

**ACR-NEMA**

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

**Supplement 8  
Storage Commitment**

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## Foreword

2 ACR (the American College of Radiology) and NEMA (the National Electrical Manufacturers  
4 Association) formed a joint committee to develop a Standard for Digital Imaging and Communications  
in Medicine. This DICOM Standard was developed according to the NEMA Procedures.

6 This Supplement was jointly developed between CEN/TC251/PT4-019 and ACR-NEMA. It also was  
developed in liaison with other Standard Organizations including JIRA in Japan, with review by other  
8 member organizations of the ANSI HISPP in the USA which includes IEEE, HL7 and X12.

10 The DICOM standard is structured as a multi-part document using the guidelines established in the  
following document:

12 - ISO/IEC Directives, 1989 Part 3 - Drafting and Presentation of International Standards.

14 This document is a Supplement to the DICOM Standard. It is an extension to Parts 3, 4 and 6 of the  
published DICOM Standard which consists of the following parts:

16	Part 1	Introduction and Overview
	Part 2	Conformance
18	Part 3	Information Object Definitions
	Part 4	Service Class Specifications
20	Part 5	Data Structures and Encoding
	Part 6	Data Dictionary
22	Part 7	Message Exchange
	Part 8	Network Communication Support for Message Exchange
24	Part 9	Point-to-Point Communication Support for Message Exchange
	Part 10	Media Storage and File Format
26	Part 11	Media Storage Application Profiles
	Part 12	Media Format and Physical Media for Media Interchange
28	Part 13	Print Management Point-to-Point Communication Support

30 These Parts are independent but related documents.

## Scope and Field of Application

32 This Supplement to the DICOM Standard specifies a DICOM Service Class for requesting a  
commitment of the storage of DICOM SOP Instances from one DICOM AE to another.

34  
36 The mechanism currently defined in DICOM for network based storage of SOP Instances, the Storage  
Service Class, allows a Service Class User (SCU) to transmit images and other information (such as  
overlays and curves) to a Service Class Provider (SCP). However, the Storage Service Class does not  
38 explicitly take responsibility for the safekeeping of data into account. That is, there is no commitment  
that the SCP will do more than accept the transmitted SOP Instances. In order to have medical image  
40 management instead of only medical image communication there is a pronounced need for a Service  
Class within DICOM that ensures that the SOP Instances will not be deleted after reception but will be  
42 stored safely and can be retrieved again at a later point.

44 The Storage Commitment Service Class described in this document supports a wide range of  
application scenarios. For example, it may be used by one device to request the safekeeping of SOP  
46 Instances which have been previously transmitted. It also supports a scenario in which a number of

## DICOM Storage Commitment Supplement

2 different devices transmit SOP Instances to another device and safekeeping of the transmitted data is requested by yet another device.

4 This proposed Supplement includes a number of Addenda to existing Parts of DICOM:

6 1. Part 3 Addenda (Extension to the body, Annex B and C)

8 2. Part 4 Addenda (Add new Annex Y)

10 3. Part 6 Addenda (Extension to Section 6 and Annex A)

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**Digital Imaging and Communications  
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**Part 3 Addendum  
Storage Commitment  
Information Object Definition**

2 **Item #1**  
 2 *After Section B.14 add the following:*

4

**B.X Storage Commitment Information Object Definition**

6 **B.X.1 Storage Commitment IOD Description**

8 The Storage Commitment IOD describes the Attributes which may be present in a Storage  
 8 Commitment Request or Response. The SOP Instances referenced by the Storage Commitment IOD  
 are not restricted to images and may include other SOP Instances.

10 **B.X.2 Storage Commitment IOD Modules**

12 Table B.X.2-1 identifies and defines the Modules which comprise this IOD. The requirements for  
 whether Attributes in these Modules are mandatory or optional are as specified in PS 3.4.

**Table B.X.2-1 Storage Commitment IOD Modules**

<b>Module</b>	<b>Reference</b>	<b>Module Description</b>
SOP Common	C.12.1	Contains SOP common information
Storage Commitment	C.X.X	Contains references to the SOP Instances and associated information which are contained in Storage Commitment.

14

2 **Item #2**  
 Add new Section C.X.X

4

### C.X.X Storage Commitment Module

6 Table C.X.X-1 defines the Attributes for referencing SOP Instances which are contained in a Storage  
 Commitment Request/Response.

8

**Table C.X.X-1 - Storage Commitment Module**

Attribute Name	Tag	Attribute Description
Transaction UID	(0008,1195)	Uniquely identifies this Storage Commitment transaction.
Retrieve AE Title	(0008,0054)	Application Entity Title where the SOP Instance(s) may be retrieved via a network based retrieve service.
Storage Media File-Set ID	(0088,0130)	User or implementation specific human readable identification of a Storage Media on which the SOP Instances reside.
Storage Media File-Set UID	(0088,0140)	Uniquely identifies a Storage Media on which the SOP Instances reside.
Referenced SOP Sequence	(0008,1199)	A sequence of repeating Items where each Item references a single SOP Instance for which storage commitment is requested / or has been provided.
>Referenced SOP Class UID	(0008,1150)	Uniquely identifies the referenced SOP Class.
>Referenced SOP Instance UID	(0008,1155)	Uniquely identifies the referenced SOP Instance.
>Retrieve AE Title	(0008,0054)	Application Entity Title from which the SOP Instance may be retrieved via a network based retrieve service.
>Storage Media File-Set ID	(0088,0130)	The user or implementation specific human readable identifier that identifies a Storage Media on which this SOP Instance resides.
>Storage Media File-Set UID	(0088,0140)	Uniquely identifies a Storage Media on which this SOP Instance resides.
Referenced Study Component Sequence	(0008,1111)	This Attribute identifies a Study Component to which all the SOP Instances for which Storage Commitment is requested belong. Only 1 SOP Class/Instance pair shall be present in this sequence.
>Referenced SOP Class UID	(0008,1150)	Uniquely identifies the referenced SOP Class.
>Referenced SOP Instance UID	(0008,1155)	Uniquely identifies the referenced SOP Instance.
Failed SOP Sequence	(0008,1198)	A sequence of repeating Items where each Item references a single SOP Instance for which storage commitment could not be provided.
>Referenced SOP Class UID	(0008,1150)	Uniquely identifies the referenced SOP Class.
>Referenced SOP Instance UID	(0008,1155)	Uniquely identifies the referenced SOP Instance.
>Failure Reason	(0008,1197)	The reason that storage commitment could not be provided for this SOP Instance. See Section C.X.X.1.1.



- 2        Note:    Conditions under which Attributes are required (i.e. Retrieve AE Title, etc.) are defined in  
                 the Storage Commitment Service Class in PS 3.4.

#### 4        **C.X.X.1 Study Commitment Attribute Description**

##### **C.X.X.1.1 Failure Reason**

- 6        The following values and semantics shall be used for the Failure Reason Attribute :

- 8        0110H - Processing failure  
                 A general failure in processing the operation was encountered.
- 10       0112H - No such object instance  
                 One or more of the elements in the Referenced SOP Instance Sequence was not available.
- 12       0213H - Resource limitation  
                 The SCP does not currently have enough resources to store the requested SOP Instance(s).
- 14       0122H - Referenced SOP Class not supported  
                 Storage Commitment has been requested for a SOP Instance with a SOP Class that is not  
16           supported by the SCP.
- 18       0119H - Class / Instance conflict  
                 The SOP Class of an element in the Referenced SOP Instance Sequence did not correspond  
                 to the SOP class registered for this SOP Instance at the SCP.
- 20       0131H - Duplicate transaction UID  
                 The Transaction UID of the Storage Commitment Request is already in use.

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**Part 4 Addendum  
Storage Commitment  
Service Class**

<i>Item #1</i> <i>Add a new Normative Annex Y to Part 4</i>
----------------------------------------------------------------

## Annex Y (Normative) Storage Commitment Service Class

### Y.1 Overview

#### Y.1.1 Scope

The mechanism currently defined in DICOM for network based storage of SOP Instances, the Storage Service Class, allows a Service Class User (SCU) to transmit images and other information (such as overlays and curves) to a Service Class Provider (SCP). However, the Storage Service Class does not specify that the SCP explicitly take responsibility for the safekeeping of data into account. That is, there is no commitment that the SCP will do more than accept the transmitted SOP Instances. In order to have medical image management in addition to medical image communication, there is a need for a Service Class within DICOM that ensures that there is an explicitly defined commitment to store the SOP Instances.

The Storage Commitment Service Class defines an application-level class-of-service which facilitates this commitment to storage . The Storage Commitment Service Class enables an Application Entity (AE) acting as an SCU to request another Application Entity (AE) acting as an SCP to make the commitment for the safekeeping of the SOP Instances (i.e. that the SOP Instances will be kept for an implementation specific period of time and can be retrieved). The AE where such SOP Instances can later be retrieved may be the SCP where storage commitment was accepted or it may be distinct from that SCP.

The SCP implementation defines how it provides its commitment to storage. Certain SCPs may commit to permanently store the SOP Instances (e.g. an archive system) while other SCPs may commit to provide storage of the SOP Instances for a limited amount of time. The SCP is required to document in its Conformance Statement the nature of its commitment to storage (e.g. duration of storage, retrieve capabilities and latency, capacity).

Once the SCP has accepted the commitment to store the SOP Instances, the SCU may decide that it is appropriate to delete its copies of the SOP Instances. These types of policies are outside the scope of this Standard, however, the SCU is required to document these policies in its Conformance Statement.

#### Y.1.2 Models Overview

The request for storage commitment can be accomplished using one of two basic models: the Push Model and the Pull Model.

The Push model expects an SCU to transmit SOP Instances to an SCP using an appropriate mechanism outside the scope of this Service Class. Storage commitment is then initiated by transmitting a Storage Commitment Request containing references to a set of one or more SOP Instances. Success or failure of storage commitment is subsequently indicated via a notification from the SCP to the SCU.

The Pull model allows an SCU to transmit a Storage Commitment Request containing references to SOP Instances which do not currently reside at the SCP. The SCP must then retrieve the SOP Instances from their current location using a mechanism outside the scope of this Service Class.

2 Success or failure of storage commitment is subsequently indicated via a notification from the SCP to the SCU.

4 NOTE: As indicated, the mechanisms used to transfer SOP Instances from an SCU to an SCP are  
6 outside the scope of this Service Class. However, typical mechanisms are found in the Storage Service Class, the Query/Retrieve Service Class, or Media Exchange.

## 8 Y.2 Conformance Overview

8 The application-level services addressed by this Service Class are specified via 2 distinct SOP Classes:

- 10 a) Storage Commitment Push Model SOP Class;
- 12 b) Storage Commitment Pull Model SOP Class.

14 An SCP implementation of the Storage Commitment Service Class shall support the Storage Commitment Push Model SOP Class. If an SCP supports the Storage Commitment Pull Model SOP Class, it shall also support the Storage Commitment Push Model SOP Class.

16 Each SOP Class specifies Attributes, operations, notifications, and behavior applicable to the SOP  
18 Class. Conformance of Application Entities shall be defined by selecting one or both of the Storage Commitment SOP Classes. For each SOP Class conformance requirements shall be specified in terms  
20 of the Service Class Provider (SCP) and the Service Class User (SCU).

22 The Storage Commitment Service Class uses the Storage Commitment IOD as defined in PS 3.3 and the N-ACTION and N-EVENT-REPORT DIMSE Services specified in PS 3.7.

### 24 Y.2.1 Association Negotiation

26 Association establishment is the first phase of any instance of communication between peer DICOM AEs. The association negotiation rules as specified in PS 3.7 shall be used to negotiate the supported SOP Classes.

28 Support for the SCP/SCU role selection negotiation is mandatory. The SOP Class Extended  
30 Negotiation shall not be supported.

32 An SCP implementation of the Storage Commitment Service Class shall support the Storage Commitment Push Model SOP Class. If an SCP accepts a Presentation Context for the Storage  
34 Commitment Pull Model SOP Class, it shall also accept a Presentation Context for the Storage Commitment Push Model SOP Class.

## 36 Y.3 Storage Commitment Push Model SOP Class

38 The Storage Commitment Push Model SOP Class is intended for those Application Entities requiring storage commitment where the SCU determines the time at which the SOP Instances are transmitted.  
40 The SCU transmits the SOP Instances to the SCP using an appropriate mechanism. The request for storage commitment is transmitted to the SCP together with a list of references to one or more SOP  
42 Instances. Success or failure of storage commitment is subsequently indicated by a notification from the SCP to the SCU.

### 44 Y.3.1 DIMSE Service Group

The following DIMSE-N Services are applicable to the Storage Commitment Push Model SOP Class.

**Table Y.3.1-1 DIMSE Service Group**

DIMSE Service Element	Usage SCU/SCP
N-EVENT-REPORT	M/M
N-ACTION	M/M

2 The DIMSE-N Services and Protocol are specified in PS 3.7.

4 **Y.3.2 Operations**

6 The DICOM AEs which claim conformance to this SOP Class as an SCU shall invoke the N-ACTION operation. The DICOM AEs which claim conformance to this SOP Class as an SCP shall support the N-ACTION operation.

8 **Y.3.2.1 Storage Commitment Request**

10 The Storage Commitment Request operation allows an SCU to request an SCP to commit to the safekeeping of a set of SOP Instances. This operation shall be invoked through the N-ACTION primitive.

12 **Y.3.2.1.1 Action Information**

14 The DICOM AEs which claim conformance to this SOP Class as an SCU and/or an SCP shall support the Action Types and Action Information as specified in Table Y.3.2.1.1-1.

16 **Table Y.3.2.1.1-1 Storage Commitment Request - Action Information**

Action Name	Type	Action Type ID	Attribute	Tag	Requirement Type SCU/SCP
Request Storage Commitment		1	Transaction UID	(0008,1195)	1/1
			Storage Media File-Set ID	(0088,0130)	3/3 See Section Y.3.2.1.1.1.
			Storage Media File-Set UID	(0088,0140)	3/3 See Section Y.3.2.1.1.1.
			Referenced SOP Sequence	(0008,1199)	1/1
			>Referenced SOP Class UID	(0008,1150)	1/1
			>Referenced SOP Instance UID	(0008,1155)	1/1
			>Storage Media File-Set ID	(0088,0130)	3/3 See Section Y.3.2.1.1.1.
			>Storage Media File-Set UID	(0088,0140)	3/3 See Section Y.3.2.1.1.1.
			Referenced Study Component Sequence	(0008,1111)	1C/1 See Section Y.3.2.1.1.2.
			>Referenced SOP Class UID	(0008,1150)	1/1

	>Referenced SOP Instance UID	(0008,1155)	1/1
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### Y.3.2.1.1.1 Storage Media File Set ID Attributes

4 If present, the Storage Media File-Set ID (0088,0130) and Storage Media File-Set UID (0088,0140)  
 6 shall appear either outside the Referenced SOP Sequence (0008,1199), or within one or more Items  
 8 within that sequence, but not both. If they appear outside of the sequence, then all of the SOP  
 Instances within the sequence shall be retrievable from the specified Storage Media File-Set. If they  
 appear within an Item of that sequence, then the SOP Instance referenced to by that Item shall be  
 retrievable from the specified Storage Media File-Set.

### 10 Y.3.2.1.1.2 Referenced Study Component Sequence Attribute

12 The Referenced Study Component Sequence (0008,1111) Attribute shall be provided if all the SOP  
 Instance(s) referenced within the Referenced SOP Sequence (0008,1199) belong to the same Study  
 Component and represent the complete set of SOP Instances for that Study Component (i.e. if the  
 14 referenced SOP Instances do not represent the complete Study Component, this Attribute is not sent).  
 Only 1 SOP Class/Instance UID pair may be present in this sequence.

16

18 Note: See the Study Management Service Class for more information about the Study  
 Component.

### Y.3.2.1.2 Service Class User Behavior

20 The SCU shall use the N-ACTION primitive to request the SCP the safekeeping of a set of SOP  
 Instances. The SOP Instances are referenced in the Action Information as specified in Table Y.3.2.1.1-  
 22 1. The Action Type ID shall be set to 1 specifying the request for storage commitment.

24 The SCU shall supply the Transaction UID Attribute (0008,1195) to uniquely identify each Storage  
 Commitment Request. The value of the Transaction UID Attribute will be included by the SCP in the  
 26 Storage Commitment Result (see Section Y.3.3.1). Use of the Transaction UID Attribute allows the  
 SCU to match requests and results which may occur over the same or different associations.

28

30 The N-ACTION primitive shall contain the well-known Storage Commitment Push Model SOP  
 Instance UID (defined in Section Y.3.5) in its Requested SOP Instance UID parameter.

32 NOTE: In the usage described here, there is no explicit creation of a SOP Instance upon which an  
 N-ACTION primitive may operate. Instead, the N-ACTION primitive operates upon a  
 constant well-known SOP Instance. This SOP Instance is conceptually created during  
 34 startup of each Storage Commitment Service Class SCP Application.

36 Upon receipt of a successful N-ACTION Response Status Code from the SCP, the SCU now knows  
 that the SCP has received the N-ACTION request. Upon receipt of any other N-ACTION Response  
 38 Status Code from the SCP, the SCU now knows that the SCP will not process the request and therefore  
 will not commit to the storage of the SOP Instances referenced by the Storage Commitment Request.  
 40 The actions taken by the SCU upon receiving the status is beyond the scope of this Standard. Upon  
 receipt of a failure status, the Transaction UID is no longer active and shall not be reused for other  
 42 transactions.

NOTE: Failure of storage commitment will be signaled via the N-EVENT-REPORT primitive.

NOTE: In situations where the SOP Instance(s) are transferred via Media Interchange, the Storage Commitment Request may fail because the piece of Media containing the referenced SOP Instance(s) may not yet have been read. Attributes (0088,0130) File-Set ID and (0088,0140) File-Set UID may or may not be present in the case of Media Interchange. They may be provided to facilitate identification of the media containing the transferred SOP Instance(s) by the Storage Commitment SCP.

**Y.3.2.1.3 Service Class Provider Behavior**

Upon receipt of the N-ACTION request, the SCP shall return, via the N-ACTION response primitive, the N-ACTION Response Status Code applicable to the associated request. A success status conveys that the SCP has successfully received the request. A failure status conveys that the SCP is not processing the request.

NOTE: Failure of storage commitment will be signaled via the N-EVENT-REPORT primitive.

NOTE: When a Storage Commitment Request is received by an SCP it may immediately assess the list of references for which Storage Commitment is requested and return an N-EVENT-REPORT. In situations where the SOP Instance(s) are transferred via Media Interchange, the N-EVENT-REPORT may fail because the piece of Media containing the referenced SOP Instance(s) may not yet have been read. Attributes (0088,0130) File-Set ID and (0088,0140) File-Set UID may or may not be present in the case of Media Interchange. They may be used to facilitate identification of the media containing the transferred SOP Instance(s) by the Storage Commitment SCP.

**Y.3.2.1.4 Status Codes**

No Service Class specific status values are defined for the N-ACTION Service. See PS 3.7 for general response status codes.

**Y.3.3 Notifications**

The DICOM AEs which claim conformance to this SOP Class as an SCP shall invoke the N-EVENT-REPORT request. The DICOM AEs which claim conformance to this SOP Class as an SCU shall be capable of receiving the N-EVENT-REPORT request.

**Y.3.3.1 Storage Commitment Result**

The Storage Commitment Result notification allows an SCP to inform the SCU whether or not it has accepted storage commitment responsibility for the SOP Instances referenced by a Storage Commitment Request. This notification is also used to convey error information (i.e. storage commitment could not be achieved for one or more of the referenced SOP Instances). This notification shall be invoked through the N-EVENT-REPORT primitive.

**Y.3.3.1.1 Event Information**

The DICOM AEs which claim conformance to this SOP Class as an SCU and/or an SCP shall support the Event Types and Event Information as specified in Table Y.3.3.1.1-1.

**Table Y.3.3.1.1-1 Storage Commitment Result - Event Information**

Event Name	Type	Event Type ID	Attribute	Tag	Requirement Type SCU/SCP
------------	------	---------------	-----------	-----	--------------------------

Storage Commitment Request Successful	1	Transaction UID	(0008,1195)	-/1
		Retrieve AE Title	(0008,0054)	-/3 See Section Y.3.3.1.1.1.
		Storage Media File-Set ID	(0088,0130)	-/3 See Section Y.3.3.1.1.2.
		Storage Media File-Set UID	(0088,0140)	-/3 See Section Y.3.3.1.1.2.
		Referenced SOP Sequence	(0008,1199)	-/1
		>Referenced SOP Class UID	(0008,1150)	-/1
		>Referenced SOP Instance UID	(0008,1155)	-/1
		>Retrieve AE Title	(0008,0054)	-/3 See Section Y.3.3.1.1.1.
		>Storage Media File-Set ID	(0088,0130)	-/3 See Section Y.3.3.1.1.2.
		>Storage Media File-Set UID	(0088,0140)	-/3 See Section Y.3.3.1.1.2.
Storage Commitment Request Complete - Failures Exist	2	Transaction UID	(0008,1195)	-/1
		Retrieve AE Title	(0008,0054)	-/3 See Section Y.3.3.1.1.1.
		Storage Media File-Set ID	(0088,0130)	-/3 See Section Y.3.3.1.1.2.
		Storage Media File-Set UID	(0088,0140)	-/3 See Section Y.3.3.1.1.2.
		Referenced SOP Sequence	(0008,1199)	-/1C This Attribute shall be provided if storage commitment for one or more SOP Instances has been successful
		>Referenced SOP Class UID	(0008,1150)	-/1
		>Referenced SOP Instance UID	(0008,1155)	-/1
		>Retrieve AE Title	(0008,0054)	-/3 See Section Y.3.3.1.1.1.
		>Storage Media File-Set ID	(0088,0130)	-/3 See Section Y.3.3.1.1.2.
		>Storage Media File-Set UID	(0088,0140)	-/3 See Section Y.3.3.1.1.2.
		Failed SOP Sequence	(0008,1198)	-/1
		>Referenced SOP Class UID	(0008,1150)	-/1



	>Referenced SOP Instance UID	(0008,1155)	-/1
	>Failure Reason	(0008,1197)	-/1

2

### Y.3.3.1.1.1 Retrieve AE Title Attribute

4 If present, the Retrieve AE Title (0008,0054) shall appear either outside the Referenced SOP Sequence (0008,1199), or within one or more Items within that sequence, but not both. If they appear outside of  
6 the sequence, then all of the SOP Instances within the sequence shall be retrievable from the specified Retrieve AE Title. If they appear within an Item of that sequence, then the SOP Instance referenced to  
8 by that Item shall be retrievable from the specified Retrieve AE Title.

### Y.3.3.1.1.2 Storage Media File Set ID Attributes

10 If present, the Storage Media File-Set ID (0088,0130) and Storage Media File-Set UID (0088,0140) shall appear either outside the Referenced SOP Sequence (0008,1199), or within one or more Items  
12 within that sequence, but not both. If they appear outside of the sequence, then all of the SOP Instances within the sequence shall be retrievable from the specified Storage Media File-Set. If they  
14 appear within an Item of that sequence, then the SOP Instance referenced to by that Item shall be retrievable from the specified Storage Media File-Set.

### Y.3.3.1.2 Service Class Provider Behavior

16 If the SCP determines that it has successfully completed storage commitment for all the SOP Instances referenced by a Storage Commitment Request, the SCP shall issue a final N-EVENT-REPORT with  
18 the Event Type ID set to 1 (storage commitment request successful). This event shall include references to the successfully stored SOP Instances. The SCP shall store the referenced SOP Instances  
20 in accordance with Level 2 as defined in the Storage Service Class (i.e. all Attributes, including Private Attributes). The Storage Service Class is defined in PS 3.4. After the N-EVENT-REPORT has been  
22 sent, the Transaction UID is no longer active and shall not be reused for other transactions.

24 If it is determined that storage commitment could not be achieved for one or more referenced SOP Instances, the SCP shall issue a final N-EVENT-REPORT with the Event Type ID set to 2 (storage  
26 commitment request complete - failure exists) conveying that the SCP does not commit to store all SOP Instances. This event shall include references to the failed SOP Instances together with references  
28 to those SOP Instances which have been successfully stored. For each failed SOP Instance the reason for failure shall be described by the Failure Reason Attribute. After the N-EVENT-REPORT has been  
30 sent, the Transaction UID is no longer active and shall not be reused for other transactions.

32 The complete set of SOP Instances referenced by the Referenced SOP Sequence (0008,1150) Attribute, in the initiating N-ACTION, shall be present in both Event Types.  
34

36 The N-EVENT-REPORT shall include the same Transaction UID Attribute (0008,1195) value as contained in the initiating N-ACTION.  
38

The N-EVENT-REPORT may occur on a different association than the N-ACTION operation.

40 NOTE: The optional Attributes Retrieve AE Title (0008,0054), Storage Media File-Set ID (0088,0130) and Storage Media File-Set UID (0088,0140) within the Event Information  
42 allows an SCP to indicate the location where it has stored SOP Instances for safekeeping. For example, the SCP could relay SOP Instances to a third Application Entity using this  
44 service class. In which case it can use the Retrieve AE Title Attribute to indicate the real

2 location of the data. Another example is if the SCP stores data on media, it can indicate  
this using the Storage Media File-Set ID and UID Attributes.

### Y.3.3.1.3 Service Class User Behavior

4 The SCU shall return, via the N-EVENT-REPORT response primitive, the N-EVENT-REPORT  
Response Status Code applicable to the associated request. The actions taken by the SCU upon  
6 receiving the N-EVENT-REPORT are beyond the scope of this Standard but are stated in its  
conformance statement.

8 NOTE: In the case where the SCP indicates that it cannot achieve storage commitment for some  
SOP Instances, the SCU might, for example, re-send the failed SOP Instances to the SCP  
10 (via the Storage Service Class) and then re-transmit the N-ACTION request. However, this  
behavior is beyond the scope of this Standard.

### Y.3.3.1.4 Status Codes

12 No Service Class specific status values are defined for the N-EVENT-REPORT Service. See PS 3.7 for  
14 general response status codes.

16 NOTE: This Section refers to status codes returned by the N-EVENT-REPORT response primitive.  
The Failure Reason Attribute returned in the Storage Commitment Result - Event  
Information (see PS 3.3) are described in the Storage Commitment IOD.

### Y.3.4 Storage Commitment Push Model SOP Class UID

18 The Storage Commitment Push Model SOP Class shall be uniquely identified by the Storage  
20 Commitment Push Model SOP Class UID which shall have the value "1.2.840.10008.1.20.1".

### Y.3.5 Storage Commitment Push Model Reserved Identification

22 The well-known UID of the Storage Commitment Push Model SOP Instance shall have the value  
"1.2.840.10008.1.20.1.1".

### Y.3.6 Conformance Requirements

24 Implementations claiming Standard SOP Class Conformance to the Storage Commitment Push Model  
26 SOP Class shall be conformant as described in this Section and shall include within their Conformance  
Statement information as described in this Section and sub-Sections.

28 An implementation may claim conformance to this SOP Class as an SCU, SCP or both. The  
30 Conformance Statement shall be in the format defined in PS 3.2.

#### Y.3.6.1 SCU Conformance

32 An implementation which is conformant to this SOP Class as an SCU shall meet conformance  
requirements for

- 34 -the operations and actions which it invokes;
- the notifications which it receives.

36 The mechanisms used by the SCU to transfer SOP Instances to the SCP shall be documented.

### Y.3.6.1.1 Operations

2 The SCU shall document in the SCU Operations Statement the actions and behavior which cause the  
3 SCU to generate an N-ACTION primitive (Storage Commitment Request).

4 The SCU shall specify the SOP Class UIDs for which it may request storage commitment.

6 The SCU shall specify if it supports the Referenced Study Component Sequence Attribute.

8 The SCU shall specify the duration of applicability of the Transaction UID. This may be specified as a  
10 time limit or a policy which defines the end of a transaction (e.g. how long will the SCU wait for a N-  
EVENT-REPORT).

12 The SCU shall specify if it supports the optional Storage Media File-Set ID & UID Attributes in the N-  
14 ACTION. If these Attributes are supported, the SCU shall also specify which Storage Media  
Application Profiles are supported.

16 The SCU Operations Statement shall be formatted as defined in PS 3.2

### 18 Y.3.6.1.2 Notifications.

The SCU shall document in the SCU Notifications Statement the behavior and actions taken by the  
20 SCU upon receiving an N-EVENT-REPORT primitive (Storage Commitment Result).

22 The SCU shall specify the behavior and actions performed when a success status is received (i.e. if and  
when local SOP Instances copies are deleted).

24 The SCU shall specify the behavior and actions performed when a failure status is received (i.e.  
26 recovery mechanisms, etc.).

28 The SCU Notifications Statement shall be formatted as defined in PS 3.2

### Y.3.6.2 SCP Conformance.

30 An implementation which is conformant to this SOP Class as an SCP shall meet conformance  
requirements for

- 32 -the operations and actions which it performs;
- the notifications which it generates.

### 34 Y.3.6.2.1 Operations

The SCP shall document in the SCP Operations Statement the behavior and actions of the SCP upon  
36 receiving the N-ACTION primitive (Storage Commitment Request).

38 The SCP shall specify parameters indicating the level of storage commitment, such as:

- under what conditions the SCP would delete SOP Instances
- 40 - persistence of storage
- capacity
- 42 - volatility
- other pertinent information

44 The SCP shall specify the mechanisms and characteristics of retrieval of stored SOP Instances, such as:

- supported query/retrieve services
- 2 - latency
- other pertinent information

4 The SCP shall specify if it supports the optional Storage Media File-Set ID & UID Attributes in the N-  
 6 ACTION. If these Attributes are supported, the SCP shall also specify which Storage Media  
 Application Profiles are supported.

8 The SCP Operations Statement shall be formatted as defined in PS 3.2

10 **Y.3.6.2.2 Notifications.**

12 The SCP shall document in the SCP Notifications Statement the behavior and actions which cause the  
 SCP to generate an N-EVENT-REPORT primitive (Storage Commitment Result).

14 The SCP shall specify if it supports the optional Storage Media File-Set ID & UID Attributes in the N-  
 EVENT-REPORT and describe the policies for how the Media is used. The SCP shall also specify  
 16 which Storage Media Application Profiles are supported.

18 The SCP shall specify if it supports the optional Retrieve AE Title (0008,0054) Attribute in the N-  
 EVENT-REPORT and describe the policies for how it is used.

20 The SCP Notifications Statement shall be formatted as defined in PS 3.2

22 **Y.4 Storage Commitment Pull Model SOP Class**

24 The Storage Commitment Pull Model SOP Class is intended for those Application Entities requiring  
 storage commitment where the SCP determines the time at which SOP Instances are transmitted. The  
 SOP Instances to be held for safekeeping are referenced in a Storage Commitment Request transmitted  
 26 to the SCP. The SCP shall then retrieve the SOP Instances from the appropriate location. Success or  
 failure of storage commitment is subsequently indicated by a notification from the SCP to the SCU.

28 **Y.4.1 DIMSE Service Group**

The following DIMSE-N Services are applicable to the Storage Commitment Pull Model SOP Class.

30 **Table Y.4.1-1 DIMSE Service Group**

DIMSE Service Element	Usage SCU/SCP
N-EVENT-REPORT	M/M
N-ACTION	M/M

32 The DIMSE-N Services and Protocol are specified in PS 3.7.

**Y.4.2 Operations**

34 The DICOM AEs which claim conformance to this SOP Class as an SCU shall invoke the N-ACTION  
 operation. The DICOM AEs which claim conformance to this SOP Class as an SCP shall support the  
 36 N-ACTION operation.

**Y.4.2.1 Storage Commitment Request**

2 The Storage Commitment Request operation allows an SCU to request an SCP to commit to the safekeeping of a set of SOP Instances. This operation shall be invoked through the N-ACTION primitive.

4 **Y.4.2.1.1 Action Information**

6 The DICOM AEs which claim conformance to this SOP Class as an SCU and/or an SCP shall support the Action Types and Action Information as specified in Table Y.4.2.1.1-1.

**Table Y.4.2.1.1-1 Storage Commitment Request - Action Information**

Action Name	Type	Action Type ID	Attribute	Tag	Requirement Type SCU/SCP
Request Storage Commitment	1		Transaction UID	(0008,1195)	1/1
			Retrieve AE Title	(0008,0054)	1C/1 See Y.4.2.1.1.1.
			Referenced SOP Sequence	(0008,1199)	1/1
			>Referenced SOP Class UID	(0008,1150)	1/1
			>Referenced SOP Instance UID	(0008,1155)	1/1
			>Retrieve AE Title	(0008,0054)	1C/1 See Y.4.2.1.1.1.
			Referenced Study Component Sequence	(0008,1111)	1C/1 See Y.4.2.1.1.2.
			>Referenced SOP Class UID	(0008,1150)	1/1
			>Referenced SOP Instance UID	(0008,1155)	1/1

8

10 **Y.4.2.1.1.1 Retrieve AE Title Attribute**

12 The Retrieve AE Title (0008,0054) shall appear either outside the Referenced SOP Sequence (0008,1199), or within one or more Items within that sequence, but not both. If they appear outside of the sequence, then all of the SOP Instances within the sequence shall be retrievable from the specified Retrieve AE Title. If they appear within an Item of that sequence, then the SOP Instance referenced to by that Item shall be retrievable from the specified Retrieve AE Title.

16 **Y.4.2.1.1.2 Referenced Study Component Sequence Attribute**

18 The Referenced Study Component Sequence (0008,1111) Attribute shall be provided if all the SOP Instance(s) referenced within the Referenced SOP Sequence (0008,1199) belong to the same Study Component and represent the complete set of SOP Instances for that Study Component (i.e. if the referenced SOP Instances do not represent the complete Study Component, this Attribute is not sent).  
20 Only 1 SOP Class/Instance UID pair may be present in this sequence.

### Y.4.2.1.2 Service Class User Behavior

2 The SCU shall use the N-ACTION primitive to request the SCP provide storage commitment for a set  
4 of SOP Instances. The SOP Instances are referenced in the Action Information as specified in Table  
Y.4.2.1.1-1. The Action Type ID shall be set to 1 specifying the request for storage commitment.

6 The SCU shall supply the Transaction UID Attribute (0008,1195) to uniquely identify each Storage  
8 Commitment Request. The value of the Transaction UID Attribute will be included by the SCP in the  
Storage Commitment Result (see Section Y.4.3.1). Use of the Transaction UID Attribute allows the  
SCU to match requests and results which may occur over the same or different associations.

10

The N-ACTION primitive shall contain the well-known Storage Commitment Pull Model SOP  
12 Instance UID (defined in Section Y.4.5) in its Requested SOP Instance UID parameter.

14 NOTE: In the usage described here, there is no explicit creation of a SOP Instance upon which an  
N-ACTION primitive may operate. Instead, the N-ACTION primitive operates upon a  
constant well-known SOP Instance. This SOP Instance is conceptually created during  
16 startup of each Storage Commitment Service Class SCP Application.

18 Upon receipt of a successful N-ACTION Response Status Code from the SCP, the SCU now knows  
20 that the SCP is processing the N-ACTION request. Upon receipt of any other N-ACTION Response  
Status Code from the SCP, the SCU now knows that the SCP will not process the request and therefore  
will not attempt to retrieve the SOP Instances referenced by the Storage Commitment Request. The  
22 actions taken by the SCU upon receiving the status is beyond the scope of this Standard. Upon receipt  
of a failure status, the Transaction UID is no longer active and shall not be reused for other  
24 transactions.

NOTE: Failure storage commitment will be signaled via the N-EVENT-REPORT primitive.

### 26 Y.4.2.1.3 Service Class Provider Behavior

28 Upon receipt of the N-ACTION request, the SCP shall return, via the N-ACTION response primitive,  
the N-ACTION Response Status Code applicable to the associated request. A success status conveys  
30 that the SCP has successfully received the request. A failure status conveys that the SCP is not  
processing the request.

32 If a success status has been returned in the N-ACTION Response Status Code, the SCP shall then  
attempt to retrieve the SOP Instances referenced in the Storage Commitment Request (see Table  
34 Y.4.2.1.1-1). The mechanisms used by the SCP to retrieve SOP Instances are outside the scope of this  
Service Class but are documented in its Conformance Statement. However, in the case that network  
36 based retrieval is used, the SCP shall use a separate association for retrieving SOP Instances.

NOTE: Failure of storage commitment will be signaled via the N-EVENT-REPORT primitive.

38 NOTE: As indicated, the actual mechanism used by the SCP to retrieve SOP Instances is outside  
the scope of this Service Class. However, typical mechanisms are found in the  
40 Query/Retrieve Service Class. The Application Entity serving as the SCP of the  
Query/Retrieve Service Class need not necessarily be the same as the SCU of the Storage  
42 Commitment Service Class. This allows scenarios in which storage commitment is  
initiated by a third party.

### 44 Y.4.2.1.4 Status Codes

46 No Service Class specific status values are defined for the N-ACTION Service. See PS 3.7 for  
response codes.

**Y.4.3 Notifications**

- 2 The DICOM AEs which claim conformance to this SOP Class as an SCP shall invoke the N-EVENT-REPORT request. The DICOM AEs which claim conformance to this SOP Class as an SCU shall
- 4 support the N-EVENT-REPORT request.

**Y.4.3.1 Storage Commitment Result**

- 6 The Storage Commitment Result notification allows an SCP to inform the SCU whether or not it has accepted storage commitment responsibility for the SOP Instances referenced by a Storage
- 8 Commitment Request. This notification is also used to convey error information (i.e. storage commitment could not be achieved for one or more of the referenced SOP Instances). This notification
- 10 shall be invoked through the N-EVENT-REPORT primitive.

**Y.4.3.1.1 Event Information**

- 12 The DICOM AEs which claim conformance to this SOP Class as an SCU and/or an SCP shall support the Event Types and Event Information as specified in Table Y.4.3.1.1-1.

14 **Table Y.4.3.1.1-1 Storage Commitment Result - Event Information**

Event Name	Type	Event Type ID	Attribute	Tag	Requirement Type SCU/SCP
Storage Commitment Request Successful	1		Transaction UID	(0008,1195)	-/1
			Retrieve AE Title	(0008,0054)	-/3 See Y.4.3.1.1.1.
			Storage Media File-Set ID	(0088,0130)	-/3 See Y.4.3.1.1.2.
			Storage Media File-Set UID	(0088,0140)	-/3 See Y.4.3.1.1.2.
			Referenced SOP Sequence	(0008,1199)	-/1
			>Referenced SOP Class UID	(0008,1150)	-/1
			>Referenced SOP Instance UID	(0008,1155)	-/1
			>Retrieve AE Title	(0008,0054)	-/3 See Y.4.3.1.1.1.
			>Storage Media File-Set ID	(0088,0130)	-/3 See Y.4.3.1.1.2.
			>Storage Media File-Set UID	(0088,0140)	-/3 See Y.4.3.1.1.2.
Storage Commitment Request Complete - Failures Exist	2		Transaction UID	(0008,1195)	-/1
			Retrieve AE Title	(0008,0054)	-/3 See Y.4.3.1.1.1.

Storage Media File-Set ID	(0088,0130)	-/3 See Y.4.3.1.1.2.
Storage Media File-Set UID	(0088,0140)	-/3 See Y.4.3.1.1.2.
Referenced SOP Sequence	(0008,1199)	-/1C This Attribute shall be provided if storage commitment for one or more of the SOP Instances has been successful
>Referenced SOP Class UID	(0008,1150)	-/1
>Referenced SOP Instance UID	(0008,1155)	-/1
>Retrieve AE Title	(0008,0054)	-/3 See Y.4.3.1.1.1.
>Storage Media File-Set ID	(0088,0130)	-/3 See Y.4.3.1.1.2.
>Storage Media File-Set UID	(0088,0140)	-/3 See Y.4.3.1.1.2.
Failed SOP Sequence	(0008,1198)	-/1
>Referenced SOP Class UID	(0008,1150)	-/1
>Referenced SOP Instance UID	(0008,1155)	-/1
>Failure Reason	(0008,1197)	-/1

2

#### Y.4.3.1.1.1 Retrieve AE Title Attribute

4 If present, the Retrieve AE Title (0008,0054) shall appear either outside the Referenced SOP Sequence  
 6 (0008,1199), or within one or more Items within that sequence, but not both. If they appear outside of  
 8 the sequence, then all of the SOP Instances within the sequence shall be retrievable from the specified  
 Retrieve AE Title. If they appear within an Item of that sequence, then the SOP Instance referenced to  
 by that Item shall be retrievable from the specified Retrieve AE Title.

#### Y.4.3.1.1.2 Storage Media File Set ID Attributes

10 If present, the Storage Media File-Set ID (0088,0130) and Storage Media File-Set UID (0088,0140)  
 12 shall appear either outside the Referenced SOP Sequence (0008,1199), or within one or more Items  
 14 within that sequence, but not both. If they appear outside of the sequence, then all of the SOP  
 Instances within the sequence shall be retrievable from the specified Storage Media File-Set. If they  
 appear within an Item of that sequence, then the SOP Instance referenced to by that Item shall be  
 retrievable from the specified Storage Media File-Set.

#### Y.4.3.1.2 Service Class Provider Behavior

18 If the SCP determines that it has successfully completed storage commitment for all the SOP Instances  
 20 referenced by a Storage Commitment Request, the SCP shall issue a final N-EVENT-REPORT with  
 the Event Type ID set to 1 (storage commitment request successful). This event shall include  
 22 references to the successfully stored SOP Instances. The SCP shall store the referenced SOP Instances  
 in accordance with Level 2 as defined in the Storage Service Class (i.e. all Attributes, including Private  
 Attributes). The Storage Service Class is defined in PS 3.4. After the N-EVENT-REPORT has been  
 sent, the Transaction UID is no longer active and shall not be reused for other transactions.

24



2 If it is determined that storage commitment could not be achieved for one or more referenced SOP  
4 Instances, the SCP shall issue a final N-EVENT-REPORT with the Event Type ID set to 2 (storage  
6 commitment request complete - failure exists) conveying that the SCP does not commit to store all  
8 SOP Instances. This event shall include references to the failed SOP Instances together with references  
10 to those SOP Instances which have been successfully stored. For each failed SOP Instance the reason  
12 for failure shall be described by the Failure Reason Attribute. After the N-EVENT-REPORT has been  
14 sent, the Transaction UID is no longer active and shall not be reused for other transactions.

16 The complete set of SOP Instances referenced by the Referenced SOP Sequence (0008,1150) Attribute,  
18 in the initiating N-ACTION, shall be present in both Event Types.

20 The N-EVENT-REPORT shall include the same Transaction UID Attribute (0008,1195) value as  
22 contained in the initiating N-ACTION.

The N-EVENT-REPORT may occur on a different association than the N-ACTION operation.

NOTE The optional Attributes Retrieve AE Title (0008,0054), Storage Media File-Set ID  
(0088,0130) and Storage Media File-Set UID (0088,0140) within the Event Information  
allows an SCP to indicate the location where it has stored SOP Instances for safekeeping.  
For example, the SCP could relay SOP Instances to a third Application Entity using this  
service class. In which case it can use the Retrieve AE Title Attribute to indicate the real  
location of the data. Another example is if the SCP stores data on media, it can indicate  
this using the Storage Media File-Set ID and UID Attributes.

### Y.4.3.1.3 Service Class User Behavior

24 The SCU shall return, via the N-EVENT-REPORT response primitive, the N-EVENT-REPORT  
26 Response Status Code applicable to the associated request. The actions taken by the SCU upon  
receiving the N-EVENT-REPORT are beyond the scope of this Standard but are stated in its  
conformance statement.

### Y.4.3.1.4 Status Codes

28 No Service Class specific status values are defined for the N-EVENT-REPORT Service. See Ps 3.7 for  
30 general response status codes.

NOTE: This Section refers to status codes returned by the N-EVENT-REPORT response primitive.  
The Failure Reason Attribute returned in the Storage Commitment Result - Event  
Information (see Table Y.4.3.1.1-1) are described in the Storage Commitment IOD.

### Y.4.4 Storage Commitment Pull Model SOP Class UID

34 The Storage Commitment Pull Model SOP Class shall be uniquely identified by the Storage  
36 Commitment Pull Model SOP Class UID which shall have the value "1.2.840.10008.1.20.2".

### Y.4.5 Storage Commitment Pull Model Reserved Identification

38 The well-known UID of the Storage Commitment Pull Model SOP Instance shall have the value  
"1.2.840.10008.1.20.2.1".

### Y.4.6 Conformance Requirements

40 Implementations claiming Standard SOP Class Conformance to the Storage Commitment Pull Model  
42 SOP Class shall be conformant as described in this Section and shall include within their Conformance  
Statement information as described in this Sections and its Sub-Sections.

2 An implementation may claim conformance to this SOP Class as an SCU, SCP or both. The  
Conformance Statement shall be in the format defined in PS 3.2.

#### 4 **Y.4.6.1 SCU Conformance**

An implementation which is conformant to this SOP Class as an SCU shall meet conformance  
6 requirements for

- 8 -the operations and actions which it invokes;
- the notifications which it receives.

##### **Y.4.6.1.1 Operations**

10 The SCU shall document in the SCU Operations Statement the actions and behavior which cause the  
SCU to generate an N-ACTION primitive (Storage Commitment Request).

12 The SCU shall specify the SOP Class UIDs for which it may request storage commitment.

14 The SCU shall specify if it supports the Referenced Study Component Sequence Attribute.

16 The SCU shall specify the duration of applicability of the Transaction UID. This may be specified as a  
18 time limit or a policy which defines the end of a transaction (e.g. how long will the SCU wait for a N-  
EVENT-REPORT).

20 The SCU Operations Statement shall be formatted as defined in PS 3.2.

##### **Y.4.6.1.2 Notifications**

22 The SCU shall document in the SCU Notifications Statement the behavior and actions taken by the  
24 SCU upon receiving an N-EVENT-REPORT primitive (Storage Commitment Result).

26 The SCU shall specify the behavior and actions performed when a success status is received (i.e. if and  
when local SOP Instances copies are deleted).

28 The SCU shall specify the behavior and actions performed when a failure status is received (i.e.  
30 recovery mechanisms, etc.).

32 The SCU Notifications Statement shall be formatted as defined in PS 3.2.

#### **Y.4.6.2 SCP Conformance**

34 An implementation which is conformant to this SOP Class as an SCP shall meet conformance  
requirements for

- 36 -the operations and actions which it performs;
- the notifications which it generates.

##### **Y.4.6.2.1 Operations**

40 The SCP shall document in the SCP Operations Statement the behavior and actions of the SCP upon  
receiving the N-ACTION primitive (Storage Commitment Request).

42 The SCP shall specify the mechanisms used to retrieve SOP Instances.

44 The SCP shall specify parameters indicating the level of storage commitment, such as:

- under what conditions the SCP would delete SOP Instances

- persistence of storage
- 2 - capacity
- volatility
- 4 - other pertinent information

6 The SCP shall specify the mechanisms and characteristics of retrieval of stored SOP Instances, such as:

- supported query/retrieve services
- 8 - latency
- other pertinent information

10

The SCP Operations Statement shall be formatted as defined in PS 3.2.

#### 12 **Y.4.6.2.2 Notifications**

14 The SCP shall document in the SCP Notifications Statement the behavior and actions which cause the SCP to generate an N-EVENT-REPORT primitive (Storage Commitment Result).

16 The SCP shall specify if it supports the optional Storage Media File-Set ID & UID Attributes in the N-EVENT-REPORT. If these Attributes are supported, the SCP shall also specify which Storage Media  
18 Application Profiles are supported.

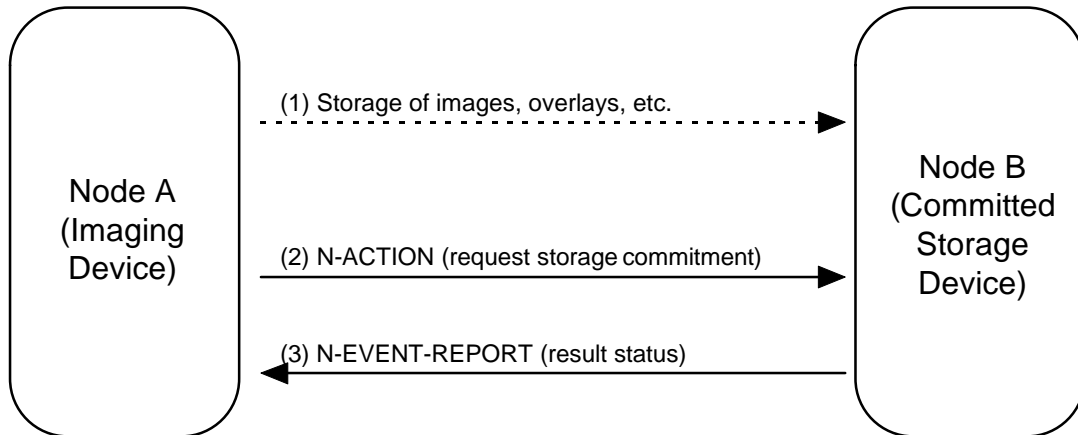
20 The SCP Notifications Statement shall be formatted as defined in PS 3.2.

## Y.5 Storage Commitment Examples (Informative)

2 This Section and its sub-sections contain examples of ways in which the Storage Commitment Service Class could be used. This is not meant to be an exhaustive set of scenarios but rather a set of examples.

### 4 Y.5.1 Push Model Example

6 The following (illustrated in Figure 1) is an example of the use of the Storage Commitment Push Model SOP Class.



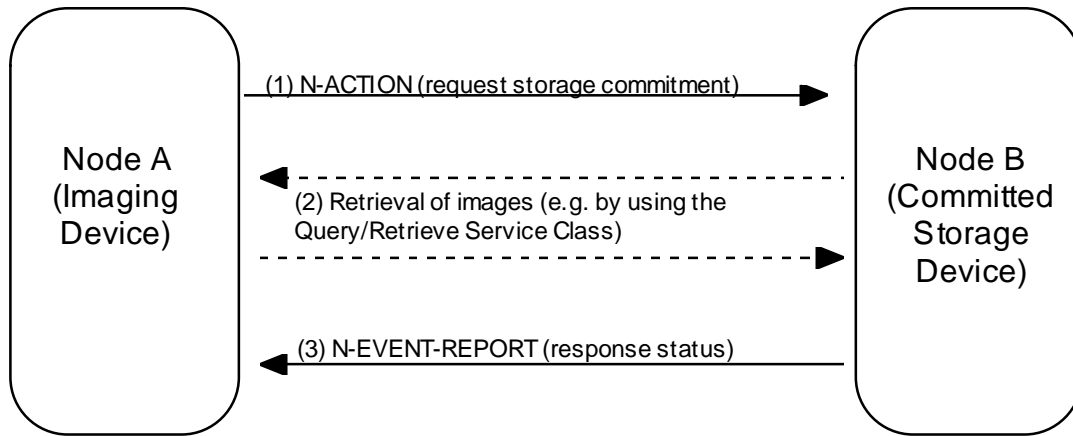
8 **Figure 1: Example of Storage Commitment Push Model SOP Class**

10 Node A (an SCU) uses the services of the Storage Service Class to transmit one or more SOP Instances to Node B (1). Node A then issues an N-ACTION to Node B (an SCP) containing a list of references to SOP Instances, requesting that the SCP take responsibility for storage commitment of the SOP  
12 Instances (2). If the SCP has determined that all SOP Instances exist and that it has successfully completed storage commitment for the set of SOP Instances, it issues an N-EVENT-REPORT with the  
14 status successful (3) and a list of the stored SOP Instances. Node A now knows that Node B has accepted the commitment to store the SOP Instances. Node A might decide that it is now appropriate  
16 for it to delete its copies of the SOP Instances. The N-EVENT-REPORT may or may not occur on the same association as the N-ACTION.

18 If the SCP determines that committed storage can for some reason not be provided for one or more  
20 SOP Instances referenced by the N-ACTION request, then instead of reporting success it would issue an N-EVENT-REPORT with a status of completed - failures exists. With the EVENT-REPORT it  
22 would include a list of the SOP Instances that were successfully stored and also a list of the SOP Instances for which storage failed.

### 24 Y.5.2 Pull Model Example

26 The following (illustrated in Figure 2) is an example of the use of the Storage Commitment Pull Model SOP Class. It presents one possible data flow between two Nodes (other configurations can also be  
28 used, including those in which the requester of Storage Commitment and the device from which the images are retrieved are distinct).



2

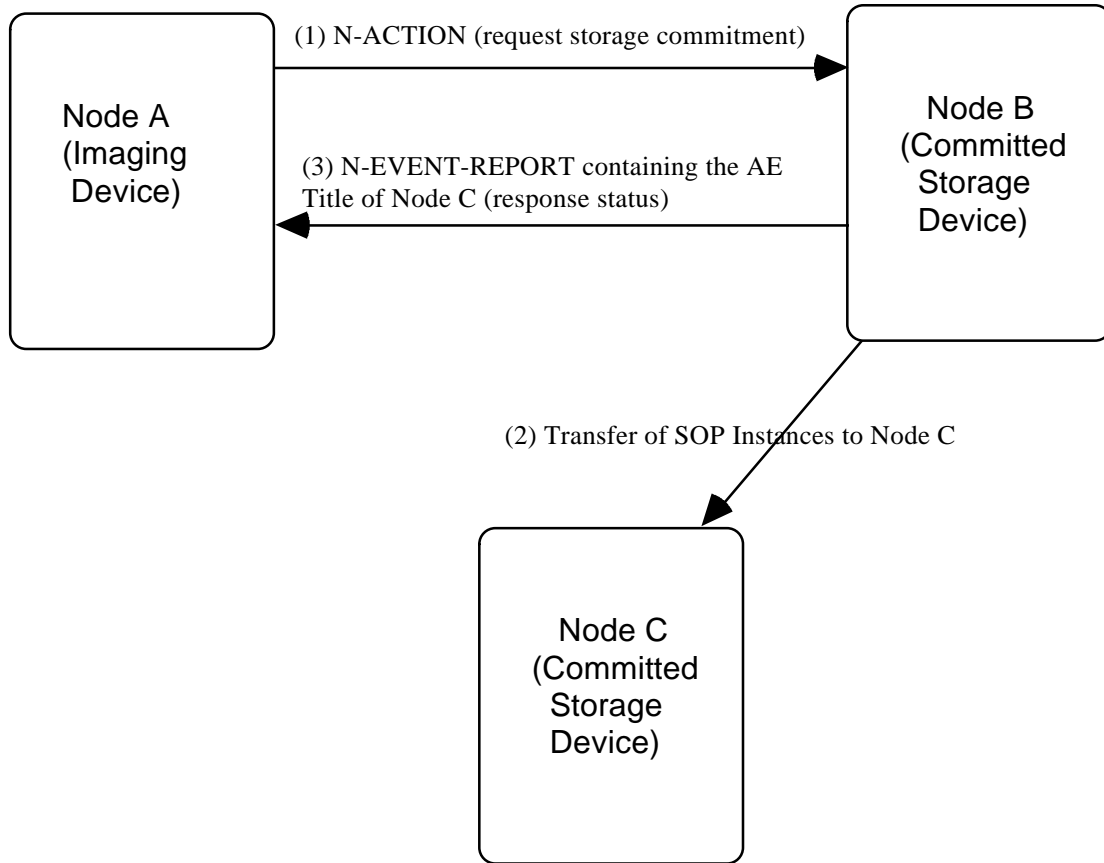
**Figure 2: Example of Storage Commitment Pull Model SOP Class**

4 Node A, an SCU of the Storage Commitment Pull Model SOP Class, informs Node B, an SCP, of its  
 6 wish for commitment to storage by issuing an N-ACTION containing a list of references to SOP  
 8 Instances (1). Node B subsequently uses the services of the Query/Retrieve Service Class to retrieve  
 10 SOP Instances from Node A (2). If the SCP has determined that all SOP Instances specified in the  
 12 Storage Commitment Request have been successfully retrieved and that it has successfully completed  
 14 storage commitment, it issues an N-EVENT-REPORT with a status of success (3) and a list of the  
 16 stored SOP Instances. Node A now knows that Node B has stored the SOP Instances. Node A might  
 18 decide that it is now appropriate for it to delete its copies of the SOP Instances.

14 If the SCP determines that storage commitment can for some reason not be provided for one or more  
 16 SOP Instances referenced by the N-ACTION request then instead of reporting success it would issue an  
 18 N-EVENT-REPORT with a status of completed - failures exists. With the EVENT-REPORT it would  
 20 include a list of the SOP Instances that were successfully stored and also a list of the SOP Instances for  
 22 which storage failed.

### 18 Y.5.3 Remote storage of data by the SCP

20 This example (illustrated in Figure 3) explains the use of the Retrieve AE Title and applies to both the  
 22 push and the pull model. Using either the push or the pull model a set of SOP Instances will be  
 transferred from the SCU to the SCP. The SCP may decide to store the data locally or, alternatively,  
 may decide to store the data at a remote location. This example illustrates how to handle the latter case.



2

**Figure 3: Example of Remote Storage of SOP Instances**

4

Node A, an SCU of either the Storage Commitment Pull Model or Push Model SOP Class, informs Node B, an SCP of the corresponding SOP Class, of its wish for storage commitment by issuing an N-ACTION containing a list of references to SOP Instances (1). Depending on the SOP Class in question the SOP Instances will either already have been transferred from Node A to Node B (Push Model) or will be transferred as a result of the N-ACTION (Pull Model) (2). If the SCP has determined that storage commitment has been achieved for all SOP Instances at Node C specified in the original Storage Commitment Request (from Node A), it issues an N-EVENT-REPORT (3) like in the previous examples. However, to inform the SCU about the address of the location at which the data will be stored, the SCP includes in the N-EVENT-REPORT the Application Entity Title of Node C.

14

The Retrieve AE Title can be included in the N-EVENT-REPORT at two different levels. If all the SOP Instances in question were stored at Node C, a single Retrieve AE Title could be used for the whole data set. However, the SCP could also choose not to store all the SOP Instances at the same location. In this case the Retrieve AE Title Attribute must be provided at the level of each single SOP Instance in the Referenced SOP Instance Sequence.

16

18

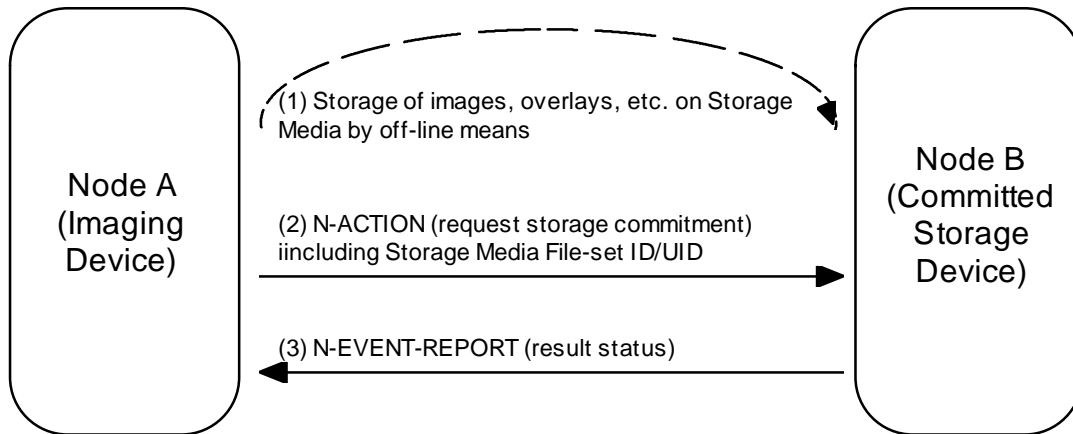
20

22

NOTE: This example also applies to the situation where the SCP decides to store the SOP Instances on Storage Media. Instead of providing the Retrieve AE Title, the SCP will then provide a pair of Storage Media File-Set ID and UID.

## Y.5.4 Storage Commitment in conjunction with use of Storage Media

- 2 The following (illustrated in Figure 4) is an example of how to use the Push Model with Storage Media to perform the actual transfer of the SOP Instances.



4 **Figure 4: Example of Storage Commitment in conjunction with Storage Media**

6 Node A (an SCU) starts out by transferring the SOP Instances for which committed storage is required to Node B (an SCP) by off-line means on some kind of Storage Media (1). When the data is believed to have arrived at Node B, Node A can issue an N-ACTION to Node B containing a list of references to the SOP Instances contained on the Storage Media, requesting that the SCP perform storage commitment of these SOP Instances (2). If the SCP has determined that all the referenced SOP Instances exist (they may already have been loaded into the system or they may still reside on the Storage Media) and that it has successfully completed storage commitment for the SOP Instances, it issues an N-EVENT-REPORT with the status successful (3) and a list of the stored SOP Instances like in the previous examples.

14 If the Storage Media has not yet arrived or if the SCP determines that committed storage can for some other reason not be provided for one or more SOP Instances referenced by the N-ACTION request it would issue an N-EVENT-REPORT with a status of completed - failures exists. With the EVENT-REPORT it would include a list of the SOP Instances that were successfully stored and also a list of the SOP Instances for which storage failed. The SCP is not required to wait for the Storage Media to arrive (however it may chose to wait) but is free to reject the Storage Commitment request immediately. If so, the SCU may decide to reissue another N-ACTION at a later point in time.

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**Part 6 Addendum  
Storage Commitment  
Data Dictionary**



2 **Item #1**  
 Add the following Data Elements to Part 6 Section 6:

4

Tag	Name	VR	VM
(0008,1195)	Transaction UID	UI	1
(0008,1197)	Failure Reason	US	1
(0008,1198)	Failed SOP Sequence	SQ	1
(0008,1199)	Referenced SOP Sequence	SQ	1

6

8

10 **Item #2**  
 Add the following UID to Part 6 Annex A:

12

UID Value	UID Name	UID Type	Part
1.2.840.10008.1.20.1	Storage Commitment Push Model SOP Class	SOP Class	Part 4
1.2.840.10008.1.20.1.1	Storage Commitment Push Model SOP Instance	Well-known SOP Instance	Part 4
1.2.840.10008.1.20.2	Storage Commitment Pull Model SOP Class	SOP Class	Part 4
1.2.840.10008.1.20.2.1	Storage Commitment Pull Model SOP Instance	Well-known SOP Instance	Part 4