

**IPP Operation, Job, Document, Subscription, and Printer Attributes**  
 for use by the PWG for the PWG Semantic Model and  
 for use by the FSG Job Ticket, Capability, and Spool WGs  
 for use in the Job Ticket, Capability, and PAPI APIs

**From: Tom Hastings**  
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This document contains a list of IPP attributes used in IPP operations to represent and control the Job, (new, work in progress) Document, Subscription, and Printer objects. References to the IETF and IEEE-ISTO specifications containing the complete semantics is given for each attribute. The purpose of this document to give a simple list of the IPP attributes for the following two purposes:

1. to be included in the PWG Semantic Model being developed by the Printer Working Group (PWG). See <http://www.pwg.org>.
2. that can be supported in the Free Standards Group (FSG) Job Ticket API, the FSG Job Capability API, the FSG Print API (PAPI), and in a PWG Job Ticket (being developed as part of the PWG Semantic Model). The FSG Capability API should consider the Printer attributes as useful attributes to describe the capabilities of a Printer or print service. Since the FSG Job Ticket WG is discussing including the results of job processing in a copy of the FSG Job Ticket API for a future phase, the Job Description attributes are included here also. See <http://www.fsg.org>.

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## 1 Operation semantics

This document lists the attributes defined in [RFC2911] and extension documents (IETF and IEEE-ISTO documents) that a client can supply in a Job Creation operation: Print-Job, Print-URI, and Create-Job. The Print-Job operation request contains the attributes and a single Document Content. The Print-URI operation request contains the attributes and a URL to a single Document Content (print-by-reference). The Create-Job operation request contains the attributes only; subsequent Send-Document and/or Send-URI operation requests supply the Document Content and URI, respectively. In IPP, per-document attributes can be supplied at the job level using the “document-exceptions” (1setOf collection) attribute which specifies attributes for a range of documents in a multi-document job. Similarly, in IPP, per-page range attributes can be supplied at the job level using the “page-exceptions” (1setOf collection) attribute which specified attributes for a range of pages in a document. A planned extension to the PWG Semantic Model (and IPP) is to allow the attributes to be supplied with each Send-Document and Send-URI operation requests, instead of having to use the “document-overrides” (1setOf collection) mechanism. This extension aligns with the thinking in the FSG Job Ticket WG.

## 2 Table Description

### 2.1 Scope of Attributes: Job, Document, or Page Range

In the tables, the J column indicates whether the attribute can be supplied at the job level, the D column indicates whether the attribute can be supplied at the document level, and the P column indicates whether the attribute can be supplied at the page-range level. If an attribute is specified at the Job level, Document level and Page Range level, the precedence is that the Page Range specification overrides the Document level and the Document level overrides the Job Level. Some attributes that can apply to a Page Range actually control sheets, rather than pages. For example “media”. When such a sheet attribute is specified for a page range, the Printer forces the specification to the next whole sheet.

### 2.2 Intensive versus Extensive attributes

Normally, the semantics of an attribute specified at the Job level is inherited by each Document in a multi-document job and has the same semantics as if the attribute had been supplied explicitly for each document. Same for Page Ranges. For those few attributes whose semantics depend on the extent to which they are applied (so-called “extensive” attributes, such as “copies”, “finishing”, “force-front-side”, “insert-sheet”, “jogging”, and “page-ranges”, and “pages-per-subset”), a footnote indicates that the semantics at the Job level applies to the job as a single unit, and so has *potentially* different semantics than if that attribute is supplied with each Document. Similarly for the Document level versus the Page Range level. IPP and the

PWG Semantic Model allow the client to control whether the semantics of the extensive attributes are to apply to the job as a whole or to each document separately, through the use of the “multiple-document-handling” Job level attribute, i.e., whether the input documents are to be concatenated as a single output document or are to be kept separate. The FSG version 0.4 PAPI and Java 1.4 Print API follow IPP RFC 2911, so support the “multiple-document-handling” attribute. The FSG Job Ticket API needs to decide whether to follow this approach or have some other way to distinguish whether the extensive attributes at the Job level are to apply to the job as a whole or to each individual document separately.

### **2.3 Conformance requirements**

In the tables, the Conformance columns indicate the conformance requirements for the client to supply in a Job Creation request and for the Printer to support in a Job Creation request. The Reference column indicates the IPP specification document in which the semantics of the attribute are defined (see section 9).

### **2.4 Attribute grouping**

For Job Creation requests, the attributes are separated into Operation attributes, Job Template attributes, and Subscription Template attributes. Operation attribute control the Job Creation operation itself while the Job Template attribute reflect the printing features of the Printer for creating the Job object. Subscription Template attributes specify Event Notification and create one or more Subscription objects.

Job, Document, Subscription, and Printer objects also have Job Description, Document Description, Subscription Description, and Printer Description attributes which are filled in by the Printer. Some of the values filled in by the Printer come from corresponding attributes supplied by the client in a request.

### **2.5 The ‘collection’ attribute syntax**

A number of attributes have an attribute syntax of ‘collection’ (see [coll]). The value of a collection attribute is, itself, a set of attributes called member attributes. The member attribute are also listed in the tables in this document indented under the collection attribute. Some of the collection attributes also have a simpler form, consisting of a single value that identifies a supported entity in the Printer, such as a start-sheet-format or media. For example, the “media” and “media-col” attributes are both defined, as are the “job-sheets” and “job-sheets-col” attributes. For a Job Ticket API, each pair of attributes could/should be combined into a single class. The conformance for member attributes is also indicated. A “MUST” means that the client MUST supply or the Printer MUST support, if it supports the collection attribute at all, i.e., is a conditional MUST.

### 3 Operation Attributes for the Job Creation operations

Operation attributes relate to the operation and do not depend on the printing capabilities of the Printer.

#### 3.1 *Operation Attributes supplied in Job Creation requests*

Table 1 lists the Operation attributes that clients supply in Job Creation operation *requests*: Print-Job, Print-URI, and Create-Job. The value of the “ipp-attribute-fidelity” operation attribute does *not* affect the Printer’s handling of the other operation attributes, only its handling of the Job Template attributes (see section 4).

The “Supplied” column indicates whether the Operation attribute can be supplied in a Job Creation operation (Job = y) and/or a Document Creation operation (Doc = y). The Conformance column indicates the conformance requirements for what the client supplies in a request and the Printer supports in a request. The Reference and Section columns list the IETF or IEEE-ISTO specification which defines the semantics of the attribute

**Table 1 - Operation Attributes supplied in Job and Document Creation operation requests**

Operation attribute	Attribute Syntax	Supplied		Conformance		Reference	Section
		Job	Doc	Client supply	Printer support		
<b>attributes-charset</b> *	charset	y	y	MUST	MUST	[RFC2911]	3.1.4
<b>attributes-natural-language</b> *	naturalLanguage	y	y	MUST	MUST	[RFC2911]	3.1.4
<b>compression</b>	type3 keyword	y	y	MAY	MUST	[RFC2911]	3.2.1.1
<b>document-format</b>	mimeMediaType	y	y	MAY	MUST	[RFC2911]	3.2.1.1
<b>document-name</b>	name(MAX)	y	y	MAY	MUST	[RFC2911]	3.2.1.1
<b>document-natural-language</b>	naturalLanguage	y	y	MAY	MAY	[RFC2911]	3.2.1.1
<b>document-overrides</b>	1setOf collection	y	y <sup>1</sup>	MAY	MAY	[override]	5.1
<b>document-uri</b>	uri	-	y	MAY	MAY	[RFC2911]	3.2.2
<b>input-document-number</b>	integer(1:MAX)	-	y	MAY	MAY	[override]	9.2
<b>ipp-attribute-fidelity</b>	boolean	y	y	MAY	MUST	[RFC2911]	3.2.1.1
<b>job-impressions</b>	integer(0:MAX)	y	y	MAY	MAY	[RFC2911]	3.2.1.1
<b>job-k-octets</b>	integer(0:MAX)	y	y	MAY	MAY	[RFC2911]	3.2.1.1
<b>job-media-sheets</b>	integer(0:MAX)	y	y	MAY	MAY	[RFC2911]	3.2.1.1
<b>job-name</b>	name(MAX)	y	-	MAY	MUST	[RFC2911]	4.3.5
<b>last-document</b>	boolean	-	y	MAY	MUST	[RFC2911]	3.3.1.1
<b>operation-id</b> *	integer(1:0x8FFF)	y	y	MUST	MUST	[RFC2911]	3.1.2
<b>page-overrides</b>	1setOf collection	-	y <sup>2</sup>	MAY	MAY	[override]	
<b>printer-uri</b> *	uri	y	y	MUST	MUST	[RFC2911]	3.1.5
<b>request-id</b> *	integer(1:MAX)	y	y	MUST	MUST	[RFC2911]	3.1.2
<b>requesting-user-name</b> *	name(MAX)	y	y	SHOULD	MUST	[RFC2911]	3.2.1.1
<b>version-number</b> *	X.Y	y	y	MUST	MUST	[RFC2911]	3.1.8

\* - indicates attributes that are defined for *all* operations, not just Job Creation operations

<sup>1</sup> The “document-overrides” (collection) attribute MAY be supplied by the client in a Send-Document or Send-URI request to apply document overrides to this and/or subsequent documents in the job. However, with the introduction of the Document object, the “document-overrides” (collection) attribute SHOULD NOT be used. Instead, the client simply supplies the Document Template attributes (see Table 3) for this document only without needing a collection. See the “page-overrides” Job Template attribute in Table 3 for the listing of the member attributes.

<sup>2</sup> The “page-overrides” (collection) attribute MAY be supplied by the client in a Send-Document or Send-URI request to apply page overrides to this and/or subsequent documents in the job. However, with the introduction of the Document object, the “page-overrides” (collection) attribute SHOULD be more simply supplied as one of the Document Template attributes for this document only. See the “page-overrides” Job Template attribute in Table 3 for the listing of the member attributes.

### 3.2 Operation Attributes returned in Job Creation responses

Table 2 lists the Operation attributes that Printers return in Job Creation operation *responses*. The column labeled “Conformance” indicates the conformance for what the Printer returns and what the Printer supports. The Reference and Section columns list the IETF or IEEE-ISTO specification which defines the semantics of the attribute.

**Table 2 - Operation attributes returned in Job Creation operation responses**

Operation attribute	Attribute Syntax Values	Conformance		Reference	Section
		Printer return	Printer support		
<b>attributes-charset *</b>	charset	MUST	MUST	[RFC2911]	3.1.4
	‘utf-8’	MAY	MUST	[RFC2911]	4.1.7
	‘us-ascii’	MAY	MAY	[RFC2911]	4.1.7
	‘iso-8859-1’	MAY	MAY	[RFC2911]	4.1.7
	‘iso-10646-ucs-2’	MAY	MAY	[RFC2911]	4.1.7
<b>attributes-natural-language *</b>	naturalLanguage	MUST	MUST	[RFC2911]	3.1.4
	‘en-US’	MAY	MAY	[RFC2911]	4.1.8
<b>detailed-status-message *</b>	text	MAY	MAY	[RFC2911]	3.1.6.3
<b>document-access-error</b>	text	MAY	MAY	[RFC2911]	3/1/6/4
<b>job-id</b>	integer(1:MAX)	MUST	MUST	[RFC2911]	4.3.2
<b>job-uri</b>	uri	MUST	MUST	[RFC2911]	4.3.1
<b>request-id *</b>	integer(1:32767)	MUST	MUST	[RFC2911]	3.1.2
<b>status-code *</b>	integer(0:32767)	MUST	MUST	[RFC2911]	3.1.6.1
<b>status-message *</b>	text(255)	MAY	MAY	[RFC2911]	3.1.6.2
<b>version-number *</b>	integer(1:255), integer(0:255)	MUST	MUST	[RFC2911]	3.1.8

\* - indicates attributes that are defined for *all* operations, not just Job Creation operations

## 4 Job Template attributes

Table 3 lists the Job Template attributes used in the Job Creation operations: Print-Job, Print-URI, and Create-Job and in Document Creation operations: Print-Job, Print-URI, Send-Document, and Send-URI. Most of these Job Template attributes can also be supplied as Document Overrides or Page Overrides, using the “document-overrides” and “page-overrides” Operation attributes, respectively, each of which can be supplied Job Creation and/or Document Creation requests (see Table 1).

The “Supplied” column indicates whether the attribute can be supplied at the job, document, or page level with the following semantics:

Supplied	Description
Job=y:	All Job Template attributes may be supplied at the Job Level in which case each Document inherits the Job Template attribute as a default which is used unless an attribute at the document level is also supplied). Note: The “multiple-document-handling” attribute controls whether extensive attributes, such as “finishing”, “copies”, affect the entire job as a whole (‘single-xxx’ values) or affect each document separately (‘separate-xxx’ values).
Doc=y:	The attribute may be supplied at the job level in a “document-overrides” collection attribute to affect the specified document or documents.
Page=y:	The attribute may be supplied at the job level or document level in a “page-overrides” collection attribute to affect the specified range of pages.

Job Template attributes are OPTIONAL for a Printer to support and for a client to supply in a Job Creation or Document Creation request or a Document Overrides or Page Overrides. However, if a Job Template collection attribute is supported (see section 2.5 above), then there are conformance requirements for which member attributes MUST be supported and which member attributes a client MUST supply as indicated in the Conformance column for each collection member attribute. The value of the “ipp-attribute-fidelity” operation attribute (see section 3) affects the Printer action when an unsupported Job Template attribute is supplied in a Job Creation or Document Creation request. If ‘true’, the Printer MUST reject the request, if ‘false’ the Printer MUST accept the request and ignore or substitute the unsupported Job Template attribute.

**Table 3 - Job Template attributes**

Job Template attribute	Attribute Syntax	Supplied			Conformance		Reference	Sect.
		J	D	P	Client supply	Printer support		
<b>copies</b>	integer(1:MAX)	y <sup>3</sup>	y	y	MAY	MAY	[RFC2911]	4.2.5
<b>cover-back</b>	collection	y	y	n	MAY	MAY	[prod-print]	3.1
<b>media</b>	type3 keyword   name(MAX)				MAY be neither or one of, but NOT both	MUST	[prod-print]	3.1.1
<b>media-col</b>	collection					MAY	[prod-print]	3.1.1
<b>cover-type</b>	type2 keyword				MUST	MUST	[prod-print]	3.1.2
<b>cover-front</b>	collection	y	y	n	MAY	MAY	[prod-print]	3.1
<b>media</b>	type3 keyword   name(MAX)				MAY be neither or one of, but NOT both	MUST	[prod-print]	3.1.1
<b>media-col</b>	collection					MAY	[prod-print]	3.1.1
<b>cover-type</b>	type2 keyword				MUST	MUST	[prod-print]	3.1.2
<b>document-overrides</b>	collection	y	n	n	MAY	MAY	[override]	5.1
<b>input-documents</b>	1setOf rangeOfInteger(MAX)				MUST be one or the other, but NOT both	MUST	[override]	5.1.1
<b>output-documents</b>	1setOf rangeOfInteger(MAX)					MUST		5.1.2
<b>document-copies</b>	1setOf rangeOfInteger(MAX)				MAY	MAY	[override]	5.1.3
<b>document-format</b>	mimeMediaType				MAY	MUST	[override]	5.1.4
<b>document-name</b>	name (MAX)				MAY	MUST	[override]	5.1.5
<b>compression</b>	type3 keyword				MAY	MUST	[override]	5.1.6
<b>document-natural-language</b>	naturalLanguage				MAY	MAY	[override]	5.1.7
<b>page-ranges</b>	1setOf rangeOfInteger (1:MAX)				MAY	MAY	[override]	5.1.8
<i>any other Job Template attributes that affect documents, such as “media” or “media-col”</i>					MAY	MAY		

<sup>3</sup> In IPP “copies” 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” 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’ 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.. **ISSUE for FSG JT API: “copies” is an extensive attribute, so when it is applied at the job level of a multi-document job it could mean either: (1) the entire job or (2) each document separately. Therefore, we need to decide for the FSG JT spec or provide a means for the client to choose (i.e., support “multiple-document-handling”).**



Job Template attribute	Attribute Syntax	Supplied			Conformance		Reference	Sect.
		J	D	P	Client supply	Printer support		
<b>finishings</b>	1setOf type2 enum	y <sup>4</sup>	y	y	MAY be neither or one of, but NOT both	MAY, MUST if “finishings-col” is supported	[RFC2911]	4.2.6
<b>finishings-col</b>	collection	y <sup>2</sup>	y	y		MAY	[prod-print]	3.2
<b>finishing-template</b>	name(MAX)				MAY	MAY	[prod-print]	3.2.1
<b>stitching</b>	collection				MAY	MAY	[prod-print]	3.2.2
<b>stitching-reference-edge</b>	type2 keyword				MUST	MUST	[prod-print]	3.2.2.1
<b>stitching-offset</b>	integer (0:MAX)				MUST	MUST	[prod-print]	3.2.2.2
<b>stitching-locations</b>	1setOf integer(0:MAX)				MUST	MUST	[prod-print]	3.2.2.3
<b>force-front-side</b>	1setOf integer(1:MAX)	y <sup>5</sup>	y	y	MAY	MAY	[prod-print]	3.3
<b>imposition-template</b>	type2 keyword   name(MAX)	y	y	y	MAY	MAY	[prod-print]	3.4
<b>insert-sheet</b>	1setOf collection	y <sup>3</sup>	y	y	MAY	MAY	[prod-print]	3.5
<b>insert-after-page-number</b>	integer(0:MAX)				MUST	MUST	[prod-print]	3.5.1
<b>insert-count</b>	integer(0:MAX)				MAY	MUST	[prod-print]	3.5.2
<b>media</b>	type3 keyword   name(MAX)				MUST be one or the other, but NOT both	MUST	[prod-print]	3.5.3
<b>media-col</b>	collection					MAY	[prod-print]	3.5.3

<sup>4</sup> In IPP “finishings” and “finishings-col” 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” 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. ISSUE for FSG JT API: “finishings” and “finishings-col” are extensive attributes, so when either one of them is applied at the job level of a multi-document job it could mean either: (1) the entire job or (2) each individual document separately. Therefore, we need to decide for the FSG JT spec or provide a means for the client to choose (i.e., support “multiple-document-handling”).

<sup>5</sup> In IPP the affect of the “force-front-side” and “insert-sheet” attributes when supplied at the job level of a multi-document job depends on the value of the “multiple-document-handling” 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. ISSUE for FSG JT API: The “force-front-side” and “insert-sheet” attributes are extensive attributes, so when they are applied at the job level of a multi-document job it could refer to either: (1) pages numbered from 1 to n for the entire job or (2) pages numbered from 1 to n for each document separately. Therefore, we need to decide for the FSG JT spec or provide a means for the client to choose (i.e., support “multiple-document-handling”).

Job Template attribute	Attribute Syntax	Supplied			Conformance		Reference	Sect.
		J	D	P	Client supply	Printer support		
<b>job-account-id</b>	name(MAX)	y	n	n	MAY	MAY	[prod-print]	3.6
<b>job-accounting-sheets</b>	collection	y	n	n	MAY	MAY	[prod-print]	3.8
<b>job-accounting-sheets-type</b>	type3 keyword   name(MAX)				MUST	MUST	[prod-print]	3.8.1
<b>media</b>	type3 keyword   name(MAX)				MAY be neither or one of, but NOT both	MUST	[prod-print]	3.8.2
<b>media-col</b>	collection					MAY	[prod-print]	3.8.2
<b>job-accounting-output-bin</b>	type3 keyword   name(MAX)				MAY	MAY	[prod-print]	3.8.3
<b>job-accounting-user-id</b>	name(MAX)	y	n	n	MAY	MAY	[prod-print]	3.7
<b>job-error-sheet</b>	collection	y	n	n	MAY	MAY	[prod-print]	3.9
<b>job-error-sheet-type</b>	type3 keyword   name(MAX)				MUST	MUST	[prod-print]	3.9.1
<b>job-error-sheet-when</b>	type2 keyword				MAY	MAY	[prod-print]	3.9.2
<b>media</b>	type3 keyword   name(MAX)				MAY be neither or one of, but NOT both	MUST	[prod-print]	3.9.3
<b>media-col</b>	collection					MAY	[prod-print]	3.9.3
<b>job-hold-until</b>	type3 keyword   name(MAX)	y	n	n	MAY	MAY	[RFC2911]	4.2.2
<b>job-message-to-operator</b>	text(MAX)	y	n	n	MAY	MAY	[prod-print]	3.10
<b>job-priority</b>	integer(1:100)	y	n	n	MAY	MAY	[RFC2911]	4.2.1
<b>job-sheet-message</b>	text(MAX)	y	n	n	MAY	MAY	[prod-print]	3.12
<b>job-sheets</b>	type3 keyword   name(MAX)	y	n	n	MAY be neither or one of, but NOT both	MAY, MUST if "job-sheets-col" supported	[RFC2911]	4.2.3
<b>job-sheets-col</b>	collection	y	n	n		MAY	[prod-print]	3.11
<b>job-sheets</b>	type3 keyword   name(MAX)				MUST	MUST	[prod-print]	3.11.1
<b>media</b>	type3 keyword   name(MAX)				MUST be one or the other, but NOT both	MUST	[prod-print]	3.11.2
<b>media-col</b>	collection					MAY	[prod-print]	3.11.2

Job Template attribute	Attribute Syntax	Supplied			Conformance		Reference	Sect.
		J	D	P	Client supply	Printer support		
<b>media</b>	type3 keyword   name(MAX)	y	y	y	MAY be neither or one of, but NOT both	MAY, MUST if “media-col” supported	[RFC2911]	4.2.11
<b>media-col</b>	collection	y	y	y		MAY	[prod-print]	3.13
<b>media-key</b>	type3 keyword   name(MAX)				MAY	MAY	[prod-print]	3.13.1
<b>media-type</b>	type3 keyword   name(MAX)				MAY	MAY	[prod-print]	3.13.2
<b>media-info</b>	text(255)				MAY	MAY	[prod-print]	3.13.3
<b>media-color</b>	type3 keyword   name(MAX)				MAY	MAY	[prod-print]	3.13.4
<b>media-preprinted</b>	type3 keyword   name(MAX)				MAY	MAY	[prod-print]	3.13.5
<b>media-hole-count</b>	integer(0:MAX)				MAY	MAY	[prod-print]	3.13.6
<b>media-order-count</b>	integer(1:MAX)				MAY	MAY	[prod-print]	3.13.7
<b>media-size</b>	collection				MAY	MUST	[prod-print]	3.13.8
<b>x-dimension</b>	integer(0:MAX)				MUST	MUST	[prod-print]	3.13.8.1
<b>y-dimension</b>	integer(0:MAX)				MUST	MUST	[prod-print]	3.13.8.2
<b>media-weight-metric</b>	integer(0:MAX)				MAY	MAY	[prod-print]	3.13.9
<b>media-front-coating</b>	type3 keyword   name(MAX)				MAY	MAY	[prod-print]	3.13.10
<b>media-back-coating</b>	type3 keyword   name(MAX)				MAY	MAY	[prod-print]	3.13.10
<b>media-recycled</b>	type3 keyword   name(MAX)				MAY	MAY	[prod-print]	3.13.11
<b>media-input-tray-check</b>	type3 keyword   name(MAX)	y	y	y	MAY	MAY	[prod-print]	3.14
<b>multiple-document-handling</b>	type2 keyword	y <sup>6</sup>	n	n	MAY	MUST if multiple document jobs supported	[RFC2911]	4.2.4

<sup>6</sup> ISSUE for FSG JT API: “multiple-document-handling” is a job level only attribute which controls whether the extensive job level attributes apply to the job as a whole or to each document separately.

Job Template attribute	Attribute Syntax	Supplied			Conformance		Reference	Sect.
		J	D	P	Client supply	Printer support		
<b>number-up</b>	integer(1:MAX)	y	y	y	MAY	MAY	[RFC2911]	4.2.9
<b>orientation-requested</b>	type2 enum	y	y	y	MAY	MAY	[RFC2911]	4.2.10
<b>output-bin</b>	type2 keyword   name(MAX)	y	n	n	MAY	MAY	[output-bin]	2.1
<b>page-delivery</b>	type2 keyword	y	y	n	MAY	MAY	[prod-print]	3.15
<b>page-order-received</b>	type2 keyword	y	y	n	MAY	MAY	[prod-print]	3.16
<b>page-overrides</b>	1setOf collection	y	y	n/a	MAY	MAY	[override]	5.2
input-documents	1setOf rangeOfInteger(MAX)				MUST be one or the other, but NOT both	MUST	[override]	5.2.1
output-documents	1setOf rangeOfInteger(MAX)					MUST	[override]	5.2.2
document-copies	1setOf rangeOfInteger(MAX)				MAY	MAY	[override]	5.2.3
pages	1setOf rangeOfInteger(MAX)				MUST	MUST	[override]	5.2.4
<i>any other Job Template attributes that affect pages, such as “media” or “media-col”</i>					MAY	MAY		
<b>page-ranges</b>	1setOf rangeOfInteger(1:MAX)	y <sup>7</sup>	y	n/a	MAY	MAY	[RFC2911]	4.2.7
<b>pages-per-subset</b>	1setOf integer(1:MAX)	y <sup>5</sup>	y	n/a	MAY	MAY	[prod-print]	5.3
<b>presentation-direction-number-up</b>	type2 keyword	y	y	y	MAY	MAY	[prod-print]	3.17
<b>print-quality</b>	type2 enum	y	y	y	MAY	MAY	[RFC2911]	4.2.13
<b>printer-resolution</b>	resolution	y	y	y	MAY	MAY	[RFC2911]	4.2.12
<b>separator-sheets</b>	collection	y	y	y	MAY	MAY	[prod-print]	3.18
<b>separator-sheets-type</b>	type3 keyword   name(MAX)				MUST	MUST	[prod-print]	3.18.1
<b>media</b>	type3 keyword   name(MAX)				MAY be neither or one of, but NOT both	MUST	[prod-print]	3.18.2
<b>media-col</b>	collection					MAY	[prod-print]	3.18.2

<sup>7</sup>In IPP “page-ranges” and “pages-per-subset” are extensive attributes, so that their affect when supplied at the job level of a multi-document job depends on the value of the “multiple-document-handling” 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. **ISSUE for FSG JT API:** “page-ranges” and “pages-per-subset” are extensive attributes, so when they are applied at the job level of a multi-document job the pages could be numbered either: (1) from 1 to n for the entire job as a whole or (2) from 1 to n for each document separately. Therefore, we need to decide for the FSG JT spec or provide a means for the client to choose (i.e., support “multiple-document-handling”).

Job Template attribute	Attribute Syntax	Supplied			Conformance		Reference	Sect.
		J	D	P	Client supply	Printer support		
<b>sheet-collate</b>	type2 keyword	y	y	n	MAY	MAY	[job-prog]	3.1
<b>sides</b>	type2 keyword	y	y	y	MAY	MAY	[RFC2911]	4.2.8
<b>x-image-position</b>	type2 keyword	y	y	y	MAY	MAY	[prod-print]	3.19.2
<b>x-image-shift</b>	integer(MIN:MAX)	y	y	y	MAY	MAY	[prod-print]	3.19.3
<b>x-side1-image-shift</b>	integer(MIN:MAX)	y	y	y	MAY	MAY	[prod-print]	3.19.4
<b>x-side2-image-shift</b>	integer(MIN:MAX)	y	y	y	MAY	MAY	[prod-print]	3.19.5
<b>y-image-position</b>	type2 keyword	y	y	y	MAY	MAY	[prod-print]	3.19.6
<b>y-image-shift</b>	integer(MIN:MAX)	y	y	y	MAY	MAY	[prod-print]	3.19.7
<b>y-side1-image-shift</b>	integer(MIN:MAX)	y	y	y	MAY	MAY	[prod-print]	3.19.8
<b>y-side2-image-shift</b>	integer(MIN:MAX)	y	y	y	MAY	MAY	[prod-print]	3.19.9

## 5 Subscription Template attributes for Event Notification

Table 4 lists the Subscription Template attributes used in the Subscription Creation operations. When supplied as part of a Job Creation operation: Print-Job, Print-URI, and Create-Job Subscription Template attribute can be specified only at the job level. Subscription Template attributes are OPTIONAL a client to supply in a Job Creation request. Event Notification is OPTIONAL for an IPP/1.1 client and Printer to support. However, if a client or Printer supports Event Notification, the Conformance section indicates the required support of the Subscription Template attributes.

**Table 4 - Subscription Template attributes for Event Notification**

Job Template attribute	Attribute Syntax	Conformance		Reference	Section
		Client supply	Printer support		
<b>notify-attributes</b>	1setOf type2 keyword	MAY	MAY	[ntfy]	5.3.4
<b>notify-charset</b>	charset	MAY	MUST	[ntfy]	5.3.6
<b>notify-events</b>	1setOf type2 keyword	MAY	MUST	[ntfy]	5.3.3
<b>notify-lease-duration</b>	integer(0:MAX)	MAY	MUST	[ntfy]	5.3.8
<b>notify-natural-language</b>	naturalLanguage	MAY	MUST	[ntfy]	5.3.7
<b>notify-pull-method **</b>	type2 keyword	MUST **	MUST **	[ntfy]	5.3.2
<b>notify-recipient-uri *</b>	uri	MUST *	MUST *	[ntfy]	5.3.1
<b>notify-time-interval</b>	integer(0:MAX)	MAY	MUST	[ntfy]	5.3.9
<b>notify-user-data</b>	octetString(63)	MAY	MUST	[ntfy]	5.3.5

\* “notify-recipient-uri” is for Push Delivery Methods only.

\*\* “notify-pull-method” is for Pull Delivery Methods only.

## 6 Job and (new) Document Description attributes

Table 5 lists the Job Description and Document Description attributes. Job Description and Document Description attributes are Job object and Document object attributes, respectively, that are filled in by the Printer. Some Job/Document Description attribute values are supplied by the client in the Job/Document Creation operation using corresponding Operation attributes as flagged with an “\*”.

The column labeled “attribute syntax” indicates the attribute syntax (see [RFC2911] section 4.1). The IPP/1.1 Printer conformance is indicated along with the reference to the specification in which the attribute is defined. The conformance for Document Description attributes (if the Printer supports the Document object) is the same as the corresponding Job Description attributes.

Note: There are no corresponding Page Range Description attributes. The Page Range is not an object with a state and it cannot be queried.

Notation:

- [job-]** indicates an attribute that shouldn't have had a "job-" prefix in its name in [RFC2911], so that the same attribute could also apply at the Document level as a Document Description attribute. For the PWG Semantic Model, the "job-" prefix will be dropped.
- "-" indicates that the Job or Document attribute is *not* defined.
- "\*" indicates a fundamental Job and/or Document Description attribute that the client *MAY* supply the values for in a corresponding Operation attribute. Such a Job Level attribute is a client-supplied default for each of the Document objects, in case the client doesn't supply the corresponding Operation attribute at the Document level. Furthermore, when the client supplies the value at the Job level, but not at the Document level, the Printer *MUST* appear to copy down the value to each Document object as returned in Get-Document-Attributes and Get-Documents operation responses.
- \*\* indicates Job Description attributes to hold the corresponding Operation attributes supplied by the client or defaulted by the Printer. This behavior is new to go with the Document object extension.

**Table 5 - Job and (new) Document Description attributes**

IPP Job Description / Document Description attribute name	IPP Attribute Syntax plus Values	Job	Doc	Printer conformance	Reference	Section
<b>document-state</b>	type1 enum	-	y	MUST	(new)	n/a
<b>document-state-reasons</b>	1setOf type2 keyword	-	y	MUST	(new)	n/a
<b>impressions-completed-current-copy</b>	integer(0:MAX)	y	y	MAY	[job-prog]	4.4
<b>job-collation-type</b>	type2 enum	y	-	MAY	[job-prog]	4.1
<b>sheet-completed-copy-number</b>	integer(0:MAX)	y	y	MAY	[job-prog]	4.2
<b>sheet-completed-document-number</b>	integer(0:MAX)	y	-	MAY	[job-prog]	4.3
<b>[job-]warnings-count</b>	integer(0:MAX)	y	y	MAY	[override]	6.1
<b>current-page-order</b>	type2 keyword	y <sup>8</sup>	y	MAY	[prod-print]	4.1
attributes-charset	charset	y	y	MUST	[RFC2911]	4.3.19
attributes-natural-language	naturalLanguage	y	y	MUST	[RFC2911]	4.3.20
compression	(type3 keyword)	y**	y*	MUST	[RFC2911]	reused
date-time-at-completed	dateTime	y	y	MAY	[RFC2911]	4.3.14.7
date-time-at-creation	dateTime	y	y	MAY	[RFC2911]	4.3.14.5
date-time-at-processing	dateTime	y	y	MAY	[RFC2911]	4.3.14.6
document-format	documentFormat	y**	y*	MUST	[RFC2911]	reused
document-name	name(MAX)	y**	y*	MUST	[RFC2911]	reused
document-natural-language	naturalLanguage	y**	y*	MAY	[RFC2911]	reused
document-number	integer(0:MAX)	-	y	MUST	[RFC2911]	reused
<b>[job-]detailed-status-message</b>	1setOf text (MAX)	y	y	MAY	[RFC2911]	4.3.10
<b>[job-]document-access-errors</b>	1setOf text(MAX)	y	y	MAY	[RFC2911]	4.3.11
job-id	integer(1:MAX)	y	- <sup>9</sup>	MUST	[RFC2911]	4.3.2
<b>[job-]impressions</b>	integer(0:MAX)	y	y*	MAY	[RFC2911]	4.3.17.2
<b>[job-]impressions-completed</b>	integer(0:MAX)	y	y	MAY	[RFC2911]	4.3.18.2
<b>[job-]k-octets</b>	integer(0:MAX)	y	y*	MAY	[RFC2911]	4.3.17.1
<b>[job-]k-octets-processed</b>	integer(0:MAX)	y	y	MAY	[RFC2911]	4.3.18.1
<b>[job-]media-sheets</b>	integer(0:MAX)	y	y*	MAY	[RFC2911]	4.3.17.3

<sup>8</sup> The “current-page-order” Job Description attribute is not defined when the “current-page-order” Document Description attribute is supported.

<sup>9</sup> The Document Description attribute that corresponds to the “job-id” Job Description attribute is the “document-name” attribute defined in [RFC2911].



IPP Job Description / Document Description attribute name	IPP Attribute Syntax plus Values	Job	Doc	Printer conformance	Reference	Section
[job-]media-sheets-completed	integer(0:MAX)	y	y	MAY	[RFC2911]	4.3.18.3
job-message-from-operator	text(127)	y	-	MAY	[RFC2911]	4.3.16
[job-]more-info	uri	y	y	MAY	[RFC2911]	4.3.4
job-name	name(MAX)	y	- <sup>10</sup>	MUST	[RFC2911]	4.3.5
job-originating-user-name	name (MAX)	y	-	MUST	[RFC2911]	4.3.6
[job-]printer-up-time	integer (1:MAX)	y	y	MUST	[RFC2911]	4.3.14.4
job-printer-uri	uri	y	-	MUST	[RFC2911]	4.3.3
job-state	type1 enum	y	- <sup>11</sup>	MUST	[RFC2911]	4.3.7
job-state-message	text(MAX)	y	- <sup>12</sup>	MAY	[RFC2911]	4.3.9
job-state-reasons	1setOf type2 keyword	y	- <sup>13</sup>	MUST	[RFC2911]	4.3.8
job-uri	uri	y	-	MUST	[RFC2911]	4.3.1
last-document	boolean	-	y*	MAY	[RFC2911]	4.3.12
number-of-documents	integer(0:MAX)	y	-	MAY	[RFC2911]	4.3.15
number-of-intervening-jobs	integer(0:MAX)	y	-	MAY	[RFC2911]	4.3.13
output-device-assigned	name(127)	y	-	MAY	[RFC2911]	4.3.7.2
time-at-completed	integer (MIN:MAX)	y	y	MUST	[RFC2911]	4.3.14.3
time-at-creation	integer (MIN:MAX)	y	y	MUST	[RFC2911]	4.3.14.1
time-at-processing	integer (MIN:MAX)	y	y	MUST	[RFC2911]	4.3.14.2

“\*” and “\*\*” See the description in the Legend before the table.

<sup>10</sup> The Document Description attribute that corresponds to the “job-name” Job Description attribute is the “document-name” attribute defined in [RFC2911].

<sup>11</sup> The Document Description attribute that corresponds to the “job-state” Job Description attribute is the (new) “document-state” attribute.

<sup>12</sup> There is no Document Description attribute that corresponds to the “job-state-message”. Printers can use the “job-state-message” to describe any document level conditions.

<sup>13</sup> The Document Description attribute that corresponds to the “job-state-reasons” Job Description attribute is the (new) “document-state-reasons” attribute.

**Table 6 - "job-state" and "document-state" attribute values**

IPP Job Description / Document Description attribute name	IPP Attribute Syntax  plus  Values	Job	Doc	Printer conformance	Reference	Section
<b>job-state</b>	type1 enum	y	- <sup>14</sup>	MUST	[RFC2911]	4.3.7
<b>document-state</b>	type1 enum	-	y	MUST	(new)	n/a
	3 pending	y	y	MUST	[RFC2911]	4.3.7
	4 pending-held	y	-	MAY	[RFC2911]	4.3.7
	5 processing	y	y	MUST	[RFC2911]	4.3.7
	6 processing- stopped	y	-	MUST	[RFC2911]	4.3.7
	7 canceled	y	y	MUST	[RFC2911]	4.3.7
	8 aborted	y	y	MUST	[RFC2911]	4.3.7
	9 completed	y	y	MUST	[RFC2911]	4.3.7

<sup>14</sup> The Document Description attribute that corresponds to the "job-state" Job Description attribute is the (new) "document-state" attribute.

**Table 7 - "job-state-reasons" and "document-state-reasons" attribute values**

IPP Job Description / Document Description attribute name	IPP Attribute Syntax plus Values	Job	Doc	Printer conformance	Reference	Section
<b>job-state-reasons</b>	1setOf type2 keyword	y	- <sup>15</sup>	MUST	[RFC2911]	4.3.8
<b>document-state-reasons</b>	1setOf type2 keyword	-	y	MUST	(new)	n/a
	'aborted-by-system'	y	y	MAY	[RFC2911]	4.3.8
	'compression-error'	y	y	MAY	[RFC2911]	4.3.8
	'document-access-error'	y	y	MAY	[RFC2911]	4.3.8
	'document-format-error'	y	y	MAY	[RFC2911]	4.3.8
	'[job-]canceled-at-device'	y	y	MAY	[RFC2911]	4.3.8
	'[job-]canceled-by-operator'	y	y	MAY	[RFC2911]	4.3.8
	'[job-]canceled-by-user'	y	y	MAY	[RFC2911]	4.3.8
	'[job-]completed-successfully'	y	y	MAY	[RFC2911]	4.3.8
	'[job-]completed-with-errors'	y	y	MAY	[RFC2911]	4.3.8
	'[job-]completed-with-warnings'	y	y	MAY	[RFC2911]	4.3.8
	'job-data-insufficient'	y	-	MAY	[RFC2911]	4.3.8
	'job-hold-until-specified'	y	-	MAY	[RFC2911]	4.3.8
	'[job-]incoming'	y	y	MAY	[RFC2911]	4.3.8
	'[job-]interpreting'	y	y	MAY	[RFC2911]	4.3.8
	'[job-]outgoing'	y	y	MAY	[RFC2911]	4.3.8
	'[job-]printing'	y	y	MAY	[RFC2911]	4.3.8
	'job-queued'	y	-	MAY	[RFC2911]	4.3.8
	'[job-]queued-for-marker'	y	y	MAY	[RFC2911]	4.3.8
	'job-restartable'	y	-	MAY	[RFC2911]	4.3.8
	'job-resuming'	y	-	MAY	[RFC2911]	4.3.8
	'job-scheduling'	y	-	MAY	[RFC2911]	4.3.8
	'job-suspended'	y	-	MAY	[ops-set2]	9.1
	'[job-]transforming'	y	y	MAY	[RFC2911]	4.3.8
	'[job-]warnings-detected'	y	y	MAY	[override]	7.1
	'none'	y	y	MUST	[RFC2911]	4.3.8

<sup>15</sup> The Document Description attribute that corresponds to the "job-state-reasons" Job Description attribute is the (new) "document-state-reasons" attribute.

IPP Job Description / Document Description attribute name	IPP Attribute Syntax plus Values	Job	Doc	Printer conformance	Reference	Section
	'other'	y	y	MAY	[RFC2911]	4.3.8
	'printer-stopped'	y	-	MAY	[RFC2911]	4.3.8
	'printer-stopped-partly'	y	-	MAY	[RFC2911]	4.3.8
	'processing-to-stop-point'	y	-	MAY	[RFC2911]	4.3.8
	'queued-in-device'	y	y	MAY	[RFC2911]	4.3.8
	'resources-are-not-ready'	y	y	MAY	[RFC2911]	4.3.8
	'resources-are-not-supported'	y	y	MAY	[prod-print]	4.3.8
	'service-off-line'	y	-	MAY	[RFC2911]	4.3.8
	'submission-interrupted'	y	y	MAY	[RFC2911]	4.3.8
	'unsupported-compression'	y	y	MUST	[RFC2911]	4.3.8
	'unsupported-document-format'	y	y	MUST	[RFC2911]	4.3.8

## 7 Subscription Description attributes

Subscription Description attributes are filled in by the Printer object when the Subscription object is created. Some of the values come from corresponding attributes supplied by the client in the Subscription Creation operation (often part of a Job Creation operation). The column labeled "Printer Conf." indicate the IPP/1.1 Printer Conformance requirements, if the OPTIONAL Event Notifications extension is supported (see [ntfy]). The Reference and Section columns list the IETF or IEEE-ISTO specification which defines the semantics of the attribute.

Subscription Description attribute	Attribute Syntax	Printer Conf.	Reference	Section
notify-subscription-id	integer(1:MAX)	MUST	[ntfy]	5.4.1
notify-sequence-number	integer(0:MAX)	MUST	[ntfy]	5.4.2
notify-lease-expiration-time	integer(0:MAX)	MUST	[ntfy]	5.4.3
notify-printer-up-time	integer(1:MAX)	MUST	[ntfy]	5.4.4
notify-printer-uri	uri	MUST	[ntfy]	5.4.5
notify-job-id	integer(1:MAX)	MUST	[ntfy]	5.4.6
notify-subscriber-user-name	name(MAX)	MUST	[ntfy]	5.4.7

## 8 Printer attributes

Printer attributes are divided into three disjoint groups:

Job Template attributes (JT)	These Printer attributes are related directly to the “xxx” Job Template attributes that a client can supply in a Job Creation request as follows: <ol style="list-style-type: none"> <li>1. “xxx-supported” indicate the supported values</li> <li>2. “xxx-default” indicate the values that will be used if the client and the PDL omit the attribute.</li> <li>3. “xxx-ready” indicate the supported values that are available without human intervention, for those few attributes that require human intervention, such as “media” and possibly “finishing”.</li> </ol>
Printer Description attributes (PD)	These Printer attributes describe the Printer, such as “printer-name” and “printer-location”. Some of them are “xxx-supported” and “xxx-default” for Operation attributes that the client can supply in a Job Creation request.
neither (-)	These Printer attributes describe supported and defaults for member attributes of collection Job Template attributes.

In a Get-Printer-Attributes request, a client can request all of the Printer attributes in the Job Template (JT) or Printer Description (PD) groups by supplying the ‘job-template’ or ‘printer-description’ group name, respectively. The column labeled “attribute syntax” indicates the attribute syntax (see [RFC2911] section 4.1). Many “xxx-default” and “xxx-supported” attributes have the ‘collection’ syntax which consists of a number of member attributes. These member attributes are not listed in this table when they are the same as the corresponding “xxx” attribute in Table 3. Only those few Printer attribute collection attributes that do not have a corresponding Job Template attributes show the member attributes in this table. The column labeled “Grp” indicates to which group the attribute belongs. The column labeled “Printer Conf.” indicates the IPP/1.1 Printer conformance requirements for supporting the attribute. Those attributes labeled as “MAY” may have conditional requirements that require their support, if the Printer supports a related attribute, operation, or feature. For example, all Job Template attributes are OPTIONAL for a Printer to support. However, if a Printer supports Job Template attribute “xxx”, then it MUST also support the corresponding “xxx-default” and “xxx-supported” attributes. Similarly, if Event Notification is supported, then some of the attributes indicated as “MAY” in this table become MUST. The Reference and Section columns list the IETF or IEEE-ISTO specification which defines the semantics of the attribute.

**Table 8 - Printer attributes (Job Template and Printer Description)**

Printer attribute	Attribute Syntax	Grp	Printer Conf.	Reference	Section
<b>charset-configured</b>	charset	PD	MUST	[RFC2911]	4.4.17
<b>charset-supported</b>	1setOf charset	PD	MUST	[RFC2911]	4.4.18
<b>color-supported</b>	boolean	PD	MAY	[RFC2911]	4.4.26
<b>compression-supported</b>	type3 keyword	PD	MUST	[RFC2911]	4.4.32
<b>copies-default</b>	integer(1:MAX)	JT	MAY	[RFC2911]	4.2.5
<b>copies-supported</b>	rangeOfInteger(1:MAX)	JT	MAY	[RFC2911]	4.2.5
<b>cover-back-default</b>	collection	JT	MAY	[prod-print]	3.1.3
<b>cover-back-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.1.4
<b>cover-front-default</b>	collection	JT	MAY	[prod-print]	3.1.3
<b>cover-front-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.1.4
<b>cover-type-supported</b>	1setOf type2 keyword	-	MAY	[prod-print]	3.1.2.1
<b>document-format-default</b>	mimeMediaType	PD	MUST	[RFC2911]	4.4.21
<b>document-format-supported</b>	1setOf mimeMediaType	PD	MUST	[RFC2911]	4.4.22
<b>document-format-varying-attributes</b>	1setOf type2 keyword	PD	MAY	[set-ops]	6.3
<b>document-overrides-supported</b>	1setOf type2 keyword		MAY	[override]	5.1.14
<b>finishings-col-default</b>	collection	JT	MAY	[prod-print]	3.2.3
<b>finishings-col-ready</b>	1setOf collection	JT	MAY	[prod-print]	3.2.4
<b>finishings-col-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.2.5
<b>finishings-default</b>	1setOf type2 enum	JT	MAY	[RFC2911]	4.2.6
<b>finishings-ready</b>	1setOf type2 enum	JT	MAY	[RFC2911]	4.2.6
<b>finishings-supported</b>	1setOf type2 enum	JT	MAY	[RFC2911]	4.2.6
<b>finishing-template-supported</b>	1setOf name(MAX)	-	MAY	[prod-print]	3.2.1.1
<b>force-front-side-default</b>	1setOf integer(1:MAX)	JT	MAY	[prod-print]	3.3
<b>force-front-side-supported</b>	rangeOfInteger(1:MAX)	JT	MAY	[prod-print]	3.3
<b>generated-natural-language-supported</b>	1setOf naturalLanguage	PD	MUST	[RFC2911]	4.4.20
<b>imposition-template-default</b>	type3 keyword   name(MAX)	-	MAY	[prod-print]	3.4
<b>imposition-template-supported</b>	1setOf (type3 keyword   name(MAX))	-	MAY	[prod-print]	3.4
<b>insert-after-page-number-supported</b>	rangeOfInteger(0:MAX)	-	MAY	[prod-print]	3.5.1.1
<b>insert-count-supported</b>	rangeOfInteger(0:MAX)	-	MAY	[prod-print]	3.5.2.1
<b>insert-sheet-default</b>	1setOf collection	JT	MAY	[prod-print]	3.5.4
<b>insert-sheet-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.5.5
<b>ippget-event-life</b>	integer(15:MAX)	PD	MAY	[get-method]	8.1
<b>ipp-versions-supported</b>	1setOf type2 keyword	PD	MUST	[RFC2911]	4.4.20
<b>job-account-id-default</b>	name(MAX)	JT	MAY	[prod-print]	3.6
<b>job-account-id-supported</b>	boolean	JT	MAY	[prod-print]	3.6
<b>job-accounting-output-bin-</b>	type3 keyword   name(MAX)	-	MAY	[prod-print]	3.8.3.1

Printer attribute	Attribute Syntax	Grp	Printer Conf.	Reference	Section
<b>default</b>					
<b>job-accounting-output-bin-supported</b>	1setOf (type3 keyword   name(MAX))	-	MAY	[prod-print]	3.8.3.2
<b>job-accounting-sheets-default</b>	collection	JT	MAY	[prod-print]	3.8.4
<b>job-accounting-sheets-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.8.5
<b>job-accounting-sheets-type-supported</b>	1setOf (type3 keyword   name(MAX))	-	MAY	[prod-print]	3.8.1.1
<b>job-accounting-user-id-default</b>	name(MAX)	JT	MAY	[prod-print]	3.7
<b>job-accounting-user-id-supported</b>	boolean	JT	MAY	[prod-print]	3.7
<b>job-error-sheet-default</b>	collection	JT	MAY	[prod-print]	3.7
<b>job-error-sheet-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.9.5
<b>job-error-sheet-type-supported</b>	1setOf (type3 keyword   name(MAX))	-	MAY	[prod-print]	3.9.1.1
<b>job-error-sheet-when-supported</b>	1setOf type2 keyword	-	MAY	[prod-print]	3.9.2.1
<b>job-hold-until-default</b>	type3 keyword   name(MAX)	JT	MAY	[RFC2911]	4.2.2
<b>job-hold-until-supported</b>	1setOf (type3 keyword   name(MAX))	JT	MAY	[RFC2911]	4.2.2
<b>job-impressions-supported</b>	rangeOfInteger(0:MAX)	PD	MAY	[RFC2911]	4.4.34
<b>job-k-octets-supported</b>	rangeOfInteger(0:MAX)	PD	MAY	[RFC2911]	4.4.33
<b>job-media-sheets-supported</b>	rangeOfInteger(0:MAX)	PD	MAY	[RFC2911]	4.4.35
<b>job-message-to-operator-default</b>	text(MAX)	JT	MAY	[prod-print]	3.12
<b>job-message-to-operator-supported</b>	boolean	JT	MAY	[prod-print]	3.12
<b>job-priority-default</b>	integer(1:100)	JT	MAY	[RFC2911]	4.2.1
<b>job-priority-supported</b>	1setOf integer(1:100)	JT	MAY	[RFC2911]	4.2.1
<b>job-settable-attributes-supported</b>	1setOf type2 keyword	PD	MAY	[set-ops]	6.2
<b>job-sheet-message-default</b>	text(MAX)		MAY	[prod-print]	3.12
<b>job-sheet-message-supported</b>	boolean		MAY	[prod-print]	3.12
<b>job-sheets-col-default</b>	collection	JT	MAY	[prod-print]	3.11.3
<b>job-sheets-col-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.11.4
<b>job-sheets-default</b>	type3 keyword   name(MAX)	JT	MAY	[RFC2911]	4.2.3
<b>job-sheets-supported</b>	1setOf (type3 keyword   name(MAX))	JT	MAY	[RFC2911]	4.2.3
<b>max-stitching-locations-supported</b>	<a href="#">integer(1:MAX)</a>	PD	MAY	[prod-print]	5.2
<b>media-back-coating-supported</b>	1setOf (type3 keyword   name(MAX))	-	MAY	[prod-print]	3.13.10.2
<b>media-col-default</b>	collection	JT	MAY	[prod-print]	3.13.12
<b>media-color-supported</b>	1setOf type2 keyword	-	MAY	[prod-print]	3.13.4.1

Printer attribute	Attribute Syntax	Grp	Printer Conf.	Reference	Section
<b>media-col-ready</b>	1setOf collection	JT	MAY	[prod-print]	3.13.13
<b>media-col-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.13.14
<b>media-default</b>	type3 keyword   name(MAX)	JT	MAY	[RFC2911]	4.2.11
<b>media-front-coating-supported</b>	1setOf (type3 keyword   name(MAX))	-	MAY	[prod-print]	3.13.10.1
<b>media-hole-count-supported</b>	1setOf rangeOfInteger(0:MAX)	-	MAY	[prod-print]	3.13.6.1
<b>media-info-supported</b>	boolean	-	MAY	[prod-print]	3.13.3.1
<b>media-input-tray-check-default</b>	type3 keyword   name(MAX)	JT	MAY	[prod-print]	3.14
<b>media-input-tray-check-supported</b>	1setOf (type3 keyword   name(MAX))	JT	MAY	[prod-print]	3.14
<b>media-key-supported</b>	1setOf (type3 keyword   name(MAX))	-	MAY	[prod-print]	3.13.1.1
<b>media-order-count-supported</b>	1setOf rangeOfInteger(1:MAX)	-	MAY	[prod-print]	3.13.7.1
<b>media-pre-printed-supported</b>	1setOf (type3 keyword   name(MAX))	-	MAY	[prod-print]	3.13.5.1
<b>media-ready</b>	1setOf (type3 keyword   name(MAX))	JT	MAY	[RFC2911]	4.2.11
<b>media-recycled-supported</b>	1setOf (type3 keyword   name(MAX))	-	MAY	[prod-print]	3.13.11.1
<b>media-size-supported</b>	1setOf collection	-	MAY	[prod-print]	3.13.8.3
<b>media-supported</b>	1setOf (type3 keyword   name(MAX))	JT	MAY	[RFC2911]	4.2.11
<b>media-type-supported</b>	1setOf (type3 keyword   name(MAX))	-	MAY	[prod-print]	3.13.2.1
<b>media-weight-metric-supported</b>	1setOf rangeOfInteger(1:MAX)	-	MAY	[prod-print]	3.13.9.1
<b>multiple-document-handling-default</b>	type2 keyword	JT	MAY	[RFC2911]	4.2.4
<b>multiple-document-handling-supported</b>	1setOf type2 keyword	JT	MAY	[RFC2911]	4.2.4
<b>multiple-document-jobs-supported</b>	boolean	PD	MAY	[RFC2911]	4.4.16
<b>multiple-operation-time-out</b>	integer(1:MAX)	PD	MAY	[RFC2911]	4.4.31
<b>natural-language-configured</b>	naturalLanguage	PD	MUST	[RFC2911]	4.4.19
<b>notify-attributes-supported</b>	1setOf type2 keyword	PD	MAY	[ntfy]	5.3.4
<b>notify-events-default</b>	1setOf type2 keyword	PD	MAY	[ntfy]	5.3.3
<b>notify-events-supported</b>	1setOf type2 keyword	PD	MAY	[ntfy]	5.3.3
<b>notify-lease-duration-default</b>	integer(0:67108863)	PD	MAY	[ntfy]	5.3.8
<b>notify-lease-duration-supported</b>	1setOf (integer(0: 67108863)   rangeOfInteger(0:67108863))	PD	MAY	[ntfy]	5.3.8



Printer attribute	Attribute Syntax	Grp	Printer Conf.	Reference	Section
	)				
<b>notify-lease-expiration-time</b>	integer(0:MAX)	PD	MAY	[ntfy]	5.4.3
<b>notify-max-events-supported</b>	integer(2:MAX)	PD	MAY	[ntfy]	5.3.3
<b>notify-pull-method-supported</b>	1setOf type2 keyword	PD	MAY	[ntfy]	5.3.2
<b>notify-schemes-supported</b>	1setOf uriScheme	PD	MAY	[ntfy]	5.3.1
<b>number-up-default</b>	integer(1:MAX)	JT	MAY	[RFC2911]	4.2.9
<b>number-up-supported</b>	1setOf (integer(1:MAX)   rangeOfInteger(1:MAX))	JT	MAY	[RFC2911]	4.2.9
<b>operations-supported</b>	1setOf type2 enum	PD	MUST	[RFC2911]	4.4.15
<b>orientation-requested-default</b>	type2 enum	JT	MAY	[RFC2911]	4.2.10
<b>orientation-requested-supported</b>	1setOf type2 enum	JT	MAY	[RFC2911]	4.2.10
<b>output-bin-default</b>	type2 keyword   name(MAX)	JT	MAY	[output-bin]	2.1
<b>output-bin-supported</b>	1setOf (type2 keyword   name(MAX))	JT	MAY	[output-bin]	2.1
<b>page-delivery-default</b>	type2 keyword	JT	MAY	[prod-print]	3.15
<b>page-delivery-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.15
<b>page-order-received-default</b>	type2 keyword	JT	MAY	[prod-print]	3.16
<b>page-order-received-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.16
<b>page-overrides-supported</b>	1setOf type2 keyword	PD	MAY	[override]	5.2.9
<b>page-ranges-supported</b>	boolean	JT	MAY	[RFC2911]	4.2.7
<b>pages-per-minute</b>	integer(0:MAX)	PD	MAY	[RFC2911]	4.4.36
<b>pages-per-minute-color</b>	integer(0:MAX)	PD	MAY	[RFC2911]	4.4.37
<b>pages-per-subset-supported</b>	boolean	PD	MAY	[override]	5.3.2
<b>parent-printers-supported</b>	1setOf uri	PD	MAY	[ops-set2]	7.2
<b>pdl-override-supported</b>	type2 keyword	PD	MUST	[RFC2911]	4.4.28
<b>presentation-direction-number-up-default</b>	type2 keyword	JT	MAY	[prod-print]	3.17
<b>presentation-direction-number-up-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.17
<b>printer-current-time</b>	dateTime	PD	MAY	[RFC2911]	4.4.30
<b>printer-driver-installer</b>	uri	PD	MAY	[RFC2911]	4.4.8
<b>printer-info</b>	text(127)	PD	MAY	[RFC2911]	4.4.6
<b>printer-is-accepting-jobs</b>	boolean	PD	MUST	[RFC2911]	4.4.23
<b>printer-location</b>	text(127)	PD	MAY	[RFC2911]	4.4.5
<b>printer-make-and-model</b>	text(127)	PD	MAY	[RFC2911]	4.4.9
<b>printer-message-date-time</b>	dateTime	PD	MAY	[set-ops]	6.5
<b>printer-message-from-operator</b>	text(127)	PD	MAY	[RFC2911]	4.4.25
<b>printer-message-time</b>	integer(MIN:MAX)	PD	MAY	[set-ops]	6.4
<b>printer-more-info</b>	uri	PD	MAY	[RFC2911]	4.4.7
<b>printer-more-info-manufacturer</b>	uri	PD	MAY	[RFC2911]	4.4.10

Printer attribute	Attribute Syntax	Grp	Printer Conf.	Reference	Section
<b>printer-name</b>	name(127)	PD	MUST	[RFC2911]	4.4.4
<b>printer-resolution-default</b>	resolution	JT	MAY	[RFC2911]	4.2.12
<b>printer-resolution-supported</b>	1setOf resolution	JT	MAY	[RFC2911]	4.2.12
<b>printer-settable-attributes-supported</b>	1setOf type2 keyword	PD	MAY	[set-ops]	6.1
<b>printer-state</b>	type1 enum	PD	MUST	[RFC2911]	4.4.11
<b>printer-state-change-date-time</b>	dateTime	PD	MAY	[ntfy]	6.2
<b>printer-state-change-time</b>	integer(1:MAX)	PD	MAY	[ntfy]	6.1
<b>printer-state-message</b>	text(MAX)	PD	MAY	[RFC2911]	4.4.13
<b>printer-state-reasons</b>	1setOf type2 keyword	PD	MUST	[RFC2911]	4.4.12
<b>printer-up-time</b>	integer(1:MAX))	PD	MUST	[RFC2911]	4.4.29
<b>printer-uri-supported</b>	1setOf uri	PD	MUST	[RFC2911]	4.4.1
<b>printer-xri-supported</b>	1setOf collection	PD	MAY	[set-ops]	6.6
<b>xri-uri</b>	uri	PD	MUST	[set-ops]	6.6
<b>xri-authentication</b>	1setOf type2 keyword	PD	MUST	[set-ops]	6.6
<b>xri-security</b>	1setOf type2 keyword	PD	MUST	[set-ops]	6.6
<b>print-quality-default</b>	type2 enum	JT	MAY	[RFC2911]	4.2.13
<b>print-quality-supported</b>	1setOf type2 enum	JT	MAY	[RFC2911]	4.2.13
<b>queued-job-count</b>	integer(0:MAX)	PD	MUST	[RFC2911]	4.4.24
<b>reference-uri-schemes-supported</b>	1setOf uriScheme	PD	MAY	[RFC2911]	4.4.27
<b>separator-sheets-default</b>	collection	JT	MAY	[prod-print]	3.18.3
<b>separator-sheets-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.18.4
<b>separator-sheets-type-supported</b>	1setOf (type3 keyword   name(MAX))	-	MAY	[prod-print]	3.18.1.1
<b>sheet-collate-default</b>	type2 keyword	JT	MAY	[job-prog]	3.1
<b>sheet-collate-supported</b>	1setOf type2 keyword	JT	MAY	[job-prog]	3.1
<b>sides-default</b>	type2 keyword	JT	MAY	[RFC2911]	4.2.8
<b>sides-supported</b>	1setOf type2 keyword	JT	MAY	[RFC2911]	4.2.8
<b>stitching-locations-supported</b>	1setOf (integer(0:MAX)   rangeOfInteger(0:MAX))	-	MAY	[prod-print]	3.2.2.3.1
<b>stitching-offset-supported</b>	1setOf (integer (0:MAX)   rangeOfInteger(0:MAX))	-	MAY	[prod-print]	3.2.2.2.1
<b>stitching-reference-edge-supported</b>	1setOf type2 keyword		MAY	[prod-print]	3.2.2.1.1
<b>subordinate-printers-supported</b>	1setOf uri	PD	MAY	[ops-set2]	7.1
<b>uri-authentication-supported</b>	1setOf type2 keyword	PD	MUST	[RFC2911]	4.4.2
<b>uri-security-supported</b>	1setOf type2 keyword	PD	MUST	[RFC2911]	4.4.3
<b>user-defined-values-supported</b>	1setOf type2 keyword	PD	MAY	[prod-print]	5.1
<b>x-image-position-default</b>	type2 keyword	JT	MAY	[prod-print]	3.19.2
<b>x-image-position-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.19.2
<b>x-image-shift-default</b>	integer(MIN:MAX)	JT	MAY	[prod-print]	3.19.3

Printer attribute	Attribute Syntax	Grp	Printer Conf.	Reference	Section
<b>x-image-shift-supported</b>	rangeOfInteger(MIN:MAX)	JT	MAY	[prod-print]	3.19.3
<b>xri-authentication-supported</b>	1setOf type2 keyword	PD	MAY	[set-ops]	6.8
<b>xri-security-supported</b>	1setOf type2 keyword	PD	MAY	[set-ops]	6.9
<b>xri-uri-scheme-supported</b>	1setOf uriScheme	PD	MAY	[set-ops]	6.7
<b>x-side1-image-shift-default</b>	integer(MIN:MAX)	JT	MAY	[prod-print]	3.19.4
<b>x-side1-image-shift-supported</b>	rangeOfInteger(MIN:MAX)	JT	MAY	[prod-print]	3.19.4
<b>x-side2-image-shift-default</b>	integer(MIN:MAX)	JT	MAY	[prod-print]	3.19.5
<b>x-side2-image-shift-supported</b>	rangeOfInteger(MIN:MAX)	JT	MAY	[prod-print]	3.19.5
<b>y-image-position-default</b>	type2 keyword	JT	MAY	[prod-print]	3.19.6
<b>y-image-position-supported</b>	1setOf type2 keyword	JT	MAY	[prod-print]	3.19.6
<b>y-image-shift-default</b>	integer(MIN:MAX)	JT	MAY	[prod-print]	3.19.7
<b>y-image-shift-supported</b>	rangeOfInteger(MIN:MAX)	JT	MAY	[prod-print]	3.19.7
<b>y-side1-image-shift-default</b>	integer(MIN:MAX)	JT	MAY	[prod-print]	3.19.8
<b>y-side1-image-shift-supported</b>	rangeOfInteger(MIN:MAX)	JT	MAY	[prod-print]	3.19.8
<b>y-side2-image-shift-default</b>	integer(MIN:MAX)	JT	MAY	[prod-print]	3.19.9
<b>y-side2-image-shift-supported</b>	rangeOfInteger(MIN:MAX)	JT	MAY	[prod-print]	3.19.9

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