



The Printer Working Group

April 18, 2019
Working Draft

Deleted: March

1
2
3
4
5
6
7
8
9
10
11
12
13

IPP Document Object v1.1 (DOCOBJECT)

Status: Stable

Style Definition: IEEEStd Level 1 Header:
Space After: 6 pt

Abstract: This specification defines the IPP Document object and its associated attributes, values, group, and operations.

This is a PWG Working Draft. For a definition of a "PWG Working Draft", see:

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

Field Code Changed

This specification is available electronically at:

<https://ftp.pwg.org/pub/pwg/ipp/wd-ippdocobject11-20190418.docx>

<https://ftp.pwg.org/pub/pwg/ipp/wd-ippdocobject11-20190418.pdf>

Field Code Changed

Deleted: <https://ftp.pwg.org/pub/pwg/ipp/wd-ippdocobject11-20190318.docx>

Field Code Changed

Deleted: <https://ftp.pwg.org/pub/pwg/ipp/wd-ippdocobject11-20190318.pdf>

18 Copyright © 2004-2019 The Printer Working Group. All rights reserved.

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

26 Title: *IPP Document Object v1.1 (DOCOBJECT)*

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

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

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

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

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

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

52

53 **About the IEEE-ISTO**

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

Field Code Changed

Field Code Changed

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

60 <https://www.ieee-isto.org/>

Field Code Changed

61 **About the IEEE-ISTO PWG**

62 The Printer Working Group (or PWG) is a Program of the IEEE Industry Standards and
63 Technology Organization (ISTO) with member organizations including printer
64 manufacturers, print server developers, operating system providers, network operating
65 system providers, network connectivity vendors, and print management application
66 developers. The PWG is chartered to make printers and the applications and operating
67 systems supporting them work together better. All references to the PWG in this document
68 implicitly mean “The Printer Working Group, a Program of the IEEE ISTO.”

69 To meet this objective, the PWG documents the results of their work as open standards that
70 define print related protocols, interfaces, procedures, and conventions. A PWG standard is
71 a stable, well understood, and technically competent specification that is widely used with
72 multiple independent and interoperable implementations. Printer manufacturers and
73 vendors of printer related software benefit from the interoperability provided by voluntary
74 conformance to these standards.

75 For additional information regarding the Printer Working Group visit:

76 <https://www.pwg.org>

Field Code Changed

77 Contact information:

78 The Printer Working Group
79 c/o The IEEE Industry Standards and Technology Organization
80 445 Hoes Lane
81 Piscataway, NJ 08854
82 USA

83

Table of Contents

84		
85	1. Introduction	7
86	2. Terminology	7
87	2.1 Conformance Terminology	7
88	2.2 Printing Terminology	7
89	2.3 Protocol Role Terminology	8
90	2.4 Other Terminology	8
91	2.5 Acronyms and Organizations	8
92	3. Requirements	9
93	3.1 Rationale	9
94	3.2 Use Cases	9
95	3.2.1 Specify Per-Document Print Intent.....	9
96	3.2.2 See a List of Documents in a Job	9
97	3.2.3 Cancel a Single Document	9
98	3.3 Exceptions	10
99	3.4 Out of Scope.....	10
100	3.5 Design Requirements	10
101	4. Model	11
102	4.1 Document Object.....	11
103	4.2 Operations	11
104	4.3 Job and Document Template Attributes	12
105	5. New Operations	12
106	5.1 Document Operations.....	13
107	5.1.1 Cancel-Document	13
108	5.1.2 Get-Document-Attributes	15
109	5.1.3 Set-Document-Attributes.....	18
110	5.2 Job Operations	21
111	5.2.1 Get-Documents	21
112	6. New Attributes	24
113	6.1 Document Description Attributes	24
114	6.1.1 document-name (name(MAX))	24
115	6.2 Document Status Attributes	24
116	6.2.1 document-charset (charset)	26
117	6.2.2 document-format-detected (mimeMediaType).....	26
118	6.2.3 document-message (text(MAX))	26
119	6.2.4 document-number (integer(1:MAX))	26
120	6.2.5 last-document (boolean)	26
121	6.3 Document Template Attributes	26
122	6.4 Operation Attributes.....	27
123	6.4.1 document-charset (charset)	27
124	6.4.2 document-number (integer(1:MAX))	27
125	6.5 Printer Description Attributes	28
126	6.5.1 document-creation-attributes-supported (1setOf type2 keyword).....	28
127	7. New Attribute Group Tags	28
128	7.1 document-attributes-tag.....	28
129	8. Additional Semantics for Existing Operations	29

130 [8.1 Cancel-Job: "document-state" and "document-state-reasons"](#) 29

131 [8.2 Hold-Job and Release-Job: "document-state-reasons"](#) 29

132 [8.3 Print-Job, Print-URI: Document Object and Attributes](#) 29

133 [8.3.1 Print-Job/Print-URI Response](#) 30

134 [8.4 Send-Document: Document Object and Attributes](#) 31

135 [8.4.1 Send-Document Request](#) 31

136 [8.4.2 Send-Document Response](#) 31

137 [8.5 Send-URI: Document Object and Attributes](#) 32

138 [8.5.1 Send-URI Request](#) 32

139 [8.5.2 Send-URI Response](#) 33

140 [9. Additional Values for Existing Attributes](#) 34

141 [9.1 operations-supported \(1setOf type2 enum\)](#) 34

142 [9.2 requested-attributes \(1setOf type2 keyword\)](#) 34

143 [10. Obsolete Operations and Attributes](#) 35

144 [10.1 Obsolete Delete-Document Operation](#) 35

145 [10.2 Obsolete Document Status Attributes](#) 35

146 [11. Conformance Requirements](#) 35

147 [11.1 Printer Conformance Requirements](#) 35

148 [11.2 Client Conformance Requirements](#) 36

149 [12. Internationalization Considerations](#) 36

150 [13. Security Considerations](#) 37

151 [14. IANA Considerations](#) 37

152 [14.1 Attribute Registrations](#) 37

153 [14.2 Type2 keyword Registrations](#) 39

154 [14.3 Type2 enum Registrations](#) 40

155 [14.4 Operation Registrations](#) 40

156 [14.5 Attribute Group Registrations](#) 40

157 [15. Overview of Changes](#) 41

158 [15.1 IPP Document Object v1.1](#) 41

159 [16. References](#) 42

160 [16.1 Normative References](#) 42

161 [16.2 Informative References](#) 43

162 [17. Author's Address](#) 45

163 [18. Change History](#) 46

164 [18.1 April 18, 2019](#) 46

165 [18.2 March 18, 2019](#) 46

166 [18.3 January 29, 2019](#) 46

167 [18.4 October 22, 2018](#) 46

168 [18.5 September 19, 2018](#) 47

List of Tables

171 [Table 1 - IPP Operations](#) 12

172 [Table 2 - Document State Transitions for Cancel-Document](#) 14

173 [Table 3 - Allowed Document States for the Set-Document-Attributes operation](#) 18

174 [Table 4 - Document Status Attributes](#) 24

Deleted: 1. Introduction -7¶

2. Terminology -7¶

2.1 Conformance Terminology -7¶

2.2 Printing Terminology -7¶

2.3 Protocol Role Terminology -8¶

2.4 Other Terminology -8¶

2.5 Acronyms and Organizations -8¶

3. Requirements -9¶

3.1 Rationale -9¶

3.2 Use Cases -9¶

3.2.1 Specify Per-Document Print Intent -9¶

3.2.2 See a List of Documents in a Job -9¶

3.2.3 Cancel a Single Document -9¶

3.3 Exceptions -10¶

3.4 Out of Scope -10¶

3.5 Design Requirements -10¶

4. Model -11¶

4.1 Document Object -11¶

4.2 Operations -11¶

4.3 Job and Document Template Attributes -12¶

5. New Operations -13¶

5.1 Document Operations -13¶

5.1.1 Cancel-Document -13¶

5.1.2 Get-Document-Attributes -15¶

5.1.3 Set-Document-Attributes -18¶

5.2 Job Operations -21¶

5.2.1 Get-Documents -21¶

6. New Attributes -24¶

6.1 Document Description Attributes -24¶

6.1.1 document-name (name(MAX)) -24¶

6.2 Document Status Attributes -24¶

6.2.1 document-charset (charset) -26¶

6.2.2 document-format-detected (mimeMediaType) -26¶

6.2.3 document-message (text(MAX)) -26¶

6.2.4 document-number (integer(1:MAX)) -26¶

6.2.5 last-document (boolean) -26¶

6.3 Document Template Attributes -26¶

6.4 Operation Attributes -27¶

6.4.1 document-charset (charset) -27¶

6.4.2 document-number (integer(1:MAX)) -27¶

6.5 Printer Description Attributes -28¶

6.5.1 document-creation-attributes-supported (1setOf type2 keyword) -28¶

7. New Attribute Group Tags -28¶

7.1 document-attributes-tag -28¶

8. Additional Semantics for Existing Operations -29¶

8.1 Cancel-Job: "document-state" and "document-state-reasons" -29¶

8.2 Hold-Job and Release-Job: "document-state-reasons" -29¶

8.3 Print-Job, Print-URI: Document Object and Attributes -29¶

8.3.1 Print-Job/Print-URI Response -30¶

8.4 Send-Document: Document Object and Attributes -31¶

8.4.1 Send-Document Request -31¶

8.4.2 Send-Document Response -31¶

8.5 Send-URI: Document Object and Attributes -32¶

8.5.1 Send-URI Request -32¶

8.5.2 Send-URI Response -33¶

9. Additional Values for Existing Attributes -34¶

9.1 operations-supported (1setOf type2 enum) -34¶ ... [1]

Formatted ... [2]

413 [Table 5 - Document Template Attributes](#) 26
414 [Table 6 - Operation Attributes Copied to Document Objects](#) 29
415 [Table 7 - Returned Document Status Attributes](#) 30
416 [Table 8 – Operation-id Values](#) 34
417 [Table 9 - Obsolete Document Status Attributes](#) 35

List of Figures

418
419 [Figure 1 - Document Object Life Cycle](#) 11
420

Deleted: Table 1 - IPP Operations –12¶
Table 2 - Document State Transitions for Cancel-Documents –13¶
Table 3 - Allowed Document States for the Set-Documents-Attributes operation –18¶
Table 4 - Document Status Attributes –24¶
Table 5 - Document Template Attributes –26¶
Table 6 - Operation Attributes Copied to Document Objects –29¶
Table 7 - Returned Document Status Attributes –30¶
Table 8 – Operation-id Values –34¶
Table 9 - Obsolete Document Status Attributes –35¶

Formatted: Default Paragraph Font

Formatted: Default Paragraph Font

Formatted: Default Paragraph Font

Formatted: Default Paragraph Font

Formatted: Default Paragraph Font

Formatted: Default Paragraph Font

Formatted: Default Paragraph Font

Formatted: Default Paragraph Font

Formatted: Default Paragraph Font

Deleted: Figure 1 - Document Object Life Cycle –11¶

Formatted: Default Paragraph Font

437 1. Introduction

438 This specification extends the Internet Printing Protocol/1.1 [STD92] by defining the IPP
439 Document object and its associated attributes, values, group, and operations. The IPP Job
440 object is extended to contain zero or more addressable Document objects representing the
441 Documents submitted for and operated on by the Job.

442 This specification obsoletes portions of the previous version of this specification
443 [PWG5100.5-2003]. A list of changes can be found in section 15.

444 2. Terminology

445 2.1 Conformance Terminology

446 Capitalized terms, such as MUST, MUST NOT, RECOMMENDED, REQUIRED, SHOULD,
447 SHOULD NOT, MAY, and OPTIONAL, have special meaning relating to conformance as
448 defined in Key words for use in RFCs to Indicate Requirement Levels [BCP14]. The term
449 CONDITIONALLY REQUIRED is additionally defined for a conformance requirement that
450 applies when a specified condition is true.

451 The term DEPRECATED is used for previously defined and approved protocol elements that
452 SHOULD NOT be used or implemented. The term OBSOLETE is used for previously defined
453 and approved protocol elements that MUST NOT be used or implemented.

454 2.2 Printing Terminology

455 Normative definitions and semantics of printing terms are imported from the Internet Printing
456 Protocol/1.1 [STD92].

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

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

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

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

465 *Physical Device*: a hardware implementation of an endpoint device, e.g., a marking engine,
466 a fax modem, etc.

467 2.3 Protocol Role Terminology

468 This specification also defines the following protocol roles to specify unambiguous
469 conformance requirements:

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

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

475 2.4 Other Terminology

476 *Attribute Precedence*: The rules which dictate which attribute value takes precedence when
477 the same attribute is supplied at different points in the workflow with different values, such
478 as at both the Job Level and the Document Level.

479 *Document Creation Operation*: Operations that create Document objects including Print-Job,
480 Print-URI, Send-Document, and Send-URI as defined in the IPP/1.1 Model and Semantics
481 [STD92].

482 *Document Level*: Operation and Document Template attributes supplied in the Send-
483 Document and Send-URI operations are referred to as being supplied at the Document
484 Level. Attributes supplied in the Print-Job and Print-URI operations are considered as being
485 supplied at the Job Level only, *not* also at the Document Level, even though Print-Job and
486 Print-URI also create Document objects.

487 *Document Template*: An attribute that the Client supplies in a Send-Document or Send-URI
488 request in the Document attributes group, e.g., “media”.

489 *Honor*: A Printer is said to honor an attribute supplied by the Client if the Printer supports
490 the attribute and supplied value and conforms to the defined semantics.

491 *Job Creation Operation*: Operations that create Job objects including Create-Job, Print-Job,
492 and Print-URI as defined in the IPP/1.1 Model and Semantics [STD92].

493 *Job Level*: Operation and Job Template attributes supplied in Print-Job, Print-URI, and
494 Create-Job requests are referred to as being supplied at the Job Level.

495 2.5 Acronyms and Organizations

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

Field Code Changed

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

Field Code Changed

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

Field Code Changed

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

Field Code Changed

500 **3. Requirements**

501 **3.1 Rationale**

502 The Internet Printing Protocol/1.1 [STD92] defines the IPP Model and Semantics, including
503 abstract objects for a Printer that processes Jobs and the Jobs themselves which process
504 Documents. Given the need to directly address Documents in a Job, the IPP Document
505 Object v1.1 should:

- 506 1. Define an abstract IPP Document object and its attributes;
- 507 2. Define new IPP operations for the IPP Document object; and
- 508 3. Extend existing IPP operations as needed to support the IPP Document object.

509 Rationale for the changes from the previous versions of this specification can be found in
510 section 15.

511 **3.2 Use Cases**

512 **3.2.1 Specify Per-Document Print Intent**

513 Jane is printing a multi-volume report and would like the output printed together. She uses
514 an application on her computer to select each volume in the report and a shipping envelope.
515 She then initiates a print action, specifying the media and finishing processes for each
516 volume and the media for the shipping envelope. The printer processes all of the documents
517 as a single job, placing the hardcopy output in a mailbox together.

518 **3.2.2 See a List of Documents in a Job**

519 John has submitted a multi-document job to a printer but cannot remember if he included all
520 of the documents needed. He uses an application on his mobile device to query the list of
521 documents in the print job and display them on the screen.

522 **3.2.3 Cancel a Single Document**

523 Bob has submitted a multi-document job to a printer but realizes there was a typographical
524 error in one of the documents that has not yet printed. He uses an application on his
525 computer to view the list of jobs on the printer, views the list of documents in the job he
526 submitted, and initiates a cancel action for the document containing the error.

527 **3.3 Exceptions**

528 There are no exceptions defined for this specification.

529 **3.4 Out of Scope**

530 The following are considered out of scope for this specification:

- 531 1. Definition of copy or page level semantics; and
532 2. Definition of per-page or per-copy overrides.

533 **3.5 Design Requirements**

534 The design requirements for this specification are:

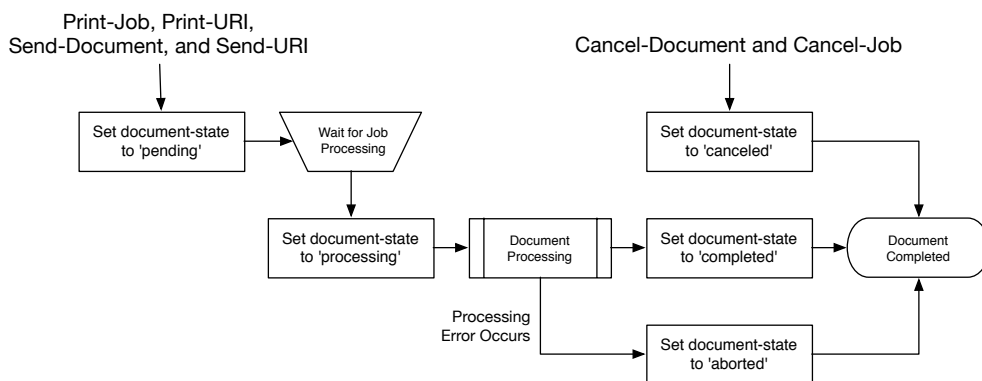
- 535 1. Define an abstract IPP Document object and its semantics;
536 2. Define an attribute group tag for attributes of an IPP Document object;
537 3. Define attributes and values to describe an IPP Document object;
538 4. Define operations for querying and manipulating IPP Document objects;
539 5. Extend existing operations to explicitly create IPP Document objects;
540 6. Define security requirements necessary to support IPP Document objects; and
541 7. Define sections to register all objects, attribute groups, attributes, values, and
542 operations with IANA.
543

544 **4. Model**

545 The Internet Printing Protocol/1.1 [STD92] defines an object model containing a Printer that
 546 processes Jobs and a Job that processes Documents. This specification extends the Model
 547 with an addressable Document object with its own attributes and state. Printers MAY support
 548 multiple Documents per Job.

549 **4.1 Document Object**

550 The Document object represents a single Document in a Job that contains Document-
 551 specific Description, Status, and Template attributes. Document Description attributes
 552 provide information about the Document, Document Status attributes provide state
 553 information for the Document, and Document Template attributes override the
 554 corresponding Job Template attributes for the Document. A Document object also contains
 555 the Document data and/or a URI that references the Document data. Figure 1 shows the life
 556 cycle of the Document object.



557
 558 **Figure 1 - Document Object Life Cycle**

559 **4.2 Operations**

560 The Print-Job and Print-URI operations [STD92] create a Job object containing a single
 561 Document object while the Create-Job operation [STD92] creates a Job object with no
 562 Document objects. The Send-Document and Send-URI operations [STD92] add Document
 563 objects to the specified Job object. Printers conforming to this specification MUST support
 564 the Create-Job and Send-Document operations.

565 This specification extends the Send-Document and Send-URI operations to accept
 566 Document Template attributes in the Document Attributes group. The Document Template
 567 attributes are applied to the Document object being created, overriding any corresponding

568 Job Template attributes supplied at the Job Level which allows the Client to vary the
569 Document Template attributes between Document objects in a single Job.

570 This specification also defines one new Job operation and four new Document operations.
571 Table 1 lists the operations and their conformance requirements.

572 **Table 1 - IPP Operations**

Operation	Target	Conformance	Reference
Cancel-Document	Document	MUST	Section 5.1.1
Create-Job	Printer	MUST	STD 92
Get-Document-Attributes	Document	MUST	Section 5.1.2
Get-Documents	Job	MUST	Section 5.2.1
Print-Job	Printer	MUST	STD 92, Section 8.3
Print-URI	Printer	MAY	STD 92, Section 8.3
Send-Document	Job	MUST	STD 92, Section 8.4
Send-URI	Job	MAY	STD 92, Section 8.5
Set-Document-Attributes	Document	MAY	Section 5.1.3

Deleted: 8.5

Deleted: 8.6

573 **4.3 Job and Document Template Attributes**

574 Clients OPTIONALLY supply Job Template attributes in Create-Job, Print-Job, and Print-
575 URI requests, and OPTIONALLY supply Document Template attributes in Print-Job, Print-
576 URI, Send-Document, and Send-URI requests. Job Template attributes apply to the Job as
577 a whole. Document Template attributes apply only to the corresponding Document object.

578 Printers MUST support the following Attribute Precedence from highest to lowest when
579 processing a Document:

- 580 1. Document Level - The Document Template attributes supplied in the Document
581 Creation request or a subsequent Set-Document-Attributes request;
- 582 2. Job Level - The Job Template attributes supplied in the Job Creation request or
583 a subsequent Set-Job-Attributes request; and
- 584 3. Printer Default - The Printer Default attributes as supplied by the manufacturer
585 or configured by the operator or administrator using a Set-Printer-Attributes
586 request.

587 Note: Depending on the value of the "pdl-override-supported" Printer Description attribute
588 [STD92], device commands embedded in the Document data could override attributes
589 specified at any of the previous levels.

590 **5. New Operations**

591 This section defines the new IPP operations for this specification.

594 Note: The Internet Printing Protocol/1.1 [STD92] deprecates the "job-uri" operation attribute
595 for specifying the target Job and recommends that Clients send the "printer-uri" and "job-id"
596 operation attributes instead.

597 **5.1 Document Operations**

598 **5.1.1 Cancel-Document**

599 This REQUIRED Document operation allows a Client to cancel a specified Document in a
600 specified Print Job any time from the time the Document is created up to, but not including,
601 the time that the Document is completed, canceled, or aborted. Since a Document might
602 already be printing by the time a Cancel-Document request is received, some media sheet
603 pages might be printed before the Document processing is actually terminated.

604 The Cancel-Document operation does not remove the Document from the Job and Printer,
605 but only sets the specified Document's "document-state" Document Status attribute to
606 'canceled' and the Document's "document-state-reasons" Document Status attribute with
607 'canceled-by-user' or 'canceled-by-operator'. If the Job object is printed again using
608 operations such as Resubmit-Job [PWG5100.11], any canceled Documents are also printed
609 again. Thus Cancel-Document has the same semantics as Cancel-Job [STD92] which only
610 cancels the processing of the Job and doesn't delete the Job object itself.

611 The Printer MUST accept or reject the request based on the Document's current state and
612 transition the Document to the indicated new state as shown in Table 2.

613 Access Rights: Only the Job Owner or an Operator or Administrator of the Printer can
614 perform this operation. Otherwise, the Printer MUST reject the operation and return 'client-
615 error-forbidden', 'client-error-not-authenticated', or 'client-error-not-authorized' as
616 appropriate.
617

618

Table 2 - Document State Transitions for Cancel-Document

Current "document-state"	New "document-state"	Printer's response status code and action:
'pending'	'canceled'	'successful-ok'
'processing'	'canceled'	'successful-ok'
'processing'	'processing'	'successful-ok' (note 1)
'processing'	'processing'	'client-error-not-possible' (note 2)
'completed'	'completed'	'client-error-not-possible'
'canceled'	'canceled'	'client-error-not-possible'
'aborted'	'aborted'	'client-error-not-possible'

619 Note 1: If the implementation requires some measurable time to cancel the
620 Document in the 'processing' state, the Printer MUST add the 'processing-to-stop-
621 point' value to the Document's "document-state-reasons" attribute and then
622 transition the Document to the 'canceled' state when the processing ceases.

623 Note 2: If the Document object already has the 'processing-to-stop-point' value in its
624 "document-state-reasons" attribute, then the Printer MUST reject the Cancel-
625 Document request.

626 5.1.1.1 Cancel-Document Request

627 The following groups of attributes are part of the Cancel-Document request:

628 Group 1: Operation Attributes

629 Natural Language and Character Set:

630 The "attributes-charset" and "attributes-natural-language" attributes as
631 described in [STD92].

632 Target:

633 Either a) the "printer-uri" (uri) and "job-id" (integer(1:MAX)) or b) the "job-uri"
634 (uri) operation attribute(s) [STD92] which define the target Job object for this
635 operation, followed by the "document-number" (integer(1:MAX)) operation
636 attribute which defines the target Document object for this operation. If the
637 Client omits the "document-number" operation attribute, the Printer MUST
638 reject the request and return the 'client-error-bad-request' status code.

639 Requesting User Name:

640 The "requesting-user-name" (name(MAX)) attribute SHOULD be supplied by
641 the Client as described in [STD92].

642 "document-message" (text(MAX)):

643 The Client MAY supply this attribute. If supported by the Printer, the Printer
644 MUST also support the corresponding "document-message" (text(MAX))
645 Document Status attribute (see section 6.2.3) and copy the value to the
646 Document's "document-message" attribute.

647 5.1.1.2 Cancel-Document Response

648 The following groups of attributes are part of the Cancel-Document response:

649 Group 1: Operation Attributes

650 Status Message:

651 In addition to the REQUIRED status code returned in every response, the
652 response OPTIONALLY includes a "status-message" (text(255)) and/or a
653 "detailed-status-messages" (text(MAX)) Operation attribute as described in
654 [STD92].

655 Natural Language and Character Set:

656 The "attributes-charset" and "attributes-natural-language" attributes as
657 described in [STD92].

658 Group 2: Unsupported Attributes

659 See [STD92] for details on returning Unsupported Attributes.

660 5.1.2 Get-Document-Attributes

661 This REQUIRED Document operation allows a Client to request the values of selected
662 attributes of a Document object. The Printer MUST only return attributes that were submitted
663 by a Client or generated by the Printer.

664 The Client requests attributes using the "requested-attributes (keyword)" operation attribute
665 [STD92] which lists the attribute names and groups of interest. For Document objects the
666 possible names of attribute groups are:

667 'document-template': The subset of Document Template that the implementation
668 supports for Document objects.

669 'document-description': The subset of Document Description and Document Status
670 attributes that the implementation supports for Document objects.

671 'all': All attributes that the implementation supports for Document objects.

672 Since a Client MAY request specific attributes or named groups, there is a potential that
673 there is some overlap. For example, if a Client requests 'document-name' and 'document-
674 description', the Client is actually requesting the "document-name" attribute once by naming
675 it explicitly and once by inclusion in the 'document-description' group. In such cases, the
676 Printer returns the attribute only once in the response even if it is requested multiple times.
677 The Client SHOULD NOT request the same attribute in multiple ways.

678 Printers MUST support all group names and MUST return all supported attributes belonging
679 to the group.

680 Access Rights: Only the Job Owner or an Operator or Administrator of the Printer can
681 perform this operation. Otherwise, the Printer MUST reject the operation and return 'client-
682 error-forbidden', 'client-error-not-authenticated', or 'client-error-not-authorized' as
683 appropriate.

684 5.1.2.1 Get-Document-Attributes Request

685 The following groups of attributes are part of the Get-Document-Attributes request:

686 Group 1: Operation Attributes

687 Natural Language and Character Set:

688 The "attributes-charset" and "attributes-natural-language" attributes as
689 described in [STD92].

690 Target:

691 Either a) the "printer-uri" (uri) and "job-id" (integer(1:MAX)) or b) the "job-uri"
692 (uri) operation attribute(s) [STD92] which define the target Job object for this
693 operation, followed by the "document-number" (integer(1:MAX)) operation
694 which defines the target Document object for this operation. If the Client
695 omits the "document-number" operation attribute, the Printer MUST reject the
696 request and return the 'client-error-bad-request' status code.

697 Requesting User Name:

698 The "requesting-user-name" (name(MAX)) attribute SHOULD be supplied by
699 the Client as described in [STD92].

700 "requested-attributes" (1setOf keyword):

701 The Client OPTIONALLY supplies and the Printer MUST support this
702 attribute, which is a list of Document attribute names and/or attribute group
703 names that are returned to the Client for each Document object. If the Client
704 does not supply this attribute, the Printer MUST respond as if the Client had
705 supplied this attribute with the single value 'all'.

706 5.1.2.2 Get-Document-Attributes Response

707 The following groups of attributes are part of the Get-Document-Attributes response:

708 Group 1: Operation Attributes

709 Status Message:

710 In addition to the REQUIRED status code returned in every response, the
711 response OPTIONALLY includes a "status-message" (text(255)) and/or a
712 "detailed-status-messages" (text(MAX)) Operation attribute as described in
713 [STD92].

714 Natural Language and Character Set:

715 The "attributes-charset" and "attributes-natural-language" attributes as
716 described in [STD92]. The "attributes-natural-language" MAY be the natural
717 language of the Document object rather than the one in the Get-Document-
718 Attributes request.

719 Group 2: Unsupported Attributes

720 See [STD92] for details on returning Unsupported Attributes.

721 The response MAY contain the "requested-attributes" operation attribute with
722 any supplied values (attribute keywords) that were requested by the Client
723 but are not supported by the Printer. If the Printer does return unsupported
724 attributes referenced in the "requested-attributes" operation attribute and that
725 attribute included group names such as 'all', the unsupported attributes
726 MUST NOT include attributes described in the standard but not supported by
727 the implementation.

728 Group 3: Document Attributes

729 The Printer responds with the Document Description, Document Status, and
730 Document Template attributes for each returned Document object as
731 requested by the "requested-attributes" operation attribute supplied by the
732 Client in the request. The Printer ignores (does not respond with) any
733 requested attribute or value which is not supported or which is restricted by
734 the security policy in force, including whether the requesting user is the Job
735 owner. However, the Printer MUST respond with the 'unknown' out of band
736 value [STD92] for any supported attribute (including all REQUIRED
737 attributes) for which the Printer does not know the value, unless it would
738 violate the security policy.

739 **5.1.3 Set-Document-Attributes**

740 This OPTIONAL Document operation allows a Client to set the values of the attributes of a
 741 Document object after the Document object is submitted to the Printer. In the request, the
 742 Client supplies the set of Document attributes and values that are to be set. In the response,
 743 the Printer returns success or rejects the entire request with indications of which attribute or
 744 attributes could not be set.

745 This operation is similar to the Set-Job-Attributes operation [RFC3380] and follows the same
 746 rules for validation. As with the Set-Job-Attributes operation, the Set-Document-Attributes
 747 operation can add a new attribute, replace the value of an existing attribute, or remove an
 748 attribute using 'delete-attribute' out-of-band value.

749 If the Client supplies an attribute in a Set-Document-Attributes request with the 'delete-
 750 attribute' out-of-band value and that attribute is not present on the Document object, the
 751 Printer ignores the attribute and does not return the attribute in the Unsupported Attributes
 752 group. The Printer also returns the 'successful-ok' status code if there are no other problems
 753 with the request.

754 The Printer MUST accept or reject this operation when the Document's "document-state"
 755 attribute has the values shown in Table 3 but MUST NOT change the state of the Document
 756 object since the Document is a passive object and the Document state is a subset of the Job
 757 State. For example, in the case where the operation creates a request for unavailable
 758 resources, the Job (but not the Document) transitions to a new state.

759 **Table 3 - Allowed Document States for the Set-Document-Attributes operation**

"document-state"	Printer's response status code and "action"
'pending'	'successful-ok'
'pending'	'successful-ok' - needed resources are not ready (the Job MAY change state)
'processing'	'successful-ok' or 'client-error-not-possible' depending on implementation, including the attributes being set, whether the document has started marking media, etc.
'completed'	'client-error-not-possible'
'canceled'	'client-error-not-possible'
'aborted'	'client-error-not-possible'

760 This operation MUST NOT change the value of attributes not specified in the operation
 761 unless the definition of the attribute explicitly specifies such side effects. In general,
 762 Document attributes that are settable do not define side effects on other attributes that are
 763 settable, only side effects on READ-ONLY attributes, if any.

764 If the Printer supports the Set-Document-Attributes operation, then it SHOULD support
 765 setting of all Document Description and Document Template attributes that the

766 implementation supports. Document Status attributes are READ-ONLY and cannot be set
767 directly using this operation.

768 Note: There is no way for the Client to set all of a Job's Document objects to the same
769 attribute values in a single operation. Either a) the Client sets the corresponding attribute in
770 each Document object in the Job with separate Set-Document-Attributes requests, or b) the
771 Client sets the corresponding attribute at the Job Level using the Set-Job-Attributes
772 operation. Setting the corresponding attribute at the Job Level (or supplying that attribute
773 initially in the Job Creation operation) causes each Document object to inherit the Job Level
774 attribute value, if the Document object doesn't have a corresponding explicit attribute
775 supplied at the Document Level. In other words, supplying an attribute at the Job Level will
776 affect all the Job's Document objects that don't have that attribute also explicitly supplied at
777 the Document Level.

778 Access Rights: Only the Job Owner or an Operator or Administrator of the Printer can
779 perform this operation. Otherwise, the Printer MUST reject the operation and return 'client-
780 error-forbidden', 'client-error-not-authenticated', or 'client-error-not-authorized' as
781 appropriate.

782 5.1.3.1 Set-Document-Attributes Request

783 The following groups of attributes are part of the Set-Document-Attributes request:

784 Group 1: Operation Attributes

785 Natural Language and Character Set:

786 The "attributes-charset" and "attributes-natural-language" attributes as
787 described in [STD92].

788 Target:

789 Either a) the "printer-uri" (uri) and "job-id" (integer(1:MAX)) or b) the "job-uri"
790 (uri) operation attribute(s) [STD92] which define the target Job object for this
791 operation, followed by the "document-number" (integer(1:MAX)) operation
792 which defines the target Document object for this operation. If the Client
793 omits the "document-number" operation attribute, the Printer MUST reject the
794 request and return the 'client-error-bad-request' status code.

795 Requesting User Name:

796 The "requesting-user-name" (name(MAX)) attribute SHOULD be supplied by
797 the Client as described in [STD92].

798 Group 2: Document Attributes

799 The Client supplies one or more Document Description or Document
800 Template attributes. If supported, the Printer MUST either add the attribute (if
801 it does not already exist in the Document object), replace all values for the
802 attribute (if it already exists in the Document object), or remove the attribute
803 (if the 'delete-attribute' out-of-band value is supplied by the Client).

804 5.1.3.2 Set-Document-Attributes Response

805 The Printer returns the following groups of attributes as part of the Set-Document-Attributes
806 response:

807 Group 1: Operation Attributes

808 Status Message:

809 In addition to the REQUIRED status code returned in every response, the
810 response OPTIONALLY includes a "status-message" (text(255)) and/or a
811 "detailed-status-messages" (text(MAX)) Operation attribute as described in
812 [STD92].

813 Natural Language and Character Set:

814 The "attributes-charset" and "attributes-natural-language" attributes as
815 described in [STD92].

816 Group 2: Unsupported Attributes

817 See [STD92] for details on returning Unsupported Attributes.

818 If some of the attributes in the operation fail to validate, the Printer MUST
819 reject the operation, MUST NOT change any Document attributes, and
820 MUST return the indicated status code below. In this group, the Printer
821 MUST also return all attributes that fail to validate. The following are the
822 reasons that an attribute fails to validate and the value returned for the
823 attribute, along with the indicated status code and order of detection:

- 824 1. The number of attributes supplied by the client exceeds the maximum
825 number that the Printer supports in a Set-Document-Attributes
826 request: return the 'client-error-request-entity-too-large' status code
827 [STD92].
- 828 2. The Printer doesn't support the attribute: return the attribute with the
829 'unsupported' out-of-band attribute value and the 'client-error-
830 attributes-or-values-not-supported' status code [STD92].
- 831 3. The attribute is READ-ONLY (in its definition) or is not-settable in this
832 implementation: return the attribute with the 'not-settable' out-of-band

833 attribute value and the 'client-error-attributes-not-settable' status code
834 [RFC3380].

835 4. The Printer doesn't support the value: if the attribute in the operation
836 has a single value, return it. If the attribute in the operation is multi-
837 valued, return only those values in a 1setOf that are not supported.
838 Return the 'client-error-attributes-or-values-not-supported' status code
839 [STD92].

840 5. The values of some of the supplied attributes conflict with one another
841 and/or other Document attribute values not being set: if the conflicting
842 attribute in the operation has a single value, return the attribute and
843 the value. If the attribute in the operation is multi-valued, return only
844 the attribute and those values in a 1setOf that are conflicting with
845 other attributes. Return the 'client-error-conflicting-attributes' status
846 code [STD92].

847 5.2 Job Operations

848 5.2.1 Get-Documents

849 This REQUIRED Job operation allows a Client to retrieve the list of Document objects
850 belonging to the target Job object. The Client MAY also supply a list of Document attribute
851 names and/or attribute group names. A group of Document object attributes will be returned
852 for each Document object in the Job.

853 This operation is similar to the Get-Document-Attributes operation (see section 5.1.2),
854 except that this operation returns attributes from all Document objects contained in the Job
855 object instead of from a single selected Document object in the Job object. As with the Get-
856 Document-Attributes operation, the Printer MUST only return attributes that were submitted
857 by a Client or generated by the Printer.

858 This operation is also similar to the Get-Jobs operation [STD92] except that there are no
859 equivalents to the "which-jobs" and "my-jobs" operation attributes.

860 It is not an error for the Printer to return 0 Documents. If the response returns 0 Documents
861 because there are no Documents in the Job, then the status code for 0 Documents MUST
862 be 'successful-ok'.

863 Access Rights: Only the Job Owner or an Operator or Administrator of the Printer can
864 perform this operation. Otherwise, the Printer MUST reject the operation and return 'client-
865 error-forbidden', 'client-error-not-authenticated', or 'client-error-not-authorized' as
866 appropriate.

867 5.2.1.1 Get-Documents Request

868 The following groups of attributes are part of the Get-Documents request:

869 Group 1: Operation Attributes

870 Natural Language and Character Set:

871 The "attributes-charset" and "attributes-natural-language" attributes [STD92]

872 Target:

873 Either a) the "printer-uri" (uri) and "job-id" (integer(1:MAX)) or b) the "job-uri"
874 (uri) operation attribute(s) [STD92] which define the target Job object for this
875 operation.

876 Requesting User Name:

877 The "requesting-user-name" (name(MAX)) attribute SHOULD be supplied by
878 the Client as described in [STD92].

879 "limit" (integer(1:MAX)):

880 The client OPTIONALLY supplies and the Printer MUST support this
881 operation attribute, which determines the maximum number of Documents
882 that a Client will receive from the Printer. The limit is a "stateless limit" in that
883 if the value supplied by the Client is 'N', then only the first 'N' Documents are
884 returned in the Get-Documents Response. There is no mechanism to allow
885 for the next 'M' Documents after the first 'N' Documents. If the Client does not
886 supply the "limit" attribute, the Printer responds with all Documents in the
887 Job.

888 "requested-attributes" (1setOf keyword):

889 The client OPTIONALLY supplies and the Printer MUST support this
890 attribute, which is a list of Document attribute names and/or attribute group
891 names that are returned to the Client for each Document object. The allowed
892 attribute group names are the same as those defined in the Get-Documents-
893 Attributes operation in section 5.1.2. If the Client does not supply this
894 attribute, the Printer MUST respond as if the Client had supplied this attribute
895 with the single value 'document-number'.

896 5.2.1.2 Get-Documents Response

897 The following groups of attributes are part of the Get-Documents request:

898 Group 1: Operation Attributes

899 Status Message:

900 In addition to the REQUIRED status code returned in every response, the
901 response OPTIONALLY includes a "status-message" (text(255)) and/or a
902 "detailed-status-messages" (text(MAX)) operation attribute as described in
903 [STD92].

904 Natural Language and Character Set:

905 The "attributes-charset" and "attributes-natural-language" attributes as
906 described in [STD92].

907 Group 2: Unsupported Attributes

908 See [STD92] for details on returning Unsupported Attributes.

909 The response MAY contain the "requested-attributes" operation attribute with
910 any supplied values (attribute keywords) that were requested by the Client
911 but are not supported by the Printer. If the Printer does return unsupported
912 attributes referenced in the "requested-attributes" operation attribute and that
913 attribute included group names such as 'all', the unsupported attributes
914 MUST NOT include attributes described in the standard but not supported by
915 the implementation.

916 Groups 3 to N: Document Attributes

917 The Printer responds with the Document Description, Document Status, and
918 Document Template attributes for each returned Document object as
919 requested by the "requested-attributes" operation attribute supplied by the
920 Client in the request. The Printer ignores (does not respond with) any
921 requested attribute or value which is not supported or which is restricted by
922 the security policy in force, including whether the requesting user is the Job
923 owner. However, the Printer MUST respond with the 'unknown' out of band
924 value [STD92] for any supported attribute (including all REQUIRED
925 attributes) for which the Printer does not know the value, unless it would
926 violate the security policy.

927 The Printer MUST return the groups in order of increasing "document-
928 number" value.

929 **6. New Attributes**

930 **6.1 Document Description Attributes**

931 **6.1.1 document-name (name(MAX))**

932 This REQUIRED Document Description attribute specifies the name of the document and is
 933 copied from the "document-name" operation attribute [STD92] supplied by the Client in the
 934 Document Creation request.

935 **6.2 Document Status Attributes**

936 Table 4 lists the Document Status attributes defined by this specification. Printers that
 937 support a given operation or Job Status attribute MUST support the corresponding
 938 Document Status attribute.

939 **Table 4 - Document Status Attributes**

Document Attribute	Operation/Job Attribute	Reference
attributes-charset (charset)	attributes-charset	[STD92]
attributes-natural-language (naturalLanguage)	attributes-natural-language	[STD92]
current-page-order (type2 keyword)	current-page-order	[PWG5100.3]
date-time-at-completed (dateTime)	date-time-at-completed	[STD92]
date-time-at-creation (dateTime)	date-time-at-creation	[STD92]
date-time-at-processing (dateTime)	date-time-at-processing	[STD92]
detailed-status-messages (1setOf text(MAX))	job-detailed-status-messages	[STD92]
document-access-errors (1setOf text(MAX))	job-document-access-errors	[STD92]
document-charset (charset)	document-charset	Sections 6.2.1 and 6.4.1
document-format (mimeType)	document-format	[STD92]
document-format-detected (mimeType)	<none>	Section 6.2.2
document-job-id (integer(1:MAX))	job-id	[STD92]
document-job-uri (uri)	job-uri	[STD92]

Deleted: 6.5.1

Document Attribute	Operation/Job Attribute	Reference
document-message (text(MAX))	<none>	Section 6.2.3
document-natural-language (naturalLanguage)	document-natural-language	[STD92]
document-number (integer(1:MAX))	<none>	Section 6.2.4
document-printer-uri (uri)	job-printer-uri	[STD92]
document-state (type1 enum)	job-state (note 1)	[STD92]
document-state-message (text(MAX))	job-state-message	[STD92]
document-state-reasons (1setOf type2 keyword)	job-state-reasons	[STD92]
document-uri (uri)	document-uri (note 2)	[STD92]
impressions (integer(0:MAX))	job-impressions	[STD92]
impressions-completed (integer(0:MAX))	job-impressions-completed	[STD92]
k-octets (integer(0:MAX))	job-k-octets	[STD92]
k-octets-processed (integer(0:MAX))	job-k-octets-processed	[STD92]
last-document (boolean)	<none>	Section 6.2.5
media-sheets (integer(0:MAX))	job-media-sheets	[STD92]
media-sheets-completed (integer(0:MAX))	job-media-sheets-completed	[STD92]
more-info (uri)	job-more-uri	[STD92]
output-device-assigned (name(MAX))	output-device-assigned	[STD92]
printer-up-time (integer(1:MAX))	job-printer-up-time	[STD92]
time-at-completed (integer(MIN:MAX))	time-at-completed	[STD92]
time-at-creation (integer(MIN:MAX))	time-at-creation	[STD92]
time-at-processing (integer(MIN:MAX))	time-at-processing	[STD92]

941 Note 1: The "document-state" attribute supports all of the "job-state" values *except*
942 '4' (pending-held).

943 Note 2: The "document-uri" attribute identifies the source location of the Document
944 data and is not an identifier for the Document object. The simple identifier of the
945 Document is the "document-number" Document Status attribute.

946 **6.2.1 document-charset (charset)**

947 This RECOMMENDED Document Status attribute specifies the charset used in the
 948 Document data. The Printer sets this attribute from the corresponding operation attribute
 949 supplied by the Client in the Document Creation request. Printers that support the
 950 "document-charset" operation attribute MUST support this attribute.

951 **6.2.2 document-format-detected (mimeMediaType)**

952 This Document Status attribute is generated by the Printer to indicate the format of the
 953 Document object content as detected by the Printer.

954 **6.2.3 document-message (text(MAX))**

955 This Document Status attribute contains a message from either a) the User to the Operator
 956 about the Document or b) from the Operator, Administrator, or "intelligent" process to
 957 indicate to the End User the reasons for modification or other management action taken on
 958 the Document. The Printer populates this attribute from the "document-message" operation
 959 attribute value supplied by the Client in any of the Document Creation requests or in a
 960 Cancel-Document request.

961 **6.2.4 document-number (integer(1:MAX))**

962 This REQUIRED Document Status attribute is the ordinal number of the Document within
 963 the Job, and determines its order of being printed in a multi-Document Job. The Printer
 964 MUST generate the values monotonically increasing from 1 for each Job.

965 **6.2.5 last-document (boolean)**

966 This REQUIRED Document Status attribute indicates whether this Document is the last
 967 Document in the Job [STD92]. The Printer sets this attribute from the corresponding
 968 operation attribute supplied by the Client in the Document Creation request, when the Client
 969 sends a Close-Job request [PWG5100.11], or when the "multiple-operation-time-out" time
 970 interval has passed.

971 **6.3 Document Template Attributes**

972 This specification defines Document Template attributes for every Job Template attribute
 973 that does not apply to the whole Job. [Table 5](#) lists the new attributes.

Deleted: Table 4

974 **Table 5 - Document Template Attributes**

Attribute	Reference
copies (integer(1:MAX))	[STD92]
cover-back (collection)	[PWG5100.3]

cover-front (collection)	[PWG5100.3]
finishings (1setOf type2 enum)	[STD92]
finishings-col (1setOf collection)	[PWG5100.1]
force-front-side (1setOf integer(1:MAX))	[PWG5100.3]
imposition-template (type2 keyword name(MAX))	[PWG5100.3]
media (type2 keyword name(MAX))	[STD92]
media-col (collection)	[PWG5100.3]
media-input-tray-check (type2 keyword name(MAX))	[PWG5100.3]
number-up (integer(1:MAX))	[STD92]
orientation-requested (type2 enum)	[STD92]
output-bin (type2 keyword name(MAX))	[PWG5100.2]
page-delivery (type2 keyword)	[PWG5100.3]
page-order-received (type2 keyword)	[PWG5100.3]
page-ranges (1setOf rangeOfInteger(1:MAX))	[STD92]
presentation-direction-number-up (type2 keyword)	[PWG5100.3]
print-quality (type2 enum)	[STD92]
printer-resolution (resolution)	[STD92]
sides (type2 keyword)	[STD92]
x-image-position (type2 keyword)	[PWG5100.3]
x-image-shift (integer(MIN:MAX))	[PWG5100.3]
x-side1-image-shift (integer(MIN:MAX))	[PWG5100.3]
x-side2-image-shift (integer(MIN:MAX))	[PWG5100.3]
y-image-position (type2 keyword)	[PWG5100.3]
y-image-shift (integer(MIN:MAX))	[PWG5100.3]
y-side1-image-shift (integer(MIN:MAX))	[PWG5100.3]
y-side2-image-shift (integer(MIN:MAX))	[PWG5100.3]

976 6.4 Operation Attributes

977 6.4.1 document-charset (charset)

978 This RECOMMENDED operation attribute specifies the character set used by the Document
979 data.

980 6.4.2 document-number (integer(1:MAX))

981 This REQUIRED operation attribute specifies the ordinal number of the Document within the
982 Job.

983 **6.5 Printer Description Attributes**

984 **6.5.1 document-creation-attributes-supported (1setOf type2 keyword)**

985 This REQUIRED attribute lists the keyword names of the Document Template and operation
986 attributes that the Printer will accept in the Send-Document and Send-URI Document
987 Creation operations. Implementations that support the Send-URI operation MUST include
988 the 'document-uri' keyword in "document-creation-attributes-supported". Implementations
989 that do not support Send-URI MUST NOT include the 'document-uri' keyword in "document-
990 creation-attributes-supported".

991 Note: The "document-uri" attribute is specific to the Send-URI operation. Inclusion of the
992 'document-uri' keyword in "document-creation-attributes-supported" does not imply that the
993 "document-uri" attribute is valid for the Send-Document operation.

994 **7. New Attribute Group Tags**

995 **7.1 document-attributes-tag**

996 The document-attributes-tag (0x09) attribute group tag is used to delimit Document object
997 attributes in IPP messages.

998

999 **8. Additional Semantics for Existing Operations**

1000 **8.1 Cancel-Job: "document-state" and "document-state-reasons"**

1001 This REQUIRED operation sets the "document-state" Document Status attribute to
1002 'canceled' and the "document-state-reasons" Document Status attribute with 'canceled-by-
1003 user' or 'canceled-by-operator' for *all* Document objects in the identified Job that have not
1004 yet reached a terminating state ('completed', 'canceled', or 'aborted').

1005 **8.2 Hold-Job and Release-Job: "document-state-reasons"**

1006 These OPTIONAL operations affect the state of the target Job. The values of the
1007 Documents' "document-state-reasons" Document Status attributes MUST NOT be affected
1008 by these operations.

1009 **8.3 Print-Job, Print-URI: Document Object and Attributes**

1010 This specification extends the REQUIRED Print-Job and OPTIONAL Print-URI operations
1011 [STD92] to explicitly create a Document object and copy the request operation attributes
1012 listed in [Table 6](#), to the corresponding Document attributes. Printers MUST NOT copy Job
1013 Template attributes to the created Document object.
1014 Printers can also return the attributes listed in

Deleted: Table 4

1016 [Table 7](#) in the Document attributes group after the Job attributes group.

Deleted: Table 5

1017 **Table 6 - Operation Attributes Copied to Document Objects**

Operation Attribute	Document Attribute	Reference
attributes-charset	attributes-charset	[STD92]
attributes-natural-language	attributes-natural-language	[STD92]
document-charset	document-charset	Sections 6.2.1 and 6.4.1
document-format	document-format	[STD92]
	document-format-detected	Section 6.2.2
document-message	document-message	Section 6.2.3
document-name	document-name	[STD92]
document-natural-language	document-natural-language	[STD92]
document-uri	document-uri	[STD92]
job-impressions	impressions	[STD92], Section 6.2
job-k-octets	k-octets	[STD92], Section 6.2
job-media-sheets	media-sheets	[STD92], Section 6.2

Deleted: 6.2.5

Deleted: 6.1.1

1018

1022

Table 7 - Returned Document Status Attributes

Document Status Attribute	Print-xxx Conformance	Send-xxx Conformance	Reference
document-number	OPTIONAL	REQUIRED	Section 6.2.4
document-state	OPTIONAL	REQUIRED	Section 6.2
document-state-message	OPTIONAL	OPTIONAL	Section 6.2
document-state-reasons	OPTIONAL	REQUIRED	Section 6.2

Deleted: 6.2.9

1023 **8.3.1 Print-Job/Print-URI Response**

1024 The following sets of attributes are part of the Print-Job and Print-URI responses:

1025 Group 1: Operation Attributes

1026 As specified in [STD92].

1027 Group 2: Unsupported Attributes

1028 As specified in [STD92].

1029 Group 3: Job Object Attributes

1030 As specified in [STD92].

1031 Group 4: Document Object Attributes (new)

1032 "document-number" (integer(1:MAX)):

1033 The Printer MAY return the number of this Document object that was
1034 assigned by the Printer starting with 1 for each Job.

1035 "document-state" (type1 enum):

1036 The Printer MAY return the state of this Document object.

1037 "document-state-reasons" (1setOf type2 keyword):

1038 The Printer MAY return the associated state reasons for this Document.

1039 "document-state-message" (text(MAX)):

1040 The Printer MAY return the localized description of the "document-state" and
1041 "document-state-reasons" values for this Document.

1043 **8.4 Send-Document: Document Object and Attributes**

1044 This specification extends the REQUIRED Send-Document operation [STD92] to explicitly
1045 create a Document object and copy the operation attributes listed in [Table 6](#) to the
1046 corresponding Document attributes.

Deleted: Table 4

1047 The Send-Document request is also extended to support an additional Document Template
1048 attribute group after the operation attribute group. Document Template attributes are copied
1049 to the Document object after validation as described in section 4.3. Printers MUST NOT
1050 copy Document Template attributes to the Job object.
1051 Finally, Printers also return the attributes listed in

1053 [Table 7](#) in the Document attributes group after the Job attributes group.

Deleted: Table 5

1054 **8.4.1 Send-Document Request**

1055 The following attribute sets are part of the Send-Document request:

1056 Group 1: Operation Attributes

1057 As specified in [STD92].

1058 Group 2: Document Template Attributes (new)

1059 The Client OPTIONALLY supplies and the Printer MUST support a set of
1060 Document Template attributes. If the Client is not supplying any Document
1061 Template attributes in the request, the Client SHOULD omit Group 2 rather
1062 than sending an empty group. However, a Printer MUST be able to accept
1063 an empty group.

1064 Group 3: Document Data

1065 As specified in [STD92].

1066 **8.4.2 Send-Document Response**

1067 The following sets of attributes are part of the Send-Document response:

1068 Group 1: Operation Attributes

1069 As specified in [STD92].

1070 Group 2: Unsupported Attributes

1071 As specified in [STD92].

1072 Group 3: Job Object Attributes

1073 As specified in [STD92].

1074 Group 4: Document Object Attributes (new)

1075 "document-number" (integer(1:MAX)):

1076 The Printer MUST return the number of this Document object that was
1077 assigned by the Printer starting with 1 for each Job.

1078 "document-state" (type1 enum):

1079 The Printer MUST return the state of this Document object.

- 1081 "document-state-reasons" (1setOf type2 keyword):
- 1082 The Printer MUST return the associated state reasons for this Document.
- 1083 "document-state-message" (text(MAX)):
- 1084 The Printer MAY return the localized description of the "document-state" and
- 1085 "document-state-reasons" values for this Document.

1086 **8.5 Send-URI: Document Object and Attributes**

1087 This specification extends the OPTIONAL Send-URI operation [STD92] to explicitly create
1088 a Document object and copy the operation attributes listed in [Table 6](#) to the corresponding
1089 Document attributes.

Deleted: Table 4

1090 The Send-URI request is also extended to support an additional Document Template
1091 attribute group after the operation attribute group. Document Template attributes are copied
1092 to the Document object after validation as described in section 4.3. Printers MUST NOT
1093 copy Document Template attributes to the Job object.
1094 Finally, Printers also return the attributes listed in

1096 [Table 7](#) in the Document attributes group after the Job attributes group.

Deleted: Table 5

1097 **8.5.1 Send-URI Request**

1098 The following attribute sets are part of the Send-URI request:

1099 Group 1: Operation Attributes

1100 As specified in [STD92].

1101 Group 2: Document Template Attributes (new)

1102 The Client OPTIONALLY supplies and the Printer MUST support a set of
1103 Document Template attributes. If the Client is not supplying any Document
1104 Template attributes in the request, the Client SHOULD omit Group 2 rather
1105 than sending an empty group. However, a Printer MUST be able to accept
1106 an empty group.

1107 **8.5.2 Send-URI Response**

1108 The following sets of attributes are part of the Send-URI response:

1109 Group 1: Operation Attributes

1110 As specified in [STD92].

1111 Group 2: Unsupported Attributes

1112 As specified in [STD92].

1113 Group 3: Job Object Attributes

1114 As specified in [STD92].

1115 Group 4: Document Object Attributes (new)

1116 "document-number" (integer(1:MAX)):

1117 The Printer MUST return the number of this Document object that was
1118 assigned by the Printer starting with 1 for each Job.

1119 "document-state" (type1 enum):

1120 The Printer MUST return the state of this Document object.

1121 "document-state-reasons" (1setOf type2 keyword):

1122 The Printer MUST return the associated state reasons for this Document.

1124 "document-state-message" (text(MAX)):
1125 The Printer MAY return the localized description of the "document-state" and
1126 "document-state-reasons" values for this Document.

1127 9. Additional Values for Existing Attributes

1128 9.1 operations-supported (1setOf type2 enum)

1129 Table 8 lists the "operation-id" values for the new operations defined in this specification.

1130 **Table 8 – Operation-id Values**

Value	Operation Name	Reference
0x0033	Cancel-Document	Section 5.1.1
0x0034	Get-Document-Attributes	Section 5.1.2
0x0035	Get-Documents	Section 5.2.1
0x0036	Delete-Document (obsolete)	Section 10.1
0x0037	Set-Document-Attributes	Section 5.1.3

Deleted: 11.1

1131 9.2 requested-attributes (1setOf type2 keyword)

1132 This specification defines the following additional values for the "requested-attributes"
1133 operation attribute [STD92]:

1134 'document-description': All Document Description and Document Status attributes.

1135 'document-template': All Document Template and Printer "xxx-supported" attributes.
1136

1138 **10. Obsolete Operations and Attributes**

1139 **10.1 Obsolete Delete-Document Operation**

1140 The OBSOLETE Delete-Document operation removes the specified Document object and
1141 its data immediately from the specified Job. This operation is OBSOLETE because it
1142 destroys accounting information about the target Document and MUST NOT be supported
1143 by new implementations of this specification.

1144 **10.2 Obsolete Document Status Attributes**

1145 Table 9 lists the OBSOLETE Document Status attributes that were defined in the previous
1146 version of this specification [PWG5100.5-2003].

1147 Note: This specification does not change the status of the original operation or Job Status
1148 attributes that have the same names.

1149 **Table 9 - Obsolete Document Status Attributes**

Attribute	Origin
compression (type2 keyword)	[STD92]
document-digital-signature (type2 keyword)	[PWG5100.7-2003]
document-format-version (text(127))	[PWG5100.7-2003]
document-format-version-detected (text(127))	[PWG5100.7-2003]
impressions-completed-current-copy (integer(0:MAX))	[RFC3381-OBSOLETE]
sheet-completed-copy-number (integer(0:MAX))	[RFC3381-OBSOLETE]

Deleted: document-format-details (1setOf collection) [PWG5100.7-2003] ... [3]

1150 **11. Conformance Requirements**

1151 **11.1 Printer Conformance Requirements**

1152 In order for a Printer to claim conformance to this specification, a Printer MUST support:

- 1153 1. The required operations defined in section 5;
- 1154 2. The required attributes and values defined in section 6;
- 1155 3. The new attribute group tag defined in section 7;
- 1156 4. The additional semantics defined in section 8;
- 1157 5. The additional values defined in section 9;
- 1158 6. The internationalization considerations defined in section 12; and
- 1159 7. The security considerations defined in section 13.

1163 11.2 Client Conformance Requirements

1164 In order for a Client to claim conformance to this specification, a Client MUST support:

- 1165 1. The required operations defined in section 5;
- 1166 2. The required attributes and values defined in section 6;
- 1167 3. The new attribute group tag defined in section 7;
- 1168 4. The additional values defined in section 9;
- 1169 5. The internationalization considerations defined in section 12; and
- 1170 6. The security considerations defined in section 13.

1171 12. Internationalization Considerations

1172 For interoperability and basic support for multiple languages, conforming implementations
1173 MUST support:

- 1174 1. The Universal Character Set (UCS) Transformation Format -- 8 bit (UTF-8)
1175 [STD63] encoding of Unicode [UNICODE] [ISO10646]; and
- 1176 2. The Unicode Format for Network Interchange [RFC5198] which requires
1177 transmission of well-formed UTF-8 strings and recommends transmission of
1178 normalized UTF-8 strings in Normalization Form C (NFC) [UAX15].

1179 Unicode NFC is defined as the result of performing Canonical Decomposition (into base
1180 characters and combining marks) followed by Canonical Composition (into canonical
1181 composed characters wherever Unicode has assigned them).

1182 WARNING – Performing normalization on UTF-8 strings received from Clients and
1183 subsequently storing the results (e.g., in Job objects) could cause false negatives in Client
1184 searches and failed access (e.g., to Printers with percent-encoded UTF-8 URIs now
1185 'hidden').

1186 Implementations of this specification SHOULD conform to the following standards on
1187 processing of human-readable Unicode text strings, see:

- 1188 Unicode Bidirectional Algorithm [UAX9] – left-to-right, right-to-left, and vertical
- 1189 Unicode Line Breaking Algorithm [UAX14] – character classes and wrapping
- 1190 Unicode Normalization Forms [UAX15] – especially NFC for [RFC5198]
- 1191 Unicode Text Segmentation [UAX29] – grapheme clusters, words, sentences
- 1192 Unicode Identifier and Pattern Syntax [UAX31] – identifier use and normalization
- 1193 Unicode Collation Algorithm [UTS10] – sorting

- 1194 Unicode Locale Data Markup Language [UTS35] – locale databases
- 1195 Implementations of this specification are advised to also review the following informational
- 1196 documents on processing of human-readable Unicode text strings:
- 1197 Unicode Character Encoding Model [UTR17] – multi-layer character model
- 1198 Unicode Character Property Model [UTR23] – character properties
- 1199 Unicode Conformance Model [UTR33] – Unicode conformance basis

1200 13. Security Considerations

- 1201 The IPP extensions defined in this specification require the same security considerations as
- 1202 defined in the Internet Printing Protocol/1.1 [STD92].
- 1203 Implementations of this specification SHOULD conform to the following standard on
- 1204 processing of human-readable Unicode text strings, see:
- 1205 Unicode Security Mechanisms [UTS39] – detecting and avoiding security attacks
- 1206 Implementations of this specification are advised to also review the following informational
- 1207 document on processing of human-readable Unicode text strings:
- 1208 Unicode Security FAQ [UNISECFAQ] – common Unicode security issues

1209 14. IANA Considerations

1210 14.1 Attribute Registrations

- 1211 The attributes defined in this specification will be published by IANA according to the
- 1212 procedures in the Internet Printing Protocol/1.1 [STD92] in the following file:

1213 <http://www.iana.org/assignments/ipp-registrations>

- 1214 The registry entries will contain the following information:

1215	Document Description attributes:	Reference
1216	-----	-----
1217	document-name (name (MAX))	[PWG5100.5]
1218		
1219	Document Status attributes:	Reference
1220	-----	-----
1221	attributes-charset (charset)	[PWG5100.5]
1222	attributes-natural-language (naturalLanguage)	[PWG5100.5]
1223	compression (obsolete) (type2 keyword)	[PWG5100.5]

1224	current-page-order (type2 keyword)	[PWG5100.5]
1225	date-time-at-completed (dateTime)	[PWG5100.5]
1226	date-time-at-created (dateTime)	[PWG5100.5]
1227	date-time-at-processing (dateTime)	[PWG5100.5]
1228	detailed-status-messages (1setOf text(MAX))	[PWG5100.5]
1229	document-access-errors (1setOf text(MAX))	[PWG5100.5]
1230	document-charset (charset)	[PWG5100.5]
1231	document-digital-signature(obsolete) (type2 keyword)	[PWG5100.5]
1232	document-format (mimeMediaType)	[PWG5100.5]
1233	document-format-detected (mimeMediaType)	[PWG5100.5]
1234	document-format-version (obsolete) (text(127))	[PWG5100.5]
1235	document-format-version-detected (obsolete) (text(127))	[PWG5100.5]
1236	document-job-id (integer(1:MAX))	[PWG5100.5]
1237	document-job-uri (uri)	[PWG5100.5]
1238	document-message (text(MAX))	[PWG5100.5]
1239	document-natural-language (naturalLanguage)	[PWG5100.5]
1240	document-number (integer(1:MAX))	[PWG5100.5]
1241	document-printer-uri (uri)	[PWG5100.5]
1242	document-state (type1 enum)	[PWG5100.5]
1243	document-state-message (text(MAX))	[PWG5100.5]
1244	document-state-reasons (1setOf type2 keyword)	[PWG5100.5]
1245	document-uri (uri)	[PWG5100.5]
1246	impressions (integer(0:MAX))	[PWG5100.5]
1247	impressions-completed (integer(0:MAX))	[PWG5100.5]
1248	impressions-completed-current-copy (obsolete) (integer(0:MAX))	[PWG5100.5]
1249		[PWG5100.5]
1250	k-octets (integer(0:MAX))	[PWG5100.5]
1251	k-octets-processed (integer(0:MAX))	[PWG5100.5]
1252	last-document (boolean)	[PWG5100.5]
1253	media-sheets (integer(0:MAX))	[PWG5100.5]
1254	media-sheets-completed (integer(0:MAX))	[PWG5100.5]
1255	more-info (uri)	[PWG5100.5]
1256	output-device-assigned (name(MAX))	[PWG5100.5]
1257	printer-up-time (integer(1:MAX))	[PWG5100.5]
1258	sheet-completed-copy-number (obsolete) (integer(0:MAX))	[PWG5100.5]
1259	time-at-completed (integer(MIN:MAX))	[PWG5100.5]
1260	time-at-creation (integer(MIN:MAX))	[PWG5100.5]
1261	time-at-processing (integer(MIN:MAX))	[PWG5100.5]
1262		
1263	Document Template attributes:	Reference
1264	-----	-----
1265	copies (integer(1:MAX))	[PWG5100.5]
1266	cover-back (collection)	[PWG5100.5]
1267	<Member attributes are the same as the "cover-back" Job Template	
1268	attribute>	[PWG5100.5]
1269	cover-front (collection)	[PWG5100.5]
1270	<Member attributes are the same as the "cover-front" Job Template	
1271	attribute>	[PWG5100.5]
1272	finishings (1setOf type2 enum)	[PWG5100.5]
1273	finishings-col (1setOf collection)	[PWG5100.5]
1274	<Member attributes are the same as the "finishings-col" Job Template	
1275	attribute>	[PWG5100.5]
1276	force-front-side (1setOf integer(1:MAX))	[PWG5100.5]
1277	imposition-template (type2 keyword name(MAX))	[PWG5100.5]
1278	media (type2 keyword name(MAX))	[PWG5100.5]
1279	media-col (collection)	[PWG5100.5]

Deleted: document-format-details (obsolete) (1setOf collection) → [PWG5100.5] ¶
document-format-details-detected (obsolete) (1setOf collection) → [PWG5100.5] ¶


```

1286     <Member attributes are the same as the "media-col" Job Template
1287     attribute> [PWG5100.5]
1288     media-input-tray-check (type2 keyword | name(MAX)) [PWG5100.5]
1289     number-up (integer(1:MAX)) [PWG5100.5]
1290     orientation-requested (type2 enum) [PWG5100.5]
1291     output-bin (type2 keyword | name(MAX)) [PWG5100.5]
1292     page-delivery (type2 keyword) [PWG5100.5]
1293     page-order-received (type2 keyword) [PWG5100.5]
1294     page-ranges (1setOf rangeOfInteger(1:MAX)) [PWG5100.5]
1295     presentation-direction-number-up (type2 keyword) [PWG5100.5]
1296     print-quality (type2 enum) [PWG5100.5]
1297     printer-resolution (resolution) [PWG5100.5]
1298     sides (type2 keyword) [PWG5100.5]
1299     x-image-position (type2 keyword) [PWG5100.5]
1300     x-image-shift (integer(MIN:MAX)) [PWG5100.5]
1301     x-sidel-image-shift (integer(MIN:MAX)) [PWG5100.5]
1302     x-side2-image-shift (integer(MIN:MAX)) [PWG5100.5]
1303     y-image-position (type2 keyword) [PWG5100.5]
1304     y-image-shift (integer(MIN:MAX)) [PWG5100.5]
1305     y-sidel-image-shift (integer(MIN:MAX)) [PWG5100.5]
1306     y-side2-image-shift (integer(MIN:MAX)) [PWG5100.5]
1307
1308     Operation attributes: Reference
1309     -----
1310     document-charset [PWG5100.5]
1311     document-number (integer(1:MAX)) [PWG5100.5]
1312
1313     Printer Description attributes: Reference
1314     -----
1315     document-creation-attributes-supported (1setOf type2 keyword)
1316     [PWG5100.5]
    
```

1317 **14.2 Type2 keyword Registrations**

1318 The [keyword](#) values defined in this specification will be published by IANA according to the
 1319 procedures in the Internet Printing Protocol/1.1 [STD92] in the following file:

1320 <http://www.iana.org/assignments/ipp-registrations>

1321 The registry entries will contain the following information:

```

1322     Attributes (attribute syntax)
1323     Keyword Attribute Value Reference
1324     -----
1325     requested-attributes (1setOf type2 keyword) [STD92]
1326     document-description [PWG5100.5]
1327     document-template [PWG5100.5]
    
```

Deleted: Attribute

Deleted: Value

Deleted: attribute

1331 14.3 Type2 enum Registrations

1332 The enum values defined in this specification will be published by IANA according to the
1333 procedures in the Internet Printing Protocol/1.1 [STD92] in the following file:

1334 <http://www.iana.org/assignments/ipp-registrations>

1335 The registry entries will contain the following information:

1336	Attributes (attribute syntax)		
1337	Enum Value	Enum Symbolic Name	Reference
1338	-----	-----	-----
1339	operations-supported (1setOf type2 enum)		[STD92]
1340	0x0033	Cancel-Document	[PWG5100.5]
1341	0x0034	Get-Document-Attributes	[PWG5100.5]
1342	0x0035	Get-Documents	[PWG5100.5]
1343	0x0036	Delete-Document (obsolete)	[PWG5100.5]
1344	0x0037	Set-Document-Attributes	[PWG5100.5]
1345			

1346 14.4 Operation Registrations

1347 The operations defined in this specification will be published by IANA according to the
1348 procedures in the Internet Printing Protocol/1.1 [STD92] in the following file:

1349 <http://www.iana.org/assignments/ipp-registrations>

1350 The registry entries will contain the following information:

1351	Operation Name	Reference
1352	-----	-----
1353	Cancel-Document	[PWG5100.5]
1354	Cancel-Job (extension)	[PWG5100.5]
1355	Delete-Document (obsolete)	[PWG5100.5]
1356	Get-Document-Attributes	[PWG5100.5]
1357	Get-Documents	[PWG5100.5]
1358	Hold-Job (extension)	[PWG5100.5]
1359	Print-Job (extension)	[PWG5100.5]
1360	Print-URI (extension)	[PWG5100.5]
1361	Release-Job (extension)	[PWG5100.5]
1362	Send-Document (extension)	[PWG5100.5]
1363	Send-URI (extension)	[PWG5100.5]
1364	Set-Document-Attributes	[PWG5100.5]

1365 14.5 Attribute Group Registrations

1366 The attribute groups defined in this specification will be published by IANA according to the
1367 procedures in the Internet Printing Protocol/1.1 [STD92] in the following file:

1368 <http://www.iana.org/assignments/ipp-registrations>

1369 The registry entries will contain the following information:

1370	Value	Attribute Group Name	Reference
1371	-----	-----	-----
1372	0x09	document-attributes-tag	[PWG5100.5]

1373 15. Overview of Changes

1374 15.1 IPP Document Object v1.1

1375 The following changes were made to the previous version of this specification [PWG5100.5-
1376 2003]:

- 1377 • Printers no longer need to support multiple Document Jobs, as the Document object
1378 and associated operations are useful even for single Document Jobs;
- 1379 • Rationale and model sections have been added;
- 1380 • References now point to the current versions of dependent documents and
1381 specifications at the time of publication;
- 1382 • The "document-charset" operation attribute has been added to this specification;
- 1383 • The Delete-Documents operation has been made OBSOLETE because it destroys
1384 accounting information;
- 1385 • Additional semantics for the DEPRECATED Reprocess-Job and Restart-Job
1386 operations have been removed because those operations SHOULD NOT be
1387 implemented or used;
- 1388 • The "ipp-attribute-fidelity" and "job-mandatory-attributes" operation attributes are no
1389 longer promoted to persistent Job and Document attributes because they are only
1390 utilized during Job Creation;
- 1391 • The "compression" Document Status attribute has been made OBSOLETE because
1392 it serves no purpose;
- 1393 • The "document-digital-signature" Document Status attribute has been made
1394 OBSOLETE because it serves no purpose;
- 1395 • [The "document-format-details" and "document-format-details-detected" Document
1396 Status attributes have been moved to the IPP Job Extensions v2.0 specification;](#)

Deleted: ",

1398 • [The "document-format-version" and "document-format-version-detected"](#) Document
1399 Status attributes have been made OBSOLETE because they have serious
1400 interoperability issues; and

Deleted: .
Deleted: .

1401 • The "impressions-completed-current-copy" and "sheet-completed-copy-number"
1402 Document Status attributes have been made OBSOLETE because the parent
1403 specification (RFC 3381) is OBSOLETE.

1404 16. References

1405 16.1 Normative References

1406 [BCP14] S. Bradner, "Key words for use in RFCs to Indicate Requirement
1407 Levels", RFC 2119/BCP 14, March 1997,
1408 <https://tools.ietf.org/html/bcp14>

Field Code Changed

1409 [ISO10646] "Information technology -- Universal Coded Character Set (UCS)",
1410 ISO/IEC 10646:2011

1411 [PWG5100.1] S. Kennedy, M. Sweet, "IPP Finishings 2.1", PWG 5100.1-2017,
1412 February 2017, [https://ftp.pwg.org/pub/pwg/candidates/cs-
1413 ipppfinishings21-20170217-5100.1.pdf](https://ftp.pwg.org/pub/pwg/candidates/cs-ippfinishings21-20170217-5100.1.pdf)

Field Code Changed

1414 [PWG5100.2] T. Hastings, R. Bergman, "Internet Printing Protocol (IPP): 'output-bin'
1415 attribute extension", PWG 5100.2-2001, February 2001,
1416 [https://ftp.pwg.org/pub/pwg/candidates/cs-ippoutputbin10-20010207-
1417 5100.2.pdf](https://ftp.pwg.org/pub/pwg/candidates/cs-ippoutputbin10-20010207-5100.2.pdf)

Field Code Changed

1418 [PWG5100.3] K. Ocke, T. Hastings, "Internet Printing Protocol (IPP): Production
1419 Printing Attributes - Set 1", PWG 5100.3-2001, February 2001,
1420 [https://ftp.pwg.org/pub/pwg/candidates/cs-ippprodprint10-20010212-
1421 5100.3.pdf](https://ftp.pwg.org/pub/pwg/candidates/cs-ippprodprint10-20010212-5100.3.pdf)

Field Code Changed

1422 [PWG5100.11] T. Hastings, "Internet Printing Protocol (IPP): Job and Printer
1423 Extensions - Set 2 (JPS2)", PWG 5100.11-2010, October 2010,
1424 [https://ftp.pwg.org/pub/pwg/candidates/cs-ippjobprinterext10-
1425 20101030-5100.11.pdf](https://ftp.pwg.org/pub/pwg/candidates/cs-ippjobprinterext10-20101030-5100.11.pdf)

Field Code Changed

1426 [RFC3380] T. Hastings, R. Herriot, C. Kugler, H. Lewis, "Internet Printing Protocol
1427 (IPP): Job and Printer Set Operations", RFC 3380, September 2002,
1428 <https://tools.ietf.org/html/rfc3380>

Field Code Changed

1429 [RFC3998] C. Kugler, H. Lewis, T. Hastings, "Internet Printing Protocol (IPP): Job
1430 and Printer Administrative Operations", RFC 3998, March 2005,
1431 <https://tools.ietf.org/html/rfc3998>

Field Code Changed

1434	[RFC5198]	J. Klensin, M. Padlipsky, "Unicode Format for Network Interchange", RFC 5198, March 2008, https://tools.ietf.org/html/rfc5198	Field Code Changed
1435			
1436	[RFC7230]	R. Fielding, J. Reschke, "Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing", RFC 7230, June 2014, https://tools.ietf.org/html/rfc7230	Field Code Changed
1437			
1438			
1439	[STD63]	F. Yergeau, "UTF-8, a transformation format of ISO 10646", RFC 3629/STD 63, November 2003, https://tools.ietf.org/html/std63	Field Code Changed
1440			
1441	[STD92]	M. Sweet, I. McDonald, "Internet Printing Protocol/1.1", STD 92, June 2018, https://tools.ietf.org/html/std92	Field Code Changed
1442			
1443	[UAX9]	Unicode Consortium, "Unicode Bidirectional Algorithm", UAX#9, May 2018, https://www.unicode.org/reports/tr9	Field Code Changed
1444			
1445	[UAX14]	Unicode Consortium, "Unicode Line Breaking Algorithm", UAX#14, May 2018, https://www.unicode.org/reports/tr14	Field Code Changed
1446			
1447	[UAX15]	M. Davis, M. Duerst, "Unicode Normalization Forms", Unicode Standard Annex 15, May 2018, https://www.unicode.org/reports/tr15	Field Code Changed
1448			
1449	[UAX29]	Unicode Consortium, "Unicode Text Segmentation", UAX#29, May 2018, https://www.unicode.org/reports/tr29	Field Code Changed
1450			
1451	[UAX31]	Unicode Consortium, "Unicode Identifier and Pattern Syntax", UAX#31, June 2018, https://www.unicode.org/reports/tr31	Field Code Changed
1452			
1453	[UNICODE]	Unicode Consortium, "Unicode Standard", Version 11.0.0, June 2018, https://www.unicode.org/versions/Unicode11.0.0/	Field Code Changed
1454			
1455	[UTS10]	Unicode Consortium, "Unicode Collation Algorithm", UTS#10, May 2018, https://www.unicode.org/reports/tr10	Field Code Changed
1456			
1457	[UTS35]	Unicode Consortium, "Unicode Locale Data Markup Language", UTS#35, March 2018, https://www.unicode.org/reports/tr35	Field Code Changed
1458			
1459	[UTS39]	Unicode Consortium, "Unicode Security Mechanisms", UTS#39, May 2018, https://www.unicode.org/reports/tr39	Field Code Changed
1460			
1461	16.2 Informative References		
1462	[PWG5100.5-2003]	D. Carney, T. Hastings, P. Zehler, "Standard for The Internet Printing Protocol (IPP): Document Object", PWG 5100.5-2003 (obsoleted by this specification), October 2003, https://ftp.pwg.org/pub/pwg/candidates/cs-ippdocobject10-20031031-5100.5.pdf	Field Code Changed
1463			
1464			
1465			
1466			

- 1467 [PWG5100.7-2003] T. Hastings, P. Zehler, "Standard for The Internet Printing Protocol
1468 (IPP): Job Extensions", PWG 5100.7-2003, October 2003,
1469 [https://ftp.pwg.org/pub/pwg/candidates/cs-ippjobext10-20031031-
1470 5100.7.pdf](https://ftp.pwg.org/pub/pwg/candidates/cs-ippjobext10-20031031-5100.7.pdf)

- 1471 [RFC3381-OBSOLETE]
1472 T. Hastings, H. Lewis, R. Bergman, "Internet Printing Protocol (IPP):
1473 Job Progress Attributes", RFC 3381 (obsoleted by RFC 8011),
1474 September 2002, <https://tools.ietf.org/html/rfc3381>

- 1475 [UTR17] Unicode Consortium "Unicode Character Encoding Model", UTR#17,
1476 November 2008, <https://www.unicode.org/reports/tr17>

- 1477 [UTR23] Unicode Consortium "Unicode Character Property Model", UTR#23,
1478 May 2015, <https://www.unicode.org/reports/tr23>

- 1479 [UTR33] Unicode Consortium "Unicode Conformance Model", UTR#33,
1480 November 2008, <https://www.unicode.org/reports/tr33>

- 1481 [UNISECFAQ] Unicode Consortium "Unicode Security FAQ", November 2013,
1482 <https://www.unicode.org/faq/security.html>
1483

Field Code Changed

Field Code Changed

Field Code Changed

Field Code Changed

Field Code Changed

Field Code Changed

1484 **17. Author's Address**

1485 Primary author:

1486 Michael Sweet
1487 Apple Inc.
1488 One Apple Park Way
1489 MS 111-HOMC
1490 Cupertino CA 95014
1491 USA

1492 Send comments to the PWG IPP Mailing List:

1493 ipp@pwg.org (subscribers only)

1494 To subscribe, see the PWG web page:

1495 <http://www.pwg.org/>

1496 Implementers of this specification are encouraged to join the IPP Mailing List in order to
1497 participate in any discussions of clarification issues and review of registration proposals for
1498 additional attributes and values.

1499 The editors would like to especially thank the following individuals who also contributed
1500 significantly to the development of this specification:

1501 Dennis Carney (author of v1.0)
1502 Tom Hastings (author of v1.0)
1503 Ira McDonald (High North, Inc.)
1504 Peter Zehler (author of v1.0)

1505

1506 **18. Change History**

1507 **[18.1 April 18, 2019](#)**

- 1508 • [Removed document-format-details-xxx from obsolete attributes \(moved to JOBEXT\)](#)
- 1509 • [Various editorial corrections](#)

1510 **18.2 March 18, 2019**

- 1511 • Stable: Stable
- 1512 • Section 2.1: Added definitions of DEPRECATED and OBSOLETE
- 1513 • Section 3.1: Added forward reference to section 15
- 1514 • Section 15: Updated with rationale
- 1515 • Global: "obsolete" and "deprecated" are now "OBSOLETE" and "DEPRECATED"

1516 **18.3 January 29, 2019**

- 1517 • Status: Prototype
- 1518 • Fixed broken references throughout
- 1519 • Section 10.2: Say "operation and Job Status" instead of "non-document"

1520 **18.4 October 22, 2018**

- 1521 • Status: Interim.
- 1522 • Section 4: Changed to use "This specification" instead of "This document".
- 1523 • Figure 1: Updated with the list of operations.
- 1524 • Table 1: Added target object.
- 1525 • Editorial changes throughout.
- 1526 • Updated wording of the access rights section, per WG review comments on October
- 1527 11, 2018

- 1528 • Table 9: Changed "Reference" column title to "Origin"
- 1529 • Updated references to the old PWG 5100.5 and 5100.7 to include the year, note they
1530 are obsolete.
- 1531 • Updated RFC 3381 to note it is obsolete, obsoleted by RFC 8011
- 1532 **18.5 September 19, 2018**
- 1533 • Initial revision for v1.1.
- 1534 • Updated to use new working draft template, section organizations.
- 1535 • Updated references.
- 1536 • Added Changes section.
- 1537 • Added proper rationale and model sections.
- 1538 • Printers no longer need to support multiple Document Jobs.
- 1539 • Added the "document-charset" operation attribute from PWG 5100.7.
- 1540 • Made the Delete-Document operation obsolete.
- 1541 • Made the "compression" Document Status attribute obsolete because it serves no
1542 purpose.
- 1543 • Made several "document-format-xxx" Document Status attributes from PWG 5100.7
1544 obsolete because they have serious interoperability issues.
- 1545 • Made the "impressions-completed-current-copy" and "sheet-completed-copy-
1546 number" Document Status attributes obsolete because the parent specification (RFC
1547 3381) is obsolete.

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

Page 5: [2] Formatted	Michael Sweet	4/18/19 1:40:00 PM
-----------------------	---------------	--------------------

Default Paragraph Font

▲ **Page 5: [2] Formatted** Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

▲ **Page 5: [2] Formatted** Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

▲ **Page 5: [2] Formatted** Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

▲ **Page 5: [2] Formatted** Michael Sweet 4/18/19 1:40:00 PM

Default Paragraph Font

▲ **Page 37: [3] Deleted** Michael Sweet 4/18/19 1:33:00 PM