STATUS	Letter Ballot
Date of Last Update	2024-03-21
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Submission Date	2023-10-31

Correction Number	CP-2365
Log Summary: Clarify use of Command Elements and Error Comment	
Name of Standard PS3.7	
Rationale for Correction: Apparently, the DICOM Standard text is not 100% clear on which (Command) Elements can be used for the Command Set. It is, therefore, proposed to add Notes to PS3.7 explaining that only Command Elements with a Group Number of 0000 and no Data Elements shall be used. The background of this proposal is that some vendors seem to use the Specific Character Set (0008,0005) Attribute for the Command Set of a C-STORE response message to specify the character set of the Error Comment (0000,0902) Command Element. This Command Element is of VR "Long String" (LO), which according to PS3.5 is affected by the Specific Character Set (0008,0005) Attribute (when used in a Data Set). Therefore, it is also proposed to add a Note to this Command Element that only characters from the Default Character Repertoire may be used for the "application-specific error comment". Some terms defined in other Parts of the DICOM Standard seem to be missing in PS3.7 Section 3. Those terms that are defined in PS3.5 and used in the following cited sections of PS3.7 are also added by this CP. *[Ed.Note: The definitions of these terms explicitly refer to a "Data Element", which could be considered problematic since PS3.7 is mainly about the Command Set, but considered sufficiently clear for now.]*	
Correction Wording:	

Change PS3.7 Section 3.9

3.9 DICOM Data Structures and Encoding Definitions

This Part of the Standard makes use of the following terms defined in PS3.5:

Data Element	See Data Element in PS3.5.
Data Set	See Data Set in PS3.5.
Element Number	**See Element Number in PS3.5.**
Group Number	**See Group Number in PS3.5.**
Implicit VR	**See Implicit VR in PS3.5.**
Little Endian	**See Little Endian in PS3.5.**
Unique Identifier (UID)	See Unique Identifier in PS3.8.

Change PS3.7 Section 6.3

6.3 DICOM Message Structure and Command Set

Information is communicated across the DICOM network interface in a DICOM Message. A Message is composed of a Command Set followed by a conditional Data Set (see PS3.5 for the definition of a Data Set). The Command Set is used to indicate the operations/notifications to be performed on or with the Data Set.

A Command Set is constructed of Command Elements. Command Elements contain the encoded values for each individual field of the Command Set per the semantics specified in the DIMSE protocol (see Section 9.2 and Section 10.2). Each Command Element is composed of an explicit Tag, a Value Length, and a Value Field.

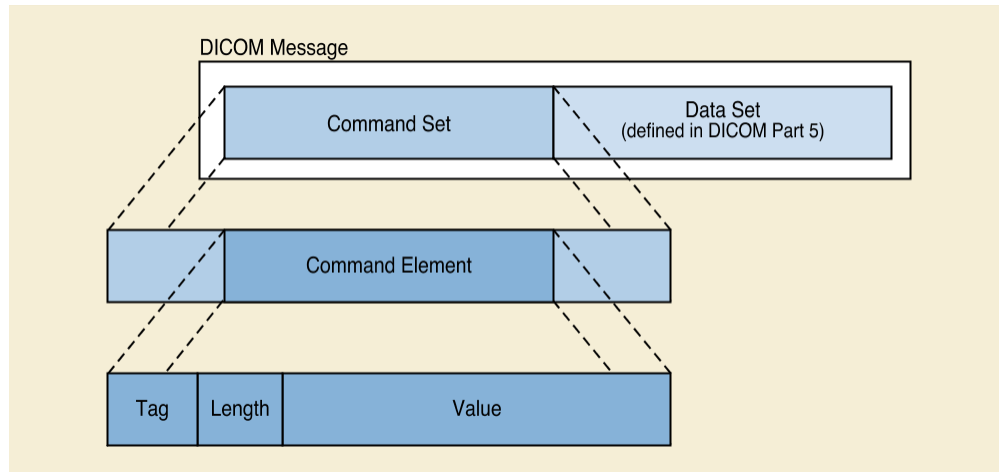The overall structure of a DICOM Message is shown in Figure 6.3-1.

Figure 6.3-1. DICOM Message Structure

6.3.1 Command Set Structure

The Command Elements in a Command Set shall be ordered by increasing Command Element Tag number. A Command Element Tag uniquely identifies a Command Element and shall occur at most once in a Command Set. The encoding of the Command Set shall be Little Endian Byte Ordering as defined in PS3.5. The requirements for the existence of a Command Element in a Command Set are defined in the DIMSE protocol.

Note

1. The use of Private Command Elements has been retired in this version of the DICOM Standard.

2. The encoding corresponds to the Implicit VR Data Element encoding defined in PS3.5.

A Command Element is composed of three fields; a Command Element Tag, a Value Length, and a Value Field.

Command Element Tag: An ordered pair of 16-bit unsigned integers representing the Group Number followed by **the** Element Number.

Note

1. **All Command Element Tags have the Group Number 0000. See Annex E for the Registry of Command Elements, which provides a complete list of all Command Elements that can be used for the Command Set.**

2. **In particular, the Command Set is not permitted to contain any Data Elements, such as those listed in PS3.6.**

Value Length: A 32-bit unsigned integer representing the explicit Length as the number of bytes (even) that make up the Value. It does not include the length of the Command Element Tag or Value Length fields.

Value Field: An even number of bytes containing the Value(s) of the Command Element.

The command type of Value(s) stored in this field is specified by the Command Element's Value Representation (VR). The VR for a given Command Element can be determined using the Command Dictionary in Annex E. The VR of

Command Elements shall agree with those specified in the Command Dictionary. The VR definitions ~~are defined~~can be found in PS3.5

The Value Multiplicity (VM) specifies how many Values with the VR can be placed in the Value Field. If the VM is greater than one, multiple Values shall be delimited within the Value Field as defined in PS3.5. The VM for a given Command Element can be determined using the Command Dictionary in Annex E.

Note

1. The ~~Message~~Command Length~~-~~ to~~-~~ End (0000,0001) Command Element is retired. Implementations may choose to send it for backward compatibility reasons. DICOM V3.0 conformant implementations must not rely on its presence for their operation.

2. The delimitation of the Message length is actually achieved by relying on the fact that the Presentation Data Value (conveying each Message fragment) is delimited as defined by the OSI Upper Layer Service and the associated Message Control Header (see PS3.8). This results from the fact that the DICOM V3.0 UL protocol or the OSI Presentation protocol explicitly conveys the length of a PDV.

Change PS3.7 Section C.4.1

C.4.1 Warning

Status Field	Tag	VR	VM	Description of Field
Status	(0000,0900)	US	1	Confirmation status of the operation. The value of this required field is Service Class specific and defined in PS3.4.
Offending Element	(0000,0901)	AT	1-n	This optional field contains a list of the elements in which the error was detected.
Error Comment	(0000,0902)	LO	1	This optional field contains an application-specific text description of the error detected. **Note** **Only characters from the Default Character Repertoire may be used, since there is no mechanism for specifying any alternative repertoire.**

Change PS3.7 Section C.5.1 to C.5.6

C.5.1 Error: Cannot understand

Status Field	Tag	VR	VM	Description of Field
Status	(0000,0900)	US	1	Confirmation status of the operation. The value of this required field is Service Class specific and defined in PS3.4.
Offending Element	(0000,0901)	AT	1-n	This optional field contains a list of the elements in which the error was detected.
Error Comment	(0000,0902)	LO	1	This optional field contains an application-specific text description of the error detected. **Note** **Only characters from the Default Character Repertoire may be used.**

C.5.2 Error: Data Set does not match SOP Class

Status Field	Tag	VR	VM	Description of Field
Status	(0000,0900)	US	1	Confirmation status of the operation. The value of this required field is Service Class specific and defined in PS3.4.
Offending Element	(0000,0901)	AT	1-n	This optional field contains a list of the elements in which the error was detected.
Error Comment	(0000,0902)	LO	1	This optional field contains an application-specific text description of the error detected. **Note** **Only characters from the Default Character Repertoire may be used.**

C.5.3 Failed

Status Field	Tag	VR	VM	Description of Field
Status	(0000,0900)	US	1	Confirmation status of the operation. The value of this required field is Service Class specific and defined in PS3.4.
Offending Element	(0000,0901)	AT	1-n	This optional field contains a list of the elements in which the error was detected.
Error Comment	(0000,0902)	LO	1	This optional field contains an application-specific text description of the error detected. **Note** **Only characters from the Default Character Repertoire may be used.**

C.5.4 Refused: Move Destination unknown

Status Field	Tag	VR	VM	Description of Field
Status	(0000,0900)	US	1	Confirmation status of the operation. The value of this required field is Service Class specific and defined in PS3.4.
Error Comment	(0000,0902)	LO	1	This optional field contains an application-specific text description of the error detected. **Note** **Only characters from the Default Character Repertoire may be used.**

C.5.5 Refused: Out of resources

Status Field	Tag	VR	VM	Description of Field
Status	(0000,0900)	US	1	Confirmation status of the operation. The value of this required field is Service Class specific and defined in PS3.4.
Error Comment	(0000,0902)	LO	1	This optional field contains an application-specific text description of the error detected. **Note** **Only characters from the Default Character Repertoire may be used.**

C.5.6 Refused: SOP Class not supported

Status Field	Tag	VR	VM	Description of Field
Status	(0000,0900)	US	1	Confirmation status of the operation. The value of this required field shall be set to 0122H.
Error Comment	(0000,0902)	LO	1	This optional field contains an application-specific text description of the error detected. **Note** **Only characters from the Default Character Repertoire may be used.**

Change PS3.7 Section C.5.21

C.5.21 Processing Failure

Status Field	Tag	VR	VM	Description of Field
Affected SOP Class UID	(0000,0002)	UI	1	This optional field contains the SOP Class UID on which the processing failure occurred.
Status	(0000,0900)	US	1	Confirmation status of the operation. The value of this required field shall be set to 0110H.
Error Comment	(0000,0902)	LO	1	This optional field contains an application-specific text description of the error detected. **Note** **Only characters from the Default Character Repertoire may be used.**
Error ID	(0000,0903)	US	1	This optional field contains an application-specific error code.
Affected SOP Instance UID	(0000,1000)	UI	1	This optional field shall optionally contain the UID of the SOP Instance on which the processing failure occurred.

Change PS3.7 Section C.5.25

C.5.25 Refused: Not authorized

Status Field	Tag	VR	VM	Description of Field
Status	(0000,0900)	US	1	Confirmation status of the operation. The value of this required field shall be set to 0124H.
Error Comment	(0000,0902)	LO	1	This optional field contains an application-specific text description of the error detected. **Note** **Only characters from the Default Character Repertoire may be used.**

Change PS3.7 Section E.1

E.1 Registry of DICOM Command Elements

Table E.1-1. Command Fields

Tag	Message Field	Keyword	VR	VM	Description of Field
[…]					
(0000,0902)	Error Comment	ErrorComment	LO	1	This field contains an application-specific text description of the error detected. **<u>Note</u>** **<u>Only characters from the Default Character Repertoire may be used.</u>**
[…]					