1 Subj: Beginnings of Implementer's Guide section for IPP Event Notification
2 From: Tom Hastings
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6 Shows the changes to produce the 7/13/00 documents.

7 1   Event Notification

8 This section discusses the IPP Event Notification extension defined in [ipp-ntfy].

9 1.1   Summary of the validation of Subscription Creation Operations

10 The following table shows the combinations of Subscription Template attributes supplied by the client and
11 the actions taken by the Printer in Subscription Creation operations. Assume a single Subscription object
12 was intended to be created.

13 Legend: The '-' character indicates no attribute or value. 'n/a' means not applicable.

Subscribing client		Printer			
supplies	MUST supply?	creates Subscription?	populates Subscription	returns Subscription Attributes Group	returns "notify-status-code" in
-	Y	N	n/a	-	client-error-bad-request
-	N	Y	-	-	successful-ok
xxx=bad	Y	N	n/a	xxx=bad	client-error-uri-scheme-not-supported
xxx=bad	N	Y	-	xxx=bad	successful-ok-ignored-or-substituted-values
bad=...	N	Y	-	bad='unsupported'	successful-ok-ignored-or-substituted-values
xxx=good	Y	Y	xxx=good	-	successful-ok
xxx=good	N	Y	xxx=good	-	successful-ok

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15 ## 1.2   Summary of the usage of the Notification attributes

16 This section summarizes the usage of Notification attributes in the Job operation attributes, Job object,
17 Subscription object, Event Notification content, Job operations, and Subscriptions operations. The legend
18 for the notation used in the tables is given following each table.

19 The column labeled "Printer sends" column indicates the conformance for a delivery method specification
20 document for Machine Consumable content. A delivery method definition document is free to increase the
21 conformance requirements, i.e., change a MAY to a SHOULD or a MUST or a SHOULD to a MUST. A
22 delivery method definition document MAY define additional attribute sources for the content. A delivery
23 method definition document SHOULD NOT decrease the conformance requirements for Machine
24 Consumable content.

25 The Objects column indicates the object for which the source attribute is defined. The "*event*" notation
26 indicates that the source is generated when the event occurs and does not reside in any object. The "n/a"
27 notation means NOT APPLICABLE and the Printer MUST NOT include such an attribute in the Event
28 Notification content.

29 **1.2.1   Subscription Template Attributes**

	Objects		Machine Consumable Event Notification	
Common Subscription Template Attributes for Per-Job and Per-Printer Subscriptions and related Printer attributes	Object	Printer support	Event category	Printer sends
1. notify-recipient-uri (uri)	Subscription	MUST	all	NEED NOT
notify-schemes-supported (1setOf uriScheme)	Printer		n/a	n/a
2. notify-events (1setOf type2 keyword)	Subscription	MUST	see #16	
notify-events-default (1setOf type2 keyword)	Printer		n/a	n/a
notify-events-supported (1setOf type2 keyword)	Printer		n/a	n/a
notify-max-events-supported (integer(2:MAX))	Printer		n/a	n/a
3. notify-attributes (1setOf type2 keyword)	Subscription	MAY	see #20	
notify-attributes-supported (1setOf type2 keyword)	Printer		n/a	n/a
4. notify-user-data (octetString(63))	Subscription	MUST	all	SHOULD
5. notify-charset (charset)	Subscription	MUST	all	SHOULD
charset-supported (1setOf charset)	Printer		n/a	n/a
6. notify-natural-language (naturalLanguage)	Subscription	MUST	all	SHOULD
generated-natural-language-supported (1setOf naturalLanguage)	Printer		n/a	n/a
7. notify-lease-duration (integer(0:MAX)) **	Subscription	MUST	n/a	n/a
notify-lease-duration-default (integer(0:67108863))	Printer		n/a	n/a
notify-lease-duration-supported (1setOf (integer(0: 67108863) | rangeOfInteger(0:67108863)))	Printer		n/a	n/a
8. notify-time-interval (0:MAX)	Subscription	MUST*	n/a	n/a
~~notify-persistence (boolean)~~	~~Subscription~~	~~MUST~~	~~n/a~~	~~n/a~~
~~notify-persistence-default (boolean)~~	~~Printer~~		~~n/a~~	~~n/a~~
~~notify-persistence-supported (1setOf boolean)~~	~~Printer~~		~~n/a~~	~~n/a~~

30 * The Printer MUST support the "notify-time-interval" attribute if it supports the 'job-progress' event.

31 ** "notify-lease-duration" is defined for Per-Printer Subscriptions only.

32 **1.1.21.2.2 Subscription Description Attributes**

	Objects		Machine Consumable Event Notification	
Subscription Description Attributes	Object	Printer support	Event category	Printer sends
9. notify-subscription-id (integer(1:MAX))	Subscription	MUST	all	MUST
10. notify-sequence-number (integer (0:MAX))	Subscription	MUST	all	SHOULD
11. notify-lease-expiration-time (integer(0:MAX))**	Subscription	MUST	all	NEED NOT
12. notify-printer-up-time (integer(1:MAX))**	Subscription	MUST	see #18	
13. notify-printer-uri (uri)	Subscription	MUST	all	MUST
14. notify-job-id (integer(1:MAX))	Subscription	MUST	see #21	
15. notify-subscriber-user-name (name(MAX))	Subscription	MUST	all	NEED NOT

33 ** Defined for Per-Printer Subscriptions only. The client can determine the number of seconds remaining
34 in the Subscription lease by subtracting "notify-printer-up-time" from "notify-lease-expiration-time". If the
35 Printer maintains the Subscription objects, then "notify-printer-up-time" is an alias for the Printer's "printer-
36 up-time" attribute. If the Printer is using a Notification Service to keep Subscription objects and lease time
37 expiration, then the Printer MUST adjust the values of these attributes returned from the Notification
38 Service to be relative to the Printer's "printer-up-time" before returning them to the client in Get-
39 Subscriptions and Get-Subscription-Attributes responses.

40 **1.1.31.2.3 Additional Event Notification *source* attributes**

	Objects		Machine Consumable Event Notification	
Additional Event Notification *source* attributes	Object	Confor mance	Event category	Printer sends
16. notify-subscribed-event (type2 keyword)	Event	n/a	all	MUST
17. notify-text (text(MAX))	Event	n/a	all	SHOULD
18. printer-up-time (integer(MIN:MAX))	Printer	MUST	all	MUST
19. printer-current-time (dateTime)	Printer	MAY	all	MUST *
20. any requested attributes and their values (see #3)	Job or Printer	MAY	all	MAY

41 * MUST, if the Printer supports the "printer-current-time" (dateTime) Printer attribute.

42   **1.1.41.2.4   Job Description Attributes**

		Objects		Machine Consumable Event Notification	
Job Description Attributes	Object	Printer support	Event category	Printer sends
21. job-id (integer(1:MAX))	Job	MUST	job	MUST
22. job-state (type1 enum)	Job	MUST	job	MUST
23. job-state-reasons (1setOf type2 keyword)	Job	MUST	job	MUST
24. job-impressions-completed (integer(0:MAX))	Job	MUST	job-progress, job-completed	MUST

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44   **1.1.51.2.5   Printer Description Attributes**

		Objects		Machine Consumable Event Notification	
Printer Description Attributes	Object	Printer support	Event category	Printer sends
25. printer-name (name(127))	Printer	MUST	all	MAY
26. printer-state (type1 enum)	Printer	MUST	printer	MUST
27. printer-state-reasons (1setOf type2 keyword)	Printer	MUST	printer	MUST
28. printer-is-accepting-jobs (boolean)	Printer	MUST	printer	MUST
~~notify-max-printer-subscriptions-supported (integer(0:MAX))~~	~~Printer~~	~~MUST~~	~~n/a~~	~~n/a~~
~~notify-max-job-subscriptions-supported (integer(0:MAX))~~	~~Printer~~	~~MUST~~	~~n/a~~	~~n/a~~
29. printer-state-change-time (integer(1:MAX))	Printer	MAY	n/a	n/a
30. printer-state-change-date-time (dateTime)	Printer	MAY	n/a	n/a

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46   ## 1.3   Machine Consumable Event Notification content

47   The [ipp-ntfy] defines certain conformance requirements for Delivery Method Documents with respect to
48   what a Printer sends in a Machine Consumable Event Notification. In other words, for every source
49   attribute value in [ipp-ntfy], each Document Delivery Method document MUST indicate whether the

50   Printer MUST, SHOULD, MAY, NEED NOT, SHOULD NOT, or MUST NOT send in Machine
51   Consumable Event Notifications. Table 1 lists these source values that [ipp-ntfy] says that the Delivery
52   Method Document MUST include and indicates the conformance requirements defined by each of the
53   Delivery Method Documents for: 'indp', 'ipp-get', and 'snmpnotify'.

54   **Table 1 - Machine Consumable Event Notification content by Delivery Method**

Source value	Source object	Printer sending requirement		
		indp:	ipp-get:	snmpnotify:
[ipp-ntfy] says the Delivery Method Document MUST require the Printer to send in each Machine Consumable Event Notification:				
notify-subscription-id (integer(1:MAX))	Subscription	MUST	MUST	no mapping
notify-printer-uri (uri)	Subscription	MUST	MUST	MUST
notify-subscribed-event (type2 keyword)	Event Notification	MUST	MUST	MUST
printer-up-time (integer(MIN:MAX))	Printer	MUST	MUST	MUST
printer-current-time (dateTime) *	Printer	MUST	MUST	no mapping
[ipp-ntfy] says the Delivery Method document MUST require the Printer to send in each Machine Consumable Event Notification, unless the source is incompatible with the Delivery Method:				
notify-sequence-number (integer (0:MAX))	Subscription	MUST	MUST	MUST
notify-charset (charset)	Subscription	MUST	MUST	no mapping
notify-natural-language (naturalLanguage)	Subscription	MUST	MUST	no mapping
notify-user-data (octetString(63)) *	Subscription	MUST	MUST	no mapping
notify-text (text)	Event Notification	MUST	MUST	no mapping
[ipp-ntfy] says the Delivery Method document MAY include for the Printer to send in each Machine Consumable Event Notification, with any conformance requirement. [ipp-ntfy] says a Printer MAY support the "notify-attributes" attribute. The Delivery Method MUST say that the Printer MUST, SHOULD, MAY, MUST NOT, SHOULD NOT, or NEED NOT support the "notify-attributes" attribute and specific values of this attribute. The Delivery Method MAY say that support for the "notify-attributes" is conditioned on support of the attribute by the Printer or it MAY say that Printer MUST support the "notify-attribute" attribute if the Printer supports the Delivery Method:				

Source value	Source object	Printer sending requirement		
		indp:	ipp-get:	snmpnotify:
attributes from the "notify-attributes" attribute	Printer	MAY	MUST	no mapping
attributes from the "notify-attributes" attribute	Job	MAY	MUST	no mapping
attributes from the "notify-attributes" attribute	Subscription	MAY	MUST	no mapping
[ipp-ntfy] says the Delivery Method document MUST require the Printer to send in each Machine Consumable Event Notification, for Job events *only*:				
job-id (integer(1:MAX))	Job	MUST	MUST	MUST
job-state (type1 enum)	Job	MUST	MUST	MUST
job-state-reasons (1setOf type2 keyword)	Job	MUST	MUST	MUST
[ipp-ntfy] says the Delivery Method document MUST require the Printer to send in each Machine Consumable Event Notification, for 'job-progress' and 'job-completed' events *only*:				
job-impressions-completed (integer(0:MAX))	Job	MUST	MUST	MUST **
[ipp-ntfy] says the Delivery Method document MUST require the Printer to send in each Machine Consumable Event Notification, for Printer events *only*:				
printer-state (type1 enum)	Printer	MUST	MUST	MUST
printer-state-reasons (1setOf type2 keyword)	Printer	MUST	MUST	MUST
printer-is-accepting-jobs (boolean)	Printer	MUST	MUST	MUST

55 * If the Subscription Object does not contain a "notify-user-data" attribute and the Delivery Method
56 document REQUIRES the Printer to send the "notify-user-data" source value in the Event Notification, the
57 Printer MUST send an octet-string of length 0.

58 ** For the 'snmpnotify' Delivery Method the Printer MUST send "job-k-octets" as well as "job-impressions-
59 completed" values for 'job-completed' and 'job-purged' events. The 'snmpnotify' Delivery Method has an
60 addition trap binding for 'job-progress' events for which the Printer MUST send: "job-k-octets", "job-
61 impressions", "job-copies", "job-collation-type", "job-media-sheets-completed", "sheet-completed-copy-
62 numbers" and "sheet-completed-document-number" values.

63 **1.4   Human Consumable Event Notification content**

64 The [ipp-ntfy] document defines the following RECOMMENDATIONS for Human Consumable Event
65 Notification content. Each of the four delivery methods have ways to send Human Consumable. Those

66   that also support Machine Consumable send Human Consumable as the value of the "notify-text" attribute
67   in the Machine Consumable format.

68   There is a separate sub-table for each piece of information. Each row in the sub-table represents a source
69   value for the information and the values are listed in order of preference, with the first one being the
70   preferred one. An implementation SHOULD use the source value from the earliest row in each sub- table.

Source value	Source object	delivery method (scheme in "notify-recipient-uri"):		
		indp: "notify-text"	ipp-get: "notify-text"	mailto: mail body
The source of the information for the Printer Name. The "printer-name" is more user-friendly unless the Notification Recipient is in a place where the Printer name is not meaningful. For example, an implementation could have the intelligence to send the value of the "printer-name" attribute to a Notification Recipient that can access the Printer via value of the "printer-name" attribute and otherwise send the value of the "notify-printer-uri" attribute. Printer SHOULD include in each Human Consumable Event Notification for Job and Printer events:				
printer-name (name(127))	Printer	one or both	one or both	one or both
notify-printer-uri (uri)	Subscription			
Printer SHOULD include in each Human Consumable Event Notification for Job and Printer events:				
notify-trigger-event (type2 keyword)	Subscription	SHOULD	SHOULD	SHOULD
Printer MAY include in each Human Consumable Event Notification for Job and Printer events:				
printer-current-time (dateTime)	Printer	MAY	MAY	MAY
Printer SHOULD include in each Human Consumable Event Notification for Job events *only*:				
job-name (name(MAX))	Job	SHOULD	SHOULD	SHOULD
job-id (integer(1:MAX))	Job	MAY	MAY	MAY
For Job events *only*: the source of the information for the job state. If the Printer supports the "job-state-message" and "job-detailed-state-message" attributes, it SHOULD use those attributes for the job state information, otherwise it SHOULD fabricate such information from the "job-state" and "job-state-reasons". For some Events, a Printer MAY combine this information with Event information:				

Source value	Source object	delivery method (scheme in "notify-recipient-uri"):		
		indp: "notify-text"	ipp-get: "notify-text"	mailto: mail body
job-state-message (text(MAX))	Job	SHOULD or	SHOULD or	SHOULD or
job-detailed-status-messages (1setOf text(MAX))	Job			
job-state (type1 enum)	Job	SHOULD	SHOULD	SHOULD
job-state-reasons (1setOf type2 keyword)	Job			
For Printer events *only*: the source of the information for the printer state. If a Printer supports the "printer-state-message", it SHOULD use that attribute for the job state information, otherwise it SHOULD fabricate such information from the "printer-state" and "printer-state-reasons". For some Events, a Printer MAY combine this information with Event information.				
printer-state-message (text(MAX))	Printer	SHOULD or	SHOULD or	SHOULD or
printer-state (type1 enum)	Printer	SHOULD	SHOULD	SHOULD
printer-state-reasons (1setOf type2 keyword)	Printer			
printer-is-accepting-jobs (boolean)	Printer			

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