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IPP/1.0 and IPP/1.1: Job Progress Attributes

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22 Abstract

23 This document defines five new Job Description attributes for monitoring job progress to be registered
24 for use with IPP/1.0 [RFC2566] and IPP/1.1 [ipp-mod]. These attributes are drawn from the PWG Job
25 Monitoring MIB [jmp-mib]. This document also defines a new "sheet-collate" Job Template attribute to
26 control sheet collation and to help with the interpretation of the job progress attributes. These new
27 attributes may also be used by themselves as useful job progress monitoring attributes and/or may be
28 passed in an IPP Notification (see [ipp-not]). The new Job Description attributes are:

- 29 "job-collation-type" (type2 enum)
- 30 "sheet-completed-copy-number" (integer(-2:MAX))
- 31 "sheet-completed-document-number" (integer(-2:MAX))
- 32 "impressions-interpreted" (integer(-2:MAX))
- 33 "impressions-completed-current-copy" (integer(-2:MAX))

34 The new Job Template attribute is:

- 35 "sheet-collate" (boolean)

36

37

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50

51 **1 New Job Template attribute**

52 **1.1 "sheet-collate" (boolean)**

Job Attribute	Printer: Default Value Attribute	Printer: Supported Values Attribute
sheet-collate (boolean)	sheet-collate-default (boolean)	sheet-collate-supported (1setOf boolean)

61

62 This attribute specifies whether or not the media sheets of each copy of each printed document in a job
 63 are to be in sequence, when multiple copies of the document are specified by the 'copies' attribute. When
 64 "sheet-collate" is 'true', each copy of each document is printed with the print-stream sheets in sequence.
 65 When 'sheet-collate' is 'false', each print-stream sheet is printed a number of times equal to the value of
 66 the 'copies' attribute in succession. For example, suppose a document which produces two media sheets
 67 as output, and "copies" is equal to '6', in this case six copies of the first media sheet are printed followed
 68 by six copies of the second media sheet.

69 Whether the effect of sheet collation is achieved by placing copies of a document in multiple output bins
 70 or in the same output bin with implementation defined document separation is implementation
 71 dependent. Also whether it is achieved by making multiple passes over the job or by using an output
 72 sorter is implementation dependent.

73 Note: IPP/1.0 [RFC2566] and IPP/1.1 [ipp-mod] is silent on whether or not sheets within documents are
 74 collated. The "sheet-collate-supported" attribute permits a Printer object to indicate whether or not it
 75 collates sheets with each document and whether it allows the client to control sheet collation. An
 76 implementation is able to indicate that it supports uncollated sheets, collated sheets, or both, using 'false',
 77 'true', or both 'false' and 'true' values, respectively.

78

79 **2 New IPP Job Description attributes for monitoring Job Progress**

80 The following IPP Job Description attributes are proposed to be added to IPP through the type2
 81 registration procedures. They are useful for monitoring the progress of a job. They are also used at
 82 attributes in the notification content in a notification report [ipp-not].

83 There are a number of Job Description attributes for monitoring the progress of a job. These objects and
 84 attributes count the number of K octets, impressions, sheets, and pages requested or completed. For
 85 impressions and sheets, "completed" means stacked, unless the implementation is unable to detect when
 86 each sheet is stacked, in which case stacked is approximated when processing of each sheet completes.
 87 There are objects and attributes for the overall job and for the current copy of the document currently
 88 being stacked. For the latter, the rate at which the various objects and attributes count depends on the
 89 sheet and document collation of the job.

IPP/1.0 and IPP/1.1 Proposed Job Progress Attributes and Event Report Content

90 Consider the following four Job Description attributes that are used to monitor the progress of a job's
91 impressions:

- 92 1. "job-impressions-completed" - counts the total number of impressions stacked for the job
- 93 2. "impressions-completed-current-copy" - counts the number of impressions stacked for the
94 current document copy
- 95 3. "sheet-completed-copy-number" - identifies the number of the copy for the current document
96 being stacked where the first copy is 1.
- 97 4. "sheet-completed-document-number" - identifies the current document within the job that is
98 being stacked where the first document in a job is 1. NOTE: this attribute SHOULD NOT be
99 implemented for implementations that only support one document per job.

100 For each of the three types of job collation, a job with three copies of two documents (1, 2), where each
101 document consists of 3 impressions, the four variables have the following values as each sheet is stacked
102 for one-sided printing:

IPP/1.0 and IPP/1.1 Proposed Job Progress Attributes and Event Report Content

103 **"job-collation-type" = 'uncollated-sheets(3)'**

104

	"job-impressions-completed"	"impressions-completed-current-copy"	"sheet-completed-copy-number"	"sheet-completed-document-number"
	0	0	0	0
	1	1	1	1
	2	1	2	1
	3	1	3	1
	4	2	1	1
	5	2	2	1
	6	2	3	1
	7	3	1	1
	8	3	2	1
	9	3	3	1
	10	1	1	2
	11	1	2	2
	12	1	3	2
	13	2	1	2
	14	2	2	2
	15	2	3	2
	16	3	1	2
	17	3	2	2
	18	3	3	2

105

106 **"job-collation-type" = 'collated-documents(4)'**

107

"job-impressions-completed"	"impressions-completed-current-copy"	"sheet-completed-copy-number"	"sheet-completed-document-number"
0	0	0	0
1	1	1	1
2	2	1	1
3	3	1	1
4	1	1	2
5	2	1	2
6	3	1	2
7	1	2	1
8	2	2	1
9	3	2	1
10	1	2	2
11	2	2	2
12	3	2	2
13	1	3	1
14	2	3	1
15	3	3	1
16	1	3	2
17	2	3	2
18	3	3	2

108

109 **"job-collation-type" = 'uncollated-documents(5)'**

110

"job-impressions-completed"	"impressions-completed-current-copy"	"sheet-completed-copy-number"	"sheet-completed-document-number"
0	0	0	0
1	1	1	1
2	2	1	1
3	3	1	1
4	1	2	1
5	2	2	1
6	3	2	1
7	1	3	1
8	2	3	1
9	3	3	1
10	1	1	2
11	2	1	2
12	3	1	2
13	1	2	2
14	2	2	2
15	3	2	2
16	1	3	2
17	2	3	2
18	3	3	2

111

112 **2.1 "job-collation-type" (type2 enum)**

113 **ISSUE 1 - Or should the attribute syntax by 'type2 keyword' to go with "multiple-document-**
 114 **handling(type2 keyword)", instead of the Job MIB enum syntax?**

115 Job Collation includes sheet collation and document collation. Sheet collation is defined to be the
 116 ordering of sheets within a document copy. Document collation is defined to be ordering of document
 117 copies within a multi-document job. The value of the "job-collation-type" is affected by the value of the
 118 "sheet-collate" Job Template attribute (see section 1.1), if supplied and supported.

119 The Standard enum values are:

120

121 '1' 'other': not one of the defined values

122

123 '2' 'unknown': the collation type is unknown

124 **ISSUE 2 - Or should we use the IPP out-of-band 'unknown' value (see [ipp-mod] section 4.1) instead**
 125 **of this Job Monitoring MIB value?**

126

127 '3' 'uncollated-sheets': No collation of the sheets within each document copy, i.e., each sheet
 128 of a document that is to produce multiple copies is replicated before the next sheet
 129 in the document is processed and stacked. If the device has an output bin collator,

130 the 'uncollated-sheets(3)' value may actually produce collated sheets as far as the
131 user is concerned (in the output bins). However, when the job collation is the
132 'uncollated-sheets(3)' value, job progress is indistinguishable to a monitoring
133 application between a device that has an output bin collator and one that does not.
134

135 '4' 'collated-documents': Collation of the sheets within each document copy is performed
136 within the printing device by making multiple passes over either the source or an
137 intermediate representation of the document. In addition, when there are multiple
138 documents per job, the i'th copy of each document is stacked before the j'th copy
139 of each document, i.e., the documents are collated within each job copy. For
140 example, if a job is submitted with documents, A and B, the job is made available
141 to the end user as: A, B, A, B, The 'collated-documents(4)' value corresponds
142 to the IPP [ipp-model] 'separate-documents-collated-copies' keyword value of the
143 "multiple-document-handling" attribute.
144

145 If the job's "copies" attribute is '1' (or not supplied), then the "job-collation-type"
146 attribute is defined to be '4'.
147

148 '5' 'uncollated-documents': Collation of the sheets within each document copy is performed
149 within the printing device by making multiple passes over either the source or an
150 intermediate representation of the document. In addition, when there are multiple
151 documents per job, all copies of the first document in the job are stacked before
152 the any copied of the next document in the job, i.e., the documents are uncollated
153 within the job. For example, if a job is submitted with documents, A and B, the
154 job is mad available to the end user as: A, A, ..., B, B, The 'uncollated-
155 documents(5)' value corresponds to the IPP [ipp-model] 'separate-documents-
156 uncollated-copies' keyword value of the "multiple-document-handling" attribute.

157 **2.2 "sheet-completed-copy-number" (integer(-2:MAX))**

158 The number of the copy being stacked for the current document. This number starts at 0, is set to 1
159 when the first sheet of the first copy for each document is being stacked and is equal to n where n is the
160 nth sheet stacked in the current document copy. See section .

161 **ISSUE 3: Should we change the lower limit to 0 and use the IPP out-of-bound values: 'unknown' for -2?**

162 **2.3 "sheet-completed-document-number" (integer(-2:MAX))**

163 The ordinal number of the document in the job that is currently being stacked. This number starts at 0,
164 increments to 1 when the first sheet of the first document in the job is being stacked, and is equal to n
165 where n is the nth document in the job, starting with 1.

166 Implementations that only support one document jobs SHOULD NOT implement this attribute.

167 **ISSUE 4: Should we change the lower limit to 0 and use the IPP out-of-bound values: 'unknown'**
168 **instead of '-2'?**

169 **2.4 "impressions-interpreted" (integer(-2:MAX))**

170 The number of impressions interpreted for the job so far.

171 **ISSUE 5: Should we change the lower limit to 0 and use the IPP out-of-bound values: 'unknown'**
172 **instead of '-2'?**

173 **2.5 "impressions-completed-current-copy" (integer(-2:MAX))**

174 The number of impressions completed by the device for the current copy of the current document so far.
175 For printing, the impressions completed includes interpreting, marking, and stacking the output. For
176 other types of job services, the number of impressions completed includes the number of impressions
177 processed.

178 This value SHALL be reset to 0 for each document in the job and for each document copy.

179 **ISSUE 6: Should we change the lower limit to 0 and use the IPP out-of-bound values: 'unknown'**
180 **instead of '-2'?**

181

182 **3 References**

183 [ipp-mod]

184 deBry, R., , Hastings, T., Herriot, R., Isaacson, S., Powell, P., "Internet Printing Protocol/1.1:
185 Model and Semantics", <draft-ietf-ipp-model-v11-04.txt>, work in progress, June 23, 1999.

186 [ipp-not]

187 Isaacson, S., Martin, J., deBry, R., Hastings, T., Shepherd, M., Bergman, R., " IPP Event
188 Notification Specification", <draft-ietf-ipp-not-spec-02.txt>, work in progress, September 10,
189 1999.

190 [jmp-mib]

191 Bergman, R., Hastings, T., Isaacson, S., Lewis, H. "PWG Job Monitoring MIB - V1", <draft-ietf-
192 printmib-job-monitor-08.txt>, work in progress, Feb 19, 1999.

193 [rfc2566]

194 deBry, R., , Hastings, T., Herriot, R., Isaacson, S., Powell, P., "Internet Printing Protocol/1.0:
195 Model and Semantics", RFC 2566, April 1999.

196 **4 Change History**

197 **4.1 Changes made to the May 19, 1999 version to make the September 13, 1999**
198 **version**

199 The following changes were made to the May 19, 1999 version to make the September 13, 1999 version:

- 200 1. Changed it from a PWG to an IETF specification so that it can be cited from the IETF Notification
201 documents.

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- 202 2. Removed the reference to the long Notification spec from 1998, since it isn't going to be an IETF
203 document.
- 204 3. Removed the notification content section, since the Notification specification now includes the 'job-
205 progress' event and the associated notification content.

206 **4.2 Changes made to the April 16, 1999 version to make the May 19, 1999 version**

207 The following changes were made to the April 16, 1999 version to make the May 19, 1999 version:

- 208 1. Added the "sheet-collate" Job Template attribute.
- 209 2. Added the 'job-progress-event' report content type.