

DCMTK - Bug #1219

Inconsistent handling of uncompressed icon images

2026-05-31 08:28 - Marco Eichelberg

Status:	Closed	Start date:	2026-05-31
Priority:	Normal	Due date:	
Assignee:	Marco Eichelberg	% Done:	100%
Category:	Library and Apps	Estimated time:	4:00 hours
Target version:		Compiler:	
Module:			
Operating System:			
Description			
<p>When loading a compressed DICOM image file that contains an Icon Image Sequence with uncompressed pixel data (which is permitted in DICOM), such a dataset can be decompressed successfully with DCMTK, it can also be re-compressed to a different transfer syntax, but saving the file will then fail, as demonstrated by the following code snippet:</p>			
<pre>OFCondition cond; DcmFileFormat dfile; // load a compressed DICOM image file containing uncompressed icon image sequence cond = dfile.loadFile("sample.dcm"); DcmDataset *dset = dfile.getDataset(); // decompress the compressed image, will succeed cond = pDataset->chooseRepresentation(EXS_LittleEndianExplicit, NULL); // compress the now uncompressed image to a different encoding, will succeed DJ_RPlossy rp_lossy(75); cond = pDataset->chooseRepresentation(EXS_JPEGProcess1, &rp_lossy); // try to save the file. This will fail with return code EC_RepresentationNotFound cond = dcmFileFormat.saveFile("output.dcm", EXS_JPEGProcess1);</pre>			
<p>A sample image is provided below. The cause of this bug is an inconsistent handling of the <code>alwaysUnencapsulated</code> flag in class <code>DcmPixelData</code>, which is ignored in <code>DcmPixelData::chooseRepresentation()</code> but observed in <code>DcmPixelData::write()</code>. This causes the icon image to be compressed despite the <code>alwaysUnencapsulated</code> flag being set, and the uncompressed pixel data to be deleted. When the file is saved, the write routine fails to access the uncompressed pixel data and returns the error.</p>			
<p>The inconsistency has probably been present since initial implementation, but has become visible after commit #0e8fae86c, which fixed DCMTK issue #845.</p>			
<p>Thanks to Carlo Pastorino for the bug report and proof of concept, reported 2026-05-08.</p>			

History

#1 - 2026-05-31 11:28 - Marco Eichelberg

- Status changed from New to Closed

- % Done changed from 0 to 100

- Estimated time set to 4:00 h

Closed by commit [#d526cbb08](#).

Files

jpeg_with_uncompressed_icon_image_sequence.dcm	598 KB	2026-05-31	Marco Eichelberg
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