

DICOM Change Proposal

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Change Number	CP-2568
Log Summary:	Make statuses explicit in Response Identifier Structures
Name of Standard	PS3.4
Rationale for Change:	<ul style="list-style-type: none">Responses with the status Success are not mentioned explicitly in the definition of the Response Identifier Structure of the C-MOVE and the C-GET operations. One might argue that this is implicit, as the last line of their description state that "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." and "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." respectively. However, this is implicit, and having this explicit makes it much clearer in what cases the Failed SOP Instance UID List is required, and in what cases it is forbidden.There is no structured mentioning of statuses and their effect on the presence of the Resource Identifier in the definition of the Response Identifier Structure of the C-FIND operation.
Change Wording:	See below.

Update PS3.4, Section C.4.2.1.4.2 Response Identifier Structure [C-MOVE]

5 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, or Warning shall contain the Failed SOP Instance UID List Attribute
- **Success or** Pending shall not contain the Failed SOP Instance UID List Attribute (no Data Set)

Update PS3.4, Section C.4.3.1.3.2 Response Identifier Structure [C-GET]

15 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

20 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:

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

Update PS3.4, Section C.4.1.1.3.2 Response Identifier Structure [C-FIND]

C.4.1.1.3.2 Response Identifier Structure

30 The C-FIND response shall not contain Attributes that were not in the request or specified in this section.

An Identifier in a C-FIND response shall contain:

- Key Attributes with values corresponding to Key Attributes contained in the Identifier of the request.

Note

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1. All Required Keys in the request Identifier, as well as all Optional Keys specified in the Information Model for the SOP Class (e.g., in Section C.6.1.1, Section C.6.2.1) in the request Identifier that are supported by the SCP, will therefore be present in the Response Identifier.
 2. Required Keys and supported Optional Keys in the Response Identifier will have zero length if the SCP has no value to send; i.e., there is no requirement that the SCP have a value for these, or create a dummy value.
 3. The requirement that unsupported Optional Keys present in the request Identifier not be included in the Response Identifier is specified in Section C.2.2.1.3.
 4. Private Attributes present in the request Identifier may be ignored by the SCP if unrecognized (as defined for a Standard Extended SOP Class in PS3.2), hence may or
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- Query/Retrieve Level (0008,0052), which defines the level of the query. The Query/Retrieve level shall be equal to the level specified in the request.
 - Conditionally, the Attribute Specific Character Set (0008,0005). This Attribute shall be included if expanded or replacement character sets may be used in any of the Attributes in the Response Identifier. It shall not be included otherwise. The C-FIND SCP is not required to return responses in the Specific Character Set requested by the SCU if that character set is not supported by the SCP. The SCP may return responses with a different Specific Character Set.
 - Conditionally, the Attribute Timezone Offset From UTC (0008,0201). This Attribute shall be included if any Attributes of time in the Response Identifier are to be interpreted explicitly in the designated local time zone. It shall not be present otherwise, i.e., it shall not be sent with a zero-length value.
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The C-FIND SCP is required to support either or both the Retrieve AE Title Data Element or the Storage Media File-Set ID/Storage Media File Set UID Data Elements. An Identifier in a C-FIND response shall contain:

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- Storage Media File-Set ID (0088,0130), which defines a user or implementation specific human readable Identifier that identifies the Storage Media on which the Composite Object Instance(s) reside. This element pertains to the set of Composite Object Instances available at the Query/Retrieve Level specified in the Identifier of the C-FIND request (e.g., Patient, Study, Series, Composite Object Instance). This Attribute shall be present if the Retrieve AE Title Data Element is not present. A null value (Data Element length of 0) is valid for all levels except the lowest level in the Information Model as defined by the SOP Class.
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- Storage Media File-Set UID (0008,0140), which uniquely identifies the Storage Media on which the Composite Object Instance(s) reside. This element pertains to the set of Composite Object Instances available at the Query/Retrieve Level specified in the Identifier of the C-FIND request (e.g., Patient, Study, Series, Composite Object Instance). This Attribute shall be present if the Retrieve AE Title Data Element is not present. A null value (Data Element length of 0) is valid for all levels except the lowest level in the Information Model as defined by the SOP Class.

Note

75 The File-Set concepts are used in PS3.10.

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- Retrieve AE Title (0008,0054), which defines a list of DICOM Application Entity Title(s) that identify the location from which the Composite Object Instance(s) may be retrieved on the network. This element pertains to the set of Composite Object Instances available at the Query/Retrieve Level specified in the Identifier of the C-FIND request (e.g., Patient, Study, Series, Composite Object Instance). This Attribute shall be present if the Storage Media File-Set ID and Storage Media File-Set UID elements are not present. The Application Entity named in this field shall support either the C-GET or C-MOVE SOP Class of the Query/Retrieve Service Class. A null value (Data Element length of 0) is valid for all levels except the lowest level in the Information Model as defined by the SOP Class.

85 Note

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1. For example, a DICOM AE with the AE Title of "A" performs a C-FIND request to a DICOM AE with the AE Title of "B" with the Query/Retrieve level set to "STUDY". DICOM AE "B" determines that the Composite Object Instances for each matching study may be retrieved by itself and sets the Data Element Retrieve AE Title to "B".
 2. File-Sets may not be defined at every Query/Retrieve Level. If the SCP supports the File-Set ID/File-Set UID option but does not define these Attributes at the Query/Retrieve Level specified in the C-FIND request it may return these Data Elements with a length of 0 to signify that the value is unknown. An SCU should reissue a C-FIND at a Query/Retrieve Level lower in the hierarchy.
 - 95 3. The fact that the value of the Key Attribute is unknown to the SCP of the Query/Retrieve Service Class does not imply that it is not present in the underlying Information Object. Thus, a subsequent retrieval may cause a Storage of a SOP Instance that contains the value of the Attribute.

100 The C-FIND SCP may also, but is not required to, support the Instance Availability (0008,0056) Data Element. This Data Element shall not be included in a C-FIND request. An Identifier in a C-FIND response may contain:

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- Instance Availability (0008,0056), which defines how rapidly Composite Object Instance(s); become available for transmission after a C-MOVE or C-GET retrieval request. This element pertains to the set of Composite Object Instances available at the Query/Retrieve Level specified in the Identifier of the C-FIND request (e.g., Patient, Study, Series, Composite Object Instance). When some composite instances are less rapidly available than others, the availability of the least rapidly available shall be returned. If this Data Element is not returned, the availability is unknown or unspecified. A null value (Data Element length of 0) is not permitted. The Enumerated Values for this Data Element are:
 - 110 ○ "ONLINE", which means the instances are immediately available,
 - "NEARLINE", which means the instances need to be retrieved from relatively slow media such as optical disk or tape, or require conversion that takes time,
 - "OFFLINE", which means the instances need to be retrieved by manual intervention,
 - 115 ○ "UNAVAILABLE", which means the instances cannot be retrieved. Note that SOP Instances that are unavailable may have an alternate representation that is available (see Section C.6.1.1.5.1).

A C-FIND response with a status of:

- **Success, Canceled or Failure shall not contain the Resource Identifier (no Data Set)**

Kommentiert [JM1]: This is explicitly documented in Table C.4-1. C-FIND Response Status Values (column Further Meaning).

Kommentiert [JM2]: No place has been found that states whether a response with status Cancel shall contain a Response Identifier or not. However, the Identifier is not mentioned in the Related Fields of Table C.4-1. C-FIND Response Status Values. Hence, the conclusion seems valid that a response with the status Cancel shall not contain an Identifier.

Kommentiert [JM3]: This is documented in the fourth bullet in Section C.4.1.3.1.

- **Pending shall contain the Resource Identifier structured as described above**

Kommentiert [JM4]: This is inferred from the Related Fields in Table C.4-1. C-FIND Response Status Values. There seems to be no explicit text for this in C.4.1, although it is mentioned inversely in C.1.4 (which can be read as 'when an Identifier is present, the status is Pending').