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**Digital Imaging and Communications in Medicine (DICOM)**

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*Supplement 192: Protocol Approval Storage SOP Class*

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*Prepared by:*

22

DICOM Standards Committee, Working Group 06 & 21

24 1300 N. 17th Street, Suite 1752

Rosslyn, Virginia 22209 USA

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## Scope and Field of Application

This Supplement defines a storage SOP Class to record and convey approval (or disapproval) of DICOM  
84 Defined Procedure Protocol instances. The nature, basis and scope of the approval depend on the  
semantics of the codes used in the assertion. Specific codes and examples are provided for assertions  
86 about CT Protocols.

90

## Changes to NEMA Standards Publication PS 3.2

### Digital Imaging and Communications in Medicine (DICOM)

92

#### Part 2: Conformance

*Add new SOP Classes in Table A.1-2*

94

Table A.1-2  
UID VALUES

UID Value	UID NAME	Category
...		
<u>1.2.840.10008.5.1.4.1.1.200.3</u>	<u>Protocol Approval Storage SOP Class</u>	<u>Transfer</u>
<u>1.2.840.10008.5.1.4.1.1.200.4</u>	<u>Protocol Approval Information Model - FIND SOP Class</u>	<u>Query/Retrieve</u>
<u>1.2.840.10008.5.1.4.1.1.200.5</u>	<u>Protocol Approval Information Model - MOVE SOP Class</u>	<u>Query/Retrieve</u>
<u>1.2.840.10008.5.1.4.1.1.200.6</u>	<u>Protocol Approval Information Model - GET SOP Class</u>	<u>Query/Retrieve</u>
...		

96

**Changes to NEMA Standards Publication PS 3.3**

**Digital Imaging and Communications in Medicine (DICOM)**

**Part 3: Information Object Definitions**

**Add definitions to 3.8**

**Assertion** An affirmative statement or declaration by a specified entity about a specified or implied subject for a specified or implied purpose.

**Add subsection to 7.13 Non-Patient object models.**

**7.13.5 Approval Information Entity**

An Approval Information Entity describes an approval of an Instance.



**Figure 7.13.5-1. DICOM Model of the Real World – Approval**

**Add new section 10.30**

**10.30 ASSERTION MACRO**

This Macro is used to record Assertions made by a person or device about the content of a SOP Instance. The nature of the Assertion is defined by the Assertion Code.

The scope of the Assertion (e.g., whether it applies to the whole instance, to a specific item in a sequence, etc.) is described at the point where the Macro is included. It is also expected that when this macro is included, the Baseline CID for the Assertion Code Sequence (0044,0101) will be constrained.

**Table 10.30-1  
ASSERTION MACRO ATTRIBUTES**

Attribute Name	Tag	Type	Attribute Description
Assertion Code Sequence	(0044,0101)	1	The Assertion being made. Only a single Item shall be included in this sequence.
>Include 'Code Sequence Macro' Table 8.8-1			No Baseline CID defined

Assertion UID	(0044,0102)	1	Unique identification of this assertion.
Asserter Identification Sequence	(0044,0103)	1	The person or device making the Assertion. Only a single Item shall be included in this sequence. Note: Multiple asserters wishing to make the same Assertion may be recorded as multiple Assertions, each with a single asserter.
>Include 'Identified Person or Device Macro' Table C.17-3b			<i>Baseline CID for Organizational Role is CID 7452 Organizational Roles</i>
Assertion DateTime	(0044,0104)	1	Date and time at which the Assertion was made.
Assertion Expiration DateTime	(0044,0105)	3	Date and time at which the Assertion expires. If this Attribute is absent or empty, it means the Assertion does not have a pre-determined date and time at which it expires.
Assertion Comments	(0044,0106)	3	Comments on the nature, extent or basis of the Assertion.
Pertinent Documents Sequence	(0038,0100)	3	Reference to document(s) that describe the Assertion semantics, or provide the basis for making the Assertion. Items shall not be empty. One or more Items are permitted in this Sequence.
>Referenced SOP Class UID	(0008,1150)	3	Unique identifier for the class of the referenced document.
>Referenced SOP Instance UID	(0008,1155)	3	Unique identifier for the referenced document as used in DICOM instance references (see C.12.1.1.6)
>HL7 Instance Identifier	(0040,E001)	3	Instance Identifier of the referenced document, encoded as a UID (OID or UUID), concatenated with a caret ("^") and Extension value (if Extension is present in Instance Identifier).

>Retrieve URI	(0040,E010)	3	Retrieval access path to the referenced document. Includes fully specified scheme, authority, path, and query in accordance with RFC 3986.
Related Assertion Sequence	(0044,0107)	3	Other assertions which may be of interest to systems examining this assertion.  Note: For example, an assertion that overrides a previous assertion or disapproves a previously approved protocol, could reference the prior approval instance making it easier to find/correlate/confirm.
>Referenced Assertion UID	(0044,0108)	1	Uniquely identifies a related assertion.

122

**Add new IOD to Table A.1-3 with Modules described below in Table A.82.3.1.3-1**

124

**Add section to Annex A**

### **A.82.3            PROTOCOL APPROVAL INFORMATION OBJECT DEFINITIONS**

128 Protocol Approval Information Object Definitions (IODs) record the details of an approval of DICOM instances that contain protocols.

#### **130 A.82.3.1            Protocol Approval Information Object Definition**

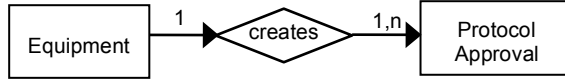
##### **A.82.3.1.1           Protocol Approval IOD Description**

132 The Protocol Approval IOD describes approval-related assertions made by people, organizations and devices about Instances.



134 **A.82.3.1.2 Protocol Approval IOD Entity-Relationship Model**

The E-R model for the Protocol Approval IOD is shown in Figure A.82.3.3.2-1.



136

**Figure A.82.3.3.2-1 PROTOCOL APPROVAL IOD E-R MODEL**

138 **A.82.3.1.3 Protocol Approval IOD Module Table**

140

**Table A.82.3.1.3-1  
Protocol Approval IOD MODULES**

IE	Module	Reference	Usage
Equipment	General Equipment	C.7.5.1	M
	Enhanced General Equipment	C.7.5.2	M
Approval	SOP Common	C.12.1	M
	Protocol Approval	C.34.15	M

142

144 **Modify C.17.2.4 Identified Person or Device Macro as shown:**

**C.17.2.4 Identified Person or Device Macro**

146 Table C.17-3b defines the Attributes that identify a person or a device participating as an observer for the context of an SR Instance. This Macro contains content equivalent to TID 1002 (see PS3.16).

148

**Table C.17-3b  
Identified Person or Device Macro Attributes**

Attribute Name	Tag	Type	Attribute Description
Observer Type	(0040,A084)	1	Enumerated Values: PSN – Person DEV – Device
Person Name	(0040,A123)	1C	Name of the person observer for this document Instance. Required if Observer Type value is PSN.
Person Identification Code Sequence	(0040,1101)	2C	Coded identifier of person observer. Zero or one Item shall be included in this sequence. Required if Observer Type value is PSN.
>Include 'Code Sequence Macro' Table 8.8-1			No Baseline Context ID defined

<b><u>Organizational Role Code Sequence</u></b>	<b><u>(0044,010A)</u></b>	<b><u>3</u></b>	<b><u>The organizational capacity in which the person observer is participating</u></b>
<b><i>&gt;Include 'Code Sequence Macro' Table 8.8-1</i></b>			<b><i>No Baseline Context ID defined</i></b>
Station Name	(0008,1010)	2C	Name of the device observer for this document instance. Required if Observer Type value is DEV.
Device UID	(0018,1002)	1C	Unique identifier of device observer. Required if Observer Type value is DEV.
Manufacturer	(0008,0070)	1C	Manufacturer of the device observer. Required if Observer Type value is DEV.
Manufacturer's Model Name	(0008,1090)	1C	Model Name of the device observer. Required if Observer Type value is DEV.
Station AE Title	(0008,0055)	3	Application Entity Title of the device identified.
<b><u>Device Serial Number</u></b>	<b><u>(0018,1000)</u></b>	<b><u>3</u></b>	<b><u>Manufacturer's serial number of the identified device.</u></b> <b>Note: While the serial number will be unique within the scope of the Manufacturer and Model, it might not be universally unique.</b>
<b><u>Software Versions</u></b>	<b><u>(0018,1020)</u></b>	<b><u>3</u></b>	<b><u>Manufacturer's designation of software version of the identified device.</u></b> <b>See Section C.7.5.1.1.3.</b>
Institution Name	(0008,0080)	2	Institution or organization to which the identified person is responsible or accountable, or which manages the identified device.
Institution Code Sequence	(0008,0082)	2	Institution or organization to which the identified person is responsible or accountable, or which manages the identified device. Zero or one Item shall be included in this Sequence.
<b><i>&gt;Include 'Code Sequence Macro' Table 8.8-1</i></b>			<b><i>No Baseline Context ID defined</i></b>
Institutional Department Name	(0008,1040)	3	Department in the institution or organization to which the identified person is responsible or accountable, or that manages the identified device.

150

<b><i>Add section to Annex C</i></b>
--------------------------------------

152 **C.34.15 Protocol Approval**

154 The Protocol Approval Module records approvals of the content of one or more SOP Instances containing protocols by a person or device.

156 An approval is modeled as a form of Assertion. The nature of the approval is defined by the Assertion Code in the embedded Assertion Macro.

158 Neither the Protocol Approval Module nor the underlying Assertion Macro address securing the approved instance against tampering (e.g., via a digital hash) or authenticating the identity of the source of the Assertion.

160

**Table C.34.15-1  
PROTOCOL APPROVAL MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Attribute Description
Approval Subject Sequence	(0044,0109)	1	Instances that are the subject of the Approval Sequence. All Assertions in the Approval Sequence (0044,0100) apply to all instances in this sequence. One or more items shall be included in this sequence.
<i>&gt;Include Table 10-11. SOP Instance Reference Macro</i>			
Approval Sequence	(0044,0100)	1	Recorded approvals of the subject instances. One or more items shall be included in this sequence.
<i>&gt;Include 'Assertion Macro' Table 10.30-1</i>			The Baseline CID for the Assertion Code Sequence is CID 800 "Protocol Assertion Codes". The Approver is recorded in the Asserter Identification Sequence inside the Assertion Macro.
<i>&gt;Institution Code Sequence</i>	(0008,0082)	1C	Institution or organization for which use of the protocol is approved/disapproved or eligible/ineligible for reimbursement.  Note: The institution identified by the code can represent a hospital network, a hospital, a clinic or a department. An institution can assign codes for it's subsidiary organizations.  Required if Assertion Code Sequence (0044,0101) is (128603,DCM,"Approved for use at the institution") or (128623,DCM,"Disapproved for use at the institution") or (128613,DCM,"Eligible for reimbursement") or (128614,DCM,"Eligible for reimbursement on per patient basis") or (128615,DCM,"Ineligible for reimbursement")
<i>&gt;Include 'Code Sequence Macro' Table 8.8-1</i>			<i>No Baseline CID defined</i>

>Clinical Trial Protocol ID	(0012,0020)	1C	<p>Identifier of the clinical trial protocol for which use of the protocol is approved or disapproved.</p> <p>Note: For experimental use this attribute is used to identify the experiment.</p> <p>Required if Assertion Code Sequence (0044,0101) is (128604,DCM,Approved for use in the clinical trial") or (128624,DCM,"Disapproved for use in the clinical trial") or (128611,DCM,"Approved for experimental use") or (128612,DCM,"Disapproved for experimental use ")</p>
-----------------------------	-------------	----	--

162 Note: The institution for which use of the protocol is approved (recorded in the Approval Sequence item) may or  
164 may not differ from the institution that is currently responsible for managing the protocol instance  
(recorded in the Custodial Organization Sequence (0040,A07C) of the Defined Protocol instance).  
166 Similarly, the clinical trial for which use of the protocol is approved (recorded in the Approval Sequence  
item) may or may not differ from the clinical trial, if any, for which the protocol instance was originally  
designed (recorded in the Clinical Trial Context of the Defined Protocol instance).

168 A number of the Assertion codes in CID 800 "Protocol Assertion Codes" affirm details related to Attributes  
in a Protocol object. The Protocol Attributes associated with each Assertion code are shown in Table  
170 C.34.15-2. A receiving system might display the associated attribute contents together with the Assertion  
code to convey the full meaning of the assertion.

172

**Table C.34.15-2  
Associated Attributes for Protocol Assertion Codes**

Code Value	Code Meaning	Associated Attribute
128601	Appropriate for the indications	Potential Reasons for Procedure Code Sequence (0018,9909)
128621	Inappropriate for the indications	Potential Reasons for Procedure Code Sequence (0018,9909)
128602	Consistent with labeling of the device	Model Specification Sequence (0018,9912)
128622	Inconsistent with labeling of the device	Model Specification Sequence (0018,9912)
128606	Appropriate for the device	Model Specification Sequence (0018,9912)
128618	Inappropriate for the device	Model Specification Sequence (0018,9912)
128607	Inside operational limits of the device	Model Specification Sequence (0018,9912)
128619	Outside operational limits of the device	Model Specification Sequence (0018,9912)
128608	Optimized for the device instance	Model Specification Sequence (0018,9912) Device Serial Number (0018,1000)
128620	Not optimized for the device instance	Model Specification Sequence (0018,9912)

		Device Serial Number (0018,1000)
--	--	----------------------------------

174 Note: An instance may contain multiple approvals. Receiving systems will determine which approvals apply  
and what may be useful to display to the system operator.

176

178

180

## Changes to NEMA Standards Publication PS 3.4

182

### Digital Imaging and Communications in Medicine (DICOM)

#### Part 4: Service Class Specifications

184

*Add SOP Classes to Table GG.3-1*

186 **GG.3**

#### **SOP CLASSES**

188

**Table GG.3-1  
Standard SOP Classes**

SOP Class	SOP Class UID	IOD Specification (defined in PS 3.3)
...		
<b>Protocol Approval Storage</b>	<b>1.2.840.10008.5.1.4.1.1.200.3</b>	<b>Protocol Approval IOD</b>
...		

190

*Add application behaviors to GG.6*

#### **GG.6.5 PROTOCOL APPROVAL SOP CLASS**

192

Approvals are based on assertions. Receipt or generation of an assertion will interact with organizational authentication and authorization policies. For example, an approval may be received by mistake as part of the transfer of a patient record.

194

*Add Query/Retrieve Service Classes*

196

## **II Protocol Approval Query/Retrieve Service Classes**

### **II.1 OVERVIEW**

198

#### **II.1.1 Scope**

200

The Protocol Approval Query/Retrieve Service Classes define application-level classes-of-service that facilitate access to Protocol Approval composite objects.

## 202 II.1.2 Conventions

204 Key Attributes serve two purposes; they may be used as Matching Key Attributes or as Return Key Attributes.  
204 Matching Key Attributes may be used for matching (criteria to be used in the C-FIND request to determine whether an  
206 entity matches the query). Return Key Attributes may be used to specify desired return Attributes (what elements in  
206 addition to the Matching Key Attributes have to be returned in the C-FIND response).

### Note

208 Matching Keys are typically used in an SQL 'where' clause. Return Keys are typically used in an SQL 'select'  
clause to convey the Attribute values.

210 Matching Key Attributes may be of Type "required" (R) or "optional" (O). Return Key Attributes may be of Type 1, 1C,  
2, 2C, 3 as defined in PS3.5.

212

## II.1.3 Query/Retrieve Information Model

214 In order to serve as an SCP of the Protocol Approval Query/Retrieve Service Class, a DICOM AE possesses  
214 information about the Attributes of a number of Protocol Approval composite SOP Instances. The information is  
216 organized into an Information Model. The Information Models for the different SOP Classes specified in this Annex are  
defined in Section II.6.

218

## II.1.4 Service Definition

220 Two peer DICOM AEs implement a SOP Class of a Protocol Approval Query/Retrieve Service Class with one serving  
220 in the SCU role and one serving in the SCP role. SOP Classes of the Protocol Approval Query/Retrieve Service  
222 Classes are implemented using the DIMSE-C C-FIND, C-MOVE and C-GET services as defined in PS3.7.

An SCP of this SOP Class shall support Level-2 conformance as defined in Section B.4.1.

224 The semantics of the C-FIND service are the same as those defined in the Service Definition of the Basic Worklist  
Management Service Class.

226 The semantics of the C-MOVE service are the same as those defined in the Service Definition of the Query/Retrieve  
Service Class, with the exception that there is only one level of retrieval.

228 The semantics of the C-GET service are the same as those defined in the Service Definition of the Query/Retrieve  
Service Class, with the exception that there is only one level of retrieval.

230

## II.2 PROTOCOL APPROVAL INFORMATION MODELS DEFINITIONS

232 The Protocol Approval Information Models are identified by the SOP Class negotiated at Association establishment  
time. Each SOP Class is composed of both an Information Model and a DIMSE-C Service Group.

234 The Protocol Approval Information Models are defined in Section II.6, with the Entity-Relationship Model Definition and  
236 Key Attributes Definition analogous to those defined in the Worklist Information Model Definition of the Basic Worklist  
Management Service.

## 238 II.3 PROTOCOL APPROVAL INFORMATION MODELS

The Protocol Approval Information Models are based upon a one level entity:

- 240 • Protocol Approval object instance.

242 The Protocol Approval object instance contains Attributes associated with the Approval IE of the Composite IODs as  
defined in PS3.3.

244 **II.4 DIMSE-C SERVICE GROUPS**

**II.4.1 C-FIND Operation**

246 See the C-FIND Operation definition for the Basic Worklist Management Service Class (K.4.1), and substitute "Approval" for "Worklist". The "Worklist" Search Method shall be used.

248 The SOP Class UID identifies the Protocol Approval Information Model against which the C-FIND is to be performed. The Key Attributes and values allowable for the query are defined in the SOP Class definitions for the Protocol Approval Information Model.  
250

252 **II.4.1.1 Service Class User Behavior**

No SOP Class specific SCU behavior is defined.

254

**II.4.1.2 Service Class Provider Behavior**

256 No SOP Class specific SCP behavior is defined.

258 **II.4.2 C-MOVE Operation**

See the C-MOVE Operation definition for the Query/Retrieve Service Class (C.4.2). No Extended Behavior or Relational-Retrieve is defined for the Protocol Approval Query/Retrieve Service Classes.  
260

262 Query/Retrieve Level (0008,0052) is not relevant to the Protocol Approval Query/Retrieve Service Classes, and therefore shall not be present in the Identifier. The only Unique Key Attribute of the Identifier shall be SOP Instance UID (0008,0018). The SCU shall supply one UID or a list of UIDs.

264 Note

More than one entity may be retrieved, using List of UID matching.

266

**II.4.3 C-GET Operation**

268 See the C-GET Operation definition for the Query/Retrieve Service Class (C.4.2). No Extended Behavior or Relational-Retrieve is defined for the Protocol Approval Query/Retrieve Service Classes.

270 Note

More than one entity may be retrieved, using List of UID matching.

272

**II.5 ASSOCIATION NEGOTIATION**

274 See the Association Negotiation definition for the Basic Worklist Management Service Class (K.5).

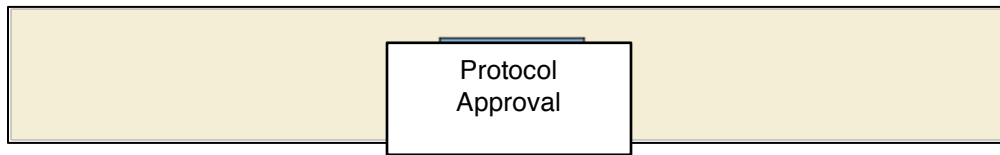
276 **II.6 SOP CLASS DEFINITIONS**

**II.6.1 Protocol Approval Information Model**

278 **II.6.1.1 E/R Models**

The Protocol Approval Information Model consists of a single entity. In response to a given C-FIND request, the SCP shall send one C-FIND response per matching Protocol Approval Instance.  
280





282

**Figure II.6-1. Protocol Approval Information Model E/R Diagram**

284

**II.6.1.2 Protocol Approval Attributes**

286 Table II.6-1 defines the Attributes of the Protocol Approval Information Model:

288 Note: Since protocol approvals are generally relevant only in the context of the protocol instance being approved, many searches will be looking for approvals that list a particular protocol instance in the Approval Subject Sequence (0044,0109).

290 **Table II.6-1. Attributes for the Protocol Approval Information Model**

Description / Module	Tag	Matching Key Type	Return Key Type	Remark / Matching Type
<b>SOP Common</b>				
Specific Character Set	(0008,0005)	-	1C	This Attribute is required if expanded or replacement character sets are used. See Section C.2.2.2 and Section C.4.1.1.
SOP Class UID	(0008,0016)	R	1	
SOP Instance UID	(0008,0018)	U	1	
Instance Creation Date	(0008,0012)	R	1	Shall be retrieved with Single Value or Range Matching. See Instance Creation Time for further details.
Instance Creation Time	(0008,0013)	R	1	Shall be retrieved with Single Value or Range Matching. If both Instance Creation Date and Instance Creation Time are specified for Range Matching, they are to be treated as as if they were a single DateTime Attribute e.g.,the date range July 5 to July 7 and the time range 10am to 6pm specifies the time period starting on July 5, 10am until July 7, 6pm.
<b>Protocol Approval</b>				
Approval Subject Sequence	(0044,0109)	R	1	
>Referenced SOP Class UID	(0008,1150)	R	1	Shall be retrieved with List of UID Matching.
>Referenced SOP Instance	(0008,1155)	R	1	Shall be retrieved with List of UID

Description / Module	Tag	Matching Key Type	Return Key Type	Remark / Matching Type
UID				Matching.
Approval Sequence	(0044,0100)	R	1	
>Assertion Code Sequence	(0044,0101)	R	1	
>>Code Value	(0008,0100)	R	1	This Attribute shall be retrieved with Single Value or Universal matching.
>>Coding Scheme Designator	(0008,0102)	R	1	This Attribute shall be retrieved with Single Value or Universal matching.
>>Code Meaning	(0008,0104)	-	1	
>Assertion UID	(0044,0102)	-	1	
>Asserter Identification Sequence	(0044,0103)	R	1	
>>Observer Type	(0040,A084)	-	1	
>>Person Name	(0040,A123)	R	1	
>>Person Identification Code Sequence	(0040,1101)	R	1	
>>>Code Value	(0008,0100)	R	1	This Attribute shall be retrieved with Single Value or Universal matching.
>>>Coding Scheme Designator	(0008,0102)	R	1	This Attribute shall be retrieved with Single Value or Universal matching.
>>>Code Meaning	(0008,0104)	-	1	
>>Organizational Role Code Sequence	(0044,010A)	R	2	
>>>Code Value	(0008,0100)	R	1	This Attribute shall be retrieved with Single Value or Universal matching.
>>>Coding Scheme Designator	(0008,0102)	R	1	This Attribute shall be retrieved with Single Value or Universal matching.
>>>Code Meaning	(0008,0104)	-	1	
>>Station Name	(0008,1010)	-	3	
>>Device UID	(0018,1002)	-	3	
>>Manufacturer	(0008,0070)	-	3	
>>Manufacturer's Model Name	(0008,1090)	-	3	
>>Station AE Title	(0008,0055)	-	3	
>>Institution Name	(0008,0080)	R	1	

Description / Module	Tag	Matching Key Type	Return Key Type	Remark / Matching Type
>>Institution Code Sequence	(0008,0082)	R	1	
>>>Code Value	(0008,0100)	R	1	This Attribute shall be retrieved with Single Value or Universal matching.
>>>Coding Scheme Designator	(0008,0102)	R	1	This Attribute shall be retrieved with Single Value or Universal matching.
>>>Code Meaning	(0008,0104)	-	1	
>>Institutional Department Name	(0008,1040)	U	2	
>Assertion DateTime	(0044,0104)	R	1	This Attribute shall be retrieved with Single Value or Range Matching.
>Assertion Expiration DateTime	(0044,0105)	R	2	This Attribute shall be retrieved with Single Value or Range Matching.
>Assertion Comments	(0044,0106)	-	2	
>Related Assertion Sequence	(0044,0107)	U	1	
>>Referenced Assertion UID	(0044,0108)	U	1	
<b>Enhanced General Equipment</b>				
Manufacturer	(0008,0070)	-	1	
Manufacturer's Model Name	(0008,1090)	-	2	
Software Versions	(0018,1020)	-	2	

292 Note: The Enhanced General Equipment Module describes the equipment that created the Protocol Approval  
294 instance, not the equipment on which a referenced Protocol will be performed.

**II.6.1.3 Conformance Requirements**

296 An implementation may conform to one or more of the Protocol Approval Query/Retrieve SOP Classes as  
an SCU or SCP. The Conformance Statement shall be in the format defined in PS3.2.

**II.6.1.3.1 SCU Conformance**

**II.6.1.3.1.1 C-FIND SCU Conformance**

300 An implementation that conforms to the Protocol Approval Information Model - FIND SOP Class shall  
support queries against the Protocol Approval Information Model using the C-FIND SCU Behavior  
302 described for the Basic Worklist Management Service Class (see Section K.4.1.2 and Section II.4.1).

304 An implementation that conforms to the Protocol Approval Information Model - FIND SOP Class as an  
SCU shall state in its Conformance Statement whether it requests Type 3 Return Key Attributes, and shall  
list these Optional Return Key Attributes.

306 An implementation that conforms to the Protocol Approval Information Model - FIND SOP Class as an  
SCU shall state in its Conformance Statement how it makes use of Specific Character Set (0008,0005)  
308 when encoding queries and interpreting responses.

#### 310 **II.6.1.3.1.2 C-MOVE SCU Conformance**

310 An implementation that conforms to the Protocol Approval Information Model - MOVE SOP Class as an  
312 SCU shall support transfers against the Protocol Approval Information Model, using the C-MOVE SCU  
312 baseline behavior described for the Query/Retrieve Service Class (see Section C.4.2.2.1 and  
Section II.4.2).

#### 314 **II.6.1.3.1.3 C-GET SCU Conformance**

314 An implementation that conforms to the Protocol Approval Information Model - GET SOP Class as an SCU  
316 shall support transfers against the Protocol Approval Information Model, using the C-GET SCU baseline  
316 behavior described for the Query/Retrieve Service Class (see Section C.4.3.2).

#### 318 **II.6.1.3.2 SCP Conformance**

##### **II.6.1.3.2.1 C-FIND SCP Conformance**

320 An implementation that conforms to the Protocol Approval Information Model - FIND SOP Class as an SCP  
320 shall support queries against the Protocol Approval Information Model, using the C-FIND SCP Behavior  
322 described for the Basic Worklist Management Service Class (see Section K.4.1.3).

324 Note: The contents of the Referenced SOP Instance UID (0008,1155) in the Approval Subject Sequence  
324 (0044,0109) would be useful to index since querying for approvals of a specific Protocol instance will be  
326 very common.

326

328 An implementation that conforms to the Protocol Approval Information Model - FIND SOP Class as an SCP  
328 shall state in its Conformance Statement:

- 330 • whether it supports Type 3 Return Key Attributes, and shall list these Optional Return Key  
330 Attributes.
- 332 • how it makes use of Specific Character Set (0008,0005) when interpreting queries, performing  
332 matching and encoding responses.
- 334 • any behaviors that involve not returning matching instances (e.g. not returning an older approval  
334 instance that has been superceded/overridden by a newer approval instance).

##### **II.6.1.3.2.2 C-MOVE SCP Conformance**

336 An implementation that conforms to the Protocol Approval Information Model - MOVE SOP Class as an  
336 SCP shall support transfers against the Protocol Approval Information Model, using the C-MOVE SCP  
338 baseline behavior described for the Query/Retrieve Service Class (see Section C.4.2.3.1).

340 An implementation that conforms to the Protocol Approval Information Model - MOVE SOP Class as an  
340 SCP, which generates transfers using the C-MOVE operation, shall state in its Conformance Statement  
342 appropriate Storage Service Class, under which it shall support the C-STORE sub-operations generated by  
342 the C-MOVE.

##### **II.6.1.3.2.3 C-GET SCP Conformance**

344 An implementation that conforms to the Protocol Approval Information Model - GET SOP Class as an SCP  
344 shall support retrievals against the Protocol Approval Information Model using the C-GET SCP baseline  
346 behavior described for the Query/Retrieve Service Class in Section C.4.3.3.

#### 348 **II.6.1.4 SOP Classes**

350 The SOP Classes of the Protocol Approval Query/Retrieve Service Class identify the Information Models,  
350 and the DIMSE-C operations supported.

**Table II.6.1.4-1. Protocol Approval SOP Classes**

352

SOP Class Name	SOP Class UID
Protocol Approval Information Model - FIND	1.2.840.10008.5.1.4.1.1.200.4
Protocol Approval Information Model - MOVE	1.2.840.10008.5.1.4.1.1.200.5
Protocol Approval Information Model - GET	1.2.840.10008.5.1.4.1.1.200.6

## Changes to NEMA Standards Publication PS 3.6

### Digital Imaging and Communications in Medicine (DICOM)

#### Part 6: Data Dictionary

*Add the following rows to Section 6*

Tag	Name	Keyword	VR	VM
(0044,0100)	Approval Sequence	ApprovalSequence	SQ	1
(0044,0101)	Assertion Code Sequence	AssertionCodeSequence	SQ	1
(0044,0102)	Assertion UID	AssertionUID	UI	1
(0044,0103)	Asserter Identification Sequence	AsserterIdentificationSequence	SQ	1
(0044,0104)	Assertion DateTime	AssertionDateTime	DT	1
(0044,0105)	Assertion Expiration DateTime	AssertionExpirationDateTime	DT	1
(0044,0106)	Assertion Comments	AssertionComments	UT	1
(0044,0107)	Related Assertion Sequence	RelatedAssertionSequence	SQ	1
(0044,0108)	Referenced Assertion UID	ReferencedAssertionUID	UI	1
(0044,0109)	Approval Subject Sequence	ApprovalSubjectSequence	SQ	1
(0044,010A)	Organizational Role Code Sequence	OrganizationalRoleCodeSequence	SQ	1

*Add the following rows to Table A-1*

**Table A-1**  
**UID Values**

UID Value	UID Name	UID Type	Part
...			
<b>1.2.840.10008.5.1.4.1.1.200.3</b>	<b>Protocol Approval Storage</b>	<b>SOP Class</b>	<b>PS 3.4</b>
<b>1.2.840.10008.5.1.4.1.1.200.4</b>	<b>Protocol Approval Information Model - FIND</b>	<b>SOP Class</b>	<b>PS 3.4</b>
<b>1.2.840.10008.5.1.4.1.1.200.5</b>	<b>Protocol Approval Information Model - MOVE</b>	<b>SOP Class</b>	<b>PS 3.4</b>
<b>1.2.840.10008.5.1.4.1.1.200.6</b>	<b>Protocol Approval Information Model - GET</b>	<b>SOP Class</b>	<b>PS 3.4</b>
...			

364 **Add the following UID Value to Part 6 Annex A Table A-3:**

366

**Table A-3  
CONTEXT GROUP UID VALUES**

<b>Context UID</b>	<b>Context Identifier</b>	<b>Context Group Name</b>
...	...	...
<b><u>1.2.840.10008.6.1.117</u></b> <b><u>6</u></b>	<b><u>800</u></b>	<b><u>Protocol Assertion Codes</u></b>
...		

368

370

## Changes to NEMA Standards Publication PS 3.16

372

### Digital Imaging and Communications in Medicine (DICOM)

#### Part 16: Content Mapping Resource

374

Add the following Context Group:

376

#### CID 800 Protocol Assertion Codes

378 Type: Extensible

Version: 20170626

380

#### Context ID 800 Protocol Assertion Codes

382

Type : Extensible Version : 20170626

Coding Scheme Designator	Code Value	Code Meaning
DCM	128601	Appropriate for the indications
DCM	128621	Inappropriate for the indications
DCM	128602	Consistent with labeling of the device
DCM	128622	Inconsistent with labeling of the device
DCM	128603	Approved for use at the institution
DCM	128623	Disapproved for use at the institution
DCM	128604	Approved for use in the clinical trial
DCM	128624	Disapproved for use in the clinical trial
DCM	128611	Approved for experimental use
DCM	128612	Disapproved for experimental use
DCM	128605	Approved for use on pregnant patients
DCM	128617	Disapproved for use on pregnant patients
DCM	128609	Disapproved for any use
DCM	128613	Eligible for reimbursement
DCM	128614	Eligible for reimbursement on per patient basis
DCM	128615	Ineligible for reimbursement
DCM	128606	Appropriate for the device
DCM	128618	Inappropriate for the device
DCM	128607	Inside operational limits of the device
DCM	128619	Outside operational limits of the device



DCM	128608	Optimized for the device instance
DCM	128620	Not optimized for the device instance
DCM	128610	Deprecated protocol

384 **Modify CID 7452 as shown**

**CID 7452 Organizational Roles**

386 **Type: Extensible**  
**Version: 20141114020170626**

388 **Table CID 7452. Organizational Roles**

<b>Coding Scheme Designator</b>	<b>Code Value</b>	<b>Code Meaning</b>	<b>SNOMED-CT Concept ID</b>	<b>UMLS Concept Unique ID</b>
SRT	J-0016E	Medical Practitioner	158965000	C1306754
SRT	J-004E8	Physician	309343006	C0031831
<b><u>DCM</u></b>	<b><u>128670</u></b>	<b><u>Head of Radiology</u></b>		
<b><u>DCM</u></b>	<b><u>128671</u></b>	<b><u>Chair of Protocol Committee</u></b>		
<b><u>DCM</u></b>	<b><u>128676</u></b>	<b><u>Representative of Protocol Committee</u></b>		
<b><u>DCM</u></b>	<b><u>128677</u></b>	<b><u>Representative of Ethics Committee</u></b>		
<b><u>DCM</u></b>	<b><u>128675</u></b>	<b><u>Head of Cardiology</u></b>		
<b><u>DCM</u></b>	<b><u>128673</u></b>	<b><u>Administrator of Radiology Department</u></b>		
SRT	J-07100	Nurse	106292003	C0028661
SRT	J-00187	Radiologic Technologist	159016003	C0402007
<b><u>DCM</u></b>	<b><u>128674</u></b>	<b><u>Lead Radiologic Technologist</u></b>		
<b><u>SRT</u></b>	<b><u>J-06173</u></b>	<b><u>Radiation Therapist</u></b>	<b><u>3430008</u></b>	
SRT	J-00187	Radiographer	159016003	C0402007
UMLS	C1144859	Intern		C1144859
SRT	J-005E6	Resident	405277009	C1320928
SRT	J-00172	Registrar	158971006	C0401974
DCM	121088	Fellow		
SRT	J-005E8	Attending	405279007	C1320929
SRT	J-0050A	Consultant	309390008	C0586911
SRT	J-0714A	Scrub nurse	415506007	C1531952

<b>Coding Scheme Designator</b>	<b>Code Value</b>	<b>Code Meaning</b>	<b>SNOMED-CT Concept ID</b>	<b>UMLS Concept Unique ID</b>
SRT	J-00556	Surgeon	304292004	C0582175
DCM	121092	Sonologist		
UMLS	C1954848	Sonographer		C1954848
UMLS	C2985483	Radiation Physicist		C2985483
UMLS	C1708969	Medical Physicist		C1708969

390 Note

- 392 1. The distinction between a "physician" and a "surgeon" and a "medical practitioner" is subject to regional  
394 variation. In the US, "physician" is often equated with "medical practitioner", and a "surgeon" is considered  
396 to be a "physician". In the UK, a "surgeon" is a "medical practitioner" but is not a "physician". In SNOMED,  
"physician" and "surgeon" are distinct siblings with no direct relationship, and both are children of "medical  
practitioner". It is recommended that "medical practitioner" be used rather than "physician" when there is  
uncertainty over whether the person is or is not a "surgeon".
- 398 2. There is no distinction between a "radiographer" and a "radiologic technologist", hence the same SNOMED  
concept is used for both, and "radiologic technologist" is provided as a synonym for use in the US.
- 400 3. In the US, the medical practitioner not in training responsible for the care of a hospital patient is referred to  
402 as an "attending". In the UK they are referred to as a "consultant". Though these two concepts are  
essentially the same, they are separate concepts in SNOMED, which defines no explicit relationship  
between them.

404 **Add the following rows to Annex D**

**DICOM Code Definitions (Coding Scheme Designator "DCM" Coding Scheme Version "01")**

<b>Code Value</b>	<b>Code Meaning</b>	<b>Definition</b>	<b>Notes</b>
128601	Appropriate for the indications	The protocol is appropriate for the indications recorded in the protocol instance.	The American Academy of Orthopaedic Surgeons (AAOS) defines an appropriate procedure as one for which the expected health benefits exceed the expected health risks by a wide margin.
128602	Consistent with labeling of the device	The protocol is consistent with the regulatory product labeling of the device recorded in the protocol instance.	
128603	Approved for use at the institution	The protocol is approved for use at the institution recorded in the protocol instance.	

128604	Approved for use in the clinical trial	The protocol is approved for use in the clinical trial recorded in the protocol instance.	
128605	Approved for use on pregnant patients	The protocol is specifically approved for use on pregnant patients.	
128606	Appropriate for the device	The protocol is appropriate for execution on the device recorded in the protocol instance (which may identify an individual device by serial number or may identify a family of devices). I.e. the protocol has incorporated model-specific parameters and optimizations as necessary.	
128607	Inside operational limits of the device	The protocol specifies parameters that are within the operational limits of the device recorded in the protocol instance. I.e. execution of the protocol is not expected to damage or exceed the operational limits of the device.	
128608	Optimized for the device instance	The protocol is optimized for the characteristics of the specific instance of the device recorded in the protocol instance. I.e. the protocol has incorporated model-specific parameters and optimizations as necessary.	
128609	Disapproved for any use	The protocol is explicitly disapproved, or approval of the protocol has been withdrawn.	
128610	Deprecated protocol	The protocol is no longer to be used. E.g. it has been replaced by another protocol.	
128611	Approved for experimental use	The protocol is approved for use in experimental procedures.	
128612	Disapproved for experimental use	The protocol is disapproved for use in experimental procedures.	
128613	Eligible for reimbursement	The protocol is understood to be eligible for reimbursement by a given payer.	
128614	Eligible for reimbursement on per patient basis	The protocol is understood to be eligible for reimbursement on a per patient basis by a given payer.	

128615	Ineligible for reimbursement	The protocol is understood to be ineligible for reimbursement by a given payer.	
128617	Disapproved for use on pregnant patients	The protocol is explicitly disapproved for use on pregnant patients.	
128618	Inappropriate for the device	The protocol is inappropriate for execution on the device recorded in the protocol instance (which may identify an individual device by serial number or may identify a family of devices).	
128619	Outside operational limits of the device	The protocol specifies parameters that are not within the operational limits of the device recorded in the protocol instance. I.e. execution of the protocol may damage or exceed the operational limits of the device.	
128620	Not optimized for the device instance	The protocol is not optimized for the characteristics of the specific instance of the device recorded in the protocol instance.	
128621	Inappropriate for the indications	The protocol is inappropriate for the indications recorded in the protocol instance.	The American Academy of Orthopaedic Surgeons (AAOS) defines an appropriate procedure as one for which the expected health benefits exceed the expected health risks by a wide margin.
128622	Inconsistent with labeling of the device	The protocol is inconsistent with the regulatory product labeling of the device recorded in the protocol instance.	
128623	Disapproved for use at the institution	The protocol is disapproved for use at the institution recorded in the approval instance.	
128624	Disapproved for use in the clinical trial	The protocol is disapproved for use in the clinical trial recorded in the protocol instance.	
128670	Head of Radiology	The senior ranking radiologist in the organization	
128671	Chair of Protocol Committee	The chair of a committee tasked with reviewing and approving protocols in the organization.	

128673	Administrator of Radiology Department	The administrative head of a department that provides radiology services.	
128674	Lead Radiologic Technologist	The senior ranking radiologic technologist in the organization.	
128675	Head of Cardiology	The senior ranking cardiologist in the organization.	
128676	Representative of Protocol Committee	A representative of a committee tasked with reviewing and approving protocols in the organization.	
128677	Representative of Ethics Committee	A representative of a committee tasked with evaluating medical ethics. E.g. Institutional Review Board.	

406

408

## Changes to NEMA Standards Publication PS 3.17

410

### Digital Imaging and Communications in Medicine (DICOM)

#### Part 17: Explanatory Information

412 Add the following New Annex to Part 17

#### Annex HHHH Protocol Approval Examples and Concepts (Informative)

414 The following example is provided to illustrate the usage of the Protocol Approval IOD.

416 This example shows approval of a pair of CT Protocols for routine adult head studies. It is approved by the Chief of Radiology and by the Physicist. The Instance UIDs of the two CT Protocols are 1.2.3.456.7.7 and 1.2.3.456.7.8.

418 Note that the Institution Code Sequence (0008,0082) inside the Asserter Identification Sequence (0044,0103) communicates that Mercy Hospital is the organization to which Dr. Welby is responsible.

420 The Institution Code Sequence (0008,0082) at the end of the first Approval Item communicates that Mercy Hospital is the institution for which the protocols are "Approved for use at the institution".

422

**Table HHHH-1 Approval by Chief Radiologist**

Attribute	Tag	Value
Manufacturer	(0008,0070)	Acme Corp.
Manufacturer's Model Name	(0008,1090)	Primo Protocol Management Workstation Plus
Device Serial Number	(0018,1000)	A59848573
Software Versions	(0018,1020)	V2.3
SOP Class UID	(0008,0016)	1.2.840.10008.5.1.4.1.1.200.3 ( <i>Protocol Approval</i> )
SOP Instance UID	(0008,0018)	1.33.9.876.1.1.1
Approval Subject Sequence	(0044,0109)	
<i>Item #1</i>		
>Referenced SOP Class UID	(0008,1150)	1.2.840.10008.5.1.4.1.1.200.1 ( <i>CT Defined Procedure Protocol</i> )
>Referenced SOP Instance UID	(0008,1155)	1.2.3.456.7.7
<i>Item #2</i>		
>Referenced SOP Class UID	(0008,1150)	1.2.840.10008.5.1.4.1.1.200.1 ( <i>CT Defined Procedure Protocol</i> )
>Referenced SOP Instance UID	(0008,1155)	1.2.3.456.7.8

Instance UID		
Approval Sequence	(0044,0100)	
<i>Item #1</i>		
>Assertion Code Sequence	(0044,0101)	(128603, DCM, "Approved for use at the institution")
>Assertion UID	(0044,0102)	1.2.33.9.876.5.5.5.5.21
>Asserter Identification Sequence	(0044,0103)	
>>Observer Type	(0040,A084)	PSN
>>Person Name	(0040,A123)	"Welby^Marcus^^Dr.^MD"
>>Person Identification Code Sequence	(0040,1101)	(12345, 99NPI, "Welby^Marcus^^Dr.^MD")
>>Organizational Role Code Sequence	(0044,010A)	(128670, DCM, "Head of Radiology")
>>Institution Name	(0008,0080)	Mercy Hospital, Centerville
>>Institution Code Sequence	(0008,0082)	(000011113, 99NPI, "Mercy Hospital, Centerville")
>Assertion DateTime	(0044,0104)	20150601145327
>Assertion Expiration DateTime	(0044,0105)	20200601000000 <i>(based on a 5 yearly review plan)</i>
>Institution Code Sequence	(0008,0082)	(000011113, 99NPI, "Mercy Hospital, Centerville")
<i>Item #2</i>		
>Assertion Code Sequence	(0044,0101)	(128605, DCM, "Approved for use on pregnant patients")
>Assertion UID	(0044,0102)	1.2.33.9.876.5.5.5.5.22
>Asserter Identification Sequence	(0044,0103)	
>>Observer Type	(0040,A084)	PSN
>>Person Name	(0040,A123)	"Welby^Marcus^^Dr.^MD"
>>Person Identification Code Sequence	(0040,1101)	(12345, 99NPI, "Welby^Marcus^^Dr.^MD")
>>Organizational Role Code Sequence	(0044,010A)	(128670, DCM, "Head of Radiology")
>>Institution Name	(0008,0080)	Mercy Hospital, Centerville
>>Institution Code Sequence	(0008,0082)	(000011113, 99NPI, "Mercy Hospital, Centerville")
>Assertion DateTime	(0044,0104)	20150601145327
>Assertion Expiration DateTime	(0044,0105)	20200601000000 <i>(based on a 5 yearly review plan)</i>
>Assertion Comments	(0044,0106)	"Limited scan range and proper use of abdominal shielding result in negligible dose to the fetus."

