

DICOM Correction Item

Correction Number		CP-348
Log Summary: Clarify Date/Time Matching with UTC Offsets		
Type of Modification	Name of Standard	
Clarification	PS 3.4 2003+	
Rationale for Correction		
<p>The Value Representation DT may be appended with an optional positive or negative offset from UTC (see PS 3.5 for details). The offset has the form &ZZZZ where & = "+" or "-", and ZZZZ = Hours and Minutes of offset from UTC. The Value Representation DT is derived from the ANSI HISPP MSDS specification for DateTime which permits the hours part of the ZZZZ suffix to be in the range "00" to "23" and the minutes part to be in the range "00" to "59".</p> <p>The PS 3.4 Query/Retrieve single value matching rules contains an example using an invalid DT encoding.</p> <p>The normative text states that single value matching only applies to a datetime with no "-". It would be helpful to add a note to clarify that single value matching cannot be used together with a negative UTC offset since the "-" character invokes range matching.</p>		
Sections of documents affected		
PS 3.4, Section C.2.2.2 Attribute Matching		
Correction Wording:		

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Item 1: Amend Section C.2.2.2.1 of PS 3.4:

4 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:

- 6 a) not a date or time or datetime, contains no wild card characters
 8 b) a date or time or datetime, contains a single date or time or datetime with no "-"

10 then single value matching shall be performed. Only entities with values which match exactly
 12 the value specified in the request shall match. This matching is case-sensitive, except for
 Attributes with an PN Value Representation (e.g., Patient Name (0010,0010)) in which case it
 is implementation dependent and shall be specified in the conformance statement.

14 Notes: 1. This definition implies that dates or times or datetimes are matched by their meaning,
 not as literal strings. For example:

- 16 - the DT "19980128103000.0000" matches "19980128103000"
 - the DT "19980128103000GMT" matches "19980128073000GMT-3"
 18 - **the DT "19980128103000" matches "19980128073000-0300"**
 - the TM "2230" matches "223000"
 - the TM "223000" matches the deprecated ACR/NEMA 2.0 form "22:30:00"
 20 - the DA "19980128" matches the deprecated ACR/NEMA 2.0 form "1998.01.28"

22 2. If an application is concerned about how single value matching of dates and times is
 24 performed by another application, it may consider using range matching instead, which is
 always performed by meaning, with both values in the range the same.

2 3. Exclusion of the “-“ character for single value matching implies that a
3 Key Attribute with DT Value Representation may not contain a negative
4 offset from Universal Coordinated Time (UTC) if single value matching is
5 intended. Use of the “-“ character in date, time or datetime indicates
6 range matching.

7 4. If an application is in a local time zone that has a negative offset
8 then it cannot perform single value matching using a local time notation.
9 Instead, it can convert the Key Attribute value to UTC and use an
10 explicit suffix of “+0000”.

11 35. Matching of PN Attributes may be accent-insensitive, as specified in the conformance
12 statement. Accent-insensitive matching would successfully match, for instance, a query
13 character “SMALL LETTER a” (06/01 in the default ISO-IR 6) with

14 “SMALL LETTER a WITH GRAVE ACCENT” (14/00 in ISO-IR 100),

15 “SMALL LETTER a WITH TILDE” (14/03 in ISO-IR 100),

16 “SMALL LETTER a WITH BREVE” (14/03 in ISO-IR 101), and

17 “CAPITAL LETTER a WITH ACUTE ACCENT” (12/01 in ISO-IR 100) (if matching is also
18 case-insensitive),

19 but would not match 14/00 in ISO-IR 101, which is “SMALL LETTER r WITH ACUTE
20 ACCENT”. Matching to particular bit-combinations is specific to each supported character
21 set (note the difference in meaning of 14/00), and should be described in the conformance
22 statement.

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<i>Item 2: Amend Section C.2.2.2.5 of PS 3.4:</i>

27 **C.2.2.2.5 Range Matching**

28 If the Attribute is a date, then:

- 29 a) A string of the form "<date1> - <date2>" shall match all occurrences of dates which fall
30 between <date1> and <date2> inclusive
- 31 b) A string of the form "- <date1>" shall match all occurrences of dates prior to and
32 including <date1>
- 33 c) A string of the form "<date1> -" shall match all occurrences of <date1> and
34 subsequent dates

35 If the Attribute is a time, then:

- 36 a) A string of the form "<time1> - <time2>" shall match all occurrences of times which fall
37 between <time1> and <time2> inclusive
- 38 b) A string of the form "- <time1>" shall match all occurrences of times prior to and
39 including <time1>
- 40 c) A string of the form "<time1> -" shall match all occurrences of <time1> and
41 subsequent times

42 If the Attribute is a datetime, then:

- 43 a) A string of the form "<datetime1> - <datetime2>" shall match all moments in time
44 which fall between <datetime1> and <datetime2> inclusive
- 45 b) A string of the form "- <datetime1>" shall match all moments in time prior to and
46 including <datetime1>
- 47 c) A string of the form "<datetime1> -" shall match all moments in time subsequent to
48 and including <datetime1>

- 2 d) The ~~timezone~~ **offset from Universal Coordinated Time**, if present in the Value of the Attribute, shall be taken into account for the purposes of the match.
- 4 Range matching is not defined for types of Attributes other than dates and times.