Mapping of IPP Attributes to JDF and CUPS

From: Claudia Alimpich, IBM, Tom Hastings, Don Fullman, Xerox
03 December 2002
File: ippjdf-mapping-03-Dec-2002.doc
==Formatted for legal size paper (8.5 x 14 inches)==
Version 0.96

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. ISSUES needing action and proposed JDF extensions are highlighted like this. Proposed extensions are also copied from Table 1 to Table 2.

Status of this document:
This is an intermediate/rough working document, not a final edition.

Table of Contents

Table of Tables

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 legend explains the columns in Table 1:

Column heading	Totals	% IPP[1]	Description
IPP Attribute Name	~~195~~251[2] = ~~156~~209 + ~~39~~42 (S)	100	The name of the IPP attribute or collection member attribute. • (S) - Status Set by System. The IPP attribute that represents ~~State~~ Status 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) - Multiple-document-handling affects semantics. 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) - Multiple-document-handling affects page numbering only. 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. If an IPP attribute does not exist for a certain feature/function then a brief description of the feature/function will
JDF 1.1 Product Intent	~~30~~90 (including 27 new proposed)	~~15~~36 %	The JDF 1.1 Product Intent Resource and JDF attribute using a subset of the XPath [xpath] notation. The following subset of the XPath expression notation is used to specify a JDF element or attribute: The JDF element or attribute usually occurs inside a JDF resource. Start the XPath expression at the resource level and show all the child relationships down to the element or attribute we are mapping to, qualified with predicates as needed. A parent-child relationship is represented with '/'. An element name is just the unadorned element name. An attribute name is prefixed with '@'. Example: RunList/LayoutElement/FileSpec/@URL is the URL attribute of the FileSpec resource element in the LayoutElement resource element in the RunList resource. A predicate is enclosed in '[]'. So the meaning of: IDPrintingParams/JobSheet/Comment[@Name="job-recipient-name"] is the text field of the Comment element in the JobSheet resource element in the IDPrintingParams resource element when the value of the Name attribute in the Comment element is "job-recipient-name". For example, ComponentLink[@ProcessUsage="Good"]/@Amount is the Amount attribute of the ComponentLink element whose ProcessUsage attribute is set to "Good". (ComponentLink is a ResourceLink, not a Resource, so it's one of the unusual cases where we are not mapping into a resource.) • 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) - Process. 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) - Same. The feature/function has the same semantics in the JDF 1.1 Product Intent and JDF 1.1 Process Resource. • (N) - Needed New. 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	174 (including 22 new proposed)	69%	The JDF 1.1 Process on the first line (or several Processes separated by commas, if more than one Processes uses the Resource), followed by the Resource, and JDF attribute using XPath notation (see explanation of XPath subset in the explanation above. • 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) - Same. The feature/function has the same semantics in the JDF 1.1 Product Intent and JDF 1.1 Process Resource. • (N) - Needed New. 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~~27 %	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.

[1] The % of IPP is the percent of the ~~195~~ (last counted in version 0.94, November 29, 2002) IPP attributes, including collection member attributes, that can be supplied in a Job Creation operation request.

[2] The total of IPP attributes (last counted in version 0.94, November 29, 2002) includes counting the member attributes of the collection attributes.

Column heading	Totals	% IPP[1]	Description
			• 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	1.0 = 90 x.x = 121	36% 48%	The version of JTAPI that the feature/function will be included in and the name of the JTAPI attribute. • 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)	5845%	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.
JDF APP F	89	4635%	Whether or not the Appendix mapped the IPP attribute to JDF 1.0 IDPrinting combined process node • 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	1.1 = 20 EFI = 63	8% 25	Where the feature/function is included: • 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	1 = 8 2 = 5 3 = 11 4 = 4 5 = 29 6 = 26 7 = 27 8 = 29 9 = 2 10 = 22 11 = 2	3% 2% 4% 2% 12% 10% 11% 12% 1% 9% 1%	The category that the feature/function belongs to. The possible categories are: • 1 - Customer and billing info • 2 - Delivery of finished product - due date and shipping instructions, proofing approvals • 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	High = 94 Medium = 19 Low = 62 Never = 45	37% 8% 25% 18%	The priority in which to include the feature/function in the definition of a job tticket for digital printing: • 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			The IPP attribute name, the attribute syntax (data type) in parenthesizes with a size constraint for strings and integers, a code indicating the IPP object, followed by Aa brief description of the IPP attribute and what IPP document it is defined in (see References section 6). *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. In order to save space, some of the closely related attribute names indicate several alternative fields inside {} and separated by |. For example: halftone-{graphics	images	text} **Legend for codes in square brackets:**

Column heading	Totals	% IPP[1]	Description
			JD - Job Description attribute - initial value supplied by the client (in an Operation attribute of a Job Creation operation).
			JT - Job Template[3] attribute - supplied by the client in a Job Creation operation.
			DD - Document Description attribute (see [doc-obj]) - initial value supplied by the client (in a Operation attribute of a Document Creation operation).
			DT - Document Template attribute - supplied by the client in a Document Creation operation.
			PO - Page Override attribute - this attribute MAY also be supplied in a "page-overrides" attribute to affect ranges of pages.
			JS - Job Status attribute - set by the Printer, client cannot supply. Also indicated by "(S)" in the "IPP Attribute Name" column.
			DS - Document Status attribute - set by the Printer, client cannot supply Also indicated by "(S)" in the "IPP Attribute Name" column.
			- - indicates that there is no corresponding Job Status attribute or Document Status attribute.
			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].

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)					No IPP attribute
adjust-{cyan-red | magenta-green | yellow-blue} (integer(-100:100))	Medium			Use abstract ICC profiles (P or N?) We need to provide a way for the customer to specify a hue adjustment through supplying an abstract profile[4]. ISSUE: Intent may not be the	ColorCorrection ColorCorrectionParams/FileSpec[@ResourceUsage="AbstractProfile"] (N) Add this new file spec to allow specification of preferential color adjustment.					**adjust-{cyan-red | magenta-green | yellow-blue}** (integer(-100:100)) [JT, DT, PO] Increase or decrease the color along the Cyan/Red, Magenta/Green/ or Yellow/Blue axes while maintaining lightness after applying the Source Profile before output color rendering. [color&img] §3.2.1

---

[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 labeled with just JT map to PWG Job Processing attributes and IPP attributes labeled with either just DT or both JT and DT map to PWG Document Processing attributes.

[4] For example, a customer might use a Photoshop plug-in to generate an abstract profile, after viewing the job color objects through a softproofing image path.

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
				way to solve this problem (for all adjust attributes). A smaller group will discuss and decide.						
adjust-contrastzz no IPP exists	LowMedium?	EFI Image Quality – Contrast	6	(P or N?) We need to provide a way for the customer to specify a contrast adjustment through supplying an abstract profile.Unknown	UnknownColorCorrection ColorCorrectionParams/FileSpec[@ResourceUsage="AbstractProfile"] (N) Add this new file spec to allow specification of preferential color adjustment.	No (X)				**adjust-contrast** (integer(-100:100)) [JT, DT, PO] Increase or decrease contrast after applying the Source Profile before output color rendering. [color&img] §3.2.2
adjust-lightnesszz no IPP exists	LowMedium?	EFI Image Quality – Brightness	6	Unknown(P or N?) We need to provide a way for the customer to specify a lightness adjustment through supplying an abstract profile.	UnknownColorCorrection ColorCorrectionParams/FileSpec[@ResourceUsage="AbstractProfile"] (N) Add this new file spec to allow specification of preferential color adjustment.	No (X)				**adjust-lightness** (integer(-100:100)) [JT, DT, PO] Increase or decrease color lightness after applying the Source Profile before output color rendering. [color&img] §3.2.3
adjust-saturation	Medium			Use abstract ICC profiles (P or N?) We need to provide a way for the customer to specify a saturation adjustment through supplying an abstract profile.	ColorCorrection ColorCorrectionParams/FileSpec[@ResourceUsage="AbstractProfile"] (N) Add this new file spec to allow specification of preferential color adjustment.					**adjust-saturation** (integer(-100:100)) [JT, DT, PO] Increase or decrease the color saturation after applying the Source Profile before output color rendering. [color&img] §3.2.4
anti-aliasingzz no IPP exists	Low?Medium	EFI Image Quality – Sharpness (Anti-aliasing)	6	Unknown??	Unknown Rendering RenderingParam	No (X)				**anti-aliasing** (type3 keyword) [JT, DT, PO] Indicates the anti-aliasing algorithm that the Printer object MUST apply to the rendered

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
					s/ObjectResolution/@AntiAliasing (N) new attribute with list of possible values "None" "SystemSpecified"					output images. Values are: none, standard (meaning system specified). [color&img] §4.1
Approvals for proof	High	EFI Approvals	2 11	ProofingIntent/ApprovalParams/ApprovalPerson/Contact /@... (N) (S)	Approval ApprovalParams/ApprovalPerson/Contact/@... (S)	No (X)				No IPP attribute
attributes-charset	Never			N/AGet from the **encoding=** XML attribute declaration in the XML prolog	N/AGet from the **encoding=** XML attribute declaration in the XML prolog	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 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/ANodeInfo/@NaturalLang	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)(N) Designer may specify "Rich Black" which is black-overprint on.	Rendering RenderingParams/AutomatedOverprintParams/@OverPrintBlackText,@OverPrintBlackLineArt	Black Overprint (X)				**black-overprint** (type2 keyword) [JT, DT, PO] Turn black overprint on color background on or off. For the 'black-overprint-on' value the Printer MUST place black toner on top of color toner. For the 'black-overprint-off' value the Printer MUST knock out the color background, so that the black toner is not placed on top of color toner. [color&img] §3.3**black-overprint** (type2 keyword) [JT, DT, PO] In PostScript, setting the 'setoverprint' operator to 'false' or omitting the 'setoverprint' operator altogether (black-overprint = off) causes the printer to remove background color data producing a knockout for the black object to be printed in. Setting the 'setoverprint' operator to 'true' (black-overprint = off) causes the printer to print black data directly on top of background color planes. [color&img] §3.3

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
bleed-edge-printing	Medium			~~LayoutIntent/Layout/@IgnoreBleeds [new boolean attribute] (N)~~ LayoutIntent/@Margins (N) ISSUE:Add Margins rectangle attribute to LayoutIntent.	~~LayoutElementProduction LayoutElement/@IgnoreBleeds (N) [new boolean attribute]~~ DigitalPrinting DigitalPrintingParams/@Margins (N) ISSUE: Add Margins rectangle attribute to DigitalPrinting Params.					**bleed-edge-printing** (type2 keyword) [JT, DT, PO] Indicates whether or not the printer should allow page image data to be printed to all edges of the paper, and print beyond the edges of the normal printable area. Values are: none, all. [color&img] §4.2
color-depth-yyy	Low			N/A	Rendering RenderingParams/@ColorantDepth					**color-depth-yyy** (integer(2:MAX)) [JT, DT, PO] Specifies the color depth that the Printer MUST use for colorant "yyy" depending on the colorants supported by the Printer. Values of "yyy" include: black, cyan, magenta, yellow, red, green, blue, cardinal, royal, ruby, violet, and brown. -[color&img] §3.4
color-destination-profile-back	High			(P or N?) Customer needs to be able to specify	ColorCorrection ColorCorrectionParams/FileSpec[FileSpecLink/@ResourceUsage="FinalTargetDevice" (N) Specify new values for @ResourceUsage = FinalTargetDeviceFront | FinalTargetDeviceBack ColorSpaceConversion, Proofing, SoftProofing					**color-destination-profile-back** (type3 keyword | name(MAX)) [JT, DT, PO] Specifies the Destination Color Space Profile that the Printer is to use for the back side of the output media. [color&img] §3.5.1

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
					ColorSpaceConversionParams/FileSpec[FileSpecLink/@ResourceUsage="FinalTargetDevice" (N) Specify new values for @ResourceUsage = FinalTargetDeviceFront | FinalTargetDeviceBack					
color-destination-profile-front	High			(P or N?) Customer needs to be able to specify	ColorCorrection ColorCorrectionParams/FileSpec[FileSpecLink/@ResourceUsage="FinalTargetDevice" (N) Specify new values for @ResourceUsage = FinalTargetDeviceFront | FinalTargetDeviceBack ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversionParams/FileSpec[FileSpecLink/@ResourceUsage="FinalTargetDevice" (N) Specify new values for @ResourceUsage = FinalTargetDevic					**color-destination-profile-front** (type3 keyword | name(MAX)) [JT, DT, PO] Specifies the Destination Color Space Profile that the Printer is to use for the front side of the output media. [color&img] §3.5.2

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
					eFront | FinalTargetDeviceBack					
color-effects-typezz no IPP exists	High	1.1 Color Mode EFI Color – Color Mode	6	ColorIntent/@ColorStandard (S)	DigitalPrinting, ColorSpaceConversion ColorantControl/@ProcessColor Model (S)	Process Color Model (X)				**color-effects-type** (type2 keyword) [JT, DT, PO] Indicates whether the Printer is to render a color document in full color or using an algorithm that maps the full range of colors to alternate values, such as gray scale or monochrome. Values are: color and monochrome-grayscale. [color&img] §3.6 Is IPP "source {cmy | gray} {graphics | images | text}" what this is?
color-emulation	High			ColorIntent/@ColorStandard	**DigitalPrinting** Ink/@Family ColorSpaceConversion, Proofing, SoftProofing **ColorSpaceConversionParams/** FileSpec[FileSpecLink/@ResourceUsage="EmulationProfile"] (N) Specify new values for @ResourceUsage = "EmulationProfile" (N)					**color-emulation** (type3 keyword | name (MAX)) [JT, DT, PO] Causes the Printer to emulate the output of a different color-printing device. Values are: none, swop [SWOP], euroscale, japan-color, enhanced-swop, euroscale-matte, and euroscale-uncoated. [color&img] §3.7
compression Note: This is document compression.	High [5]		3	RunList/LayoutElement/FileSpec/@Compression (S)	LayoutPreparation RunList/LayoutElement/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[@ProcessUsage="Good"]/@Amount (S)	DigitalPrinting ComponentLink[@ProcessUsage="Good"]/@Amount (S)	Number of Copies (X)	1.0 job-copies x.x document-copies	1.1	Yes	**copies** (integer(1:MAX)) [JT[6], DT] The number of copies of the Output Document(s) to be printed. [RFC2911] §4.2.5

---

[5] At a minimum the "none" value for compression must be supported.

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~~ISSUE: Should there be a way to specify Covers as Product Description at a high level? (N)
					Printed cover: DigitalPrinting DigitalPrintingParams/Media,LayoutPreparationParams/@Sides,RunList/InsertSheet/@SheetType,@SheetUsage,@Pages (S)
					
					Preprinted/blank cover: LayoutPreparation RunList/@Pages, InsertSheet/@SheetUsage,@SheetType,Media (S)
						Covers (Media, Sides, Start First Page) (X)	1.0
							see xxx-media
							see xxx-sides
							see xxx-force-pages
							see po-pages
							see insert-sheet-media
							see insert-sheet-pages
							see insert-sheet-position
								1.2	Yes	**cover-back** (collection) [JT[7], 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,

---

[6] 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 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.

[7] 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
										DS] Indicates the page order of the pages in the document data for this Job/Document. The Printer set this value set from the 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**AuditPool/Audit/ProcessRun/@End**	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/Created/@TimeStamp	Job Creation Date/Time	x.x job-created -on- date-time	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**AuditPool/Audit/ProcessRun/@Start**	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)	LayputPreparation RunList/FileSpec/@MimeType (S)	Document File Format (X)	1.0 job-document-format x.x document-format	1.1	Yes	**document-format** (mimeMediaType) [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

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-number (S)	Low			Unknown	Unknown		x.x			**document-number** (integer(0:MAX)) [-, DS] The order of this Document within the Job 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 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 Yes No Yes 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*

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
										affect documents, such as "media" or "media-col" ()
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)	LayputPreparation RunList/~~LayoutEl ement~~FileSpec/ @URL (S)	Document File Name (X)	1.0 document-uri ~~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	Never			N/A	N/A	No	Never	1.1	Yes	finishings = bale

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
bale										
finishings bind	High		8	BindingIntent/ @BindingType= SystemSpecified (N) (S)	Binding (N) BindingParams/ @BindingType= SystemSpecified (N) (S)	Binding (X)	1.0 job-binding	1.1	Yes	finishings = bind
finishings ~~Turn~~ binding - Turn off	Low		8	N/A	Binding (N) BindingParams/ @NoOp (N)	Binding (X)	~~x.x~~1.0 job-binding x.x document- binding x.x po-binding ~~x.x~~1.0 binding- type=NONE			finishings = none, if no other finishing desired, else just finishings = xxx, where xxx is not bind.
finishings bind-left, bind-right, bind-bottom, bind-top	High	EFI Binding	8	BindingIntent/ @BindingType (S) NoteISSUE: Add a BindingType=Sy stemSpecified. (N)	Binding (N) BindingParams/ @BindingType, @BindingSide (N) (S)	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[8]
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 [9]	1.1 Folding EFI Finishing - Folding	8	FoldingIntent/ @FoldingCatalog (S) NoteISSUE: What FoldingCatalog values should be supported?	Folding FoldingParams/ @FoldCatalog, @DescriptionTyp e (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	High	1.1 Folding	8	N/A	Folding	Folding (X)	1.0 job-folding			finishings = none, if no other finishing desired,

---

[8] The "finishings" = 'booklet-fold-staple' is the same as 'booklet-maker', but without trimming.
[9] 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
___folding - Turn off					FoldingParams/ @NoOp		x.x document-folding x.x po-folding x.x1.0 folding-type=NONE			else just finishings = xxx, where xxx is not fold.
finishings ___Folding - complex (no IPP attribute exists)	Low		8	Unknown	Folding FoldingParams@ DescriptionType, Fold@From,Fold @To,Fold@Trav el	Folding (X)	x.x folding-amount-to-fold x.x folding-direction-to-fold x.x folding-edge-to fold 1.0 folding-fold-type			No IPP attribute. See "finishings" = fold-xxx
finishings ___Hole making that allows specification of number of holes and reference edge	High	1.1 HoleMaking	8	HoleMakingIntent /@HoleType,@H oleReferenceEdg e (S)	HoleMaking HoleMakingPara ms/@HoleType, @HoleReference Edge (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			No IPP attribute
finishings ___hole making - Turn off	High	1.1 HoleMaking	8	N/A	HoleMaking HoleMakingPara ms/@NoOp	Punching & Hole Making (X)	x.x1.0 job-hole-making x.x document-hole-making x.x po-hole-making x.x1.0 hole-making-count=0			finishings = none, if no other finishing desired, else just finishings = xxx, where xxx is not punch.
finishings jog-offset	High	1.1 Jogging	8	N/A	DigitalPrinting DigitalPrintingPar ams/Disjointing@ OffsetDirection	Jog Offset (X)	1.0 job-jog-offset x.x document-job-offset	No	Yes	finishings = jog-offset
finishings ___jog offset - Turn off	High	1.1 Jogging	8	N/A	DigitalPrinting Component/Disjo inting/@OffsetDir ection, DigitalPrintingPar ams/Disjointing/ @OffsetDirection	Jog Offset (X)	x.x1.0 job-jog-offset=NONE x.x document-jog-offset			finishings = none, if no other finishing desired, else just finishings = xxx, where xxx is not job-offset.
finishings punch	High	1.1 HoleMaking	8	HoleMakingIntent without any attributes NoteISSUE: HoleType needs to be optional or	HoleMaking HoleMakingPara ms without any attributes NoteISSUE: HoleType needs	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,

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
				add SystemSpecified.	to be optional or add SystemSpecified.					
finishings Stitching - complex	Low		8	Unknown	Stitching StitchingParams/ @Angle,@Stitch Positions	Stapling & Stitching (X)	~~x.x~~1.0 stitching-angle x.x stitching-positions			IPP has stitching-reference-edge, stitching-offset, and stitching-locations, but not angle. See "finishings-col".
finishings trim	High	1.1 Trimming	8	N/A	Trimming TrimmingParams /@TrimmingType =SystemSpecfiied	Trimming (X)	1.0 job-trimming x.x document-trimming	1.1	Yes	finishings = trim
finishings ~~Turn~~ trimming - Turn off	High	1.1 Trimming	8	N/A	Trimming TrimmingParams /@NoOp	Trimming (X)	~~x.x~~1.0 job-trimming =~~NONE~~false x.x document-trimming=~~NONE~~false			finishings = none, if no other finishing desired, else just finishings = xxx, where xxx is not 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~~ISSUE: Propose to rename StitchNumber to NumberOfStitches. ~~Note~~ISSUE: Add a BindingType=Stitch (N)	Stitching 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[10], 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[11]) [RFC2911] §4.2.6, [finish] §2, [finish2] §3.

---

[11] 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

finishings-col (M)
  finishing-template
  stitching
    stitching-reference-edge
 	
    stitching-offset
    stitching-locations
	Low		8	Unknown	Stitiching 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 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

font-name-requested	Never		3 6	N/A	N/A Interpretring, SoftProofing FontPolicy/ @PreferredFont	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	JT,	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,@SheetUsage (S)	LayoutPreparation RunList/@Pages, InsertSheet/@SheetType,@SheetUsage (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[12], 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
halftone-{graphics | images | text}zz no IPP exists	High	1.1 Screen EFI Image Quality	6	N/A (P or N?) We need to provide a	Screening ScreeningParam	Screening (X) Family				**halftone-{graphics | images | text}** (type2 keyword | name(MAX)) [JT, DT, PO] Specify

---

[12] 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
		– Screening		means for the customer to specify the halftone "look" – often the halftone used is a visible attribute of the finished piece.	s/ScreenSelector/@ScreeningFamily, @SourceObjects Rendering RenderinParams/ObjectResolution/@ResolutionRendering RenderingParams/ObjectResolution/@Resolution Proofing, SoftProofing ProofingParams/@Resolution PreviewGeneration PreviewGenerationParams/@Resolution, Preflight PSToPDFConversionParams/@InitialResolution					the halftone screens to be used by the Printer to render graphics, image, and text objects, respectively, within color or black and white documents. Screens are implementation-specific with different line frequencies, angles, and spot functions implied by each keyword value. Values include: none, low-frequency-dot, mid-frequency-dot, high-frequency-dot, highest-frequency-dot, low-frequency-line, mid-frequency-line, high-frequency-line, highest-frequency-line, stochastic, 150-dpi, 175-dpi, 200-dpi, 200-lpi, 300-lpi, 600-lpi. Other n-dpi and n-lpi values are possible. [color&img] §4.3, 4.4, 4.5.
highlight-colorant	High			ColorIntent/ColorUsed/@SeparationSpec	**DigitalPrinting** Ink/@Family and @InkName or Ink/@ColorName and ColorPool/Color/@Name					**highlight-colorant** (type3 keyword | name(MAX)) [JT, DT, PO] Specifies the color of the toner that the Printer MUST use as the highlight color when printing the document in highlight color mode. Values include: none, other, black, blue, brown, cardinal, cyan, green, magenta, red, royal, ruby, violet, and yellow. [color&img] §3.8
highlight-colorant-mismatch	Low			Unknown	Unknown					**highlight-colorant-mismatch** (type3 keyword | name(MAX)) [JT, DT, PO] Specifies the action to be taken by the Printer if the desired highlight colorant is not currently loaded on the printer. Values are: abort, use-ready, hold, stop. [color&img] §3.9

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
highlight-map	Medium			N/A	ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp/@HighlightMap New attribute providing a selection of highlight mapping algorithms.					**highlight-map** (type3 keyword | name(MAX)) [JT, DT, PO] Specifies the algorithm that the Printer MUST use for mapping colors defined in the full color space to a color in the highlight color space. Values are: pictorial, presentation, object-based, color-to-highlight, exact-color, and color-tables. [color&img] §3.10
highlight-map-color	Medium			(P or N ?) We need to allow the customer to select which color is to be mapped to the highlight colorant.	ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp/@SourceCS					**highlight-map-color** (type3 keyword | name(MAX)) [JT, DT, PO] Specifies the color in the source document that is to be mapped by the Printer to the highlight colorant when printing the document in highlight color mode. This value is used as an input parameter to the highlight mapping algorithm specified by the "highlight-map" attribute. [color&img] §3.11
imposition-template	Low		7	~~Unknown~~LayoutIntent/Layout/@Name	~~Unknown~~DigitalPrinting, Imposition Layout/@Name	No ? (X)	Never	1.2	Yes	**imposition-template** (type3 keyword | name(MAX)) [JT, DT, PO] Specifies imposition method for laying out finished page 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	5 8			Insert Sheet (X)	1.0 job-insert-sheets	1.2	Yes	**insert-sheet** (1setOf collection) [JT[13], DT, PO] Specifies how Insert Sheets are to be

---

[13] 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.

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
insert-after-page-number (Mn)	High			RunList/@Pages, InsertSheet/@SheetType,@SheetUsage (S)	LayoutPreparation RunList/@Pages, InsertSheet/@SheetType,@SheetUsage (S)		x.x document insert-sheets 1.0 insert-sheet-pages 1.0 insert-sheet-position			inserted into the sequence of media sheets that are produced for each copy of the documents. [prod-print] §3.5 **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) Note: It has been proposed for JDF 1.2 to move InsertSheet out of RunList.		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 note: Use with job-mandatory-attributes	High [14]		10	@SettingsPolicy	@SettingsPolicy	No (X)	see jt-manatory-attributes	1.1	Yes	**ipp-attribute-fidelity** (boolean) [J~~DT~~] Allows a user to control whether or not the Printer MUST honor *all* supplied Job Template and 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 ticket author name	Low		10	Unknown	Unknown	No (X)	x.x jt-author-name	No	No	No IPP attribute
job-account-id	High [15]	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[15]] 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	Low		1 5 8	~~Unknown~~LayoutIntent/Layout/InsertSheet[@SheetT	~~Unknown~~ LayoutPreparation	No (X)	x.x	1.2	Yes Yes	**job-accounting-sheets** (collection) [JT] Specifies the accounting sheet for this Job. [prod-print] §3.8

---

[14] Consider only supporting SettingsPolicy at the JDF Node level and not at the Resource level (which is contrary to the JDF 1.1 spec)
[15] 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
media media-col job-accounting-output-bin				ype="Accounting Sheet"],[@Sheet Usage="Trailer"]	LayoutPreparatio nParams/InsertS heet[@SheetTyp e="AccountingSh eet"],[@SheetUs age="Trailer"]				Yes No	**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	[JT[16]]	1	CustomerInfo/ @CustomerID	UnknownCustom erInfo/@ CustomerID	No (X)	x.x	1.2	Yes	**job-accounting-user-id** (name(MAX)) [JT[16]] Specifies the User ID associated with the "job-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			No IPP attribute. but "job-client-id" does exist in the PWG Job Monitoring MIB - V1.0 (RFC 2707).
job-collation-type (S) [17]	Never		10	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 Comment or description of job	High		10	Comment/@Nam e=JobDescription	Comment/@Nam e=JobDescription	Comment/ Description of	1.0 job-comment			No IPP attribute. Propose "job-comment" text(MAX) Operation

---

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

[17] 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
				(N) (S)	(N) (S)	Job (X)				~~and Job Description attribute to add to IPP.~~
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~~LayoutIntent/Layout/InsertSheet[@SheetType="ErrorSheet"],[@SheetUsage="Trailer"]	~~Unknown~~LayoutPreparation LayoutPreparationParams/InsertSheet[@SheetType="ErrorSheet"],[@SheetUsage="Trailer"]	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, 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 indefinite[18]	High [19]		10	N/A	JDF~~/~~[@Activation="Hold"]	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

[18] Only the "indefinite" value is supported.
[19] Only the "indefinite" value is supported.

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-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, -[20]] 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]

---

[20] 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
										§4.3.18.1
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 [21]	No	No	**job-mandatory-attributes** (1setOf type2 keyword) [J~~DT~~] Allows a user to list which Job Template and Document Template attributes the Printer MUST honor. The Printer MUST reject the job submission if *any* 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 *attr-name.member-name*. 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	JDF/Comment/@ Name="Message ToOperator" (N)	No (X)	1.0 job-message-to-operator	1.2	Yes	**job-message-to-operator** (text(MAX)) [JT[22]] 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

---

[21] Values of jt-madatory-attributes supported for 1.0 will be None and All; x.x for the values that are specific attribute names.
[22] 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
										obtain information intended for end user consumption about this specific Job/Document. (example: "http://www.company.com/printer/embededjob page") [RFC2911] §4.3.4
job-name	High		10	CustomerInfo/ @CustomerJobN ame (S)	CustomerInfo/@ CustomerJobNa me (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/Co ntact (S)	CustomerInfo/Co ntact (S)	No (X)	x.x			**job-phone-number** (text(127)) [JT[23]] Contains the contact telephone number for the job. [prod-print2] §5.5
job-printer-make-and-model (S)	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

---

[23] 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
note: Works with job-save-disposition										"job-save-disposition" Job Template attribute. [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-printer-uri** (uri) [JS] The URI of the (logical) Printer (or queue) to which the Job was submitted. [RFC2911] §4.3.3
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	JS[24]	10	Unknown	Unknown	No (X)	x.x	??	Yes	**job-recipient-name** (name(MAX)) [JT[24]] 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	DigitalPrinting DigitalPrintingParams/@osdp:DeliveryMethod ISSUE: Needs to be a JDF/1.1a mapping	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:

---

[24] 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
										'ftp://printhost.printco.com/var/spool/jobdir/' or 'file:///job-repository/jobdir/' [prod-print2] §5.7.1.2.3.1 **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://printhost.printco.com/var/spool/jobdir/' or 'ftp://printhost.printco.com/var/spool/jobdir/' and "save-name" is 'c/d', the resulting saved job URI is 'ftp://printhost.printco.com/var/spool/jobdir/c/d' . [prod-print2] §5.7.1.2.3.2 **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
job-sheet-message	High		10	N/A	LayoutPreparation LayoutPrepatation nParams/InsertSheet/Sheet/Surface/MarkObject/JobField/ShowList=OperatorUserText/OperatorUserText	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~~the Printer prints on the job sheet. [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	High		5 8	LayoutIntent/InsertSheet/@SheetType,@SheetUsage (S)	LayoutPreparation LayoutPreparationParams/InsertSheet/@SheetType,@SheetUsage (S)	Yes Start, Separator/Slip, End Sheets (X)	1.0 job-separator-sheets 1.0 separator-sheet-type	1.2	Yes	**job-sheets-col** (collection) [JT] Allows the client to specify the media for the JobSheet. [prod-print] §3.11 **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

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				N/A InsertSheet/MediaIntent (S) ~~Note~~ISSUE: Should there be a way to specify a banner sheet as a high level Product Description?	InsertSheet/Media/Location/@LocationName InsertSheet/Media (S) ~~Note~~ISSUE: Should be a way to specify that isWaste is false for job-sheet and separator_sheet.		1.0 separator-sheet-media 1.0 separator-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** (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~~Low			N/A	~~N/A~~**AuditPool/Audit/ProcessRun/@EndStatus**	No	x.x	1.1	No	**job-state** (type1 enum) [JS, -[25]] 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~~**AuditPool/Audit/ProcessRun/Comment[@Attrubute=EndStatus]**	No	x.x	1.1	No	**[job-]state-message** (text(MAX)) [JS, [26]] 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) work this in 2003 to incorporate image state and color workflow primitives	~~Never~~Low			N/A	~~N/A~~ JDF ISSUE: Need software interpretable codes for common processing and completion reasons.	No	x.x	1.1	No	**job-state-reasons** (1setOf type2 keyword) [JS, -[27]] 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-

---

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

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

[27] 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
										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, 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-uri (S)	Never			N/A	N/A	No	x.x	1.1	No	**job-uri** (uri) [JS, -[28]] 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.	DigitalPrinting DigitalPrintingParams/Media/Location/@LocationName	Input Tray Name (X)	1.0 media-input-tray-name [29]	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 *not* 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	DigitalPrinting 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"

---

[28] 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.
[29] 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
										description. [prod-print] §3.13
media-col media-back-coating	Medium		5	MediaIntent/ @BackCoatings (S)	Media/@BackCoatings (S)	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
media-col media-brightness	High		5	MediaIntent/ @Brightness (S)	Media/ @Brightness (S)					Brightness reflectance percentage. **Not an IPP member attribute. Need a new IPP "media-brightness" (integer(0:100) member attribute.** JDF ISSUE: Brightness is the percentage reflectance of blue-white light (see reflective X-Rite spec) compared with the blue-white light of MgO (as compared with whiteness which is the average percentage reflectance across the entire spectrum.). The JDF spec needs to be clarified – it is ambiguous because it only states percent reflectance.
media-col media-color	High		5	MediaIntent/ @MediaColor (S)	Media/@MediaColorName (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 (S)	Media/@FrontCoatings (S)	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(P or N?) For bound materials a designer needs to specify the grain direction (usually parallel to the binding).	UnknownMedia/ @GrainDirection	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/@HoleType (S)	Media/@HoleType (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="Description" (S)	Media/Comment /@Name="Description" (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

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-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 media-recycled	Medium		5	MediaIntent/ @Recycled	Media/@Recycle d	Yes (X)	1.0 media-recycled	1.2	Yes	**media-recycled** (type3 keyword | 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

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-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-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-col media-type	High		5	MediaIntent/ @UserMediaType,@MediaType (S) ~~Note~~ISSUE: Reconsider renaming User MediaType to MediaTypeDetals. ~~Note~~ISSUE: Consider adding more of the values of Media/@MediaTypeDetails to UserMediaType.	Media/@MediaTypeDetails/@MediaType (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 grams per square meter. [prod-print] §3.13.9
media-input-tray-check	Medium			Unknown	Unknown	No (X)	1.0 media-input-tray-name[30]	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,

---

[30] media-input-tray-name is mapped to IPP media-input-tray-check when other media attributes are also 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
										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[31]. (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

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) | Low | | 2 | Unknown | NodeInfo/NotificationFilter/@osdp:Locator,@osdp:ChannelType

@Types

Comment/@Name=Description

Comment/@Language | Notification (X) Yes

No Yes

No Yes?

No Yes

No

No No No

No

No | 1.0 job-notifications 1.0 notification-send-to 1.0 notification-delivery-type

1.0 notification-events

1.0 notification-comment

1.0 notification-language

This needs more work. Tom will provide descriptions for each nottify-xxx attribute.

Which attributes are required by | 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 Recipient, any additional attributes and/or user data to be delivery with the Event Notification. |

---

[31] 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-job-id (S) notify-subscriber-name (S)						No No No	IPP? See IANA uri schemes.			
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~~ISSUE: Description of LayoutIntent needs to be clarified in JDF spec and in doing so new attributes may be added (e.g. presentation direction).	Lay~~po~~outPreparation 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 ~~f~~Finished ~~p~~Page ~~i~~Image. [RFC2911] §4.2.9
operation-id	Never			N/A	N/A	No	Never	1.1	No	**operation-id** (type2 enum) [ ] Indicates which operation this request is. [RFC2911] §3.1.2
opi-image-insertion	High			(N) ProofingIntent/ProofItem/@InsertImages [new attribute Boolean default True=use OPI substitution]	Proofing, SoftProofing ProofingParams/@ImageViewingStrategy note Origination and Prepress CIP4 WG is revamping ProofingParams, check with them.					**opi-image-insertion** (type2 keyword) [JT, DT, PO] Indicates the type of high resolution Open Prepress Interface (OPI) [OPI] image insertion to be performed by the Printer at RIP time for PostScript [PostScript] and PDF [PDF] documents. Such high resolution images may be stored in the print system, on the client on a network server. Values: insert, do-not-insert. [color&img] §4.6.1
opi-image-pre-scan	High			N/A	LayoutElementProduction LayoutElement/@ImagePrescan					**opi-image-pre-scan** (type2 keyword) [JT, DT, PO] Indicates whether or not the Printer is to pre-scan the document data in order to validate that OPI [OPI] images referenced

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
					[new boolean attribute]					within the document are accessible and, optionally, to pull them to the Printer, before processing the job, i.e., before RIPping or marking. Values: no-pre-scan, pre-scan, pre-scan-and-gather. [color&img] §4.6.2
orientation-requested	~~Low~~High		7	~~Unknown~~LayoutIntent/@FinishedDimensions ISSUE: What about Dimensions? Question: MediaIntent/@Dimensions should agree? ISSUE: Should this be mapped to the deprecated: *FinishedPage-Orientation?*	~~Unknown~~What about: Preflight PSToPDFCConversionParams/@AutoRotatePages (see page-rotation)	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 See "page-rotation".
original-requesting-user-name	High			JDF/NodeInfo/Employee/Person/@FirstName@LastName (S)	JDF/NodeInfo/Employee/Person/@FirstName@LastName (S)					original-requesting-user-name (name(MAX)) [JD, -] Specifies the user name of the original user, i.e., corresponds to the "requesting-user-name" operation attribute that the original client supplied in the first request. The "requesting-user-name" operation attribute (see [RFC2911] §3.2.1.1) is updated by each client to be itself on each hop, i.e., the "requesting-user-name" is the client forwarding the request, not the original client. The "job-originating-user-name" Job Description attribute remains as the authenticated original user, not the parent Printer's authenticated host, and is forwarded by each client without changing the value. [adm-ops] §11.7.2.2
output-bin	Medium		8	Unknown	DigitalPrintring 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

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
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	DigitalPrinting 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 [32]		3	~~Unknown~~Layout Preparation RunList/LayoutElement/FileSpec/@Sorted (S)	~~Unknown~~Layout Preparation RunList/LayoutElement/FileSpec/@Sorted (S)	No (X)	x.x	1.2	Yes	**page-order-received** (type2 keyword) [JT[33], 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) input-documents document-copies pages (Mn) sides media <any other document attr.> or output-documents document-copies pages (Mn) sides media <any other document attr.>	High	See specific attributes for category. EFI Media - Pages		Partition using DocIndex and DocRunIndex or RunIndex to specify page overrides. (S) See individual feature/function that is valid at the page level	Partition using DocIndex and DocRunIndex or RunIndex to specify page overrides. (S) See individual feature/function that is valid at the page level	Yes (X) Yes No Yes Yes Yes Yes?? No No Yes Yes Yes Yes??	x.x job-page-overrides x.x document-page-overrides x.x po-pages see sides see media	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 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

---

[32] The default of page-order-received is 1 to n which is reader order.
[33] 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
										"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)	LayoutPreparation RunListLink/@RunIndex.@DocIndex and @DocRunIndex (S) <mark>ISSUE: Why isn't this simply RunList/@Pages ?</mark>	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 Lanscape	7	<mark>~~LayoutIntent/ @FinishedDimensions~~N/A ISSUE: Why would LayoutIntent/ @FinishedDimensions cause a rotation of the page image?</mark>	LayoutPreparation 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&img] §4.7 <mark>See "orientation-requested".</mark>
pages-per-subset (Mn)	Low		4	Unknown	Unknown	No (X)	x.x	No	Yes	**pages-per-subset** (1setOf integer(1:MAX)) [JT[34]] Combines all of the Input Pages of all 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
pdl-init-file pdl-init-file-location	Never		6	N/A	N/A Same as PDLResourceAli	No	Never		No	**pdl-init-file** (1setOf collection) [JT, DT] Controls initialization of the Printer's Page

---

[34] 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-copes', 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
pdl-init-file-name pdl-init-file-entry					as?					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 **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/jobinitfile dir/initfile1' or 'file:///jobinitfiledir/initfile1'. [prod-print2] §5.8.1.1 **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 **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
Person to contact in case	High		1	CustomerInfo/Co	CustomerInfo/Co					There is no IPP 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
of problems				ntact/@... (S)	ntact/@... (S)					
presentation-direction-number-up	Low		7	Unknown	Unknown	No (X)	x.x	1.2	Yes[35]	**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~~High		6	~~Unknown~~ (P or N?) There does not appear to be a way to specify resolution for Product Intent. However, the print buyer or designer may desire to specify printer resolution, especially because certain settings are suitable for certain types of work and are suited for particular desired quality levels.	~~Unknown~~Rendering RenderingParams/ObjectResolution/@Resolution Screening ScreeningParams/ScreenSelector/@ScreeningFamily, @SourceObjects Proofing, SoftProofing ProofingParams/@Resolution PreviewGeneration PreviewGenerationParams/@Resolution, Preflight PSToPDFConversionParams/@InitialResolution	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)	DigitalPrinting Device/@DeviceID ISSUE: Better mapping and a URL:	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

---

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

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
					<any JDF node>/ NodeInfo/ @Route					
print-quality	Medium		6	Unknown(P or N? Need to be able to specify from user Why not add PrintQuality defined in InterpretingParams to ProofingIntent/ProofItem?	UnknownInterpreting InterpretingParams/@PrintQuality Note: DigitalPrintingParams/@PrintQuality is deprecated in JDF/1.1.	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			No IPP attribute

proof-print
 	
   proof-print-copies
   media
   media-col
	High 36
	
	Low
	Low
	Low
			2 11	ProofingIntent/ProofItem/@ProofType, ... (S)	Proofing ProofingParams/@... (S)
					
					note Origination and Prepress CIP4 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. 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

---

36 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
										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	LayoutPreparation RunList/@Pages	Range of Pages (X)	1.0 job-include-pages x.x document-include-pages			No IPP attribute
rendering-intent-{graphics| images| text}zz no IPP exists	Low?High	EFI Color – Rendering Style	6	Unknown??	Unknown ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversionParams/ColorSpaceConversionOp/@RenderingIntent [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images']	No (X)				**rendering-intent-{graphics | images | text}** (type2 keyword) [JT, DT, PO] Specifies the rendering intent of a color document for text, graphics, and images. Values are: saturation, perceptual, relative-colorimetric, absolute-colorimetric, pure-text, blended-pictorial-and-graphics, and automatic. [color&img] §3.12
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/Created/@AuthorWe aren't updating the JT in phase 1. JDF/NodeInfo/Employee/Person/@FirstName/@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 not a more secure authentication mechanism. See "original-requesting-user-name". [RFC2911] §3.2.1.1
resource-cleanup	High			N/A	FileSpec/FileAlias/@Disposition FileSpec/@Disposion					**resource-cleanup** (type3 keyword | 1setOf name(MAX)) [JT, DT, PO] Identifies whether Printer is to delete or keep all files that had been explicitly transferred to the Printer *before* the job was submitted (not as part 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 job submission) by any means outside the job submission protocol, such as FTP. Values: delete, keep. [color&img] §4.8
resource-pre-scan	High			N/A	LayoutElementProduction LayoutElement/ @NonImagePrescan (N) [new boolean attribute]					**resource-pre-scan** (type2 keyword) [JT, DT, PO] Indicates whether or not the Printer is to pre-scan the document data in order to validate that resources referenced within the document(s) are accessible and, optionally, to pull them to the Printer, before processing the job, i.e., before RIPping or marking. This attribute MUST NOT affect OPI images (see "opi-image-pre-scan" attribute. Values: no-pre-scan, pre-scan, pre-scan-and-gather. [color&img] §4.9
separator-sheets separator-sheets-type media media-col	High		5 8	LayoutIntent/Layout/InsertSheet/[@SheetType="SeparatorSheet",[@SheetUsage="Slip"] (N) (S) N/A InsertSheet/Sheet/MediaMediaIntent (S)	LayoutPreparation LayoutPreparationParams/InsertSheet/@SheetType,[@SheetUsage="Slip"](S) InsertSheet/Media/Location/@LocationName InsertSheet/Sheet/Media (S) NoteISSUE: Should InsertSheet be an input to DP process and not under LayoutPreparationParams in LPP process. NoteISSUE: Also need to consider allowing InsertSheets to be placed between chapters. Need	Start, Separator/Slip, End Sheets (X)	1.0 job-separator-sheets 1.0 separator-sheet-type 1.0 separator-sheet-media 1.0 separtor-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]) [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

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
					to be able to define chapters.					
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	DigitalPrinting DigitalPrintingPar ams/@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	LayoutPreparatio n LayoutPreparatio nParams/@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-short-edge) [RFC2911] §4.2.8
source-{cmy | gray}-{graphics | images | text}	High			(P or N?)	ColorSpaceConv ersion ColorSpaceConv ersionParams/Co lorSpaceConversi onOp/[@Operatio n="Retag"] , @SourceCS, [need to add CMY case (N)] @SourceObjects [Text='text',					**source-{cmy | gray}-{graphics | images | text}** (name(MAX)) [JT, DT, PO] Identifies the name of the installed Source Color Space Profile that the Printer MUST use to map the content data to the Profile Connection Space (PCS) for graphics, images & text content in either CMY color space or for grayscale data, respectively. [color&img] §3.13

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
					LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'], FileSpec/[@ResourceUsage="SourceProfile"] and FileSpec/@UID and FileSpec/@UserFileName ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp[@Operation=?][@SourceCS={?|gray}][@SourceObjects={LineArt|ImagePhotographic|Text}@FileSpec					
source-{cmyk | rgb}-{graphics | images | text} zz no IPP exists	Low?High	EFI Color – RGB Source	6	Unknown(P or N?)	ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp/[@Operation="Retag"], @SourceCS, @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'],	No (X)				**source-{cmyk | rgb}-{graphics | images | text}** (type3 keyword | name(MAX)) [JT, DT, PO] Identifies the name of the installed Source Color Space Profile that the Printer MUST use to map the content data to the Profile Connection Space (PCS) for graphics, images & text content in either CMYK or RGB color spaces, respectively. CMYK values: native-cmyk, swop [SWOP], euroscale, japan-color, enhanced-swop [SWOP], euroscale-matte, and euroscale-uncoated RGB values: srgb [IEC 61966-2.1], smpte-240m [SMPTE]. [color&img] §3.13

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
					~~FileSpec/[@ResourceUsage="SourceProfile"]~~ ~~and~~ ~~FileSpec/@UID~~ ~~and~~ ~~FileSpec/@UserFileName~~ ~~ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp[@Operation=?][@SourceCS={?|gray}][@SourceObjects={LineArt|ImagePhotographic|Text]@FileSpecUnknown~~					
time-at-completed (S)	Never	[JS,		N/A	N/A	No	Never	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	Never	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	Never	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
~~trapping~~zz no IPP exists	~~Low?~~High	EFI Image Quality – Trapping	6	Unknown??	~~Unknown Rendering RenderingParams/InRIPTrapping/@RasterTrapping [true/false] (N)~~	No (X)				**trapping** (type2 keyword) [JT, DT, PO] Turns in-RIP color trapping applied by the printer on or off. The 'all' values causes the Printer to eliminate or add pixels at all adjoining object boundaries (text, graphics, images, and sweeps) when the C, M, Y, and

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
					New attribute boolean for in-RIP trapping. This would be set to true when no PDL trapping was done and the trapping is required in the RIP (part of the Rendering process used by the DigitalPrinting combined process. ISSUE: Need to add raster-based trapping controls to JDF.					K color planes may be mis-registered. The 'off' value turns trapping off. Note: The current Trapping process in JDF uses the resource TrappingDetails which has a boolean "Trapping" – this is intended as a control for PDL based trapping. TrappingDetails also contains an attribute "IgnoreFileParams" which controls whether to honor PDL trapping commands. Unlike these PDL trapping commands – IPP trapping on/off controls in-RIP (raster based) trapping. [color&img] §3.14
trap-width-fast	High			Unknown??	Rendering RenderingParams/InRIPTrapping/@TrapWidthFast					**trap-width-fast** (integer(0:MAX)) [JT, DT, PO] Specified the number of pixels at each object boundary that will be within the trapping region in the "fast scan direction". [color&img] §3.15
trap-width-slow	High			Unknown??	Rendering RenderingParams/InRIPTrapping/@TrapWidthSlow					**trap-width-slow** (integer(0:MAX)) [JT, DT, PO] Specified the number of pixels at each object boundary that will be within the trapping region in the "slow scan direction". [color&img] §3.16

trc
  trc-type
  trc-name
  trc-cyan-data
  trc-magenta-data
  trc-yellow-data
  trc-black-data
	High			Use abstract ICC profiles – would be (N) or Transfer Function (P)	TransferFunction Control/Transfer CurvePool/Transf erCurveSet/Tran sferCurve/@Curv e, @Separation,
					
					trc-type maps to TransferFunction Control/@Transf erFunctionSourc e ("Custom" maps to 'private' and
										trc (collection) [JT, DT, PO] Apply either named configured or user-supplied Tone Reproduction Curves (TRCs) to image data after it has been transformed to the output device's CMYK color space, thus modifying the printer's response to the rendered CMYK data. User supplied TRCs MUST contain all four color separation values. Type values are: no-user-trc (to eliminate system default TRC), public (find or save in public place for use by other jobs), private (for use by current job only). Data is 256 octets of curve data for a color separation. [color&img] §3.17

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
					"Device" maps to 'public')					
undefined-source-{cmy | gray}-{graphics | images | text}	High			(P or N?) We do need to provide a way for a customer to specify – "use this source profile for untagged color objects in the PDL"	ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp/[@Operation="Tag"?][@], @SourceCS [need to add CMY case (N)], @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'], FileSpec/[@ResourceUsage="SourceProfile"] and FileSpec/@UID and FileSpec/@UserFileName SourceCS={?|gray}][@SourceObjects={LineArt|magePhotographic|Text]@FileSpec					**undefined-source-{cmy | gray}-{graphics | images | text}** (name(MAX)) [JT, DT, PO] Identifies the name of the installed Source Color Space Profile that the Printer MUST use to map the *untagged* content data to the Profile Connection Space (PCS) for graphics, images & text content in either CMY color space or for grayscale data, respectively. [color&img] §3.13
undefined-source-{cmyk | rgb}-{graphics | images | text} (type3 keyword | name(MAX))	High			(P or N ?) We do need to provide a way for a customer to specify – "use this source profile for untagged color objects in the PDL"	ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp/[@Operation="Tag"] , @SourceCS, @SourceObjects [Text='text',					**undefined-source-{cmyk | rgb}-{graphics | images | text}** (type3 keyword | name(MAX)) [JT, DT, PO] Identifies the name of the installed Source Color Space Profile that the Printer MUST use to map the *untagged* content data to the Profile Connection Space (PCS) for graphics, images & text content in either CMYK or RGB color spaces, respectively. CMYK values: native-cmyk, swop [SWOP],

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
					LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'], FileSpec/[@ResourceUsage="SourceProfile"] and FileSpec/@UID and FileSpec/@UserFileName ~~ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp[@Operation=?][@SourceCS={?|gray}][@SourceObjects={LineArt|ImagePhotographic||Text]@FileSpec~~					euroscale, japan-color, enhanced-swop [SWOP], euroscale-matte, and euroscale-uncoated RGB values: srgb [IEC 61966-2.1], smpte-240m [SMPTE]. [color&img] §3.13
version-number	Never			NodeInfo/ @IPPVersion	NodeInfo/ @IPPVersion	No	Never	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)	Delivery DeliveryParams/ Contact/@... (S)	No (X)	x.x			Not an IPP attribute.
x-image-position	High		6 or 7?	N/A (P)	LayoutPreparation LayoutPreparationParams/ImageShift/@PositionX,/ FitPolicy/@SizePolicy	Fit Policy (X)	1.0 job-image-position-x x.x document-image-postion-x x.x po-image-position-x 1.0 job-fit-policy x.x document-fit-policy x.x po-fit-policy	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

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
x-image-shift	Never			N/A	N/A	No	Never	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)	LayoutPreparation 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)	LayoutPreparation 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)	LayoutPreparation LayoutPreparationParams/ImageShift/@PositionY,/FitPolicy/@SizePolicy	Fit Policy (X)	1.0 job-image-position-y x.x document-image-postion-y x.x po-image-position-y 1.0 job-fit-policy x.x document-fit-policy x.x po-fit-policy	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	Never	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 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)	LayoutPreparation LayoutPreparationParams/ImageShift/@ShiftFront	Image Shift Front Side (X)	1.0 job-image-shift-front-y x.x document-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

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
							x.x po-image-shift-front-y			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)	LayoutPreparation 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 Special (Spot) Color Handling	6	ColorIntent/ColorsUsed/SeparationSpec/@Name (S)	DigitalPrinting ColorantControl/ ColorantParams/ SeparationSpec/ @Name (S)	Spot Color (X)				
zz no IPP exists	Medium	1.1 Booketmaking	7 8	~~Note~~ISSUE: Want to be able to specify an interoperable BookletMaking w/o breaking it out into individual resources. Possibly a BookletMaking catalog.	same as Product Intent	Folding, Number Up, Order Pages, Stapling & Stitching, Trimming (X)				
zz no IPP exists	Low?	EFI Catalog Imposition ContentArray	?	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Color – CMYK Simulation	6	Unknown	Unknown	No (X)				Is IPP color-emulation the same?
zz no IPP exists	~~Low?~~ High	EFI Color – Spot Color Matching Note: this is needed in IPP as well.	6	Unknown	Unknown	No (X)				Not an IPP attribute. Note: this is needed in IPP as well.
zz no IPP exists	Low?	EFI Document List - File Merge specs	3	Unknown	Unknown	No (X)				
zz no IPP exists	Never	EFI Document List - File Edit Spec	3	N/A	N/A	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
zz no IPP exists	Low?	EFI Finishing - Page Order	8	Unknown	LayoutPreparation 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	Low?	EFI General/ Account Info- User Information	1	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Image Quality – Black Detection	6	Unknown	~~Unknown~~ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp/RGBGray2Black ISSUE: Need to add threshold instead of boolean to JDF.	No (X)				Not an IPP attribute. Need a new IPP boolean attribute
zz no IPP exists	Low?	EFI Layout Definition - n rows and columns	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Layout Definition - GuttersN and GuttersM	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Layout Definition - Scale	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Layout Definition -	7	Unknown	LayoutPreparation	Fit Policy (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
		Type (scale to fit & user defined)			LayoutPreparationParams/FitPolicy/@SizePolicy					
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 Layout Content - Side and PlacedObjects	7	Unknown	Unknown	No (X)				
zz no IPP exists	Low?	EFI Media - Imageable Area	?	Unknown	Unknown	No (X)				Not an IPP attribute. Note: FSG PAPI is adding "media-margins" as a Printer attribute for querying the Device Capabilities. The values are the widths of top, right, bottom, and left non-imagable margins. Second set of 4 integers, if the back side is different. ISSUE: Is the EFI attribute a Job Ticket attribute which is controlling the imagable area?
zz no IPP exists	High?[37]	EFI MediaSource Offset	6	Unknown	Unknown	No (X)				
zz no IPP exists	Never?	EFI MediaSource TrayAlignment	6	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 -	7	Unknown	Unknown	No (X)				

---

[37] 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
		CalibrationBar Enabled Side CTM								
zz no IPP exists	Low?	EFI Printer Marks - ExposureBar Enabled Side CTM	7	Unknown	Unknown	No (X)				
zz no IPP exists	Never [38]	EFI Vendor specific private extensions	10	N/A	N/A	No (X)				

2   Proposed clarifications and extensions to JDF/1.1 for JDF/1.2 needed by the Product Intent and/or Process Resource mappings

Table 2 contains a *copy* of the proposed clarifications and extensions to JDF/1.1 for inclusion in JDF/1.2 as needed by the Product Intent and/or Process Resource mappings. As agreements are reached on clarifications both Table 1 and Table 2 are updated. The purpose of Table 2 is have a simple way to keep track of the proposed clarifications and extensions. The Status columns indicate the level of agreement and action: N/A, Proposed, Agreed, Edited (in JDF/1.2 input to FrameMaker), Checked (in JDF/1.2 FrameMaker).

Table 2 - Proposed clarifications and extensions to JDF/1.1 for JDF/1.2 needed by the Product Intent and/or Process Resource mappings

attribute name	JDF Product Intent	Status	JDF Process Resource	Status
adjust-{cyan-red | magenta-green | yellow-blue}	P or N? Use abstract ICC profiles	Proposed	ColorCorrection ColorCorrectionParams/FileSpec[FileSpecLink/@ResourceUsage="AbstractProfile"] Add this new file spec to allow specification of preferential color adjustment.	Proposed
adjust-contrast	same	Proposed	same	Proposed
adjust-lightness	same	Proposed	same	Proposed
adjust-saturation	same	Proposed	same	Proposed
anti-aliasing	Unknown??	N/A	Rendering RenderingParams/ObjectResolution/@AntiAliasing new attribute with list of possible values "None" "SystemSpecified"	Proposed
black-overprint	(N) Designer may specify "Rich Black" which is black-overprint on.	Proposed	mapping OK: Rendering RenderingParams/AutomatedOverprintParams/@OverPrintBlackText,@OverPrintBlackLineArt	N/A
bleed-edge-printing	LayoutIntent/~~Layout/@IgnoreBleeds~~ Margins [new ~~boolean~~ rectangle attribute] (N)	Proposed	~~LayoutElementProduction~~ ~~LayoutElement/@IgnoreBleeds [new boolean attribute]~~ DigitalPrintingParams/Margins [new rectangle attribute]	Proposed
color-destination-profile-back	(P or N?) Customer needs to be able to specify	Proposed	ColorCorrection ColorCorrectionParams/FileSpec[FileSpecLink/@ResourceUsage="FinalTargetDevice" Specify new values for @ResourceUsage = FinalTargetDeviceFront | FinalTargetDeviceBack	Proposed

---

[38] Describe in spec how vendor-specific extensions should be handled.

			ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversionParams/FileSpec[FileSpecLink/@ResourceUsage="FinalTargetDevice" Specify new values for @ResourceUsage = FinalTargetDeviceFront | FinalTargetDeviceBack	
color-destination-profile-front	P or N? Customer needs to be able to specify	Proposed	ColorCorrection ColorCorrectionParams/FileSpec[FileSpecLink/@ResourceUsage="FinalTargetDevice" Specify new values for @ResourceUsage = FinalTargetDeviceFront | FinalTargetDeviceBack ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversionParams/FileSpec[FileSpecLink/@ResourceUsage="FinalTargetDevice" Specify new values for @ResourceUsage = FinalTargetDeviceFront | FinalTargetDeviceBack	Proposed
color-emulation	mapping OK: ColorIntent/@ColorStandard	N/A	**DigitalPrinting** Ink/@Family ColorSpaceConversion, Proofing, SoftProofing **ColorSpaceConversionParams/**FileSpec[FileSpecLink/@ResourceUsage="EmulationProfile"] Specify new values for @ResourceUsage = "EmulationProfile"	Proposed

cover-back (M)
    media
    media-col
    cover-type
 	
note: cover could be
    printed or
    preprinted/blank
	ISSUE: Should there be a way to specify Covers as Product Description at a high level? (N)	Proposed	mapping OK: **Printed cover:** DigitalPrinting DigitalPrintingParams/Media,LayoutPreparationParams/@Sides,RunList/InsertSheet/@SheetType,@SheetUsage,@Pages (S) **Preprinted/blank cover:** LayoutPreparation RunList/@Pages,InsertSheet/@SheetUsage,@SheetType,Media (S)	N/A

finishings bind	BindingIntent/ @BindingType=SystemSpecified (N) (S)	Proposed	Binding (N) BindingParams/@BindingType=SystemSpecified (N) (S)	Proposed

finishings
    bind-left, bind-right,
    bind-bottom, bind-
top
	BindingIntent/ @BindingType
	(S)
	
	ISSUE: Add a
	BindingType=SystemSpecified. (N)
		Proposed	Binding (N) BindingParams/@BindingType,@BindingSide (N) (S)	Proposed

finishings punch	HoleMakingIntent without any attributes ISSUE: HoleType needs to be optional or add SystemSpecified.	Proposed	mapping OK: HoleMaking HoleMakingParams without any attributes ISSUE: HoleType needs to be optional or add SystemSpecified.	N/A
finishings (M)	BindingIntent/@BindingType, /SaddleStitching, /SideStitching, /CornerStitching,@NumberOfStitches,@ReferenceEdge (N) (S) ISSUE: Propose to rename StitchNumber to NumberOfStitches. ISSUE: Add a BindingType=Stitch (N)	Proposed	mapping OK: Stitching StitchingParams/@StitchType,@ReferenceEdge,@NumberOfStitches (S)	N/A
halftone-{graphics | images | text}	(P or N?) We need to provide a means for the customer to specify the halftone "look" –	Proposed	mappings OK: Screening ScreeningParams/ScreenSelector/@ScreeningFamily, @SourceObjects	N/A

	often the halftone used is a visible attribute of the finished piece.		Rendering RenderinParams/ObjectResolution/@ResolutionRendering RenderingParams/ObjectResolution/@Resolution Proofing, SoftProofing ProofingParams/@Resolution PreviewGeneration PreviewGenerationParams/@Resolution, Preflight PSToPDFConversionParams/@InitialResolution	
highlight-map	N/A	N/A	ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversionParams/ColorSpaceConversionOp/@HighlightMap New attribute providing a selection of highlight mapping algorithms.	Proposed
highlight-map-color	(P or N?) We need to allow the customer to select which color is to be mapped to the highlight colorant.	Proposed	mapping OK: ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp/@SourceCS	N/A
Job Comment or description of job	Comment/@Name=JobDescription (N) (S)	Proposed	Comment/@Name=JobDescription (N) (S)	Proposed
job-message-to-operator	N/A	N/A	JDF/Comment/@Name="MessageToOperator" (N)	Proposed
media-brightness	Clarify MediaIntent/@Brightness	N/A	Clarify Media/@Brightness	N/A
media-grain	(P or N?) For bound materials a designer needs to specify the grain direction (usually parallel to the binding).	Proposed	mapping OK: Media/@GrainDirection	N/A
job-state-reasons	N/A	N/A	JDF ISSUE: Need software interpretable codes for common processing and completion reasons.	Proposed
number-up	LayoutIntent/@NumberUp/@... (N) ISSUE: Description of LayoutIntent needs to be clarified in JDF spec and in doing so new attributes may be added (e.g. presentation direction).	Proposed	mapping OK: LayoutPreparation LayoutPreparationParams/@NumberUp,/PageCell/FitPolicy/@SizePolicy=FitToPage	N/A
opi-image-insertion	(N) ProofingIntent/ProofItem/@InsertImages [new attribute Boolean default True=use OPI substitution]	Proposed	mapping OK : Proofing, SoftProofing ProofingParams/@ImageViewingStrategy Note Origination and Prepress CIP4 WG is revamping ProofingParams, check with them.	N/A
opi-image-pre-scan	N/A	N/A	LayoutElementProduction LayoutElement/@ImagePrescan [new boolean attribute]	Proposed
printer-resolution	(P or N?) There does not appear to be a way to specify resolution for Product Intent. However, the print buyer or designer may desire to specify printer resolution, especially because certain settings are suitable for certain types of work and are	Proposed	mappings OK: Rendering RenderingParams/ObjectResolution/@Resolution Screening ScreeningParams/ScreenSelector/@ScreeningFamily, @SourceObjects	N/A

	suited for particular desired quality levels.		Proofing, SoftProofing ProofingParams/@Resolution PreviewGeneration PreviewGenerationParams/@Resolution, Preflight PSToPDFConversionParams/@InitialResolution	
print-quality	(P or N? Need to be able to specify from user Why not add PrintQuality defined in InterpretingParams to ProofingIntent/ProofItem?	Proposed	mapping OK: Interpreting InterpretingParams/@PrintQuality Note: DigitalPrintingParams/@PrintQuality is deprecated in JDF/1.1.	N/A
resource-pre-scan	N/A	N/A	LayoutElementProduction LayoutElement/@NonImagePrescan [new boolean attribute]	Proposed
source-{cmy | gray}-{graphics | images | text}	P or N?	Proposed	ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp/[@Operation="Retag"] , @SourceCS, [need to add CMY case] @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'], FileSpec/[@ResourceUsage="SourceProfile"] and FileSpec/@UID and FileSpec/@UserFileName	Proposed
source-{cmyk | rgb}-{graphics | images | text} (type3 keyword | name(MAX))	P or N?	Proposed	mapping OK: ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp/[@Operation="Retag"] , @SourceCS, @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'], FileSpec/[@ResourceUsage="SourceProfile"] and FileSpec/@UID and FileSpec/@UserFileName	N/A
trapping	Unknown??	N/A	Rendering RenderingParams/InRIPTrapping/@RasterTrapping [true/false] New attribute boolean for in-RIP trapping. This would be set to true when no PDL trapping was done and the trapping is required in the RIP (part of the Rendering process used by the DigitalPrinting combined process. ISSUE: Need to add raster-based trapping controls to JDF.	Proposed
trap-width-fast	Unknown??	N/A	Rendering RenderingParams/InRIPTrapping/@TrapWidthFast	Proposed
trap-width-slow	Unknown??	N/A	Rendering RenderingParams/InRIPTrapping/@TrapWidthSlow	Proposed
trc	Use abstract ICC profiles – would be (N) or Transfer Function (P)	Proposed	mapping OK: ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp/[@Operation="Retag"] , @SourceCS, @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'], FileSpec/[@ResourceUsage="SourceProfile"] and FileSpec/@UID	N/A

			and FileSpec/@UserFileName	
undefined-source-{cmy | gray}-{graphics | images | text}	(P or N?) We do need to provide a way for a customer to specify – "use this source profile for untagged color objects in the PDL"	Proposed	ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp/[@Operation"Tag"] , @SourceCS [need to add CMY case], @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'], FileSpec/[@ResourceUsage="SourceProfile"] and FileSpec/@UID and FileSpec/@UserFileName	Proposed
undefined-source-{cmyk | rgb}-{graphics | images | text} (type3 keyword | name(MAX))	(P or N ?) We do need to provide a way for a customer to specify – "use this source profile for untagged color objects in the PDL"	Proposed	mapping OK: ColorSpaceConversion ColorSpaceConversionParams/ColorSpaceConversionOp/[@Operation="Tag"] , @SourceCS, @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'], FileSpec/[@ResourceUsage="SourceProfile"] and FileSpec/@UID and FileSpec/@UserFileName	N/A
zz no IPP exists 1.1 Booketmaking	ISSUE: Want to be able to specify an interoperable BookletMaking w/o breaking it out into individual resources. Possibly a BookletMaking catalog.	Proposed	same as Product Intent	Proposed

3   Suggested extensions to IPP needed by the JDF Product Intent and/or Process Resource subset chosen

Table 3 lists the suggested extensions to IPP needed by the JDF Product Intent and/or Process Resource subset chosen. See the indicated attribute name and IPP Description columns in Table 1 - IPP Attribute Mapping Table for more details. The Status column indicates the status of the proposal: Proposed to CIP4/PODi, Agreed by CIP4/PODi, Proposed to PWG, Approved by PWG.

Table 3 - Suggested extensions to IPP needed by the JDF Product Intent and/or Process Resource subset chosen

IPP attribute name	Status
job-comment (text(MAX)) [JD]	Proposed to CIP4/PODi
job-mandatory-attributes (1setOf type2 keyword) [JD]	Proposed to CIP4/PODi, Proposed to PWG
media-brightness (integer(0:100) - member attribute of "media-col"	Proposed to CIP4/PODi
EFI Image Quality - Black Detection [JT]	Proposed to CIP4/PODi
EFI Color – Spot Color Matching [JT]	Proposed to CIP4/PODi

4   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 4 - 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 (like IPP 1.1 except add HH:MM and HH:MM:SS GMT of next time)	Yes 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

5   Attributes for the proposed PDC document

The following attributes are listed in the proposed PDC Document:

Table 5 - 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

PDC Attribute	IPP Attribute	OSDP JDF Spec
		Input Tray Name
resolution	printer-resolution	No
orientation	orientation-requested	Yes Rotate Page
color/monochrome	---	No
copies	copies	Yes Number of Copies

6   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&img]
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.

[IEC61966-2.1]
"Colour measurement and management in multimedia systems and equipment", Part 2.1 of IEC 61966; Colour Management in Multimedia systems.

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

[OPI]
"Open Prepress Interface (OPI)", Open Prepress Interchange Specification Version 2.0, Technical Note 5660, January 19, 2000, http://partners.adobe.com/asn/developer/PDFS/TN/5660.OPI_2.0.pdf and Open Prepress Interchange Specification 1.3, September 22, 1993, http://partners.adobe.com/asn/developer/PDFS/TN/OPI_13.pdf

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

[PDF]
Adobe Portable Document Format (PDF), version 1.4, Adobe Systems, "PDF Reference, third edition, Adobe Portable Document Format Version 1.4", Addison-Wesley, December 2001, http://partners.adobe.com/asn/developer/acrosdk/docs/filefmtspecs/PDFReference.pdf. Also see errata: http://partners.adobe.com/asn/developer/acrosdk/docs/PDF14errata.txt. Previous version: version 1.3, March 11, 1999. See http://www.pdfzone.com/resources/pdfspec13.html

[PostScript]
PostScript ® Level 3 Reference Manual. http://www.adobe.com/products/postscript/main.html

[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.

[SMPTE]
Standard 240m of the Society of Motion Picture and Television Engineers.

[SWOP]
Specifications for Web Offset Publications. See "SWOP" in the Terminology section. See also www.swop.org and www.color.org/overview.html.

7   Change Log

Summary of changes in reverse chronological order:

7.1   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.

7.2   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.

7.3   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

7.4   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).

7.5   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 subsetts 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.

7.6   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.

7.7 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.

7.8 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.

7.9 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)

7.10 Changes to make version 0.92, November 18, 2002:

1. Finished updating JTAPI column per 12 Nov FSG Job Ticket working group meeting

2. Added name of process that resource in JDF 1.1 Process Resource column is input to or output from.

3. Added the IPP Color and Imaging Job Template attributes and their descriptions.

7.11 Changes to make version 0.93, November 18, 2002:

1. Merged some of the IPP color and EFI values together - needs review by EFI and prioritization.

2. Explained the {} notation in the color and imaging attributes in the column heading descriptions up front.

7.12 Changes to make version 0.94, November 28, 2002:

1. For Process Resource mapping, added the notation that several Processes are separated by commas (,) when the Resource is used by more than one Process.

2. Sorted all of the attributes, including the IPP color and imaging. Made all finishing attributes have "finishings" in column 1 so sort together.

3. Added the following attributes along with their Product Intent and Process mappings: media-brightness, original-requesting-user-name.

4. Merged the following EFI attributes with their corresponding IPP attributes: EFI Image Quality – Contrast -> adjust-contrast; EFI Image Quality – Brightness -> adjust-lightness; EFI Image Quality – Sharpness -> anti-aliasing; 1.1 ColorMode EFI Color - Color Mode -> color-effects-type; 1.1 Screen EFI Image Quality - Screening -> halftone-{graphics | images | text}; EFI Color – Rendering Style -> rendering-intent-{graphics| images| text}; EFI Color – RGB Source -> source-{cmyk | rgb}-{graphics | images | text}; EFI Image Quality - Trapping -> trapping.

5. Added prioritization for all of the IPP color and imaging attributes - mostly high - needs review by the PODi/CIP4 WGs.

6. Changed the priority of EFI Color - Spot Color Matching from Low to High (need IPP attribute for that too).

7. Added Product Intent mappings for: color-emulation, imposition-template, highlight-colorant, job-accounting-sheets, job-error-sheet, media-brightness, orientation-requested, original-requesting-user-name.

8. Added the Process Resource mappings for: color-depth-yyy, color-destination-profile-back, color-destination-profile-front, color-emulation, date-time-at-completed, date-time-at-processing, font-name-requested, highlight-colorant, highlight-map-color, imposition-template, job-accounting-sheets, job-error-sheet, job-state, job-state-message, media-brightness, media-grain, opi-image-insertion, opi-image-pre-scan, orientation-requested, original-requesting-user-name, printer-resolution, print-quality, rendering-intent-{graphics| images| text}, resource-cleanup, source-{cmy | gray}-{graphics | images | text}, source-{cmyk | rgb}-{graphics | images | text} (type3 keyword | name(MAX)), trapping, trap-width-fast, trap-width-slow, trc, EFI Image Quality - Black Detection.

9. Added Table 2 which contains suggested extensions to JDF/1.1 for JDF/1.2 needed by Product Intent and Process Resource mappings.

10. Fixed the following Product Intent and/or Process Resource mappings: attributes-charset, attributes-natural-language, color-effects-type, compression, copies, document-uri, job-hold-until, job-sheet-message, proof-print, printer-uri, requesting-user-name, separator-sheets, source-{cmy | gray}-{graphics | images | text}, source-{cmyk | rgb}-{graphics | images | text} (type3 keyword | name(MAX)).

11. Added or Improved the IPP Description for: black-overprint, color-effects-type, halftone-{graphics | images | text}, job-printer-uri, trapping.

12. Clarified that IPP "trapping" is talking about in-RIP trapping, while JDF is talking about PDL trapping, so a JDF boolean attribute extension is needed to control in-RIP trapping.

13. Updated the percentages of each type of attribute in the Legend Table at the beginning of section 1.

7.13 Changes to make version 0.95, December 02, 2002:

1. Fixed typos in JTAPI column

7.14 Changes to make version 0.96, December 03, 2002:

1. Added ISSUE for adjust-xxx attributes to have smaller group discuss and decide what makes sense to support.

2. Changed JDF Intent and Process proposed syntax for bleed-edge-printing.

3. Changed black-overprint description back to previous description without PostScript reference.

4. Added ISSUE for trapping attribute to add raster-based trapping controls to JDF.