

DICOM Correction Item

Correction Number		CP-602	
Log Summary: Correct name of Number of Completed Sub-operations attribute			
Type of Modification		Name of Standard	
Addition		PS 3.4 2006	
Rationale for Correction			
<p>The name of the Number of Completed Sub-operations attribute used in C-MOVE and C-GET is inconsistent between PS 3.4 and 3.7. Correct it in PS 3.4.</p> <p>Also, the naming of the statuses is inconsistent within PS 3.4 with respect to Failure and Success. Correct it.</p>			
Sections of documents affected			
PS 3.4 C.4.2 and C.4.3			
Correction Wording:			

Amend PS 3.4 Section C.4.2 and C.4.3:

C.4.2 C-MOVE Operation

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C.4.2.1.4.2 Response Identifier Structure

The Failed SOP Instance UID List (0008,0058) specifies a list of UIDs of the C-STORE sub-operation SOP Instances for which this C-MOVE operation has failed. An Identifier in a C-MOVE response shall conditionally contain the Failed SOP Instance UID List (0008,0058) based on the C-MOVE response status value. If no C-STORE sub-operation failed, Failed SOP Instance UID List (0008,0058) is absent and therefore no Data Set shall be sent in the C-MOVE response.

Specific Character Set (0008,0005) shall not be present.

The Identifier in a C-MOVE response with a status of:

- Canceled, ~~Failure~~, Refused, or Warning shall contain the Failed SOP Instance UID List Attribute
- Pending shall not contain the Failed SOP Instance UID List Attribute (no Data Set)

C.4.2.1.5 Status

Table C.4-2 defines the specific status code values which might be returned in a C-MOVE response. General status code values and fields related to status code values are defined in PS 3.7.

**Table C.4-2
 C-MOVE RESPONSE STATUS VALUES**

Service Status	Further Meaning	Status Codes	Related Fields
Failure	Refused: Out of Resources – Unable to calculate number of matches	A701	(0000,0902)

	Refused: Out of Resources – Unable to perform sub-operations	A702	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
	Refused: Move Destination unknown	A801	(0000,0902)
	Identifier does not match SOP Class	A900	(0000,0901) (0000,0902)
	Unable to Process	Cxxx	(0000,0901) (0000,0902)
Cancel	Sub-operations terminated due to Cancel Indication	FE00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Warning	Sub-operations Complete – One or more Failures	B000	(0000,1020) (0000,1022) (0000,1023)
Success	Sub-operations Complete – No Failures	0000	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Pending	Sub-operations are continuing	FF00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)

C.4.2.1.6 Number of Remaining Sub-Operations

Inclusion of the Number of Remaining Sub-operations is conditional based upon the status in the C-MOVE response. The Number of Remaining Sub-operations specifies the number of Remaining C-STORE sub-operations necessary to complete the C-MOVE operation.

A C-MOVE response with a status of:

- Pending shall contain the Number of Remaining Sub-operations Attribute
- Canceled may contain the Number of Remaining Sub-operations Attribute
- Warning, Failed, Refused, or Successful shall not contain the Number of Remaining Sub-operations Attribute

C.4.2.1.7 Number of ~~Successful~~Completed Sub-Operations

Inclusion of the Number of ~~Successful~~Completed Sub-operations is conditional based upon the status in the C-MOVE response. The Number of ~~Successful~~Completed Sub-operations specifies the number of C-STORE sub-operations generated by the requested transfer which have completed successfully.

A C-MOVE response with a status of:

- Pending shall contain the Number of ~~Successful~~Completed Sub-operations Attribute
- Canceled, Warning, Failed, Refused, or Successful may contain the Number of ~~Successful~~Completed Sub-operations Attribute

C.4.2.1.8 Number of Failed Sub-Operations

Inclusion of the Number of Failed Sub-operations is conditional based upon the status in the C-MOVE response. The Number of Failed sub-operations specifies the number of C-STORE sub-operations generated by the requested transfer which have Failed.

A C-MOVE response with a status of:

- Pending shall contain the Number of Failed Sub-operations Attribute
- Canceled, Warning, ~~Failed~~edure, Refused, or ~~Successful~~ful may contain the Number of Failed Sub-operations Attribute

C.4.2.1.9 Number of Warning Sub-Operations

Inclusion of the Number of Warning Sub-operations is conditional based upon the status in the C-MOVE response. The Number of Warning sub-operations specifies the number of C-STORE sub-operations generated by the requested transfer which had a status of warning.

A C-MOVE response with a status of:

- Pending shall contain the Number of Warnings Sub-operations Attribute
- Canceled, Warning, ~~Failed~~edure, Refused, or ~~Successful~~ful may contain the Number of Warning Sub-operations Attribute

C.4.2.2 C-MOVE SCU Behavior

This Section discusses both the baseline and extended behavior of the C-MOVE SCU.

C.4.2.2.1 Baseline Behavior of SCU

An SCU conveys the following semantics with a C-MOVE request:

- The SCU shall supply a single value in the Unique Key Attribute for each level above the Query/Retrieve level. For the level of retrieve, the SCU shall supply one unique key if the level of retrieve is above the STUDY level and shall supply one UID, or a list of UIDs if a retrieval of several items is desired and the retrieve level is STUDY, SERIES or IMAGE. The SCU shall also supply a move destination. The move destination shall be the DICOM Application Entity Title of a DICOM Application Entity capable of serving as the SCP of the Storage Service Class.
- The SCU shall interpret responses to the C-MOVE with status equal to Pending during the processing of the C-STORE sub-operations. These responses shall indicate the number of Remaining, ~~Successful~~Completed, Failed, and Warning C-STORE sub-operations.
- The SCU shall interpret responses with a status equal to Success, Warning, ~~Failed~~edure, or Refused as final responses. The final response shall indicate the number of Successful C-STORE sub-operations and the number of Failed C-STORE sub-operations resulting from the C-MOVE operation. The SCU shall interpret a status of:
 - Success to indicate that all sub-operations were successfully completed
 - Warning to indicate one or more sub-operations were successfully completed and one or more sub-operations were unsuccessful or had a status of warning, or all sub-operations had a status of warning

- ~~Failed~~ or Refused to indicate all sub-operations were unsuccessful.
- The SCU may cancel the C-MOVE service by issuing a C-MOVE-CANCEL request at any time during the processing of the C-MOVE. The SCU shall interpret a C-MOVE response with a status of Canceled to indicate the transfer was canceled. The C-MOVE response with a status of Canceled shall contain the number of ~~Successful~~**Completed**, Failed, and Warning C-STORE sub-operations. If present, the Remaining sub-operations count shall contain the number of C-STORE sub-operations which were not initiated due to the C-MOVE-CANCEL request.

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C.4.2.3 C-MOVE SCP Behavior

This section discusses both the baseline and extended behavior of the C-MOVE SCP.

C.4.2.3.1 Baseline Behavior of SCP

An SCP conveys the following semantics with a C-MOVE response:

- The SCP shall identify a set of Entities at the level of the transfer based upon the values in the Unique Keys in the Identifier of the C-MOVE request. The SCP shall initiate C-STORE sub-operations for the corresponding storage SOP Instances. These C-STORE sub-operations shall occur on a different Association from the C-MOVE operation. The SCP of the Query/Retrieve Service Class shall serve as an SCU of the Storage Service Class.
- The SCP shall establish a new Association for the C-STORE sub-operations. A sub-operation is considered Failed if the SCP is unable to negotiate an appropriate presentation context for a given stored SOP Instance.
- The SCP shall initiate C-STORE sub-operations over the new Association for all stored SOP Instances related to the Patient ID, List of Study Instance UIDs, List of Series Instance UIDs, or List of SOP Instance UIDs depending on the Query/Retrieve level specified in the C-MOVE request.
- Optionally, the SCP may generate responses to the C-MOVE with status equal to Pending during the processing of the C-STORE sub-operations. These responses shall indicate the Remaining, ~~Successful~~**Completed**, Failed, and Warning C-STORE sub-operations.
- When the number of Remaining sub-operations reaches zero, the SCP shall generate a final response with a status equal to Success, Warning, Failed, or Refused. This response shall indicate the number of ~~Successful~~**Completed** sub-operations, the number of Failed sub-operations, and the number of sub-operations with Warning Status. The status contained in the C-MOVE response shall contain:
 - ~~Successful~~ if all sub-operations were successfully **completed**
 - Warning if one or more sub-operations were successfully **completed** and one or more sub-operations were unsuccessful or had a warning status
 - Warning if all sub-operations had a warning status
 - ~~Failed~~ or Refused if all sub-operations were unsuccessful
- The SCP may receive a C-MOVE-CANCEL request at any time during the processing of the C-MOVE. The SCP shall interrupt all C-STORE sub-operation processing and return a status of Canceled in the C-MOVE response. The C-MOVE response with a status of Canceled shall contain

the number of ~~Successful~~**Completed**, Failed, and Warning C-STORE sub-operations. If present, the Remaining sub-operations count shall contain the number of C-STORE sub-operations which were not initiated due to the C-MOVE-CANCEL request.

- If the SCP manages images in multiple alternate encodings (see C.6.1.1.5.1), only one of the alternate encodings of an image shall be included in the set of object instances retrieved by a C-MOVE request at the Patient, Study, or Series level.

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C.4.3 C-GET Operation

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C.4.3.1.3.2 Response Identifier Structure

The Failed SOP Instance UID List (0008,0058) specifies a list of UIDs of the C-STORE sub-operation SOP Instances for which this C-GET operation has failed. An Identifier in a C-GET response shall conditionally contain the Failed SOP Instance UID List (0008,0058) based on the C-GET response. If no C-STORE sub-operation failed, Failed SOP Instance UID List (0008,0058) is absent and therefore no Data Set shall be sent in the C-GET response.

Specific Character Set (0008,0005) shall not be present.

The Identifier in a C-GET response with a status of:

- Canceled, ~~Failure~~**Failure**, Refused, or Warning shall contain the Failed SOP Instance UID List Attribute
- Pending shall not contain the Failed SOP Instance UID List Attribute (no Data Set)

C.4.3.1.4 Status

Table C.4-3 defines the specific status code values which might be returned in a C-GET response. General status code values and fields related to status code values are defined in PS 3.7.

**Table C.4-3
 C-GET RESPONSE STATUS VALUES**

Service Status	Further Meaning	Status Codes	Related Fields
Failure	Refused: Out of Resources – Unable to calculate number of matches	A701	(0000,0902)
	Refused: Out of Resources – Unable to perform sub-operations	A702	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
	Identifier does not match SOP Class	A900	(0000,0901) (0000,0902)
	Unable to process	Cxxx	(0000,0901) (0000,0902)
Cancel	Sub-operations terminated due to Cancel Indication	FE00	(0000,1020) (0000,1021) (0000,1022)

			(0000,1023)
Warning	Sub-operations Complete – One or more Failures or Warnings	B000	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Success	Sub-operations Complete – No Failures or Warnings	0000	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Pending	Sub-operations are continuing	FF00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)

C.4.3.1.5 Number of Remaining Sub-Operations

Inclusion of the Number of Remaining Sub-operations is conditional based upon the status in the C-GET response. The Number of Remaining Sub-operations specifies the number of Remaining C-STORE sub-operations necessary to complete the C-GET operation.

A C-GET response with a status of:

- Pending shall contain the Number of Remaining Sub-operations Attribute
- Canceled may contain the Number of Remaining Sub-operations Attribute
- Warning, ~~Failure~~, Refused, or ~~Successful~~ shall not contain the Number of Remaining Sub-operations Attribute.

C.4.3.1.6 Number of ~~Successful~~Completed Sub-Operations

Inclusion of the Number of ~~Successful~~Completed Sub-operations is conditional based upon the status in the C-GET response. The Number of ~~Successful~~Completed Sub-operations specifies the number of C-STORE sub-operations generated by the requested transfer which have completed successfully.

A C-GET response with a status of:

- Pending shall contain the Number of ~~Successful~~Completed Sub-operations Attribute
- Canceled, Warning, ~~Failure~~, Refused, or ~~Successful~~ may contain the Number of ~~Successful~~Completed Sub-operations Attribute

C.4.3.1.7 Number of Failed Sub-Operations

Inclusion of the Number of Failed Sub-operations is conditional based upon the status in the C-GET response. The Number of Failed Sub-operations specifies the number of C-STORE sub-operations generated by the requested transfer which have Failed.

A C-GET response with a status of:

- Pending shall contain the Number of Failed Sub-operations Attribute
- Canceled, Warning, ~~Failure~~, Refused, or ~~Successful~~ may contain the Number of Failed Sub-operations Attribute

C.4.3.1.8 Number of Warning Sub-Operations

Inclusion of the Number of Warning Sub-operations is conditional based upon the status in the C-GET response. The Number of Warning Sub-operations specifies the number of C-STORE sub-operations generated by the requested transfer which had a status of Warning.

A C-GET response with a status of:

- Pending shall contain the Number of Warning Sub-operations Attribute
- Canceled, Warning, ~~Failed~~, Refused, or ~~Successful~~ may contain the Number of Warning Sub-operations Attribute

C.4.3.2 C-GET SCU Behavior

This Section discusses both the baseline and extended behavior of the C-GET SCU.

C.4.3.2.1 Baseline Behavior of SCU

An SCU conveys the following semantics with a C-GET request:

- The SCU shall have proposed sufficient presentation contexts at Association establishment time to accommodate expected C-STORE sub-operations which shall occur over the same Association. The SCU of the Query/Retrieve Service Class shall serve as the SCP of the Storage Service Class.
- The SCU shall supply a single value in the Unique Key Attribute for each level above the Query/Retrieve level. For the level of retrieve, the SCU shall supply one unique key if the level of the retrieve is above the STUDY level and shall supply one UID, or a list of UIDs if a retrieval of several items is desired and the retrieve level is STUDY, SERIES or IMAGE.
- The SCU shall interpret C-GET responses with status equal to Pending during the processing of the C-STORE sub-operations. These responses shall indicate the number of Remaining, ~~Successful~~Completed, Failed, Warning C-STORE sub-operations.
- The SCU shall interpret a C-GET response with a status equal to Success, Warning, Failed, or Refused as a final response. The final response shall indicate the number of ~~Successful~~Completed sub-operations and the number of Failed C-STORE sub-operations resulting from the C-GET operation. The SCU shall interpret a status of:
 - Success to indicate that all sub-operations were successfully completed
 - Warning to indicate one or more sub-operations were successfully completed and one or more unsuccessful or all sub-operations had a status of warning
 - ~~Failed~~ or Refused to indicate all sub-operations were unsuccessful
- The SCU may cancel the C-GET operation by issuing a C-GET-CANCEL request at any time during the processing of the C-GET request. A C-GET response with a status of Canceled shall indicate to the SCU that the retrieve was canceled. Optionally, the C-GET response with a status of Canceled shall indicate the number of ~~Successful~~Completed, Failed, and Warning C-STORE sub-operations. If present, the Remaining sub-operations count shall contain the number of C-STORE sub-operations which were not initiated due to the C-GET-CANCEL request.

C.4.3.2.2 Extended Behavior of SCU

Extended SCU behavior shall be negotiated at Association establishment time. If an option within the extended behavior is not agreed upon in the negotiation, then only baseline SCU behavior shall be supported with respect to that option. Extended SCU behavior includes all baseline behavior with the following option:

- Relational-retrieve

C.4.3.2.2.1 Relational-Retrieve

The C-GET Service with relational-retrieve removes the restriction that the SCU supply Unique Key values for levels above the Query/Retrieve level to help identify an entity at the level of the retrieval. Hence, the Identifier of a C-GET request may retrieve:

- all composite object instances related to a study by providing a Study Instance UID (0020,000D)
- all composite object instances related to a series by providing a Series Instance UID (0020,000E)
- individual composite object instances by providing a list of SOP Instance UIDs (0008,0018)

C.4.3.3 C-GET SCP Behavior

This Section discusses both the baseline and extended behavior of the C-GET SCP.

C.4.3.3.1 Baseline Behavior of SCP

An SCP conveys the following semantics with a C-GET response:

- The SCP shall identify a set of Entities at the level of the retrieval based upon the values in the Unique Keys in the Identifier of the C-GET request. The SCP shall initiate C-STORE sub-operations for the corresponding storage SOP Instances. The SCP of the Query/Retrieve Service Class shall serve as an SCU of the Storage Service Class.
- The SCP shall initiate C-STORE sub-operations over the same Association for all stored SOP Instances related to the Patient ID, List of Study Instance UIDs, List of Series Instance UIDs, or List of SOP Instance UIDs depending on the Query/Retrieve level specified in the C-GET request
- A sub-operation is considered Failed if the SCP is unable to initiate a C-STORE sub-operation because the Query/Retrieve SCU did not offer an appropriate presentation context for a given stored SOP Instance.
- Optionally, the SCP may generate responses to the C-GET with status equal to Pending during the processing of the C-STORE sub-operations. These responses shall indicate the number of Remaining, **Successful**Completed, Failed, and Warning C-STORE sub-operations.
- When the number of Remaining sub-operations reaches zero, the SCP shall generate a final response with a status equal to Success, Warning, Failed, or Refused. The status contained in the C-GET response shall contain:
 - Success if all sub-operations were successfully **completed**
 - Warning if one or more sub-operations were successfully **completed** and one or more sub-operations were unsuccessful or had a status of warning
 - Warning if all sub-operations had a status of Warning
 - **Failure** or Refused if all sub-operations were unsuccessful

- The SCP may receive a C-GET-CANCEL request at any time during the processing of the C-GET request. The SCP shall interrupt all C-STORE sub-operation processing and return a status of Canceled in the C-GET response. The C-GET response with a status of Canceled shall contain the number of ~~Successful~~**Completed**, Failed, and Warning C-STORE sub-operations. If present, the Remaining sub-operations count shall contain the number of C-STORE sub-operations which were not initiated due to the C-GET-CANCEL request.
- If the SCP manages images in multiple alternate encodings (see C.6.1.1.5.1), only one of the alternate encodings of an image shall be included in the set of object instances retrieved by a C-GET request at the Patient, Study, or Series level.

Do not change PS 3.7 Section 9.1.3 and 9.1.4:

9.1.3 C-GET SERVICE

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9.1.3.1 C-GET parameters

See Table 9.1-3.

**Table 9.1-3
 C-GET PARAMETERS**

DIMSE-C Parameter Name	Req/Ind	Rsp/Conf	CnclReq/CnclInd
Message ID	M	—	—
Message ID Being Responded To	—	M	M
Affected SOP Class UID	M	U(=)	—
Priority	M	—	—
Identifier	M	U	—
Status	—	M	—
Number of Remaining Sub-operations	—	C	—
Number of Completed Sub-operations	—	C	—
Number of Failed Sub-operations	—	C	—
Number of Warning Sub-operations	—	C	—

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9.1.3.1.6 Status

Indicates the status of the response. It may have any of the following values:

- a) Success—This indicates that processing of the matches and all sub-operations are complete.
- b) Pending—This indicates that processing of the matches and sub-operations is initiated or continuing.

- c) Refused: Out of Resources—Indicates that processing of the C-GET has been terminated because it was out of resources. This may be the initial response to the C-GET or may be sent after a number of Pending statuses.
- d) Refused: SOP Class Not Supported—Indicates that processing of the C-GET has been terminated because the SOP Class was not supported.
- e) Cancel—Indicates that processing of the C-GET has been terminated due to a C-GET Cancel indication primitive.
- f) Failed—Indicates that the C-GET operation failed at the performing DIMSE-service-user.

9.1.3.1.7 Number of remaining sub-operations

This specifies the number of remaining C-STORE sub-operations to be invoked by this C-GET operation. It may be included in any response/confirmation and shall be included if the status is equal to Pending.

9.1.3.1.8 Number of completed sub-operations

This specifies the number of C-STORE sub-operations invoked by this C-GET operation which have completed successfully. It may be included in any response/confirmation and shall be included if the status is equal to Pending.

9.1.3.1.9 Number of failed sub-operations

This specifies the number of C-STORE sub-operations invoked by this C-GET operation which have failed. It may be included in any response/confirmation and shall be included if the status is equal to Pending.

9.1.3.1.10 Number of warning sub-operations

This specifies the number of C-STORE sub-operation invoked by this C-GET operation which generated Warning responses. It may be included in any response/confirmation and shall be included if the status is equal to Pending.

9.1.3.2 C-GET service procedures

The following C-GET service procedures apply to the invoking DIMSE-service user:

- a) The invoking DIMSE-service-user requests a performing DIMSE-service-user to match an Identifier against the Attributes of all SOP Instances known to the performing DIMSE-service-user and generate a C-STORE sub-operation for each match. This request is made by issuing a C-GET request primitive to the DIMSE-service-provider. If the request is rejected by the DIMSE-service-provider, the following procedures do not apply.
- b) At any time before receiving a C-GET confirmation primitive with status unequal to Pending, the invoking DIMSE-service-user may request the performing DIMSE-service-user to cancel the service by issuing a C-GET cancel request primitive to the DIMSE-service-provider.
- c) The invoking DIMSE-service-user may receive C-GET confirmation primitives with status of Pending during the processing of the C-GET operation.
- d) The invoking DIMSE-service-user receives a final C-GET confirmation primitive.

Note: In the above procedures, (c) may precede (b).

The following C-GET service procedures apply to the performing DIMSE-service-user:

- a) When the performing DIMSE-service-user receives a C-GET indication from the DIMSE-service-provider it matches the Identifier against the Attributes of known composite SOP Instances and generates a C-STORE sub-operation for each match.

- b) At any time following the C-GET indication, the performing DIMSE-service-user may receive a C-GET cancel indication.
- c) If the C-GET cancel indication is received before the processing of the C-GET indication has completed, then the C-GET operation is terminated; otherwise the following procedure does not apply.
- d) The performing DIMSE-service-user issues a C-GET response with a status of Canceled to the DIMSE-service-provider to indicate that the C-GET has been canceled. The following procedures do not apply.
- e) For each match, the performing DIMSE-service-user initiates a C-STORE sub-operation on the same Association as the C-GET. In this sub-operation, the C-GET performing DIMSE-service-user becomes the C-STORE invoking DIMSE-service-user. The C-STORE performing DIMSE-service-user is the C-GET invoking DIMSE-service-user.
- f) During the processing of the C-GET operation, the performing DIMSE-service-user may issue C-GET response primitives with a status of Pending.
- g) When the C-GET operation completes (either in success or in failure), the performing DIMSE-service-user issues a C-GET response with the status set to either refused, failed or success to the DIMSE-service-provider.

The following C-GET service procedures apply to the DIMSE-service-provider:

- a) When the DIMSE-service-provider receives a C-GET request primitive from the invoking DIMSE-service-user, it issues a C-GET indication primitive to the performing DIMSE-service-user.
- b) When the DIMSE-service-provider receives a C-GET cancel request primitive from the invoking DIMSE-service-user, it issues a C-GET cancel indication to the performing DIMSE-service-user.
- c) When the DIMSE-service-provider receives a C-GET response primitive from the performing DIMSE-service-user, it issues a C-GET confirmation primitive to the invoking DIMSE-service-user.

The performing DIMSE-service-user may return a C-GET response primitive with the status of Failed or Refused before the entire C-GET indication (Data Set) has been completely transmitted by the invoking DIMSE-service-user. A C-GET response primitive with the status of Success or Warning shall not be returned until the entire C-GET indication has been received by the performing DIMSE-service-user.

Note: Such an occurrence of a "Failed" response is often called an early failed response.

9.1.4 C-MOVE SERVICE

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9.1.4.1 C-MOVE parameters

See Table 9.1-4.

**Table 9.1-4
 C-MOVE PARAMETERS**

DIMSE-C Parameter Name	Req/Ind	Rsp/Conf	CncIReq/CncIInd
Message ID	M	—	—
Message ID Being Responded To	—	M	M
Affected SOP Class UID	M	U(=)	—

Priority	M	—	—
Move Destination	M	—	—
Identifier	M	U	—
Status	—	M	—
Number of Remaining Sub-operations	—	C	—
Number of Completed Sub-operations	—	C	—
Number of Failed Sub-operations	—	C	—
Number of Warning Sub-operations	—	C	—

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9.1.4.1.7 Status

Indicates the status of the response. It may have any of the following values:

- a) Success—This indicates that processing of the matches and all sub-operations are complete.
- b) Pending—This indicates that procession of the matches and sub-operations is initiated or continuing.
- c) Refused: Out of Resources—Indicates that processing of the C-MOVE has been terminated because it was out of resources. This may be the initial response to the C-MOVE or may be sent after a number of Pending statuses.
- d) Refused: SOP Class Not Supported—Indicates that processing of the C-MOVE has been terminated because the SOP Class was not supported.
- e) Refused: Move Destination Unknown—Indicates that processing of the C-MOVE has been terminated because the Move destination was unknown.
- f) Cancel—Indicates that processing of the C-MOVE has been terminated due to a C-MOVE Cancel indication primitive.
- g) Failed—Indicates that the C-MOVE operation failed at the performing DIMSE-service-user.

9.1.4.1.8 Number of remaining sub-operations

This specifies the number of remaining C-STORE sub-operations to be invoked by this C-MOVE operation. It may be included in any response/confirmation and shall be included if the status is equal to Pending.

9.1.4.1.9 Number of completed sub-operations

This specifies the number of C-STORE sub-operations invoked by this C-MOVE operation which have completed successfully. It may be included in any response/confirmation and shall be included if the status is equal to Pending.

9.1.4.1.10 Number of failed sub-operations

This specifies the number of C-STORE sub-operations invoked by this C-MOVE operation which have failed. It may be included in any response/confirmation and shall be included if the status is equal to Pending.

9.1.4.1.11 Number of warning sub-operations

This specifies the number of C-STORE sub-operation invoked by this C-MOVE operation which generated Warning responses. It may be included in any response/confirmation and shall be included if the status is equal to Pending.

9.1.4.2 C-MOVE service procedures

The following C-MOVE service procedures apply to the invoking DIMSE-service user:

- a) The invoking DIMSE-service-user requests a performing DIMSE-service-user to match an Identifier against the Attributes of all SOP Instances known to the performing DIMSE-service-user and generate a C-STORE sub-operation for each match. This request is made by issuing a C-MOVE request primitive to the DIMSE-service-provider. If the request is rejected by the DIMSE-service-provider, the following procedures do not apply.
 - b) At any time before receiving a C-MOVE confirmation primitive with status unequal to Pending, the invoking DIMSE-service-user may request the performing DIMSE-service-user to cancel the service by issuing a C-MOVE cancel request primitive to the DIMSE-service-provider.
 - c) The invoking DIMSE-service-user may receive C-MOVE confirmation primitives with status of Pending during the processing of the C-MOVE operation.
 - d) The invoking DIMSE-service-user receives a final C-MOVE confirmation primitive.
- Note: in the above procedures, (c) may precede (b).

The following C-MOVE service procedures apply to the performing DIMSE-service-user:

- a) When the performing DIMSE-service-user receives a C-MOVE indication from the DIMSE-service-provider it matches the Identifier against the Attributes of known composite SOP Instances and generates a C-STORE sub-operation for each match.
- b) At any time following the C-MOVE indication, the performing DIMSE-service-user may receive a C-MOVE cancel indication.
- c) If the C-MOVE cancel indication is received before the processing of the C-MOVE request has completed, then the C-MOVE operation is terminated; otherwise the following procedure does not apply.
- d) The performing DIMSE-service-user issues a C-MOVE response with a status of Canceled to the DIMSE-service-provider to indicate that the C-MOVE has been canceled. The following procedures do not apply.
- e) For each matching composite SOP Instance, the C-MOVE performing DIMSE-service-user initiates a C-STORE sub-operation on a different Association than the C-MOVE. In this sub-operation, the C-MOVE performing DIMSE-service-user becomes the C-STORE invoking DIMSE-service-user. The C-STORE performing DIMSE-service-user may or may not be the C-MOVE invoking DIMSE-service-user.
- f) During the processing of the C-MOVE operation, the performing DIMSE-service-user may issue C-MOVE response primitives with a status of Pending.
- g) When the C-MOVE operation completes (either in success or in failure), the performing DIMSE-service-user issues a C-MOVE response with the status set to either Refused, Failed, or Success to the DIMSE-service-provider.

The following C-MOVE service procedures apply to the DIMSE-service-provider:

- a) When the DIMSE-service-provider receives a C-MOVE request primitive from the invoking DIMSE-service-user, it issues a C-MOVE indication primitive to the performing DIMSE-service-user.

- b) When the DIMSE-service-provider receives a C-MOVE cancel request primitive from the invoking DIMSE-service-user, it issues a C-MOVE cancel indication to the performing DIMSE-service-user.
- c) When the DIMSE-service-provider receives a C-MOVE response primitive from the performing DIMSE-service-user, it issues a C-MOVE confirmation primitive to the invoking DIMSE-service-user.

The performing DIMSE-service-user may return a C-MOVE response primitive with the status of Failed or Refused before the entire C-MOVE indication (Data Set) has been completely transmitted by the invoking DIMSE-service-user. A C-MOVE response primitive with the status of Success or Warning shall not be returned until the entire C-MOVE indication has been received by the performing DIMSE-service-user.

Notes: Such an occurrence of a "Failed" response is often called an early failed response.

Do not change PS 3.7 Section 9.3.3 and 9.3.4:

9.3.3 C-GET PROTOCOL

...

9.3.3.2 C-GET-RSP

...

**Table 9.3-7
 C-GET-RSP MESSAGE FIELDS**

Message Field	Tag	VR	VM	Description of Field
...
Status	(0000,0900)	US	1	The value of this field depends upon the status type. Annex C defines the encoding of the status types defined in the service definition.
Number of Remaining Sub-operations	(0000,1020)	US	1	The number of remaining C-STORE sub-operations to be invoked for this C-GET operation.
Number of Completed Sub-operations	(0000,1021)	US	1	The number of C-STORE sub-operations invoked by this C-GET operation which have completed successfully.
Number of Failed Sub-operations	(0000,1022)	US	1	The number of C-STORE sub-operations invoked by this C-GET operation which have failed.
Number of Warning Sub-operations	(0000,1023)	US	1	The number of C-STORE sub-operations invoked by this C-GET operation which generated warning responses.
...

...

9.3.4 C-MOVE PROTOCOL

...

9.3.4.2 C-MOVE-RSP

...

**Table 9.3-10
 C-MOVE-RSP MESSAGE FIELDS**

Message Field	Tag	VR	VM	Description of Field
...
Status	(0000,0900)	US	1	The value of this field depends upon the status type. Annex C defines the encoding of the status types defined in the service definition.
Number of Remaining Sub-operations	(0000,1020)	US	1	The number of remaining sub-operations to be invoked for this C-MOVE operation.
Number of Complete Sub-operations	(0000,1021)	US	1	The number of C-STORE sub-operations invoked by this C-MOVE operation which have completed successfully.
Number of Failed Sub-operations	(0000,1022)	US	1	The number of C-STORE sub-operations invoked by this C-MOVE operation which have failed.
Number of Warning Sub-operations	(0000,1023)	US	1	The number of C-STORE sub-operations invoked by this C-MOVE operation which generated warning responses.
...

Do not change PS 3.7 Section E.1:

E.1 REGISTRY OF DICOM COMMAND ELEMENTS

**Table E.1-1
 COMMAND FIELDS (PART 1)**

Message Field	Tag	VR	VM	Description of Field
...
Number of Remaining Sub-operations	(0000,1020)	US	1	The number of remaining C-STORE sub-operations to be invoked for the operation.
Number of Completed Sub-operations	(0000,1021)	US	1	The number of C-STORE sub-operations associated with this operation that have completed successfully.
Number of Failed Sub-operations	(0000,1022)	US	1	The number of C-STORE sub-operations associated with this operation that have failed.
Number of Warning Sub-operations	(0000,1023)	US	1	The number of C-STORE sub-operations associated with this operation that generated warning responses.
...