

DICOM Correction Proposal Form

Correction Number		CP-199
Log Summary: Specific Character Set in queries		
Type of Modification	Name of Standard	
Clarification	PS 3.4 - 2000	
Rationale for Correction		
It is not obvious whether or not an SCP is required to return a value for Specific Character Set in its response if an SCU has included it in the query.		
Sections of documents affected		
PS 3.4 Annex C, K.		
Correction Wording:		

Clarify Specific Character Set matching in Query-Retrieve Service Class:

C.2.2.2 Attribute Matching

The following types of matching may be performed on Key Attributes in the Query/Retrieve Service Class:

- Single Value Matching
- List of UID Matching
- Universal Matching
- Wild Card Matching
- Range Matching
- Sequence Matching

Matching requires special characters (i.e. "*", "?", "-", and "\") which need not be part of the character repertoire for the VR of the Key Attributes.

Notes: 1. For example, the "-" character is not valid for the DA, DT and TM VRs but is used for range matching.

2. When character sets other than the default character repertoire are used, then the rules in PS 3.5 apply, such as with respect to the use of the 05/12 "\" (BACKSLASH) (in ISO IR 6) or 05\12 "¥" (YEN SIGN) (in ISO IR 14).

The total length of the Key Attribute may exceed the length as specified in the VR in PS 3.5. The Value Multiplicity (VM) may be larger than the VM as specified in PS 3.6 for the Key Attribute.

The Specific Character Set (0008,0005) Attribute may be present in the Identifier but is never matched. Rather, it specifies how other Attributes are encoded in the Request and Response Identifiers.

It may influence how matching of other Attributes is performed. If Specific Character Set (0008,0005) is absent, then the default character repertoire

shall be used. Specific Character Set (0008,0005) shall not have a zero length value.

Specific Character Set (0008,0005) may have multiple values if escape sequences are used to switch between character repertoires within values.

If the SCP does not support the value(s) of Specific Character Set (0008,0005) in the Request Identifier, then the manner in which matching is performed is undefined and shall be specified in the conformance statement.

Note: If an SCU sends a Request Identifier with a single byte character set not supported by the SCP, then it is likely, but not required, that the SCP will treat unrecognized characters as wildcards and match only on characters in the default repertoire, and return a response in the default repertoire.

C.2.2.2.1 Single Value Matching

If the value specified for a Key Attribute in a request is non-zero length and if it is:
...

Clarify Specific Character Set presence in Identifiers in Query-Retrieve Service Class:

C.4.1 C-FIND Operation

...

C.4.1.1 C-FIND Service Parameters

...

C.4.1.1.3.1 Request Identifier Structure

An Identifier in a C-FIND request shall contain:

- Key Attributes values to be matched against the values of storage SOP Instances managed by the SCP.
- Query/Retrieve Level, element (0008,0052) which defines the level of the query.
- Conditionally, the Attribute Specific Character Set (0008,0005). This Attribute ~~is required~~ **shall be included** if expanded or replacement character sets ~~are may be~~ used **in any of the Attributes in the Request Identifier. It shall not be included otherwise.**

The Key Attributes and values allowable for the level of the query shall be defined in the SOP Class definition for the Query/Retrieve Information Model.

C.4.1.1.3.2 Response Identifier Structure

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.
- Query/Retrieve Level, element (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 ~~is required~~ **shall be included** if expanded or replacement character sets ~~are~~ **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.**

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:

...

C.4.2 C-MOVE Operation

...

C.4.2.1.4.1 Request Identifier Structure

An Identifier in a C-MOVE request shall contain:

- the Query/Retrieve Level (0008,0052) which defines the level of the retrieval
- Unique Key Attributes which may include Patient ID (0010,0020), Study Instance UIDs (0020,000D), Series Instance UIDs (0020,000E), and the SOP Instance UIDs (0008,0018)

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

The Unique Keys at each level of the hierarchy and the values allowable for the level of the retrieval shall be defined in the SOP Class definition for the Query/Retrieve Information Model.

Note: In the Baseline behavior, more than one entity may be retrieved if the Query/Retrieve Level is IMAGE, SERIES or STUDY, using List of UID matching, but only Single Value Matching value may be specified for Patient ID (0010,0020).

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, Failed, 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 C-GET Operation

...

C.4.3.1.3.1 Request Identifier Structure

An Identifier in a C-GET request shall contain:

- the Query/Retrieve Level (0008,0052) which defines the level of the retrieval
- Unique Key Attributes which may include Patient ID (0010,0020), Study Instance UIDs (0020,000D) Series Instance UIDs (0020,000E), and SOP Instance UIDs (0008,0018)

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

...

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, Failed, 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)

...

Add Specific Character Set conformance requirements for Query-Retrieve SOP Classes:

C.6.1.2 Conformance Requirements

...

C.6.1.2.1 SCU Conformance

C.6.1.2.1.1 C-FIND SCU Conformance

...

An implementation which conforms to one of the SOP Classes of the Patient Root SOP Class Group as an SCU shall state in its Conformance Statement whether it may generate Relational-queries. If it supports Relational-queries, then it shall also support extended negotiation.

An implementation which conforms to one of the SOP Classes of the Patient Root SOP Class Group as an SCU shall state in its Conformance Statement how it makes use of Specific Character Set (0008,0005) when encoding queries and interpreting responses.

...

C.6.1.2.2 SCP Conformance
C.6.1.2.2.1 C-FIND SCP Conformance

...

An implementation which conforms to one of the SOP Classes of the Patient Root SOP Class Group as an SCP shall state in its Conformance Statement whether it supports case-insensitive matching for PN VR attributes and list attributes for which this applies.

An implementation which conforms to one of the SOP Classes of the Patient Root SOP Class Group as an SCP shall state in its Conformance Statement how it makes use of Specific Character Set (0008,0005) when interpreting queries, performing matching and encoding responses.

...

C.6.2.2 Conformance Requirements

...

C.6.2.2.1 SCU Conformance
C.6.2.2.1.1 C-FIND SCU Conformance

...

An implementation which conforms to one of the SOP Classes of the Study Root SOP Class Group as an SCU shall state in its Conformance Statement whether it may generate Relational-queries. If it supports Relational Search, then it shall also support extended negotiation.

An implementation which conforms to one of the SOP Classes of the Study Root SOP Class Group as an SCU shall state in its Conformance Statement how it makes use of Specific Character Set (0008,0005) when encoding queries and interpreting responses.

...

C.6.2.2.2 SCP Conformance
C.6.2.2.2.1 C-FIND SCP Conformance

...

An implementation which conforms to one of the SOP Classes of the Study Root SOP Class Group as an SCP shall state in its Conformance Statement whether it supports case-insensitive matching for PN VR attributes and list attributes for which this applies.

An implementation which conforms to one of the SOP Classes of the Study Root SOP Class Group as an SCP shall state in its Conformance Statement how it makes use of Specific Character Set (0008,0005) when interpreting queries, performing matching and encoding responses.

...

C.6.3.2 Conformance Requirements

...

C.6.3.2.1 SCU Conformance
C.6.3.2.1.1 C-FIND SCU Conformance

...
An implementation which conforms to one of the SOP Classes of the Patient/Study Only SOP Class Group as an SCU shall state in its Conformance Statement whether it may generate Relational Search queries. If it supports Relational Search, then it shall also support extended negotiation.

An implementation which conforms to one of the SOP Classes of the Patient/Study Only SOP Class Group as an SCU shall state in its Conformance Statement how it makes use of Specific Character Set (0008,0005) when encoding queries and interpreting responses.

...
C.6.3.2.2 SCP Conformance
C.6.3.2.2.1 C-FIND SCP Conformance

...
An implementation which conforms to one of the SOP Classes of the Patient/Study Only SOP Class Group as an SCP shall state in its Conformance Statement whether it supports case-insensitive matching for PN VR attributes and list attributes for which this applies.

An implementation which conforms to one of the SOP Classes of the Patient/Study Only SOP Class Group as an SCP shall state in its Conformance Statement how it makes use of Specific Character Set (0008,0005) when interpreting queries, performing matching and encoding responses.

Amend Specific Character Set definition in Modality Worklist SOP Class:

K.6.1.2.2 Modality Worklist Attributes

Table K.6-1 defines the Attributes of the Modality Worklist Information Model:

**Table K.6-1
ATTRIBUTES FOR THE MODALITY WORKLIST INFORMATION MODEL**

Description / Module	Tag	Match- ing Key Type	Return Key Type	Remark/Matching Type
SOP Common				
Specific Character Set	(0008,0005)	O	1C	This attribute is required if expanded or replacement character sets are used. <u>See C.2.2.2 and C.4.1.1.</u>

Add Specific Character Set conformance requirements for Modality Worklist SOP Class:

K.6.1.3 Conformance Requirements

...

K.6.1.3.1 SCU Conformance

...

An implementation which conforms to the Modality Worklist SOP Class as an SCU shall state in its Conformance Statement whether it requests matching on Optional Matching Key Attributes. If it requests Type 3 Return Key Attributes, then it shall list these Optional Return Key Attributes.

An implementation which conforms to the Modality Worklist SOP Class as an SCU shall state in its Conformance Statement how it makes use of Specific Character Set (0008,0005) when encoding queries and interpreting responses.

K.6.1.3.2 SCP Conformance

...

An implementation which conforms to the Modality Worklist SOP Class as an SCP shall state in its Conformance Statement whether it supports case-insensitive matching for PN VR attributes and list attributes for which this applies.

An implementation which conforms to the Modality Worklist SOP Class as an SCP shall state in its Conformance Statement how it makes use of Specific Character Set (0008,0005) when interpreting queries, performing matching and encoding responses.

Amend Specific Character Set definition in General Purpose Worklist SOP Class:

K.6.2.2.2 General Purpose Worklist Attributes

Table K.6-2 defines the Attributes of the General Purpose Worklist Information Model:

Table K.6-2 Attributes for the General Purpose Worklist Information Model

Description / Module	Tag	Match- ing Key Type	Return Key Type	Remark / Matching Type
SOP Common				
Specific Character Set	(0008,0005)	O	1C	This attribute is required if expanded or replacement character sets are used. See C.2.2.2 and C.4.1.1.

Add Specific Character Set conformance requirements for General Purpose Worklist SOP Class:

K.6.2.3 Conformance Requirements

...

K.6.2.3.1 SCU Conformance

...

An implementation which conforms to the General Purpose Worklist SOP Class as an SCU shall state in its Conformance Statement whether it requests matching on Optional Matching Key Attributes. If it requests Type 3 Return Key Attributes, then it shall list these Optional Return Key Attributes.

An implementation which conforms to the General Purpose Worklist SOP Class as an SCU shall state in its Conformance Statement how it makes use of Specific Character Set (0008,0005) when encoding queries and interpreting responses.

K.6.2.3.2 SCP Conformance

..

An implementation which conforms to the General Purpose Worklist SOP Class as an SCP shall state in its Conformance Statement whether it supports matching on Optional Matching Key Attributes. If it supports Type 3 Return Key Attributes, then it shall list all Optional Return Key Attributes which it supports.

An implementation which conforms to the General Purpose Worklist SOP Class as an SCP shall state in its Conformance Statement how it makes use of Specific Character Set (0008,0005) when interpreting queries, performing matching and encoding responses.