

1 Subj: Beginnings of Implementer's Guide section for IPP Event Notification
 2 From: Tom Hastings
 3 File: ipp-not-spec-for-IIG-00706.doc
 4 Date: 7/06/00

5 1 Event Notification

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

7 1.1 Summary of the validation of Subscription Creation Operations

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

11 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

12

13 **1.2 Summary of the usage of the Notification attributes**

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

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

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

27 **1.1.1.2.1 Subscription Template Attributes**

	Objects		Machine Consumable Event Notification	
	Object	Printer support	Event category	Printer sends
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-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

28 ** “notify-lease-duration” is defined for Per-Printer Subscriptions only.

29 **1.1.21.2.2** Subscription Description Attributes

Subscription Description Attributes	Objects		Machine Consumable Event Notification	
	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

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

37 **1.1.31.2.3** Additional Event Notification source attributes

Additional Event Notification source attributes	Objects		Machine Consumable Event Notification	
	Object	Conformance	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

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

39 **1.1.41.2.4 Job Description Attributes**

	Objects		Machine Consumable Event Notification	
	Object	Printer support	Event category	Printer sends
Job Description Attributes	Job	MUST	job	MUST
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

40

41 **1.1.51.2.5 Printer Description Attributes**

	Objects		Machine Consumable Event Notification	
	Object	Printer support	Event category	Printer sends
Printer Description Attributes	Printer	MUST	all	MAY
25. printer-name (name(127))	Printer	MUST	printer	MUST
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
29. notify-max-printer-subscriptions-supported (integer(0:MAX))	Printer	MUST	n/a	n/a
30. notify-max-job-subscriptions-supported (integer(0:MAX))	Printer	MUST	n/a	n/a
31. printer-state-change-time (integer(1:MAX))	Printer	MAY	n/a	n/a
32. printer-state-change-date-time (dateTime)	Printer	MAY	n/a	n/a

42

43 **1.3 Machine Consumable Event Notification content**

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

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

51 **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	<u>MUST</u>	MUST	no mapping
notify-text (text)	Event Notification	<u>SHOULD</u> <u>MUST</u>	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	SHOULD <u>AY</u>	MUST	no mapping
attributes from the "notify-attributes" attribute	Job	SHOULD <u>AY</u>	MUST	no mapping
attributes from the "notify-attributes" attribute	Subscription	SHOULD <u>AY</u>	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 <i>only</i> :				
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 <i>only</i> :				
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 <i>only</i> :				
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

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

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

60 **1.4 Human Consumable Event Notification content**

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

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

65 There is a separate sub-table for each piece of information. Each row in the sub-table represents a source
 66 value for the information and the values are listed in order of preference, with the first one being the
 67 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:	ipp-get:	snmpnotify:	mailto:
Notification Source SHOULD include in each Human Consumable Event Notification for Job and Printer events:					
printer-name (name(127))	Printer	same			
notify-printer-uri (uri)	Subscription	same			
Notification Source SHOULD include in each Human Consumable Event Notification for Job and Printer events:					
notify-trigger-event (type2 keyword)	Subscription	same			
Notification Source MAY include in each Human Consumable Event Notification for Job and Printer events:					
printer-current-time (dateTime)	Printer	same			
Notification Source SHOULD include in each Human Consumable Event Notification for Job events <i>only</i> :					
job-name (name(MAX))	Job	same			
job-id (integer(1:MAX))	Job	same			
Notification Source SHOULD include in each Human Consumable Event Notification for Job events <i>only</i> 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 Notification Source MAY combine this information with event information:					

Source value	Source object	delivery method (scheme in "notify-recipient-uri"):			
		indp: same	ipp-get:	snmpnotify:	mailto:
job-state-message (text(MAX))	Job				
job-detailed-status-messages (1setOf text(MAX))	Job	same			
job-state (type1 enum)	Job	same			
job-state-reasons (1setOf type2 keyword)	Job	same			
Notification Source SHOULD include in each Human Consumable Event Notification for Printer events <i>only</i> :					
printer-state-message (text(MAX))	Printer				
printer-state (type1 enum)	Printer				
printer-state-reasons (1setOf type2 keyword)	Printer				
printer-is-accepting-jobs (boolean)	Printer				

68

69 **1.5 Human**