



Project of the PWG-IPP Working Group

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

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

Draft D0.8
October 30, 2000

ftp://ftp.pwg.org/pub/pwg/ipp/new_ATT/pwg-ipp-output-bin-attr-001026.doc, .rtf, .pdf

Abstract

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

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

19

20 Copyright (C) 2000, IEEE Industry Standards and Technology Organization. All rights reserved.

21 This document may be copied and furnished to others, and derivative works that comment on, or
22 otherwise explain it or assist in its implementation may be prepared, copied, published and distributed,
23 in whole or in part, without restriction of any kind, provided that the above copyright notice, this
24 paragraph and the title of the Document as referenced below are included on all such copies and
25 derivative works. However, this document itself may not be modified in any way, such as by removing
26 the copyright notice or references to the IEEE-ISTO and the Printer Working Group, a program of the
27 IEEE-ISTO.

28 Title: Internet Printing Protocol (IPP): "output-bin" attribute extension

29 The IEEE-ISTO and the Printer Working Group DISCLAIM ANY AND ALL WARRANTIES,
30 WHETHER EXPRESS OR IMPLIED INCLUDING (WITHOUT LIMITATION) ANY IMPLIED
31 WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

32 The Printer Working Group, a program of the IEEE-ISTO, reserves the right to make changes to the
33 document without further notice. The document may be updated, replaced or made obsolete by other
34 documents at any time.

35 The IEEE-ISTO takes no position regarding the validity or scope of any intellectual property or other
36 rights that might be claimed to pertain to the implementation or use of the technology described in this
37 document or the extent to which any license under such rights might or might not be available; neither
38 does it represent that it has made any effort to identify any such rights.

39 The IEEE-ISTO invites any interested party to bring to its attention any copyrights, patents, or patent
40 applications, or other proprietary rights which may cover technology that may be required to implement
41 the contents of this document. The IEEE-ISTO and its programs shall not be responsible for identifying
42 patents for which a license may be required by a document and/or IEEE-ISTO Industry Group Standard
43 or for conducting inquiries into the legal validity or scope of those patents that are brought to its
44 attention. Inquiries may be submitted to the IEEE-ISTO by e-mail at:

45 ieee-isto@ieee.org.

46 The Printer Working Group acknowledges that the IEEE-ISTO (acting itself or through its designees) is,
47 and shall at all times, be the sole entity that may authorize the use of certification marks, trademarks, or
48 other special designations to indicate compliance with these materials.

49 Use of this document is wholly voluntary. The existence of this document does not imply that there are
50 no other ways to produce, test, measure, purchase, market, or provide other goods and services related to
51 its scope.

52

52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72

TABLE OF CONTENTS

1 Introduction.....4

1.1 Problem4

1.2 Solution4

1.3 Summary of the “output-bin” Job Template attribute5

2 Definition of the “output-bin” Job Template attribute5

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

3 Conformance Requirements7

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

3.2 Conformance Requirements for clients7

4 IANA Considerations7

5 Internationalization Considerations8

6 Security Considerations8

7 References.....8

8 Author’s Addresses.....8

9 Appendix A: Summary of other IPP documents9

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

11 Appendix C: Description of the IEEE-ISTO PWG11

72

73 **1 Introduction**74 **1.1 Problem**

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

77 **1.2 Solution**

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

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

93 **1.3 Summary of the “output-bin” Job Template attribute**

94	+=====+		
95	Job Attribute	Printer: Default Value	Printer: Supported
96		Attribute	Values Attribute
97	+=====+		
98	output-bin	output-bin-default	output-bin-supported
99	(type2 keyword	(type2 keyword	(1setOf (
100	name(MAX))	name(MAX))	type2 keyword
101			name(MAX))
102	+=====+		

103 **2 Definition of the “output-bin” Job Template attribute**

104 **2.1 output-bin (type2 keyword | name(MAX))**

105 This Job Template attribute identifies the device output bin to which the job is to be delivered. There
 106 are standard values whose attribute syntax is ‘keyword’, but there are no standard values whose attribute
 107 syntax is ‘name’. Output bins whose attribute syntax is ‘name’, if any, are assigned by local
 108 administrators (by means outside the scope of IPP/1.0 and IPP/1.1).

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

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

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

124 If this IPP Printer object is associated with multiple devices (fan-out) (see [RFC2911] section 2.1), the
 125 value of its “output-bin-supported” attribute is the union of the values supported with duplicates
 126 removed.

127 Standard keyword values are:

- 128 'top': The output-bin that, when facing the device, is best identified as the "top" bin with
129 respect to the device.
- 130 'middle' The output-bin that, when facing the device, is best identified as the "middle" bin with
131 respect to the device.
- 132 'bottom' The output-bin that, when facing the device, is best identified as the "bottom" bin with
133 respect to the device.
- 134 'side' The output-bin that, when facing the device, is best identified as the "side" bin with
135 respect to the device.
- 136 'left' The output-bin that, when facing the device, is best identified as the "left" bin with
137 respect to the device.
- 138 'right' The output-bin that, when facing the device, is best identified as the "right" bin with
139 respect to the device.
- 140 'center' The output-bin that, when facing the device, is best identified as the "center" bin with
141 respect to the device.
- 142 'rear': The output-bin that, when facing the device, is best identified as the "rear" bin with
143 respect to the device.
- 144 'face-up' The output-bin that is best identified as the "face-up" bin with respect to the device. The
145 selection of this output bin does not cause output to be made face-up; rather this output
146 bin is given this name because a sheet with printing on one-side arrives in the output bin
147 in the face-up position.
- 148 'face-down' The output-bin that is best identified as the "face-down" bin with respect to the device.
149 The selection of this output bin does not cause output to be made face-down; rather this
150 output bin is given this name because a sheet with printing on one-side arrives in the
151 output bin in the face-down position.
- 152 'large-capacity' The output-bin that is best identified as the "large-capacity" bin (in terms of the
153 number of sheets) with respect to the device.
- 154 'stacker-*N*': The output-bin that is best identified as the stacker with values 'stacker-1',
155 'stacker-2', A stacker is typically used to collate sheets within a single document (not
156 to be confused with collated copies in which document copies are collated within a job -
157 see the description of the 'separate-documents-collated-copies' value of the "multiple-
158 document-handling" attribute in [RFC2911] section 4.2.4). The correspondence between
159 the 'stacker-*N*' keyword and the actual stacker in the device is implementation-
160 dependent, as is the number of stackers. If this group of values is supported, at least the
161 'stacker-1' value MUST be supported, unless the system administrator has assigned
162 names or integer values.
- 163 For client implementations that require distinct keywords for each possible value, say, for
164 localization purposes, it is recommended for interoperability with other vendor's Printer
165 implementations that 'stacker-1' to 'stacker-10' keywords be represented.
- 166 'mailbox-*N*': The output-bin that is best identified as a mailbox with values 'mailbox-1',
167 'mailbox-2', 'mailbox-3', Each mailbox is typically used to collect jobs for an

168 individual or group. Whether the mailbox has doors and/or locks or is open, depends on
169 implementation. The correspondence between the 'mailbox-*N*' keyword and the actual
170 output-bin in the device is implementation-dependent, as is the number of mailboxes. A
171 system administrator MAY be able to assign a name to each mailbox in order to make
172 selection of a mailbox easier for the user. If this group of values is supported, at least the
173 'mailbox-1' value MUST be supported, unless the system administrator has assigned
174 names or integer values to mailboxes.

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

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

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

186

187 **3 Conformance Requirements**

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

190 **3.1 Conformance Requirements for Printer objects**

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

193 **3.2 Conformance Requirements for clients**

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

196 **4 IANA Considerations**

197 This "output-bin" attribute registration proposal will be published by IANA according to the procedures
198 in RFC 2911 [RFC2911] section 6.2 with the following URL:

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

200 **5 Internationalization Considerations**

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

204 **6 Security Considerations**

205 The 'my-mailbox' attribute requires some form of Client Authorization to be really secure. See
206 [RFC2911] section 8.

207 **7 References**

208 [RFC2565]

209 Herriot, R., Butler, S., Moore, P., and R. Turner, "Internet Printing Protocol/1.0: Encoding and
210 Transport", RFC 2565, April 1999.

211 [RFC2566]

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

214 [RFC2910]

215 Herriot, R., Butler, S., Moore, P., Turner, R., and J. Wenn, "Internet Printing Protocol/1.1:
216 Encoding and Transport", RFC 2910, September 2000.

217 [RFC2911]

218 Hastings, T., Herriot, R., deBry, R., Isaacson, S., and P. Powell, "Internet Printing Protocol/1.1:
219 Model and Semantics", RFC 2911, September 2000.

220 **8 Author's Addresses**

221 Tom Hastings
222 Xerox Corporation
223 737 Hawaii St. ESAE 231
224 El Segundo, CA 90245
225
226 Phone: 310-333-6413
227 Fax: 310-333-5514
228 e-mail: hastings@cp10.es.xerox.com

229
230 Ron Bergman (Editor)
231 Hitachi Koki Imaging Systems, Inc.
232 1757 Tapo Canyon Road
233 Simi Valley, CA 93063-3394
234
235 Phone: 805-578-4421
236 Fax: 805-578-4001
237 Email: rbergman@dpc.com
238
239
240 IPP Web Page: <http://www.pwg.org/ipp/>
241 IPP Mailing List: ipp@pwg.org
242

243 To subscribe to the ipp mailing list, send the following email:
244 1) send it to majordomo@pwg.org
245 2) leave the subject line blank
246 3) put the following two lines in the message body:
247 subscribe ipp
248 end

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

252 Other Participants:

Ron Bergman - Hitachi Koki Imaging Systems	Dan Calle - Digital Paper
Weihai Chen - Microsoft	Lee Farrell - Canon Information Systems
Satoshi Fujitani - Ricoh	Roelof Hamberg - Océ
Tom Hastings - Xerox	Bob Herriot - Xerox
David Kellerman - Northlake Software	Carl Kugler - IBM
Harry Lewis - IBM	Carl-Uno Manros - Xerox
Satoshi Matsushita - Brother	Ira McDonald - High North Inc.
Paul Moore - Netreon	Hugo Parra, Novell
Stuart Rowley - Kyocera	Gail Songer - Netreon
Geoff Sorod - Software 2000	Jerry Thrasher - Lexmark
Shinichi Tsuruyama - Epson	Atsushi Uchino - Epson
Shigeru Ueda - Canon	William Wagner - NetSilicon/DPI
Mark Vander Wiele - IBM	Don Wright - Lexmark
Michael Wu - Heidelberg Digital	Peter Zehler - Xerox

253

254 **9 Appendix A: Summary of other IPP documents**

255 The full set of IPP documents includes:

256 Design Goals for an Internet Printing Protocol [RFC2567]
257 Rationale for the Structure and Model and Protocol for the Internet Printing Protocol [RFC2568]

258 Internet Printing Protocol/1.1: Model and Semantics [RFC2911]
259 Internet Printing Protocol/1.1: Encoding and Transport [RFC2910]
260 Internet Printing Protocol/1.1: Implementer’s Guide [IPP-IIG]
261 Mapping between LPD and IPP Protocols [RFC2569]
262

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

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

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

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

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

284 **10 Appendix B: Description of the IEEE Industry Standards and Technology** 285 **(ISTO)**

286 The IEEE-ISTO is a not-for-profit corporation offering industry groups an innovative and flexible
287 operational forum and support services. The IEEE-ISTO provides a forum not only to develop
288 standards, but also to facilitate activities that support the implementation and acceptance of standards in
289 the marketplace. The organization is affiliated with the IEEE (<http://www.ieee.org/>) and the IEEE
290 Standards Association (<http://standards.ieee.org/>).

291 For additional information regarding the IEEE-ISTO and its industry programs visit:

292 <http://www.ieee-isto.org>

293 **11 Appendix C: Description of the IEEE-ISTO PWG**

294 The Printer Working Group (or PWG) is a Program of the IEEE Industry Standards and Technology
295 Organization (ISTO) with member organizations including printer manufacturers, print server
296 developers, operating system providers, network operating systems providers, network connectivity
297 vendors, and print management application developers. The group is chartered to make printers and the
298 applications and operating systems supporting them work together better. All references to the PWG in
299 this document implicitly mean "The Printer Working Group, a Program of the IEEE ISTO." In order to
300 meet this objective, the PWG will document the results of their work as open standards that define print
301 related protocols, interfaces, procedures and conventions. Printer manufacturers and vendors of printer
302 related software will benefit from the interoperability provided by voluntary conformance to these
303 standards.

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

307 For additional information regarding the Printer Working Group visit:

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

309

310