Brian's Diary and Wiki **2015-04-24**

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Tags:

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Cases 2216, 2230 & 2231

Porter Dodson - all these defects were intermittent - they were reported but when I remoted in the following day the defect wasn't there.

Case 2153

More Delphi debugging.

At DLL_PROCESS_DETACH time KappSrvr suffers an access violation at line 7 in this function from **JclUnitVersioning.pas**:

```
1: procedure UnregisterUnitVersion(Instance: THandle);
2: var
3:   UnitVersioning: TUnitVersioning;
4: begin
5:   UnitVersioning := GetUnitVersioning;
6:   if Assigned(UnitVersioning) then
7:     UnitVersioning.UnregisterModule(Instance);
8: end;
```

The exception looks like this:

```
---------------------------
Debugger Exception Notification
---------------------------
Project winword.exe raised exception class $C0000005 with message 'access violation at 0x1aa07b69: read of address 0x1069a420'.
---------------------------
Break   Continue   Help
---------------------------
```

And the call stack looks like this:

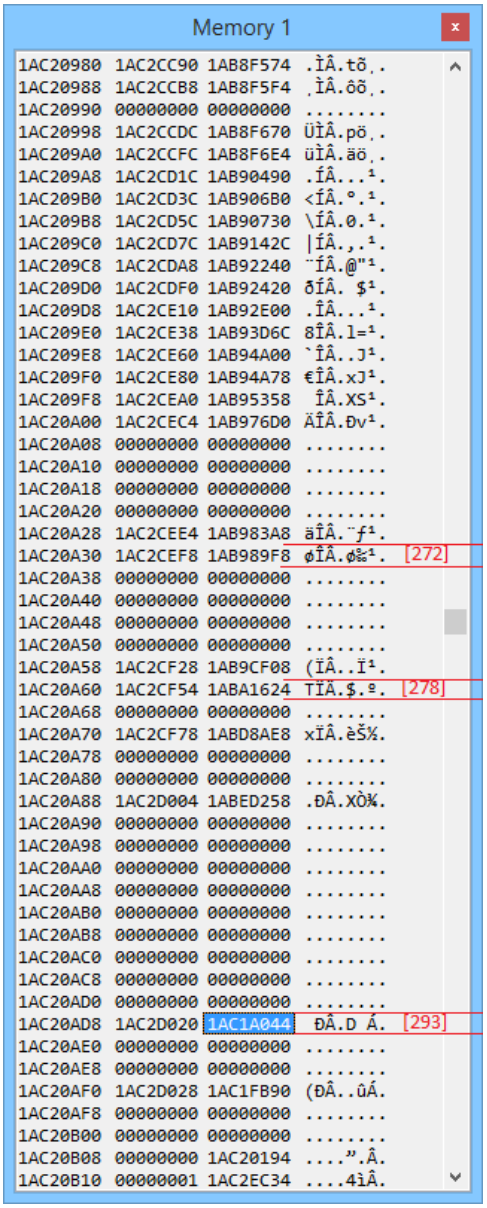
```
JclUnitVersioning.UnregisterUnitVersion(444137472)
JclFileUtils.Finalization
System.FinalizeUnits
System._Halt0
SysInit._InitLib
:1a799e2d @Halt0 + $B1
:77219ea6 ; C:\Windows\System32\ntdll.dll
:77219e22 ntdll.RtlInitializeCriticalSection + 0xa2
:7723da28 ; C:\Windows\System32\ntdll.dll
:7723dad1 ntdll.RtlExitUserProcess + 0x81
:74d89863 kernel32.ExitProcess + 0x13
:5e1e6148 ; C:\Program Files\Microsoft Office 15\root\office15\wwlib.dll
:5e16da11 ; C:\Program Files\Microsoft Office 15\root\office15\wwlib.dll
:5e16de83 ; C:\Program Files\Microsoft Office 15\root\office15\wwlib.dll
:5ddc615c ; C:\Program Files\Microsoft Office 15\root\office15\wwlib.dll
:012115c4 ; C:\Program Files\Microsoft Office 15\root\office15\winword.exe
:01211558 ; C:\Program Files\Microsoft Office 15\root\office15\winword.exe
:74d77c04 kernel32.BaseThreadInitThunk + 0x24
:7722b90f ntdll.RtlInitializeExceptionChain + 0x8f
:7722b8da ntdll.RtlInitializeExceptionChain + 0x5a
```

System.pas:FinalizeUnits has a **try** block that calls each unit's Finalize method and its **catch** block also calls **FinalizeUnits**. This explains the recursive calls I saw previously, where each time the breakpoint hit there was one extra **FinalizeUnits** item in the call stack. Starting at the tail end of the following table, each time FinalizeUnits finalizes a unit it decrements an index, so if the try block does throw an exception, the subsequent call to **FinalizeUnits** from inside the **catch** block will restart at the unit preceding the one that just failed.

The table that gets walked to run the Initialize and Finalize sections for each unit is declared in **System.pas**:

```
  PackageUnitEntry = packed record
    Init, FInit : Pointer;
  end;

  { Compiler generated table to be processed sequentially to init & finit all package units }
  { Init: 0..Max-1; Final: Last Initialized..0  }
  UnitEntryTable = array [0..9999999] of PackageUnitEntry;
  PUnitEntryTable = ^UnitEntryTable;
```

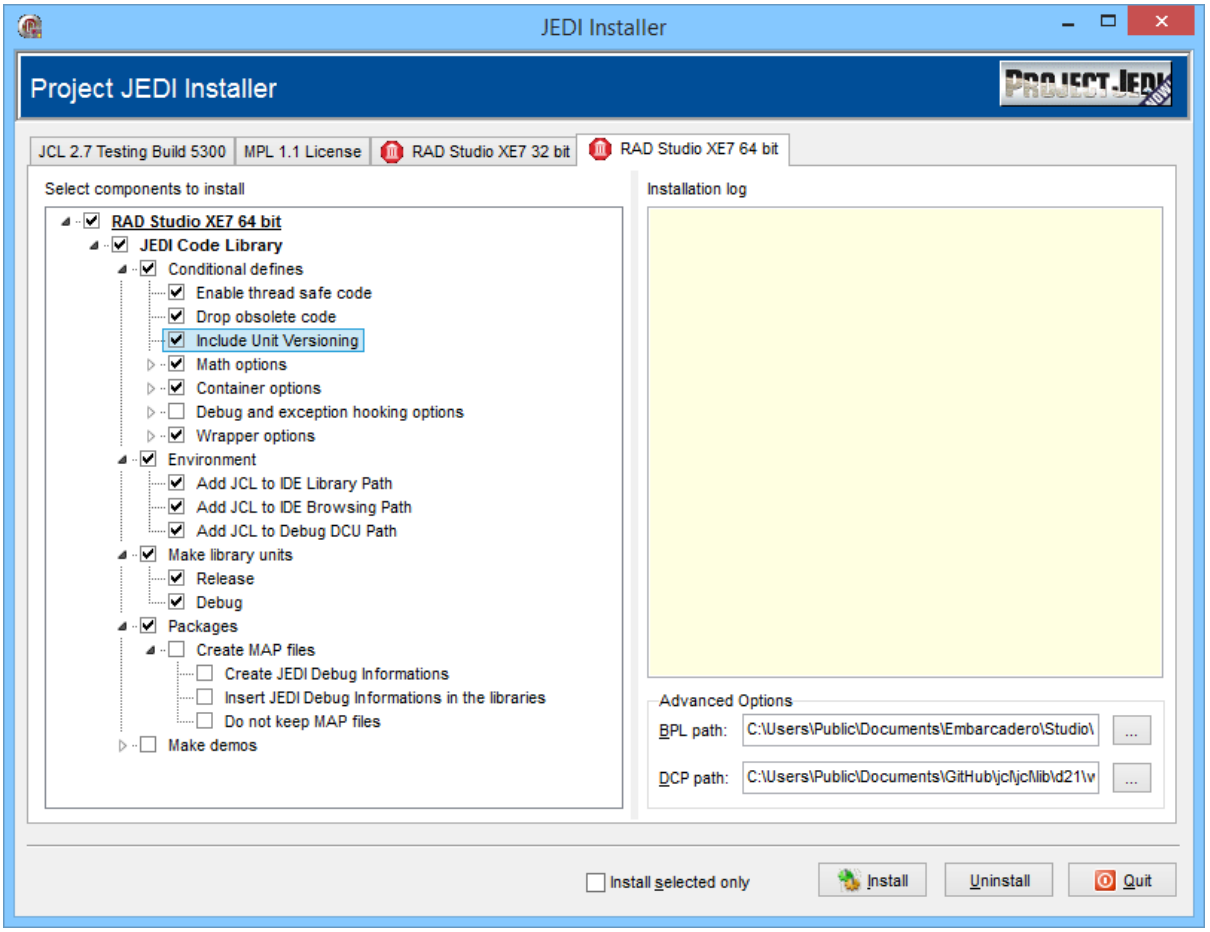


This is the dump of the compiler-generated table. The KappSrvr entry is the pair of DWORDs at [272]. The address of the Finit function which calls on to the KappSrvr Finalization section is 1AB989F8.

```
1: // from Utils.pas
2: //
3: initialization
4:         InitializeCriticalSection(CritSect);
5:         Profiler := TCodeSiteLogger.Create(nil);
6:   Profiler.Enabled := False;
7:
8: finalization
9:         DeleteCriticalSection(CritSect);
10:  Profiler.AddResetSeparator;
11:  Profiler.Free;
12:  Profiler := nil;
13:
14: end.
```

Starting at index 299, for the first few indices this runs fine. But entry [266] is the finalization block for JclUnitVersioning.pas itself.

I've taken a further VM snapshot, and I'm going to rebuild the JCL libraries with **UnitVersioning** turned off. The snap shows the default settings (which I used when I first installed the JEDI stuff).



I tried this twice - first time around I unchecked both [x] Include Unit Versioning and [x] Environment because I didn't want it to break the environment I have already. But Delphi squawked on start up, so on the second attempt I reinstated Environment and did the build again. But the errors are still there - I'll have to fix that next week.

The rebuilt KappSrvr allowed Winword to exit cleanly without crashing at exit. Yay!