

1	Status	Final Text
2	Date of Last Update	2019/03/26
3	Person Assigned	David Clunie
4		mailto:dclunie@dclunie.com
5	Submitter Name	Peter Kuzmak
6		mailto:Peter.Kuzmak@va.gov
7	Submission Date	2018/07/23

8	Correction Number CP-1847	
9	Log Summary: Restrict future VRs to only upper case letters	
10	Name of Standard	
11	PS3.5	
12	Rationale for Correction:	
13	When parsing DICOM explicit VR data sets it is useful to be able to gracefully accept new VRs that may have been added to the	
14	standard after the current implementation but still be able to check that the data set is otherwise not malformed; since CP 14, the	
15	standard has specified the manner of encoding for all future VRs so this is possible. All current VRs use two upper case letters, and	
16	there are plenty of remaining combinations for future VRs without needing to use other characters from the DICOM default character	
17	set, such as lower case letters, digits or special characters. This would allow for more rigorous checking since the chances that a	
18	random two-byte value consists of two upper case letters is extremely low.	
19	Correction Wording:	

Amend DICOM PS3.5 as follows (changes to existing text are bold and underlined for additions and ~~struckthrough~~ for removals):

## 6.2 Value Representation (VR)

All new VRs defined in future versions of DICOM shall be of the same Data Element Structure as defined in Section 7.1.2 (i.e., following the format for VRs such as OB, OD, OF, OL, OW, SQ and UN).

### Note

1. Since all new VRs will be defined as specified in Section 7.1.2, an implementation may choose to ignore VRs not recognized by applying the rules stated in Section 7.1.2.
2. ...

## 7.1.1 Data Element Fields

... The definitions of the fields are:

**Value Representation** Two single byte characters containing the VR of the Data Element. The VR for a given Data Element Tag shall be as defined by the Data Dictionary as specified in PS3.6. The two byte VR shall be encoded using characters only upper case letters from the DICOM default character set.

## 7.1.2 Data Element Structure with Explicit VR

When using the Explicit VR structures, the Data Element shall be constructed of four consecutive fields: Data Element Tag, VR, Value Length, and Value. Depending on the VR of the Data Element, the Data Element will be structured in one of two ways:

- for VRs of OB, OD, OF, OL, OW, SQ and UN the 16 bits following the two byte VR Field are reserved for use by later versions of the DICOM Standard. These reserved bytes shall be set to 0000H and shall not be used or decoded (Table 7.1-1). The Value Length Field is a 32-bit unsigned integer. If the Value Field has an Explicit Length, then the Value Length Field shall contain a value equal to the length (in bytes) of the Value Field. Otherwise, the Value Field has an Undefined Length and a Sequence Delimitation Item marks the end of the Value Field.
- for VRs of UC, UR and UT the 16 bits following the two byte VR Field are reserved for use by later versions of the DICOM Standard. These reserved bytes shall be set to 0000H and shall not be used or decoded. The Value Length Field is a 32-bit unsigned integer. The Value Field is required to have an Explicit Length, that is the Value Length Field shall contain a value equal to the length (in bytes) of the Value Field.

### Note

VRs of UC, UR and UT may not have an Undefined Length, i.e., a Value Length of FFFFFFFFH.

- for all other VRs the Value Length Field is the 16-bit unsigned integer following the two byte VR Field (Table 7.1-2). The value of the Value Length Field shall equal the length of the Value Field.