

## DICOM Correction Item

Correction Number CP 950	
Log Summary: Inapplicable VR referenced for LUT Data	
Type of Modification	Name of Standard
Correction	PS 3.5, 3.6 – 2008
<p>Rationale for Correction:</p> <p>PS 3.6 specifies that LUT Data (0028,3006) may have one of the Following VRs: US or SS or OW;</p> <p>However when LUT data (0028,3006) is specified in PS3.3, it is always unsigned (range from 0 to <math>2^n - 1</math>, where n specifies the number of bits for each entry in the LUT Data. (3<sup>rd</sup> value of LUT Descriptor), as specified everytime in the section describing the usage of this element in PS3.3 (See Sections C.8.11.3.1.5, C.11.1.1.1, C.11.2.1, C.11.4.1 and C.11.6.1.1)</p> <p>As a reminder, "Real World Value LUT Data" that may generate signed output is specify as another Data Element, i.e. tag (0040,9212)</p> <p>Having SS as a possible VR in PS3.6 for element (0028,3006) could mislead implementers.</p> <p>PS3.5 also mentions these 3 VRs for LUT Data (0028,3006) and must be fixed as well.</p>	
<p>Sections of documents affected</p> <p>PS 3.6 – 6 Registry of DICOM data elements - PS 3.5 A1 DICOM IMPLICIT VR LITTLE ENDIAN TRANSFER SYNTAX - PS3.5 A.1 DICOM IMPLICIT VR LITTLE ENDIAN TRANSFER SYNTAX- PS 3.5 A.3 DICOM BIG ENDIAN TRANSFER SYNTAX (EXPLICIT VR) - PS 3.5 A.4 TRANSFER SYNTAXES FOR ENCAPSULATION OF ENCODED PIXEL DATA</p>	
Correction Wording	

### PS 3.6 6 Registry of DICOM data elements

Tag	Name	VR	VM
(0028,3006)	LUT Data	US <del>or SS</del> or OW	1-n 1

### PS3.5 A.1 DICOM IMPLICIT VR LITTLE ENDIAN TRANSFER SYNTAX

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- Data Element (0028,3006) ~~Lookup Table~~UT Data has the Value Representation US, ~~SS~~ or OW and shall be encoded in Little Endian.

Note: Previous versions of the Standard did not specify the encoding of these Data Elements in this Part, but specified a VR of US or SS in PS 3.6 (1998). A VR of OW has been added to support explicit VR transfer syntaxes. **Moreover this element is always unsigned, therefore the VR of SS has been removed.** The actual encoding of the values and their byte order would be identical in each case.

### PS3.5 A.2 DICOM LITTLE ENDIAN TRANSFER SYNTAX (EXPLICIT VR)

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- Data Element (0028,3006) ~~Lookup Table~~**UT** Data has the Value Representation US, ~~SS~~ or OW and shall be encoded in Little Endian.

Note: Previous versions of the Standard did not specify the encoding of these Data Elements in this Part, but specified a VR of US or SS in PS 3.6 (1998). However, an explicit VR of US or SS cannot be used to encode a table of  $2^{16}$  elements, since the Value Length is restricted to 16 bits. Hence a VR of OW has been added. **Moreover this element is always unsigned, therefore the VR of SS has been removed.** The actual encoding of the values and their byte order would be identical in each case, though the explicitly encoded VR field would be different.

### PS 3.5 A.3 DICOM BIG ENDIAN TRANSFER SYNTAX (EXPLICIT VR)

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- Data Element (0028,3006) ~~Lookup Table~~**UT** Data has the Value Representation US, ~~SS~~ or OW and shall be encoded in Little Endian.

Note: Previous versions of the Standard did not specify the encoding of these Data Elements in this Part, but specified a VR of US or SS in PS 3.6 (1998). However, an explicit VR of US or SS cannot be used to encode a table of  $2^{16}$  elements, since the Value Length is restricted to 16 bits. Hence a VR of OW has been added. **Moreover this element is always unsigned, therefore the VR of SS has been removed.** The actual encoding of the values and their byte order would be identical in each case, though the explicitly encoded VR field would be different.

### PS 3.5 A.4 TRANSFER SYNTAXES FOR ENCAPSULATION OF ENCODED PIXEL DATA

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- Data Element (0028,3006) ~~Lookup Table~~**UT** Data has the Value Representation US, ~~SS~~ or OW and shall be encoded in Little Endian.

Note: Previous versions of the Standard did not specify the encoding of these Data Elements in this Part, but specified a VR of US or SS in PS 3.6 (1998). However, an explicit VR of US or SS cannot be used to encode a table of  $2^{16}$  elements, since the Value Length is restricted to 16 bits. Hence a VR of OW has been added. **Moreover this element is always unsigned, therefore VR of SS has been removed.** The actual encoding of the values and their byte order would be identical in each case, though the explicitly encoded VR field would be different.