

DCMTK - Bug #687

Minor bug in DCMJPLS encoder

2016-06-02 13:49 - Marco Eichelberg

Status:	Closed	Start date:	2016-06-02
Priority:	Normal	Due date:	
Assignee:		% Done:	0%
Category:		Estimated time:	0:00 hour
Target version:	3.6.2	Compiler:	
Module:	dcmjpls		
Operating System:			

Description

In 2014, our team discovered an overflow bug in the CharLS encoder and submitted a patch [<http://charls.codeplex.com/workitem/10742>] that was also included in DCMJPLS (dcmjpls/libcharls/encodstr.h). However, according to Mathieu Malaterre, the patch does not solve all cases, and needs further modification as follows:

```
--- a/dcmjpls/libcharls/encodstr.h
+++ b/dcmjpls/libcharls/encodstr.h
@@ -70,17 +70,23 @@ protected:
     #endif

         bitpos -= length;
-        if (bitpos > 0)
+        if (bitpos >= 0)
         {
             valcurrent = valcurrent | (value << bitpos);
             return;
         }
+
+        valcurrent |= value >> -bitpos;
+        Flush();

+        // A second flush may be required if extra marker-detect bits were needed and not all bits c
ould be written.
+        if (bitpos < 0)
+        {
+            valcurrent |= value >> -bitpos;
+            Flush();
+        }

+        ASSERT(bitpos >=0);
-        if (bitpos < 32)
+        valcurrent |= value << bitpos;
+    }

@@ -107,7 +113,7 @@ protected:

        if (_isFFWritten)
        {
-            // insert highmost bit
+            // JPEG-LS requirement (T.87, A.1) to detect markers: after a xFF value a single 0 bit ne
eds to be inserted.
            *_position = BYTE(valcurrent >> 25);
            valcurrent = valcurrent << 7;
            bitpos += 7;
```

The patch compiles in DCMTK, but needs some testing before being committed.

History

#1 - 2016-06-03 10:02 - Marco Eichelberg

- *Status changed from New to Closed*

Checked the patch with a large set of 20,000 files containing various SOP classes.

Apparently the patch changes the compressed JPEG-LS bitstream, but after decompression the pixel data is always correct. Committed with commit b6c821c95825a94b033e871da654dc46e2c1f8f6.