

## DICOM Correction Proposal

STATUS	Final Text
Date of Last Update	2016/05/25
Person Assigned	Kevin O'Donnell
Submitter Name	Kevin O'Donnell
Submission Date	2015/09/29

Correction Number	CP-1557
Log Summary: Add UPS Assigned Notification Event Type	
Name of Standard PS3.4 2016b	
Rationale for Correction: Currently there are UPS notification events for state changes and progress changes. Assignment of a UPS instance to a particular station, human or organization corresponds to neither a change of the UPS State nor a change to the Progress attributes. But it would be beneficial to communicate that an assignment has happened as this will be a significant event for the assignee which might not otherwise retrieve and examine all UPS instances it is notified about. A UPS Assigned event type is added with relevant associated attributes. No corresponding changes are needed to Part 18 UPS-RS since all fields and behaviors are by reference.	
Correction Wording:	

*Modify the N-EVENT-REPORT to add a new event type as shown: (Full section CC.2.4 shown for context)*

### CC.2.4 Report a Change in UPS Status (N-EVENT-REPORT)

This operation allows an SCP to notify an SCU of a change in state of a UPS instance or a change in state of the SCP itself. This operation shall be invoked by the SCP through the DIMSE N-EVENT-REPORT Service.

#### CC.2.4.1 Event Report Information

DICOM AEs that claim conformance to the UPS Event SOP Class as an SCU and/or an SCP shall support the Event Type IDs and Event Report Attributes as specified in Table CC.2.4-1.

**Table CC.2.4-1. Report a Change in UPS Status - Event Report Information**

Event Type Name	Event Type ID	Attribute Name	Tag	Req. Type SCU/SCP
UPS State Report	1	Procedure Step State	(0074,1000)	-/1
		Input Readiness State	(0040,4041)	-/1
		Reason For Cancellation	(0074,1238)	-/3
		Procedure Step Discontinuation Reason Code Sequence	(0074,100e)	-/3
		>Code Value	(0008,0100)	-/1
		>Coding Scheme Designator	(0008,0102)	-/1
		>Coding Scheme Version	(0008,0103)	-/1C

Event Type Name	Event Type ID	Attribute Name	Tag	Req. Type SCU/SCP
				Required if the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously
		>Code Meaning	(0008,0104)	-/1
UPS Cancel Requested	2	Requesting AE	(0074,1236)	-/1
		Reason For Cancellation	(0074,1238)	-/1C Required if provided in the triggering N-ACTION
		Procedure Step Discontinuation Reason Code Sequence	(0074,100e)	-/1C Required if provided in the triggering N-ACTION
		>Code Value	(0008,0100)	-/1
		>Coding Scheme Designator	(0008,0102)	-/1
		>Coding Scheme Version	(0008,0103)	-/1C Required if the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously
		>Code Meaning	(0008,0104)	-/1
		Contact URI	(0074,100a)	-/1C Required if provided in the triggering N-ACTION
		Contact Display Name	(0074,100c)	-/1C Required if provided in the triggering N-ACTION
UPS Progress Report	3	Progress Information Sequence	(0074,1002)	-/1
		>Procedure Step Progress	(0074,1004)	-/3
		>Procedure Step Progress Description	(0074,1006)	-/3
		>Procedure Step Communications URI Sequence	(0074,1008)	-/3
		>>Contact URI	(0074,100a)	-/1
		>>Contact Display Name	(0074,100c)	-/3
SCP Status Change	4	SCP Status	(0074,1242)	-/1
		Subscription List Status	(0074,1244)	-/1
		Unified Procedure Step List Status	(0074,1246)	-/1
<b>UPS Assigned</b>	<b>5</b>	<b>Scheduled Station Name Code Sequence</b>	<b>(0040,4025)</b>	<b>-/1C</b> <b>Required if populated in the UPS Instance</b>
		<b>&gt;Code Value</b>	<b>(0008,0100)</b>	<b>-/1</b>
		<b>&gt;Coding Scheme Designator</b>	<b>(0008,0102)</b>	<b>-/1</b>
		<b>&gt;Coding Scheme Version</b>	<b>(0008,0103)</b>	<b>-/1C</b> <b>Required if the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously</b>
		<b>&gt;Code Meaning</b>	<b>(0008,0104)</b>	<b>-/1</b>
		<b>Human Performer Code Sequence</b>	<b>(0040,4009)</b>	<b>-/1C</b> <b>Required if populated in the UPS Instance</b>
		<b>&gt;Code Value</b>	<b>(0008,0100)</b>	<b>-/1</b>
		<b>&gt;Coding Scheme Designator</b>	<b>(0008,0102)</b>	<b>-/1</b>

Event Type Name	Event Type ID	Attribute Name	Tag	Req. Type SCU/SCP
		>Coding Scheme Version	(0008,0103)	-/1C <b>Required if the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously</b>
		>Code Meaning	(0008,0104)	-/1
		Human Performer's Organization	(0040,4036)	-/1C <b>Required if populated in the UPS Instance</b>

Note

The meanings of the Progress Information Attribute values in the context of a specific task are undefined, and the values may be obsolete when the UPS has moved to the COMPLETED or CANCELED state.

### CC.2.4.2 Service Class User Behavior

The SCU shall return, via the N-EVENT-REPORT response primitive, the N-EVENT-REPORT Response Status Code applicable to the associated request. See PS3.7 for general response status codes.

The SCU shall accept all Attributes included in any notification. No requirements are placed on what the SCU will do as a result of receiving this information.

Note

An SCU may receive N-EVENT-REPORTs with an Event Type ID of 1 (UPS State Report) either due to a state change to the UPS, or in response to initial subscription to the UPS (possibly when the UPS is initially created). See Section CC.2.3.3.

If an SCU performing a UPS receives an N-EVENT-REPORT for that instance with an Event Type ID of 2 (UPS Cancel Requested), then this SCU may, at its own discretion, choose to cancel the UPS as described in Section CC.2.1.2.

Note

1. A UPS Cancel Requested notification includes the AE of the Requesting SCU, which could be useful to the performing SCU in deciding the significance/authority of the Cancel Request.
2. The Reason For Cancellation, a proposed Procedure Step Discontinuation Reason Code Sequence, a Contact Display Name and a Contact URI of someone responsible for the Cancel Request may also be provided in the notification. Some performing SCUs might find this information useful in deciding to cancel the UPS or might provide the information to an operator so they can make contact for the purpose of clarifying or confirming the Cancel Request. If the performing SCU chooses to Cancel the UPS, it may at its own discretion set the Procedure Step Discontinuation Reason Code Sequence in the UPS instance based on the corresponding values provided.

**If an SCU receives an N-EVENT-REPORT for an instance with an Event Type ID of 5 (UPS Assigned) and the device or human specified in the notification correspond to the SCU, then the UPS has been assigned to that SCU.**

An SCU that wishes to start/stop receiving N-EVENT-REPORTs about UPS instances may subscribe/unsubscribe as described in Section CC.2.3.2.

If an SCU receives an N-EVENT-REPORT with an Event Type ID of 4 (SCP Status Change), it is not required to act on that information, however the SCU may want to consider actions such as: re-subscribing if the subscription list has been Cold Started, verifying (and recreating if necessary) scheduled UPSs if the UPS list has been Cold Started, etc.

Note

An SCU may receive SCP State Change Events from any SCP with which it is currently subscribed either globally or for any specific UPS.

### CC.2.4.3 Service Class Provider Behavior

The SCP shall specify in the N-EVENT-REPORT Request Primitive the Event Type ID and the UID of the UPS Instance with which the event is associated. Since all UPSs are created as instances of the UPS Push SOP Class, the Affected SOP Class UID (0000,0002) in the N-EVENT-REPORT request shall be the UID of the UPS Push SOP Class. See Section CC.3.1 for further details. The SCP shall additionally include Attributes related to the event as defined in Table CC.2.4-1.

Each time the SCP completes a Subscribe to Receive UPS Event Reports Action (see Section CC.2.3.1) for a specific UPS instance, the SCP shall send to the Receiving AE a UPS State Report Event and provide the current value of the Procedure Step State (0074,1000) and Input Readiness State (0040,4041) Attributes for the UPS instance.

Each time the SCP completes a Subscribe to Receive UPS Event Reports Action (see Section CC.2.3.1) for the well-known UID 1.2.840.10008.5.1.4.34.5 with the value of the Deletion Lock set to TRUE (i.e., a Global Subscription with Lock), the SCP shall send to the Receiving AE a UPS State Report Event for every UPS Instance managed by the SCP and provide the current value of the Procedure Step State (0074,1000) and Input Readiness State (0040,4041) Attributes.

Each time the SCP creates a new UPS instance, the SCP shall send a UPS State Report Event, indicating a change of status to SCHEDULED and the initial value of and Input Readiness State (0040,4041), to all AEs with a Global Subscription State of "Global Subscription with Lock" or "Global Subscription w/o Lock". (see Section CC.2.3)

**Each time the SCP creates a new UPS instance and either the Scheduled Station Name Code Sequence (0040,4025) or the Scheduled Human Performers Sequence (0040,4034) is populated, the SCP shall also send a UPS Assigned Event, with the current contents of the Scheduled Station Name Code Sequence (0040,4025) and the Scheduled Human Performers Sequence (0040,4034), to all AEs with a Global Subscription State of "Global Subscription with Lock" or "Global Subscription w/o Lock".**

In the following text "Subscribed SCUs" means all AEs where the UPS Subscription State of the UPS Instance in question is "Subscribed with Lock" or "Subscribed w/o Lock" (see Section CC.2.3). If the SCP also supports the HTTP CreateSubscription service as an Origin-Server, "Subscribed SCUs" also includes all CreateSubscription User-Agents where the UPS Subscription State of the UPS Instance in question is "Subscribed with Lock" or "Subscribed w/o Lock" (see Section 6.9.7 "CreateSubscription" in PS3.18).

Each time the SCP changes the Procedure Step State (0074,1000) Attribute for a UPS instance, the SCP shall send a UPS State Report Event to subscribed SCUs.

Each time the SCP changes the Input Readiness State (0040,4041) Attribute for a UPS instance, the SCP shall send a UPS State Report Event to subscribed SCUs.

Each time the SCP receives an N-ACTION with an Action Type ID of 2 (Request UPS Cancel), the SCP shall send a UPS Cancel Requested Event to subscribed SCUs. The SCP shall include the AE Title of the triggering N-ACTION SCU in the Requesting AE Attribute. The SCP shall include the Reason For Cancellation, Contact Display Name and Contact URI Attributes if they were provided in the triggering N-ACTION.

**Each time the SCP updates the Scheduled Station Name Code Sequence (0040,4025) or the Scheduled Human Performers Sequence (0040,4034) for a UPS instance, the SCP shall send a UPS Assigned Event, with the current contents of the Scheduled Station Name Code Sequence (0040,4025) and the Scheduled Human Performers Sequence (0040,4034), to subscribed SCUs.**

Each time the SCP updates the Procedure Step Progress (0074,1004), the Procedure Step Progress Description (0074,1006), or the contents of the Procedure Step Communications URI Sequence (0074,1008) for a UPS instance, the SCP shall send a UPS Progress Event, with the current contents of the Progress Information Sequence (0074,1002), to subscribed SCUs.

Each time the SCP is restarted, the SCP shall send an SCP Status Change Event. The SCP, if it knows it is going down, may send an additional SCP Status Change Event before it is shut down. Since the subscription lists may be incomplete or missing in the event of a restart, the SCP shall maintain a fallback list of AEs (for example as a configuration file, or from an LDAP server). The SCP shall send the SCP Status Change Events to:

- all AEs on the fallback list and,
- all AEs with a Global Subscription State of "Global Subscription with Lock" or "Global Subscription w/o Lock" and,
- all AEs with a UPS Subscription State of "Subscribed with Lock" or "Subscribed w/o Lock" for any UPS Instance managed by the SCP

Note

The SCP may choose to not send duplicate messages to an AE.

The value of SCP Status (0074,1242) shall be RESTARTED if the SCP is sending this message due to being restarted and GOING DOWN if the SCP will be shut down soon.

#### Note

SCPs that report they are GOING DOWN might stop accepting new interactions from SCUs until after they have restarted.

When SCP Status (0074,1242) is RESTARTED, the value of Subscription List Status (0074,1244) shall be WARM START if the SCP preserved the Subscription List to the best of its knowledge, and COLD STARTED if the SCP has not preserved the Subscription List.

When SCP Status (0074,1242) is RESTARTED, the value of Unified Procedure Step List Status (0074,1246) shall be WARM START if the SCP preserved the UPS List to the best of its knowledge, and COLD START if the SCP has not preserved the UPS List.

If the SCP is unable to successfully complete an N-EVENT-REPORT to any given SCU, the SCP has no obligation to queue or retry, and it should not imply any effect on the subscription list or deletion locks.

### **CC.2.4.4 Status Codes**

No Service Class specific status values are defined for the N-EVENT-REPORT Service. See PS3.7 for general response status codes.