

1 PWG DRAFT STANDARD  
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13 Internet Printing Protocol/1.0: Additional Optional Operations - Set 1

14

15 Status of this Memo

16 This document is the revision (in order to align with IPP/1.1) of an approved Printer Working Group  
17 (PWG) DRAFT STANDARD. The previous version (981023) passed PWG Last Call announced  
18 October 23, 1998 and closed November 6, 1998 with no comments.

19

**Abstract**

20 This document specifies six OPTIONAL operations for use with the Internet Printing Protocol/1.0 (IPP)  
21 [ipp-mod, ipp-pro]. The defined Set 1 operations are 3 Job object operations that end-users may perform  
22 on their jobs and operators/administrators may perform on any job:

- 23 Hold-Job
- 24 Release-Job
- 25 Restart-Job

26 and 3 Printer object operations that operators/administrators may perform on a Printer object:

- 27 Pause-Printer
- 28 Resume-Printer
- 29 Purge-Jobs

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**Table of Contents**

- 1 Summary of Set 1 and Operation-Id Assignments .....3
- 2 Job Operations .....3
  - 2.1 Hold-Job Operation .....3
    - 2.1.1 Hold-Job Request .....4
    - 2.1.2 Hold-Job Response .....5
  - 2.2 Release-Job Operation .....5
  - 2.3 Restart-Job Operation .....6
    - 2.3.1 Job-Restart Request .....7
- 3 The Job History concept and additional "job-state-reasons" .....8
  - 3.1 Partitioning of Job States .....8
  - 3.2 Add a new 'job-restartable' value to the "job-state-reasons" attribute .....9
- 4 Printer operations .....10
  - 4.1 Pause-Printer Operation .....11
    - 4.1.1 Add a new 'moving-to-paused' value to the "printer-state-reasons" attribute .....13
  - 4.2 Resume-Printer Operation .....13
  - 4.3 Purge-Jobs Operation .....14
- 5 Security Considerations .....14
- 6 References .....14
- 7 Change History .....14
  - 7.1 Changes to November 9, 1998 to make February 21, 1999 .....15

54 **1 Summary of Set 1 and Operation-Id Assignments**

55 The Set 1 operations are summarized in the following table:

Operation Name	Operation-Id	Brief description
Hold-Job	0x000C	Holds a pending job so that it cannot be scheduled for processing
Release-Job	0x000D	Allows a previously held job to be scheduled for processing
Restart-Job	0x000E	Restarts a job as the same job on the same Printer object
	0x000F	Reserved for the future.
Pause-Printer	0x0010	Stops the device(s) as soon as possible from processing jobs
Resume-Printer	0x0011	Resumes the device(s) processing jobs
Purge-Jobs	0x0012	Removes all jobs from the Printer regardless of job state

56 All of the operations in Set 1 are OPTIONAL for an IPP object to support. Unless the specification of  
 57 an OPTIONAL operation requires support of another OPTIONAL operation, conforming  
 58 implementations may support any combination of these operations.

59 **2 Job Operations**

60 The job operations in Set 1 are for use by end users on their jobs and by operators and administrators on  
 61 any jobs. The operation attributes in requests and responses for the job operations are the same as the  
 62 standard Cancel-Job operation (see [model] 3.3.3). Additional operation attributes are specified that the  
 63 client MAY supply in a request.

64 **2.1 Hold-Job Operation**

65 This operation allows a client to hold a pending job in the queue so that it is not eligible for scheduling.  
 66 If the Hold-Job operation is supported, then the Release-Job operation MUST be supported, and vice-  
 67 versa. The OPTIONAL "job-hold-until" operation attribute allows a client to specify whether to hold the  
 68 job indefinitely or until a specified time period, if supported.

69 The IPP object MUST accept or reject the request based on the job's current state, transition the job to  
 70 the indicated new state as follows:

Current "job-state"	New "job-state"	IPP object's response status code and action:
'pending'	'pending-held'	'successful-ok' See Note 1
'pending'	'pending'	'successful-ok' See Note 2
'pending-held'	'pending-held'	'successful-ok' See Note 1

'pending-held'	'pending'	'successful-ok' See Note 2
'processing'	'processing'	'client-error-not-possible'
'processing-stopped'	'processing-stopped'	'client-error-not-possible'
'completed'	'completed'	'client-error-not-possible'
'canceled'	'canceled'	'client-error-not-possible'
'aborted'	'aborted'	'client-error-not-possible'

71 Note 1: If the OPTIONAL "job-state-reasons" attribute is supported and if the implementation supports  
 72 multiple reasons for a job to be in the 'pending-held' state, the IPP object MUST add the 'job-hold-until-  
 73 specified' value to the job's "job-state-reasons" attribute.

74 Note 2: If the IPP object supports the "job-hold-until" operation attribute, but the specified time period  
 75 has already started (or is the 'no-hold' value) and there are no other reasons to hold the job, the IPP object  
 76 MUST make the job be a candidate for processing immediately (see [ipp-mod] Section 4.2.2) by putting  
 77 the job in the 'pending' state.

78 Note: In order to keep the Hold-Job operation simple, such a request is rejected when the job is in the  
 79 'processing' or 'processing-stopped' states. If an operation is needed to hold jobs while in these states, it  
 80 will be added as an additional operation, rather than overloading the Hold-Job operation. Then it is clear  
 81 to clients by querying the Printer object's "operations-supported" [ipp-mod 4.4.13] and the Job object's  
 82 "job-state" [ipp-mod 4.3.7] attributes which operations are possible.

83 *Access Rights:* The requesting user must either be the submitter of the job or an operator or administrator  
 84 of the Printer object (see [ipp-mod] Section 1). Otherwise, the IPP object MUST reject the operation  
 85 and return: 'client-error-forbidden', 'client-error-not-authenticated', or 'client-error-not-authorized' as  
 86 appropriate.

87 **2.1.1 Hold-Job Request**

88 The groups and operation attributes are the same as for a Cancel-Job request (see [ipp-mod] section  
 89 3.3.3.1), with the addition of the following Group 1 Operation attribute:

90 "job-hold-until" (type3 keyword | name(MAX)):

91 The client OPTIONALLY supplies this Operation attribute. The IPP object MUST support this  
 92 operation attribute in a Hold-Job request, if it supports the "job-hold-until" Job template attribute  
 93 in create operations. See [ipp-mod] section 4.2.2. The IPP object SHOULD support the "job-  
 94 hold-until" Job Template attribute for use in job create operations with at least the 'indefinite'  
 95 value, if it supports the Hold-Job operation. Otherwise, a client cannot create a job and hold it  
 96 immediately (without picking some supported time period in the future).

97 If supplied and supported as specified in the Printer's "job-hold-until-supported" attribute, the IPP  
 98 object copies the supplied attribute to the Job object, replacing the job's previous "job-hold-until"  
 99 attribute, if present, and makes the job a candidate for scheduling during the supplied named time  
 100 period.

101 If supplied, but either the "job-hold-until" Operation attribute itself or the value supplied is not  
 102 supported, the IPP object accepts the request, returns the unsupported attribute or value in the  
 103 Unsupported Attributes Group according to [ipp-mod] section 3.2.1.2, returns the 'successful-ok-  
 104 ignored-or-substituted-attributes, and holds the job indefinitely until a client performs a  
 105 subsequent Release-Job operation.

106 If the client (1) supplies a value that specifies a time period that has already started or the 'no-  
 107 hold' value [ipp-mod 4.2.2] (meaning don't hold the job) and (2) the IPP object supports the "job-  
 108 hold-until" operation attribute and there are no other reasons to hold the job, the IPP object  
 109 MUST accept the operation and make the job be a candidate for processing immediately (see  
 110 [ipp-mod] Section 4.2.2).

111 The following new keyword value is defined for use with the "job-hold-until" Job Template  
 112 attribute in job create operations and the "job-hold-until" operation attribute in Hold-Job and  
 113 Restart-Job operations:

114 'indefinite': - the job is held indefinitely, until a client performs a Release-Job or Restart-  
 115 Job operation

116 If the client does not supply a "job-hold-until" operation attribute in the request, the IPP object  
 117 MUST populate the job object with a "job-hold-until" attribute with the 'indefinite' value (if IPP  
 118 object supports the "job-hold-until" attribute) and hold the job indefinitely, until a client performs  
 119 a Release-Job or Restart-Job operation.

120 **2.1.2 Hold-Job Response**

121 The groups and attributes are the same as for a Cancel-Job response (see [ipp-mod] section 3.3.3.2).

122 **2.2 Release-Job Operation**

123 This operation allows a client to release a previously held job so that it is again eligible for scheduling.  
 124 If the Hold-Job operation is supported, then the Release-Job operation MUST be supported, and vice-  
 125 versa.

126 This operation removes the "job-hold-until" job attribute, if present, from the job object that had been  
 127 supplied in the create or most recent Hold-Job or Restart-Job operation and removes its effect on the job.  
 128 If the OPTIONAL "job-state-reasons" attribute is supported, the IPP object MUST remove the 'job-hold-  
 129 until-specified' value from the job's "job-state-reasons" attribute, if present. See [ipp-mod] 4.3.8.

130 The IPP object MUST accept or reject the request based on the job's current state and transition the job  
 131 to the indicated new state as follows:

Current "job-state"	New "job-state"	IPP object's response status code and action:
'pending'	'pending'	'successful-ok' No effect on the job.

'pending-held'	'pending-held'	'successful-ok' See Note 1
'pending-held'	'pending'	'successful-ok'
'processing'	'processing'	'successful-ok' No effect on the job.
'processing-stopped'	'processing-stopped'	'successful-ok' No effect on the job.
'completed'	'completed'	'client-error-not-possible'
'canceled'	'canceled'	'client-error-not-possible'
'aborted'	'aborted'	'client-error-not-possible'

132 Note 1: If there are other reasons to keep the job in the 'pending-held' state, such as 'resources-are-not-  
 133 ready', the job remains in the 'pending-held' state. Thus the 'pending-held' state is not just for jobs that  
 134 have the 'job-hold-until' applied to them, but are for any reason to keep the job from being a candidate  
 135 for scheduling and processing, such as 'resources-are-not-ready'. See the "job-hold-until" attribute ([ipp-  
 136 mod] Section 4.2.2).

137 *Access Rights:* The requesting user must either be the submitter of the job or an operator or administrator  
 138 of the Printer object. Otherwise, the IPP object MUST reject the operation and return: 'client-error-  
 139 forbidden', 'client-error-not-authenticated', or 'client-error-not-authorized' as appropriate.

140 The Release-Job Request and Release-Job Response have the same attribute groups and attributes as the  
 141 Cancel-Job operation (see [ipp-mod] section 3.3.3.1 and 3.3.3.2).

142 **2.3 Restart-Job Operation**

143 This operation allows a client to restart a job that is retained in the queue after processing has completed  
 144 (see section 3.1).

145 The job is moved to the 'pending' job state and restarts at the beginning on the same IPP Printer object  
 146 with the same attribute values. The Job Description attributes that accumulate job progress, such as  
 147 "job-impressions-completed", "job-media-sheets-completed", and "job-k-octets-processed", MUST be  
 148 reset to 0 so that they give an accurate record of the job from its restart point. The job object MUST  
 149 continue to use the same "job-uri" and "job-id" attribute values.

150 Note: If in the future an operation is needed that does not reset the job progress attributes, then a new  
 151 operation will be defined which makes a copy of the job, assigns a new "job-uri" and "job-id" to the copy  
 152 and resets the job progress attributes in the new copy only.

153 The IPP object MUST accept or reject the request based on the job's current state, transition the job (or  
 154 new job, depending on implementation) to the indicated new state as follows:

Current "job-state"	New "job-state"	IPP object's response status code and action:
'pending'	'pending'	'client-error-not-possible'.
'pending-held'	'pending-held'	'client-error-not-possible'.
'processing'	'processing'	'client-error-not-possible'.

'processing-stopped'	'processing-stopped'	'client-error-not-possible'.
'completed'	'pending'	'successful-ok' - job is started over.
'completed'	'completed'	'client-error-not-possible' - see Note 1
'canceled'	'pending'	'successful-ok' - job is started over.
'canceled'	'canceled'	'client-error-not-possible' - see Note 1
'aborted'	'pending'	'successful-ok' - job is started over.
'aborted'	'aborted'	'client-error-not-possible' - see Note 1

155

156 Note 1: If the Job Retention Period has expired for the job in this state, then the IPP object rejects the  
 157 operation. See section 3.1.

158 Note: In order to prevent a user from inadvertently restarting a job in the middle, the Restart-Job request  
 159 is rejected when the job is in the 'processing' or 'processing-stopped' states. If in the future an operation  
 160 is needed to hold or restart jobs while in these states, it will be added as an additional operation, rather  
 161 than overloading the Restart-Job operation, so that it is clear that the user intended that the current job  
 162 not be completed.

163 *Access Rights:* The requesting user must either be the submitter of the job or an operator or administrator  
 164 of the Printer object. Otherwise, the IPP object MUST reject the operation and return: 'client-error-  
 165 forbidden', 'client-error-not-authenticated', or 'client-error-not-authorized' as appropriate.

166 **2.3.1 Job-Restart Request**

167 The groups and attributes are the same as for a Cancel-Job request (see [ipp-mod] section 3.3.3.1), with  
 168 the addition of the following Group 1 Operation attribute:

169 "job-hold-until" (type3 keyword | name(MAX)) operation attribute  
 170 The client OPTIONALLY supplies this attribute. The IPP object MUST support this operation  
 171 attribute in a Restart-Job request, if it supports the "job-hold-until" Job Template attribute in  
 172 create operations. See [ipp-mod] section 4.2.2. Otherwise, the IPP object NEED NOT support  
 173 the "job-hold-until" operation attribute in a Restart-Job request.

174 If supplied and supported as specified in the Printer's "job-hold-until-supported" attribute, the IPP  
 175 object copies the supplied Operation attribute to the Job object, replacing the job's previous "job-  
 176 hold-until" attribute, if present, and makes the job a candidate for scheduling during the supplied  
 177 named time period.

178 If supplied, but the value is not supported, the IPP object accepts the request, returns the  
 179 unsupported attribute or value in the Unsupported Attributes Group according to section **Error!**  
 180 **Reference source not found.**, returns the 'successful-ok-ignored-or-substituted-attributes' status  
 181 code, and holds the job indefinitely until a client performs a subsequent Release-Job operation.

182 If supplied, but the "job-hold-until" Operation attribute itself is not supported, the IPP object  
183 accepts the request, returns the unsupported attribute with the out-of-band 'unsupported' value in  
184 the Unsupported Attributes Group according to [ipp-mod] section 3.2.1.2, returns the 'successful-  
185 ok-ignored-or-substituted-attributes' status code, and restarts the job, i.e., ignores the "job-hold-  
186 until" attribute.

187 If the client (1) supplies a value that specifies a time period that has already started or the 'no-  
188 hold' value (meaning don't hold the job) and (2) the IPP object supports the "job-hold-until"  
189 operation attribute and there are no other reasons to hold the job, the IPP object makes the job a  
190 candidate for processing immediately (see [ipp-mod] Section 4.2.2).

191 If the client does not supply a "job-hold-until" operation attribute in the request, the IPP object  
192 removes the "job-hold-until" attribute, if present, from the job. If there are no other reasons to  
193 hold the job, the Restart-Job operation makes the job a candidate for processing immediately (see  
194 [ipp-mod] Section 4.2.2).

#### 195 2.3.1.1 Restart-Job Response

196 The groups and attributes are the same as for a Cancel-Job response (see [ipp-mod] section 3.3.3.2).

197 Note: In the future an OPTIONAL Modify-Job operation may be specified that allows the client to  
198 modify other attributes before releasing the restarted job.

### 199 **3 The Job History concept and additional "job-state-reasons"**

200 This section partitions the 7 job states into phases: Job Not Completed, Job Retention, Job History, and  
201 Job Removal. This section also specifies the 'job-restartable' value of the "job-state-reasons" Job  
202 Description attribute for use with the Restart-Job operations.

#### 203 **3.1 Partitioning of Job States**

204 The 7 job states are partitioned into the following phases:

205 Job Not Completed: When a job is in the 'pending', 'pending-held', 'processing', or 'processing-stopped'  
206 states, the job is not completed.

207 Job Retention: When a job enters one of the three terminal job states: 'completed', 'canceled', or  
208 'aborted', the IPP Printer object MAY "retain" the job in a restartable condition using the Restart-Job  
209 operation for an implementation-defined time period. This time period MAY be zero seconds and  
210 MAY depend on the terminal job state. This phase is called Job Retention. While in the Job Retention  
211 phase, the job's document data is retained and a client may restart the job using the Restart-Job  
212 operation. If the IPP object supports the "job-state-reasons" attribute and the Restart-Job operation, then  
213 it SHOULD indicate that the job is restartable by adding the 'job-restartable' value to the job's "job-state-  
214 reasons" attribute (see Section **Error! Reference source not found.**) during the Job Retention phase.



215 Job History: After the Job Retention phase expires for the job, the Printer object deletes the document  
216 data for the job and the job becomes part of the Job History. The Print object MAY also delete any  
217 number of the job attributes. Since the job is no longer restartable, the Printer object MUST remove the  
218 'job-restartable' value from the job's "job-state-reasons" attribute, if supported.

219 Job Removal: After the job has remained in the Job History for an implementation-defined time, such as  
220 when the number of jobs exceeds a fixed number or after a fixed time period (which MAY be zero  
221 seconds), the IPP Printer removes the job from the system.

222 Using the Get-Jobs operation and supplying the 'not-completed' value for the "which-jobs" operation  
223 attribute, a client is requesting jobs in the Job Not Completed phase. Using the Get-Jobs operation and  
224 supplying the 'completed' value for the "which-jobs" operation attribute, a client is requesting jobs in the  
225 Job Retention and Job History phases. Using the Get-Job-Attributes operation, a client is requesting a  
226 job in any phase except Job Removal. After Job Removal, the Get-Job-Attributes and Get-Jobs  
227 operations no longer are capable of returning any information about a job.

### 228 **3.2 Add a new 'job-restartable' value to the "job-state-reasons" attribute**

229 The following new keyword value is specified for use with the "job-state-reasons" Job Description  
230 attribute and the Restart-Job operation (see Section 0):

231 'job-restartable' - This job is retained (see section 3.1) and is currently able to be restarted using the  
232 Restart-Job operation (see section 2.3). If 'job-restartable' is a value of the job's 'job-state-  
233 reasons' attribute, then the IPP object MUST accept a Restart-Job operation for that job.

234

235 **4 Printer operations**

236 The printer operations in Set 1 are for use by operators and administrators of each Printer object. The  
237 following figure is copied from [ipp-mod] with the addition of the following arrow:

238 any\*\*\*\*>

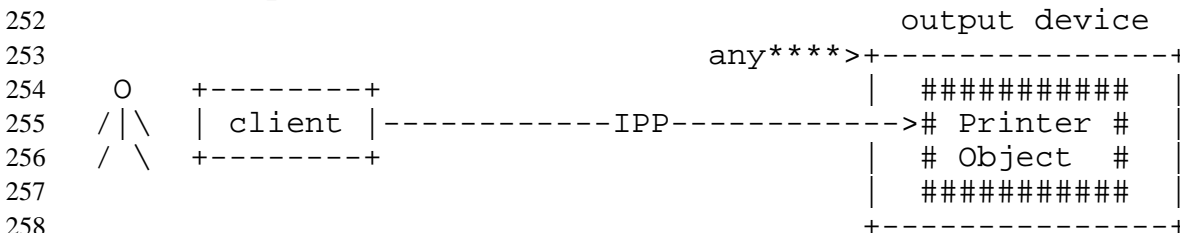
239 indicating an additional source of job submission using IPP or any other job submission protocol that  
240 passes to the device but does NOT pass through the IPP Printer object in question.

241 Legend:

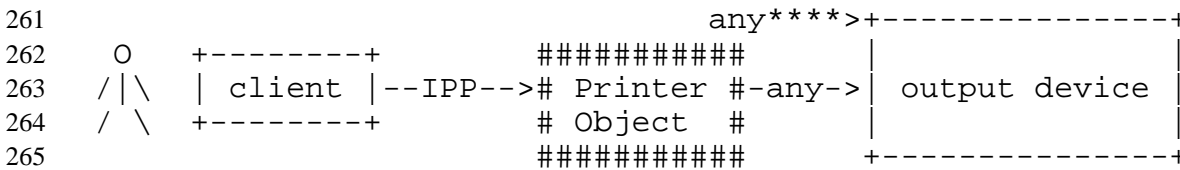
242  
243 ##### indicates a Printer object which is  
244 either embedded in an output device or is  
245 hosted in a server. The Printer object  
246 might or might not be capable of queuing/spooling.

247  
248 any indicates any network protocol or direct  
249 connect, including IPP

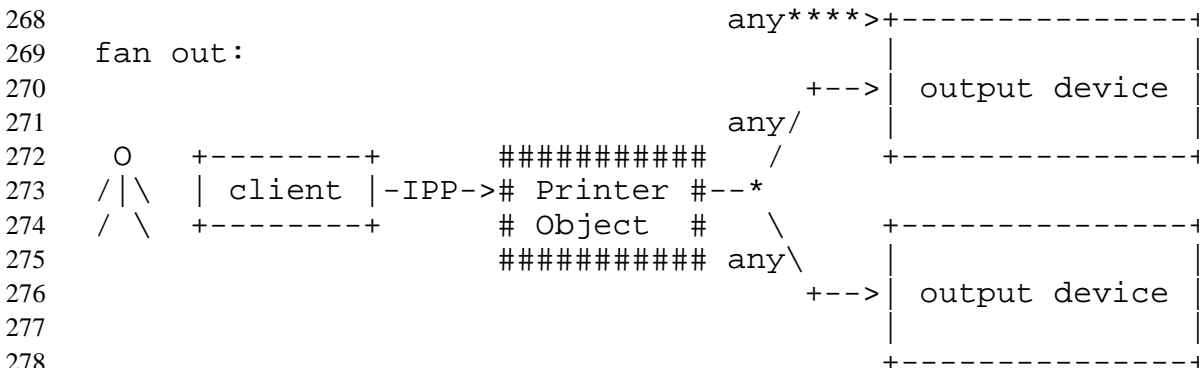
250  
251 embedded printer:



259  
260 hosted printer:



266  
267  
268 fan out:



279 The operation attributes for the Printer operation requests are as follows:-

280 Group 1: Operation Attributes

281 Natural Language and Character Set:

282 The "attributes-charset" and "attributes-natural-language" attributes as described in section  
283 3.1.4.1 of [ipp-mod].

284

285 Target:

286 The "printer-uri" (uri) operation attribute which is the target for this operation as described in  
287 section 3.1.5 of [ipp-mod].

288

289 Requesting User Name:

290 The "requesting-user-name" (name(MAX)) attribute SHOULD be supplied by the client as  
291 described in section 8.3 of [ipp-mod].

292 The operation attributes for the Printer operation responses are as follows:

293 Group 1: Operation Attributes

294 Status Message:

295 In addition to the REQUIRED status code returned in every response, the response  
296 OPTIONALLY includes a "status-message" (text) operation attribute as described in section  
297 3.1.6 of [ipp-mod].

298

299 Natural Language and Character Set:

300 The "attributes-charset" and "attributes-natural-language" attributes as described in section  
301 3.1.4.2 of [ipp-mod].

302

303 Group 2: Unsupported Attributes

304 This is a set of Operation attributes supplied by the client (in the request) that are not supported  
305 by the Printer object or that conflict with one another (see sections 3.2.1.2 and 16).

306

307

#### 308 **4.1 Pause-Printer Operation**

309 This operation allows a client to stop the Printer object from scheduling jobs on all its devices.

310 Depending on implementation, the Pause-Printer operation MAY also stop the Printer from processing  
311 the current job or jobs. Any job that is currently being printed is either stopped as soon as the  
312 implementation permits or is completed, depending on implementation. The Printer object MUST still  
313 accept create operations to create new jobs, but MUST prevent any jobs from entering the 'processing'  
314 state.

315 If the Pause-Printer operation is supported, then the Resume-Printer operation MUST be supported, and  
 316 vice-versa.

317 The IPP Printer stops the current job(s) on its device(s) that were in the 'processing' or 'processing-  
 318 stopped' states as soon as the implementation permits. If the implementation supports the "printer-state-  
 319 reasons" attribute and the devices will take appreciable time to stop, the IPP Printer adds the 'moving-to-  
 320 paused' value to the Printer object's "printer-state-reasons" attribute. When the device(s) have all  
 321 stopped, the IPP Printer transitions the Printer object to the 'stopped' state, removes the 'moving-to-  
 322 paused' value, if present, and adds the 'paused' value to the Printer object's "printer-state-reasons"  
 323 attribute.

324 When the current job(s) complete that were in the 'processing' state, the IPP Printer transitions them to  
 325 the 'completed' state. When the current job(s) stop in mid processing that were in the 'processing' state,  
 326 the IPP Printer transitions them to the 'processing-stopped' state and, if the "job-state-reasons" attribute is  
 327 supported, adds the 'printer-stopped' value to the job's "job-state-reasons" attribute.

328 Note: for any jobs that are 'pending' or 'pending-held', the 'printer-stopped' value of the jobs' "job-state-  
 329 reasons" attribute also applies. However, the IPP Printer NEED NOT update those job's "job-state-  
 330 reasons" attributes and only need return the 'printer-stopped' value when those jobs are queried (so-called  
 331 "lazy evaluation").

332 Whether the Pause-Printer operation affects jobs that were submitted to the device from other sources  
 333 than the IPP Printer object (see the any\*\*\*> arrow in the figure above) in the same way that the  
 334 Pause-Printer operation affects jobs that were submitted to the IPP Printer object using IPP, depends on  
 335 implementation, i.e., on whether the IPP protocol is being used as a universal management protocol or  
 336 just to manage IPP jobs, respectively.

337 The IPP Printer MUST accept the request in any state and transition the Printer to the indicated new  
 338 "printer-state" before returning as follows:

Current "printer-state"	New "printer-state"	"printer-state-reasons"	IPP Printer's response status code and action:
'idle'	'stopped'	'paused'	'successful-ok'
'processing'	'processing'	'moving-to-paused'	OPTION 1: 'successful-ok'; Later, when all output has stopped, the "printer-state" becomes 'stopped', and the 'paused' value replaces the 'moving-to-paused' value in the "printer-state-reasons" attribute
'processing'	'stopped'	'paused'	OPTION 2: 'successful-ok'; all output stopped immediately
'stopped'	'stopped'	'paused'	'successful-ok'

339 *Access Rights:* The requesting user must be an operator or administrator of the Printer object.  
 340 Otherwise, the IPP Printer MUST reject the operation and return: 'client-error-forbidden', 'client-error-  
 341 not-authenticated', or 'client-error-not-authorized' as appropriate.

342 **4.1.1 Add a new 'moving-to-paused' value to the "printer-state-reasons" attribute**

343 The following new keyword value is specified for use with the "printer-state-reasons" Printer  
 344 Description attribute:

345 'moving-to-paused': Someone has paused the Printer object using the Pause-Printer operation (see  
 346 section **Error! Reference source not found.**) or other means, but the device(s) are taking an  
 347 appreciable time to stop. Later, when all output has stopped, the "printer-state" becomes  
 348 'stopped', and the 'paused' value replaces the 'moving-to-paused' value in the "printer-state-  
 349 reasons" attribute.

350 **4.2 Resume-Printer Operation**

351 This operation allows a client to resume the Printer object scheduling jobs on all its devices. If the  
 352 Printer object supports the "printer-state-reasons" attribute, it **MUST** remove the 'paused' and 'moving-  
 353 to-paused' values from the Printer object's "printer-state-reasons" attribute, if present. If there are no  
 354 other reasons to keep a device paused (such as media-jam), the IPP Printer transitions itself to the  
 355 'processing' or 'idle' states, depending on whether there are jobs to be processed or not, respectively, and  
 356 the device(s) resume processing jobs.

357 If the Pause-Printer operation is supported, then the Resume-Printer operation **MUST** be supported, and  
 358 vice-versa.

359 The IPP Printer removes the 'printer-stopped' value from any job's "job-state-reasons" attributes  
 360 contained in that Printer.

361 The IPP Printer **MUST** accept the request in any state, and transition the Printer object to the indicated  
 362 new state as follows:

Current "printer-state"	New "printer-state"	IPP Printer's response status code and action:
'idle'	'idle'	'successful-ok'
'processing'	'processing'	'successful-ok'
'stopped'	'processing'	'successful-ok'; when there are jobs to be processed
'stopped'	'idle'	'successful-ok'; when there are no jobs to be processed.

363 *Access Rights:* The requesting user must be an operator or administrator of the Printer object.  
 364 Otherwise, the IPP Printer **MUST** reject the operation and return: 'client-error-forbidden', 'client-error-  
 365 not-authenticated', or 'client-error-not-authorized' as appropriate.

### 366 **4.3 Purge-Jobs Operation**

367 This operation allows a client to remove all jobs from an IPP Printer object, regardless of their job states,  
368 including jobs in the Printer object's Job History (see Section **Error! Reference source not found.**).  
369 After a Purge-Jobs operation has been performed, a Printer object **MUST** return no jobs in subsequent  
370 Get-Job-Attributes and Get-Jobs responses (until new jobs are submitted).

371 Whether the Purge-Jobs (and Get-Jobs) operation affects jobs that were submitted to the device from  
372 other sources than the IPP Printer object (see the any\*\*\*> arrow in the figure in Section 4) in the  
373 same way that the Purge-Jobs operation affects jobs that were submitted to the IPP Printer object using  
374 IPP, depends on implementation, i.e., on whether the IPP protocol is being used as a universal  
375 management protocol or just to manage IPP jobs, respectively.

376 Note: if an operator wants to cancel all jobs without clearing out the Job History, the operator uses the  
377 Cancel-Job operation on each job instead of using the Purge-Job operation.

378 The Printer object **MUST** accept this operation in any state and transition the Printer object to the 'idle'  
379 state.

380 *Access Rights:* The requesting user must be an operator or administrator of the Printer object.  
381 Otherwise, the IPP object **MUST** reject the operation and return: client-error-forbidden, client-error-not-  
382 authenticated, and client-error-not-authorized as appropriate.

## 383 **5 Security Considerations**

384 For the job operations in Set 1 (Section 2), the requesting user must either be the submitter of the job or  
385 an operator or administrator of the Printer object (see [ipp-mod] Section 1). Otherwise, the IPP object  
386 **MUST** reject the operation and return: 'client-error-forbidden', 'client-error-not-authenticated', or 'client-  
387 error-not-authorized' as appropriate. See [ipp-mod] Section 8.3 on the two ways that the client **MUST**  
388 specify the user who is performing each IPP operation.

389 For the printer operations in Set 1 (Section 4), the requesting user must by an operator or administrator  
390 of the Printer object (see [ipp-mod] Section 1). The means for authorizing an operator or administrator  
391 of the Printer object are not specified in either [ipp-mod] or this document.

## 392 **6 References**

393 [ipp-mod]

394 Isaacson, S., deBry, R., Hastings, T., Herriot, R., Powell, P., "Internet Printing Protocol/1.0:  
395 Model and Semantics" draft-ietf-ipp-mod-11.txt, November, 1998.

396 [ipp-pro]

397 Herriot, R., Butler, S., Moore, P., Tuner, R., "Internet Printing Protocol/1.0: Encoding and  
398 Transport", draft-ietf-ipp-pro-07.txt, November, 1998.

## 399 **7 Change History**

400 This section lists the changes.

**401 7.1 Changes to November 9, 1998 to make February 21, 1999**

402 The following changes were made to the November 9, 1998 to make February 21, 1999 version in order  
403 to keep the Set 1 operations aligned with IPP/1.1 Model and Semantics:

- 404 1. Clarified Hold-Job, if the client supplies the OPTIONAL "hold-job-until" Operation attribute and the  
405 Printer doesn't support that attribute or the supplied value, ignore the attribute, accept the request and  
406 hold the job (indefinitely until Release-Job), returning the 'successful-ok-ignored-attributes-or-  
407 values' status code, rather than rejecting the request, since the results are not too different from what  
408 the user requested.
- 409 2. Clarified Restart-Job, if the client supplies the OPTIONAL "hold-job-until" Operation attribute and  
410 the Printer doesn't support that attribute, ignore the attribute, accept the request and restart the job  
411 returning the 'successful-ok-ignored-attributes-or-values' status code, rather than rejecting the  
412 request, since the results are not too different from what the user requested.
- 413 3. Clarified Restart-Job, if the client supplies the OPTIONAL "hold-job-until" Operation attribute and  
414 the Printer doesn't support that attribute value, ignore the value, accept the request and hold the job  
415 indefinitely returning the 'successful-ok-ignored-attributes-or-values' status code, rather than  
416 rejecting the request, since the results are not too different from what the user requested.
- 417 4. Eliminate OPTION 1 in the Restart-Job operation so that Restart-Job is like Hold-Job in that neither  
418 operation can be done when the job is in the 'processing' or 'processing-stopped' states. Add new  
419 operations for that functionality if and when needed.

420