

1 INTERNET-DRAFT ~~7 ISSUES are highlighted like this.~~  
2 <draft-ietf-ipp-notify-mailto-010.txt>

Henrik Holst  
i-data international a/s  
Tom Hastings  
Xerox Corp.  
Carl-Uno Manros  
Xerox Corp.  
~~March~~May 9, 2000

10 Internet Printing Protocol (IPP):  
11 **The 'mailto:' Notification Delivery Method**

12 Copyright (C) The Internet Society (2000). All Rights Reserved.

13  
14 Status of this Memo

15 This document is an Internet-Draft and is in full conformance with all provisions of Section 10 of  
16 ~~[rfc2026]~~, [RFC2026]. Internet-Drafts are working documents of the Internet Engineering Task Force  
17 (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as  
18 Internet-Drafts.

19 Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or  
20 obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or  
21 to cite them other than as "work in progress".

22 The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/1id-abstracts.txt>

23 The list of Internet-Draft Shadow Directories can be accessed as <http://www.ietf.org/shadow.html>.

24 **Abstract**

25 The ~~IPP notification specification~~ IPP: Event Notification Specification [ipp-ntfy] is an OPTIONAL  
26 extension to IPP/1.0 and IPP/1.1 that requires the definition of one or more delivery methods for  
27 dispatching event notification reports to Notification Recipients. This document describes the semantics  
28 and syntax of the 'mailto:' event notification delivery method. For this delivery method, the IPP Printer uses  
29 the SMTP mail protocol to send (push) Human Consumable and/or Machine Consumable Notifications to  
30 Notification Recipients. The Subscriber specifies the mail address using the mailto: URL. This mail  
31 address can be any user or can be any of the mail services defined to perform such notification using  
32 parameters in the URL, such as paging. The Subscriber can specify the MIME media type of both the  
33 Human Consumable and Machine Consumable Notifications. The Subscriber can also specify a mail  
34 address in the "subscriber-user-data" Subscription attribute to which the Notification Recipient can reply  
35 and to which the mail system delivers undeliverable mail messages. That mail address is usually the  
36 Subscribers mail address, but can be any mail address.

37 The mail messages appear to come from the Printer, so that mail agents can sort and filter on the From:  
38 field. Also the beginning of the Subject line starts with the ~~localized "Printer message: "IPP: "~~ prefix, so  
39 that mail agents can ~~filter from any Printer.~~ use it to filter.



40 The full set of IPP documents includes:

- 41 Design Goals for an Internet Printing Protocol [RFC2567]
- 42 Rationale for the Structure and Model and Protocol for the Internet Printing Protocol [RFC2568]
- 43 Internet Printing Protocol/1.1: Model and Semantics [ipp-mod]
- 44 Internet Printing Protocol/1.1: Encoding and Transport [ipp-pro]
- 45 Internet Printing Protocol/1.1: Implementer's Guide [ipp-iig]
- 46 Mapping between LPD and IPP Protocols [RFC2569]
- 47 Internet Printing Protocol (IPP): Event Notification Specification [ipp-ntfy]

48

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

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

58 The "Internet Printing Protocol/1.1: Model and Semantics" document describes a simplified model with  
59 abstract objects, their attributes, and their operations that are independent of encoding and transport. It  
60 introduces a Printer and a Job object. The Job object optionally supports multiple documents per Job. It  
61 also addresses security, internationalization, and directory issues.

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

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

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

74 The "Event Notification Specification" document extends the Job Creation operations and defines  
75 additional operations that allow a client to subscribe to printing related events. Subscriptions are modeled  
76 as Subscription objects, which can be Per-Job or Per-Printer Subscriptions. Additional operations are  
77 defined to query, renew, and cancel Subscription objects.

78	<b>Table of Contents</b>		
79	1	Introduction.....	5
80	2	Terminology.....	5
81	2.1	CONFORMANCE TERMINOLOGY .....	5
82	2.2	OTHER TERMINOLOGY.....	6
83	3	Model and Operation .....	6
84	4	Subscription Object Rules for use with the 'mailto:' Notification Delivery Method .....	7
85	5	Rules for Sending Notifications and the Mail Notification Content.....	12
86	5.1	HUMAN CONSUMABLE FORM.....	14
87	5.2	MACHINE CONSUMABLE FORM.....	15
88	6	Printer Description attributes specific to the 'mailto:' delivery method.....	15
89	6.1	"PRINTER-SMTP-MAIL-SERVICE-ADDRESS" (1SETOF TEXT(MAX)).....	15
90	6.2	USE OF "NOTIFY-SCHEMES-SUPPORTED" .....	15
91	7	Conformance Requirements.....	15
92	8	IANA Considerations.....	16
93	9	Internationalization Considerations .....	16
94	10	Security Considerations .....	16
95	11	References.....	17
96	12	Author's Addresses.....	18
97	13	Full Copyright Statement.....	19
98			
99	<b>Table of Tables</b>		
100		Table 1 - SMTP Fields to be filled in.....	12

101

## 102 1 Introduction

103 An IPP Printer that supports the OPTIONAL IPP notification extension [ipp-ntfy] is called a Notification  
104 Source, which sends event Notifications to Notification Recipients. As such, a Printer either a) accepts,  
105 stores, and uses notification Subscription objects to generate event Notification reports and implement one  
106 or more delivery methods for notifying interested parties, or b) supports a subset of these tasks and farms  
107 out the remaining tasks to a Notification Delivery Service. This document describes the semantics and  
108 syntax of the 'mailto:' event notification delivery method. Such a Notification Delivery Service then  
109 delivers the event Notification to the Ultimate Notification Recipient.

110 For this delivery method, the IPP Printer uses the SMTP mail protocol to send (push) Human Consumable  
111 and/or Machine Consumable Notifications to Notification Recipients. The Subscriber specifies the mail  
112 address using the mailto: URL. This mail address can be any user or can be any of the mail services  
113 defined to perform such notification using parameters in the URL, such as paging. The Subscriber can  
114 specify the MIME media type of both the Human Consumable and Machine Consumable Notifications.  
115 The Subscriber can also specify a mail address in the "subscriber-user-data" Subscription attribute to which  
116 the Notification Recipient can reply and to which the mail system delivers undeliverable mail messages.  
117 That mail address is usually the Subscribers mail address, but can be any mail address.

118 The mail messages appear to come from the Printer, so that mail agents can sort and filter on the From:  
119 field. Also the beginning of the Subject line starts with ~~the localized "Printer message:the"IPP:~~ " prefix, so  
120 that mail agents can filter notifications from any IPP Printer.

## 121 2 Terminology

122 This section defines terminology used throughout this document:

### 123 2.1 Conformance Terminology

124 Capitalized terms, such as **MUST**, **MUST NOT**, **REQUIRED**, **SHOULD**, **SHOULD NOT**, **MAY**,  
125 **NEED NOT**, and **OPTIONAL**, have special meaning relating to conformance to this specification.  
126 These terms are defined in [ipp-mod section 13.1 on conformance terminology, most of which is  
127 taken from RFC 2119 [RFC2119].

128 **REQUIRED** - an adjective used to indicate that a conforming IPP Printer implementation **MUST**  
129 support the indicated operation, object, attribute, attribute value, status code, or out-of-band value in  
130 requests and responses. See [ipp-mod] "Appendix A - Terminology for a definition of "support".  
131 *Since support of this entire notification specification is **OPTIONAL** for conformance to IPP/1.0*  
132 *or IPP/1.1, the use of the term **REQUIRED** in this document means "**REQUIRED** if this*  
133 ***OPTIONAL** notification specification is implemented".*

134 **OPTIONAL** - an adjective used to indicate that a conforming IPP Printer implementation **MAY**, but is  
135 **NOT REQUIRED** to, support the indicated operation, object, attribute, attribute value, status code,  
136 or out-of-band value in requests and responses.

## 137 2.2 Other terminology

138 Event Notification (Notification for short) - See [ipp-ntfy]

139 Notification Source - See [ipp-ntfy]

140 Notification Recipient - See [ipp-ntfy]

141 Subscription object - See [ipp-ntfy]

142 Subscription Creation operation - See [ipp-ntfy]

143 Ultimate Notification Recipient - See [ipp-ntfy]

## 144 3 Model and Operation

145 In the IPP Notification Model [ipp-ntfy], a client is able to:

- 146 1. supply one or more Per-Job Subscriptions in the Job Creation operation
- 147 2. OPTIONALLY supply Per-Job Subscriptions as subsequent Create-Job-Subscription operations
- 148 3. supply one Per-Printer Subscription in the Create-Printer-Subscription operation. The client that  
149 creates these Subscription objects becomes the owner of the Subscription object.

150 The client that creates these Subscription objects becomes the owner of the Subscription object.

151 When creating each Subscription object, the client supplies the "~~notify-recipient~~(uri)"notify-recipient-uri"  
152 attribute. The "~~notify-recipient~~-uri" attribute specifies both a single Notification Recipient that is to receive  
153 the Notifications when subsequent events occur and the method for Notification delivery that the IPP  
154 Printer is to use. For the 'mailto:' Notification delivery method defined in this document, the "notify-  
155 recipient" consists of the 'mailto:' scheme followed by an SMTP mail address [RFC822].

156 Notification Sources that implement the 'mailto:' event notification delivery method will need to include ~~an~~  
157 SMTP~~a sender-SMTP~~ mail agent while Notification Recipients that implement this delivery method will  
158 need to support ~~an SMTP server.~~ ISSUE 01: Is this SMTP terminology correct?~~either a receiver-SMTP~~  
159 or, more commonly, a mailbox client.

160 The IPP Printer can be the Notification Source or could use some other Notification Delivery Service that  
161 actually delivers the mail message. In this latter case, the protocol between the IPP Printer and the  
162 Notification Delivery Service is implementation ~~defined and could be the INDP protocol (see [indp]).~~

163 Also the Notification Recipient specified by the "notify-recipient" Subscription attribute can be either (1)  
164 the Ultimate Notification Recipient or can be a Notification Delivery Service, such as a paging system that  
165 accept 'mailto:' parameters to indicate the Ultimate Notification Recipient, such as a phone number or  
166 paging subscriber's id.

## 167 4 ~~Sending Notifications~~ **Subscription Object Rules for use with the 'mailto:'** 168 **Notification Delivery Method**

169 This section ~~defines the processing that the IPP Printer MUST perform when sending an event Notification~~  
170 ~~using the 'mailto:' delivery method. describes attributes and rules on how to subscribe to notifications to be~~  
171 ~~delivered using the 'mailto;' notification delivery method. The overall model and relevant attributes for~~  
172 ~~notification subscriptions are defined and described in the IPP Event Notification Specification [ipp-ntfy].~~  
173 The usage of each of the Subscription object attributes defined in [ipp-ntfy] is described here as it applies to  
174 the 'mailto:' delivery method. The description of each Subscription attribute in this document is not the  
175 complete description, but is just the application of the attribute to this 'mailto:' delivery method. ~~See the~~  
176 ~~complete definition of each Subscription object attribute in [ipp-ntfy].~~ **ISSUE 02: Is it a good idea to list**  
177 **each Subscription object attribute in this spec with the applicability to this delivery method?**

178 **If yes, should all delivery method specs also do it this way?** Section 5 defines how the IPP Printer  
179 populates the SMTP fields in the mail message.

### 180 4.1notify-recipient (uri)

181 This ~~REQUIRED READ ONLY~~ Subscription object attribute contain the 'mailto:' URI delivery method  
182 followed by the SMTP mail address [RFC821] of the Notification Recipient. ~~As required by the [ipp-ntfy]~~  
183 ~~document, the following information is given for this notification delivery method:~~

184 **ISSUE 03** ~~What should we say about any mailto parameters, if any? For example, if you want to send~~  
185 ~~over secure mail, etc.~~

186 **ISSUE 04** ~~Do we want to define any IPP-specific mailto parameters to this document?~~

### 187 4.2notify-events (1setOf type2 keyword)

188 This ~~REQUIRED READ ONLY~~ Subscription object attribute identifies the job and/or printer events that  
189 are to be delivered to the Notification Recipient as Notifications as defined in [ipp-ntfy] section 7.

190 ~~Note: Some rapidly recurring events, such as page events, are not appropriate to use with this delivery~~  
191 ~~method, especially if the recipient mail address is a mailing list. Implementations MAY choose either not~~  
192 ~~to support page events with the 'mailto:' delivery method and/or not permit a mailing list to be supplied, if~~  
193 ~~they can detect that a mail address is a mailing list.~~

### 194 4.3notify-format (mimeMediaType)

195 This ~~REQUIRED READ ONLY~~ Subscription object attribute indicates the type of Human Consumable  
196 and/or Machine Consumable format content that is to be sent in the Notifications as a mail message  
197 attachment. For the 'mailto:' delivery method, any registered 'mimeMediaType' value is allowed, including

198 ~~types that allow pictures to be represented, e.g., 'application/postscript' or 'image/tiff', and/or sounds to be~~  
199 ~~represented, e.g., 'audio/32kadpcm'. The body of the mail message MUST always be 'text/plain;~~  
200 ~~charset=us-ascii, since that is the default for 'mailto:'.~~

201 ~~There is no "notify-default" Printer attribute to configure. If the client did not supply the "notify-format"~~  
202 ~~attribute in the Subscription Creation operation, the Printer MUST populate this attribute with an~~  
203 ~~implementation-defined default value. Such a default value MAY include multi-part mixed media, so that~~  
204 ~~the Printer can send multi-part mixed MIME type attachments by default (though there is no way for the~~  
205 ~~client to explicitly request such). If the out-of-band 'none' value [ipp-col] was supplied in the Subscription~~  
206 ~~Creation operation, the Printer MUST NOT send any attachment in the Notification.~~

207 ~~If the MIME media type registration definition permits a charset parameter, then the client MUST use such~~  
208 ~~a specification (instead of the "notify-charset" attribute) in order to indicate the charset to be used in the~~  
209 ~~Notification content.~~

#### 210 ~~4.4subscriber-user-data (octetString(63))~~

211 ~~This REQUIRED READ-ONLY Subscription object attribute holds an SMTP mail address value that the~~  
212 ~~Printer copies to the "From:" inside <> (see RFC 822 [rfc822] section 4.4.1) and the "Sender:" SMTP fields~~  
213 ~~(see section 5). For the 'mailto:' notification delivery method, the client MUST supply the "subscriber-user-~~  
214 ~~data" attribute. If the client omits this attribute, the Printer MUST either (1) reject the operation with the~~  
215 ~~'client-error bad-request' or (2) ignore this Subscription, since the Printer will not have a mail address to put~~  
216 ~~in the "From:" and in the "Sender:" SMTP fields, depending on implementation.~~

217 ~~When the subscribing user selects the 'mailto:' delivery scheme, the client SHOULD obtain the user's mail~~  
218 ~~address automatically from the client system (in an implementation-dependent manner) and supply it as the~~  
219 ~~value of the "subscriber-user-data" attribute by default, rather than require the user to explicitly supply it.~~  
220 ~~Allowing users to supply the mail address explicitly would allow the malicious user to hide his/her identity~~  
221 ~~when sending notifications by email.~~

#### 222 ~~4.5notify-charset (charset)~~

223 ~~This OPTIONAL READ-ONLY Subscription object attribute specifies the charset to be used in the~~  
224 ~~Notification content sent to the Notification Recipient, whether the notification content is Machine~~  
225 ~~Consumable or Human Consumable. The client MUST NOT supply and the Printer MUST NOT use this~~  
226 ~~attribute when the MIME media type registration definition supplied in the "notify-format" attribute value~~  
227 ~~allows the charset parameter in its MIME media type value, e.g., 'text/plain; charset=utf-8'.~~

#### 228 ~~4.6notify-natural-language (naturalLanguage)~~

229 ~~This OPTIONAL READ-ONLY Subscription object attribute specifies the natural language for the IPP~~  
230 ~~object to use in the localized Notification content that is sent to the Notification Recipient, whether the~~  
231 ~~notification content is Machine-Consumable or Human-Consumable.~~

#### 232 ~~4.7request-id~~

233 ~~This REQUIRED READ-ONLY Subscription object attribute holds the most recent request-id sequence~~  
234 ~~number delivered in a Notification content to the Notification Recipient. A value of 0 indicates that no~~  
235 ~~Notifications have been sent for this subscription. The first request-id sent for a subscription MUST be 1.~~  
236 ~~Each Notification Recipient has its own monotonically increasing series of request-ids, i.e., no gaps, in~~  
237 ~~order to be able to detect a missing notification.~~

#### 238 ~~4.8subscription-id (integer (1:MAX))~~

239 ~~This REQUIRED READ-ONLY Subscription object attribute uniquely identifies this Subscription object~~  
240 ~~instance on this Printer object or this Job object.~~

#### 241 ~~4.9notify-lease-expiration-time (integer(0:MAX))~~

242 ~~This REQUIRED READ-ONLY Subscription object attribute specifies the time in the future when the~~  
243 ~~subscription lease will expire, i.e., the "printer up time" value at which the lease will expire.~~

#### 244 ~~4.10printer-uri (uri)~~

245 ~~This REQUIRED READ-ONLY Subscription object attribute identifies the Printer object that created this~~  
246 ~~Subscription object.~~

#### 247 ~~4.11subscriber-user-name (name(MAX))~~

248 ~~This REQUIRED READ-ONLY Subscription object attribute contains the name of the user that created the~~  
249 ~~Subscription object. The Printer includes the value of this attribute as the value of the SMTP "FROM" field~~  
250 ~~outside the <> (see RFC 822 [rfc822] section 4.4.1). For the 'mailto:' notification delivery method, the~~  
251 ~~client MUST supply the "requesting user name" operation attribute so that the Printer can populate the~~  
252 ~~"subscriber user name" Subscription attribute, in case the Printer does not have a more authenticated~~  
253 ~~printable name (see [ipp-ntfy]). If the client omits "requesting user name" attribute and the Printer doesn't~~  
254 ~~have a more authenticated printable name, the Printer MUST either (1) reject the operation with the 'client-~~  
255 ~~error-bad-request' or (2) ignore this Subscription, since the Printer will not have a User Display Name to put~~  
256 ~~in the "From:" field outside the <>, depending on implementation.~~

257 ~~ISSUE 05: Ok that we made "subscriber-user-name" be REQUIRED for the Printer to support and indicate~~  
258 ~~that the client MUST supply the "requester-user-name" operation attribute when the delivery method is~~  
259 ~~'mailto:', in case the Printer does not have a more authenticated printable name?~~

#### 260 ~~4.12 notify-printer-up-time (integer(1:MAX))~~

261 ~~This REQUIRED READ-ONLY Subscription object attribute indicates the amount of time (in seconds) that~~  
262 ~~the Printer implementation has been up and running. The Printer includes the value of this attribute in both~~  
263 ~~the Human Consumable and Machine Consumable forms.~~

#### 264 ~~4.13 notify-persistence-granted (boolean)~~

265 ~~This REQUIRED Subscription object attribute whether or not the Per Job or Per Printer Subscription is~~  
266 ~~persistent, i.e., saved across power cycles in an implementation define manner.~~

### 267 ~~5 Mail Notification Content~~

268 ~~The intent of the mail message is that the Notification Recipient is receiving a Human Consumable and/or~~  
269 ~~Machine Consumable mail message from the Printer with the subject line indicating that it is a printer~~  
270 ~~notification message and some implementation defined salient information, such as the Job name and~~  
271 ~~submitting user name. The body of the message duplicates this information and includes other information~~  
272 ~~as REQUIRED by [ipp-ntfy].~~

273 ~~Table 1 shows the SMPT fields that the IPP Printer MUST fill in from the indicated sources of the~~  
274 ~~data: Attributes supplied by the IPP client in the subscription request and stored in the Subscription object:~~

275 ~~- "notify-recipient-uri"~~

276 ~~It is an IPP Printer configuration issue whether submitted mail messages will use additional~~  
277 ~~services, such as SMTP delivery status notifications [RFC1891] or S/MIME encryption [RFC2633],~~  
278 ~~or just sent as plain SMTP mail. There is no way for an IPP Client to request specific mail services~~  
279 ~~on a per subscription basis. It is never a good idea to permit mailing lists to be recipients of IPP~~  
280 ~~'mailto:' notifications, as this can open up the printer to be a tool for denial-of-service attacks.~~

281 ~~- "notify-events"~~

282 ~~Some rapidly recurring events, such as page events, are not appropriate to use with this delivery~~  
283 ~~method. E.g. implementations would typically choose not to support page events with the 'mailto:'~~  
284 ~~delivery method.~~

285 ~~- "notify-text-format"~~

286 The IPP client does not have to supply this attribute, but if absent in the subscription request then  
287 the Printer object populates this value with the MIME media type 'text/plain'. Please note that this  
288 attribute only carries information about text MIME media types, and that any text parameters  
289 supplied by the IPP client are dropped; any text parameter values have to be specified in the "notify-  
290 charset" attribute described below.

291 - "notify-additional-formats"

292 This attribute, if supplied by the client, specifies additional MIME media types that MUST be  
293 included as mail attachments in the 'mailto:' delivery method.

294 - "notify-requested-attributes"

295 This attribute, if supplied by the client, lists the name of (other) attributes, which the subscriber  
296 wishes to include in the notification messages. Best attempt should be made to include these in any  
297 Human or Machine Readable notification messages.

298 - "notify-user-data"

299 The Subscriber MUST supply this attribute with the user's mail address as value. The Subscriber  
300 SHOULD obtain the user's mail address automatically from the client system (in an implementation-  
301 dependent manner) and supply it as the value of the "subscriber-user-data" attribute by default,  
302 rather than require the user to explicitly supply it. Allowing users to supply the mail address  
303 explicitly would allow the malicious user to hide his/her identity when sending notifications by  
304 email.

305 - "notify-charset"

306 This attribute describes the text character parameters to be used in Human Consumables  
307 notifications, as well as in text parts of Machine Consumable notifications. For historical reasons  
308 the default character set for 'text/plain' MIME media type is 'us-ascii', while most mail systems now  
309 are using 'utf-8'. Note that in order to produce a complete MIME definition e.g. for utf-8, the value  
310 from 'notify-text-format' attribute, described above, has to be concatenated with the value in this  
311 attribute to form 'text plain; charset=utf-8'.

312 - "notify-natural-language"

313 Attributes generated by the Printer and stored in the Subscription object:

314 - "subscription-request-id"

315 - "subscription-id"

316 - "notify-lease-expiration-time"

317 - "printer-uri"

318 - "subscriber-user-name"

319 See the semantics for this attribute in [ipp-ntfy]. The Printer includes the value of this attribute as  
 320 the value of the SMTP "FROM" field outside the <> (see RFC 822 [RFC822] section 4.4.1.)

321 - "notify-server-up-time"

322 - "notify-persistence-granted"

## 323 5 Rules for Sending Notifications and the Mail Notification Content

324 This section defines the processing that the IPP Printer MUST perform when sending an event Notification  
 325 using the 'mailto:' delivery method. It defines how the IPP Printer populates the SMTP fields in the mail  
 326 message from the Subscription object.

327 Table 1 shows the SMPT fields that the IPP Printer MUST fill in from the indicated sources of the data.  
 328 The first column refers to the sections in [RFC822].

329

**Table 1 - SMTP Fields to be filled in**

SMTP RFC 822 section	SMTP Field Name	Subscription object attribute source for SNMP field
<del>4.4.1</del>	<del>From:</del>	<p><del>"printer-name" &lt;"subscriber-user-data"&gt;</del></p> <p><del>For example, if Bob Jones submits a print job to the Printer "George Washington" and his email address is jones@acme.com, the From: line will be displayed as:</del></p> <p><del>From: George Washington &lt;jones@acme.com&gt;</del></p> <p><del>Mail messages appear to the Notification Recipient to come from the Printer, so that mail agents can sort and filter on the From: field.</del></p> <p><del>Note: The "printer-name" is the Mail Display name. And the "subscriber-user-data" inside &lt;&gt; is assumed to be an SMTP mail address so that the Notification Recipient can reply to the subscriber. For example, to say "I picked up your document, thanks."</del></p>
<u>4.4.1</u>	<u>From:</u>	<p><u>"printer-name" &lt;"subscriber-user-data"&gt;</u></p> <p><u>For example, if Bob Jones submits a print job to the Printer "Freight Train " and his email address is jones@acme.com, the From: line will be displayed as:</u></p>

		<p><u>From: Freight Train&lt;jones@acme.com&gt;</u></p> <p><u>Mail messages appear to the Notification Recipient to come from the Printer, so that mail agents can sort and filter on the From: field.</u></p> <p><u>Note: The "printer-name" is the Mail Display name. And the "subscriber-user-data" inside &lt;&gt; is assumed to be an SMTP mail address so that the Notification Recipient can reply to the subscriber. For example, to say "I picked up your document, thanks." The 'printer-name' is defined in [ipp-mod].</u></p>
4.4.2	Sender:	<p><del>"subscriber-user-name" &lt;"subscriber-user-data"&gt;</del></p> <p><del>For example, if Bob Jones submits a print job to the Printer "George Washington" and his email address is jones@acme.com, the Sender: line will be displayed as:</del></p> <p><del>Sender: Bob Jones &lt;jones@acme.com&gt;</del></p> <p><del>Note: The "subscriber-user-name" is the Mail Display name (Bob Jones). And the "subscriber-user-data" inside &lt;&gt; is assumed to be an SMTP mail address so that the mail system will send failure to deliver mail messages to the mail address specified by the "subscriber-user-data", not the Printer.</del></p>
4.4.2	Sender:	<p><u>"subscriber-user-name" &lt;"notify-user-data"&gt;</u></p> <p><u>For example, if Bob Jones submits a print job to the Printer "George Washington" and his email address is jones@acme.com, the Sender: line will be displayed as:</u></p> <p><u>Sender: Bob Jones &lt;jones@acme.com&gt;</u></p> <p><u>Note: The "subscriber-user-name" is the Mail Display name (Bob Jones). And the "notify-user-data" inside &lt;&gt; is assumed to be an SMTP mail address so that the mail system will send failure to deliver mail messages to the mail address specified by the "notify-user-data", not the Printer.</u></p>
4.5.1	To:	<p><del>The rest of the URI following the 'mailto:' scheme in the value of the "notify-recipient" attribute.</del></p>
4.5.1	To:	<p><u>The rest of the URI following the 'mailto:' scheme in the value of the "notify-recipient-uri" attribute.</u></p>
4.7.1	Subject:	<p><del>Implementation dependent, but SHOULD start with "Printer message: " (localized) followed by the job or printer event name, job name, etc. The beginning of the Subject line is a standardized prefix, so that mail agents can</del></p>

		<del>filter from any Printer.</del>
--	--	-------------------------------------

330 ~~The Printer MUST repeat any of this information in these fields in the body of the message, plus additional~~  
 331 ~~information REQUIRED by the Notification Specification [ipp-ntfy].~~

4.7.1	<u>Subject:</u>	<u>Implementation-dependent, but SHOULD start with "IPP: " (localized) followed by the job or printer event name, job name, etc. The beginning of the Subject line is a standardized prefix, so that mail agents can use it for filtering.</u>
-------	-----------------	--

332

333 Each format specified by the "notify-additional-formats" MUST be sent as a MIME attachment according to  
 334 [RFC1341] and [RFC2046]. For additional rules see the following sections on Human and Machine  
 335 Consumable Forms below.

## 336 5.1 Human Consumable Form

337 ~~If the format specified by the "notify-format" (mimeMediaType) is a Human Consumable form, then it~~  
 338 ~~MUST be sent as a MIME according to [rfc1341] and [rfc2046] if the MIME type is anything but~~  
 339 ~~'text/plain'. Even 'text/plain; charset=utf-8' MUST be represented as a MIME type in the body of the~~  
 340 ~~message.~~

341 ISSUE 06: What if "notify-format" is 'text/plain; charset=utf-8', does that have to be sent as a mail  
 342 attachment, since it isn't 'text/plain' which assumes charset=us-ascii, or can it be sent as the body of the mail  
 343 message properly identified as 'text/plain; charset=us-ascii'? Human Consumable Form is typically sent in  
 344 the body of the SMTP mail message [RFC822] based on information from the "notify-text-format", "notify-  
 345 charset" and "notify-natural-language" in the Subscription object.

346 The following localized information SHOULD be included:

347 - Repeat the text from the Subject: line.

348 - Printer name

349 - Printer URI

350 - Job name (if job event)

351 - Event name

352 - Date and time of the event

353 - Requested attributes (if any)

## 354 5.2 Machine Consumable Form

355 If ~~the format specified by the "notify-format" (mimeType) is a Machine Consumable form, then it~~  
356 ~~MUST be sent as a MIME attachment according to [rfc1341] and [rfc2046], including the~~  
357 ~~'application/ipp'. one of the values of the "notify-additional-formats" is 'application/ipp' the generated MIME~~  
358 ~~object MUST be identical to the content defined for responses to the Get-Notifications operation as defined~~  
359 ~~in [ipp-notification-poll]. The "status-code" parameter MUST be filled with the 'successful-ok' value, see~~  
360 ~~[ipp-mod].~~

## 361 6 Printer Description attributes specific to the 'mailto:' delivery method

362 This section defines Printer Description attributes that are REQUIRED when supporting the 'mailto:'  
363 delivery method.

### 364 6.1 "printer-smtp-mail-service-address" (1setOf text(MAX))

365 ~~This~~When supporting the 'mailto:' delivery method this is a REQUIRED Printer Description attribute ~~which~~  
366 contains the DNS or IP address of the SMTP relaying mail server (see ~~[rfc822]~~[RFC822]) that the Printer  
367 is to use to send mail messages when supporting the 'mailto:' delivery method. The System Administrator  
368 is expected to configure this attribute with one or more values.

### 369 6.2 Use of "notify-schemes-supported"

370 If the 'mailto:' notification delivery method is supported, then the REQUIRED Printer description attribute  
371 "notify-schemes-supported", defined in [ipp-ntfy], MUST contain the value 'mailto' as one of its values to  
372 indicate that this delivery method is supported.

## 373 7 Conformance Requirements

374 If the IPP Printer supports the 'mailto:' notification delivery scheme, the Printer MUST meet these  
375 conformance requirements:

- 376 1. MUST meet the conformance requirements defined in [ipp-ntfy].
- 377 2. MUST support at least the 'text/plain' Notification Content format. Being able to support any other  
378 MIME media types (MUST be sent as mail attachments) is OPTIONAL.
- 379 3. MUST support the Subscription attribute semantics specified in section 4 when sending Notifications.
- 380 4. MUST fill in the SMTP fields in the mail message as specified in section 5.
- 381 5. MUST support the "printer-smtp-mail-service-address" (1setOf text(MAX)) Printer Description  
382 attribute defined in section 6.

## 383 8 IANA Considerations

384 Since the 'mailto:' URL scheme is already defined in a standards track document and registered with IANA,  
385 this document does not require anything further of IANA.

## 386 9 Internationalization Considerations

387 This notification delivery method presents no additional internationalization considerations already covered  
388 in the [ipp-ntfy] document. The IPP Printer MUST localize the Human Consumable format and the 'text'  
389 attributes in the Machine Consumable form. The Notification Recipient is expected to localize the  
390 attributes in the Machine Consumable that have the 'keyword' attribute syntax according to the charset and  
391 natural language supplied in the Notification Content which is derived from the Subscription object as  
392 supplied by the Subscriber.

## 393 10 Security Considerations

394 By far the biggest security concern is the abuse of notification: sending unwanted notifications to third  
395 parties potentially creating denial-of-service problems (i.e., spam). The problem is made worse by  
396 notification addresses that may be redistributed to multiple parties (e.g. mailing lists). There exist scenarios  
397 where third party notification is required (see Scenario #2 and #3 in [ipp-not-req]). The fully secure  
398 solution would require active agreement of all recipients before sending out anything. However,  
399 requirement #9 in [ipp-req] ("There is no requirement for IPP Printer receiving the print request to validate  
400 the identity of an event recipient") argues against this. Certain To minimize the risk, certain systems may  
401 decide to disallow third party notifications (a traditional facsimile model).

402 Sometimes the Notification Recipient is not the same person as the person who created the Subscription. It  
403 is possible for the Notification Recipient to find out who created the Subscription, since the subscriber  
404 MUST supply the "subscriber-user-name" Subscription attribute in the Subscription Creation operation.

405 ~~The [ipp-ntfy] document discusses general security considerations for notifications. Some delivery~~  
406 ~~methods, such as the 'ipp:' delivery method, avoid the spam problem because the Notification Recipient~~  
407 ~~pulls the Notifications when desired. The 'indp:' [indp-method] delivery method allows the Notification~~  
408 ~~Recipient to return a special status code reply to the IPP Printer Send Notifications operation to cancel the~~  
409 ~~subscription. The 'mailto:' delivery method does not permit either of these remedies.~~

410 ISSUE 07—Is there any way that a Notification Recipient could reply to the message in such a way as to  
411 cancel the subscription and thereby solve the spam problem?

412 Some firewall administrators are preventing mail attachments from being accepted into their organizations  
413 because of the problem of the attachments containing computer viruses. The 'mailto:' delivery method  
414 allows the subscriber to suppress sending any attachments, by specifying only the 'text/plain' MIME media  
415 type.

416 **11 References**

417 [ipp-coll]

418 deBry, R., , Hastings, T., Herriot, R., "Internet Printing Protocol/1.0 & 1.1: collection attribute  
419 syntax", ~~<draft-ietf-ipp-collection-00.doc>~~,~~<draft-ietf-ipp-collection-04.doc>~~, work in progress,  
420 ~~September 9, 1999~~.~~May 4, 2000~~.

421 [~~ipp-iig~~]

422 ~~Hastings, T., Manros, C., Kugler, K, Holst H., Zehler, P., "Internet Printing Protocol/1.1: draft-ietf-~~  
423 ~~ipp-implementers-guide-v11-01.txt, work in progress, May 9, 2000~~

424 [ipp-mod]

425 R. deBry, T. Hastings, R. Herriot, S. Isaacson, P. Powell, "Internet Printing Protocol/1.0: Model and  
426 Semantics", ~~<draft-ietf-ipp-model-v11-04.txt>~~, ~~June, 1999~~.~~<draft-ietf-ipp-model-v11-06.txt>~~,  
427 ~~March 1, 2000~~.

428 [~~ipp-notify-poll~~]

429 ~~Manros, C., Hastings, T., Herriot, R., Lewis, H., "Internet Printing Protocol (IPP): The 'ipp'~~  
430 ~~Notification Delivery Polling Method", <draft-ietf-ipp-notify-poll-01.txt>, work in progress, May,~~  
431 ~~2000~~.

432 [ipp-ntfy]

433 Isaacson, S., Martin, J., deBry, R., Hastings, T., Shepherd, M., Bergman, R., "Internet Printing  
434 Protocol/1.1: IPP Event Notification Specification", ~~<draft-ietf-ipp-not-spec-01.txt>~~, ~~October 14,~~  
435 ~~1999~~.~~<draft-ietf-ipp-not-spec-03.txt>~~, ~~May 10, 2000~~.

436 [ipp-pro]

437 Herriot, R., Butler, S., Moore, P., Tuner, R., "Internet Printing Protocol/1.1: Encoding and  
438 Transport", ~~draft-ietf-ipp-protocol-v11-03.txt, June, 1999~~.~~draft-ietf-ipp-protocol-v11-05.txt, March~~  
439 ~~1, 2000~~.

440 [~~rfe821~~][RFC821]

441 Jonathan B. Postel, "Simple Mail Transfer Protocol", [RFC 821](#), August, 1982.

442 [~~rfe822~~][RFC822]

443 David H. Crocker, "Standard For The Format Of ARPA Internet Text Messages", [RFC 822](#), August  
444 13, 1982.

445 [~~rfe1341~~][RFC1341]

446 N. Borenstein, N. Freed, "MIME (Multipurpose Internet Mail Extensions): Mechanisms for  
447 Specifying and Describing the Format of Internet Message Bodies", [RFC 1341](#), June, 1992.

448 [~~rfe2026~~][RFC1891]

449 ~~K. Moore, "SMTP Service Extension for Delivery Status Notifications", RFC 1891, January 1996~~

450 [\[RFC2026\]](#)

451 S. Bradner, "The Internet Standards Process -- Revision 3", RFC 2026, October 1996.

452 ~~[rfe2046]~~[\[RFC2046\]](#)

453 [N. Freed & N. Borenstein](#), "Multipurpose Internet Mail Extensions (MIME) Part Two: Media  
454 ~~Types. N. Freed & N. Borenstein. Types~~", November 1996. (Obsoletes RFC1521, RFC1522, RFC1590),  
455 RFC ~~2046.2046.~~[\[RFC2616\]](#)

456 ~~[rfe2616]~~

457 R. Fielding, J. Gettys, J. Mogul, H. Frystyk, L. Masinter, P. Leach, T. Berners-Lee, "Hypertext  
458 Transfer Protocol - HTTP/1.1", RFC 2616, June 1999.

459 [\[RFC2633\]](#)

460 [B. Ramsdell, "S/MIME Version 3 Message Specification", RFC 2633, June 1999.](#)

## 461 **12 Author's Addresses**

462 Henrik Holst  
463 i-data international a/s  
464 Vadstrupvej 35-43  
465 2880 Bagsvaerd, Denmark

466  
467 Phone: +45 4436-6000  
468 Fax: +45 4436-6111  
469 e-mail: [hh@i-data.com](mailto:hh@i-data.com)

470  
471 Tom Hastings  
472 Xerox Corporation  
473 737 Hawaii St. ESAE 231  
474 El Segundo, CA 90245

475  
476 Phone: 310-333-6413  
477 Fax: 310-333-5514  
478 e-mail: [hastings@cp10.es.xerox.com](mailto:hastings@cp10.es.xerox.com)

479  
480 [Carl-Uno Manros](#)  
481 [Xerox Corporation](#)  
482 [737 Hawaii St. ESAE 231](#)  
483 [El Segundo, CA 90245](#)

484  
485 [Phone: 310-333-8273](#)  
486 [Fax: 310-333-5514](#)  
487 [e-mail: manros@cp10.es.xerox.com](mailto:manros@cp10.es.xerox.com)

**488 13 Full Copyright Statement**

489 Copyright (C) The Internet Society (2000). All Rights Reserved.

490 This document and translations of it may be copied and furnished to others, and derivative works that  
491 comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and  
492 distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and  
493 this paragraph are included on all such copies and derivative works. However, this document itself may not  
494 be modified in any way, such as by removing the copyright notice or references to the Internet Society or  
495 other Internet organizations, except as needed for the purpose of developing Internet standards in which  
496 case the procedures for copyrights defined in the Internet Standards process must be followed, or as  
497 required to translate it into languages other than English.

498 The limited permissions granted above are perpetual and will not be revoked by the Internet Society or its  
499 successors or assigns.

500 This document and the information contained herein is provided on an "AS IS" basis and THE INTERNET  
501 SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIMS ALL WARRANTIES,  
502 EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE  
503 OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED  
504 WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.