xxx” with the new Job object; that is Printer SHALL support the “xxx” Job attribute. Default binding is at Job processing time NO Job submission time.

Security Considerations

ISSUE: The “Security Considerations” section needs to be updated.

RESOLUTION: There is an IPP I-D on Security. The “what” and “why” sections of that I-D will be included in this Model and Semantics document. The “how” sections of that I-D will be included in the Protocol Specifications document. An implementer should only need the Model and Semantics and Protocol Specification documents to implement a conforming implementation.

Use of MIME types for document-format”

ISSUE: Should MIME types be used for the “document-format” attribute rather than the enum values from the Printer MIB already registered with IANA?

RESOLUTION: Use the already registered IANA values. Add PDF and HTML. The Printer MIB has additional “level” and “version” numbers but these are not too useful since they are strings rather than integers and so comparisons are still difficult and inaccurate.

Well known values

ISSUE: The document states that if an implementation supports only one “well known” value, it **NEED NOT** support the attribute with just that one value. In the absence of the attribute, the client could assume support for the “well known” value. Is this valid?

RESOLUTION: Since a well known value may not always be defined nor assumed for all Job Template attributes, the notion of well known values will be removed from the document, and the absence of support for the attribute will be undefined behavior.

status Code Mapping

ISSUE: The model document should make status code type 2 enums.

RESOLUTION: Agreed. The mapping between codes and operations will also be reviewed.

IFF-F

ISSUE: There was a proposal to add TIFF-F. What is the status of this?

RESOLUTION: More work needs to be done in the internet fax working group.

erver Timeout

ISSUE: How should an IPP Printer handle the timeout waiting for additional requests from a client to close out a multi-document job?

RESOLUTION: The Printer aborts the Job (behaves as if at Cancel-Job operation had been received). If some documents had been printed, the rest of the Job is still canceled. The Printer also cancels the Job if a connection or session is lost during the transfer of the Job.

xtensibility of Attributes

ISSUE: Should attributes be extensible according to type 2 rules?

RESOLUTION: Agreed. Make the set of attribute names (keywords) a type 2 setOf keyword.

Extensibility of Syntaxes

ISSUE: Should attribute syntaxes be extensible according to type 2 rules?

RESOLUTION: Agreed. Make the set of attribute syntaxes (enums) a type 2 setOf enum.

Version Numbers

ISSUE: The model document should include a discussion of version numbering.

RESOLUTION: The I-D will include rules on major and minor version numbers. Things that would require a new version number include re-ordering ordered attributes, syntax changes of existing attributes, and changing MANDATORY attributes. Model changes cause a minor version increase. Protocol changes cause a major version increase.

ictionary Syntax

ISSUE: Even though it is not currently needed, planned vendor extensions might need a complex syntax such as a SET OF or a SEQUENCE OF Attributes (not just attribute names, but full name/value pairs).

RESOLUTION: Work item to define the new syntax for inclusion in the first version of IPP.

ser name

ISSUE: Cancel-Job needs a “user-name” associated with it for matching with “job-originating-user”.

RESOLUTION: For all Authorization issues, all operations need to have access to the authenticated identity of the end user associated with the operation request. IPP assumes that this identity can be made available through a standard interface to the security layer which can then be implemented with any number of security mechanisms. This ID is saved as “job-originating-user” on the create request.

olor

ISSUE: Should the “color-supported (boolean)” be changed to “color-supported (type 3 keyword)” with 3 values (mono, highlight, and process)? Should it be aligned with the Printer MIB which has type and number of colors?

RESOLUTION: Leave as boolean since the proposal still does not solve the full color printing problems faced by printer drivers and image systems. This functionality can be added with vendor specific extensions.

Document Attributes a Multi-valued Job Attributes

ISSUE: In a query of a Job with multiple Documents, the current I-D indicates single valued Document Attributes are to be returned as a set of multiple values in a single Job Attribute. Is this valid given the state of the Protocol Specification with groups of attributes?

RESOLUTION: Action item to come up with a proposal that allows for groups of Document Attributes.

document-char-set"

ISSUE: Need to add a "document-char-set" which describes the coded character set of the document data (the PDL) itself.

RESOLUTION: Agreed - add it.

ilter for Get-Jobs

ISSUE: Need a filter for Get-Jobs. Support AND and OR.

RESOLUTION: Too complex for IPP 1.0

ate and Time

ISSUE: Need a “job-time-submitted” attribute.

RESOLUTION: Align with Job MIB: add an optional “job-time-submitted (dateTime)” time stamp attribute, add a mandatory “printer-up-time (seconds)” attribute to keep track of how long the IPP Printer has been up, and change all of the “time-since-xxx” attributes to be syntactically “seconds”. If the Printer supports a real-time clock, the Printer could support “job-time-submitted”

ccount Name

ISSUE: Some systems require accounting. Should we add “job-account-name”?

RESOLUTION: Not in IPP 1.0 - this can be a vendor specific extension.

alidate-Job

ISSUE: Should Validate-Job be OPTIONAL?

RESOLUTION: Leave a MANDATORY.

Formatting Attributes

ISSUE: Should we add “page-range” and “page-orientation”?

RESOLUTION: Work item to further define and make proposal.

Operation Extensibility

ISSUE: Should the operations be extensible?

RESOLUTION: They will be come a type 2 set of enums. There will be a range reserved for private extensions.

Attribute Group Names

ISSUE: Should support for all group names be MANDATORY?

RESOLUTION: Yes, but support for all attributes in each group is NOT MANDATORY.

Order of Jobs

ISSUE: Should IPP mandate the order of the returned Jobs in a Get-Jobs operation? Currently the I-D does mandate an order. Some existing implementations do not conform to this order.

RESOLUTION: Open issue. Needs resolution.

upport for NCs

ISSUE: Should we add the ability for an NC client to supply “output-device-assigned” or “printer-make-and-model” to direct an IPP printer to support a non-shared device attached to the NC?

RESOLUTION: Pushed to future versions of IPP.

vent Notification

ISSUE: The I-D is silent on the contents of the data returned in a requested notification.

RESOLUTION: Action item to specify this. Should be machine-parsable. A side benefit of being human readable is nice, but not first priority.

media-ready vs media-supported

ISSUE: Should we add “media-ready”?

RESOLUTION: Open issue. Some implementations have suggested that this is critical. Some do not recommend the use of “media-supported”.

Collated vs Uncollated copies

ISSUE: Current I-D is ambiguous on “copies-supported”. Is this collated or uncollated?

RESOLUTION: Add another range of values. One range is for collated. One is for uncollated. Both are supported if the attribute is supported. 0:0 implies no support.

printer-state-reasons

ISSUE: The list seems to be incomplete.

RESOLUTION: Action item to align with Printer MIB generic alerts.

rinter-name

ISSUE: Should IPP define the rules for hierarchical naming?

RESOLUTION: No, leave this as a site policy.

document-format

ISSUE: Missing types. Add ALPS, Olivetti, DeskJet, PaintJet, Seiko, PassThru, PDF, and EMF. What are the clear rules for when to use any of these values?

RESOLUTION: These need to be registered with IANA for inclusion in the Printer MIB document format enum list. Each owner of each type should make it clear when to use which value.

ISSUE:

RESOLUTION:

ISSUE:

RESOLUTION: