1 INTERNET-DRAFT   <mark>9 ISSUES are highlighted like this</mark>.

2 <draft-ietf-ipp-notify-mailto-00.txt>   Henrik Holst
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6
7   February 9, 2000

8   Internet Printing Protocol: **The 'ipp-notify-mailto' Notification Polling Method**

10 Status of this Memo

19 **Abstract**

20 The IPP notification specification [ipp-ntfy] is an OPTIONAL extension to IPP/1.0 and IPP/1.1 that
21 requires the definition of one or more delivery methods for dispatching event notification reports to
22 Notification Recipients. This document describes the semantics and syntax of the 'ipp-notify-mailto' event
23 notification delivery method. For this delivery method, the IPP Printer uses SMTP mail to send Human
24 Consumable and/or Machine Consumable Notifications to Notification Recipients. The Subscriber can
25 specify the MIME media type of both the Human Consumable and Machine Consumable Notifications.
26 The Subscriber can also specify a mail address in the "subscriber-user-data" attribute to which the
27 Notification Recipient can reply and to which the mail system delivers undeliverable mail messages. That
28 mail address is usually the Subscribers mail address, but can be any mail address.

29 The mail messages appear to come from the Printer, so that mail agents can sort and filter on the From:
30 field. Also the beginning of the Subject line starts with the localized "Printer message: " prefix, so that mail
31 agents can filter from any Printer.

32   The full set of IPP documents includes:

33   Design Goals for an Internet Printing Protocol [RFC2567]
34   Rationale for the Structure and Model and Protocol for the Internet Printing Protocol [RFC2568]
35   Internet Printing Protocol/1.1: Model and Semantics [ipp-mod]
36   Internet Printing Protocol/1.1: Encoding and Transport [ipp-pro]
37   Internet Printing Protocol/1.1: Implementer's Guide [ipp-iig]
38   Mapping between LPD and IPP Protocols [RFC2569]
39   Internet Printing Protocol/1.0 & 1.1: Event Notification Specification [ipp-ntfy]
40
41   The "Design Goals for an Internet Printing Protocol" document takes a broad look at distributed printing
42   functionality, and it enumerates real-life scenarios that help to clarify the features that need to be included
43   in a printing protocol for the Internet. It identifies requirements for three types of users: end users,
44   operators, and administrators. It calls out a subset of end user requirements that are satisfied in IPP/1.0. A
45   few OPTIONAL operator operations have been added to IPP/1.1.

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

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

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

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

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

66   The "Event Notification Specification" document defines OPTIONAL operations that allow a client to
67   subscribe to printing related events. Subscriptions include "Per-Job subscriptions" and "Per-Printer
68   subscriptions". Subscriptions are modeled as Subscription objects. Four other operations are defined for
69   subscription objects: get attributes, get subscriptions, renew a subscription, and cancel a subscription.

70

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1   Introduction

105   IPP printers that support the OPTIONAL IPP notification extension [ipp-ntfy] either a) accept, store, and
106   use notification subscriptions to generate event Notification reports and implement one or more delivery
107   methods for notifying interested parties, or b) support a subset of these tasks and farm out the remaining
108   tasks to a Notification Delivery Service. This document describes the semantics and syntax of the 'ipp-
109   notify-mailto' event notification delivery method. For this delivery method, the IPP Printer uses SMTP
110   mail to send Human Consumable and/or Machine Consumable Notifications to Notification Recipients.
111   The Subscriber can specify the MIME media type of both the Human Consumable and Machine
112   Consumable Notifications. The Subscriber can also specify a mail address in the "subscriber-user-data"
113   attribute to which the Notification Recipient can reply and to which the mail system delivers undeliverable
114   mail messages. That mail address is usually the Subscribers mail address, but can be any mail address.

115   The mail messages appear to come from the Printer, so that mail agents can sort and filter on the From:
116   field. Also the beginning of the Subject line starts with the localized "Printer message: " prefix, so that mail
117   agents can filter from any Printer.

2   Terminology

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

120   REQUIRED: if an implementation supports the extensions described in this document, it MUST
121   support a REQUIRED feature.
122   OPTIONAL: if an implementation supports the extensions described in this document, it MAY support
123   an OPTIONAL feature.
124   Notification Recipient - See [ipp-ntfy]
125   Subscription object - See [ipp-ntfy]
126   Ultimate Notification Recipient - See [ipp-ntfy]

3   Model and Operation

128   In the IPP Notification Model [ipp-ntfy], one or more Per-Job Subscriptions can be supplied in the Job
129   Creation operation or OPTIONALLY as subsequent Create-Job-Subscription operations; one Per-Printer
130   Subscription can be supplied in the Create-Printer operation. The client that creates these Subscription
131   objects becomes the owner of the Subscription object.

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

4   Sending Notifications

138 This section defines the processing that the IPP Printer MUST perform when sending an event Notification
139 using the 'mailto' delivery method. The usage of each of the Subscription object attributes (see [ipp-ntfy])
140 is described. Section 5 defines how the IPP Printer populates the SMTP fields in the mail message.

4.1   notify-recipient (uri)

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

145 ISSUE 01 - What should we say about any mailto parameters? For example, if you want to send over
146 secure mail, etc.

4.2   notify-events (1setOf type2 keyword)

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

150 Note: Some rapid events, such as page events, are not appropriate to use with this delivery method.

151 ISSUE 02 - Should we disallow page events with the 'mailto:' delivery method?

4.3   notify-~~text~~**human-consumable**-format (mimeMediaType)

153 ISSUE 03 - Ok to change the name of "notify-text-format" to "notify-human-consumable-format" since it
154 can contain pictures and/or sound? Also it becomes more parallel with the proposed new "notify-machine-
155 consumable-format" attribute.

156 This REQUIRED READ-ONLY Subscription object attribute indicates the type of Human Consumable
157 format content that is to be sent in the Notifications. Any registered mimeMediaType is allowed, including
158 types that allow pictures to be represented, e.g., 'application/postscript' or 'image/tiff', and/or sounds to be
159 represented, e.g., 'audio/32kadpcm'. If this attribute is not supplied, the Printer MUST populate this
160 attribute with the 'text/plain; charset=utf-8' value by default. If the out-of-band 'none' value [ipp-col] is
161 supplied, the Printer MUST NOT send the Human Consumable form in the Notification.

162 If the ~~'text'~~ MIME media type registration permits a charset parameter, than such a specification MUST be
163 used (instead of the "notify-charset" attribute) in order to indicate the charset to be used in the Notification
164 content.

165 **4.4   notify-machine-consumable-format (mimeMediaType) - new**

166 This REQUIRED READ-ONLY Subscription object attribute indicates the type of Machine Consumable
167 format content that is to be sent in the Notifications. If this attribute is not supplied, the Printer supplies the
168 'application/ipp' value by default. If the out-of-band 'none' [ipp-col] is supplied, the Printer MUST NOT
169 send the Machine Consumable form in the Notification.

170 ISSUE 04 - We think that the subscriber should be able to specify whether or not to include the Machine
171 Consumable form and what that machine consumable format is, such as 'application/ipp', or XML format.

172 **4.5   subscriber-user-data (octetString(63))**

173 This REQUIRED READ-ONLY Subscription object attribute holds an SMTP mail address value that the
174 Printer copies to the "From:" and "Sender:" SMTP fields (see section 5).

175 ISSUE 05 - Ok to use the "subscriber-user-data" attribute to hold the SMTP "From:" and "Sender:" mail
176 addresses in case the Notification Recipient replies to the notification mail message or the mail system
177 sends a failure to deliver message, respectively?

178 If this attribute is not supplied, the Printer SHOULD fill in some mail address to which replies or non-
179 delivery messages can be sent, in case the Printer is not able to receive mail messages. Otherwise, the mail
180 system will send non-delivery messages to the Printer.

181 ISSUE 06 - Should we add a Printer Description attribute that the Administrator can configure to be the
182 "bit bucket" for non-delivery messages and Notification Recipient replies when the Subscriber does not
183 supply the "subscriber-user-data"?

184 Note to client implementers: When the subscribing user selects the 'mailto:' delivery scheme, the client
185 SHOULD obtain the user's mail address (in an implementation-dependent manner) and supply it as the
186 value of the "subscriber-user-data" attribute by default.

187 **4.6   notify-charset (charset)**

188 This OPTIONAL READ-ONLY Subscription object attribute specifies the charset to be used in the
189 Notification content sent to the Notification Recipient, whether the notification content is Machine
190 Consumable or Human Consumable. The Printer MUST NOT use tThis attribute MUST NOT be used
191 when the "notify-texthuman-consumable-format" attribute value specifies the charset parameter in its
192 MIME media type value, e.g., 'text/plain; charset=utf-8'.

193 **4.7 notify-natural-language (naturalLanguage)**

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

197 **4.8 request-id**

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

203 **4.9 subscription-id (integer (1:MAX))**

204 This REQUIRED READ-ONLY Subscription object attribute uniquely identifies this Subscription object
205 instance on this Printer object or this Job object..

206 **4.10 notify-lease-expiration-time (integer(0:MAX))**

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

209 **4.11 printer-uri (uri)**

210 This REQUIRED READ-ONLY Subscription object attribute identifies the Printer object that created this
211 Subscription object.

212 **4.12 subscriber-user-name (name(MAX))**

213 This OPTIONAL READ-ONLY Subscription object attribute contains the name of the user that created the
214 Subscription object. The Printer includes the value of this attribute as the value of the SMTP "FROM" field
215 (see RFC 822 [rfc822] section 4.4.1) in both the Human Consumable and Machine Consumable forms.

216 If this attribute is not supplied or is not supported, the Printer

217 **4.13 notify-printer-up-time (integer(1:MAX))**

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

221 **4.14 notify-persistence-granted (boolean)**

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

224 # 5   Mail Notification Content

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

230 Table 1 shows the SMPT fields that the IPP Printer MUST fill in from the indicated sources of the data.

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

SMTP RFC 822 section	SMTP Field Name	Subscription object attribute source for SNMP field
4.4.1	From:	"printer-name" <"subscriber-user-data"> Mail messages appear to the Notification Recipient to come from the Printer, so that mail agents can sort and filter on the From: field. Note: The "printer-name" is the Mail Display name. And the "subscriber-user-data" inside <> 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."
4.4.2	Sender:	"subscriber-user-name" <"subscriber-user-data"> Note: The "subscriber-user-name" is the Mail Display name. And the "subscriber-user-data" inside <> 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. The subscriber-user-data could be the subscriber or anyone else.
4.5.1	To:	The rest of the URI following the 'mailto:' scheme in the value of the "notify-recipient" attribute.
4.7.1	Subject:	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 filter from any Printer.

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

234 ISSUE 07 - Need a Printer Description attribute that the system administrator can configure to be the DNS
235 or IP address of the SMPT relaying mail server (see [rfc822]) that it is to use for the 'mailto:' delivery
236 method.

5.1 Human Consumable Form

238 The Human Consumable form MUST be sent as a MIME according to [rfc1341] and [rfc2046] if the
239 MIME type is anything but 'text/plain'. Even 'text/plain; charset=utf-8' (which is the default Human
240 Consumable Form) MUST be represented as a MIME type in the body of the message.

5.2 Machine Consumable Form

242 The Machine Consumable form MUST be sent as a MIME attachment according to [rfc1341] and [rfc2046]
243 for all MIME types, including the 'application/ipp' (which is the default Machine Consumable Form).

244 Since this notification delivery method is able to send both Machine Consumable and Human Consumable
245 forms in one Notification, the Printer MUST NOT support the "human-readable-report" attribute (see [ipp-
246 ntfy] in the Machine Consumable form.

247 ISSUE 08 - Ok to prohibit the mailto: scheme from using the "human-readable-report" attribute in the
248 Machine Consumable form, since it can send both forms in one Notification content?

6 Conformance Requirements

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

252   1. MUST meet the conformance requirements defined in [ipp-ntfy].

253   2. MUST support being able to send Human Consumable and Machine Consumable forms in the
254   Notification Content.

255   3. MUST support the Subscription attribute semantics specified in section 4 when sending Notifications,
256   including not supporting the "human-readable-report" attribute in the Machine Consumable form.

257   4. MUST fill in the SMTP fields in the mail message as specified in section 5.

7   IANA Considerations

259   IANA will be asked to register this 'ipp-notify-mailto' notification delivery scheme.

8   Internationalization Considerations

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

9   Security Considerations

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

275   The [ipp-ntfy] document discusses general security considerations for notifications. Some delivery
276   methods, such as 'ipp-notify-pull' and 'ipp-notify-poll', avoid the spam problem because the Notification
277   Recipient pulls the Notifications when desired. The 'ipp-notify-send' allows the Notification Recipient to
278   return a special status code reply to the IPP Printer Send-Notifications to cancel the subscription. The
279   'mailto:' scheme does not permit either of these remedies.

280   ISSUE 09 - Is there any way that a Notification Recipient could reply to the message in such a way as to
281   cancel the subscription and thereby solve the spam problem?

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