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9 Internet Printing Protocol/1.1: "output-bin" attribute extension  
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22

23 **Abstract**

24 This document defines an extension to the IPP/1.0 [RFC2566] & IPP/1.1 [ipp-mod] Model and  
25 Semantics specification for the OPTIONAL "output-bin" Job Template attribute. This attribute  
26 allows the client to specify in which output bin a job is to be placed and to query the Printer's  
27 default and supported output bins.

28 The full set of IPP documents includes:

- 29 Design Goals for an Internet Printing Protocol [RFC2567]
- 30 Rationale for the Structure and Model and Protocol for the Internet Printing Protocol [RFC2568]
- 31 Internet Printing Protocol/1.1: Model and Semantics [ipp-mod]
- 32 Internet Printing Protocol/1.1: Encoding and Transport [ipp-pro]
- 33 Internet Printing Protocol/1.1: Implementer's Guide [ipp-iig]
- 34 Mapping between LPD and IPP Protocols [RFC2569]
- 35

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

41 The "Rationale for the Structure and Model and Protocol for the Internet Printing Protocol" document  
42 describes IPP from a high level view, defines a roadmap for the various documents that form the suite of  
43 IPP specification documents, and gives background and rationale for the IETF working group's major  
44 decisions.

45 The "Internet Printing Protocol/1.1: Encoding and Transport" document is a formal mapping of the  
46 abstract operations and attributes defined in the model document onto HTTP/1.1 [RFC2616]. It defines  
47 the encoding rules for a new Internet MIME media type called "application/ipp". This document also  
48 defines the rules for transporting over HTTP a message body whose Content-Type is "application/ipp".  
49 This document defines a new scheme named 'ipp' for identifying IPP printers and jobs.

50 The "Internet Printing Protocol/1.1: Implementer's Guide" document gives insight and advice to  
51 implementers of IPP clients and IPP objects. It is intended to help them understand IPP/1.1 and some of  
52 the considerations that may assist them in the design of their client and/or IPP object implementations.  
53 For example, a typical order of processing requests is given, including error checking. Motivation for  
54 some of the specification decisions is also included.

55 The "Mapping between LPD and IPP Protocols" document gives some advice to implementers of  
56 gateways between IPP and LPD (Line Printer Daemon) implementations.

57

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## 70 1 Add new "output-bin" Job Template attributes

### 71 1.1 Problem

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

### 74 1.2 Suggested solution

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

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

### 90 1.3 Proposed text

91	+	+	+
92	Job Attribute	Printer: Default Value	Printer: Supported
93		Attribute	Values Attribute
94	+	+	+
95	output-bin	output-bin-default	output-bin-supported
96	(type2 keyword	(type2 keyword	(1setOf (
97	name(MAX)	name(MAX))	type2 keyword
98	integer(1:MAX)	integer(1:MAX)	name(MAX)
99			integer(1:MAX))
100	+	+	+

101

102 **output-bin (type2 keyword | name(MAX) | integer(1:MAX))**

103 This Job Template attribute identifies the device output bin to which the job is to be delivered. There  
104 are standard values whose attribute syntax is 'keyword', but there are no standard values whose attribute  
105 syntax is 'name' or 'integer'. Output bins whose attribute syntax is 'name', if any, are assigned by local  
106 administrators (by means outside the scope of IPP/1.0 and IPP/1.1). Output bins whose attribute syntax  
107 is 'integer', if any, are assigned by a printer vendor or local administrator to identify a number of similar  
108 output bins which are better differentiated by number than by one of the descriptive names defined in  
109 the following keyword list.

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

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

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

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

128 Standard keyword values are:

129 'top': The output-bin that, when facing the device, is best identified as the "top" bin with  
130 respect to the device.

131 'middle' The output-bin that, when facing the device, is best identified as the "middle" bin with  
132 respect to the device.

133 'bottom' The output-bin that, when facing the device, is best identified as the "bottom" bin with  
134 respect to the device.

135 'side' The output-bin that, when facing the device, is best identified as the "side" bin with  
136 respect to the device.

137 'left' The output-bin that, when facing the device, is best identified as the "left" bin with  
138 respect to the device.

- 139 'right' The output-bin that, when facing the device, is best identified as the "right" bin with  
140 respect to the device.
- 141 'center' The output-bin that, when facing the device, is best identified as the "center" bin with  
142 respect to the device.
- 143 'rear': The output-bin that, when facing the device, is best identified as the "rear" bin with  
144 respect to the device.
- 145 'face-up' The output-bin that is best identified as the "face-up" bin with respect to the device. The  
146 selection of this output bin does not cause output to be made face-up; rather this output  
147 bin is given this name because a sheet with printing on one-side arrives in the output bin  
148 in the face-up position.
- 149 'face-down' The output-bin that is best identified as the "face-down" bin with respect to the device.  
150 The selection of this output bin does not cause output to be made face-down; rather this  
151 output bin is given this name because a sheet with printing on one-side arrives in the  
152 output bin in the face-down position.
- 153 'large-capacity' The output-bin that is best identified as the "large-capacity" bin (in terms of the  
154 number of sheets) with respect to the device.
- 155 'stacker-*N*': The output-bin that is best identified as the stacker with values 'stacker-1',  
156 'stacker-2', .... A stacker is typically used to collate sheets within a single document (not  
157 to be confused with collated copies in which document copies are collated within a job -  
158 see the description of the 'separate-documents-collated-copies' value of the "multiple-  
159 document-handling" attribute in [ipp-mod] section 4.2.4). The correspondence between  
160 the 'stacker-*N*' keyword and the actual stacker in the device is implementation-dependent,  
161 as is the number of stackers. If this group of values is supported, at least the 'stacker-1'  
162 value **MUST** be supported, unless the system administrator has assigned names or integer  
163 values.
- 164 For client implementations that require distinct keywords for each possible value, say, for  
165 localization purposes, it is recommended for interoperability with other vendor's Printer  
166 implementations that 'stacker-1' to 'stacker-10' keywords be represented.
- 167 'mailbox-*N*': The output-bin that is best identified as a mailbox with values 'mailbox-1',  
168 'mailbox-2', 'mailbox-3', .... Each mailbox is typically used to collect jobs for an  
169 individual or group. Whether the mailbox has doors and/or locks or is open, depends on  
170 implementation. The correspondence between the 'mailbox-*N*' keyword and the actual  
171 output-bin in the device is implementation-dependent, as is the number of mailboxes. A  
172 system administrator **MAY** be able to assign a name to each mailbox in order to make  
173 selection of a mailbox easier for the user. If this group of values is supported, at least the  
174 'mailbox-1' value **MUST** be supported, unless the system administrator has assigned  
175 names or integer values to mailboxes.
- 176 For client implementations that require distinct keywords for each possible value, say, for  
177 localization purposes, it is recommended for interoperability with other vendor's Printer  
178 implementations that 'mailbox-1' to 'mailbox-25' keywords be represented.

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

185

## 186 2 IANA Considerations

187 This "output-bin" attribute registration proposal will be published by IANA according to the procedures  
188 in RFC 2566 [rfc2566] section 6.2 with the following URL:

189 ftp.isi.edu/iana/assignments/ipp/attributes/output-bin.txt

## 190 3 Internationalization Considerations

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

## 194 4 Security Considerations

195 The 'my-mailbox' attribute requires some form of Client Authorization to be really secure. See [ipp-  
196 mod] section 8.

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## 215 **6 Appendix A: Full Copyright Statement**

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