

Mapping of IPP Attributes to JDF/1.1 Product Intent and Process Resources

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

073 December 2002

File: ippjdf-mapping-073-Dec-2002.doc

Formatted for legal size paper (8.5 x 14 inches)

Version 0.9716

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 2 to Table 3.

Status of this document:

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

Table of Contents

1	Mapping of IPP attributes	2
2	Proposed clarifications and extensions to JDF/1.1 for JDF/1.2 needed by the Product Intent and/or Process Resource mappings	63
3	Suggested extensions to IPP needed by the JDF Product Intent and/or Process Resource subset chosen	68
4	CUPS Job Template extensions to IPP	68
5	Attributes for the proposed PDC document.....	69
6	References	70
7	Change Log	71
7.1	Changes to make version 0.4, September 28, 2002:.....	71
7.2	Changes to make version 0.3, September 24, 2002:.....	72
7.3	Changes to make version 0.5, October 5, 2002:	72
7.4	Changes to make version 0.6 October 14, 2002:	72
7.5	Changes to make version 0.7, October 16, 2002:	72
7.6	Changes to make version 0.8, October 18, 2002:	72
7.7	Changes to make version 0.9, October 28, 2002:	72
7.8	Changes to make version 0.90, November 01, 2002:.....	72
7.9	Changes to make version 0.91, November 08, 2002:.....	73
7.10	Changes to make version 0.92, November 18, 2002:	73
7.11	Changes to make version 0.93, November 18, 2002:	73
7.12	Changes to make version 0.94, November 28, 2002:	73
7.13	Changes to make version 0.95, December 02, 2002:	74
7.14	Changes to make version 0.96, December 03, 2002:	74
7.15	Changes to make version 0.97, December 06, 2002:	74
7.16	Changes to make version 0.971, December 07, 2002:.....	75

Table of Tables

Table 1 - Legend for the columns in Table 2	2
Table 2 - IPP Attribute Mapping Table	4

Table 3 - Proposed clarifications and extensions to JDF/1.1 for JDF/1.2 needed by the Product Intent and/or Process Resource mappings 63
 Table 4 - Suggested extensions to IPP needed by the JDF Product Intent and/or Process Resource subset chosen..... 68
 Table 5 - CUPS Job Template extensions to IPP 68
 Table 6 - Attributes for the proposed PDC document 69

1 Mapping of IPP attributes

Table 2 lists all of the IPP Job attributes that a client can supply or a Printer can return in Job Creation operations. [The following Table 1 is the legend that](#) explains the columns in Table 2:

Table 1 - Legend for the columns in Table 2

Column heading	Totals	% IPP ¹	Description
IPP Attribute Name	251 ² = 209 + 42 (S)	100	The name of the IPP attribute or collection member attribute. <ul style="list-style-type: none"> (S) - Status Set by System. The IPP attribute that represents 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. <u>Member attribute names (members of collection attributes) and attribute values are indented (Style Normal Mem and Normal Val). Double indenting uses Normal Mem1 Style and Normal Val1 Styles. Attribute values are also single quoted (').</u>
<u>P</u> (Priority)	<u>H</u> (High) = 94 <u>M</u> (Medium) = 19 <u>L</u> (Low) = 62 <u>N</u> (Never) = 45	37% 8% 25% 18%	The priority in which to include the feature/function in the definition of a job ticket for digital printing: <ul style="list-style-type: none"> <u>H</u> (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. <u>M</u> (Medium) - The feature/function should be one of the first to be considered for the next version of the job ticket for digital printing. <u>We will still review proposed JDF extensions for JDF/1.2 for these.</u> <u>L</u> (Low) - The feature/function can be included in a later version of the job ticket for digital printing. <u>We won't review JDF extensions for JDF/1.2.</u> <u>N</u> (Never) - The feature/function will not be included in any version of the job ticket for digital printing. <u>We won't review JDF extensions for JDF/1.2.</u>
JDF 1.1 Product Intent	90 (including 27 new proposed)	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.) <ul style="list-style-type: none"> Unknown - Indicates that it has not yet been determined if a JDF Intent resource/attribute currently exists for the feature/function. This will be the case for

¹ The % of IPP is the percent of the (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
			<p>most of the features/functions with a Priority of Medium or Low.</p> <ul style="list-style-type: none"> • 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. <p><u>JDF attribute values are italicized as in [JDF] and are not indented or single quoted.</u></p>
JDF 1.1 Process Resource	174 (including 22 new proposed)	69%	<p>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).</p> <ul style="list-style-type: none"> • Unknown - Indicates that it has not yet been determined if a JDF Process resource/attribute currently exists for the feature/function. This will be the case for most of the features/functions with a Priority of Medium or Low. • N/A - It is not necessary that this feature/function be represented by a JDF Process resource/attribute. This will be the case for the features/functions with a Priority of Never. • (S) - 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. <p><u>JDF attribute values are italicized as in [JDF] and are not indented or single quoted.</u></p>
OSDP JDF Spec	69	27%	<p>Whether or not the feature is in the "JDF Specification for Open Source Digital Printing" from Claudia Alimpich, version 1.2 [OSDP] and if it is what the feature/function is called in the JDF Spec for OSDP.</p> <ul style="list-style-type: none"> • No - The feature/function is not currently in the JDF Spec for OSDP. • (X) - The feature/function is either currently included in the JDF Spec for OSDP or needs to be added.
JTAPI	1.0 = 90 x.x = 121	36% 48%	<p>The version of JTAPI that the feature/function will be included in and the name of the JTAPI attribute.</p> <ul style="list-style-type: none"> • 1.0 - The feature/function will be included in version 1.0 of the JTAPI. • x.x - The feature/function is to be included in a future (currently undefined) release of the JTAPI. • Never - The feature/function will never be included in the JTAPI.
CUPS	113 = 90 + 23 (S)	45%	<p>The version of the Common Unix Printing System (CUPS) in which the IPP attribute is supported or No if the IPP attribute is not supported in any version of CUPS. See "(S)" explained above.</p>
JDF APP F	89	35%	<p>Whether or not the Appendix mapped the IPP attribute to JDF 1.0 IDPrinting combined process node</p> <ul style="list-style-type: none"> • Yes - The IPP attribute was mapped from the IDPrinting process node in JDF 1.0. • No - The IPP attribute was not mapped from the IDPrinting process node in JDF 1.0.
PODi	1.1 = 20 EFI = 63	8% 25	<p>Where the feature/function is included:</p> <ul style="list-style-type: none"> • 1.1 - The feature/function is currently included in the PODi PPML Job Ticket Specification Version 1.1. • EFI - The feature/function is included in the "EFI Job Ticket Proposal" document.
Cat <u>(Category)</u>	1 = 8 2 = 5 3 = 11 4 = 4 5 = 29 6 = 26 7 = 27 8 = 29 9 = 2 10 = 22	3% 2% 4% 2% 12% 10% 11% 12% 1% 9%	<p>The category that the feature/function belongs to. The possible categories are:</p> <ul style="list-style-type: none"> • 1 - Customer and billing info • 2 - Delivery of finished product - due date and shipping instructions, proofing approvals • 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

Column heading	Totals	% IPP ¹	Description
	11 = 2	1%	<ul style="list-style-type: none"> 11 - Proofing
IPP Attribute Description			<p>The IPP attribute name, the attribute syntax (data type) in parentheses with a size constraint for strings and integers, a code indicating the IPP object, followed by a 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 IPP coordinate system is defined so the terms left, top, right, and bottom in attribute values and descriptions mean as if the document were portrait, i.e., left means the y-axis which is always the long edge and bottom means the x-axis which is always the short edge.</p> <p>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}</p> <p>Legend for codes in square brackets:</p> <ul style="list-style-type: none"> JD - Job Description attribute - initial value supplied by the client (in an Operation attribute of a Job Creation operation). JT - Job Template³ 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 <u>(returned by the Printer in a Job object query or Operation attribute)</u>. Also indicated by “(S)” in the “IPP Attribute Name” column. DS - Document Status attribute - set by the Printer, client cannot supply <u>(returned by the Printer in a Document object query or Operation attribute)</u>. Also indicated by “(S)” in the “IPP Attribute Name” column. -- indicates that there is no corresponding Job Status attribute or Document Status attribute. <p>In attribute names [job-] indicates that the 'job-' prefix is kept for the IPP Job Status attribute name but is dropped for the corresponding IPP Document Status attribute name. A single description serves for both using "Job/Document" to indicate that the description applies to both the Job Status and the Document Status attribute. The entry in Table 2 uses the form of the name with the 'job-', since that form is the one in [RFC2911].</p> <p><u>IPP attribute values are bracketed with a single quote (') to distinguish them from member attribute names (Style Normal Mem and Normal Val). Double indenting uses Normal Mem1 Style and Normal Val1 Styles. Attribute values are also single quoted (').</u></p>

Table 2 - IPP Attribute Mapping Table

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
Address and person to send the bill to	H		1	CustomerInfo/Contact (S)	CustomerInfo/Contact (S)					No IPP attribute
adjust-{cyan-red magenta-green yellow-blue}	M H			Use abstract ICC profiles (P or N?) We need to	ColorCorrection ColorCorrectionParams /FileSpec{@ResourceU	TBD				adjust-{cyan-red magenta-green yellow-blue} (integer(-100:100)) [JT, DT, PO] Increase or decrease the color along

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.

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
				provide a way for the customer to specify a hue adjustment through supplying an abstract profile ⁴ . (P) ISSUE: Intent may not be the way to solve this problem (for all adjust attributes). A smaller group will discuss and decide.	sage="AbstractProfile"] (N) Add this new file spec to allow specification of preferential color adjustment: @CyanRed @MagentaGreen @YellowBlue (integer (-100:100)) (N) Need integer knob Customers need for quick and dirty last-minute fixes.					the Cyan/Red, Magenta/Green/ or Yellow/Blue axes while maintaining lightness after applying the Source Profile before output color rendering applied at an implementation dependent point in the processing and is color space dependent. [color&img] §3.2.1 ISSUE: Can we define a standard transform between integer values to ICC Abstract Profile for various color spaces? But not for JDF/1.2.
adjust-contrast	M H ?	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.	ColorCorrection ColorCorrectionParams /FileSpec[@ResourceU sage="AbstractProfile"] @Constrast (integer (-100:100)) (N) Add this new file spec to allow specification of preferential color adjustment.	TBD	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-hue	M			(P)	ColorCorrection ColorCorrectionParams / @Hue (integer (-180:180)) (N) apply to all kinds of objects.				1.2	New IPP attribute: adjust-hue (integer(-180:180)) [JT, DT, PO] Increase or decrease hue by the specified number of degrees of the color circle after applying the Source Profile before output color rendering. Mostly useful for synthetic color or single color pages or graphics. What about applying only to graphics? proposed to be added to [color&img].
adjust-lightness	M H ?	EFI Image Quality – Brightness	6	(P-or-N?) We need to provide a way for the customer to specify a lightness adjustment through supplying an abstract profile.	ColorCorrection ColorCorrectionParams / @Lightness (integer (-100:100)) (N) ColorCorrection ColorCorrectionParams /FileSpec[@ResourceU sage="AbstractProfile"] (N)	TBD	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

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	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
					Add this new file spec to allow specification of preferential color adjustment.					
Abstract Profile for preference adjustment	M			Use abstract ICC profiles (P) We need to provide a way for the customer to specify an image specific or job specific preference adjustment through supplying an abstract profile ⁵	ColorCorrection ColorCorrectionParams / FileSpec [@ResourceUsage="AbstractProfile"] (N) Add this new file spec to allow specification of preferential color adjustment.					<p>Proposed new IPP attribute: adjust-profile (uri) [JT, DT, PO] Identifies the Abstract Profile (by URI) for preference adjustment that the Printer MUST fetch and apply after applying the Source Profile before output color rendering, i.e., PCS to PCS'. PDL Objects that are already encoded in final device code values (e.g., actual Device CMYK) MUST NOT be affected.</p> <p>Both the Abstract Profile and the adjustment knobs (integers) can be supplied and applied by the Printer.</p> <p>One important use of this attribute would be for viewing environment adaptations and white point adjustment.</p> <p>Propose to IPP WG for addition to IPP.</p>
adjust-saturation	M H			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 / @Saturation (integer(-100:100)) FileSpec[@ResourceUsage="AbstractProfile"] (N) Add this new file spec to allow specification of preferential color adjustment.	TBD				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-aliasing	M	EFL Image Quality — Sharpness (Anti-aliasing)	6	Unknown??(P)	Rendering RenderingParams/ ObjectResolution/ @AntiAliasing (N) new attribute with list of possible values "None" "SystemSpecified"	TBD	No (X)			anti-aliasing (type3 keyword) [JT, DT, PO] Indicates the anti-aliasing algorithm that the Printer object MUST apply to the rendered output images. Values are: none, standard (meaning system specified).—[color&img] §4.1
'none'	M				None					'none'
'standard'	M				SystemSpecified					'standard'

⁵ 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	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
Approvals for proof	H	EFI Approvals	2 1 1	ProofingIntent/ ApprovalParams/ ApprovalPerson/ Contact /@... (N) (S)	Approval ApprovalParams/ ApprovalPerson/ Contact/@... (S)		No (X)			No IPP attribute
attributes-charset	N			Get from the encoding= XML attribute declaration in the XML prolog	Get from the encoding= XML attribute declaration in the XML prolog	Get from the encoding= XML attribute declaration in the XML prolog	No	1.0 jt-charset	1.1	attribute-charset (charset) [JT, DD] This attribute identifies the charset (coded character set and encoding method) used by any 'text' and 'name' attributes (1) that the client is supplying in this request and (2) that the Printer SHOULD return in any response.
'utf-8'										'utf-8'
'us-ascii'										'us-ascii'
'iso-8859-1'										'iso-8859-1'
'iso-10646-ucs-2'										'iso-10646-ucs-2'
attributes-natural-language	N			NodeInfo/ @NaturalLang	NodeInfo/ @NaturalLang	IDPrintingParams/ @AttributesNaturalLang	No	x.x	1.1	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.
'en-us'										'en-us'
black-overprint	H	1.1 Black Overprint	6	(NP) Designer may specify "Rich Black" which is black-overprint on.	Rendering RenderingParams/ AutomatedOverprintParams/ @OverPrintBlackText @OverPrintBlackLineArt No mapping for IPP 'black-overprint-off' value.	RenderingParams/ AutomatedOverprintParams/ @OverPrintBlackText RenderingParams/ AutomatedOverprintParams/ @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. For the 'black-overprint-pdl' value the Printer MUST use the overprint specified in the PDL document content. Values: black-overprint-on, black-overprint-off, [color&img] §3.33
'black-overprint-off'	N				N/A					'black-overprint-off'
'black-overprint-on'	H				true					'black-overprint-on'
'black-overprint-pdl'	H				false					'black-overprint-pdl'
bleed-edge-printing	M			LayoutIntent/@Margins (N)	DigitalPrinting DigitalPrintingParams/					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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
				ISSUE: Add Margins rectangle attribute to LayoutIntent.	@Margins (N) ISSUE: Add Margins rectangle attribute to DigitalPrinting Params.					print beyond the edges of the normal printable area. Values are: none, all. [color&img] §4.2
color-depth-yyy	L			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	H			(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 ColorSpaceConversion Params/ FileSpec[FileSpecLink/ @ResourceUsage=“FinalTargetDevice” (N) Specify new values for @ResourceUsage = FinalTargetDeviceFront FinalTargetDeviceBack	ColorSpaceConversionParams/ FileSpec[FileSpecLink/ @ResourceUsage=“FinalTargetDevice”]				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
‘system-specified’										‘system-specified’
<i>any name</i>										<i>any name</i>
color-destination-profile-front	H			(P or N?) Customer needs to be able to specify	ColorCorrection ColorCorrectionParams /FileSpec [FileSpecLink/	ColorSpaceConversionParams/ FileSpec[FileSpecLink/				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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
					<p>@ResourceUsage="FinalTargetDevice" (N) Specify new values for @ResourceUsage = FinalTargetDeviceFront FinalTargetDeviceBack</p> <p>ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversion Params/ FileSpec [FileSpecLink/ @ResourceUsage="FinalTargetDevice" (N) Specify new values for @ResourceUsage = FinalTargetDeviceFront FinalTargetDeviceBack</p>	@ResourceUsage="FinalTargetDevice"]				front side of the output media. [color&img] §3.5.2
'system-specified' <i>any name</i>										'system-specified' <i>any name</i>
color-effects-type	H	1.1 Color Mode EFI Color – Color Mode	6	ColorIntent/ @ColorStandard (S)	DigitalPrinting, ColorSpaceConversion ColorantControl/ @ProcessColorModel (S)	ColorantControl/ @ProcessColorModel	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. [color&img] §3.6
'monochrome-grayscale'										'monochrome-grayscale'
'color'										'color'
color-emulation	H			ColorIntent/ @ColorStandard	<p>DigitalPrinting Ink/@Family</p> <p>ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversionParams/ FileSpec [FileSpecLink/ @ResourceUsage="EmulationProfile"] (N) Specify new values for</p>	<p>DigitalPrinting Ink/@Family</p> <p>ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversionParams/ FileSpec [FileSpecLink/ @ResourceUsage="EmulationProfile"]</p>				color-emulation (type3 keyword name (MAX)) [JT, DT, PO] Causes the Printer to emulate the output of a different color-printing device. [color&img] §3.7

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
					@ResourceUsage = "EmulationProfile" (N)	(N) Specify new values for @ResourceUsage = "EmulationProfile"				
'none'										'none'
'swop'										'swop'
'euroscale'										'euroscale'
'japan-color'										'japan-color'
'enhanced-swop'										'enhanced-swop'
'euroscale-matte'										'euroscale-matte'
'euroscale-uncoated'										'euroscale-uncoated'
compression Note: This is document compression.	H ⁶		3	RunList/ LayoutElement/ FileSpec/ @Compression (S)	LayoutPreparation RunList/ LayoutElement/ FileSpec/ @Compression (S)	RunList/ LayoutElement/ FileSpec/ @Compression	No (X) Document Compression	1.0 job- compression x.x document- compression	1.1	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
'none'										
'deflate'										
'gzip'										
'compress'										
copies (M)	H	1.1 Number of Copies: Quantity EFI Finishing - Copies	4	ComponentLink[@ProcessUsage="Good"] /@Amount (S)	DigitalPrinting ComponentLink [@ProcessUsage="Good"] /@Amount (S)	ComponentLink[@ProcessUsage="Good"] /@Amount	Number of Copies (X)	1.0 job-copies x.x document- copies	1.1	copies (integer(1:MAX)) [JT ⁷ , DT] The number of copies of the Output Document(s) to be printed. [RFC2911] §4.2.5
cover-back (M) note: cover could be printed or preprinted/blank	H	EFI Media - Back Cover	5	Printed cover: MediaIntent, LayoutIntent/ @Sides RunList/ InsertSheet/ @SheetType @SheetUsage @Pages (S)	Printed cover: DigitalPrinting DigitalPrintingParams/ Media LayoutPreparationParams/ @Sides RunList/ InsertSheet/	DPrintingParams/ Cover [@CoverType="Back"]	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	1.2	cover-back (collection) [JT ⁸ , DT] The back cover to apply to the Output Document. [prod-print] §3.1

⁶ At a minimum the "none" value for compression must be supported.

⁷ 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.

⁸ 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	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
				Preprinted/blank cover: RunList/ @Pages, InsertSheet/ @SheetUsage @SheetType, Media (S) ISSUE: Should there be a way to specify Covers as Product Description at a high level? (N)	@SheetType @SheetUsage @Pages (S) Preprinted/blank cover: LayoutPreparation RunList/ @Pages InsertSheet/ @SheetUsage @SheetType, Media (S)			see insert-sheet- pages see insert-sheet- position		
cover-type						IDPrintingParams/ Cover [@CoverType= "Back"]				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
'print-none'						[@Frontside=false @Backside=false]				'print-none'
'print-front'						[@Frontside=true @Backside=false]				'print-front'
'print-back'						[@Frontside=false @Backside=true]				'print-back'
'print-both'						[@Frontside=true @Backside=true]				'print-both'
media OR:						See IPP "media" attribute on page 34.				media (type3 keyword name(MAX)) The descriptive name or the name of the input tray containing the media to use for the back cover . See "media" on page 34. [prod-print] §3.1.1
media-col						See IPP "media-col" attribute on page 35.				media-col (collection) Characteristics of the media to use for the back cover. See "media-col" on page 35. [prod-print] §3.1.1
cover-front (M) note: cover could be printed or preprinted/blank	H	EFI Media – Front Cover	5	see cover-front	see cover-back	IDPrintingParams/ Cover [@CoverType="Front"]	see cover-back	1.0 see cover-back	1.2	cover-front (collection) [JT, DT] The front cover to apply to the Output Document. [prod-print] §3.1
cover-type						IDPrintingParams/ Cover [@CoverType= "Front"]				cover-type (type2 keyword) Indicates if covers are requested and which sides will contain print stream pages. prod-print] §3.1.2

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
'print-none'						[@Frontside=false @Backside=false]				'print-none'
'print-front'						[@Frontside=true @Backside=false]				'print-front'
'print-back'						[@Frontside=false @Backside=true]				'print-back'
'print-both'						[@Frontside=true @Backside=true]				'print-both'
media						See IPP "media" attribute on page 34.				Name of the media to use for the front cover. [prod-print] §3.1.1
media-col						See IPP "media-col" attribute on page 35.				Characteristics of the media to use for the front cover. [prod-print] §3.1.1
current-page-order (S)	N			N/A	N/A	No	No	x.x	1.2	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 (S)	N			N/A	AuditPool/ Audit/ ProcessRun/ @End	No	No	x.x	1.1	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 (S)	L			Unknown	AuditPool/ Created/ @TimeStamp	No	Job Creation Date/Time	x.x job-create- date-time	1.1	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)	N			N/A	AuditPool/ Audit/ ProcessRun/ @Start	No	No	x.x	1.1	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
detailed-status-message (S)	N					JMF/ Response/ Notification/ Comment or JMF/				detailed-status-message [JS, DS] Provides additional more detailed technical and implementation-specific information about the operation. The Printer NEED NOT provide localized

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
						Response/Notification/NotificationDetails/Comment				versions. [RFC2911] §3.1.6.3
document-format	H		3	RunList/ FileSpec/ @MimeType (S)	LayputPreparation RunList/ FileSpec/ @MimeType (S)	RunList/ LayoutElement/ FileSpec/ @MimeType	Document File Format (X)	1.0 job-document-format x.x document-format	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. [RFC2911] §3.2.1.1
'text/plain'										'text/plain'
'text/plain; charset=US-ASCII'										'text/plain; charset=US-ASCII'
'application/postscript'										'application/postscript'
'application/vnd.hp-PCL'										'application/vnd.hp-PCL'
'image/tiff'										'image/tiff'
'application/pdf'										'application/pdf'
'application/octet-stream'										'application/octet-stream'
document-name	L		10	Unknown	Unknown	RunList/ LayoutElement/ FileSpec/ @MimeType/ UserName	No (X)	x.x	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
document-natural-language	N		3	N/A	N/A	Yes	No (X)	1.0 job-document-natural-language x.x document-document-natural-language	1.1	document-natural language (naturalLanguage) [JD, DD] Identifies the Natural Language of this Document [RFC2911] §3.2.1.1
document-number (S)	L			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)	H	See specific attributes for category.		Partition using DocIndex to specify document overrides. (S) See individual	Partition using DocIndex to specify document overrides. (S) See individual	To specify IPP Page or Document overrides, a JDF file must use the partitioning mechanism	(X)	Never (use Document object)	No ??	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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
				feature/function that is valid at the document level	feature/function that is valid at the document level	described in the section Subset Resources.				
input-documents						Yes??	Yes??			input-documents (1setOf rangeOfInteger(MAX)) Specifies which range of Input Documents to apply document override processing. [override] §5.1.1
document-copies						No	No			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						Yes	Yes	document-format		document-format (mimeMediaType) Specifies the document format for the Input Document override processing. [override] §5.1.4
document-name						No	No			document-name (name (MAX)) Specifies the document name for the Input Document override processing.. [override] §5.1.5
compression						No	No			compression (type3 keyword) Specifies the compression for the Input Document override processing. [override] §5.1.6
document-natural-language						No	No			document-natural-language (naturalLanguage) Specifies the natural language for the Input Document override processing [override] §5.1.7
page-ranges						Yes	Yes	document-output-pages		page-ranges (1setOf rangeOfInteger (1:MAX)) Specifies the range of pages to be printed in the Document sets. [override] §5.1.8
<any other document (DT) attr.> OR:						Yes	Yes??	see corresponding document (DT) attribute		<any other document (DT) attr.>
output-documents						Yes??	Yes??			output-documents (1setOf rangeOfInteger(MAX)) Specifies which

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
										range of Output Documents to apply document override processing. [override] §5.1.2
document-copies						No	No			See “document-copies” member attribute above.
<any other document (DT) attr.>						Yes	Yes??			<u><any other document (DT) attr.></u>
document-state (S)	L			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
<u>'pending'</u>										<u>'pending'</u>
<u>'processing'</u>										<u>'processing'</u>
<u>'canceled'</u>										<u>'canceled'</u>
<u>'aborted'</u>										<u>'aborted'</u>
<u>'completed'</u>										<u>'completed'</u>

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
document-state-message (S)	L			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)	L			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	H	1.1 PPML file EFI Document List	3	RunList/ FileSpec/ @URL (S)	LayputPreparation RunList/ LayoutElementFileSpec / @URL (S)	RunList/ LayoutElement/ FileSpec/ @URL	Document File Name (X)	1.0 document- uri	1.1	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
<u>edge to edge printing</u>	<u>H</u>			<u>LayoutIntent/@Margins (N)</u> <u>ISSUE: Add Margins rectangle attribute to LayoutIntent.</u>	<u>DigitalPrinting DigitalPrintingParams/ @Margins (N)</u> <u>ISSUE: Add Margins rectangle attribute to DigitalPrinting Params.</u>					<u>ISSUE: Change IPP name from bleed-edge-printing to:</u> <u>edge-to-edge-printing (type2 keyword)</u> <u>[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. [color&img] §4.2</u>
<u>'none'</u>	<u>H</u>									<u>'none'</u>
<u>'all'</u>	<u>H</u>									<u>'all'</u>
feed-orientation	H		9	N/A	MediaLink/ @Orientation	MediaLink/@Orient ation	No (X)	x.x		feed-orientation (type3 keyword) [JT, DT] Specifies the media edge which is fed into the print engine from the paper

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
										tray. (Keywords: long-edge-first, short-edge-first) [prod-print2] §5.1
'long-edge-first'										'long-edge-first'
'short-edge-first'										'short-edge-first'
finishings (M)	H	1.1 Stapling EFI Stapler Mode	8	BindingIntent/ @BindingType, /SaddleStitching, /SideStitching, /CornerStitching @NumberOfStitches @ReferenceEdge (N) (S) ISSUE: Propose to rename StitchNumber to NumberOfStitches. ISSUE: Add a BindingType=Stitch (N)	Stitching StitchingParams/ @StitchType @ReferenceEdge @NumberOfStitches (S)	Yes	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	finishings (1setOf type2 enum) [JT ⁹ , DT, PO] Identifies the finishings that the Printer uses for each copy of the Output Document. The coordinate system (left, top, right, bottom) is relative to the edges as if the document were portrait, so left is the y-axis and bottom is the x-axis. [RFC2911] §4.2.6, [finish ing] §2, [finish ing 2] §3.
'none'										'none'
'bale'	N			N/A	N/A	Yes	No	Never	1.1	'bale'
bale - Turn off										'none', else 'xxx' = 'bale-yyy'
'bind'	H		8	BindingIntent/ @BindingType=SystemSpecified (N) (S)	Binding (N) BindingParams/ @BindingType=SystemSpecified (N) (S)	Yes	Binding (X)	1.0 job-binding	1.1	'bind'
binding - Turn off	L		8	N/A	Binding (N) BindingParams/ @NoOp (N)		Binding (X)	1.0 job-binding x.x document- binding x.x po-binding 1.0 binding- type=NONE		'none', else 'xxx' = 'bind-yyy'
'bind-left', 'bind-right', 'bind-bottom', 'bind-top'	H	EFI Binding	8	BindingIntent/ @BindingType (S) ISSUE: Add a BindingType=System (enumeration)	Binding (N) BindingParams/ @BindingType @BindingSide (N) (S) (enumeration)	Yes	Binding (X)	1.0 job-binding x.x document- binding x.x po-binding 1.0 binding-	No	'bind-left', 'bind-right', 'bind-bottom', 'bind-top'

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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
				Specified. (N)	Left, Right, Bottom, Top			side x.x binding-type		
'booklet-maker'	M	1.1 Bookletmaking	7 8	Same as above	Same as Product Intent	Yes	NumberUp (X) Stapling & Stitching (X) Folding (X)	1.0 see xxx-number-up 1.0 see xxx-stitching 1.0 see xxx-folding	No	'booklet-maker', 'booklet-fold-staple' ¹⁰
cover Note: Use cover-front and cover-back	N		5	see cover-back & cover-front	see cover-back & cover-front	Yes	Covers (X)	1.0 see cover-front & cover-back	1.1	See "cover-front" and "cover-back"
fold catalogfold	H ¹¹	1.1 Folding EFI Finishing - Folding	8	FoldingIntent/ @FoldingCatalog (S) ISSUE: What FoldingCatalog values should be supported?	Folding FoldingParams/ @FoldCatalog @DescriptionType (S)	Yes	Folding (X)	1.0 job-folding x.x document-folding x.x po-folding 1.0 folding-type	1.1	'fold-xxx' value of "finishings" attribute
SystemSpecified										'fold'
										'fold-c-short-in-thirds-sheet'
										'fold-z-short-in-thirds-sheet',
										'fold-z-short-sheet'
										'booklet-fold'
folding - Turn off	H	1.1 Folding	8	N/A	Folding FoldingParams/ @NoOp		Folding (X)	1.0 job-folding x.x document-folding x.x po-folding 1.0 folding-type=NONE		'none', else 'xxx' = 'fold-yyy'
Folding - complex (no IPP attribute exists)	L		8	Unknown	Folding FoldingParams [@DescriptionType="FoldProc"];/ 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 1.0 folding-fold-type		No IPP attribute. See "finishings" = fold-xxx

¹⁰ The "finishings" = 'booklet-fold-staple' is the same as 'booklet-maker', but without trimming.

¹¹ Only support specific folding catalogs (e.g z-fold, saddle-fold, etc.)

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
Hole Pattern Catalog				HoleMakingIntent/ @HoleType <u>(S)</u>	HoleMaking HoleMakingParams/ @HoleType <u>(S)</u>					'punch-xxx' value of "finishings" attribute which can be pre-punched or punched by the Printer depending on implementation.
system specified	H	1.1 HoleMaking		without any attributes ISSUE: HoleType needs to be changed to optional (add ?) or add SystemSpecified as a value.	without any attributes ISSUE: HoleType needs to be changed to optional (add ?) or add SystemSpecified as a value.	Yes	Punching & Hole Making (X)	1.0 job-hole-making x.x document-hole-making x.x po-hole-making	1.1	'punch'
two holes	H			R2-generic	R2-generic				1.1	'punch-2-hole'
three holes	H			R3-generic	R3-generic				1.1	'punch-3-hole'
four holes	H			R4-generic	R4-generic				1.1	'punch-4-hole'
hole making - Turn off	H	1.1 HoleMaking	8	N/A	HoleMaking 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=0		'none', else 'xxx' = 'punch-yyy'
Hole making that allows specification of number of holes and reference edge	H	1.1 HoleMaking	8	HoleMakingIntent/ @HoleType @HoleReferenceEdge (S)	HoleMaking HoleMakingParams/ @HoleType @HoleReferenceEdge (S)		Punching & Hole Making (X)	1.0 job-hole-making x.x document-hole-making x.x po-hole-making 1.0 hole-making-count 1.0 hole-making-reference-edge		No IPP attribute
'jog-offset'	H	1.1 Jogging	8	N/A	DigitalPrinting DigitalPrintingParams/ Disjointing/ @OffsetDirection	Yes	Jog Offset (X)	1.0 job-jog-offset x.x document-job-offset	No	'jog-offset'
jog offset - Turn off	H	1.1 Jogging	8	N/A	DigitalPrinting		Jog Offset	1.0 job-jog-		'none', else 'xxx' = 'jog offset'

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
					Component/ Disjointing/ @OffsetDirection DigitalPrintingParams/ Disjointing/ @OffsetDirection		(X)	offset=NONE x.x document- jog-offset		
'edge-stitch'										'edge-stitch'
'edge-stitch-bottom'										'edge-stitch-bottom'
'edge-stitch-left'										'edge-stitch-left'
'edge-stitch-right'										'edge-stitch-right'
'edge-stitch-top'										'edge-stitch-top'
'saddle-stitch'										'saddle-stitch'
'staple-bottom-left'										'staple-bottom-left'
'staple-bottom-right'										'staple-bottom-right'
'staple-dual-bottom'										'staple-dual-bottom'
'staple-dual-left'										'staple-dual-left'
'staple-dual-right'										'staple-dual-right'
'staple-dual-top'										'staple-dual-top'
'staple-top-left'										'staple-top-left'
'staple-top-right'										'staple-top-right'
'trim'	H	1.1 Trimming	8	N/A	Trimming TrimmingParams/ @TrimmingType=SystemSpecified	Yes	Trimming (X)	1.0 job- trimming x.x document- trimming	1.1	'trim'
trimming - Turn off	H	1.1 Trimming	8	N/A	Trimming TrimmingParams/ @NoOp		Trimming (X)	1.0 job- trimming =false x.x document- trimming= false		'none', else 'xxx' = 'trim'
finishings-col (M)	L		8	Unknown		Yes			1.2	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			8		No	No	No			finishing-template (name(MAX)) A string specifying some particular finishing operation for the Output Document. [prod-print] §3.2.1
stitching			8					1.0 job-stitching		stitching (collection) Provides detailed stitching parameters. [prod-print] §3.2.2
stitching-reference-edge			8		Stitching StitchingParams/ @ReferenceEdge		Yes Stitching (X)	1.0 stitching- reference-edge		stitching-reference-edge (type2 keyword) Specifies the stitching reference edge of the output media. [prod-print] §3.2.2.1

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
'bottom'					<i>Bottom</i>					'bottom'
'top'					<i>Top</i>					'top'
'left'					<i>Left</i>					'left'
'right'					<i>Right</i>					'right'
stitching-offset			8				No (X)	x.x stitching-offset		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			8				No (X)	x.x stitching-positions		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
Stitching - complex	L		8	Unknown	Stitching StitchingParams/ @Angle @StitchPositions		Stapling & Stitching (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".
font-name-requested	N		3 6	N/A	N/A Interpreting, 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	N		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.	H	EFI Media – Chapter Starts	7	RunList/ @Pages InsertSheet/ @SheetType @SheetUsage (S)	LayoutPreparation RunList/ @Pages InsertSheet/ @SheetType @SheetUsage (S)	Yes	Start First Page (X)	1.0 job-force- pages x.x document- force -pages	1.2	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}	H	1.1 Screen EFI Image Quality – Screening	6	(P or N?) We need to provide a means for the customer to specify the halftone	Screening ScreeningParams/ ScreenSelector/ @ScreeningFamily		Screening (X) Family			halftone-{graphics images text} (type2 keyword name(MAX)) [JT, DT, PO] Specify the halftone screens to be used by the Printer to render graphics,

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	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
				"look" – often the halftone used is a visible attribute of the finished piece.	@SourceObjects Rendering RenderinParams/ ObjectResolution/ @ResolutionRendering RenderingParams/ ObjectResolution/ @Resolution Proofing, SoftProofing ProofingParams/ @Resolution PreviewGeneration PreviewGenerationPara ms/ @Resolution, Preflight PSToPDFConversionP arams/ @InitialResolution					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	H			ColorIntent/ ColorUsed/ @SeparationSpec	DigitalPrinting Ink/ @Family @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	L			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
highlight-map	M			N/A	ColorSpaceConversion ColorSpaceConversion Params/ ColorSpaceConversion Op/					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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
					@HighlightMap New attribute providing a selection of highlight mapping algorithms.					space. [color&img] §3.10
'pictorial'										'pictorial'
'presentation'										'presentation'
'object-based'										'object-based'
'color-to-highlight'										'color-to-highlight'
'exact-color'										'exact-color'
'color-tables'										'color-tables'
highlight-map-color	M			(P or N ?) We need to allow the customer to select which color is to be mapped to the highlight colorant.	ColorSpaceConversion ColorSpaceConversion Params/ ColorSpaceConversion Op/ @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. Values: see "colorant-value" [color&img] §3.11
imposition-template	L		7	LayoutIntent/Layout/ @Name	DigitalPrinting, Imposition Layout/ @Name	Yes	No ? (X)	Never	1.2	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)	N			N/A	N/A	No	No	Never	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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
insert-sheet	H	EFI Media – Inserts	58		LayoutPreparation Note: It has been proposed for JDF 1.2 to move InsertSheet out of RunList.	Yes	Insert Sheet (X)	1.0 job-insert-sheets x.x document insert-sheets	1.2	insert-sheet (1setOf collection) [JT ¹³ , DT, PO] Specifies how Insert Sheets are to be inserted into the sequence of media sheets that are produced for each copy of the documents. [prod-print] §3.5
insert-after-page-number (Mn)	H			RunList/ @Pages InsertSheet/ @SheetType @SheetUsage (S)	RunList/ @Pages InsertSheet/ @SheetType @SheetUsage (S)			1.0 insert-sheet-pages 1.0 insert-sheet-position		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	L			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 OR:	H			N/A	RunList/ InsertSheet/ Media/ Location/ @LocationName	See IPP “media” attribute on page 34.		1.0 insert-sheet-media		media (type3 keyword name(MAX)) The <u>descriptive name or the name of the input tray containing the characteristics of the media to use for the insert sheet.</u> See “media” on page 34. [prod-print] §3.5.3
media-col	H			RunList/ InsertSheet/ Media (S)	RunList/ InsertSheet/ Media (S)	See IPP “media-col” attribute on page 35.		1.0 insert-sheet-media		media-col (collection) Characteristics of the media to use for the insert sheet. See “media-col” on page 35. [prod-print] §3.5.3
ipp-attribute-fidelity note: Use with “job-mandatory-attributes” attribute	H ¹⁴		10	@SettingsPolicy	@SettingsPolicy	IDPrintingParams/ @IDPAttributeFidelity	No (X)	see jt-mandatory-attributes	1.1	ipp-attribute-fidelity (boolean) [JD] Allows a user to control whether or not the Printer MUST honor <i>all</i> 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	L		10	Unknown	Unknown	No	No (X)	x.x jt-author-name	No	No IPP attribute
job-account-id	H	EFI General/	1	CustomerInfo/	CustomerInfo/	Yes	Billing Code	1.0 job-billing-	1.2	job-account-id (name(MAX)) [JT ¹⁵]

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.

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)

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
		Account Info - Account/Project Information EFI Billing Info		@BillingCode (S)	@BillingCode (S)		(X)	code		Account associated with the job. [prod-print] §3.6 Note: Not sure if this is the same as BillingCode
job-accounting-sheets	L		158				No (X)	x.x	1.2	job-accounting-sheets (collection) [JT] Specifies the accounting sheet for this Job. [prod-print] §3.8
job-accounting-sheets-type	L			LayoutIntent/ Layout/ InsertSheet [@SheetType="AccountingSheet"] [@SheetUsage="Trailer"]	LayoutPreparation LayoutPreparationParams/ InsertSheet [@SheetType="AccountingSheet"] [@SheetUsage="Trailer"]	Yes				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 OR:	L					See IPP "media" attribute on page 34.				media (type3 keyword name(MAX)) The descriptive name or the name of the input tray containing the media to use for the job accounting sheet. See "media" on page 34. [prod-print] §3.5.3
media-col	L					See IPP "media-col" attribute on page 35.				media-col (collection) Characteristics of the media to use for the cover. See "media-col" on page 35. [prod-print] §3.5.3
job-accounting-output-bin	L					No				job-accounting-output-bin (type3 keyword name(MAX)) Specifies the output bin where the accounting sheet is to be placed. Values: See "output-bin" attribute. [prod-print] §3.8.3
job-accounting-user-id	L		1	CustomerInfo/ @CustomerID	CustomerInfo/ @CustomerID	Yes	No (X)	x.x	1.2	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.	L		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). ISSUE: Add "job-client-id" (name(MAX)) [JD] to IPP?
job-collation-type (S) ¹⁷	N			N/A	N/A	No	No	Never	No	job-collation-type (type2 enum) [JS, -]

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

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	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
										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	H		10	Comment/[@Name="JobDescription"] (N) (S)	Comment/[@Name="JobDescription"] (N) (S)		Comment/Description of Job (X)	1.0 job-comment		No IPP attribute. Propose "job-comment" text(MAX) Operation and Job Description attribute to add to IPP.
job-detailed-status-messages (S)	N			N/A	N/A	No	No	Never	1.1	[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 (S)	N			N/A	N/A	No	No	Never	1.1	[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	L		158			Yes	No (X)	x.x	1.2	job-error-sheet (collection) [JT] Specifies the error sheet for a job. [prod-print] §3.9
job-error-sheet-type	L			LayoutIntent/ Layout/ InsertSheet [:@SheetType="ErrorSheet"] [:@SheetUsage="Trailer"]	LayoutPreparation LayoutPreparationParams/ InsertSheet [:@SheetType="ErrorSheet"] [:@SheetUsage="Trailer"]					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	L									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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
media <u>OR:</u>	L					See IPP "media" attribute on page 34.				media (type3 keyword name(MAX)) The <u>descriptive</u> name or <u>the name of the input tray containing</u> the media to use for the error sheet. <u>See "media" on page 34.</u> [prod-print] §3.5.3
media-col	L					See IPP "media-col" attribute on page 35.				media-col (collection) Characteristics of the media to use for the cover. <u>See "media-col" on page 35.</u> [prod-print] §3.5.3
job-hold-until	H		10	N/A		Yes		1.0 job-hold	1.1	job-hold-until (type3 keyword name(MAX)) [JT] Specifies the named time period during which the Job must become a candidate for printing. [RFC2911] §4.2.2
<u>indefinite - Turn off</u>	<u>H</u>									'no-hold'
'indefinite'	<u>H</u>				JDF/[@Activation="Hold"]		HoldJob for indefinite (X)			'indefinite'
	<u>L</u>						No, otherwise (X)			Values: day-time, evening, night, weekend, second-shift, third-shift
job-hold-until-time	L		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)	L			Unknown	Unknown	No<any JDF node>/ JobID/ Job Phase/ QueueEntryID		x.x job-id	1.1	job-id (integer(1:MAX)) [JS, - ¹⁸] The Printer generates and sets this attribute to the ID of this Job, which is unique for this Printer. [RFC2911] §4.3.2
job-impressions	L		310	Unknown	Unknown	No TBD	No ? (X)	Never	1.1	[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)	N			N/A	N/A	No	No	Never	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	N			N/A	N/A	No TBD	No	Never	1.1	[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)	N			N/A	N/A	No	No	Never	1.1	[job-]k-octets-processed

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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
										(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-mandatory-attributes	H		10	@SettingsPolicy	@SettingsPolicy Note: To conform to JDF spec, must support ettingsPolicy down to Resource level.	No	No (X)	1.0 jt-mandatory-attributes ¹⁹	No	job-mandatory-attributes (1setOf type2 keyword) [JD] Allows a user to list which Job Template and Document Template attributes the Printer MUST honor. The Printer MUST reject the job submission if <i>any</i> of the listed attributes contain values that the Printer does not support. All of the remaining supplied attributes are best effort. This attribute is ignored if "attribute-fidelity" is supplied with a 'true' value. (See [RFC2911] §15.1) (Keywords: none and any Job and Document Template attribute names. Member attributes of collection attributes are named as <i>attr-name.member-name</i> . For example, 'job-sheets-col.media') NOTE: New attribute to align fidelity with FSG and PSI work. [doc-obj] §6.2.2
job-media-sheets	L		310	Yes? LayoutIntent/ @Pages	Unknown	No TBD	No ? (X)	x.x	1.1	[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-media-sheets-completed (S)	N			N/A	N/A	No	No	x.x	1.1	[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-message-from-operator (S)	N			N/A	N/A	No	No	Never	1.1	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	H	EFI General/ Account Info – Instructions	10	N/A	JDF/ Comment/ [@Name="MessageTo	Yes	No (X)	1.0 job-message-to-operator	1.2	job-message-to-operator (text(MAX)) [JT ²⁰] Message from the end user to indicate something about the processing

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

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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
					Operator"] (N)					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)	N			N/A	N/A	No	No	Never	1.1	[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/embeddedjobpage") [RFC2911] §4.3.4
job-name	H		10	CustomerInfo/@CustomerJobName (S) (a common element for any node)	CustomerInfo/@CustomerJobName (S) (a common element for any node)	CustomerInfo/@CustomerJobName (a common element for any node)	Job Name (X)	1.0 job-name	1.1	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)	N			N/A	N/A	No	No	Never	1.1	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	L		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	L		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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
job-phone-number	H		1	CustomerInfo/ Contact (S)	CustomerInfo/ Contact (S)	<u>CustomerInfo/ Contact</u>	No (X)	x.x		job-phone-number (text(127)) [JT ²¹] Contains the contact telephone number for the job. [prod-print2] §5.5
job-printer-make-and-model (S) note: Works with job-save-disposition	N			N/A	N/A	No	No	x.x	1.2 ?	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-uptime (S)	N			N/A	N/A	No	No	Never	1.1 ?	[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-printer-uri (S)	N			N/A	N/A	No	No	x.x	1.1	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	M		1 0	NodeInfo/ @JobPriority	NodeInfo/ @JobPriority	Yes	Job Priority (X)	1.0 job-priority	1.1	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	L		1 0	Unknown	Unknown	Yes	No (X)	x.x	??	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	L		1 0	Unknown	DigitalPrinting DigitalPrintingParams/ @osdp:DeliveryMethod ISSUE: Needs to be find a JDF/1.1a mapping or JDF/1.2 extension		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-type										save-disposition (type3 keyword) Specifies whether the Printer MUST print and/or save the job. [prod-print2] §5.7.1.1

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].

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
'none'										'none'
'save-only'										'save-only'
'print-save'										'print-save'
save-info										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										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										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										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	H		10	N/A	LayoutPreparation LayoutPrepatationParams/ InsertSheet/ Sheet/ Surface/ MarkObject/ JobField/ [@ShowList="UserText"]	Yes	No (X)	1.0 job-separator-sheets 1.0 separator-sheet-message	1.2	job-sheet-message (text(MAX)) [JT] Conveys a message that the Printer prints on the job sheet. [prod-print] §3.12

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
job-sheets note: Use job-sheets-col	N		8	see job-sheet-col	@UserText see job-sheet-col	Yes	Start, Separator/Slip, End Sheets (X)	Never	1.1	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, [PWC5100.3prod-print] §6.2
job-sheets-col	H		58			Yes	Yes	1.0 job-separator-sheets	1.2	job-sheets-col (collection) [JT] Allows the client to specify the media for the JobSheet. [prod-print] §3.11
job-sheets	H			LayoutIntent/ InsertSheet/ @SheetType @SheetUsage (S) ISSUE: Should there be a way to specify a banner sheet as a high level Product Description?	LayoutPreparation LayoutPreparationParams/ InsertSheet/ @SheetType @SheetUsage (S) ISSUE: Should be a way to specify that isWaste is false for job-sheet and separator_sheet.		Start, Separator/Slip, End Sheets (X)	1.0 separator-sheet-type		job-sheets (type3 keyword name(MAX)) Specifies which job start/end sheet(s), will be printed with a job. [prod-print] §3.11.1
none	H			??	??					'none'
standard	H			<i>JobSheet</i>	<i>JobSheet</i>					'standard'
media <u>OR:</u>	H			N/A	InsertSheet/ Media/ Location/ @LocationName	See IPP "media" attribute on page 34.		1.0 separator-sheet-media		media (type3 keyword name(MAX)) The <u>descriptive name</u> or <u>the name of the input tray containing</u> the media to use for the job sheet. <u>See "media" on page 34.</u> [prod-print] §3.5.3
media-col	H			InsertSheet/ MediaIntent (S)	InsertSheet/ Media (S)	See IPP "media-col" attribute on page 35.		1.0 separator-sheet-media		media-col (collection) Characteristics of the media to use for the job sheet. <u>See "media-col" on page 35.</u> [prod-print] §3.5.3
job-state (S)	L			N/A	AuditPool/ Audit/ ProcessRun/ @EndStatus	No	No	x.x	1.1	job-state (type1 enum) [JS, - ²³] The current state of this Job. See also JobStateReasons attribute below. (Keywords: pending, pending-held, processing, processing-stopped, canceled, aborted, completed) [RFC2911] §4.3.7
<u>'pending-held'</u>										<u>'pending-held'</u>
<u>'pending'</u>										<u>'pending'</u>
<u>'processing'</u>										<u>'processing'</u>
<u>'processing-stopped'</u>										<u>'processing-stopped'</u>

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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
'canceled'										'canceled'
'aborted'										'aborted'
'completed'										'completed'
job-state-message (S)	N			N/A	AuditPool/ Audit/ ProcessRun/ Comment [@Attribute="EndStatus"]	No	No	x.x	1.1	[job]-state-message (text(MAX)) [JS, ²⁴] Specifies information about the "job-state" and "job-state-reasons" attributes in human readable text localized by the Printer according to the natural language supplied in the client's query request. (example: "Job completed successfully with warnings" for an English request) [RFC2911] §4.3.9
job-state-reasons (S) work this in 2003 to incorporate image state and color workflow primitives	L			N/A	Unknown?? JDF ISSUE: Need software interpretable codes for common processing and completion reasons.	No	No	x.x	1.1	job-state-reasons (1setOf type2 keyword) [JS, ²⁵] Provides additional information about this Job's current state. (Keywords: none, aborted-by-system, canceled-at-device, canceled-by-operator, canceled-by-user, completed-successfully, completed-with-errors, completed-with-warnings, compression-error, document-access-error, document-format-error, incoming, interpreting, job-data-insufficient, job-hold-until-specified, job-password-wait, job-restartable, job-resuming, job-saved-successfully, job-save-error, job-saving, job-scheduling, job-suspended, job-suspended-by-operator, job-suspended-by-system, job-suspended-by-user, job-suspending, outgoing, printer-stopped, printer-stopped-partly, printing, processing-to-stop-point, proof-print-wait, queued, queued-for-marker, queued-in-device, resources-are-not-ready, resources-are-not-supported, service-off-line, spooling, streaming, submission-interrupted, 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

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

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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
job-uri (S)	N			N/A	N/A	<any JDF note>/@JobID	No	x.x	1.1	job-uri (uri) [JS, ²⁶] The Printer generates and sets this attribute to a globally unique URI for this Job. (Example: ipp://www.company.com/printer/jobs/22). [RFC2911] §4.3.1
job-warnings-count (S)	N			N/A	N/A	No	No	Never	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	L		1 0	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 Note: Use input-tray values only. <u>OR:</u>	H		5			IDPrintingParams/ MediaIntent [@HoleCount=0]/ Comment [@Name="media-key"] OR Media [@HoleCount=0; @Dimension= <i>dim</i> ; @MediaType= <i>medt</i> <i>yp</i>]/ Comment [@Name="media-key"] OR IDPrintingParams/ MediaSource/ Media [@HoleCount=0 @Dimension= <i>dim</i> @MediaType= <i>medt</i> <i>yp</i>]/ Comment [@Name="media-key"]			1.1	media (type3 keyword name(MAX)) [JT, DT, PO] The <u>descriptive</u> name of the medium <u>or the name of the input tray that contains the media</u> that the Printer uses for impressions of the Job, that is, the media that the Printer prints on. These values do <i>not</i> represent the media after folding or slitting. [RFC2911] §4.2.11
<u>Input tray name</u>	<u>H</u>	1.1 Media Source		N/A	DigitalPrinting	No	Input Tray	1.0 media-		<u>Input tray names:</u>

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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
		EFI Media Source Input Tray		Note: Can't specify input tray name as a Product Description.	DigitalPrintingParams/ Media/ Location/ @LocationName		Name (X)	input-tray-name ²⁷		[RFC2911]: 'top', 'middle', 'bottom', 'envelope', 'manual', 'large-capacity', 'main', 'side' [prod-print]: 'bypass-tray', 'tray-1', 'tray-2', ...
Descriptive Name	L									Descriptive media names: Examples: [RFC2911]: 'na-letter-white', 'na-letter', 'letter', 'na-letter-transparent', 'iso-a4-white', 'iso-a4', 'iso-a4-transparent' [prod-print]: 'plain', 'pre-punched', 'transparency', 'letterhead', 'heavyweight', 'recycled', 'bond', 'labels', 'pre-printed', 'custom/N' [pwg5101.1]: na_letter 8.5x11in, iso_a4 210x297mm, na_monarch 3.875x7.5in Installation defined names
media-col	H	1.1 Media Selection	5	MediaIntent	DigitalPrinting Media	IDPrintingParams/ MediaIntent OR Media OR IDPrintingParams/ MediaSource/ Media	Media (X)	1.0 job-media x.x document-media x.x po-media	1.2	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	M		5	MediaIntent/ @BackCoatings (S)	Media/ @BackCoatings (S)	Yes	Yes (X)	1.0 media-back-coating	1.2	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-brightness	H		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

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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
										states percent reflectance.
media-color	H		5	MediaIntent/ @MediaColor (S)	Media/ @MediaColorName (S)	Yes	Yes (X)	1.0 media-color	1.2	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	M		5	MediaIntent/ @FrontCoatings (S)	Media/ @FrontCoratings (S)	Yes	Yes (X)	1.0 media-front-coating	1.2	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	M		5	(P or N?) For bound materials a designer needs to specify the grain direction (usually parallel to the binding).	Media/ @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-hole-count	H		5	MediaIntent/ @HoleType (S)	Media/ @HoleType (S)	Yes	Yes (X)	1.0 media-hole-count	1.2	media-hole-count (integer(0:MAX)) Indicates the number of pre-drilled holes in the desired media. [prod-print] §3.13.6
media-info	H	EFI MediaName	5	Comment/ @Name="Description" (S)	Media/Comment/ @Name="Description" (S)	Yes	No (X)	x.x media-description	1.2	media-info (text(255)) Specifies information that helps describe the media instance. Intended for human consumption. [prod-print] §3.13.3
media-key	H		5	MediaIntent/ @DescriptiveName (S)	Media/ @DescriptiveName (S) Note: CIP4 is considering adding Media Catalog.	Yes	Yes (X)	1.0 media-name	1.2	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	L		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-order-count	H	EFI Media – Tabs	5	MediaIntent/ @MediaSetCount (S)	Media/ @SetCount (S)	Yes	Yes (X)	1.0 media-set-count	1.2	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-pre-printed	H		5	MediaIntent/	Media/	Yes	Yes (X)	x.x	1.2	media-preprinted (type3 keyword

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
				@Preprinted (S)	@Preprinted (S)					name(MAX)) Indicates the pre-printed characteristics of the desired media. (Keywords: blank, pre-printed, letter-head) [prod-print] §3.13.5
media-recycled	M		5	MediaIntent/ @Recycled	Media/ @Recycled	Yes	Yes (X)	1.0 media-recycled	1.2	media-recycled (type3 keyword name(MAX)) Indicates the recycled characteristics of the media. (Keywords: none, standard) [prod-print] §3.13.11
media-size	H	EFI Media Dimensions EFI Media Landscape	5	MediaIntent/ @Dimensions (S) Note: LayoutIntent/ @Dimensions @FinishedDimensions (z-axis must always be set to 0). Note: @Dimensions is needed for spreads.	Media/ @Dimensions (S)	Yes	Yes (X)	see below	1.2	media-size (collection) Explicitly specifies the numerical media width and height dimensions <u>that the Printer prints on before folding, slitting, and trimming.</u> [prod-print] §3.13.8
x-dimension	H		5	see media-size above	see media-size above	Yes	Yes (X)	1.0 media-x-dimension	1.2	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
y-dimension	H		5	see media-size above	see media-size above	Yes	Yes (X)	1.0 media-y-dimension	1.2	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-thickness	M		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-tooth	M		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-type	H		5	MediaIntent/ @UserMediaType @MediaType (S)	Media/ @MediaTypeDetails/ @MediaType (S)	Yes	Yes (X)	1.0 media-type	1.2	media-type (type3 keyword name(MAX)) The medium type that the Printer uses for all impressions of the Job.

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
				ISSUE: Reconsider renaming User MediaType to MediaTypeDetails. ISSUE: Consider adding more of the values of Media/@MediaTypeDetails to UserMediaType.						[prod-print] §3.13.2, [pwg5101.1] §3
'stationery'										'stationery'
'stationery-coated'										'stationery-coated'
'stationery-inkjet'										'stationery-inkjet'
'stationery-preprinted'										'stationery-preprinted'
'stationery-letterhead'										'stationery-letterhead'
'stationery-prepunched'										'stationery-prepunched'
'stationery-fine'										'stationery-fine'
'stationery-heavyweight'										'stationery-heavyweight'
'stationery-lightweight'										'stationery-lightweight'
'transparency'										'transparency'
'envelope'										'envelope'
'envelope-plain'										'envelope-plain'
'envelope-window'										'envelope-window'
'continuous'										'continuous'
'continuous-long'										'continuous-long'
'continuous-short'										'continuous-short'
'tab-stock'										'tab-stock'
'pre-cut-tabs'										'pre-cut-tabs'
'full-cut-tabs'										'full-cut-tabs'
'multi-part-forms'										'multi-part-forms'
'labels'										'labels'
'multi-layer'										'multi-layer'
'screen'										'screen'
'screen-paged'										'screen-paged'
'photographic'										'photographic'
'photographic-glossy'										'photographic-glossy'
'photographic-high-gloss'										'photographic-high-gloss'
'photographic-semi-gloss'										'photographic-semi-gloss'

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
'photographic-satin'										'photographic-satin'
'photographic-matte'										'photographic-matte'
'photographic-film'										'photographic-film'
'back-print-film'										'back-print-film'
'cardstock'										'cardstock'
'roll'										'roll'
media-weight-metric	H		5	MediaIntent/ @Weight (S)	Media/ @Weight (S)	Yes	Yes (X)	1.0 media-weight	1.2	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	M			Unknown	Unknown	No	No (X)	1.0 media-input-tray-name ²⁸	1.2	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. [prod-print] §3.14
'none'										'none'
<i>any "media" Input Tray Name - see above</i>										<i>any "media" Input Tray Name - see above</i>
multiple-document-handling	H	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	Yes (is covered by the individual attributes) (X)	see document individual attributes	1.1	multiple-document-handling (type2 keyword) [JT] Controls whether Input Document in multi-document jobs are combined into a single Output Document or are kept as separate Output Document. Useful in combination with "cover-back", "cover-front", "finishings", "finishings-col", and "copies" Job Template attributes and for controlling the placement of one or more print-stream pages into impressions and onto media sheets for multi-document Jobs ²⁹ . (Keywords: single-document, separate-document-uncollated-copies, separate-document-collated-copies, single-document-new-sheet) [RFC2911] §4.2.4
notify-xxx attributes:	L		2	Unknown			Notification (X)	1.0 job-notifications	1.2	notify-xxx [JD] Specifies one or more complete Event Notification Subscriptions. Each Subscription includes the Events of

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

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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
								This needs more work. Tom will provide descriptions for each notify-xxx attribute. Which attributes are required by IPP? See IANA uri schemes.		interest, the Delivery Method, the Notification Recipient, any additional attributes and/or user data to be delivery with the Event Notification.
notify-recipient-uri					NodeInfo/NotificationFilter/ @osdp:Locator @osdp:ChannelType	No	Yes	1.0 notification-send-to		notify-recipient-uri
notify-pull-method					@Types		No	1.0 notification-delivery-type		notify-pull-method
notify-events							Yes	1.0 notification-events		notify-events
notify-attributes							No			notify-attributes
notify-user-data					Comment/ @Name=Description		Yes?	1.0 notification-comment		notify-user-data
notify-charset							No	1.0 notification-language		notify-charset
notify-natural-language					Comment/ @Language		Yes			notify-natural-language
notify-time-interval							No			notify-time-interval
notify-lease-duration							No			notify-lease-duration
notify-subscription-id (S)							No			notify-subscription-id (S)
notify-sequence-number (S)							No			notify-sequence-number (S)
notify-lease-expiration-time (S)							No			notify-lease-expiration-time (S)
notify-printer-up-time (S)							No			
notify-printer-uri (S)							No			
notify-job-id (S)							No			
notify-subscriber-name (S)							No			
number-of-documents (S)	N			N/A	N/A	No	No	x.x	1.1	number-of-documents (integer(0:MAX)) [JS, -] The number of Documents in this Job. [RFC2911] §4.3.12
number-of-intervening-jobs	N			N/A	N/A	No	No	x.x	1.1	number-of-intervening-jobs

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
(S)										(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	H	1.1 Bookletmaking	7	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).	LayoutPreparation LayoutPreparationParams/ @NumberUp/PageCell/ FitPolicy/ @SizePolicy=FitToPage	Yes	Number Up (X)	1.0 job-number-up x.x document-number-up x.x po-number-up	1.1	number-up (integer(1:MAX)) [JT, DT, PO] Indicates the number of Input pages that the Printer is to image on one Finished Page Image. [RFC2911] §4.2.9
operation-id	N			N/A	N/A	No	No	Never	1.1	operation-id (type2 enum) [] Indicates which operation this request is. [RFC2911] §3.1.2
opi-image-insertion	H			(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) 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. [color&img] §4.6.1
'do-not-insert'										'do-not-insert'
'insert'										'insert'
opi-image-pre-scan	H			N/A	LayoutElementProductIon LayoutElement/ @ImagePrescan (N) [new boolean attribute]					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 within the document are accessible and, optionally, to pull them to the Printer, before processing the job, i.e., before RIPping or marking. [color&img] §4.6.2
'no-pre-scan'										'no-pre-scan'
'pre-scan'										'pre-scan'
'pre-scan-and-gather'										'pre-scan-and-gather'
orientation-requested	H		7	LayoutIntent/ @FinishedDimensions	What about: Preflight PSToPDFCCConversion Params/	Yes	No (X)	x.x	1.1	orientation-requested (type2 enum) [JT, DT, PO] The desired orientation for printed pages for document formats that

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
				ISSUE: What about Dimensions? Question: MediaIntent/@Dimensions should agree? ISSUE: Should this be mapped to the deprecated: FinishedPage-Orientation?	@AutoRotatePages (see page-rotation)					don't have a built-in orientation. [RFC2911] §4.2.10 See "page-rotation" and the explanation of the IPP coordinate system in Table 1.
'portrait'										'portrait'
'landscape'										'landscape'
'reverse-landscape'										'reverse-landscape'
'reverse-portrait'										'reverse-portrait'
original-requesting-user-name	H			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	M		8	Unknown N/A	DigitalPrintrng DigitalPrintingParams/ @OutputBin	Yes	Output Bin Name (X)	1.0 job-output-bin-name x.x document-output-bin-name x.x po-output-bin-name	No	output-bin (type3 keyword name(MAX)) [JT, DT] Specifies the output bin where the job is to be delivered. Note: N in keyword values is replaced by a cardinal number.} [output-bin] §2.1
'top'	M				Top					'top'
'middle'	M				Middle					'middle'
'bottom'	M				Bottom					'bottom'
'side'	M				Side					'side'

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
'left'	M				<u>Left</u>					'left'
'right'	M				<u>Right</u>					'right'
'center'	M				<u>Center</u>					'center'
'rear'	M				<u>Rear</u>					'rear'
'face-up'	M				<u>FaceUp</u>					'face-up'
'face-down'	M				<u>FaceDown</u>					'face-down'
<u>'fit-media' - Printer selects output bin based on the size of the media.</u>	<u>M</u>				<u>FitMedia</u>					Printer selects output bin based on the size of the media. ISSUE: Should we propose to IPP WG?
'large-capacity'	M				<u>LargeCapacity</u>					'large-capacity'
'mailbox-N'	M				<u>Mailbox-N</u>					'mailbox-N'
'my-mailbox'	M				<u>N/A</u>					'my-mailbox'
'stacker-N'	M				<u>Stacker-N</u>					'stacker-N'
'tray-N'	M				<u>Tray-N</u>					'tray-N'
<u>system-specified default</u>	<u>M</u>				<u>SystemSpecified</u>					omitted attribute
<u>default</u>	<u>M</u>				<u>Default = SystemSpecified</u>					"output-bin-default" Printer attribute
output-device-assigned (S)	N			N/A	N/A	No	No	x.x	1.1	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	H	1.1 Sheet Order & Face Up/Down	8	Specify page order in RunList	DigitalPrinting DigitalPrintingParams/ @PageDelivery	Yes	Page Delivery (X)	1.0 job-page-delivery	1.2	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. [prod-print] §3.15
'same-order-face-up'					<u>SameOrderFaceUp</u>					'same-order-face-up'
'same-order-face-down'					<u>SameOrderFaceDown</u>					'same-order-face-down'
'reverse-order-face-up'					<u>ReverseOrderFaceUp</u>					'reverse-order-face-up'
'reverse-order-face-down'					<u>ReverseOrderFaceDown</u>					'reverse-order-face-down'
<u>fan-fold</u>					<u>FanFold</u>					not an IPP value. ISSUE: Should we proposed 'fan-fold' to IPP WG?
<u>system-specified</u>					<u>SystemSpecified</u>					'system-specified' - depends on other attributes
<u>default</u>					<u>Default = SystemSpecified</u>					"page-delivery-default" Printer attribute.

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
page-order-received	L ₃₀		3	LayoutPreparation RunList/ LayoutElement/ FileSpec/ @Sorted (S)	LayoutPreparation RunList/ LayoutElement/ FileSpec/ @Sorted (S)	Yes	No (X)	x.x	1.2	page-order-received (type2 keyword) [JT ³¹ , DT] Indicates the order of pages in the document data as supplied with the job. [prod-print] §3.16
'1-to-n-order'					<i>Ascending</i>					'1-to-n-order'
'n-to-1-order'					<i>Descending</i>					'n-to-1-order'
page-overrides (M)	H	See specific attributes for category.		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	Yes (X)	x.x job-page-overrides x.x document-page-overrides	No ??	page-overrides (1setOf collection) [JT, DT] Provides for the overriding of processing instructions on a page basis. [override] §5.2
input-documents <i>OR "output-documents, but not BOTH"</i>	H						Yes			input-documents (1setOf rangeOfInteger(MAX)) Specifies the ranges of input documents for page override processing. [override] §5.2.1
output-documents	L						No			output-documents (1setOf rangeOfInteger(MAX)) Specifies the ranges of output documents for page override processing. [override] §5.2.2
document-copies	L						No			document-copies (1setOf rangeOfInteger(MAX)) Specifies the ranges of output document copies for page override processing. [override] §5.2.3
pages (Mn)	H						Yes	x.x po-pages		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 Page	?						Yes??			any other Job Template attributes that

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

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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
Override [PO] attributes>										affect pages <i>(flagged with 'PO' in this column)</i> , such as "media" or "media-col" ()
page-ranges (Mn)	H		4	RunListLink/ @RunIndex @DocIndex and @DocRunIndex (S)	LayoutPreparation RunListLink/ @RunIndex @DocIndex and @DocRunIndex (S) ISSUE: Why isn't this simply RunList/@Pages?	Yes	Range of Pages to Process (X)	1.0 job-output-pages x.x document-output-pages	1.1	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	H	EFI Media Landscape	7	N/A ISSUE: Why would LayoutIntent/@FinishedDimensions cause a rotation of the page image?	LayoutPreparation LayoutPreparationParams/ @Rotate	Yes	Rotate Page (X)	1.0 job-page-rotation x.x document-page-rotation x.x po-page-rotation	??	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. [color&img] §4.7 See "orientation-requested" and the explanation of the IPP coordinate system in Table 1.
'rotate-0'	H				Rotate0					'rotate-0'
'rotate-90'	H				Rotate90					'rotate-90'
'rotate-180'	H				Rotate180					'rotate-180'
'rotate-270'	H				Rotate270					'rotate-270'
pages-per-subset (Mn)	L		4	Unknown	Unknown	Yes	No (X)	x.x	No	pages-per-subset (1setOf integer(1:MAX)) [JT ³²] 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	N		6	N/A	N/A Same as	No	No	Never		pdl-init-file (1setOf collection) [JT, DT]

³² The IPP "pages-per-subset" attribute can only be used when the "multiple-document-handling" Job Template attribute is 'separate-documents-collated-copies' or 'separate-documents-uncollated-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	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
					PDLResourceAlias?					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	<u>N</u>									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	<u>N</u>									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	<u>N</u>									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	H		1	CustomerInfo/Contac	CustomerInfo/Contact/					There is no IPP attribute

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
of problems				t/@... (S)	@... (S)					
presentation-direction-number-up	L		7	Unknown	Unknown	Yes ³³	No (X)	x.x	1.2	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. [prod-print] §3.17
'toright-tobottom'										'toright-tobottom'
'tobottom-toright'										'tobottom-toright'
'toleft-tobottom'										'toleft-tobottom'
'tobottom-toleft'										'tobottom-toleft'
'toright-totop'										'toright-totop'
'totop-toright'										'totop-toright'
'toleft-totop'										'toleft-totop'
'totop-toleft'										'totop-toleft'
printer-resolution	H		6	(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.	Rendering RenderingParams/ ObjectResolution/ @Resolution Screening ScreeningParams/ ScreenSelector/ @ScreeningFamily @SourceObjects Proofing, SoftProofing ProofingParams/ @Resolution PreviewGeneration PreviewGenerationParams/ @Resolution Preflight PSToPDFConversionParams/ @InitialResolution	Yes	No (X)	x.x	1.1	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	H		9	N/A (P)	DigitalPrinting Device/@DeviceID ISSUE: Better mapping and a URL: <any JDF node>/	No<any JDF node>/ NodeInfo/ @Route	Destination or Physical Printer Requested (X)	1.0 job-destination-uri x.x document-destination-	1.1	printer-uri (uri) [JD] Specifies the URL of this Printer. The client supplies this attribute in every request. [RFC2911] §3.1.5

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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
					NodeInfo/ @Route			uri x.x po- destination- uri		
print-quality	M		6	(P or N? Need to be able to specify from user Why not add PrintQuality defined in InterpretingParams to ProofingIntent/ProofItem?)	Interpreting InterpretingParams/ @PrintQuality Note: DigitalPrintingParams/ @PrintQuality is deprecated in JDF/1.1.	Yes	No (X)	1.0 job-print- quality x.x document- print- quality	1.1	print-quality (type2 enum) [JT, DT, PO] The print quality that the Printer uses for the Job. [RFC2911] §4.2.13
'draft'					<i>Draft</i>					'draft'
'normal'					<i>Normal</i>					'normal'
'high'					<i>High</i>					'high'
Proofing (other than simple "print a proof")	L		2 1 1	Unknown	Unknown			x.x		No IPP attribute
proof-print Only need to be able to specify that a proof is to be printed and approved.	H		2 1 1	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	L									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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
media <u>OR:</u>	L					See IPP "media" attribute on page 34.				media (type3 keyword name(MAX)) The <u>descriptive</u> name or <u>the name of the input tray containing</u> the media to use for the proof job. See "media" on page 34. [prod-print] §3.5.3
media-col	L					See IPP "media-col" attribute on page 35.				media-col (collection) Characteristics of the media to use for the proof job. See "media-col" on page 35. [prod-print] §3.5.3
Range of pages in job/document to include when generating the job ticket	M		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}	H	EFI Color – Rendering Style	6	Unknown??	ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversion Params/ ColorSpaceConversion Op/ @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. [color&img] §3.12
'saturation'					<u>Saturation</u>					'saturation'
'perceptual'					<u>Perceptual – The default.</u>					'perceptual'
'relative-colorimetric'					<u>RelativeColorimetric</u>					'relative-colorimetric'
'absolute-colorimetric'					<u>AbsoluteColorimetric</u>					'absolute-colorimetric'
'pure-text'					ISSUE: Add ext?					'pure-text'
'blended-pictorial-and-graphics'					ISSUE: Add ext?					'blended-pictorial-and-graphics'
'automatic'					ISSUE: Add ext?					'automatic'
default					<u>Perceptual</u>					"rendering-intent-{graphics images text}-default" Printer attribute
request-id	N		1 0	Unknown	Unknown	No	No	Never	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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
requesting-user-name	H		10	N/A	We aren't updating the JT in phase 1. JDF/ NodeInfo/ Employee/ Person/ @FirstName/ @FamilyName	JDF/ NodeInfo/ Employee/ Person/ @FirstName/ @FamilyName CustomerInfo/ Company/ Contact[ContactTypes="Customer"]/ Person/ @FamilyName CustomerInfo/ Company/ Contact/ Person/ @FirstName (a common element for any node)	Job Created By (X)	1.0 job-create-user-name	1.1	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
<u>resample-method</u>				Unknown	Unknown					resample-method (type2 keyword) [JT, DT, PO] specifies the transformation that the Printer MUST apply when converting an image (i.e. bit map) from one resolution to another resolution (higher or lower) for printing. The choice of resample-method does not affect the resolution of text or synthetic/vector graphic objects within the job to be printed. It is only applied to images (i.e. bit maps) embedded within the job's PDL data. Next version of [color&img].
'nearest-neighbor'										'nearest-neighbor'
'bi-linear'										'bi-linear'
'bi-cubic'										'bi-cubic'
'filtered'										'filtered'
'automatic'										'automatic'
'special'										'special'
resource-cleanup	H			N/A	FileSpec/ FileAlias/ @Disposition FileSpec/ @Disposition					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 <i>before</i> the job was submitted (not as part of the job submission) by any means outside the job submission protocol, such as FTP.

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
										[color&img] §4.8
'delete'										'delete'
'keep'										'keep'
resource-pre-scan	H			N/A	LayoutElementProducti on 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. [color&img] §4.9
'no-pre-scan'										'no-pre-scan'
'pre-scan'										'pre-scan'
'pre-scan-and-gather'										'pre-scan-and-gather'
separator-sheets	H		5 8			Yes	Start, Separator/Sli p, End Sheets (X)	1.0 job- separator- sheets	1.2	separator-sheets (collection) [JT, DT, PO] Specifies the separator sheets to be printed with the Document. [prod-print] §3.18
separator-sheets-type	H			LayoutIntent/ Layout/ InsertSheet [@SheetType="Separ atorSheet" [@SheetUsage="Slip"] (S)	LayoutPreparation LayoutPreparationPara ms/ InsertSheet/ @SheetType [@SheetUsage ="Slip"] (S)			1.0 separator- sheet-type		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 <u>OR:</u>	H			N/A	InsertSheet/ Media/ Location/ @LocationName	See IPP "media" attribute on page 34.		1.0 separator- sheet- media		media (type3 keyword name(MAX)) The <u>descriptive name</u> or <u>the name of the input tray containing</u> the media to use for the separator sheet. <u>See "media" on page 34.</u> [prod-print] §3.5.3
media-col	H			InsertSheet/Sheet/Me dia (S)	InsertSheet/Sheet/Medi a (S) ISSUE: Should InsertSheet be an input to DP process and not under LayoutPreparationPara ms in LPP process. ISSUE: Also need to consider allowing	See IPP "media- col" attribute on page 35.		1.0 separator- sheet- media		media-col (collection) Characteristics of the media to use for the separator sheet. <u>See "media-col" on page 35.</u> [prod-print] §3.5.3

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
					InsertSheets to be placed between chapters. Need to be able to define chapters.					
sheet-collate note: Only applies to sheets in a document. Works with multiple-document-handling.	H	1.1 Sorter Mode (Collate) EFI Finishing - Sorter Mode	8	Specify sheet order in RunList	DigitalPrinting DigitalPrintingParams/ @Collate	Yes	Collate (X)	1.0 job-collate	1.2	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. [job-prog] §3.1
none					<i>None</i>					'uncollated'
sheet					<i>Sheet</i>					'collated'
sheet and set					<i>SheetAndSet</i>					<u>"multiple-document-handling" = 'separate-documents-uncollated-copies'</u>
sheet set and job					<i>SheetSetAndJob</i>					<u>"multiple-document-handling" = 'separate-documents-collated-copies'</u>
system specified					<i>SystemSpecified</i>					<u>omit "multiple-document-handling" and "sheet-collate"</u>
default					<u>Default = SystemSpecified</u>					<u>"multiple-document-handling-default" and "sheet-collate-default" Printer attributes.</u>
sheet-completed-copy-number (S) (M)	N			N/A	N/A	No	No	Never	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)	N			N/A	N/A	No	No	Never	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	H	1.1 Duplex EFI Media – Plex	7	LayoutIntent/ @Sides	LayoutPreparation LayoutPreparationPara	Yes	Sides (X)	1.0 job-sides x.x document-	1.1	sides (type2 keyword) [JT, DT, PO] Indicates how an impression is to be

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
		Mode			ms/ @Sides			sides x.x po-sides		placed upon the side(s) of the media. (Keywords: , ,) [RFC2911] §4.2.8
'one-sided-front'				<i>OneSided</i>	<i>OneSidedFront</i>					'one-sided'
'two-sided-short-edge'				<i>TwoSidedHeadToFoot</i> ³⁴	<i>TwoSidedFlipX</i>					'two-sided-short-edge'
'two-sided-long-edge'				<i>TwoSidedHeadToHead</i> ³⁵	<i>TwoSidedFlipY</i>					'two-sided-long-edge'
'one-sided-short-edge-back'				N/A	<i>OneSidedBackFlipX</i>					N/A - ISSUE: Should we propose 'one-sided-short-edge-back' to IPP WG?
'one-sided-long-edge-back'				N/A	<i>OneSidedBackFlipY</i>					N/A - ISSUE: Should we propose 'one-sided-long-edge-back' to IPP WG?
source-{cmy gray}- {graphics images text}	H			(P or N?)	ColorSpaceConversion ColorSpaceConversion Params/ ColorSpaceConversion Op/ [@Operation="Retag"] @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					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. <u>Relates to the way the data was encoded by the source.</u> [color&img] §3.13
source-{cmyk rgb}- {graphics images text}	H	EFI Color – RGB Source	6	(P or N?)	ColorSpaceConversion ColorSpaceConversion		No (X)			source-{cmyk rgb}-{graphics images text} (type3 keyword name(MAX)) [JT,

³⁴ *TwoSidedHeadToFoot* is the same as JDF *TwoSidedFlipX* and IPP 'two-sided-short-edge' when the Finished Document is portrait (X FinishedDimension is < Y FinishedDimension). When X FinishedDimension is > Y FinishedDimension, then *TwoSidedHeadToFoot* is equivalent to JDF *TwoSidedFlipY* and IPP 'two-sided-long-edge'.

³⁵ *TwoSidedHeadToHead* is the same as JDF *TwoSidedFlipY* and IPP 'two-sided-long-edge' when the Finished Document is portrait (X FinishedDimension is < Y FinishedDimension). When X FinishedDimension is > Y FinishedDimension, then *TwoSidedHeadToHead* is equivalent to JDF *TwoSidedFlipX* and IPP 'two-sided-short-edge'.

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
					Params/ ColorSpaceConversion Op/ [@Operation="Retag"] @SourceCS @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'] FileSpec/ [@ResourceUsage="So urceProfile"] and FileSpec/ @UID and FileSpec/ @UserFileName					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. Relates to the way the data was encoded by the source. [color&img] §3.13
CMYK values: 'native-cmyk'										CMYK values: 'native-cmyk'
'swop' [SWOP]										'swop' [SWOP]
'euroscale'										'euroscale'
'japan-color'										'japan-color'
'enhanced-swop' [SWOP]										'enhanced-swop' [SWOP]
'euroscale-matte'										'euroscale-matte'
'euroscale-uncoated'										'euroscale-uncoated'
RGB values: 'srgb' [IEC 61966-2.1]										RGB values: 'srgb' [IEC 61966-2.1]
'smpte-240m' [SMPTE]										'smpte-240m' [SMPTE]
<u>status-code (S)</u>				Unknown	Unknown	JMF/ Response/ @ReturnCode				<u>status-code</u> (type2 enum) [JS, DS] Provides information on the processing of an operation request. The Printer MUST return this attribute in all operation responses. [RFC2911] §3.1.6.1
<u>status-message (S)</u>				Unknown	Unknown	JMF/ Response/ Notification/ Comment				<u>status-message</u> (text(255)) [JS, DS] provides a short textual description of the status of the operation. The Printer MAY return this attribute in all operation responses. [RFC2911] §3.1.6.2
time-at-completed (S)	N			N/A	N/A	No	No	Never	1.1	<u>time-at-completed</u> (integer (MIN:MAX))

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
										[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)	N			N/A	N/A	No	No	Never	1.1	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)	N			N/A	N/A	No	No	Never	1.1	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
trapping	H	EFI Image Quality – Trapping	6	Unknown??	ISSUE: Need to add raster-based trapping controls to JDF.		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 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
‘off’	H									‘off’
‘on’	H									‘on’
trap-width-fast	H			Unknown??	Rendering RenderingParams/ InRIPTrapping/ @TrapWidthFast (N)					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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
trap-width-slow	H			Unknown??	Rendering RenderingParams/ InRIPTrapping/ @TrapWidthSlow (N)					direction". [color&img] §3.15 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 (Tone Reproduction Curves)	H			Use abstract ICC profiles – would be (N) or Transfer Function (P)	TransferFunctionControl/ TransferCurvePool/ TransferCurveSet/ TransferCurve/ @Curve @Separation, trc-type maps to TransferFunctionControl/ @TransferFunctionSource ("Custom" maps to 'private' and "Device" maps to 'public')					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. A User TRC defines a mapping from input intensity values to output intensity values. The mapping covers the complete domain of input intensity values. Also known as Intensity Transfer Function. When dealing with 8 bit continuous tone data, the color intensity values for each color separation are specified as unsigned integer octets with values in the range from 0 to 255. Mapping all 256 possible intensity values of a single color separation requires a table that contains 256 octets. User supplied TRCs MUST contain all four color separation values. Data is 256 octets of curve data for a color separation. [color&img] §3.17
trc-type										trc-type (type2 keyword) - identifies the type of TRC. Values:
'no-user-trc' (to eliminate system default TRC)										'no-user-trc' (to eliminate system default TRC)
'public' (find or save in public place for use by other jobs)										'public' (find or save in public place for use by other jobs)
'private' (for use by current job only)										'private' (for use by current job only)
trc-name										trc-name (name(MAX)) - name of the TRC.
trc-cyan-data										trc-cyan-data (octetString(256)) _256 octets of data for the cyan color separation.
trc-magenta-data										trc-magenta-data (octetString(256)) _256

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
										octets of data for the magenta color separation.
trc-yellow-data										trc-yellow-data (octetString(256)) 256 octets of data for the yellow color separation.
trc-black-data										trc-black-data (octetString(256)) 256 octets of data for the black separation.
undefined-source-{cmy gray}-{graphics images text}	H			(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 ColorSpaceConversion Params/ ColorSpaceConversion Op/ [@Operation”Tag”] @SourceCS [need to add CMY case (N)] @SourceObjects [Text=’text’, LineArt or SmoothShades =’graphics’, ImagePhotographic or ImageScreenShot = ’images’], FileSpec/ [@ResourceUsage=”So urceProfile”] and FileSpec/ @UID and FileSpec/ @UserFileName					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 <i>untagged</i> 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))	H			(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 ColorSpaceConversion Params/ ColorSpaceConversion Op/ [@Operation=”Tag”] @SourceCS @SourceObjects [Text=’text’, LineArt or SmoothShades =’graphics’, ImagePhotographic or ImageScreenShot =					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 <i>untagged</i> content data to the Profile Connection Space (PCS) for graphics, images & text content in either CMYK or RGB color spaces, respectively. [color&img] §3.13

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
					'images', FileSpec/ [@ResourceUsage="SourceProfile"] and FileSpec/ @UID and FileSpec/ @UserFileName					
CMYK values: 'native-cmyk'										CMYK values: 'native-cmyk'
'swop' [SWOP]										'swop' [SWOP]
'euroscale'										'euroscale'
'japan-color'										'japan-color'
'enhanced-swop' [SWOP]										'enhanced-swop' [SWOP]
'euroscale-matte'										'euroscale-matte'
'euroscale-uncoated'										'euroscale-uncoated'
RGB values: 'srgb' [IEC 61966-2.1]										RGB values: 'srgb' [IEC 61966-2.1]
'smpte-240m' [SMPTE]										'smpte-240m' [SMPTE]
version-number	N			NodeInfo/ @IPPVersion	NodeInfo/ @IPPVersion	Yes	No	Never	1.1	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.	H	EFI Packaging/ Shipping Info	2	DeliveryIntent/Contact/@... (S)	Delivery DeliveryParams/Contact/@... (S)		No (X)	x.x		Not an IPP attribute.
x-image-position	H		6 or 7 ?	N/A (P)	LayoutPreparation LayoutPreparationParams/ ImageShift/ @PositionX /FitPolicy/ @SizePolicy	Yes	Fit Policy (X)	1.0 job-image-position-x x.x document-image-position-x x.x po-image-position-x 1.0 job-fit-policy x.x document-fit-policy x.x po-fit-policy	1.2	x-image-position (type2 keyword) [JT, DT, PO] Causes the specified point of the Finished-Page Image to be positioned at a specified location. [prod-print] §3.19.2
'none'					<i>None</i>					'none'
'center'					<i>Center</i>					'center'
'left'					<i>Left</i>					'left'

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
'right'					<i>Right</i>					'right'
x-image-shift	N			N/A	N/A	Yes	No	Never	1.2	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	H		6 or 7 ?	N/A (P)	LayoutPreparation LayoutPreparationParams/ ImageShift/ @ShiftFront	Yes	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	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	H		6 or 7 ?	N/A (P)	LayoutPreparation LayoutPreparationParams/ ImageShift/ @ShiftBack	Yes	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	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	H		6 or 7 ?	N/A (P)	LayoutPreparation LayoutPreparationParams/ ImageShift/ @PositionY/ /FitPolicy/ @SizePolicy	Yes	Fit Policy (X)	1.0 job-image-position-y x.x document-image-position-y x.x po-image-position-y 1.0 job-fit-policy x.x document-fit-policy x.x po-fit-policy	1.2	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	N			N/A	N/A	Yes	No	Never	1.2	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

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
										shift. [prod-print] §3.19.7
y-side1-image-shift	H		6 or 7 ?	N/A (P)	LayoutPreparation LayoutPreparationParams/ ImageShift/ @ShiftFront	Yes	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	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	H		6 or 7 ?	N/A (P)	LayoutPreparation LayoutPreparationParams/ ImageShift /@ShiftBack	Yes	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	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	H	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	M	1.1 Bookletmaking	7 8	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	L ?	EFI Catalog Imposition ContentArray	?	Unknown	Unknown		No (X)			
zz no IPP exists	L ?	EFI Color – CMYK Simulation	6	Unknown	Unknown		No (X)			Is IPP color-emulation the same?
zz no IPP exists	H	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	L	EFI Document List	3	Unknown	Unknown		No (X)			

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
	?	- File Merge specs								
zz no IPP exists	N	EFI Document List - File Edit Spec	3	N/A	N/A		No (X)			
zz no IPP exists	L ?	EFI Finishing - Page Order	8	Unknown	LayoutPreparation LayoutPreparationParams/ @PageOrder		Order Pages (X)			
zz no IPP exists	L ?	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	L ?	EFI General/ Account Info- User Information	1	Unknown	Unknown		No (X)			
zz no IPP exists	L ?	EFI Image Quality - Black Detection	6	Unknown	ColorSpaceConversion ColorSpaceConversionParams/ ColorSpaceConversionOp/ RGBGray 2Black ISSUE: Need to add threshold instead of boolean to JDF.		No (X)			Not an IPP attribute. Need a new IPP boolean attribute
	L	<u>EFI Image Quality - Sharpness</u>								
zz no IPP exists	L ?	EFI Layout Definition - n rows and columns	7	Unknown	Unknown		No (X)			
zz no IPP exists	L ?	EFI Layout Definition - GuttersN and GuttersM	7	Unknown	Unknown		No (X)			
zz no IPP exists	L	EFI Layout	7	Unknown	Unknown		No (X)			

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
	?	Definition - Scale								
zz no IPP exists	L ?	EFI Layout Definition - Type (scale to fit & user defined)	7	Unknown	LayoutPreparation LayoutPreparationParams/ FitPolicy/ @SizePolicy		Fit Policy (X)			
zz no IPP exists	L ?	EFI Layout Definition - Bleeds	7	Unknown	Unknown		No (X)			
zz no IPP exists	L ?	EFI Layout Definition - Creep	7	Unknown	Unknown		No (X)			
zz no IPP exists	L ?	EFI Layout Content - Side and PlacedObjects	7	Unknown	Unknown		No (X)			
zz no IPP exists	L ?	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	H ? 36	EFI MediaSource Offset	6	Unknown	Unknown		No (X)			
zz no IPP exists	N ?	EFI MediaSource TrayAlignment	6	Unknown	Unknown		No (X)			
zz no IPP exists	L ?	EFI Printer Marks - CropMarks HorizontalArray VerticalArray Enabled	7	Unknown	Unknown		No (X)			
zz no IPP exists	L ?	EFI Printer Marks - SheetName Enabled Text Font	7	Unknown	Unknown		No (X)			

³⁶ Can this be accomplished by shifting the image using the image-shift attributes?

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	JDF/1.0 IDPrinting	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description
		CTM								
zz no IPP exists	L ?	EFI Printer Marks - FoldMarks Enabled	7	Unknown	Unknown		No (X)			
zz no IPP exists	L ?	EFI Printer Marks - CalibrationBar Enabled Side CTM	7	Unknown	Unknown		No (X)			
zz no IPP exists	L ?	EFI Printer Marks - ExposureBar Enabled Side CTM	7	Unknown	Unknown		No (X)			
zz no IPP exists	N ³⁷	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 3 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 2 and Table 3 are updated. The purpose of Table 3 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](#)JDF/1.1 (already in JDF/1.1), Proposed, Agreed, Edited (in JDF/1.2 input to FrameMaker), Checked (in JDF/1.2 FrameMaker).

Table 3 - 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
Abstract Profile for preference adjustment	Use abstract ICC profiles (P) We need to provide a way for the customer to specify an image specific or job specific preference adjustment through supplying an abstract profile ³⁸	Proposed	ColorCorrection ColorCorrectionParams/FileSpec[@ResourceUsage="AbstractProfile"] (N) Add this new file spec to allow specification of preferential color adjustment.	Proposed
adjust-{cyan-red magenta-green yellow-blue}	(P) or N? Use abstract ICC profiles	Proposed	ColorCorrection @CyanRed, @MagentaGreen, @YellowBlue (integer (-100:100)) (N) Need integer knob Customers need for quick and dirty last-minute fixes. ColorCorrectionParams/FileSpec[FileSpecLink/@ResourceUsage="AbstractProfile"] Add this new file spec to allow specification of preferential color adjustment.	Proposed
adjust-contrast	same (P)	Proposed	ColorCorrection ColorCorrectionParams/FileSpec[@ResourceUsage="AbstractProfile">@Constrast (integer (-100:100)) (N)	Proposed

³⁷ Describe in spec how vendor-specific extensions should be handled.

³⁸ 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.

			Add this new file spec to allow specification of preferential color adjustment.	
adjust-hue	(P)	Proposed	ColorCorrection ColorCorrectionParams/@Hue (integer (-180:180)) (N) apply to all kinds of objects.	Proposed
adjust-lightness	same(P)	Proposed	ColorCorrection ColorCorrectionParams/@Lightness (integer (-100:100)) (N) ColorCorrectionParams/FileSpec[@ResourceUsage="AbstractProfile"] (N) Add this new file spec to allow specification of preferential color adjustment.	Proposed
adjust-saturation	same(P)	Proposed	ColorCorrection ColorCorrectionParams/@Saturation (integer(-100:100))FileSpec[@ResourceUsage="AbstractProfile"] (N) Add this new file spec to allow specification of preferential color adjustment.	Proposed
anti-aliasing	(P)Unknown??	Proposed N/A	Rendering RenderingParams/ObjectResolution/@AntiAliasing new attribute with list of possible values "None" "SystemSpecified"	Proposed
black-overprint	(NP) Designer may specify "Rich Black" which is black-overprint on.	Proposed	mapping OK: Rendering RenderingParams/AutomatedOverprintParams/@OverPrintBlackText,@OverPrintBlackLineArt	N/AJDF/ 1.1
bleed-edge-printing	LayoutIntent/ Margins [new rectangle attribute] (N)	Proposed	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 ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversionParams/FileSpec[FileSpecLink/@ResourceUsage="FinalTargetDevice" Specify new values for @ResourceUsage = FinalTargetDeviceFront FinalTargetDeviceBack	Proposed
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/AJDF/ 1.1	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/AJDF/ 1.1

edge to edge printing	LayoutIntent/@Margins (N) ISSUE: Add Margins rectangle attribute to LayoutIntent.	Proposed	DigitalPrinting DigitalPrintingParams/@Margins (N) ISSUE: Add Margins rectangle attribute to DigitalPrinting Params.	Proposed
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 changed to optional (add ?) or add SystemSpecified as a value.	Proposed	mapping OK: HoleMaking HoleMakingParams without any attributes ISSUE: HoleType needs to be changed to optional (add ?) or add SystemSpecified as a value.	Proposed
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 JDF/ 1.1
halftone-{graphics images text}	(P or N?) We need to provide a means for the customer to specify the halftone "look" – often the halftone used is a visible attribute of the finished piece.	Proposed	mappings OK: Screening ScreeningParams/ScreenSelector/@ScreeningFamily, @SourceObjects Rendering RenderinParams/ObjectResolution/@ResolutionRendering RenderingParams/ObjectResolution/@Resolution Proofing, SoftProofing ProofingParams/@Resolution PreviewGeneration PreviewGenerationParams/@Resolution, Preflight PSToPDFConversionParams/@InitialResolution	N/A JDF/ 1.1
highlight-map	N/A	N/A JDF/ 1.1	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 JDF/ 1.1

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/ 1.1	JDF/Comment/@Name="MessageToOperator" (N)	Proposed
media-brightness	Clarify MediaIntent/@Brightness	N/A JDF/ 1.1	Clarify Media/@Brightness	N/A JDF/ 1.1
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 JDF/ 1.1
job-state-reasons	N/A	N/A JDF/ 1.1	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 JDF/ 1.1
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 JDF/ 1.1
opi-image-pre-scan	N/A	N/A JDF/ 1.1	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 suited for particular desired quality levels.	Proposed	mappings OK: Rendering RenderingParams/ObjectResolution/@Resolution Screening ScreeningParams/ScreenSelector/@ScreeningFamily, @SourceObjects Proofing, SoftProofing ProofingParams/@Resolution PreviewGeneration PreviewGenerationParams/@Resolution, Preflight PSToPDFConversionParams/@InitialResolution	N/A JDF/ 1.1
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 JDF/ 1.1
rendering-intent- {graphics images text}	Unknown ??	??	ColorSpaceConversionParams/ColorSpaceConversionOp/@RenderingIntent - ISSUE: Add PureText, BelendedPictorialAndGraphics, and Automatic?	ISSUE
resource-pre-scan	N/A	N/A JDF/ 1.1	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 JDF/ 1.1
trapping	Unknown??	N/A JDF/ 1.1	ISSUE: Need to add raster-based trapping controls to JDF. (N)	Proposed
trap-width-fast	Unknown??	N/A JDF/ 1.1	Rendering RenderingParams/InRIPTrapping/@TrapWidthFast (N)	Proposed
trap-width-slow	Unknown??	N/A JDF/ 1.1	Rendering RenderingParams/InRIPTrapping/@TrapWidthSlow (N)	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 and FileSpec/@UserFileName	N/A JDF/ 1.1
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 JDF/ 1.1

zz no IPP exists 1.1 Bookletmaking	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 4 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 2 - IPP Attribute Mapping Table for more details. The Status column indicates the status of the proposal: Proposed to CIP4/PODi, Agreed by CIP4/PODi: [to be proposed to PWG](#), Proposed to PWG [\[spec\] §n.n](#), Approved by PWG.

Table 4 - Suggested extensions to IPP needed by the JDF Product Intent and/or Process Resource subset chosen

IPP attribute name	Status
adjust-profile (uri) [JT, DT, PO]	Proposed to CIP4/PODi
adjust-hue (integer(-180:180)) [JT, DT, PO]	Proposed to PWG
edge-to-edge-printing (type2 keyword) [JT, DT, PO] - renamed from bleed-edge-printing	Agreed by CIP4/PODi: to be proposed to PWG
job-client-id (name(MAX)) [JD]	ISSUE: Propose to PWG?
job-comment (text(MAX)) [JD]	Agreed by CIP4/PODi: to be proposed to PWG Proposed to CIP4/PODi
job-mandatory-attributes (1setOf type2 keyword) [JD]	Proposed to CIP4/PODi, Proposed to PWG [doc-obj] §6.2.2
media-brightness (integer(0:100) - member attribute of "media-col"	Proposed to CIP4/PODi
"output-bin" new value: 'fit-media' - Printer selects an output bin based on the size of the media.	ISSUE: Should we propose to IPP WG?
"page-delivery" new value: 'fan-fold' - media alternates face-up and face-down each sheet.	ISSUE: Should we propose to IPP WG?
resample-method (type2 keyword) [JT, DT, PO]	Proposed to PWG
"sides" new values: 'one-sided-short-edge-back' and 'one-sided-long-edge-back'	ISSUE: Should we propose to IPP WG?
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 5 - CUPS Job Template extensions to IPP

CUPS Attribute	OSDP JDF Spec
blackplot	No
brightness	No
columns	No
cpi	No
fitplot	No
gamma	No

CUPS Attribute	OSDP JDF Spec
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 6 - Attributes for the proposed PDC document

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

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.

~~IEEE-ISTO 5100.1-2001~~ [finishing] [IEEE-ISTO 5100.1-2001](#)

"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>

[finishing2]

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.

[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.

~~IEEE-ISTO 5100.4-2001~~ [override] [IEEE-ISTO 5100.4-2001](#)

"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>

~~IEEE-ISTO 5100.2-2001~~ [output-bin] [IEEE-ISTO 5100.2-2001](#)

"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>

[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>

~~IEEE-ISTO 5100.3-2001~~ [prod-print] [IEEE-ISTO 5100.3-2001](#)

"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>

[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.

[\[pwg5101.1\]](#)

[IEEE-ISTO 5101-2002, "The Printer Working Group Standard for Media Standardized Names, 26 February 2002, ftp://ftp.pwg.org/pub/pwg/standards/pwg5101.1.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 subsets the stream into Output Documents. Fixed the reference.
4. Finished reviewing (X) in OSDP JDF Spec column during 15Oct Digital Printing working group meeting.
5. Continued updating JTAPI column per 15Oct FSG Job Ticket working group meetings (updated up through jog-offset).
6. Moved descriptions of (S), (M), (Mn), (X) keys into Column heading Description table.
7. Added descriptions of categories to Column heading Description table for PODi column.

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 Resource 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 [finish~~ing~~2].
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 3 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.

7.15 Changes to make version 0.97, December 06, 2002:

The following changes were made as a result of the PWG Semantic Model review, December 5, and the CIP4/PODi/FSG review, December 6:

1. Clarified that we will still review proposed JDF/1.2 extensions for Medium priority attributes, so that they can get into JDF/1.2. But we will not review proposed JDF extensions for Low and Never Priority attributes, since they are not planned to get into JDF/1.2
2. “adjust-xxx”: After a lot of discussion of all of the “adjust-xxx” attributes, we separated the simple quick and dirty integer knob attributes from a single ICC Abstract Profile for Preference Adjustment attribute.
3. “adjust-xxx”: Changed the Process Resource column to new (N) integer (-100:100) attributes: @ColorCorrectionParams/@CyanRed, @MagentaGreen, @YellowBlue, @Constrast, @Hue integer(-180:180), @Lightness, @Saturation.
4. “adjust-xxx”: Changed the Product Intent column to (P).
5. “adjust-xxx”: We changed the “adjust-xxx” attributes priorities from Medium to High (except for the new “adjust-hue” attribute) and the ICC Abstract Profile for Preferential Adjustment remains Medium.
6. “adjust-xxx”: The “adjust-xxx” integer knob attributes can be used in a Product Intent context using the Process Resource. So its flagged with the (P) indicator.
7. “anti-aliasing”: We removed the EFI Image Quality - Sharpness from the PODi column and added it at the end. EFI Sharpness isn’t anti-aliasing.
8. “anti-aliasing”: Changed the Product Intent column from Unknown to (P).
9. “black-overprint”: Changed the Product Intent column from (N) to (P).
10. “black-overprint”: Added ‘black-overprint-pdl’ as a third value for the IPP “black-overprint” attribute, which defers to the PDL setting for black overprint.
11. “black-overprint”: Clarified that the Process Resource column will not provide a mapping for the ‘black-overprint-off’ value of IPP “black-overprint” since it doesn’t seem useful to turn off the overprint on in the PDL.
12. “bleed-edge-printing”: Renamed this to “edge-to-edge” printing, since bleed involves trimming/cutting off some of the bled area, but IPP is dealing with printing into the unprintable area. Will propose the same change to IPP.
13. “edge-to-edge-printing”: Added this attribute with a JDF Product Intent mapping of LayoutIntent/@Margins (N) and a JDF Process Resource mapping of DigitalPrintingParams/@Margins (N).
14. “resample-method”: Added this attribute from the PWG Semantic Model review of the IPP Color and Imaging attributes. Needs review by the color experts.
15. “source-{cmy | gray}-{graphics | images | text}” and “source-{cmyk | rgb}-{graphics | images | text}”: Clarified that these attributes relates to the way the data was encoded by the source.

16. "EFI Image Quality – Sharpness": Added to end of table. Need a description of it.

7.16 Changes to make version 0.971, December 07, 2002:

1. Changed JDF/1.0 App F to actual JDF/1.0 IDPrinting mapping (not finished yet).
2. Reformatted values and member attributes into separate rows in the table so that alignment across the columns is maintained by MS-WORD. Revision marks not used for the IPP values, since they were already in the document. Documented the styles used to achieve indenting of member attributes and values in the Legend Table.
3. Copied the agreed extensions in version 0.97 to JDF/1.1 and IPP from Table 2 to Table 3 and Table 4, respectively.
4. Highlighted all of the **Unknown** entries like this as an indication of where more work is needed.
5. Started to put JDF data types on a separate line inside parens in the mapping columns. This reformatting makes it much easier to read.
6. Reformatted the XPath so that line breaks occur after each element.