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2 Service Location Working Group  
3 INTERNET DRAFT  
4 Expires 21 April 2000

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21 October 1999

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10 Definition of printer: URLs for use with Service Location  
11 <draft-ietf-srvloc-printer-scheme-04.txt>

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13  
14 Status of This Memo

15  
16 This document is an Internet-Draft and is in full conformance with  
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21  
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25 material or to cite them other than as "work in progress."

26  
27 To view the list of Internet-Draft Shadow Directories, see  
28 <http://www.ietf.org/shadow.html>.

29  
30  
31 Abstract

32  
33 This document is a submission to the Service Location Working Group  
34 of the Internet Engineering Task Force (IETF). Comments should be  
35 submitted to the [srvloc@srvloc.org](mailto:srvloc@srvloc.org) mailing list.

36  
37 This document defines the 'printer:' service type and the attributes  
38 associated with it. This 'printer:' service template is designed to  
39 be used in conjunction with the Service Location Protocol, Version 2  
40 (SLPv2) [13], but may be used with any directory service which  
41 supports attribute/value pair registration, such as Lightweight  
42 Directory Access Protocol, Version 3 (LDAPv3, RFC 2251).

43  
44 The 'printer:' service type is specified as an abstract service type.  
45 It is expected that printers advertised with the 'printer:' service  
46 type may be accessible by one or more protocols. IPP [3] and LPR [2]  
47 are two examples of printing protocols that may be used to perform  
48 the actual printing.

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117 1. Introduction  
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119 Service Type templates are used to describe in a standard way those  
120 services which use the 'service:' URL. The template described in  
121 this document is an abstract type that includes concrete types such  
122 as the printing protocol defined in RFC 1179 [2], "Line Printer  
123 Daemon Protocol". The service type for this 'service:' URL is  
124 'printer:'.  
125

126 The 'printer:' service URL scheme supports consistent registration of  
127 printer services. The attributes described within this document are  
128 derived from previous specifications developed by the IETF IPP WG and  
129 IETF Printer MIB WG.  
130

131 The attributes specified are intended to facilitate both automatic  
132 and manual selection of services, not to provide service state,  
133 statistics, or notification. The target audience of service  
134 attributes consists of users, either software agents or end users.  
135  
136  
137

138 2. Terminology  
139

140 The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",  
141 "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this  
142 document are to be interpreted as described in RFC 2119 [14].  
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172  
173 3. Template url-path Definition  
174

175 The 'printer:' type is an abstract service type. Because an abstract  
176 service type may contain one of many concrete types, the 'url-path'  
177 associated with a 'printer:' service URL may vary. IPP and LPR  
178 printers are presently supported by this 'printer:' template. Other  
179 printer protocols MAY be supported by extension templates or by  
180 future updates of this abstract 'printer:' template.  
181

182  
183  
184 3.1. IPP  
185

186 An IPP Printer object is defined in "IPP/1.1 Model and Semantics"  
187 [3]. An IPP printer concrete URL is defined in "IPP/1.1 Encoding and  
188 Transport" [9].  
189

190 Examples of valid 'service:' URLs for IPP printers include:

191  
192 service:printer:ipp://server.sun.com/cgi-bin/public-printer  
193 service:printer:ipp://foo.sun.com/printers?public-printer  
194

195  
196  
197 3.2. LPR  
198

199 An LPR accessible printer MAY include a queue name as the last part  
200 of the URL. If the queue name is absent, the print server is assumed  
201 to use a default print queue. The definition of an LPR printer  
202 concrete URL is specified in this document, in the 'printer:' service  
203 template.  
204

205 Examples of valid 'service:' URLs for LPR printers include:

206  
207 service:printer:lpr://server.sun.com  
208 service:printer:lpr://server.sun.com/public-printer  
209  
210  
211  
212  
213  
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228  
229 4. Printer Service Template  
230

231 The 'printer:' service template defined below conforms to the grammar  
232 described in "Service Templates and service: Schemes". Please refer  
233 to [4] for detailed explanation of the syntax.  
234

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238

239 Language of service template: en (English)  
240

241 Security Considerations:

242 By advertising the security methods associated with each supported  
243 printer URL via the mandatory attributes 'printer-uri-supported'  
244 'uri-authentication-supported', and 'uri-security-supported', the  
245 the printer may expose information useful to attackers. Either SL  
246 security or another security method SHOULD be used to authenticate  
247 any service advertisements.  
248

249 Template Text:

```
250 ----- template begins here -----  
251     template-type = printer  
252  
253     template-version = 0.4  
254  
255     template-description =  
256         The 'printer:' service template describes the attributes  
257         supported by network printing devices. Devices may be  
258         either directly connected to a network or managed by a  
259         print server. The device or server understands one or  
260         more network print protocols such as IPP or LPR.  
261  
262     template-url-syntax =  
263         url-path      = ippurl / lprurl  
264         ippurl        = IPP URL as defined in [9]  
265         lprurl        = "lpr://" hostport [ "/" qname ]  
266         hostport      = host [ ":" port ]  
267         host          = hostname / hostnumber  
268         hostname      = *( domainlavel "." ) toplabel  
269         domainlavel  = alphanum /  
270                     alphanum * [alphanum / "-"] alphanum  
271         toplabel     = alpha / alpha * [alphanum / "-"] alphanum  
272         hostnumber   = ipv4-number / ipv6-number  
273         ipv4-number  = 1*3digit 3*3("." 1*3digit)  
274         ipv6-number  = 32*hex  
275         3digit       = digit digit digit  
276         port         = 1*digit  
277         alphanum     = alpha / digit  
278
```

```
280
281 Internet Draft      'printer:' Service Template      21 October 1999
282
283     alpha          = "a" / "b" / "c" / "d" / "e" / "f" / "g" /
284                   "h" / "i" / "j" / "k" / "l" / "m" / "n" /
285                   "o" / "p" / "q" / "r" / "s" / "t" / "u" /
286                   "v" / "w" / "x" / "y" / "z" /
287                   "A" / "B" / "C" / "D" / "E" / "F" / "G" /
288                   "H" / "I" / "J" / "K" / "L" / "M" / "N" /
289                   "O" / "P" / "Q" / "R" / "S" / "T" / "U" /
290                   "V" / "W" / "X" / "Y" / "Z"
291     digit          = "0" / "1" / "2" / "3" / "4" / "5" / "6" /
292                   "7" / "8" / "9"
293
294 printer-uri-supported = STRING L
295     # REQUIRED for all registrations by conforming SLP SAs
296     # IPP 'printer-uri-supported'
297     # The ORDERED list of URI supported by this printer,
298     # correlated with 'uri-authentication-supported' values
299     # and correlated with 'uri-security-supported' values.
300     # Each list member is delimited by '>', for example:
301     #   'lpr://foo.com> ipp://bar.com>'
302
303 uri-authentication-supported = STRING L
304     # REQUIRED for all registrations by conforming SLP SAs
305     # IPP 'uri-authentication-supported'
306     # The ORDERED list of authentication supported for each URI
307     # specified in 'printer-uri-supported' for this printer.
308     # Each list member is delimited by '>', for example:
309     #   'basic> certificate>'
310     # (see example of 'printer-uri-supported' above).
311     # Legal values include
312     #   'none' (no authentication for this URI)
313     #   'requesting-user-name' (from operation request)
314     #   'basic' (HTTP/1.1 Basic, RFC 2617)
315     #   'digest' (HTTP/1.1 Basic, RFC 2617)
316     #   'certificate' (from certificate)
317     # per IPP Model [3] (extensions MAY also be used).
318     # URI that do not support authentication SHALL specify
319     # 'none'.
320
321 uri-security-supported = STRING L
322     # REQUIRED for all registrations by conforming SLP SAs
323     # IPP 'uri-security-supported'
324     # The ORDERED list of security supported for each URI
325     # specified in 'printer-uri-supported' for this printer.
326     # Each list member is delimited by '>', for example:
327     #   'none> tls>'
328     # (see example of 'printer-uri-supported' above).
329     # Legal values include
330     #   'none' (no security for this URI)
331     #   'ssl3' (Netscape SSL3)
332     #   'tls' (IETF TLS/1.0, RFC 2246)
333     # per IPP Model [3] (extensions MAY also be used).
334
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336
337 Internet Draft      'printer:' Service Template      21 October 1999
338
339     # URI that do not support security SHALL specify
340     # 'none'.
341
342 printer-name = STRING
343     # REQUIRED for all registrations by conforming SLP SAs
344     # IPP 'printer-name'
345     # The site-specific administrative name of this printer,
346     # in the language in 'natural-language-configured'.
347     # This name MAY be the last part of the printer's URI or it
348     # MAY be completely unrelated.
349     # This name MAY contain characters that are not allowed in a
350     # conventional URI (which conforms to RFC 2396).
351     # If this printer information is not known to the SLP SA,
352     # then this attribute SHALL be set to 'unknown'.
353     # This attribute SHOULD be static (time of registration)
354     # and SHOULD NOT be dynamically refreshed (subsequently).
355
356 printer-location = STRING 0
357     unknown
358     # IPP 'printer-location'
359     # The physical location of this printer,
360     # in the language in 'natural-language-configured'.
361     # A free form description of this printer's physical
362     # location, for example:
363     #   '2nd floor, near the fire escape'
364     # If this printer information is not known to the SLP SA,
365     # then this attribute SHALL be set to 'unknown'.
366
367 printer-info = STRING 0
368     unknown
369     # IPP 'printer-info'
370     # Additional descriptive information on this printer,
371     # in the language in 'natural-language-configured'.
372     # A free form string that may contain any site-specific
373     # descriptive information about this printer.
374     # If this printer information is not known to the SLP SA,
375     # then this attribute SHALL be set to 'unknown'.
376
377 printer-more-info = STRING L 0
378     unknown
379     # IPP 'printer-more-info'
380     # A URI used to obtain more information about this specific
381     # printer.  For example, this could be an 'http:' URI
382     # referencing an HTML page accessible to a Web Browser.
383     # The information obtained from this URI is intended for
384     # end user consumption.
385     # If this printer information is not known to the SLP SA,
386     # then this attribute SHALL be set to 'unknown'.
387
388 printer-make-and-model = STRING 0
389     unknown
390
391 St. Pierre, Isaacson, McDonald      Expires 21 April 2000      [Page 7]
```

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392
393 Internet Draft          'printer:' Service Template          21 October 1999
394
395     # IPP 'printer-make-and-model'
396     # The manufacturer, make, and model of this printer,
397     # a simple text string defined by the manufacturer,
398     # in the language in 'natural-language-configured'.
399     # If this printer information is not known to the SLP SA,
400     # then this attribute SHALL be set to 'unknown'.
401
402 ipp-versions-supported = STRING L M O
403     none
404     # IPP 'ipp-versions-supported'
405     # The unordered list of 'major.minor' IPP versions
406     # supported by this printer or 'none'.
407     # For example:
408     #   '1.0, 1.1'
409     # Legal values include 'none', '1.0', and '1.1',
410     # per IPP Model [3] (extensions MAY also be used).
411     # If this printer information is not known to the SLP SA,
412     # then this attribute SHALL be set to 'none'.
413
414 multiple-document-jobs-supported = STRING L O
415     unknown
416     # IPP 'multiple-document-jobs-supported'
417     # Indicates whether this printer supports more than one
418     # document per job.
419     # This template attribute is an extended boolean.
420     # If this printer information is not known to the SLP SA,
421     # then this attribute SHALL be set to 'unknown'.
422     unknown, true, false
423
424 charset-configured = STRING L O
425     utf-8
426     # IPP 'charset-configured'
427     # The configured charset in which error and status messages
428     # will be generated (by default) by this printer.
429     # Also, a possible charset for printer string attributes
430     # set by operator, system administrator, or manufacturer.
431     # For example:
432     #   'utf-8' (ISO 10646/Unicode) or 'iso-8859-1' (Latin1)
433     # Legal values of charset tags (names/aliases) come from
434     # the IANA Registry of Coded Character Sets [6] and
435     # the '(preferred MIME name)' SHALL be used as the tag.
436     # For coherence with IPP Model [3], charset tags in this
437     # attribute SHALL be lowercase normalized.
438     # This attribute SHOULD be static (time of registration)
439     # and SHOULD NOT be dynamically refreshed (subsequently).
440
441 charset-supported = STRING L M O
442     utf-8
443     # IPP 'charset-supported'
444     # The possible charsets in which error and status messages
445     # may be generated (if requested) by this printer.
446
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```



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448
449 Internet Draft          'printer:' Service Template          21 October 1999
450
451     # Also, the possible charsets for printer string attributes
452     # set by operator, system administrator, or manufacturer.
453     # For example:
454     #   'utf-8' (ISO 10646/Unicode) or 'iso-8859-1' (Latin1)
455     # Legal values of charset tags (names/aliases) come from
456     # the IANA Registry of Coded Character Sets [6] and
457     # the '(preferred MIME name)' SHALL be used as the tag.
458     # This attribute SHALL include the value 'utf-8', per
459     # RFC 2277, 'IETF Policy on Charsets and Languages' [12].
460     # For coherence with IPP Model [3], charset tags in this
461     # attribute SHALL be lowercase normalized.
462
463     natural-language-configured = STRING L
464     # REQUIRED for all registrations by conforming SLP SAs
465     # IPP 'natural-language-configured'
466     # The configured language in which error and status messages
467     # will be generated (by default) by this printer.
468     # Also, a possible language for printer string attributes
469     # set by operator, system administrator, or manufacturer.
470     # Also, the (declared) language of the 'printer-name',
471     # 'printer-location', 'printer-info', and
472     # 'printer-make-and-model' attributes of this printer.
473     # For example:
474     #   'en-us' (US English) or 'fr-fr' (French in France)
475     # Legal values of language tags conform to RFC 1766
476     # 'Tags for the Identification of Languages' [5].
477     # For coherence with IPP Model [3], language tags in this
478     # attribute SHALL be lowercase normalized.
479     # This attribute SHOULD be static (time of registration)
480     # and SHOULD NOT be dynamically refreshed (subsequently).
481
482     natural-language-supported = STRING L M
483     # REQUIRED for all registrations by conforming SLP SAs
484     # IPP 'generated-natural-language-supported'
485     # The possible languages in which error and status messages
486     # may be generated (if requested) by this printer.
487     # Also, the possible languages for printer string attributes
488     # set by operator, system administrator, or manufacturer.
489     # For example:
490     #   'en-us' (US English) or 'fr-fr' (French in France)
491     # Legal values of language tags conform to RFC 1766
492     # 'Tags for the Identification of Languages' [5].
493     # For coherence with IPP Model [3], language tags in this
494     # attribute SHALL be lowercase normalized.
495
496     document-format-supported = STRING L M
497     # REQUIRED for all registrations by conforming SLP SAs
498     # IPP 'document-format-supported'
499     # The possible document formats in which data may be
500     # interpreted and printed by this printer.
501     # Legal values of document formats (MIME types) come from
502
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504
505 Internet Draft          'printer:' Service Template          21 October 1999
506
507     # the IANA Registry of Internet Media Types [11].
508     # If this printer information is not known to the SLP SA,
509     # then this attribute SHALL be set to 'unknown'.
510
511 color-supported = STRING L O
512     unknown
513     # IPP 'color-supported'
514     # Indicates whether this printer is capable of any type of
515     # color printing at all, including highlight color.
516     # This template attribute is an extended boolean.
517     # If this printer information is not known to the SLP SA,
518     # then this attribute SHALL be set to 'unknown'.
519     unknown, true, false
520
521 compression-supported = STRING L M
522     # REQUIRED for all registrations by conforming SLP SAs
523     # IPP 'compression-supported'
524     # The unordered list of compression algorithms supported
525     # by this printer.
526     # For example:
527     #   'deflate, gzip'
528     # Legal values include
529     #   'none'
530     #   'deflate' (public domain ZIP)
531     #   'gzip' (GNU ZIP)
532     #   'compress' (UNIX)
533     # per IPP Model [3] (extensions MAY also be used).
534     # If this printer information is not known to the SLP SA,
535     # then this attribute SHALL be set to 'none'.
536
537 pages-per-minute = INTEGER O
538     -1
539     # IPP 'pages-per-minute'
540     # The nominal number of pages per minute which may be
541     # output by this printer (e.g., simplex, black-and-white).
542     # This attribute is informative, NOT a service guarantee.
543     # Typically, it is the value used in marketing literature
544     # to describe this printer.
545     # A value of '-1' indicates unknown.
546     # If this printer information is not known to the SLP SA,
547     # then this attribute SHALL be set to '-1'.
548
549 pages-per-minute-color = INTEGER O
550     -1
551     # IPP 'pages-per-minute-color'
552     # The nominal number of color pages per minute which may be
553     # output by this printer (e.g., simplex, color).
554     # This attribute is informative, NOT a service guarantee.
555     # Typically, it is the value used in marketing literature
556     # to describe this printer.
557     # A value of '-1' indicates unknown.
558
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563 # If this printer information is not known to the SLP SA,  
564 # then this attribute SHALL be set to '-1'.  
565

566 finishings-supported = STRING L M O  
567 none  
568 # IPP 'finishings-supported'  
569 # The possible finishing operations supported by this  
570 # printer.  
571 # Legal values of finishings are defined in IPP Model [3].  
572 # If this printer information is not known to the SLP SA,  
573 # then this attribute SHALL be set to 'none'.  
574 none, staple, punch, cover, bind,  
575 saddle-stitch, edge-stitch,  
576 staple-top-left, staple-bottom-left,  
577 staple-top-right, staple-bottom-right,  
578 edge-stitch-left, edge-stitch-top,  
579 edge-stitch-right, edge-stitch-bottom,  
580 staple-dual-left, staple-dual-top,  
581 staple-dual-right, staple-dual-bottom  
582

583 number-up-supported = INTEGER M O  
584 1  
585 # IPP 'number-up-supported'  
586 # The possible numbers of print-stream pages to impose  
587 # upon a single side of an instance of a selected  
588 # medium.  
589 # Legal values of this attribute include 1, 2, and 4 [3].  
590 # Implementations may support other values.  
591 # If this printer information is not known to the SLP SA,  
592 # then this attribute SHALL be set to '1'.  
593

594 sides-supported = STRING L M O  
595 one-sided  
596 # IPP 'sides-supported'  
597 # (Compare with Salutation 'duplex-mode')  
598 # The number of impression sides (one or two) and the  
599 # two-sided impression rotations supported by this printer.  
600 # Salutation 'simplex' == IPP 'one-sided'  
601 # Salutation 'duplex' == IPP 'two-sided-long-edge'  
602 # Salutation 'tumble' == IPP 'two-sided-short-edge'  
603 # If this printer information is not known to the SLP SA,  
604 # then this attribute SHALL be set to 'one-sided'.  
605 one-sided, two-sided-long-edge, two-sided-short-edge  
606

607 media-supported = STRING L M O  
608 unknown  
609 # IPP 'media-supported' - only the standard keyword values  
610 # The standard names/types/sizes (and optional color  
611 # suffixes) of the media supported by this printer.  
612 # The values specified are NOT localized according to the  
613 # value of 'natural-language-configured', but are in a  
614

```

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619     # fixed language of 'en-us' (US English).  For example:
620     #   'iso-a4' or 'envelope' or 'na-letter-white'
621     # Legal values of this attribute conform to ISO 10175
622     # 'Document Printing Application (DPA)' [10] and
623     # any IANA registered extensions, per IPP Model [3].
624     # If this printer information is not known to the SLP SA,
625     # then this attribute SHALL be set to 'unknown'.
626
627 media-local-supported = STRING M O
628     unknown
629     # IPP 'media-supported' - only site-specific name values
630     # Site-specific names of media supported by this printer,
631     # in the language in 'natural-language-configured'.
632     # For example:
633     #   'purchasing-form' (site-specific name)
634     # as opposed to (in 'media-supported' above):
635     #   'na-letter' (standard keyword from ISO 10175 [10]).
636     # If this printer information is not known to the SLP SA,
637     # then this attribute SHALL be set to 'unknown'.
638
639 printer-resolution-supported = STRING L M O
640     unknown
641     # IPP 'printer-resolution-supported'
642     # (Compare with 'printer-uri-supported' in this template)
643     # The unordered list of resolutions supported for printing
644     # documents by this printer.
645     # Each resolution supported is a string with 3 fields:
646     # 1) Crossfeed direction resolution (positive integer)
647     # 2) Feed direction resolution (positive integer)
648     # 3) Resolution unit (enumerated value - see below)
649     # Each resolution field is delimited by '>', for example:
650     #   '300> 300> dpi>, 600> 600> dpi>'
651     # Legal values of resolution unit are
652     #   'dpi' (dots per inch)
653     #   'dpcm' (dots per centimeter)
654     # per IPP Model [3] (extensions SHOULD NOT be used).
655     # This attribute is derived from the Printer MIB [7].
656     # If this printer information is not known to the SLP SA,
657     # then this attribute SHALL be set to 'unknown'.
658
659 print-quality-supported = STRING L M O
660     unknown
661     # IPP 'print-quality-supported'
662     # The unordered list of print qualities supported for
663     # printing documents on this printer.
664     # For example:
665     #   'draft, normal'
666     # Legal values are defined in IPP Model [3].
667     # If this printer information is not known to the SLP SA,
668     # then this attribute SHALL be set to 'unknown'.
669     unknown, draft, normal, high
670
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676 job-priority-supported = INTEGER 0  
677 1  
678 # IPP 'job-priority-supported'  
679 # (Compare with Salutation 'priority-levels-supported')  
680 # Indicates the number of job priority levels supported.  
681 # An IPP conformant printer which supports job priority  
682 # must always support a full range of priorities from  
683 # '1' to '100' (to ensure consistent behavior), therefore  
684 # this template attribute describes the 'granularity'.  
685 # Legal values of this attribute are from '1' to '100'.  
686 # If this printer information is not known to the SLP SA,  
687 # then this attribute SHALL be set to '1'.  
688

689 copies-supported = INTEGER 0  
690 -1  
691 # IPP 'copies-supported'  
692 # The maximum number of copies of a document  
693 # that may be printed as a single job.  
694 # A value of '0' indicates no maximum limit.  
695 # A value of '-1' indicates unknown.  
696 # If this printer information is not known to the SLP SA,  
697 # then this attribute SHALL be set to '-1'.  
698

699 job-k-octets-supported = INTEGER 0  
700 -1  
701 # IPP 'job-k-octets-supported'  
702 # The maximum size in kilobytes (1,024 octets actually)  
703 # incoming print job that this printer will accept.  
704 # A value of '0' indicates no maximum limit.  
705 # A value of '-1' indicates unknown.  
706 # If this printer information is not known to the SLP SA,  
707 # then this attribute SHALL be set to '-1'.  
708

709 printer-current-operator = STRING M 0  
710 unknown  
711 # Printer MIB 'prtGeneralCurrentOperator'  
712 # The name of the current human operator responsible for  
713 # operating this printer. It is suggested that this string  
714 # include information that would enable other humans to  
715 # reach the operator, such as a phone number.  
716 # If this printer information is not known to the SLP SA,  
717 # then this attribute SHALL be set to 'unknown'.  
718 # This attribute SHOULD be static (time of registration)  
719 # and SHOULD NOT be dynamically refreshed (subsequently).  
720

721 printer-service-person = STRING M 0  
722 unknown  
723 # Printer MIB 'prtGeneralServicePerson'  
724 # The name of the current service person responsible for  
725 # servicing this printer. It is suggested that this string  
726

731 # include information that would enable other humans to  
732 # reach the service person, such as a phone number.  
733 # If this printer information is not known to the SLP SA,  
734 # then this attribute SHALL be set to 'unknown'.  
735 # This attribute SHOULD be static (time of registration)  
736 # and SHOULD NOT be dynamically refreshed (subsequently).

737  
738 delivery-orientation-supported = STRING L O  
739 unknown  
740 # Printer MIB 'prtOutputPageDeliveryOrientation'  
741 # The possible delivery orientations of pages as they are  
742 # printed and ejected from this printer.  
743 # If this printer information is not known to the SLP SA,  
744 # then this attribute SHALL be set to 'unknown'.  
745 unknown, face-up, face-down  
746

747 stacking-order-supported = STRING L M O  
748 unknown  
749 # Printer MIB 'prtOutputStackingOrder'  
750 # (Compare with Salutation 'paper-output')  
751 # The possible stacking order of pages as they are printed  
752 # and ejected from this printer.  
753 # If this printer information is not known to the SLP SA,  
754 # then this attribute SHALL be set to 'unknown'.  
755 unknown, first-to-last, last-to-first  
756

757 output-features-supported = STRING L M O  
758 unknown  
759 # Printer MIB 'prtOutputFeaturesGroup'  
760 # (Compare with Salutation 'paper-output')  
761 # The possible output features supported by this printer.  
762 # 'bursting' == Printer MIB 'prtOutputBursting'  
763 # 'decollating' == Printer MIB 'prtOutputDecollating'  
764 # 'page-collating' == Printer MIB 'prtOutputPageCollated'  
765 # 'offset-stacking' == Printer MIB 'prtOutputOffsetStacking'  
766 # If this printer information is not known to the SLP SA,  
767 # then this attribute SHALL be set to 'unknown'.  
768 unknown, bursting, decollating, page-collating,  
769 offset-stacking  
770

771 ----- template ends here -----  
772

789 5. Summary of Required Attributes  
790

791 Attributes are associated with 'service:' URLs in order to provide a  
792 dynamic search capability to service location clients, not to burden  
793 servers implementations during registrations.  
794

795 A small subset (8) of the attributes defined in 'printer:' are  
796 REQUIRED in all compliant service registrations by SLP SAs:  
797

798 SLP Required Attribute	IPP Generic Directory Schema
799 -----	-----
800 printer-uri-supported	r
801 uri-authentication-supported	r
802 uri-security-supported	r
803 printer-name	r
804 natural-language-configured	m (SLP enhancement)
805 natural-language-supported	o (SLP enhancement)
806 document-format-supported	r
807 compression-supported	r

- 808  
809 r RECOMMENDED - Appendix E 'Generic Directory Schema' IPP Model [3]  
810 REQUIRED - SLP 'printer:' template  
811 o OPTIONAL - Appendix E 'Generic Directory Schema' IPP Model [3]  
812 REQUIRED - SLP 'printer:' template  
813 m Missing - Appendix E 'Generic Directory Schema' IPP Model [3]  
814 REQUIRED - SLP 'printer:' template  
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845 6. Summary of Optional Attributes

846 Many of the attributes defined in 'printer:' are OPTIONAL in all  
 847 compliant service registrations by SLP SAs:

848 SLP Optional Attribute	849 IPP Generic Directory Schema
850 -----	851 -----
852 printer-location	r
853 printer-info	o
854 printer-more-info	o
855 printer-make-and-model	r
856 ipp-versions-supported	r
857 multiple-document-jobs-supported	o
858 charset-configured	m (SLP enhancement)
859 charset-supported	o
860 color-supported	r
861 finishings-supported	r
862 number-up-supported	o
863 sides-supported	r
864 media-supported	r
865 media-local-supported	m (part of 'media-supported')
866 pages-per-minute	o
867 pages-per-minute-color	o
868 printer-resolution-supported	o
869 print-quality-supported	o
870 job-priority-supported	m (SLP enhancement)
871 copies-supported	m (SLP enhancement)
872 job-k-octets-supported	m (SLP enhancement)
873 printer-current-operator	m (from Printer MIB)
874 printer-service-person	m (from Printer MIB)
875 delivery-orientation-supported	m (from Printer MIB)
876 stacking-order-supported	m (from Printer MIB)
877 output-features-supported	m (from Printer MIB)

- 878
- 879 r RECOMMENDED - Appendix E 'Generic Directory Schema' IPP Model [3]
- 880 OPTIONAL - SLP 'printer:' template (with specified default)
- 881 o OPTIONAL - Appendix E 'Generic Directory Schema' IPP Model [3]
- 882 OPTIONAL - SLP 'printer:' template (with specified default)
- 883 m Missing - Appendix E 'Generic Directory Schema' IPP Model [3]
- 884 OPTIONAL - SLP 'printer:' template (with specified default)
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900  
 901 7. Summary of Attribute Origins  
 902

903 The following table summarizes the origins of all of the attributes  
 904 in the 'printer:' service template (except 'template-xxx' generic  
 905 attributes defined in "Service Templates and service: Schemes" [4]  
 906 and required for all 'service:' templates).  
 907

908 Attribute Name	IPP[3]	Printer MIB[7]
909 -----	-----	-----
910 printer-uri-supported	X	
911 uri-authentication-supported	X	
912 uri-security-supported	X	
913 printer-name	X	
914 printer-location	X	
915 printer-info	X	
916 printer-more-info	X	
917 printer-make-and-model	X	
918 ipp-versions-supported	X	
919 multiple-document-jobs-supported	X	
920 charset-configured	X	
921 charset-supported	X	
922 natural-language-configured	X	
923 natural-language-supported	X	
924 document-format-supported	X	
925 color-supported	X	
926 compression-supported	X	
927 pages-per-minute	X	
928 pages-per-minute-color	X	
929 finishings-supported	X	
930 number-up-supported	X	
931 sides-supported	X	
932 media-supported	X	
933 media-local-supported	X	
934 printer-resolution-supported	X	
935 print-quality-supported	X	
936 job-priority-supported	X	
937 copies-supported	X	
938 job-k-octets-supported	X	
939 printer-current-operator		X
940 printer-service-person		X
941 delivery-orientation-supported		X
942 stacking-order-supported		X
943 output-features-supported		X

956  
957 8. IANA Considerations  
958

959 Registration of this 'printer:' service template will follow the  
960 procedures defined in section 4 'A Procedure for Standardizing New  
961 Service Types' and section 5 'IANA Considerations' of "Service  
962 Templates and service: Schemes" [4].  
963  
964

965  
966 9. Internationalization Considerations  
967

968 All attribute values in registrations using this 'printer:' service  
969 template MUST be encoded in UTF-8 characters, as required by "Service  
970 Location Protocol, Version 2" [13]. Thus, all registrations using  
971 this 'printer:' service template conform to "IETF Policy on Character  
972 Sets and Languages" [12].  
973  
974

975  
976 10. Security Considerations  
977

978 When used with SLPv2, this 'printer:' service template inherits all  
979 of the security issues described in section 17 'Security  
980 Considerations' of "Service Location Protocol, Version 2" [13].  
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1013 11. References  
1014

1015 [1] J. Veizades, E. Guttman, C. Perkins, S. Kaplan. Service Location  
1016 Protocol, RFC 2165, June 1997.

1017  
1018 [2] L. McLaughlin. Line Printer Daemon Protocol, RFC 1179, August  
1019 1990.

1020  
1021 [3] R. deBry, T. Hastings, R. Herriot, S. Isaacson, P. Powell.  
1022 IPP/1.1: Model and Semantics, <draft-ietf-ipp-model-v11-04.txt>  
1023 (work in progress), June 1999.

1024  
1025 [4] E. Guttman, C. Perkins, J. Kempf. Service Templates and service:  
1026 Schemes, RFC 2609, June 1999. (Updates RFC 2165)

1027  
1028 [5] H. Alvestrand. Tags for the Identification of Languages, RFC  
1029 1766. March 1995.

1030  
1031 [6] IANA Registry of Coded Character Sets:  
1032 ftp://ftp.isi.edu/in-notes/iana/assignments/character-sets.

1033  
1034 [7] R. Smith, F. Wright, T. Hastings, S. Zilles, J. Gyllenskog.  
1035 Printer MIB, RFC 1759, March 1995.

1036  
1037 [8] Salutation Consortium, Inc. Salutation Architecture  
1038 Specification V2.0, December 1996.

1039  
1040 [9] R. Herriot, S. Butler, P. Moore, R. Turner. IPP/1.1: Encoding  
1041 and Transport, <draft-ietf-ipp-protocol-v11-03.txt> (work in  
1042 progress), June 1999.

1043  
1044 [10] Information Technology - Document Printing Application (DPA),  
1045 ISO/IEC 10175, June 1996.

1046  
1047 [11] IANA Registry of Internet Media Types (also called MIME types):  
1048 ftp://ftp.isi.edu/in-notes/iana/assignments/media-types

1049  
1050 [12] H. Alvestrand. IETF Policy on Character Sets and Languages, RFC  
1051 2277, January 1998.

1052  
1053 [13] E. Guttman, C. Perkins, J. Veizades, M. Day. Service Location  
1054 Protocol, Version 2, RFC 2608, June 1999. (Updates RFC 2165)

1055  
1056 [14] S. Bradner. Key words for use in RFCs to Indicate Requirement  
1057 Levels, RFC 2119, March 1997.

1068  
1069 12. Acknowledgments  
1070

1071 This document is a submission to the Service Location Working group.  
1072

1073 Thanks to Jean Beha (Xerox), Jim Erwin (Novell), Tom Hastings  
1074 (Xerox), Bob Herriot (Xerox), James Kempf (Sun), Hugo Parra (Novell),  
1075 Todd Rupper (Novell), and Randy Turner (formerly Sharp). Appendix E  
1076 'Generic Directory Schema' in IPP/1.1 Model [3] (recommended and  
1077 optional attributes for registering IPP printers) was the primary  
1078 input to this version of the 'printer:' service template.  
1079

1080  
1081  
1082 13. Authors' Addresses  
1083

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