

DICOM Change Proposal

STATUS	Assigned
Date of Last Update	2026/05/28
Person Assigned	Wim Corbijn, wim.corbijn.van.willenswaard@philips.com
Submitter Name	Jeroen Medema, jeroen.medema@philips.com
Submission Date	2025/05/19

Change Number	CP-2552
Log Summary:	Clarify numbers and more in GET and MOVE messages
Name of Standard	PS3.4, PS3.7
Rationale for Change:	<p>There is a semantic inconsistency between PS3.4 and PS3.7 regarding the presence of the Number of Remaining Sub-operations Attribute. In PS3.4 it is not allowed to be present for Warning, Failure, and Success statuses (see e.g. Section C.4.2.1.6), while it is allowed for these statuses in PS3.7 (see e.g. Section 9.1.4.1.8).</p> <p>Furthermore, it is not specified clearly how the status numbers for the sub-operations (number of remaining, completed, failed, and warning sub-operations) link with the yielded status of the respective C-STORE sub-operations.</p> <p>Also, the wording of the text for remaining sub-operations is different in different areas, possibly leading to misunderstanding; we currently have 'generated by', 'invoked by', and 'associated with'.</p> <p>Next, some sentences present in applicable sections are lacking in similar sections.</p> <p>Moreover, Refused is not a Service Status but is used as such.</p> <p>Additionally, the Further Meanings in Table C.4-2 are incomplete and sometimes even incorrect:</p> <ul style="list-style-type: none"> • Table C.4-2. C-MOVE Response Status Values should add a Further Meaning for the case where all sub-operations yield Failure. • The current definition of Service Status Warning is "Sub-operations Complete – One or more Failures" which is clearly wrong, as this description a) covers the case where all sub-operations yielded status Failure, colliding with a C-MOVE's Failure status, and b) does not cover any case in which sub-operations yielded Warning statuses. • The Further Meaning of Service Status Success should be adapted to reflect the other changes proposed in this CP. <p>These above issues are also present in Tables C.4.3-2, Y.4-1, Y.4-2, and Z.4-1.</p> <p>Finally, some texts are phrased differently across the applicable sections.</p> <p><small>Note: This CP also handles cp_pg_RemainingSubOpsInconsistency.docx, submitted for WG06's 2025-11 meeting, and cp_jm53_01_ImproveFurtherMeaningOfCMoveResponseStatusValue.docx submitted for WG06's 2025-03 meeting.</small></p>
Change Wording:	See below.

Update PS3.4, Sections C.4.2.1.6-C.4.2.1.9 Number of Sub-Operations

5 **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:

- 10 • Pending shall contain the Number of Remaining Sub-operations Attribute.
- Canceled may contain the Number of Remaining Sub-operations Attribute.
- Warning, Failure, or Success shall not contain the Number of Remaining Sub-operations Attribute.

4.4.2.1.7 Number of Completed Sub-Operations

15 Inclusion of the Number of Completed Sub-operations is conditional based upon the status in the C-MOVE response. The Number of Completed sub-operations specifies the number of C-STORE sub-operations ~~generated by~~ **associated with** the requested transfer that ~~have completed successfully yielded a Success status~~.

A C-MOVE response with a status of:

- 20 • Pending shall contain the Number of Completed Sub-operations Attribute.
- Canceled, Warning, Failure, or Success may contain the Number of Completed Sub-operations Attribute.

4.4.2.1.8 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 associated with~~ the requested transfer that ~~have yielded a Failure status~~.

A C-MOVE response with a status of:

- 25 • Pending shall contain the Number of Failed Sub-operations Attribute.
- Canceled, Warning, Failure, or Success may contain the Number of Failed Sub-operations Attribute.

4.4.2.1.9 Number of Warning Sub-Operations

30 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 associated with~~ the requested transfer that ~~had a status of warning yielded a Warning status~~.

A C-MOVE response with a status of:

- Pending shall contain the Number of Warnings Sub-operations Attribute.
- Canceled, Warning, Failure, or Success may contain the Number of Warning Sub-operations Attribute.

35 Update PS3.4, Section C.4.2.3.1 Baseline Behavior of SCP

4.4.2.3.1 Baseline Behavior of SCP

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

- 40 • 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 (that may already exist) from the C-MOVE operation. The SCP of the Query/Retrieve Service Class shall serve as an SCU of the Storage Service Class.
- 45 • The SCP shall either reuse an established and compatible Association or establish a new Association for the C-STORE sub-operations. The SCP shall initiate C-STORE sub-operations over that 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. A sub-operation is considered Failed if the SCP is unable to negotiate an appropriate presentation context for a given stored SOP Instance.

Kommentiert [JM1]: Propose to align with definition in PS3.7, but it can be done the other way around too. WG06 to decide.

Kommentiert [JMIR2]: Feedback from WG06: PS3.4 is leading, so this is kept as is. Changes are to be done in PS3.7. See below.

Kommentiert [JM2]: Propose to use 'associated with' instead of 'generated by' or 'invoked by'. One reason for this choice is its generic use in PS3.7, Table E.1-1.

Kommentiert [JM3]: Propose to be explicit about the relation of this number and the statuses yielded by the sub-operations.

Kommentiert [JM4]: In C.4.2.3.1, in the fourth bullet of the current text, it is stated that this attribute shall be present in case the number of remaining sub-operations is zero, i.e. for the Warning, Failure, and Success statuses. The fifth bullet states the same for status Cancel. So the text here is too weak, and needs to be adapted because of that, right? Note that the same holds for the Number of Failed Sub-operations and Number of Warning Sub-operations, and also in other sections with the description of these attributes (given below).

50 • **If the SCP is unable to initiate a C-STORE sub-operation, e.g. because it cannot open an association with the destination or the destination does not accept the SOP Class of the Instance, consider the sub-operation a Failure.**

• 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, Completed, Failed, and Warning C-STORE sub-operations.

55 • When the number of Remaining sub-operations reaches zero, the SCP shall generate a final response with a status equal to Success, Warning, or Failure, ~~or Refused~~. This response shall indicate the number of Completed sub-operations, i.e. those with Success status, the number of ~~Failed~~ sub-operations with Failure status, and the number of sub-operations with Warning ~~S~~status. The status contained in the C-MOVE response shall contain:

• Success if all sub-operations were successfully completed yielded a Success status.

60 • ~~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~~

• Failure ~~or Refused~~ if all sub-operations were unsuccessful yielded a Failure status.

• Warning in all other cases.

65 • The SCP may receive a C-CANCEL-MOVE 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 Completed, Failed, and Warning C-STORE sub-operations. If present, the Remaining sub-operations count shall contain the number of C-STORE sub-operations that were not initiated due to the C-CANCEL-MOVE request.

70 • If the SCP manages images in multiple alternate encodings (see Section 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.

Note

75 For retrieval of images with alternate encodings using a C-MOVE request at the Patient, Study, or Series level, the SCP may select the appropriately encoded Instance for the retrieval based on identity of the SCU, transfer syntaxes accepted in the C-STORE Association Negotiation, or other factors.

Note

80 If the association on which the C-MOVE operation was issued is abnormally terminated, then it will not be possible to issue any further pending responses nor a final response, nor will C-CANCEL-MOVE requests be received. The behavior of the C-MOVE SCP acting as a C-STORE SCU is undefined in this condition. Specifically, whether or not any uncompleted C-STORE sub-operations continue is undefined.

Update PS3.4, Section C.4.3.1.5-C.4.3.1.8 Number of Sub-Operations

C.4.3.1.5 Number of Remaining Sub-Operations

85 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.

90 • Warning, Failure, or Success shall not contain the Number of Remaining Sub-operations Attribute.

C.4.3.1.6 Number of Completed Sub-Operations

Inclusion of the Number of Completed Sub-operations is conditional based upon the status in the C-GET response. The Number of Completed sub-operations specifies the number of C-STORE sub-operations ~~generated by associated with~~ the requested transfer that have completed successfully yielded a Success status.

Kommentiert [JM5]: Copied from C.4.3.3.1.

Kommentiert [WCSR2]: And adapted for Move way of store

Kommentiert [JM6]: This sentence has been copied to several other sections, as it was lacking there.

Kommentiert [JM7]: Along the lines of Sections Y.4.2.3.1 and Z.4.2.3.1. This is shorter and more clear.

Kommentiert [JM8]: Here, the invariant of $\#Remaining + \#Completed + \#Failure + \#Warning = \#Sub-operations$ may not hold, namely for sub-operations that were initiated but not yet finished. How to deal with that?
It is proposed to ignore this, as this invariant seems to be stated nowhere.

- 95 A C-GET response with a status of:
- Pending shall contain the Number of Completed Sub-operations Attribute.
 - Canceled, Warning, Failure, or Success may contain the Number of Completed Sub-operations Attribute.

C.4.3.1.7 Number of Failed Sub-Operations

100 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 associated with** the requested transfer that **have yielded a Failure status**.

A C-GET response with a status of:

- Pending shall contain the Number of Failed Sub-operations Attribute.
- Canceled, Warning, Failure, or Success may contain the Number of Failed Sub-operations Attribute.

105 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 associated with** the requested transfer that **had a status of warning yielded a Warning status**.

A C-GET response with a status of:

- 110
- Pending shall contain the Number of Warning Sub-operations Attribute.
 - Canceled, Warning, Failure, or Success may contain the Number of Warning Sub-operations Attribute.

Update PS3.4, Section C.4.3.3.1 Baseline Behavior of SCP

C.4.3.3.1 Baseline Behavior of SCP

- 115 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, **consider the sub-operation a Failure.**
 - 125 • 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, Completed, Failure, 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, ~~or Failure, or Refused~~. **This response shall indicate the number of Completed sub-operations, i.e. those with Success status, the number of sub-operations with Failure status, and the number of sub-operations with Warning status.** The status contained in the C-GET response shall contain:
 - Success if all sub-operations ~~were successfully completed~~ **yielded a Success status.**
 - ~~Warning if one or more sub-operations were successfully completed and one or more sub-operations were unsuccessful or had a warning status~~
 - 135 • ~~Warning if all sub-operations had a warning status~~
 - Failure ~~or Refused~~ if all sub-operations ~~were unsuccessful~~ **yielded a Failure status.**
 - **Warning in all other cases.**

Kommentiert [JM9]: This section has been copied to several other sections, as it was lacking there.

Kommentiert [JM10]: Copied from C.4.2.3.1.

Kommentiert [JM11]: Along the lines of Sections Y.4.2.3.1 and Z.4.2.3.1. This is shorter and more clear.

- 140 • The SCP may receive a C-CANCEL-GET 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 Completed, Failed, and Warning C-STORE sub-operations. If present, the Remaining sub-operations count shall contain the number of C-STORE sub-operations that were not initiated due to the C-CANCEL-GET request.
- 145 • If the SCP manages images in multiple alternate encodings (see Section 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.

Note

For retrieval of images with alternate encodings using a C-GET request at the Patient, Study, or Series level, the SCP may select the appropriately encoded Instance for the retrieval based on identity of the SCU, transfer syntaxes accepted in the C-STORE Association Negotiation, or other factors.

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Update PS3.4, Section Y.4.1.1.5-Y.4.1.1.8 Number of Sub-Operations

Y.4.1.1.5 Number of Remaining Sub-Operations

Inclusion of the Number of Remaining Sub-operations shall be as specified in Section C.4.2.1.6.

Y.4.1.1.6 Number of Completed Sub-Operations

155 Inclusion of the Number of Completed Sub-operations shall be as specified in Section C.4.2.1.7.

Y.4.1.1.7 Number of Failed Sub-Operations

Inclusion of the Number of Failed Sub-operations shall be as specified in Section C.4.2.1.8.

Y.4.1.1.8 Number of Warning Sub-Operations

160 Inclusion of the Number of Warning Sub-operations shall be as specified in Section C.4.2.1.9.

Update PS3.4, Section Y.4.1.3.1 Baseline Behavior of SCP

Y.4.1.3.1 Baseline Behavior of SCP

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

- 165 • If the Retrieve Level (0000,0052) is IMAGE 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.
- If the Retrieve Level (0000,0052) is FRAME, the SCP shall create a new Composite Instance according to the rules in Section Y.3.2. The newly created SOP Instance shall be treated in the same manner as the set of Entities identified above.
- 170 • The SCP shall either re-use an established and compatible Association or establish a new Association for the C-STORE sub-operations
- The SCP shall initiate C-STORE sub-operations over the Association for the identified or newly created SOP Instances.
- A sub-operation is considered a Failure if the SCP is required to create new SOP Instance, but is unable to do so due to inconsistencies in the Frame Range Keys, or if the resulting SOP Instance would not be valid.
- 175 • **If the SCP is unable to initiate a C-STORE sub-operation, e.g. because it cannot open an association with the destination or the destination does not accept the SOP Class of the Instance, consider the sub-operation a Failure.**
- 180 • 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 number of Remaining, Completed, Failure, and Warning C-STORE sub-operations.

Kommentiert [JM12]: Not sure whether this should be copied to all other occurrences of baseline behavior of SCP in this document. Please advice.

Kommentiert [JM13]: Copied from C.4.3.3.1.

Kommentiert [WC13R2]: TODO Adapt as above

Kommentiert [JM13R3]: Done.

- When the number of Remaining sub-operations reaches zero, the SCP shall generate a final response with a status equal to Success, Warning or **Failure**. **This response shall indicate the number of Completed sub-operations, i.e. those with Success status, the number of sub-operations with Failure status, and the number of sub-operations with Warning status.** The status contained in the C-MOVE response shall contain:

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- Success if all sub-operations **were successfully completed-yielded a Success status.**
- Failure if all sub-operations **were unsuccessful yielded a Failure status.**
- Warning in all other cases.

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- The SCP may receive a C-CANCEL-MOVE request at any time during the processing of the C-MOVE request. 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 Completed, Failed, and Warning C-STORE sub-operations. If present, the Remaining sub-operations count shall contain the number of C-STORE sub-operations that were not initiated due to the C-CANCEL-MOVE request.

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- If the SCP manages images in multiple alternate encodings (see Section C.6.1.1.5.1), only one of the alternate encodings of an image shall be used as the existing SOP Instance from which frames are to be extracted.

Update PS3.4, Section Y.4.2.1.5-8 Number of Sub-Operations

Y.4.2.1.5 Number of Remaining Sub-Operations

Inclusion of the Number of Remaining Sub-operations shall be as specified in Section C.4.3.1.5.

Y.4.2.1.6 Number of Completed Sub-Operations

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Inclusion of the Number of Completed Sub-operations shall be as specified in Section C.4.3.1.6.

Y.4.2.1.7 Number of Failed Sub-Operations

Inclusion of the Number of Failed Sub-operations shall be as specified in Section C.4.3.1.7.

Y.4.2.1.8 Number of Warning Sub-Operations

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Inclusion of the Number of Warning Sub-operations shall be as specified in Section C.4.3.1.8.

Update PS3.4, Section Y.4.2.3.1 Baseline Behavior of SCP

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

- If the Retrieve Level (0000,0052) is IMAGE 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-GET request.
- 210 • If the Retrieve Level (0000,0052) is FRAME, the SCP shall create a new Composite Instance according to the rules in Section Y.3.3. The newly created SOP Instance shall be treated in the same manner as the set of Entities identified above.
- The SCP shall initiate C-STORE sub-operations for the identified or newly created SOP Instances. The SCP of the Query/Retrieve Service Class shall serve as an SCU of the Storage Service Class.
- 215 • The SCP shall initiate C-STORE sub-operations over the same Association for all identified or newly created SOP Instances specified in the C-GET request.
- ~~A sub-operation is considered a Failure~~ **if the SCP is required to create new SOP Instance, but is unable to do so due to inconsistencies in the Frame Range Keys, or if the resulting SOP Instance would not be valid, consider the sub-operation a Failure.**
- 220 • ~~A sub-operation is considered a Failure~~ **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, consider the sub-operation a Failure.**

Kommentiert [JMI14]: Copied from C.4.2.3.1.

- 225 • 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, Completed, Failure, 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 or Failure. **This response shall indicate the number of Completed sub-operations, i.e. those with Success status, the number of sub-operations with Failure status, and the number of sub-operations with Warning status.** The status contained in the C-GET response shall contain:
 - 230 • Success if all sub-operations ~~were successfully completed~~ **yielded a Success status.**
 - Failure if all sub-operations ~~were unsuccessful~~ **yielded a Failure status.**
 - Warning in all other cases.
- 235 • The SCP may receive a C-CANCEL-GET 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 Completed, Failed, and Warning C-STORE sub-operations. If present, the Remaining sub-operations count shall contain the number of C-STORE sub-operations that were not initiated due to the C-CANCEL-GET request.
- 240 • If the SCP manages images in multiple alternate encodings (see Section C.6.1.1.5.1), only one of the alternate encodings of an image shall be used as the existing SOP Instance from which frames are to be extracted.

Kommentiert [JM15]: Copied from C.4.2.3.1.

Update PS3.4, Section Z.4.2.1.5-8 Number of Sub-Operations

Z.4.2.1.5 Number of Remaining Sub-Operations

Inclusion of the Number of Remaining Sub-operations shall be as specified in Section C.4.3.1.5.

Z.4.2.1.6 Number of Completed Sub-Operations

245 Inclusion of the Number of Completed Sub-operations shall be as specified in Section C.4.3.1.6.

Z.4.2.1.7 Number of Failed Sub-Operations

Inclusion of the Number of Failed Sub-operations shall be as specified in Section C.4.3.1.7.

Z.4.2.1.8 Number of Warning Sub-Operations

250 Inclusion of the Number of Warning Sub-operations shall be as specified in Section C.4.3.1.8.

Update PS3.4, Section Z.4.2.3.1 Baseline Behavior of SCP

Z.4.2.3.1 Baseline Behavior of SCP

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

- 255 • 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-GET request.
- The SCP shall initiate C-STORE sub-operations for the identified SOP Instances, but shall not include in this C-STORE sub-operation the Attributes described in Section Z.1.3. The SCP of the Query/Retrieve Service Class shall serve as an SCU of the Storage Service Class.
- 260 • Apart from the Attributes listed in Section Z.1.3, the SOP Instance sent via the C-STORE sub-operation shall be unchanged, and no corresponding changes to other Attributes shall be made.

Note

In particular, the Study, Series and SOP Instance UIDs and SOP Class UID will not be altered.

- The SCP shall initiate C-STORE sub-operations over the same Association for all SOP Instances specified in the C-GET request.

- 265 • ~~A sub-operation is considered a Failure~~ 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, **consider the sub-operation a Failure.**
- 270 • 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, Completed, Failure, and Warning C-STORE sub-operations.
- 275 • When the number of Remaining sub-operations reaches zero, the SCP shall generate a final response with a status equal to Success, Warning or ~~Failure~~. **This response shall indicate the number of Completed sub-operations, i.e. those with Success status, the number of sub-operations with Failure status, and the number of sub-operations with Warning status.** The status contained in the C-GET response shall contain:
- Success if all sub-operations ~~were successfully completed~~ **yielded a Success status.**
 - Failure if all sub-operations ~~were unsuccessful~~ **yielded a Failure status.**
 - Warning in all other cases.
- 280 • The SCP may receive a C-CANCEL-GET 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 Completed, Failed, and Warning C-STORE sub-operations. If present, the Remaining sub-operations count shall contain the number of C-STORE sub-operations that were not initiated due to the C-CANCEL-GET request.
- 285 • If the SCP manages images in multiple alternate encodings (see Section C.6.1.1.5.1), only one of the alternate encodings of an image shall be used as the existing SOP Instance from which frames are to be extracted.

Kommentiert [JM16]: Copied from C.4.2.3.1.

Update PS3.7, Section 9.1.3.1.7-9.1.3.1.10 Number of Sub-Operations

9.1.3.1.7 Number of Remaining Sub-Operations

290 This specifies the number of remaining C-STORE sub-operations ~~to be invoked by necessary to complete~~ this C-GET operation. It may be included ~~in any response/confirmation and if the status is equal to Canceled~~, shall be included if the status is equal to Pending, **and shall not be included if the status is equal to Warning, Failure, or Success.**

Kommentiert [JM17]: This is now equal to PS3.4, and according to WG06's advice.

9.1.3.1.8 Number of Completed Sub-Operations

295 This specifies the number of C-STORE sub-operations ~~invoked by associated with~~ this C-GET operation that ~~have completed successfully~~ **yielded a Success status.** 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

300 This specifies the number of C-STORE sub-operations ~~invoked by associated with~~ this C-GET operation that ~~have yielded a Failure status~~. 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

305 This specifies the number of C-STORE sub-operation ~~invoked by associated with~~ this C-GET operation that ~~generated~~ **yielded a Warning responses status.** It may be included in any response/confirmation and shall be included if the status is equal to Pending.

Update PS3.7, Section 9.1.4.1.8-9.1.4.1.11 Number of Sub-Operations

9.1.4.1.8 Number of Remaining Sub-Operations

This specifies the number of remaining C-STORE sub-operations ~~to be invoked by necessary to complete~~ 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

310 This specifies the number of C-STORE sub-operations **invoked by associated with** this C-MOVE operation that **have completed successfully yielded a Success status**. 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

315 This specifies the number of C-STORE sub-operations **invoked by associated with** this C-MOVE operation that **have yielded a Failed status**. 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

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

Update PS3.7, Section 9.3.3.2 C-GET-RSP

9.3.3.2 C-GET-RSP

325 The C-GET-RSP Message contains fields as defined in Table 9.3-7 and in Annex C. Each field shall conform to DICOM encoding and Value Representation as defined in PS3.5. Fields are required as specified in the C-GET service definition unless otherwise noted in Table 9.3-7. Fields not specified in the C-GET service definition but present in Table 9.3-7 are required by the DIMSE-C protocol.

Table 9.3-7. C-GET-RSP Message Fields

Message Field	Tag	VR	VM	Description of Field
Command Group Length	(0000,0000)	UL	1	The even number of bytes from the end of the value field to the beginning of the next group.
Affected SOP Class UID	(0000,0002)	UI	1	SOP Class UID associated with the operation.
Command Field	(0000,0100)	US	1	This field distinguishes the DIMSE-C operation conveyed by this Message. The value of this field shall be set to 8010H for the C-GET-RSP Message.
Message ID Being Responded To	(0000,0120)	US	1	Shall be set to the value of the Message ID (0000,0110) field used in associated C-GET-RQ Message.
Command Data Set Type	(0000,0800)	US	1	This field indicates if a Data Set is present in the Message. This field shall be set to the value of 0101H (Null) if no Data Set is present; any other value indicates a Data Set is included in the Message.
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 necessary to complete 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 associated with this C-GET operation that yielded a Success status have completed successfully .
Number of Failed Sub-operations	(0000,1022)	US	1	The number of C-STORE sub-operations invoked by associated with this C-GET operation that yielded a Failed status have failed .

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Message Field	Tag	VR	VM	Description of Field
Number of Warning Sub-operations	(0000,1023)	US	1	The number of C-STORE sub-operations invoked by associated with this C-GET operation that yielded a Warning status generated warning responses.
Identifier	(no tag)	-	-	A Data Set that encodes the Identifier that was matched. See Section 9.1.3.1.5.

Update PS3.7, Section 9.3.4.2 C-MOVE-RSP

9.3.4.2 C-MOVE-RSP

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The C-MOVE-RSP Message contains fields as defined in Table 9.3-10 and in Annex C. Each field shall conform to DICOM encoding and Value Representation as defined in PS3.5. Fields are required as specified in the C-MOVE service definition unless otherwise noted in Table 9.3-10. Fields not specified in the C-MOVE service definition but present in Table 9.3-10 are required by the DIMSE-C protocol.

Table 9.3-10. C-MOVE-RSP Message Fields

Message Field	Tag	VR	VM	Description of Field
Command Group Length	(0000,0000)	UL	1	The even number of bytes from the end of the value field to the beginning of the next group.
Affected SOP Class UID	(0000,0002)	UI	1	SOP Class UID associated with the operation.
Command Field	(0000,0100)	US	1	This field distinguishes the DIMSE-C operation conveyed by this Message. The value of this field shall be set to 8021H for the C-MOVE-RSP Message.
Message ID Being Responded To	(0000,0120)	US	1	Shall be set to the value of the Message ID (0000,0110) field used in associated C-MOVE Message.
Command Data Set Type	(0000,0800)	US	1	This field indicates if a Data Set is present in the Message. This field shall be set to the value of 0101H (Null) if no Data Set is present; any other value indicates a Data Set is included in the Message.
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 necessary to complete to be invoked for this C-MOVE operation.
Number of Completed Sub-operations	(0000,1021)	US	1	The number of C-STORE sub-operations invoked by associated with this C-MOVE operation that yielded a Success status have completed successfully.
Number of Failed Sub-operations	(0000,1022)	US	1	The number of C-STORE sub-operations invoked by associated with this C-MOVE operation that yielded a Failed status have failed.
Number of Warning Sub-operations	(0000,1023)	US	1	The number of C-STORE sub-operations invoked by associated with this C-MOVE operation that yielded a Warning status generated warning responses.

Message Field	Tag	VR	VM	Description of Field
Identifier	(no tag)	-	-	A Data Set that encodes attributes providing status information about the C-MOVE operation. See Section 9.1.4.1.6.

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Update PS3.7, Section E.1 Registry of DICOM Command Elements

E.1 Registry of DICOM Command Elements

Table E.1-1. Command Fields

Tag	Message Field	Keyword	VR	VM	Description of Field
(0000,0000)	Command Group Length	CommandGroupLength	UL	1	The even number of bytes from the end of the value field to the beginning of the next group.
(0000,0002)	Affected SOP Class UID	AffectedSOPClassUID	UI	1	The affected SOP Class UID associated with the operation.
(0000,0003)	Requested SOP Class UID	RequestedSOPClassUID	UI	1	The requested SOP Class UID associated with the operation.
(0000,0100)	Command Field	CommandField	US	1	This field distinguishes the DIMSE operation conveyed by this Message. This field shall be set to one of the following values: 0001H C-STORE-RQ 8001H C-STORE-RSP 0010H C-GET-RQ 8010H C-GET-RSP 0020H C-FIND-RQ 8020H C-FIND-RSP 0021H C-MOVE-RQ 8021H C-MOVE-RSP 0030H C-ECHO-RQ 8030H C-ECHO-RSP 0100H N-EVENT-REPORT-RQ 8100H N-EVENT-REPORT-RSP 0110H N-GET-RQ 8110H N-GET-RSP 0120H N-SET-RQ 8120H N-SET-RSP 0130H N-ACTION-RQ 8130H N-ACTION-RSP

Tag	Message Field	Keyword	VR	VM	Description of Field
					0140H N-CREATE-RQ 8140H N-CREATE-RSP 0150H N-DELETE-RQ 8150H N-DELETE-RSP 0FFFH C-CANCEL-RQ
(0000,0110)	Message ID	MessageID	US	1	Implementation-specific value that distinguishes this Message from other Messages.
(0000,0120)	Message ID Being Responded To	MessageIDBeingRespondedTo	US	1	Shall be set to the value of the Message ID (0000,0110) field used in associated request Message.
(0000,0600)	Move Destination	MoveDestination	AE	1	Shall be set to the DICOM AE Title of the destination DICOM AE to which the C-STORE sub-operations are being performed.
(0000,0700)	Priority	Priority	US	1	The priority shall be set to one of the following values: LOW = 0002H MEDIUM = 0000H HIGH = 0001H
(0000,0800)	Command Data Set Type	CommandDataSetType	US	1	This field indicates if a Data Set is present in the Message. This field shall be set to the value of 0101H if no Data Set is present; any other value indicates a Data Set is included in the Message.
(0000,0900)	Status	Status	US	1	Confirmation status of the operation. See Annex C.
(0000,0901)	Offending Element	OffendingElement	AT	1-n	If status is Cxxx, then this field contains a list of the elements in which the error was detected.
(0000,0902)	Error Comment	ErrorComment	LO	1	This field contains an application-specific text description of the error detected. Note Only characters from the Default Character Repertoire may be used.
(0000,0903)	Error ID	ErrorID	US	1	This field shall optionally contain an application-specific error code.
(0000,1000)	Affected SOP Instance UID	AffectedSOPInstanceUID	UI	1	Contains the UID of the SOP Instance for which this operation occurred.

Tag	Message Field	Keyword	VR	VM	Description of Field
(0000,1001)	Requested SOP Instance UID	RequestedSOPInstanceUID	UI	1	Contains the UID of the SOP Instance for which this operation occurred.
(0000,1002)	Event Type ID	EventTypeID	US	1	Values for this field are application-specific.
(0000,1005)	Attribute Identifier List	AttributeIdentifierList	AT	1-n	This field contains an Attribute Tag for each of the n Attributes applicable.
(0000,1008)	Action Type ID	ActionTypeID	US	1	Values for this field are application-specific.
(0000,1020)	Number of Remaining Sub-operations	NumberOfRemainingSuboperations	US	1	The number of remaining C-STORE sub-operations to be invoked for necessary to complete this operation.
(0000,1021)	Number of Completed Sub-operations	NumberOfCompletedSuboperations	US	1	The number of C-STORE sub-operations associated with this operation that have completed successfully yielded a Success status.
(0000,1022)	Number of Failed Sub-operations	NumberOfFailedSuboperations	US	1	The number of C-STORE sub-operations associated with this operation that have yielded a Ffailed status.
(0000,1023)	Number of Warning Sub-operations	NumberOfWarningSuboperations	US	1	The number of C-STORE sub-operations associated with this operation that generated yielded a Wwarning responses status.
(0000,1030)	Move Originator Application Entity Title	MoveOriginatorApplicationEntityTitle	AE	1	Contains the DICOM AE Title of the DICOM AE that invoked the C-MOVE operation from which this C-STORE sub-operation is being performed.
(0000,1031)	Move Originator Message ID	MoveOriginatorMessageID	US	1	Contains the Message ID (0000,0110) of the C-MOVE-RQ Message from which this C-STORE sub-operation is being performed.

Kommentiert [WC18]: the changed to this

345 **Update PS3.4, 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	(0000,1021) (0000,1022) (0000,1023)
	Refused: Move Destination unknown	A801	(0000,0902)
	Error: Data Set does not match SOP Class	A900	(0000,0901) (0000,0902)
	Failed: Unable to process	Cxxx	(0000,0901)

Service Status	Further Meaning	Status Codes	Related Fields
	<u>Failed: Sub-operations Complete - All yielding Failure</u>		(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 <u>Some or all yielding Warning and/or some (but not all) yielding Failure</u>	B000	(0000,1021) (0000,1022) (0000,1023)
Success	Sub-operations Complete - No Failures <u>All yielding Success</u>	0000	(0000,1021) (0000,1022) (0000,1023)
Pending	Sub-operations are continuing	FF00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)

Update PS3.4, 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	(0000,1021) (0000,1022) (0000,1023)
	Error: Data Set does not match SOP Class	A900	(0000,0901) (0000,0902)
	Failed: Unable to process	Cxxx	(0000,0901) (0000,0902)
	<u>Failed: Sub-operations Complete - All yielding Failure</u>		
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 <u>Some or all yielding Warning and/or some (but not all) yielding Failure</u>	B000	(0000,1021) (0000,1022) (0000,1023)
Success	Sub-operations Complete - No Failures or Warnings <u>All yielding Success</u>	0000	(0000,1021) (0000,1022) (0000,1023)
Pending	Sub-operations are continuing	FF00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)

Update PS3.4, Table Y.4-1. C-MOVE Response Status Values for Composite Instance Root Retrieve

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)
	Error: Data Set does not match SOP Class	A900	(0000,0901) (0000,0902)

Service Status	Further Meaning	Status Codes	Related Fields
	Failed: Unable to process	Cxxx	(0000,0901)
	Failed: Sub-operations Complete - All yielding Failure		(0000,0902)
	Failed: None of the frames requested were found in the SOP Instance	AA00	(0000,0902)
	Failed: Unable to create new object for this SOP Class	AA01	(0000,0902)
	Failed: Unable to extract frames	AA02	(0000,0902)
	Failed: Time-based request received for a non-time-based original SOP Instance.	AA03	(0000,0902)
	Failed: Invalid Request	AA04	(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 - <u>One or more Failures or Warnings Some or all yielding Warning and/or some (but not all) yielding Failure</u>	B000	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Success	Sub-operations Complete - <u>No Failures or Warnings All yielding Success</u>	0000	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Pending	Sub-operations are continuing	FF00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)

Update PS3.4, Table Y.4-2. C-GET Response Status Values for Composite Instance Root Retrieve

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)
	Error: Data Set does not match SOP Class	A900	(0000,0901) (0000,0902)
	Failed: Unable to process	Cxxx	(0000,0901)
	Failed: Sub-operations Complete - All yielding Failure		(0000,0902)
	Failed: None of the frames requested were found in the SOP Instance	AA00	(0000,0902)
	Failed: Unable to create new object for this SOP Class	AA01	(0000,0902)
	Failed: Unable to extract frames	AA02	(0000,0902)
	Failed: Time-based request received for a non-time-based original SOP Instance.	AA03	(0000,0902)
	Failed: Invalid Request	AA04	(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 - <u>One or more Failures or Warnings Some or all yielding Warning and/or some (but not all) yielding Failure</u>	B000	(0000,1020) (0000,1021) (0000,1022) (0000,1023)

Service Status	Further Meaning	Status Codes	Related Fields
Success	Sub-operations Complete - No Failures or Warnings All yielding Success	0000	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Pending	Sub-operations are continuing	FF00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)

Update PS3.4, Table Z.4-1. C-GET Response Status Values for Composite Instance Retrieve Without Bulk Data

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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)
	Error: Data Set does not match SOP Class	A900	(0000,0901) (0000,0902)
	Failed: Unable to process	Cxxx	(0000,0901) (0000,0902)
	Failed: Sub-operations Complete - All yielding Failure		
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 Some or all yielding Warning and/or some (but not all) yielding Failure	B000	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Success	Sub-operations Complete - No Failures or Warnings All yielding Success	0000	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Pending	Sub-operations are continuing	FF00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)