STORR CONSULTING, INC.

Mainframe and PC Solutions

ADA-PER

Adabas Performance and History

V8.2

Installation and User Manual

Mainframe z/OS

Dieter W. Storr

21 November 2009

ADA-PER Version 8.2.e

November 21, 2009

Distribution, Change and Enhancements:

Storr Consulting, Inc., Sacramento, CA 95825, U.S.A.

Office: +1-916-929-1905 – Cell: +1-310-430-2278

Internet: http://www.storrconsulting.com

E-mail: info@storrconsulting.com

Contents

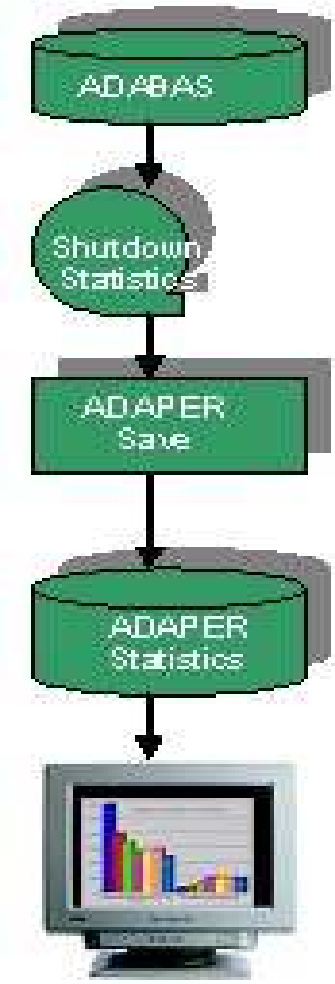
1. Introduction

ADA-PER is an Adabas performance and analysis tool based on the shut-down statistics from Adabas 7.4.2 as well as Adabas 8.1.3 and is written in Natural 4.1.3.

Data collection: a Natural program reads database statistics from one or more databases and saves the data into an Adabas file. It also creates a report of the stored data.

Online analysis: Natural programs display the data by database and date and also create the following charts, for example:

- Display statistics of multiple Adabas sessions and select one session for more details
- Graphic display of
  - Number of commands per CPU second
  - Pool sizes (LBP, LWP, etc.)
  - High-Water-Marks
  - Relation between format translations and number of commands



Batch analysis:

Natural programs read the session or shut-down statistics as well as the saved information and create batch reports:

- Number of Adabas commands per CPU second
- High-Water-Marks

Operating system and prerequisites

1. z/OS
2. ADABAS V7 or V8 and NATURAL V3 or 4
3. The online and batch components are also tested under Natural for Windows

2. New in Release 8.2

- Add new field for High-Water-Mark RPL, replication buffer (LRPL). If Adabas Event Replication is installed, values will be stored into this field.
- Add new field for Buffer Efficiency (BE)
- If started with V8.1 then add the two new fields (see chapter 3.7.1) by using SYSAOS File Maintenance / Modify FDT or ADADBS NEWFIELD

```
ADACMP FNDEF=’01,BH,3,A,NU’
ADACMP FNDEF='01,BI,11,A,NU'
```

- After that, run program PER-P999 to add new fields from old statistics into already saved values:

```
//NATURAL  EXEC NATBATCH
//CMSYNIN  DD DISP=SHR,BUFNO=30,DSN=&SYSUID..DBA.CNTL(NSC)
//         DD *
LOGON ADAPER
PER-P999
//CMPRT01 DD SYSOUT=*
//CMWKF01 DD DISP=SHR,DSN=ADABAS.PROD.DB1.SERVER.LOG.G0766V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB1.SERVER.LOG.G0767V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB1.SERVER.LOG.G0768V00
```

- Output of CMPRT01

```
2009-11-14 19:03:50            A D A - P E R                      Page      1
ADAPER                      -- Add Fields V82 --                  PER-P999
-------------------------------------------------------------------------------
DB  Date   Time  RPL BUFF-EFF     Comments
--------------  --- -----------  ----------------------------------------------
215200910172053   75      2316.0  Nucleus statistics updated/completed
215200910250035   95      2611.9  Nucleus statistics updated/completed
215200910261958                   Nucleus statistics not yet saved
                                  use pgm PER-P001 to store all info
```

- Display of HWM RPL
- Compare the size of the Adabas buffer pool (LBP) with the buffer efficiency.

3. Installation

3.1. Download the Natural modules from the following Web page:

http://www.storrconsulting.com/sc340.html

The unloaded source and objects have been created by using NATUNLD with the FIXEDLENGTH option. A transformation before the FTP process from VB to FB is therefore no longer necessary.

```
//NATURAL EXEC NATBATCH,NATPARM=',IM=D,INTENS=1'
//CMSYNIN   DD DISP=SHR,BUFNO=30,DSN=&SYSUID..DBA.CNTL(NSC)   ← logon/pw info
//          DD *
%Q
NATUNLD
ALL,*,FM,ADAPER,WHERE,DBID,196,FNR,008,WITH,FIXEDLENGTH
END
//CMWKF01  DD DSN=NATURAL.ADAPER.UNLDFB,
//            DISP=(,CATLG),SPACE=(TRK,(1665,1665),RLSE),BUFNO=30,
//            DCB=(RECFM=FB,LRECL=252,BLKSIZE=0)
//CMWKF03   DD DUMMY
//CMWKF07   DD DUMMY



17:18:13              ***** NATURAL NATUNLD UTILITY *****            2009-11-21
User DIETER              - Unload Programming Objects -
Object   Object      Src Vers. Target    Source     Date and Time       User ID
Name     Type        Cat Level Library   DBID/FNR   of Save or Cat
-------- ----------- --- ----- -------- ---------- ------------------- --------
ADACPU3  Program     Cat 4.1.3 ADAPER     196/8     2009-11-08 09:58:04 DIETER
ADAPER   Program     Cat 4.1.3 ADAPER     196/8     2009-11-07 14:47:46 DIETER
NJMA01   Parameter   Cat 4.1.3 ADAPER     196/8     2009-11-07 07:57:16 DIETER
NJMM01   Map         Cat 4.1.3 ADAPER     196/8     2009-11-20 20:26:49 DIETER
NJMN01   Subprogram  Cat 4.1.3 ADAPER     196/8     2009-11-21 14:20:10 DIETER
NJMP01   Program     Cat 4.1.3 ADAPER     196/8     2009-11-20 23:35:01 DIETER
PER-A000 Parameter   Cat 4.1.3 ADAPER     196/8     2009-11-08 09:57:59 DIETER
PER-L00R Local       Cat 4.1.3 ADAPER     196/8     2009-11-13 21:35:11 DIETER
PER-L00S Local       Cat 4.1.3 ADAPER     196/8     2009-11-13 21:36:02 DIETER
PER-MERR Map         Cat 4.1.3 ADAPER     196/8     2009-11-08 09:58:01 DIETER
PER-MEXP Map         Cat 4.1.3 ADAPER     196/8     2009-11-06 16:54:28 DIETER
PER-MH01 Map         Cat 4.1.3 ADAPER     196/8     2005-11-16 15:38:57 DIETER
PER-MH02 Map         Cat 4.1.3 ADAPER     196/8     2009-11-07 14:41:55 DIETER
PER-M000 Map         Cat 4.1.3 ADAPER     196/8     2009-11-06 19:35:21 DIETER
PER-M005 Map         Cat 4.1.3 ADAPER     196/8     2009-11-07 23:28:30 DIETER
PER-M006 Map         Cat 4.1.3 ADAPER     196/8     2009-11-15 14:36:38 DIETER
PER-M007 Map         Cat 4.1.3 ADAPER     196/8     2009-11-15 14:40:13 DIETER
PER-M008 Map         Cat 4.1.3 ADAPER     196/8     2009-11-15 14:40:59 DIETER
PER-N005 Subprogram  Cat 4.1.3 ADAPER     196/8     2009-11-08 09:58:00 DIETER
PER-N006 Subprogram  Cat 4.1.3 ADAPER     196/8     2009-11-15 14:45:43 DIETER
PER-N007 Subprogram  Cat 4.1.3 ADAPER     196/8     2009-11-15 14:51:03 DIETER
PER-N008 Subprogram  Cat 4.1.3 ADAPER     196/8     2009-11-15 14:51:30 DIETER
PER-PERR Program     Cat 4.1.3 ADAPER     196/8     2009-11-06 15:49:53 DIETER
PER-PHWM Program     Cat 4.1.3 ADAPER     196/8     2009-11-08 09:58:06 DIETER
PER-P000 Program     Cat 4.1.3 ADAPER     196/8     2009-11-15 14:43:50 DIETER
PER-P001 Program     Cat 4.1.3 ADAPER     196/8     2009-11-13 22:06:51 DIETER
PER-P999 Program     Cat 4.1.3 ADAPER     196/8     2009-11-15 14:16:25 DIETER
PERAHELL Parameter   Cat 4.1.3 ADAPER     196/8     2009-11-07 23:14:18 DIETER
PERAPARM Parameter   Cat 4.1.3 ADAPER     196/8     2009-11-06 16:05:08 DIETER
PERMHELL Map         Cat 4.1.3 ADAPER     196/8     2009-11-15 15:36:42 DIETER
PERNPARM Subprogram  Src 4.1.3 ADAPER     196/8     2009-11-13 19:34:43 DIETER
PERNPARM Subprogram  Cat 4.1.3 ADAPER     196/8     2009-11-13 19:34:43 DIETER
```

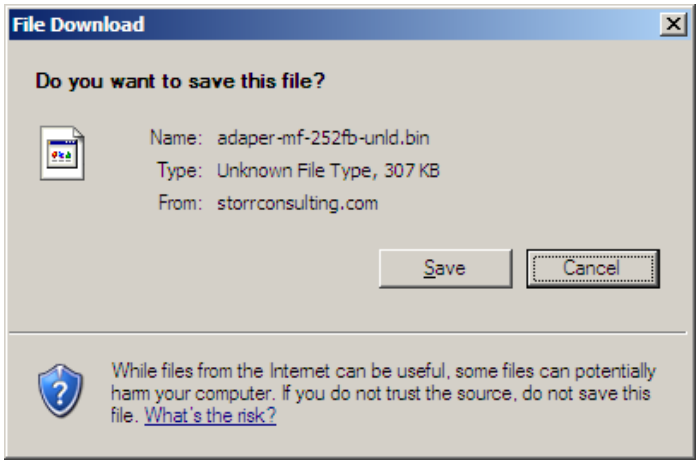
```
PERPWCHK Subprogram  Cat 4.1.3 ADAPER     196/8     2009-11-06 17:14:47 DIETER

17:18:14              ***** NATURAL NATUNLD UTILITY *****            2009-11-21
User DIETER              - Unload Programming Objects -
                      Statistical Report of Objects Processed
                                              Saved     Cataloged
             Programs ..............              0            8
             Subprograms ............             1            7
             Local Data Areas .......             0            2
             Parameter Data Areas ...             0            4
             Maps ...................             0           11
             Total programming obj ..             1           32
             ------------------------  ----------------------
             Total objects processed ...          33
               *** Utility has been terminated normally   ***
```

The mainframe dataset has been FTP'ed in binary mode to the Web server:

```
PUT  'NATURAL.ADAPER.UNLDFB' adaper-mf-252fb-unld.bin
```

3.2.Download and save the file on your PC



3.3.Allocate a new dataset on the mainframe

For example: NATURAL.ADAPER.UNLDFB

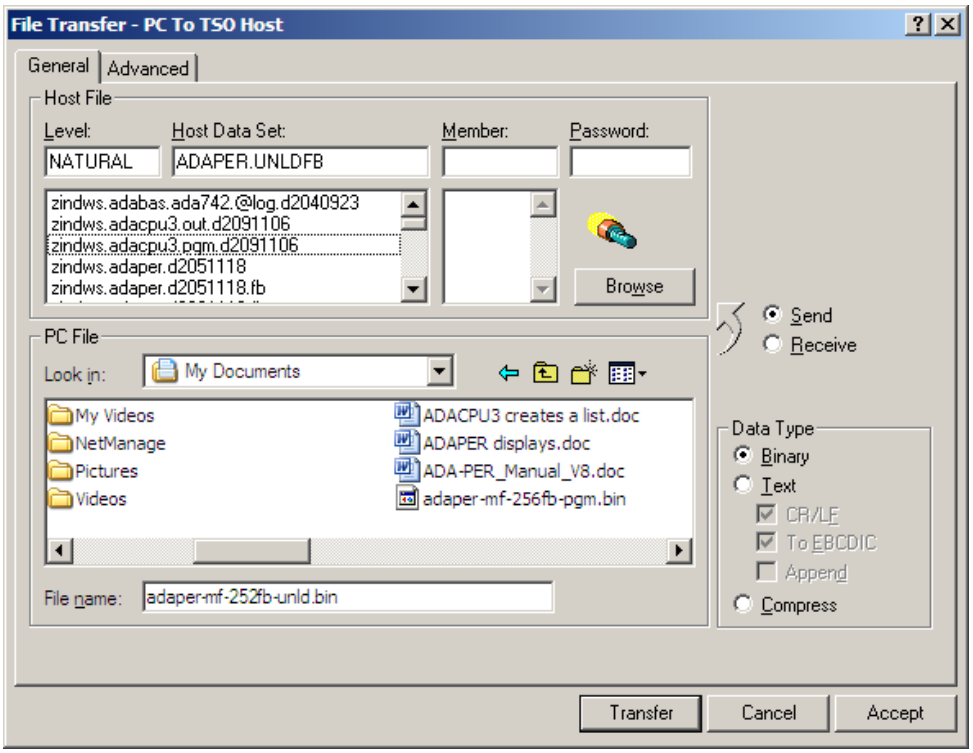
```
General Data                              Current Allocation
 Management class . . : MCTSOPDS           Allocated tracks  . : 6
 Storage class  . . . : SCTSODA            Allocated extents . : 1
  Volume serial . . . : TSO002
  Device type . . . . : 3390
 Data class . . . . . : DCTSODA           Current Utilization
  Organization  . . . : PS                  Used tracks . . . . : 6
  Record format . . . : FB                  Used extents  . . . : 1
  Record length . . . : 252
  Block size  . . . . : 27972
  1st extent tracks . : 6
  Secondary tracks  . : 1396
  Data set name type  :                     SMS Compressible  . : NO

  Creation date . . . : 2009/11/11          Referenced date . . : 2009/11/11
  Expiration date . . : ***None***
```

3.4. FTP the file in binary mode from your server (PC) to the main-frame

File to be uploaded: **adaper-mf-252fb-unld.bin**

Use the transfer function from TSO or from your RUMBA session in binary mode. Mark FB on the 'Advanced' tab. No transformation into VB is necessary.



3.5. Define the Natural library ADAPER in Natural Security (NSC) if installed

3.6. Use the Object Handler to load the programs into Natural on the mainframe

```
//NATURAL EXEC NATBATCH,NATPARM=',IM=D,INTENS=1'
//CMSYNIN   DD DISP=SHR,BUFNO=30,DSN=&SYSUID..DBA.CNTL(NSC)
//          DD *
%Q
LOGON ADAPER
SYSOBJH
LOAD * LIBRARY ADAPER WHERE REPLACE
FIN
//CMWKF01   DD DSN=NATURAL.ADAPER.UNLDFB,     ← it's FB LRECL=252
//             DISP=SHR
```

```
16:06:05              ***** Natural Object Handler *****            2009-11-11
User DIETER                 Direct Command Processing           Library ADAPER
Report Text Member 31606030
                                              *** Load Objects ***
                                          Processing Load File created on 2009
Status                         Library  Object Name                    Type
------------------------------ -------- ------------------------------ -------
Replaced                       ADAPER   ADACPU3                        Program
Replaced                       ADAPER   ADAPER                         Program
Replaced                       ADAPER   NJMA01                         Paramet
Replaced                       ADAPER   NJMM01                         Map
Replaced                       ADAPER   NJMN01                         Subprog
Replaced                       ADAPER   NJMP01                         Program
Replaced                       ADAPER   PER-A000                       Paramet
Replaced                       ADAPER   PER-L00R                       Local
Replaced                       ADAPER   PER-L00S                       Local
Replaced                       ADAPER   PER-MERR                       Map
Replaced                       ADAPER   PER-MEXP                       Map
Replaced                       ADAPER   PER-MH01                       Map
Replaced                       ADAPER   PER-MH02                       Map
Replaced                       ADAPER   PER-M000                       Map
Replaced                       ADAPER   PER-M005                       Map
Replaced                       ADAPER   PER-M006                       Map
Replaced                       ADAPER   PER-M007                       Map
Replaced                       ADAPER   PER-M008                       Map
Replaced                       ADAPER   PER-N005                       Subprog
Replaced                       ADAPER   PER-N006                       Subprog
Replaced                       ADAPER   PER-N007                       Subprog
Replaced                       ADAPER   PER-N008                       Subprog
Replaced                       ADAPER   PER-PERR                       Program
Replaced                       ADAPER   PER-PHWM                       Program
Replaced                       ADAPER   PER-P000                       Program
Replaced                       ADAPER   PER-P001                       Program
Replaced                       ADAPER   PER-P999                       Program
Replaced                       ADAPER   PERAHELL                       Paramet
Replaced                       ADAPER   PERAPARM                       Paramet
Replaced                       ADAPER   PERMHELL                       Map
Replaced                       ADAPER   PERNPARM                       Subprog
Replaced                       ADAPER   PERNPARM                       Subprog
Replaced                       ADAPER   PERPWCHK                       Subprog
                               Function completed successfully.
Page      2
SYSOBJH direct command processing:
Function completed successfully.
```

3.7.Install the Adabas file ADABAS-PERFORMANCE

3.7.1. Compress an empty file by using the Adabas utility ADACMP

```
//ADACMP  EXEC PGM=ADARUN,REGION=0M
//STEPLIB  DD  DSN=ADABAS.V813.LOADLIB
//DDPRINT  DD  SYSOUT=*
//DDDRUCK  DD  SYSOUT=*
//SYSUDUMP DD  SYSOUT=*
//DDEBAND  DD  DUMMY
//DDAUSBA  DD  DSN=ADABAS.COMPRESS.FILE254,     ← input for ADALOD
//             DCB=(RECFM=VB,LRECL=9996,BLKSIZE=0),
//             DISP=(,CATLG,DELETE)
//DDFEHL   DD  DSN=&&ERRS,DISP=(NEW,PASS),
//             DCB=(RECFM=VB,LRECL=500,BLKSIZE=0,BUFNO=60),
//             UNIT=MISCDA,SPACE=(TRK,(1,1),RLSE
//DDKARTE  DD  *
ADACMP COMPRESS
ADACMP FILE=10
ADACMP MINISN=1
ADACMP FNDEF='01,AA,3,A,NU'
ADACMP FNDEF='01,AB,8,A,NU'
ADACMP FNDEF='01,AC,8,A,NU'
ADACMP FNDEF='01,AD,4,A,NU'
ADACMP FNDEF='01,AE,4,A,NU'
ADACMP FNDEF='01,AF,11,A,NU'
ADACMP FNDEF='01,AG,11,A,NU'
ADACMP FNDEF='01,AH,11,A,NU'
ADACMP FNDEF='01,AI,8,U,NU'
ADACMP FNDEF='01,AJ,8,U,NU'
ADACMP FNDEF='01,AK,11,A,NU'
ADACMP FNDEF='01,AL,11,A,NU'
ADACMP FNDEF='01,AM,11,A,NU'
ADACMP FNDEF='01,AN,11,A,NU'
ADACMP FNDEF='01,AO,11,A,NU'
ADACMP FNDEF='01,AN,11,A,NU'
ADACMP FNDEF='01,AO,11,A,NU'
ADACMP FNDEF='01,AP,11,A,NU'
ADACMP FNDEF='01,AQ,11,A,NU'
ADACMP FNDEF='01,AR,11,A,NU'
ADACMP FNDEF='01,AS,11,A,NU'
ADACMP FNDEF='01,AT,11,A,NU'
ADACMP FNDEF='01,AU,11,A,NU'
ADACMP FNDEF='01,AV,3,A,NU'
ADACMP FNDEF='01,AW,3,A,NU'
ADACMP FNDEF='01,AX,3,A,NU'
ADACMP FNDEF='01,AY,3,A,NU'
ADACMP FNDEF='01,AZ,3,A,NU'
ADACMP FNDEF='01,BA,3,A,NU'
ADACMP FNDEF='01,BB,3,A,NU'
ADACMP FNDEF='01,BC,3,A,NU'
ADACMP FNDEF='01,BD,3,A,NU'
ADACMP FNDEF='01,BE,3,A,NU'
ADACMP FNDEF='01,BF,3,A,NU'
ADACMP FNDEF='01,BG,3,A,NU'
ADACMP FNDEF='01,BH,3,A,NU'                    new field with V8.2
ADACMP FNDEF='01,BI,11,A,NU'                   new field with V8.2
ADACMP SUPDE='S1=AA(1,3),AB(1,8),AD(1,4)'
```

3.7.2. Load the empty file by using the Adabas utility ADALOD

```
//ADALOD  EXEC PGM=ADARUN,REGION=0M
//STEPLIB  DD  DSN=ADABAS.V813.LOADLIB
//DDTEMPR1 DD  DSN=your_temp_dataset
//DDSORTR1 DD  DSN=your_sort_dataset
//DDPRINT  DD  SYSOUT=*
//DDDRUCK  DD  SYSOUT=*
//SYSUDUMP DD  SYSOUT=*
//DDEBAND  DD  DSN=ADABAS.COMPRESS.FILE10,DISP=SHR ← from ADACMP
//SYSIN    DD  *
ADALOD LOAD FILE=254,NAME='ADABAS-PERFORMANCE'
ADALOD ASSOPFAC=01,DATAPFAC=01
ADALOD ISNREUSE=YES
ADALOD USERISN=NO
ADALOD DSSIZE=100B
ADALOG UISIZE=5B
ADALOD NISISE=10B,INDEXCROMPRESSION=YES
ADALOD MAXISN=1000
ADALOD TEMPDEV=3390,TEMPSIZE=600,SORTDEV=3390,SORTSIZE=800
```

3.8. Modify the Natural source module PERNPARM

3.8.1. #PASSWORD

Send e-mail to info@storrconsulting.com and get a new password

3.8.2. #BANNER

Set #BANNER to FALSE if no first entry page is wanted

3.8.3. #PARM-DBID

This is the database ID, where you will install the file ADABAS-PERFORMANCE. It uses the UDB function to set the correct target database.

3.8.4. #PARM-FNR (for later releases)

Use the TF parameter if your file is different than the default file 254. For example: TF=(#parmdbid,254,#parmdbid,your_new_file). For more information, please see the Natural documentation.
http://documentation.softwareag.com/natural/nat426mf/parms/tf.htm#tf_tf_parm_example

3.9. STOW the modified Natural module PERNPARM in the new library ADAPER

- Copy the Natural front-end program ADAPER from the library ADAPER into your SYSTEM library of FUSER (not FNAT).

- Start to load your session statistics from all databases into the new Adabas file ADABAS-PERFORMANCE

- The program ADACPU3 reads the session statistics and creates the report “Number of Adabas commands per CPU Second

```
2009-11-06 10:59:59  Number of ADABAS Commands per CPU Second  Page  14
ADACPU3                                                              ADAPER
 ------------------------------------------------------------------------------
 DB  Start/End  St/En CPU /       Total CMDs LBP /       LFIOP /    FrmTrans
     Date       Time  CPU in sec  CMD/Sec    LWP         LFP        FrmOverw
 --- ---------- ----- ----------- ---------- ----------  ---------- --------
0212 2009-09-12 21:00 00000:00:13         259 288000000  8371200           6
     2009-09-19 20:33          13         19  500000     800000            0
 ------------------------------------------------------------------------------
0212 2009-09-19 20:57 00000:00:13         259 288000000  8371200           6
     2009-09-26 20:31          13         19  500000     800000            0
 ------------------------------------------------------------------------------
0212 2009-09-26 20:55 00000:00:13         259 288000000  8371200           6
     2009-10-03 20:31          13         19  500000     800000            0
 ------------------------------------------------------------------------------
0212 2009-10-03 20:57 00000:00:13         259 288000000  8371200           6
     2009-10-10 20:30          13         19  500000     800000            0
 ------------------------------------------------------------------------------
0212 2009-10-10 20:53 00000:00:12         259 288000000  8371200           6
     2009-10-17 20:30          12         21  500000     800000            0
 ------------------------------------------------------------------------------
0212 2009-10-17 20:54 00000:00:13         259 288000000  8371200           6
     2009-10-25 00:35          13         19  500000     800000            0
 ------------------------------------------------------------------------------
0212 2009-10-25 00:35 00000:00:04         272 288000000  8371200           6
     2009-10-26 19:33           4         68  500000     800000            0
 ------------------------------------------------------------------------------
0212 2009-10-26 19:59 00000:00:10         259 288000000  8371200           6
     2009-11-01 01:01          10         25  500000     800000            0
 ------------------------------------------------------------------------------
```

- The program PER-P001 stores values from the session statistics into the Adabas file ADABAS-PERFORMANCE.
- Concatenated input datasets (CMWKF01) from different sessions and databases are possible. The program checks and displays an error message if the values are already stored. The successful message would be:
  “Nucleus statistics are stored now: 212200910261959”
  In this case, the session statistics of database 212 from 2009/10/26 at 19:59 are stored.

```
//** -------------------------------------------------------------
//** STORE SESSION STATISTICS
//** NUMBER OF ADABAS COMMANDS PER CPU SECOND
//**  ==> ADABAS.*.*.SERVER.LOG(-1)
//**  ==> DOESN'T WORK: WAITING FOR DATASETS
//**
//** ADABAS.PRODDBA.JCLLIB(NATBATCP)
//** CREATED BY DIETER STORR - 24 OCT 2005
//** UPDATED BY DIETER STORR - 18 OCT 2007  (-1) - (-7)
//** -------------------------------------------------------------
//         JCLLIB ORDER=ADABAS.TEST.PROCLIB
//NATURAL  EXEC NATBATCH
//CMSYNIN  DD DISP=SHR,BUFNO=30,DSN=&SYSUID..DBA.CNTL(NSC)
//         DD *
LOGON ADAPER
ADACPU3
PER-P001
//CMPRT01 DD SYSOUT=*
//CMWKF01 DD DISP=SHR,DSN=ADABAS.PROD.DB1.SERVER.LOG.G0761V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB1.SERVER.LOG.G0762V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB1.SERVER.LOG.G0763V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB1.SERVER.LOG.G0764V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB1.SERVER.LOG.G0765V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB1.SERVER.LOG.G0766V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB1.SERVER.LOG.G0767V00
//* ---
//        DD DISP=SHR,DSN=ADABAS.PROD.DB2.SERVER.LOG.G0782V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB2.SERVER.LOG.G0783V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB2.SERVER.LOG.G0784V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB2.SERVER.LOG.G0785V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB2.SERVER.LOG.G0786V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB2.SERVER.LOG.G0787V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB2.SERVER.LOG.G0788V00
//        DD DISP=SHR,DSN=ADABAS.PROD.DB2.SERVER.LOG.G0789V00
//* ---
Other databases from different days
```

3 Getting started

2.1 Invoking ADA-PER from NATURAL

Invoke Natural and if you copied the front-end program ADAPER into the SYSTEM library, just execute ADAPER. If not, log on to the library-id or application that contains the ADA-PER source and object modules. The usual library-id or application is ADAPER.

```
Logon accepted to library ADAPER.
Command ===>    ADAPER
```

At the command prompt, invoke the ADAPER system by typing ADAPER as shown above, and pressing ENTER.

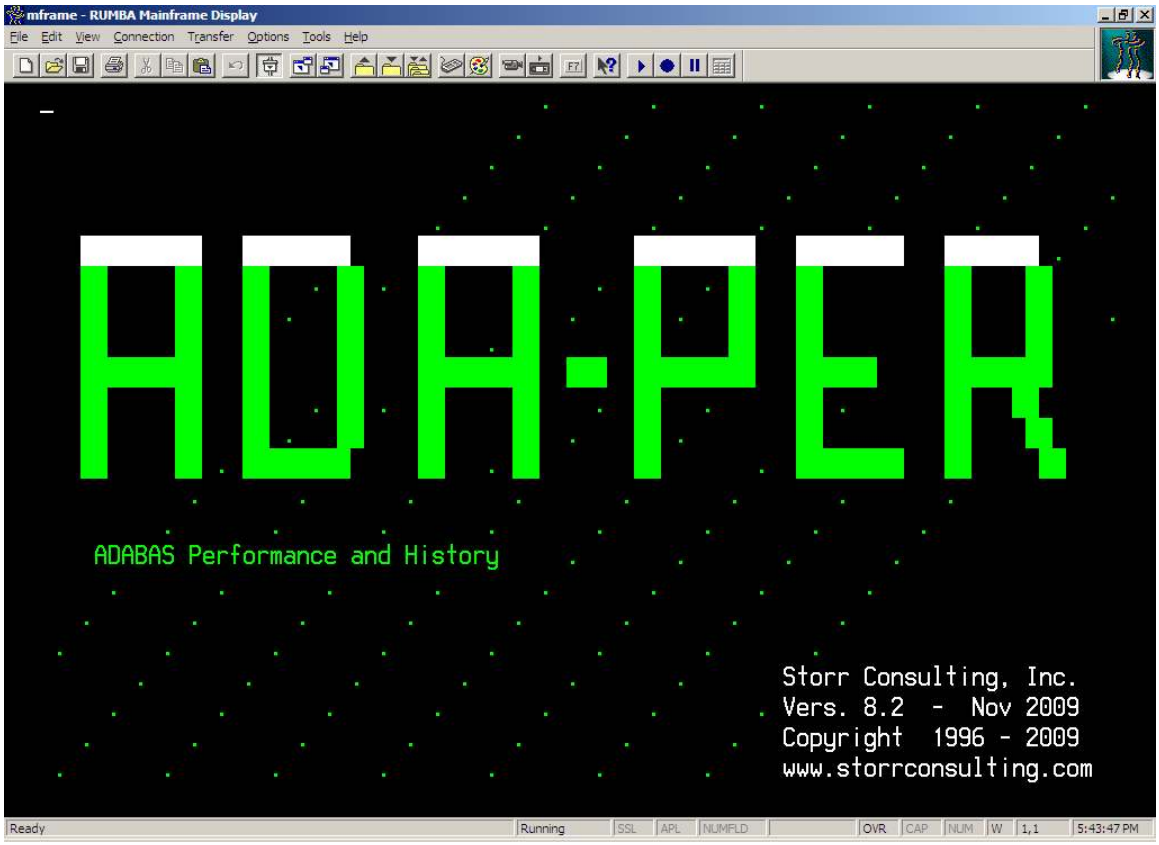


Figure 1: Start Menu screen

The Start Menu screen disappears by hitting ENTER key again. It is possible to avoid this Hello Screen by setting the parameter '#BANNER := FALSE' in the. subroutine PERNPARM

2.2 Main menu panel and other functions

From the ADA-PER Main Menu, you can select different functions and determine the starting point of the reports.

```
 12:19:39                    *** A D A - P E R ***                 2009-11-08
 ADAPER                         - Main Menu -                      PER-M000

            Code
            ----  ------------------------------------------------
               1  Display statistics of multiple Adabas sessions
                  and select one session for more details
               2  Graphic display of
                  Commands per second, LBP, LWP, etc.
               3  High Water Marks

               .  Exit

                   DatabaseID (nnn).....: 001
                   Start Date (yyyymmdd): 20091108
                   Start Time (hhmm) ...: 0000
                   ------------------------------------------

   Enter Code: _


Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12--
      Help        End                                                 Exit
```

Code 1 displays the first 15 sessions and the PF8 and PF7 key allows you to browse forward and backward. You also can determine a new starting point at the top of the display.

Possible selection values in the column ‘S’ are:

- S = select the session and display more stored info
- N = store manually one session statistic
- D = delete one session with all values
- ? = get selection info in a pop-up window

```
12:24:44                    *** A D A - P E R ***                    2009-11-08
  ADAPER                Select Statistics For More Info              PER-M005
 Start with DBID: 214 Date: 20051126 Time: 2055
 ------------------------------------------------------------------------------
 S Date     CMD/S    LBP    LWP    LFP  LFIOP FTrans FOvW BFlus AuRe ThBI ThBS
 - -------- ----- ----mb ----mb ----mb ----mb ----mb ---- ----- ---- ---- ----
 _ 20050903   919  128.0    3.0    3.3    8.3    5.0
 _ 20050910   920  128.0    3.0    3.3    8.3    1.2       1291
   20050912   868  128.0    3.0    3.3    8.3    3.3       2412         1
 _ 20050917   918  132.0    3.0    3.3    8.3    5.1       3467    4    1
 _ 20050924  1184  136.0    3.0    3.3    8.3    4.2       6115    1
   20051001   929  136.0    3.0    3.3    8.3    5.0       3175    2    3
   20051008   970  136.0    3.0    3.3    8.3    4.3       2984    1    1
 _ 20051015   923  200.0    3.0    3.3    8.3    5.1       3229    3    1
 _ 20051022  1024  256.0    3.0    3.3    8.3    4.1       4994    1    2
   20051030  1082  256.0    3.0    3.3    8.3    4.8       2868         1
 _ 20051105   909  288.0    3.0    3.3    8.3    4.3       2729    3
 S 20051112  1753  288.0    3.0    3.3    8.3                 7
   20051112   972  288.0    3.0    3.3    8.3    5.5       3645         9
   20051119  1034  288.0    3.0    3.3    8.3    4.2       5150    2    3
 _ 20051126  1150  288.0    3.0    3.3    8.3    5.0       3008         4
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Find  Help  Sel   End   Cmd/S             -     +           HWM
Possible values are: [S]elect, [D]elete, [N]ew, or [?] for menu
```

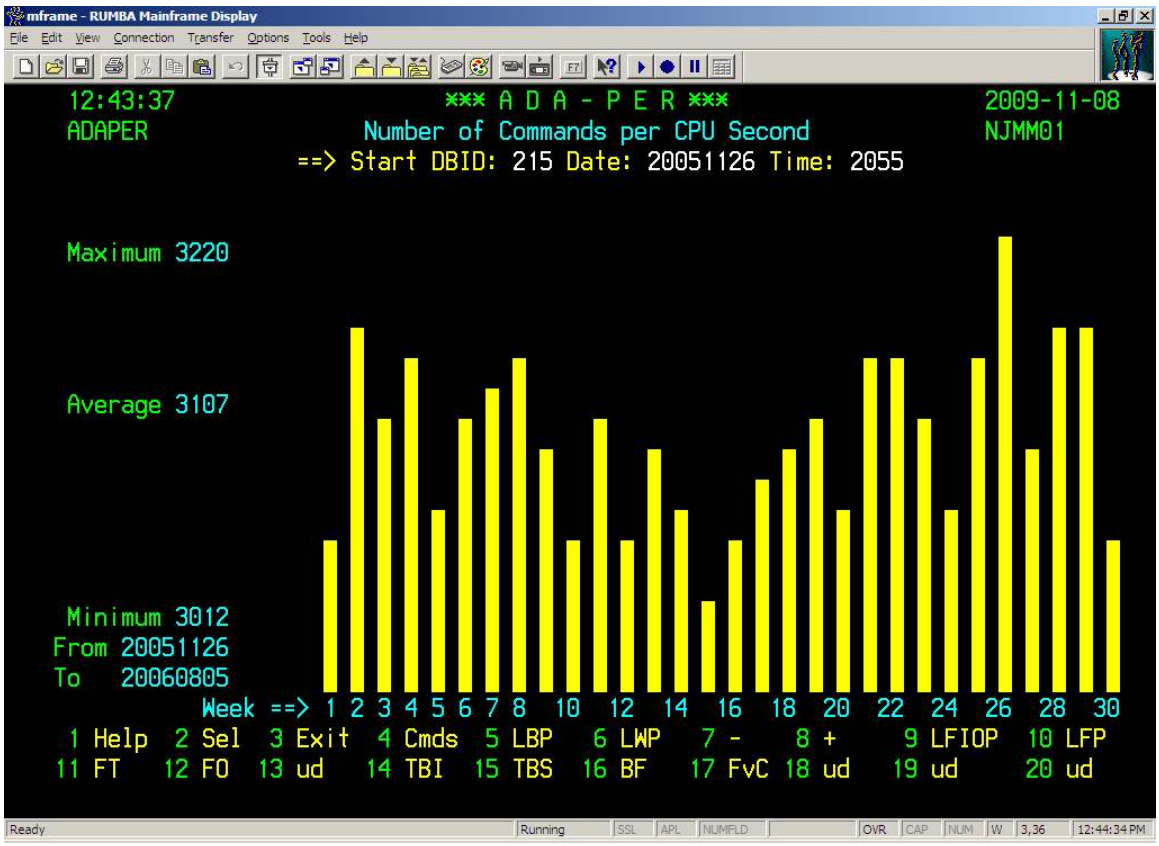
Select a session (S) to display all stored values.

After select a session, the content of the session statistic will be displayed

```
16:44:12                    *** A D A - P E R ***                    2009-11-21
 ADAPER-P                                                             PER-M006
                        Content of Shut Down Statistic

 DBID .........: 215         AUTO-REST .......:          0  HWM-AB-NAB .:   9 %
 START-NUC-DATE: 2009-10-25  THROW-BACKS-ISN .:          0  HWM-CQ-NC ..:   6 %
 STOP-NUC-DATE : 2009-10-26  THROW-BACKS-SPACE:          0  HWM-DUQ-LDE.:   2 %
 START-NUC-TIME: 00:35       BUFFER-FLUSHES ..:         88  HWM-FI-LFP .:  50 %
 STOP-NUC-TIME : 19:33       BUFFER EFFICIENCY:     2611.9 HWM-HQ-NH ..:   7 %
 NUC-DURATION .: 00042:58:03                               HWM-RPL-LRPL:     %
 NUC-WAIT-TIME : 00040:59:26                               HWM-SC-LCP .:   0 %
 NUC-CPU-TIME .: 00002:03:17                               HWM-TBI-LI .:  20 %
 NUC-CPU-SEC ..:     7397                                  HWM-TBS-LQ .:  22 %
 CMDS-PER-SEC .:     3146                                  HWM-UQ-NU ..:  55 %
 NUC-NUMB-CMDS :   23276541                                HWM-UQF-NU .:  40 %
 LBP ..........; 288000000                                 HWM-WORK-LWP:  41 %
 LWP ..........; 870000                                    HWM-XID-XID :   0 %
 LFIOP ........: 8342400
 LFP ..........; 4000000
 FORM-TRANS ...;     50614
 FORM-OVERW ...;         0
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        End
```

From the main menu, the selection code 2 displays graphical values of the stored information and starts with 'Number of Commands per CPU Second.'



Several functions are available:

- PF1 Help
  The help function is under development
- PF2 Sel
  Select from the overview a single database statistic
- PF3 Exit
  One screem back
- PF4 Cmds
  Number of Adabas commands per CPU second
- PF5 LBP
  Size of the Adabas buffer pool – parameter LBP – is one of the most important parameters. It will save ASSO and DATA I/Os by keeping blocks for a long time in the buffer pool. See also buffer efficiency (BE).
- PF6 LWP
  Size of the Adabas work pool – parameter LWP – in connection with LS, LU, LOGIO, LOGGING, PREFE. Low value can cost throw backs, WORK2 I/Os, no selection of CQ, high ENQ time, high number of ECBs
- PF7 -
  one page back (under development) – at this time available with changing the Date and Time of the Start DBID
- PF8 +
  one page forward (under development) – at this time available with changing the Date and Time of the Start DBID
- PF9 LFIOP
  Length of the asynchronous buffer flush I/O pool – should be 1-25% of the LBP
- PF10 LFP
  Length of the internal format pool – parameter LFP. If too small defined (HWM=99%) you will see format overwrites (FO), and the formats must be re-translated, which is costly in CPU time.
- PF11 FT
  Format translations – a high number of format translations can be caused by using global format IDs inefficiently, for example to not re-catalog all effected Natural programs after LDAs are changed..
- PF12 FO
  Format overwrites – SAG recommended that the number of format overwrites should be zero. Otherwise, increase your format buffer LFP.
- PF13 BE
  Buffer efficiency

- PF14 TBI (LI)
  Specify the size (in bytes) allocated for the table of ISNs (TBI) used to store ISN lists (overflow ISNs or saved ISN lists).
- PF15 TBS (LQ)
  Specify the size (in bytes) of the table of sequential commands, which contains entries required during the processing of Adabas read sequential (L2/L5, L3/L6, and L9) commands (TBS pool).
- PF16 BF
  From time to time, Adabas has to write modified blocks from the buffer pool back into the database. This process is called a buffer flush. It uses the I/O pool (LFIOP). A high number of BF can have different reasons, but mostly the LP (WORK part 1), the LFIOP (I/O pool) or LBP (buffer pool) parameters are too small defined.
- PF17 FvC
  Comparison between the format translations (PF11 FT) and the number of commands per CPU second (PF4 Cmds).
- PF18 BvE
  Comparison between the size of the buffer pool (PF5 LBP) and the buffer efficiency (PF13 BE).
- PF19 ud
  Unused- under development
- PF20 ud
  Unused – under development

Parameters are also described in the Adabas Manuals of SAG

http://documentation.softwareag.com/adabas/

at SAG's TECHniques, Adabas Spotlight, Improve Performance

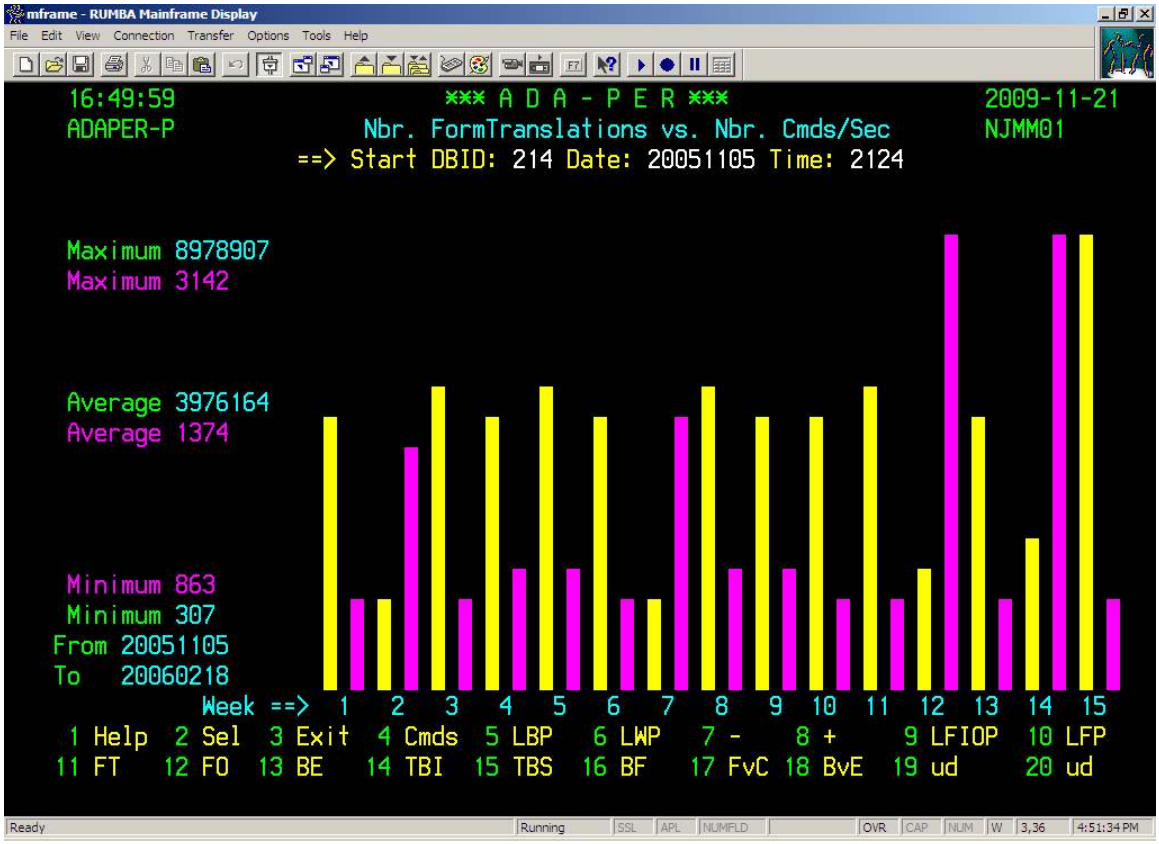
or get an overview of some important parameters at

http://storrconsulting.com/sc510-ada015.html

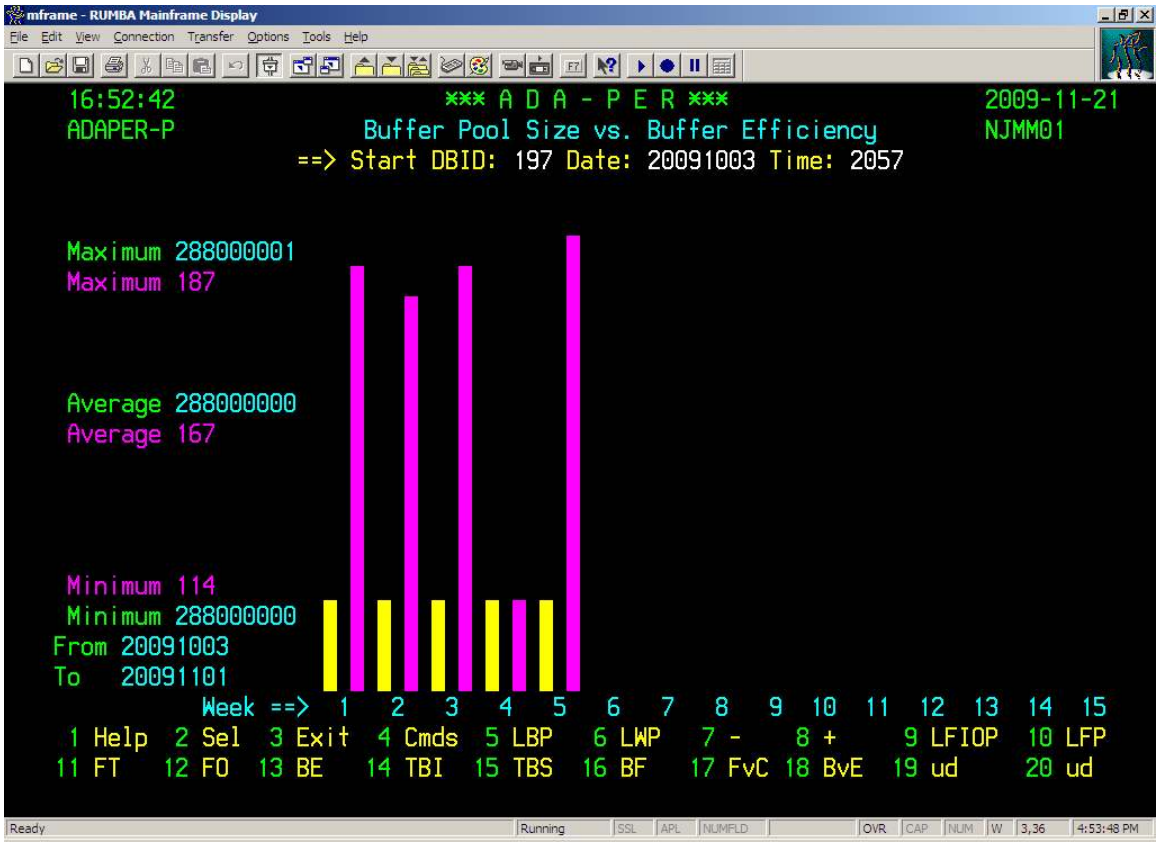
The above mentioned functions can be reached by hitting the PF key or F key or by clicking with the mouse on the number, for example '5 LBP' or '10 LFP.'

Also, the 'Start DBID:,' the 'Date:' and the 'Time:' can be changed for a new search point.

The next screen (see next page) shows the format translations compared with the number of commands per second and was received by hitting the Function-Key number 17.



Function 17 (FvC) compares the number of format translations (yellow) with the number of commands per second (violet red). It shows, the higher the format translations, the less commands can be processed.



Function 18 (BvE) compares the size of the Adabas buffer pool - LBP - (yellow) with the buffer efficiency (violet red). The buffer efficiency or BE displays the ratio between the logical and physical ASSO and DATA reads. In the example above, every 187 logical reads one physical read has been performed.

In general, the bigger the buffer pool the higher the buffer efficiency. But be careful, a program can be in the loop and accesses the same record/ISN many times. Some companies show a BE of over 3,000 based on a high number of table lookups and a huge buffer pool.

The high-water-marks can be reached from different displays:

- Code 3 of the main menu
- PF10 / F10 at the display of 'Select Statistics for More Info'

The program can also be used in batch to print the statistics. Execute the program PER-HWM and support the start parameters database ID, the date and the time, see example.

```
//** ----------------------------------------------------------------
//** DISPLAY HWM
//** PER-PHWM 215 20050101 0000
//**           --- -------- ----
//**           ¦   ¦        ¦
//**           +---¦--------¦------- DATABASE ID   3 BYTES
//**               +--------¦------- DATE YYYYMMDD 8 BYTES
//**                        +------- TIME HHMM     4 BYTES
//** ----------------------------------------------------------------
//NATURAL  EXEC NATBATCH,NATPARM=',IM=D,INTENS=1'
LOGON ADAPER
PER-PHWM 230 20050910 0000
//CMPRT01 DD SYSOUT=*
```

The output of the list is 150 bytes long. The first part are the high water marks in % and the second part are several values.

```
Page      1
================================================================= ===============
ADABAS High-Water-Marks in %                                      Values in bytes
================================================================= ===============
DB  DATE     CQ  NAB NC  DUQ LFP NH  LCP LI  LQ  NU  UQF LWP XID FormatPool  For
--- -------- --- --- --- --- --- --- --- --- --- --- --- --- --- ----------  ---
230 20050910   1   5   1   0  61   5   0  16  36  12   6  40   0 2600000
230 20050912   2   5   2   0  88  13   0  33  67  12   6  49   0 2600000
230 20050917   2   5   2   0  99  16   0  33  65  13   7  56   0 2600000
230 20050924   2   5   2   0  99  12   0  67  67  12   7  43   0 2600000
230 20051001   2   5   2   0  96  12   0  33  67  14   8  71   0 2600000
230 20051008   2   5   2   0  94  14   0  33  64  12   6  41   0 2600000
230 20051015   2   5   2   0  99  12   0  67  62  12   7  54   0 2600000
230 20051022   2   5   2   0  99  13   0  33  55  11   6  46   0 2600000
230 20051030   2   6   2   0  99  18   0  33  68  12   6  42   0 2610000
230 20051105   2   3   2   0  98  12   0  33  67  12   7  42   0 2620000
230 20051112   0   0   0   0   1   0   0   0  10   4   0   6   0 2620000
230 20051112   2   5   2   0  99  12   0  33  64  13   7  45   0 2620000
```

Continuation of the list.

```
================================================================
Values in bytes
================================================================
FormatPool  FormatTrans FormatOverw AutoRestart ThrowB-ISN  ThrowB
----------  ----------- ----------- ----------- ----------  ------
2600000         19526           0           0           0
2600000         42326           0           1           0
2600000         62395         295           0           0
2600000         66071         147           1           0
2600000         63303           0           1           0
2600000         61704           0           1           0
2600000         63600           0           0           0
2600000         64875         132           0           0
2610000         65923          71           3           0
2620000         61529           0           0           0
2620000            18           0           0           0
2620000         63807           0           0           1
2620000         68016           0           3           0
```