PBL File Format

Undocumented - but not unexplored

Arnd Schmidt

Systemanalyst

arnd.schmidt@dwoX.com

PBL File Format

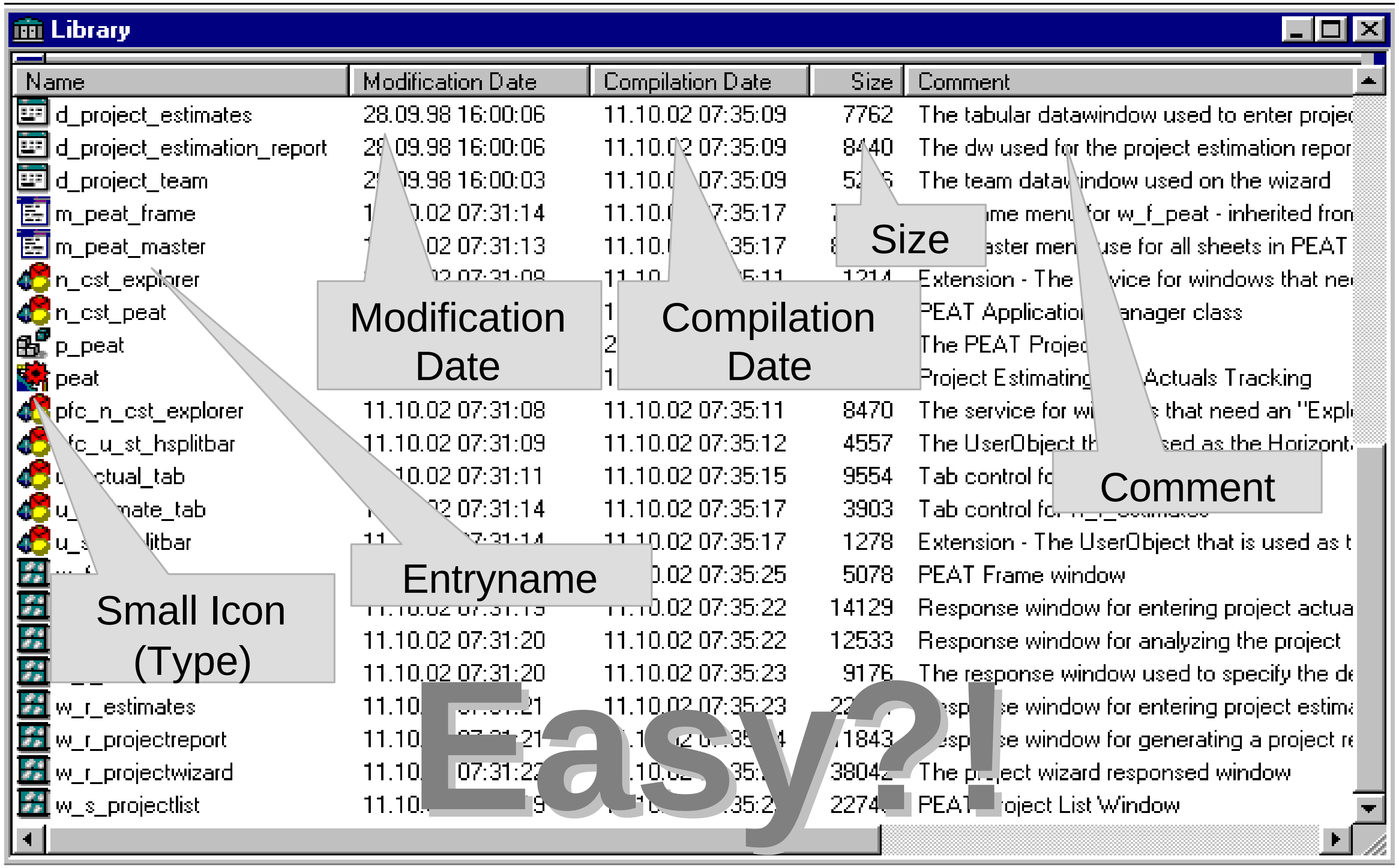
- **Abstract**
  - **PBL Basics**
  - **History of the analysis**
  - **Take a look at a PBL**
  - **Analyse and detect chunks and blocks**
  - **Make a journey thru bits and bytes**
  - **Convert DateTime representations**
  - **Uncover the covered**
  - **Result: Use PBL/PBD/EXE/DLL File (Read) access in your own applications**

PBL File Format – General Questions

- Did you ever tried to look into a PBL with a Hex-Editor?
- Do you use 3rd Party tools to take a look into PBLs for reusing source?
- Did you have problems with missing resources?
- Can it be usefull to have an object or resource acess during runtime?

PBL Basics – Library Painter

Regular View on a PBL (Powerbuilder IDE)



Name	Modification Date	Compilation Date	Size	Comment
d_project_estimates	28.09.98 16:00:06	11.10.02 07:35:09	7762	The tabular datawindow used to enter projec
d_project_estimation_report	28.09.98 16:00:06	11.10.02 07:35:09	8440	The dw used for the project estimation repor
d_project_team	2[illegible]9.98 16:00:03	11.10.0[illegible] 07:35:09	52[illegible]6	The team datawindow used on the wizard
m_peat_frame	1[illegible]0.02 07:31:14	11.10.0[illegible]7:35:17	7[illegible]	[illegible]me menu for w_f_peat - inherited fron
m_peat_master	1[illegible]02 07:31:13	11.10.[illegible]35:17	8[illegible]	[illegible]aster menu use for all sheets in PEAT
n_cst_explorer	[illegible]	[illegible]	1214	Extension - The [illegible]vice for windows that ne
n_cst_peat	[illegible]	1[illegible]	[illegible]	PEAT Applicatio[illegible]anager class
p_peat	[illegible]	2[illegible]	[illegible]	The PEAT Projec[illegible]
peat	[illegible]	1[illegible]	[illegible]	Project Estimating [illegible] Actuals Tracking
pfc_n_cst_explorer	11.10.02 07:31:08	11.10.02 07:35:11	8470	The service for wi[illegible]s that need an "Expl
pfc_u_st_hsplitbar	11.10.02 07:31:09	11.10.02 07:35:12	4557	The UserObject th[illegible]sed as the Horizont
u_[illegible]ctual_tab	[illegible]10.02 07:31:11	11.10.02 07:35:15	9554	Tab control fo[illegible]
u_[illegible]mate_tab	[illegible]2 07:31:14	11.10.02 07:35:17	3903	Tab control fo[illegible]
u_s[illegible]litbar	11[illegible]7:31:14	11.10.02 07:35:17	1278	Extension - The UserObject that is used as t
[illegible]	[illegible]	[illegible]0.02 07:35:25	5078	PEAT Frame window
[illegible]	[illegible]	[illegible]0.02 07:35:22	14129	Response window for entering project actua
[illegible]	11.10.02 07:31:20	11.10.02 07:35:22	12533	Response window for analyzing the project
[illegible]	11.10.02 07:31:20	11.10.02 07:35:23	9176	The response window used to specify the de
w_r_estimates	11.10.[illegible]21	11.10.02 07:35:23	22[illegible]	[illegible]se window for entering project estima
w_r_projectreport	11.10.[illegible]21	[illegible]	[illegible]1843	[illegible]se window for generating a project re
w_r_projectwizard	11.10.[illegible] 07:31:22	[illegible]	3804[illegible]	The p[illegible]ject wizard responsed window
w_s_projectlist	11.10.[illegible]	[illegible]35:2[illegible]	2274[illegible]	PEAT [illegible]roject List Window

PBL Basics – Using build-in PowerBuilder Functions

- **String LibraryDirectory (libname, objecttype)**
  - **Returns a tab-separated list with one object per line.**

    „name ~t date/time modified ~t comments ~n“

- **String LibraryDirectoryEx (libname, objecttype)**
  - **Returns a tab-separated list with one object per line.**
  - **„name ~t date/time modified ~t comments ~t   type~n“**

- **String LibraryExport (&**
  libname, objectname, objecttype)
  - **Returns syntax of the object**

PBL Basics – using ORCA

- Not available directly for everyone
- C/C++ progam / DLL needed
- Usage
  - Like a nonvisual access PB
  - Invoke a session
  - Needs a library search path
  - Libraries can be created
- Can handle Powerbuilder objects
  - Import / Export / Compile etc.
- Can not be used directly within PB Code
- Needs additional DLLs during Runtime

PBL Basics – using ORCA Script

- New in Powerbuilder 9 – ORCAScript
  - Coming late, but not too late
  - Great feature to automate Build Process
  - Rarely documented?
  - Can it be easy used during runtime?

PBL Basics - Conclusion

- Mechanisms will fail, if PBL is corrupted
- In the PB IDE an object can not be opened from a PBL that is not in the Library Path
- Scope is almost on PBLs and how to create Executables
- No acess during runtime for PBD/EXE/DLL
- Not much information about the PBL File Format

Do it the hard way

PBL File Format - The analysis

- Setup the Tools for the analysis
- First Contact and conclusions
- Hints and rumors
- First Results
- Detect more patterns
- How to code the access to neccassary informations with PowerScript
- Get the puzzle completed

PBL File Format – First Contact using a Hex-View (01)

```
Offset     HexView ( 4 x 4 = 16 Bytes)          ASCII View
00000000   4844522A 506F7765 72427569 6C646572   HDR*PowerBuilder
00000010   00003034 30304D45 8E310000 372E3020     0400MEŽ1  7.0
00000020   20504643 2064656D 6F206170 706C6963    PFC demo applic
00000030   6174696F 6E202D20 50726F6A 65637420   ation - Project
00000040   45737469 6D617469 6F6E2061 6E642041   Estimation and A
00000050   63747561 6C732054 7261636B 65720000   ctuals Tracker
00000060   00000000 00000000 00000000 00000000
00000070   00000000 00000000 00000000 00000000
00000080   00000000 00000000 00000000 00000000
00000090   00000000 00000000 00000000 00000000
000000A0   00000000 00000000 00000000 00000000
000000B0   00000000 00000000 00000000 00000000
000000C0   00000000 00000000 00000000 00000000
000000D0   00000000 00000000 00000000 00000000
```

PBL File Format - First Contact using a Hex-View (02)

```
000001E0   00000000 00000000 00000000 00000000
000001F0   00000000 00000000 00000000 00000000
00000200   4652452A 00000000 FFFFFFFF FFFFFFFF     FRE*    ÿÿÿÿÿÿÿÿ
00000210   FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF     ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
00000220   FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF     ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
00000230   FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF     ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
00000240   FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF     ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
00000250   FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF     ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
00000260   FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF     ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
00000270   FFFFFFFF FFFFFFFF FFFFFFFF FE3EFFFF     ÿÿÿÿÿÿÿÿÿÿÿÿþ>ÿÿ
00000280   FFFFFFFF FFFFFFFF F9FFFFFF FFFFFFFF     ÿÿÿÿÿÿÿÿùÿÿÿÿÿÿÿ
00000290   FFFFFF7F FF7FFFFF FFFFFFFF FFFFFFFF     ÿÿÿ•ÿ•ÿÿÿÿÿÿÿÿÿÿ
000002A0   FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF     ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
000002B0   FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF     ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
000002C0   FFFFFFFF FFFFF800 00000000 00000000     ÿÿÿÿÿÿø
000002D0   00000000 00000000 00000000 00000000
```

PBL File Format - First Contact using a Hex-View (03)

```
000003F0    00000000 00000000 00000000 00000000
00000400    4E4F442A 00100000 00000000 001C0000    NOD*
00000410    6F024606 3300ED05 00000000 00000000    o F 3 í
00000420    454E542A 30343030 00CC0300 3A150000    ENT*0400 Ì  :
00000430    0D63A63D 00001E00 645F7072 6F6A6563     c¦=    d_projec
00000440    745F6465 72766965 645F6163 7475616C    t_dervied_actual
00000450    732E6477 6F00454E 542A3034 303000FE    s.dwo ENT*0400 þ
00000460    0300590F 00006696 0F363B00 1E00645F      Y   f– 6;   d_
00000470    70726F6A 6563745F 64657276 6965645F    project_dervied_
00000480    61637475 616C732E 73726400 454E542A    actuals.srd ENT*
00000490    30343030 00CE0300 081A0000 66960F36    0400 Î      ₣ 6
000004A0    3F001E00 645F7072 6F6A6563 745F6465    ?   d_project_de
000004B0    72697665 645F7375 6D6D6172 792E7372    rived_summary.sr
000004C0    6400454E 542A3034 30300000 04000D17    d ENT*0400
000004D0    00000D63 A63D0000 1D00645F 70726F6A       c¦=    d_proj
000004E0    6563745F 64726976 656E5F61 63747561    ect_driven_actua
```

PBL File Format – First Contact using a Hex-View (04)

```
000004F0   6C732E64 776F0045 4E542A30 34303000     ls.dwo ENT*0400
00000500   9A03000E 2200000D 63A63D00 001E0064     š   "   c¦=    d
00000510   5F70726F 6A656374 5F646572 69766564     _project_derived
00000520   5F73756D 6D617279 2E64776F 00454E54     _summary.dwo ENT
00000530   2A303430 30002804 00AC1100 0066960F     *0400 (  ¬   f–
00000540   3633001D 00645F70 726F6A65 63745F64     63   d_project_d
00000550   72697665 6E5F6163 7475616C 732E7372     riven_actuals.sr
00000560   6400454E 542A3034 30300026 0400521E     d ENT*0400 &  R
00000570   00000D63 A63D0000 1800645F 70726F6A        c¦=    d_proj
00000580   6563745F 65737469 6D617465 732E6477     ect_estimates.dw
00000590   6F00454E 542A3034 30300056 04008B1A     o ENT*0400 V  ‹
000005A0   00006696 0F363600 1800645F 70726F6A       f– 66   d_proj
000005B0   6563745F 65737469 6D617465 732E7372     ect_estimates.sr
000005C0   6400454E 542A3034 3030006A 02006014     d ENT*0400 j  `
000005D0   00006596 0F364F00 2100645F 70726F6A       e– 6O ! d_proj
000005E0   6563745F 64657269 7665645F 64657669     ect_derived_devi
```

PBL File Format – First Contact using a Hex-View (05)

```
000016F0    00000000 00000000 00000000 00000000
00001700    00000000 00000000 00000000 00000000
00001710    00000000 00000000 00000000 00000000
00001720    00000000 00000000 00000000 00000000
00001730    00000000 00000000 00000000 00000000
00001740    00000000 00000000 00000000 00000000
00001750    00000000 00000000 00000000 00000000
00001760    00000000 00000000 00000000 00000000
00001770    00000000 00000000 00000000 00000000
00001780    00000000 00000000 00000000 00000000
00001790    00000000 00000000 00000000 00000000
000017A0    00000000 00000000 00000000 00000000
000017B0    00000000 00000000 00000000 00000000
000017C0    00000000 00000000 00000000 00000000
000017D0    00000000 00000000 00000000 00000000
000017E0    00000000 00000000 00000000 00000000
```

PBL File Format – First Contact using a Hex-View (06)

```
000175F0   222C2020 200D0A20 20202020 20202020      ",
00017600   4441542A 008A0100 F6015045 41542041      DAT* Š  ö PEAT A
00017610   70706C69 63617469 6F6E204D 616E6167      pplication Manag
00017620   65722063 6C617373 666F7277 6172640D      er classforward
00017630   0A676C6F 62616C20 74797065 206E5F63       global type n_c
00017640   73745F70 65617420 66726F6D 206E5F63      st_peat from n_c
00017650   73745F61 70706D61 6E616765 720D0A65      st_appmanager  e
00017660   6E642074 7970650D 0A656E64 20666F72      nd type  end for
00017670   77617264 0D0A0D0A 676C6F62 616C2074      ward    global t
00017680   79706520 6E5F6373 745F7065 61742066      ype n_cst_peat f
00017690   726F6D20 6E5F6373 745F6170 706D616E      rom n_cst_appman
000176A0   61676572 0D0A656E 64207479 70650D0A      ager  end type
000176B0   676C6F62 616C206E 5F637374 5F706561      global n_cst_pea
000176C0   74206E5F 6373745F 70656174 0D0A0D0A      t n_cst_peat
000176D0   666F7277 61726420 70726F74 6F747970      forward prototyp
000176E0   65730D0A 7075626C 69632066 756E6374      es  public funct
```

PBL File Format – First Contact using a Hex-View (07)

```
00018BF0    6F757320 66756E63 74696F6E 616C6974      ous functionalit
00018C00    4441542A 008E0100 F6017920 6F662074      DAT* Ž  ö y of t
00018C10    68697320 73657276 6963650D 0A746869      his service  thi
00018C20    732E6F66 5F536574 54725265 67697374      s.of_SetTrRegist
00018C30    72617469 6F6E2854 52554529 0D0A7468      ration(TRUE)  th
00018C40    69732E6F 665F5365 74457272 6F722854      is.of_SetError(T
00018C50    52554529 0D0A696E 765F6572 726F722E      RUE)  inv_error.
00018C60    6F665F53 65745072 65646566 696E6564      of_SetPredefined
00018C70    536F7572 63652853 514C4341 290D0A0D      Source(SQLCA)
00018C80    0A2F2F20 436F6E6E 65637420 746F2064       // Connect to d
00018C90    61746162 6173650D 0A6C735F 696E6966      atabase  ls_inif
00018CA0    696C6520 3D20676E 765F6170 702E6F66      ile = gnv_app.of
00018CB0    5F476574 41707049 6E694669 6C652829      _GetAppIniFile()
00018CC0    0D0A4946 2053514C 43412E6F 665F496E        IF SQLCA.of_In
00018CD0    6974286C 735F696E 6966696C 652C2022      it(ls_inifile, "
00018CE0    44617461 62617365 2229203D 202D3120      Database") = -1
```

PBL File Format – First Contact using a Hex-View (08)

```
000BDBF0    0F003E00 40150000 3F000280 FFFF0000       > @    ?  €ÿÿ
000BDC00    4441542A 00DE0B00 F6010201 00001100      DAT* Þ  ö
000BDC10    02804015 00000280 5B00FFFF 00000F01       €@     €[ ÿÿ
000BDC20    00001200 5D004015 00005E00 4600FFFF          ] @    ^ F ÿÿ
000BDC30    00001501 00001400 48004015 00004900               H@    I
000BDC40    0280FFFF 00002201 00001500 02804015       €ÿÿ  "       €@
000BDC50    00000280 0000FFFF 00003201 00001600         €  ÿÿ  2
000BDC60    00004015 00000700 0001FFFF 00003A01        @        ÿÿ  :
000BDC70    00001700 00014015 00000000 0000FFFF                     ÿÿ
000BDC80    00004C01 00001900 00004015 00001400        L        @
000BDC90    F0001100 08000000 00000000 20202020      ð
000BDCA0    20202000 00008500 00800000 00000000            …  €
000BDCB0    00000000 00008100 02800000 00000000            •  €
000BDCC0    00000000 00000B00 0F801080 01800000               € € €
000BDCD0    00000000 00000100 10800000 00000000               €
000BDCE0    00000000 00000180 00C00500 00000500             € À
```

PBL File Format – Hints and Rumors

- **Rumours:**

  PowerBuilder stores the source and a (pre)compiled (P-Code) version of an object separately in a PBL.

- **Hints:**

  CATSoft gives a brief description how to extract a bitmap from a PowerBuilder Executable. That is the key to the 'DAT*' and 'NOD*‘-blocks to.

PBL File Format –
Review of a Data Block chain

```
00066800   4441542A 006A0600 F6015072 6F6A6563     DAT* j  ö Projec
00066810   74204573 74696D61 74696E67 20616E64     t Estimating and
...        ...                                     ...
00066A00   4441542A 006C0600 F6016172 65610D0A     DAT* l  ö area
00066A10   6572726F 72203D20 63726561 7465206E     error = create n
...        ...                                     ...
00066C00   4441542A 00000000 25017420 69646C65     DAT*    % t idle
00066C10   3B2F2A2A 2A0D0A20 2A2A2A20 52656469     ;/***   *** Redi
```

PBL File Format – Review of a Node Block chain

```
00000400    4E4F442A 00100000 00000000 001C0000      NOD*
00000410    6F024606 3300ED05 00000000 00000000      o F 3 í
...         ...                                      ...
00001000    4E4F442A 00000000 00040000 00000000      NOD*
00001010    7E086D03 12004102 00000000 00000000      ~ m   A
...         ...                                      ...
00001C00    4E4F442A 00000000 00040000 00000000      NOD*
00001C10    BB080B02 1300E001 00000000 00000000      »     à
```

Lab: Detect the informations to navigate thru the blocks.

PBL File Format – Staring at the data of a node block

```
00000400    4E4F442A 00100000 00000000 001C0000     NOD*
00000410    6F024606 3300ED05 00000000 00000000     o F 3 í
00000420    454E542A 30343030 00CC0300 3A150000     ENT*0400 Ì  :
00000430    0D63A63D 00001E00 645F7072 6F6A6563      c¦=    d_projec
00000440    745F6465 72766965 645F6163 7475616C     t_dervied_actual
00000450    732E6477 6F00454E 542A3034 303000FE     s.dwo ENT*0400 þ
00000460    0300590F 00006696 0F363B00 1E00645F       Y   f– 6;   d_
00000470    70726F6A 6563745F 64657276 6965645F     project_dervied_
00000480    61637475 616C732E 73726400 454E542A     actuals.srd ENT*
00000490    30343030 00CE0300 081A0000 66960F36     0400 Î       ₣ 6
...         ...                                     ...
0003FE00    4441542A 00020400 F6015468 65207461     DAT*    ö The ta
0003FE10    62756C61 72206461 74617769 6E646F77     bular datawindow
0003FE20    20746F20 656E7465 72206163 7475616C      to enter actual
0003FE30    2076616C 75657320 666F7220 61207072      values for a pr
0003FE40    6F6A6563 7472656C 65617365 20353B0D     ojectrelease 5;
```

PBL File Format – Transformed ”Staring View” at a Node Block

```
454E542A 30343030 00CC0300 3A150000          ENT*0400 Ì  :
0D63A63D 00001E00 645F7072 6F6A6563           c¦=    d_projec
745F6465 72766965 645F6163 7475616C          t_dervied_actual
732E6477 6F00                                s.dwo
454E542A 30343030 00FE0300 590F0000          ENT*0400 þ  Y
66960F36 3B001E00 645F7072 6F6A6563          f– 6;    d_projec
745F6465 72766965 645F6163 7475616C          t_dervied_actual
732E7372 6400                                s.srd
454E542A 30343030 00CE0300 081A0000          ENT*0400 Î
66960F36 3F001E00 645F7072 6F6A6563          f– 6?    d_projec
745F6465 72697665 645F7375 6D6D6172          t_derived_summar
792E7372 6400                                y.srd

0003FE00  4441542A 00020400 F6015468 65207461     DAT*    ö The ta
0003FE10  62756C61 72206461 74617769 6E646F77     bular datawindow
```

Lab: Try to figure out something (15 min.)

PBL File Format – Which time is stored in a PBL?

- **It is the Universal Coordinated Time (UCT) aka**
  - **Greenwich Mean Time (GMT)**
- **Different time zones exists, like**
  - **(GMT-10:00) Hawaii**
  - **(GMT+03:00) Bagdad**
  - **(GMT+05:45) Katmandu**
- **Not enough**
  - **Daylight saving times can begin and end on different dates in different countries.**

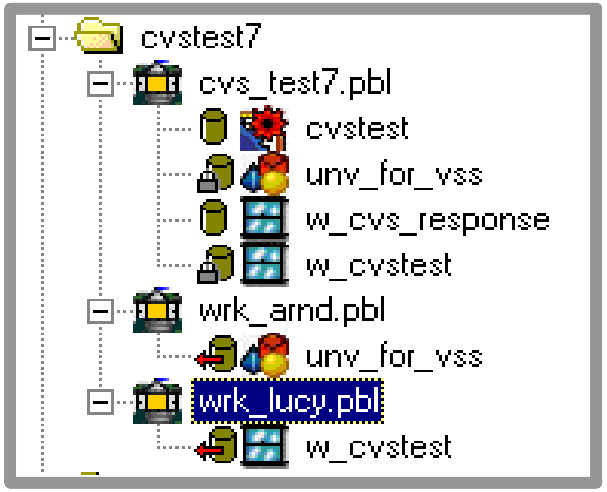
PBL File Format – Crazy Status Flags Registration-/Check-In/Checked-Out

Overview

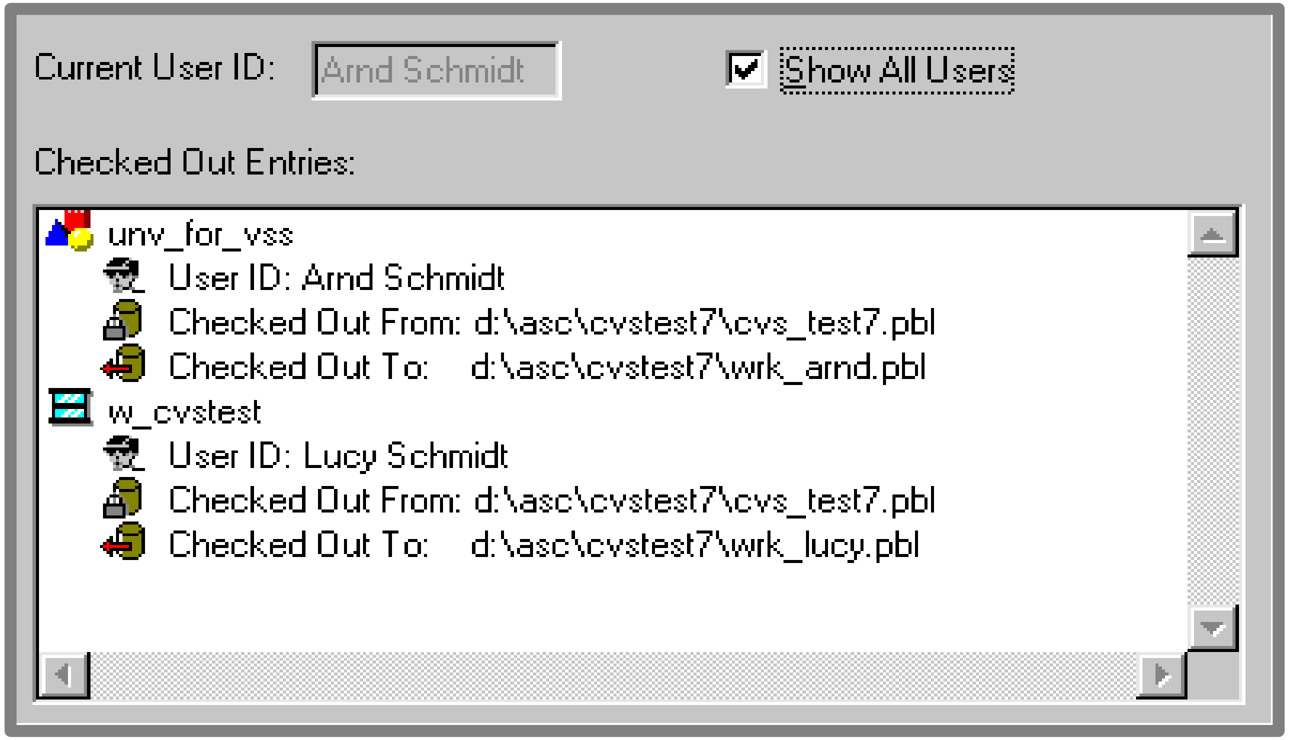
- View on PowerBuilder Library Painter and the displayed SCC-Flag informations
- Staring at the Library Header Block
- Analyse the datastructure that stores the SCC Flag information

PBL File Format – Library Painter with SCC information

- **Powerbuilder IDE showing SCC Status and Checked-Out Status**



```
cvstest7
  cvs_test7.pbl
    cvstest
    unv_for_vss
    w_cvs_response
    w_cvstest
  wrk_arnd.pbl
    unv_for_vss
  wrk_lucy.pbl
    w_cvstest
```



Current User ID: Arnd Schmidt

☑ Show All Users

Checked Out Entries:

```
unv_for_vss
    User ID: Arnd Schmidt
    Checked Out From: d:\asc\cvstest7\cvs_test7.pbl
    Checked Out To:    d:\asc\cvstest7\wrk_arnd.pbl
w_cvstest
    User ID: Lucy Schmidt
    Checked Out From: d:\asc\cvstest7\cvs_test7.pbl
    Checked Out To:    d:\asc\cvstest7\wrk_lucy.pbl
```

Thesis:
This information must be stored in the PBL (Pre PB8).

PBL File Format – Staring at the Library Header Block

```
00000000   4844522A 506F7765 72427569 6C646572   HDR*PowerBuilder
00000010   00003036 30305B15 B93E0000 4120736D     0600[  ¹>   A sm
00000020   616C6C20 6578616D 706C6520 50424C00   all example PBL
00000030   00000000 00000000 00000000 00000000
...        ...                                   ...
00000100   00000000 00000000 00000000 00000000
00000110   00000000 00000000 00000000 00100000
00000120   99000000 00000000 00000000 00000000   ™
00000130   00000000 00000000 00000000 00000000
00000140   00000000 00000000 00000000 00000000
00000150   00000000 00000000 00000000 00000000
00000160   00000000 00000000 00000000 00000000
00000170   00000000 00000000 00000000 00000000
```

PBL File Format – Data block with status information

```
00001000    4441542A 00000000 99000063 76737465     DAT*    ™  cvste
00001010    73742E73 72610000 7200775F 6376735F     st.sra  r w_cvs_
00001020    72657370 6F6E7365 2E737277 00007264     response.srw  rd
00001030    3A5C6173 635C6376 73746573 74375C77     :\asc\cvstest7\w
00001040    726B5F61 726E642E 70626C00 756E765F     rk_arnd.pbl unv_
00001050    666F725F 7673732E 73727500 41726E64     for_vss.sru Arnd
00001060    20536368 6D696474 0064643A 5C617363      Schmidt dd:\asc
00001070    5C637673 74657374 375C7772 6B5F6C75     \cvstest7\wrk_lu
00001080    63792E70 626C0077 5F637673 74657374     cy.pbl w_cvstest
00001090    2E737277 004C7563 79205363 686D6964     .srw Lucy Schmid
000010A0    74006400 00000000 00000000 00000000     t d
000010B0    00000000 00000000 00000000 00000000
000010C0    00000000 00000000 00000000 00000000
000010D0    00000000 00000000 00000000 00000000
```

PBL File Format – Translated status information

d:\asc\cvstest7\cvs_test7.pbl

Library	Object	Developer	Flag
	cvstest.sra		r
	w_cvs_response.srw		r
d:\asc\cvstest7\wrk_arnd.pbl	unv_for_vss.sru	Arnd Schmidt	d
d:\asc\cvstest7\wrk_lucy.pbl	w_cvstest.srw	Lucy Schmidt	d

d:\asc\cvstest7\wrk_arnd.pbl

Library	Object	Developer	Flag
d:\asc\cvstest7\cvs_test7.pbl	unv_for_vss.sru	Arnd Schmidt	s

Lab: What are the riscs in storing informations in that way?

PBL File Format – PB7 Status Flags

Icon	Flag	Meaning
	r	Object is registered
	d	Object is Checked Out (locked)
	s	Object (Working Copy) to be checked in
	u	Unknown?! After an Error occurred. Checked out by user <Unknown> Could be set to ’r’ with an Hex-Editor.

PBL File Format – Possible usage of this knowledge

- Low level access with other languages is possible (delphi, java, perl, …)
- Some recently tests showed that a PBL can be “rewritten”
- Some “bits and bytes” were not covered
- How about analysing PBD / EXE / DLL

PBL File Format – PBD Analysis and Results

- A PBD is a PBL, that means:
  - There is PBL Comment
  - There are no SCC informations
  - There is a creation date :-)

PBL File Format – Staring at a new kind of block (DLL/EXE)

```
00120800   54524C2A 001C0B00 00000000 00000000      TRL*
00120810   00000000 00000000 00000000 00000000
00120820   00000000 00000000 00000000 00000000
00120830   00000000 00000000 00000000 00000000
00120840   00000000 00000000 00000000 00000000
00120850   00000000 00000000 00000000 00000000
00120860   00000000 00000000 00000000 00000000
00120870   00000000 00000000 00000000 00000000
00120880   00000000 00000000 00000000 00000000
00120890   00000000 00000000 00000000 00000000
001208A0   00000000 00000000 00000000 00000000
001208B0   00000000 00000000 00000000 00000000
001208C0   00000000 00000000 00000000 00000000
001208D0   00000000 00000000 00000000 00000000
001208E0   00000000 00000000 00000000 00000000
001208F0   00000000 00000000 00000000 00000000
```

PBL File Format – Objecttype suffixes

Source	P-Code	Objecttype
sra	apl	Application
	pra	Application Setup (App. Icon Info, etc.)
srd	dwo	Datawindow
	exe	ob.exe (PB Runtime Bootloader?) /Only in EXE
srf	fun	Function
srm	men	Menu
srq	-	Query
srp	-	Pipeline
srj	-	Project
srs	str	Structure
sru	udo	Userobject
srw	win	Window
	***	Whatever you like! (PB8 stores add. “prp”-Informations)

PBL File Format – Is the end of this file format near?

- Since Version PB 4 the format has not significantly changed. (That’s proofed)
- Sybase kicked out the status flags
- PB Native follows a new approach
- The future might bring P-Code files to the filesystem and change the Runtime format

PBL File Format – The closing bell

- Demonstration of using Libtool and dw_ripper and what you can do with all that - hopefully - new knowledge
- Demonstration of an approach how Libtool and Filemon can help you to find performance leaks
- Discussion
  - OpenSource and the SDN
  - Will the dinner be good?

PBL File Format – Thank you

Thank you!

Visit my website dwox.com next week