



The Printer Working Group

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### IPP Document Object v1.1 (DOCOBJECT)

Status: Interim

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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>

This specification is available electronically at:

<https://ftp.pwg.org/pub/pwg/ipp/wd-ippdocobject11-20181022.docx>

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68 systems supporting them work together better. All references to the PWG in this document  
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71 define print related protocols, interfaces, procedures, and conventions. A PWG standard is  
72 a stable, well understood, and technically competent specification that is widely used with  
73 multiple independent and interoperable implementations. Printer manufacturers and  
74 vendors of printer related software benefit from the interoperability provided by voluntary  
75 conformance to these standards.

76 For additional information regarding the Printer Working Group visit:

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## Table of Contents

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

131 8.1 Cancel-Job: "document-state" and "document-state-reasons" ..... 29

132 8.2 Hold-Job and Release-Job: "document-state-reasons"..... 29

133 8.3 Print-Job, Print-URI: Document Object and Attributes ..... 29

134 8.3.1 Print-Job/Print-URI Response ..... 30

135 8.4 Send-Document: Document Object and Attributes ..... 31

136 8.4.1 Send-Document Request ..... 31

137 8.4.2 Send-Document Response ..... 31

138 8.5 Send-URI: Document Object and Attributes..... 32

139 8.5.1 Send-URI Request ..... 32

140 8.5.2 Send-URI Response..... 33

141 9. Additional Values for Existing Attributes ..... 34

142 9.1 operations-supported (1setOf type2 enum)..... 34

143 9.2 requested-attributes (1setOf type2 keyword) ..... 34

144 10. Obsolete Operations and Attributes..... 35

145 10.1 Obsolete Delete-Documents Operation ..... 35

146 10.2 Obsolete Document Status Attributes ..... 35

147 11. Conformance Requirements..... 35

148 11.1 Printer Conformance Requirements..... 35

149 11.2 Client Conformance Requirements ..... 36

150 12. Internationalization Considerations..... 36

151 13. Security Considerations..... 37

152 14. IANA Considerations ..... 37

153 14.1 Attribute Registrations..... 37

154 14.2 Attribute Value Registrations..... 39

155 14.3 Type2 enum Registrations ..... 40

156 14.4 Operation Registrations ..... 40

157 14.5 Attribute Group Registrations..... 41

158 15. Overview of Changes ..... 41

159 15.1 IPP Document Object v1.1 ..... 41

160 16. References ..... 42

161 16.1 Normative References ..... 42

162 16.2 Informative References..... 43

163 17. Author's Address ..... 44

164 18. Change History..... 45

165 18.1 October 22, 2018 ..... 45

166 18.2 September 19, 2018..... 45

**List of Tables**

168

169 Table 1 - IPP Operations ..... 12

170 Table 2 - Document State Transitions for Cancel-Document..... 14

171 Table 3 - Allowed Document States for the Set-Document-Attributes operation ..... 18

172 Table 4 - Document Status Attributes..... 24

173 Table 5 - Document Template Attributes ..... 26

174 Table 6 - Operation Attributes Copied to Document Objects..... 29

175 Table 7 - Returned Document Status Attributes ..... 30

176 Table 8 – Operation-id Values ..... 34  
177 Table 9 - Obsolete Document Status Attributes..... 35

**List of Figures**

178  
179 Figure 1 - Document Object Life Cycle..... 11  
180

## 181 1. Introduction

182 This specification extends the Internet Printing Protocol/1.1 [STD92] by defining the IPP  
183 Document object and its associated attributes, values, group, and operations. The IPP Job  
184 object is extended to contain zero or more addressable Document objects representing the  
185 [Documents](#) submitted for and operated on by the Job.

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186 [This specification obsoletes portions of the previous version of this specification](#)  
187 [\[PWG5100.5-2003\]. A list of changes can be found in section 15.](#)

## 188 2. Terminology

### 189 2.1 Conformance Terminology

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

### 195 2.2 Printing Terminology

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

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

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

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

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

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

## 209 2.3 Protocol Role Terminology

210 This [specification](#) also defines the following protocol roles to specify unambiguous  
211 conformance requirements:

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

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

## 217 2.4 Other Terminology

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

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

224 *Document Level*: Operation and Document Template attributes supplied in the Send-  
225 Document and Send-URI operations are referred to as being supplied at the Document  
226 Level. Attributes supplied in the Print-Job and Print-URI operations are considered as being  
227 supplied at the Job Level only, *not* also at the Document Level, even though Print-Job and  
228 Print-URI also create Document objects.

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

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

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

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

## 237 2.5 Acronyms and Organizations

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



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

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

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

## 243 **3. Requirements**

### 244 **3.1 Rationale**

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

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

### 252 **3.2 Use Cases**

#### 253 **3.2.1 Specify Per-Document Print Intent**

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

#### 259 **3.2.2 See a List of Documents in a Job**

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

#### 263 **3.2.3 Cancel a Single Document**

264 Bob has submitted a multi-document job to a printer but realizes there was a typographical  
265 error in one of the documents that has not yet printed. He uses an application on his

266 computer to view the list of jobs on the printer, views the list of documents in the job he  
267 submitted, and initiates a cancel action for the document containing the error.

### 268 **3.3 Exceptions**

269 There are no exceptions defined for this specification.

### 270 **3.4 Out of Scope**

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

- 272 1. Definition of copy or page level semantics; and
- 273 2. Definition of per-page or per-copy overrides.

### 274 **3.5 Design Requirements**

275 The design requirements for this specification are:

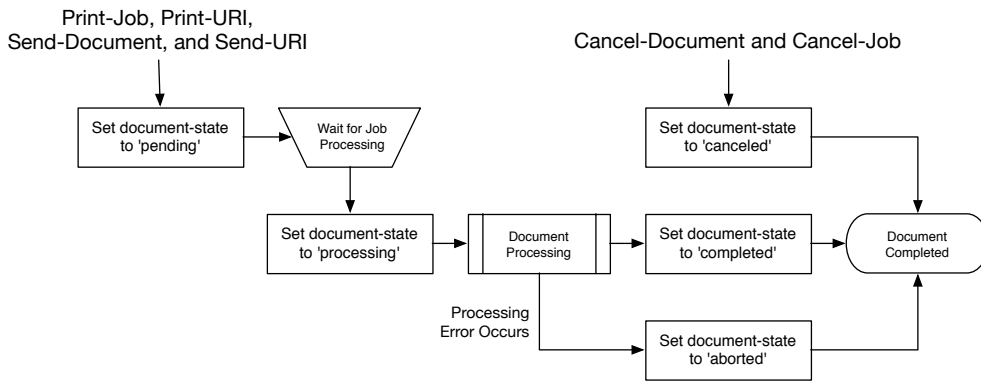
- 276 1. Define an abstract IPP Document object and its semantics;
- 277 2. Define an attribute group tag for attributes of an IPP Document object;
- 278 3. Define attributes and values to describe an IPP Document object;
- 279 4. Define operations for querying and manipulating IPP Document objects;
- 280 5. Extend existing operations to explicitly create IPP Document objects;
- 281 6. Define security requirements necessary to support IPP Document objects; and
- 282 7. Define sections to register all objects, attribute groups, attributes, values, and
- 283 operations with IANA.
- 284

285 **4. Model**

286 The Internet Printing Protocol/1.1 [STD92] defines an object model containing a Printer that  
287 processes Jobs and a Job that processes Documents. This [specification](#) extends the Model  
288 with an addressable Document object with its own attributes and state. Printers MAY support  
289 multiple Documents per Job.

290 **4.1 Document Object**

291 The Document object represents a single Document in a Job that contains Document-  
292 specific Description, Status, and Template attributes. Document Description attributes  
293 provide information about the Document, Document Status attributes provide state  
294 information for the Document, and Document Template attributes override the  
295 corresponding Job Template attributes for the Document. A Document object also contains  
296 the Document data and/or a URI that references the Document data. Figure 1 shows the life  
297 cycle of the Document object.

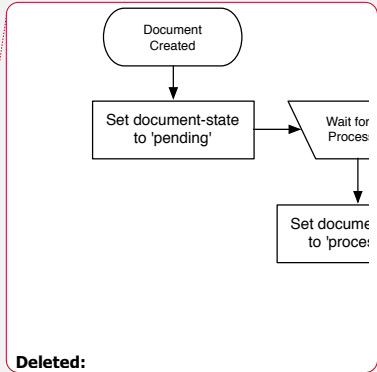


298  
299 **Figure 1 - Document Object Life Cycle**

300 **4.2 Operations**

301 The Print-Job and Print-URI operations [STD92] create a Job object containing a single  
302 Document object while the Create-Job operation [STD92] creates a Job object with no  
303 Document objects. The Send-Document and Send-URI operations [STD92] add Document  
304 objects to the specified Job object. Printers conforming to this specification MUST support  
305 the Create-Job and Send-Document operations.

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308 This specification extends the Send-Document and Send-URI operations to accept  
 309 Document Template attributes in the Document Attributes group. The Document Template  
 310 attributes are applied to the Document object being created, overriding any corresponding  
 311 Job Template attributes supplied at the Job Level which allows the Client to vary the  
 312 Document Template attributes between Document objects in a single Job.

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

315 **Table 1 - IPP Operations**

Operation	Target	Conformance	Reference
Cancel-Document	<a href="#">Document</a>	MUST	Section 5.1.1
Create-Job	<a href="#">Printer</a>	MUST	STD 92
Get-Document-Attributes	<a href="#">Document</a>	MUST	Section 5.1.2
Get-Documents	<a href="#">Job</a>	MUST	Section 5.2.1
Print-Job	<a href="#">Printer</a>	MUST	STD 92, Section 8.3
Print-URI	<a href="#">Printer</a>	MAY	STD 92, Section 8.3
Send-Document	<a href="#">Job</a>	MUST	STD 92, Section 8.4
Send-URI	<a href="#">Job</a>	MAY	STD 92, Section 8.5
Set-Document-Attributes	<a href="#">Document</a>	MAY	Section 5.1.3

316 **4.3 Job and Document Template Attributes**

317 Clients OPTIONALLY supply Job Template attributes in Create-Job, Print-Job, and Print-  
 318 URI requests, and OPTIONALLY supply Document Template attributes in Print-Job, Print-  
 319 URI, Send-Document, and Send-URI requests. Job Template attributes apply to the Job as  
 320 a whole. Document Template attributes apply only to the corresponding Document object.

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

- 323 1. Document Level - The Document Template attributes supplied in the Document  
 324 Creation request or a subsequent Set-Document-Attributes request;
- 325 2. Job Level - The Job Template attributes supplied in the Job Creation request or  
 326 a subsequent Set-Job-Attributes request; and
- 327 3. Printer Default - The Printer Default attributes as supplied by the manufacturer  
 328 or configured by the operator or administrator using a Set-Printer-Attributes  
 329 request.

330 Note: Depending on the value of the "pdl-override-supported" Printer Description attribute  
 331 [STD92], device commands embedded in the Document data could override attributes  
 332 specified at any of [the previous](#) levels.

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335 **5. New Operations**

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

337 Note: The [Internet Printing Protocol/1.1 \[STD92\]](#) ~~deprecates~~ the "job-uri" operation attribute  
338 ~~for specifying the target Job, and recommends that~~ Clients send the "printer-uri" and "job-id"  
339 operation attributes ~~instead.~~

- Deleted:** use of
- Deleted:** [STD92] to specify the target Job object is deprecated.
- Deleted:** SHOULD
- Deleted:** [STD92]

340 **5.1 Document Operations**

341 **5.1.1 Cancel-Document**

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

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

**Deleted:** Reprocess-Job [RFC3998], Restart-Job (deprecated) [STD92], or

354 The Printer MUST accept or reject the request based on the [Document's](#) current state and  
355 transition the [Document](#) to the indicated new state as shown in Table 2.

**Deleted:** The Cancel-Document operation does not affect the states of any of the other Document objects in the Job. If the Job was processing and there are more Documents to be processed, the Printer does so. If there are no further Documents to process, the Job moves to the 'completed' state as usual whenever there is no more processing to be done.¶

356 Access Rights: [Only the Job Owner or an Operator or Administrator of the Printer can perform this operation.](#) Otherwise, the Printer MUST reject the operation and return 'client-error-forbidden', 'client-error-not-authenticated', or 'client-error-not-authorized' as appropriate.  
359  
360

- Deleted:** document's
- Deleted:** document
- Deleted:** The authenticated user performing this operation must either be the Job owner or an Operator or Administrator of the Printer.

382

**Table 2 - Document State Transitions for Cancel-Document**

<b>Current "document-state"</b>	<b>New "document-state"</b>	<b>Printer's response status code and action:</b>
'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'

383

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

384

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

388

389

### 390 5.1.1.1 Cancel-Document Request

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

392 Group 1: Operation Attributes

393 Natural Language and Character Set:

394 The "attributes-charset" and "attributes-natural-language" attributes as  
395 described in [STD92].

396 Target:

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

403 Requesting User Name:

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

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

407 The Client MAY supply this attribute. If supported by the Printer, the Printer  
408 MUST also support the corresponding "document-message" (text(MAX))  
409 Document Status attribute (see section ???) and copy the value to the  
410 Document's "document-message" attribute.

#### 411 5.1.1.2 Cancel-Document Response

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

413 Group 1: Operation Attributes

414 Status Message:

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

419 Natural Language and Character Set:

420 The "attributes-charset" and "attributes-natural-language" attributes as  
421 described in [STD92].

422 Group 2: Unsupported Attributes

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

#### 424 5.1.2 Get-Document-Attributes

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

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

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

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

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

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

442 Printers MUST support all group names and MUST return all supported attributes belonging  
443 to the group.

444 Access Rights: [Only the Job Owner or an Operator or Administrator of the Printer can  
445 perform this operation.](#) Otherwise, the Printer MUST reject the operation and return 'client-  
446 error-forbidden', 'client-error-not-authenticated', or 'client-error-not-authorized' as  
447 appropriate.

**Deleted:** The authenticated user performing this operation must either be the Job owner or an Operator or Administrator of the Printer.

#### 448 5.1.2.1 Get-Document-Attributes Request

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

450 Group 1: Operation Attributes

451 Natural Language and Character Set:

452 The "attributes-charset" and "attributes-natural-language" attributes as  
453 described in [STD92].

454 Target:

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

461 Requesting User Name:

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

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

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



**473 5.1.2.2 Get-Document-Attributes Response**

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

475 Group 1: Operation Attributes

476 Status Message:

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

481 Natural Language and Character Set:

482 The "attributes-charset" and "attributes-natural-language" attributes as  
483 described in [STD92]. The "attributes-natural-language" MAY be the natural  
484 language of the Document object rather than the one in the Get-Document-  
485 Attributes request.

486 Group 2: Unsupported Attributes

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

488 The response MAY contain the "requested-attributes" operation attribute with  
489 any supplied values (attribute keywords) that were requested by the Client  
490 but are not supported by the Printer. If the Printer does return unsupported  
491 attributes referenced in the "requested-attributes" operation attribute and that  
492 attribute included group names such as 'all', the unsupported attributes  
493 MUST NOT include attributes described in the standard but not supported by  
494 the implementation.

495 Group 3: Document Attributes

496 The Printer responds with the Document Description, Document Status, and  
497 Document Template attributes for each returned Document object as  
498 requested by the "requested-attributes" operation attribute supplied by the  
499 Client in the request. The Printer ignores (does not respond with) any  
500 requested attribute or value which is not supported or which is restricted by  
501 the security policy in force, including whether the requesting user is the Job  
502 owner. However, the Printer MUST respond with the 'unknown' out of band  
503 value [STD92] for any supported attribute (including all REQUIRED  
504 attributes) for which the Printer does not know the value, unless it would  
505 violate the security policy.

506 **5.1.3 Set-Document-Attributes**

507 This OPTIONAL Document operation allows a Client to set the values of the attributes of a  
 508 Document object after the Document object is submitted to the Printer. In the request, the  
 509 Client supplies the set of Document attributes and values that are to be set. In the response,  
 510 the Printer returns success or rejects the entire request with indications of which attribute or  
 511 attributes could not be set.

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

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

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

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

<b>"document-state"</b>	<b>Printer's response status code and "action"</b>
'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'

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

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

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

535 Note: There is no way for the Client to set all of a Job's Document objects to the same  
536 attribute values in a single operation. Either a) the Client sets the corresponding attribute in  
537 each Document object in the Job with separate Set-Document-Attributes requests, or b) the  
538 Client sets the corresponding attribute at the Job Level using the Set-Job-Attributes  
539 operation. Setting the corresponding attribute at the Job Level (or supplying that attribute  
540 initially in the Job Creation operation) causes each Document object to inherit the Job Level  
541 attribute value, if the Document object doesn't have a corresponding explicit attribute  
542 supplied at the Document Level. In other words, supplying an attribute at the Job Level will  
543 affect all the Job's Document objects that don't have that attribute also explicitly supplied at  
544 the Document Level.

545 Access Rights: [Only the Job Owner or an Operator or Administrator of the Printer can](#)  
546 [perform this operation](#). Otherwise, the Printer MUST reject the operation and return 'client-  
547 error-forbidden', 'client-error-not-authenticated', or 'client-error-not-authorized' as  
548 appropriate.

**Deleted:** The authenticated user performing this operation must either be the Job owner or an Operator or Administrator of the Printer.

#### 549 5.1.3.1 Set-Document-Attributes Request

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

551 Group 1: Operation Attributes

552 Natural Language and Character Set:

553 The "attributes-charset" and "attributes-natural-language" attributes as  
554 described in [STD92].

555 Target:

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

562 Requesting User Name:

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

565 Group 2: Document Attributes

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

#### 574 5.1.3.2 Set-Document-Attributes Response

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

577 Group 1: Operation Attributes

578 Status Message:

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

583 Natural Language and Character Set:

584 The "attributes-charset" and "attributes-natural-language" attributes as  
585 described in [STD92].

586 Group 2: Unsupported Attributes

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

588 If some of the attributes in the operation fail to validate, the Printer MUST  
589 reject the operation, MUST NOT change any Document attributes, and  
590 MUST return the indicated status code below. In this group, the Printer  
591 MUST also return all attributes that fail to validate. The following are the  
592 reasons that an attribute fails to validate and the value returned for the  
593 attribute, along with the indicated status code and order of detection:

- 594 1. The number of attributes supplied by the client exceeds the maximum  
595 number that the Printer supports in a Set-Document-Attributes  
596 request: return the 'client-error-request-entity-too-large' status code  
597 [STD92].
- 598 2. The Printer doesn't support the attribute: return the attribute with the  
599 'unsupported' out-of-band attribute value and the 'client-error-  
600 attributes-or-values-not-supported' status code [STD92].
- 601 3. The attribute is READ-ONLY (in its definition) or is not-settable in this  
602 implementation: return the attribute with the 'not-settable' out-of-band

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

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

610 5. The values of some of the supplied attributes conflict with one another  
611 and/or other Document attribute values not being set: if the conflicting  
612 attribute in the operation has a single value, return the attribute and  
613 the value. If the attribute in the operation is multi-valued, return only  
614 the attribute and those values in a 1setOf that are conflicting with  
615 other attributes. Return the 'client-error-conflicting-attributes' status  
616 code [STD92].

## 617 5.2 Job Operations

### 618 5.2.1 Get-Documents

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

623 This operation is similar to the Get-Documents-Attributes operation (see section ???), except  
624 that this operation returns attributes from all Document objects contained in the Job object  
625 instead of from a single selected Document object in the Job object. As with the Get-  
626 Document-Attributes operation, the Printer MUST only return attributes that were submitted  
627 by a Client or generated by the Printer.

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

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

633 Access Rights: [Only the Job Owner or an Operator or Administrator of the Printer can](#)  
634 [perform this operation](#). Otherwise, the Printer MUST reject the operation and return 'client-  
635 error-forbidden', 'client-error-not-authenticated', or 'client-error-not-authorized' as  
636 appropriate.

**Deleted:** The authenticated user performing this operation MUST be the Job owner or an Operator or Administrator of the Printer.

**640 5.2.1.1 Get-Documents Request**

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

642 Group 1: Operation Attributes

643 Natural Language and Character Set:

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

645 Target:

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

649 Requesting User Name:

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

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

653 The client OPTIONALLY supplies and the Printer MUST support this  
654 operation attribute, which determines the maximum number of Documents  
655 that a Client will receive from the Printer. The limit is a "stateless limit" in that  
656 if the value supplied by the Client is 'N', then only the first 'N' Documents are  
657 returned in the Get-Documents Response. There is no mechanism to allow  
658 for the next 'M' Documents after the first 'N' Documents. If the Client does not  
659 supply the "limit" attribute, the Printer responds with all Documents in the  
660 Job.

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

662 The client OPTIONALLY supplies and the Printer MUST support this  
663 attribute, which is a list of Document attribute names and/or attribute group  
664 names that are returned to the Client for each Document object. The allowed  
665 attribute group names are the same as those defined in the Get-Documents-  
666 Attributes operation in section ????. If the Client does not supply this attribute,  
667 the Printer MUST respond as if the Client had supplied this attribute with the  
668 single value 'document-number'.

**669 5.2.1.2 Get-Documents Response**

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

## 671 Group 1: Operation Attributes

## 672 Status Message:

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

## 677 Natural Language and Character Set:

678 The "attributes-charset" and "attributes-natural-language" attributes as  
679 described in [STD92].

## 680 Group 2: Unsupported Attributes

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

682 The response MAY contain the "requested-attributes" operation attribute with  
683 any supplied values (attribute keywords) that were requested by the Client  
684 but are not supported by the Printer. If the Printer does return unsupported  
685 attributes referenced in the "requested-attributes" operation attribute and that  
686 attribute included group names such as 'all', the unsupported attributes  
687 MUST NOT include attributes described in the standard but not supported by  
688 the implementation.

## 689 Groups 3 to N: Document Attributes

690 The Printer responds with the Document Description, Document Status, and  
691 Document Template attributes for each returned Document object as  
692 requested by the "requested-attributes" operation attribute supplied by the  
693 Client in the request. The Printer ignores (does not respond with) any  
694 requested attribute or value which is not supported or which is restricted by  
695 the security policy in force, including whether the requesting user is the Job  
696 owner. However, the Printer MUST respond with the 'unknown' out of band  
697 value [STD92] for any supported attribute (including all REQUIRED  
698 attributes) for which the Printer does not know the value, unless it would  
699 violate the security policy.

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

702 **6. New Attributes**703 **6.1 Document Description Attributes**704 **6.1.1 document-name (name(MAX))**

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

708 **6.2 Document Status Attributes**

709 Table 4 lists the Document Status attributes defined by this specification. Printers that  
 710 support a given operation or Job Status attribute MUST support the corresponding  
 711 Document Status attribute.

712

**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 Attribute	Operation/Job Attribute	Reference
document-job-uri (uri)	job-uri	[STD92]
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]

713 Note 1: The "document-state" attribute supports all of the "job-state" values *except*  
714 '4' (pending-held).

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

718 **6.2.1 document-charset (charset)**

719 This RECOMMENDED Document Status attribute specifies the charset used in the  
 720 Document data. The Printer sets this attribute from the corresponding operation attribute  
 721 supplied by the Client in the Document Creation request. Printers that support the  
 722 "document-charset" operation attribute MUST support this attribute.

723 **6.2.2 document-format-detected (mimeMediaType)**

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

726 **6.2.3 document-message (text(MAX))**

727 This Document [Status](#) attribute contains a message from either a) the User to the Operator  
 728 about the Document or b) from the Operator, Administrator, or "intelligent" process to  
 729 indicate to the End User the reasons for modification or other management action taken on  
 730 the Document. The Printer populates this attribute from the "document-message" operation  
 731 attribute value supplied by the Client in any of the Document Creation requests or in a  
 732 Cancel-Document request.

Deleted: Description

733 **6.2.4 document-number (integer(1:MAX))**

734 This REQUIRED Document Status attribute is the ordinal number of the Document within  
 735 the Job, and determines its order of being printed in a multi-[Document](#) Job. The Printer  
 736 MUST generate the values monotonically increasing from 1 for each Job.

Deleted: document

737 **6.2.5 last-document (boolean)**

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

743 **6.3 Document Template Attributes**

744 This specification defines Document Template attributes for every Job Template attribute  
 745 that does not apply to the whole Job. Table 5 lists the new attributes.

746 **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]

## 749 6.4 Operation Attributes

### 750 6.4.1 document-charset (charset)

751 This RECOMMENDED operation attribute specifies the character set used by the Document  
752 data.

### 753 6.4.2 document-number (integer(1:MAX))

754 This REQUIRED operation attribute specifies the ordinal number of the Document within the  
755 Job.

756 **6.5 Printer Description Attributes**

757 **6.5.1 document-creation-attributes-supported (1setOf type2 keyword)**

758 This REQUIRED attribute lists the keyword names of the Document Template and operation  
759 attributes that the Printer will accept in the Send-Document and Send-URI Document  
760 Creation operations. Implementations that support the Send-URI operation MUST include  
761 the 'document-uri' keyword in "document-creation-attributes-supported". Implementations  
762 that do not support Send-URI MUST NOT include the 'document-uri' keyword in "document-  
763 creation-attributes-supported".

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

767 **7. New Attribute Group Tags**

768 **7.1 document-attributes-tag**

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

771

## 772 8. Additional Semantics for Existing Operations

### 773 8.1 Cancel-Job: "document-state" and "document-state-reasons"

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

### 778 8.2 Hold-Job and Release-Job: "document-state-reasons"

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

### 782 8.3 Print-Job, Print-URI: Document Object and Attributes

783 This specification extends the REQUIRED Print-Job and OPTIONAL Print-URI operations  
 784 [STD92] to explicitly create a Document object and copy the request operation attributes  
 785 listed in Table 6 to the corresponding Document attributes. Printers MUST NOT copy Job  
 786 Template attributes to the created Document object.

787 Printers can also return the attributes listed in Table 7 in the Document attributes group after  
 788 the Job attributes group.

789 **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 6.2.3
job-k-octets	k-octets	[STD92], Section <b>Error!</b> <b>Reference source not found.</b>

Operation Attribute	Document Attribute	Reference
job-media-sheets	media-sheets	[STD92], Section <b>Error! Reference source not found.</b>

790 Editor's note: The following attributes have been omitted from the table since they will have  
 791 been deprecated since the publication of v1.0: "document-digital-signature", "document-  
 792 format-details", and "document-format-version". Also, the "compression", "ipp-attribute-  
 793 fidelity", and "job-mandatory-attributes" have been omitted since they are only evaluated at  
 794 the time of Job/Document creation.

Deleted: job  
 Deleted: document

795 **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 <b>Error! Reference source not found.</b>
document-state-message	OPTIONAL	OPTIONAL	Section <b>Error! Reference source not found.</b>
document-state-reasons	OPTIONAL	REQUIRED	Section <b>Error! Reference source not found.</b>

796 **8.3.1 Print-Job/Print-URI Response**

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

- 798 Group 1: Operation Attributes
  - 799 As specified in [STD92].
- 800 Group 2: Unsupported Attributes
  - 801 As specified in [STD92].
- 802 Group 3: Job Object Attributes
  - 803 As specified in [STD92].
- 804 Group 4: Document Object Attributes (new)

807 "document-number" (integer(1:MAX)):  
808 The Printer MAY return the number of this Document object that was  
809 assigned by the Printer starting with 1 for each Job.  
810 "document-state" (type1 enum):  
811 The Printer MAY return the state of this Document object.  
812 "document-state-reasons" (1setOf type2 keyword):  
813 The Printer MAY return the associated state reasons for this Document.  
814 "document-state-message" (text(MAX)):  
815 The Printer MAY return the localized description of the "document-state" and  
816 "document-state-reasons" values for this Document.

Deleted: document

#### 817 8.4 Send-Document: Document Object and Attributes

818 This specification extends the REQUIRED Send-Document operation [STD92] to explicitly  
819 create a Document object and copy the operation attributes listed in Table 6 to the  
820 corresponding Document attributes.

821 The Send-Document request is also extended to support an additional Document Template  
822 attribute group after the operation attribute group. Document Template attributes are copied  
823 to the Document object after validation as described in section 4.3. Printers MUST NOT  
824 copy Document Template attributes to the Job object.

825 Finally, Printers also return the attributes listed in Table 7 in the Document attributes group  
826 after the Job attributes group.

##### 827 8.4.1 Send-Document Request

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

829 Group 1: Operation Attributes

830 As specified in [STD92].

831 Group 2: Document Template Attributes (new)

832 The Client OPTIONALLY supplies and the Printer MUST support a set of  
833 Document Template attributes. If the Client is not supplying any Document  
834 Template attributes in the request, the Client SHOULD omit Group 2 rather

836 than sending an empty group. However, a Printer MUST be able to accept  
837 an empty group.

838 Group 3: Document Data

839 As specified in [STD92].

#### 840 8.4.2 Send-Document Response

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

842 Group 1: Operation Attributes

843 As specified in [STD92].

844 Group 2: Unsupported Attributes

845 As specified in [STD92].

846 Group 3: Job Object Attributes

847 As specified in [STD92].

848 Group 4: Document Object Attributes (new)

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

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

Deleted: document

852 "document-state" (type1 enum):

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

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

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

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

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



## 860 **8.5 Send-URI: Document Object and Attributes**

861 This specification extends the OPTIONAL Send-URI operation [STD92] to explicitly create  
862 a Document object and copy the operation attributes listed in Table 6 to the corresponding  
863 Document attributes.

864 The Send-URI request is also extended to support an additional Document Template  
865 attribute group after the operation attribute group. Document Template attributes are copied  
866 to the Document object after validation as described in section 4.3. Printers MUST NOT  
867 copy Document Template attributes to the Job object.

868 Finally, Printers also return the attributes listed in Table 7 in the Document attributes group  
869 after the Job attributes group.

### 870 **8.5.1 Send-URI Request**

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

872 Group 1: Operation Attributes

873 As specified in [STD92].

874 Group 2: Document Template Attributes (new)

875 The Client OPTIONALLY supplies and the Printer MUST support a set of  
876 Document Template attributes. If the Client is not supplying any Document  
877 Template attributes in the request, the Client SHOULD omit Group 2 rather  
878 than sending an empty group. However, a Printer MUST be able to accept  
879 an empty group.

### 880 **8.5.2 Send-URI Response**

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

882 Group 1: Operation Attributes

883 As specified in [STD92].

884 Group 2: Unsupported Attributes

885 As specified in [STD92].

886 Group 3: Job Object Attributes

887 As specified in [STD92].

888 Group 4: Document Object Attributes (new)

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

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

Deleted: document

892 "document-state" (type1 enum):

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

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

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

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

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

899 **9. Additional Values for Existing Attributes**

900 **9.1 operations-supported (1setOf type2 enum)**

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

902 **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

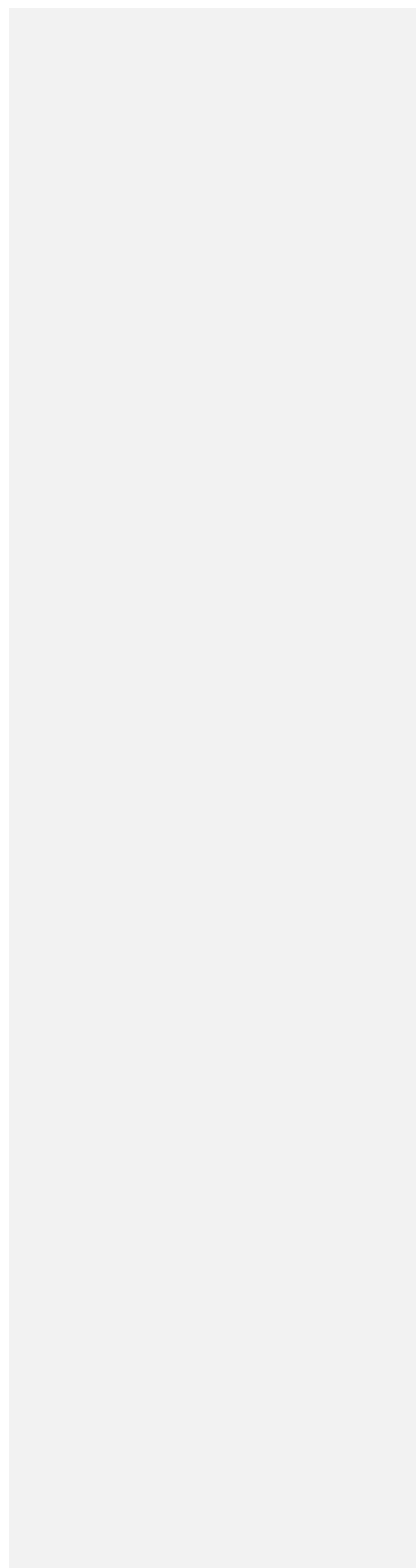
903 **9.2 requested-attributes (1setOf type2 keyword)**

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

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

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

909



## 910 10. Obsolete Operations and Attributes

### 911 10.1 Obsolete Delete-Document Operation

912 The obsolete Delete-Document operation removes the specified Document object and its  
913 data immediately from the specified Job. This operation is obsolete because it destroys  
914 accounting information about the target Document and MUST NOT be supported by new  
915 implementations of this specification.

### 916 10.2 Obsolete Document Status Attributes

917 Table 9 lists [the obsolete](#) Document Status attributes [that were](#) defined in [the previous](#)  
918 [version of this specification \[PWG5100.5-2003\]](#).

919 [Note: This specification does not change the status of the original \(non-Document\)](#)  
920 [attributes.](#)

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

Attribute	Origin
compression (type2 keyword)	[STD92]
document-digital-signature (type2 keyword)	[PWG5100.7-2003]
document-format-details (1setOf collection)	[PWG5100.7-2003]
document-format-details-detected (1setOf collection)	[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:** PWG 5100.5-2003: The IPP Document Object that are now deprecated or obsolete

**Deleted:** Reference

## 922 11. Conformance Requirements

### 923 11.1 Printer Conformance Requirements

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

- 925 1. The required operations defined in section 5;
- 926 2. The required attributes and values defined in section 6;
- 927 3. The new attribute group tag defined in section 7;
- 928 4. The additional semantics defined in section 8;
- 929 5. The additional values defined in section 9;

- 934           6. The internationalization considerations defined in section 12; and  
935           7. The security considerations defined in section 13.

## 936 **11.2 Client Conformance Requirements**

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

- 938           1. The required operations defined in section 5;  
939           2. The required attributes and values defined in section 6;  
940           3. The new attribute group tag defined in section 7;  
941           4. The additional values defined in section 9;  
942           5. The internationalization considerations defined in section 12; and  
943           6. The security considerations defined in section 13.

## 944 **12. Internationalization Considerations**

945 For interoperability and basic support for multiple languages, conforming implementations  
946 MUST support:

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

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

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

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

- 961           Unicode Bidirectional Algorithm [UAX9] – left-to-right, right-to-left, and vertical  
962           Unicode Line Breaking Algorithm [UAX14] – character classes and wrapping  
963           Unicode Normalization Forms [UAX15] – especially NFC for [RFC5198]  
964           Unicode Text Segmentation [UAX29] – grapheme clusters, words, sentences

- 965 Unicode Identifier and Pattern Syntax [UAX31] – identifier use and normalization
- 966 Unicode Collation Algorithm [UTS10] – sorting
- 967 Unicode Locale Data Markup Language [UTS35] – locale databases
- 968 Implementations of this specification are advised to also review the following informational
- 969 documents on processing of human-readable Unicode text strings:
- 970 Unicode Character Encoding Model [UTR17] – multi-layer character model
- 971 Unicode Character Property Model [UTR23] – character properties
- 972 Unicode Conformance Model [UTR33] – Unicode conformance basis

### 973 13. Security Considerations

974 The IPP extensions defined in this [specification](#) require the same security considerations as  
975 defined in the Internet Printing Protocol/1.1 [STD92].

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976 Implementations of this specification SHOULD conform to the following standard on  
977 processing of human-readable Unicode text strings, see:

978 Unicode Security Mechanisms [UTS39] – detecting and avoiding security attacks

979 Implementations of this specification are advised to also review the following informational  
980 document on processing of human-readable Unicode text strings:

981 Unicode Security FAQ [UNISECFAQ] – common Unicode security issues

### 982 14. IANA Considerations

#### 983 14.1 Attribute Registrations

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

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

987 The registry entries will contain the following information:

988 Document Description attributes:	Reference
989 -----	-----
990 document-name (name (MAX))	[PWG5100.5]

992	Document Status attributes:	Reference
993	-----	-----
994	-----	-----
995	attributes-charset (charset)	[PWG5100.5]
996	attributes-natural-language (naturalLanguage)	[PWG5100.5]
997	compression(obsolete) (type2 keyword)	[PWG5100.5]
998	current-page-order (type2 keyword)	[PWG5100.5]
999	date-time-at-completed (dateTime)	[PWG5100.5]
1000	date-time-at-created (dateTime)	[PWG5100.5]
1001	date-time-at-processing (dateTime)	[PWG5100.5]
1002	detailed-status-messages (1setOf text(MAX))	[PWG5100.5]
1003	document-access-errors (1setOf text(MAX))	[PWG5100.5]
1004	document-charset (charset)	[PWG5100.5]
1005	document-digital-signature(obsolete) (type2 keyword)	[PWG5100.5]
1006	document-format (mimeMediaType)	[PWG5100.5]
1007	document-format-details(obsolete) (1setOf collection)	[PWG5100.5]
1008	document-format-details-detected(obsolete) (1setOf collection)	[PWG5100.5]
1009		[PWG5100.5]
1010	document-format-detected (mimeMediaType)	[PWG5100.5]
1011	document-format-version(obsolete) (text(127))	[PWG5100.5]
1012	document-format-version-detected(obsolete) (text(127))	[PWG5100.5]
1013	document-job-id (integer(1:MAX))	[PWG5100.5]
1014	document-job-uri (uri)	[PWG5100.5]
1015	document-message (text(MAX))	[PWG5100.5]
1016	document-natural-language (naturalLanguage)	[PWG5100.5]
1017	document-number (integer(1:MAX))	[PWG5100.5]
1018	document-printer-uri (uri)	[PWG5100.5]
1019	document-state (type1 enum)	[PWG5100.5]
1020	document-state-message (text(MAX))	[PWG5100.5]
1021	document-state-reasons (1setOf type2 keyword)	[PWG5100.5]
1022	document-uri (uri)	[PWG5100.5]
1023	impressions (integer(0:MAX))	[PWG5100.5]
1024	impressions-completed (integer(0:MAX))	[PWG5100.5]
1025	impressions-completed-current-copy(obsolete) (integer(0:MAX))	[PWG5100.5]
1026		[PWG5100.5]
1027	k-octets (integer(0:MAX))	[PWG5100.5]
1028	k-octets-processed (integer(0:MAX))	[PWG5100.5]
1029	last-document (boolean)	[PWG5100.5]
1030	media-sheets (integer(0:MAX))	[PWG5100.5]
1031	media-sheets-completed (integer(0:MAX))	[PWG5100.5]
1032	more-info (uri)	[PWG5100.5]
1033	output-device-assigned (name(MAX))	[PWG5100.5]
1034	printer-up-time (integer(1:MAX))	[PWG5100.5]
1035	sheet-completed-copy-number(obsolete) (integer(0:MAX))	[PWG5100.5]
1036	time-at-completed (integer(MIN:MAX))	[PWG5100.5]
1037	time-at-creation (integer(MIN:MAX))	[PWG5100.5]
1038	time-at-processing (integer(MIN:MAX))	[PWG5100.5]
1039		
1040	Document Template attributes:	Reference
1041	-----	-----
1042	copies (integer(1:MAX))	[PWG5100.5]
1043	cover-back (collection)	[PWG5100.5]
1044	<Member attributes are the same as the "cover-back" Job Template	
1045	attribute>	[PWG5100.5]
1046	cover-front (collection)	[PWG5100.5]

```

1047     <Member attributes are the same as the "cover-front" Job Template
1048     attribute> [PWG5100.5]
1049     finishings (1setOf type2 enum) [PWG5100.5]
1050     finishings-col (1setOf collection) [PWG5100.5]
1051     <Member attributes are the same as the "finishings-col" Job Template
1052     attribute> [PWG5100.5]
1053     force-front-side (1setOf integer(1:MAX)) [PWG5100.5]
1054     imposition-template (type2 keyword | name(MAX)) [PWG5100.5]
1055     media (type2 keyword | name(MAX)) [PWG5100.5]
1056     media-col (collection) [PWG5100.5]
1057     <Member attributes are the same as the "media-col" Job Template
1058     attribute> [PWG5100.5]
1059     media-input-tray-check (type2 keyword | name(MAX)) [PWG5100.5]
1060     number-up (integer(1:MAX)) [PWG5100.5]
1061     orientation-requested (type2 enum) [PWG5100.5]
1062     output-bin (type2 keyword | name(MAX)) [PWG5100.5]
1063     page-delivery (type2 keyword) [PWG5100.5]
1064     page-order-received (type2 keyword) [PWG5100.5]
1065     page-ranges (1setOf rangeOfInteger(1:MAX)) [PWG5100.5]
1066     presentation-direction-number-up (type2 keyword) [PWG5100.5]
1067     print-quality (type2 enum) [PWG5100.5]
1068     printer-resolution (resolution) [PWG5100.5]
1069     sides (type2 keyword) [PWG5100.5]
1070     x-image-position (type2 keyword) [PWG5100.5]
1071     x-image-shift (integer(MIN:MAX)) [PWG5100.5]
1072     x-sidel-image-shift (integer(MIN:MAX)) [PWG5100.5]
1073     x-side2-image-shift (integer(MIN:MAX)) [PWG5100.5]
1074     y-image-position (type2 keyword) [PWG5100.5]
1075     y-image-shift (integer(MIN:MAX)) [PWG5100.5]
1076     y-sidel-image-shift (integer(MIN:MAX)) [PWG5100.5]
1077     y-side2-image-shift (integer(MIN:MAX)) [PWG5100.5]
1078
1079     Operation attributes: Reference
1080     -----
1081     document-charset (charset) [PWG5100.5]
1082     document-number (integer(1:MAX)) [PWG5100.5]
1083
1084     Printer Description attributes: Reference
1085     -----
1086     document-creation-attributes-supported (1setOf type2 keyword)
1087     [PWG5100.5]

```

## 1088 14.2 Attribute Value Registrations

1089 The attribute values defined in this specification will be published by IANA according to the  
 1090 procedures in the Internet Printing Protocol/1.1 [STD92] in the following file:

1091 <http://www.iana.org/assignments/ipp-registrations>

1092 The registry entries will contain the following information:

```

1093     Attributes (attribute syntax)
1094     Keyword Attribute Value Reference

```



1095	-----	-----
1096	requested-attributes (1setOf type2 keyword)	[STD92]
1097	document-description	[PWG5100.5]
1098	document-template	[PWG5100.5]

### 1099 14.3 Type2 enum Registrations

1100 The enum values defined in this specification will be published by IANA according to the  
1101 procedures in the Internet Printing Protocol/1.1 [STD92] in the following file:

1102 <http://www.iana.org/assignments/ipp-registrations>

1103 The registry entries will contain the following information:

1104	Attributes (attribute syntax)		
1105	Enum Value	Enum Symbolic Name	Reference
1106	-----	-----	-----
1107	operations-supported (1setOf type2 enum)		[STD92]
1108	0x0033	Cancel-Document	[PWG5100.5]
1109	0x0034	Get-Document-Attributes	{PWG5100.5}
1110	0x0035	Get-Documents	[PWG5100.5]
1111	0x0036	Delete-Document (obsolete)	[PWG5100.5]
1112	0x0037	Set-Document-Attributes	[PWG5100.5]
1113			

### 1114 14.4 Operation Registrations

1115 The operations defined in this specification will be published by IANA according to the  
1116 procedures in the Internet Printing Protocol/1.1 [STD92] in the following file:

1117 <http://www.iana.org/assignments/ipp-registrations>

1118 The registry entries will contain the following information:

1119	Operation Name	Reference
1120	-----	-----
1121	Cancel-Document	[PWG5100.5]
1122	Cancel-Job (extension)	[PWG5100.5]
1123	Delete-Document (obsolete)	[PWG5100.5]
1124	Get-Document-Attributes	[PWG5100.5]
1125	Get-Documents	[PWG5100.5]
1126	Hold-Job (extension)	[PWG5100.5]
1127	Print-Job (extension)	[PWG5100.5]
1128	Print-URI (extension)	[PWG5100.5]
1129	Release-Job (extension)	[PWG5100.5]
1130	Send-Document (extension)	[PWG5100.5]
1131	Send-URI (extension)	[PWG5100.5]
1132	Set-Document-Attributes	[PWG5100.5]

1133 **14.5 Attribute Group Registrations**

1134 The attribute groups defined in this specification will be published by IANA according to the  
 1135 procedures in the Internet Printing Protocol/1.1 [STD92] in the following file:

1136 `http://www.iana.org/assignments/ipp-registrations`

1137 The registry entries will contain the following information:

1138	Value	Attribute Group Name	Reference
1139	-----	-----	-----
1140	0x09	document-attributes-tag	[PWG5100.5]

1141 **15. Overview of Changes**

1142 **15.1 IPP Document Object v1.1**

1143 The following changes were made to [the previous version of this specification](#) [PWG5100.5-  
 1144 2003]:

**Deleted:** PWG 5100.5-2003: Standard for The Internet Printing Protocol (IPP): Document Object

- 1145 • Printers no longer need to support multiple Document Jobs;
- 1146 • Rationale and model sections have been added;
- 1147 • References now point to the current versions of dependent documents and  
 1148 specifications at the time of publication;
- 1149 • The "document-charset" operation attribute has been added to this specification;
- 1150 • The Delete-Document operation has been made obsolete;
- 1151 • Additional semantics for the deprecated Reprocess-Job and Restart-Job operations  
 1152 have been removed;
- 1153 • The "ipp-attribute-fidelity" and "job-mandatory-attributes" operation attributes are no  
 1154 longer (incorrectly) promoted to persistent Job and Document attributes;
- 1155 • The "compression" Document Status attribute has been made obsolete because it  
 1156 serves no purpose;
- 1157 • Several "document-format-xxx" Document Status attributes have been made  
 1158 obsolete because they have serious interoperability issues; and

**Deleted:** from PWG 5100.7

**Deleted:** from PWG 5100.7

- 1164 • The "impressions-completed-current-copy" and "sheet-completed-copy-number"  
1165 Document Status attributes have been made obsolete because the parent  
1166 specification (RFC 3381) is obsolete.

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1254 To subscribe, see the PWG web page:

1255 <http://www.pwg.org/>

1256 Implementers of this specification are encouraged to join the IPP Mailing List in order to  
1257 participate in any discussions of clarification issues and review of registration proposals for  
1258 additional attributes and values.

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1260 The editors would like to especially thank the following individuals who also contributed  
1261 significantly to the development of this [specification](#):

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- 1262           Dennis Carney (author of v1.0)
- 1263           Tom Hastings (author of v1.0)
- 1264           Ira McDonald (High North, Inc.)
- 1265           Peter Zehler (author of v1.0)

## 1266 **18. Change History**

### 1267 **[18.1 October 22, 2018](#)**

- 1268       • [Status: Interim.](#)
- 1269       • [Section 4: Changed to use "This specification" instead of "This document".](#)
- 1270       • [Figure 1: Updated with the list of operations.](#)
- 1271       • [Table 1: Added target object.](#)
- 1272       • [Editorial changes throughout.](#)
- 1273       • [Updated wording of the access rights section, per WG review comments on October](#)  
1274        [11, 2018](#)
- 1275       • [Table 9: Changed "Reference" column title to "Origin"](#)
- 1276       • [Updated references to the old PWG 5100.5 and 5100.7 to include the year, note they](#)  
1277        [are obsolete.](#)
- 1278       • [Updated RFC 3381 to note it is obsolete, obsoleted by RFC 8011](#)
- 1279       • [\\_\\_\\_\\_\\_](#)

### 1280 **18.2 September 19, 2018**

- 1281       • Initial revision for v1.1.
- 1282       • Updated to use new working draft template, section organizations.
- 1283       • Updated references.
- 1284       • Added Changes section.

- 1286 • Added proper rationale and model sections.
- 1287 • Printers no longer need to support multiple Document Jobs.
- 1288 • Added the "document-charset" operation attribute from PWG 5100.7.
- 1289 • Made the Delete-Document operation obsolete.
- 1290 • Made the "compression" Document Status attribute obsolete because it serves no  
1291 purpose.
- 1292 • Made several "document-format-xxx" Document Status attributes from PWG 5100.7  
1293 obsolete because they have serious interoperability issues.
- 1294 • Made the "impressions-completed-current-copy" and "sheet-completed-copy-  
1295 number" Document Status attributes obsolete because the parent specification (RFC  
1296 3381) is obsolete.