Mapping of IPP Attributes to JDF and CUPS

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Abstract

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

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

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1   Mapping of IPP attributes

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

Column heading	Totals	% of IPP[1]	Description
IPP Attribute	195^2 = 156 + 39 (S)	100	The name of the IPP attribute or collection member attribute. • (S) - The IPP attribute that represents State that is Set by the System, such as the "job-state" and "number-of-intervening-jobs" attributes, and cannot be supplied by the client in a Job Creation request. • (M) - The attribute whose effect depends on the "multiple-document-handling" attribute to specify whether the Input Document in multi-document jobs are combined into a single Output Document or are kept as separate Output Documents. • (Mn) - The attribute in which "multiple-document-handlng" 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
IPP Spec	11	-	The IPP specification in which the semantics are defined. See the references section at the end of this document.
JDF 1.1 Product Intent	30	15%	The JDF 1.1 Product Intent Resource and JDF attribute using XPath notation. A blank indicates that there is no corresponding JDF 1.1 Product Intent attribute.
JDF 1.1 Process Resource			The JDF 1.1 Process Resource and JDF attribute using XPath notation. A blank will eventually indicate that there is no corresponding JDF 1.1 Process Resource, but currently only the features/functions that are in the OSDP JDF Spec have this column filled in.
OSDP JDF Spec	69	38%	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. • 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			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)	58%	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 1.0 APP F	89	46%	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			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			The category that the feature/function is in and whether the feature/function desribes what (w) is to be produced and/or how (h) it is to be produced. 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

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

Column heading	Totals	% of IPP[1]	Description
			• 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 (w) What is needed by the print shop to describe the job. This is the finished product description. Provides information to the print shop to produce the finished product. (h) Information that describes how the job is to be produced.
Priority			The priority in which to include the feature/function in the definition of a jobt ticket 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. • 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.

Table 1- IPP Attribute Mapping Table

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
attributes-charset			No	1.0 jt-charset	1.1	No			
attributes-natural-language	NodeInfo/ @NaturalLang		No	x.x	1.1	Yes			
compression			No (X)	1.0 job-compression x.x document-compression	1.1	Yes		3	High[3]
copies (M)		ComponentLink/ @Amount	Number of Copies (X)	1.0 job-copies x.x document-copies	1.1	Yes	1.1 Number of Copies: Quantity EFI Finishing - Copies	4	High

cover-back (M)
  media
  media-col
  cover-type
		Printed cover: DigitalPrintingParams/Media,LayoutPreparationParams/@Sides,RunL	Covers (Media, Sides, Start First Page) (X)	1.0
				see xxx-media
				see xxx-sides
				see xxx-start-pages
				see po-pages
					1.2	Yes	EFI Media - Back Cover	5	High

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

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
note: cover could be printed or preprinted/blank		ist/InsertSheet/@ SheetType,@She etUsage **Preprinted/blank cover:** RunList/@Pages, Inse rtSheet/@SheetU sage,@SheetTyp e,Media		see insert-sheet-media see insert-sheet-pages see insert-sheet-position					
cover-front (M) media media-col cover-type note: cover could be printed or preprinted/blank		see cover-back	see cover-back	1.0 see cover-back	1.2	Yes	EFI Media – Front Cover	5	High
current-page-order (S)			No	x.x	1.2	No			
date-time-at-completed (S)			No	x.x	1.1	No			
date-time-at-creation (S)		AuditPool/Create d/@TimeStamp	Job Creation Date/Time	x.x job-created-on	1.1	No			
date-time-at-processing (S)			No	x.x	1.1	No			
document-format		FileSpec/@Mime Type	Document File Format (X)	1.0 job-document-format x.x document-format	1.1	Yes		3	High
document-name			No (X)	x.x	1.1	Yes		10	Low
document-natural-language			No (X)	1.0 job-document-natural-language x.x document-document-natural-language	1.1	Yes		3	Never
document-number (S)				x.x					

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity

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.>
		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
							See specific attributes for category.		

document-state (S)				x.x					
document-state-message (S)				x.x					
document-state-reasons (S)				x.x					
document-uri		FileSpec/@URL	Document File Name (X)	1.0 document-file-name	1.1	Yes	1.1 PPML file EFI Document List	3	High
feed-orientation			No (X)	x.x				9	Low
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,	BindingIntent/ @SaddleStitching, @SideStitching	StitchingParams/ @StitchType,@ReferenceEdge,@NumberOfStitches	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-	1.1	Yes	1.1 Stapling EFI Stapler Mode	8	High

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
staple-dual-left, staple-dual-right, staple-dual-bottom, staple-dual-top, none				type					
punch	HoleMakingIntent / @HoleReference Edge, @HoleType	HoleMakingParams without any attributes	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	1.1	Yes	1.1 HoleMaking	8	High
cover note: Use cover-front and cover-back		see cover-back & cover-front	Covers (X)	1.0 see cover-front & cover-back	1.1	Yes		5	Never
bind	BindingIntent/ @BindingType (for 2 values)	BindingIntent without any attributes	Binding (X)	1.0 job-binding	1.1	Yes		8	High
fold	FoldingIntent/ @FoldingCatalog	FoldingParams/ @FoldCatalog, @DescriptionType e	Folding (X)	1.0 job-folding x.x document-folding x.x po-folding 1.0 folding-type	1.1	Yes	1.1 Folding EFI Finishing - Folding	8	High [4]
trim		TrimmingParams without any attributes	Trimming (X)	1.0 job-trimming x.x document-trimming	1.1	Yes	1.1 Trimming	8	High
bale			No	Never	1.1	Yes			
booklet-maker	LayoutIntent/ @NumberUp BindingIntent/ @SaddleStitching FoldingIntent/ @FoldingCatalog	see number-up see finishings staple & stitch see finishings fold	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	1.1 Bookletmaking	7 8	High
jog-offset		Component/Disjoi nting@OffsetDire ction,DigitalPrinti	Jog Offset (X)	1.0 job-jog-offset x.x document-job-offset	No	Yes	1.1 Jogging	8	High

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

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
		ngParams/Disjoin ting@OffsetDirect ion							
bind-left, bind-right, bind-bottom, bind-top	BindingIntent/ @BindingType (for 2 values)	BindingIntent/@B indingType,@Bin dingSide	Binding (X)	1.0 job-binding x.x document-binding x.x po-binding 1.1 binding-side x.x binding-type	No	Yes	EFI Binding	8	High
finishings-col (M) finishing-template stitching stitching-reference-edge stitching-offset stitching-locations		StitchingParams/ @ReferenceEdg e	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		8	Low
font-name-requested			No (X)	x.x				3 6	Never
font-size-requested			No (X)	x.x				3 6	Never
force-front-side note: This is only for front side, need back side as well.		RunList/@Pages, InsertSheet/@Sh eetType,@Sheet Usage	Start First Page (X)	1.0 job-force-pages x.x document-force -pages	1.2	Yes	EFI Media – Chapter Starts	7	High
imposition-template			No ? (X)	Never	1.2	Yes		7	Low
impressions-completed-current-copy (S) (M)			No	Never	No	No			
insert-sheet insert-after-page-number (Mn) insert-count media	Yes ? InsertSheet/ @Folio, et. Al.? ?	RunList/@Pages, InsertSheet/@Sh eetType,@Sheet Usage RunList/@PageC opies RunList/InsertSh	Insert Sheet (X)	1.0 job-insert-sheets x.x document insert-sheets 1.0 insert-sheet-pages 1.0 insert-sheet-position 1.0 insert-sheet-count 1.0 insert-sheet-	1.2	Yes	EFI Media – Inserts	5 8	High

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
media-col		eet/Media/Location/@LocationName RunList/InsertSheet/Media		media 1.0 insert-sheet-media					
ipp-attribute-fidelity note: Use with job-mandatory-attributes	<any JDF node>/ @SettingsPolicy		No (X)	see jt-manatory-attributes	1.1	Yes		10	High
job-account-id	CustomerInfo/ @BillingCode	CustomerInfo/@ BillingCode	Billing Code (X)	1.0 job-billing-code	1.2	Yes	EFI General/ Account Info - Account/Project Information EFI Billing Info	1	High
job-accounting-sheets job-accounting-sheets-type media media-col job-accounting-output-bin			No (X)	x.x	1.2	Yes Yes Yes No		1 5 8	Low
job-accounting-user-id	CustomerInfo/ @CustomerID		No (X)	x.x	1.2	Yes		1	Low
job-collation-type (S) [5]			No	Never	No	No			
job-detailed-status-messages (S)			No	Never	1.1	No			
job-document-access-errors (S)			No	Never	1.1	No			
job-error-sheet job-error-sheet-type job-error-sheet-when media media-col			No (X)	x.x	1.2	Yes		1 5 8	Low
job-hold-until	NodeInfo/ @FirstStart, and NodeInfo/ @LastStart	JDF/@Activation	HoldJob for indefinite (X) No, otherwise (X)	1.0 job-hold	1.1	Yes		10	High [6]

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[5] 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.
[6] Only the "indefinite" value is supported.

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Priority
job-hold-until-time			(X)	x.x	1.2?			10	Low
job-id (S)				x.x job-id	1.1	No			
job-impressions			No ? (X)	Never	1.1	No		3 10	Low
job-impressions-completed (S)			No	Never	No	No			
job-k-octets			No	Never	1.1	No			
job-k-octets-processed (S)			No		1.1	No			
job-media-sheets	Yes? LayoutIntent/ @Pages		No ? (X)		1.1	No		3 10	Low
job-mandatory-attributes	JDFResource:*SettingsPolicy*		No (X)	1.0 jt-mandatory-attributes	No	No		10	High
job-media-sheets-completed (S)			No		1.1	No			
job-message-from-operator (S)			No		1.1	No			
job-message-to-operator			No (X)		1.2	Yes	EFI General/ Account Info – Instructions	10	High
job-more-info (S)			No		1.1	No			
job-name	<any JDF node>/ CustomerInfo/ @CustomerJobName	CustomerInfo/@CustomerJobName	Job Name (X)	1.0 job-name	1.1	Yes		10	High
job-originating-user-name (S)		AuditPool/Created/@Author	Job Created By	1.0 job-created-by	1.1	No			
job-password			No (X)					10	Low
job-password-encryption			No (X)					10	Low
job-phone-number			No (X)					1	High
job-printer-make-and-model (S)			No		1.2?	No			
job-printer-uptime (S)			No		1.1?	No			
job-printer-uri (S)			No		1.1	No			
job-priority	NodeInfo/ @JobPriority	NodeInfo/@JobPriority	Job Priority (X)	1.0 job-priority	1.1	Yes		10	High
job-recipient-name			No (X)		??	Yes		10	Low
job-save-disposition save-disposition-type (none, save-only, print-save) save-info		DigitalPrintingParams/@osdp:DeliveryMethod	Delivery Method (X)					10	Low

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
save-location save-name save-document-format									
job-sheets note: Use job-sheets-col		LayoutPreparationParams/InsertSheet/@SheetType,@SheetUsage	Start, Separator/Slip, End Sheets (X)		1.1	Yes		8	Never
job-sheets-col job-sheets media media-col		LayoutPreparationParams/InsertSheet/@SheetType,@SheetUsage InsertSheet/Media/Location/@LocationName InsertSheet/Media	Yes Start, Separator/Slip, End Sheets (X)	1.0 job-separator-sheets 1.0 separator-sheet-type 1.0 separator-sheet-media 1.0 separator-sheet-media	1.2	Yes		5 8	High
job-sheet-message			No (X)		1.2	Yes		10	High
job-state (S)			No		1.1	No			
job-state-message (S)			No		1.1	No			
job-state-reasons (S)			No		1.1	No			
job-uri (S)			No		1.1	No			
job-warnings-count (S)			No		No	No			
last-document			No (X)					10	Low
media	MediaIntent/ @ID	DigitalPrintingParams/Media/Location/@LocationName	Input Tray Name (X)	1.0 media-input-tray-name	1.1	No	1.1 Media Source EFI Media Source Input Tray	5	High
media-col			Media (X)	1.0 job-media x.x document-media x.x po-media	1.2	Yes	1.1 Media Selection	5	High
media-key	MediaIntent/ @ID??	Media/@DescriptiveName	Yes (X)	1.0 media-name	1.2	Yes		5	High
media-type	MediaIntent/ @UserMediaType, @MediaType ??, @MediaUnit ??, or @StockType??	Media/@MediaTypeDetails	Yes (X)	1.0 media-type	1.2	Yes		5	High
media-info	MediaIntent/		No (X)		1.2	Yes	EFI MediaName	5	High

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
	@DescriptiveName (?)								
media-color	MediaIntent/ @MediaColor	Media/@MediaColorName	Yes (X)	1.0 media-color	1.2	Yes		5	High
media-pre-printed	MediaIntent/ @Preprinted	Media/@Preprinted	Yes (X)		1.2	Yes		5	High
media-hole-count	[MediaIntent/ @HoleCount – Deprecated!]	Media/@HoleType	Yes (X)	1.0 media-hole-count	1.2	Yes		5	High
media-order-count	MediaIntent/ @MediaSetCount	Media/@SetCount	Yes (X)	1.0 media-set-count	1.2	Yes	EFI Media – Tabs	5	High
media-size	MediaIntent/ @Dimensions	Media/@Dimension	Yes (X)		1.2	Yes	EFI Media Dimensions EFI Media Landscape	5	High
x-dimension		see above	Yes (X)	1.0 media-x-dimension	1.2	Yes		5	High
y-dimension		see above	Yes (X)	1.0 media-y-dimension	1.2	Yes		5	High
media-weight-metric	MediaIntent/ @Weight	Media/@Weight	Yes (X)	1.0 media-weight	1.2	Yes		5	High
media-back-coating	MediaIntent/ @BackCoatings	Media/@BackCoating	Yes (X)		1.2	Yes		5	High
media-front-coating	MediaIntent/ @FrontCoatings	Media/@FrontCoating	Yes (X)		1.2	Yes		5	High
media-recycled	MediaIntent/ @Recycled	Media/@Recycled	Yes (X)		1.2	Yes		5	High
media-grain			No (X)					5	High
media-material			No (X)					5	Low
media-tooth			No (X)					5	High
media-thickness			No (X)					5	High
media-input-tray-check			No		1.2	No			
multiple-document-handling		see individual features/functions that are valid at the document level	Yes (is covered by the individual attributes) (X)	see document individual attributes	1.1	Yes	See specific attributes for category.		
number-of-documents (S)			No		1.1	No			
number-of-intervening-jobs (S)			No		1.1	No			
number-up	LayoutIntent/ @NumberUp	LayoutPreparationParams/@Num	Number Up (X)	1.0 job-number-up x.x document-	1.1	Yes	1.1 Bookletmaking	7	High

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
		berUp		number-up x.x po-number-up					
notify-xxx attributes: notify-recipient-uri		NodeInfo/Notification Filter/@osdp: Locator,@osdp:ChannelType	Notification (X) Yes	1.0 job-notifications 1.0 notification-send-to 1.0 notification-delivery-type	No	No		2	Low
notify-pull-method notify-events		@Types	No Yes	1.0 notification-events					
notify-attributes notify-user-data		Comment/@Name=Description	No Yes?	1.0 notification-comment					
notify-charset notify-natural-language		Comment/@Language	No Yes	1.0 notification-language					
notify-time-interval notify-lease-duration notify-subscription-id (S) notify-sequence-number (S) notify-lease-expiration-time (S) notify-printer-up-time (S) notify-printer-uri (S) notify-job-id (S) notify-subscriber-name (S)			No No No No No No No No No						
operation-id			No		1.1	No			
orientation-requested note: Use page-rotation			No	see xxx-rotation	1.1	Yes		7	Never
output-bin		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		8	High
output-device-assigned (S)			No		1.1	No			
page-delivery		DigitalPrintingParams/@PageDeliv	Page Delivery (X)	1.0 job-page-delivery	1.2	Yes	1.1 Sheet Order & Face Up/Down	8	High

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
		ery							
page-order-received			No (X)		1.2	Yes		3	Low [7]

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.>
		see individual features/functions that are valid the at 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
				Yes
					No??	Yes	See specific attributes for category.
							
							EFI Media - Pages		

page-ranges (Mn)		RunList/@odsp:ProcessPageRange	Range of Pages to Process (X)	1.0 job-output-pages x.x document-output-pages	1.1	Yes		4	High
page-rotation	[LayoutIntent/@FinishedPageOrientation -- Deprecated]	LayoutPreparationParams/@Rotate	Rotate Page (X)	1.0 job-rotation x.x document-rotation x.x po-rotation	??	Yes	EFI Media Lanscape	7	High
pages-per-subset (Mn)			No (X)		No	Yes		4	Low

pdl-init-file
   pdl-init-file-location
   pdl-init-file-name
   pdl-init-file-entry
		PDLResourceAlias	No (X)					6	Never

presentation-direction-			No (X)		1.2	Yes[8]		7	Low

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[7] The default of page-order-received is 1 to n which is reader order.

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
number-up									
printer-resolution			No (X)		1.1	Yes		6	Low
printer-uri	\<any JDF node\>/ NodeInfo/ @Route	Device/@DeviceI D	Destination or Physical Printer Requested (X)	1.0 job-destination-name x.x document-destination-name x.x po-destination-name	1.1	No		9	High
print-quality			No (X)		1.1	Yes		6	High
proof-print proof-print-copies media media-col			No (X)					2 11	High [9]
request-id			No (X)	1.0 job-submit-id	No	No		10	Low
requesting-user-name		AuditPool/Create d/@Author	Job Created By (X)		1.1	Yes		10	High
separator-sheets separator-sheets-type media media-col		LayoutPreparatio nParams/InsertS heet/@SheetTyp e,@SheetUsage InsertSheet/Medi a/Location/@Loc ationName InsertSheet/Medi a	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		5 8	High
sheet-collate note: only applies to sheets in a document		DigitalPrintingPar ams/@Collate	Collate (X)	1.0 job-collate	No	Yes	1.1 Sorter Mode (Collate) EFI Finishing - Sorter Mode	8	High
sheet-completed-copy-number (S) (M)			No		No	No			
sheet-completed-document-number (S) (M)			No		No	No			
sides	LayoutIntent/ @Sides (Note: Differences in coordinate systems	LayoutPreparatio nParams/@Sides	Sides (X)	1.0 job-sides x.x document-sides x.x po-sides	1.1	Yes	1.1 Duplex EFI Media – Plex Mode	7	High

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[8] The JDF/1.0 Appendix F incorrectly refers to "presentation-direction" which was renamed to "presentation-direction-number-up" in IEEE-ISTO 5100.3.
[9] Only need to be able to specify that a proof is to be printed and approved.

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
	between JDF and IPP come into play for the two-sided values.)								
time-at-completed (S)			No		1.1	No			
time-at-creation (S)			No		1.1	No			
time-at-processing (S)			No		1.1	No			
version-number	NodeInfo/ @IPPVersion	NodeInfo/ @IPPVersion	No		1.1	Yes			
x-image-position		LayoutPreparationParams/ImageShift/@PositionX	Fit Policy (X)		1.2	Yes		6 or 7?	High
x-image-shift			No		1.2	Yes			
x-side1-image-shift		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		6 or 7?	High
x-side2-image-shift		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		6 or 7?	High
y-image-position		LayoutPreparationParams/ImageShift/@PositionY	Fit Policy (X)		1.2	Yes		6 or 7?	High
y-image-shift			No		1.2	Yes			
y-side1-image-shift		LayoutPreparationParams/ImageShift/@ShiftFront	Image Shift Front Side (X)	1.0 job-image-shift-front-y x.x document-image-shift-front-y x.x po-image-shift-front-y	1.2	Yes		6 or 7?	High
y-side2-image-shift		LayoutPreparationParams/ImageShift/@ShiftBack	Image Shift Back Side (X)	1.0 job-image-shift-back-y x.x document-image-shift-back-y	1.2	Yes		6 or 7?	High

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
				x.x po-image-shift-back-y					
		RunList/Comment/@Name=Description	Comment/ Description of Job (X)	1.0 job-comment				10	High
Range of pages in job/document to include when generating the job ticket		RunList/@Pages	Range of Pages (X)	1.0 job-include-pages x.x document-include-pages				4	?
Turn folding off		FoldingParams/ @NoOp	Folding (X)	x.x folding-type			1.1 Folding	8	High
Complex fiolding		FoldingParams@ DescriptionType, Fold@From,Fold @To,Fold@Travel	Folding (X)	x.x folding-amount-to-fold x.x folding-direction-to-fold x.x folding-edge-to fold x.x folding-fold-type				8	Low
Complex stitching		StitchingParams/ @Angle,@Stitch Positions	Stapling & Stitching (X)	x.x stitching-angle x.x stitching-positions				8	Low
Turn hole making off		HoleMakingParams/@NoOp	Punching & Hole Making (X)	1.0 job-hole-making x.x document-hole-making x.x po-hole-making 1.0 hole-making-count			1.1 HoleMaking	8	High
		HoleMakingParams/@HoleType, @HoleReference Edge	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			1.1 HoleMaking	8	High
Turn trimming off		TrimmingParams/ @NoOp	Trimming (X)	1.0 job-trimming x.x document-trimming			1.1 Trimming	8	High
Turn binding off		BindingIntent/@NoOp	Binding (X)	1.0 job-binding x.x document-binding				8	Low

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
				x.x po-binding x.x binding-type					
Turn jog offset off		Component/Disjoi nting/@OffsetDir ection, DigitalPrintingPar ams/Disjointing/ @OffsetDirection	Jog Offset (X)	1.0 job-jog-offset x.x document-jog-offset			1.1 Jogging	8	High
			Black Overprint (X)				1.1 Black Overprint	6	High
		see individual features/functions	Folding, Number Up, Order Pages, Stapling & Stitching, Trimming (X)				1.1 Booketmaking	7 8	High
		ColorantControl/ @ProcessColorM odel	Process Color Model (X)				1.1 Color Mode EFI Color – Color Mode	6	High
		ScreeningParam s/ScreenSelector/ @ScreeningFami ly	Screening (X) Family				1.1 Screen EFI Image Quality – Screening	6	High
		ColorantControl/ SeparationSpec/ @Name	Spot Color (X)				1.1 Special (Spot) Color Handling	6	High
job-client-id note: This attribute does not currently exist in IPP.		JDF/@JobID	Job ID	x.x job-client-id				10	Low
			No (X)				EFI General/ Account Info-User Information	1	Low?
			No (X)				EFI Image Quality – Black Detection	6	Low?
			No (X)				EFI Image Quality – Brightness	6	Low?
			No (X)				EFI Image Quality – Contrast	6	Low?
			No (X)				EFI Image Quality – Trapping	6	Low?

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
			No (X)				EFI Image Quality – Sharpness	6	Low?
			No (X)				EFI Color – RGB Source	6	Low?
			No (X)				EFI Color – Rendering Style	6	Low?
			No (X)				EFI Color – CMYK Simulation	6	Low?
			No (X)				EFI Color – Spot Color Matching	6	Low?
		LayoutPreparationParams/@PageOrder	Order Pages (X)				EFI Finishing - Page Order	8	Low?
		see Stitching see Binding	No ? (X) No ? (X) Yes Stitching (X) Yes Binding (X) No (X)				EFI Finishing - Binding Gangup Unique Gangup Collate and cut Saddle Perfect Nested Saddle	8	Low?
			No (X)				EFI Document List - File Merge specs	3	Low?
			No (X)				EFI Document List - File Edit Spec	3	Never
Where/who/how to deliver final product			No (X)				EFI Packaging/ Shipping Info	2	High
Approvals for proof			No (X)				EFI Approvals	2 11	High
			No (X)				EFI Vendor specific private extensions	10	Never [10]
			No (X)				EFI Catalog Imposition ContentArray	?	Low?
			No (X)				EFI Media -	?	Low?

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

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior- ity
							Imageable Area		
			No (X)				EFI MediaSource TrayAlignment	6	Never?
			No (X)				EFI MediaSource Offset	6	High [11]
			No (X)				EFI Layout Definition - n rows and columns	7	Low?
			No (X)				EFI Layout Definition - GuttersN and GuttersM	7	Low?
			No (X)				EFI Layout Definition - Scale	7	Low?
		LayoutPreparatio nParams/FitPolic y/@SizePolicy	Fit Policy (X)				EFI Layout Definition - Type (scale to fit & user defined)	7	Low?
			No (X)				EFI Layout Definition - Bleeds	7	Low?
			No (X)				EFI Layout Definition - Creep	7	Low?
			No (X)				EFI Printer Marks - CropMarks HorizontalArray VerticalArray Enabled	7	Low?
			No (X)				EFI Printer Marks - SheetName Enabled Text Font CTM	7	Low?
			No (X)				EFI Printer Marks -	7	Low?

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[11] Can this be accomplished by shifting the image using the image-shift attributes?

IPP Attribute	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	JDF 1.0 App F	PODi	Cat	Prior-ity
							FoldMarks Enabled		
			No (X)				EFI Printer Marks - CalibrationBar Enabled Side CTM	7	Low?
			No (X)				EFI Printer Marks - ExposureBar Enabled Side CTM	7	Low?
			No (X)				EFI Layout Content - Side and PlacedObjects	7	Low?
Address and person to send the bill to								1	High
Person to contact in case of problems								1	High
Proofing (other than simple "print a proof")								2 11	Low

Notes:
These attributes could not be found in any of the IPP documents, but they are referred to in the JDF 1.0 Spec Appendix F. They are included in a new "Production Printing Attributes Set 2" specification being developed by the PWG IPP WG. See ftp://ftp.pwg.org/pub/pwg/ipp/new_PPE/pwg-ipp-prod-print-set2-draft-v0_1-020821.pdf.

2   Brief Description of IPP attributes that clients can supply

This section lists the IPP attributes from Table 1 that clients can supply in Job Creation and Document Creation operations and gives a *brief* description. See section 3 for the brief descriptions of the attributes that only Printers can generate (labeled with (S) in Table 1.

WARNING: Do not attempt to implement from these brief descriptions. You MUST refer to each cited reference.

Legend:

JD - Job Description attribute - initial value supplied by the client (in a Operation attribute of a Job Creation operation).

JT - Job Template[12] 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 - this attribute MAY also be supplied in a "page-overrides" attribute to affect ranges of pages.

Here are the IPP Attributes that clients can supply in Job Creation and Document Creation operations and their *brief* descriptions:**attribute-charset** (charset) [JT, DD] This attribute identifies the charset (coded character set and encoding method) used by used by any 'text' and 'name' atttributes (1) that the client is supplying in this request and (2) that the Printer SHOULD return in any response.

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.

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 (integer(1:MAX)) [JT[13], DT] The number of copies of the Output Document(s) to be printed. [RFC2911] §4.2.5

cover-back (collection) [JT[14], 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 (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

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 (name(MAX)) [JD, DD] Name for the this Document to be used in an implementation specific manner. [RFC2911] §3.2.1.1

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

[13] 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.

[14] 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.

document-natural language (naturalLanguage) [JD, DD] Identifies the Natural Language of this Document [RFC2911] §3.2.1.1

document-overrides (collection) [JT] Provides for the overriding of processing instructions on a document basis. Applied to job, see PageOverrides for overrides supplied at the document level. [override] §5.1

input-documents (1setOf rangeOfInteger(MAX)) Specifies which range of Input Documents to apply document override processing. [override] §5.1.1

output-documents (1setOf rangeOfInteger(MAX)) Specifies which range of Output Documents to apply document override processing. [override] §5.1.2

document-copies (1setOf rangeOfInteger(MAX)) Specifies which copies of an Output Document to apply these document override attributes. (Example: {{document-copies=1:1, sides=single-sided, media=transparency}, document-copies=2:10, sides=two-sided-long, media=na-letter}} prints the first document copy on transparencies and the remaining copies on two-sided letter paper) [override] §5.1.3

document-format (mimeMediaType) Specifies the document format for the Input Document override processing. [override] §5.1.4

document-name (name (MAX)) Specifies the document name for the Input Document override processing.. [override] §5.1.5

compression (type3 keyword) Specifies the compression for the Input Document override processing. [override] §5.1.6

document-natural-language (naturalLanguage) Specifies the natural language for the Input Document override processing [override] §5.1.7

page-ranges (1setOf rangeOfInteger (1:MAX)) Specifies the range of pages to be printed in the Document sets. [override] §5.1.8

any other Job Template attributes that affect documents, such as "media" or "media-col"()

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 (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 (1setOf type2 enum) [JT[15], DT, PO] Identifies the finishings that the Printer uses for each copy of the Output Document. (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) [RFC2911] §4.2.6, [finish] §2

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

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

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 (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 (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 (1setOf integer(1:MAX)) [JT[16], 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

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

insert-sheet (1setOf collection) [JT[17], DT, PO] Specifies how Insert Sheets are to be inserted into the sequence of media sheets that are produced for each copy of the documents. [prod-print] §3.5

insert-after-page-number (integer(0:MAX)) Specifies the input page after which the Insert Sheet will be placed. [prod-print] §3.5.1

insert-count (integer(0:MAX)) Specifies the number of Insert Sheet to insert. [prod-print] §3.5.2

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

ipp-attribute-fidelity (boolean) [JT] 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-account-id (name(MAX)) [JT[18]] Account associated with the job. [prod-print] §3.6

job-accounting-sheets (collection) [JT] Specifies the accounting sheet for this Job. [prod-print] §3.8

job-accounting-sheets-type (type3 keyword | name(MAX)) Specifies the accounting sheet format for a job. (keywords: none, standard) [prod-print] §3.8.1

media (type3 keyword | name(MAX)) The medium that the Printer uses for all impressions of the Job. (Keyword examples: na_letter_8.5x11in, iso_a4_210x297mm, na_monarch_3.875x7.5in. See [pwg5101.1]) [prod-print] §3.5.3

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[16] 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.

[17] 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.

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

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 (name(MAX)) [JT[19]] Specifies the User ID associated with the "job-account-id". [prod-print] §3.7

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 (type3 keyword | name(MAX)) [JT] Specifies the named time period during which the Job must become a candidate for printing. (Keywords: no-hold, indefinite, day-time, evening, night, weekend, second-shift, third-shift) [RFC2911] §4.2.2

job-hold-until-time (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-]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-]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-mandatory-attributes (1setOf type2 keyword) [JT] Allows a user to list which Job Template and Document Template attributes the Printer MUST honor. The Printer MUST reject the job submission if *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 work. [pwg-sm] §6.1

[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-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 (text(MAX)) [JT[20]] Message from the end user to indicate something about the processing of the job. Note: The natural language is not localized by any recipient, since this message is generated by a human. (example: "Call 555-1234 before running this job") [prod-print] §3.10

job-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

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

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 (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 (text(127)) [JT[21]] Contains the contact telephone number for the job. [prod-print2] §5.5

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 (name(MAX)) [JT[22]] Contains the name of the person that is to receive the output of the job and is commonly printed on the job sheet. It may also be used to reference a data base containing delivery instructions for the recipient. [prod-print2] §5.6

job-save-disposition (collection) [JT] Specifies that the Printer is to save the job as a file that can be re-printed on demand anytime in the future using the Print-URI operation (see [RFC2911] section 3.2.2) [prod-print2] §5.7

save-disposition (type3 keyword) Specifies whether the Printer MUST print and/or save the job. (Keywords: none, save-only, print-save). [prod-print2] §5.7.1.1

save-info (1setOf collection) Contains sets of attributes that each tell the Printer how to create each copy of the saved job. [prod-print2] §5.7.1.2

save-location (uri) Specifies the path to the directory as a URI where the Printer saves the Document Data and other Job information. Example: 'ftp://printhost.printco.com/var/spool/jobdir/' or 'file:///job-repository/jobdir/' [prod-print2] §5.7.1.2.3.1

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 (text(MAX)) [JT] Conveys a message that is delivered with the job. [prod-print] §3.12

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 (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

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

last-document (boolean) [DD] Has a 'true' value if this Document is the last Input Document for the Job. [RFC2911] §4.2.11

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

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 (collection) [JT, DT, PO] Enables a client end user to submit a list of media characteristics to the Printer as a way to more completely specify the media to be used than the "media" attribute provides. See "media" description. [prod-print] §3.13

media-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-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-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-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-hole-count (integer(0:MAX)) Indicates the number of pre-drilled holes in the desired media. [prod-print] §3.13.6

media-info (text(255)) Specifies information that helps describe the media instance. Intended for human consumption. [prod-print] §3.13.3

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-material (type3 keyword | name(MAX)) The material of the media. (Keywords: aluminum, dry-film, paper, polyester, wet-film) [prod-print2] §8.4.3

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-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-recycled (type3 keyword | name(MAX)) Indicates the recycled characteristics of the media. (Keywords: none, standard) [prod-print] §3.13.11

media-size (collection) Explicitly specifies the numerical media width and height dimensions. [prod-print] §3.13.8

x-dimension (integer(0:MAX)) Size of the media in hundredths of a millimeter along the bottom edge. [prod-print] §3.13.8.1

y-dimension (integer(0:MAX)) Size of the media in hundredths of a millimeter along the left edge. [prod-print] §3.13.8.2

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-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-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-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 (type3 keyword | name(MAX)) [JT, DT, PO] Indicates that the characteristics of the media in the identified input tray must match the characteristics of the media identified by the "media" or "media-col" attribute. (Keywords: none, top, middle, bottom, side, large-capacity, envelope, main, manual, bypass-tray, tray-*N*. See [RFC2911] Appendix C) [prod-print] §3.14 and §6.3

multiple-document-handling (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[23]. (Keywords: single-document, separate-document-uncollated-copies, separate-document-collated-copies, single-document-new-sheet) [RFC2911] §4.2.4

number-up (integer(1:MAX)) [JT, DT, PO] Indicates the number of Input pages that the Printer is to image on one impression. [RFC2911] §4.2.9

operation-id (type2 enum) [ ] Indicates which operation this request is. [RFC2911] §3.1.2

orientation-requested (type2 enum) [JT, DT, PO] The desired orientation for printed pages for document formats that don't have a built-in orientation. (Keywords: portrait, landscape, reverse-landscape, reverse-portrait) [RFC2911] §4.2.10

output-bin (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

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 (type2 keyword) [JT[24], 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 (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 "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 (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

pages-per-subset (1setOf integer(1:MAX)) [JT[25]] 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

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[23] 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.
[24] The IPP "page-order-received" Job Template attribute is mapped to the PageOrderReceived Document Description attribute in the PWG Semantic Model [pwg-sm].

pdl-init-file (1setOf collection) [JT, DT] Controls initialization of the Printer's Page Description Language (PDL) interpreter. The Printer performs the initialization before processing each Input Document when "multiple-document-handling" is 'separate-documents-collated-copies' or 'separate-documents-uncollated-copies' and before the first Input Document when "multiple-document-handling" is 'single-document' or 'single-document-new-sheet'. [prod-print2] §5.8

pdl-init-file-location (uri) [JT, DT] Contains an Absolute URI [RFC 2396] that specifies the path to the directory where the initialization file to be sent to the Printer's PDL interpreter will be found. Examples: 'ftp://printhost.printco.com/var/spool/jobinitfiledir/initfile1' or 'file:///jobinitfiledir/initfile1'. [prod-print2] §5.8.1.1

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

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

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

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 (uri) [JD] Specifies the URL of this Printer. The client supplies this attribute in every request. [RFC2911] §3.1.5

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

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

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 (name(MAX)) [OP] Specifies the name of the requesting user. Used by the Printer in case there is no a more secure authentication mechanism. [RFC2911] §3.2.1.1

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[25] 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.

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

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

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

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

x-image-position (type2 keyword) [JT, DT, PO] Causes the specified point of the Finished-Page Image to be positioned at a specified location. (Keywords: none, center, left, right) [prod-print] §3.19.2

x-image-shift (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 (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 (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 (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 (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 (integer(MIN:MAX)) [JT, DT, PO] Causes each Finished-Page Image that would be placed on the front side of a sheet to be shifted in position with respect to the y-axis of the media. The unit of measure for this attribute is hundredths of a millimeter. The sign of the value indicates the direction of the shift. [prod-print] §3.19.8

y-side2-image-shift (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

3   Brief Description of IPP attributes that only Printers can generate (S)

This section lists the IPP attributes from Table 1 that only Printers can generate for the Job and Document objects and gives a *brief* description. Printers return these attributes in Job and Document query operations. Furthermore, for those attributes that have both a Job State and a Document State attribute, there is only one entry in Table 1 that represents both of them.

WARNING: Do not attempt to implement from these brief descriptions. You MUST refer to each cited reference.

Legend:

> **JS** - Job State attribute - set by the Printer, client cannot supply. Indicated by "(S) in Table 1.
>
> **DS** - Document State attribute - set by the Printer, client cannot supply Indicated by "(S) in Table 1.
>
> **-** - indicates that there is no corresponding Job State attribute or Document State attribute.
>
> The **[job-]** indicates that the 'job-' prefix is kept for the IPP Job State attribute but is dropped for the corresponding IPP Document Description attribute. A single description serves for both using "Job/Document" to indicate that the description applies to both the Job State and the Document State attribute. The entry in Table 1 uses the form of the name with the 'job-', since that form is the one in [RFC2911].

Here are the IPP Attributes that only Printers can generate for the Job and Document objects and gives a *brief* description:

current-page-order (type2 keyword) [JS, DS] Indicates the page order of the pages in the document data for this Job/Document. The Printer set this value set from the 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 (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 (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 (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-number (integer(0:MAX)) [-, DS] The order of this Document within the Job starting at a base of 1. [doc-obj] §6.1

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 (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 (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

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

job-collation-type (type2 enum) [JS, -] Identifies the collation type of this Job. The Printer sets the value from the submitted "sheet-collate" and "multiple-document-handling" Job Template attributes. (Keywords: other, unknown, uncollated-sheets, uncollated-documents, collated-documents). [job-prog] §4.1

[job-]detailed-status-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 (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-id (integer(1:MAX)) [JS, -[26]] 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-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-processed (integer(0:MAX)) [JS, DS] The total number of octets processed in integral units of 1024 octets so far for this Job/Document. [RFC2911] §4.3.18.1

[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-]more-info (uri) [JS, DS] URI used to obtain information intended for end user consumption about this specific Job/Document. (example: "http://www.company.com/printer/embededjobpage") [RFC2911] §4.3.4

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-printer-make-and-model (text(127)) [JS, -] Identifies the make and model of the output device which saved this Job according to the "job-save-disposition" Job Template attribute. [prod-print2] §6.1

[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-state (type1 enum) [JS, -[27]] 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 (text(MAX)) [JS, [28]] 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

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

job-state-reasons (1setOf type2 keyword) [JS, -[29]] Provides additional information about this Job's current state. (Keywords: none, aborted-by-system, canceled-at-device, canceled-by-operator, canceled-by-user, completed-successfully, completed-with-errors, completed-with-warnings, compression-error, document-access-error, document-format-error, incoming, interpreting, job-data-insufficient, job-hold-until-specified, job-password-wait, job-restartable, job-resuming, job-saved-successfully, job-save-error, job-saving, job-scheduling, job-suspended, job-suspended-by-operator, job-suspended-by-system, job-suspended-by-user, job-suspending, outgoing, printer-stopped, printer-stopped-partly, printing, processing-to-stop-point, proof-print-wait, queued, queued-for-marker, queued-in-device, resources-are-not-ready, resources-are-not-supported, service-off-line, spooling, streaming, submission-interrupted, 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 (uri) [JS, -[30]] 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 (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

number-of-documents (integer(0:MAX)) [JS, -] The number of Documents in this Job. [RFC2911] §4.3.12

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

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

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 (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

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 (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 (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

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:

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[29] The IPP "job-state-reasons" Job Description attribute corresponds to the (new) "document-state-reasons" Document Description attribute.
[30] 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.

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:

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.

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

IEEE-ISTO 5100.1-2001 [finishing]
"Internet Printing Protocol (IPP): "finishings" attribute values extension", Hastings, T., and D. Fullman, February 5, 2001, ftp://ftp.pwg.org/pub/pwg/standards/pwg5100.1.pdf

IEEE-ISTO 5100.2-2001 [output-bin]
"Internet Printing Protocol (IPP): output-bin attribute extension", Hastings, T., and R. Bergman, February 7, 2001, ftp://ftp.pwg.org/pub/pwg/standards/pwg5100.2.pdf

IEEE-ISTO 5100.3-2001 [prod-print]
"Internet Printing Protocol (IPP): Production Printing Attributes - Set1", Ocke, K., and T. Hastings, February 12, 2001, ftp://ftp.pwg.org/pub/pwg/standards/pwg5100.3.pdf

IEEE-ISTO 5100.4-2001 [override]
"Internet Printing Protocol (IPP): Override Attributes for Documents and Pages", Herriot, R., and K. Ocke, February 7, 2001, ftp://ftp.pwg.org/pub/pwg/standards/pwg5100.4.pdf

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

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

[prod-print2]
Hastings, T., and D. Fullman, "Internet Printing Protocol (IPP): Production Printing Attributes - Set 2", to become a PWG IEEE-ISTO standard, work in progress, August 21, 2002, ftp://ftp.pwg.org/pub/pwg/ipp/new_PPE/pwg-ipp-prod-print-set2-draft-v0_1-020821.pdf.

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

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

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

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

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

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 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 Digital Printing working group meeting.

5. Continued updating JTAPI column per 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 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 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 PODi/CIP4 Digital Printing working group meeting.