

DICOM Correction Proposal

STATUS	Final Text
Date of Last Update	2017/04/16
Person Assigned	Rob Horn
Submitter Name	Rob Horn
Submission Date	2016/01/15

Correction Number	CP-1323
Log Summary: Clarify Audit Code Meanings	
Name of Standard PS 3.15 2017a	
<p>Rationale for Correction:</p> <p>The DICOM standard incorporates the Schema that originated from RFC-3881. It has since updated that schema, and will continue to update that schema. The RFC process for updating is glacial and this RFC will not be updated by the IETF.</p> <p>The codes used within the audit messages are defined between DICOM and the RFC. There are no DCID defined for the RFC codes. This is causing problems in IHE and elsewhere because the RFC organization is very confusing. It inhibits adding new capabilities also.</p> <p>The codes used for events are not clearly explained by the RFC and this has also been a source of confusion.</p> <p>It is not practical to use the IETF process to clarify or add codes, nor to make any other documentation improvements. RFC-3881 was published in 2004 and the IETF is not interested in maintaining it on an ongoing basis.</p> <p>Also, several DCM codes were assigned for some patient related events. These were removed from CID 400, 401, 403 as Audit Event IDs at some point and are restored here. DICOM defines a message format for some of these IDs, and various IHE and other standards do use these as event IDs and have defined message formats for the rest. DICOM did define them as controlled vocabulary.</p>	
Correction Wording:	

Modify PS3.15 RNG schema in A.5.1

```

attribute ParticipantObjectTypeCode { # optional type
    "1" |   #3# Person
    "2" |   #3# System object
    "3" |   #3# Organization
    "4"}?,   ## Other
attribute ParticipantObjectTypeCodeRole { ## optional role
    "1" |   ## Patient
    "2" |   ## Location
    "3" |   ## Report
    "4" |   ## Resource
    "5" |   ## Master File
    "6" |   ## User
    "7" |   ## List
    "8" |   ## Doctor
    "9" |   ## Subscriber
    
```

"10"		##	g Guarantor
"11"		##	Security User Entity
"12"		##	Security User Group
"13"		##	Security Resource
"14"		##	Security Granularity <u>Granularity</u> Definition
"15"		##	Provider
"16"		##	Report Data Destination
"17"		##	Report Library Data Archive
"18"		##	Schedule
"19"		##	Customer
"20"		##	Job
"21"		##	Job Stream
"22"		##	Table
"23"		##	Routing Criteria
"24"		##	<u>Query</u>
"25"		##	Data Source
"26"		##	Processing Element
			}? , ## Query?

Add section A.5.2.6 ParticipantObjectTypeCodeRole

A.5.2.6 ParticipantObjectTypeCodeRole

The ParticipantObjectTypeCodeRole identifies the role that the object played in the event that is being reported. Most events involve multiple participating objects. ParticipantObjectTypeCodeRole identifies which object took which role in the event. It also covers agents, multi-purpose entities, and multi-role entities. For the purpose of the event one primary role is chosen.

Code	Short Description	Description
1	Patient	This object is the patient that is the subject of care related to this event. It is identifiable by patient ID or equivalent. The patient may be either human or animal.
2	Location	This is a location identified as related to the event. This is usually the location where the event took place. Note that for shipping, the usual events are arrival at a location or departure from a location.
3	Report	This object is any kind of persistent document created as a result of the event. This could be a paper report, film, electronic report, DICOM Study, etc. Issues related to medical records life cycle management are conveyed elsewhere.
4	Resource	(deprecated)
5	Master File	This is any configurable file used to control creation of documents or behavior. Examples include the objects maintained by the HL7 Master File transactions, Value Sets, etc.
6	User	A human participant not otherwise identified by some other category
7	List	(deprecated)
8	Doctor	A person who is providing or performing care related to the event, generally a physician. The key distinction between doctor and provider is the nature of their participation. The doctor is the human who actually performed the work. The provider is the human or organization that is responsible for the work.
9	Subscriber	A person or system that is being notified as part of the event. This is relevant in situations where automated systems provide notifications to other parties when an event took place.
10	Guarantor	Insurance company, or any other organization who accepts responsibility for paying for the healthcare event.
11	Security User Entity	A person or active system object involved in the event with a security role.

12	Security User Group	(deprecated)
13	Security Resource	A passive object, such as a role table, that is relevant to the event.
14	Security Granularity Definition	(deprecated) Relevant to certain RBAC security methodologies.
15	Provider	A person or organization responsible for providing care. This encompasses all forms of care, licensed or otherwise, and all sorts of teams and care groups. Note, the distinction between providers and the doctor that actually provided the care to the patient.
16	Data Destination	The destination for data transfer, when some other role is not appropriate.
17	Data Archive	A source or destination for data transfer that acts as an archive, database, or similar role.
18	Schedule	An object that holds schedule information. This could be an appointment book, availability information, etc.
19	Customer	An organization or person that is the recipient of services. This could be an organization that is getting services for a patient, or a person that is getting services for an animal.
20	Job	An order, task, work item, procedure step, or other description of work to be performed. E.g., a particular instance of an MPPS.
21	Job Stream	A list of jobs or a system that provides lists of jobs. E.g., an MWL SCP.
22	Table	(Deprecated)
23	Routing Criteria	An object that specifies or controls the routing or delivery of items. For example, a distribution list is the routing criteria for mail. The items delivered may be documents, jobs, or other objects.
24	Query	The contents of a query. This is used to capture the contents of any kind of query. For security surveillance purposes knowing the queries being made is very important.
25	Data Source	The source or origin of data, when there is no other matching role available.
26	Processing Element	A data processing element that creates, analyzes, modifies, or manipulates data as part of this event.

Add new sections to A.5.3 DICOM Specific Audit Messages

A.5.3.13 Order Record

This message describes the event of an order being created, modified, accessed, or deleted. This message may only include information about a single patient.

Note: An order record typically is managed by a non-DICOM system. However, DICOM applications often manipulate order records, and thus may be obligated by site security policies to record such events in the audit logs.

	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110109, DCM, "Order Record")
	EventActionCode	M	EV: "C" (create) "R" (read) "U" (update) "D" (delete)
	EventDateTime	M	not specialized
	EventOutcomeIndicator	M	not specialized
	EventTypeCode	U	not specialized
User (1..2)	UserID	M	The identity of the person or process manipulating the data. If both the person and the process are known, both shall be included.
	AlternateUserID	U	not specialized
	UserName	U	not specialized
	UsersRequestor	U	not specialized
	RoleIDCode	U	not specialized
	NetworkAccessPointTypeCode	U	not specialized
	NetworkAccessPointID	U	not specialized
Patient (1)	ParticipantObjectTypeCode	M	EV 1 (person)
	ParticipantObjectTypeCodeRole	M	EV 1 (patient)
	ParticipantObjectDataLifeCycle	U	not specialized
	ParticipantObjectTypeCode	M	EV 2 (patient ID)
	ParticipantObjectSensitivity	U	not specialized
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	The patient name
	ParticipantObjectQuery	U	not specialized
	ParticipantObjectDetail	U	not specialized
	ParticipantObjectDescription	U	not further specialized

A.5.3.14 Patient Record

This message describes the event of a patient record being created, modified, accessed, or deleted.

Note: There are several types of patient records managed by both DICOM and non-DICOM system. DICOM applications often manipulate patient records managed by a variety of systems, and thus may be obligated by site security policies to record such events in the audit logs. This audit event can be used to record the access or manipulation of patient records where specific DICOM SOP Instances are not involved.

	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110110, DCM, "Patient Record")
	EventActionCode	M	EV: "C" (create) "R" (read) "U" (update) "D" (delete)
	EventDateTime	M	not specialized
	EventOutcomeIndicator	M	not specialized
	EventTypeCode	U	not specialized
User (1..2)	UserID	M	The identity of the person or process manipulating the data. If both are known, then two active participants shall be included (both the person and the process).
	AlternateUserID	U	not specialized
	UserName	U	not specialized

	UserIsRequestor	U	<i>not specialized</i>
	RoleIDCode	U	<i>not specialized</i>
	NetworkAccessPointTypeCode	U	<i>not specialized</i>
	NetworkAccessPointID	U	<i>not specialized</i>
Patient (1)	ParticipantObjectTypeCode	M	EV 1 (person)
	ParticipantObjectTypeCodeRole	M	EV 1 (patient)
	ParticipantObjectDataLifeCycle	U	<i>not specialized</i>
	ParticipantObjectIDTypeCode	M	EV 2 (patient ID)
	ParticipantObjectSensitivity	U	<i>not specialized</i>
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	The patient name
	ParticipantObjectQuery	U	<i>not specialized</i>
	ParticipantObjectDetail	U	<i>not specialized</i>
	ParticipantObjectDescription	U	<i>not further specialized</i>

A.5.3.15 Procedure Record

This message describes the event of a procedure record being created, accessed, modified, accessed, or deleted. This message may only include information about a single patient.

Notes: 1. DICOM applications often manipulate procedure records, e.g. with MPPS update. Modality Worklist query events are described by the Query event message.

2. The same accession number may appear with several order numbers. The Study participant fields or the entire message may be repeated to capture such many to many relationships.

	Field Name	Opt.	Value Constraints
Event	EventID	M	EV (110111, DCM, "Procedure Record")
	EventActionCode	C	EV: "C" (create) "R" (read) "U" (update) "D" (delete)
	EventDateTime	M	<i>not specialized</i>
	EventOutcomeIndicator	M	<i>not specialized</i>
	EventTypeCode	U	<i>not specialized</i>
	User (1..2)	UserID	M
AlternateUserID		U	<i>not specialized</i>
UserName		U	<i>not specialized</i>
UserIsRequestor		U	<i>not specialized</i>
RoleIDCode		U	<i>not specialized</i>
NetworkAccessPointTypeCode		U	<i>not specialized</i>
NetworkAccessPointID		U	<i>not specialized</i>
Study (0..N)	ParticipantObjectTypeCode	M	EV 2 (system)

	ParticipantObjectTypeCodeRole	M	EV 3 (report)
	<i>ParticipantObjectDataLifeCycle</i>	<i>U</i>	<i>not specialized</i>
	ParticipantObjectTypeCode	M	EV (110180, DCM, "Study Instance UID")
	<i>ParticipantObjectSensitivity</i>	<i>U</i>	<i>not specialized</i>
	ParticipantObjectID	M	The Study Instance UID
	<i>ParticipantObjectName</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectQuery</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectDetail</i>	<i>U</i>	<i>Not further specialized</i>
	<i>ParticipantObjectDescription</i>	<i>U</i>	<i>Not further specialized</i>
	<i>SOPClass</i>	<i>MC</i>	<i>not further specialized</i>
	<i>Accession</i>	<i>U</i>	<i>not further specialized</i>
	<i>NumberOfInstances</i>	<i>U</i>	<i>not further specialized</i>
	<i>Instances</i>	<i>U</i>	<i>not further specialized</i>
	<i>Encrypted</i>	<i>U</i>	<i>not further specialized</i>
	<i>Anonymized</i>	<i>U</i>	<i>not further specialized</i>
Patient (1)	ParticipantObjectTypeCode	M	EV 1 (person)
	ParticipantObjectTypeCodeRole	M	EV 1 (patient)
	<i>ParticipantObjectDataLifeCycle</i>	<i>U</i>	<i>not specialized</i>
	ParticipantObjectTypeCode	M	EV 2 (patient ID)
	<i>ParticipantObjectSensitivity</i>	<i>U</i>	<i>not specialized</i>
	ParticipantObjectID	M	The patient ID
	ParticipantObjectName	U	The patient name
	<i>ParticipantObjectQuery</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectDetail</i>	<i>U</i>	<i>not specialized</i>
	<i>ParticipantObjectDescription</i>	<i>U</i>	<i>not further specialized</i>

Modify PS3.16, Context Groups as shown

CID 400 Audit Event ID

Type: Extensible

Version: ~~20100826~~ 20170416

Table CID 400. Audit Event ID

Coding Scheme Designator	Code Value	Code Meaning
...		
DCM	110108	Network Entry
<u>DCM</u>	<u>110109</u>	<u>Order Record</u>
<u>DCM</u>	<u>110110</u>	<u>Patient Record</u>
<u>DCM</u>	<u>110111</u>	<u>Procedure Record</u>
DCM	110112	Query
...		

CID 401 Audit Event Type Code

Type: Extensible

Version: ~~20100826~~ 20170416

Table CID 401. Audit Event Type Code

Coding Scheme Designator	Code Value	Code Meaning
...		
DCM	110137	User Security Attributes Changed
<u>DCM</u>	<u>110138</u>	<u>Emergency Override Stopped</u>
<u>DCM</u>	<u>110139</u>	<u>Remote Service Operation Started</u>
<u>DCM</u>	<u>110140</u>	<u>Remote Service Operation Stopped</u>
<u>DCM</u>	<u>110141</u>	<u>Local Service Operation Started</u>
<u>DCM</u>	<u>110142</u>	<u>Local Service Operation Stopped</u>

CID 403 Security Alert Type Code

Type: Extensible

Version: 20100826 20170416

Table CID 403. Security Alert Type Code

Coding Scheme Designator	Code Value	Code Meaning
<u>DCM</u>	<u>110120</u>	<u>Application Start</u>
<u>DCM</u>	<u>110121</u>	<u>Application Stop</u>
<u>DCM</u>	<u>110122</u>	<u>Login</u>
<u>DCM</u>	<u>110123</u>	<u>Logout</u>
<u>DCM</u>	<u>110124</u>	<u>Attach</u>
<u>DCM</u>	<u>110125</u>	<u>Detach</u>
DCM	110126	Node Authentication
...		