

7 Internet Printing Protocol/1.0 & 1.1: ~~Exceptions Model~~ Override Attributes for Documents and Pages  
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9 Status of this Memo

10 This document is a PWG-Draft of an IEEE-ISTO PWG Proposed Standard and is in full conformance with all provisions of the  
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14 Abstract

15 This document specifies an extension to the Internet Printing Protocol/1.0 (IPP) [RFC2565, RFC2566] and IPP/1.1 [ipp-mod, ipp-  
16 pro]. This extension relaxes the restriction that each attribute value is the same for all pages, all documents and all document  
17 copies within a job. For example, with this extension, page 1 of a job could have a different media from the other pages in the job  
18 or document 2 of a job could be stapled while the other documents of the job are not. As another example, the first ten copies of a  
19 document could be printed on letter paper and stapled while the eleventh copy of the same document could be printed on  
20 transparencies with no staple.

21  
22 This extension supports document overrides and page overrides by adding two new Job Template attributes: “document-  
23 overrides” and “page-overrides” -- both have a syntax type of “1setOf collection”. Each ‘collection’ value for “document-  
24 overrides” contains an attribute that identifies the overridden documents, namely “input-documents” or “output-documents”.  
25 The ‘collection’ value also contains one or more attributes that are overrides for the identified documents, e.g. “document-  
26 format”, “finishings”, and “media”. Each ‘collection’ value for “page-overrides” contains two attributes that identify the  
27 overridden pages, namely “input-documents” or “output-documents” plus “pages”. The ‘collection’ value also contains one or  
28 more attributes that are overrides for the identified pages, e.g. “sides” and “media”. When the overrides apply to some but not all  
29 document copies, the ‘collection’ value for “document-overrides” or “page-overrides” contains the attribute of “document-  
30 copies”.

31  
32 This extension also supports subset finishing by adding a new Job Template attribute “pages-per-subset”, which specifies the  
33 number of pages per subset. The extension allows finishing and other document attributes to be applied to such subsets of  
34 pages.

35  
36 The full set of IPP documents includes:

- 37 - Design Goals for an Internet Printing Protocol [RFC2567]
- 38 - Rationale for the Structure and Model and Protocol for the Internet Printing Protocol [RFC2568]
- 39 - Internet Printing Protocol/1.1: Model and Semantics (this document)
- 40 - Internet Printing Protocol/1.1: Encoding and Transport [IPP-PRO]
- 41 - Internet Printing Protocol/1.1: Implementer's Guide [IPP-IIG]
- 42 - Mapping between LPD and IPP Protocols [RFC2569]

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

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

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

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

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

60

60

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## 1. Introduction

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The Internet Printing Protocol (IPP) is an application level protocol for distributed printing using Internet tools and technologies. IPP version 1.1 (IPP/1.1) requires that each attribute value be the same for all all pages, all documents and all document copies within a job. This document defines OPTIONAL extensions to the IPP/1.1 model which relax this restriction and allow pages, documents and document copies to have attributes that are overrides. For example, with this extension, page 1 of a job could have a different media or different value of “sides” from the other pages in the job, or document 2 of a job could be stapled while the other documents of the job are not. As another example, the first ten copies of a document could be printed on letter paper and stapled while the eleventh copy of the same document could be printed on transparencies with no staple. This document is a proposal for an extension to IPP/1.0 and IPP/1.1.

This extension supports document overrides and page overrides by adding two new Job Template attributes: “document-overrides” and “page-overrides” -- both have a syntax type of “1setOf collection”. Each ‘collection’ value for “document-overrides” contains

- a) an attribute that identifies the overridden documents, namely “input-documents” or “output-documents”.
- b) an OPTIONAL attribute that identifies the document copies of the specified overridden documents, i.e. “document-copies”. If this attribute is absent, the overrides apply to all document copies.
- c) one or more attributes that are overrides for the identified documents, e.g. “document-format”, “finishings”, and “media”.

Each ‘collection’ value for “page-overrides” contains

- a) an attribute that identifies the documents containing the overridden pages, namely “input-documents” or “output-documents”.
- b) an attribute that identifies the overridden pages, namely “pages”.
- c) an OPTIONAL attribute that identifies the document copies of the specified documents, i.e. “document-copies”. If this attribute is absent, the overrides apply to all document copies.
- d) The ‘collection’ value also contains one or more attributes that are overrides for the identified pages, e.g. “sides” and “media”.

This extension also supports subset finishing with a new Job Template attribute “pages-per-subset”, which specifies the number of pages per subset. The extension allows finishing and other document attributes to be applied to such subsets of pages.

183

## 2. Terminology

184

This section defines the following additional terms that are used throughout this document:

185

### 2.1 REQUIRED

186

If an implementation supports the extensions described in this document, it MUST support a REQUIRED feature.

187

### 2.2 OPTIONAL

188

If an implementation supports the extensions described in this document, it MAY support an OPTIONAL feature.

189

### 2.3 Override-Extension

190

191

192

The Override-Extension is the extension proposed in this document that adds attribute overrides for documents and pages. This extension supports Document-Overrides, Page-Overrides and Subset-Finishing, which are all defined later in this section.

## 193 2.4 Sheet

194 A Sheet is the unit of media that a printer puts marks on. It is the most basic unit of output from a printer. A printer may  
195 mark on one side or on both sides of a sheet.

## 196 2.5 Output-Page

197 An Output-Page is the set of all markings that the author intended to be placed on one side of a Sheet, including, but not  
198 limited to, text, drawings, images, footers and headers.

## 199 2.6 Impression:

200 An impression is the set of all markings that the Job submitter intended to be placed on one side of a Sheet. Each  
201 impression contains one or more Output-Pages. Generally a Job submitter prints each Output-Page as the author  
202 intended, namely one Output-Page per Impression. Sometimes, a Job submitter prints several Output-Pages per  
203 Impression, perhaps to save paper or money. The IPP attribute "number-up" specifies the number of Output-Pages per  
204 impression. When "number-up" is greater than 1, an impression contains multiple Output-Pages.

## 205 2.7 Input-Page

206 An Input-Page is a sequence of bytes that describe how to mark a single Output-Page. IPP 1.1 [ipp-mod] uses the term  
207 "print-stream-pages" to refer to both Input-Pages and Output-Pages. There is a one to one relationship between Input-  
208 Pages and Output-Pages and they are in the same order. Both Input-Pages and Output-Pages are numbered sequentially  
209 (see section 4.1) starting from 1 at the beginning of each Input-Document or Output-Document, respectively. When the  
210 first Input-Page of an Input-Document coincides with the first Output-Page of an Output-Document, the numbering of  
211 Input-Pages and Output-Pages coincides; otherwise it doesn't.

## 212 2.8 Input-Document

213 An Input-Document is the entire sequence of bytes transmitted as the Document Content in the Print-Job and Send-  
214 Document operations or referenced by the "document-uri" operation attribute in the Print-URI and Send-URI operations.  
215 This sequence of bytes consists of one or more Input-Pages.

## 216 2.9 Output-Document

217 An Output-Document is a set of one or more Sheets which either are permanently bound into a single unit, e.g. with a  
218 staple, or are intended to be treated by an end-user as a single unit, e.g. for a loose leaf binder. If an Output-Document is  
219 bound, it is uniformly bound; if it is not bound, no subset of sheets within it are bound. The Output-Pages that comprise  
220 an Output-Document may come from

- 221
- 222 a) all the Input-Pages of an Input-Document or
- 223 b) a proper subset of the Input-Pages of the Input-Document or
- 224 c) all the Input-Pages of several Input-Documents.
- 225

226 An Output-Document is *not* a set of sheets that are bound temporarily for shipping, e.g. with banding.

227 **2.10 Output-Document-Copy**

228 When a Printer produces more than one or more copies of an Output-Document, each copy is called an Output-  
 229 Document-Copy. Sometimes this specification uses the phrase “copy of Output-Document” to emphasize “copy”, but  
 230 the phrase is equivalent to “Output-Document-Copy”.

231 **2.11 Relationship between Input-Document and Output-Documents**

232 Each relationship is named and defined below. The cases are derived from an analysis of possible tree structures (see  
 233 section 4.2). A client selects the desired case with the number of submitted Input-Documents and the specific values of  
 234 three attributes: the existing Job Template “multiple-document-handling” and two new attributes “pages-per-subset” and  
 235 “documents-per-subset”. The latter two attributes describe how the stream of Input-Pages or Input-Documents and are  
 236 partitioned into Output-Documents, respectively.

237  
 238 In this section, the number of copies produced for each Output-Document does not affect the discussion, so it is easiest  
 239 to assume that the number is 1.

240  
 241 The table below summarizes the relationship of Input-Documents to Output-Document in the five cases:  
 242

Case	Number of	
	Input-Documents	Output-Documents
Degenerate	1	1
Separate-Documents	n	n
Single-Document	n	1
Page-Subset Documents	n	m (m > n)
Document-Subset Documents	n	m (m < n)

243  
 244 When n = 1 for the “Separate-Documents” and “Single-Document” become the “Degenerate” case.

245  
 246 The table below summarizes the attribute values that control the cases.

- 247  
 248 - The “separate” value means that “multiple-document-handling” is 'separate-documents-collated-copies' or  
 249 'separate-documents-uncollated-copies'.  
 250 - The “single” value means that “multiple-document-handling” is 'single-document' or 'single-document-new-sheet'.  
 251 - The “ignored” value means that the attribute need not be present and is ignored if it is present,  
 252 - The “present” value means that the attribute must be present. A different case is implied if it is not present.  
 253 - The “not present” value means that the attribute must not be present. A different case is implied if it is present.  
 254

Case	“multiple-document-handling”	“pages-per-subset”	“documents-per-subset”
Separate-Documents	separate	not present	not present
Single-Document	single	ignored	ignored
Page-Subset Documents	separate	present	not present
Document-Subset Documents	separate	not present	present

255  
 256 The Degenerate row is omitted because it follows the rules for the “Separate-Documents” and “Single-Documents” rules  
 257 when the number of Input-Documents is 1.

258 There is an error if both “page~~s~~-per-subset” and “document-per-subset” are present in the “separate” case.



### 259 **2.11.1 Degenerate Case:**

260 In the Degenerate Case, the Job consists of exactly one Output-Document and exactly one Input-Document.  
261 The single Input-Document produces the single Output-Document. This case represents the most common case  
262 of printing. For example, if a user is Printing a single MS Word file, the MS Word file is the Input-Document and  
263 the printed pages are the Output-Document. This case is the degenerate case of Separate-Documents and  
264 Single-Document. It occurs when the number of Input-Documents is 1 and either

- 265
- 266 a) “multiple-document-handling” is 'separate-documents-collated-copies' or 'separate-documents-uncollated-
  - 267 copies' and neither “pages-per-subset” nor “documents-per-subset” are present or.
  - 268 b) “multiple-document-handling” is 'single-document' or 'single-document-new-sheet', and both “pages-per-
  - 269 subset” and “documents-per-subset” are ignored if present

### 270 **2.11.2 Separate Documents Case**

271 In the Separate Documents Case, the Job consists of one or more Output-Documents where each Input-  
272 Document produces one Output-Document. For example, if a user prints 10 Java files in one Job and wants 10  
273 separately stapled Output-Documents, each of the 10 Java files is an Input-Document, and the printed Output-  
274 Pages from each of the 10 Java files is a separate Output-Document that is stapled separately. This case occurs  
275 when “multiple-document-handling” is 'separate-documents-collated-copies' or 'separate-documents-  
276 uncollated-copies' and the new attributes “pages-per-subset” and “documents-per-subset” are not present.

### 277 **2.11.3 Single Document Case**

278 In the Single Document Case, the job consists of a single Output-Document produced from one or more Input-  
279 Documents. For example, if a user prints 10 Java files in one Job and wants all Output-Pages of the 10 Java files  
280 to be produced as 1 stapled Output-Document, then each of the 10 Java files is an Input-Document, and all  
281 printed Output-Pages from all of the 10 Java files is a single Output-Document that is stapled. This case occurs  
282 when “multiple-document-handling” is 'single-document' or 'single-document-new-sheet'; the value of “pages-  
283 per-subset” and “documents-per-subset” are both ignored if present.

### 284 **2.11.4 Page-Subset Document Case:**

285 In the Page-Subset Case, the Job consists of one or more Output-Documents and one or more Input-  
286 Documents. The new attribute “pages-per-subset” contains a sequence of integers which specifies how to  
287 partition the stream of Input-Pages into subsets, each of which produces an Output Document. For example, if a  
288 user prints 1 PostScript file with 1000 pages, where each 4 Output-Pages represents an insurance policy, then  
289 the PostScript file is the Input-Document and each group of 4 Output-Pages is an Output-Document. The  
290 resulting Output-Documents would be the same if the same 1000 Input-Pages were spread across 2 or more  
291 PostScript files. This case occurs when “multiple-document-handling” is 'separate-documents-collated-copies'  
292 or 'separate-documents-uncollated-copies' and the new attribute “pages-per-subset” contains 1 or more integer  
293 values. The new attribute “documents-per-subset” is not present.

### 294 **2.11.5 Document-Subset Document Case:**

295 This case is defined here for completeness, but it is not supported by this extension.

296

297 In the Document-Subset Document Case, the Job consists of one or more Output-Documents and one or more  
298 Input-Documents. The new attribute “documents-per-subset” contains a sequence of integers which specifies  
299 how to partition Job’s Input-Documents into subsets, each of which produces an Output Document. For  
300 example, if a user prints 25 Java files in one Job and wants 2 separately stapled Output-Documents, one with 15  
301 Java files and one with 10 Java files, then each of the Java files is an Input-Document, and the printed Output-  
302 Pages from the first 15 Java files and next 10 Java files are two separate Output-Documents that are stapled  
303 separately. This case occurs when “multiple-document-handling” is 'separate-documents-collated-copies' or

304 'separate-documents-uncollated-copies' and "documents-per-subset" contains 1 or more integer values. The  
305 new attribute "pages-per-subset" is not present.  
306

## 307 **2.12 Document-Overrides**

308 In IPP/1.1 each attribute value is the same for the entire Job. When an attribute is a "Document-Overrides" attributes, it  
309 is different for identified Input-Documents or Output-Documents.

## 310 **2.13 Page-Overrides**

311 In IPP/1.1 each attribute value is the same for the entire Job. When an attribute is a "Page-Overrides" attributes, it is  
312 different for identified Input-Pages or Output-Pages.

## 313 **2.14 Subset-Finishing**

314 Subset-Finishing is the ability to subdivide the stream of Input-Pages from one or more Input-Documents into multiple  
315 Output-Documents and to apply the same or different finishing to each individual Output-Documents.

## 316 **2.15 Affects**

317 Each attribute is said to 'affect' some part of a job. For example, "media" affects a sheet, "finishings" affects an Output-  
318 Document, "page-ranges" affects an Input-Documents and "job-priority" affects a job. This nuance must be explicit in the  
319 Overrides-Extension because the parts of a job that an attribute affects limit the parts of a job that an attribute can be  
320 associated with (see the next section for a definition of "associates"). For example, "job-priority" affects a job; so it can  
321 be associated with a Job, but not an Input-Documents or Input-Page. Likewise, "finishings" affects and Output-  
322 Document; so it can be associated with a Job or an Output-Documents, but not with an Output-Page.

## 323 **2.16 Associates**

324 The word "associates" combines the meaning of the two terms in subsections of this section, namely "directly  
325 associates" and "effectively associates". When an attribute is either directly associated or effectively associated with  
326 some part of a job, it is said to be "associated" with that part of a job.

### 327 **2.16.1 Directly Associates**

328 When an attribute is said to be 'directly associated' with some part of a job, it affects that part or some other  
329 part. The part that it affects depends on the attribute and what the attribute is directly associated with. For  
330 example if "media" is directly associated with a job, it affects all sheets in the job. If "media" is directly  
331 associated with an Output-Documents, it affects all sheets in that Output-Documents. If "media" is directly  
332 associated with an Output-Page, it affects the sheet containing that Output-Page.

### 333 **2.16.2 Effectively Associates**

334 When an attribute is said to be directly associated with some part of a job 'A' that is semantically connected  
335 with another part 'B', the attribute is said to be "effectively associated" with 'B'. For example, in the Separate-  
336 Documents Case, when an attribute is directly associated with an Input-Documents, it is effectively associated  
337 with the corresponding Output-Documents.

## 338 **2.17 Job-Submission Operations:**

339 The Job-Submission Operations are the IPP operations that create jobs and send document content, namely Print-Job,  
340 Print-URI, Create-Job, Send-Document and Send-URI.

## 341 **3. Requirements**

342 The following is a list of requirements for the Overrides-Extension.

- 343
- 344 1. The Override-Extension **MUST** contain a mechanism for specifying Job attributes that are overrides for particular Input-  
345 Documents or Output-Documents. A Printer and a client **OPTIONALLY** support this mechanism.
- 346 2. There **MUST** be a mechanism for specifying Job attributes that are overrides for particular Input-Pages or Output-Pages.  
347 A Printer and a client **OPTIONALLY** support this mechanism.
- 348 3. There **MUST** be a mechanism for specifying Job attributes that are overrides for particular document copies of Output-  
349 Documents. A Printer and a client **OPTIONALLY** support this mechanism.
- 350 4. The mechanism for overrides **MUST** be supported by all Job-Submission operations and Validate-Job.
- 351 5. The extension **MUST** support the four relationships of Input-Documents and Output-Documents: Degenerate Case,  
352 Separate-Documents Case, Single-Document Case and Page-Subset Document Case.
- 353 6. The extension **MUST** support Subset-Finishing.

## 354 **4. Overview**

355 In IPP 1.1 all attributes that a client includes with job creation operations affect the entire Job in a uniform way. That is, there is no  
356 way for one Output-Document in a given Job to be stapled and another drilled. Also, there is no way for the first sheet of each  
357 Output-Document to be on a different media or to have a different value of “sides” from the other Sheets in the Output-Document.  
358 In addition, there is no way for one document copy to be printed on paper and another on transparencies. An IPP/1.1 client can  
359 specify features, such as finishing, media and sides only at the job level.

360  
361 The Override Extension defined in this document allows some Output-Pages, some Output-Documents and some Input-  
362 Documents to be affected by attribute values that are overrides to those specified for the Job as a whole. For example, the first  
363 Output-Page of an Output-Document has a different media from the rest, or the second Output-Document is stapled and the rest  
364 are not, or the page-ranges of the first Input-Document selects a few Input-Pages and the rest of the Input-Documents are printed  
365 in full, or one copy of an Output-Document has a different media from the rest.

### 366 **4.1 Numbering of Components**

367 The Override Extension defines a system for numbering of components.

- 368
- 369 - Each Input-Document has a number. The single Input-Document that a client sends with Print-Job or Print-URI and the  
370 first Input-Document that a client sends with Send-Document or Send-URI has a number of 1. Each subsequent Input-  
371 Document that a clients sends has a number that is one higher than the previous.
- 372 - Each Input-Page in an Input-Document is numbered sequentially, starting at 1 for the first Input-Page. If a Job has  
373 several Input-Documents, the first Input-Page of each Input-Document has the number of 1, which is relative to that  
374 Input-Document.
- 375 - Each Output-Document has a number. The first Output-Document has a number of ‘1’, and each subsequent Output-  
376 Document has a number that is one higher than the previous Output-Document. The Output-Documents are numbered  
377 as if the value of “copies” were 1, i.e. if an Input-Document produces multiple copies, each copy of a particular Output-  
378 Document has the same number.

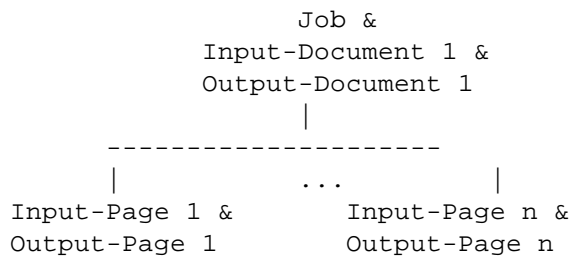
- 379 - Each Output-Page in an Output-Document is numbered sequentially, starting at 1 for the first Output-Page. If a Job has
- 380 several Output-Documents, the first Output-Page of each has the number of 1, which is relative to that Output-Document
  
- 381 - Each copy of an Output-Document has a number. The first copy of each Output-Document has a number of '1', and each
- 382 subsequent copy has a number that is one higher than the previous copy. If a job has multiple Output-Documents, the
- 383 first copy of each has a number of '1'.

## 384 4.2 Relationship of Numbered Components

385 The previous section described how to number Input-Documents, Output-Documents, Input-Pages and Output-Pages. This  
386 section describes the relationship between the number on each of these four components. The relationship differs for each of the  
387 five cases defined in section 2.10. The following diagrams of tree structure show each of the five cases and the relationship of the  
388 numbers in those cases.

389 These diagrams assume that the number of copies of Output-Documents is 1. When the number of copies exceeds 1, some parts  
390 of these diagrams would have further replication, but the numeric relationships of the four displayed components would not  
391 change.  
392  
393

394 Degenerate Case:



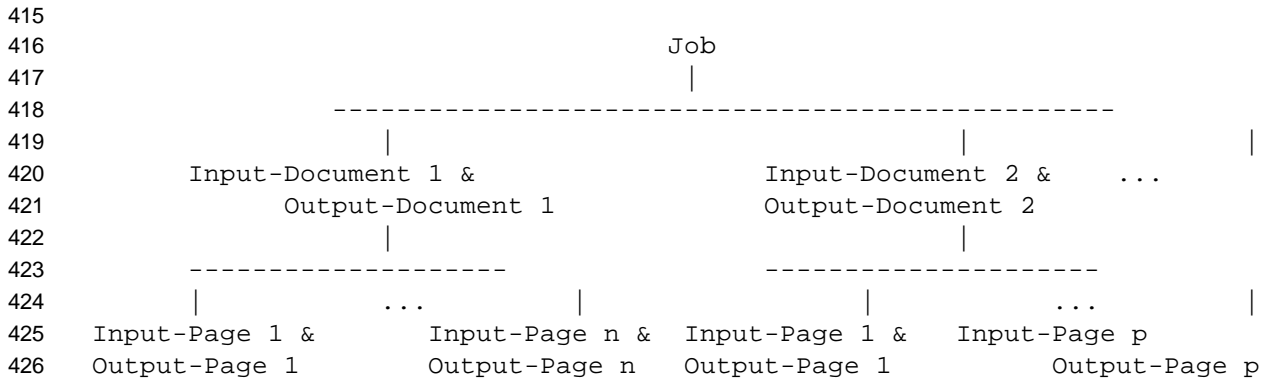
406 Conditions that define this case:

- 407
- 408 - Job contains exactly 1 Input-Documents
  
- 409 - Either conditions for "Separate-Documents" or "Single-Documents" are met.

410 Observations about this case:

- 411
- 412 - Job coincides with Output-Documents 1 and Input-Documents 1
  
- 413 - Output-Page i coincides with Input-Page i

414 Separate-Documents Case:



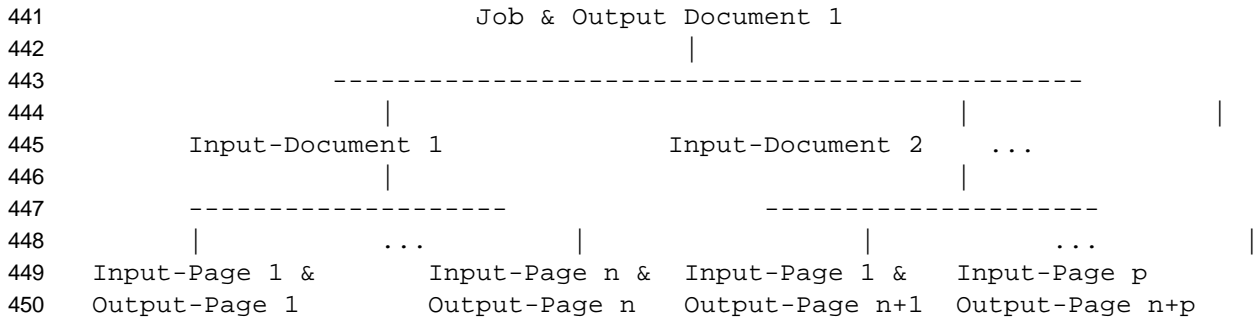
428 Conditions that define this case:

- 429
- 430 - Job contains more than one or more Input-Documents, though one Input-Document is technically the Degenerate Case.
- 431 - “multiple-document-handling” is 'separate-documents-collated-copies' or 'separate-documents-uncollated-copies'
- 432 - “pages-per-subset” is not present
- 433 - “documents-per-subset” is not present

434 Observations about this case:

- 435
- 436 - Output-Document i coincides with Input-Document i
- 437 - Output-Page i coincides with Input-Page i

438  
439 Single-Document Case:



452 Conditions that define this case:

- 453
- 454 - Job contains more than one or more Input-Documents, though one Input-Document is technically the Degenerate Case.
- 455 - “multiple-document-handling” is 'single-document' or 'single-document-new-sheet';

456 Observations about this case:

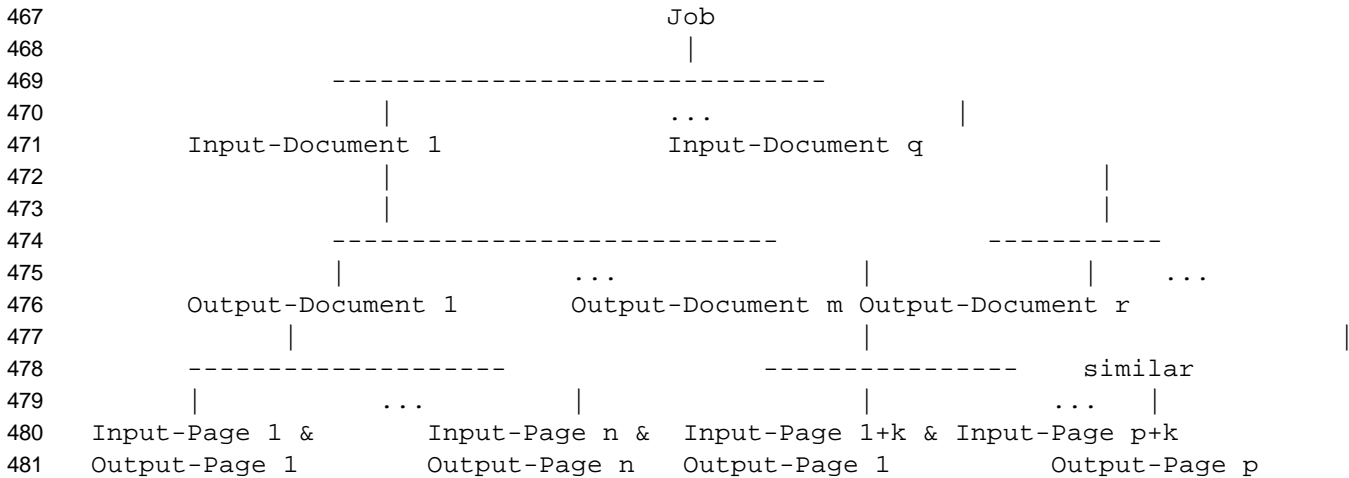
- 457
- 458 - Output-Document 1 coincides with the Job

459 - The numbering of Output-Pages is continuous through all Input-Documents, but the numbering of Input-Pages starts at  
460 1 in each Input-Documents. That is, Input-Page i in Input-Document m coincides with Output-Page i + k, where k is the  
461 number of Input-Pages in all previous Input-Documents, i.e. Input-Documents 1 through m-1.

462 - “pages-per-subset” is ignored if present

463 - “documents-per-subset” is ignored if present

464  
465 Page-Subset Document Case:



483 Conditions that define this case:

484  
485 - Job contains one or more Input-Documents

486 - “multiple-document-handling” is 'separate-documents-collated-copies' or 'separate-documents-uncollated-copies'

487 - “pages-per-subset” is present.

488 - “documents-per-subset” is not present

489 Observations about this case:

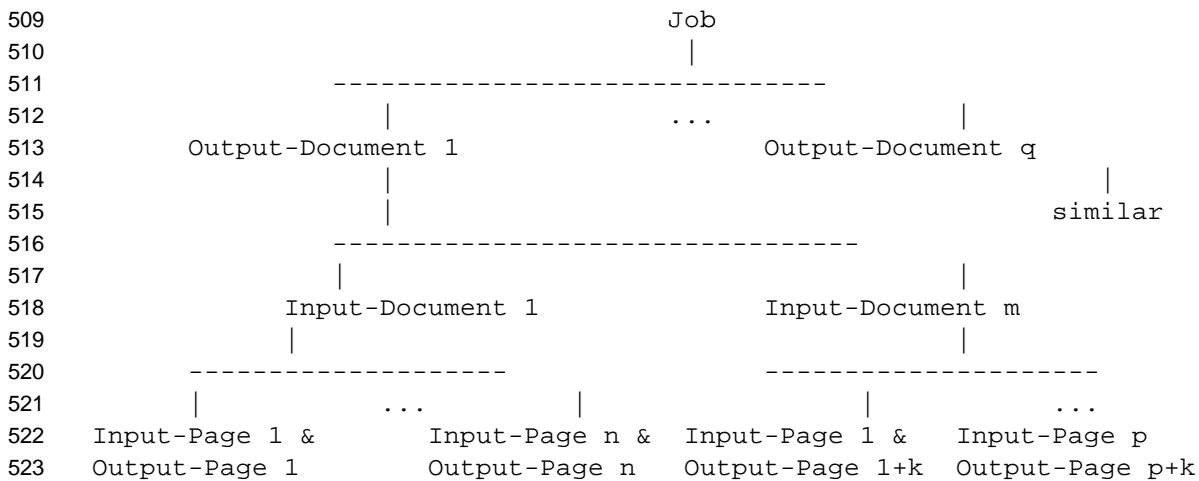
490  
491 - The diagram shows that Output-Documents 1 through m are contained in Input-Document 1, and Output-Documents  
492 m+1 through t are contained in Input-Document 2 and so on. However, this diagram is not completely accurate. The  
493 Input-Pages from all Input-Documents are more accurately viewed as a continuous stream of Input-Pages that are  
494 partitioned into Output-Documents as specified by the attribute “pages-per-subset”. For example, an Output-Document  
495 could come from the last 3 Input-Pages of an Input-Document and the first 4 Input-Pages of the next Input-Document.

496 - The Input-Pages in each Input-Document are numbered sequentially starting from 1 and the Output-Pages in each  
497 Output-Document are numbered sequentially starting from 1. For the first Output-Document, the numbers of the Input-  
498 Pages and Output-Pages coincide. For subsequent Output-Documents, the numbers differ. For example, the first Output-  
499 Page of the second Output-Document coincides with Input-Page w, where w is the number of Output-Pages in the first  
500 Output-Document. To be specific, Output-Page i in Output-Document m coincides with Input-Page i + k of the Job,  
501 where k is the number of Output-Pages in all previous Output-Documents of the job, e.g. Output-Documents 1 through  
502 m-1.

503 - “pages-per-subset” specifies the number of pages in each Output-Document.

504  
505 Document-Subset Document Case:  
506

507 NOTE: this case is here for completeness and is not supported by the Overrides-Extension.



524  
525 Conditions that define this case:

- 526 - Job contains one or more Input-Documents
- 527
- 528 - “multiple-document-handling” is 'separate-documents-collated-copies' or 'separate-documents-uncollated-copies'
- 529 - “pages-per-subset” is not present.
- 530 - “documents-per-subset” is present

531 Observations about this case:

- 532 - Input-Documents 1-m are contained in Output-Documents 1, and Input-Documents m+1 through t are contained in Output-Documents 2 and so on.
- 533
- 534
- 535 - Input-Page i in Input-Document m coincides with Output-Page i + k of Output-Document j, where k is the number of Input-Pages in all previous Input-Documents of Output-Document j, e.g. Input-Documents 1 through m-1.
- 536
- 537 - “documents-per-subset” has the number of Input-Documents in each Output-Document.

### 538 4.3 Association of Attributes

539 The Override Extension allows attribute associations with Input-Pages, Output-Pages, Input-Documents and Output-Documents,  
540 and it continues to allow associations with Jobs. The Override Extension specifies rules for associations, and it categorizes  
541 attributes according to what they affect. The categories of attributes and the members in the Overrides-Extension are:

- 542
- 543 - Input Documents: “page-ranges”, “document-format”, “document-name”, “compression” and “document-natural-language”.
- 544
- 545 - Output-Documents: “finishings”

546 - Sheets: “media” and “sides”

547 The table below shows what each of the three categories of attributes can be associated with:  
548

Associates with:	Category of attribute		
	Input-Document	Output-Document	Sheets
Input-Document	yes	yes	yes
Output-Document	no	yes	yes
Input-Page	no	no	yes
Output-Page	no	no	yes

549 The meaning of these associations and their limitation is specified in section 16.  
550

551 The Override-Extension mechanism seems to be general enough to add new Document-Overrides and Page-Overrides attributes  
552 without changing or extending the general mechanism. That is, an existing or new Job attribute becomes a Document-Overrides or  
553 Page-Overrides attribute when a description of that attributes says so, but no changes need be made to the ways overrides work.  
554 If the new attribute belongs to one of the three above categories, it follows the rules of that category. If it belongs to a new  
555 categories, the rules of association must be defined.  
556

557 **4.4 Effect of the “document-copies” attribute**

558 The “document-copies” attribute causes some copies of a document to be printed differently from others. For example, 10 copies  
559 are duplex printed on letter paper with a staple. One copy is simplex printed on transparencies without a staple. As another  
560 example, the first page of 100 copies of a 3 page document are printed on letterhead paper and the first page of the 101<sup>st</sup> copy of  
561 the document is printed on regular letter paper.  
562

563 If an attribute can affect an Output-Document, it can affect particular Output-Document-Copies. If an attribute can affect Sheets, it  
564 can affect Sheets of particular Output-Document-Copies.  
565

566 Normally, when an attribute is associated with Input-Documents, Output-Documents, Input-Pages or Output-Pages, that attribute  
567 is effectively associated with corresponding Input-Documents, Output-Documents or Sheets. When an association includes the  
568 “document-copies” attribute, it has the following meaning for each effective association. If the attribute effectively associates  
569 with:  
570

- 571 - Input-Documents, the Printer ignores the “document-copies” attribute.
- 572 - Output-Documents, the attribute affects the specified copies of the Output-Documents.
- 573 - Sheets: the attribute affects the sheets of the specified copies of Output-Documents.

574 **4.5 Subset Finishing**

575 In IPP/1.1 a Printer applies the “finishes” attribute to all Output-Documents in a given job. This proposal supports “Subset  
576 Finishing” which we define as the ability to partition the Input-Pages of an Input-Document into one or more Output-Documents  
577 and to apply different types of finishing to each of the individual Output-Documents contained within a single job.  
578

579 This model supports subset finishing with the new attribute “pages-per-subset” which specifies the number of Input-Pages per  
580 Output-Document. This model treats Subset-Finishing as a Job level sub-setting of the Input-Documents into Output-Documents  
581 and as a Document Override attribute rather than a Page Override attribute for two reasons.  
582



- 583 - Page-Overrides, as their name suggests, are overrides for a few Input-Pages or Output-Pages that differ from the rest of  
584 the Input-Pages or Output-Pages in the Job. With Subset-Finishing, all Input-Pages belong to some subset. So, sub-  
585 setting is not an override; it encompasses the entire Job. Only the finishing part of Subset-Finishing can have overrides  
586 and those overrides apply to a subset, much like they apply to Output-Documents. Because subsets behave like  
587 Output-Documents, it is easiest to describe the sub-setting operation as creating Output-Documents.
  
- 588 - If the attributes “media”, “sides” and “finishings” were all treated as Page-Override attributes, then there would have to  
589 one rule for splitting and merging groups when “finishings” is associated with the group and another rule when it is not  
590 associated with the group. If a Page-Override specifies “sides” is duplex for pages 1-10 and “media” is added to pages 5  
591 and 6, there can be three Page-Override groups, one for pages 1-4 with “sides”, one for pages 5 and 6 with “sides” and  
592 “media” and one for pages 7-10 with sides. If “media” is removed, the groups can be merged back to the original single  
593 group. If “finishings = staple” had been present in the original group of pages 1-10, such a split would change finishing  
594 from one staple in pages 1-10 to 3 staples, one in pages 1-6, one in page 5-6 and one in pages 7-10.

595  
596 The remainder of this document describes the changes necessary to support the Overrides Extension.

## 597 5. New Job Template Attributes

598 The Override Extension adds three new Job Template attributes: “document-overrides”, “page-overrides” and “pages-per-  
599 subset”. The first two attributes support override attributes, and the third supports subset finishing.

601	602	603	604
Job Attribute	Printer: Default Value	Printer: Supported	
	Attribute	Values Attribute	
605 document-overrides	606 none	607 document-overrides-supported	
608  (1setOf collection)		609  (1setOf type2 keyword)	
610 page-overrides	611 none	612 page-overrides-supported	
613  (1setOf collection)		614  (1setOf type2 keyword)	
615 pages-per-subset	616 none	617 pages-per-subset-supported	
618  (1setOf integer)		619 (Boolean)	

### 618 5.1 document-overrides (1setOf collection)

619 This OPTIONAL Job Template attribute contains attributes that are associated with Input-Documents and Output-Documents  
620 and that are treated as document overrides. Such attributes are called “Document-Overrides” attributes. The remainder of this  
621 section describes features that an implementation MUST support or MAY support if an implementation supports this attribute.  
622

623 If this attribute is not present in a Job, there are no Document-Overrides within the Job. If it is present, the value consists of one  
624 or more ‘collection’ values, where each ‘collection’ value identifies one or more Input-Documents or Output-Documents and  
625 contains one or more Job Template attributes which act as overrides to the corresponding Job Template attribute values for the  
626 specified Input-Documents or Output-Documents.  
627

628 The first attribute of each ‘collection’ value MUST be either “input-documents” or “output-documents” and this attribute  
 629 identifies Input-Documents or Output-Documents, respectively. The second attribute of each ‘collection’ MAY be “document-  
 630 copies” and this attribute identifies the Output-Document-Copies. The remaining attributes in the ‘collection’ value are the one or  
 631 more Job Template attributes that are overrides for the specified Input-Documents or Output-Documents. The allowed attributes  
 632 are listed in section 5.1.8

633 There may be more than one way for a client to arrange Document-Overrides attributes in ‘collection’ values. For example, if a job  
 634 contains 10 Output-Documents to be printed 1-sided on letter paper with no stapling and Output-Documents 1 to 10 are to be two sided  
 635 with stapling and Document 2 is to be two sided with no stapling, there are two possible ways to group the overrides. The client  
 636 could specify the two overrides for Output-Documents 1 to 10 in one ‘collection’ value and the single override for Output-Documents 2 to 10  
 637 in a second ‘collection’ value, or it could specify “two-sided” for Output-Documents 1 to 10 in one ‘collection’ value and “stapled”  
 638 for Output-Documents 1 to 10 in another ‘collection’ value.

639 If the “input-documents”, “output-documents” or “document-copies” identify Input-Documents, Output-Documents or Output-  
 640 Document-Copies that don’t exist, the Printer silently ignores them and associates the Document-Overrides with those Input-  
 641 Documents, Output-Documents or Output-Documents-Copies that do exist. A client MUST NOT allow two ‘collection’ values to  
 642 be associated with the same Input-Documents, Output-Documents or Output-Documents-Copy and to contain the same Document-  
 643 Overrides attribute with different values. If the client violates the preceding rule, the Printer can use either value, and it MUST  
 644 issue a warning. It does so by adding ‘job-warnings-detected’ to the “job-state-reasons” and by increasing the value of the “job-  
 645 warnings-count” Job Description attribute by 1. If the Printer detects this conflict while it is processing a Job-Submission  
 646 operation, it MUST return the ignored values in the Unsupported attributes.

647 When a Client receives this attribute in a Get-Jobs or Get-Job-Attributes, the value MUST contain the same ‘collection’ values  
 648 received in Job-Submission operations, except for those ‘collection’ values the Printer returned in the Unsupported Attributes.

649 Each ‘collection’ value of this attribute has either of the two forms as defined below. The ‘collection’ values NEED NOT all be of  
 650 the same form..

651 For the first form, the client MUST supply “input-documents” as the first attribute. If the client supplies the “document-copies”  
 652 attribute, it MUST be the second attribute. The client OPTIONALLY supplies the remaining attributes in any order. If the Printer  
 653 supports the Create-Job operation, then it MUST support the attribute labeled with “CMUST” below; otherwise support is  
 654 OPTIONAL.

<u>Attribute name</u>	<u>syntax</u>	<u>In request</u>	<u>Printer Support</u>
input-documents	rangeOfInteger(MAX)	MUST	MUST
document-copies	rangeOfInteger(MAX)	MAY	MAY
document-format	mimeMediaType	MAY	CMUST
document-name	name (MAX)	MAY	CMUST
compression	type3 keyword	MAY	CMUST
document-natural-language	naturalLanguage	MAY	MAY
page-ranges	1 setOf rangeOfInteger (1:MAX)	MAY	MAY
finishings	1 setOf type2 enum	MAY	MAY
sides	type2 keyword	MAY	MAY
media	type3 keyword   name(MAX)	MAY	MAY

655 For the second form, the client MUST supply “output-documents” as the first attribute. If the client supplies the “document-  
 656 copies” attribute, it MUST be the second attribute. The client OPTIONALLY supplies the remaining attributes in any order.

<u>Attribute name</u>	<u>syntax</u>	<u>In request</u>	<u>Printer Support</u>
output-documents	rangeOfInteger(MAX)	MUST	MUST
document-copies	rangeOfInteger(MAX)	MAY	MAY
finishings	1 setOf type2 enum	MAY	MAY

<u>Attribute name</u>	<u>syntax</u>	<u>In request</u>	<u>Printer Support</u>
sides	type2 keyword	MAY	MAY
media	type3 keyword   name(MAX)	MAY	MAY

657 The following sections describe each attribute in the above table.

### 658 **5.1.1 input-documents (rangeOfInteger (1:MAX))**

659 This attribute identifies one or more Input-Documents by specifying a range of numbers (see section 4.1 for the rules on  
660 associating a number with each Input-Document ). The Document-Overrides apply to the identified Input-Documents.

661  
662 A Printer MUST support this attribute. A client MUST supply this attribute in each ‘collection’ value and it MUST be  
663 the first attribute of each ‘collection’ value. If this attribute is present, then the client MUST NOT supply “output-  
664 documents”.

665  
666 When a client supplies this attribute in a “document-overrides” attribute of a Send-Document or Send-URI request, this  
667 attribute MUST NOT identify Input-Documents which were sent in an earlier operation. If a Printer receives such a value  
668 in a ‘collection’ value, it MUST treat all attribute values in such a ‘collection’ value, but not other sibling ‘collection’  
669 values, as unsupported values and return the entire collection value in the Unsupported Attributes group.

670  
671 Note: because the Printer silently ignores values that reference non-existent Input-Documents, a value of ‘MAX’ is  
672 equivalent to the number of Input-Documents.

673  
674 See section 5 for details of usage of this attribute.  
675

### 676 **5.1.2 output-documents (rangeOfInteger (1:MAX))**

677 This attribute identifies one or more Output-Documents by specifying a range of numbers (see section 4.1 for the rules  
678 on associating a number with each Output-Document). The Document-Overrides apply to the identified Output-  
679 Documents.

680 A Printer MUST support this attribute. A client MUST supply this attribute in each ‘collection’ value and it MUST be  
681 the first attribute of each ‘collection’ value. If this attribute is present, then the client MUST NOT supply “input-  
682 documents”.

683  
684 When a client supplies this attribute in a “document-overrides” attribute of a Send-Document or Send-URI request, this  
685 attribute MUST NOT identify Output-Documents whose first Input-Page was sent in an earlier operation. If a Printer  
686 receives such a value in a ‘collection’ value, it MUST treat all attribute values in such a ‘collection’ value, but not other  
687 sibling ‘collection’ values, as unsupported values and return the entire collection value in the Unsupported Attributes  
688 group.

689 Note: because the Printer silently ignores values that reference non-existent Output-Documents, a value of ‘MAX’ is  
690 equivalent to the number of Output-Documents.

### 691 **5.1.3 document-copies (rangeOfInteger (1:MAX))**

692 This attribute identifies one or more Output-Document-Copies by specifying a range of numbers. The Document-  
693 Overrides apply to the identified Output-Document-Copies within Output-Documents specified either directly by  
694 “output-documents” or indirectly by “input-documents” (see section 16 for further details).

695 A Printer MAY support this attribute. A client MAY supply this attribute in each ‘collection’ value. If the client supplies  
696 this attribute, it MUST be the second attribute of each ‘collection’ value. If this attribute is present, then the client  
697 MUST also supply “input-documents” or “output-documents”.

698 If the first member attribute is “input-documents”, this attribute applies only to the other member attributes that affect  
699 Output-Documents and Sheets. The Printer MUST ignore this attribute for the other member attributes that affect Input-  
700 Documents.

701 Note: because the Printer silently ignores values that reference non-existent copies, a value of ‘MAX’ is equivalent to  
702 the number of copies.

#### 703 **5.1.4 document-format (mimeMediaType)**

704 This attribute has the same meaning as in IPP/1.1. It indicates the document-format for one or more specified Input-  
705 Documents. The Printer MUST support this attribute. A client OPTIONALLY supplies it.

#### 706 **5.1.5 document-name (name (MAX))**

707 This attribute has the same meaning as in IPP/1.1. It indicates the document-name for one or more specified Input-  
708 Documents. The Printer MUST support this attribute. A client OPTIONALLY supplies it.

#### 709 **5.1.6 compression (type3 keyword)**

710 This attribute has the same meaning as in IPP/1.1. It indicates the compression for one or more specified Input-  
711 Documents. The Printer MUST support this attribute. A client OPTIONALLY supplies it.

#### 712 **5.1.7 document-natural-language (naturalLanguage)**

713 This attribute has the same meaning as in IPP/1.1. It indicates the document-natural-language for one or more specified  
714 Input-Documents. The Printer MAY support this attribute. A client OPTIONALLY supplies it.

#### 715 **5.1.8 page-ranges (1setOf rangeOfInteger (1:MAX))**

716 This attribute has the same meaning as in IPP/1.1. It redefines each Input-Document to contain only the specified Input-  
717 Pages. See section 5.2.3 for how this attribute interacts with “pages”.. The “multiple-document-handling” attribute  
718 affects the algorithm for numbering Input-Pages when this attribute is a Job attribute but when it is a Document-Override  
719 attribute. When this attribute is a Document-Override attribute, the values of the “page-ranges” attribute specify the  
720 Input-Pages to select from each of the identified Input-Documents separately, For example, if this attribute has the value  
721 “3:5” and is associated with two Input-Documents A and B, Input-Document A redefined to contain just two pages: 3  
722 and 5, and Input-Document B also contains just pages 3 and 5. The Printer MAY support this attribute. A client  
723 OPTIONALLY supplies it.

724  
725 See section 5.2.4 for details of how this attribute affects number of pages with the “pages” attribute.

#### 726 **5.1.9 finishings (1setOf type2 enum)**

727 This attribute has the same meaning as in IPP/1.1. It indicates the finishings for one or more specified Output-  
728 Documents. As a Job Template attribute, it affects each Output-Document produced by the Job. For example, all the  
729 sheets of each Output-Document are stapled together. As a Document-Overrides attributes, it affects only the specified  
730 Output-Documents. The Printer MAY support this attribute. A client OPTIONALLY supplies it.

731 The next section gives further information about this attribute, but this information is the same for all Output-Document  
732 attributes that might be added later.

### 733 5.1.9.1 Common Behavior for Output-Document Attributes

734 This attribute is directly associated with an Input-Document or Output-Document. This means that it is effectively  
735 associated with one or more Output-Documents according to the rules of section 16, and this attribute affects those  
736 Output-Documents.

737  
738 If the “document-copies” attribute is present, the attribute affects only the specified copies of the Output-Documents.

### 739 5.1.10 sides (type2 keyword)

740 This attribute has the same meaning as in IPP/1.1. It indicates the sides for one or more specified Output-Pages. As a  
741 Job Template attribute, it affects each Sheet produced by the Job. As a Document-Overrides attributes, it affects only the  
742 specified Sheets. The Printer MAY support this attribute. A client OPTIONALLY supplies it.

743 The next section gives further information about this attribute, but this information is the same for all Sheet attributes,  
744 including “media” which is discussed in section 5.1.11

### 745 5.1.10.1 Common Behavior for Sheet Attributes

746 This attribute is directly associated with an Input-Document or Output-Document. This means that it is effectively  
747 associated with one or more Output-Pages according to the rules of section 15, and this attribute affects the Sheets  
748 containing the specified Output-Pages.

749 If the “document-copies” attribute is present, the attribute affects only the Output-Pages in the specified copies of the  
750 Output-Documents.

751 Because this attribute affects a Sheet, but is effectively associated with an Output-Page, a Sheet that contains two or  
752 more Output-Pages may have conflicting values of this attribute. This observation leads to two rules, one for the first  
753 Output-Page that this attribute is effectively associated with and one for the last Output-Page that this attribute is  
754 effectively associated with.

755 a) For the first Output-Page: if the value of this attribute is effectively associated with Output-Page i, and if  
756 Output-Page i is not the first Output-Page contained on a Sheet and if the value of this attribute differs from the  
757 value of this attribute for the preceding Output-Page i-1, then Output-Page i MUST start a new Sheet and the  
758 Printer MUST issue a warning by adding ‘job-warnings-detected’ to the “job-state-reasons” and by increasing  
759 the value of the “job-warnings-count” Job Description attribute by 1.

760 b) For the last Output-Page: if the value of this attribute is effectively associated with Output-Page i, and if  
761 Output-Page i is not the last Output-Page contained on a Sheet and if the value of this attribute differs from the  
762 value of this attribute for the following Output-Page i+1, then Output-Page i+1 MUST start a new Sheet and the  
763 Printer MUST issue a warning by adding ‘job-warnings-detected’ to the “job-state-reasons” and by increasing  
764 the value of the “job-warnings-count” Job Description attribute by 1.

### 765 5.1.11 media (type3 keyword | name(MAX))

766 This attribute has the same meaning as in IPP/1.1. It indicates the media for one or more specified Output-Pages. As a  
767 Job Template attribute, it affects each Sheet produced by the Job. As a Document-Overrides attributes, it affects only the  
768 specified Sheets. The Printer MAY support this attribute. A client OPTIONALLY supplies it.

769 See section 5.1.10.1 for additional information. The section describes the common behavior of all Sheet attributes.

### 770 **5.1.12 Handling of Error conditions**

771 If a client omits a required member attribute or includes two member attributes that should never both be present (e.g.  
772 “input-document” and “output-document”), a Printer MUST reject all attributes in the ‘collection’ value and treat the  
773 ‘collection’ values, but not other sibling ‘collection’ values, as unsupported.

774 If a client puts a member attribute in some position other than its required position (e.g. “input-documents” MUST be  
775 first), a Printer MUST either:

- 776 a) use the specified value of the member attribute and ignore its wrong position or
- 777 b) reject all attributes in the ‘collection’ value and treat the ‘collection’ values, but not other sibling ‘collection’  
778 values, as unsupported.

### 779 **5.1.13 Why not “document-overrides-default”**

780 There is no “document-overrides-default” attribute because it adds complicated rules for a Printer to implement. The  
781 problems are best illustrated with examples.

782 If there were a “document-overrides-default” and it contained a “sides” and “media” override for the first Output-Page,  
783 and if a client submitted a Job with no “sides” attribute and with “media” as a Job attribute with no overrides, a possible  
784 meaning is that the Printer uses the client’s requested media for the entire Job and the sides specified by the “sides -  
785 default” and the “sides” value in “document-overrides-default”. So in this example, the Printer ignores the “document-  
786 overrides-default” attribute for “media”, but uses it for “sides” because the Printer uses it for an attribute “xxx” only  
787 when it uses “xxx-default”.

### 788 **5.1.14 document-overrides-supported (1setOf type1 keyword)**

789 This attribute specifies the supported values of the “document-overrides” attribute. A client can use this attribute to  
790 determine what Document-Overrides attributes the Printer supports.

791 This attribute contains the name of each attribute that the Printer supports in a ‘collection’ value of the “document-  
792 overrides” attribute. This attribute MUST contain the keywords “input-documents” and “output-documents” because a  
793 Printer MUST support these attributes. This attribute MUST also contain the name of each attribute that can be a  
794 document-override. For example, this attribute contains the keyword “sides” if and only if the Printer supports “sides” in  
795 a ‘collection’ value of the “document-overrides” attribute.

796 Standard keyword values are:

- 797 - 'none': no attributes are supported in the “document-overrides” attribute
- 798 - 'input-documents': the “input-document” attribute is supported
- 799 - 'output-documents': the “output-document” attribute is supported
- 800 - 'document-copies': the “document-copies” attribute is supported
- 801 - 'document-format': The "document-format" attribute is supported
- 802 - 'document-name': The "document-name" attribute is supported
- 803 - 'compression': The "compression" attribute is supported
- 804 - 'document-natural-language': The "document-natural-language" attribute is supported
- 805

- 806 - 'page-ranges': The "page-ranges" attribute is supported
- 807 - 'finishings': The "finishing" attribute is supported
- 808 - 'sides': The "sides" attribute is supported
- 809 - 'media': The "media" attribute is supported

## 810 **5.2 page-overrides (1setOf collection)**

811 This OPTIONAL Job Template attribute contains attributes that are associated with Input-Pages and Output-Pages and that are  
812 treated as page overrides. Such attributes are called "Page-Overrides" attributes. The remainder of this section describes features  
813 that an implementation MUST support or MAY support if an implementation supports this attribute

814  
815 If this attribute is not present in a Job, there are no Page-Overrides attributes within the Job. If it is present, the value consists of  
816 one or more 'collection' values, where each 'collection' value identifies one or more Input-Pages or Output-Pages and contains  
817 one or more Job Template attributes which act as overrides to the corresponding Job Template attributes for the specified Input-  
818 Pages or Output-Pages.

819 The first attribute of each 'collection' value MUST be either "input-documents" or "output-documents".

820  
821 The second attribute MAY be "document-copies". If present, this attribute identifies the copies of the Output-Documents. If this  
822 attribute is not present in a 'collection' value, then the 'collection' value applies to all Output-Documents-Copies.

823  
824 If "document-copies" is present, the "pages" attribute MUST be the third attribute; otherwise, it MUST be the second attribute.  
825 The "pages" attribute identifies either

- 826 - the Input-Pages relative to the Input-Document specified by "input-documents" or
- 827
- 828 - the Output-Pages relative to the Output-Document specified by "output-documents".
- 829

830 The Page-Overrides attribute applies to the identified Input-Pages or Output-Pages, which need not be contiguous.

831  
832 The remaining attributes in the 'collection' value are the Job Template attributes that are overrides for the specified Input-Pages  
833 or Output-Pages.

834 There may be more than one way for a client to arrange Page-Override attributes in 'collection' values. For example, if an Output-  
835 Document contains 10 Output-Pages to be printed 1-sided on white letter paper and Output-Page 1 is to be two sided with blue  
836 letter paper and Document 2 is to be two sided with white letter paper, there are two possible ways to group the overrides. The  
837 client could specify the two overrides for Output-Page 1 in one 'collection' value and the single override for Output-Page 2 in  
838 second 'collection' values, or it could specify "two-sided" for Output-Pages 1 and 2 in one 'collection' value and "blue letter  
839 paper" for Output-Document 1 in another 'collection' value.

840 If the "pages", "document-copies" and the "input-documents" or "output-documents" identify Input-Pages, Output-Pages that  
841 either don't exist or are within nonexistent Output-Documents-Copies, Input-Documents or Output-Documents, the Printer silently  
842 ignores them and associates the Page-Overrides with those Input-Pages or Output-Pages that do exist. A client MUST not allow  
843 two 'collection's values to be associated with the same Input-Page or Output-Page and to contain the same Page-Override  
844 attribute with different values. If there is such a conflict, the Printer can use either value, and it MUST issue a warning. It does so  
845 by adding 'job-warnings-detected' to the "job-state-reasons" and by increasing the value of the "job-warnings-count" Job  
846 Description attribute by 1. If the Printer detects this conflict while it is processing a Job-Submission operation, it MUST return  
847 the ignored value in the Unsupported attributes.

848 When a Client receives this attribute in a Get-Jobs or Get-Job-Attributes, the value MUST contain the same 'collection' values  
849 received in Job-Submission operations, except for those 'collection' values the Printer returned in the Unsupported Attributes.

850 Each 'collection' value of this attribute has either of the two forms as defined below. The 'collection' values NEED NOT all be of  
851 the same form.

852 For the first form, the client MUST supply "input-documents" as the first attribute. If the client supplies the "document-copies"  
853 attribute, it MUST be the second attribute. The "pages" attribute MUST be the next attribute. The client OPTIONALLY supplies  
854 the remaining attributes in any order.

<u>Attribute name</u>	<u>syntax</u>	<u>In request</u>	<u>Printer Support</u>
input-documents	rangeOfInteger(MAX)	MUST	MUST
document-copies	rangeOfInteger(MAX)	MAY	MAY
pages	rangeOfInteger(MAX)	MUST	MUST
sides	type2 keyword	MAY	MAY
media	type3 keyword   name(MAX)	MAY	MAY

855 For the second form, the client MUST supply "output-documents" as the first attribute. If the client supplies the "document-  
856 copies" attribute, it MUST be the second attribute. The the "pages" attribute MUST be the next attribute. The client  
857 OPTIONALLY supplies the remaining attributes in any order.

<u>Attribute name</u>	<u>syntax</u>	<u>In request</u>	<u>Printer Support</u>
output-documents	rangeOfInteger(MAX)	MUST	MUST
document-copies	rangeOfInteger(MAX)	MAY	MAY
pages	rangeOfInteger(MAX)	MUST	MUST
sides	type2 keyword	MAY	MAY
media	type3 keyword   name(MAX)	MAY	MAY

858 The following sections describe each attribute in the above table.

### 859 5.2.1 input-documents (rangeOfInteger (1:MAX))

860 See section 5.1.1 for details of this attribute.

### 861 5.2.2 output-documents (rangeOfInteger (1:MAX))

862 See section 5.1.2 for details of this attribute.

### 863 5.2.3 document-copies (rangeOfInteger (1:MAX))

864 This attribute identifies one or more Output-Document-Copies by specifying a range of numbers. The Page-Overrides  
865 apply to the Output-Pages within the identified Output-Documents-Copies within Output-Documents specified either  
866 directly by "output-documents" or indirectly by "input-documents" (see section 16 for further details).

867 A Printer MAY support this attribute. A client MAY supply this attribute in each 'collection' value. It MUST be the  
868 second attribute of each 'collection' value if the client supplies it. If this attribute is present, then the client MUST also  
869 supply the "input-documents" or "output-documents" attribute.

870 Note: because the Printer silently ignores values that reference non-existent copies, a value of 'MAX' is equivalent to  
871 the number of copies.



#### 872 **5.2.4 pages (1setOf rangeOfInteger(1:MAX))**

873 This attribute identifies one or more Input-Pages or Output-Pages by specifying one or more ranges of numbers (see  
874 section 4.1 for the rules on associating a number with each Input-Page or Output-Page). The “1setOf” allows  
875 noncontiguous Input-Page or Output-Pages. The Page-Overrides apply to the identified Input-Pages or Output-Pages  
876 within the Output-Documents specified directly by “output-documents” or indirectly by “input-documents”. The  
877 “document-copies” specifies particular copies of Output-Documents.

878 If the “page-ranges” attribute (see section 5.1.8) is associated with an Input-Document, the Input-Pages identified by  
879 this attribute are the same as when “page-ranges” is not present. However, this attribute may identify pages that are  
880 deselected for printing by the “page-ranges” attribute. For example, if the value of “page-ranges” is “5:10” and this  
881 attribute identifies Input-Pages “3:6”, this attribute identifies two Input-Pages (3 and 4) that are not printed and two that  
882 are (5 and 6)

883 If a Printer support the “page-overrides” attribute, it MUST support this attribute. A client MUST supply this attribute in  
884 each ‘collection’ value of the “page-overrides” attribute and it MUST be the second attribute of each ‘collection’ value.

885  
886 When a client supplies this attribute in a Send-Document or Send-URI request, this attribute MUST NOT identify  
887 Output-Pages sent in an earlier operation. If a Printer receives such a value in a ‘collection’ value, it MUST treat all such  
888 values, but not other sibling ‘collection’ values, as unsupported values.

889  
890 Note: because the Printer silently ignores values that reference non-existent pages, a value of ‘MAX’ is equivalent to the  
891 number of pages in each specified Input-Document or Output-Document.

892  
893 See section 5 for details of usage of this attribute.

#### 894 **5.2.5 sides (type2 keyword)**

895 This attribute has the same meaning as in IPP/1.1. It indicates the sides for one or more specified Output-Pages. As a  
896 Job Template attribute, it affects each Sheet produced by the Job. As a Page-Overrides attributes, it affects only the  
897 specified Sheets. The Printer MAY support this attribute. A client OPTIONALLY supplies it.

898 See section 5.1.10.1 for additional information. The section describes the common behavior of all Sheet attributes.

#### 899 **5.2.6 media (type3 keyword | name(MAX))**

900 This attribute has the same meaning as in IPP/1.1. It indicates the media for one or more specified Output-Pages. As a  
901 Job Template attribute, it affects each Sheet produced by the Job. As a Page-Overrides attributes, it affects only the  
902 specified Sheets. The Printer MAY support this attribute. A client OPTIONALLY supplies it.

903 See section 5.1.10.1 for additional information. The section describes the common behavior of all Sheet attributes.

#### 904 **5.2.7 Handling of Error conditions**

905 See section 5.1.12.

#### 906 **5.2.8 Why not “page-overrides-default”**

907 There is no “page-overrides-default”. See section 5.1.12 for the reasons.

### 908 **5.2.9 page-overrides-supported (1setOf type1 keyword)**

909 This attribute specifies the supported values of the “page-overrides” attribute. A client can use this attribute to  
910 determine what override attributes the Printer supports.

911 This attribute contains the name of each attribute that the Printer supports in a ‘collection’ value of the “page-overrides”  
912 attribute. This attribute **MUST** contain the keywords “input-documents”, “output-documents” and “pages” because a  
913 Printer **MUST** support these attributes. This attribute **MUST** also contain the name of each attribute that can be a page-  
914 override. For example, this attribute contains the keyword “sides” if and only if the Printer supports “sides” in a  
915 ‘collection’ value of the “page-overrides” attribute.

916 Standard keyword values are:

- 917
- 918 - 'none': no attributes are supported in the “page-overrides” attribute
- 919 - 'input-documents': the “input-document” attribute is supported
- 920 - 'output-documents': the “output-document” attribute is supported
- 921 - 'document-copies': the “document-copies” attribute is supported
- 922 - 'pages': The "pages" attribute is supported
- 923 - 'sides': The "sides" attribute is supported
- 924 - 'media': The "media" attribute is supported

### 925 **5.3 pages-per-subset (1setOf integer)**

926 A client **OPTIONALLY** supplies this attribute, and a Printer **OPTIONALLY** supports this attribute. If a Printer supports  
927 the Page-Subset Document Case, it **MUST** support this attribute.

928  
929 When this attribute is present, it effectively partitions one or more Input-Documents into contiguous subsets of Input-  
930 Pages. Each subset is defined to be an Output-Documents

931  
932 The value of the attribute is a set of one or more integers, where each integer specifies the number of Input-Pages in a  
933 subset, and the set is treated as a repeating sequence of integers. Thus, when the attribute contains a single integer, the  
934 integer specifies the number of Input-Pages in each subset, as a repeating sequence of the single integer. When the  
935 number of integers in this attribute exceeds 1, the first integer specifies the number of Input-Pages in the first subset, the  
936 second integer specifies the number of Input-Pages in the second subset and so on. If numbers in this attribute are  
937 exhausted before partitioning all of the Input-Pages, the Printer starts at the beginning of the sequence again and  
938 continues until all Input-Pages are partitioned.

939  
940 If the job contains more than one Input-Document, the Input-Pages are treated as a single stream of Input-Pages which  
941 are partitioned into contiguous subsets with some subsets possibly belonging to more than one Input-Document.

942  
943 If the number of Input-Pages available for the last subset is less than the number specified by this attribute, the Printer  
944 **MUST** treat the last subset as an Output-Document and **MUST** issue a warning by adding ‘job-warnings-detected’ to  
945 the “job-state-reasons” and by increasing the value of the “job-warnings-count” Job Description attribute by 1.

946  
947 If the “multiple-document-handling” attribute is present and has the value 'separate-documents-collated-copies' or  
948 'separate-documents-uncollated-copies', the Printer **MUST** use this attribute; otherwise (i.e. the value of the “multiple-

949 document-handling” attribute has the value 'single-document' or 'single-document-new-sheet'), the Printer ignores this  
950 attribute.

### 951 **5.3.1 Why not “pages-per-subset-default”**

952 There is no “pages-per-subset-default” because there is no mechanism for a client to specify that there are no Input-  
953 Page subsets except to omit this attribute, which would cause the Printer to use the “pages-per-subset-default” attribute  
954 and create the default subsets. Without this attribute, a client can achieve subsets only by including the “pages-per-  
955 subset” attribute in the Job and the default is no subsetting. Also, if there were a defaulting mechanism, it isn't clear that  
956 customers would use the same partitioning over and over..

### 957 **5.3.2 pages-per-subset-supported (~~Boolean~~boolean)**

958 This attribute specifies whether the Printer supports the Page-Subset Document Case. If the attribute is present and has  
959 a value of “true”, the Printer supports the Page-Subset Document Case. Otherwise, the Printer doesn't support the Page-  
960 Subset Document Case.

961 Note: if the value of this attribute is 'true', then the rules described elsewhere in this document imply that:

962 a) Any attribute that affects an Output-Document affects an Output Document created with the “pages-per-  
963 subset” attribute.

964 b) Any attribute that affects an Output-Page affects the Output-Page of an Output-Document created with the  
965 “pages-per-subset” attribute.

## 966 **6. New Job Description attributes**

### 967 **6.1.1 job-warnings-count (integer)**

968 This OPTIONAL attribute specifies the total number of warnings that a Printer has generated while processing and  
969 printing the Job. At the beginning of a Job, the value MUST be 0. It MUST increase by 1, each time the Printer generates  
970 a warning.

## 971 **7. New Job Description Values**

### 972 **7.1.1 job-warnings-detected value for job-state-reasons (1setOf type2 keyword)**

973 If the Printer supports the value 'job-warnings-detected', the Printer MUST add it to “job-state-reasons” when it  
974 generates the first warning message. That is, a single occurrence of this value is present in the “job-state-reasons” if the  
975 Printer has generated one or more warnings.

## 976 **8. Extended Role of Some Operation Attributes**

977 In IPP/1.1, the following attributes are operation attributes in all Job-Submission operations except Create-Job, but the Printer  
978 doesn't put their values into the Job object.

- 979 - document-format
- 981 - document-name
- 982 - compression
- 983 - document-natural-language

984  
985 With the Override Extension, these attributes also become:

- 986 - Operation attributes in the Create-Job and Validate-Job operation when all or most Input-Documents have the same  
987 attribute value.
- 989 - Job Template attributes, so their values are accessible to a client via the Get-Job-Attributes and Get-Jobs operation.
- 990 - Job Description attributes, for legacy reasons so their values are accessible to a client via the Get-Job-Attributes and  
991 Get-Jobs operation via the Job Description group name.
- 992 - Document-Overrides attributes, so the values are associated with one Input-Document (possible in IPP/1.1) and a client  
993 can query the attributes via Get-Job-Attributes and Get-Jobs operation (not possible in IPP/1.1).

994 If a Printer supports the Override Extension and if it supports an attribute in this section, it **MUST** support the attribute in the  
995 three contexts above. In IPP/1.1, a Printer **MUST** support all attributes in this section except the "document-natural-language"  
996 attribute. This effectively means that if a Printer supports this extension, it **MUST** support all of the attributes in this section  
997 except "document-natural-language" in the three contexts described above.

998  
999 When one of the attributes in this section is an operation attribute in Print-Job, Print-URI or Create-Job, it becomes a Job  
000 Template attribute in the newly created Job object. If one of these attributes is a Document-Overrides attribute, that attribute  
001 overrides the Job level attribute for the specified Input-Document.

002  
003 When one of the attributes in this section is an operation attribute in Validate-Job, it is validated as if it were an operation  
004 attribute of Create-Job.

005  
006 When one or more of the attributes in this section is an operation attribute in Send-Document or Send-URI request, they are put  
007 into a 'collection' value that is added to the "document-overrides" attribute. See section 5.1 for a discussion of possible conflicts.

## 008 **9. Extensions to Printer Operations**

009 The sections below specify the extensions to the groups within IPP 1.1 operations. If an operation or a group within an operation  
010 is not mentioned, this extension does not change that operation or group, respectively.  
011

### 012 **9.1 Create-Job and Validate-Job Operation Requests**

013 Attributes are added to the operation attributes group.

014  
015  
016  
017  
018

Group 1: Operation Attributes

Add the attributes specified in section 6: “document-format”, “document-name”, “compression” and “document-natural-language”, so that a client can specify these attributes, at the job level.

019 **9.2 Send-Document and Send-URI Operation Requests**

020  
021  
022

Attributes are added to the Operation Attributes group.

Group 1: Operation Attributes

023  
024  
025  
026  
027  
028  
029  
030  
031  
032  
033  
034

"input-document-number" (integer):

The client OPTIONALLY supplies this attribute in order to inform the printer about the order of documents when the printer is sending the Input-Documents asynchronously. The first Input-Document is 1, and subsequent Input-Documents are numbered sequentially. If the value of “last-document” is ‘true’, then the value of this attribute is also the total number of Input-Documents in the Job. If a client supplies this attribute in one Send-Document or Send-URI operation in a Job, it MUST send it in all such operations. A Printer deals with missing Input-Documents in the same way as without this attribute except that a time-out can occur with Input-Documents anywhere in the Job. For example, a Printer could receive Input-Documents 1 and 3 and not 2.

035  
036  
037  
038  
039  
040  
041  
042  
043

"document-overrides" (1setOf collection):

The client OPTIONALLY supplies this attribute. See section 5.1 for details. The Printer MUST support this attribute if it supports the “document-overrides” Job Template attribute. If the job doesn’t contain a “document-overrides” attribute, this attribute is added to the Job. Otherwise, the ‘collection’ values from this attribute are appended to the existing “document-overrides” attribute. See section 5.1 for rules of resolving conflicts. Also the “input-documents” attribute is added to any ‘collection’ value that contains neither an “input-documents” nor “output-documents” attribute.

044  
045  
046  
047  
048  
049  
050  
051

"page-overrides" (1setOf collection):

The client OPTIONALLY supplies this attribute. See section 5.2 for details. The Printer MUST support this attribute if it supports the “page-overrides” Job Template attribute. If the job doesn’t contain a “page-overrides” attribute, this attribute is added to the Job. Otherwise, the ‘collection’ values from this attribute are appended to the existing “page-overrides” attribute. See section 5.2 for rules of resolving conflicts. Also the “input-documents” attribute is added to any ‘collection’ value that contains neither an “input-documents” nor “output-documents” attribute.

052 **10. Examples**

053  
054  
055  
056  
057

This section currently contains 3 examples for various relationships of Input-Documents and Output-Documents.. The first example is for the Degenerate Case only. The second and third cases are for the Separate-Document Case, the Single-Documents Case and the Page-Subset Documents Case.

Brackets are used to delimit the beginning and end of each Collection value.

## 058 10.1 First Page of Single Document is Letterhead

059 In the first example, the Printer produces 1 copy of a single Output-Document. It is printed on letter-paper  
060 using Print-Job. The first Output-Page of the Output-Document is letterhead paper.  
061

### 062 10.1.1 Degenerate Case.

063 There is one Input-Document A which produces one Output-Document.

```
064 Print-Job
065     job attributes group
066         media: letter
067         page-overrides: {
068             output-documents: 1:1      (I could have used input-documents: 1:1 as well)
069             pages: 1:1
070             media: letterhead }
071     end-of-attributes
072     Input-Document A
073
074
```

## 075 10.2 First Page of Several Documents is Blue

076 In the second example, the Printer produces 3 copies of each Output-Document. Each is stapled and printed  
077 on letter-paper, two-sided using Create-Job. The first Output-Page of each Output-Document is blue-letter  
078 paper and one-sided. All Input-Documents are PostScript.  
079

080 Attributes that differ between cases are in bold. The values for the attribute “input-documents” changes with  
081 each example, but could be “1:100” for all.

### 082 10.2.1 Separate-Documents Case.

083 There are two Input-Documents A and B which produce two Output-Documents.

```
084 Create-Job
085     operations attributes group
086         document-format: application/PostScript
087     job attributes group
088 *     multiple-document-handling: separate-documents-collated-copies
089         sides: two-sided-long-edge
090         media: letter
091         copies: 3
092         finishings: stapling
093         page-overrides: {
094             output-documents: 1:2      (I could have used input-documents: 1:2 as well)
095             pages: 1:1
096             sides: one-sided
097             media: blue-letter }
098     end-of-attributes
099     Send-Document
100
```

101           end-of-attributes  
 102            Input-Document A  
 103   Send-Document  
 104           end-of-attributes  
 105            Input-Document B  
 106

## 107   **10.2.2 Single-Documents Case**

108       There are two Input-Documents A and B and only one Output-Document.

109  
 110   Create-Job  
 111       operations attributes group  
 112           document-format: application/PostScript  
 113       job attributes group  
 114           **multiple-document-handling: single-document**  
 115           sides: two-sided-long-edge  
 116           media: letter  
 117           copies: 3  
 118           finishings: stapling  
 119           page-overrides: {  
 120               output-documents: 1:1           (I could have used input-documents: 1:[4](#))  
 121               pages: 1:1  
 122               sides: one-sided  
 123               media: blue-letter }  
 124       end-of-attributes  
 125   Send-Document  
 126       end-of-attributes  
 127        Input-Document A  
 128   Send-Document  
 129       end-of-attributes  
 130        Input-Document B  
 131

## 132   **10.2.3 Page-Subset Documents Case**

133       There are two Input-Documents A and B. . The first Input-Document contains 10 Pages and the second one  
 134       15 pages. There are 7 Output-Documents with 3 pages, 5 pages, 4 pages, 2 pages, 3 pages, 5 pages and 3  
 135       pages. The “ pages-per-subset” attributes wraps after the first four Output-Documents and starts with “3”  
 136       again. After consuming 22 Input-Pages, the next number is “4”, but only 3 pages remain. So the last Output-  
 137       Document is short. These value show two boundary cases.

138  
 139   Create-Job  
 140       operations attributes group  
 141           document-format: application/PostScript  
 142       job attributes group  
 143           **multiple-document-handling: separate-documents-collated-copies**  
 144           **pages-per-subset: 3, 5, 4, 2**  
 145           sides: two-sided-long-edge  
 146           media: letter  
 147           copies: 3  
 148           finishings: stapling

```

149         page-overrides: {
150             output-documents: 1:7           (I could have used output-documents: 1:100 to be safe)
151             pages: 1:1
152             sides: one-sided
153             media: blue-letter }
154     end-of-attributes
155 Send-Document
156     end-of-attributes
157     Input-Document A
158 Send-Document
159     end-of-attributes
160     Input-Document B

```

### 161 **10.3 First Page is Blue and First Document is not stapled**

162 In the third example, the Printer produces 3 copies of each Output-Document. Each is stapled and printed on  
 163 letter-paper, two-sided using Create-Job. The third and fourth Output-Pages of each Output-Document is  
 164 blue-letter paper and one-sided. The second Output-Document is not stapled. All files are PostScript except  
 165 the second which is html.

166  
 167 Attributes that differ between cases are in bold. The values for the attribute “input-documents” changes with  
 168 each example, but could be “1:100” for all.

#### 169 **10.3.1 Separate-Documents Case**

170 There are two Input-Documents A and B which produce two Output-Documents.

171  
 172 There Here are three version-solutions presented here in order to show three different places to put the  
 173 attributes associated with an Input-Document. The differences are in ***bold-italic***.

##### 174 **10.3.1.1 First solution:**

```

175 Create-Job
176     operations attributes group
177         document-format: application/PostScript
178     job attributes group
179         multiple-document-handling: separate-documents-collated-copies
180         sides: two-sided-long-edge
181         media: letter
182         copies: 3
183         finishings: stapling
184         document-format: application/PostScript
185         document-overrides: {
186             output-documents: 2:2           (I could have used input-documents: 2:2 & merged with next)
187             finishings: none }
188             {
189                 input-documents: 2:2           next value of multi-value
190                 document-format: text/html
191         page-overrides: {
192             output-documents: 1:2           (I could have used input-documents: 1:2 as well)
193             pages: 3:4

```



194                   sides: one-sided  
 195                   media: blue-letter }  
 196       end-of-attributes  
 197   Send-Document  
 198       end-of-attributes  
 199        Input-Document A  
 200   Send-Document  
 201       end-of-attributes  
 202        Input-Document B

#### 203   **10.3.1.2 Second solution:**

204   Create-Job  
 205       operations attributes group  
 206         document-format: application/PostScript  
 207       job attributes group  
 208         **multiple-document-handling: separate-documents-collated-copies**  
 209         sides: two-sided-long-edge  
 210         media: letter  
 211         copies: 3  
 212         finishings: stapling  
 213         document-format: application/PostScript  
 214         document-overrides: {  
 215             output-documents: 2:2  
 216             finishings: none }  
 217         page-overrides: {  
 218             output-documents: 1:2                   (I could have used input-documents: 1:2 as well)  
 219             pages: 3:4  
 220             sides: one-sided  
 221             media: blue-letter }  
 222       end-of-attributes  
 223   Send-Document  
 224       end-of-attributes  
 225        Input-Document A  
 226   Send-Document  
 227        *Operation attributes group*  
 228         *document-format: text/html*  
 229       end-of-attributes  
 230        Input-Document B

#### 231   **10.3.1.3 Third solution:**

232   Create-Job  
 233       operations attributes group  
 234         document-format: application/PostScript  
 235       job attributes group  
 236         **multiple-document-handling: separate-documents-collated-copies**  
 237         sides: two-sided-long-edge  
 238         media: letter  
 239         copies: 3  
 240         finishings: stapling  
 241         document-format: application/PostScript  
 242         page-overrides: {  
 243             output-documents: 1:2                   (I could have used input-documents: 1:2 as well)

```

244         pages: 3:4
245         sides: one-sided
246         media: blue-letter }
247     end-of-attributes
248 Send-Document
249     end-of-attributes
250     Input-Document A
251 Send-Document
252     Operation attributes group
253     document-overrides: {
254         input-documents: 2:2
255         document-format: text/html
256         finishings: none }
257     end-of-attributes
258     Input-Document B

```

### 259 10.3.2 Single-Documents Case

260 There are two Input-Documents A and B and only one Output-Document.

261

262 [There](#) [Here](#) are three solutions. The Page-Override attributes are in Create-Job in the first solution and in  
 263 Send-Document in the last two solutions. The Document-Override attribute is directly in the operation  
 264 attributes of Send-Document in the first two solutions and in the document-overrides attributes of Send-  
 265 Document in the third solution. The differences are in ***bold-italic***.

#### 266 10.3.2.1 First solution:

```

267 Create-Job
268     operations attributes group
269         document-format: application/PostScript
270     job attributes group
271         multiple-document-handling: single-document
272         sides: two-sided-long-edge
273         media: letter
274         copies: 3
275         finishings: stapling
276         document-overrides: {
277             output-documents: 2:2           (This is ignored because there is no 2nd document)
278             finishings: none }
279         page-overrides: {
280             input-documents: 1:1           (I could have used output-documents: 1:1)
281             pages: 3:4
282             sides: one-sided
283             media: blue-letter }
284     end-of-attributes
285 Send-Document
286     end-of-attributes
287     Input-Document A
288 Send-Document
289     Operation attributes group
290         document-format: text/html
291     end-of-attributes

```

292 Input-Document B

293 **10.3.2.2 Second solution:**

294 Create-Job

295 operations attributes group

296 document-format: application/PostScript

297 job attributes group

298 **multiple-document-handling: single-document**

299 sides: two-sided-long-edge

300 media: letter

301 copies: 3

302 finishings: stapling

303 document-overrides: {

304 output-documents: 2:2 (This is ignored because there is no 2<sup>nd</sup> document)

305 finishings: none }

306 end-of-attributes

307 Send-Document

308 Operation attributes group

309 **page-overrides: {**

310 **input-documents: 1:1** (I could have used output-documents: 1:1)

311 **pages: 3:4**

312 **sides: one-sided**

313 **media: blue-letter }**

314 end-of-attributes

315 Input-Document A

316 Send-Document

317 Operation attributes group

318 **document-format: text/html** (this can be here or in the document-overrides)

319 end-of-attributes

320 Input-Document B

321 **10.3.2.3 Third solution:**

322 Create-Job

323 operations attributes group

324 document-format: application/PostScript

325 job attributes group

326 **multiple-document-handling: single-document**

327 sides: two-sided-long-edge

328 media: letter

329 copies: 3

330 finishings: stapling

331 document-overrides: {

332 output-documents: 2:2 (This is ignored because there is no 2<sup>nd</sup> document)

333 finishings: none }

334 end-of-attributes

335 Send-Document

336 Operation attributes group

337 **page-overrides: {**

338 **input-documents: 1:1** (I could have used output-documents: 1:1)

339 **pages: 3:4**

340 **sides: one-sided**

341 **media: blue-letter }**

```

342     end-of-attributes
343     Input-Document A
344 Send-Document
345     Operation attributes group
346     document-overrides: {
347         input-documents: 2:2
348         document-format: text/html }
349     end-of-attributes
350     Input-Document B

```

### 351 10.3.3 Page-Subset Documents Case

352 There are two Input-Documents A and B. . The first Input-Document contains 10 Pages and the second one  
353 15 pages. There are 7 Output-Documents with 3 pages, 5 pages, 4 pages, 2 pages, 3 pages, 5 pages and 3  
354 pages. The “pages-per-subset” attributes wraps after the first four Output-Documents and starts with “3”  
355 again. After consuming 22 Input-Pages, the next number is “4”, but only 3 pages remain. So the last Output-  
356 Document is short.

```

357 Create-Job
358     operations attributes group
359     document-format: application/PostScript
360     job attributes group
361         multiple-document-handling: separate-documents-collated-copies
362         pages-per-subset: 3, 5, 4, 2
363         sides: two-sided-long-edge
364         media: letter
365         copies: 3
366         finishings: stapling
367         document-overrides: {
368             output-documents: 2:2
369             finishings: none }
370         page-overrides: {
371             output-documents: 1:7           (I could have used input-documents: 1:100 to be safe)
372             pages: 3:4
373             sides: one-sided
374             media: blue-letter }
375     end-of-attributes
376 Send-Document
377     end-of-attributes
378     Input-Document A
379 Send-Document
380     Operation attributes group
381     document-format: text/html           (this can be here or in the document-overrides)
382     end-of-attributes
383     Input-Document B

```

### 385 10.4 One document with 100 copies for distribution and one on transparencies.

386 In the fourth example, the Printer produces 101 copies of the single Output-Document using Print-Job. The  
387 first 100 are stapled and printed on letter-paper, two-sided, except the first page is on blue paper, one-sided.  
388 The last copy (number 101) is printed on transparencies, one-sided and not stapled. The file is PostScript.

389  
 390 Here are three possible solutions. The first assumes that the job requests 101 letter-paper documents and that  
 391 the single transparency copy is the override. The second assumes that the job requests 101 transparency  
 392 documents and that the 100 letter-paper copies are the override. The third assumes that the job requests 101  
 393 documents with default characteristics and that both single transparency copy and the 100 letter-paper copies  
 394 are overrides. The differences are in ***bold-italic***.

#### 395 10.4.1.1 **First solution.**

```

396 Print-Job
397     operations attributes group
398         document-format: application/PostScript
399     job attributes group
400         sides: two-sided-long-edge
401         media: letter
402         copies: 101
403         finishings: stapling
404         document-format: application/PostScript
405         document-overrides: {
406             output-documents: 1:1           (I could have used input-documents: 1:1 as well)
407             document-copies: 101:101
408             sides: one-sided
409             media: transparency }
410             finishings: none }
411         page-overrides: {
412             output-documents: 1:1           (I could have used input-documents: 1:1 as well)
413             document-copies: 1:100
414             pages: 1:1
415             sides: one-sided
416             media: blue-letter }
417     end-of-attributes
418     Input-Document A
  
```

#### 419 10.4.1.2 **Second solution.**

```

420 Print-Job
421 operations attributes group
422 document-format: application/PostScript
423 job attributes group
424 sides: one-sided
425 media: transparency
426 copies: 101
427 finishings: none
428 document-format: application/PostScript
429 document-overrides: {
430 output-documents: 1:1           (I could have used input-documents: 1:1 as well)
431 document-copies: 1:100
432 sides: two-sided-long-edge
433 media: letter
434 finishings: stapling }
435 page-overrides: {
436 output-documents: 1:1           (I could have used input-documents: 1:1 as well)
  
```

437 document-copies: 1:100  
 438 pages: 1:1  
 439 sides: one-sided  
 440 media: blue-letter }  
 441 end-of-attributes  
 442 Input-Document A

#### 443 10.4.1.3 Third solution.

444 Print-Job  
 445 operations attributes group  
 446 document-format: application/PostScript  
 447 job attributes group  
 448 copies: 101  
 449 document-format: application/PostScript  
 450 document-overrides: {  
 451 output-documents: 1:1 (I could have used input-documents: 1:1 as well)  
 452 *document-copies: 101:101*  
 453 *sides: one-sided*  
 454 *media: transparency*  
 455 *finishings: none }*  
 456 {  
 457 *output-documents: 1:1 (I could have used input-documents: 1:1 as well)*  
 458 *document-copies: 1:100*  
 459 *sides: two-sided-long-edge*  
 460 *media: letter*  
 461 *finishings: stapling }*  
 462 page-overrides: {  
 463 output-documents: 1:1 (I could have used input-documents: 1:1 as well)  
 464 document-copies: 1:100  
 465 pages: 1:1  
 466 sides: one-sided  
 467 media: blue-letter }  
 468 end-of-attributes  
 469 Input-Document A

## 470 11. IANA Considerations

471 IANA will be called on to register the Job Template attributes defined in this document, using the procedures outlined in [ipp-  
 472 mod].  
 473

## 474 12. Internationalization Considerations

475 The IPP extensions defined in this document require the same internationalization considerations as any of the Job Template  
 476 attributes defined in IPP/1.1 [ipp-mod].

## 477 **13. Security Considerations**

478 The IPP extensions defined in this document require the same security considerations as any of the Job Template attributes  
479 defined in IPP/1.1 [ipp-mod].

## 480 **14. References**

481 [ipp-mod]

482 R. deBry, T. Hastings, R. Herriot, S. Isaacson, P. Powell, "Internet Printing Protocol/1.0: Model and Semantics", <draft-  
483 ietf-ipp-model-v11-04.txt>, June 23, 1999.

484 [RFC2566]

485 R. deBry, T. Hastings, R. Herriot, S. Isaacson, P. Powell, "Internet Printing Protocol/1.0: Model and Semantics", RFC  
486 2566, April 1999.

## 487 **15. Author's Addresses**

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## 504 **16. Appendix A: Rules for Attribute Association**

505 For each category of attribute, there is a rule:

- 506 1. Input-Documents: such an attribute
- 507 a) cannot be directly associated with Input-Pages, Output-Pages, Output-Documents
- 508 b) can be directly associated with an Input-Documents, and it affects the Input-Documents it is associated with.
- 509 c) can be associated with a Job and it affects all Input-Documents that don't have the attribute associated with it.
- 510 2. Output-Documents: such an attribute
- 511 a) can never be directly associated with an Input-Page or Output-Page.
- 512 b) can be directly associated with an Output-Documents, and it affects the Output-Documents it is associated with.
- 513 c) can be directly associated with an Input-Documents. If that Input-Documents produces a first Output-Page for one or  
514 more Output-Documents, the attribute is effectively associated with each such Output-Documents that doesn't have

- 515 the attribute directly associated with it. Now use rule 2b). If that Input-Document doesn't produce any first Output-  
 516 Pages of an Output-Document, it is ignored and the Printer produces a warning message.
- 517 d) can be associated with a Job and it affects all Output-Documents that don't have the attribute associated with it.
- 518 3. Sheets: such attributes
- 519 a) can be directly associated with an Output-Page, and it affects the associated Output-Page .
- 520 b) can be directly associated with an Input-Page, and it is effectively associated with the Output-Page determined by  
 521 the relationship described for the four cases in section 4.2 if that Output-Page doesn't have the attribute directly  
 522 associated with it. Now use rule 3a)
- 523 c) can be directly associated with an Output-Document, and it affects all Output-Pages in the specified Output-  
 524 Document that don't have the attribute associated directly with it or the corresponding Input-Page.
- 525 d) can be directly associated with an Input-Document, and it is effectively associated with all Input-Pages in the  
 526 specified Input-Document that don't have the attribute associated directly with it. By transitivity, the attribute is  
 527 effectively associated with all corresponding Output-Pages (see section 4.2) that don't have the attribute associated  
 528 directly with the them or the containing Output-Document. Now use rule 3a)
- 529 e) can be associated with a Job and it affects all Output-Pages that don't have the attribute associated with it.

530

531 When an association includes the "document-copies" attribute, it modifies the meaning of the above rules slightly for each  
 532 effective association. If the attribute effectively associates with:

533

534

- Input-Documents, the Printer ignores the "document-copies" attribute.

535

- Output-Documents, the attribute affects the specified copies of the Output-Documents (See Item 2b))

536

- Sheets: the attribute affects the sheets of the specified copies of Output-Documents (See Items 3a) and 3c)).

## 537 **17. Appendix B: Change History**

538 This section summarizes the changes to the document. Each sub-section is in reverse chronological order. Adding or removing  
 539 ISSUES that don't change the document are not listed here.

### 540 **17.1 Changes to the January 3, 2000 version to make the January 31, 2000 version**

541 The following changes to the January 3, 2000 version to make the January 31, 2000 version:

- 542 1. Changed the format to be a PWG-DRAFT. No technical content changed.

## 543 **18. Appendix C: Description of the IEEE-ISTO PWG**

544 The Printer Working Group (or PWG) is a Program of the IEEE Industry Standards and Technology Organization (ISTO) and is an  
 545 alliance among printer manufacturers, print server developers, operating system providers, network operating systems providers,  
 546 network connectivity vendors, and print management application developers chartered to make printers and the applications and  
 547 operating systems supporting them work together better. All references to the PWG in this document implicitly mean "The Printer  
 548 Working Group, a Program of the IEEE ISTO." In order to meet this objective, the PWG will document the results of their work as  
 549 open standards that define print related protocols, interfaces, procedures and conventions. Printer manufacturers and vendors of  
 550 printer related software will benefit from the interoperability provided by voluntary conformance to these standards.  
 551 In general, a PWG standard is a specification that is stable, well understood and is technically competent, has multiple,  
 552 independent and interoperable implementations with substantial operational experience, and enjoys significant public support.



553 The PWG may issue a standard as a PWG standard and/or when appropriate submit the standard to other standards  
554 organizations, such as the IETF, ISO, ITU, IEEE, or ECMA.

555

556