

DCMTK - Bug #1018

JPEG decoder refuses some valid images containing unusual Huffman tables

2022-03-15 11:47 - Marco Eichelberg

Status:	Closed	Start date:	2022-03-15
Priority:	Normal	Due date:	
Assignee:		% Done:	100%
Category:	Library and Apps	Estimated time:	0:00 hour
Target version:		Compiler:	
Module:	dcmjpeg		
Operating System:			
Description			
<p>The Huffman decoder in dcmjpeg (in the files dcmjpeg/libjg[8 12 16]/jd Huff.c) checks the DC Huffman tables for validity. However, at least one JPEG library (Thomas Richters's libjpeg, which is apparently used in the GDCM DICOM Toolkit) encodes Huffman tables that contain symbols that trigger an error message. According to the author of that library, these are default Huffman tables and the 'illegal' values are included because they are actually needed in some non-baseline JPEG processes, such as extended sequential mode. The problem can be fixed by disabling this arguably overly strict check:</p> <pre>/* Validate symbols as being reasonable. * For AC tables, we make no check, but accept all byte values 0..255. * For DC tables, we require the symbols to be in range 0..16. * (Tighter bounds could be applied depending on the data depth and mode, * but this is sufficient to ensure safe decoding.) */ if (isDC) { for (i = 0; i < numsymbols; i++) { int sym = htbl->huffval[i]; if (sym < 0 sym > 16) ERREXIT(cinfo, JERR_BAD_HUFF_TABLE); } }</pre>			
Reported 2022-03-15 by Mathieu Malaterre < mathieu.malaterre@gmail.com >			

History

#1 - 2022-03-15 12:01 - Marco Eichelberg

Update: libjpeg is used in the pydicom library:

- <https://github.com/pydicom>
- <https://github.com/pydicom/pylibjpeg-libjpeg>

#2 - 2022-03-15 13:38 - Marco Eichelberg

- Status changed from New to Closed

- % Done changed from 0 to 100

Closed by commit #deeda9adb.

Files

lena.dcm	628 KB	2022-03-15	Marco Eichelberg
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