



The Printer Working Group

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Best Practice

Supporting Multi-Purpose Trays

Status: IPP Workgroup Approved

Abstract: This best practice document provides implementation guidance for supporting so-called "multi-purpose" trays in printers.

This is a PWG Best Practice. For a definition of a "PWG Best Practice", see:

<https://ftp.pwg.org/pub/pwg/general/pwg-process30.pdf>

This best practice is available electronically at:

<https://ftp.pwg.org/pub/pwg/ipp/whitepaper/bp-ippmtray10-20180124.docx>

<https://ftp.pwg.org/pub/pwg/ipp/whitepaper/bp-ippmtray10-20180124.pdf>

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2 Title: *Supporting Multi-Purpose Trays*

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26 **1. Introduction**

27 Many printers provide input trays that can serve as both a manual feed source and a source
28 for specialty media such as labels, card stock, or photo paper. Because these trays have
29 two semantically different uses, they are typically exposed as two logical trays to allow clients
30 to specify the desired semantics.

31 This document provides IPP and SNMP implementation recommendations for such multi-
32 purpose trays to encourage consistency and interoperability.

33 **2. Terminology**

34 **2.1 Printing Terminology**

35 Normative definitions and semantics of printing terms are imported from IETF Printer MIB
36 v2 [RFC3805], IETF Finisher MIB [RFC3806], and IETF Internet Printing Protocol/1.1: Model
37 and Semantics [RFC8011].

38 *Document*: An object created and managed by a Printer that contains the description,
39 processing, and status information. A Document object may have attached data and is
40 bound to a single Job.

41 *End User*: A person or software process that is authorized to perform basic printing functions,
42 including finding/locating a Printer, creating a local instance of a Printer, viewing Printer
43 status, viewing Printer capabilities, submitting a Job, viewing Job status, and altering the
44 attributes of a Job.

45 *Job*: An object created and managed by a Printer that contains description, processing, and
46 status information. The Job also contains zero or more Document objects.

47 *Logical Device*: a print server, software service, or gateway that processes jobs and either
48 forwards or stores the processed job or uses one or more Physical Devices to render output.

49 *Logical Media Source*: a source for media sheets with a particular semantic behavior such
50 as auto-fed sheets, manually-fed sheets, continuous roll-fed media, etc.

51 *Media Source*: a single Logical or Physical Media Source

52 *Output Device*: a single Logical or Physical Device

53 *Physical Device*: a hardware implementation of a endpoint device, e.g., a marking engine, a
54 fax modem, etc.

55 *Physical Media Source*: a hardware implementation of a media source, e.g., an input tray, a
56 roll, etc.

57 **2.2 Protocol Role Terminology**

58 This document also defines the following protocol roles to specify unambiguous
59 conformance requirements:

60 *Client*: Initiator of outgoing connections and sender of outgoing operation requests
61 (Hypertext Transfer Protocol -- HTTP/1.1 [RFC7230] User Agent).

62 *Printer*: Listener for incoming connections and receiver of incoming operation requests
63 (Hypertext Transfer Protocol -- HTTP/1.1 [RFC7230] Server) that represents one or more
64 Physical Devices or a Logical Device.

65 **2.3 Acronyms and Organizations**

66 *IANA*: Internet Assigned Numbers Authority, <http://www.iana.org/>

67 *IETF*: Internet Engineering Task Force, <http://www.ietf.org/>

68 *ISO*: International Organization for Standardization, <http://www.iso.org/>

69 *PWG*: Printer Working Group, <http://www.pwg.org/>

70

71 **3. Supporting Multi-Purpose Trays**

72 Both IPP [RFC8011] and the SNMP Printer MIB v2 [RFC3805] have long supported this
73 functionality, however the specific implementation of multi-purpose trays has never been
74 documented.

75 As the common naming suggests, multi-purpose trays have multiple logical semantics. This
76 document uses the term Logical Media Source to refer to the semantics of a named media
77 source and Physical Media Source to refer to the actual (physical) media source (input tray,
78 roll, etc.) that is associated with the semantic source.

79 The following sub-sections describe how to report the Logical Media Sources via IPP and
80 SNMP.

81 **3.1 Multi-Purpose Trays in IPP**

82 The IPP: Job and Printer Extensions - Set 3 (JPS3) [PWG5100.13] provides several
83 attributes for Logical Media Sources:

84 "media-source (type2 keyword | name(MAX))": This member attribute of the "media-
85 col" Job Template attribute specifies the Logical Media Source for the Job;

86 "media-source-supported (1setOf (type2 keyword | name(MAX)))": This Printer
87 Description attribute lists the supported Logical Media Sources;

88 "printer-input-tray (1setOf octetString(MAX))": This Printer Status attribute lists the
89 SNMP Printer MIB v2 prtInputTray values associated with each Logical Media
90 Source reported in the "media-source-supported" Printer Description attribute; and

91 "printer-input-tray-description (1setOf text(MAX))": This Printer Status attribute lists
92 the human-readable names of each Logical Media Source.

93 A "media-source" keyword value of 'manual-feed' specifies a Logical Media Source that
94 pauses printing until the End User loads the correct media in the multi-purpose tray.

95 A "media-source" keyword value of 'by-pass-tray' specifies a Logical Media Source that
96 automatically feeds the specified media from the multi-purpose tray, pausing only when the
97 tray is empty.

98 IPP implementations expose support for multi-purpose trays by:

- 99 1. Listing the values 'by-pass-tray' and 'manual-feed' in the "media-source-
100 supported" Printer Description attribute;
- 101 2. Listing a "printer-input-tray" value with "type=sheetFeedAutoRemovableTray" or
102 "type=sheetFeedAutoNonRemovableTray" for the 'by-pass-tray' entry;
- 103 3. Listing a "printer-input-tray" value with "type=sheetFeedManual" for the 'manual-
104 feed' entry; and

- 105 4. Listing corresponding "printer-input-tray-description" text strings for the 'by-pass-
106 tray' ("Multi-Purpose Tray - Auto Feed") and 'manual-feed' ("Multi-Purpose Tray -
107 Manual Feed") entries.

108 3.2 Multi-Purpose Trays in SNMP

109 The SNMP Printer MIB v2 [RFC3805] provides the Input group to describe the Logical Media
110 Sources provided by the Printer.

111 SNMP Printer MIB v2 implementations expose support for multi-purpose trays by:

- 112 1. Listing one PrtInputEntry whose prtInputType value is
113 sheetFeedAutoRemovableTray(3) or sheetFeedAutoNonRemovableTray(4); and
- 114 2. Listing a second PrtInputEntry whose prtInputType value is
115 sheetFeedManual(5).

116 4. References

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121 [RFC3805] R. Bergman, H. Lewis, I. McDonald, "Printer MIB v2", RFC 3805, June
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123 [RFC8011] M. Sweet, I. McDonald, "Internet Printing Protocol/1.1: Model and
124 Semantics", RFC 8011, January 2017,
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