## DICOM Correction Proposal

<table>
<thead>
<tr>
<th>STATUS</th>
<th>Letter Ballot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Last Update</td>
<td>2018/09/16</td>
</tr>
<tr>
<td>Person Assigned</td>
<td>David Clunie</td>
</tr>
<tr>
<td>Submitter Name</td>
<td>Jörg Riesmeier <a href="mailto:dicom@jriesmeier.com">dicom@jriesmeier.com</a></td>
</tr>
<tr>
<td>Submission Date</td>
<td>2018-01-31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Correction Number</th>
<th>CP-1798</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Summary:</td>
<td>Fix partly inconsistent list of VRs affected by certain types of Attribute Matching</td>
</tr>
<tr>
<td>Name of Standard</td>
<td>PS3.4</td>
</tr>
</tbody>
</table>

### Rationale for Correction:

Various Sections in PS3.4 have not been updated for the latest additions of new DICOM value representations (VR) such as Unlimited Characters (UC) and Universal Resource Identifier or Universal Resource Locator (URI/URL) (UR). Also, listing those VRs that are not affected by a certain type of Attribute Matching sometimes creates confusion. E.g., is Wild Card Matching supported for Attribute Tag (AT) values? - probably not. And, some VRs need special handling, e.g. SQ.

The proposal is to fix the partly inconsistent list of VRs that are affected by certain types of Attribute Matching in PS3.4.

Editorial changes: Consistently use “wild card” instead of “wildcard”. Should probably also use “Wild Card Matching” instead of “wild card matching”; same for the other types of Attribute Matching.

### Correction Wording:

#### Change PS3.4 Section C.2.2.2.1

**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:

a. **not** of VR of DA, TM or DTAE, LO, LT, PN, SH, ST, UC, UR or UT and contains no wild card characters

b. of VR of DA, TM or DT and contains a single value with no "-"

c. **of all other VRs apart from SQ**

then single value matching shall be performed. Except for Attributes with a PN VR, only entities with values that match exactly the value specified in the request shall match. This matching is case-sensitive, i.e., sensitive to the exact encoding of the key Attribute value in character sets where a letter may have multiple encodings (e.g., based on its case, its position in a word, or whether it is accented).

#### Change PS3.4 Section C.2.2.2.1.2

**C.2.2.2.1.2 Attributes of VR of PN, AE, LO, LT, PN, SH, ST, LT, UC, UR, and UT**

The PN, AE, LO, LT, PN, SH, ST, LT, UC, UR, and UT VRs allow the presence of wild card matching characters "*" and "]". Single value matching against such characters is not supported. See Section C.2.2.2.4.
C.2.2.2.4 Wild Card Matching

If the Attribute is not of VR of DA, DT, TM, SL, SS, US, UL, FL, ED, OB, OW, OD, OF, OL, UN, DS, IS, AS, UI, AE, LO, LT, PN, SH, ST, UC, UR, UT and the value specified in the request contains any occurrence of an "]*" or a "?", then "]*" shall match any sequence of characters (including a zero-length value) and "?" shall match any single character. This matching is case sensitive, except for Attributes with a PN VR (e.g., Patient Name (0010,0010)).

For Attributes with a PN VR, including the case of extended negotiation of fuzzy semantic matching, wild card matching is implementation dependent and shall be specified in the conformance statement.

Note

1. Wild card matching on a value of "*" is equivalent to universal matching.
2. The wild card matching method specified by DICOM might not be supported by some non-DICOM multi-byte character text processors.
3. For multi-component group names, the component group delimiter "=" (3DH) may be present in the Key Attribute value, but may give unexpected results if the SCP does not support matching on separate components but interprets the entire value literally. E.g., "*==" or "*==*" may or may not return all strings, and hence is not equivalent to "*", nor to universal matching.
4. Using attributes with VR of AE, LO, PN and SH, and UC as matching keys will not allow single value matching on values that contain characters "*" and "?" - such queries will always be treated as queries with wild card matching.
5. Attributes with VR of ST, LT and UT are intended for conveying narrative text and may contain wild card characters "*" and "?". Attempts to match on a string explicitly containing "*" or "?" will be treated as wild card matching and thus may return multiple results rather than a single one.
6. Attributes with VR of UR may contain wild card characters "*" and "?" as delimiters. These characters are reserved according to IETF RFC3986 Section 2. Attempts to match on a string explicitly containing "*" or "?" will be treated as wild card matching and thus may return multiple results rather than a single one.