Notification Spec and Mailto: Agreements, 5/17/00

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1. The Notification Specification [ipp-ntfy] contains common semantics for all delivery methods. [ipp-ntfy] contains conformance requirements Subscribing clients, Printers, and Notification Sources that apply for all delivery methods. [ipp-ntfy] also contains conformance requirements for the delivery method documents. The delivery method documents will not duplicate information that is in [ipp-ntfy].

2. It was agreed that the number of tables should be drastically reduced, while still designing them to be readable in the plain text Internet-Draft and RFC versions.

3. Some terms will be defined and use consistently throughout the specification document (capitalized, but not quoted), in order to shorten the document and improve the precision of the document. The term "Job Creation operation" will mean the Print-Job, Print-URI, and Create-Job operations. If the Validate-Job operation is intended, it will be explicitly listed. The term "Subscription Creation operation" will mean the Job Creation operations along with the Create-Printer-Subscription and Create-Job-Subscription operations.

4. It was agreed to use the term "Subscribing client", instead of just "client" or "Subscriber". The Subscription client sends Subscription Creation requests to the Printer. The verb "MAY" will be clarified for use with the Printer object to include, but not be limited to, the following implementation-dependent possibilities: hard-coded, configurable, either locally, or via the IPP protocol or other protocols, and/or able to accept/return due to current state and conditions. The verb "populate" will be used as in the [ipp-mod] document to indicate the Printer action of filling in Subscription object attributes.

5. We will use the term "Notification Source", instead of "Printer", when specifying conformance requirements for the Event Notification content, so that these requirement cover both e when the Printer is the Notification Source and when the Printer is using a Notification Service as the Notification Source (transparently to the Subscribing client).

6. Various documents use "Event Notification Attributes" group/tag versus "Notification Attributes" group/tag. We will use the Event Notification Attributes group/tag consistently, since the term "Notification" can refer to everything as well as just Event Notification (content).

7. It was agreed to introduce the concept of Subscription Template attributes, like Job Template attributes in [ipp-mod]. The goal is to shorten the document by defining each attribute only once in the document, instead of once as a Subscription object attribute and for each operation. The Printer attributes that relate to the Subscription Template attributes that the Subscribing client supplies will be described with each Subscription attribute. Thus the related attributes will be defined altogether in the document. There may be some attribute renaming to conform to the usual "xxx", "xxx-supported" pattern for Template attributes, as in [ipp-mod].

The table below summarizes the names and relationships for all Subscription Template attributes (revision marks show changes from the 5/11/00 [ipp-ntfy] document). The first column of the table (labeled "Subscription Attribute") shows the name and syntax for each Subscription Template attribute

40 in the Subscription object. The Printer MUST support all of these Subscription Template attributes,
41 except for "notify-requested-attributes". The Subscribing client MAY omit any of these in a
42 Subscription Creation request, except for the "notify-recipient-uri" attribute. The last two columns
43 (labeled "Printer: Default Value Attribute" and "Printer: Supported Values Attribute") show the name
44 and syntax for each Job Template attribute in the Printer object (the default value attribute and the
45 supported values attribute). A "No" in the table means the Printer MUST NOT support the attribute
46 (that is, the attribute is simply not applicable). Other sources or fixed values are given for defaults
47 when there is no "xxx-default" Printer attribute defined.

Subscription Attribute	Printer: Default Value Attribute	Printer: Supported Values Attribute
notify-recipient-uri (uri)	No	notify-~~schemes~~recipient-supported (1setOf uriScheme)
notify-requested-events (1setOf type2 keyword)	notify-requested-events-default (1setOf type2 keyword)	notify-requested-events-supported (1setOf type2 keyword) notify-max-events-supported (integer(5:MAX))
~~notify-text-format (mimeMediaType)~~	~~No~~	~~notify-text-format-supported (1setOf mimeMediaType)~~
~~notify-additional-formats (1setOf mimeMediaType)~~	~~No~~	~~notify-additional-formats-supported (1setOf mimeMediaType)~~
notify-requested-attributes (1setOf type2 keyword)	'none'	notify-requested-attributes-supported (1 setOf type2 keyword)
notify-user-data (octetString(63))	No	No
notify-charset (charset)	"attributes-charset" in the request	charset-supported (1setOf charset)
notify-natural-languages (naturalLanguage)	"attributes-natural-language" in the request	generated-natural-language-supported (1setOf naturalLanguage)

48 8. The following table summarizes the Subscription Description attributes (revision marks show changes
49   from the 5/11/00 [ipp-ntfy] document). The Printer MUST support and populate all the Subscription
50   Description attributes. The Subscribing client MUST NOT supply any of them.

Subscription Description attributes:	Related Printer Description attribute(s)
notify-sequence-id (integer(0:MAX))	n/a
notify-subscription-id (integer(1:MAX))	n/a
notify-lease-expiration-time (integer(0:MAX))	notify-lease-time-default (integer(0:MAX)) notify-lease-time-supported (rangeOfInteger(0:MAX))
notify-printer-uri (uri)	printer-uri-supported (1setOf uri)
notify-subscriber-user-name (name(MAX))	n/a
notify-server-up-time (integer(1:MAX))	printer-up-time (integer(1:MAX))
notify-persistence-granted (boolean)	persistent-subscriptions-supported (boolean)

51 9. It was agreed to change the event definitions so that they are not disjoint. For example, the 'job-created'
52   and 'job-completed' events will also be part of the 'job-state-change' event. This will reduce the number
53   of events that a Subscribing client need supply, since it did not seem useful to be able to request 'job-
54   state-change' without getting the 'job-created' and 'job-completed' events. This also means that a
55   grouping event whether REQUIRED or OPTIONAL can include other events that are OPTIONAL for a
56   Printer to support. The following table summarizes the event groupings and their conformance
57   requirements for Printers to support:

Individual event:	Printer MUST support?	Grouping event:	Printer MUST support?
none	yes	no	
job-created	yes	**job-state-changed**	yes
job-completed	yes	**job-state-changed**	yes
		job-config-changed	no
job-purged	no	no	
printer-restarted	no	**printer-state-changed**	yes
printer-shutdown	no	**printer-state-changed**	yes
printer-media-changed	no	**printer-config-changed**	no
printer-queue-changed	no	no	
printer-no-longer-full	no	no	
printer-almost-idle	no	no	

58 10. It was agreed to add the Subscription Attributes tag and group to the IPP/1.1 Job Creation and Validate-
59   Job operations, instead of passing the Subscription Template attributes in the Operation attribute group.
60   Then the IPP/1.1 operations will be consistent with the new Subscription operations which have the
61   separate Subscription Attributes tag and group in requests and responses. The handling of
62   unrecognized attribute groups was in the Model appendix that was moved to the Implementer's Guide.
63   According to it, existing IPP/1.1 Printers are supposed to ignore completely any attribute groups they
64   do not recognize (and not return anything in the Unsupported Attribute Group and not change the return
65   status code). Thus introducing a new attribute group and tag into existing operations should not impact
66   current Printer implementations.

67 11. It was agreed to remove the Subscription Attributes tag and group from the Get-Subscription-Attributes
68   request and move the "notify-subscription-id" and "requested-attributes" to the Operation attribute
69   group in order to be more like the Get-Printer-Attributes operation in [ipp-mod].

70 12. It was agreed that the Subscribing client can supply one or more Subscription Attribute groups in each
71   Job Creation request. The Printer MUST accept these multiple subscriptions, if it supports more than
72   one Per-Job Subscription. If any of the subscriptions have bad syntax or any REQUIRED attributes
73   (such as the "notify-recipient-uri" attribute) is missing, the Printer MUST reject the operation and return
74   the 'client-error-bad-request' status code, independent of the value that the Subscribing client supplies
75   for "ipp-attribute-fidelity", since such a mal-formed request is a development time error. However, if
76   there is any other validation errors, the Printer MUST ignore them and accept the Job Creation
77   operation, independent of the value that the Subscribing client supplies for "ipp-attribute-fidelity".

78   It was also agreed that the Printer MUST return one subscription object in the response for each
79   subscription object in the request and in the same order. That subscription object contains the following.
80   If the subscription succeeds, it contains a "notify-subscription-id" attribute. If it fails, it contains the
81   attributes to be determined during the rewrite.

82 13. It was tentatively agreed that the Subscribing client can supply one or more Subscription Attribute
83   groups in each Create-Printer-Subscription and Create-Job-Subscription request, unless the error
84   handling becomes too complicated when there are multiple subscriptions. If these operations remain as
85   one subscription per request, the Subscribing client could perform multiple operations to get multiple
86   subscriptions, one for each subscription. The editors (Bob Herriot and Tom Hastings) will look at the
87   complexity and make a recommendation. If these two operations are changed to allow multiple
88   subscriptions in a single request, the operation name will have an "s" added to them.

89 14. If the Subscribing client omits the "notify-charset" Subscription Template attribute in the Subscription
90   Creation request, the Printer MUST populate the "notify-charset" Subscription object attribute with the
91   value from the "attributes-charset" operation attribute that the Subscribing client MUST supply in the
92   request (as in any other IPP request). Same for the "notify-natural-language" Subscription Template
93   attribute.

94 15. A delivery method document MAY add additional Subscription Template and/or Printer Description
95   attributes.

96   We agreed to eliminate the ability to send Machine Consumable, such as application/ipp, with the
97   mailto: delivery scheme. We agreed to delete the "notify-additional-formats" (1setOf mimeMediaType)
98   and "notify-text-format" (mimeMediaType) Subscription Template attributes from [ipp-ntfy] and
99   replace them with the "notify-mailto-text-only" (boolean) Subscription Template attribute in [ipp-
100   mailto]. A 'true' value means that the Notification Source MUST include only a text/plain format using
101   the charset indicated by the "notify-charset" Subscription object attribute. A 'false' values means that
102   the Event Notification MAY contain other formats, in addition to this text format. If the Subscribing
103   client omits this attribute, the Printer MUST populate it with the 'false' value.

104   It was agreed that this attribute is 'boolean', not 'type2 keyword' so that it cannot be extended. Using a
105   boolean simplifies the Subscribing client and Printer implementations since this Subscription Template
106   attribute will have neither a "notify-mailto-text-only-default" nor a "notify-mailto-text-only-supported"
107   Printer attribute, since the default is defined to be 'false' and an implementation MUST support both
108   values. Note: not having an "xxx-default" and "xxx-supported" breaks the usual pattern for Template
109   attributes, but this deviation was thought to be ok in order to further simplify implementation of both
110   the Subscribing client and the Printer.

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111   The naming pattern: "notify-xxx-yyy" where xxx is the delivery scheme is intended to help a base
112   implementation support arbitrary plug-in notification methods and to clarify that this attribute applies
113   only to the mailto: delivery scheme. The following table shows the mailto: REQUIRED Subscription
114   Template attribute:

Subscription Attribute	Printer: Default Value Attribute	Printer: Supported Values Attribute
notify-mailto-text-only (boolean)	'false'	No

115 16. A delivery method document MUST include conformance requirements for any such additional
116   Subscription Template and/or Printer Description attributes that apply to a Subscribing client and/or a
117   Printer if that delivery method is requested and/or supported, respectively.

118   A Printer MUST support the "notify-mailto-text-only" (boolean) Subscription Template attribute if it
119   supports the mailto: delivery method.

120 17. A delivery method document MAY define more specific semantics for the "notify-recipient" (scheme
121   parameters) and "notify-user-data" Subscription Template attributes.

122   [ipp-mailto:] The "notify-user-data" Subscription Template attribute is defined to be an RFC 822
123   mailbox address which has both the display name of the subscribing user and the email address of the
124   subscribing user (inside angle brackets)

125 18. The [ipp-ntfy] document defines the requirements for the Notification Source to include in any Machine
126   Consumable Event Notification content. These requirements are defined in terms of the *source* of the
127   information in terms of Subscription, Job, and Printer attributes. However, the delivery method
128   document defines the format for the information. The delivery method document MAY increase, but
129   not decrease, the conformance requirements that are defined in [ipp-ntfy]. The mailto: no longer has a
130   way to send Machine Consumable Event Notification content (see agreement #15).

131 19. The [ipp-ntfy] document defines the RECOMMENDATIONS for Human Consumable Event
132   Notification content. Each of the four delivery methods have ways to send Human Consumable form.
133   Those that also support Machine Consumable send Human Consumable as the value of the "notify-text"
134   attribute in the Machine Consumable format.

135 20. The main purpose of each delivery method document is to define how the Notification Source MUST
136   map the REQUIRED and OPTIONAL source attribute values (as populated by the Printer) to the Event
137   Notification content. In addition, each delivery method document MUST define the encoding and
138   transport of the Event Notification.

139   For the mailto: notification delivery method, the Notification Source MUST supply each of the
140   following RFC 822 fields from the indicated Subscription object attributes as populated by the Printer:

141   From: An RFC 822 mailbox address string consisting of the "printer-name" Printer attribute
142   concatenated with a "configurable email address" inside angle brackets. This "configurable email
143   address" could be that of the administrator or the device, but it NEED NOT be capable of receiving
144   mail. There will not be a Printer attribute defined to hold this "configurable email address", so that it
145   cannot be configured using the IPP protocol without an implementation-defined attribute extension.

146   Reply-To: and Sender: The "notify-user-data" Subscription object attribute which the Subscribing
147   client SHOULD supply as an RFC 822 "mailbox address" (see item 17 above). If the Subscribing client
148   did not supply a syntactically valid "RFC 822 mailbox address", the Notification Source MUST NOT
149   supply these headers.

150   To: The remainder of the "notify-recipient-uri" Subscription object attribute after the mailto: scheme.

151 21. For any Subscription Template attribute that a Subscribing client can omit and that [ipp-ntfy] doesn't
152   define how the Printer MUST populate the Subscription object attribute, the delivery method document
153   MUST specify the value that the Notification Source MUST supply in the Event Notification content.

154   [ipp-mailto]: If the Subscribing client omits the "notify-user-data" Subscription Template attribute or
155   supplies a syntactically invalid "mailbox address", the Notification Source MUST omit the Reply-To:
156   MUST omit the Sender: field (as required by RFC 822 when the Sender: field would be the same as the
157   From: field).

158 22. For the mailto: delivery method, the Notification Source MUST support the SMTP protocol and MAY
159   support other mail protocols. When sending the text/plain in the body of the message, the Notification
160   Source MUST fill in the SMTP mail header with the 'text/plain' value concatenated with the string: ";
161   charset=" and the value of the "notify-charset" Subscription object attribute.

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