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2 Project of the PWG-IPP Working Group

3  
4 Internet Printing Protocol (IPP):  
5 “output-bin” attribute extension

6  
7 Draft D0.8

8 October 30, 2000

9 [ftp://ftp.pwg.org/pub/pwg/ipp/new\\_ATTproposed-registrations/attributes/pwg-ipp-output-bin-attr-001026991021.doc,.rtf,.pdf](ftp://ftp.pwg.org/pub/pwg/ipp/new_ATTproposed-registrations/attributes/pwg-ipp-output-bin-attr-001026991021.doc,.rtf,.pdf)

10  
11 **Abstract**

12 This document defines an extension to the IPP/1.0 [RFC2566] & IPP/1.1 [~~ipp-mod~~RFC2911]  
13 Model and Semantics specification for the OPTIONAL “output-bin” (type2 keyword |  
14 name(MAX)) Job Template attribute. This attribute allows the client to specify in which output  
15 bin a job is to be placed and to query the Printer’s default and supported output bins.

16 This document is a draft of an IEEE-ISTO PWG Proposed Standard and is in full conformance with all  
17 provisions of the PWG Process (see <http://www.pwg.org/chair/pwg-process-990825.pdf>). PWG  
18 Proposed Standards are working documents of the IEEE-ISTO PWG and its working groups. The list of  
19 current PWG projects and drafts can be obtained at <http://www.pwg.org>

20

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TABLE OF CONTENTS

55 1 Introduction.....4

56 1.1 Problem .....4

57 1.2 Solution .....4

58 Summary of the “output-bin” Job Template attribute .....5

59 2 Definition of the “output-bin” Job Template attribute .....5

60 2.1 output-bin (type2 keyword | name(MAX)) .....5

61 3 Conformance Requirements .....7

62 3.1 Conformance Requirements for Printer objects .....7

63 3.2 Conformance Requirements for clients .....7

64 4 IANA Considerations .....8

65 5 Internationalization Considerations .....8

66 6 Security Considerations .....8

67 7 References.....8

68 8 Author’s Addresses.....9

69 9 Appendix A: Summary of other IPP documents .....10

70 10 Appendix B: Description of the IEEE Industry Standards and Technology (ISTO) .....11

71 11 Appendix C: Description of the IEEE-ISTO PWG .....11

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## 74 **1** ~~Introduction~~Add new "output-bin" Job Template attributes

### 75 **1.1 Problem**

76 Many printers have multiple output bins, that the job submission protocol permits the submitter to select  
77 in which to put the entire job.

### 78 **1.2** ~~Solution~~Suggested solution

79 Add a single-valued "output-bin" Job Template attribute that captures existing practice. Allow  
80 keywords with an integer values component, so that the number of output bins is not constrained. Do  
81 not specify internal mechanisms, such as collators. Do specify an externally accessible stacker, since  
82 current devices allow a user to select a stacker. Do not make the attribute multi-valued. Add the  
83 corresponding Job Template Printer attributes: "output-bin-default" and "output-bin-supported".

84 Note: If it is desired to allow the job submitter to select several output bin mail boxes that can be  
85 identified by number or recipient's name, propose a separate multi-valued attribute. Since the  
86 destination may also be electronic and have a method associated with it, also allow the uri attribute  
87 syntax. Probably call this other attribute "output-destination" with an attribute syntax of (1setOf uri |  
88 name). Or possibly the output-destination should be a parameter on the URL? If both "output-bin" and  
89 "output-destination" are specified, the job is both printed and sent to the specified destination. This note  
90 is provided so that the "output-bin" attribute will not suffer "scope creep" during the review and be  
91 changed into "output-destination". Printers have been allowing something like the "output-bin"  
92 specification for many years. Supporting something like "output-destination" is just starting to appear  
93 now.

94 **1.3 ~~Proposed text~~ Summary of the “output-bin” Job Template attribute**

95	+=====+=====+=====+		
96	Job Attribute	Printer: Default Value	Printer: Supported
97		Attribute	Values Attribute
98	+=====+=====+=====+		
99	output-bin	output-bin-default	output-bin-supported
100	(type2 keyword +_	(type2 keyword +_	(1setOf (
101			
102	name(MAX) ) +_	-  name(MAX) ) +_	type2 keyword
103			
104	<del>integer(1:MAX)</del>	<del>integer(1:MAX)</del>	<del>integer(1:MAX)</del>
105	<del>name(MAX) )) +_</del>	<del>- </del>	<del>integer(1:MAX))  </del>
106	+-----+-----+-----+		
107	+=====+=====+=====+		

108 **2 Definition of the “output-bin” Job Template attribute**

109 **2.1 output-bin (type2 keyword | name(MAX)+integer(1:MAX))**

110 This Job Template attribute identifies the device output bin to which the job is to be delivered. There  
 111 are standard values whose attribute syntax is ‘keyword’, but there are no standard values whose attribute  
 112 syntax is ‘name’ ~~or ‘integer’~~. Output bins whose attribute syntax is ‘name’, if any, are assigned by local  
 113 administrators (by means outside the scope of IPP/1.0 and IPP/1.1). ~~Output bins whose attribute syntax~~  
 114 ~~is ‘integer’, if any, are assigned by a printer vendor or local administrator to identify a number of similar~~  
 115 ~~output bins which are better differentiated by number than by one of the descriptive names defined in~~  
 116 ~~the following keyword list.~~

117 Each output bin may have implementation-dependent properties. Output bins identified by ~~‘integer’ or~~  
 118 ‘name’ values MAY possess any of the properties of the output bins identified by the following  
 119 keywords, depending on implementation. However, each output bin MUST be identified by only one  
 120 value of any attribute syntax type. Otherwise, clients might be mis-led as to the capabilities of the  
 121 device when querying the associated Printer object’s “output-bin-supported” attribute.

122 Note: Output bin types, such as sorter(s) or collator(s), have not been included in the values of this  
 123 attribute, since implementations that employ such internal or external bins, determine which to use by  
 124 the values of other job attributes, such as “finishings”, and “copies”.

125 When validating a job in a ~~create~~ **Job Creation** (or Validate-Job) operation, which subset of the output  
 126 bins are allowed as a destination for a job MAY depend on the user submitting that job, the user’s  
 127 authentication, and possibly other job attributes, such as “finishings” and “copies”. When returning the  
 128 values of the associated “output-bin-supported” attribute, the values returned MAY depend on the user  
 129 issuing the Get-Printer-Attributes operation. For example, some implementations MAY omit the ‘my-  
 130 mailbox’ value for users who do not have a defined mailbox for this IPP Printer object, while others  
 131 MAY always return ‘my-mailbox’ to all users even if only supported for certain users.

132 If this IPP Printer object is associated with multiple devices (fan-out) (see [~~ipp-mod~~[RFC2911](#)] section  
133 2.1), the value of its “output-bin-supported” attribute is the union of the values supported with duplicates  
134 removed.

135 Standard keyword values are:

- 136 ‘top’: The output-bin that, when facing the device, is best identified as the “top” bin with  
137 respect to the device.
- 138 ‘middle’ The output-bin that, when facing the device, is best identified as the “middle” bin with  
139 respect to the device.
- 140 ‘bottom’ The output-bin that, when facing the device, is best identified as the “bottom” bin with  
141 respect to the device.
- 142 ‘side’ The output-bin that, when facing the device, is best identified as the “side” bin with  
143 respect to the device.
- 144 ‘left’ The output-bin that, when facing the device, is best identified as the “left” bin with  
145 respect to the device.
- 146 ‘right’ The output-bin that, when facing the device, is best identified as the “right” bin with  
147 respect to the device.
- 148 ‘center’ The output-bin that, when facing the device, is best identified as the “center” bin with  
149 respect to the device.
- 150 ‘rear’: The output-bin that, when facing the device, is best identified as the “rear” bin with  
151 respect to the device.
- 152 ‘face-up’ -The output-bin that is best identified as the “face-up” bin with respect to the device. The  
153 selection of this output bin does not cause output to be made face-up; rather this output  
154 bin is given this name because a sheet with printing on one-side arrives in the output bin  
155 in the face-up position.
- 156 ‘face-down’ The output-bin that is best identified as the “face-down” bin with respect to the device.  
157 The selection of this output bin does not cause output to be made face-down; rather this  
158 output bin is given this name because a sheet with printing on one-side arrives in the  
159 output bin in the face-down position.
- 160 ‘large-capacity’ The output-bin that is best identified as the “large-capacity” bin (in terms of the  
161 number of sheets) with respect to the device.
- 162 ‘stacker-*N*’: The output-bin that is best identified as the stacker with values ‘stacker-1’,  
163 ‘stacker-2’, .... A stacker is typically used to collate sheets within a single document (not  
164 to be confused with collated copies in which document copies are collated within a job -  
165 see the description of the ‘separate-documents-collated-copies’ value of the “multiple-  
166 document-handling” attribute in [~~ipp-mod~~[RFC2911](#)] section 4.2.4). The correspondence  
167 between the ‘stacker-*N*’ keyword and the actual stacker in the device is implementation-  
168 dependent, as is the number of stackers. If this group of values is supported, at least the  
169 ‘stacker-1’ value MUST be supported, unless the system administrator has assigned  
170 names or integer values.

171 For client implementations that require distinct keywords for each possible value, say, for  
172 localization purposes, it is recommended for interoperability with other vendor's Printer  
173 implementations that 'stacker-1' to 'stacker-10' keywords be represented.

174 'mailbox-*N*': The output-bin that is best identified as a mailbox with values 'mailbox-1',  
175 'mailbox-2', 'mailbox-3', .... Each mailbox is typically used to collect jobs for an  
176 individual or group. Whether the mailbox has doors and/or locks or is open, depends on  
177 implementation. The correspondence between the 'mailbox-*N*' keyword and the actual  
178 output-bin in the device is implementation-dependent, as is the number of mailboxes. A  
179 system administrator MAY be able to assign a name to each mailbox in order to make  
180 selection of a mailbox easier for the user. If this group of values is supported, at least the  
181 'mailbox-1' value MUST be supported, unless the system administrator has assigned  
182 names or integer values to mailboxes.

183 For client implementations that require distinct keywords for each possible value, say, for  
184 localization purposes, it is recommended for interoperability with other vendor's Printer  
185 implementations that 'mailbox-1' to 'mailbox-25' keywords be represented.

186 'my-mailbox': The output-bin that is best identified as functioning like a private "mailbox" with  
187 respect to the device. An output-bin functions like a private mailbox if a printer selects  
188 the actual output bin using additional implementation-dependent criteria, such as the  
189 "authenticated user" (see [~~ipp-mod~~RFC2911] section 8.3) that depends on the user  
190 submitting the job. Whether the mailbox has doors and/or locks or is open, depends on  
191 implementation, as is the number of mailboxes.

192 'tray-*N*': Output bins that are best identified as 'tray-1', 'tray-2', ... rather than the descriptive  
193 names defined in the above keyword list.

194

### 195 **3 Conformance Requirements**

196 This section summarizes the Conformance Requirements detailed in the definitions in this document for  
197 clients and Printer objects (servers or devices).

#### 198 **3.1 Conformance Requirements for Printer objects**

199 If a Printer supports the "finishings" Job Template attribute, it MUST support at least the 'none' value  
200 and any other value that corresponds to its capabilities.

#### 201 **3.2 Conformance Requirements for clients**

202 If a client supports the "finishings" Job Template attribute, then it MUST display the enum values in  
203 some appropriate way to the user.

## 204 4 IANA Considerations

205 This “output-bin” attribute registration proposal will be published by IANA according to the procedures  
206 in RFC ~~2566~~2911 [~~fc2566~~RFC2911] section 6.2 with the following URL:

207 <ftp.isi.edu/iana/assignments/ipp/attributes/output-bin.txt>

## 208 5 Internationalization Considerations

209 Normally a client will provide localization of the keywords values of this attribute to the language of the  
210 user, but will not localize the name values (see [~~ipp-mod~~RFC2911] section 4.1.2 and 4.1.3). The  
211 numeric form for the output bin may be simpler for a client to localize.

## 212 6 Security Considerations

213 The ‘my-mailbox’ attribute requires some form of Client Authorization to be really secure. See [~~ipp-~~  
214 ~~mod~~RFC2911] section 8.

## 215 7 References

216 [RFC2565]

217 Herriot, R., Butler, S., Moore, P., and R. Turner, “Internet Printing Protocol/1.0: Encoding and  
218 Transport”, RFC 2565, April 1999.

219 [RFC2566]

220 deBry, R., , Hastings, T., Herriot, R., Isaacson, S., Powell, P., “Internet Printing Protocol/1.0:  
221 Model and Semantics”, RFC 2566, April 1999.

222 [RFC2910]

223 Herriot, R., Butler, S., Moore, P., Turner, R., and J. Wenn, “Internet Printing Protocol/1.1:  
224 Encoding and Transport”, RFC 2910, September 2000.

225 [RFC2911]

226 Hastings, T., Herriot, R., deBry, R., Isaacson, S., and P. Powell, “Internet Printing Protocol/1.1:  
227 Model and Semantics”, RFC 2911, September 2000.



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248 IPP Web Page: <http://www.pwg.org/ipp/>  
249 IPP Mailing List: [ipp@pwg.org](mailto:ipp@pwg.org)

250  
251 To subscribe to the ipp mailing list, send the following email:

- 252 1) send it to [majordomo@pwg.org](mailto:majordomo@pwg.org)  
253 2) leave the subject line blank  
254 3) put the following two lines in the message body:  
255 subscribe ipp  
256 end

257 Implementers of this specification document are encouraged to join IPP Mailing List in order to  
258 participate in any discussions of clarification issues and review of registration proposals for additional  
259 attributes and values.

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Atsushi Uchino - Epson  
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Don Wright - Lexmark  
Peter Zehler - Xerox

261

## 262 **9 Appendix A: Summary of other IPP documents**

263 The full set of IPP documents includes:

- 264 Design Goals for an Internet Printing Protocol [RFC2567]
- 265 Rationale for the Structure and Model and Protocol for the Internet Printing Protocol [RFC2568]
- 266 Internet Printing Protocol/1.1: Model and Semantics [RFC2911]
- 267 Internet Printing Protocol/1.1: Encoding and Transport [RFC2910]
- 268 Internet Printing Protocol/1.1: Implementer’s Guide [IPP-IIG]
- 269 Mapping between LPD and IPP Protocols [RFC2569]

270

271 The “Design Goals for an Internet Printing Protocol” document takes a broad look at distributed printing  
272 functionality, and it enumerates real-life scenarios that help to clarify the features that need to be  
273 included in a printing protocol for the Internet. It identifies requirements for three types of users: end  
274 users, operators, and administrators. It calls out a subset of end user requirements that are satisfied in  
275 IPP/1.0. A few OPTIONAL operator operations have been added to IPP/1.1.

276 The “Rationale for the Structure and Model and Protocol for the Internet Printing Protocol” document  
277 describes IPP from a high level view, defines a roadmap for the various documents that form the suite of  
278 IPP specification documents, and gives background and rationale for the IETF working group’s major  
279 decisions.

280 The “Internet Printing Protocol/1.1: Encoding and Transport” document is a formal mapping of the  
281 abstract operations and attributes defined in the model document onto HTTP/1.1 [RFC2616]. It defines  
282 the encoding rules for a new Internet MIME media type called “application/ipp”. This document also  
283 defines the rules for transporting over HTTP a message body whose Content-Type is “application/ipp”.  
284 This document defines a new scheme named ‘ipp’ for identifying IPP printers and jobs.

285 The “Internet Printing Protocol/1.1: Implementer’s Guide” document gives insight and advice to  
286 implementers of IPP clients and IPP objects. It is intended to help them understand IPP/1.1 and some of  
287 the considerations that may assist them in the design of their client and/or IPP object implementations.  
288 For example, a typical order of processing requests is given, including error checking. Motivation for  
289 some of the specification decisions is also included.

290 The “Mapping between LPD and IPP Protocols” document gives some advice to implementers of  
291 gateways between IPP and LPD (Line Printer Daemon) implementations.

292 **10 Appendix B: Description of the IEEE Industry Standards and Technology**  
293 **(ISTO)**

294 The IEEE-ISTO is a not-for-profit corporation offering industry groups an innovative and flexible  
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301 **11 Appendix C: Description of the IEEE-ISTO PWG**

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304 developers, operating system providers, network operating systems providers, network connectivity  
305 vendors, and print management application developers. The group is chartered to make printers and the  
306 applications and operating systems supporting them work together better. All references to the PWG in  
307 this document implicitly mean "The Printer Working Group, a Program of the IEEE ISTO." In order to  
308 meet this objective, the PWG will document the results of their work as open standards that define print  
309 related protocols, interfaces, procedures and conventions. Printer manufacturers and vendors of printer  
310 related software will benefit from the interoperability provided by voluntary conformance to these  
311 standards.

312 In general, a PWG standard is a specification that is stable, well understood, and is technically  
313 competent, has multiple, independent and interoperable implementations with substantial operational  
314 experience, and enjoys significant public support.

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316 <http://www.pwg.org>

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319 **6Appendix A: Full Copyright Statement**

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