

Mapping of IPP Attributes to JDF and CUPS

From: Claudia Alimpich, IBM, Tom Hastings, Don Fullman, Xerox

08 November 2002

File: ippjdf-mapping-08-Nov-2002.doc

Formatted for legal size paper (8.5 x 14 inches)

Version 0.91

Abstract

This document maps IPP 1.1 Job Creation attributes and extensions to JDF 1.1 Product Intent, JDF 1.1 Digital Printing combined process, JDF 1.0 IDPrinting process, Job Ticket API (JTAPI), the Common Unix Printing System (CUPS), and the PODi PPML Job Ticket. A percentage of IPP covered by each of these other printing semantics is included. Finally, each IPP attribute is also described briefly with references to the detailed descriptions.

Status of this document:

This is an intermediate/rough working document, not a final edition.

Table of Contents

1	Mapping of IPP attributes.....	1
2	CUPS Job Template extensions to IPP	37
3	Attributes for the proposed PDC document	38
4	References	39
5	Change Log.....	40
5.1	Changes to make version 0.4, September 28, 2002:	40
5.2	Changes to make version 0.3, September 24, 2002:	40
5.3	Changes to make version 0.5, October 5, 2002:	40
5.4	Changes to make version 0.6 October 14, 2002:	40
5.5	Changes to make version 0.7, October 16, 2002:	40
5.6	Changes to make version 0.8, October 18, 2002:	41
5.7	Changes to make version 0.9, October 28, 2002:	41
5.8	Changes to make version 0.90, November 01, 2002:	41
5.9	Changes to make version 0.91, November 08, 2002:	41

Table of Tables

Table 1- IPP Attribute Mapping Table	4
--	---

1 Mapping of IPP attributes

Table 1 lists all of the IPP Job attributes that a client can supply or a Printer can return in Job Creation operations. The following explains the columns in Table 1:

Column heading	Totals	% of IPP ¹	Description
IPP Attribute	195 ² = 156 + 39 (S)	100	The name of the IPP attribute or collection member attribute.

¹ The % of IPP is the percent of the 195 IPP attributes, including collection member attributes, that can be supplied in a Job Creation operation request.

Column heading	Totals	% of IPP ¹	Description
Name			<ul style="list-style-type: none"> (S) - The IPP attribute that represents State that is Set by the System, such as the “job-state” and “number-of-intervening-jobs” attributes, and cannot be supplied by the client in a Job Creation request. (M) - The attribute whose effect depends on the "multiple-document-handling" attribute to specify whether the Input Document in multi-document jobs are combined into a single Output Document or are kept as separate Output Documents. (Mn) - The attribute in which “multiple-document-handling” only affects whether the page numbers in the attribute are a single sequence 1:n for the concatenated documents or are separate sequences of 1:n, one for each document. <p>If an IPP attribute does not exist for a certain feature/function then a brief description of the feature/function will</p>
JDF 1.1 Product Intent	30	15%	<p>The JDF 1.1 Product Intent Resource and JDF attribute using XPath notation.</p> <ul style="list-style-type: none"> Unknown - Indicates that it has not yet been determined if a JDF Intent resource/attribute currently exists for the feature/function. This will be the case for most of the features/functions with a Priority of Medium or Low. N/A - It is not necessary that this feature/function be represented by a JDF Intent resource/attribute. This will be the case for the features/functions with a Priority of Never. (P) Appears along with N/A. The feature/function will not be defined as Product Intent. In a future release if the feature/function is to be specified then a JDF Combined Process Node that contains the Process Resource will appear under the JDF Product Node. (S) The feature/function has the same semantics in the JDF 1.1 Product Intent and JDF 1.1 Process Resource. (N) The JDF for the feature/function is not currently defined in the JDF 1.1 spec and needs to be added.
JDF 1.1 Process Resource			<p>The JDF 1.1 Process Resource and JDF attribute using XPath notation.</p> <ul style="list-style-type: none"> Unknown - Indicates that it has not yet been determined if a JDF Process resource/attribute currently exists for the feature/function. This will be the case for most of the features/functions with a Priority of Medium or Low. N/A - It is not necessary that this feature/function be represented by a JDF Process resource/attribute. This will be the case for the features/functions with a Priority of Never. (S) The feature/function has the same semantics in the JDF 1.1 Product Intent and JDF 1.1 Process Resource. (N) The JDF for the feature/function is not currently defined in the JDF 1.1 spec and needs to be added.
OSDP JDF Spec	69	38%	<p>Whether or not the feature is in the “JDF Specification for Open Source Digital Printing” from Claudia Alimpich, version 1.2 [OSDP] and if it is what the feature/function is called in the JDF Spec for OSDP.</p> <ul style="list-style-type: none"> No - The feature/function is not currently in the JDF Spec for OSDP. (X) - The feature/function is either currently included in the JDF Spec for OSDP or needs to be added.
JTAPI			<p>The version of JTAPI that the feature/function will be included in and the name of the JTAPI attribute.</p> <ul style="list-style-type: none"> 1.0 - The feature/function will be included in version 1.0 of the JTAPI. x.x - The feature/function is to be included in a future (currently undefined) release of the JTAPI. Never - The feature/function will never be included in the JTAPI.
CUPS	113 = 90 + 23 (S)	58%	<p>The version of the Common Unix Printing System (CUPS) in which the IPP attribute is supported or No if the IPP attribute is not supported in any version of CUPS. See “(S)” explained above.</p>
JDF APP F	89	46%	<p>Whether or not the Appendix mapped the IPP attribute to JDF 1.0 IDPrinting combined process node</p> <ul style="list-style-type: none"> Yes - The IPP attribute was mapped from the IDPrinting process node in JDF 1.0. No - The IPP attribute was not mapped from the IDPrinting process node in JDF 1.0.
PODi			<p>Where the feature/function is included:</p> <ul style="list-style-type: none"> 1.1 - The feature/function is currently included in the PODi PPML Job Ticket Specification Version 1.1. EFI - The feature/function is included in the “EFI Job Ticket Proposal” document.
Cat			<p>The category that the feature/function belongs to. The possible categories are:</p> <ul style="list-style-type: none"> 1 - Customer and billing info 2 - Delivery of finished product - due date and shipping instructions, proofing approvals

² The total of IPP attributes includes counting the member attributes of the collection attributes.

Column heading	Totals	% of IPP ¹	Description
			<ul style="list-style-type: none"> • 3 - Files being submitted to the shop - whatever info is necessary for an automated system to do the job • 4 - What to print - how many, subset of files • 5 - Media to use • 6 - RIPping parameters - generating images • 7 - Assembling printable images from source-file pages onto a sheet • 8 - Assembling sets of sheets and finishing instructions • 9 - Equipment to use • 10 - General comments, instructions, messages, and information • 11 - Proofing
Priority			<p>The priority in which to include the feature/function in the definition of a job ticket for digital printing:</p> <ul style="list-style-type: none"> • High - It is imperative that the feature/function be included in the initial version of the job ticket for digital printing if the job ticket is to be useful. • Medium - The feature/function should be one of the first to be considered for the next version of the job ticket for digital printing. • Low - The feature/function can be included in a later version of the job ticket for digital printing. • Never - The feature/function will not be included in any version of the job ticket for digital printing.
IPP Attribute Description			<p>A brief description of the IPP attribute and what IPP document it is defined in (see References section 4). WARNING: Do not attempt to implement from these brief descriptions. You MUST refer to each cited reference. For example, the terms left, top, right, and bottom in attribute values and descriptions mean as if the document were portrait, i.e., left means the y-axis which is always the long edge and bottom means the x-axis which is always the short edge.</p> <p>Legend for codes in square brackets:</p> <p>JD - Job Description attribute - initial value supplied by the client (in a Operation attribute of a Job Creation operation).</p> <p>JT - Job Template³ attribute - supplied by the client in a Job Creation operation.</p> <p>DD - Document Description attribute (see [doc-obj]) - initial value supplied by the client (in a Operation attribute of a Document Creation operation).</p> <p>DT - Document Template attribute - supplied by the client in a Document Creation operation.</p> <p>PO - Page Override attribute - this attribute MAY also be supplied in a “page-overrides” attribute to affect ranges of pages.</p> <p>JS - Job Status attribute - set by the Printer, client cannot supply. Also indicated by “(S)” in the “IPP Attribute Name” column.</p> <p>DS - Document Status attribute - set by the Printer, client cannot supply. Also indicated by “(S)” in the “IPP Attribute Name” column.</p> <p>- - indicates that there is no corresponding Job Status attribute or Document Status attribute.</p> <p>In attribute names [job-] indicates that the 'job-' prefix is kept for the IPP Job Status attribute name but is dropped for the corresponding IPP Document Status attribute name. A single description serves for both using "Job/Document" to indicate that the description applies to both the Job Status and the Document Status attribute. The entry in Table 1 uses the form of the name with the 'job-', since that form is the one in [RFC2911].</p>

³ In IPP, there are many attributes that are labeled as both Job Template (JT) and the new Document Template (DT). However, In the PWG Semantic Model [pwg-sm], an attribute is labeled either a Job Processing attribute or a Document Processing attribute, but is never labeled as both. Therefore, IPP attributes with just JT map to PWG Job Processing attributes and IPP attributes with either just DT or both JT and DT map to PWG Document Processing attributes.

Table 1- IPP Attribute Mapping Table

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
Address and person to send the bill to	High		1	CustomerInfo/Contact (S)	CustomerInfo/Contact (S)					
Approvals for proof	High	EFI Approvals	2 11	ProofingIntent/ApprovalParams/ApprovalPerson/Contact/@... (N) (S)	ApprovalParams/ApprovalPerson/Contact/@... (S)	No (X)				
attributes-charset	Never			N/A	N/A	No	1.0 jt-charset	1.1	No	attribute-charset (charset) [JT, DD] This attribute identifies the charset (coded character set and encoding method) used by any 'text' and 'name' attributes (1) that the client is supplying in this request and (2) that the Printer SHOULD return in any response.
attributes-natural-language	Never			N/A NodeInfo/@NaturalLang	N/A	No	x.x	1.1	Yes	attributes-natural-language (naturalLanguage) [JD, DD] This attribute identifies the natural language used by any 'text' and 'name' attributes (1) that the client is supplying in this request and (2) that the Printer SHOULD return in any response.
black-overprint	High	1.1 Black Overprint	6	N/A (P)	RenderingParams/AutomatedOverprintParams/@OverPrintBlackText,@OverPrintBlackLineArt	Black Overprint (X)				
Comment or description of job	High		10	Comment/@Name=JobDescription (N) (S)	Comment/@Name=JobDescription (N) (S)	Comment/Description of Job (X)	1.0 job-comment			
compression Note: This is document compression.	High ⁴		3	RunList/FileSpec/@Compression (S)	RunList/FileSpec/@Compression (S)	No (X) Document Compression	1.0 job-compression x.x document-compression	1.1	Yes	compression (type2 keyword) [JD, DD] Compression algorithm used on the Document Data for this Job/Document, if any. (Keywords: none, deflate, gzip, compress) [RFC2911] §4.4.32
copies (M)	High	1.1 Number of Copies: Quantity EFI Finishing - Copies	4	ComponentLink/@Amount (S)	ComponentLink/@Amount (S)	Number of Copies (X)	1.0 job-copies x.x document-copies	1.1	Yes	copies (integer(1:MAX)) [JT ⁵ , DT] The number of copies of the Output Document(s) to be printed. [RFC2911] §4.2.5

⁴ At a minimum the "none" value for compression must be supported.

⁵ The IPP "copies" attribute is an *extensive* attribute, so its effect when supplied at the job level is not always inherited by the documents in a multi-document job. Instead, its effect depends on the value of the "multiple-document-handling" Job Template attribute. The 'single-document' and 'single-document-new-sheet' values produce copies of the job as a whole with the multiple input documents concatenated into a single output

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
cover-back (M) media media-col cover-type note: cover could be printed or preprinted/blank	High	EFI Media - Back Cover	5	Printed cover: MediaIntent, LayoutIntent/@Sides, RunList/InsertSheet/@SheetType, @SheetUsage, @Pages (S) Preprinted/blank cover: RunList/@Pages, InsertSheet/@SheetUsage, @SheetType, Media (S) Note: Should there be a way to specify Covers as Product Description at a high level? (N)	Printed cover: DigitalPrintingParams/Media, LayoutPreparationParams/@Sides, RunList/InsertSheet/@SheetType, @SheetUsage, @Pages (S) Preprinted/blank cover: RunList/@Pages, InsertSheet/@SheetUsage, @SheetType, Media (S)	Covers (Media, Sides, Start First Page) (X)	1.0 see xxx-media see xxx-sides see xxx-start-pages see po-pages see insert-sheet-media see insert-sheet-pages see insert-sheet-position	1.2	Yes	cover-back (collection) [JT ⁶ , DT] The back cover to apply to the Output Document. [prod-print] §3.1 cover-type (type2 keyword) Indicates if covers are requested and which sides will contain print stream pages. (Keywords: no-cover, print-none, print-front, print-back, print-both) [prod-print] §3.1.2 media (type3 keyword name(MAX)) / media-col (collection) Either the name or the characteristics of the media to use for the cover [prod-print] §3.1.1
cover-front (M) media media-col cover-type note: cover could be printed or preprinted/blank	High	EFI Media – Front Cover	5	see cover-front	see cover-back	see cover-back	1.0 see cover-back	1.2	Yes	cover-front (collection) [JT, DT] The front cover to apply to the Output Document. [prod-print] §3.1 cover-type (type2 keyword) Indicates if covers are requested and which sides will contain print stream pages. (Keywords: no-cover, print-none, print-front, print-back, print-both) [prod-print] §3.1.2 media (type3 keyword name(MAX)) / media-col (collection) Either the name or the characteristics of the media to use for the cover [prod-print] §3.1.1
current-page-order (S)	Never			N/A	N/A	No	x.x	1.2	No	current-page-order (type2 keyword) [JS, DS] Indicates the page order of the pages in the document data for this Job/Document. The Printer set this value set from the

document for each job copy. The 'separate-document-uncollated-copies' value produce N copies of the first input document followed by N copies of the second input document, etc. The 'separate-document-collated-copies' produce N successive job copies, each job copy consisting of 1 copy of the first document followed by 1 copy of the second document, etc. In the PWG Semantic Model [pwg-sm] there are two separate attributes: JobCopies and Copies which affect the job as a whole and individual documents, respectively, so that the MultipleDocumentHandling is no longer needed.

⁶ The "cover-back" and "cover-front" Job Template attributes are affected by the value of "multiple-document-handling" which controls whether a multi-document job is producing a single Output Document or separate Output Documents.

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										supplied "page-order-received" Template attribute and updates the value if the Printer reverses the pages of the Document. See also the "page-delivery" Template attribute. (Keywords: 1-to-n-order, n-to-1-order) [prod-print] §4.1
date-time-at-completed (S)	Never			N/A	N/A	No	x.x	1.1	No	date-time-at-completed (dateTime) [JS, DS] Indicates the date and time at which this Job/Document completed. (example: Fri, 03 May 2002 08:49:37 GMT) [RFC2911] §4.3.14.7
date-time-at-creation (S)	Low			Unknown	AuditPool/Create d/@TimeStamp	Job Creation Date/Time	x.x job-created-on	1.1	No	date-time-at-creation (dateTime) [JS, DS] Indicates the date and time at which this Job/Document was created. (example: Fri, 03 May 2002 08:49:37 GMT) [RFC2911] §4.3.14.5
date-time-at-processing (S)	Never			N/A	N/A	No	x.x	1.1	No	date-time-at-processing (dateTime) [JS, DS] Indicates the date and time at which this Job/Document first began processing. (example: Fri, 03 May 2002 08:49:37 GMT) [RFC2911] §4.3.14.6
document-format	High		3	RunList/FileSpec /@MimeType (S)	RunList/FileSpec /@MimeType (S)	Document File Format (X)	1.0 job-document-format x.x document-format	1.1	Yes	document-format (mimeType) [JD, DD] The Document format (i.e., PDL) for this Document. The value "application/octet-stream" has a special meaning. This value is used to indicate that a Printer is capable of auto-sensing the format of the Document. (examples: application/octet-stream, application/postscript, application/vnd.hp-PCL, "text/plain; charset=utf-8") [RFC2911] §3.2.1.1
document-name	Low		10	Unknown	Unknown	No (X)	x.x	1.1	Yes	document-name (name(MAX)) [JD, DD] Name for the this Document to be used in an implementation specific manner. [RFC2911] §3.2.1.1
document-natural-language	Never		3	N/A	N/A	No (X)	1.0 job-document-natural-language x.x document-document-natural-language	1.1	Yes	document-natural language (naturalLanguage) [JD, DD] Identifies the Natural Language of this Document [RFC2911] §3.2.1.1
document-number (S)	Low			Unknown	Unknown		x.x			document-number (integer(0:MAX)) [-, DS] The order of this Document within the Job

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										starting at a base of 1. [doc-obj] §6.1
document-overrides (M) input-documents document-copies document-format document-name compression document-natural-language page-ranges finishings sides media media-col <any other document attr.> or output-documents document-copies finishings sides media media-col <any other document attr.>	High	See specific attributes for category.		Partition using DocIndex to specify document overrides. (S) See individual feature/function that is valid at the document level	Partition using DocIndex to specify document overrides. (S) See individual feature/function that is valid at the document level	(X) Yes?? No Yes No No No Yes Yes Yes Yes Yes?? No Yes Yes Yes Yes Yes??	Never (use Document object) document- format document-output-pages see finishings see sides see media see media-col	No ??	Yes Yes Yes No Yes Yes Yes Yes Yes Yes Yes Yes Yes	document-overrides (collection) [JT] Provides for the overriding of processing instructions on a document basis. Applied to job, see PageOverrides for overrides supplied at the document level. [override] §5.1 input-documents (1setOf rangeOfInteger(MAX)) Specifies which range of Input Documents to apply document override processing. [override] §5.1.1 output-documents (1setOf rangeOfInteger(MAX)) Specifies which range of Output Documents to apply document override processing. [override] §5.1.2 document-copies (1setOf rangeOfInteger(MAX)) Specifies which copies of an Output Document to apply these document override attributes. (Example: {{document-copies=1:1, sides=single-sided, media=transparency}, document-copies=2:10, sides=two-sided-long, media=na-letter}} prints the first document copy on transparencies and the remaining copies on two-sided letter paper) [override] §5.1.3 document-format (mimeMediaType) Specifies the document format for the Input Document override processing. [override] §5.1.4 document-name (name (MAX)) Specifies the document name for the Input Document override processing.. [override] §5.1.5 compression (type3 keyword) Specifies the compression for the Input Document override processing. [override] §5.1.6 document-natural-language (naturalLanguage) Specifies the natural language for the Input Document override processing [override] §5.1.7 page-ranges (1setOf rangeOfInteger (1:MAX)) Specifies the range of pages to be printed in the Document sets. [override] §5.1.8 any other Job Template attributes that affect documents, such as "media" or "media-col"()

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
document-state (S)	Low			Unknown	Unknown		x.x			document-state (type1 enum) [-, DS] The current state of this Document. See also "document-state-reasons" attribute below. (Keywords: pending, processing, canceled, aborted, completed) [doc-obj] §6.3.2
document-state-message (S)	Low			Unknown	Unknown		x.x			document-state-message (text(MAX)) [-, DS] Specifies information about the "document-state" and "document-state-reasons" attributes of this Document in human readable text. The Printer localizes the text according to the natural language supplied in the client's query request. (example: "Document completed successfully with warnings" for an English request) [doc-obj] §6.7
document-state-reasons (S)	Low			Unknown	Unknown		x.x			document-state-reasons (1setOf type2 keyword) [-, DS] Provides additional information about this Document's current state. (Keywords: none, aborted-by-system, canceled-at-device, canceled-by-operator, canceled-by-user, completed-successfully, completed-with-errors, completed-with-warnings, compression-error, document-access-error, document-format-error, incoming, interpreting, outgoing, printing, queued, queued-for-marker, queued-in-device, resources-are-not-ready, resources-are-not-supported, spooling, streaming, submission-interrupted, transforming, unsupported-compression, unsupported-document-format, warnings-detected) [doc-obj] §6.5
document-uri	High	1.1 PPML file EFI Document List	3	RunList/FileSpec /@URL (S)	RunList/FileSpec /@URL (S)	Document File Name (X)	1.0 document-file- name	1.1	Yes	document-uri (uri) [DD] Specifies the URI reference to the document data to be printed. The Printer fetches the data subsequent to the Document Creation operation (print-by-reference). [RFC2911] §3.2.2
feed-orientation	High		9	Unknown N/A	Unknown MediaLink/@Orie ntation	No (X)	x.x			feed-orientation (type3 keyword) [JT, DT] Specifies the media edge which is fed into the print engine from the paper tray. (Keywords: long-edge-first, short-edge-first). [prod-print2] §5.1
finishings bale	Never			N/A	N/A	No	Never	1.1	Yes	finishings = bale
finishings	High		8	BindingIntent/	BindingParams/	Binding (X)	1.0 job-binding	1.1	Yes	finishings = bind

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
bind				@BindingType=SystemSpecified (S)	@BindingType=SystemSpecified (N) (S)					
finishings bind-left, bind-right, bind-bottom, bind-top	High	EFI Binding	8	BindingIntent/ @BindingType (S) Note: Add a BindingType=SystemSpecified. (N)	BindingParams/ @BindingType, @BindingSide (N) (S) Note: Also need to add a Binding process. (N)	Binding (X)	1.0 job-binding x.x document- binding x.x po-binding 1.0 binding-side x.x binding-type	No	Yes	finishings = bind-left, bind-right, bind-bottom, bind-top
finishings booklet-maker	Medium	1.1 Bookletmaking	7 8	Same as above	Same as Product Intent	NumberUp (X) Stapling & Stitching (X) Folding (X)	1.0 see xxx- number-up 1.0 see xxx- stitching 1.0 see xxx-folding	No	Yes	finishings = booklet-maker, booklet-fold- staple ⁷
finishings cover note: Use cover-front and cover-back	Never		5	see cover-back & cover-front	see cover-back & cover-front	Covers (X)	1.0 see cover-front & cover-back	1.1	Yes	See "cover-front" and "cover-back"
finishings fold	High ⁸	1.1 Folding EFI Finishing - Folding	8	FoldingIntent/ @FoldingCatalog (S) Note: What FoldingCatalog values should be supported?	FoldingParams/ @FoldCatalog, @DescriptionType (S)	Folding (X)	1.0 job-folding x.x document- folding x.x po-folding 1.0 folding-type	1.1	Yes	finishings = fold, fold-c-short-in-thirds-sheet, fold-z-short-in-thirds-sheet, fold-z-short-sheet, booklet-fold
finishings jog-offset	High	1.1 Jogging	8	N/A	DigitalPrintingParams/Disjointing@ OffsetDirection	Jog Offset (X)	1.0 job-jog-offset x.x document-job- offset	No	Yes	finishings = jog-offset
finishings punch	High	1.1 HoleMaking	8	HoleMakingIntent without any attributes Note: HoleType needs to be optional or add SystemSpecified.	HoleMakingParams without any attributes Note: HoleType needs to be optional or add SystemSpecified.	Punching & Hole Making (X)	1.0 job-hole-making x.x document-hole- making x.x po-hole-making	1.1	Yes	finishings = punch , punch-2-hole, punch-3- hole,

⁷ The "finishings" = 'booklet-fold-staple' is the same as 'booklet-maker', but without trimming.

⁸ Only support specific folding catalogs (e.g z-fold, saddle-fold, etc.)

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
finishings trim	High	1.1 Trimming	8	N/A	TrimmingParams /@TrimmingType =SystemSpecified	Trimming (X)	1.0 job-trimming x.x document-trimming	1.1	Yes	finishings = trim
finishings (M) staple, saddle-stitch, edge-stitch, staple-top-left, staple-bottom-left, staple-top-right, staple-bottom-right, edge-stitch-left, edge-stitch-right, edge-stitch-bottom, edge-stitch-top, staple-dual-left, staple-dual-right, staple-dual-bottom, staple-dual-top, none	High	1.1 Stapling EFI Stapler Mode	8	BindingIntent/@BindingType, /SaddleStitching, /SideStitching, /CornerStitching, @NumberOfStitches, @ReferenceEdge (N) (S) Note: Propose to rename StitchNumber to NumberOfStitches. Note: Add a BindingType=Stitch (N)	StitchingParams/@StitchType, @ReferenceEdge, @NumberOfStitches (S)	Stapling & Stitching (X)	1.0 job-stitching x.x document-stitching x.x po-stitching 1.0 stitching-count 1.0 stitching-reference-edge 1.0 stitching-stitch-type	1.1	Yes	finishings (1setOf type2 enum) [JT ⁹ , DT, PO] Identifies the finishings that the Printer uses for each copy of the Output Document. The coordinate system (left, top, right, bottom) is relative to the edges as if the document were portrait, so left is the y-axis and bottom is the x-axis. (Enums: none, staple, punch, cover, bind, saddle-stitch, edge-stitch, staple-top-left, staple-bottom-left, staple-top-right, staple-bottom-right, edge-stitch-left, edge-stitch-top, edge-stitch-right, edge-stitch-bottom, staple-dual-left, staple-dual-top, staple-dual-right, staple-dual-bottom; fold, trim, bale, booklet-maker, jog-offset, bind-left, bind-top, bind-right, bind-bottom, punch-2-hole, punch-3-hole, punch-4-hole, fold-c-short-in-thirds-sheet, fold-z-short-in-thirds-sheet, fold-z-short-sheet, booklet-fold, booklet-fold-staple ¹⁰) [RFC2911] §4.2.6, [finish] §2, [finish2] §3.
finishings-col (M) finishing-template stitching stitching-reference-edge stitching-offset stitching-locations	Low		8	Unknown	StitchingParams/@ReferenceEdge	No Yes Stitching (X) No (X) No (X)	1.0 job-stitching 1.0 stitching-reference-edge x.x stitching-offset x.x stitching-positions	1.2	No Yes	finishings-col (collection) [JT, DT, PO] Enables an end user to specify detailed finishing options not possible with the “finishings” attribute for the Output Document. [prod-print] §3.2 finishing-template (name(MAX)) A string specifying some particular finishing operation for the Output Document. [prod-print] §3.2.1 stitching (collection) Provides detailed stitching parameters. [prod-print] §3.2.2 stitching-reference-edge (type2 keyword) Specifies the stitching reference edge of the output media. (keyword: bottom, top, left, right) [prod-print] §3.2.2.1 stitching-offset (integer (0:MAX)) The

⁹ The IPP “finishings” and “finishings-col” attributes are *extensive* attributes, so their effect when supplied at the job level is not always inherited by the documents in a multi-document job. Instead, their effect depends on the value of the “multiple-document-handling” Job Template attribute. The ‘single-document’ and ‘single-document-new-sheet’ cause the finishing to be applied to each job copy as a whole. The ‘separate-documents-collated-copies’ and ‘separate-document-uncollated-copies’ values cause the finishing to be applied to each document. In the PWG Semantic Model [pwg-sm] there are two separate attributes: JobFinishings and Finishings and also JobFinishingsCol and FinishingsCol which affect the job as a whole and individual documents, respectively, so that the MultipleDocumentHandling attribute is no longer needed.

¹⁰ The “finishings” = ‘booklet-fold-staple’ is the same as ‘booklet-maker’, but without trimming.

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										perpendicular distance from the reference edge to the stitching axis in hundredths of a millimeter. [prod-print] §3.2.2.2 stitching-locations (1setOf integer(0:MAX)) The distance along the stitching axis where a stitch will be placed in hundredths of a millimeter. [prod-print] §3.2.2.3
Folding - complex (no IPP attribute exists)	Low		8	Unknown	FoldingParams@DescriptionType, Fold@From, Fold@To, Fold@Travel	Folding (X)	x.x folding-amount-to-fold x.x folding-direction-to-fold x.x folding-edge-to-fold x.x folding-fold-type			
font-name-requested	Never		3 6	N/A	N/A	No (X)	x.x			font-name-requested (name(MAX)) [JT, DT, PO] Specifies the font name if the document data is in a format that does not have inherent font information (e.g., 'text/plain'), otherwise, this attribute is ignored. [prod-print2] §5.2
font-size-requested	Never		3 6	N/A	N/A	No (X)	x.x			font-size-requested (integer (1:MAX)) [JT, DT, PO] Specifies the font size in points (1/72 of an inch) if the document data is in a format that does not have inherent font information (e.g., 'text/plain'), otherwise, this attribute is ignored. [prod-print2] §5.3
force-front-side note: This is only for front side, need back side as well.	High	EFI Media – Chapter Starts	7	RunList/@Pages, InsertSheet/@SheetType, @Sheet Usage (S)	RunList/@Pages, InsertSheet/@Sheet Usage (S)	Start First Page (X)	1.0 job-force-pages x.x document-force-pages	1.2	Yes	force-front-side (1setOf integer(1:MAX)) [JT ¹¹ , DT, PO] Forces the specified pages to be printed on the front side of a sheet of media. The pages of the output document start at 1. [prod-print] §3.3
Hole making that allows specification of number of holes and reference edge	High	1.1 HoleMaking	8	HoleMakingIntent/@HoleType, @HoleReferenceEdge (S)	HoleMakingParams/@HoleType, @HoleReferenceEdge (S)	Punching & Hole Making (X)	1.0 job-hole-making x.x document-hole-making x.x po-hole-making 1.0 hole-making-count 1.0 hole-making-reference-edge			
imposition-template	Low		7	Unknown	Unknown	No ? (X)	Never	1.2	Yes	imposition-template (type3 keyword name(MAX)) [JT, DT, PO] Specifies imposition method for laying out finished page

¹¹ The effect of the IPP “force-front-side” attribute when supplied at the job level of a multi-document job depends on the value of the “multiple-document-handling” Job Template attribute. For the ‘single-document’ and ‘single-document-new-sheet’ values, the pages are numbered as a single set from 1 to n for the job as a whole. For the ‘separate-documents-collated-copies’ and ‘separate-document-uncollated-copies’ values, the pages are numbered from 1 to n for each document separately.

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										images onto the surface of output media. (Keywords: none, signature) [prod-print] §3.4
impressions-completed-current-copy (S) (M)	Never			N/A	N/A	No	Never	No	No	impressions-completed-current-copy (integer(0:MAX)) [JS, DS] The number of impressions completed for the current copy of (1) the current Document of this Job or (2) this Document. The Printer sets this value to 0 at the beginning of each Document copy and each Document. The current Document is identified by the value of the “sheet-completed-document-number” Description attribute. The current copy is identified by the value of the “sheet-completed-copy-number” Description attribute. [job-prog] §4.4
insert-sheet		EFI Media – Inserts	58			Insert Sheet (X)	1.0 job-insert-sheets x.x document insert-sheets	1.2	Yes	insert-sheet (1setOf collection) [JT ¹² , DT, PO] Specifies how Insert Sheets are to be inserted into the sequence of media sheets that are produced for each copy of the documents. [prod-print] §3.5
insert-after-page-number (Mn)	High			RunList/@Pages, InsertSheet/@SheetType, @Sheet Usage (S)	RunList/@Pages, InsertSheet/@Sheet Usage (S)		1.0 insert-sheet-pages			insert-after-page-number (integer(0:MAX)) Specifies the input page after which the Insert Sheet will be placed. [prod-print] §3.5.1
insert-count	Low			RunList/@PageCopies (S)	RunList/@PageCopies (S)		1.0 insert-sheet-count			insert-count (integer(0:MAX)) Specifies the number of Insert Sheet to insert. [prod-print] §3.5.2
media	High			N/A	RunList/InsertSheet/Media/Location/@LocationName		1.0 insert-sheet-media			media (type3 keyword name(MAX)) The medium that the Printer uses for all impressions of the Job. (Keyword examples: na_letter_8.5x11in, iso_a4_210x297mm, na_monarch_3.875x7.5in. See [pwg5101.1]) [prod-print] §3.5.3
media-col	High			RunList/InsertSheet/Media (S)	RunList/InsertSheet/Media (S)		1.0 insert-sheet-media			media-col (collection) Enables a client end user to submit a list of media characteristics to the Printer as a way to more completely specify the media to be used. [prod-print] §3.5.3
ipp-attribute-fidelity	High ¹³		10	@SettingsPolicy	@SettingsPolicy	No (X)	see jt-manatory-attributes	1.1	Yes	ipp-attribute-fidelity (boolean) [JT] Allows a user to control whether or not the Printer MUST honor <i>all</i> supplied Job Template and
note: Use with job-										

¹² The effect of the IPP “insert-sheet” attributes when supplied at the job level of a multi-document job depends on the value of the “multiple-document-handling” Job Template attribute. For the ‘single-document’ and ‘single-document-new-sheet’ values, the pages are numbered as a single set from 1 to n for the job as a whole. For the ‘separate-documents-collated-copies’ and ‘separate-document-uncollated-copies’ values, the pages are numbered from 1 to n for each document separately.

¹³ Consider only supporting SettingsPolicy at the JDF Node level and not at the Resource level (which is contrary to the JDF 1.1 spec)

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
mandatory-attributes										Document Template attributes in the Job Creation operation. For a 'true' value the Printer MUST reject the job submission if any of the supplied attribute values are unsupported. For a 'false' value the Printer MUST accept the job submission and do best effort. Default = 'false' [RFC2911] §15.1 See also "job-mandatory-attributes" attribute.
job-account-id	High	EFI General/ Account Info - Account/Project Information EFI Billing Info	1	CustomerInfo/ @BillingCode (S)	CustomerInfo/@ BillingCode (S)	Billing Code (X)	1.0 job-billing-code	1.2	Yes	job-account-id (name(MAX)) [JT ¹⁴] Account associated with the job. [prod-print] §3.6 Note: Not sure if this is the same as BillingCode
job-accounting-sheets job-accounting-sheets- type media media-col job-accounting-output- bin	Low		1 5 8	Unknown	Unknown	No (X)	x.x	1.2	Yes Yes Yes No	job-accounting-sheets (collection) [JT] Specifies the accounting sheet for this Job. [prod-print] §3.8 job-accounting-sheets-type (type3 keyword name(MAX)) Specifies the accounting sheet format for a job. (keywords: none, standard) [prod-print] §3.8.1 media (type3 keyword name(MAX)) The medium that the Printer uses for all impressions of the Job. (Keyword examples: na_letter_8.5x11in, iso_a4_210x297mm, na_monarch_3.875x7.5in. See [pwg5101.1]) [prod-print] §3.5.3 media-col (collection) Enables a client end user to submit a list of media characteristics to the Printer as a way to more completely specify the media to be used. [prod-print] §3.5.3 job-accounting-output-bin (type3 keyword name(MAX)) Specifies the output bin where the accounting sheet is to be placed. (Keywords: top, middle, bottom, side, left, right, center, rear, face-up, face-down large-capacity, my-mailbox, stacker-N, mailbox-N, tray-N *Note: N is replaced by a cardinal number, *Note: See [PWG5100.2] §2.1 for description of keywords) [prod-print] §3.8.3
job-accounting-user-id	Low		1	CustomerInfo/ @CustomerID	Unknown	No (X)	x.x	1.2	Yes	job-accounting-user-id (name(MAX)) [JT ¹⁵] Specifies the User ID associated with the "job-

¹⁴ The "job-account-id" is termed a Job Description attribute instead of a Job Processing attribute by the PWG Semantic Model [pwg-sm].

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										account-id". [prod-print] §3.7
job-client-id note: This attribute does not currently exist in IPP.	Low		10	Unknown	JDF/@JobID	Job ID	x.x job-client-id			
job-collation-type (S) ¹⁶	Never			N/A	N/A	No	Never	No	No	job-collation-type (type2 enum) [JS, -] Identifies the collation type of this Job. The Printer sets the value from the submitted "sheet-collate" and "multiple-document-handling" Job Template attributes. (Keywords: other, unknown, uncollated-sheets, uncollated-documents, collated-documents). [job-prog] §4.1
job-detailed-status-messages (S)	Never			N/A	N/A	No	Never	1.1	No	[job-detailed-status-message] (1setOf text (MAX)) [JS, DS] Specifies additional detailed and technical information about this Job/Document. Intended for use by the system administrator or other experienced technical persons and so is not localized by the Printer. (example: "PostScript error: stack overflow") [RFC2911] §4.3.10
job-document-access-errors (S)	Never			N/A	N/A	No	Never	1.1	No	[job-document-access-errors] (1setOf text(MAX)) [JS, DS] Information about each Document access error for this Job/Document encountered by the Printer. (example: "(404) http://www.company.com/pub/fileToPrint.pdf ") [RFC2911] §4.3.11
job-error-sheet job-error-sheet-type job-error-sheet-when media media-col	Low		1 5 8	Unknown	Unknown	No (X)	x.x	1.2	Yes	job-error-sheet (collection) [JT] Specifies the error sheet for a job. [prod-print] §3.9 job-error-sheet-type (type3 keyword name(MAX)) Specifies the error sheet format for a job. (Keywords: none, standard) [prod-print] §3.9.1 job-error-sheet-when (type2 keyword) Specifies when the accounting sheet is produced for a job. (Keywords: on-error, always) [prod-print] §3.9.2 media (type3 keyword name(MAX)) The medium that the Printer uses for all impressions of the Job. (Keyword examples: na_letter_8.5x11in, iso_a4_210x297mm,

¹⁵ The "job-accounting-user-id" is termed a Job Description attribute, instead of a Job Processing attribute, by the PWG Semantic Model [pwg-sm].

¹⁶ The IPP "job-collation-type" Job Description attribute has values of 'none', which the Printer sets from the two Job Template attributes: "multiple-document-handling" and "sheet-collate". For the FSG Job Ticket API, the "job-collation-type" should be both the input and the Description attribute, possibly with some additional values.

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										na_monarch_3.875x7.5in. See [pwg5101.1]) [prod-print] §3.5.3 media-col (collection) Enables a client end user to submit a list of media characteristics to the Printer as a way to more completely specify the media to be used. [prod-print] §3.5.3
job-hold-until	High ¹⁷		10	N/A	JDF/@Activation	HoldJob for indefinite (X) No, otherwise (X)	1.0 job-hold	1.1	Yes	job-hold-until (type3 keyword name(MAX)) [JT] Specifies the named time period during which the Job must become a candidate for printing. (Keywords: no-hold, indefinite, day-time, evening, night, weekend, second-shift, third-shift) [RFC2911] §4.2.2
job-hold-until-time	Low		10	Unknown	Unknown	(X)	x.x	1.2?		job-hold-until-time (dateTime) [JT] Specifies the date and time after which the Job must become a candidate for printing. (example: Fri, 03 May 2002 08:49:37 GMT) [prod-print2] §5.4
job-id (S)	Low			Unknown	Unknown		x.x job-id	1.1	No	job-id (integer(1:MAX)) [JS, - ¹⁸] The Printer generates and sets this attribute to the ID of this Job, which is unique for this Printer. [RFC2911] §4.3.2
job-impressions	Low		3 10	Unknown	Unknown	No ? (X)	Never	1.1	No	[job-]impressions (integer(0:MAX) [JD, DT] The total size of this Job/Document in number of impressions. [RFC2911] §4.3.17.2, [doc-obj] §6
job-impressions-completed (S)	Never			N/A	N/A	No	Never	No	No	[job-]impressions-completed (integer(0:MAX)) [JS, DS] The number of impressions completed for this Job/Document so far. [RFC2911] §4.3.18.2
job-k-octets	Never			N/A	N/A	No	Never	1.1	No	[job-]k-octets (integer(0:MAX) [JD, DT] The total size of this Job/Document in integral units of 1024 octets. [RFC2911] §4.3.17.1, [doc-obj] §6
job-k-octets-processed (S)	Never			N/A	N/A	No	Never	1.1	No	[job-]k-octets-processed (integer(0:MAX)) [JS, DS] The total number of octets processed in integral units of 1024 octets so far for this Job/Document. [RFC2911] §4.3.18.1

¹⁷ Only the "indefinite" value is supported.

¹⁸ The IPP "job-id" Job Description attribute corresponds to the (new) "document-number" Document Description attribute.

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
job-mandatory-attributes	High		10	@SettingsPolicy	@SettingsPolicy Note: To conform to JDF spec, must support SettingsPolicy down to Resource level.	No (X)	1.0 jt-mandatory-attributes ¹⁹	No	No	job-mandatory-attributes (1setOf type2 keyword) [JT] Allows a user to list which Job Template and Document Template attributes the Printer MUST honor. The Printer MUST reject the job submission if <i>any</i> of the listed attributes contain values that the Printer does not support. All of the remaining supplied attributes are best effort. This attribute is ignored if "attribute-fidelity" is supplied with a 'true' value. (See [RFC2911] §15.1) (Keywords: none and any Job and Document Template attribute names. Member attributes of collection attributes are named as <i>attr-name.member-name</i> . For example, 'job-sheets-col.media') NOTE: New attribute to align fidelity with FSG and PSI work. [doc-obj] §6.2.2
job-media-sheets	Low		3 10	Yes? LayoutIntent/ @Pages	Unknown	No ? (X)	x.x	1.1	No	[job-]media-sheets (integer(0:MAX) [JD, DT] The total size of this Job/Document in media sheets . [RFC2911] §4.3.17.3, [doc-obj] §6
job-media-sheets-completed (S)	Never			N/A	N/A	No	x.x	1.1	No	[job-]media-sheets-completed (integer(0:MAX)) [JS, DS] The media-sheets completed marking and stacking for this Job/Document so far. [RFC2911] §4.3.18.3
job-message-from-operator (S)	Never			N/A	N/A	No	Never	1.1	No	job-message-from-operator (text(MAX)) [JD] Message to the end user indicating the reasons for any management action taken on a this job. (Example: "Job canceled due to length", "Pick job up in mailbox") Note: The natural language is not localized by any recipient, since this message is generated by a human. [RFC2911] §4.3.16
job-message-to-operator	High	EFI General/ Account Info – Instructions	10	N/A	Comment/@Name="MessageToOperator" (N)	No (X)	1.0 job-message-to-operator	1.2	Yes	job-message-to-operator (text(MAX)) [JT ²⁰] Message from the end user to indicate something about the processing of the job. Note: The natural language is not localized by any recipient, since this message is generated by a human. (example: "Call 555-1234 before running this job") [prod-print] §3.10
job-more-info (S)	Never			N/A	N/A	No	Never	1.1	No	[job-]more-info (uri) [JS, DS] URI used to obtain information intended for end user

¹⁹ Values of jt-mandatory-attributes supported for 1.0 will be None and All; x.x for the values that are specific attribute names.

²⁰ The "job-message-to-operator" is termed a Job Description attribute, instead of a Job Processing attribute, by the PWG Semantic Model [pwg-sm].

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										consumption about this specific Job/Document. (example: "http://www.company.com/printer/embeddedjob page") [RFC2911] §4.3.4
job-name	High		10	CustomerInfo/@CustomerJobName (S)	CustomerInfo/@CustomerJobName (S)	Job Name (X)	1.0 job-name	1.1	Yes	job-name (name(MAX)) [JD] The Printer sets this to the client-supplied end-user friendly name for the Job, else the Printer must generate a name from other information. (example: "license agreement memo") [RFC2911] §4.3.5
job-originating-user-name (S)	Never			N/A	N/A	No	Never	1.1	No	job-originating-user-name (name(MAX)) [JS, -] The Printer sets this attribute to the most authenticated printable name that it can obtain (example: "John Doe", \authDomain\John Doe") [RFC2911] §4.3.6
job-password	Low		10	Unknown	Unknown	No (X)	x.x			job-password (octetString (255)) [JD] Contains a password supplied by the client encrypted according to method specified by the client in the "job-password-encryption" attribute. The password provides a mechanism for the user to perform a Secure Print. The Printer places the Job in the 'pending-held' state with the 'job-password-wait' value in the Job's "job-state-reasons" attribute. Then the user enters the password locally at the Printer. If the password matches, the Printer removes the 'job-password-wait' value, moves the Job to the 'pending' state, and schedules the Job to run next. [prod-print2] §4.1
job-password-encryption	Low		10	Unknown	Unknown	No (X)	x.x			job-password-encryption (type3 keyword name(MAX)) [JD] Specifies the type of encryption that the client is used for the supplied value of the JobPassword attribute. (Keywords: none, md2, md4, md5, sha) [prod-print2] §4.2
job-phone-number	High		1	CustomerInfo/Contact (S)	CustomerInfo/Contact (S)	No (X)	x.x			job-phone-number (text(127)) [JT ²¹] Contains the contact telephone number for the job. [prod-print2] §5.5
job-printer-make-and-model (S) note: Works with job-save-	Never			N/A	N/A	No	x.x	1.2?	No	job-printer-make-and-model (text(127)) [JS, -] Identifies the make and model of the output device which saved this Job according to the "job-save-disposition" Job Template attribute.

²¹ The "job-phone-number" attribute is termed a Job Description attribute, instead of a Job Processing attribute, by the PWG Semantic Model [pwg-sm].

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
disposition										[prod-print2] §6.1
job-printer-uptime (S)	Never			N/A	N/A	No	Never	1.1?	No	job-printer-up-time (integer (1:MAX)) [JS, DS] The amount of time (in seconds) that the Printer has been up and running. These Job/Document State attributes are an alias for the “printer-up-time” Printer State attribute for use by the client in a Job/Document query response to compare with the TimeAtCreation, TimeAtProcessing, and TimeAtCompleted State attributes. [RFC2911] §4.3.14.4
job-printer-uri (S)	Never			N/A	N/A	No	x.x	1.1	No	
job-priority	Medium		10	NodeInfo/@JobPriority	NodeInfo/@JobPriority	Job Priority (X)	1.0 job-priority	1.1	Yes	job-priority (integer(1:100) [JT] Priority for scheduling the Job. A higher value specifies a higher priority. [RFC2911] §4.2.1
job-recipient-name	Low		10	Unknown	Unknown	No (X)	x.x	??	Yes	job-recipient-name (name(MAX)) [JT ²²] Contains the name of the person that is to receive the output of the job and is commonly printed on the job sheet. It may also be used to reference a data base containing delivery instructions for the recipient. [prod-print2] §5.6
job-save-disposition save-disposition-type (none, save-only, print-save) save-info save-location save-name save-document-format	Low		10	Unknown	DigitalPrintingParams/@osdp:DeliveryMethod	Delivery Method (X)	x.x			job-save-disposition (collection) [JT] Specifies that the Printer is to save the job as a file that can be re-printed on demand anytime in the future using the Print-URI operation (see [RFC2911] section 3.2.2) [prod-print2] §5.7 save-disposition (type3 keyword) Specifies whether the Printer MUST print and/or save the job. (Keywords: none, save-only, print-save). [prod-print2] §5.7.1.1 save-info (1setOf collection) Contains sets of attributes that each tell the Printer how to create each copy of the saved job. [prod-print2] §5.7.1.2 save-location (uri) Specifies the path to the directory as a URI where the Printer saves the Document Data and other Job information. Example: ‘ftp://printhost.printco.com/var/spool/jobdir/’ or ‘file:///job-repository/jobdir/’ [prod-print2] §5.7.1.2.3.1

²² The “job-recipient-name” attribute is termed a Job Description attribute, instead of a Job Processing attribute, by the PWG Semantic Model [pwg-sm].

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										<p>save-name (name(MAX)) Specifies the name of the saved job in the directory specified by the "save-location" member attribute. The value may be a relative path. Example: if "save-location" is 'ftp://printhead.printco.com/var/spool/jobdir/' or 'ftp://printhead.printco.com/var/spool/jobdir/' and "save-name" is 'c/d', the resulting saved job URI is 'ftp://printhead.printco.com/var/spool/jobdir/c/d' . [prod-print2] §5.7.1.2.3.2</p> <p>save-document-format (mimeMediaType) Indicates the document format in which the Printer is to save the job content (Document Data). Values are any document format that the Printer supports, except 'application/octet-stream'. See DocumentFormat Document Description attribute. [prod-print2] §5.7.1.2.3.3</p>
job-sheet-message	High		10	N/A	LayoutPreparationParams/InsertSheet/Sheet/Surface/MarkObject/JobField/ShowList=OperatorText/OperatorText	No (X)	1.0 job-separator-sheets 1.0 separator-sheet-message	1.2	Yes	job-sheet-message (text(MAX)) [JT] Conveys a message that is delivered with the job. [prod-print] §3.12
job-sheets note: Use job-sheets-col	Never		8	see job-sheet-col	see job-sheet-col	Start, Separator/Slip, End Sheets (X)	Never	1.1	Yes	job-sheets (type3 keyword name(MAX)) [JT] Specifies which job start/end sheet(s), will be printed with a job. (Keywords: none, standard, job-start-sheet, job-end-sheet, job-both-sheets, first-print-stream-page) [RFC2911] §4.2.3, [PWG5100.3] §6.2
job-sheets-col job-sheets media media-col	High		5 8	LayoutIntent/InsertSheet/@SheetType,@SheetUsage (S) N/A InsertSheet/MediaIntent (S) Note: Should there be a way to	LayoutPreparationParams/InsertSheet/@SheetType,@SheetUsage (S) InsertSheet/Media/Location/@LocationName InsertSheet/Media (S) Note: Should be a way to specify	Yes Start, Separator/Slip, End Sheets (X)	1.0 job-separator-sheets 1.0 separator-sheet-type 1.0 separator-sheet-media 1.0 separator-sheet-media	1.2	Yes	<p>job-sheets-col (collection) [JT] Allows the client to specify the media for the JobSheet. [prod-print] §3.11</p> <p>job-sheets (type3 keyword name(MAX)) Specifies which job start/end sheet(s), will be printed with a job. (Keywords: none, standard) [prod-print] §3.11.1</p> <p>media (type3 keyword name(MAX)) The medium that the Printer uses for all impressions of the Job. (Keyword examples: na_letter_8.5x11in, iso_a4_210x297mm, na_monarch_3.875x7.5in. See [pwg5101.1]) [prod-print] §3.5.3</p>

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
				specify a banner sheet as a high level Product Description?	that isWaste is false for job-sheet and separator_sheet.					media-col (collection) Enables a client end user to submit a list of media characteristics to the Printer as a way to more completely specify the media to be used. [prod-print] §3.5.3
job-state (S)	Never			N/A	N/A	No	x.x	1.1	No	job-state (type1 enum) [JS, ⁻²³] The current state of this Job. See also JobStateReasons attribute below. (Keywords: pending, pending-held, processing, processing-stopped, canceled, aborted, completed) [RFC2911] §4.3.7
job-state-message (S)	Never			N/A	N/A	No	x.x	1.1	No	[job-state-message] (text(MAX)) [JS, ²⁴] Specifies information about the "job-state" and "job-state-reasons" attributes in human readable text localized by the Printer according to the natural language supplied in the client's query request. (example: "Job completed successfully with warnings" for an English request) [RFC2911] §4.3.9
job-state-reasons (S)	Never			N/A	N/A	No	x.x	1.1	No	job-state-reasons (1setOf type2 keyword) [JS, ⁻²⁵] Provides additional information about this Job's current state. (Keywords: none, aborted-by-system, canceled-at-device, canceled-by-operator, canceled-by-user, completed-successfully, completed-with-errors, completed-with-warnings, compression-error, document-access-error, document-format-error, incoming, interpreting, job-data-insufficient, job-hold-until-specified, job-password-wait, job-restartable, job-resuming, job-saved-successfully, job-save-error, job-saving, job-scheduling, job-suspended, job-suspended-by-operator, job-suspended-by-system, job-suspended-by-user, job-suspending, outgoing, printer-stopped, printer-stopped-partly, printing, processing-to-stop-point, proof-print-wait, queued, queued-for-marker, queued-in-device, resources-are-not-ready, resources-are-not-supported, service-off-line, spooling, streaming, submission-interrupted,

²³ The IPP "job-state" Job Description attribute corresponds to the (new) "document-state" Document Description attribute.

²⁴ The IPP "job-state-message" Job Description attribute corresponds to the (new) "document-state-message" Document Description attribute.

²⁵ The IPP "job-state-reasons" Job Description attribute corresponds to the (new) "document-state-reasons" Document Description attribute.

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										transforming, unsupported-compression, unsupported-document-format, warnings-detected) [RFC2911] §4.3.8, [adm-ops] §9.1, [override] §7.1, [prod-print] §6.1, [prod-print2] §8.3.1
Job ticket author name	Low		10	Unknown	Unknown	No (X)	x.x jt-author-name	No	No	No IPP attribute
job-uri (S)	Never			N/A	N/A	No	x.x	1.1	No	job-uri (uri) [JS, - ²⁶] The Printer generates and sets this attribute to a globally unique URI for this Job. (Example: ipp://www.company.com/printer/jobs/22). [RFC2911] §4.3.1
job-warnings-count (S)	Never			N/A	N/A	No	Never	No	No	[job-warnings-count] (integer(0:MAX)) [JS, DS] The total number of warnings that a Printer has generated while processing and printing this Job/Document. [override] §6.1
last-document	Low		10	Unknown	Unknown	No (X)	x.x			last-document (boolean) [DD] Has a 'true' value if this Document is the last Input Document for the Job. [RFC2911] §4.2.11
media	High	1.1 Media Source EFI Media Source Input Tray	5	N/A Note: Can't specify input tray name as a Product Description.	DigitalPrintingParams/Media/Location/@LocationName	Input Tray Name (X)	1.0 media-input-tray-name ²⁷	1.1	No	media (type3 keyword name(MAX)) [JT, DT, PO] The name of the medium that the Printer uses for impressions of the Job, that is, the media that the Printer prints on. These values do <i>not</i> represent the media after folding or slitting. On some Printers the keyword names MAY include input tray names. (Keyword examples: na_letter_8.5x11in, iso_a4_210x297mm, na_monarch_3.875x7.5in, na-letter-white, iso-a4-white, top. See [pwg5101.1]) [RFC2911] §4.2.11
media-col	High	1.1 Media Selection	5	MediaIntent	Media	Media (X)	1.0 job-media x.x document-media x.x po-media	1.2	Yes	media-col (collection) [JT, DT, PO] Enables a client end user to submit a list of media characteristics to the Printer as a way to more completely specify the media to be used than the "media" attribute provides. See "media" description. [prod-print] §3.13
media-col media-back-coating	Medium		5	MediaIntent/ @BackCoatings	Media/@BackCoating	Yes (X)	1.0 media-back-coating	1.2	Yes	media-back-coating (type3 keyword name(MAX)) Indicates the pre-process coating applied to the back of the media. (Keywords: none, glossy, high-gloss, semi-gloss, satin, matte) [prod-print] §3.13.10

²⁶ The IPP "job-uri" Job Description attribute does not have a corresponding Document Description attribute. The "job-uri" has proved problematic enough and not really needed.

²⁷ media-input-tray-name is mapped to IPP media attribute when no other media attributes are set.

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
media-col media-color	High		5	MediaIntent/ @MediaColor (S)	Media/@MediaC olorName (S)	Yes (X)	1.0 media-color	1.2	Yes	media-color (type3 keyword name(MAX)) Indicates the desired color of the media being specified. . (Keywords: no-color, white, pink, yellow, blue, green, buff, goldenrod, red, gray, ivory, orange) [prod-print] §3.13.4
media-col media-front-coating	Medium		5	MediaIntent/ @FrontCoatings	Media/@FrontCo ating	Yes (X)	1.0 media-front- coating	1.2	Yes	media-front-coating (type3 keyword name(MAX)) Indicates the pre-process coating applied to the front of the media. (Keywords: none, glossy, high-gloss, semi- gloss, satin, matte) [prod-print] §3.13.10
media-col media-grain	Medium		5	Unknown	Unknown	No (X)	x.x			media-grain (type3 keyword name(MAX)) Indicates the grain of the media. Note: grain affects the curl and the folding of the medium. (Keywords: x-direction, y-direction) [prod- print2] §8.4.2
media-col media-hole-count	High		5	MediaIntent/@Ho leType (S)	Media/@HoleTyp e (S)	Yes (X)	1.0 media-hole- count	1.2	Yes	media-hole-count (integer(0:MAX)) Indicates the number of pre-drilled holes in the desired media. [prod-print] §3.13.6
media-col media-info	High	EFI MediaName	5	Comment /@Name="Descri ption" (S)	Comment /@Name="Descri ption" (S)	No (X)	x.x media- description	1.2	Yes	media-info (text(255)) Specifies information that helps describe the media instance. Intended for human consumption. [prod-print] §3.13.3
media-col media-key	High		5	MediaIntent/ @DescriptiveNa me (S)	Media/@Descript iveName (S) Note: CIP4 is considering adding Media Catalog.	Yes (X)	1.0 media-name	1.2	Yes	media-key (type3 keyword name(MAX)) The name of the media represented as a keyword or name. Values are the same as the keyword and name values for the Media Document Processing attribute and represent the same media, except for media size and input tray keywords. [prod-print] §3.13.1
media-col media-material	Low		5	Unknown	Unknown	No (X)	x.x			media-material (type3 keyword name(MAX)) The material of the media. (Keywords: aluminum, dry-film, paper, polyester, wet-film) [prod-print2] §8.4.3
media-col media-order-count	High	EFI Media – Tabs	5	MediaIntent/ @MediaSetCoun t (S)	Media/@SetCou nt (S)	Yes (X)	1.0 media-set-count	1.2	Yes	media-order-count (integer(1:MAX)) Indicates the number of sheets, within an ordered sequence of sheets; after which the sequence begins to repeat. [prod-print] §3.13.7
media-col media-pre-printed	High		5	MediaIntent/ @Preprinted (S)	Media/@Preprint ed (S)	Yes (X)	x.x	1.2	Yes	media-preprinted (type3 keyword name(MAX)) Indicates the pre-printed characteristics of the desired media. (Keywords: blank, pre-printed, letter-head) [prod-print] §3.13.5
media-col	Medium		5	MediaIntent/	Media/@Recycle	Yes (X)	1.0 media-recycled	1.2	Yes	media-recycled (type3 keyword

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
media-recycled				@Recycled	d					name(MAX)) Indicates the recycled characteristics of the media. (Keywords: none, standard) [prod-print] §3.13.11
media-col media-size	High	EFI Media Dimensions EFI Media Landscape	5	MediaIntent/ @Dimensions (S) Note:LayoutInten t/@Dimensions, @FinishedDimen sions (z-axis must always be set to 0). Note: @Dimensions is needed for spreads.	Media/@Dimensi ons (S)	Yes (X)	see below	1.2	Yes	media-size (collection) Explicitly specifies the numerical media width and height dimensions. [prod-print] §3.13.8
media-col media-size x-dimension	High		5	see media-size above	see media-size above	Yes (X)	1.0 media-x- dimension	1.2	Yes	x-dimension (integer(0:MAX)) Size of the media in hundredths of a millimeter along the y-axis of the medium, i.e., the short (=bottom) edge. [prod-print] §3.13.8.1
media-col media-size y-dimension	High		5	see media-size above	see media-size above	Yes (X)	1.0 media-y- dimension	1.2	Yes	y-dimension (integer(0:MAX)) Size of the media in hundredths of a millimeter along the y-axis of the medium, i.e., the long (=left) edge. [prod-print] §3.13.8.2
media-col media-type	High		5	MediaIntent/ @UserMediaTyp e,@MediaType (S) Note: Reconsider renaming User MediaType to MediaTypeDetals . Note: Consider adding more of the values of Media/@MediaT ypeDetails to UserMediaType.	Media/@MediaT ypeDetails/@Me diaType (S)	Yes (X)	1.0 media-type	1.2	Yes	media-type (type3 keyword name(MAX)) The medium type that the Printer uses for all impressions of the Job. (Keywords: stationery, transparency envelope, envelope-plain, envelope-window, continuous, continuous-long, continuous-short, tab-stock, pre-cut-tabs, full-cut-tabs, multi-part-forms, labels, multi-layer, screen, screen-paged, photographic, cardstock, other See also [pwg5101.1] §3) [prod-print] §3.13.2
media-col media-weight-metric	High		5	MediaIntent/ @Weight (S)	Media/@Weight (S)	Yes (X)	1.0 media-weight	1.2	Yes	media-weight-metric (integer(0:MAX)) Indicates the weight of the desired media rounded to the nearest whole number of

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										grams per square meter. [prod-print] §3.13.9
medi-col media-thickness	Medium		5	Unknown	Unknown	Yes (X)	x.x			media-thickness (integer(1:MAX)) The thickness of the media in units of one hundredth of a millimeter. This unit is equivalent to 1/2540 th of an inch. [prod-print2] §8.4.4
media-col media-tooth	Medium		5	Unknown	Unknown	No (X)	x.x			media-tooth (type3 keyword name(MAX)) The tooth (or roughness) of the media. Note: the tooth of a medium is particularly important for those marking engines that use pens (e.g. plotters) to mark the medium. (Keywords: fine, medium, coarse) [prod-print2] §8.4.1
media-input-tray-check	Medium			Unknown	Unknown	No (X)	1.0 media-input-tray-name ²⁸	1.2	No	media-input-tray-check (type3 keyword name(MAX)) [JT, DT, PO] Indicates that the characteristics of the media in the identified input tray must match the characteristics of the media identified by the "media" or "media-col" attribute. (Keywords: none, top, middle, bottom, side, large-capacity, envelope, main, manual, bypass-tray, tray-N. See [RFC2911] Appendix C) [prod-print] §3.14 and §6.3
multiple-document-handling	High	See specific attributes for category.		Partition using DocIndex and DocRunIndex for separate document and RunIndex for single document. (S)	Partition using DocIndex and DocRunIndex for separate document and RunIndex for single document. (S)	Yes (is covered by the individual attributes) (X)	see document individual attributes	1.1	Yes	multiple-document-handling (type2 keyword) [JT] Controls whether Input Document in multi-document jobs are combined into a single Output Document or are kept as separate Output Document. Useful in combination with "cover-back", "cover-front", "finishings", "finishings-col", and "copies" Job Template attributes and for controlling the placement of one or more print-stream pages into impressions and onto media sheets for multi-document Jobs ²⁹ . (Keywords: single-document, separate-document-uncollated-copies, separate-document-collated-copies, single-document-new-sheet) [RFC2911] §4.2.4
notify-xxx attributes: notify-recipient-uri	Low		2	Unknown	NodeInfo/NotificationFilter/@osdp:Locator,@osdp:ChannelType	Notification (X) Yes	1.0 job-notifications 1.0 notification-send-to 1.0 notification-	1.2	No	notify-xxx [JD] Specifies one or more complete Event Notification Subscriptions. Each Subscription includes the Events of interest, the Delivery Method, the Notification

²⁸ media-input-tray-name is mapped to IPP media-input-tray-check when other media attributes are also set.

²⁹ The IPP "multiple-document-handling" attribute has been made unnecessary in the PWG Semantic Model by introducing the JobFinishings, JobFinishingsCol, and JobCopies Job Processing attributes to handle the cases of combining multiple Input Documents into a single Output Document. So Finishings, FinishingsCol, and Copies are Document Processing attributes that are intended to handle the separate Output Documents cases. Need to do the same for CoverFront and CoverBack.

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
notify-pull-method notify-events notify-attributes notify-user-data notify-charset notify-natural-language notify-time-interval notify-lease-duration notify-subscription-id (S) notify-sequence-number (S) notify-lease-expiration-time (S) notify-printer-up-time (S) notify-printer-uri (S) notify-job-id (S) notify-subscriber-name (S)					@Types Comment/@Name=Description Comment/@Language	No Yes No Yes? No Yes No No No No No No No No No	delivery-type 1.0 notification-events 1.0 notification-comment 1.0 notification-language This needs more work. Tom will provide descriptions for each notify-xxx attribute. Which attributes are required by IPP? See IANA uri schemes.			Recipient, any additional attributes and/or user data to be delivery with the Event Notification.
number-of-documents (S)	Never			N/A	N/A	No	x.x	1.1	No	number-of-documents (integer(0:MAX)) [JS, -] The number of Documents in this Job. [RFC2911] §4.3.12
number-of-intervening-jobs (S)	Never			N/A	N/A	No	x.x	1.1	No	number-of-intervening-jobs (integer(0:MAX)) [JS, -] The number of jobs that are "ahead" of this Job assuming the current scheduled order. [RFC2911] §4.3.15
number-up	High	1.1 Bookletmaking	7	LayoutIntent/ @NumberUp/@... (N) Note: Description of LayoutIntent needs to be clarified in JDF spec and in doing so new attributes may be added (e.g. presentation direction).	LayoutPreparationParams/@NumberUp,/PageCell/FitPolicy/@SizePolicy=FitToPage	Number Up (X)	1.0 job-number-up x.x document-number-up x.x po-number-up	1.1	Yes	number-up (integer(1:MAX)) [JT, DT, PO] Indicates the number of Input pages that the Printer is to image on one finished page image. [RFC2911] §4.2.9
operation-id	Never			N/A	N/A	No	Never	1.1	No	operation-id (type2 enum) [] Indicates

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										which operation this request is. [RFC2911] §3.1.2
orientation-requested	Low		7	Unknown	Unknown	No (X)	x.x	1.1	Yes	orientation-requested (type2 enum) [JT, DT, PO] The desired orientation for printed pages for document formats that don't have a built-in orientation. (Keywords: portrait, landscape, reverse-landscape, reverse-portrait) [RFC2911] §4.2.10
output-bin	Medium		8	Unknown	DigitalPrintingParams/@OutputBin	Output Bin Name (X)	1.0 job-output-bin-name x.x document-output-bin-name x.x po-output-bin-name	No	Yes	output-bin (type3 keyword name(MAX)) [JT, DT] Specifies the output bin where the job is to be delivered. (Keywords: top, middle, bottom, side, left, right, center, rear, face-up, face-down large-capacity, my-mailbox, stacker-N*, mailbox-N*, tray-N*. *Note: N is replaced by a cardinal number) [output-bin] §2.1
output-device-assigned (S)	Never			N/A	N/A	No	x.x	1.1	No	output-device-assigned (name(127)) [JS, -] Identifies the output device to which the Printer has assigned this Job (Example: "Pete's Printer") [RFC2911] §4.3.13
page-delivery	High	1.1 Sheet Order & Face Up/Down	8	Specify page order in RunList	DigitalPrintingParams/@PageDelivery	Page Delivery (X)	1.0 job-page-delivery	1.2	Yes	page-delivery (type2 keyword) [JT, DT] Indicates whether the pages of the job are to be delivered to the output bin or finisher in the same page order as the original document and face up or face down. See the "page-order-received" Job Template attribute and the "current-page-order" Document Description attributes. (Keywords: same-order-face-up, same-order-face-down, reverse-order-face-up, reverse-order-face-down, system-specified) [prod-print] §3.15
page-order-received	Low ³⁰		3	Unknown	Unknown	No (X)	x.x	1.2	Yes	page-order-received (type2 keyword) [JT ³¹ , DT] Indicates the order of pages in the document data as supplied with the job. (Keywords: 1-to-n-order, n-to-1-order) [prod-print] §3.16
page-overrides (M)	High	See specific attributes for category.		Partition using DocIndex and DocRunIndex or RunIndex to specify page overrides. (S)	Partition using DocIndex and DocRunIndex or RunIndex to specify page overrides. (S)	Yes (X)	x.x job-page-overrides x.x document-page-overrides	No??	Yes	page-overrides (1setOf collection) [JT, DT] Provides for the overriding of processing instructions on a page basis. [override] §5.2 input-documents (1setOf rangeOfInteger(MAX)) Specifies the ranges of input documents for page override
input-documents document-copies						Yes No				

³⁰ The default of page-order-received is 1 to n which is reader order.

³¹ The IPP "page-order-received" Job Template attribute is mapped to the PageOrderReceived Document Description attribute in the PWG Semantic Model [pwg-sm].

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
pages (Mn) sides media <any other document attr.> or output-documents document-copies pages (Mn) sides media <any other document attr.>		EFI Media - Pages		See individual feature/function that is valid at the page level	See individual feature/function that is valid at the page level	Yes Yes Yes Yes?? No No Yes Yes Yes Yes??	x.x po-pages see sides see media Yes			processing. [override] §5.2.1 output-documents (1setOf rangeOfInteger(MAX)) Specifies the ranges of output documents for page override processing. [override] §5.2.2 document-copies (1setOf rangeOfInteger(MAX)) Specifies the ranges of output document copies for page override processing. [override] §5.2.3 pages (1setOf rangeOfInteger(MAX)) Specifies a range of pages in the document data to which the “page-overrides” are to be applied. Note: the “page-ranges” Document Template attribute may be supplied as one of the Template attributes to apply to the ranges of pages specified by “pages” in which case “page-ranges” indicates which pages are to be actually output. [override] §5.2.4 any other Job Template attributes that affect pages, such as “media” or “media-col” ()
page-ranges (Mn)	High		4	RunListLink/@RunIndex,@DocIndex and @DocRunIndex (S)	RunListLink/@RunIndex.@DocIndex and @DocRunIndex (S)	Range of Pages to Process (X)	1.0 job-output-pages x.x document-output-pages	1.1	Yes	page-ranges (1setOf rangeOfInteger(1:MAX)) [JT, DT, PO] Specifies a range of pages in the document data to be output. The remaining pages may still need to be processed, but not output, depending on document format. [RFC2911] §4.2.7
page-rotation	High	EFI Media Landscape	7	LayoutIntent/@FinishedDimensions	LayoutPreparationParams/@Rotate	Rotate Page (X)	1.0 job-page-rotation x.x document-page-rotation x.x po-page-rotation	??	Yes	page-rotation (type3 keyword name(MAX)) [JT, DT, PO] Specifies a rotation transformation of input page images consisting of rotation and repositioning so that the lower left corner of the rotated image coincides with the lower left corner of the original image. No scaling is done. Rotation is done before any “number-up” or “imposition-template” transformations are applied. (Keywords: rotate-0, rotate-90, rotate-180, rotate-270). [color] §4.7
pages-per-subset (Mn)	Low		4	Unknown	Unknown	No (X)	x.x	No	Yes	pages-per-subset (1setOf integer(1:MAX)) [JT ³²] Combines all of the Input Pages of all

³² The IPP “pages-per-subset” attribute can only be used when the “multiple-document-handling” Job Template attribute is ‘separate-documents-collated-copies’ or ‘separate-documents-uncollated-copies’, since the purpose of the “pages-per-subset” attribute is to produce separate output documents for each subset. Otherwise, the Printer MUST ignore the “pages-per-subset” attribute. Both the “pages-per-subset” and the “multiple-document-handling” are Job level only and cannot be Document Template attributes.

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										of the Input Documents into a single stream of Input-Pages. Then the Printer partitions that single stream into contiguous subsets of Input-Pages according to the list of integers. If there are more Input Pages when the Printer reaches the end of the integer list, the Printer cycles through the integer list. Each subset is defined to be an Output-Document. [override] §5.3
<p>pdl-init-file pdl-init-file-location pdl-init-file-name pdl-init-file-entry</p>	Never		6	N/A	N/A Same as PDLResourceAlias?	No	Never		No	<p>pdl-init-file (1setOf collection) [JT, DT] Controls initialization of the Printer's Page Description Language (PDL) interpreter. The Printer performs the initialization before processing each Input Document when "multiple-document-handling" is 'separate-documents-collated-copies' or 'separate-documents-uncollated-copies' and before the first Input Document when "multiple-document-handling" is 'single-document' or 'single-document-new-sheet'. [prod-print2] §5.8</p> <p>pdl-init-file-location (uri) [JT, DT] Contains an Absolute URI [RFC 2396] that specifies the path to the directory where the initialization file to be sent to the Printer's PDL interpreter will be found. Examples: 'ftp://printhost.printco.com/var/spool/jobinitfiledir/initfile1' or 'file:///jobinitfiledir/initfile1'. [prod-print2] §5.8.1.1</p> <p>pdl-init-file-name (name(MAX)) [JT, DT] Specifies the name of the initialization file within the directory specified by the PdlInitFileLocation member attribute that the Printer is to send to its PDL interpreter prior to processing the document. For example, if the PdlInitFileLocation is 'file:///jobinitfiledir/initfile1' or 'file:///jobinitfiledir/initfile1/' and the PdlInitFileName is 'a/b', then the URL for the saved job is 'file:///jobinitfiledir/initfile1/a/b' [prod-print2] §5.8.1.2</p> <p>pdl-init-file-entry (name(MAX)) [JT, DT] Specifies an entry point within the init file at which the PDL interpreter starts. [prod-print2] §5.8.1.3</p>

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
Person to contact in case of problems	High		1	CustomerInfo/Contact/@... (S)	Unknown CustomerInfo/Contact/@... (S)					
presentation-direction-number-up	Low		7	Unknown	Unknown	No (X)	x.x	1.2	Yes ³³	presentation-direction-number-up (type2 keyword) [JT, DT, PO] Specifies the placement order of the page images on a Finished-Page Image with the "number-up" attribute. (Keywords: toright-tobottom, tobottom-toright, toleft-tobottom, tobottom-toleft, toright-totop, totop-toright, toleft-totop) [prod-print] §3.17
printer-resolution	Low		6	Unknown	Unknown	No (X)	x.x	1.1	Yes	printer-resolution (resolution) [JT, DT, PO] The resolution that Printer uses for the Job in cross-feed and feed direction in units of dpi or dpcm. [RFC2911] §4.2.12
printer-uri	High		9	N/A (P)	Device/@DeviceID	Destination or Physical Printer Requested (X)	1.0 job-destination-uri x.x document-destination-uri x.x po-destination-uri	1.1	No	printer-uri (uri) [JD] Specifies the URL of this Printer. The client supplies this attribute in every request. [RFC2911] §3.1.5
print-quality	Medium		6	Unknown	Unknown	No (X)	1.0 job-print-quality x.x document-print-quality	1.1	Yes	print-quality (type2 enum) [JT, DT, PO] The print quality that the Printer uses for the Job. (keyword: draft, normal, high) [RFC2911] §4.2.13
Proofing (other than simple "print a proof")	Low		2 11	Unknown	Unknown		x.x			
proof-print proof-print-copies media media-col	High ³⁴ Low Low Low		2 11	ProofingIntent/ProofItem/@... (S)	ProofingParams/@... (S) note Origination and Prepress CIP WG is revamping ProofingParams, check with them.	No (X)	x.x			proof-print (collection) [JT] Specifies the attributes for zero or more proof prints of the job that are to be printed prior to the printing the full run of the job. (Includes Media/MediaCol and any other Job Processing attributes). [prod-print2] §5.9 proof-print-copies (integer (0:MAX)) [JT] Specifies the attributes for zero or more proof prints of the job that are to be printed prior to the printing the full run of the job. If the value is zero, no proof job is produced. After the proof job(s) are completed, the Printer sets ProofPrintCopies to zero. puts the Job in the 'pending-held' state, and adds the 'proof-print-wait' value to the Job's JobStateReasons.

³³ The JDF/1.0 Appendix F incorrectly refers to "presentation-direction" which was renamed to "presentation-direction-number-up" in IEEE-ISTO 5100.3.

³⁴ Only need to be able to specify that a proof is to be printed and approved.

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										After examining the proof print job output, the user can print the full run of the job by using the Release-Job action (see [RFC2911] section 3.3.6). (Includes Media/MediaCol and any other Job Processing attributes). [prod-print2] §5.9.1.1 media (type3 keyword name(MAX)) The medium that the Printer uses for all impressions of the Job. (Keyword examples: na_letter_8.5x11in, iso_a4_210x297mm, na_monarch_3.875x7.5in. See [pwg5101.1]) [prod-print] §3.5.3 media-col (collection) Enables a client end user to submit a list of media characteristics to the Printer as a way to more completely specify the media to be used. [prod-print] §3.5.3
Range of pages in job/document to include when generating the job ticket	Medium		4	Unknown	RunList/@Pages	Range of Pages (X)	1.0 job-include-pages x.x document-include-pages			No IPP attribute
request-id	Never		10	Unknown	Unknown	No	Never	No	No	request-id (integer(1:MAX)) [OP] Specifies an ID generated by the client to identify this request. The Printer returns this same ID in the response to each request. [RFC2911] §3.1.2
requesting-user-name	High		10	N/A	AuditPool/Create d/@Author NodeInfo/Employ ee/Person/@First Name/@FamilyName	Job Created By (X)	1.0 job-create-user-name	1.1	Yes	requesting-user-name (name(MAX)) [OP] Specifies the name of the requesting user. Used by the Printer in case there is no a more secure authentication mechanism. [RFC2911] §3.2.1.1
separator-sheets separator-sheets-type media media-col	High		5 8	LayoutIntent/InsertSheet/@SheetType,@SheetUsage (N) (S) N/A InsertSheet/MediaIntent (S)	LayoutPreparationParams/InsertSheet/@SheetType,@SheetUsage (S) InsertSheet/Media/Location/@LocationName InsertSheet/Media (S) Note: Should InsertSheet be	Start, Separator/Slip, End Sheets (X)	1.0 job-separator-sheets 1.0 separator-sheet-type 1.0 separator-sheet-media 1.0 separator-sheet-media	1.2	Yes	separator-sheets (collection) [JT, DT, PO] Specifies the separator sheets to be printed with the Document. [prod-print] §3.18 separator-sheets-type (type3 keyword name(MAX)) Specifies the separator sheets type. (Keywords: none, slip-sheets, start-sheet, end-sheet, both-sheets) [prod-print] §3.18.1 media (type3 keyword name(MAX)) The medium that the Printer uses for all impressions of the Job. (Keyword examples: na_letter_8.5x11in, iso_a4_210x297mm, na_monarch_3.875x7.5in. See [pwg5101.1])

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
					an input to DP process and not under LayoutPreparationParams in LPP process. Note: Also need to consider allowing InsertSheets to be placed between chapters. Need to be able to define chapters.					[prod-print] §3.5.3 media-col (collection) Enables a client end user to submit a list of media characteristics to the Printer as a way to more completely specify the media to be used. [prod-print] §3.5.3
sheet-collate note: Only applies to sheets in a document . Works with multiple-document-handling.	High	1.1 Sorter Mode (Collate) EFI Finishing - Sorter Mode	8	Specify sheet order in RunList	DigitalPrintingParams/@Collate	Collate (X)	1.0 job-collate	1.2	Yes	sheet-collate (type2 keyword) [JT, DT] Specifies whether or not the media sheets of each copy of each printed document in a job are to be in sequence. (Keywords: uncollated, collated) [job-prog] §3.1
sheet-completed-copy-number (S) (M)	Never			N/A	N/A	No	Never	No	No	sheet-completed-copy-number (integer(0:MAX)) [JS, DS] The number of the copy being stacked (1) for the current Document in this Job or (2) for this Document. The copies are numbered 1, 2, 3. A 0 value means no Document is currently being stacked. The “impressions-completed-current-copy” counts the impressions as they are produced for the current copy of the current Document. [job-prog] §4.2
sheet-completed-document-number (S) (M)	Never			N/A	N/A	No	Never	No	No	sheet-completed-document-number (integer(0:MAX)) [JS, -] The DocumentNumber of the Document in this Job currently being stacked. The Documents in a Job are numbered 1, 2, 3. A 0 value means no Document is currently being stacked. The “impressions-completed-current-copy” counts the impressions as they are produced for the current copy of the current Document. [job-prog] §4.3
sides	High	1.1 Duplex EFI Media – Plex Mode	7	LayoutIntent/ @Sides	LayoutPreparationParams/@Sides	Sides (X)	1.0 job-sides x.x document-sides x.x po-sides	1.1	Yes	sides (type2 keyword) [JT, DT, PO] Indicates how an impression is to be placed upon the side(s) of the media. (Keywords: one-sided, two-sided-long-edge, two-sided-

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										short-edge) [RFC2911] §4.2.8
Stitching - complex	Low		8	Unknown	StitchingParams/ @Angle,@Stitch Positions	Stapling & Stitching (X)	x.x stitching-angle x.x stitching- positions			
time-at-completed (S)	Never			N/A	N/A	No		1.1	No	time-at-completed (integer (MIN:MAX)) [JS, DS] The time at which the Job/Document completed in "printer-up-time" seconds, i.e., the value of the "printer-up-time" Printer State attribute when the Job was completed, aborted, or canceled. [RFC2911] §4.3.14.3
time-at-creation (S)	Never			N/A	N/A	No		1.1	No	time-at-creation (integer (MIN:MAX)) [JS, DS] The time at which the Job/Document was created in "printer-up-time" seconds, i.e., the value of the "printer-up-time" Printer State attribute when the Job was created. [RFC2911] §4.3.14.1
time-at-processing (S)	Never			N/A	N/A	No		1.1	No	time-at-processing (integer (MIN:MAX)) [JS, DS] The time at which the Job/Document first began processing in "printer-up-time" seconds, i.e., the value of the "printer-up-time" Printer State attribute when the Job first began processing. [RFC2911] §4.3.14.2
Turn binding off	Low		8	Unknown	BindingIntent/@ NoOp	Binding (X)	1.0 job-binding x.x document- binding x.x po-binding x.x binding-type			
Turn folding off	High	1.1 Folding	8	N/A	FoldingParams/ @NoOp	Folding (X)	x.x folding-type			finishings = none
Turn hole making off	High	1.1 HoleMaking	8	N/A	HoleMakingPara ms/@NoOp	Punching & Hole Making (X)	1.0 job-hole-making x.x document-hole- making x.x po-hole-making 1.0 hole-making- count			finishing = none
Turn jog offset off	High	1.1 Jogging	8	N/A	Component/Disjo inting/@OffsetDir ection, DigitalPrintingPar ams/Disjointing/ @OffsetDirection	Jog Offset (X)	1.0 job-jog-offset x.x document- jog-offset			
Turn trimming off	High	1.1 Trimming	8	N/A	TrimmingParams /@NoOp	Trimming (X)	1.0 job-trimming x.x document-			

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
							trimming			
version-number	Never			NodeInfo/@IPPVersion	NodeInfo/@IPPVersion	No		1.1	Yes	version-number (type2 keyword) [OP] Indicates the version number of the protocol that the client is using in the request. (Keywords: 1.0, 1.1). [RFC2911] §3.1.8
Where/who/how to deliver final product. Assume single drop point.	High	EFI Packaging/ Shipping Info	2	DeliveryIntent/Contact/@... (S)	DeliveryParams/Contact/@... (S)	No (X)				
x-image-position	High		6 or 7?	N/A (P)	LayoutPreparationParams/ImageShift/@PositionX,/FitPolicy/@SizePolicy	Fit Policy (X)		1.2	Yes	x-image-position (type2 keyword) [JT, DT, PO] Causes the specified point of the Finished-Page Image to be positioned at a specified location. (Keywords: none, center, left, right) [prod-print] §3.19.2
x-image-shift	Never			N/A	N/A	No		1.2	Yes	x-image-shift (integer(MIN:MAX)) [JT, DT, PO] Causes the Finished-Page Image to be shifted in position with respect to the x-axis of the media. The unit of measure for this attribute is hundredths of a millimeter. The sign of the value indicates the direction of the shift. [prod-print] §3.19.3
x-side1-image-shift	High		6 or 7?	N/A (P)	LayoutPreparationParams/ImageShift/@ShiftFront	Image Shift Front Side (X)	1.0 job-image-shift-front-x x.x document-image-shift-front-x x.x po-image-shift-front-x	1.2	Yes	x-side1-image-shift (integer(MIN:MAX)) [JT, DT, PO] Causes each Finished-Page Image that would be placed on the front side of a sheet to be shifted in position with respect to the x-axis of the media. The unit of measure for this attribute is hundredths of a millimeter. The sign of the value indicates the direction of the shift. [prod-print] §3.19.4
x-side2-image-shift	High		6 or 7?	N/A (P)	LayoutPreparationParams/ImageShift/@ShiftBack	Image Shift Back Side (X)	1.0 job-image-shift-back-x x.x document-image-shift-back-x x.x po-image-shift-back-x	1.2	Yes	x-side2-image-shift (integer(MIN:MAX)) [JT, DT, PO] Causes each Finished-Page Image that would be placed on the back side of a sheet to be shifted in position with respect to the x-axis of the media. The unit of measure for this attribute is hundredths of a millimeter. The sign of the value indicates the direction of the shift. [prod-print] §3.19.5
y-image-position	High		6 or 7?	N/A (P)	LayoutPreparationParams/ImageShift/@PositionY,/FitPolicy/@SizePolicy	Fit Policy (X)		1.2	Yes	y-image-position (type2 keyword) [JT, DT, PO] Causes the specified point of the Finished-Page Image to be positioned at a specified location. (Keywords: none, center, top, bottom) [prod-print] §3.19.6
y-image-shift	Never			N/A	N/A	No		1.2	Yes	y-image-shift (integer(MIN:MAX)) [JT, DT, PO] Causes the Finished-Page Image to be shifted in position with respect to the y-axis of

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
										the media. The unit of measure for this attribute is hundredths of a millimeter. The sign of the value indicates the direction of the shift. [prod-print] §3.19.7
y-side1-image-shift	High		6 or 7?	N/A (P)	LayoutPreparationParams/ImageShift/@ShiftFront	Image Shift Front Side (X)	1.0 job-image-shift-front-y x.x document-image-shift-front-y x.x po-image-shift-front-y	1.2	Yes	y-side1-image-shift (integer(MIN:MAX)) [JT, DT, PO] Causes each Finished-Page Image that would be placed on the front side of a sheet to be shifted in position with respect to the y-axis of the media. The unit of measure for this attribute is hundredths of a millimeter. The sign of the value indicates the direction of the shift. [prod-print] §3.19.8
y-side2-image-shift	High		6 or 7?	N/A (P)	LayoutPreparationParams/ImageShift/@ShiftBack	Image Shift Back Side (X)	1.0 job-image-shift-back-y x.x document-image-shift-back-y x.x po-image-shift-back-y	1.2	Yes	y-side2-image-shift (integer(MIN:MAX)) [JT, DT, PO] Causes each Finished-Page Image that would be placed on the back side of a sheet to be shifted in position with respect to the y-axis of the media. The unit of measure for this attribute is hundredths of a millimeter. The sign of the value indicates the direction of the shift. [prod-print] §3.19.9
zz no IPP exists	High	1.1 Color Mode EFI Color – Color Mode	6	ColorIntent/@ColorStandard (S)	ColorantControl/@ProcessColorModel (S)	Process Color Model (X)				
zz no IPP exists	High	1.1 Screen EFI Image Quality – Screening	6	N/A (P)	ScreeningParams/ScreenSelector/@ScreeningFamily	Screening (X) Family				
zz no IPP exists	High	1.1 Special (Spot) Color Handling	6	ColorIntent/ColorsUsed/SeparationSpec/@Name (S)	ColorantControl/ColorantParams/SeparationSpec/@Name (S)	Spot Color (X)				
zz no IPP exists	Medium	1.1 Bookletmaking	7 8	Note: Want to be able to specify an interoperable BookletMaking w/o breaking it out into individual resources. Possibly a BookletMaking	same as Product Intent	Folding, Number Up, Order Pages, Stapling & Stitching, Trimming (X)				

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
				catalog.						
zz no IPP exists	High? ³⁵	EFI MediaSource Offset	6	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Catalog Imposition ContentArray	?	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Media - Imageable Area	?	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI General/ Account Info- User Information	1	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Document List - File Merge specs	3	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Image Quality - Black Detection	6	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Image Quality - Brightness	6	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Image Quality - Contrast	6	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Image Quality - Trapping	6	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Image Quality - Sharpness	6	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Color - RGB Source	6	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Color - Rendering Style	6	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Color - CMYK Simulation	6	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Color - Spot Color Matching	6	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Layout Definition - n rows and columns	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Layout	7	Unknown	Unknown	No (X)				

³⁵ Can this be accomplished by shifting the image using the image-shift attributes?

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
		Definition - GuttersN and GuttersM								
zz no IPP exists	Low?	EFI Layout Definition - Scale	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Layout Definition - Type (scale to fit & user defined)	7	Unknown	LayoutPreparationParams/FitPolicy/@SizePolicy	Fit Policy (X)				
zz no IPP exists	Low?	EFI Layout Definition - Bleeds	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Layout Definition - Creep	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Printer Marks - CropMarks HorizontalArray VerticalArray Enabled	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Printer Marks - SheetName Enabled Text Font CTM	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Printer Marks - FoldMarks Enabled	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Printer Marks - CalibrationBar Enabled Side CTM	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Printer Marks - ExposureBar Enabled Side CTM	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Layout Content - Side and	7	Unknown	Unknown	No (X)				

IPP Attribute Name	Priority	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF App F	IPP Attribute Description
		PlacedObjects								
zz no IPP exists	Low?	EFI Finishing - Page Order	8	Unknown	LayoutPreparationParams/@PageOrder	Order Pages (X)				
zz no IPP exists	Low?	EFI Finishing - Binding Gangup Unique Gangup Collate and cut Saddle Perfect Nested Saddle	8	Unknown	see Stitching see Binding	No ? (X) No ? (X) Yes Stitching (X) Yes Binding (X) No (X)				
zz no IPP exists	Never	EFI Document List - File Edit Spec	3	N/A	N/A	No (X)				
zz no IPP exists	Never ³⁶	EFI Vendor specific private extensions	10	N/A	N/A	No (X)				
zz no IPP exists	Never?	EFI MediaSource TrayAlignment	6	Unknown	Unknown	No (X)				

2 CUPS Job Template extensions to IPP

The following attributes are listed in the “CUPS Implementation of IPP” document as CUPS extension Job Template attributes:

Table 2 - CUPS Job Template extensions to IPP

CUPS Attribute	OSDP JDF Spec
blackplot	No
brightness	No
columns	No
cpi	No
fitplot	No
gamma	No
hue	No
job-billing	Yes
job-hold-until	Yes

³⁶ Describe in spec how vendor-specific extensions should be handled.

CUPS Attribute	OSDP JDF Spec
(like IPP 1.1 except add HH:MM and HH:MM:SS GMT of next time)	Hold Job
job-sheets (IPP 1.1 is singled valued whereas CUPS is 1setOf)	Yes Start, Separator, End Sheets
job-originating-host-name	Yes Job Created By
lpi	No
natural-scaling	No
page-bottom	No
page-label	No
page-left	No
page-right	No
page-set	No
page-top	No
penwidth	No
position	No
ppi	No
prettyprint	No
saturation	No
scaling	No
wrap	No

3 Attributes for the proposed PDC document

The following attributes are listed in the proposed PDC Document:

Table 3 Attributes for the proposed PDC document

PDC Attribute	IPP Attribute	OSDP JDF Spec
form	media-col?	Yes Forms
media	media-col attribute's media-key member attribute	Yes Media
tray	media	Yes Input Tray Name
resolution	printer-resolution	No
orientation	orientation-requested	Yes Rotate Page
color/monochrome	---	No
copies	copies	Yes Number of Copies

4 References

[adm-ops]

Kugler, C, Hastings, T., Lewis, H., "Internet Printing Protocol (IPP): Job and Printer Administrative Operations", <draft-ietf-ipp-adm-ops-03.txt>, July 17, 2001.

[color]

Hastings, T., and D. Fullman, "Internet Printing Protocol (IPP): Color and Imaging Attributes", ftp://ftp.pwg.org/pub/pwg/ipp/new_COLOR/pwg5100.8-D01-020118.pdf, work in progress, October 18, 2002.

CUPS

Common UNIX Printing System, <http://www.cups.org/>.

[doc-obj]

Hastings, T., and P. Zehler, "Internet Printing Protocol (IPP): Document Object", September 27, 2002, ftp://ftp.pwg.org/pub/pwg/ipp/new_DOC/IPP-Document-Object.doc, .pdf, .rtf work in progress to become IEEE-ISTO 5100.5-2001.

[EFI]

EFI Job Ticket Proposal 2002

[finish2]

Hastings, T. and D. Fullman, "Proposed Update to IEEE-ISTO 5100.1 Internet Printing Protocol (IPP): "finishings" extension", ftp://ftp.pwg.org/pub/pwg/ipp/new_VAL/pwg-ipp-finishings-latest.pdf, work in progress, October 30, 2002.

IEEE-ISTO 5100.1-2001 [finishing]

"Internet Printing Protocol (IPP): "finishings" attribute values extension", Hastings, T., and D. Fullman, February 5, 2001, <ftp://ftp.pwg.org/pub/pwg/standards/pwg5100.1.pdf>

IEEE-ISTO 5100.2-2001 [output-bin]

"Internet Printing Protocol (IPP): output-bin attribute extension", Hastings, T., and R. Bergman, February 7, 2001, <ftp://ftp.pwg.org/pub/pwg/standards/pwg5100.2.pdf>

IEEE-ISTO 5100.3-2001 [prod-print]

"Internet Printing Protocol (IPP): Production Printing Attributes - Set1", Ocke, K., and T. Hastings, February 12, 2001, <ftp://ftp.pwg.org/pub/pwg/standards/pwg5100.3.pdf>

IEEE-ISTO 5100.4-2001 [override]

"Internet Printing Protocol (IPP): Override Attributes for Documents and Pages", Herriot, R., and K. Ocke, February 7, 2001, <ftp://ftp.pwg.org/pub/pwg/standards/pwg5100.4.pdf>

[JTAPI]

Job Ticket API Design currently being developed by the Free Standards Group (FSG) Open Print Job Ticket Working Group – September 2002

[OSDP]

"Open Source Digital Printing Job Ticket", Claudia Alimpich, version 1.2.

[prod-print2]

Hastings, T., and D. Fullman, "Internet Printing Protocol (IPP): Production Printing Attributes - Set 2", to become a PWG IEEE-ISTO standard, work in progress, August 21, 2002, ftp://ftp.pwg.org/pub/pwg/ipp/new_PPE/pwg-ipp-prod-print-set2-draft-v0_1-020821.pdf.

RFC 2910 [mod]

Herriot, R., Butler, S., Moore, P., Tuner, R., "Internet Printing Protocol/1.1: Encoding and Transport", RFC 2910, September 2000.

RFC 2911 [pro]

R. deBry, T. Hastings, R. Herriot, S. Isaacson, P. Powell, "Internet Printing Protocol/1.1: Model and Semantics", RFC 2911, September 2000.

RFC 3380 [set-ops]

Hastings, T., Herriot, R., Kugler, C., and H. Lewis, "Internet Printing Protocol (IPP): Job and Printer Set Operations", RFC 3380, September 2002.

RFC 3381 [job-prog]

Hastings, T., Lewis, H., and R. Bergman, "Internet Printing Protocol (IPP): Job Progress Attributes", RFC 3381, September 2002.

RFC 3382 [coll]

deBry, R., Hastings, T., Herriot, R., Ocke, K., and P. Zehler, "Internet Printing Protocol (IPP): The 'collection' attribute syntax", RFC 3382, September 2002.

5 Change Log

Summary of changes in reverse chronological order:

5.1 Changes to make version 0.4, September 28, 2002:

1. Added Brief Descriptions of all of the IPP attributes.
2. Added the IPP attributes in [prod-print2] and [doc-obj].
3. Re-calculated the percentages of IPP covered in the mappings by counting all collection member attributes as well as the top level attributes.

5.2 Changes to make version 0.3, September 24, 2002:

1. Added Product Intent mapping.
2. Added the percentages of IPP covered by the other mappings.

5.3 Changes to make version 0.5, October 5, 2002:

1. Added PODi column
2. Updated OSDP JDF Spec column to include (X) per PODi meeting
3. Started updating JTAPI column per 01Oct FSG Job Ticket working group meetings (updated up through cover-front)
4. Added JDF Process Resource column and updated per OSDP JDF Spec

5.4 Changes to make version 0.6 October 14, 2002:

1. Added (Mn) notation to indicate the attributes for which "multi-document-handling" only affects page numbering (job as a whole or each individual document).
2. Corrected the attributes flagged with (M).
3. Clarified that "media" and "media-col" are input media to the Printer, not output finished product media.
4. Started reviewing (X) in OSDP JDF Spec column during Digital Printing working group meeting at GraphExpo on 10/9 (reviewed up through last-document).

5.5 Changes to make version 0.7, October 16, 2002:

1. Instead of deprecating "ipp-attribute-fidelity", made it work with the new "job-mandatory-attributes".
2. In "job-mandatory-attributes", added way to specify the member attribute in a collection attribute ("attr-name.member-name").

3. Fixed “**pages-per-subset**” as Job level only. Clarified that it combines all Input Documents into a single contiguous Input-Pages stream and then subsets the stream into Output Documents. Fixed the reference.
4. Finished reviewing (X) in OSDP JDF Spec column during 15Oct Digital Printing working group meeting.
5. Continued updating JTAPI column per 15Oct FSG Job Ticket working group meetings (updated up through jog-offset).
6. Moved descriptions of (S), (M), (Mn), (X) keys into Column heading Description table.
7. Added descriptions of categories to Column heading Description table for PODi column.

5.6 Changes to make version 0.8, October 18, 2002:

1. Added Cat column and assigned a category to each feature/function in table during combined 18Oct PODi/CIP4 Digital Printing working group meeting.
2. Removed IPP Spec column from table because the information is available in the Brief Description of IPP attributes section.

5.7 Changes to make version 0.9, October 28, 2002:

1. Continued updating JTAPI column per 22 Oct FSG Job Ticket working group meetings (updated up through job-k-octets).
2. Added Priority column and assigned a priority to each feature/function in table during combined 28Oct PODi/CIP4 Digital Printing working group meeting.

5.8 Changes to make version 0.90, November 01, 2002:

1. Added Medium Priority.
2. Added N/A and Unknown for JDF 1.1 Product Intent and JDF 1.1 Process Resouce columns.
3. Per 10/30 PODi meeting, changed Priority of job-priority, media-back-coating, media-front-coating, media-recycled, media-grain, media-tooth, media-thickness, output-bin, print-quality to Medium.
4. Continued updating JTAPI column per 29 Oct FSG Job Ticket working group meeting (updated up through number-up)
5. Added IPP Attribute Description column and moved descriptions from end of document to table.
6. Added some fold, bind, and punch enum values from [finish2].
7. Clarified that left, top, right, and bottom in attribute values and descriptions mean as if the document were portrait, i.e., left means the y-axis which is always the long edge and bottom means the x-axis which is always the short edge.

5.9 Changes to make version 0.91, November 08, 2002:

1. Filled in JDF Product Intent and JDF Process columns for High Priority features/functions per PODi JT meeting in SF on 04 and 05 Nov.
2. Added new (S), (P) and (N) keys for JDF Product Intent and JDF Process columns.
3. Continued updating JTAPI column per 07 Nov FSG Job Ticket working group meeting (updated up through sides)