



Release Notes – Version 3.2.2.2

MODALIZER SDK - DICOM Toolkit

9 February 2023

Release Identification

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Release Highlights

Licenses that are not binded to NIC

Hardware binded licenses no longer use the network interface card information (which caused frequent license invalidation issues). Instead, these licenses are binded to the computer serial number and the windows OS installation. Reinstalling the operating system or replacing the computer invalidates the licenses.

Dynamic Linking and Delay loading of OpenJPEG (JPEG 2000)

MODALIZER-SDK is now dynamically linked with OpenJPEG library (www.openjpeg.org) to support encoding and decoding of Jpeg 2000 images. To use Jpeg2000 functionality, a compatible openjp2.dll should be placed in the same directory with rzdcx.dll. This release was linked using [openjpeg-v2.5.0-windows-x86.zip](#) and [openjpeg-v2.5.0-windows-x64.zip](#).

Critical Bug Fix - HRZLTD-168

HRZLTD-168 Transformation from Big Endian to Little Endian when not all data is loaded into memory cause pixel data bytes to be swapped and image look like snow.



Detailed Information

HRZLTD-168 Transformation from Big Endian to Little Endian when not all data is loaded into memory cause pixel data bytes to be swapped and image look like snow

Description

The problem was found when a new server version selected Big Endian Explicit presentation context (and saved using BEE transfer syntax) for incoming C-STORE commands.

As a result after editing the stored files using MODALIZER-SDK the images in LEE (Little Endian Explicit) were corrupted (byte swap in pixel data).

The reason is that the optimization for delayed load of the pixel data didn't take into account byte swapping when rolling the buffer.

So far, this issue was found to affect these methods:

1. DCXREQ.Send
2. DCXOBJ.SaveAs



Steps to reproduce:

1. Using DCXREQ.Send:
 - a. `$r=new-object -com rzdcx.dcxreq`
 - b. `$r.Send(...` // where the input file has OW pixel data and stored in BEE and the called AE selects LEE or LEI transfer syntax
2. Using DCXOBJ.SaveAs
 - a. `$o=new-object -com rzdcx.dcxobj`
 - b. `$o.openFile("file.dcm")` // when're file.dcm has BEE transfer syntax
 - c. `$o.SaveAs("file_lee.dcm", 1, 100,"working_dir")` // Working dir must be specified. If it is empty string or if file input and output file are the same the problem is not found because all data is first loaded into memory and rolled butter stream optimization is not used.

Workarounds

1. Load all data into memory
 - a. Call `DCXOBJ.GetPixelDataRef` to load all the data into memory and prevent using the optimization
2. Do not receive Big endian:
 - a. If you run into this problem you can try blocking Big Endian files from getting to the system using transfer syntax configuration in your PACS.

Fixing affected files

If you identify a DICOM file that is affected by this issue you can fix it using the following example (PowerShell):

In this example the file stored on disk using LEE but the pixel data is swapped. So using exactly the same bug we change it to BEE and then back to LEE while loading all the memory (or leaving it as BEE):

```
$f=<filename of affected file>
$g=<new filename>
$wd=<working directory>
$BEE=3
$LEE=1
# first change to BEE
$o=new-object -com rzdcx.DCXOBJ
$o.openFile($f)
$o.SaveAs($g,$BEE, 100, $wd)
```



```
# now swith back to LEE but first load all data into memory
```

```
$o=new-object -com rzdcx.DCXOBJ
```

```
$o.openFile($g)
```

```
$o.GetPixelDataRef()
```

```
$o.SaveAs($f,$LEE, 100, "")
```

HRZLTD-92 DCXELM put_CStringPtr test fail

The current impl works only if the string is a true c string ie null terminated.
If other string are inserted it will copy only up to the first null

HRZLTD-154 GetEncapsulatedFrameRef() for fragmented files is broken

Fragmented means one jpeg image is encoded in more then one sequence items.

HRZLTD-163 DCXOBJ.getFragmentedFrameData fails on multiframe images

getFragmentedFrameData and GetEncapsulatedFrameLength of multi frame images fails on all frames but the first.

On the first frame it returns the length and data of all the pixel data items as if it is a fragmented image.

HRZLTD-165 DCXOBJ.EncodeJpeg2000 works only on single frame objects

When compressing a multi-frame DICOM with Jpeg2000,
all frames but the first are blank.

Release Notes – Version 3.2.1.1 (limited distribution release)

MODALIZER SDK - DICOM Toolkit

15 November 2022

HRZLTD-162 Store Object in memory doesn't work on 3.2.0.25



Release Notes – Version 3.2.0.25 (limited distribution release)

MODALIZER SDK - DICOM Toolkit

30 October 2022

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Bug fixes

HRZLTD-160 Crash on corrupted DICOM files that are cut just after the element length

HRZLTD-158 ReadBufferEx crashes on specific file

Story

HRZLTD-149 Licenses that are not bounded to NIC

HRZLTD-145 Allow storage of GE private storage sop classes

According to GE Direction DOC0708777 Revision 13 Centricity Enterprise Archive V4.0 DICOM CONFORMANCE STATEMENT Page 24 Table 5.

- GE Collage Storage 1.2.528.1.1001.5.1.1.1
- GE Private DICOM RT Plan Storage 1.2.840.113619.4.5.249
- GE eNTEGRA Storage(Xeleris / eNTEGRA Protocol Data or NM Genie) 1.2.840.113619.4.27
- GE 3D Model Image Storage(GE Advantage 3D XR) 1.2.840.113619.4.26
- GE PET Advance Raw Data Storage(GE Advantage Workstation Raw) 1.2.840.113619.4.30
- GE Private Structure Display 1.2.840.113619.4.41
- PhilipsLive3D01(Philips HP Sonos 7500) 1.2.840.113543.6.6.1.3.10001
- PhilipsLive3D02(Philips HP Sonos 7500) 1.2.840.113543.6.6.1.3.10002
- Tomtec Annotation Private 1.2.276.0.48.5.1.4.1.1.7
- Philips Private Gyroscan MR Series Data Storage 1.3.46.670589.11.0.0.12.2



- Philips Private Specialized X - Ray Storage 1.3.46.670589.2.3.1.1
- Fuji Private CR Storage 1.2.392.200036.9125.1.1.2
- Philips Private 3D Volume Storage 1.3.46.670589.5.0.1.1
- Philips Private 3D Presentation State 1.3.46.670589.2.5.1.1

Add private GE storage SOP classes with switch.

HRZLTD-144 Add SetJ2KFrames to DCXOBJ

Sub-task

HRZLTD-151 Add J2KProps property to DCXOBJ

HRZLTD-147 Detect J2K Lossy Compression from file

* Build using Microsoft Visual Studio 2022 and v143 build tools.

* Fix for crash when incoming association has an empty proposed-presentation-context list (EMPTY_PRES_CONTEXT).

* Added log entries in CMove-SCP.