Mapping of IPP Attributes to JDF/1.1 Product Intent and Process Resources (Non-color/imaging attrs = Hidden text)

Green highlighted text like this means the JDF extension has been edited into a copy of JDF/1.1a for review.

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Abstract

This document lists the subset of JDF/1.1 (plus extensions for JDF/1.2) for the Digital Printing Interoperability Conformance Specification (ICS). The ICS will contain both an Intent Interface subset and a Digital Printing combined process subset. To obtain a reasonable JDF/1.1 subset, 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 listed in Table 3 and Table 4.

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

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1 Mapping of IPP attributes

Table 2 lists all of the IPP Job attributes that a client can supply or a Printer can return in Job Creation operations. 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. • (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. MS-WORD Styles used: Member attribute names (members of collection attributes) (style: Normal Mem) and attribute values are indented (style: Normal Val). Double indenting for nested member attributes (style: Normal Mem1) and member attribute values (style: Normal Val1).
P (Priority)	H (High) = 94 M (Medium) = 19 L (Low) = 62 N (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: • H (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. • M (Medium) - The feature/function should be one of the first to be considered for the next version of the job ticket for digital printing. We will still review proposed JDF extensions for JDF/1.2 for these. • L (Low) - The feature/function can be included in a later version of the job ticket for digital printing. We won’t review JDF extensions for JDF/1.2. • N (Never) - The feature/function will not be included in any version of the job ticket for digital printing. We won’t review JDF extensions for JDF/1.2.

~~1.~~[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
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.) • Unknown - Indicates that it has not yet been determined if a JDF Intent resource/attribute currently exists for the feature/function. This will be the case for most of the features/functions with a Priority of Medium or Low. • N/A - Not Applicable - 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. The feature/function is part of the Intent Interface (what a Customer puts into a JDF ticket to give to a Print Shop) to be specified by the ICS but ~~does~~ is not currently ~~have a~~ defined using JDF/1.1a Product Intent resource. Instead, this feature will be represented in the JDF Intent subset using the corresponding Process resource ~~attached to~~ insert in the Product Intent node, thereby avoiding adding duplicative syntax to JDF and facilitating the mapping from the Intent subset to the DigitalPrinting combined process representation. See JDF/1.1 section 4.1.4 "Specification of Process Specifics for Product Intent Nodes" for details and an example. • (S) - Same. The feature/function has the same semantics in the JDF 1.1 Product Intent and JDF 1.1 Process Resource. • (N) - Needed New. The JDF for the feature/function is not currently defined in the JDF 1.1 spec and needs to be added. JDF Resources and attributes highlighted like this indicate the *modified* part of the proposed or approved JDF extension. Existing parts of an extension are *not* highlighted. Promoting an element is not highlighted in this table, though any change is so highlighted in the edited JDF/1.1a spec. See Table 3 and Table 4 for the status of the extension. The edited version of the JDF/1.1a spec with the proposed extension can be found: ftp://ftp.pwg.org/pwg/fsg/jobticket/IPP_Mapping/ippjdf-mapping-latest.pdf ftp://ftp.pwg.org/pwg/fsg/jobticket/IPP_Mapping/ippjdf-mapping-latest.doc JDF attribute values are *not* italicized as in [JDF] and are *not* indented or single quoted.
JDF 1.1 Process Resource	174 (including 22 new proposed)	69%	The JDF 1.1 Process on the first line (or several Processes separated by commas, if more than one Processes uses the Resource), followed by the Resource, and JDF attribute using XPath notation (see explanation of XPath subset in the explanation above. • Unknown - Indicates that it has not yet been determined if a JDF Process resource/attribute currently exists for the feature/function. This will be the case for most of the features/functions with a Priority of Medium or Low. • N/A - Not Applicable - 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. JDF Resources and attributes highlighted like this indicated the *modified* part of the proposed or approved JDF extension. Existing parts of an extension are *not* highlighted. Promoting an element is not highlighted in this table, though any change is so highlighted in the edited JDF/1.1a spec. See Table 3 and Table 4 for the status of the extension. The edited version of the JDF/1.1a spec with the proposed extension can be found: ftp://ftp.pwg.org/pwg/fsg/jobticket/IPP_Mapping/ippjdf-mapping-latest.pdf ftp://ftp.pwg.org/pwg/fsg/jobticket/IPP_Mapping/ippjdf-mapping-latest.doc JDF attribute values are *not* italicized (unlike~~as in~~ [JDF]) and are *not* indented or single quoted.
OSDP JDF Spec	69	27%	Whether or not the feature is in the "JDF Specification for Open Source Digital Printing" from Claudia Alimpich, version 1.2 [OSDP] and if it is what the feature/function is called in the JDF Spec for OSDP. • No - The feature/function is not currently in the JDF Spec for OSDP.

Column heading	Totals	% IPP[1]	Description
			• (X) - The feature/function is either currently included in the JDF Spec for OSDP or needs to be added.
JTAPI	1.0 = 90 x.x = 121	36% 48%	The version of JTAPI that the feature/function will be included in and the name of the JTAPI attribute. • 1.0 - The feature/function will be included in version 1.0 of the JTAPI. • x.x - The feature/function is to be included in a future (currently undefined) release of the JTAPI. • Never - The feature/function will never be included in the JTAPI. MS-WORD Styles used: Normal JT attr - hanging indent 0.2 inches.
CUPS	113 = 90 + 23 (S)	45%	The version of the Common Unix Printing System (CUPS) in which the IPP attribute is supported or No if the IPP attribute is not supported in any version of CUPS. See "(S)" explained above.
JDF APP F	89	35%	Whether or not the Appendix mapped the IPP attribute to JDF 1.0 IDPrinting combined process node • Yes - The IPP attribute was mapped from the IDPrinting process node in JDF 1.0. • No - The IPP attribute was not mapped from the IDPrinting process node in JDF 1.0.
PODi	1.1 = 20 EFI = 63	8% 25	Where the feature/function is included: • 1.1 - The feature/function is currently included in the PODi PPML Job Ticket Specification Version 1.1. • EFI - The feature/function is included in the "EFI Job Ticket Proposal" document.
Cat (Category)	1 = 8 2 = 5 3 = 11 4 = 4 5 = 29 6 = 26 7 = 27 8 = 29 9 = 2 10 = 22 11 = 2 C	3% 2% 4% 2% 12% 10% 11% 12% 1% 9% 1% 	The category that the feature/function belongs to. The possible categories are: • 1 - Customer and billing info • 2 - Delivery of finished product - due date and shipping instructions, proofing approvals • 3 - Files being submitted to the shop - whatever info is necessary for an automated system to do the job • 4 - What to print - how many, subset of files • 5 - Media to use • 6 - RIPping parameters - generating images • 7 - Assembling printable images from source-file pages onto a sheet • 8 - Assembling sets of sheets and finishing instructions • 9 - Equipment to use • 10 - General comments, instructions, messages, and information • 11 - Proofing • C - indicates a color or imaging attribute and is orthogonal to the numeric categories.
IPP Attribute Description			The IPP attribute name, the attribute syntax (data type) in parenthesizes with a size constraint for strings and integers, a code indicating the IPP object, followed by 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.* **In order to save space, some of the closely related attribute names indicate several alternative fields inside {} and separated by |. For example:** halftone-{graphics | images | text} **Legend for codes in square brackets:** **JD** - Job Description attribute - initial value supplied by the client (in an Operation attribute of a Job Creation operation). **JT** - Job Template[3] attribute - supplied by the client in a Job Creation operation.

[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.

Column heading	Totals	% IPP[1]	Description
			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 (returned by the Printer in a Job object query or Operation attribute). Also indicated by “(S)” in the “IPP Attribute Name” column. **DS** - Document Status attribute - set by the Printer, client cannot supply (returned by the Printer in a Document object query or Operation attribute). Also indicated by “(S)” in the “IPP Attribute Name” column. **-** - indicates that there is no corresponding Job Status attribute or Document Status attribute. In attribute names **[job-]** indicates that the 'job-' prefix is kept for the IPP Job Status attribute name but is dropped for the corresponding IPP Document Status attribute name. A single description serves for both using "Job/Document" to indicate that the description applies to both the Job Status and the Document Status attribute. The entry in Table 2 uses the form of the name with the 'job-', since that form is the one in [RFC2911]. MS-WORD Styles used: IPP attribute values are bracketed with a single quote (') and indented (style: Normal Val). Member attributes are put in separate rows with no indentation (style: Normal), so that they line up with other entries in other columns.
JDF/1.0 IDPrinting	89	35%	Specified the mapping to JDF/1.0 using the IDPrinting combined process. The mapping to IPP is specified in JDF/1.0 Appendix F. The first line is a JDF process. If the first line is not IDPrinting, then the specified process is combined with the IDPrinting combined process node. "N/A" indicates that there is no applicable mapping in JDF/1.0 (without an extension). ~~Whether or not the Appendix mapped the IPP attribute to JDF 1.0 IDPrinting combined process node~~ ~~? Yes - The IPP attribute was mapped from the IDPrinting process node in JDF 1.0.~~ • ~~No - The IPP attribute was not mapped from the IDPrinting process node in JDF 1.0.~~

Table 2 - IPP Attribute Mapping Table

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
adjust-{cyan-red | magenta-green | yellow-blue}	H		C	Add: ColorCorrectionParams to ColorIntent (N): ColorIntent/ ColorCorrectionParams/ @AdjustCyanRed @AdjustMagentaGreen @AdjustYellowBlue (integer (-100:100)) (N) (S) Add integer knob for Job Submitters who need quick and dirty last-minute fixes.	ColorCorrection ColorCorrectionParams/ @AdjustCyanRed @AdjustMagentaGreen @AdjustYellowBlue (integer (-100:100)) (N) (S) Add integer knob for Job Submitters who need quick and dirty last-minute fixes.				**adjust-{cyan-red | magenta-green | yellow-blue}** (integer(-100:100)) [JT, DT, PO] Increase or decrease the color along the Cyan/Red, Magenta/Green/ or Yellow/Blue axes while maintaining lightness to be applied at an implementation dependent point in the processing. [color&img] §3.2.1	~~TBD~~N/A

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				Print Shop Customers who need quick and dirty last-minute fixes. ISSUE: Or should all of these AdjustXxxx "knobs" be done by inserting an incomplete Process node into the Product node. The Product node would contain a Waiting ColorCorrection process and an Incomplete ColorCorrectionParams process resource containing only the AdjustXxxx attribute. See JDF/1.1 section 4.1.4 "Specification of Process Specifics for Product Intent Nodes". Then ColorIntent would not need the ColorCorrectionParams process resource added to it.						
adjust-contrast	H	EFI Image Quality – Contrast	6C	Add: ColorCorrectionParams to ColorIntent (N): ColorIntent/ ColorCorrectionParams/ @AdjustConstrast (integer (-100:100)) (N) (S)	ColorCorrection ColorCorrectionParams/ @AdjustConstrast (integer (-100:100)) (N) (S)	No (X)			**adjust-contrast** (integer(-100:100)) [JT, DT, PO] Increase or decrease contrast to be applied at an implementation dependent point in the processing~~after applying the Source Profile before output color rendering~~. [color&img] §3.2.2	N/A~~TBD~~
adjust-hue	M		C	Add: ColorCorrectionParams to ColorIntent (N): ColorIntent/	ColorCorrection ColorCorrectionParams/ @AdjustHue (integer (-180:180)) (N) (S)			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 to be applied at an	N/A

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				ColorCorrectionParams/ @AdjustHue (integer (-180:180)) (N) (S)	apply to all kinds of objects.				implementation dependent point in the processing ~~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	H	EFI Image Quality – Brightness	6C	Add: ColorCorrectionParams to ColorIntent (N): ColorIntent/ ColorCorrectionParams/ @AdjustLightness (integer (-100:100)) (N) (S)	ColorCorrection ColorCorrectionParams/ @AdjustLightness (integer (-100:100)) (N) (S)	No (X)			**adjust-lightness** (integer(-100:100)) [JT, DT, PO] Increase or decrease color lightness while maintaining colorfulness to be applied at an implementation dependent point in the processing. [color&img] §3.2.3	N/A ~~TBD~~
adjust-profile **Abstract Profile for preference adjustment**	M		C	Add: ColorCorrectionParams to ColorIntent (N): ColorIntent/ ColorCorrectionParams/ FileSpec/ [@ResourceUsage="AbstractProfile"] (N) Add this new file spec to allow specification of preferential color adjustment. (N) (S)[4]	ColorCorrection ColorCorrectionParams/ FileSpec/ [@ResourceUsage="AbstractProfile"] (N) (S) Add this new file spec to allow specification of preferential color adjustment.				**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. Both the Abstract Profile and the adjustment knobs (integers) can be supplied and applied by the Printer. One important use of this attribute would be for viewing environment adaptations and white point adjustment.. Propose to IPP WG for addition to IPP.	N/A
adjust-saturation	H		C	Add: ColorCorrectionParams to ColorIntent (N):	ColorCorrection ColorCorrectionParams/ @AdjustSaturation				**adjust-saturation** (integer(-100:100)) [JT, DT, PO] Increase or decrease the color saturation to be applied at an	N/A ~~TBD~~

[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	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				ColorIntent/ ColorCorrectionParams/ @AdjustSaturation (integer (-100:100)) (N) (S)	(integer(-100:100)) (N) (S)				implementation dependent point in the processing ~~after applying the Source Profile before output color rendering~~. [color&img] §3.2.4	
anti-aliasing	M	(Anti-aliasing)	6 C	ISSUE: Should we do intent anti-aliasing with Process or add an AntiAliasing attribute to some Intent Resource? Which one?(P)	Rendering RenderingParams/ ObjectResolution/ @AntiAliasing (N) (NMTOKEN)	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. [color&img] §4.1	N/A ~~TBD~~
'none'	M				None				'none'	
'standard'	M				SystemSpecified - the Default ISSUE: OK that SystemSpecified is the default value?				'standard'	
										'en-us'
black-detection-{graphics | images | text}	H	EFI Image Quality – Black Detection	6 C	Add: ColorSpaceConversionParams to ColorIntent (N): ColorIntent/ ColorSpaceConversionParams/ ColorSpaceConversionOp/ @RGBGray2Black (boolean) @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images']	ColorSpaceConversion ColorSpaceConversionParams/ ColorSpaceConversionOp/ @RGBGray2Black (boolean) @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'] ~~ISSUE: Need to add threshold instead of boolean to JDF.~~				**black-detection-{graphics | images | text}** (boolean) [JT, DT, PO] [Taken from JDF ColorSpaceConversionParams/ColorSpaceConversionOp/RGBGray2Black - which needs work] Controls what happens to gray values (R = G = B) when converting from RGB to CMYK for graphics, images, and text independently. In the case of MS Office applications and screen dumps, there are a number of gray values in the images and line art. Printers do not want to have CMY under the K (causes registration problems). Therefore, they prefer to have K only, so the Printer converts the gray values to K. ISSUE: so does the Printer skip over images when this attribute is true, or must the client supply false for images? ~~Agree to add three attributes. Done~~	Same as for the DigitalPrinting process. Use the ColorSpaceConversion process combined with the IDPrinting process.

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
black-detection-threshold	M		6 C	Add: ColorSpaceConversionParams to ColorIntent (N): ColorIntent/ ColorSpaceConversionParams/ ColorSpaceConversionOp/ @RGBGray2Black (boolean) @RGBGray2BlackThreshold (number) @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images']	ColorSpaceConversion ColorSpaceConversionParams/ ColorSpaceConversionOp/ @RGBGray2Black (boolean) @RGBGray2BlackThreshold (number) @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images']				black-detection-threshold-**{graphics | images | text}** (integer(0:100)) [JT, DT, PO] A value between 0 and 100 which specifies the percentage threshold value above which the Printer must not convert gray (R = G = B) to black (K only) when *RGBGray2Black* is true. So a 0 value means convert only R = G = B = 0 (black) to K only. A 100 value means all values of R = G = B are converted to K if black-detection-**{graphics | images | text}** (boolean) is 'true'. ISSUE: Is black-detection-threshold-**{graphics | images | text}** (integer(0:100)) description OK?	N/A
black-overprint	H	1.1 Black Overprint	6 C	Designer may specify black-overprint on. Add AutomatedOverprintParams to ColorIntent (N) ColorIntent/ ~~SeparationControlParams/~~ AutomatedOverprintParams/ @OverPrintBlackText @OverPrintBlackLineArt (N) (S) ISSUE: SeparationControlParams contains only AutomatedOverprintPa	Rendering RenderingParams/ AutomatedOverprintParams/ @OverPrintBlackText@ OverPrintBlackLineArt OR Separation SeparationControlParams/ AutomatedOverprintParams/ @OverPrintBlackText@ OverPrintBlackLineArt (S)	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. Add black-overprint-pdl to IPP.[color&img] §3.33	IDPrinting RenderingParams/ AutomatedOverprintParams/ @OverPrintBlackText RenderingParams/ AutomatedOverprintParams/ @OverPrintBlackLineArt

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				rams and TransferFunctionControl. See “trc” below which uses TransferFunctionControl added to ColorIntent. So why did we agree to add both AutomatedOverprintParams and TransferFunctionControl to ColorIntent, when we could have just added SeparationControlParams to ColorIntent?						
‘black-overprint-off”	N			N/A	N/A				‘black-overprint-off”	
‘black-overprint-on’	H			true	true				‘black-overprint-on’	
‘black-overprint-pdl’	H			false	false				‘black-overprint-pdl’	
color-depth-yyy	L		C	N/A	Rendering RenderingParams/ @ColorantDepth Note: In order to control the ColorantDepth by colorant, partition with PartIDKeys="Separation" and specify a separate color for each partition. ISSUE: Is partitioning with PartIDKeys="Separation" the way to specify different color depths for different colors?				**color-depth-yyy** (integer(2:MAX)) [JT, DT, PO] Specifies the color depth (bits per pixel) 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	IDPrinting RenderingParams/ @ColorantDepth
color-destination-profile-back	H		C	Print shop customers need to be able to specify Add: ColorSpaceConversionParams to ColorIntent (N):	ColorCorrection ColorCorrectionParams/ FileSpec [@ResourceUsage=“FinalTargetDevice”] or				**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	ColorCorrection ColorCorrectionParams/ ~~ColorSpaceConversionParams/~~ FileSpec [@ResourceUsage= ”FinalTargetDevice”]

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				ColorIntent/ ColorSpaceConversionParams/ FileSpec [@ResourceUsage="FinalTargetDevice"] (S) Note: Partition with PartIDKeys="Side" to get different Profiles for front and back of sheets.	ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversionParams/ FileSpec [@ResourceUsage="FinalTargetDevice"] (S) ISSUE: Do we really need the ColorSpaceConversion for our mapping and subset for use with the DigitalPrinting process too? Note: Partition with PartIDKeys="Side" to get different Profiles for front and back of sheets. ISSUE: What is the difference between ColorCorrection and ColorSpaceConversion? ISSUE: Do we need to specify both in the ICS? ISSUE: Can both processes be used with FinalTargetDevice in the same Job Ticket?					
'system-specified'									'system-specified'	
any name									*any name*	
color-destination-profile-front	H		C	Print shop customers need to be able to specify Add: ColorSpaceConversionParams to ColorIntent (N): ColorIntent/ ColorSpaceConversion	ColorCorrection ColorCorrectionParams/ FileSpec [@ResourceUsage="FinalTargetDevice"] or ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversionP				**color-destination-profile-front** (type3 keyword | name(MAX)) [JT, DT, PO] Specifies the Destination Color Space Profile that the Printer is to use for the front side of the output media. [color&img] §3.5.2	ColorCorrection ColorCorrectionParams/ ~~ColorSpaceConversionParams/~~ FileSpec [@ResourceUsage="FinalTargetDevice"]

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				Params/ FileSpec [@ResourceUsage="FinalTargetDevice"] (S) Note: Partition with PartIDKeys="Side" to get different Profiles for front and back of sheets.	arams/ FileSpec [@ResourceUsage="FinalTargetDevice" (S) Note: Partition with PartIDKeys="Side" to get different Profiles for front and back of sheets.					
'system-specified'									'system-specified'	
any name									*any name*	
color-effects-type	H	1.1 Color Mode EFI Color – Color Mode	6 C	ColorIntent/ @ColorStandard	DigitalPrinting, ColorSpaceConversion 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	IDPrinting ColorantControl/ @ProcessColorModel
'monochrome-grayscale'				Monochrome ISSUE: Use color depth to distinguish between monochrome and gray scale or add GrayScale?	DeviceGray				'monochrome-grayscale'	DeviceGray
'color'				CMYK ISSUE: What does Consumer of JDF assume if ColorIntent resource is omitted? Does the Print Shop have to interrogate the PDL?	DeviceCMYK				'color'	DeviceCMYK
color-emulation	H		C	ColorIntent/ @ColorStandard AND/OR Add: ColorSpaceConversionParams to ColorIntent (N):	**DigitalPrinting** Ink/ @Family OR should we use: ColorIntent/ @ColorStandard ISSUE: Which one of the above are we going to pick for the ICS?				**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	**IDPrinting** Ink/@Family ColorSpaceConversion, Proofing, SoftProofing **ColorSpaceConversionParams/** FileSpec/ [@ResourceUsage=

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				ColorIntent/ ColorSpaceConversionParams/ FileSpec [@ResourceUsage="EmulationProfile"] (N) (S) If both supplied, the Profile gives the details of the ColorStandard value.	AND/OR be used in combination with: ColorSpaceConversion, Proofing, SoftProofing **ColorSpaceConversionParams/** FileSpec/ [@ResourceUsage="EmulationProfile"] (N)					"EmulationProfile"] (N) Specify new values for @ResourceUsage = "EmulationProfile"
'none'				Values of ColorStandard: CMYK	~~ISSUE:~~ Specify new values for @ResourceUsage = "EmulationProfile" (N) TBD				'none'	TBD
'swop'				SWOP	TBD				'swop'	TBD
'euroscale'				FOGRA-coated?? (N)	TBD				'euroscale'	TBD
'japan-color'				Japan-coated?? (N)	TBD				'japan-color'	TBD
'enhanced-swop'				GRACOL	TBD				'enhanced-swop'	TBD
'euroscale-matte'				FOGRA-matte?? (N)	TBD				'euroscale-matte'	TBD
'euroscale-uncoated'				FOGRA-uncoated?? (N)	TBD				'euroscale-uncoated'	TBD
										UserFileName
					DocumentNaturalLang					DocumentNaturalLang
										RunIndex
										DocCopies
							use document object' document-format			
										UserFileName
										DocumentNaturalLa

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

[6] The IPP "copies" attribute is an *extensive* attribute, so its effect when supplied at the job level is not always inherited by the documents in a multi-document job. Instead, its effect depends on the value of the "multiple-document-handling" Job Template attribute. The 'single-document' and 'single-document-new-sheet' values produce copies of the job as a whole with the multiple input documents concatenated into a single output document for each job copy. The 'separate-document-uncollated-copies' value produce N copies of the first input document followed by N copies of the second input document, etc. The 'separate-document-collated-copies' produce N successive job copies, each job copy consisting of 1 copy of the first document followed by 1 copy of the second document, etc. In the PWG Semantic Model [pwg-sm] there are two separate attributes: JobCopies and Copies which affect the job as a whole and individual documents, respectively, so that the MultipleDocumentHandling is no longer needed.

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

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
										ng
							use document object's document-output-pages			
							see corresponding document (DT) attribute			
										DocIndex
										DocCopies
edge to edge printing	H		C	LayoutIntent/ @NonPrintableMargins (N) (NumberList)	DigitalPrinting DigitalPrintingParams/@NonPrintableMargins (N) (NumberList) NumberList size of non-printable margin in points, OK? ISSUE: Or should NonPrintableMargins be added to RenderingParams instead?		**1.0 job-edge-to-edge**		**ISSUE: Change IPP name from bleed-edge-printing to:** **edge-to-edge** (type2 keyword) [JT, DT, PO] Indicates whether or not the printer should allow page image data to be printed to all edges of the paper, and print beyond the edges of the normal printable area. [color&img] §4.2	
'none'	H				omit from ticket				'none'	
'all'	H				"0 0 0 0"				'all'	
halftone-{graphics | images | text}	H	1.1 Screen EFI Image Quality – Screening	6 C	(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	Screening ScreeningParams/ ScreenSelector/ @DotSize @Frequency @ScreeningFamily @ScreeningType	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, image, and text objects, respectively, within color or black and white documents. Screens are	

[8] 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.

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

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

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

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				finished piece. Define a new Intent Resource so that a span of ~~numeric~~ values can be specified: ScreeningIntent/ ScreenIntentSelector/ @~~AMLine~~FrequencyS~~pan~~ ? (NumberSpan) @~~FM~~MacroDotsPerInch~~Span~~ ? (NumberSpan) @ScreeningFamily~~Span~~ (StringSpan = Name, LowestFrequency, ~~Medium~~MiddleFrequency, HighestFrequency) @ScreeningType ? (enumeration = AM, FM, adaptive~~, system defined~~) @SourceObjects (enumerations) @SpotFunction~~Span~~ ? (NameSpan)	@SourceObjects Rendering RenderingParams/ ObjectResolution/ @Resolution @SourceObjects Proofing, SoftProofing ProofingParams/ @Resolution PreviewGeneration PreviewGenerationParams/ @Resolution Preflight PSToPDFConversionParams/ @InitialResolution				implementation-specific with different line frequencies, angles, and spot functions implied by each keyword value. Numeric keyword values are *approximate*, i.e., nominal values. [color&img] §4.3, 4.4, 4.5.	
				ISSUE: how say none?	ISSUE: how say none?				none	
				ScreeningType = AM~~FM~~ ScreeningFamily~~Span~~ =**LowestFrequency** SpotFunction = SimpleDot | Round | CosineDot | Ellipse	ScreeningType = AM~~FM~~ ScreeningFamily=**LowestFrequency** SpotFunction = SimpleDot | Round | CosineDot | Ellipse				low-frequency-dot	
				ScreeningType = AM~~FM~~ ScreeningFamily~~Span~~	ScreeningType = AM~~FM~~ ScreeningFamily=**MiddleFrequency**				mid-frequency-dot	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				=**MiddleFrequency** SpotFunction = SimpleDot | Round | CosineDot | Ellipse	SpotFunction = SimpleDot | Round | CosineDot | Ellipse					
				ScreeningType = AM~~FM~~ ScreeningFamily~~Span~~ =**HighestFrequency** SpotFunction = SimpleDot | Round | CosineDot | Ellipse	ScreeningType = AM~~FM~~ ScreeningFamily=**HighestFrequency** SpotFunction = SimpleDot | Round | CosineDot | Ellipse				high-frequency-dot	
				N/A	**N/A**				highest-frequency-dot	
				ScreeningType = AM ScreeningFamily~~Span~~ =**LowestFrequency** SpotFunction=Line	ScreeningType = AM **LowestFrequency** SpotFunction=Line				low-frequency-line	
				ScreeningType = AM ScreeningFamily~~Span~~ =**MiddleFrequency** SpotFunction=Line	ScreeningType = AM **MiddleFrequency** SpotFunction=Line				mid-frequency-line	
				N/A	**N/A**				high-frequency-line	
				ScreeningType = AM ScreeningFamily~~Span~~ =**HighestFrequency** SpotFunction=Line	ScreeningType = AM **HighestFrequency** SpotFunction=Line				highest-frequency-line	
				ScreeningType = FM ~~FM~~MacroDotsPerInch ~~Span~~= 138~162	ScreeningType = FM DotSize = 2540/150 = 16.9				150-dpi	
				ScreeningType = FM ~~AMLine~~Frequency~~Span~~= 163~187	ScreeningType = FM DotSize = 2540/175 = 14.5				175-dpi	
				ScreeningType = FM ~~AMLine~~Frequency~~Span~~= 188~212	ScreeningType = FM DotSize = 2540/200 = 16.9				200-dpi	
				ScreeningType = AM ~~FM~~MacroDotsPerInch ~~Span~~= *150~249*	ScreeningType = AM Frequency = *200*				200-lpi	
				ScreeningType = AM ~~FM~~MacroDotsPerInch ~~Span~~= *250~349*	ScreeningType = AM Frequency = *300*				300-lpi	
				ScreeningType = AM ~~FM~~MacroDotsPerInch ~~Span~~= *550~649*	ScreeningType = AM Frequency = *600*				600-lpi	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				ScreeningType = FM ~~FM~~MacroDotsPerInch ~~Span~~= nnn~nnn	ScreeningType = FM DotSize = nnn				Other n-dpi values are possible.	
				ScreeningType = AM ~~FM~~MacroDotsPerInch ~~Span~~= *nnn~nnn*	ScreeningType = AM Frequency = *nnn*				Other n-n-lpi values are possible.	
highlight-colorant	M		C	ColorIntent/ ColorPool/ Color/ @ColorName (S) ~~ISSUE:~~ Add new values to Appendix A.2.8 See also highlight-map-color	**DigitalPrinting** Ink/ @Family @InkName or Ink/ @ColorName and ColorPool/ Color/ @ColorName (S) ~~ISSUE:~~ Add new values to Appendix A.2.8				**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. [color&img] §3.8 ISSUE: Add JDF values to IPP.	
				Values of Color/ @ColorName: NoColor	Values of Color/ @ColorName: NoColor				none	
				N/A ??	N/A ??				other	
				Black	Black				black	
				Blue	Blue				blue	
				Brown	Brown				brown	
				Buff	Buff				**buff**	
				Gold	Gold				**gold**	
				Cardinal	Cardinal				cardinal	
				Cyan	Cyan				cyan	
				Goldenrod	Goldenrod				**goldenrod**	
				Gray	Gray				gray	
				Magenta	Magenta				magenta	
				Green	Green				green	
				Ivory	Ivory				ivory	
				MultiColor New in JDF 1.1	MultiColor New in JDF 1.1				multicolor	
				Mustard New in JDF 1.1	Mustard New in JDF 1.1				mustard	
				Orange	Orange				orange	
				Pink	Pink				pink	
				Red	Red				red	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				Royal	Royal				royal	
				Ruby	Ruby				ruby	
				Silver	Silver				silver	
				Turquoise	Turquoise				turquoise	
				Violet	Violet				violet	
				White	White				white	
					Yellow				yellow	
highlight-colorant-mismatch	L		C	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	L		C	N/A	ColorSpaceConversion ColorSpaceConversionParams/ ColorSpaceConversionOp/ @HighlightMap (N) New attribute providing a selection of highlight mapping algorithms.				**highlight-map** (type3 keyword | name(MAX)) [JT, DT, PO] Specifies the algorithm that the Printer MUST use for mapping colors defined in the full color space to a color in the highlight color space. [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		C	(P\) We need to allow the customer to select which color is to be mapped to the highlight colorant. Add ~~ColorSpaceConversionParams~~ColorSpaceSubstitute ? and ColorantAlias ? to ColorIntent as follows. Promote as their own resources, so can be	ColorSpaceConversion ColorantControl/ ColorantAlias/ @ReplacementColorantName (string) @SeparationSpec OR ColorantControl/ ColorSpaceSubstitute/ @ PDLResourceAlias,				**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 (see "highlight-colorant" attribute) 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	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				reused: ColorIntent/ ColorantAlias/ @ReplacementColorantName (string) SeparationSpec/* @Name (string) OR ColorIntent/ ColorSpaceSubstitute/ PDLResourceAlias @SeparationSpec/+ @Name (string) ISSUE: What about the new *CMYKValue attribute added to* ColorSpaceSubstitute *which has the CMYKColor data type?*	@SeparationSpec/+ @Name (string)~~ColorSpaceConversionParams/ ColorSpaceConversionOp/ @SourceCS~~ ~~ISSUE: Don't we need more here to get highlight-map-color?~~ ISSUE: What about the new *CMYKValue attribute added to* ColorSpaceSubstitute *which has the CMYKColor data type?*					
media-back-coating	M		5	MediaIntent/	Media/	Yes (X)	**1.0 media-back-**	1.2	**media-back-coating** (type3 keyword |	Yes

[12] The effect of the IPP "insert-sheet" attributes when supplied at the job level of a multi-document job depends on the value of the "multiple-document-handling" Job Template attribute. For the 'single-document' and 'single-document-new-sheet' values, the pages are numbered as a single set from 1 to n for the job as a whole. For the 'separate-documents-collated-copies' and 'separate-document-uncollated-copies' values, the pages are numbered from 1 to n for each document separately.
[13] Consider only supporting SettingsPolicy at the JDF Node level and not at the Resource level (which is contrary to the JDF 1.1 spec)
[14] The "job-account-id" is termed a Job Description attribute instead of a Job Processing attribute by the PWG Semantic Model [pwg-sm].
[15] The "job-accounting-user-id" is termed a Job Description attribute, instead of a Job Processing attribute, by the PWG Semantic Model [pwg-sm].
[16] The IPP "job-collation-type" Job Description attribute has values of 'none', which the Printer sets from the two Job Template attributes: "multiple-document-handling" and "sheet-collate". For the FSG Job Ticket API, the "job-collation-type" should be both the input and the Description attribute, possibly with some additional values.
[17] The IPP "job-id" Job Description attribute corresponds to the (new) "document-number" Document Description attribute.
[18] Values of jt-madatory-attributes supported for 1.0 will be None and All; x.x for the values that are specific attribute names.
[19] The "job-message-to-operator" is termed a Job Description attribute, instead of a Job Processing attribute, by the PWG Semantic Model [pwg-sm].
[20] The "job-phone-number" attribute is termed a Job Description attribute, instead of a Job Processing attribute, by the PWG Semantic Model [pwg-sm].
[21] The "job-recipient-name" attribute is termed a Job Description attribute, instead of a Job Processing attribute, by the PWG Semantic Model [pwg-sm].
[22] The IPP "job-state" Job Description attribute corresponds to the (new) "document-state" Document Description attribute.
[23] The IPP "job-state-message" Job Description attribute corresponds to the (new) "document-state-message" Document Description attribute.

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
			C	@BackCoatings (EnumerationSpan) -(S): the default.	@BackCoatings (enumeration) (S)		**coating**		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	
'glossy'				Glossy	Glossy				'glossy'	
'high-gloss'				HighGloss	HighGloss				'high-gloss'	
'matte'				Matte	Matte				'matte'	
'none'				None	None				'none'	
'satin'				Satin	Satin				'satin'	
'semi-gloss'				Semigloss	Semigloss				'semi-gloss'	
media-brightness	H		5 C	MediaIntent/ @Brightness (S)	Media/ @Brightness (S)		**x.x**		Brightness reflectance percentage. **Not an IPP member attribute. Need a new IPP "media-brightness" (integer(0:100) member attribute.** Brightness is the percentage reflectance of blue-white light at 457 nm per ISO Brightness defined in ISO 2470. JDF ISSUE: The JDF spec needs to be clarified – it is ambiguous because it only states percent reflectance.	
media-color	H		5 C	MediaIntent/ @MediaColor (S)	Media/ @MediaColorName (S)	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 JDF ISSUE: Refer to TAPPI spec for media color?	Yes
media-front-coating	M		5 C	MediaIntent/ @FrontCoatings (EnumerationSpan)	Media/ @FrontCoatings (enumeration)	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	Yes

[24] The IPP "job-state-reasons" Job Description attribute corresponds to the (new) "document-state-reasons" Document Description attribute.
[25] 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.
[26] media-input-tray-name is mapped to IPP media attribute when no other media attributes are set.

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				(S)	(S)				media. ~~(Keywords: none, glossy, high-gloss, semi-gloss, satin, matte)~~ [prod-print] §3.13.10	
'glossy'				Glossy	Glossy				'glossy'	
'high-gloss'				HighGloss	HighGloss				'high-gloss'	
'matte'				Matte	Matte				'matte'	
'none'				None	None				'none'	
'satin'				Satin	Satin				'satin'	
'semi-gloss'				Semigloss	Semigloss				'semi-gloss'	
media-grain	M		5 C	(N) LayoutIntent/ @FinishedGrainDirection ? (enumeration) Values: ParallelToBind, PerpendiculatToBind, SystemSpecified ISSUE: Or should FinishedGrainDirection be in MediaIntent instead?~~.~~ 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	
							see document individual attributes			
							This needs more work. Tom will provide descrip-tions for each nottify-xxx attribute.			

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

[28] 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	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
							Which attributes are required by IPP? See IANA uri schemes.			
opi-image-insertion	H		C	Add ImageViewingStrategy attribute to ProofingIntent: (N) ProofingIntent/ ProofItem/ @ImageViewingStrategy (string) ISSUE: Why a string, instead of NMTOKEN? (N)	Proofing, SoftProofing ProofingParams/ @ImageViewingStrategy (string) ISSUE: Why a string, instead of NMTOKEN? ISSUE: Origination and Prepress CIP4 WG is revamping ProofingParams, check with them. So perhaps OPI image insertion should be done with the updated Preflight process?				**opi-image-insertion** (type2 keyword) [JT, DT, PO] Indicates the type of high resolution Open Prepress Interface (OPI) [OPI] image insertion to be performed by the Printer at RIP time for PostScript [PostScript] and PDF [PDF] documents. Such high resolution images may be stored in the print system, on the client ,~~on~~ or a network server. [color&img] §4.6.1	
				NoImages – Default value.	*NoImages* – Default value.				~~ISSUE: Should we add a 'no-image' value to IPP? No.~~	
'do-not-insert'				*OmitReference* – Displays only images actually embedded in the file.	*OmitReference* – Displays only images actually embedded in the file.				'do-not-insert'	
'insert'				*UseProxies* – Displays images embedded in the file and proxy versions of referenced data.	*UseProxies* – Displays images embedded in the file and proxy versions of referenced data.				~~'insert'~~Agreed: add an 'embedded-and-insert' value to IPP	
				UseReplacements – Displays embedded images plus the full resolution version of referenced images.	*UseReplacements* – Displays embedded images plus the full resolution version of referenced images.				Agreed: add an 'insert' value to IPP.~~ISSUE: Should we add an 'embedded-and-insert' value to IPP?~~	
opi-image-pre-scan	M ~~H~~		C	N/A	JDF ISSUE: Or should OPI image pre-scan be done with the updated Preflight process?				**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]	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
					Add ImagePreScanStrategy to LayoutPreparationParams (N): LayoutPreparation LayoutPreparationParams/ @ImagePreScanStrategy				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'					NoPreScan				'no-pre-scan'	
'pre-scan'					PreScan				'pre-scan'	
'pre-scan-and-gather'					PreScanAndGather				'pre-scan-and-gather'	
					SystemSpecified				omit the attribute and take the Printer's default: "opi-image-pre-scan-default".	
										PageOrder
										RunIndex
										DocIndex
										DocCopies
										DocRunIndex
					IDPrinting IDPrintingParams/ IDPLayout/ PresentationDirectionNumberUp					IDPrinting IDPrintingParams/ IDPLayout/ PresentationDirectionNumberUp
					ToRightToBottom					ToRightToBottom
					ToBottomToRight					ToBottomToRight
					ToLeftToBottom					ToLeftToBottom
					ToBottomToLeft					ToBottomToLeft
					ToRightToTop					ToRightToTop
					ToTopToRight					ToTopToRight
					ToLeftToTop					ToLeftToTop
					ToTopToLeft					ToTopToLeft

[29] The default of page-order-received is 1 to n which is reader order.
[30] The IPP "page-order-received" Job Template attribute is mapped to the PageOrderReceived Document Description attribute in the PWG Semantic Model [pwg-sm].
[31] 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.
[32] 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	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
printer-resolution	H		6 C	N/A See halftone. ~~(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.~~ ~~ISSUE: Should we use the (P) approach here with DigitalPrinting DigitalPrintingParams/ @Resolution (XYPair)?~~	DigitalPrinting DigitalPrintingParams/ @Resolution (XYPair) OR Rendering RenderingParams/ ObjectResolution/ @Resolution (XYPair) OR Screening ScreeningParams/ ScreenSelector/ @ScreeningFamily @SourceObjects=All Proofing, SoftProofing ProofingParams/ @Resolution (XYPair) PreviewGeneration PreviewGenerationParams/ @Resolution (XYPair) Preflight PSToPDFConversionParams/ @InitialResolution Trapping TrappingDetails/ @ObjectResolution/ Resolution (XYPair)	No (X)	**1.0 job-printer-resolution**	1.1	**printer-resolution** (resolution) [JT, DT, PO] The resolution that the Printer uses for the Job in cross-feed and feed direction in units of dpi or dpcm. [RFC2911] §4.2.12	Yes
print-quality	M		6 C	~~(P or N? Need to be able to specify from~~	Interpreting InterpretingParams/	No (X)	**1.0 job-print-quality**	1.1	**print-quality** (type2 enum) [JT, DT, PO] The print quality that the Printer	Yes

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				~~user~~ ~~ISSUE: Why not add PrintQuality defined in InterpretingParams to ProofingIntent/ ProofItem?~~ ~~OR~~ ~~use Rainer's suggestion to use:~~ ProductionIntent/ @PrintPreference *Note: not including the CostEffective value in ICS.*	@PrintQuality Note: DigitalPrintingParams/@ PrintQuality is deprecated in JDF/1.1. ~~ISSUE: Check what's the difference between the two PrintQuality attributes.~~Note: Quality may already be baked into the image data so quality decisions are made in the interpreter.		**x.x document-print-quality**		uses for the Job. [RFC2911] §4.2.13	
'draft'				Fastest – Request for the most time effective manufacturing process. Cost and Quality may be sacrificed for a fast turnaround time.	Draft				'draft'	
'normal'				Balanced – Request for a manufacturing process that balances the requirements for cost, speed and quality. The default.	Normal				'normal'	
'high'				HighestQuality – Request for the manufacturing process which will result in the highest quality.	High				'high'	
Proofing (other than simple "print a proof")	L		2 1 1 C	Unknown	Unknown		**x.x**		No IPP attribute	
proof-print Only need to be able to specify that a proof is to be	H		2 1 1	ProofingIntent/ ProofItem/ @ProofType=Page	Proofing ProofingParams/ ProofType = Page	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	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
printed and approved.			C	(enumeration) (S)	(enumeration) (S) note Origination and Prepress CIP4 WG is revamping ProofingParams, check with them.				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			ProofingIntent/ ProofItem/ @Amount (IntegerSpan)	Unknown				**proof-print-copies** (integer (0:MAX)) [JT] Specifies the attributes for zero or more proof prints of the job that are to be printed prior to the printing the full run of the job. If the value is zero, no proof job is produced. After the proof job(s) are completed, the Printer sets ProofPrintCopies to zero. puts the Job in the 'pending-held' state, and adds the 'proof-print-wait' value to the Job's JobStateReasons. After examining the proof print job output, the user can print the full run of the job by using the Release-Job action (see [RFC2911] section 3.3.6). (Includes Media/MediaCol and any other Job Processing attributes). [prod-print2] §5.9.1.1	
media OR:	L			N/A	N/A				**media** (type3 keyword | name(MAX)) The descriptive name or the name of the input tray containing the media to use for the proof job. See "media" on page 19. [prod-print] §3.5.3	See IPP "media" attribute on page 19.
media-col	L			Use the job's MediaIntent	Proofing Media				**media-col** (collection) **Characteristics of the media to use for the proof job.** See "media-col" on page 19. [prod-print] §3.5.3	See IPP "media-col" attribute on page 19.
proof-print-contact	H	EFI Approvals	2 1 1 C	ProofingIntent/ ApprovalParams/ ApprovalPerson/ Contact /@... (N) (S)	Approval ApprovalParams/ ApprovalPerson/ Contact/@... (S)	No (X)	**x.x** **Should there be a Contact object added to JTAPI?**		**IPP extension:** **proof-print-contact** (text(MAX)) **Specifies the name, address and/or phone number of the person to contact to approve the proof print.**	
rendering-intent-{graphics | images | text}	H	EFI Color – Rendering Style	6 C	Add ColorSpaceConversionParams to ColorIntent	ColorSpaceConversion, Proofing, SoftProofing ColorSpaceConversionP	No (X)			**rendering-intent-{graphics | images | text}** (type2 keyword) [JT, DT, PO] Specifies the rendering intent of a color	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				(N): ColorIntent/ ColorSpaceConversionParams/ ColorSpaceConversionOp/ [@SourceCS= [@SourceObjects=LineArt SmoothShades | ImagePhotographic ImageScreenShot | Text] @DestinationRenderingIntent (enumeration) (N) Note: RenderingIntent Deprecated in JDF/1.2.	arams/ ColorSpaceConversionOp/ @DestinationRenderingIntent (N) @[@SourceObjects=LineArt SmoothShades | ImagePhotographic ImageScreenShot | Text] Issue: IPP "rendering-intent-xxx" maps to DestinationRenderingIntet, not SourceRenderingIntent, right?				document for text, graphics, and images. [color&img] §3.12	
'saturation'				Values of DestinationRenderingIntent (enumeration) Saturation	Values of ProofRenderingIntent:, SourceRenderingIntent (N),: DestinationRenderingIntent: (N): (enumeration) Saturation				'saturation'	
'perceptual'				Perceptual – The default.	Perceptual – The default.				'perceptual'	
'relative-colorimetric'				RelativeColorimetric	RelativeColorimetric				'relative-colorimetric'	
'absolute-colorimetric'				AbsoluteColorimetric	AbsoluteColorimetric				'absolute-colorimetric'	
'pure-text'				ISSUE: Add ext?	ISSUE: Add ext?				'pure-text'	
'blended-pictorial-and-graphics'				ISSUE: Add ext?	ISSUE: Add ext?				'blended-pictorial-and-graphics'	
'automatic'				ISSUE: Add ext?	ISSUE: Add ext?				'automatic'	
default				Perceptual - The default	Perceptual - The default				"rendering-intent-{graphics | images | text}-default" Printer attribute	
resample-method	??		C	Unknown	ImageReplacement ImageCompression-Params/ @ImageDownsampleType				**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.	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
					ISSUE: How do these values map: Average – The program averages groups of samples to get the new downsampled value. Subsample – The program picks the middle sample from a group of samples to get the new downsampled value.				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'					Bicubic				'bi-cubic'	
'filtered'									'filtered'	
'automatic'									'automatic'	
'special'									'special'	
resource-cleanup	H		C	N/A	FileSpec/ FileAlias/ @Disposition FileSpec/ @Disposion				**resource-cleanup** (type3 keyword | 1setOf name(MAX)) [JT, DT, PO] Identifies whether Printer is to delete or keep all files that had been explicitly transferred to the Printer *before* the job was submitted (not as part of the job submission) by any means outside the job submission protocol, such as FTP. [color&img] §4.8	
'delete'									'delete'	
'keep'									'keep'	
resource-pre-scan	H		C	N/A	ISSUE: Or should resource pre-scan be done with the new Preflight process under development? Add ImagePreScanStrategy to LayoutPreparationParams (N) as in "opi-image-pre-scan": LayoutPreparation LayoutPreparationPara				**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	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
					ms/ @ImagePreScanStrategy					
‘no-pre-scan’					NoPreScan				‘no-pre-scan’	
‘pre-scan’					PreScan				‘pre-scan’	
‘pre-scan-and-gather’					PreScanAndGather				‘pre-scan-and-gather’	
					SystemSpecified				omit the attribute and take the Printer’s default: “opi-image-pre-scan-default”.	
source-{cmy | gray}-{graphics | images | text}	H		C	Add: ColorSpaceConversionParams to ColorIntent (N): ColorIntent/ ColorSpaceConversionParams/ ColorSpaceConversionOp/ [@Operation=”Retag”] @SourceCS [CMY=’cmy’ (N), Gray=’gray’] @SourceObjects [Text=’text’, LineArt or SmoothShades =’graphics’, ImagePhotographic or ImageScreenShot = ‘images’] FileSpec/ [@ResourceUsage= ”SourceProfile”]	ColorSpaceConversion ColorSpaceConversionParams/ ColorSpaceConversionOp/ [@Operation=”Retag”] @SourceCS [CMY=’cmy’ (N), Gray=’gray’] @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. Relates to the way the data was encoded by the source. [color&img] §3.13 ISSUE: Add a ignore-embedded-profiles **{cmy | cmyk | rgb | gray}-{graphics | images | text}** (boolean) attribute to IPP?	
source-{cmyk | rgb}-{graphics | images | text}	H	EFI Color – RGB Source	6C	Add: ColorSpaceConversionParams to ColorIntent (N):	ColorSpaceConversion ColorSpaceConversionParams/ ColorSpaceConversionO	No (X)			**source-{cmyk | rgb}-{graphics | images | text}** (type3 keyword | name(MAX)) [JT, DT, PO] Identifies the name of the installed Source Color	

[33] *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’.*

[34] *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	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				ColorIntent/ ColorSpaceConversionParams/ ColorSpaceConversionOp/ [@Operation="Retag"] @SourceCS [CMYK='cmyk, RGB='rgb'] @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'] FileSpec/ [@ResourceUsage= "SourceProfile"]	p/ [@Operation="Retag"] @SourceCS [CMYK='cmyk, RGB='rgb'] @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot = 'images'] FileSpec/ [@ResourceUsage="SourceProfile"] and FileSpec/ @UID and FileSpec/ @UserFileName				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'			C	ISSUE: What values correspond to IPP values?	ISSUE: What values correspond to IPP values?				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]	
spot-name-aliases	H		6 C	ISSUE: What is the JDF intent mapping for "**spot-name-aliases"**? How does it differ from the mapping of "spot-name-mapping"?	ISSUE: What is the JDF process mapping for "**spot-name-aliases"**? How does it differ from the mapping of "spot-name-mapping"?				**spot-name-aliases** (1setOf collection) [JT, DT, PO] Each collection value consists of two member attributes: **replacement-colorant-name** (type2 keyword | name(MAX)) **colorant-names-to-be-replaced**	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
									(1setOf (type2 keyword | name(MAX))) For each collection value, the Printer maps all of the colorants specified by the "**colorant-names-to-be-replaced" member attribute** to the named color specified by the "replacement-colorant-name" member attribute. There are 3 cases of spot color mapping: 1. Use PDL values 2. Use local printer's best match of name to process color. 3. Use these CMYK color spec (4 numbers from 0 to 100 in IPP and CMYKColor data type in JDF)) for name to process color. ISSUE: Need to add real examples for each of the 3 types of mapping listed above. For example, 'Pantone 135 CV', 'Pantone 135' remaps Pantone 135 to Pantone 135 CV. The Printer performs the "spot-name-aliases" attribute first, if supplied, followed by the "spot-color-mapping" attribute, if supplied.	
spot-name-mapping	H	EFI Color – Spot Color Matching Note: this is needed in IPP as well.	6 C	Add ColorantAlias ? to ColorIntent as follows. Promote as its own resources, so can be reused: ColorIntent/ ColorantAlias/ @ReplacementColorantName (string) SeparationSpec/* @Name (string) ISSUE: Why not *also*	ColorSpaceConversion ColorantControl/ ColorantAlias/ @ReplacementColorantName (string) @SeparationSpec/* @Name (string) OR ColorantControl/ ColorSpaceSubstitute/ @ PDLResourceAlias, @SeparationSpec/+				**spot-name-mapping** (1setOf collection~~(type2 keyword | name(MAX))~~) [JT, DT, PO] Each collection value consists of two member attributes: **replacement-colorant-name** (type2 keyword | name(MAX)) **colorant-names-to-be-replaced** (1setOf (type2 keyword | name(MAX))) For each collection value, the Printer maps all of the colorants specified by the "**colorant-names-to-be-**	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				add: OR ColorIntent/ ColorSpaceSubstitute/ PDLResourceAlias @SeparationSpec/+ @Name (string) as we did for "highlight-map-color"	@Name (string) Use Partitioning to get different mappings in one job. Use CMYKColor JDF ISSUE (Craig): Input color names vs. output colorants in JDF. Where is it determined what the plate colorants will be and then once you know that a particular spot color is going to be printed as a process color, is the ColorSpaceSubstitute structure the right place to define the process equivalent?				**replaced" member attribute** to the named color specified by the "replacement-colorant-name" member attribute. There are 3 cases of spot color mapping: 1. Use PDL values 2. Use local printer's best match of name to process color. 3. Use these CMYK color spec (4 numbers from 0 to 100 in IPP and CMYKColor data type in JDF)) for name to process color. ISSUE: Need to add real examples for each of the 3 types of mapping listed above. ISSUE: Is "**spot-name-mapping"** limited to spot colors (as suggested by the EFI name)? Or can it be used for any named colors? Agreed: a Digital Printer support remapping to more than one color. So IPP needs to make the data type be: (1setOf collection), since 1setOf 1setOf isn't supported. Then each collection value can then consist of a single 1setOf (name(MAX)) value.	
trapping	H	EFI Image Quality – Trapping	6C	~~Need on or off.~~ ~~ISSUE: Should we use the (P) method here and use the following on an Intent node:~~ Trapping TrappingDetails/ @Trapping [@TrappingType=~~1001~~ ~~,~~ 2001] (raster trapping) (integer)	Trapping TrappingDetails/ [~~@Trapping=true~~] [@TrappingType=~~1001,~~ 2001] (raster trapping) (integer) ObjectResolution/ @SourceObjects (enumerations) Note: IgnoreFileParams is assumed to be true (the default) when raster based trapping is	No (X)			**trapping** (1setOf type2 keyword) [JT, DT, PO] Turns *in-RIP* raster-based color trapping applied by the printer on or off for the indicated source object types. 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.~~ [color&img] §3.14 ~~ISSUE:~~ Agree to ~~we~~ add 'graphics',	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				ObjectResolution/ @SourceObjects (enumerations) (P) Note: IgnoreFileParams is assumed to be true (the default) when raster based trapping is requested. ~~Need all cases: TO DO.~~	requested.				‘images’, and ‘text’ to IPP~~?~~:	
‘off’	H			[@Trapping=false]	~~TrappingDetails/~~ [@Trapping=false]				‘off’ - turns trapping off.	
‘graphics’	M			[@Trapping=true] [@SourceObjects= “LineArt SmoothShades”]	[@Trapping=true] [@SourceObjects= “LineArt SmoothShades”]				‘graphics’	
‘images’	M			[@Trapping=true] @SourceObjects= “ImagePhotographic ImageScreenShot ”	[@Trapping=true] [@SourceObjects= “ImagePhotographic ImageScreenShot ”]				‘images’	
‘text’	M			[@Trapping=true] [@SourceObjects= “Text ”]	[@Trapping=true] [@SourceObjects= “Text ”]				‘text’	
‘all’	H			[@Trapping=true] [@SourceObjects= “All”]	[@Trapping=true] [@SourceObjects= “All”]				‘all’	
trap-width-fast	H		C	(P) On Intent node: Trapping TrappingDetails/ [@DefaultTrapping=”true’] TrappingParams/ @TrapWidthFast (N) (number~~integer(0:MAX)~~)	Trapping TrappingDetails/ [@DefaultTrapping=”true’] TrappingParams/ @TrapWidthFast (N) (number~~integer(0:MAX)~~)				**trap-width-fast** (integer(0:MAX)) [JT, DT, PO] Specified the number of pixels at each object boundary that will be within the trapping region in the “fast scan direction”. [color&img] §3.15	
trap-width-slow	H		C	(P) On Intent node: Trapping TrappingDetails/	Trapping TrappingDetails/ [@DefaultTrapping=”true’]				**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	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				[@DefaultTrapping="true"] TrappingParams/ @TrapWidthSlow (N) (number)~~integer(0:MAX)~~)	TrappingParams/ @TrapWidthSlow (N) (~~integer(0:MAX)~~number)				"slow scan direction". [color&img] §3.16	
trc (Tone Reproduction Curves)	H		C	N/A~~Add TransferFunctionControl to ColorIntent (N) (S)~~ ~~ColorIntent/ TransferFunctionControl/ [@TransferFunctionSource="Custom"] TransferCurvePool/ TransferCurveSet/ [@Name=Paper] TransferCurve/ @Curve @Separation=All (TransferFunction) (S)~~	DigitalPrinting TransferCurvePool/ TransferCurveSet/ [@Name=Paper] TransferCurve* OR ContoneCalibration TransferFunctionControl/ [@TransferFunctionSource="Xxxx"] TransferCurvePool/ TransferCurveSet/ [@Name=Paper] TransferCurve*/ @Curve (TransferFunction) OR Separation SeparationControlParams/ TransferFunctionControl/ [@TransferFunctionSource="Xxxx"] TransferCurvePool/ TransferCurveSet/ [@Name=Paper] TransferCurve*/ @Curve (TransferFunction) (S) ISSUE: See Rainer				**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. Applied following with other transforms, but before device calibration. 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 The effect will vary from printer to printer. **ISSUE: IPP trc attribute specifies that the Printer applies the trc after all other transforms, but before any calibration transform, OK?**	
trc-type					TransferFunctionControl/ @TransferFunctionSource				**trc-type** (type2 keyword) - identifies the type of TRC. Values:	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
					(enumeration) Values:					
'no-user-trc' (to eliminate system default TRC)					ISSUE: How to force none in JDF when the Device might have a system specified??				'no-user-trc' (to eliminate system default TRC)	
'public' (find or save in public place for use by other jobs)					Device				'public' (find or save the trc identified by "trc-name" in public place for use by other jobs)	
'private' (for use by current job only)					Custom				'private' (find or temporarily save the trc identified by "trc-name" n a private place for use by this job only)	
trc-name				ISSUE: Need name mechanism~~N/A~~	ISSUE: Need name mechanism				**trc-name** (name(MAX)) - name of the TRC to be found or saved (if "trc-xxx-data" supplied for each separation).	
trc-cyan-data				@Separation="cyan"	@Separation="cyan"				**trc-cyan-data** (octetString(256)) 256 octets of data for the cyan color separation.	
trc-magenta-data				@Separation="magenta"	@Separation="magenta"				**trc-magenta-data** (octetString(256)) 256 octets of data for the magenta color separation.	
trc-yellow-data				@Separation="yellow"	@Separation="yellow"				**trc-yellow-data** (octetString(256)) 256 octets of data for the yellow color separation.	
trc-black-data				@Separation="black"	@Separation="black"				**trc-black-data** (octetString(256)) 256 octets of data for the black separation.	
undefined-source-{cmy | gray}-{graphics | images | text}	H		C	We do need to provide a way for a customer to specify – "use this source profile for untagged color objects in the PDL" Add: ColorSpaceConversionParams to ColorIntent (N): ColorIntent/ ColorSpaceConversionParams/ ColorSpaceConversion	ColorSpaceConversion ColorSpaceConversionParams/ ColorSpaceConversionOp/ [@Operation="Tag"] @SourceCS [CMY='cmy' (N), Gray='gray'] @SourceObjects [Text='text', LineArt or SmoothShades ='graphics', ImagePhotographic or ImageScreenShot =				**undefined-source-{cmy | gray}-{graphics | images | text}** (name(MAX)) [JT, DT, PO] Identifies the name of the installed Source Color Space Profile that the Printer MUST use to map the *untagged* content data to the Profile Connection Space (PCS) for graphics, images & text content in either CMY color space or for grayscale data, respectively. [color&img] §3.13	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				Op/ [@Operation”Tag”] @SourceCS [CMY=‘cmy’ (N), Gray=’gray’] @SourceObjects [Text=’text’, LineArt or SmoothShades =’graphics’, ImagePhotographic or ImageScreenShot = ‘images’], FileSpec/ [@ResourceUsage=”SourceProfile”]	‘images’], FileSpec/ [@ResourceUsage=”SourceProfile”] and FileSpec/ @UID and FileSpec/ @UserFileName					
undefined-source-{cmyk | rgb}-{graphics | images | text} (type3 keyword | name(MAX))	H		C	We do need to provide a way for a customer to specify – “use this source profile for untagged color objects in the PDL” Add: ColorSpaceConversionParams to ColorIntent (N): ColorIntent/ ColorSpaceConversionParams/ ColorSpaceConversionOp/ [@Operation”Tag”] @SourceCS [CMYK=’cmyk’ (N), RGB=’rgb’] @SourceObjects [Text=’text’, LineArt or SmoothShades =’graphics’, ImagePhotographic or ImageScreenShot = ‘images’],	ColorSpaceConversion ColorSpaceConversionParams/ ColorSpaceConversionOp/ [@Operation=”Tag”] @SourceCS [CMYK=’cmyk’ (N), RGB=’rgb’] @SourceObjects [Text=’text’, LineArt or SmoothShades =’graphics’, ImagePhotographic or ImageScreenShot = ‘images’], FileSpec/ [@ResourceUsage=”SourceProfile”] and FileSpec/ @UID and FileSpec/ @UserFileName				**undefined-source-{cmyk | rgb}-{graphics | images | text}** (type3 keyword | name(MAX)) [JT, DT, PO] Identifies the name of the installed Source Color Space Profile that the Printer MUST use to map the *untagged* content data to the Profile Connection Space (PCS) for graphics, images & text content in either CMYK or RGB color spaces, respectively. [color&img] §3.13	

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
				FileSpec/ [@ResourceUsage="SourceProfile"]						
CMYK values: 'native-cmyk'				ISSUE: What values correspond to IPP values?	ISSUE: What values correspond to IPP values?				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]	
x-image-position	H		6 or 7 ? C	N/A (P)	LayoutPreparation LayoutPreparationParams/ ImageShift/ @PositionX /FitPolicy/ @SizePolicy	Fit Policy (X)	**1.0 job-image-position-x** **x.x document-image-postion-x** **x.x po-image-position-x** **1.0 job-fit-policy** **x.x document-fit-policy** **x.x po-fit-policy**	1.2	**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	Yes
'none'					*None*				'none'	
'center'					*Center*				'center'	
'left'					*Left*				'left'	
'right'					*Right*				'right'	
x-image-shift	N		C	N/A	N/A	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	Yes
x-side1-image-shift	H		6 or 7 ?	N/A (P)	LayoutPreparation LayoutPreparationParams/ ImageShift/	Image Shift Front Side (X)	**1.0 job-image-shift-front-x** **x.x document-image-shift-**	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	Yes

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
			C		@ShiftFront		**front-x** **x.x po-image-shift-front-x**		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 ? C	N/A (P)	LayoutPreparation LayoutPreparationParams/ImageShift/ @ShiftBack	Image Shift Back Side (X)	**1.0 job-image-shift-back-x** **x.x document-image-shift-back-x** **x.x po-image-shift-back-x**	1.2	**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	Yes
y-image-position	H		6 or 7 ? C	N/A (P)	LayoutPreparation LayoutPreparationParams/ ImageShift/ @PositionY /FitPolicy/ @SizePolicy	Fit Policy (X)	**1.0 job-image-position-y** **x.x document-image-postion-y** **x.x po-image-position-y** **1.0 job-fit-policy** **x.x document-fit-policy** **x.x po-fit-policy**	1.2	**y-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] §3.19.6	Yes
‘none’					*None*				‘none’	
‘center’					*Center*				‘center’	
‘left’					*Left*				‘left’	
‘right’					*Right*				‘right’	
y-image-shift	N		C	N/A	N/A	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 shift. [prod-print] §3.19.7	Yes
y-side1-image-shift	H		6 or 7 ?	N/A (P)	LayoutPreparation LayoutPreparationParams/ ImageShift/	Image Shift Front Side (X)	**1.0 job-image-shift-front-y** **x.x document-image-shift-**	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	Yes

IPP Attribute Name	P	PODi	Cat	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CUPS	IPP Attribute Description	JDF/1.0 IDPrinting
			C		@ShiftFront		**front-y** **x.x po-image-shift-front-y**		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 ? C	N/A (P)	LayoutPreparation LayoutPreparationParams/ ImageShift /@ShiftBack	Image Shift Back Side (X)	**1.0 job-image-shift-back-y** **x.x document-image-shift-back-y** **x.x po-image-shift-back-y**	1.2	**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	Yes
no IPP exists	H	1.1 Special (Spot) Color Handling	6 C	ColorIntent/ ColorsUsed/ SeparationSpec/ @Name (S)	DigitalPrinting ColorantControl/ ColorantParams/ SeparationSpec/ @Name (S)	Spot Color (X)			ISSUE: What is this attribute really? Does it match the new proposed IPP **"spot-color-matching" and/or "spot-color-aliases" attributes above?**	
no IPP exists	L ?	EFI Color – CMYK Simulation	6 C	Unknown	Unknown	No (X)			Is IPP color-emulation the same?	
~~no IPP exists~~	~~H~~	~~EFI Color – Spot Color Matching Note: this is needed in IPP as well.~~	~~6 C~~	~~Unknown~~	~~Unknown~~	~~No (X)~~			~~Not an IPP attribute. Note: this is needed in IPP as well.~~	
~~no IPP exists~~	~~L ?~~	~~EFI Image Quality – Black Detection~~	~~6 C~~	~~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	EFI Image Quality – Sharpness	C							
no IPP exists	L ?	EFI Media - Imageable	?	Unknown	Unknown	No (X)			Not an IPP attribute. Note: FSG PAPI is adding "media-	

IPP Attribute Name	P	PODi	C at	JDF 1.1 Product Intent	JDF 1.1 Process Resource	OSDP JDF Spec	JTAPI	CU PS	IPP Attribute Description	JDF/1.0 IDPrinting
		Area							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?	

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 and Table 4 contain a ~~*copy*~~ *summary* 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. To see all of the details of the extension use the IPP reference to find the entry in Table 2 - IPP Attribute Mapping Table. As agreements are reached on extensions and clarifications both Table 2 and Table 3 and Table 4 are updated. The purpose of Table 3 and Table 4 is have a simple way to keep track of the *status* of the proposed clarifications and extensions. The edited version of the JDF/1.1a spec with the proposed extension can be found:
ftp://ftp.pwg.org/pwg/fsg/jobticket/IPP_Mapping/ippidf-mapping-latest.pdf
ftp://ftp.pwg.org/pwg/fsg/jobticket/IPP_Mapping/ippidf-mapping-latest.doc

The "JDF Status" columns indicate the level of agreement and action: ~~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* Resources

JDF Resource	Extension description	JDF Status	corresponding IPP attribute name
ColorIntent	Add: AutomatedOverprintParams	Proposed	**black-overprint** (type2 keyword)
	Add: ColorantAlias	**Proposed**	**highlight-map-color** (type3 keyword | name(MAX))
			spot-name-aliases (1setOf collection)
			spot-name-mapping (1setOf collection)
	Add: ColorCorrectionParams	Proposed	**adjust-*xxx* (integer(-100:100))**
			color-destination-profile-back (type3 keyword | name(MAX))
			color-destination-profile-front (type3 keyword | name(MAX))
			color-emulation (type3 keyword | name (MAX))
	Add: ColorSpaceConversionParams	Proposed	**black-detection-{graphics | images | text}** (boolean)
			black-detection-threshold {graphics | images | text} (integer(0:100))
			color-destination-profile-back (type3 keyword | name(MAX))
			color-destination-profile-front (type3 keyword | name(MAX))
			color-emulation (type3 keyword | name (MAX))
			rendering-intent-{graphics | images | text} (type2 keyword)
			source-{cmy | gray}-{graphics | images | text} (name(MAX))

[35] Can this be accomplished by shifting the image using the image-shift attributes?
[36] Describe in spec how vendor-specific extensions should be handled.

			source-{cmyk | rgb}-{graphics | images | text} (type3 keyword | name(MAX))
			undefined-source-{cmy | gray}-{graphics | images | text} (name(MAX))
			undefined-source-{cmyk | rgb}-{graphics | images | text} (type3 keyword | name(MAX))
	Add value to ColorSpaceConversionOp/@SourceCS: CMY	Proposed	**highlight-map-color** (type3 keyword | name(MAX))
			source-{cmy | gray}-{graphics | images | text} (name(MAX))
			undefined-source-{cmy | gray}-{graphics | images | text} (name(MAX))
	Add: ColorSpaceSubstitute	Proposed	**highlight-map-color** (type3 keyword | name(MAX))
			spot-name-aliases (1setOf collection)
			spot-name-mapping (1setOf collection)
	ISSUE: Clarify ColorStandard "Monochrome" value or add "GrayScale" value	Proposed	**color-effects-type** (type2 keyword)
	Add values to ColorStandard: FOGRA-coated, Japan-coated, FOGRA-matte, FOGRA-uncoated	Proposed	**color-emulation** (type3 keyword | name (MAX))
	~~Add: TransferFunctionControl~~	~~Proposed~~	~~**trc** (collection)~~
LayoutIntent	Add: NonPrintableMargins (NumberList)	Proposed	**edge-to-edge** (type2 keyword)
	Add: FinishedGrainDirection (enumeration) = ParallelToBind, PerpendicularToBind, SystemSpecified	Proposed	**media-grain** (type3 keyword | name(MAX))
ProofingIntent	Add: ImageViewingStrategy with same values as ProofingParams/@ImageViewingStrategy	Proposed	**opi-image-insertion** (type2 keyword)
ScreeningIntent	Define new ScreeningIntent resource with subset of ScreeningParams attributes: Frequency, MacroDotsPerInch, ScreeningFamily, ScreeningType, SourceObjects, SpotFunction	Proposed	**halftone-{graphics | images | text}** (type2 keyword | name(MAX))

Table 4 - Proposed clarifications and extensions to JDF/1.1 for JDF/1.2 needed by the *Process* Resources

JDF Resource	Extension description	JDF Status	corresponding IPP attribute name
Color	Add values to Appendix A.2.8: Cardinal, Cyan, Magenta, Royal, Ruby	Proposed	**highlight-colorant** (type3 keyword | name(MAX))
ColorCorrectionParams	Add: AdjustCyanRed (integer (-100:100))	Proposed	**adjust-cyan-red** (integer(-100:100))
	Add: AdjustMagentaGreen (integer (-100:100))	Proposed	**adjust-magenta-green** (integer(-100:100))
	Add: AdjustYellowBlue (integer (-100:100))	Proposed	**adjust-yellow-blue** (integer(-100:100))
	Add: AdjustConstrast (integer (-100:100))	Proposed	**adjust-contrast** (integer(-100:100))
	Add: AdjustHue (integer (-180:180))	Proposed	**adjust-hue** (integer(-180:180))
	Add: AdjustLightness (integer (-100:100))	Proposed	**adjust-lightness** (integer(-100:100))
	Add: AdjustSaturation (integer (-100:100))	Proposed	**adjust-saturation** (integer(-100:100))
	Add: "AbstractProfile" value to ResourceUsage attribute in FileSpec	Proposed	**adjust-profile** (uri)
ColorSpaceConversionParams	Add: "EmulationProfile" value to ResourceUsage attribute in FileSpec	Proposed	**color-emulation** (type3 keyword | name (MAX))
	Add DestinationRenderingIntent (enumeration) = Perceptual, RelativeColorimetric, AbsoluteColorimetric, Perceptual to ColorSpaceConversionOp, deprecating RenderingIntent	Proposed	**rendering-intent-{graphics | images | text}** (type2 keyword)
	Deprecate RenderingIntent in JDF/1.2; use SourceRenderingIntent or DestinationRenderingIntent instead	Proposed	**rendering-intent-{graphics | images | text}** (type2 keyword)
	Add: RGBGray2BlackThreshold (number)	Proposed	**black-detection-threshold-{graphics | images | text}** (integer(0:100))
ColorSpaceSubstitute	Add: CMYKValue attribute with a CMYKColor data type	Proposed	**highlight-map-color** (type3 keyword | name(MAX))
DigitalPrintingParams	Add: NonPrintableMargins (NumberList)	Proposed	**edge-to-edge** (type2 keyword)

LayoutPreparationParams	Add: ImagePreScanStrategy (NMTOKEN) = NoPreScan, PreScan, PreScanAndGather, SystemSpecified	Proposed	**opi-image-pre-scan** (type2 keyword)
			resource-pre-scan (type2 keyword)
ObjectResolution	Add: AntiAliasing (N) (NMTOKEN) = None, SystemSpecified	Proposed	**anti-aliasing** (type3 keyword)
TrappingDetails	Add value to TrappingType = 2002 (raster trapping)	Proposed	**trapping** (type2 keyword)
TrappingParams	Add: TrapWidthFast (number)	Proposed	**trap-width-fast** (integer(0:MAX))
	Add: TrapWidthSlow (number)	Proposed	**trap-width-slow** (integer(0:MAX))

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

Table 5 lists the suggested extensions to the IPP Color & Imaging Specification 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. See ftp://ftp.pwg.org/pub/pwg/ipp/new_COLOR/pwg-ipp-color-and-imaging-latest-rev.doc for the latest specification. 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 5 - Suggested extensions to IPP Color & Imaging Specification needed by the JDF Product Intent and/or Process Resource subset chosen

IPP attribute name	Status
adjust-hue (integer(-180:180)) [JT, DT, PO]	Proposed to PWG
adjust-profile (uri) [JT, DT, PO]	Agreed by CIP4/PODi: to be proposed to PWG~~Proposed to CIP4/PODi~~
black-detection-{graphics | images | text} (boolean) [JT, DT, PO]	Agreed by CIP4/PODi: to be proposed to PWG
black-detection-threshold-**{graphics | images | text}** (integer(0:100)) [JT, DT, PO]	Proposed to CIP4/PODi
black-overprint (type2 keyword) - add a 'black-overprint-pdl' value.	Agreed by CIP4/PODi: to be proposed to PWG
edge-to-edge (type2 keyword) [JT, DT, PO] - renamed from bleed-edge-printing	Agreed by CIP4/PODi: to be proposed to PWG
additional "highlight-colorant" values to agree with JDF/1.1: **buff,** gold, goldenrod, gray, ivory, multicolor, mustard, orange, pink, sliver, turquoise, white	Agreed by CIP4/PODi: to be proposed to PWG~~Proposed to CIP4/PODi~~
job-client-id (name(MAX)) [JD]	to be proposed to PWG ~~ISSUE: Propose to PWG?~~
job-comment (text(MAX)) [JD]	Agreed by CIP4/PODi: to be proposed to PWG
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
opi-image-insertion (type2 keyword) - add ~~'no-image' and~~ 'embedded-and-insert' and 'insert' values~~?~~	Agreed by CIP4/PODi: to be proposed to PWG~~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?**
proof-print (collection) - add "proof-print-contact" (text(MAX)) member attribute	Agreed by CIP4/PODi: to be proposed to PWG~~Proposed to CIP4/PODi~~
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?**
spot-name-aliases (1setOf collection) [JT, DT, PO]	Proposed to CIP4/PODi
spot-name-mapping (1setOf collection) [JT, DT, PO]	Proposed to CIP4/PODi
trapping (1setOf type2 keyword) - add 'graphics', 'images', and 'text' values and change to 1setOf~~?~~	~~Proposed~~ Agreed by~~to~~ CIP4/PODi; to be proposed to PWG
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 6 - CUPS Job Template extensions to IPP

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

5 Attributes for the proposed PDC document

The following attributes are listed in the proposed PDC Document:

Table 7 - 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

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

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

7 Change Log

Summary of changes in reverse chronological order:

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

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

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

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

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

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

7.4 Changes to make version 0.6 October 14, 2002:

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

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

1. Instead of deprecating "**ipp-attribute-fidelity**", made it work with the new "**job-mandatory-attributes**".
2. In "**job-mandatory-attributes**", added way to specify the member attribute in a collection attribute ("attr-name.member-name").
3. Fixed "**pages-per-subset"** as Job level only. Clarified that it combines all Input Documents into a single contiguous Input-Pages stream and then subsetts the stream into Output Documents. Fixed the reference.

4. Finished reviewing (X) in OSDP JDF Spec column during 15Oct Digital Printing working group meeting.
5. Continued updating JTAPI column per 15Oct FSG Job Ticket working group meetings (updated up through jog-offset).
6. Moved descriptions of (S), (M), (Mn), (X) keys into Column heading Description table.
7. Added descriptions of categories to Column heading Description table for PODi column.

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

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

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

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

7.8 Changes to make version 0.90 (0.10), November 01, 2002:

1. Added Medium Priority.
2. Added N/A and Unknown for JDF 1.1 Product Intent and JDF 1.1 Process Resouce columns.
3. Per 10/30 PODi meeting, changed Priority of job-priority, media-back-coating, media-front-coating, media-recycled, media-grain, media-tooth, media-thickness, output-bin, print-quality to Medium.
4. Continued updating JTAPI column per 29 Oct FSG Job Ticket working group meeting (updated up through number-up)
5. Added IPP Attribute Description column and moved descriptions from end of document to table.
6. Added some fold, bind, and punch enum values from [finishing2].
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 (0.11), 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 (0.12), 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 (0.13), 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 (0.14), 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 **Error! Reference source not found.** 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 (0.15), December 02, 2002:

1. Fixed typos in JTAPI column

7.14 Changes to make version 0.96 (0.17), 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 (0.18), December 06, 2002:

The following changes were made as a result of the PWG Semantic Model review, December 5, and the joint CIP4 Digital Printing WG, CIP4 Color Workflow WG, PODi Job Ticketing WG, and the FSG JTAPI 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/@NonPrintableMargins (N) and a JDF Process Resource mapping of DigitalPrintingParams/@NonPrintableMargins (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 (0.19), 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 in 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 **Error! Reference source not found.** and Table 5, 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 must easier to read.
6. Reformatted the XPath so that line breaks occur after each element.

7.17 Changes to make version 0.972 (0.20), December 10, 2002:

1. Updated JTAPI column per 10-Dec-2002 FSG Job Ticket working group meeting to reconcile differences between High Priority column and JTAPI column for JTAPI 1.0.

7.18 Changes to make version 0.21, December 16, 2002:

The following changes were made as a result of the joint CIP4 Digital Printing WG, CIP4 Color Workflow WG, PODi Job Ticketing WG, and the FSG JTAPI review, December 11 and 12:

1. Updated JTAPI column per 10-Dec-2002 FSG Job Ticket working group meeting to reconcile differences between High Priority column and JTAPI column for JTAPI 1.0.
2. Moved the JDF/1.0 IDPrinting mapping column to be the rightmost, since the least important.
3. Defined the Normal JT attr Style for the JT API column, so hanging indent, instead of width sensitive leading spaces.
4. Highlighted in green like this each JDF extension for color and made the corresponding change in the JDF/1.1a spec (see file: JDF1.1a-4Sept2002-with-color-ext.doc) and also highlighted it like this.

5. Added the following JDF/1.1a process resources to ColorIntent: ColorCorrectionParams, SeparationControlParams, ColorSpaceConversionParams, rather than attaching a process to the Intent Node.
6. Added the following new attributes to LayoutIntent: *FinishedGrainDirection* and *NonPrintableMargins*.
7. Filled in many mappings.

7.19 Changes to make version 0.22, December 17, 2002:

The following changes were made as a result of the joint CIP4 Digital Printing WG, CIP4 Color Workflow WG, PODi Job Ticketing WG, and the FSG JTAPI review, Tuesday Dec 17:

1. Accepted revision marks immediately after the meeting, Dec 17, so revisions show things I did trying to carryout the agreements reached.
2. Clarified that the Printer applies the Adjust IPP attributes anywhere in its workflow in an implementation dependent manner.
3. For the new ScreeningIntent resource changed the names of the ScreeningIntent Resource attribute names to be the same as the corresponding ScreeningParams/ScreenSelector Process Resource attributes. The difference is in the data type which is XxxxSpan.
4. Changed the AM mapping so that both dpi and lpi IPP values are AM.
5. Added SpotFunction to the new ScreeningIntent resource.
6. Added the following resources to ColorIntent: AutomatedOverprintParams to use: OverPrintBlackText and OverPrintBlackLineArt
7. Added the following resources to ColorIntent: ColorCorrectionParams to use: (7 new) AdjustXxxx, FileSpec
8. Added the following resources to ColorIntent: ColorSpaceConversionParams to use: ColorSpaceConversionOp/(Operation, SourceCS, SourceObjects, FileSpec, (new) DestinationRenderingIntent (enumeration))
9. Added the following resources to ColorIntent: TransferFunctionControl to use: TransferFunctionSource, Name, Curve, Separation
10. Added new color name values to JDF Appendix A.2.8: Cardinal, Cyan, Magenta, Royal, Ruby.
11. Added the IPP **spot-color-matching** (1setOf (name(MAX))) attribute with mapping to EFI Spot Color Matching and JDF ColorIntent/ColorantAlias, ColorantControl/ColorantAlias, and ColorantControl/ColorSpaceSubstitute.
12. Added the IPP **black-detection-{graphics | images | text}** (boolean) attribute with mapping to EFI Image Quality - Black Detection and JDF ColorIntent/ColorSpaceConversionParams/ColorSpaceConversionOp/@RGBGray2Black (boolean) and ColorSpaceConversionParams/ColorSpaceConversionOp/@RGBGray2Black (boolean).

7.20 Changes to make version 0.23, December 18, 2002:

1. Replaced Table 3 with Shortened and simplified Table 3 and Table 4 so JDF resources are listed in alphabetical order with references to the IPP attributes where the detailed extension is listed.

7.21 Changes to make version 0.24, January 6, 2003:

The following changes were made as a result of the joint CIP4 Digital Printing WG, CIP4 Color Workflow WG, PODi Job Ticketing WG, and the FSG JTAPI review, Tuesday December 17, 2002 and Thursday, December 19, 2002:

1. Added black-detection-threshold-**{graphics | images | text}** (integer(0:100)) IPP attribute and its corresponding JDF ColorSpaceConversionParams/ColorSpaceConversionOp/@RGBGray2BlackThreshold (double) attribute.
2. Clarified “highlight-map-color”.
3. Mapped IPP “print-quality” ‘draft’, ‘normal’, and ‘high’ to ProductionIntent/@PrintPreference ‘Fastest’, ‘Balanced’, and ‘HighestQuality’
4. Added IPP “spot-name-aliases” and “sport-name-mapping” attributes with existing JDF mapping. Both map many to one and can have several target colors.
5. Added TrappingType = ‘2001’ for raster trapping.
6. Changed the data type of TrappingParams/@TrapWidthSlow and @TrapWidthFast from integer to number, so that a fraction of a pixel can be specified for raster trapping.

7. Removed trc from the Product Intent column.