

IBM DB2 Query Monitor... It's more than just a query monitor!

March 31, 2009

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Agenda

Who is AT&T & Our Environment

Why Monitor (Subsystem vs Query Monitors)

IBM's DB2 Query Monitor

- *A Day in the Life of Query Monitor at AT&T*

Why Query Monitor Goes Beyond Monitoring Queries

- *Research DB2 Commands*
- *Display Host Variables*
- *Exploit DB2 Resource Limit Facility*
- *Display SQL Communications Area*
- *Determine SQL Error Patterns*
- *Explore Dynamic SQL Overhead*
- *Identify Resource Unavailable -904 Errors*
- *Determine Access Path Changes*
- *Identify Logging Increases*
- *Display DB2 Subsystem Statistics*

Questions

Who is AT&T?

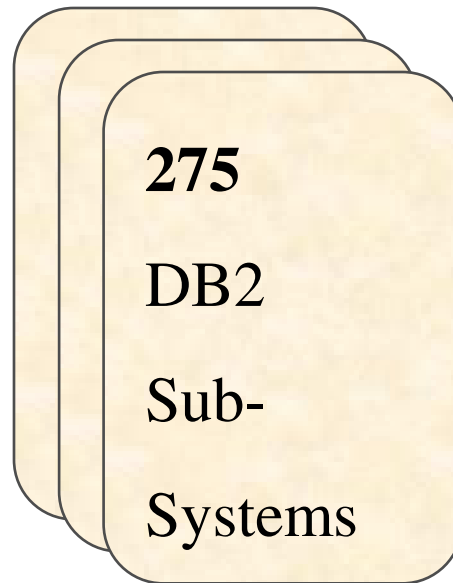


U-verse & Mobile TV

Environments

250 IMS, 380 CICS

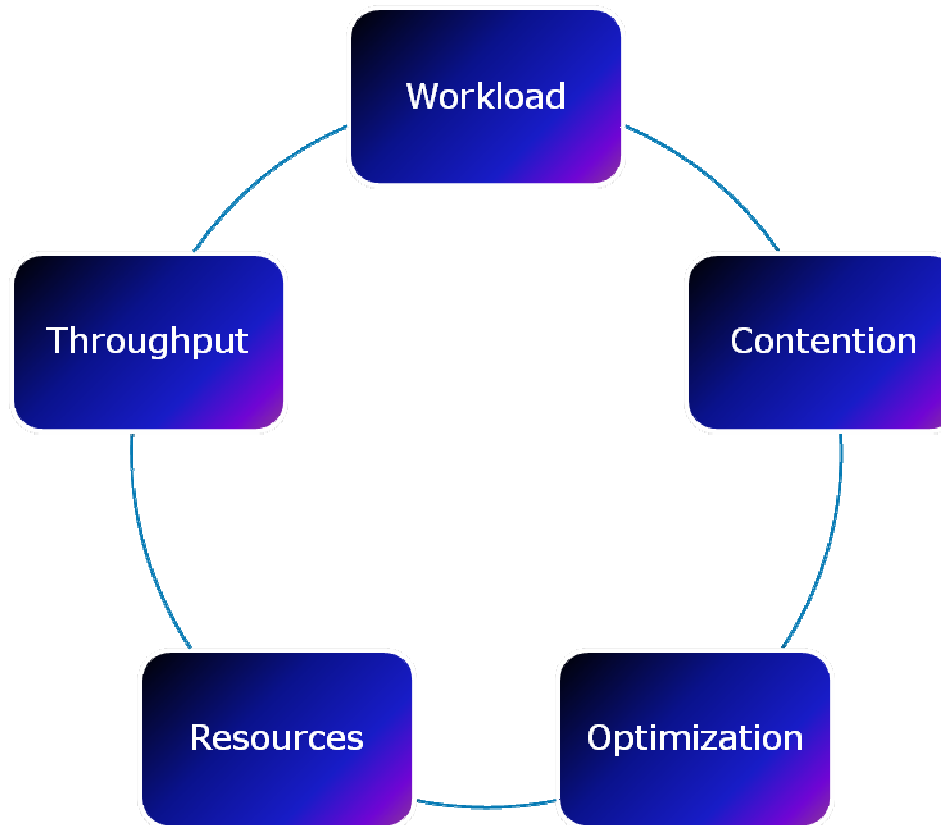
1,000,000,000+
Production IMS
Transactions/Day



80,000+ MIPS

Why Monitor?

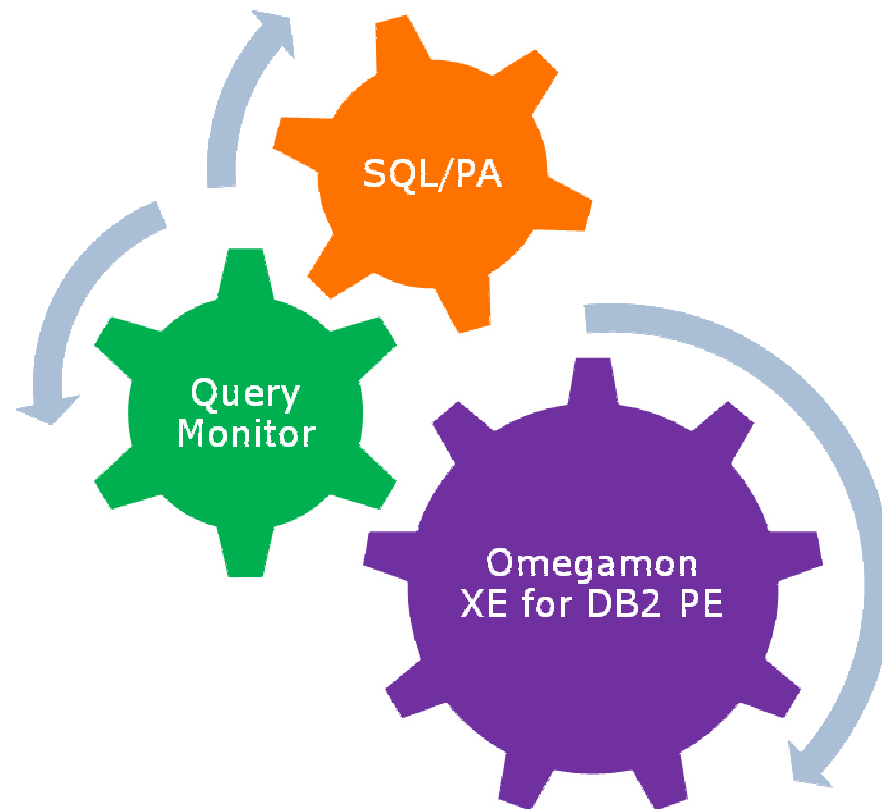
Factors that influence DB2's performance:



* Craig Mullin's – The DB2 Developer's Guide

Why Monitor?

Subsystem vs Query Monitors; Which to use?



DB2 Query Monitor (DB2 QM)

- Allows system administrators and/or DBAs to monitor DB2 resource consumption and pinpoint inefficient or improperly coded SQL statements...without running expensive traces
- DB2 QM can be used to view current/past thread activity, recently issued DB2 commands and package/DBRM activity
- Detailed thread information includes SQL being executed, DB2 elapsed and CPU times, # of SQL calls, buffer pool statistics, delays, locking, etc
- Captures "host variables"
- We keep 3 days worth of information

DB2 Query Monitor

Main Panel

```
BT00 01/20 09:52:03 ----- IBM DB2 Query Monitor -----
Option ==> _____
DB2 QM Subsystem ID: DBT4 (? to select)                      User: TG5444
                                                            Release: CQM V2R3M0
-----
0.  Settings
1.  View Activity Summaries
2.  View SQLCODEs
3.  View Current Activity
4.  View DB2 Command Activity
5.  View Exceptions
6.  Work with Monitoring Agents
7.  Setup
8.  Work with Profiles
9.  Exit Query Monitor

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```


DB2 Query Monitor

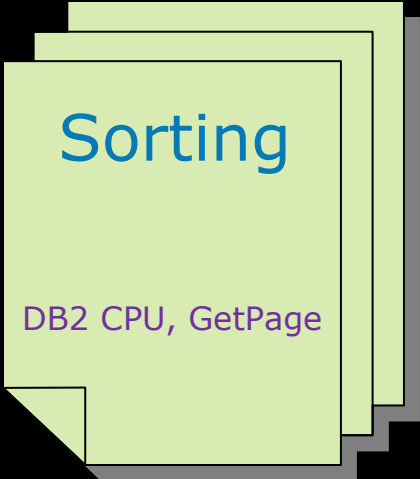
SORT

```
BT00 ----- Define Sort Columns ----- 2009/01/20 09:37:33
Option ==> _____ scroll ==> PAGE
-----
ROW 1 OF 17

Column Function ==> 4 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)
Permanent View ==> N (Y-Perm, N-Temp) Reset View ==> N (Y,N)
Stop Sorting ==> N (Y,N)

Cmd Dir New Old Column_Name
-----
1D CPU
%CPU
GETPAGES
CALLS
ELAPSED
%ELAPSED
AVGELAP
AVGCPU
<%CPU>
DELAY
%DELAY
AVGDLY
<%DLY>
<%UAT>
AVGPAGES

Enter: Process selections; PF3: Exit and save; CAN: Exit without save
Cmd: 1-9 Dir: A Asc D Desc
```



ISPTLIB

DB2 Query Monitor

Filter

```
BT00 ----- Active Filters ----- No rows to display
Option ==> _____

Type "CREATE" on command line to create filter line

Enable Filtering..... N (Y/N)      Mixed Case... Y (Y/N)
Exclude Filtered Data... N (Y/N)    Match Case... N (Y/N)
Display Defined Filters.. N (Y/N)
Filter Dataset Name..... _____

AND/OR between columns... AND (AND/OR)
AND/OR within a column... OR_ (AND/OR)

C:1-Insert,2-Update,3-View,4-Repeat,5-Delete
-----
CMD   Column   OP Value
--   -
-----

Press Enter/PF3 to update filter variables or CANCEL to exit
```

Omegamon XE for DB2 PE

Performance Database

Table Name

DB2PM_ACCT_BUFFER
DB2PM_ACCT_GENERAL
DB2PM_ACCT_PROGRAM
DB2PM_ST01_BUFFER
DB2PM_ST01_DDF
DB2PM_ST01_GBUFFER
DB2PM_ST01_GENERAL
DB2PM_ST24_BUFFER
DB2PM_ST24_DDF
DB2PM_ST24_GBUFFER
DB2PM_ST24_GENERAL
DB2PM_SYSPAR_106
DB2PM_SYSPAR_202
DB2PM_SYSPAR_FAC



DB2 Query Monitor

A Day in the Life of Query Monitor

```
SELECT LOCAL_LOCATION AS "LOCATION ID",
       SUBSYSTEM_ID AS SSID,
       REPORT_DATE AS "REPORT DATE",
       PCK_ID AS "PACKAGE NAME",
       PCK_COLLECTION_ID AS "COLLECTION NAME",
       CLASS7_CPU_AGENT AS "TOTAL DB2CPU SEC",
       PLAN_NAME AS "PLAN NAME",
       PRIMAUTH AS "PRIMAUTH ID",
       CLASS7_ELAPSED AS "TOTAL ELAPSED SEC"
FROM DBC1SADM.DB2PM_ACCT_PROGRAM
WHERE REPORT_DATE = CURRENT_DATE - 1 DAY
ORDER BY 6 DESC
FETCH FIRST 20 ROWS ONLY;
```

DB2PM_ACCT_PROGRAM

CAC0100A

	LOCATION ID	SSID	REPORT DATE	PACKAGE NAME	COLLECTION NAME	TOTAL DB2CPU SEC	PLAN NAME
1_	DBT1	DBT1	01/11/2009	DSNCLINF	DSNAOCLI	39838.226039	DSNACLI
2_	DBC1	DBC1	01/11/2009	DSNCLINF	DSNAOCLI	30344.388296	DSNACLI
3_	DBC4	DBC4	01/11/2009	SYSLH200	NULLID	6181.196038	dk2jcc_a
4_	DBC4	DBC4	01/11/2009	TJHP141A	CB_PROD	5944.298412	TJT0111B
5_	USSNET_DB26	DB26	01/11/2009	D1720300		3680.909923	D1720300
.							
.							
20_	DB2TDC	DB2T	01/11/2009	ZTRTRI00	TRT_CAC00A01	1011.664644	CAC0100A

DB2 Query Monitor

A Day in the Life of Query Monitor

```
SELECT LOCAL_LOCATION AS "LOCATION ID",
       SUBSYSTEM_ID AS SSID,
       REPORT_DATE AS "REPORT DATE",
       PLAN_NAME AS "PLAN NAME",
       PRIMAUTH AS "PRIMAUTH ID",
       BP_GETPAGES AS "TOTAL GETPAGES"
FROM DBC1SADM.DB2PM_ACCT_BUFFER
WHERE REPORT_DATE = CURRENT_DATE - 1 DAY
ORDER BY 6 DESC
FETCH FIRST 20 ROWS ONLY;
```

CAC0100A

	LOCATION ID	SSID	REPORT DATE	PLAN NAME	PRIMAUTH ID	TOTAL GETPAGES
1_	DBC4	DBC4	01/11/2009	TJT0111B	TJHP1AAC	587016665
2_	DBC1	DBC1	01/11/2009	DSNACLI	ARSSERVR	549688070
3_	DBT1	DBT1	01/11/2009	DSNACLI	ARSSERVR	428191801
4_	USSNET_DB26	DB26	01/11/2009	D1720300	D1720000	209385537
5_	DCOG	DC0A	01/11/2009	RF540CIS	RACFCISA	203278682
6_	DBC4	DBC4	01/11/2009	db2jcc_a	M01268	185004947
7_	DBC1	DBC1	01/11/2009	DSNUTIL	ARSDBICA	148048191
8_	DB2TDC	DB2T	01/11/2009	CAC0100A	M22562	136398358
9_	PD30	PD30	01/11/2009	GOPLAN	GOLRBSLD	100397143
10_	DCOG	DC0A	01/11/2009	RF542CIS	SS4472	84832995
11_	USSNET_DB26	DB26	01/11/2009	D1720400	D1720000	79343551

DB2 Query Monitor

A Day in the Life of Query Monitor

```
CAST 01/19 11:07:55 ----- IBM DB2 Query Monitor -----
Option ==> 1_
DB2 QM Subsystem ID: DB2T (? to select)                      User: TG5444
                                                            Release: CQM V2R3M0
-----
0.  Settings
1.  View Activity Summaries                                2.  View SQLCODEs
3.  View Current Activity                                  4.  View DB2 Command Activity
5.  View Exceptions
6.  Work with Monitoring Agents                            7.  Setup
8.  Work with Profiles                                    9.  Exit Query Monitor

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```

DB2 Query Monitor

A Day in the Life of Query Monitor

```
CAST 01/19 11:07:55 ----- IBM DB2 Query Monitor -----
O
CAST ----- Select Summary Level -----
Option ===> 1_
-----
-- Operational --
1) Plan
2) DB2
3) DBRM/Package
4) AuthID
-- Structural --
5) DB2
6) Database
7) Buffer Pool
8) Page Set
-----
5444
M V2R3M0
-----

Enter END command to return to ISPF.
```

DB2 Query Monitor

A Day in the Life of Query Monitor

```
CAST 01/19 11:14:49 ----- Interval Selection ----- Row 74 of 96
Option ==> intv_ Scroll ==> PAGE
C:S-Select Interval,1-Datasets,
-----
CMD      AVAIL      START      END      INTERVAL  NUMBER
-----
---
--- YES      01/18/2009 - 13:07:51  01/18/2009 - 14:00:00  2376
--- YES      01/18/2009 - 14:00:00  01/18/2009 - 15:00:00  2377
--- YES      01/18/2009 - 15:00:00  01/18/2009 - 16:00:00  2378
--- YES      01/18/2009 - 16:00:00  01/18/2009 - 17:00:00  2379
--- YES      01/18/2009 - 17:00:00  01/18/2009 - 18:00:00  2380
--- YES      01/18/2009 - 18:00:00  01/18/2009 - 19:00:00  2381
--- YES      01/18/2009 - 19:00:00  01/18/2009 - 20:00:00  2382
--- YES      01/18/2009 - 20:00:00  01/18/2009 - 21:00:00  2383
--- YES      01/18/2009 - 21:00:00  01/18/2009 - 22:00:00  2384
--- YES      01/18/2009 - 22:00:00  01/18/2009 - 23:00:00  2385
--- YES      01/18/2009 - 23:00:00  01/19/2009 - 0:00:00   2386
--- YES      01/19/2009 - 0:00:00  01/19/2009 - 1:00:00   2387
--- YES      01/19/2009 - 1:00:00  01/19/2009 - 2:00:00   2388
--- YES      01/19/2009 - 2:00:00  01/19/2009 - 3:00:00   2389
--- YES      01/19/2009 - 3:00:00  01/19/2009 - 4:00:00   2390
--- YES      01/19/2009 - 4:00:00  01/19/2009 - 5:00:00   2391
--- YES      01/19/2009 - 5:00:00  01/19/2009 - 6:00:00   2392
--- YES      01/19/2009 - 6:00:00  01/19/2009 - 7:00:00   2393
--- YES      01/19/2009 - 7:00:00  01/19/2009 - 8:00:00   2394
--- YES      01/19/2009 - 8:00:00  01/19/2009 - 9:00:00   2395
--- YES      01/19/2009 - 9:00:00  01/19/2009 - 10:00:00  2396
--- YES      01/19/2009 - 10:00:00  01/19/2009 - 11:00:00  2397
--- YES      01/19/2009 - 11:00:00
***** Bottom of Data *****
```


DB2 Query Monitor

A Day in the Life of Query Monitor

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```
CAST 01/19 11:16:21 ----- Interval Selection ----- Row 73 of 96
Option ==> Scroll ==> PAGE
```

C:\S-Select Interval,1-Datasets,

CMD	AVAIL	START	END	INTERVAL NUMBER
s_	YES	01/18/2009 - 13:00:00	01/18/2009 - 13:07:35	2375
s_	YES	01/18/2009 - 13:07:51	01/18/2009 - 14:00:00	2376
s_	YES	01/18/2009 - 14:00:00	01/18/2009 - 15:00:00	2377
s_	YES	01/18/2009 - 15:00:00	01/18/2009 - 16:00:00	2378
s_	YES	01/18/2009 - 16:00:00	01/18/2009 - 17:00:00	2379
s_	YES	01/18/2009 - 17:00:00	01/18/2009 - 18:00:00	2380
s_	YES	01/18/2009 - 18:00:00	01/18/2009 - 19:00:00	2381
s_	YES	01/18/2009 - 19:00:00	01/18/2009 - 20:00:00	2382
s_	YES	01/18/2009 - 20:00:00	01/18/2009 - 21:00:00	2383
s_	YES	01/18/2009 - 21:00:00	01/18/2009 - 22:00:00	2384
s_	YES	01/18/2009 - 22:00:00	01/18/2009 - 23:00:00	2385
s_	YES	01/18/2009 - 23:00:00	01/19/2009 - 0:00:00	2386
s_	YES	01/19/2009 - 0:00:00	01/19/2009 - 1:00:00	2387
s_	YES	01/19/2009 - 1:00:00	01/19/2009 - 2:00:00	2388
s_	YES	01/19/2009 - 2:00:00	01/19/2009 - 3:00:00	2389
s_	YES	01/19/2009 - 3:00:00	01/19/2009 - 4:00:00	2390
s_	YES	01/19/2009 - 4:00:00	01/19/2009 - 5:00:00	2391
s_	YES	01/19/2009 - 5:00:00	01/19/2009 - 6:00:00	2392
s_	YES	01/19/2009 - 6:00:00	01/19/2009 - 7:00:00	2393
s_	YES	01/19/2009 - 7:00:00	01/19/2009 - 8:00:00	2394
s_	YES	01/19/2009 - 8:00:00	01/19/2009 - 9:00:00	2395
s_	YES	01/19/2009 - 9:00:00	01/19/2009 - 10:00:00	2396
s_	YES	01/19/2009 - 10:00:00	01/19/2009 - 11:00:00	2397
s_	YES	01/19/2009 - 11:00:00		2398

DB2 Query Monitor

A Day in the Life of Query Monitor

```
CAST 01/19 11:17:28 ----- Operational Summaries ----- Row 1 of 36
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: DB2T Interval Start Date: 01/18/2009 Time: 13:00:00
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
DB2: Plan: Pgm: Authid:
Section: Call: Type:
WSUser: WSName:
WSTran: CorRID:
C: 2-DB2(Op), 3-Pgm, 4-Authid, 5-DB2(St), 6-DBase, 7-Buff, 8-Pageset, 9-Objs,
10-Corr, 11-Sect, 12-Call, 13-WSUser, 14-WSName, 15-WSTran, 16-SQL, 19-Delay,
20-Locks, 21-Misc, 22-Buffstat, 23-Excp, 24-CurrAct
-----+>
CMD Plan CPU %CPU GetPages Calls
-- --
16 CAC0100A 19:29.513127 84.10 156959494 807168
--- CACPL0LO 39.407529 2.83 944716 217132
--- MQOBJCTS 19.581787 1.40 720675 573411
--- CACPL0CO 18.704738 1.34 442017 53379
--- CACPL0FO 18.611632 1.33 446265 56897
--- CACPL0WO 18.504312 1.33 441761 53361
--- CACPL0IO 18.450727 1.32 441775 53369
--- CACPL0NO 18.223908 1.31 415745 45531
--- CACPL0ZO 17.958915 1.29 432662 48067
--- SAS91 15.260563 1.09 1837830 7459
--- FAPLN490 7.448099 0.53 261544 32250
--- KO2PLAN 5.622313 0.40 140280 12024
--- DISTSERV 5.506701 0.39 109591 6529
--- MQAPLMNT 4.925208 0.35 29751 238701
--- DLEPL8LB 3.760333 0.27 62783 64308
--- CAC0100C 3.681059 0.26 0 25463
--- CAC0100G 2.234990 0.16 15960 10640
```

DB2 Query Monitor

A Day in the Life of Query Monitor

```
CAST 01/19 11:19:50 ---- Activity by SQL Text ---- Row 1 of 2
Option ==>
DB2 QM Subsystem: DB2T Interval Start Date: 01/18/2009 Time: 13:00:00
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
DB2: Plan: CAC0100A Pgm: Authid:
      Section: Call: Type:
      WSUser: WSName:
      WSTran: CorRID:
C: 1-Plan,2-DB2(Op),3-Pgm,4-Authid,5-DB2(St),6-DBase,7-Buff,8-Pageset,
  9-Objs,10-Corr,11-Sect,12-Call,13-WSUser,14-WSName,15-WSTran,17-View,
  18-Analyze,19-Delay,20-Locks,21-Misc,22-Buffstat
----->
CMD CPU %CPU SQL Text
--
 9_ 19:23.758933 99.33 DECLARE TRIGGER-CURSOR CURSOR WITH HOLD
 7.838555 0.67 DECLARE BOS-REQ-CURSOR CURSOR WITH HOLD
***** Bottom of Data *****
```

9

Drill down

DB2 Query Monitor

A Day in the Life of Query Monitor

```
CAST 01/19 11:20:58 ----- Object Detail ----- Row 1 of 1
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: DB2T Interval Start Date: 01/18/2009 Time: 13:00:00
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
DB2: DB2T Plan: CAC0100A Pgm: ZTRTRIOO AuthID:
Section: 1 Call: Type:
WSUser: WSName:
WSTran: CorrID:
C: 1-Plan,2-DB2(Op),3-Pgm,4-Authid,5-DB2(St),6-DBase,7-Buff,8-Pageset,
10-Corr,11-Sect,12-Call,13-WSUser,14-WSName,15-WSTran,16-SQL,19-Delay,
20-Locks,21-Misc,22-Buffstat,31-Usage
----->
CMD Creator Name Type DataBase BPool PageSet GetPages
-- --
CAC00A ONLN_INTF_COMM TABLE CAC00ADB BP1 CAOICOTS 157317188
***** Bottom of Data *****
```

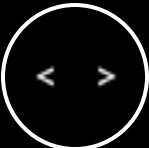
No indexes

157,317,188 GetPages

DB2 Query Monitor

A Day in the Life of Query Monitor

```
CAST 01/19 11:22:03 ---- Activity by SQL Text ---- Row 1 of 2
Option ==>
DB2 QM Subsystem: DB2T Interval Start Date: 01/18/2009 Time: 13:00:00
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
DB2: Plan: CAC0100A Pgm: Authid:
Section: Call: Type:
WSUser: WSName:
WSTran: CorrID:
C: 1-Plan,2-DB2(Op),3-Pgm,4-Authid,5-DB2(St),6-DBase,7-Buff,8-Pageset,
9-Objs,10-Corr,11-Sect,12-Call,13-WSUser,14-WSName,15-WSTran,17-View,
18-Analyze,19-Delay,20-Locks,21-Misc,22-Buffstat
-----
CMD GetPages Calls Elapsed %Elap DB2 Plan
--
157362541 801507 23:19.703470 99.23 DB2T CAC0100A
50635 7995 10.925826 0.77 DB2T CAC0100A
***** Bottom of Data *****
```



Same screen →

DB2 Query Monitor

A Day in the Life of Query Monitor

```
CAST 01/19 11:22:08 ---- Activity by SQL Text ---- Row 1 of 2
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: DB2T Interval Start Date: 01/18/2009 Time: 13:00:00
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
DB2: Plan: CAC0100A Pgm: Authid:
      Section: Call: Type:
      WSUser: WSName:
      WSTran: CorrID:
C: 1-Plan,2-DB2(Op),3-Pgm,4-Authid,5-DB2(St),6-DBase,7-Buff,8-Pageset,
  9-Objs,10-Corr,11-Sect,12-Call,13-WSUser,14-WSName,15-WSTran,17-View,
  18-Analyze,19-Delay,20-Locks,21-Misc,22-Buffstat
----- < >
CMD Program Sect # Collection Avg Elapsed Avg CPU <%CPU>
-- -----
-- ZTRTRIOO 1 TRT_CAC00A01 0.001746 0.001453 83.23
-- ZTBSRIOO 1 TRT_CAC00A01 0.001366 0.000981 71.82
***** Bottom of Data *****
```

Same screen →

DB2 Query Monitor

A Day in the Life of Query Monitor

```
CAST 01/19 11:22:13 ---- Activity by SQL Text ---- Row 1 of 2
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: DB2T Interval Start Date: 01/18/2009 Time: 13:00:00
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
DB2: Plan: CAC0100A Pgm: Authid:
      Section: Call: Type:
      WSUser: WSName:
      WSTran: CorRID:
C: 1-Plan,2-DB2(Op),3-Pgm,4-Authid,5-DB2(St),6-DBase,7-Buff,8-Pageset,
  9-Objs,10-Corr,11-Sect,12-Call,13-WSUser,14-WSName,15-WSTran,17-View,
  18-Analyze,19-Delay,20-Locks,21-Misc,22-Buffstat
----- <
CMD <%CPU> DELAY %DELAY Avg Delay <%Dly> <%UAT> Avg GetPages
-- -----
 83.23 0.778544 84.97 0.000000 0.06 16.71 196.33
 71.82 0.137669 15.03 0.000017 1.26 26.92 6.33
***** Bottom of Data *****
```

Avg GetPage

DB2 Query Monitor

A Day in the Life of Query Monitor

```
CAST 01/19 11:22:52 ----- Delay Statistics ----- Row 1 of 30
Option ==> _____
DB2: DB2T      Plan: CAC0100A Pgm: ZTRTR100 AuthID:
      Section:      1 Call      Type:
      WSUser:
      WSTran:
Filters Enabled: N
-----
Delay Event          Event Count
Lock or Latch Delays          93
Synchronous I/O Delays        8
  Database I/O Delays          8
  Log Write I/O Delays         0
Other Read Delays             134
Other Write Delays             0
Service Task Switch Delays    0
Update Commit Delays          0
Open/Close Delays             0
SYSLGRNG Rec Delays           0
EXT/DEL/DEF Delays            0
Other Service Delays           0
Archive Log Quiesce Delays     0
Archive Log Read Delays        0
Drain Lock Delays              0
Claim Release Delays           0
Page Latch Delays              0
Stored Procedure Delays        0
UDF Schedule Delays            0
Valid Commands: (End, Filter)
```

```
CAST 01/19 11:23:15 ----- Lock Related Statistics -----
Option ==> _____
DB2: DB2T      Plan: CAC0100A Pgm: ZTRTR100 AuthID:
      Section:      1 Call      Type:
      WSUser:
      WSTran:
Filters Enabled: N
-----
Lock Event          Event Count
Lock Deadlocks          0
Lock Suspensions       0
Lock Timeouts           0
Latch Suspensions       48
Other Suspensions       0
Lock Requests           802,620
Unlock Requests         229,313
Query Requests          0
Change Requests         0
Other Requests           0
Claim Requests          267,540
Claim Failures           0
Drain Requests           0
Drain Failures           0
XES Lock Requests       0
XES Change Requests     0
XES Unlock Requests     0
IRLM Global Resource Contention 0
XES Global Resource Contention 0
Valid Commands: (End, Filter)
```


DB2 Query Monitor

A Day in the Life of Query Monitor

```
CAST 01/19 11:17:43 ---- Activity by SQL Text ---- Row 1 of 2
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: DB2T Interval Start Date: 01/18/2009 Time: 13:00:00
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
DB2: Plan: CAC0100A Pgm: Authid:
      Section: Call: Type:
      WSUser: WSName:
      WSTran: CorRID:
C: 1-Plan,2-DB2(Op),3-Pgm,4-Authid,5-DB2(St),6-DBase,7-Buff,8-Pageset,
  9-Objs,10-Corr,11-Sect,12-Call,13-WSUser,14-WSName,15-WSTran,17-View,
  18-Analyze,19-Delay,20-Locks,21-Misc,22-Buffstat
----->
CMD          CPU   %CPU SQL Text
--
 17 19:21.905267 99.33 DECLARE TRIGGER-CURSOR CURSOR WITH HOLD
    7.826795 0.67 DECLARE BOS-REQ-CURSOR CURSOR WITH HOLD
***** Bottom of Data *****
```

↑
Display Query

DB2 Query Monitor

A Day in the Life of Query Monitor

```
CAST 01/19 11:17:59 ---- Display SQL Statement Text ---- Row 1 of 4
Option ===> _____ Scroll ===> PAGE

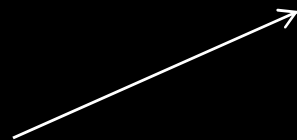
DB2:          Plan: CAC0100A   Pgm:          AuthID:
              Section:        Call:          Type:
              WSUser:         WSName:     CorRID:
              WSTran:

-----

  DECLARE TRIGGER-CURSOR CURSOR
  WITH HOLD FOR SELECT *
  FROM P370COM
  WHERE COM_TRAN_CODE = : H FETCH FIRST 1000 ROWS ONLY
  ***** Bottom of Data *****

Valid Commands: (Export, End)
```

Export to dataset or SQL/PA



DB2 Query Monitor

A Day in the Life of Query Monitor

```
*****
*
* THE SQL PERFORMANCE ANALYZER IS NOW CONTEMPLATING THE
* COST OF YOUR SQL STATEMENTS... THIS SHOULD JUST TAKE
* A FEW MOMENTS...
*
*****
```

```
CAST A ----- Output Reports Menu ----- 18:57
OPTION ==> _

Choose a Report to Browse:

1  SQL PA COST Report      - A cost summary for each SQL statement
2  SQL PA EXPLAIN Report   - Enhanced explain for each SQL statement
3  SQL PA TRACE Report     - Detailed analysis of each SQL statement
4  SQL PA LIMITS Report    - Query limit report: one line summary
5  SQL PA EXTRACT Report   - Extracted SQL and objects used in this run

Other options:

T  TUTORIAL
X  EXIT

>>> To return to main SQL PA processing panel, Press PF3 key <<<
```

Surprising Things You Can Do with DB2 Query Monitor

Something for the DBA, Appl. Programmer & System Programmer

1. Research DB2 Commands
2. Display Host Variables
3. Exploit DB2 Resource Limit Facility
4. Display SQL Communications Area
5. Determine SQL Error Patterns

6. Explore Dynamic SQL Overhead
7. Identify Resource Unavailable -904 Errors
8. Determine Access Path Changes
9. Identify Logging Increases
10. Display DB2 Subsystem Statistics

DB2 Query Monitor

DB2 Commands

```
AA00 02/02 13:26:33 ----- IBM DB2 Query Monitor -----
Option ==> 4_-----

DB2 QM Subsystem ID: DBA3 (? to Select)                      User: TG5444
                                                            Release: CQM V2R3M0
-----

0.  Settings
1.  View Activity Summaries                                2.  View SQLCODEs
3.  View Current Activity                                  4.  View DB2 Command Activity
5.  View Exceptions

6.  Work with Monitoring Agents                            7.  Setup
8.  Work with Profiles                                    9.  Exit Query Monitor
```

```
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```

DB2 Query Monitor

DB2 Commands

```
AA00 02/02 13:27:01 ----- Interval Selection ----- Row 32 of 48
Option ==> intv_ Scroll ==> CSR

C:S-Select Interval,I-Datasets.
-----+
CMD      AVAIL      START      END      INTERVAL NUMBER
-----+-----
---      YES      02/02/2009 - 5:00:00  02/02/2009 - 5:30:00  6558
---      YES      02/02/2009 - 5:30:00  02/02/2009 - 6:00:00  6559
---      YES      02/02/2009 - 6:00:00  02/02/2009 - 6:30:00  6560
---      YES      02/02/2009 - 6:30:00  02/02/2009 - 7:00:00  6561
---      YES      02/02/2009 - 7:00:00  02/02/2009 - 7:30:00  6562
---      YES      02/02/2009 - 7:30:00  02/02/2009 - 8:00:00  6563
---      YES      02/02/2009 - 8:00:00  02/02/2009 - 8:30:00  6564
---      YES      02/02/2009 - 8:30:00  02/02/2009 - 9:00:00  6565
---      YES      02/02/2009 - 9:00:00  02/02/2009 - 9:30:00  6566
---      YES      02/02/2009 - 9:30:00  02/02/2009 - 10:00:00  6567
---      YES      02/02/2009 - 10:00:00  02/02/2009 - 10:30:00  6568
---      YES      02/02/2009 - 10:30:00  02/02/2009 - 11:00:00  6569
---      YES      02/02/2009 - 11:00:00  02/02/2009 - 11:30:00  6570
---      YES      02/02/2009 - 11:30:00  02/02/2009 - 12:00:00  6571
---      YES      02/02/2009 - 12:00:00  02/02/2009 - 12:30:00  6572
---      YES      02/02/2009 - 12:30:00  02/02/2009 - 13:00:00  6573
```

DB2 Query Monitor

DB2 Commands

```
AA00 02/02 15:06:25 ----- DB2 Command Activity ----- Row 1136 of 1184
Option ==> f_imnsdb ← Scroll ==> CSF
DB2 QM Subsystem: DBA3          Interval Start Date: 02/02/2009  Time: 02:30:00
Filters Enabled: N              Interval End   Date: 02/02/2009  Time: 03:00:00
-----+-----
SSID  JOBNAME  AUTHID  Command Timestamp  Command Text
-----+-----
DBA3  IMADZURZ  IMADZURZ  02/02/2009 - 2:55:55  -DISPLAY DATABASE (ADZUR) SPAC
DBA3  IMADZURZ  IMADZURZ  02/02/2009 - 2:55:55  -START   DATABASE (ADZUR) SPAC
DBA3  IMADZPRZ  IMADZPRZ  02/02/2009 - 2:55:58  -DISPLAY DATABASE (ADZPR) SPAC
DBA3  IMADZPRZ  IMADZPRZ  02/02/2009 - 2:55:57  -START   DATABASE (ADZPR) SPAC
DBA3  IMNSDB00  IMNSDB00  02/02/2009 - 2:55:57  -TERM UTILITY (IC.IMNSDB00)
DBA3  IMADZRVZ  IMADZRVZ  02/02/2009 - 2:56:01  -DISPLAY DATABASE (ADZRV) SPAC
DBA3  IMADZRVZ  IMADZRVZ  02/02/2009 - 2:56:00  -START   DATABASE (ADZRV) SPAC
DBA3  IMADZCUZ  IMADZCUZ  02/02/2009 - 2:56:08  -START   DATABASE (ADZCU) SPAC
DBA3  IMADZCUZ  IMADZCUZ  02/02/2009 - 2:56:09  -DISPLAY DATABASE (ADZCU) SPAC
DBA3  IMADZURZ  IMADZURZ  02/02/2009 - 2:56:16  -DISPLAY DATABASE (ADZUR) SPAC
DBA3  IMADZURZ  IMADZURZ  02/02/2009 - 2:56:15  -START   DATABASE (ADZUR) SPAC
DBA3  IMADZRRZ  IMADZRRZ  02/02/2009 - 2:56:18  -DISPLAY DATABASE (ADZRR) SPAC
DBA3  IMADZRRZ  IMADZRRZ  02/02/2009 - 2:56:18  -START   DATABASE (ADZRR) SPAC
DBA3  IMADZEMZ  IMADZEMZ  02/02/2009 - 2:59:05  -DISPLAY DATABASE (ADZEM) SPAC
DBA3  IMADZACZ  IMADZACZ  02/02/2009 - 2:59:05  -START   DATABASE (ADZAC) SPAC
DBA3  IMADZEMZ  IMADZEMZ  02/02/2009 - 2:59:05  -START   DATABASE (ADZEM) SPAC
```

DB2 Query Monitor

Displaying Host Variables

```
JC00 06/12 12:39:09 ---- Display SQL Statement Text ---- Row 1 of 8
Option ==> _____ Scroll ==> PAGE
```

```
DB2 SSID: DBC0 Plan: LR16811A DBRM: LR16811A Coll:
Cursor: Section: 2
```

```
-----
SELECT COUNT ( * ) INTO : H
FROM LRT602_CORRELATION A
WHERE REQUEST_ID = : H AND SUPP_NUM = : H AND SUBSTR ( SYSTEM_CODE , 1 ,
4 ) = : H AND EVENT_CODE = : H AND NOT EXISTS ( SELECT *
FROM LRT602_CORRELATION B
WHERE B . REQUEST_ID = A . REQUEST_ID AND B . SUPP_NUM = A . SUPP_NUM
AND B . EVENT_TS <= : H AND B . CORRELATION_ID = A . CORRELATION_ID AND
B . EVENT_CODE <> A . EVENT_CODE )
```

```
***** Bottom of Data *****
```


DB2 Query Monitor

Displaying Host Variables

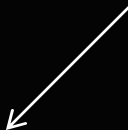
```
JC00 06/12 12:39:27 ----- Input Host Variables ----- Row 1 of 15
Option ==> _____ Scroll ==> PAGE

DB2 SSID: DBC0      Plan: LR16811A  DBRM: LR16811A  Coll:
Cursor:                               Section:      2
----->

Number  Type                Null  Length  Data
  1    CHARACTER          N      14    20070611L27753
      FFFFFFFFDF
      20070611327753
  2    DECIMAL (02,00)    N       2    00000010000000
      01
      0C
  3    CHARACTER          N       4    CSI_
      CEC6
      329D
  4    CHARACTER          N      10    SENT
      ECDE444444
      2553000000
  5    CHARACTER          N      26    2007-06-12-10.18.53.353116
      FFFF6FF6FF6FF4FF4FF4FFFFF
      2007006012010B18B53B353116

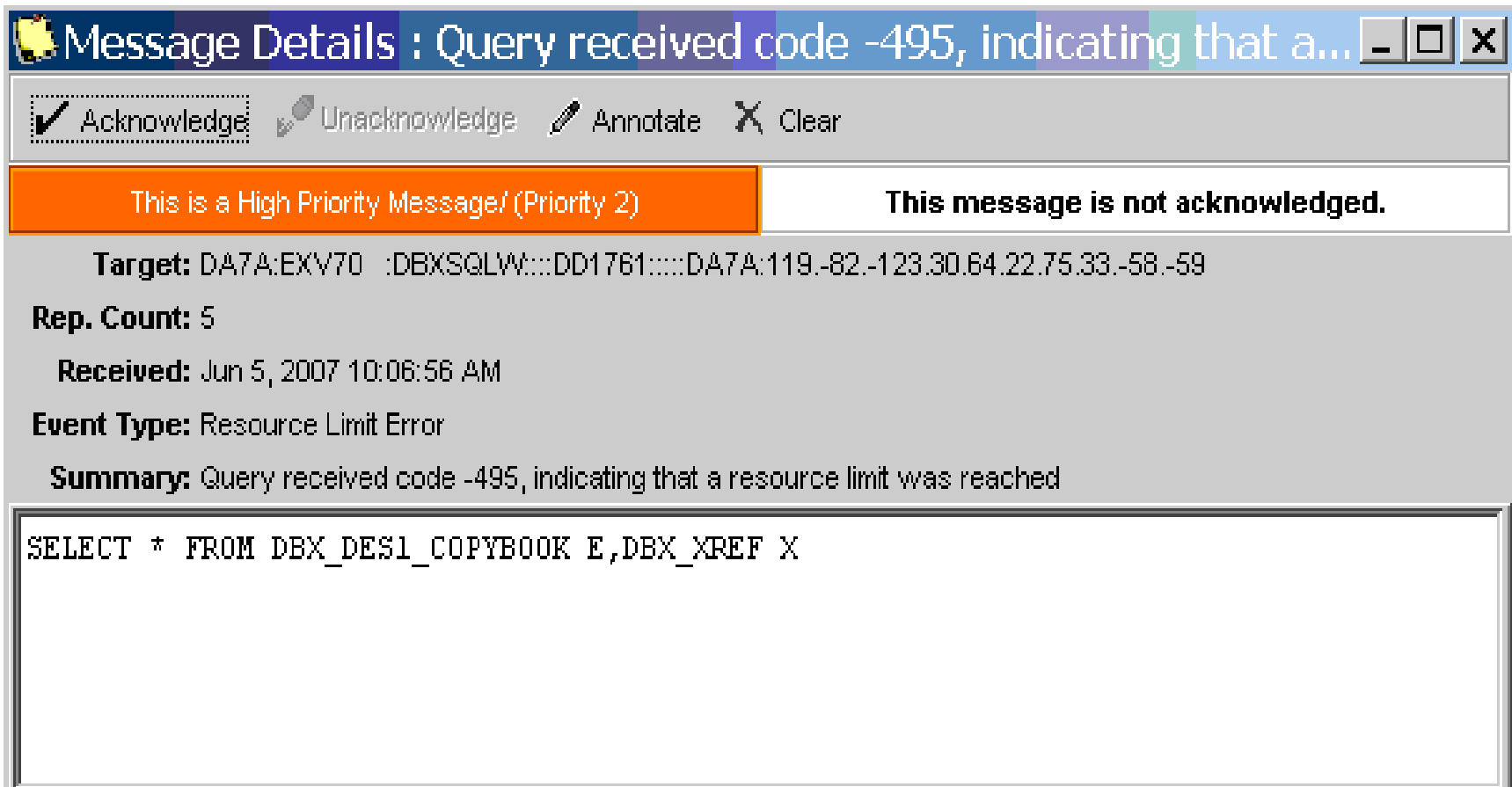
***** Bottom of Data *****
```

4
0 = blank



DB2 Query Monitor

Resource Limit Facility (RLF)



The screenshot shows a window titled "Message Details : Query received code -495, indicating that a...". The window has a toolbar with buttons for "Acknowledge" (checked), "Unacknowledge", "Annotate", and "Clear". Below the toolbar, there are two status boxes: an orange one on the left that says "This is a High Priority Message/ (Priority 2)" and a white one on the right that says "This message is not acknowledged." The main content area displays the following information:

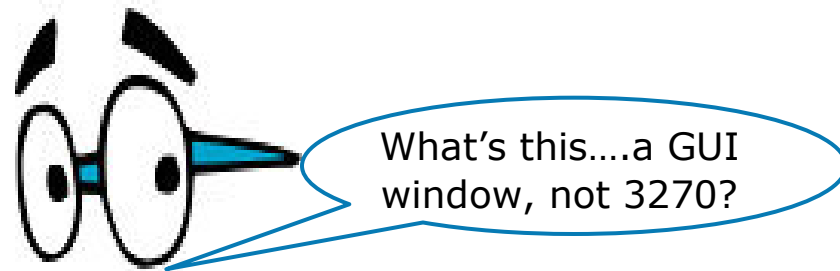
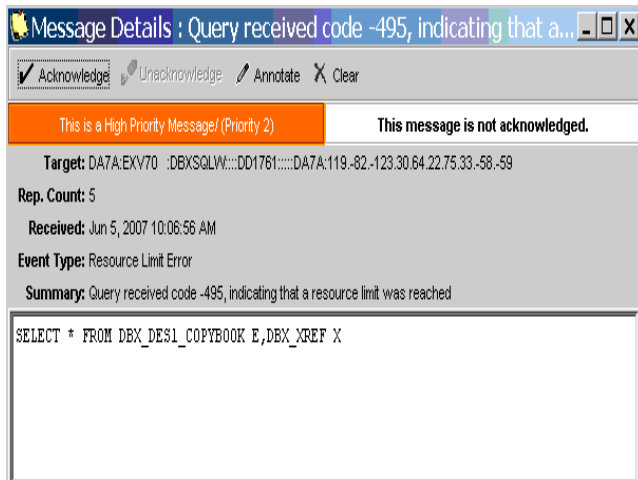
- Target:** DA7A:EXV70 :DBXSQLW:::DD1761:::DA7A:119.-82.-123.30.64.22.75.33.-58.-59
- Rep. Count:** 5
- Received:** Jun 5, 2007 10:06:56 AM
- Event Type:** Resource Limit Error
- Summary:** Query received code -495, indicating that a resource limit was reached

Below the summary, a text area contains the following SQL query:

```
SELECT * FROM DBX_DES1_COPYBOOK E, DBX_XREF X
```

DB2 Query Monitor

Resource Limit Facility (RLF)



CAE (Consolidation and Analysis Engine)



DB2 Query Monitor

DB2 Query Monitor Profiles & Configurations (CASNDG1NETVNA01:tg5444)

File Tools Help

Profiles/Thresholds
DB2 Monitoring
Optional Alert Keys
Scopes
Monitoring
Overrides
Actions
Responses
Action Schedules
Custom Launch
MITs
Users

Actions : RLF SQL Email

- CAE-Agent-based Actions
 - Automatic Cancel Thread
 - Monitoring Agent Failure Email
 - Sample WTO
- CAE-Server-based Actions
 - Catalog and DSN Object Restriction Email
 - DASD Read Delay Email
 - High CPU SQL Email
 - High Getpage Email
 - Large Sync IO Delay Email
 - Low BP Hit Ratio Email
 - QM Subsystem Terminated Email
 - RLF SQL Email**
 - SampleEmailAction
 - Timestamp Errors on Support Plan_Packages Em
- Client-based Actions
 - Cancel Thread

Action Group: CAE-Server-based Actions
Subject Type: DynamicDb2SqlStatement
Event Type: ResourceLimitError
Related Event Type: <none>

To: xxxxx@att.com
From: yyyyy@att.com
Cc: zzzzz@att.com
Bcc:
Subject: RLF Errors / \${subject.db2Ssid}.....\${event.HighestSqlCode}

Primary SMTP | Backup SMTP
SMTP Host: smtp.sbc.com
SMTP Username:
SMTP Password:

File Attachment:

Message:
Jobname: \${event.getAttribute("JOBNAME")}
Correlation ID: \${event.getAttribute("CorrelationId")}
User ID: \${subject.user}
Connection Type: \${event.getAttribute("CONNECTION_NAME")}

Apply Revert



DB2 Query Monitor

DB2 Query Monitor (CASNDG1NETVNA01:tg5444)

File Edit View Tools Help

Activity Browser [Trees] [Property Table]

Perspective: Activity Summaries(Structural)

Collector Overview(40 Rows)

Smf Id	SSID	Active	Monitored	QM Version	QM Subsy...	Profile Na...	QM Stat
AA00	DBA3	1	ACTIVE	230	DBA3	DBA3	ACTIVE
AA00	DA6A	1	ACTIVE	230	DA6A	DA6A	ACTIVE
AA00	DA1A	1	ACTIVE	230	DA1A	DA1A	ACTIVE
AA00	DA8A	1	ACTIVE	230	DA8A	DA8A	ACTIVE
AA00	DA5A	1	ACTIVE	230	DA5A	DA5A	ACTIVE
CAST	DB2P	1	ACTIVE	230	DB2P	DB2P	ACTIVE
CAST	DB2N	1	ACTIVE	230	DB2N	DB2N	ACTIVE
CAST	DGW2	1	ACTIVE	230	DGW2	DGW2	ACTIVE
CAST	DB2B	1	ACTIVE	230	DB2B	DB2B	ACTIVE
CAST	DGX2	1	ACTIVE	230	DGX2	DGX2	ACTIVE
CAST	DB2T	1	ACTIVE	230	DB2T	DB2T	ACTIVE
CAST	DB2H	1	ACTIVE	230	DB2H	DB2H	ACTIVE
CBBH	DB3A	1	ACTIVE	230	DB3A	DB3A	ACTIVE
CBBH	DGW3	1	ACTIVE	230	DGW3	DGW3	ACTIVE
CBBH	DB1A	1	ACTIVE	230	DB1A	DB1A	ACTIVE
CBBH	DGX3	1	ACTIVE	230	DGX3	DGX3	ACTIVE
CBBH	DB2R	1	ACTIVE	230	DB2R	DB2R	ACTIVE
CQ90	DB2Q	1	ACTIVE	230	DB2Q	DB2Q	ACTIVE
CQ90	DB2Y	1	ACTIVE	230	DB2Y	DB2Y	ACTIVE
CQ90	DB2C	1	ACTIVE	230	DB2C	DB2C	ACTIVE

Query Monitor

Alert Browser Priority: [Icons] Columns Filters

Received	SubSystem	Exception Type	Summary	Syst...	Rep...	Pri.	Ack.
Mar 14, 2009 ...	DB2Y	Resource Unavailable Error	Query received code -904, indicating that a resource w...	CQ90	1	2	<input type="checkbox"/>
Query received code -904, indicating that a resource was unavailable (e.g., -904: unsuccessful execution caused by an unavailable resource)							

Nothing selected.

Default Message Board (1)

1 message (1 unacknowledged) Ready.

DB2 Query Monitor

Resource Limit Facility (RLF)

DB2QM: RLF Errors / DB2Q.....-495 - Message (Plain Text)

From: GLASER, TOM (ATTSI)
To: DB2 HELP
Cc:
Subject: DB2QM: RLF Errors / DB2Q.....-495

Sent: Thu 6/7/2007 9:42 AM

E-mail

Jobname: DB2QDIST
Correlation ID: QMF for Wind
User ID: RB3400
Connection Type: SERVER

Plan: DISTSERV
Collection ID: QFW72K
Package/DBRM: RAARDBX3
Version: null
SQL Type:
Cursor Name: CURSOR2

IF SQL IS STATIC:
SQL Statement Number: 0
SQL Section Number from SYSSTMT or SYSPACKSTMT: 2

IF SQL IS DYNAMIC:
SQL Statement Text: SELECT DISTINCT A.DOC_CD, A.DOC_SECTN_CD, A.SLN_SEQ_ORD_CD,
A.DOC_LOGC_LN_CD, A.PRJCT_CD, A.BEG_EFF_DT FROM #CIBCTT1.DSL_SECTN_LN_SEQ A
WHERE NOT EXISTS (SELECT * FROM #CIBBCM6.SLA_SECT_LN_ASSGN B WHERE
B.MKTG_FRMT_OPTN_ID = 9999 AND A.DOC_CD = B.DOC_CD AND A.DOC_SECTN_CD =
B.DOC_SECTN_CD AND A.SLN_SEQ_ORD_CD = B.SLN_SEQ_ORD_CD AND A.DOC_LOGC_LN_CD =
B.DOC_LOGC_LN_CD) AND A.LN_TYPE_CD IN ('D','P','M') AND A.DOC_SECTN_CD NOT IN
('C00500', 'C0100N', 'C01000', 'C02000', 'C03000', 'C03010', 'C03020', 'C03030',
'C03040', 'C03050', 'B00005', 'B01680', 'C90010',
'B00230', 'B00235', 'B00237', 'B00240', 'B01210', 'B01215', 'B01217'); FOR FETCH ONLY
OPTIMIZE FOR 50000 ROWS

-495

Query

DB2 Query Monitor

SQL/CA

```
DFS6671 P. NON-REENTRENT MODULES HAVE BEEN PRELOADED IA2A
TTU05/B100 SQLCODE = - 805
*****
TTU05 01I VERSION 99, COMPILED 11/18/08, CALLED BY TT005 VERSION 01,
COMPILED
*****
TTU02 01I VERSION 99 OF CAU02. COMPILED 11/18/08.
```

DB2 Query Monitor

SQL/CA

```
BT00 01/20 09:52:03 ----- IBM DB2 Query Monitor -----
Option ==> _____

DB2 QM Subsystem ID: DBT4 (? to Select)                      User: TG5444
                                                            Release: CQM V2R3MO
-----

0.  Settings
1.  View Activity Summaries
2.  View SQLCODEs
3.  View Current Activity
4.  View DB2 Command Activity
5.  View Exceptions

6.  Work with Monitoring Agents
7.  Setup
8.  Work with Profiles
9.  Exit Query Monitor

2. View SQLCodes
```

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DB2 Query Monitor

SQL/CA

```
AA00 01/07 00:11:17 ----- DB2 QM SQL Code Summary ----- Row 1 of 6
Option ==> Scroll ==> CSR
DB2 QM Subsystem: DBA3      Interval Start Date: 01/06/2009 Time: 16:00:00
                           Interval End   Date: 01/06/2009 Time: 16:30:00
Group by 30 (1-Plan, 3-DBRM/Package, 4-Authid, 30-SQLCode)
          Specify "*" for no grouping
C: S-select detail, 1-Plans, 3-DBRMs/Packages, 4-AUTHIDS
-----
CMD  SQLCODE  Occurrences
--  -
-301          6
-305          3
-438         22
-803          4
S-805         21  -----> 21 Occurrences
-811        112
***** Bottom of Data *****
```

DB2 Query Monitor

SQL/CA

```
AA00 01/07 00:13:00 --- DB2 QM SQL Code Detail Display --- Row 1 of 21
Option ==> Scroll ==> CSR
DB2 QM Subsystem: DBA3 Interval Start Date: 01/06/2009 Time: 16:00:00
Interval End Date: 01/06/2009 Time: 16:30:00
Detail data captured for SQLCODE: -805
C: 16-SQL TEXT, 28-SQLCA
```

CMD	SSID	Plan	DBRM/Package	JOBNAME	STMT#	Collection ID	SECT#	AUTHID
28	DBA3	BG03011A	DN89911A	IMA7MR02	671	BU_SORD_COLLE	2	M43695
---	DBA3	BU98611A	DN89911A	IMA7MR20	671		2	M43695
---	DBA3	BU98611A	DN89911A	IMA7MR20	671		2	M43695
---	DBA3	BU98611A	DN89911A	IMA7MR20	671		2	M43695
---	DBA3	BU16011A	DN89911A	IMA7MR16	671	BU_SORD_COLLE	2	M43695
---	DBA3	BU16011A	DN89911A	IMA7MR16	671	BU_SORD_COLLE	2	M43695
---	DBA3	BU16011A	DN89911A	IMA7MR16	671	BU_SORD_COLLE	2	M43695
---	DBA3	BU16011A	DN89911A	IMA7MR16	671		2	M43695
---	DBA3	BU16011A	DN89911A	IMA7MR16	671		2	M43695
---	DBA3	BU16011A	DN89911A	IMA7MR16	671		2	M43695
---	DBA3	BU16011A	DN89911A	IMA7MR16	671		2	M43695
---	DBA3	DN81711A	DN89911A	IMA7MR14	671		2	OI20011A
---	DBA3	DN81711A	DN89911A	IMA7MR11	671		2	OI20011A
---	DBA3	BU98611A	DN89911A	IMA7MR20	671		2	M43694
---	DBA3	BU98611A	DN89911A	IMA7MR20	671		2	M43694
---	DBA3	BU98611A	DN89911A	IMA7MR20	671		2	M43694
---	DBA3	BU98611A	DN89911A	IMA7MR20	671		2	M43694
---	DBA3	BU16011A	DN89911A	IMA7MR16	671	BU_SORD_COLLE	2	M43694
---	DBA3	BU16011A	DN89911A	IMA7MR16	671	BU_SORD_COLLE	2	M43694
---	DBA3	BU16011A	DN89911A	IMA7MR16	671	BU_SORD_COLLE	2	M43694
---	DBA3	BU16011A	DN89911A	IMA7MR16	671		2	M43694
---	DBA3	BU16011A	DN89911A	IMA7MR16	671		2	M43694
---	DBA3	BU16011A	DN89911A	IMA7MR16	671		2	M43694

DB2 Query Monitor

SQL/CA

```
AA00 01/07 00:15:14 ----- SQLCA Display ----- Row 1 of 33
Option ==> _____ Scroll ==> CSR

DB2 SSID: DBA3      Plan: BG03011A      DBRM: DN89911A  Coll: BU_SORD_COLLECTION
Cursor: VAL_CSR    Section: 2
Stmt: 671          Type: SELECT INTO
-----+
DSNT408I  SQLCODE = -805, ERROR:  DBRM OR PACKAGE NAME DBA3..DN89911A.1-
          7D04A7C11E1CCBC NOT FOUND IN PLAN BG03011A. REASON 03
DSNT418I  SQLSTATE  = 51002 SQLSTATE RETURN CODE
DSNT415I  SQLERRP   = DSNXEPM SQL PROCEDURE DETECTING ERROR
DSNT416I  SQLERRD   = -251 0 0 -1 0 0 SQL DIAGNOSTIC INFORMATION
DSNT416I  SQLERRD   = X'FFFFFFF05' X'00000000' X'00000000'
          X'FFFFFFFF' X'00000000' X'00000000' SQL DIAGNOSTIC
          INFORMATION

SQLCAID      SQLCA
SQLCABC      136
SQLCODE      -805
SQLERRML     43
SQLERRMC     DBA3..DN89911A.17D04A7C11E1CCBC.BG03011A.03
SQLERRP      DSNXEPM
SQLERRD(1)   X'FFFFFFF05'      -251
SQLERRD(2)   X'00000000'      0
SQLERRD(3)   X'00000000'      0
SQLERRD(4)   X'FFFFFFFF'      -1
SQLERRD(5)   X'00000000'      0
SQLERRD(6)   X'00000000'      0
SQLWARNO
```

DB2 Query Monitor

SQL/CA

```
BT00 03/19 22:16:49  ----- DB2 QM SQL Code Summary ----- Row 1 of 4
Option ==>                                         Scroll ==
DB2 QM Subsystem: DBT4          Interval Start Date: 03/18/2009 Time: 0
                                Interval End   Date: 03/18/2009 Time: 0
Group by 4_ (1-Plan, 3-DBRM/Package, 4-Authid, 30-SQLCode)
           Specify "*" for no grouping
C: 1-Plans, 3-DBRMs/packages, 30-SQLCODES
-----
CMD  AUTHID  Occurrences
--  -
--  OMII02   9
--  KST01B1T 1
--  DBT4DB2   5
--  CSQQTSPB 15
***** Bottom of Data *****
```

DB2 Query Monitor

SQL Patterns

```
BT00 06/15 13:43:15 ----- DB2 QM SQL Code Summary ----- Row 1 of 7
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: DBT4          Interval Start Date: 06/15/2007 Time: 04:00:00
                                Interval End   Date: 06/15/2007 Time: 05:00:00
Group by S (SQLCODE, AuthID, DBRM/Package, Plan)
          Specify "*" for no grouping
C: A-AUTHIDs, D-DBRMs/Packages, P-Plans, S-Select
-----
CMD  SQLCODE  Occurrences
-   -
-   -305      221
-   -501      38
-   -514      24
-   -518      16
-   -803     898,661 ← Is this overhead?
-   -805      801
-   -811      733
***** Bottom of Data *****
```

DB2 Query Monitor

SQL Patterns

```
AA00 ----- Update Profile Line for DBA3 -----
Option ==> _____ Scroll ==> CSR
                               More: +

INCLUDE/EXCLUDE                I      (I=Include, E=Exclude)
Disable Summary Reporting      N      (Y/N)  Gather Host Variables  N      (Y/N)
DB2 Subsystem                  *      _____ Plan Name                *      _____
Program Name                    *      _____
AUTHID                          TG5444__ JOBNAME                  *      _____
Connection ID                   *      _____ CORRID                    *      _____
                               _____ CORRNAME                 *      _____

Workstation User                *      _____
Workstation Trans               *      _____
Workstation Name                *      _____
Workload Name                   DBA3
Exception CPU                   00 : 00 : 00 . 000001
Exception Elapsed               00 : 00 : 00 . 000001
Exception Getpages              0
Exception SQL Calls             0

Press <PF7/PF8> to scroll for additional options.
```

DB2 Query Monitor

SQL Patterns

```
AA00 03/18 22:08:51 ----- Display Exceptions ----- Row 23 of 28
Option ==> Scroll ==> CSR
DB2 QM Subsystem: DBA3 Interval Start Date: 03/18/2009 Time: 22:00:00
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
C:9-Objects,12-Calls,16-SQL,18-Analyze,19-Delays,20-Locks,21-Misc Stats
 22-Buffer Pool Stats,25-Host Variables,26-Parallel Activity
----- - >
CMD  SSID Plan      SQLCODE  DB2 CPU Time  DB2 Elapsed  GETPAGES
--  --  --  --  --  --  --
--  DBA3 DSNTDP2      0      0.000011     0.000015      0
--  DBA3 DSNTDP2     -803     0.000412     0.000494     15
--  DBA3 DSNTDP2      0      0.000048     0.000048      0
--  DBA3 DSNTDP2      0      0.000025     0.000025      0
--  DBA3 DSNTDP2      0      0.000772     0.001105      3
--  DBA3 DSNTDP2      0      0.000174     0.000367      0
***** Bottom of Data *****
```

6 Min/CPU

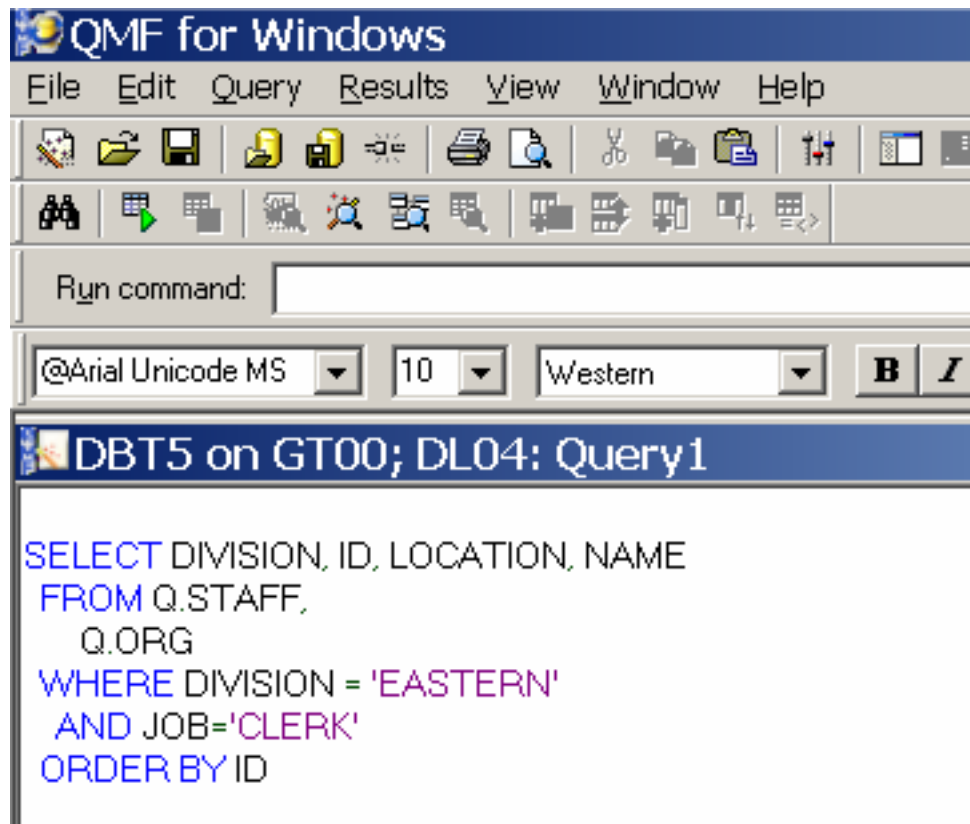
DB2 Query Monitor

Overhead of Dynamic SQL

Q

M

F



DB2 Query Monitor

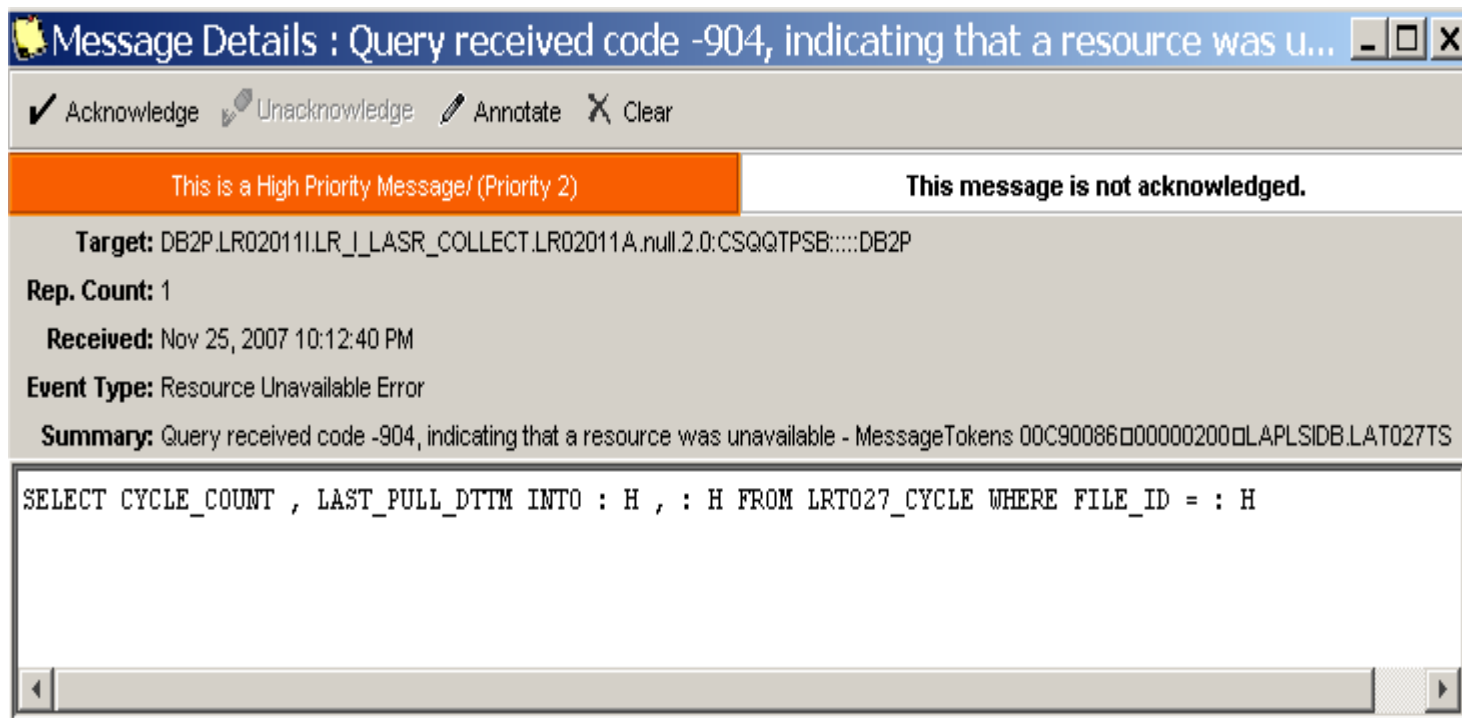
Overhead of Dynamic SQL

```
GT00 11/14 14:27:48 ----- Object Detail ----- Row 1 of 20
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: DBT5 Interval Start Date: 11/14/2007 Time: 14:00:00
Filters Enabled: N Interval End Date: CURRENT Time: CURRENT
DB2: Plan: DISTSERV Pgm: AuthID:
Section: Call: Type:
WSUser: WSName:
WSTran: CorrID:
```

Creator	Name	Type	GetPages	HitRatio	Elapsed
SYSIBM	SPTR	TABLE	60	0.00	0.017518
Q	STAFF	TABLE	18	94.44	0.000005
SYSIBM	DSNSPT01	INDEX	18	55.56	0.259889
DB2SUPT	DSNARL01	INDEX	15	100.00	0.000040
SYSIBM	DSNDTX01	INDEX	12	91.67	0.010425
SYSIBM	SYSTABLES	TABLE	12	75.00	0.031833
N/A	N/A	TABLE	8	100.00	0.000014
RDBI	PROFILE_INDEX	INDEX	8	75.00	0.012072
SYSIBM	DSNDSX01	INDEX	8	100.00	0.000042
Q	ORG	TABLE	6	0.00	0.020252
DB2SUPT	DSNRLST01	TABLE	4	100.00	0.000019
SYSIBM	DSNVTH01	INDEX	4	50.00	0.013530
SYSIBM	SYSTABLESPACE	TABLE	4	75.00	0.001699
SYSIBM	DSNTNX01	INDEX	3	100.00	0.000023
RDBI	PROFILE_TABLE	TABLE	2	50.00	0.007881
RDBI	RESOURCE_INDEX	INDEX	2	0.00	0.018245
RDBI	SERVER_INFO	TABLE	2	0.00	0.009725
SYSIBM	SYSINDEXES	TABLE	2	100.00	0.000014
SYSIBM	SYSVTREE	TABLE	2	0.00	0.021451
RDBI	RESOURCE_TABLE	TABLE	1	0.00	0.015807

DB2 Query Monitor

Resource Unavailable -904



Message Details : Query received code -904, indicating that a resource was u... - □ ×

✓ Acknowledge ✎ Unacknowledge ✎ Annotate ✕ Clear

This is a High Priority Message/ (Priority 2) This message is not acknowledged.

Target: DB2P.LR020111.LR_J_LASR_COLLECT.LR02011A.null.2.0:CSQQTPSB:....DB2P

Rep. Count: 1

Received: Nov 25, 2007 10:12:40 PM

Event Type: Resource Unavailable Error

Summary: Query received code -904, indicating that a resource was unavailable - MessageTokens 00C90086□00000200□LAPLSIDB.LAT027TS

```
SELECT CYCLE_COUNT , LAST_PULL_DTTM INTO : H , : H FROM LRT027_CYCLE WHERE FILE_ID = : H
```

DB2 Query Monitor

Did My Access Path Change?

```
FC00 08/28 14:07:06 ----- Object Detail ----- Row 1 of 6
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: DBC5 Interval Start Date: 08/28/2007 Time: 06:00:00
Filters Enabled: N Interval End Date: 08/28/2007 Time: 07:00:00
DB2: Plan: RP1ACR01 Pgm: AuthID:
      Section: Call: Type:
      WSUser: WSName:
      WSTran: CorrID:
----->
Creator Name Type DataBase BPool PageSet GetPages
----->
N/A TABLE HFD02 BP1 HFS0207 8818062
DBC5HFD1 WTFBDSP0 INDEX HFD02 BP2 WTFBDSP0 2583544
N/A N/A TABLE DSNDB07 BP7 DSN04K02 42
SYSIBM SCTR TABLE DSNDB01 BP0 SCT02 10
SYSIBM DSNNSCT02 INDEX DSNDB01 BP0 DSNNSCT02 4
N/A N/A TABLE DSNDB07 BP7 DSN04K03 4
***** Bottom of Data *****
```

DB2 Query Monitor

Did My Access Path Change?

```
FC00 08/28 14:08:38 ----- Object Detail ----- Row 1 of 4
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: DBC5 Interval Start Date: 08/24/2007 Time: 15:00:00
Filters Enabled: N Interval End Date: 08/24/2007 Time: 16:00:00
DB2: Plan: RP1ACR01 Pgm: AuthID:
      Section: Call: Type:
      WSUser: WSName:
      WSTran: CorrID:
----->
Creator Name Type DataBase BPool PageSet GetPages
-----
DBC5HFD1 WTFBDSP1 INDEX HFD02 BP2 WTFBDSP1 227
N/A TABLE HFD02 BP1 HFS0207 58
SYSIBM SCTR TABLE DSND01 BP0 SCT02 16
SYSIBM DSNSCT02 INDEX DSND01 BP0 DSNSCT02 11
***** Bottom of Data *****
```

DB2 Query Monitor

What Caused My Logs to Increase in Size?

```
BT00 07/13 14:57:39 ----- Operational Summaries ----- Row 1 of 36
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: DBT4 Interval Start Date: 07/12/2007 Time: 08:00:00
Filters Enabled: N Interval End Date: 07/12/2007 Time: 18:00:00
DB2: Plan: CAT2711A Pgm: Authid:
Section: Call: Type:
WSUser: WSName:
WSTran: CorrID:
C:2-DB2,P-Plan,R-Pgm,U-Authid,I-Corr,T-Sect,C-Call,W-WSUser,M-WSName,N-WSTran
S-SQL,O-Objs,D-Delay,B-Buff,L-Lock,Q-Misc Stats
-----+>
CMD Program Calls Description GetPages
-----+>
- CA40411A 11081755 UPDATE 1666469
- CA40411A 11081754 SELECT INTO 1500825
- CAT2711A 1608044 SELECT INTO 1850890
- CA40411A 1342759 SELECT INTO 1186826
- CAT2711A 1267038 DELETE 18429757
- CAT2711A 341869 FETCH ROWSET NEXT 2321181
- CA40411A 341856 MULTIROW INSERT 160779804
- CA40411A 341855 SELECT INTO 297921
- CAT2711A 341007 CLOSE 0
- CAT2711A 341007 OPEN 43
- CAT2711A 341007 FETCH ROWSET NEXT 2315343
- CAT2711A 341007 CLOSE 0
- CAT2711A 341007 OPEN 40
- CAT2711A 341007 FETCH ROWSET NEXT 2314298
- CAT2711A 341007 CLOSE 0
- CAT2711A 341007 DELETE 135871033
- CA40411A 341007 UPDATE 7068356
- CAT2711A 341007 DELETE 7725368
```

DB2 Query Monitor

Subsystem Statistics – Activity by Object

```
BT00 11/20 08:42:32 ----- Structural Summaries ----- Row 1 of 555
Option ==> Scroll ==> PAGE
DB2 QM Subsystem: DBT4 Interval Start Date: 11/20/2007 Time: 05:00:00
Filters Enabled: N Interval End Date: 11/20/2007 Time: 06:00:00
DB2: DBname: BPool: PageSet:
C:D-DB2,N-DataBase,B-Buffer Pool,P-Page set,O-Object Detail
```

CMD	Pageset	GetPages	Elapsed	SyncRead	SyncWrit	SeqPftch	LstPftch
-	CRS02036	154015341	6:40.785571	0	0	4763055	0
-	CAI3230	20534904	33.561796	20317	0	0	0
-	CAS03319	11064419	31.255201	79	0	0	0
-	CAI3232	7277582	3.008247	5563	0	0	0
-	CAI3231	7271353	1:24.768338	6344	0	0	0
-	CAI3190	2568352	4.089431	37	0	0	0
-	CAI3142	2537983	25.291145	122682	194	0	0
-	CAI3143	2393659	1.079579	901	359	0	0
-	CAI3144	2388770	0.962823	8588	39	0	0
-	CRI02039	2373905	8.173667	0	0	0	0
-	CAS03314	1503597	5:39.711007	90322	0	0	0
-	CAS03315	1186885	3.867442	1	0	0	0
-	CAI3140	973446	15:36.791106	60292	0	0	0
-	CAS03323	742924	24.335705	18	0	0	0
-	LRI04700	580952	25.984012	846	0	18265	0
-	CAI2451	546627	1.042072	0	0	0	0
-	LRS01054	513151	31.879840	9554	0	0	0
-	CAI00F0	358828	1.512610	21	0	0	0
-	CAI2450	264993	2.077440	230	21	0	0
-	LRI00200	229571	11.714498	1290	0	0	0
-	CAS03245	174323	3.446711	1314	0	0	0
-	CAS0000F	165731	0.857990	37	0	0	0

154M

DB2 Query Monitor

Subsystem Statistics – Activity by Database

```
AA00 02/07 15:49:31 ----- Structural Summaries ----- Row 1 of 29
Option ==> Scroll ==> CSR
DB2 QM Subsystem: DBA3 Interval Start Date: 02/06/2009 Time: 20:00:00
Filters Enabled: N Interval End Date: 02/06/2009 Time: 20:30:00
DB2: DBname: BPool: PageSet:
C: 1-Plan, 2-DB2 (Op), 3-Pgm, 4-Authid, 5-DB2 (St), 7- Buff, 8- Pageset, 9-Objs,
10-Corr, 11-Sect, 12-Call, 13-WSUser, 14-WSName, 15-WSTran, 16-SQL, 19-Delay,
20-Locks, 21-Misc, 22-Buffstat, 23-Excp, 24-CurrAct
```

CMD	DATABASE	GetPages	Elapsed	SyncRead	SyncWrit	SeqPftch
---	KAD10R1	29941	0.023228	4	0	113
---	CDD01B	22901	0.005786	149	0	18
---	CAD00	1925	0.001747	29	0	2
---	DPROPR	1601	0.000153	55	0	16
---	DBA3WKDB	1398	0.000341	0	0	0
---	BUD06	1293	0.000026	32	0	0
---	KAD90R8	1071	0.000030	28	0	8
---	VOD02	620	0.000982	1	0	2
---	ARSDBASE	516	0.000018	19	0	14
---	CRD03	478	0.000467	0	0	0
---	CAD04	244	0.000016	17	0	0
---	SGOD7001	202	0.014758	13	0	0
---	SIBDBB	180	0.020550	3	0	6
---	CRD90	160	0.106469	5	0	10
---	CAD08	151	0.000023	19	0	0
---	CRD10	118	0.000024	8	0	0
---	VGD02	111	0.002788	0	0	0
---	OAMADMIN	96	0.000100	0	0	0
---	KAD90R7	56	0.000027	4	0	0
---	BUD05	54	0.011740	2	0	0

DB2 Query Monitor

Subsystem Statistics – BP Activity

```
BT00 11/20 08:45:38 ----- Structural Summaries ----- Row 1 of 15
Option ===> Scroll ===> PAGE
DB2 QM Subsystem: DBT4 Interval Start Date: 11/20/2007 Time: 06:00:00
Filters Enabled: N Interval End Date: 11/20/2007 Time: 07:00:00
DB2: DBname: BPool: PageSet:
C:D-DB2,N-DataBase,B-Buffer Pool,P-Page set,O-Object Detail
----->
CMD BPool GetPages Elapsed SyncRead SyncWrit SeqPftch LstPftch
- - - - -
-- BP1 170018304 24:09.719747 235432 0 3766710 61120
-- BP2 64629265 36:34.542367 252233 108 24413 0
-- BP7 1570749 1.758159 4 0 3956 0
-- BP16K1 467047 34.299630 3 0 0 0
-- BP8 224922 37.531575 4006 0 0 0
-- BP0 148581 50.498700 427 0 0 0
-- BP3 117131 13.658116 1330 0 951 1090
-- BP6 61334 1.377159 2 0 0 0
-- BP8K0 39783 2.667463 498 0 0 0
-- BP11 15857 0.683339 76 0 6 0
-- BP32K1 10932 4.568102 409 0 0 0
-- BP10 8965 0.271126 37 0 7 0
-- BP4 5612 0.749839 2 0 0 0
-- BP16K0 4795 0.069409 7 0 0 0
-- BP8K1 2186 0.004828 0 0 0 0
***** Bottom of Data *****
```


DB2 Query Monitor

