

## DB2PE Performance Database and Performance Warehouse for Dummies

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## Points to Cover

- Anatomy of a DB2PE Report
- DB2PE Performance Database
  - Creating the Performance Database
  - Loading the Performance Database
  - Reporting using the Performance Database
- Mainframe components common to both
- DB2PE Performance Warehouse
  - Mainframe tasks for installing the Performance Warehouse
  - Installing the DB2PE Client
  - Reporting using the Performance Warehouse
- Lessons Learned

IBM Tivoli Omegamon XE for DB2 Performance Expert (or Performance Monitor) on z/OS is a very complex product, containing many components that work together to provide comprehensive performance monitoring.

We are going to discuss how to use DB2PE on the mainframe, as well as how to use the workstation-based DB2PE Client, to create, maintain, and report upon performance information stored in a Performance Database or Performance Warehouse.

## Anatomy of a DB2PE Report

```

Interactive Report Selections
Command ==>
Select functions as required, then press Enter.

Report Set                ----- Function -----
                          Reduce Report Trace File Save Restore
Accounting . . . . . > - - - - -
Statistics . . . . . - - - - -
SQL Activity . . . . . - - - - -
Locking . . . . . - - - - -
I/O Activity . . . . . - - - - -
Audit . . . . . - - - - -
Utility . . . . . - - - - -
Record Trace . . . . . - - - - -

Additional Functions
Global Processing . . . . . >
Frequency Distribution . . . . . >
System Parameters . . . . . >
Exception log . . . . . -
Explain . . . . . -
  
```

Before we get into the PDB or PWH components, let's take a look at the basic DB2PE accounting report to familiarize ourselves with the data that is associated with accounting records. The same things apply to the statistics records as well, but we will just focus on accounting data for the purpose of this presentation.

The easiest way to generate performance reports is by using the Interactive Report Facility, which is an ISPF-based tool. By selecting the Accounting Report option, and specifying a few items, such as how we want the data organized, the product will generate the control cards for the Reporter and create the JCL for execution.

We will discuss later the other functions available on this panel.

## Anatomy of a DB2PE Report

```

ACCOUNTING
      REPORT
          DDNAME(ACRPTDD)
          LAYOUT(LONG)
          SCOPE(MEMBER)
          ORDER(
              PLANNAME
          )
          TOP      (5 ONLY
                  TOTAL
                  INDB2ET
          )
EXEC
    
```

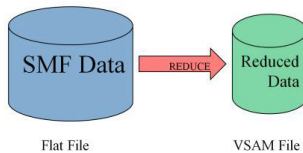
Here is an example of the control cards that are generated by the IRF. We are requesting an accounting report, with the data aggregated by PLANNAME, and we are also requesting that we get only the top 5 plans by In-DB2 Elapsed Time.

It can be difficult to remember all of the keywords for the Reporter commands; that is why it is a good idea to familiarize yourself with the IRF, which remembers them all for you!



## Anatomy of a DB2PE Report

- Where does the data for the reports come from?
  - Raw SMF records collected by the system
  - VSAM file of REDUCed data



Data for the reports may come from several different sources; typically, it is SMF data. You can feed the raw SMF data into DB2PE for reporting, but it is often more efficient to run it through the REDUCE process to produce a VSAM file, which can then be fed into DB2PE. If multiple reports are going to be run against the same data, you should REDUCE the data to save processing time.

## Anatomy of a DB2PE Report

```
ACCOUNTING      REDUCE          INTERVAL(60)
                  BOUNDARY(0)
                  SAVE
                  DDNAME(ACSAVDD)
STATISTICS      REDUCE          INTERVAL(60)
                  BOUNDARY(0)
                  SAVE
                  DDNAME(STSAVDD)
EXEC
```

This is an example of the REDUCE statements that are input into the Reporter to produce the REDUCED VSAM files for accounting and statistics data. They are generated by the IRF ISPF dialog. Or you can write your own.

## Anatomy of a DB2PE Report

LOCATION: USIBDRZP		OMEGAPON XE FOR DB2 PERFORMANCE EXPERT (V5R1ML)		PAGE: 1-333			
GROUP: D0NDR0P		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED			
MEMBER: DB2P				TO: NOT SPECIFIED			
SUBSYSTEM: DB2P		ORDER: PLANNAME		INTERVAL FROM: 02/27/14 00:00:00.00			
DB2 VERSION: V10		SCOPE: MEMBER		TO: 02/28/14 01:00:00.00			
TOP FIELD: ELAPSED TIME SPENT IN DB2		TOP NUMBER REQUESTED: 5					
PLANNAME: OBOLBPLN							
ELAPSED TIME DISTRIBUTION			CLASS 2 TIME DISTRIBUTION				
APPL	> 1%		CPU	> 1%			
DB2	> 1%		SECU	> 1%			
SUSP	> 1%		NOTACC	> 1%			
			SUSP	> 1%			
-----		-----		-----			
APPL(CL.1) DB2 (CL.2)		IFI (CL.5)		CLASS 3 SUSPENSIONS			
-----		-----		-----			
AVERAGE	APPL(CL.1) DB2 (CL.2)	IFI (CL.5)	CLASS 3 SUSPENSIONS	AVERAGE TIME	AV.EVENT	HIGHLIGHTS	
ELAPSED TIME:	6:51.01408	6:40.47933	N/P	LOCK/LATCH(OB2Z+IRLM)	14.822627	2036.62	#OCCURRENCES : 76
NONFETCHED	6:51.01408	6:46.47933	N/A	IRLM LOCK+LATCH	12.245193	819.49	#ALLLEDS : 76
STORED PROC	0.000000	0.000000	N/A	DB2 LATCH	2.677433	3217.33	#ALLLEDS DISTRIB: 0
UDF	0.000000	0.000000	N/A	SYNCHRON. I/O	5127.723746	68496.14	#OBATS : 0
TRIGGER	0.000000	0.000000	N/A	DATABASE I/O	5127.532778	68474.63	#OBATS DISTRIB: 0
CP CPU TIME	3.737709	3.543634	N/P	LOG WRITE I/O	0.192988	21.33	#NO PROGRAM DATA: 0
AGENT	3.737709	3.543634	N/P	OTHER READ I/O	16.738620	4393.45	#NORMAL TERMINAT: 76
NONFETCHED	0.000000	0.000000	N/A	OTHER WRITE I/O	2.059400	193.39	#OFFRSES ROLLUP: 0
STORED PROC	0.000000	0.000000	N/A	UPDATE COMMIT	48.318184	4660.37	#NORMAL TERMIN: 0
UDF	0.000000	0.000000	N/A	OPEN/CLOSE	0.059008	467.01	#P/P PARALLEL: 0
TRIGGER	0.000000	0.000000	N/A	SYNCHRON. REC	0.013097	1.01	#IO PARALLELISM: 0
PAR.TASKS	0.000000	0.000000	N/A	EXT/DEL/DEF	0.013777	0.32	#COMMENTS : 354107
SECP CPU	N/A	N/A	N/A	OTHER SERVICE	0.019543	1.71	#ROLLBACKS : 0
SE CPU TIME	0.000000	0.000000	N/A	ARC LOG(QUIS5)	0.000000	0.00	#SVPT REQUESTS : 0
NONFETCHED	0.000000	0.000000	N/A	LOG READ	0.000000	0.00	#SVPT RELEASE : 0
STORED PROC	0.000000	0.000000	N/A	DRAIN LOCK	0.000001	0.08	#SVPT ROLLBACK : 0
UDF	0.000000	0.000000	N/A	CLAIM RELEASE	0.000000	0.00	MAY SQL CASE LVL: 0
TRIGGER	0.000000	0.000000	N/A	PAGE LATCH	0.062369	6.23	UPDATE/COMMIT : 1.05
PAR.TASKS	0.000000	0.000000	N/A	NOTIFY MSGS	0.000000	0.00	SYNCH I/O AVG. : 0.004716
SUSPEND TIME	0.000000	0.000000	N/A	GLOBAL CONTENTION	0.000023	0.05	
AGENT	N/A	6:43.33856	N/A	CORRECT PGM WRITE I/O	0.000000	0.00	
NONFETCHED	N/A	0.000000	N/A	ASYNCH CF REQUESTS	0.000003	0.36	
STORED PROC	N/A	0.000000	N/A	TCP/IP LOG. WOL	0.000000	0.00	
UDF	0.000000	N/A	N/A	TOTAL CLASS 3	6:43.338538	80769.32	
PAR.TASKS	N/A	N/A	N/A				
NOT ACCOUNT:	N/A	N/C	N/A				
IN.ENT/EXIT	N/A	69378.37	N/A				
IN.ENT/PROC	N/A	0.00	N/A				
IN.EX-UDF	N/A	0.00	N/A				
BEAFT. REQ:	N/A	N/A	N/P				
LOG EXTRACT:	N/A	N/A	N/P				

This is a sample of the LONG report that was requested on the previous screen.

We will look at it more closely later.



## Anatomy of a DB2PE Report

LOCATION: USIBDB2P	OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R1K1)	PAGE: 1-313
GROUP: DSND80P	ACCOUNTING REPORT - LONG	REQUESTED FROM: NOT SPECIFIED
MEMBER: DB2P		TO: NOT SPECIFIED
SUBSYSTEM: DB2P	ORDER: PLANNAME	INTERVAL FROM: 02/27/14 00:00:00,00
DB2 VERSION: V10	SCOPE: MEMBER	TO: 02/28/14 01:00:00,00
TOP FIELD: ELAPSED TIME SPENT IN DB2	TOP NUMBER REQUESTED: 5	
PLANNAME: OBOLBPLN		
ELAPSED TIME DISTRIBUTION	CLASS 2 TIME DISTRIBUTION	
-----		
LOCATION: USIBMDB2P	OMEGAMON XE FOR DB2 PERFO	
GROUP: DSND80P	ACCOUNTING REPO	
MEMBER: DB2P		
SUBSYSTEM: DB2P	ORDER: PLA	
DB2 VERSION: V10	SCOPE: MEM	
TOP FIELD: ELAPSED TIME SPENT IN DB2		
PLANNAME: OBOLBPLN		
ELAPSED TIME DISTRIBUTION		
-----		
APPL	> 1%	
DB2	> 1%	
SUSP	===== > 98%	
STORED PROC	0.00000	N/A N/A
UDF	0.00000	N/A N/A
NOT ACCOUNT.	N/A	N/C N/A
DB2 ENT/EXIT	N/A	69378.37 N/A
ENLX+TFROC	N/A	0.00 N/A
ENLX-UDF	N/A	0.00 N/A
DEPT. RESER.	N/A	N/A N/P
LOG EXTRACT.	N/A	N/A N/P

This is a close-up of a piece of the first page of the accounting report. DB2PE reports offer a visual of the percentage of elapsed time is spent in the application, in DB2, and in waiting, or suspension, time.



## Anatomy of a DB2PE Report

LOCATION: US18DB2P	OMEGAON XE FOR DB2 PERFORMANCE EXPERT (V5R1M1)	PAGE: 1-313
GROUP: D0ND00P	ACCOUNTING REPORT - LONG	REQUESTED FROM: NOT SPECIFIED
MEMBER: DB2P		TO: NOT SPECIFIED
SUBSYSTEM: DB2P	ORDER: PLANNAME	INTERVAL FROM: 02/27/14 00:00:00.00
DB2 VERSION: V10	SCOPE: MEMBER	TO: 02/28/14 01:00:00.00
TOP FIELD: ELAPSED TIME SPENT IN DB2	TOP NUMBER REQUESTED: 5	
PLANNAME: OB0LBPLN		
ELAPSED TIME DISTRIBUTION	CLASS 2 TIME DISTRIBUTION	
-----		
PERFORMANCE EXPERT (V5R1M1)	PAGE: 1-313	
- LONG	REQUESTED FROM: NOT SPECIFIED	
	TO: NOT SPECIFIED	
	INTERVAL FROM: 02/27/14 00:00:00.00	
	TO: 02/28/14 01:00:00.00	
TOP NUMBER REQUESTED: 5		
-----		
CLASS 2 TIME DISTRIBUTION		
-----		
CPU	> 1%	
SECPU		
NOTACC		
SUSP		99%
-----		
PAR_TASKS	N/A	0.000000
STORED PROC	0.000000	N/A
UDF	0.000000	N/A
NOT ACCOUNT:	N/A	N/C
DB2 ENT/EXIT	N/A	69378.37
ENLXCTPROC	N/A	0.00
EN/EX-UDF	N/A	0.00
BEAFT/BEAFT:	N/A	N/A
LOG EXTRACT:	N/A	N/A

And the other side of the page offers a visual of where the in-DB2 time is spent.

These numbers are not stored in the Performance Database; if you want them from there, you must calculate them yourself.

## Anatomy of a DB2PE Report

LOCATION: USIBDRZP		OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R1ML)		PAGE: 1-313			
GROUP: D0NDR0P		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED			
MEMBER: DB2P				TO: NOT SPECIFIED			
SUBSYSTEM: DB2P		ORDER: PLANNAME		INTERVAL FROM: 02/27/14 00:00:00.00			
DB2 VERSION: V10		SCOPE: MEMBER		TO: 02/28/14 01:00:00.00			
TOP FIELD: ELAPSED TIME SPENT IN DB2				TOP NUMBER REQUESTED: 5			
PLANNAME: OBOLBPLN							
ELAPSED TIME DISTRIBUTION			CLASS 2 TIME DISTRIBUTION				
APPL	> 1%		CPU	> 1%			
DB2	> 1%		SECPU	> 1%			
SUSP	-----> 98%		NOTACC	-----> 90%			
SUSP	-----> 98%		SUSP	-----> 90%			
AVERAGE	APPL(CL.1)	DB2 (CL.2)	IFI (CL.5)	CLASS 3 SUSPENSIONS	AVERAGE TIME	AV.EVENT	HIGHLIGHTS
ELAPSED TIME:	6:51.01408	6:46.47933	N/P	LOCK/LATCH(OB2Z+IRLN)	14.822627	2036.62	#OCCURRENCES : 76
NONREQUESTED	6:51.01408	6:46.47933	N/A	IRLM LOCK/LATCH	12.245193	819.49	#ALLLEDS : 76
STORED PROC	0.000000	0.000000	N/A	DB2 LATCH	2.677433	3217.33	#ALLLEDS DISTRIB: 0
UDF	0.000000	0.000000	N/A	SYNCHRON I/O	5127.723746	68496.14	#DBATS : 0
TRIGGER	0.000000	0.000000	N/A	DATABASE I/O	5127.532778	68474.83	#DBATS DISTRIB: 0
CP CPU TIME	3.737709	3.543634	N/P	LOG WRITE I/O	0.192988	21.33	#NO PROGRAM DATA: 0
AGENT	3.737709	3.543634	N/P	OTHER READ I/O	16.738620	4393.45	#NORMAL TERMINAT: 76
NONREQUESTED	3.737709	3.543634	N/A	OTHER WRITE I/O	2.059400	193.39	#OFFRSPAS ROLLUP: 0
STORED PROC	0.000000	0.000000	N/A	UPDATE COMMIT	481.818181	4660.57	#NORMAL TERMIN: 0
UDF	0.000000	0.000000	N/A	OPEN/CLOSE	0.059008	467.01	#P/P PARALLEL: 0
TRIGGER	0.000000	0.000000	N/A	SYNCHRON REC	0.013097	1.01	#IO PARALLELISM: 0
PAR.TASKS	0.000000	0.000000	N/A	EXT/DEL/DEF	0.013777	0.32	#COMMENTS : B2ND: 354107
SECP CPU	N/A	N/A	N/A	OTHER SERVICE	0.019543	1.71	#ROLLBACKS : 0
SE CPU TIME	0.000000	0.000000	N/A	ARC LOG(QUIS5)	0.000000	0.00	#SVPT REQUESTS : 0
NONREQUESTED	0.000000	0.000000	N/A	LOG READ	0.000000	0.00	#SVPT RELEASE : 0
STORED PROC	0.000000	0.000000	N/A	DRAIN LOCK	0.000001	0.08	#SVPT ROLLEBACK : 0
UDF	0.000000	0.000000	N/A	CLAIM RELEASE	0.000000	0.00	MAY SQL CASE LVL: 0
TRIGGER	0.000000	0.000000	N/A	PAGE LATCH	0.062369	6.23	UPDATE/COMMIT : 1.05
PAR.TASKS	0.000000	0.000000	N/A	NOTIFY MSGS	0.000000	0.00	SYNCH I/O AVG. : 0.004716
SUSPEND TIME	0.000000	0.000000	N/A	GLOBAL CONTENTION	0.000023	0.03	
AGENT	N/A	6:43.33856	N/A	CORRECT PGM WRITE I/O	0.000000	0.00	
NONREQUESTED	N/A	0.000000	N/A	ASYNCH CF REQUESTS	0.000003	0.36	
STORED PROC	0.000000	N/A	N/A	TCP/IP LOG WOL	0.000000	0.00	
UDF	0.000000	N/A	N/A	TOTAL CLASS 3	6:43.338518	80769.12	
NOT ACCOUNT:	N/A	N/C	N/A				
INL/ENT/EXIT	N/A	69378.37	N/A				
INL/EX/FPROC	N/A	0.00	N/A				
INL/EX/UDF	N/A	0.00	N/A				
BEAFT/REGR:	N/A	N/A	N/P				
LOG EXTRACT:	N/A	N/A	N/P				

The part of the report in yellow contains accounting data values.

## Anatomy of a DB2PE Report

LOCATION: US18DB2P		OMEGAON XE FOR DB2 PERFORMANCE EXPERT (V5R1H1)		PAGE: 1-313	
GROUP: D0ND0P		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED	
MEMBER: DB2P				TO: NOT SPECIFIED	
SUBSYSTEM: DB2P		ORDER: PLANNAME		INTERVAL FROM: 02/27/14 00:00:00,00	
DB2 VERSION: V10		SCOPE: MEMBER		TO: 02/28/14 01:00:00,00	
TOP FIELD: ELAPSED TIME SPENT IN DB2		TOP NUMBER REQUESTED: 5			
PLANNAME: 08000000					
-----					
ELAPSED TIME	AVERAGE	APPL (CL.1)	DB2 (CL.2)	IFI (CL.5)	-----
APPL	1%				
DB2	1%				
SUSP	1%				
-----					
AVERAGE	ELAPSED TIME	6:51.01408	6:46.47953	N/P	99%
	NONNESTED	6:51.01408	6:46.47953	N/A	
	STORED PROC	0.000000	0.000000	N/A	76
	UDF	0.000000	0.000000	N/A	0
	TRIGGER	0.000000	0.000000	N/A	0
-----					
CP CPU TIME	CP CPU TIME	3.737709	3.543634	N/P	0
AGENT	AGENT	3.737709	3.543634	N/A	0
PAR.TASKS	PAR.TASKS	3.737709	3.543634	N/P	4107
	NONNESTED	0.000000	0.000000	N/A	0
	STORED PROC	0.000000	0.000000	N/A	0
	UDF	0.000000	0.000000	N/A	0
	TRIGGER	0.000000	0.000000	N/A	1,05
	PAR.TASKS	0.000000	0.000000	N/A	4716
-----					
SUSPEND TIME	AGENT	N/A	6143.33856	N/A	
	PAR.TASKS	N/A	0.000000	N/A	
	STORED PROC	0.000000	N/A	N/A	
	UDF	0.000000	N/A	N/A	
-----					
NOT ACCOUNT	N/A	N/C	N/A	N/A	
DB2 ENT/EXIT	N/A	69378.37	N/A	N/A	
ENLXCTPROC	N/A	0.00	N/A	N/A	
ENLX-UDF	N/A	0.00	N/A	N/A	
DB2PT REGR	N/A	N/A	N/A	N/P	
LOG EXTRACT	N/A	N/A	N/A	N/P	

This piece of the accounting report shows how much elapsed time and CPU time is spent by the application and also within DB2. These values were used to produce the graph at the top of the report.

## Anatomy of a DB2PE Report

LOCATION: US18DRZP		OPMAGN01 XE FOR DB2 PERFORMANCE EXPERT (V5R1K1)		PAGE: 1-313																																																																																																																																																																																																																													
GROUP: D0ND0P		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED																																																																																																																																																																																																																													
MEMBER: DRZP				TO: NOT SPECIFIED																																																																																																																																																																																																																													
SUBSYSTEM: DB2P		ORDER: PLANNAME		INTERVAL FROM: 02/27/14 00:00:00.00																																																																																																																																																																																																																													
DB2 VERSION: V10		SCOPE: MEMBER		TO: 02/28/14 01:00:00.00																																																																																																																																																																																																																													
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I/O	STORED PROC	0.000000	0.000000	N/A	UPDATE	UDF	0.000000	0.000000	N/A	OPEN	TRIGGER	0.000000	0.000000	N/A	SYSL	PAR.TASKS	0.000000	0.000000	N/A	EXT/	SECP CPU	N/A	N/A	N/A	ARC.LG	SE CPU TIME	0.000000	0.000000	N/A	LOG RE	NONNETTED	0.000000	0.000000	N/A	CLAIM	STORED PROC	0.000000	0.000000	N/A	PAGE	UDF	0.000000	0.000000	N/A	ARC LOG	TRIGGER	0.000000	0.000000	N/A	NOTIF	PAR.TASKS	0.000000	0.000000	N/A	GLOBAL	SECP CPU	N/A	N/A	N/A	CONTENT	SE CPU TIME	0.000000	0.000000	N/A	COMMIT	AGENT	N/A	6:43.33856	N/A	PH1 WR	NONNETTED	N/A	6:43.33856	N/A	ASYNCH	STORED PROC	0.000000	N/A	N/A	CF REQ	UDF	0.000000	N/A	N/A	TCP/IP	TRIGGER	0.000000	N/A	N/A	LOB XML	PAR.TASKS	0.000000	N/A	N/A	TOTAL	SECP CPU	N/A	N/A	N/A	CLASS 3	SE CPU TIME	N/A	N/A	N/A		AGENT	N/A	69378.37	N/A		NONNETTED	N/A	N/A	N/A		STORED PROC	N/A	0.00	N/A		UDF	N/A	0.00	N/A		TRIGGER	N/A	N/A	N/A		PAR.TASKS	N/A	N/A	N/A		SECP CPU	N/A	N/A	N/A		SE CPU TIME	N/A	N/A	N/A		AGENT	N/A	N/A	N/A		NONNETTED	N/A	N/A	N/A		STORED PROC	N/A	N/A	N/A		UDF	N/A	N/A	N/A		TRIGGER	N/A	N/A	N/A		PAR.TASKS	N/A	N/A	N/A	
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This block contains information about the suspensions, or wait time, encountered. In this example, almost all the wait time was spent in synchronous database I/O.





## Anatomy of a DB2PE Report

LOCATION: US18DB2P		OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRIEL)		PAGE: 1-313	
GROUP: D0ND06P		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED	
MEMBER: DB2P		ORDER: PLANNAME		TO: NOT SPECIFIED	
SUBSYSTEM: DB2P		SCHEMA: ALL		INTERVAL FROM: 02/27/14 00:00:00.00	
DB2 VERT: 11.0.0		TOP NUMBER REQUESTED: 5		TO: 02/28/14 01:00:00.00	
<b>HIGHLIGHTS</b>					
TOP FIELD	-----				
PLANNAME	#OCCURRENCES	:	76		
ELAPSED	#ALLIEDS	:	76		
APPL	#ALLIEDS DISTRIB:	:	0		
DB2	#DBATS	:	0		
SUSP	#DBATS DISTRIB.	:	0		
AVERAGE	#NO PROGRAM DATA:	:	0		
CLASPED	#NORMAL TERMINAT:	:	76		
NONNSTR	#DDFRSAF ROLLUP:	:	0		
STORED P	#ABNORMAL TERMIN:	:	0		
UDF	#CP/X PARALLELISM:	:	0		
TRIGGER	#IO PARALLELISM:	:	0		
CP CPU TR	#INCREMENT. BIND:	:	0		
AGENT	#COMMITTS	:	354107		
NONNSTR	#ROLLBACKS	:	0		
STORED P	#SVPT REQUESTS	:	0		
UDF	#SVPT RELEASE	:	0		
TRIGGER	#SVPT ROLLBACK	:	0		
PAR.TASK	MAX SQL CASC LVL:	:	0		
SUSPEND	UPDATE/COMMIT	:	1.05		
AGENT	SYNCH I/O AVG.	:	0.004716		
PAR.TASK					
STORED P					
UDF					
NOT ACCO					
INT ENTRI					
ENLX-LOG					
BEQTY-MONIT	N/A	N/A	N/P		
LOG EXTRACT	N/A	N/A	N/P		

SQLID	AVERAGE TIME	AV.EVENT	HIGHLIGHTS
14.822627	2036.62	#OCCURRENCES	: 76
12.245193	819.49	#ALLIEDS	: 76
2.677433	3237.33	#ALLIEDS DISTRIB:	: 0
5127.723746	68496.14	#DBATS	: 0
5127.532778	68474.83	#DBATS DISTRIB.	: 0
0.192968	21.53	#NO PROGRAM DATA:	: 0
16.738020	4393.45	#NORMAL TERMINAT:	: 76
2.059420	193.39	#DDFRSAF ROLLUP:	: 0
41.838274	4669.57	#ABNORMAL TERMIN:	: 0
41.781884	4637.01	#CP/X PARALLELISM:	: 0
0.059008	0.32	#IO PARALLELISM:	: 0
0.133997	1.01	#INCREMENT. BIND:	: 0
0.013777	0.32	#COMMITTS	: 354107
0.019543	1.71	#ROLLBACKS	: 0
0.000000	0.00	#SVPT REQUESTS	: 0
0.000000	0.00	#SVPT RELEASE	: 0
0.000001	0.08	#SVPT ROLLBACK	: 0
0.000000	0.00	MAX SQL CASC LVL:	: 0
0.062369	6.23	UPDATE/COMMIT	: 1.05
0.000000	0.00	SYNCH I/O AVG.	: 0.004716
0.000023	0.04		
0.000000	0.00		
0.000003	0.36		
0.000000	0.00		
6143.338558	80769.32		

This block shows the number of occurrences of the plan and other information, such as the synch I/O average time, and the number of commits and rollbacks. In this example, it appears that after every update/delete/insert statement, the program is performing a COMMIT. Perhaps we should have a talk with the developer to reevaluate this practice. The synchronous I/O wait times would probably go down if we did more updates per COMMIT.

## Anatomy of a DB2PE Report

L-LOCKS		P-LOCKS		PAGES		OTHER					
GLOBAL	CONTENTION	L-LOCKS	AVERAGE TIME	AV.EVENT	GLOBAL	CONTENTION	P-LOCKS	AVERAGE TIME	AV.EVENT		
L-LOCKS		0.00000	0.00	P-LOCKS		0.00023	0.03				
PARENT (DB, TS, TAB, PART)		0.00000	0.00	PAGES/PARTITION		0.00000	0.00				
CHILD (PAGE, ROW)		0.00000	0.00	PAGE		0.00000	0.00				
OTHER		0.00000	0.00	OTHER		0.00023	0.03				
SQL DDL	AVERAGE	TOTAL	SQL DDL	TOTAL	SQL DDL	CREATE	DROP	ALTER	LOCKING	AVERAGE	TOTAL
SELECT	25131.76	1911134	LOCK TABLE	0	TABLE	0	0	0	TIMEOUTS	0.00	0
INSERT	2468.05	153368	GRANT	0	CT TABLE	0	N/A	N/A	DEADLOCKS	0.00	0
ROLL	58116.23	443989	REVOKE	0	DL TABLE	0	N/A	N/A	ESCAL (SHARED)	0.00	0
UPDATE	2330.83	177243	SET CURR.SOLID	0	AUX TABLE	0	N/A	N/A	ESCAL (EXCLUS)	0.01	1
ROWS	2329.91	173073	SET HOST VAR.	0	INDEX	0	0	0	MAX PCT ROW LOCKS HELD	39.13	1002
MERGE	0.00	0	SET CURR.DEGREE	0	TABLESPACE	0	0	0	LOCK REQUEST	107.36	818831
DELETE	0.92	70	SET RULES	0	DATABASE	0	0	0	UNLOCK REQUEST	29855.20	2288993
ROWS	0.92	70	SET CURR.PATH	0	STOGROUP	0	0	0	QUERY REQUEST	0.00	0
DESCRIBE	0.00	0	SET CURR.PREC	0	SYNONYM	0	0	N/A	CHANGE REQUEST	2.01	133
DESCR.TBL	0.00	0	CONNECT TYPE 1	0	VIEW	0	0	N/A	OTHER REQUEST	0.00	0
PREPARE	0.00	0	CONNECT TYPE 2	0	ALIAS	0	N/A	0	TOTAL SUSPENSIONS	921.95	68548
OPEN	0.00	0	SET CONNECTION	0	PACKAGE	N/A	0	0	LOCK SUSPENSIONS	677.39	38178
PETCH	0.00	0	RELEASE	0	PROCEDURE	0	0	0	IDLW LATCH SUSPENS.	224.66	17074
ROWS	0.00	0	ASSOC LOCATORS	0	TRIGGER	0	0	0	OTHER SUSPENS.	0.00	0
CLOSE	0.00	0	ALLOC CURSOR	0	DEST TYPE	0	0	N/A			
EMPL-ALL	30027.57	2282095	HOLD LOCATOR	0	SEQUENCE	0	0	0			
			FREL LOCATOR	0	TRUST	0	0	0			
			DCL-ALL	0	ROLE	0	0	0			
				0	JAR	N/A	N/A	0			
				0	TOTAL	0	0	0			
				0	TRUNC TBL	0	0	0			
				0	RENAME TBL	0	0	0			
				0	RENAME IN	0	0	0			
				0	COMMENT ON	0	0	0			
				0	LABEL ON	0	0	0			
NORMAL TERM.	AVERAGE	TOTAL	ABNORMAL TERM.	TOTAL	IN DOUBT	TOTAL	DRAIN/CLAIM	AVERAGE	TOTAL		
NEW USER	0.00	0	APPL.PROGR. ABEND	0	APPL.POP ABEND	0	DRAIN REQUESTS	0.00	0		
REALLOCATION	0.99	75	END OF HISTORY	0	END OF HISTORY	0	DRAIN FAILED	0.00	0		
APPL.PROGR. END	0.01	1	RESOL. IN DOUBT	0	END OF TASK	0	CLAIM REQUESTS	34462.41	2619143		
RESCORR	0.00	0	CANCEL FORCE	0	CANCEL FORCE	0	CLAIM FAILED	0.00	0		
DBAT INACTIVE	0.00	0									
TYPE3 INACTIVE	0.00	0									
RRS COMMIT	0.00	0									
END USER TIMEOUT	0.00	0									
BLOCK STOR THE	0.00	0									
STALENESS THE	0.00	0									

This is the second page of the accounting report.

## Anatomy of a DB2PE Report

SQL DML		AVERAGE	TOTAL
SELECT		25151.76	1911534
INSERT		2544.05	193348
ROWS		58419.33	4439869
UPDATE		2330.83	177143
ROWS		2329.91	177073
MERGE		0.00	0
DELETE		0.92	70
ROWS		0.92	70
DESCRIBE		0.00	0
DESC . TBL		0.00	0
PREPARE		0.00	0
OPEN		0.00	0
FETCH		0.00	0
ROWS		0.00	0
CLOSE		0.00	0
DML-ALL		30027.57	2282095

NORMAL TERM.	AVERAGE	TOT
NEW USER	0.00	0
REALLOCATION	0.99	0
APPL-PROGR. END	0.01	0
RESCORR	0.00	0
DBAT INACTIVE	0.00	0
TYPE2 INACTIVE	0.00	0
RRS COMMIT	0.00	0
END USER TIMEOUT	0.00	0
BLOCK STOR TIME	0.00	0
STALENESS TIME	0.00	0

IP-LOCKS	AVERAGE TIME	AV. EVENT
0.000023	0.03	0.03
0.000000	0.00	0.00
0.000000	0.00	0.00
0.000023	0.03	0.03

LOCKING	AVERAGE	TOTAL
CREDITS	0.00	0
DEB/OKS	0.00	0
SCALE (SHARED)	0.00	0
SCALE (EXCLUS)	0.01	1
NO PCT ROW LOCKS HELD	29.13	1002
LOCK REQUEST	107.36	8188131
RANGE REQUEST	29855.70	2288095
MERGE REQUEST	0.00	0
OTHER REQUEST	0.00	0
TOTAL SUSPENSIONS	951.95	68148
BACK SUSPENSIONS	677.79	31474
EDM LATCH SUSPENS.	224.66	17074
OTHER SUSPENS.	0.00	0

N.	DRAIN/CLAIM	AVERAGE	TOTAL
0	DRAIN REQUESTS	0.00	0
0	DRAIN FAILED	0.00	0
0	CLAIM REQUESTS	34462.41	2619141
0	CLAIM FAILED	0.00	0

It contains information such as the number of DML statements executed. We can see that the number of INSERT statements is lower than the number of rows INSERTed. This implies that block INSERTs were performed, inserting multiple rows with one INSERT statement.

## Anatomy of a DB2PE Report

LOCATION: US1BNDZP		ORIGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R1M1)		PAGE: 1-313				
GROUP: DSNDRP		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED				
MEMBER: DB2P				TO: NOT SPECIFIED				
SUBSYSTEM: DB2P				INTERVAL FROM: 02/27/14 00:00:00.00				
DB2 VERSION: V10		ORDER: PLANNAME		TO: 02/28/14 01:00:00.00				
		SCOPE: MEMBER						
TOP FIELD: ELAPSED TIME SPENT IN DB2			TOP NUMBER REQUESTED: 5					
PLANNAME: OBOLEPLN								
DATA CAPTURE	AVERAGE	TOTAL	DATA SHARING	AVERAGE	TOTAL	QUERY PARALLELISM	AVERAGE	TOTAL
IFDI CALLS MADE	N/P	N/P	P/L-LOCKS XES(%)	3.32	N/A	MAXIMUM MEMBERS USED	N/A	0
RECORDS CAPTURED	N/P	N/P	LOCK REQ - FLOCKS	175.38	13320	MAXIMUM DEGREE	N/A	0
LOG RECORDS READ	N/P	N/P	UNLOCK REQ - FLOCKS	170.95	12992	GROUPS EXECUTED	0.00	0
ROWS RETURNED	N/P	N/P	CHANGE REQ - FLOCKS	1.14	87	RAN AS PLANNED	0.00	0
RECORDS RETURNED	N/P	N/P	LOCK REQ - XES	3973.87	271584	RAN DEFICIT	0.00	0
DATA DESC. RETURN	N/P	N/P	UNLOCK REQ - XES	177.75	13509	ONE DB2-COORDINATOR = NO	0.00	0
TABLERETURNED	N/P	N/P	CHANGE REQ - XES	1.22	93	ONE DB2-ISOLATION LEVEL	0.00	0
DESCRIBES	N/P	N/P	SUSPENDS - IRLM	0.03	2	ONE DB2-DCL TEMPORARY TABLE	0.00	0
			SUSPENDS - XES	0.00	0	SEQUENTIAL-CURSOR	0.00	0
			CONVERSIONS - XES	0.00	0	SEQUENTIAL-NO ESA SORT	0.00	0
			FALSE CONTENTIONS	0.03	2	SEQUENTIAL-NO BUFFER	0.00	0
			INCOMPATIBLE LOCKS	0.00	0	SEQUENTIAL-ENCLAVE SERVICES	N/A	N/A
			NOTIFY MSGS SENT	0.00	0	MEMBER SPECIFIED (%)	N/C	N/A
						DISABLED BY RLF	0.00	0
						REFORM PARAL-CONFIG	0.00	0
						REFORM PARAL-NO BUF	0.00	0
STORED PROCEDURES	AVERAGE	TOTAL	UDF	AVERAGE	TOTAL	TRIGGERS	AVERAGE	TOTAL
CALL STATEMENTS	0.00	0	EXECUTED	0.00	0	STATEMENT TRIGGER	0.00	0
ABENDED	0.00	0	ABENDED	0.00	0	ROW TRIGGER	0.00	0
TIMED OUT	0.00	0	TIMED OUT	0.00	0	SQL ERROR OCCUR	0.00	0
REJECTED	0.00	0	REJECTED	0.00	0			
LOGGING	AVERAGE	TOTAL	ROWID	AVERAGE	TOTAL	RED LIST	AVERAGE	TOTAL
LOG RECORDS WRITTEN	251.4K	19106084	DIRECT ACCESS	0.00	0	USED	0.00	0
TOT BYTES WRITTEN	7159.2K	5489500K	INDEX USED	0.00	0	FAIL-NO STORAGE	0.00	0
LOG RECORD SIZE	284.65	N/A	TS SCAN USED	0.00	0	FAIL-LIMIT EXCEEDED	0.00	0

This is the third page of the accounting report.



## Anatomy of a DB2PE Report

LOCATION: USEDBD2P		OHEGAVON XE FOR DB2 PERFORMANCE EXPERT (V5R1M3)		PAGE: 1-316							
GROUP: D08R00P		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED							
MEMBER: DR2P				TO: NOT SPECIFIED							
SUBSYSTEM: DR2P		ORDER: PLANNAME		INTERVAL FROM: 02/27/14 00:00:00.00							
DB2 VERSION: V10P		SCOPE: MEMBER		TO: 02/28/14 01:00:00.00							
TOP FIELD: ELAPSED TIME SPENT IN DB2		TOP NUMBER REQUESTED: 5									
PLANNAME: ODL0BLPN											
AVERAGE	SU	CLASS 1	CLASS 2	DYNAMIC SQL STMT	AVERAGE	TOTAL	MISCELLANEOUS	AVERAGE	TOTAL		
CP CPU	242118.36		229546.67	REOPTIMIZATION	0.00	0	MAX STO LOB VAL (KB)	0.00	0		
AGENT	242118.36		229546.67	NOT FOUND IN CACHE	0.00	0	MAX STO XML VAL (KB)	0.00	0		
NONWSTED	242118.36		229546.67	FOUND IN CACHE	0.00	0					
STORED PROC	0.00		0.00	IMPLICIT PREPARES	0.00	0					
USER	0.00		0.00	PREPARE AUDIT	0.00	0					
YREGGR	0.00		0.00	CACHE HIT RELEASED	0.00	0					
PAR.TASKS	0.00		0.00	PREP_STMT_PURGED	0.00	0					
SLEEP CPU	0.00		N/A	CSWL - STMTS MARKED	0.00	0					
SE CPU	0.00		0.00	CSWL - LITS REPLACED	0.00	0					
NONWSTED	0.00		0.00	CSWL - MATCHES FOUND	0.00	0					
STORED PROC	0.00		0.00								
USER	0.00		0.00								
YREGGR	0.00		0.00								
PAR.TASKS	0.00		0.00								
BP0	BP0OL ACTIVITY	AVERAGE	TOTAL	BP1	BP1OL ACTIVITY	AVERAGE	TOTAL	BP2	BP2OL ACTIVITY	AVERAGE	TOTAL
	BP0OL HIT RATIO (%)	94.50	N/A		BP1OL HIT RATIO (%)	90.11	N/A		BP2OL HIT RATIO (%)	53.56	N/A
	GETPAGES	1.43	109		GETPAGES	106.9K	8124551		GETPAGES	287.3K	21836838
	BUFFER UPDATES	0.41	31		BUFFER UPDATES	73375.23	5376536		BUFFER UPDATES	145.0K	1100731
	SYNCHRONOUS WRITE	0.00	0		SYNCHRONOUS WRITE	0.00	0		SYNCHRONOUS WRITE	0.00	0
	SYNCHRONOUS READ	0.08	6		SYNCHRONOUS READ	10508.11	798616		SYNCHRONOUS READ	58966.70	4484189
	SEQ. PREFETCH REQS	0.00	0		SEQ. PREFETCH REQS	10.08	786		SEQ. PREFETCH REQS	0.00	0
	LIST PREFETCH REQS	0.00	0		LIST PREFETCH REQS	25.00	12		LIST PREFETCH REQS	0.00	0
	DYN. PREFETCH REQS	0.00	0		DYN. PREFETCH REQS	17.45	1226		DYN. PREFETCH REQS	6007.42	5021.9
	PAGES READ ASYNCHR.	0.00	0		PAGES READ ASYNCHR.	60.82	4622		PAGES READ ASYNCHR.	74480.72	5660535
BP8	BP8OL ACTIVITY	AVERAGE	TOTAL	TOT4K	BP04KOL ACTIVITY	AVERAGE	TOTAL	BP32K	BP32KOL ACTIVITY	AVERAGE	TOTAL
	BP04K HIT RATIO (%)	68.75	N/A		BP04K HIT RATIO (%)	63.47	N/A		BP32K HIT RATIO (%)	57.89	N/A
	GETPAGES	0.42	32		GETPAGES	384.2K	2996350		GETPAGES	0.50	38
	BUFFER UPDATES	0.00	0		BUFFER UPDATES	219.0K	16644278		BUFFER UPDATES	0.00	0
	SYNCHRONOUS WRITE	0.00	0		SYNCHRONOUS WRITE	10.00	0		SYNCHRONOUS WRITE	0.00	0
	SYNCHRONOUS READ	0.13	10		SYNCHRONOUS READ	69474.62	5280071		SYNCHRONOUS READ	0.21	16
	SEQ. PREFETCH REQS	0.00	0		SEQ. PREFETCH REQS	10.08	786		SEQ. PREFETCH REQS	0.00	0
	LIST PREFETCH REQS	0.00	0		LIST PREFETCH REQS	0.00	0		LIST PREFETCH REQS	0.00	0
	DYN. PREFETCH REQS	0.00	0		DYN. PREFETCH REQS	6625.00	503595		DYN. PREFETCH REQS	0.00	0
	PAGES READ ASYNCHR.	0.00	0		PAGES READ ASYNCHR.	74541.34	5685157		PAGES READ ASYNCHR.	0.00	0

This is the fourth page. Notice I have shown part of it in a different color. We will discuss the significance of the colors later.

The part in pink contains information about each buffer pool used in the execution of the plan.

## Anatomy of a DB2PE Report

LOCATION: USERID=BP		OPERATION XE FOR DB2 PERFORMANCE EXPERT (V5R1G1)		PAGE: 1-316	
GROUP: D08R00P		MEMBER: DR2P		REQUESTED: 0000 NOT SPECIFIED	
SUBSYSTEM: DR2P		DB2 VERSION: V5P		NOT SPECIFIED	
TOP FIELD: ELAPSED TID				02/27/14 00:00:00.00	
PLANNAME: D08LBP1N				02/28/14 00:00:00.00	
<b>AVERAGE SU</b> ----- CP CPU 242 AGENT 242 NONNETED 242 STORED PROC 242 USER 242 PAR.TASKS SLEEP CPU SE CPU NONNETED STORED PROC IOP YREGGR PAR.TASKS		<b>BP1 BPOOL ACTIVITY</b> ----- BPOOL HIT RATIO (%) 90.11 N/A GETPAGES 106.9K 8124551 BUFFER UPDATES 73375.21 5576516 SYNCHRONOUS WRITE 0.00 0 SYNCHRONOUS READ 10508.11 798616 SEQ. PREFETCH REQS 10.08 766 LIST PREFETCH REQS 0.00 0 DYN. PREFETCH REQS 17.45 1326 PAGES READ ASYNCHR. 60.82 4622 ----- <b>TOT4K BPOOL ACTIVITY</b> ----- BPOOL HIT RATIO (%) 63.47 N/A GETPAGES 394.2K 29961530 BUFFER UPDATES 219.0K 16644278 SYNCHRONOUS WRITE 0.00 0 SYNCHRONOUS READ 69474.62 5280071 SEQ. PREFETCH REQS 10.08 766 LIST PREFETCH REQS 0.00 0 DYN. PREFETCH REQS 6625.07 503505 PAGES READ ASYNCHR. 74541.54 5665157		<b>AVERAGE TOTAL</b> ----- 0.00 0 0.00 0 ----- <b>AVERAGE TOTAL</b> ----- 57.89 N/A 0.50 38 0.00 0 0.00 0 0.21 16 0.00 0 0.00 0 0.00 0 0.00 0 0.00 0	
<b>BP8 BPOOL ACTIVITY</b> ----- BPOOL HIT RATIO (%) GETPAGES BUFFER UPDATES SYNCHRONOUS WRITE SYNCHRONOUS READ SEQ. PREFETCH REQS LIST PREFETCH REQS DYN. PREFETCH REQS PAGES READ ASYNCHR.		<b>BP8 BPOOL ACTIVITY</b> ----- BPOOL HIT RATIO (%) GETPAGES BUFFER UPDATES SYNCHRONOUS WRITE SYNCHRONOUS READ SEQ. PREFETCH REQS LIST PREFETCH REQS DYN. PREFETCH REQS PAGES READ ASYNCHR.		<b>AVERAGE TOTAL</b> ----- 57.89 N/A 0.50 38 0.00 0 0.00 0 0.21 16 0.00 0 0.00 0 0.00 0 0.00 0	
0.00 0 LIST PREFETCH REQS 0.00 0 DYN. PREFETCH REQS 0.00 0 PAGES READ ASYNCHR.		0.00 0 LIST PREFETCH REQS 6625.07 503505 DYN. PREFETCH REQS 74541.54 5665157 PAGES READ ASYNCHR.		0.00 0 LIST PREFETCH REQS 0.00 0 DYN. PREFETCH REQS 0.00 0 PAGES READ ASYNCHR.	

The buffer pool information includes number of getpages, hit ratio, etc.

## Anatomy of a DB2PE Report

LOCATION: US1B002P		OMEGAN XE FOR DB2 PERFORMANCE EXPERT (V5R1M1)		PAGE: 1-317	
GROUP: D0M00P		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED	
NUMBER: 062P				TO: NOT SPECIFIED	
SUBSYSTEM: DB2P				INTERVAL FROM: 02/27/14 00:00:00.00	
DB2 VERSION: V30		ORDER: PLANNAME		TO: 02/28/14 01:00:00.00	
TOP FIELD: ELAPSED TIME SPENT IN DB2		SCOPE: MEMBER			
PLANNAME: D00LRLN		TOP NUMBER REQUESTED: 5			
TOTAL	BP00L ACTIVITY	AVERAGE	TOTAL		
	BP00L HIT RATIO (%)	63.47	N/A		
	GETPAGES	394.2K	29901368		
	BUFFER UPDATES	218.0K	16644278		
	ASYNCHRONOUS WRITE	0.00	0		
	SYNCHRONOUS READ	69474.81	5280089		
	REQ. PREFETCH REQS	10.08	766		
	LCST PREFETCH REQS	6622.00	503905		
	DTM PREFETCH REQS	74541.54	5665157		
-----					
GROUP BP0	AVERAGE	TOTAL	GROUP BP1	AVERAGE	TOTAL
GRP-DEPEND GETPAGES	0.45	34	GRP-DEPEND GETPAGES	1074.89	81692
READ(X)-DATA RETUR	0.00	0	READ(X)-DATA RETUR	0.00	0
READ(N)-NO DATA RT	0.00	0	READ(N)-NO DATA RT	0.00	0
READ(N)-DATA RETUR	0.00	0	READ(N)-DATA RETUR	8.95	680
READ(N)-NO DATA RT	0.03	2	READ(N)-NO DATA RT	211.42	16220
PREFETCH PAGES READ	0.00	0	PREFETCH PAGES READ	0.00	0
CLEAN PAGES WRITTEN	0.00	0	CLEAN PAGES WRITTEN	0.00	0
UNREGISTERED PAGE	0.45	4	UNREGISTERED PAGE	131.82	301
ASYNCR GRP REQUESTS	0.00	0	ASYNCR GRP REQUESTS	11.86	301
EXPLICIT X-INVALID	0.00	0	EXPLICIT X-INVALID	0.00	0
ASYNCR SEC-GRP REQ	0.00	0	ASYNCR SEC-GRP REQ	0.00	0
PG P-LOCK LOCK REQ	0.45	34	PG P-LOCK LOCK REQ	172.28	13092
SPACE MAP PAGES	0.00	0	SPACE MAP PAGES	172.28	13092
DATA PAGES	0.45	34	DATA PAGES	0.00	0
INDEX LEAF PAGES	0.00	0	INDEX LEAF PAGES	0.00	0
PG P-LOCK UNLOCK REQ	0.45	34	PG P-LOCK UNLOCK REQ	170.46	12955
PG P-LOCK LOCK SUSP	0.00	0	PG P-LOCK LOCK SUSP	0.09	7
SPACE MAP PAGES	0.00	0	SPACE MAP PAGES	0.09	7
DATA PAGES	0.00	0	DATA PAGES	0.00	0
INDEX LEAF PAGES	0.00	0	INDEX LEAF PAGES	0.00	0
WRITE AND REGISTER	0.45	31	WRITE AND REGISTER	26.45	2809
WRITE & REGISTER MULT	0.00	0	WRITE & REGISTER MULT	36.97	2810
CHANGED PAGES WRITTEN	0.45	31	CHANGED PAGES WRITTEN	176.41	13407

The next section, in orange, contains information about the group buffer pools.



## Anatomy of a DB2PE Report

LOCATION: USIB002P		GROUP: BP1		PAGE: 1-317	
NUMBER: 062P		AVERAGE		FROM: NOT SPECIFIED	
SUBSYSTEM: DB2P		TOTAL		TO: NOT SPECIFIED	
DB2 VERSION: V30		81692		FROM: 02/28/14 01:00:00.00	
TOP FIELD: ELAPSED TIME SPENT IN				TO: 02/28/14 01:00:00.00	
PLANNAME: 0000PLN					
-----		-----		-----	
TOTAL	SPPOOL ACTIVITY	AVERAGE			
SPPOOL HIT RATIO (%)	63.47				
GETPAGES	394.2K				
BUFFER UPDATES	218.0K				
SYNCHRONOUS WRITE	0.00				
SYNCHRONOUS READ	69474.83				
REQ. PREFETCH REQS	10.08				
LIST PREFETCH REQS	6621.20				
DATA PREFETCH REQS	74541.94				
PAGES READ ASYNCHR.					
-----		-----		-----	
GROUP EPD	AVERAGE			AVERAGE	TOTAL
GBP-DEPND GETPAGES	0.43	GBP-DEPND GETPAGES	1074.89	0.43	81726
READ(XI)-DATA RETUR	0.00	READ(XI)-DATA RETUR	0.00	0.00	0
READ(XI)-NO DATA RT	0.00	READ(XI)-NO DATA RT	0.00	0.00	0
READ(NF)-DATA RETUR	0.03	READ(NF)-DATA RETUR	8.95	0.95	680
READ(NF)-NO DATA RT	0.00	READ(NF)-NO DATA RT	213.42	213.42	16220
PREFETCH PAGES READ	0.00	PREFETCH PAGES READ	0.00	0.00	0
CLEAN PAGES WRITTEN	0.00	CLEAN PAGES WRITTEN	0.00	0.00	0
UNREGISTER PAGE	0.00	UNREGISTER PAGE	131.82	10018	
ASYNCH GBP REQUESTS	0.00	ASYNCH GBP REQUESTS	3.96	301	
EXPLICIT X-INVALID	0.00	EXPLICIT X-INVALID	0.00	0	
ASYNCH SEC-GBP REQ	0.43	ASYNCH SEC-GBP REQ	0.00	0	
PG P-LOCK LOCK REQ	0.43	PG P-LOCK LOCK REQ	172.26	13092	
SPACE MAP PAGES	0.00	SPACE MAP PAGES	172.26	13092	
DATA PAGES	0.00	DATA PAGES	0.00	0	
INDEX LEAF PAGES	0.00	INDEX LEAF PAGES	0.00	0	
PG P-LOCK UNLOCK REQ	0.00	PG P-LOCK UNLOCK REQ	170.46	12955	
PG P-LOCK LOCK SUSP	0.09	PG P-LOCK LOCK SUSP	0.09	7	
SPACE MAP PAGES	0.09	SPACE MAP PAGES	0.09	7	
DATA PAGES	0.00	DATA PAGES	0.00	0	
INDEX LEAF PAGES	0.00	INDEX LEAF PAGES	0.00	0	
WRITE AND REGISTER	26.43	WRITE AND REGISTER	26.43	2009	
WRITE & REGISTER MULT	36.97	WRITE & REGISTER MULT	36.97	2810	
CHANGED PAGES WRITTEN	176.41	CHANGED PAGES WRITTEN	176.41	13407	
INDEX LEAF PAGES	0.00	INDEX LEAF PAGES	0.00	0	
WRITE AND REGISTER	31	WRITE AND REGISTER	26.43	2009	
WRITE & REGISTER MULT	0	WRITE & REGISTER MULT	36.97	2810	
CHANGED PAGES WRITTEN	176.41	CHANGED PAGES WRITTEN	176.41	13407	

Here is an example of the kind of data reported on the GBPs.

## Anatomy of a DB2PE Report

LOCATION: US1BDB2P		OMEGAON XE FOR DB2 PERFORMANCE EXPERT (V5R1M1)		PAGE: 1-319			
GROUP: DSNDB0P		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED			
MEMBER: DB2P				TO: NOT SPECIFIED			
SUBSYSTEM: DB2P		ORDER: PLANNAME		INTERVAL FROM: 02/27/14 00:00:00.00			
DB2 VERSION: V10		SCOPE: MEMBER		TO: 02/28/14 01:00:00.00			
TOP FIELD: ELAPSED TIME SPENT IN DB2			TOP NUMBER REQUESTED: 5				
PLANNAME: OB08BPLN							
ECHB1424	VALUE	ECHB1424	TIMES	ECHB1424	AVERAGE TIME	AVG. EV	TIME/EVENT
TYPE	PACKAGE	ELAP-CL7 TIME-AVG	0.800141	LOCK/LATCH	0.000000	0.00	N/C
		CP CPU TIME	0.388091	IRLM LOCK=LATCH	0.000000	0.00	N/C
LOCATION	US1BDB2P	AGENT	0.388091	DB2 LATCH	0.000000	0.00	N/C
COLLECTION ID	OB003	PAR. TASKS	0.000000	SYNCHRONOUS I/O	0.409886	651.00	0.000628
PROGRAM NAME	ECHB1424	SE CPU TIME	0.000000	OTHER READ I/O	0.000000	0.00	N/C
		SUSPENSION-CL8	0.409886	OTHER WRITE I/O	0.000000	0.00	N/C
ACTIVITY TYPE	NONNESTED	AGENT	0.409886	SERV. TASK SWITCH	0.000000	0.00	N/C
ACTIVITY NAME	'BLANK'	NOT ACCOUNTED	0.000000	ARCH. LOG(QUEESQ)	0.000000	0.00	N/C
SCHEMA NAME	'BLANK'	AVG.DB2 ENTRY/EXIT	0.902164	DRAIN LOCK	0.000000	0.00	N/C
SUCC. AUTH CHECK	0	DB2 ENTRY/EXIT	24796.00	CLAIM RELEASE	0.000000	0.00	N/C
OCURRENCES	1	CP CPU SU	25139.00	PAGE LATCH	0.000000	0.00	N/C
NBR OF ALLOCATIONS	1	AGENT	25139.00	GLOBAL CONTENTION	0.000000	0.00	N/C
SOL STMT - AVERAGE	12398.00	PAR. TASKS	0.00	TCP/IP LOB XML	0.000000	0.00	N/C
SOL STMT - TOTAL	12398	SE CPU SU	0.00	TOTAL CL8 SUSPENS.	0.409886	651.00	0.000628
NBR RLUP THREADS	1						
OB08B5	VALUE	OB08B5	TIMES	OB08B5	AVERAGE TIME	AVG. EV	TIME/EVENT
TYPE	PACKAGE	ELAP-CL7 TIME-AVG	0.139613	LOCK/LATCH	0.000000	0.00	N/C
		CP CPU TIME	0.001726	IRLM LOCK=LATCH	0.000000	0.00	N/C
LOCATION	US1BDB2P	AGENT	0.001726	DB2 LATCH	0.000000	0.00	N/C
COLLECTION ID	OB003	PAR. TASKS	0.000000	SYNCHRONOUS I/O	0.053706	14.00	0.003979
PROGRAM NAME	OB08B5	SE CPU TIME	0.000000	OTHER READ I/O	0.000000	0.00	N/C
		SUSPENSION-CL8	0.137964	OTHER WRITE I/O	0.000000	0.00	N/C
ACTIVITY TYPE	NONNESTED	AGENT	0.137964	SERV. TASK SWITCH	0.000000	0.00	N/C
ACTIVITY NAME	'BLANK'	PAR. TASKS	0.000000	ARCH. LOG(QUEESQ)	0.000000	0.00	N/C
SCHEMA NAME	'BLANK'	NOT ACCOUNTED	0.137964	ARCHIVE LOG READ	0.000000	0.00	N/C
SUCC. AUTH CHECK	0	AVG.DB2 ENTRY/EXIT	86.00	DRAIN LOCK	0.000000	0.00	N/C
OCURRENCES	1	DB2 ENTRY/EXIT	86	CLAIM RELEASE	0.000000	0.00	N/C
NBR OF ALLOCATIONS	1	CP CPU SU	111.00	PAGE LATCH	0.000000	0.00	N/C
SOL STMT - AVERAGE	42.00	AGENT	111.00	GLOBAL CONTENTION	0.000000	0.00	N/C
SOL STMT - TOTAL	42	PAR. TASKS	0.00	TCP/IP LOB XML	0.000000	0.00	N/C
NBR RLUP THREADS	1	SE CPU SU	0.00	TOTAL CL8 SUSPENS.	0.137964	22.00	0.006271

The part colored green is package information.

## Anatomy of a DB2PE Report

LOCATION: USIBMDB2P		MEMBER: DB2P		SUBSYSTEM: DB2P		DB2 VERSION: V10		ORDER: PLANNAME		SCOPE: MEMBER		PAGE: 1-319	
GROUP: DSNDB0P		PROGRAM NAME: ECHB1424		ACTIVITY TYPE: NONNESTED		SCHEMA NAME: 'BLANK'		AVG-DB2 ENTRY/EXIT: 86.00		DRAIN LOCK: 0.000000		PAGE LATCH: 0.000000	
COUNT: 1		CP CPU SU: 111.00		AGENT: 111.00		GLOBAL CONTENTION: 0.000000		PAGES/SEC: 0.000000		TSP/3P LIB SML: 0.000000		TOTAL CLS SUSPENS.: 0.113764	
PLANNAME	OB00BPLN	ECMB1424	VALUE	TYPE	PACKAGE	PAGE TIME	AVG. EV	TIME/EVENT					
LOCATION	USIBMDB2P	USIBMDB2P	0.000000	LOCATION	USIBMDB2P	0.000000	0.00	N/C					
COLLECTION ID	OB003	OB003	0.000000	COLLECTION ID	OB003	0.498886	651.00	0.000628					
PROGRAM NAME	ECHB1424	ECHB1424	0.000000	PROGRAM NAME	ECHB1424	0.000000	0.00	N/C					
ACTIVITY TYPE	NONNESTED	NONNESTED	0.000000	ACTIVITY TYPE	NONNESTED	0.000000	0.00	N/C					
ACTIVITY NAME	'BLANK'	'BLANK'	0.000000	ACTIVITY NAME	'BLANK'	0.000000	0.00	N/C					
SCHEMA NAME	'BLANK'	'BLANK'	0.000000	SCHEMA NAME	'BLANK'	0.000000	0.00	N/C					
SUCC AUTH CHECK	0	SUCC AUTH CHECK	0	SUCC AUTH CHECK	0	0.498886	651.00	0.000628					
OCCURRENCES	1	OCCURRENCES	1	OCCURRENCES	1								
NBR OF ALLOCATIONS	1	NBR OF ALLOCATIONS	1	NBR OF ALLOCATIONS	1								
SQL STMT - AVERAGE	12398.00	SQL STMT - AVERAGE	12398.00	SQL STMT - AVERAGE	12398.00								
SQL STMT - TOTAL	12398	SQL STMT - TOTAL	12398	SQL STMT - TOTAL	12398								
NBR RLUP THREADS	1	NBR RLUP THREADS	1	NBR RLUP THREADS	1								
AVG-DB2 ENTRY/EXIT	86.00	AVG-DB2 ENTRY/EXIT	86.00	AVG-DB2 ENTRY/EXIT	86.00								
DRAIN LOCK	0.000000	DRAIN LOCK	0.000000	DRAIN LOCK	0.000000								
PAGE LATCH	0.000000	PAGE LATCH	0.000000	PAGE LATCH	0.000000								
NOTIFY MESSAGES	0.000000	NOTIFY MESSAGES	0.000000	NOTIFY MESSAGES	0.000000								
GLOBAL CONTENTION	0.000000	GLOBAL CONTENTION	0.000000	GLOBAL CONTENTION	0.000000								
TSP/3P LIB SML	0.000000	TSP/3P LIB SML	0.000000	TSP/3P LIB SML	0.000000								
TOTAL CLS SUSPENS.	0.113764	TOTAL CLS SUSPENS.	0.113764	TOTAL CLS SUSPENS.	0.113764								

It contains information on the number of occurrences, number of SQL statements executed, etc.

## Anatomy of a DB2PE Report

LOCATION: LISTBDB2P		MEMBER: DB2P		SUBSYSTEM: DB2P		DB2 VERSION: V10		ORDER: PLANNAME		SCOPE: MEMBER		PAGE: 1-319				
OMEGAOM XE FOR DB2 PERFORMANCE EXPERT (V5R1M1)								ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED						
TOP FIELD: ELAPSED TIME SPENT IN DB2								TOP NUMBER REQUESTED: 5		TO: NOT SPECIFIED						
INTEGRAL FROM: 02/27/14 00:00:00.00								TO: 02/28/14 01:00:00.00								
PLANNAME: OBOLBPLN													ECMB1424		TIMES	
ECMB1424	VALUE	-----	ECMB1424	-----	ELAP-CL7	TIME-AVG	0.800141	AVG.EV	0.00	TIME/EVENT	-----	N/C				
TYPE	PACKAGE	-----	CP CPU T	-----	CP CPU TIME		0.388091	0.00	0.00	N/C	-----	N/C				
LOCATION	LISTBDB2P	-----	AGENT	-----	AGENT		0.388091	651.00	0.000628	N/C	-----	N/C				
COLLECTION ID	OB003	-----	PAR.TA	-----	PAR.TASKS		0.000000	0.00	0.00	N/C	-----	N/C				
PROGRAM NAME	ECMB1424	-----	SE CPU T	-----	SE CPU TIME		0.000000	0.00	0.00	N/C	-----	N/C				
ACTIVITY TYPE	NONNESTED	-----	SUSPENS	-----	SUSPENSION-CL8		0.409886	0.00	0.00	N/C	-----	N/C				
ACTIVITY NAME	'BLANK'	-----	NOT ACCO	-----	AGENT		0.000000	0.00	0.00	N/C	-----	N/C				
SUCC. AUTH CHECK	0	-----	AVG.DB2	-----	PAR.TASKS		0.000000	0.00	0.00	N/C	-----	N/C				
OCCURRENCES	1	-----	DB2 ENTR	-----	NOT ACCOUNTED		0.002164	0.00	0.00	N/C	-----	N/C				
NBR OF ALLOCATIONS	12398.00	-----	CP CPU S	-----	AVG.DB2 ENTRY/EXIT		24796.00	651.00	0.000628	N/C	-----	N/C				
SOL STMT - AVERAGE	1	-----	AGENT	-----	DB2 ENTRY/EXIT		24796	0.00	0.00	N/C	-----	N/C				
SOL STMT - TOTAL	12398	-----	PAR.TA	-----	CP CPU SU		25139.00	0.00	0.00	N/C	-----	N/C				
NBR RLUP THREADS	1	-----	SE CPU S	-----	AGENT		25139.00	14.00	0.003979	N/C	-----	N/C				
		-----	SUSPENS	-----	PAR.TASKS		0.00	0.00	0.010282	N/C	-----	N/C				
		-----	PAR.TA	-----	SE CPU SU		0.00	0.00	0.00	N/C	-----	N/C				
		-----	AGENT	-----	CP CPU SU		0.00	0.00	0.00	N/C	-----	N/C				
		-----	NOT ACCO	-----	DB2 ENTRY/EXIT		0.000000	0.00	0.00	N/C	-----	N/C				
		-----	AVG.DB2	-----	CLAIM RELEASE		0.000000	0.00	0.00	N/C	-----	N/C				
		-----	DB2 ENTR	-----	PAGE LATCH		0.000000	0.00	0.00	N/C	-----	N/C				
		-----	CP CPU S	-----	NOTIFY MESSAGES		0.000000	0.00	0.00	N/C	-----	N/C				
		-----	AGENT	-----	GLOBAL CONTENTION		0.000000	0.00	0.00	N/C	-----	N/C				
		-----	PAR.TA	-----	TEP/SP LIB SML		0.000000	0.00	0.00	N/C	-----	N/C				
		-----	SE CPU S	-----	TOTAL CL8 SUSPENS.		0.137964	22.00	0.006271	N/C	-----	N/C				
		-----	CP CPU T	-----						N/C	-----	N/C				
		-----	AGENT	-----						N/C	-----	N/C				
		-----	PAR.TA	-----						N/C	-----	N/C				
		-----	SE CPU T	-----						N/C	-----	N/C				
		-----	SUSPENS	-----						N/C	-----	N/C				
		-----	NOT ACCO	-----						N/C	-----	N/C				
		-----	AVG.DB2	-----						N/C	-----	N/C				
		-----	DB2 ENTR	-----						N/C	-----	N/C				
		-----	CP CPU S	-----						N/C	-----	N/C				
		-----	AGENT	-----						N/C	-----	N/C				
		-----	PAR.TA	-----						N/C	-----	N/C				
		-----	SE CPU S	-----						N/C	-----	N/C				

This block contains information on the elapsed, CPU, and suspension times for the package.

## Anatomy of a DB2PE Report

LOCATION: USERWRP		ONEGAWON VE FOR DB2 PERFORMANCE EXPERT (V561M1)		PAGE: 1-323	
GROUP: OSN0BP		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED	
MEMBER: DBP		ORDER: PLANNAME		TO: NOT SPECIFIED	
SUBSYSTEM: DB2		SCOPE: MEMBER		INTERVAL FROM: 02/27/14 00:00:00.00	
DB2 VERSION: V10		TOP NUMBER REQUESTED: 5		TO: 02/28/14 01:00:00.00	
TOP FIELD: ELAPSED TIME SPENT IN DB2					
PLANNAME: QDLBPLN					
-----					
DBB816	AVERAGE TIME	AV. EVENT	DBB816	AVERAGE TIME	AV. EVENT
GLOBAL CONTENTION L-LOCKS	0.000000	0.00	GLOBAL CONTENTION P-LOCKS	0.000000	0.00
PARENT (DB,TS,TAB,PART)	0.000000	0.00	PAGESET/PARTITION	0.000000	0.00
CHILD (PAGE,ROW)	0.000000	0.00	PAGE	0.000000	0.00
OTHER	0.000000	0.00	OTHER	0.000000	0.00
-----					
DBB838	AVERAGE TIME	AV. EVENT	DBB838	AVERAGE TIME	AV. EVENT
GLOBAL CONTENTION L-LOCKS	0.000000	0.00	GLOBAL CONTENTION P-LOCKS	0.000000	0.00
PARENT (DB,TS,TAB,PART)	0.000000	0.00	PAGESET/PARTITION	0.000000	0.00
CHILD (PAGE,ROW)	0.000000	0.00	PAGE	0.000000	0.00
OTHER	0.000000	0.00	OTHER	0.000000	0.00
-----					
XSC954	AVERAGE TIME	AV. EVENT	XSC954	AVERAGE TIME	AV. EVENT
GLOBAL CONTENTION L-LOCKS	0.000000	0.00	GLOBAL CONTENTION P-LOCKS	0.000000	0.00
PARENT (DB,TS,TAB,PART)	0.000000	0.00	PAGESET/PARTITION	0.000000	0.00
CHILD (PAGE,ROW)	0.000000	0.00	PAGE	0.000000	0.00
OTHER	0.000000	0.00	OTHER	0.000000	0.00
-----					
EQM1424	AVERAGE	TOTAL	EQM1424	AVERAGE	TOTAL
SELECT	12398.00	12398	SELECT	1.00	70
INSERT	0.00	0	INSERT	41.00	41
UPDATE	0.00	0	UPDATE	0.00	0
DELETE	0.00	0	DELETE	0.00	0
DESCRIBE	0.00	0	DESCRIBE	0.00	0
PREPARE	0.00	0	PREPARE	0.00	0
OPEN	0.00	0	OPEN	0.00	0
FETCH	0.00	0	FETCH	0.00	0
CLOSE	0.00	0	CLOSE	0.00	0
LOCK TABLE	0.00	0	LOCK TABLE	0.00	0
CALL	0.00	0	CALL	0.00	0

## Anatomy of a DB2PE Report

LOCATION: USER@DB2P		ONEGAWON VE FOR DB2 PERFORMANCE EXPERT (V5R31M1)		PAGE: 1-223	
GROUP: OSNDBGP		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED	
MEMBER: DB2P		ORDER: PLANNAME		TO: NOT SPECIFIED	
SUBSYSTEM: DB2P		SCOPE: MEMBER		INTERVAL FROM: 02/27/14 00:00:00.00	
DB2 VERSION: V10				TO: 02/28/14 01:00:00.00	
TOP FIELD: ELAPSED TIME SPENT IN DB2		TOP NUMBER REQUESTED: 5			
PLANNAME: QDLBPLN					
-----					
DBB816	ECMB1424	AVERAGE	TOTAL		
-----					
GLOBAL CONTENTION L-LOCKS	SELECT	12398.00	12398		
PARENT (DB,TS,TAB,PART)	INSERT	0.00	0		
CHILD (PAGE,ROW)	UPDATE	0.00	0		
OTHER	DELETE	0.00	0		
DBB838	DELETE	0.00	0		
-----					
GLOBAL CONTENTION L-LOCKS	DESCRIBE	0.00	0		
PARENT (DB,TS,TAB,PART)	PREPARE	0.00	0		
CHILD (PAGE,ROW)	OPEN	0.00	0		
OTHER	FETCH	0.00	0		
XSC954	FETCH	0.00	0		
-----					
GLOBAL CONTENTION L-LOCKS	LOCK TABLE	0.00	0		
PARENT (DB,TS,TAB,PART)	CALL	0.00	0		
CHILD (PAGE,ROW)					
OTHER					
ECMB1424	AVERAGE			AVERAGE	TOTAL
-----					
SELECT	12398.00			1.00	70
INSERT	0.00			5328.84	177019
UPDATE	0.00			5328.50	176995
DELETE	0.00			1.00	70
DESCRIBE	0.00			0.00	0
PREPARE	0.00	0	PREPARE	0.00	0
OPEN	0.00	0	OPEN	0.00	0
FETCH	0.00	0	FETCH	0.00	0
CLOSE	0.00	0	CLOSE	0.00	0
LOCK TABLE	0.00	0	LOCK TABLE	0.00	0
CALL	0.00	0	CALL	0.00	0

And this block reports upon the DML that was performed.

## Anatomy of a DB2PE Report

LOCATION: UZ12B0R2P		OMEGAONE FOR DB2 PERFORMANCE EXPERT (V5R3M1)		PAGE: 1-374					
GROUP: D04D0P		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED					
NUMBER: D02P		ORDER: PLANNAME		INTERVAL FROM: 02/27/14 00:00:00.00					
SUBSYSTEM: D02P		SCOPE: NUMBER		TO: NOT SPECIFIED					
DB2 VERSION: V10		TOP FIELD: ELAPSED TIME SPENT IN DB2		TOP NUMBER REQUESTED: 5					
PLANNAME: 080LEPLN									
08B730	AVERAGE	TOTAL	08B816	AVERAGE	TOTAL	08B838	AVERAGE	TOTAL	
DELETE	1899.00	1899008	DELETE	0.00	0	DELETE	0.00	0	
INSERT	29.00	29	INSERT	15792.00	15792	INSERT	467.00	467	
UPDATE	128.00	128	UPDATE	0.00	0	UPDATE	0.00	0	
DELETE	0.00	0	DELETE	0.00	0	DELETE	0.00	0	
DESCRIBE	0.00	0	DESCRIBE	0.00	0	DESCRIBE	0.00	0	
PREPARE	0.00	0	PREPARE	0.00	0	PREPARE	0.00	0	
OPEN	0.00	0	OPEN	0.00	0	OPEN	0.00	0	
FETCH	0.00	0	FETCH	0.00	0	FETCH	0.00	0	
CLOSE	0.00	0	CLOSE	0.00	0	CLOSE	0.00	0	
LOCK TABLE	0.00	0	LOCK TABLE	0.00	0	LOCK TABLE	0.00	0	
CALL	0.00	0	CALL	0.00	0	CALL	0.00	0	
-----		-----		-----		-----		-----	
08C914	AVERAGE	TOTAL							
DELETE	17.00	17							
INSERT	0.00	0							
UPDATE	0.00	0							
DELETE	0.00	0							
DESCRIBE	0.00	0							
PREPARE	0.00	0							
OPEN	0.00	0							
FETCH	0.00	0							
CLOSE	0.00	0							
LOCK TABLE	0.00	0							
CALL	0.00	0							
-----		-----		-----		-----		-----	
08D5424	AVERAGE	TOTAL	08D605	AVERAGE	TOTAL	08D77L	AVERAGE	TOTAL	
SPPOOL_HIT_RATIO (%)	98.73	N/A	SPPOOL_HIT_RATIO (%)	83.10	N/A	SPPOOL_HIT_RATIO (%)	53.42	N/A	
GETPAGES	58961.00	58961	GETPAGES	71.00	71	GETPAGES	348.0K	2448383	
BUFFER UPDATES	0.00	0	BUFFER UPDATES	132.00	132	BUFFER UPDATES	236.0K	16381331	
SYNCHRONOUS READS	0.00	0	SYNCHRONOUS READS	0.00	0	SYNCHRONOUS READS	0.00	0	
ASYNCHRONOUS READS	653.00	653	ASYNCHRONOUS READS	12.00	12	ASYNCHRONOUS READS	73167.57	5261730	
DDL_PREFETCH REQS	0.00	0	DDL_PREFETCH REQS	0.00	0	DDL_PREFETCH REQS	0.00	0	
LIST_PREFETCH REQS	0.00	0	LIST_PREFETCH REQS	0.00	0	LIST_PREFETCH REQS	0.00	0	
DYN_PREFETCH REQS	0.00	0	DYN_PREFETCH REQS	0.00	0	DYN_PREFETCH REQS	4616.67	46167	
PAGES_READ_ASYNCHR.	97.00	97	PAGES_READ_ASYNCHR.	0.00	0	PAGES_READ_ASYNCHR.	80233.19	1616123	

## Anatomy of a DB2PE Report

LOCATION: UZ10802P		OMEGAONE XE FOR DB2 PERFORMANCE EXPERT (V5R3M1)		PAGE: 1-374	
GROUP: D0400P		ACCOUNTING REPORT - LONG		REQUESTED FROM: NOT SPECIFIED	
NUMBER: 082P				TOD: NOT SPECIFIED	
SUBSYSTEM: DB2P		ORDER: PLANNAME		INTERVAL FROM: 02/27/14 00:00:00.00	
DB2 VERSION: V10		SCOPE: NUMBER		TOD: 02/28/14 01:00:00.00	
TOP FIELD: ELAPSED TIME SPENT IN DB2		TOP NUMBER REQUESTED: 5			
PLANNAME: 080LPLN	ECMB1424	AVERAGE	TOTAL		
08B730					
DELETE					
INSERT					
UPDATE					
DELETE					
DESCRIBE					
PREPARE					
FETCH					
CLOSE					
LOCK TABLE					
CALL					
DESCRIB					
DELETE					
INSERT					
UPDATE					
DELETE					
DESCRIBE					
PREPARE					
FETCH					
CLOSE					
LOCK TABLE					
CALL					
0.00	0				
0.00	0				
080L24	AVERAGE	TOTAL	080B57	AVERAGE	TOTAL
080L24	98.73	N/A	080B57	53.42	N/A
BPOOL HIT RATIO (%)	98.73		BPOOL HIT RATIO (%)	53.42	
GETPAGES	58961.00	58961	GETPAGES	71.00	71
BUFFER UPDATES	0.00	0	BUFFER UPDATES	132.00	132
SYNCHRONOUS WRITES	0.00	0	SYNCHRONOUS WRITES	0.00	0
SYNCHRONOUS READ	653.00	653	SYNCHRONOUS READ	1.2	12
SEQ. PREFETCH REQS	0.00	0	SEQ. PREFETCH REQS	0.00	0
LIST PREFETCH REQS	0.00	0	LIST PREFETCH REQS	0.00	0
DYN. PREFETCH REQS	8.00	8	DYN. PREFETCH REQS	0.00	0
PAGES READ ASYNCHR.	97.00	97	PAGES READ ASYNCHR.	80233.19	80233

This block contains buffer pool information for the individual packages.



## Performance Database

- Resides on the mainframe
- May have only one or one per subsystem, depending upon how you want to store your data
- All Performance Database objects are created and maintained manually
  - Load, Image Copy, Expire old data, etc.
- Queries can be run against the tables to get performance trending data or aggregate data for a period of time

## Performance Database

- Spreadsheets and charts can be created by connecting to the database in Excel or other software products and running queries
- Sample queries are provided in the *highlevel.RKO2SAMP* library
- You'll want to write your own!

## Performance Database

- Accounting data tables
- Statistics data tables
- System Parameter data tables
- Audit data tables
- Exception data tables
- Locking data tables
- Record Trace data tables

The Performance Database contains seven sets of tables that store performance data. The FILE command of the DB2PE Reporter produces the files that are suitable for loading into these tables.

## DB2PE Performance Database

- Accounting Tables
  - General Accounting Data
  - Buffer Pool Data
  - DDF Data
  - Group Buffer Pool Data
  - Package Data
  - RLF Data
  - Accelerator Data

The accounting tables contain all the information we just looked at in the performance report. The tables are color-coded to correspond to the areas of the accounting report.

## DB2PE Performance Database

- Statistics Tables
  - General Statistics Data
  - Buffer Pool Data
  - Dataset Data
  - DDF Data
  - Group Buffer Pool Data

The statistics tables contain these five categories.

## DB2PE Performance Database

- DDL is found in the *highlevel.RKO2SAMP* library
  - Members beginning with DGOAC – Accounting Data
  - Members beginning with DGOSC – Statistics Data
  - Members beginning with DGOWC – System Parameter Data
  - Members beginning with DGOXC – Audit Data
  - Members beginning with DGOEC – Exception Data
  - Members beginning with DGOLC – Locking Data
  - Members beginning with DGONC – Record Trace Data

In addition to the accounting and statistics tables, there are tables for storing system parameters, audit trace data, exception data, locking data, and record trace data.

All of the DDL for these tables can be found in the RKO2SAMP library, beginning with DGO, and having the fifth character as a 'C'.

## DB2PE Performance Database

- Load statements are found in the *highlevel.RKO2SAMP* library
  - Members beginning with DGOAL – Accounting Data
  - Members beginning with DGOSL – Statistics Data
  - Members beginning with DGOWL – System Parameter Data
  - Members beginning with DGOXL – Audit Data
  - Members beginning with DGOEL – Exception Data
  - Members beginning with DGOLL – Locking Data
  - Members beginning with DGONL – Record Trace Data

Load statements are also found here. The fifth character is an 'L'.

## DB2PE Performance Database

- Column explanations are found in the *highlevel.RKO2SAMP* library
  - Members beginning with DGOAB – Accounting Data
  - Members beginning with DGOSB – Statistics Data
  - Members beginning with DGOWB – System Parameter Data
  - Members beginning with DGOXB – Audit Data
  - Members beginning with DGOEB – Exception Data
  - Members beginning with DGOLB – Locking Data
  - Members beginning with DGONB – Record Trace Data

Definitions of the columns can be found in the ‘B’ members.



## DB2PE Performance Database

- Accounting Tables
  - There are two sets of Accounting Tables
    - One for holding unaggregated records
      - Table names begin with DB2PMF
      - SMF data must be run through the DB2PE Reporter with the FILE option.
    - One for holding aggregated (REDUCed) records
      - Table names begin with DB2PMS
      - VSAM file created from SMF data by the REDUCE and SAVE options of the DB2PE Reporter
      - VSAM file must be converted to a flat file by using the DGOPMICO utility
        - Located in the *highLevel.RKO2SAMP* library
          - Member DGOPJACO

You can store both unaggregated and aggregated data. There are two separate sets of tables for the different kinds of data.

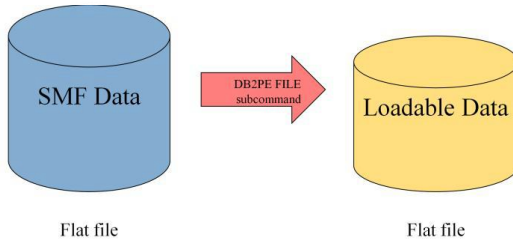
The SMF file must be run through the DB2PE Reporter with the FILE command in order to produce the file in the correct layout for the LOAD utility.

The REDUCed VSAM file must be converted to a flat file by the DGOPMICO utility.

The REDUCed data takes up considerably less space than the raw data. If at all possible, store your data in REDUCed form.

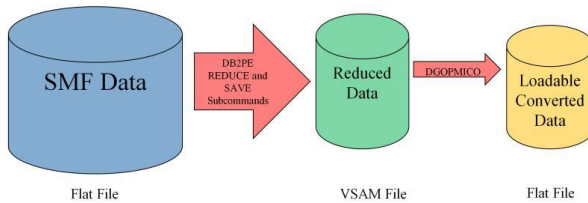
## DB2PE Performance Database

- Accounting Tables
  - Unaggregated Data



## DB2PE Performance Database

- Accounting Tables
  - Aggregated Data



## DB2PE Performance Database

- Statistics Tables
  - There is only one set of Statistics Tables
    - Unaggregated and aggregated data may be loaded into the same tables
      - Table names begin with DB2PM\_STAT
      - SMF data must be run through the DB2PE Reporter with the FILE option for unaggregated data.
      - Aggregated data goes into a VSAM file created from SMF data by the REDUCE and SAVE options of the DB2PE Reporter
        - VSAM file must be converted to a flat file by using the DGOPMICO utility
          - Located in the *highlevel.RKO2SAMP* library
          - Member DGOPJSCO

You can store both unaggregated and aggregated data in the Statistics tables.

The SMF file must be run through the DB2PE Reporter with the FILE command in order to produce the file in the correct layout for the LOAD utility.

The REDUCed VSAM file must be converted to a flat file by the DGOPMICO utility.

## DB2PE Performance Database

- You must manually maintain the DB2PE PDB tables
  - Decide how much data you will keep
  - Create purge jobs
  - Create image copy jobs
  - Create REORG jobs, if necessary

Performance Database objects are maintained completely by hand. You must create your own image copy, purge, reorg, etc. jobs.

## Sample Query for CPU Usage by 8-hour Time Interval

```
WITH A (SSID, PERIOD, SUMCPU) AS
(SELECT SUBSYSTEM_ID,
CASE WHEN (
    CHAR(TIME(INTERVAL_TIME),ISO) >= '00.00.00'
AND CHAR(TIME(INTERVAL_TIME),ISO) < '08.00.00' )
THEN CHAR('00:00 TO 08:00')
    WHEN (
    CHAR(TIME(INTERVAL_TIME),ISO) >= '08.00.00'
AND CHAR(TIME(INTERVAL_TIME),ISO) < '16.00.00' )
THEN CHAR('08:00 TO 16:00')
ELSE CHAR('16:00 TO 24:00')
END,
Continued....
```

....Continued

```
SUM(CLASS2_CPU_NNESTED + CLASS2_CPU_STPROC +  
CLASS2_CPU_UDF + CLASS2_CPU_PARAL)  
FROM DB2PE.DB2PMSACCT_GENERAL  
WHERE DATE(INTERVAL_TIME) > '2014-02-01'  
AND SUBSYSTEM_ID = 'DB2P'  
GROUP BY SUBSYSTEM_ID,  
CASE WHEN (  
  CHAR(TIME(INTERVAL_TIME),ISO) >= '00.00.00'  
  AND CHAR(TIME(INTERVAL_TIME),ISO) < '08.00.00')  
THEN CHAR('00:00 TO 08:00')  
  WHEN (  
  CHAR(TIME(INTERVAL_TIME),ISO) >= '08.00.00'  
  AND CHAR(TIME(INTERVAL_TIME),ISO) < '16.00.00')  
THEN CHAR('08:00 TO 16:00')  
ELSE CHAR('16:00 TO 24:00')  
END  
)  
SELECT SSID, PERIOD, SUMCPU FROM A  
ORDER BY 1, 2;
```

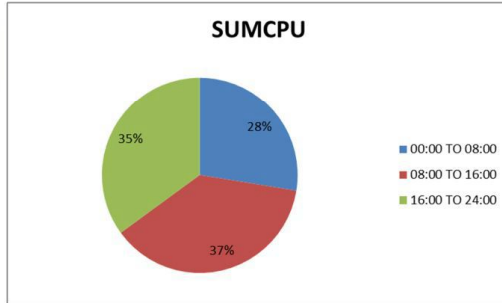
## Total CPU by 8-hour Time Interval

SSID	PERIOD	SUMCPU
DB2P	00:00 TO 08:00	384080.0566
DB2P	08:00 TO 16:00	521279.2548
DB2P	16:00 TO 24:00	488402.6414



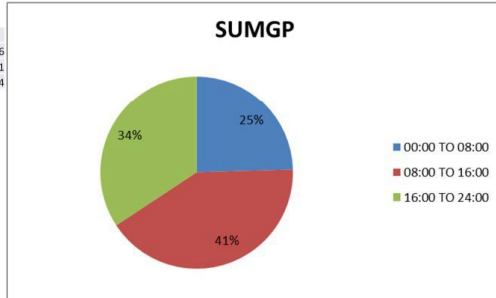
## Total CPU by 8-hour Time Interval

SSID	PERIOD	SUMCPU
DB2P	00:00 TO 08:00	384080.0566
DB2P	08:00 TO 16:00	521279.2548
DB2P	16:00 TO 24:00	488402.6414



## Total GetPages by 8-hour Time Interval

SSID	PERIOD	SUMGRP
DB2P	00:00 TO 08:00	70692771896
DB2P	08:00 TO 16:00	1.18482E+11
DB2P	16:00 TO 24:00	98661834384



## Sample SQL for SQL Executions and CPU Usage by Date

```
WITH A(SUBSYSTEM_ID, DATE, SUM_SQL, SUM_CPU) AS
(SELECT
SUBSYSTEM_ID,
DATE(INTERVAL_TIME),
"SELECT"+"INSERT"+
"UPDATE"+"DELETE"+DESCRIBE+DESCRIBE_TABLE+
"PREPARE"+"OPEN"+"FETCH"+"CLOSE"+LOCK_TABLE+
"GRANT"+"REVOKE"+SET_SQLID+SET_HOST_VARIABLE+
SET_CURRENT_DEGREE+SET_CURRENT_RULES+SET_CURRENT_PATH,
CLASS2_CPU_NNESTED+CLASS2_CPU_STPROC+
CLASS2_CPU_UDF+CLASS2_CPU_PARAL
FROM DB2PE.DB2PMSACCT_GENERAL
WHERE DATE(INTERVAL_TIME) > '2014-02-01'
AND SUBSYSTEM_ID = 'DB2P')
,
```

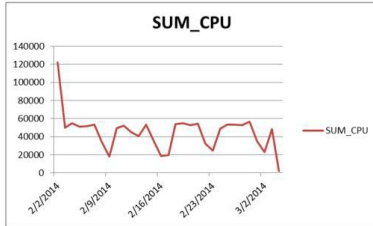
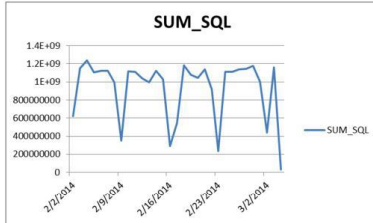
Continued....

...Continued

```
B(SUBSYSTEM_ID, DATE, SUM_SQL, SUM_CPU) AS (  
SELECT SUBSYSTEM_ID, "DATE", SUM(SUM_SQL) , SUM(SUM_CPU)
```

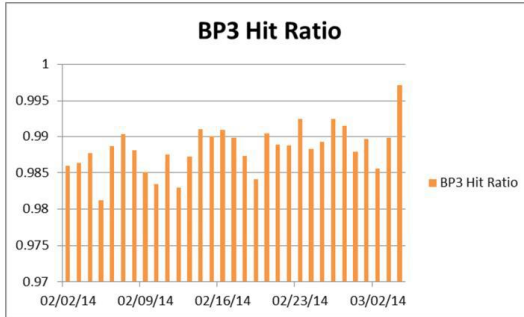
```
FROM A  
GROUP BY SUBSYSTEM_ID, "DATE"  
ORDER BY SUBSYSTEM_ID, DATE )  
SELECT * FROM B;
```

SUBSYSTEM_ID	DATE	SUM_SQL	SUM_CPU
DB2P	2/2/2014	618105445	121931.3721
DB2P	2/3/2014	1151731354	49911.87924
DB2P	2/4/2014	1236267623	55171.97764
DB2P	2/5/2014	1108345767	51143.12991
DB2P	2/6/2014	1124515199	51768.31943
DB2P	2/7/2014	1124624573	53033.08477
DB2P	2/8/2014	993244957	33935.28163
DB2P	2/9/2014	347929316	17710.56539
DB2P	2/10/2014	1114398420	49360.02312
DB2P	2/11/2014	1109256526	52262.36302
DB2P	2/12/2014	1040800307	45249.56441
DB2P	2/13/2014	995497548	40347.84546
DB2P	2/14/2014	1120674094	53102.84659
DB2P	2/15/2014	1028857787	35841.75437
DB2P	2/16/2014	290340769	18386.08363
DB2P	2/17/2014	545599594	19362.41372
DB2P	2/18/2014	1181029123	53670.13348
DB2P	2/19/2014	1078731962	54641.7293
DB2P	2/20/2014	1046081388	52813.91457
DB2P	2/21/2014	1141418555	54593.78885
DB2P	2/22/2014	919258480	32101.29472
DB2P	2/23/2014	232696162	24437.14699
DB2P	2/24/2014	1112297497	48927.99187
DB2P	2/25/2014	1114069114	53294.86054
DB2P	2/26/2014	1137747215	53090.073
DB2P	2/27/2014	1147262676	52567.78737
DB2P	2/28/2014	1177408483	56839.6655
DB2P	3/1/2014	989808762	35081.79684
DB2P	3/2/2014	436446517	22821.61983
DB2P	3/3/2014	1163544827	48549.38366
DB2P	3/4/2014	32266261	1812.264131



## Sample SQL for Buffer Pool Hit Ratio

```
SELECT BP_ID, DATE(INTERVAL_TSTAMP) ,  
(((SUM(GET_PAGE) - SUM(GETPAGES_FAIL) -  
SUM(SYNC_READ_IO) -  
SUM(SEQ_PREFETCH_READ) - SUM(LIST_PREFETCH_READ) -  
SUM(DYN_PREFETCH_READ)))  
/  
(SUM(GET_PAGE) - SUM(GETPAGES_FAIL)))  
FROM DB2PE.DB2PM_STAT_BUFFER  
WHERE SUBSYSTEM_ID = 'DB2P'  
AND DATE(INTERVAL_TSTAMP) > '2014-02-01'  
GROUP BY BP_ID, DATE(INTERVAL_TSTAMP)  
ORDER BY BP_ID, DATE(INTERVAL_TSTAMP)
```

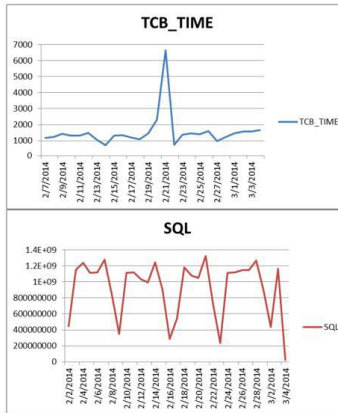


## Sample SQL to Compare CPU usage and SQL

```
WITH A ("DATE", TCB_TIME, SQL) AS
(
  SELECT DATE(INTERVAL_TSTAMP),
  SUM(SSAS_TCB_TIME + DSAS_TCB_TIME + IRLM_TCB_TIME
  + DDF_TCB_TIME),
  SUM(SELECT + INSERT + UPDATE + DELETE +
  PREPARE + OPEN + CLOSE + FETCH + SET_HOST_VARIABLE)
  FROM DB2PE.DB2PM_STAT_GENERAL
  WHERE DATE(INTERVAL_TSTAMP) > '2014-02-01'
  AND SUBSYSTEM_ID = 'DB2P'
  GROUP BY DATE(INTERVAL_TSTAMP)
)
SELECT * FROM A
ORDER BY "DATE"
```



DATE	TCB_TIME	SQL
2/7/2014	1168.026482	444758686
2/8/2014	1226.807961	115999961
2/9/2014	1436.73609	1236738974
2/9/2014	1322.639448	1151537694
2/9/2014	1330.374525	1120381445
2/7/2014	1485.895121	1279074976
2/9/2014	1046.905633	840864730.3
2/9/2014	721.60913	34930654.9
2/10/2014	1327.083108	1118942075
2/11/2014	1350.381916	1118994753
2/12/2014	1202.784043	1034218171
2/12/2014	3099.302448	992746878
2/14/2014	1464.141597	1246239008
2/15/2014	2309.323649	907818461.4
2/16/2014	6640.148335	283906335.9
2/17/2014	746.464763	543706498.1
2/18/2014	1300.664324	1182094025
2/19/2014	1473.988335	1079849671
2/20/2014	1394.589584	1047679860
2/21/2014	1598.542996	1326325105
2/22/2014	963.239429	734949887
2/23/2014	1226.872139	232780682
2/24/2014	1458.098434	1115556941
2/25/2014	1572.238155	1116787270
2/26/2014	1569.595217	1145688293
2/27/2014	1857.524463	1349015286
2/28/2014	2766.406358	1264338685
3/1/2014	1211.598751	897974845.2
3/2/2014	961.593627	436596275.8
3/3/2014	1487.082985	1166013050
3/4/2014	22.134588	22687947.85



As you can see here, there was a spike in TCB time in the middle of this reporting period, although the SQL counts were stable. This merits investigation as to what was going on in the system that day. Without these graphs, it would be difficult to identify anomalies like this.

## Common Mainframe Component

- Reporter component
  - Program that runs REDUCE, REPORT, TRACE, FILE, and SAVE commands to process performance data
    - FILE produces a file ready for loading into either the Performance Database or Performance Warehouse
    - SAVE produces a VSAM file of REDUCED data. This file must then be converted to the FILE format with the SAVE-FILE utility to produce a file for loading
  - Has an ISPF-based component that can be used to generate the control statements for input into the reporter

## Performance Warehouse

- Mainframe Server component
  - Started job that runs on the mainframe
  - Creates the Performance Warehouse DB2 objects for holding accounting and statistics data and performs necessary binds
  - Maintains the Performance Warehouse objects if the structure changes from release to release
  - Communicates with the DB2PE Client to execute processes that collect data and load it into the Performance Warehouse tables
  - Communicates with the DB2PE Client to produce accounting and statistics reports

## Performance Warehouse

- DB2PE Client component
  - Software installed on your workstation
    - Defines processes
      - Collect trace data
      - Create reports
      - Load data into the Performance Warehouse tables
    - Provides sample rules of thumb to analyze collected data
    - Provides sample SQL to query performance data
    - Can also monitor DB2Connect processing
  - Requires java driver – might have to download and install separately

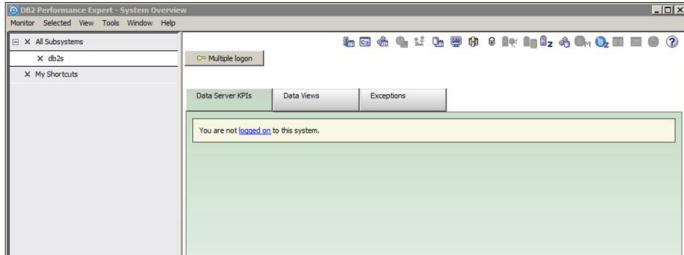
DB2 PE Performance Warehouse automates some of the manual tasks that were necessary for the Performance Database. It handles the loading of data, as well as the creation of reports. It can also start up traces for use in reporting.

The Performance Warehouse contains only Accounting and Statistics data, so if other types of trend analysis reporting is desired, you can only use the Performance Database.

## DB2 Performance Warehouse Server Setup

- A subtask of the Omegamon collector
  - Communicates with the DB2PE client
  - Started job
  - JCL is created by the Omegamon installation process
  - Name is specified in the startup parameters of the Omegamon collector as PERFORMANCEWAREHOUSEADDRESSSPACE
  - Performs DB2 object creation, binds, etc.
  - Runs under the Omegamon collector where PERFORMANCEWAREHOUSE=YES is specified
  - Only one per data sharing group allowed

## DB2 Performance Warehouse Client Setup



To configure the Performance Warehouse, right-click the subsystem that is to contain the PWH database, that is defined in the Omegamon Collector as having PERFORMANCEWAREHOUSE=YES.

## DB2 Performance Warehouse Client Setup



On the first tab of the setup wizard, put the zOS host name and the port that is defined to the Omegamon collector, not the subsystem port for DRDA.

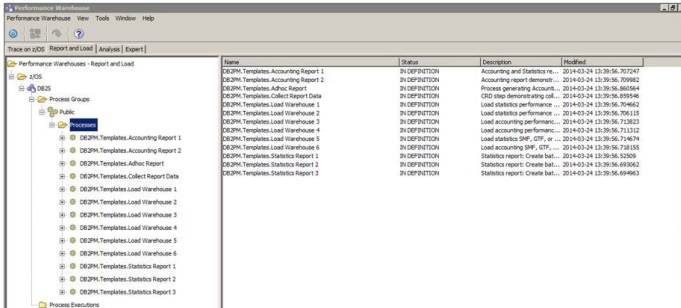
## DB2 Performance Warehouse Client Setup



On the Performance Warehouse tab, specify the *alias* that was assigned to the DB2 subsystem when it was cataloged in the DB2 Configuration Assistant.



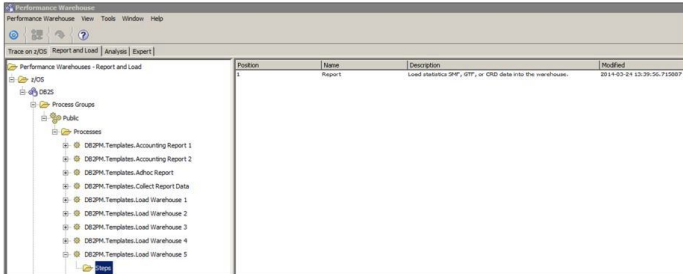
## Performance Warehouse Load Processes



Name	Status	Description	Modified
DE294.Template.Accounting Report 1	IN DEFINITION	Accounting and Statistics re...	2014-03-24 13:39:56.707247
DE294.Template.Accounting Report 2	IN DEFINITION	Accounting report element...	2014-03-24 13:39:56.709881
DE294.Template.Adhoc Report 1	IN DEFINITION	Process generating account...	2014-03-24 13:39:56.860564
DE294.Template.Collet Report Data	IN DEFINITION	CRD Step element generating...	2014-03-24 13:39:56.899566
DE294.Template.Load Warehouse 1	IN DEFINITION	Load statistics performance ...	2014-03-24 13:39:56.924682
DE294.Template.Load Warehouse 2	IN DEFINITION	Load statistics performance ...	2014-03-24 13:39:56.926155
DE294.Template.Load Warehouse 3	IN DEFINITION	Load accounting performance...	2014-03-24 13:39:56.713223
DE294.Template.Load Warehouse 4	IN DEFINITION	Load accounting performance...	2014-03-24 13:39:56.711152
DE294.Template.Load Warehouse 5	IN DEFINITION	Load statistics DMF, GTP, ...	2014-03-24 13:39:56.714624
DE294.Template.Load Warehouse 6	IN DEFINITION	Load accounting DMF, GTP, ...	2014-03-24 13:39:56.718155
DE294.Template.Statistics Report 1	IN DEFINITION	Statistics report - Create bat...	2014-03-24 13:39:56.82206
DE294.Template.Statistics Report 2	IN DEFINITION	Statistics report - Create bat...	2014-03-24 13:39:56.893862
DE294.Template.Statistics Report 3	IN DEFINITION	Statistics report - Create bat...	2014-03-24 13:39:56.896883

The Performance Warehouse Report and Load tab provides several sample processes that can be copied and modified for your needs.

## Performance Warehouse Load Processes

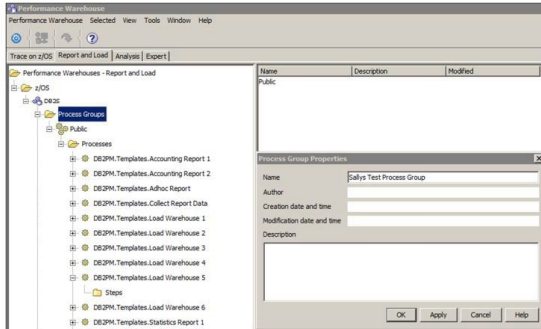


The screenshot shows the Performance Warehouse interface. On the left is a tree view showing the hierarchy: Performance Warehouse - Report and Load > zOS > DB2 > Process Groups > Public > Processes. The main pane displays a table with the following data:

Position	Name	Description	Modified
1	Report1	Load statistics (SMF, GTF, or CRD) data into the warehouse.	2014-03-21 13:39:56.715887

Each process is made up of one or more steps. This particular example contains one step that loads statistics data from an SMF or GTF file, or from a CRD (Collect Report Data) step.

## Performance Warehouse Load Processes



First, you must create your own Process Group. The Public Process Groups that are provided as samples cannot be modified, only copied. Right-click on the Process Group item, and name your own.

## Performance Warehouse Load Processes

Process Group Properties

Name: Sallys Test Process Group

Author:

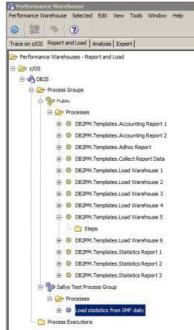
Creation date and time:

Modification date and time:

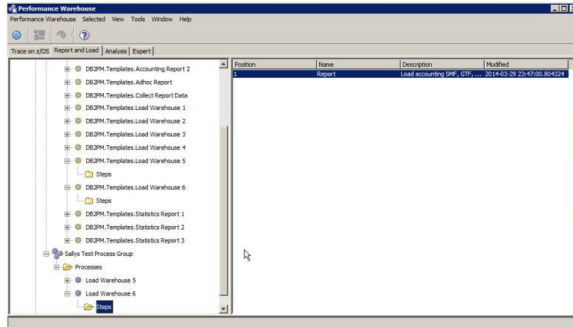
Description:

OK Apply Cancel Help

## Performance Warehouse Load Processes



## Performance Warehouse Load Processes



Right-click on the step and choose Properties to set up the step.

## Performance Warehouse Load Processes

Report Step Properties

General | Options | Command

Name: REPORT

Author: S743SM

Creation date and time: 2014-03-29 12:33:03.179911

Modification date and time: 2014-03-29 12:33:03.210427

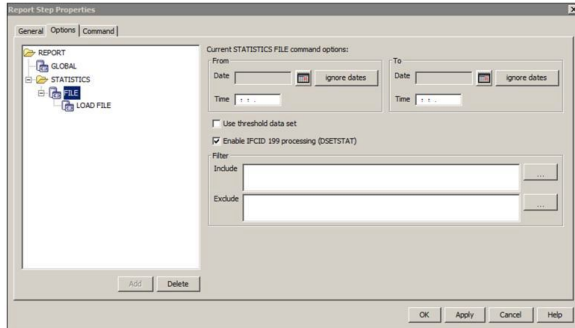
Previous step: [dropdown]

Start time: [input]

Description: Load statistics SMF, QTF, or CRD data into the warehouse.

OK Apply Cancel Help

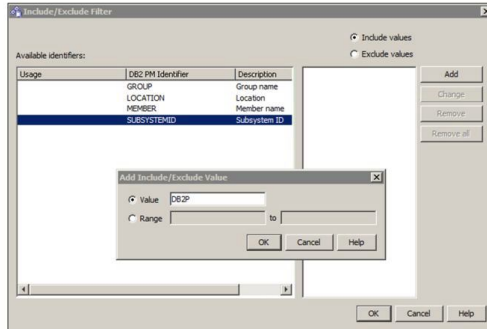
## Performance Warehouse Load Processes



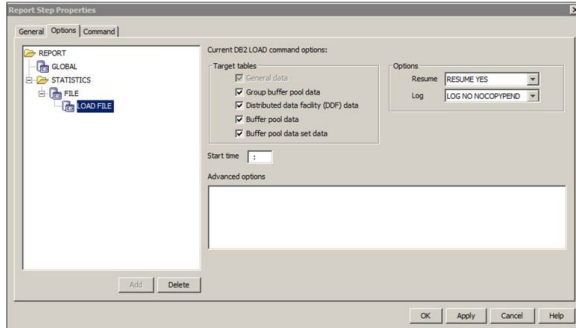
On the Options tab, you can enter time ranges and include or exclude data by many DB2PE identifiers such as SUBSYSTEMID.



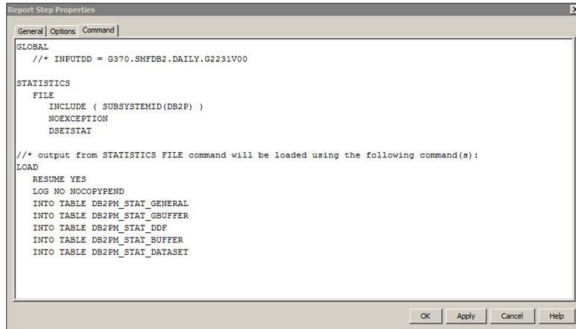
## Performance Warehouse Load Processes



## Performance Warehouse Load Processes

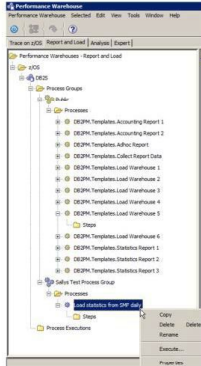


## Performance Warehouse Load Processes



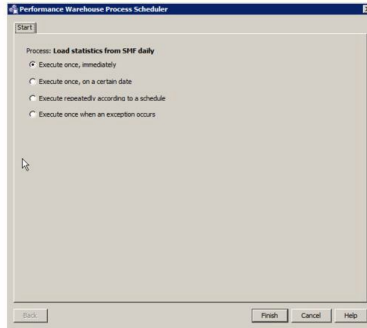
```
Report Step Properties
General Options Command
GLOBAL
  /* INFUTDD = G370.SMFDB2.DAILY.G2231V00
STATISTICS
FILE
  INCLUDE ( SUBSYSTEMID(DB2P) )
  NOEXCEPTION
  DSETSTAT
/* output from STATISTICS FILE command will be loaded using the following command(s):
LOAD
  RESUME YES
  LOG NO NOCOPYPEND
  INTO TABLE DB2PM_STAT_GENERAL
  INTO TABLE DB2PM_STAT_BUFFER
  INTO TABLE DB2PM_STAT_DDF
  INTO TABLE DB2PM_STAT_BUFFER
  INTO TABLE DB2PM_STAT_DATASET
OK Apply Cancel Help
```

## Performance Warehouse Load Processes



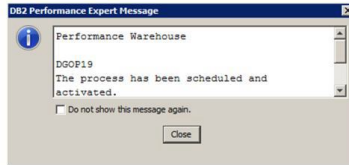
After you have set up the process, right-click and choose Execute.

## Performance Warehouse Load Processes



Choose when to run the process.

## Performance Warehouse Load Processes



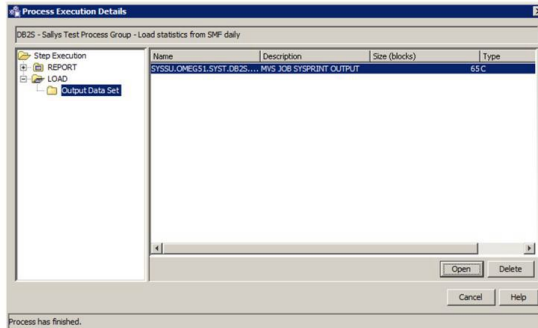
## Performance Warehouse Load Processes

The screenshot shows the Performance Warehouse interface. On the left is a tree view under 'Performance Warehouse - Report and Load'. The tree is expanded to show 'Process Group' > 'Public' > 'Processes'. Under 'Processes', there are several sub-items including 'Load statistics from DPF daily', 'Sales Test Process Group', and 'Load statistics from DPF daily'. The right pane shows a table with the following data:

Name	Group	Start	Time	Status
Load statistics from DPF daily	Sales Test Process Group	2014/03/20 13:02:00.002		RUNNING

To see the execution, click on Process Executions. To refresh, click the Refresh arrow above the tabs.

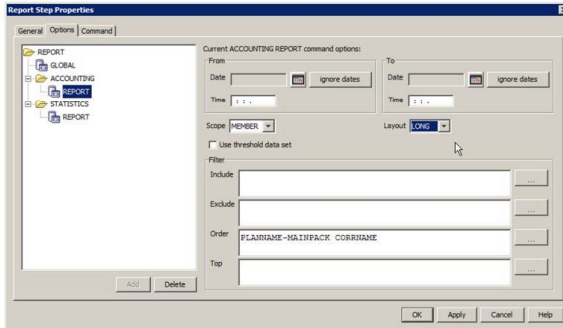
## Performance Warehouse Load Processes



After the job is finished, you can view the job output.



## Performance Warehouse Reporting



## Performance Warehouse Reporting

**Process Properties**

Name	Accounting Report 1
Author	S743SM
Creation date and time	2014-03-30 18:16:21.66942
Modification date and time	2014-03-31 12:57:59.994154
Status	active
Scope	private
Schedule of process	Mar 31, 2014 at 12:57 (hh:mm)

Description  
Accounting and Statistics report demonstrating use of include filter.

OK Apply Cancel Help

## Performance Warehouse Rules of Thumb Reporting

The screenshot displays the Performance Warehouse interface for reporting Rules of Thumb. The left-hand pane shows a hierarchical tree view of rules, with the following structure:

- Performance Warehouses - Analysis
  - z055
    - Rule-of-Thumb Groups
      - Salus ROT
        - Rule-of-Thumb Clusters
          - SQL CPU time per SQL statement
            - Rules of Thumb
          - Salus ROT
            - Rules of Thumb** (highlighted)
      - Public
        - Rule-of-Thumb Clusters
          - DB2PM.Expert Analysis - ACCOUNTING.Match applicat
            - Rules of Thumb
          - DB2PM.Expert Analysis - ACCOUNTING.CPU time per
            - Rules of Thumb
          - DB2PM.Expert Analysis - ACCOUNTING.Changes per
            - Rules of Thumb
          - DB2PM.Expert Analysis - ACCOUNTING.Online applica
            - Rules of Thumb
          - DB2PM.Statistics.Buffer Pool
            - Rules of Thumb
          - DB2PM.Statistics.EDM Pool
            - Rules of Thumb
          - DB2PM.Statistics.Locking
            - Rules of Thumb
          - DB2PM.Statistics.Log activity
            - Rules of Thumb

The right-hand pane displays a table with the following data:

Name	Type	Description	Author	Modified
Read active log	SQL	Report from active log < 1 to 5% of read requests	S74001	2014-03-29 23:04:44.838797

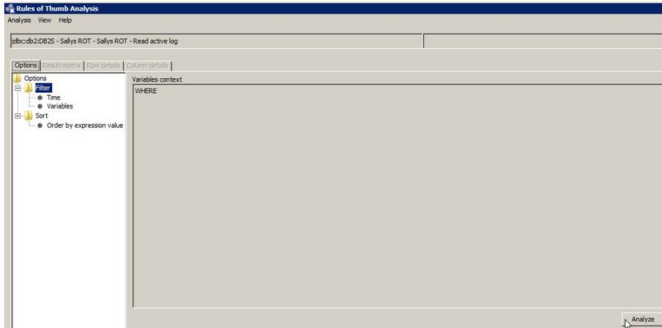
## Performance Warehouse Rules of Thumb Reporting

The screenshot shows the Performance Warehouse application interface. On the left, a tree view displays the hierarchy: Performance Warehouses -> Analysis -> z/OS -> DB2S -> Rule-of-Thumb Groups -> Sallys ROT -> Rule-of-Thumb Clusters -> CPU time per SQL statement -> Rules of Thumb -> Sallys ROT -> Rules of Thumb. The 'Rules of Thumb' folder is selected.

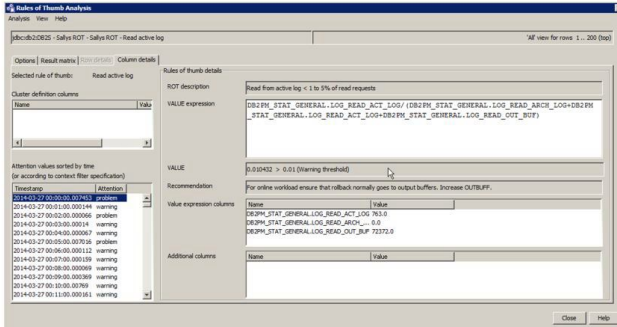
On the right, a table lists the rules. A context menu is open over the first row, showing options: Copy, Delete, Delete, Rename, Analyze..., and Properties.

Name	Type	Description	Author	Modified
Good active log	SQL	Good from active log - 1 to 9% of read requests	STASOK	2014-01-29 21:04:44.830397

## Performance Warehouse Rules of Thumb Reporting



## Performance Warehouse Rules of Thumb Reporting



The screenshot shows the 'Rules of Thumb Analysis' window. The selected rule is 'Read from active log < 1 to 5% of read requests'. The VALUE expression is defined as:

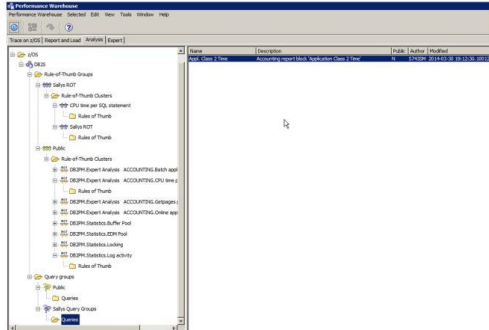
$$\frac{DB2PM_STAT_GENERAL.LOG_READ_ACT_LOG}{(DB2PM_STAT_GENERAL.LOG_READ_ACT_LOG+DB2PM_STAT_GENERAL.LOG_READ_ACT_LOG+DB2PM_STAT_GENERAL.LOG_READ_ACT_LOG+DB2PM_STAT_GENERAL.LOG_READ_ACT_LOG+DB2PM_STAT_GENERAL.LOG_READ_ACT_LOG)}$$

The VALUE is set to 0.02432 > 0.01 (Warning threshold). The recommendation is: 'For online workload ensure that rollback normally goes to output buffers. Increase OUTBUFF.' The Value expression columns are listed as DB2PM\_STAT\_GENERAL.LOG\_READ\_ACT\_LOG, DB2PM\_STAT\_GENERAL.LOG\_READ\_ACT\_..., and DB2PM\_STAT\_GENERAL.LOG\_READ\_ACT\_BUF.

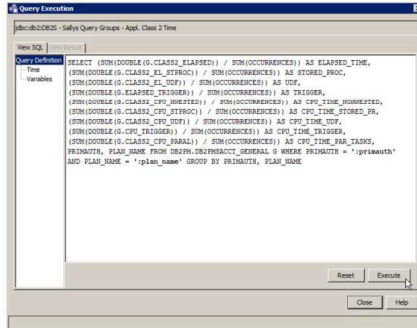
The 'Alerts' table shows the following data:

Alert time	Alert type	Alert message
2014-03-27 00:00:00.00144	warning	
2014-03-27 00:00:00.00056	problem	
2014-03-27 00:00:00.00014	warning	
2014-03-27 00:00:00.00067	warning	
2014-03-27 00:00:00.00750	problem	
2014-03-27 00:00:00.00012	warning	
2014-03-27 00:00:00.00009	warning	
2014-03-27 00:00:00.00066	warning	
2014-03-27 00:10:00.00769	warning	
2014-03-27 00:11:00.00061	warning	

## Performance Warehouse Queries



## Performance Warehouse Queries



The screenshot shows a 'Query Execution' window with the following SQL query:

```
SELECT (SUM(DOUBLE(G.CLASS2_ELAPSED)) / SUM(OCCURRENCES)) AS ELAPSED_TIME,  
(SUM(DOUBLE(G.CLASS2_EL_STPROC)) / SUM(OCCURRENCES)) AS STORED_PROC,  
(SUM(DOUBLE(G.CLASS2_EL_DDF)) / SUM(OCCURRENCES)) AS DDF,  
(SUM(DOUBLE(G.CLASS2_TRIGGER)) / SUM(OCCURRENCES)) AS TRIGGER,  
(SUM(DOUBLE(G.CLASS2_CPU_BUSYTIME)) / SUM(OCCURRENCES)) AS CPU_TIME_BUSYTIME,  
(SUM(DOUBLE(G.CLASS2_CPU_STPROC)) / SUM(OCCURRENCES)) AS CPU_TIME_STORED_PR,  
(SUM(DOUBLE(G.CLASS2_CPU_DDF)) / SUM(OCCURRENCES)) AS CPU_TIME_DDF,  
(SUM(DOUBLE(G.CLASS2_TRIGGER)) / SUM(OCCURRENCES)) AS CPU_TIME_TRIGGER,  
(SUM(DOUBLE(G.CLASS2_CPU_PARAL)) / SUM(OCCURRENCES)) AS CPU_TIME_PAR_TASKS,  
PRIMDATA, PLAN_NAME FROM QIADM.DIAGNOSTIC_GENERAL_Q WHERE PRIMDATA = 'prdwarehouse'  
AND PLAN_NAME = 'iplan_name' GROUP BY PRIMDATA, PLAN_NAME
```

At the bottom of the window, there are buttons for 'Reset', 'Execute', 'Close', and 'Help'.





## Performance Warehouse CRD (Collect Report Data)

The screenshot shows the Performance Warehouse interface. On the left is a tree view of the system structure, including nodes for u00c, 1425, Process Groups, Sales Test Process Group, PUBLIC, Processes, DE294 Templates Collect Report Data, and Process Executors. The main area displays a table with the following data:

Position	Name	Description	Modified
1	CRD	CRD step collecting Accounting and Statistics data for 5 minutes.	2014-02-20 22:34:15.56807

## Lessons Learned the Hard Way

- Use REDUCEd data for loading into the Performance Database
- Make sure you have the correct Java driver for your version of DB2
- If you get stuck and have to drop the PWH database, use this command:
  - F <OMEGAMON server task>,F PESERVER,F <DB2 subsystem>,PWH=F
    - To force the task to recreate any missing objects
- Use the Performance Database for long-term performance data accumulation and trending; the Performance Warehouse for collecting and reporting upon certain time periods or collected trace data

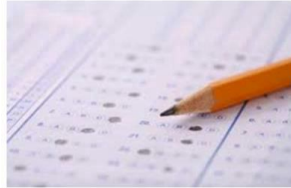
## Resources

- IBM Tivoli OMEGAMON XE for DB2 Performance Expert [or Performance Monitor] on z/OS Reporting User's Guide
- IBM Tivoli OMEGAMON XE for DB2 Performance Expert [or Performance Monitor] on z/OS Monitoring Performance from Performance Expert Client

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*Please fill out your session  
evaluation before leaving!*

