



**IDUG**  
2022 NA Db2 Tech Conference

# Monitoring Alerts at Mastercard

**Tom Glaser, MasterCard**

**Session Code: B07**

**Date: July 12, 02:00pm**

**Boston, MA**

# Agenda

- Why monitor
- What we monitor
- Tools used for monitoring
- Replication

## This presentation is not:

- A performance and tuning overview
- How to analyze SQL statements and their access paths
- Discussions about a performance database

I wish to focus on what we monitor and to learn more about what we can do better.

# Who is MasterCard?



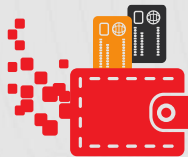
Consumers want better ways to pay.  
**We invent them.**



People want financial access.  
**We find ways to serve them.**



Checkout lines are too slow.  
**We help them move faster.**



Commuters are busy.  
**We speed them on their way.**



Procurement is complicated.  
**We make it simple.**

# Why Monitor

- We need to know what is going on
- We want to know the problem before the application calls us
  - Are we running out of memory?
  - Are we no longer logging?
  - Is there a problem with a buffer pool?
- Do you review all alerts?
  - Some say yes; why create an alert if you're not going to look at it
  - Others say no; this data is used for problem analysis
- Our environment:
  - 80 Db2 Subsystems, data sharing and non-data sharing

## What we Monitor:

- Disk Storage
- Messages
  - MSTR; DIST; IRLM; DBM1; Mainview for DB2 Journal; SYSLOG
- SQL Codes
- Deadlock / Timeouts / Long Running Threads
- SQL Exceptions
- Access Path Changes in Production
- Memory / Storage / DDF
- Batch Jobs
- Q-Rep / CDC

# Tools used for monitoring Db2:

- **IBM:**
  - IBM Db2 Query Monitor
  - Management Console (for CDC Replication)
  - IBM Job Scheduler (OPC)
- **BMC:**
  - Mainview for Db2 (AMI Ops Monitor for Db2)
  - Mainview for z/OS (AMI Ops Monitor for z/OS)
  - AutoOps (AMI Ops Automation)
- **Segus:**
  - RealTime DBAExpert for Db2 z/OS
  - Space AssuranceExpert
- **xMatters**
- **Intellimagic**
- **Home Grown**



# Db2 Messages:

First place to start:

- MSTR / DIST / DBM1 / IRLM & SYSLOG

How: Using Mainview Automation Tool

- Email or page via xMatters

Messages we monitor:

- John Campbell SWAT Team Suggestions
- Nationwide
- Bank of Sweden
- Mastercard past issues
- DB2-L



Message	Description	Email/Paged?
DSNB204I	OPEN OF DATA SET FAILED	paged
DSNB217I	ONLINE RECOVERY FOR AN INCONSISTENT PAGE WAS UNSUCCESSFUL	paged
DSNB224I	DSNB224I csect-name- BUFFER MANAGER I/O ERROR DURING function, DSNAME = data-set-name , PAGE NUMBER=X'page-number', MM ERROR FLAG=X'aa', CSW STATUS=X'bbbb', SENSE BYTES=X'cccc', SEEK ADDRESS=X'dddddddddddddddd'	skip
DSNB225I	DSNB225I csect-name- BUFFER MANAGER I/O ERROR DURING function, DSNAME = data-set-name , MM ERROR CODES=X'aaaaaaaa' DB2 REASON CODE=X'reason-code'	skip
DSNB228I	csect-name GROUP BUFFER POOL gbpname CANNOT BE ACCESSED FOR function	paged
DSNB235A	GRS RESOURCE SHORTAGE DETECTED BY DB2	email
DSNB250E	A PAGE RANGE WAS ADDED TO THE LOGICAL PAGE LIST	email
DSNB301E	GROUP BUFFER POOL gbp-name CANNOT BE CONNECTED DB2 REASON CODE	email
DSNB303E	A LOSS OF CONNECTIVITY WAS DETECTED TO GROUP BUFFER POOL	paged
.		
.		
.		

...Messages at the end of the presentation.

# xMatters: Escalation Process

Always stay connected with the xMatters mobile app  
Get notified, view your schedule, set on-call reminders, and more.  
[Get the xMatters app](#)

DEVICE	CONTACT	ALERT PRIORITY
SMS Phone	+1 US 111-444-5555	All priorities
Wait for 5 minutes, then notify:		
Work Email	userid@work.com	All priorities
Wait for 5 minutes, then notify:		
Home Email	userid@STLCardinals.com	All priorities
Home Phone	+1 US 222 333 4444	All priorities

Select the type of device you want to add:  
[Email](#) [Mobile App](#) [SMS](#) [Voice](#)

IBM InfoSphere Data Replication Notification

Mastercard Operational Commu...  
To: [redacted]  
Retention Policy: Default Inbox (1 year) Expires: 4/1/2023  
Thu 11:26 PM

**SAFE: This email originated from outside of Mastercard from a sender reviewed by Corporate Security.**

Event ID: 9508  
Publisher(S)/Subscriber(T): T  
System ID: [redacted]  
Event Text: Commit failed Database operation failed.  
A SQL exception has occurred. The SQL error code is '1452'. The SQL state is: HY000. The error message is: [CDC][Oracle JDBC Driver][Oracle]ORA-01452: cannot CREATE UNIQUE INDEX; duplicate keys found

- [Take Ownership](#) - Take Ownership
- [Escalate](#) - Escalate

X1 – One Way; FYI

X2 – Two Way; Requires Response

# Example from MSTR:

The image shows a terminal window on the left and an email client window on the right. The terminal window displays a message from AutoOPERATOR with the following content:

```
00.58.40 STC22926 DSNJ111E OUT OF SPACE IN ACTIVE LOG DATA SETS
00.58.40 STC22926 DSNJ111E OUT OF SPACE IN ACTIVE LOG DATA SETS
00.58.42 STC22926 DSNJ111E OUT OF SPACE IN ACTIVE LOG DATA SETS
00.58.42 STC22926 DSNJ111E OUT OF SPACE IN ACTIVE LOG DATA SETS
00.58.44 STC22926 DSNJ111E OUT OF SPACE IN ACTIVE LOG DATA SETS
408
408
00.58.44 STC22926 *DSNJ111E OUT OF SPACE IN ACTIVE LOG DATA SETS
409
00.58.44 STC22926 DSNJ111E OUT OF SPACE IN ACTIVE LOG DATA SETS
410
410
00.58.44 STC22926 *DSNJ111E OUT OF SPACE IN ACTIVE LOG DATA SETS
00.59.02 STC22926 IEA794I SVC DUMP HAS CAPTURED: 524
524
524
01.00.08 STC22926 DSNV522I -DAP7 DSNVMON - BEGIN DISPLAY OF OLDEST 500
500
01.00.08 STC22926 DSNV523I -DAP7 DSNVMON - AGENT 1: 501
501
NAME ST A REQ ID AUTHID PLAN ASID TOKEN
```

The email client window shows the following details:

- Subject: ACTIVE LOG OUT OF SPACE - DB2
- From: AUTOOPERATOR@MSTR01010101.COM
- To: EMMF...@MSTR01010101.COM
- Retention Policy: Default One Year Delete (1 year)
- Expires: 3/24/2023
- Message Body: DSNJ111E OUT OF SPACE IN ACTIVE LOG DATA SETS Message from AutoOPERATOR

# Additional examples of alerts from Db2 MSTR Messages:

The image displays four overlapping email windows, each showing a different Db2 MSTR message. The messages are as follows:

- Message 1 (Leftmost):** Subject: DSNT376I. Content includes: COR, CONT, LUW, THRE, IS, COR, CON, LUW, THRE, ON. The message body contains technical details about a job and profile filter.
- Message 2 (Second from left):** Subject: DSNT772I - [REDACTED] DSNLTACC A MONITOR PROFILE...  
From: AUT [REDACTED]  
To: EMMFAO.DB2 [REDACTED]  
Retention Policy: Default One Year Delete (1 year)  
Message body: JOB=[REDACTED] MSTR, DATE=22098 - 20220408, TIME=15.36.18, JOBNUM=14414, DSNT772I - [REDACTED] DSNLTACC A MONITOR PROFILE, 333 TIME(S), IN PROFILE ID=22, WITH PROFILE FILTERING, WITH REASON=00E30507.
- Message 3 (Third from left):** Subject: DSNI052I - [REDACTED] DSNISGNS AN AGENT...  
From: AU [REDACTED]  
To: EMMFAO.DB [REDACTED]  
Retention Policy: Default One Year Delete (1 year)  
Message body: JOB=[REDACTED] STR, DATE=22095 - 20220405, TIME=13.42.44, JOBNUM=14389, DSNI052I - [REDACTED] DSNISGNS AN AGENT, STORAGE USE, IN WORK FILE DATABASE, FOR WORK FILES, THRESHOLD = 33 PERCENT, TOTAL STORAGE CONFIGUR, CONNECTION ID = [REDACTED], CORRELATION ID = D2ADM, LUWID = MC.[REDACTED].DB4FCC, PACKAGE NAME = DSN@EP2, PLAN NAME = DSNTDP2.
- Message 4 (Rightmost):** Subject: DAM3-GROUP BUFFER PROBLEM ...  
From: AU [REDACTED]  
To: EMMFAO.DB2 [REDACTED]@rd.int  
Retention Policy: Default One Year Delete (1 year) Expires 3/28/2023  
Message body: [REDACTED]-GROUP BUFFER PROBLEM, DSNB319A - [REDACTED] DSNB1CNE THERE IS A SHORTAGE OF SPACE IN GROUP BUFFER POOL GBP32, Do not reply to this message - It was sent from AutoOPERATOR.

# BMC AMI Ops Monitor for Db2 - Mainview for Db2

- MAINVIEW LOG – Journal or WTO
- Using Mainview Automation Tool (AutoOps)
- Email or page via xMatters
- Messages are set up via “monitors”
- Monitors will auto start with Mainview comes up



# BMC Mainview for Db2 (monitors):

Example of starting monitors when Mainview is brought up:

```
EDIT      MCI.F [REDACTED] PU [REDACTED] AP1) - 01.02      Columns 00001 00080
Command ==>                                         Scroll ==> HALF
000108 *----- LOG MONITORS -----*
000109 *
000110 REQ=LOGWT          TITLE='SSID LOG BUFF WAIT'    *MSG: DS0470W
000111                  WMAX=1
000112                  WMSG=WTO
000113                  LOG=NO
000114 *
000115 REQ=ARCDL          TITLE='SSID ARC READ DELAYED'    *MSG: DS1040W
000116                  WMAX=1
000117                  WMSG=WTO
000118                  LOG=NO
000119 *
000120 *----- Z/OS MONITORS -----*
000121 *
000122 REQ=DB2DP            TITLE='SSID DEMAND PAGING'    *MSG: DS0530W
000123                  WMSG=WTO
000124                  WMAX=1
000125                  LOG=NO
000126 *
000127 *----- EDM MONITORS -----*
000128 *
000129 REQ=EDMUT            TITLE='SSID EDM POOL IN USE%' *MSG: DS0300W
000130                  WMAX=70
```

# BMC Mainview for Db2 (monitors):

Example of creating a monitor for a specific ID. Email to support team if thread runs longer than 1 second:

The image shows a terminal window for BMC Mainview and an overlaid email notification window.

**Terminal Window:**

- Header: `Start Workload Monitor`
- Navigation: `CPUF NO ===>` and `SCROLL ===> PAGE MORE: +`
- Monitor Attributes:
  - `PARM ID-HERE (Identifier)`
  - `INTERVAL 00:00:01 (hh:mm:ss)`
  - `WVAL 1.000 (Warning value)`
  - `WMSG WTD (Log warnings to)`
  - `WLIM 10 (Warnings limit)`
- Configuration:
  - `TITLE ID-HERE RUNNING LONG`
  - `PLOTMAX (Maxi`
  - `RANGES (1-4`
  - `LOG (NO, A`
- Specify Workload Inclusion Criteria:
  - `ICHECK (Check`
  - `CONNTYPE (TSO, I`
  - `DB2PLAN`
  - `DB2AUTH ID-HERE`
  - `DB2CONN`
  - `DB2CORR`
  - `DB2LOC`
  - `DB2PKG`
  - `DB2RTN`
- Column Headers: `@ELAP - AVG ELAPSED TIME` and `START (hh:mm:ss)`

**Email Notification Window:**

- Subject: `DW0120W:CPUA - DAP1 - ...`
- From: `AUTC: [redacted] DM`
- To: `EMMFA [redacted]@mastercard.int`
- Date: `Sun 9:37 PM`
- Retention Policy: `Default One Year Delete (1 year) Expires 4/11/2023`
- Message Content:
  - `DW0120W (02) 21:37:19 STL ASA TOTAL Z/OS ELAP ( [redacted] 1)`
  - `= 12.963 (>1.000) Message from AutoOPERATOR`



# BMC Mainview for Db2 (monitors):

```

28MAR2022 13:10:52 ----- MAINVIEW WINDOW INTERFACE (V6.3.00) -----
COMMAND ==>
CURR WIN ==> 1      ALT WIN ==>
>W1 =AT=====*****28MAR2022==13:09:09===MVDB2===0===60=====
-
Monitors Active
  Commands:  SM (Start Monitors)      MONSUMM      MONWARN      JOURNAL
  Line CMDs:  S (Select),  W (Show),      M (Modify)
              P (Purge),  R (Replicate), Z (Stop),  H (Help)

CM Serv  Parm      Title
-----  -
DBTUT    DBAT  MAXDBAT%   Monitor Warning
Value    Value
-8-6-4-2-0+2+4+6+8+
71
RMTUT    REMOT THR CONDBAT% 22.0000 70.0000
31
THDUT    ACT THRD CTHREAD% 19.0000 70.0000
27
EDMUT    EDM  POOL IN USE%  0.0000 70.0000
RIDUT    RID  POOL IN USE%  0.0000 70.0000
@ELLK    AVG  WAIT ON LOCKS 0.0001 60.0000
DBATQ    MAXDBAT QUEUED    0.0000 10.0000
  
```

...Monitor messages at the end of the presentation.

# BMC Mainview for Db2 (monitors):

TBSMV3\_SOURCE390 | Major

Mastercard Operational Communication  
To: Glaser, Tom

Retention Policy: Default Inbox (1 year)

This message was sent with High importance.  
Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

**SAFE:** This email originated from outside of Mastercard.

First Occurrence:	04/29/2022 07:07
Environment:	Production
Severity:	Major
Node:	[REDACTED]
Alert Group:	TBSMV3_SOUR
Summary:	DS1680W (01) 0
Instance ID:	BBISSCOM
Instance Situation:	DS1680W
Recipient:	Tom Glaser
Omnibus Notification ID:	000000

```

File Edit Transfer Fonts Options Tools View Window Help
29APR2022 11:27:30 ----- MAINVIEW WINDOW INT
COMMAND ==>
CURR WIN ==> 1 ALT WIN ==>
>W1 =STDISTD=====29APR2022==11:27:29====MVDB2====
DDF Global Statistics Detail..... 29APR 11:27
. DDF ZPARAMs.....
. DDF Data.....
Status - Current and High Water Mark.....
Total DBATs - Active & Pooled.....
DBATs Pooled for Reuse (Type 2).....
Inactive DBATs (Type 1).....
Active DBATs Bound with RELEASE(DEALLOCATE).....

Total Remote Connections.....
Type 2 Inactive Connections.....
Type 2 Connections Queued for DBAT.....

Maximums Reached.....
Queued for DBAT (MAXDBAT Reached).....
Connections Deallocated (CONDBAT Reached).....
Type 1 Connections Terminated (MAXTYPE1 Reached)..
Queued Client Connections Closed (MAXDBAT Reached)
Queued Client Connections Closed (MAXDBAT Wait)...

DBAT Usage Statistics.....
DBAT Request Rate.....
New DBATs Created.....
    
```

	Current	HWM
Total DBATs - Active & Pooled	2389	3263
DBATs Pooled for Reuse (Type 2)	3	1133
Inactive DBATs (Type 1)	0	19
Active DBATs Bound with RELEASE(DEALLOCATE)	1863	1915
Total Remote Connections		4230
Type 2 Inactive Connections	759	2194
Type 2 Connections Queued for DBAT	0	938

	Interval	Session
Queued for DBAT (MAXDBAT Reached)	0	0
Connections Deallocated (CONDBAT Reached)	0	0
Type 1 Connections Terminated (MAXTYPE1 Reached)	0	0
Queued Client Connections Closed (MAXDBAT Reached)	0	0
Queued Client Connections Closed (MAXDBAT Wait)	0	0

	Interval	Session
DBAT Request Rate	16.9	201.8
New DBATs Created	4	259655

Db2 Support Paged

Recipient:	Tom Glaser
Omnibus Notification ID:	000000

# BMC Mainview for Db2 (monitors):

DS0620W Message (Plain Text)

File Message Help Mastercard Tools Tell me what you want to do

Share to Teams Find

DS0620W

**A** AUTOOPS  
To DB2-SUPPORT-D  
Retention Policy Default One Year Delete (1 year)  
We removed extra line breaks from this message

DS0620W (01) 22:57:00 RI  
\*\*\*\*\*

DW0170W:012 - Message (Plain Text)

File Message Help Mastercard Tools Tell me what you want to do

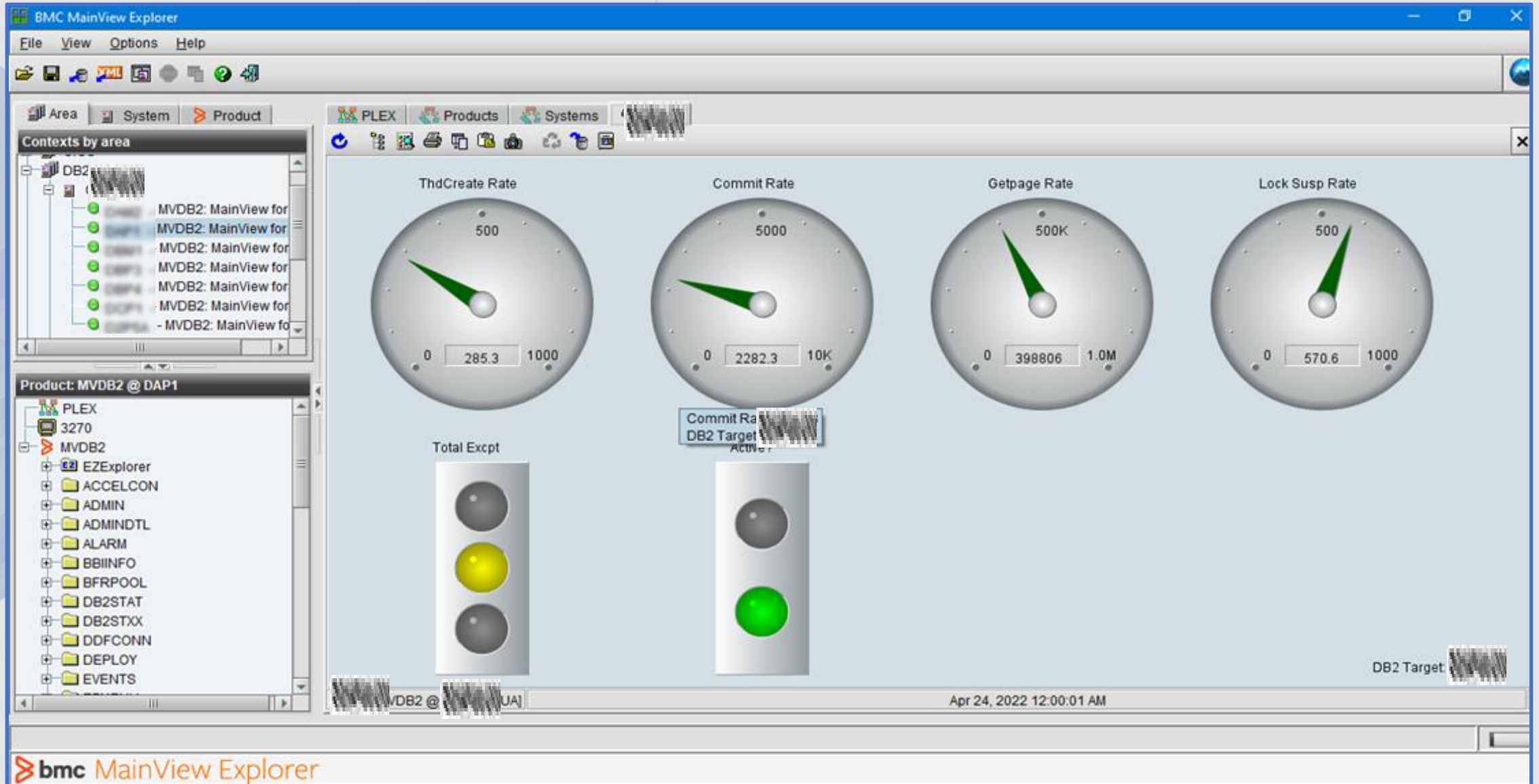
Share to Teams

DW0170W:012

**A** AUTOOPERATOR  
To EMMFAO.DB2-SUPPOI  
Retention Policy Default One Year Delete (1 year) Expires 2/25/2023  
We removed extra line breaks from this message.

DW0170W (01) 01:35:00 AVG WAIT ON LOCKS (TOTAL) = 47.345  
(>45.000) \*\*\* Message from AutoOPERATOR

# BMC Mainview Explorer – Web Browser





# Db2 Query Monitor

- Alert Monitoring against our subsystems
- SQL Events that require attention
  - Alert CPU; Alert Elapsed; Alert Getpages; Alert SQL Calls
  - We use Query Monitor in lieu of RLF (Resource Limit Facility)
- Alerts will be displayed on the blackboard (message board)
- You can create Message Boards that filter messages to achieve various display results.
- Monitor all subsystems from one screen
- Start alerts company-wide from one screen
- **-805; -905; -913**

# Db2 QM Alerts:

DB2 Query Monitor for z/OS v3.3

Home Alerts Activity\_Browser Configuration Tools

763 All Alerts 11 -605 26 -904 Resource Unavailable 12 -913 DeadLock Timeout 2 Critical

Acc.	Pri.	Correlation	Event Name	Sub.	system	subSystem	Subject	Received
<input type="checkbox"/>	3		Runtime Plan Error		CPUA	DBP1	DBP1: CWDB2PLN.ACDB	5/6/2022, 10:26:24 AM
<input type="checkbox"/>	3		Runtime Plan Error		CPUA	DBP1	DBP1: CWDB2PLN.ACDB	5/6/2022, 10:26:24 AM
<input type="checkbox"/>	3		Deadlock Or Timeout Error		CPUA	DBP1	DBP1: MPIBAU01.MPPRO	5/6/2022, 10:10:31 AM
<input type="checkbox"/>	3		Sql Elapsed Time Problem		CPUA	DBP1	DBP1: AMACHVL1.COLLC	5/6/2022, 9:56:28 AM
<input type="checkbox"/>	3		Sql Elapsed Time Problem		CPUA	DBP1	DBP1: .....NP:SAL4006	5/6/2022, 9:11:14 AM
<input type="checkbox"/>	3		Server Task Switch Delay Problem		CPUA	DBP1	DBP1: .....NP:SAL4006	5/6/2022, 9:02:36 AM
<input type="checkbox"/>	4		Unaccounted Time Problem	[3]	CPUA	DBP1	DBP1: .....NP:SAL4006	5/6/2022, 9:02:36 AM
<input type="checkbox"/>	3		Server Task Switch Delay Problem		CPUA	DBP1	DBP1: .....NP:SAL4006	5/6/2022, 8:42:06 AM
<input type="checkbox"/>	3		Server Task Switch Delay Problem		CPUA	DBP1	DBP1: .....NP:SAL4006	5/6/2022, 8:35:43 AM
<input type="checkbox"/>	3		Runtime Plan Error		CPUA	DBP1	DBP1: DISTSERV.COLLSU	5/6/2022, 5:01:41 AM
<input type="checkbox"/>	3		Runtime Plan Error		CPUA	DBP1	DBP1: DISTSERV.COLLSU	5/6/2022, 5:01:41 AM
<input type="checkbox"/>	3		Runtime Plan Error		CPUA	DBP1	DBP1: DISTSERV.COLLSU	5/6/2022, 5:01:41 AM
<input type="checkbox"/>	4		Object Buffer Pool Hit Ratio Problem	[1]	CPUA	DBP1	DBP1: LAALD4	5/6/2022, 4:32:42 AM
<input type="checkbox"/>	3		Other Read Delay Problem	[1]	CPUA	DBP1	DBP1: .....NP:SAL4006	5/6/2022, 4:32:40 AM
<input type="checkbox"/>	3		Runtime Plan Error		CPUA	DBP1	DBP1: B500010..IB500010	5/6/2022, 3:34:38 AM
<input type="checkbox"/>	3		Runtime Plan Error		CPUA	DBP1	DBP1: B500010..IB500010	5/6/2022, 3:33:48 AM
<input type="checkbox"/>	4		Object Buffer Pool Hit Ratio Problem		CPUA	DBP1	DBP1: LAALD4	5/6/2022, 2:51:33 AM
<input type="checkbox"/>	4		Object Buffer Pool Hit Ratio Problem		CPUA	DBP1	DBP1: LAALD4	5/6/2022, 2:51:33 AM
<input type="checkbox"/>	4		Object Buffer Pool Hit Ratio Problem	[1]	CPUA	DBP1	DBP1: LAALD4	5/6/2022, 2:51:33 AM

Search

- Db2 Sql Event
  - Sql Error
    - Application Coding Error
    - Application Runtime Error
    - Authorization Error
    - Bind Error
    - Dbms Error
    - Ddl Error
    - Deadlock Or Timeout Error
    - Distributed Query Error
    - Duplicate Key In Index Error
    - Environment Error
    - General Sql Error
    - Mvs Error
    - Resource Limit Error
    - Resource Unavailable Error
    - Runtime Plan Error
    - Singleton Select Error
  - Sql Problem
    - Alert Threshold Problem
    - Delay Problem
    - Lock Problem
    - Sql Bufferpool Problem
    - Sql Cpu Alert
    - Sql Elapsed Time Alert

# Alerts: -904 Step 1 (Create WTO)

Alerts | Activity Browser | Configuration | Tools

CAE-Agent-based Actions

- Automatic Cancel Thread
- Cancel Thread
- Sample WTO
- WTO for -904

CAE-Server-based Actions

- A602 Long running
- A603 Long running
- Cancel Thread Email Alert
- Cancel Thread Email Alert for E
- Cancel Thread Email Alert for K
- Cancel Thread Email Alert for K
- Cancel Thread Email Alert for K
- Cancel Threads by QM
- Deadlock\_Timeout Alert
- GCMSPLANS
- GIA250
- GIA250P1
- IP592210
- IPS\_Long\_Running\_Queries
- KGAAM001\_Alerts
- KGPAM001\_Long\_Running\_Queries
- Resource Limit Facility Errors
- Resource Unavailable -904
- SampleEmailAction

Action Group: CAE-Agent-based Actions

Subject Type: Db2SqlStatement

Event Type: Event

Related Event Type: <none>

Routing Code: 1 - Master console action

Descriptor Code: 12 - Important information messages

Message ID: CQMU 001 |

Message: SDB-904 Resource Unavailable -904; \${subject.db2Ssid} (\${subject.smfId}) \${urlencode (toString(event.getAttribute("MessageTokens")))}

...Reason codes at the end of the presentation.



# Alerts: -904 Step 2 (Create email)

The screenshot shows the CAE configuration tool for z/OS v3.3. The left pane shows a tree view of actions, with 'Resource Unavailable -904' selected under 'CAE-Server-based Actions'. The right pane shows the configuration for this action, including the Action Group, Subject Type, Event Type, and Related Event Type. Below this, the SMTP configuration is shown, including the SMTP Host, Username, Password, and Port. At the bottom, the message content is displayed, showing the KBL template for the alert.

**Action Group:** CAE-Server-based Actions  
**Subject Type:** Db2SqlStatement  
**Event Type:** ResourceUnavailableError  
**Related Event Type:** ResourceUnavailableError

**To:** dl [redacted]@m  
**From:** Q [redacted]@h  
**Cc:**  
**Bcc:**  
**Subject:** Resource Unavailable -904 for \${subject.db2Ssid} (\${subject

**Primary SMTP** | **Backup SMTP**

**SMTP Host:** [redacted]  
**SMTP Username:**  
**SMTP Password:** [Set Password] **SMTP Port:** 25

**File Attachment:**

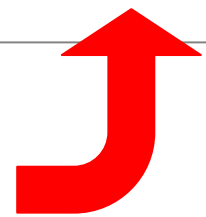
**Message:**

```
DB2 SSID: ${subject.db2Ssid}
LPAR:    ${subject.smfId}
Date/Time: ${event.datetime}
SQL Code: ${event.HighestSqlCode}
User:    ${event.getAttribute("USER")}
Jobname: ${event.getAttribute("JOBNAME")}
Plan:    ${subject.plan}
Package: ${subject.programName}
```

```
DB2 SSID: ${subject.db2Ssid}
LPAR:    ${subject.smfId}
Date/Time: ${event.datetime}
SQL Code: ${event.HighestSqlCode}
User:    ${event.getAttribute("USER")}
Jobname: ${event.getAttribute("JOBNAME")}
Plan:    ${subject.plan}
Package: ${subject.programName}
Collection ID: ${subject.collectionId}
Correlation ID: ${event.getAttribute("CorrelationId")}
Event Type: ${event.displayName}

DB2 Objects/Reason Code
=====
${event.getAttribute("MessageTokens")}

===== SQL TEXT (if available) =====
${wordWrapSQLForBatch(getSqlText(event))}
```



Knowledge-Based Management Language (or KBML)....

# Alerts: -904 Example

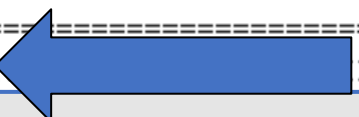
```
Display Filter View Print Options Search Help
-----
SOOP OPERLOG          04/18/2022      04          COLUMNS 52- 11
COMMAND INPUT ****          SCROLL ****
0094  SYTIME01 SESSION (0091) TERMINATED WITH          ENCODE=NOCPANOR
0094  LOGICAL REC. NO. TALL & 00000000.0220418.T001012.0001  RETAINED.
0090  CQM1I SDB-904 Resource Unavailable -904; DHM1 (INDB) 00C90081%FF00000210
      %FFDSQ1STBB.STAFF+++ .00000001
0094  SYTIME01 STPL1 COPY          SYTIME01  ST. 0041 ENCODE=NOCPANOR 005
```

SQL Code: -904  
User: ██████████  
Jobname: SIP0893D  
Plan: IP595910  
Package: IP599100  
Collection ID: COLLIPA1  
Correlation ID: SIP0893D  
Event Type: Resource Unavailable Error

DB2 Objects/Reason Code

00C90081 ██████████ PACPT

```
OPT_DATE1_NAM AND 6 . FILL_NG1_NAM = 6 . FILL_NG1_NAM AND 6 . OPT_DATE1_CD = 1 6 AND 6 .  
CO_START_CD = 1 6 AND 6 . OPT_START_CD = 1 6 AND 6 = 1 SELECT COUNT (*) OPT_DATE1_NAM FROM  
TIMESTAMP 6 WHERE 6 . OPT_DATE1_NAM = 6 . OPT_DATE1_NAM AND 6 . FILL_NG1_NAM = 6 .  
FILL_NG1_NAM AND 6 . OPT_DATE1_CD = 1 6 AND 6 . CO_START_CD = 1 6 AND 6 . OPT_START_CD = 1  
6 ) AND 6 . CO_START_CD TO 1 SELECT MAX ( 0 . CO_START_CD TO 1 FROM TIMESTAMP 6 .  
TIMESTAMP 6 WHERE 6 . OPT_DATE1_NAM = 6 . OPT_DATE1_NAM AND 6 . FILL_NG1_NAM = 6 .  
FILL_NG1_NAM AND 6 . OPT_DATE1_CD = 1 6 AND 6 . CO_START_CD = 1 6 AND 6 . OPT_START_CD = 1  
6 AND 6 = 1 SELECT COUNT (*) OPT_DATE1_NAM FROM TIMESTAMP 6 WHERE 6 . OPT_DATE1_NAM = 6 .  
OPT_DATE1_NAM AND 6 . FILL_NG1_NAM = 6 . FILL_NG1_NAM AND 6 . OPT_DATE1_CD = 1 6 AND 6 .  
CO_START_CD = 1 6 AND 6 . OPT_START_CD = 1 6 ) ) FROM STAFF ROW ONLY
```



# Alerts: -805 Example

Resource Unavailable -805: [REDACTED] Plan=NGTPLAN Package=SCCUSAPI - Message (Plain...)

File Message Help Mastercard Tools Tell me what you want to do

Share to Teams Find Zoom

**Resource Unavailable -805: [REDACTED] Plan=NGTPLAN Package=SCCUSAPI**

Query\_M [REDACTED] com  
To: E [REDACTED]

Retention Policy Default One Year Delete (1 year) Expires 3/22/2023

Mon 3/21/2022 2:43 AM

DB2 SSID: [REDACTED]  
LPAR: [REDACTED]  
Date/Time: Mon Mar 21 02:43:10 CDT 2022  
SQL Code: -805  
User: D [REDACTED] 01  
Jobname: D2ADMI3Z  
Plan: NGTPLAN  
Package: SCCUSAPI  
Collection ID:  
Correlation ID: D2ADMI3Z  
Event Type: Runtime Plan Error

DB2 Objects/Reason Code  
=====

[REDACTED]2M2IN..SCCUSAPI.1B4A892805005D58YNGTPLANŸ03

NOTE: SQLSTATE and MessageTokens are for SqlError only  
event.getAttribute("SQLSTATE"):51002  
event.getAttribute("MessageTokens"):MC [REDACTED] 12IN..SCCUSAPI.1B4A892805005D58YNGTPLANŸ03

M [REDACTED] 2IN..SCCUSAPI.1B4A892805005D58%FFNGTPLAN%FF03

Alert Link: [https://INDAV\[REDACTED\]1:9\[REDACTED\]board\[REDACTED\]tID=6911577940526366721](https://INDAV[REDACTED]1:9[REDACTED]board[REDACTED]tID=6911577940526366721)

# Alerts: -913 Example

File Message Help Tell me what you want to do

CAE\_ [redacted] or DB2-SUPPORT-DBA 9:00 PM

Deadlock/Timeout Query on [redacted] | SQL Code = -913

Retention Policy Default One Year Delete (1 year) Expires 9/2/2020

DEADLOCK DETECTION

Domain: Query Monitor

DB2 SSID: [redacted]

LPAR: [redacted]

Date/Time: Mon Sep 02 21:00:10 CDT 2019

SQL Code: -913

User: [redacted]

Jobname: [redacted]

Plan: DISTSERV

Package: SYSLH400

Collection ID: NULLID

Correlation ID: db2jcc

Event Type: Deadlock O

DB2 Objects/Reason Code

===== SQL TEXT (if available) =====

```
INSERT into BA [redacted] (EXECUTION_ID, JOB_INSTANCE_ID, START_TIME,
END_TIME, STATUS, EXIT_CODE, EXIT_MESSAGE, VERSION, CREATE_TIME, LAST_UPDATED,
JOB_CONFIGURATION_LOCATION) values (?, ?, ?, ?, ?, ?, ?, ?, ?, ?)
```

Note: Waiter/holders are monitored at the thread level, not statement level. To view this information, go to Mainview for DB2; view = EZDLOCK.

Alert Link: [https://\[redacted\]bclie\[redacted\]msgBoard?eventID=6574470954762633217](https://[redacted]bclie[redacted]msgBoard?eventID=6574470954762633217)

A sql statement received SQL code -913, MessageTokens  
00C90088Y00000302YDP1GIA1 .SGIABSM .X'00000042'

...e-mail note in outlook

...click for host variables



**Message Detail** Rep... system subSystem Subject Received

This is a Medium Priority Message (Priority 3) This message is not acknowledged

Subject: .....NP:81 Perm DISTSERV Plan C ..... 77.41

Rep. Count: 1

Received: 9/2/2019 9:00:10 PM

Summary: A sql statement received SQL code -913, MessageTokens 00C9008800000302DP1GIA1 .SGIABSM .X'00000042'

Messages Attributes Annotations Related Messages **Text/Host Vars**

Timestamps

Name	Value
HighestSqlCode	-913
ParallelismCategory	NonParallel
CollectionId	NULLID
CONNECTION_NAME	SERVER
ConsistencyToken	6005923165405720625
ConsistencyTokenHex	5359534C564C3031
CorrelationId	db2jcc_appli
CURSOR_NAME	SQL_CURLH400C1
Db2SSID	.....
HIGHEST_SQLCODE	-913
JOBNAME	.....ST
LUNAME	GCC5
MessageTokens	00C9008800000302DP1GIA1 .SGIABSM .X'00000042'
NETID	AC13F081
NodeAddress	8279625551872
PlanName	DISTSERV
ProgramName	SYSLH400
ProgramVersion	
REQUESTING_SITE_NAME	::172.19.240.129
SectionNumber	1

Close

Messages Attributes Annotations Related Messages **Text/Host Vars**

Show Raw SQL Text **Tune**

INSERT

into BATCH\_JOB\_EXECUTION (JOB\_EXECUTION\_ID, JOB\_INSTANCE\_ID, START\_TIME, END\_TIME, STATUS, EXIT\_CODE, EXIT\_MESSAGE, VERSION, CREATE\_TIME, LAST\_UPDATED, JOB\_CONFIGURATION\_LOCATION)

values (?, ?, ?, ?, ?, ?, ?, ?, ?, ?)

Done (9:50:47 PM)

NUMBER	Type	Null	Length	Data
1	BIGINT	false	8	.....
2	BIGINT	false	8	.....
3	TIMESTAMP	true	0	.....

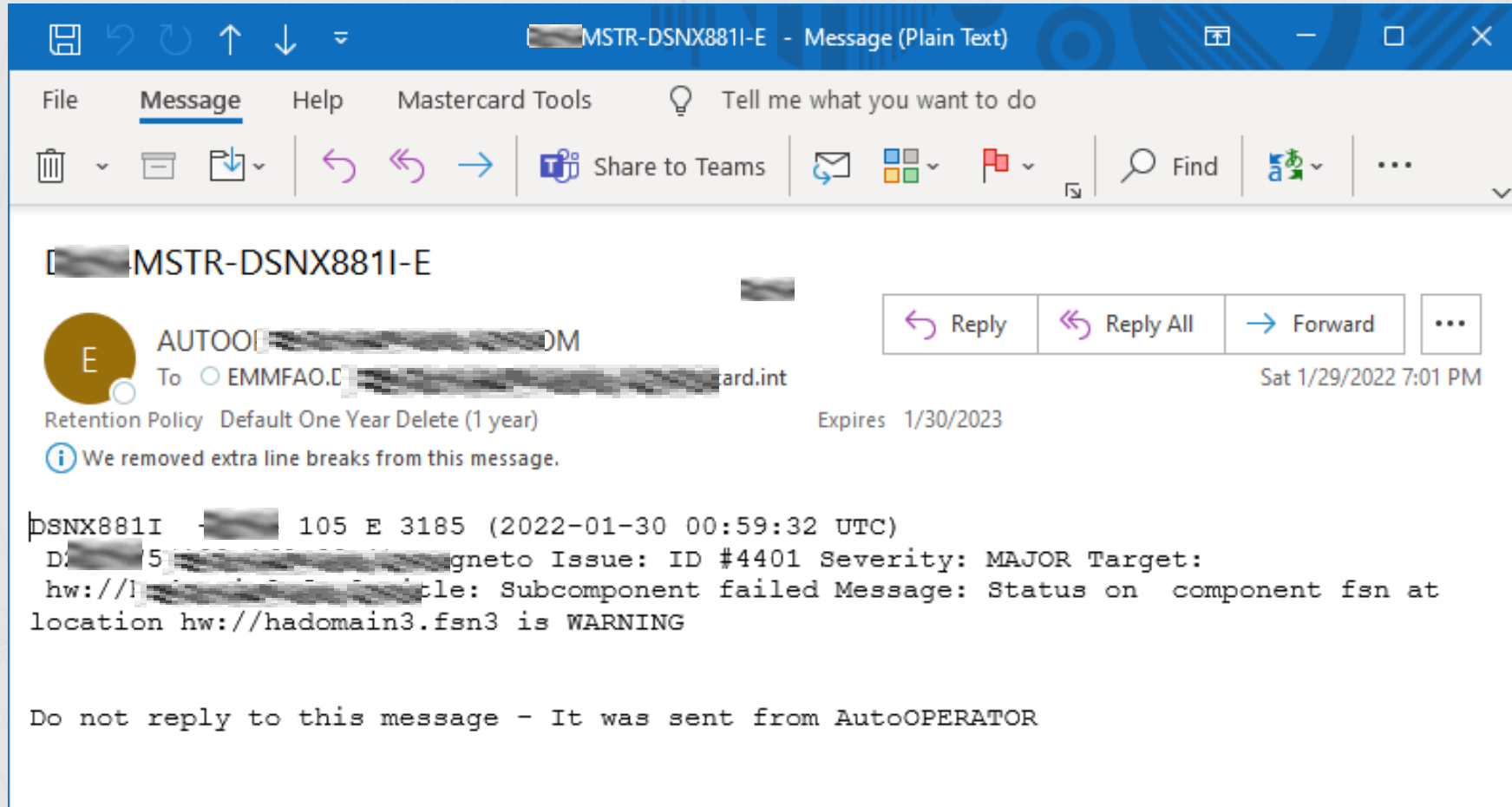
Close

Note: VSAM file holding host variables is RACF/ACF2 protected.



# IDAA:

## Monitored by BMC AutoOps (AMI Ops Automation)



The screenshot shows an Outlook window titled "MSTR-DSNX881I-E - Message (Plain Text)". The interface includes a ribbon with "File", "Message", "Help", "Mastercard Tools", and "Tell me what you want to do". The "Message" ribbon is active, showing options like "Share to Teams", "Find", and "Reply".

The email header shows the sender as "AUTOOPERATOR" with a profile picture of a yellow circle containing the letter 'E'. The recipient is "EMMFAO.E@mastercard.int". The message was sent on "Sat 1/29/2022 7:01 PM".

Below the header, there is a retention policy notice: "Retention Policy Default One Year Delete (1 year) Expires 1/30/2023". A message icon indicates "We removed extra line breaks from this message."

The main body of the email contains the following text:

```
DSNX881I - [REDACTED] 105 E 3185 (2022-01-30 00:59:32 UTC)
D: [REDACTED] 5 [REDACTED] gneto Issue: ID #4401 Severity: MAJOR Target:
hw:// [REDACTED] Title: Subcomponent failed Message: Status on component fsn at
location hw://hadomain3.fsn3 is WARNING
```

At the bottom of the message, it says: "Do not reply to this message - It was sent from AutoOPERATOR"



# Monitoring Disk Storage

- Segus Software
  - Used with Mainview AutoOps
  - Integrated with xMatters
    - Email or page

# Segus Software

## Bringing in new software:

- Before monitoring alerts
  - Homegrown rexx & QMF Procs
- How do you convince your managers to be proactive?

Impact of downtime

## RealTime DBAExpert for Db2 z/OS (RTDX):

- Automate maintenance and manage databases
- Interfaces with Space AssuranceExpert
- Uses Real-Time Statistics
- Monitor and manage space and DASD
- Real-Time Information Center

The screenshot shows an Outlook email interface. The subject line is "Network-Services-Account-Level-Management TRT — Notification Sent by: MC&O-US — INC0...". The sender is "Mastercard Operational Cor" with a profile picture showing "MO". The recipient is "To: Glaser, Tom". The email is dated "Fri 4/29/2022 11:51 AM" and expires on "4/30/2023". A note indicates the message was sent with high importance. The main content is a notification from the "Problem Response Team — Network-Services-Account-Level-Management-TRT" stating that the TRT was initiated at 11:50 AM CDT on Apr 29, 2022, and is for internal use only. The description mentions an issue with HALAALD partition size. There are also fields for "Ticket:" and "Event Point of Contact:" which are redacted. At the bottom, there is a call to action: "Please Join TRT Conference Bridge and Chat".

<b>Problem Response Team — Network-Services-Account-Level-Management-TRT</b> was initiated at 11:50 AM CDT on Apr 29, 2022 <i>FOR INTERNAL USE ONLY</i>	
<b>Description:</b>	Problem Response Team —ALM having an issue with HALAALD partition size is close to total volume of 90%
<b>Ticket:</b>	[REDACTED]
<b>Event Point of Contact:</b>	[REDACTED]
<b>Please Join TRT Conference Bridge and Chat</b>	

# Segus Software: ISPF Panels for monitoring Db2 storage

```
SpaceManager for Db2 z/OS ----- DASD Free Space ----- Row 1 of 15672
Command ==> Shows free space on all volumes      Scroll ==> PAGE
Db2: 
```

Primary cmd: F(ind), S(ort)

CUU	VOLSER	#
0B40	HA1000	549715
0B41	LOGR31	377085
0B42	HA1052	549715
0B43	TD0050	564040
0B44	DP3814	58771
0B45	IP0015	176775
0B46	IP0041	136762
0B47	IP0067	183256
0B48	IP0093	152844
0B49	IP0119	177694
0B4A	IP0145	194027
0B4B	IP0171	138234
0B4C	IP0197	241280
0B4D	IP0223	141178
0B4E	IP0249	189924
0B4F	IP0275	177753
0B50	P62310	400861
0B51	P61452	226918
0B52	US1055	306733
0B53	PR1121	69110

```
SpaceManager for Db2 z/OS ----- Extract Data Set List 1 ----- Row 1 of 100
Command ==> Data Set Statistics      Scroll ==> PAGE
Db2: 
```

Extract from 2022-04-11 at 08:00  
Primary cmd: F(ind), S(ort),  
Line cmd: Z(oom), A(lter)

```
SpaceManager for Db2 z/OS ----- Data Set List 2 ----- Row 143417 of 143432
Command ==>      Scroll ==> PAGE
Db2: 
```

```
Primary cmd: F(ind), S(ort),  
Line cmd: Z(oom), A(lter),  
D(B2Info),
```

Db2	DBName	SPName
WRKDAT4	DSN32K03	
WRKDAT4	DSN32K04	
WRKDAT4	DSN4K01	
WRKDAT4	DSN4K02	
WRKDAT4	DSN4K03	
WRKDAT4	DSN4K04	
WRKDAT4	DSN4K05	
WRKDBT4	DSN32K01	
WRKDBT4	DSN32K02	
WRKDBT4	DSN32K03	
WRKDBT4	DSN32K04	
WRKDBT4	DSN4K01	
WRKDBT4	DSN4K02	
WRKDBT4	DSN4K03	
WRKDBT4	DSN4K04	
WRKDBT4	DSN4K05	

```
Command ==>  Db2:  More: +
```

Databases . . . . .	327	Defined Tableparts . . .	432058
Tablespaces . . . . .	23245	DEFINE NO Tableparts . .	1431
LOB . . . . .	144	Defined Indexparts . . .	432225
Partitioned - Classic . .	3489	DEFINE NO Indexparts . .	4506
# Partitions . . . . .	44887	Storage groups . . . . .	8
Partitioned - UTS PBG . .	1951	Volumes (non-SMS) . . . .	0
# Partitions . . . . .	2040	Plans . . . . .	302
Partitioned - UTS PBR . .	2307	DBRMs . . . . .	0
# Partitions . . . . .	69633	Packages (total) . . . . .	78721
Segmented . . . . .	15329	Packages (distinct) . . .	4477
Simple . . . . .	11	SQL statements . . . . .	3827206
XML . . . . .	14	Indexes . . . . .	32362
Tablespaces as LARGE . . .	275	HASH . . . . .	0
Aliases . . . . .	1780	Type 2 non-HASH . . . . .	30017
Archive Tables . . . . .	0	# Partitioned IXs . . . . .	3227
Auxiliary Tables . . . . .	127	# Partitions . . . . .	20062
Clone Tables . . . . .	0	DPSI . . . . .	265
Global Temporary Tables . .	82	# Partitions . . . . .	20547
History Tables . . . . .	0		
Implicit Tables (XML) . . .	14		

# Segus Software: Example of daily report > 50 Extents

## STL EXTENTS > 50



AUTC [REDACTED] DM

To DB2-SUPP([REDACTED])@ibm.com

Retention Policy Default One Year Delete (1 year)

Expires 4/22/2023

This message may contain extra line breaks.

[REDACTED]

Reply Reply All

Date: 2022-04-21 SPACEMANAGER FOR Db2 (PTF\_20182) PAGE: 00001

Time: 06:00:10

S P A C E REPORT FOR SUBSYSTEM [REDACTED] (Version: 12R1M502)

0DBName	SPName	Type	Part	DSNo	#Ext	#ExL	%Used	Used KB	Primary space	#Vol	DSNUM	Compr.	Creation date
0	Instance	Clone	Dssize				%Active	Allocated KB	Secondary space	Dataset			

DP1BUA1	SBUACHG	TP	0001	0001	146	539	100	67,108,772	1,224,000 KB	5	50	Y	22.098
	1		64				100	67,116,240	-1 KB	[REDACTED]	DSNDBD.DP1BUA1.SBUACHG.I0001.A001		

DP1BUA1	SBUAISA	TP	0022	0022	96	49	100	4,193,280	720,000 KB	1	50	Y	22.098
	1		4				100	4,205,520	-1 KB	[REDACTED]	DSNDBD.DP1BUA1.SBUAISA.J0001.A022		

DP1BUA1L	IBUAIAL1	IS	0000	0003	89	457	100	8,388,608	180,000 KB	1	5	N	22.098
	1						---	8,391,600	-1 KB	[REDACTED]	DSNDBD.DP1BUA1L.IBUAIAL1.J0001.A003		

DP1BUA1	SBUAACL	TP	0002	0002	87	660	99	47,823,032	720,000 KB	1	1	Y	22.098
	1		64				98	48,219,840	-1 KB	[REDACTED]	DSNDBD.DP1BUA1.SBUAACL.I0001.A002		

DP1AMA1	IAMASTC1	IP	0039	0039	82	24	98	4,649,760	1,440,000 KB	1	1	N	22.014
	1						---	4,766,400	-1 KB	[REDACTED]	DSNDBD.DP1AMA1.IAMASTC1.I0001.A039		

DP1BUA1	SBUAACL	TP	0004	0004	82	311	99	22,756,320	720,000 KB	1	1	Y	22.098
	1		64				98	23,060,880	-1 KB	[REDACTED]	DSNDBD.DP1BUA1.SBUAACL.J0001.A004		

# Segus Software: Space AssuranceExpert (SAX)

## Space AssuranceExpert (SAX)

- Monitors physical data set limits (linear page set audit)
- Monitors partition sizes
- Monitors Sequence and Identity Limits
- Monitors degenerated extents
- Avoid running out of extents
- Monitors SMS storage groups
- Monitors DBAT usage

```
-START TRACE(MON) CLASS(32) IFCID(97,152,258) DEST(OPX) BUFSIZE(1024) COMMENT('SE RTM')
```

SAX is implemented as a started task. This task exploits IFCID technology to perform real-time monitoring of all Db2 extent activity, including the latest IFCID programming technique that supports the monitoring of data sharing groups through a single parallel SYSPLEX member. Extent monitoring is triggered whenever an extent request for a Db2 space occurs, or an LDS is allocated to catch DSSIZE = MAX Dataset size problems.





# Sequence Example:

```
EDIT          D2ADME1.SPUFI.IN(SEQUENCE) -  
Command ===>  
*****
```

```
CREATE SEQUENCE D2ADME1.BOOKS_ID  
AS DECIMAL(6)  
START WITH 1  
INCREMENT BY 1  
MINVALUE 1  
MAXVALUE 10  
NO CYCLE  
CACHE 20  
NO ORDER ;
```

```
INSERT INTO D2ADME1.TEST  
  (ID, NAME, DEPT, JOB, YEARS, SALARY, COMM)  
  VALUES (NEXT VALUE FOR  
BOOKS_ID, 'GLASER', 01, 'MGR', 1, 20.00, 99);  
-----+-----+-----+-----+  
-+-----+-----+-----+-----+  
DSNT408I SQLCODE = -359, ERROR: THE RANGE  
VALUES FOR THE IDENTITY COLUMN  
OR SEQUENCE IS EXHAUSTED
```

```
RealTimeMaintain ----- On-Demand Parameters -----  
Command ===>  
  
JOB CLEANUP INTERVAL . . 24           - Delete jobs that have not run after  
this number of hours  
WorkLoadExpert SCHEMA . .           - Schema name of WorkLoadExpert (optional)  
ACTIVE EXECUTION MODE . .           - Enforce specific execution mode  
ACTIVE CURRENT DAY . . . .           - Enforce MON .. SUN/SP1/SP2/SP3  
CHANGED AT . . . . . : 2016-08-25-13.49.18 BY . : INSTALL  
LAST RTS CHECK AT . . : 0001-01-01-00.00.00  
  
Specify Space AssuranceExpert processing options:  
CHECK SYSSEQUENCES . . . . B         - Monitor SEQUENCES: N(o)/I(d)/S(eq)/B(oth)  
/P(K Value)/A(II)  
TIME INTERVAL . . . . 30             - Time interval, 1 .. 1440 minutes  
EXCEEDED ACTION . . . . B            - W(TO)/M(sg)/B(oth)/N(one)  
  
AUDIT
```

O2RTS000 - 20W - [redacted]TMM - Message (Plain Text)

File Message Help Mastercard Tools Tell me what you want to do

Share to Teams Find

O2RTS000 - 20W - [redacted]RTMM

Reply Reply All Forward

Retention Policy Default One Year Delete (1 year) Expires 4/19/2023

+O2RTS000 - 20W [redacted] SEQ "D2ADME1"."BOOKS\_ID" EXCEEDED THRESHOLD 80% IS NOW 111% WITH MAXASSIGNEDVAL



# Segus Software: DDF

## Monitoring DDF activity:

### PTF P21228:

- DDF History Panel (O2P904)
- DDF History Details Panel (O2P905)

- Create a history table of all DDF activity from all members
- Extract information from -DISPLAY DDF DETAIL command
  - Checks whether or not the threshold of DBAT or CONDBATS has been exceeded.

```
SpaceAssuranceExpert ----- DDF History Details -----
Command ==> _____ Scroll ==> PAGE
Db2: D2P1

Primary cmd: A(lias), W(LM)

TIMESTAMP . . . : 2021-08-17-07.47.21.935688      MEMBER . . . . . : D2P1
WARNING . . . . : 1 CRITICAL . . . . . : 3      ALERT . . . . . : Warn
OPTION . . . . . : Yes      ACTION . . . . . : Both
DBAT DETAILS
MAX DBAT . . . . : 200 CURRENT DBAT . . . . . : 5 PERCENT DBAT . . . : 3
MAX CONDBAT . . . : 10000 CURRENT CONDBAT . . . . . : 5 PERCENT CONDBAT . . : 1
DDF DETAILS
STATUS . . . . . : STARTD LOCATION . . . . . : ZSYSD2P1
LUNAME . . . . . : DESWEG01.ZSYSD2P1 GENERIC . . . . . : -NONE
TCP IP PORT . . . : 5121 SEC PORT . . . . . : 0 RES PORT . . . . . : 5122
IPNAME . . . . . : -NONE
IPADDR IP4 . . . . : ::10.146.110.99
IPADDR IP6 . . . . :
SQL DOMAIN . . . . : zsys.mastercard.int
RESYNC DOMAIN . . . :
MEM. IP4 ADDR . . . :
MEM. IP6 ADDR . . . :
CMTSTAT . . . . . : A      PKGREL . . . . . : COMMIT SESSIDLE . . . . : 1440
DDF STATISTICS
MAXCONQN . . . . . : 0 MAXCONQW . . . . . : 0
CLSDCONQN . . . . . : 0 CLSDCONQW . . . . . : 0
QUEDBAT . . . . . : 0 INADBAT . . . . . : 0
CONQUED . . . . . : 0 DSCDBAT . . . . . : 0
INACONN . . . . . : 0 IUDBAT . . . . . : 0
WLMHEALTH . . . . . : 0
```

```
SpaceAssuranceExpert ----- DDF History ----- ROW 1 OF 1
Command ==> _____ Scroll ==> PAGE
Db2: D2P1

Primary cmd: L(ocate TIMESTAMP), S(ort)
Line cmd: D(etails)

TIMESTAMP          MEMB MAX    CUR    PERC MAX    CUR    PERC
                   DBAT  DBAT  DBAT  DBAT  CONDBAT  CONDBAT  CONDBAT
-----
_ 2021-08-17-07.47.21.935688 DC10   200    5    3   10000    5    1
-----
```

# Db2 Profiles

Db2 Profiles started in V9 and have been getting better with each new release. Profiles allow you to:

- Monitor remote threads and connections (TCP/IP)
- Set or disable optimization parameters for SQL statements
- Set thresholds for Query Acceleration
- Set registers for distributed clients

See Appendix for more details...

```
----- Browse DB2 Table -----  
Command ==>   
SYSIBM.DSN_PROFILE_TABLE (4/5)  
NAME          TYPE          LENGTH NULL VALUE  
AUTHID        VARCHAR       128  N  
  
PLANNAME      VARCHAR       24   Y  
COLLID        VARCHAR       128  Y  
  
PKGNAME       VARCHAR       128  Y  
  
LOCATION        VARCHAR       254  Y  
  
PROFILEID     INTEGER        4           22  
PROFILE_TIMESTAMP TIMESTMP      26         2020-11-14-19.02.38.437968  
PROFILE_ENABLED CHAR           1           Y  
GROUP_MEMBER  VARCHAR       24   N  
REMARKS       VARCHAR       762  N 'LIMIT ... SERVER THREADS FOR MAX 600'
```

# APCOMPARE: Monitoring Access Path Changes

- During a weekend implementation, when do you find out the access path had changed? Monday morning?
- Look for Access Path monitoring software
- APCOMPARE: (added V10) – This bind/rebind parameter determines whether the new access paths are different from the older access paths. We use WARN:

```
DSNT285I - [REDACTED] DSNTBBP2 BIND FOR PACKAGE = XXXXXX.YYYYYYYY.ZZZZZZZZ,  
USE OF APCOMPARE RESULTS IN:  
2 STATEMENTS WHERE COMPARISON IS SUCCESSFUL  
2 STATEMENTS WHERE COMPARISON IS NOT SUCCESSFUL  
0 STATEMENTS WHERE COMPARISON COULD NOT BE PERFORMED.
```

If versioning is used with package:

```
DSNT294I [REDACTED] DSNTBCM2 BIND PACKAGE =  
XXXXXX.YYYYYYYY.ZZZZZZZZ.(2021-12-22-05.28.49.921502),  
TO PROCESS APCOMPARE AND/OR APREUSE, PRIOR ACCESS PATHS  
FROM VERSION (2021-10-21-11.09.33.918579) WERE USED.
```

If EXPLAIN = YES

```
***** Top of Data *****  
-----  
SELECT SUBSTR(PROGNAME,1,8) AS PACKAGE, QUERYNO,  
SUBSTR(VERSION,1,28) AS VERSION, REMARKS  
FROM XXXXXXXX.PLAN_TABLE  
WHERE REMARKS ^= '  
ORDER BY VERSION DESC  
-----
```

PACKAGE	QUERYNO	VERSION	REMARKS
GP077450	36422	2022-04-21-09.04.50.324752	APCOMPARE/APREUSE FAILURE (PREVIOUS ACCESS PATH NOT FOUND)
GP077260	2613	2022-04-19-12.16.27.499451	APCOMPARE FAILURE (COLUMN: TNAME)
GP060100	3299	2022-04-19-06.58.43.437614	APCOMPARE FAILURE (COLUMN: PREFETCH)
GP440935	1002	2022-04-15-02.36.25.048477	APCOMPARE FAILURE (COLUMN: ACCESS_DEGREE)
GP005050	1853	2022-04-13-03.37.36.358204	APCOMPARE FAILURE (COLUMN: TNAME)
GP420065	1520	2022-04-05-19.39.49.430599	APCOMPARE FAILURE (COLUMN: ACCESSNAME)
GP058913	2405	2022-04-04-10.29.26.770328	APCOMPARE FAILURE (COLUMN: TABNO)
GP004984	1317	2022-04-01-06.06.35.681553	APCOMPARE/APREUSE FAILURE (PREVIOUS ACCESS PATH NOT FOUND)
AR603020	3587	2022-03-29-21.01.15.966449	APCOMPARE/APREUSE FAILURE (PREVIOUS ACCESS PATH NOT FOUND)



# APCOMPARE: Monitoring Access Path Changes

Last step of bind is a rexx exec to copy msg DSNT285I and DSNT295I into a Db2 table.

ISPF Dialog panels drill into changed access paths table and compares it to SYSPACKAGE.

```
CMD ==>                                "LEFT"    " is not active
                                         SCR ==> PAGE

*****
*
*      █ Enter "S" to see all monitored packages
*              with changed access paths on D2T1
*
*      Press ENTER to see more options...
*
*****

Press ENTER/PF3 To Exit
```



# APCOMPARE: Monitoring Access Path Changes

Local SSID: ██████████ ----- Access Path Compare ----- Row 1 of 191  
 CMD ==> SCR ==> PAGE

A (Access Path Changes) (Sorted by LOC,PKG,COLL,VER)  
 D (Package Details)  
 J (Bind Job Details)

SEL	Location	Package	Collid	Version	Bind Date	Package Tracked?	Access Path Changed?
---	---	---	---	---	---	---	---
--	██████████	BU101010	COLLBUA4	2022-01-12-15.39.	2022-01-12	YES	1
--	██████████	BU101011	COLLBUA4	2022-01-12-15.40.	2022-01-12	YES	1
--	██████████	BU101011	COLLBUA7	2022-01-10-17.46.	2022-01-10	YES	1
--	██████████	GP001430	COLLSUB4	2022-03-17-10.31.	2022-03-17	YES	2
--	██████████	GP001570	COLLSUB4	2022-02-16-07.43.	2022-02-16	YES	19
A	██████████	GP001610	COLLSUBD	2021-05-17-03.55.	2021-10-21	YES	4
--	██████████	GP002740	COLLSUBC	2021-11-29-12.26.	2022-01-18	YES	1
--	██████████	GP003140	COLLGPA4	2022-01-04-15.17.	2022-01-04	YES	7
--	██████████	GP003780	COLLGPA7	2022-01-28-13.44.	2022-01-28	YES	10
--	██████████	GP004300	COLLGPA9	2022-01-18-11.15.	2022-01-19	YES	1
--	██████████	GP004300	COLLGPAC	2022-01-20-23.28.	2022-01-20	YES	7
--	██████████	GP004402	COLLGPA8	2021-06-11-06.23.	2021-08-05	YES	1
--	██████████	GP004413	COLLGPA9	2021-08-24-16.48.	2021-08-24	YES	1
--	██████████	GP004413	COLLGPAD	2020-01-22-09.29.	2020-02-21	YES	1
--	██████████	GP004427	COLLGPA9	2021-08-27-07.14.	2022-01-20	YES	1
--	██████████	GP004453	COLLGPA7	2022-01-10-14.48.	2022-01-10	YES	1
--	██████████	GP005051	COLLGPA8	2021-07-29-09.49.	2021-07-29	YES	1

# APCOMPARE: Monitoring Access Path Changes

If EXPLAIN YES was bound, then SQL statement number can be found in the explain table. Take this SQL statement and display the SQL text.

```
Local SSID: █████ Access Path Compare ----- Row 1 of 4
CMD ==> SCR ==> PAGE

S (Full SQL Statement for message DSNT285I found in bind\rebind job)


  QUERY
SEL STMT# SQL Statement using a different access path
-----
S 5714 SELECT 1 INTO : H FROM ( SELECT DECIMAL ( SUBSTR ( Z . CLMN_TXT , 1
_ 6975 SELECT 1 INTO : H FROM ( SELECT CASE WHEN B . NUM_CURR_CD_N = 'Y' TH
_ 7070 SELECT 1 INTO : H FROM ( SELECT CASE WHEN B . NUM_CURR_CD_N = 'Y' TH
_ 8525 SELECT 1 INTO : H FROM ( SELECT COALESCE ( A . RTE_TRNST_NUM , D . R
***** Bottom of data *****
```

# APCOMPARE: Monitoring Access Path Changes

- Display Explain info from new access path:
- Display Explain info from old access path:

```
EDIT      D2ADME1.CPUE.BIND1230
Command ==>
***** ***** Top of Data *****
000001 Note: For a formatted view of this menu, use Data Studio
000002 or QMF f
000003
000004 |-----
000005
000006 SELECT 1 INTO
000007
000008
000009
000010
```

```
File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT      D2ADME1.CPUE.BIND1230
Command ==>
000027 New Access Path:
000028 =====
000029 STMT#  B#_P#_MISQ  METHOD  TABLE_NAME  ACC_TYPE  INDEX_NAME  MATCHCOL  IX_ONLY  SORTING==>
000030 05714  001 01 00      0  T10.TOPICS  R          N          NUJOG_CUJOG  PF  LK_MD  J_
000031 05714  001 02 00      2  T10.COMPAR(1)  R          N          .Y.. .Y..  S  N
000032 05714  002 01 00      0  T10.A  R          N          .Y.. .Y..  S  N
000033 05714  002 02 00      1  T10.COMPAR(1)  R          N          .Y.. .Y..  S  N
000034 05714  003 01 00      0  T10.TOPICS  I  IGPAWPS3  03/06  N          .Y.. .Y..  S  N
000035 05714  003 02 00      1  T10.TOPICS  I  IGPAWPS3  03/06  Y          .Y.. .Y..  S  N
000036 05714  004 01 00      0  T10.TOPICS  I  IGPAWPS3  03/06  Y          .Y.. .Y..  S  N
000037 05714  004 02 00      1  T10.TOPICS  I  IGPAWPS3  03/06  Y          .Y.. .Y..  S  N
000038 05714  006 01 00      0  T10.TOPICS  I1 IGPAWPS3  03/04  Y          .Y.. .Y..  S  N
000039
000040 Old Access Path:
000041 =====
000042 STMT#  B#_P#_MISQ  METHOD  TABLE_NAME  ACC_TYPE  INDEX_NAME  MATCHCOL  IX_ONLY  SORTING==>
000043 05714  001 01 00      0  T10.TOPICS  I  IGPAWPS3  03/06  N          .Y.. .Y..  S  N
000044 05714  001 02 00      2  T10.COMPAR(1)  R          N          .Y.. .Y..  S  N
000045 05714  002 01 00      0  T10.A  R          N          .Y.. .Y..  S  N
000046 05714  002 02 00      1  T10.COMPAR(1)  R          N          .Y.. .Y..  S  N
000047 05714  003 01 00      0  T10.TOPICS  I  IGPAWPS3  03/06  N          .Y.. .Y..  S  N
000048 05714  003 02 00      1  T10.TOPICS  I  IGPAWPS3  03/06  N          .Y.. .Y..  S  N
000049 05714  004 01 00      0  T10.TOPICS  I  IGPAWPS3  03/06  Y          .Y.. .Y..  S  N
```



# Intellimagic:

- RMF & SMF produce the world's richest source of machine-generated data.
- Takes RMF/SMF data and slices and dices this data various ways.
- Pre-canned reports (through a web browser) show this detail and provides a method of drilling down into this data.
- Build your own dashboard.
- Intelligent Navigation and drill downs.
- Weekly email.
- Db2 Data:
  - DFSMS statistics and configuration
  - Workload activity
  - Storage Data
  - Serialization Delay
  - Db2 statistics
  - Db2 accounting data

# Intellimagic: Weekly email – Top 20 Reports

IntelliMagic Vision

Navigation

- > CF and XCF
- > **DB2**
  - > Health Insights
  - > Change Detection
  - > DB2 Statistics
  - > Buffer Pools and Databases
  - > Local Buffer Pools
  - > Group Buffer Pools
  - > Accelerator
  - > DB2 Raw Statistics
  - > Accounting Data
  - > Plan and Package
  - > Plan and Package Wait
  - > DB2 Raw Plan and Package
  - > Utilities
  - > Detailed Changes\*

IntelliMagic Vision Dashboard Edit Dashboard Create Report Search chart Options Help

Navigation

- My Dashboards +Add
  - My Dashboard
- Other Dashboards
- Reports
  - Health
  - Applications
  - Disk Storage
  - Systems, Paging, WLM
  - CF and XCF
  - DB2
  - CICS
  - WebSphere, MQ, TCP/IP
  - Jobs and Data Sets
  - FICON Directors
  - Tape Storage

**TOP GETPAGES BY PLANS FOR ALL DB2 SUBSYSTEMS (TOP 20)**

for all Buffer Manager by Plan by Plan Name and DB2 Mem... Full report

IGT 4/11/2022 12:00 AM - 4/18/2022 5:45 AM (Last 7 days, All days). Sysplex <all>, Shift <all>, Interval: Measurement

Plan Name	DB2 Member Name	System ID	Buffer Size (KB)	Getpages (Getpages/hr)
BU101106	DBP1	DBP1	16K	16,958,782,700.00
GP005051	DBP1	DBP1	4K	8,824,028,393.10
IP515110	DBP4	DBP4	16K	6,551,415,363.50
BU004461	DBP1	DBP1	4K	5,641,227,010.00
AM913400	DBP1	DBP1	4K	4,269,327,408.00
AM913400	DBP1	DBP1	4K	4,267,032,480.00
IP800820	DBP4	DBP4	8K	3,175,548,603.00
IP999040	DBP1	DBP1	4K	2,919,001,433.87
GP440826	DBP1	DBP1	4K	2,808,158,190.00
IP532620	DBP4	DBP4	4K	2,115,946,731.00
BU343450	DBP1	DBP1	4K	1,705,059,281.41
BU343450	DBP1	DBP1	16K	1,631,399,036.25
AMACHVL1	DBP1	DBP1	4K	1,371,838,595.63
AM373070	DBP1	DBP1	4K	1,166,755,704.00
AM373070	DBP1	DBP1	4K	1,166,025,708.00
GP005051	DBP1	DBP1	4K	1,164,839,905.00

**TOP WAITS FOR DATABASE SYNC I/O BY PACKAGE (TOP 20)**

for all Package Data by Program Name and DB2 Member N... Full report

IGT 4/11/2022 12:00 AM - 4/18/2022 5:45 AM (Last 7 days, All days). Sysplex <all>, Shift <all>, Interval: Measurement

Program Name	DB2 Member Name	System ID	Waits for Database Sync I/O (events/hr)
IP535120	DBP1	DBP1	1,134,892,014.86
IP800820	DBP1	DBP1	758,371,847.00
IP532620	DBP4	DBP4	650,355,738.75
IP532110	DBP1	DBP1	498,390,216.00
AM373070	DBP1	DBP1	281,530,272.00
AM373070	DBP1	DBP1	279,165,756.00
AM915400	DBP4	DBP4	264,813,828.00
AM915400	DBP1	DBP1	252,709,776.00
AM461120	DBP1	DBP1	244,732,715.89
IP532620	DBP4	DBP4	220,621,886.48
IP535110	DBP1	DBP1	215,309,955.43
AM461120	DBP1	DBP1	209,315,834.88
AM485010	DBP1	DBP1	190,035,728.40
AM485010	DBP1	DBP1	165,515,265.26
IP532210	DBP1	DBP1	163,856,275.00
AM913400	DBP1	DBP1	161,447,328.00

4 COLLECTED



# Intellimagic Sample Report

IntelliMagic Vision

[Dashboard](#)
[Create Report](#)
[Selection](#)
[Filter](#)
[Export](#)

Options
Help

**Navigation**

**My Dashboards** + Add

My Dashboard

**Other Dashboards**

**Reports**

- > Health
- > Applications
- > Disk Storage
- > Systems, Paging, WLM
- > CF and XCF
- > DB2
- > CICS
- > WebSphere, MQ, TCP/IP
- > Jobs and Data Sets
- > FICON Directors
- > Tape Storage

« Pkg CP and SQL »

### Top Package CP Time and SQL per week (top 20)

for all Package Data by Program Name and Package Collection Id and Plan Name and DB2 Member Name and System ID and Correlation Name






Add to:
Collected
Dashboard
Favorites
Edit report

**Last week 4/11/2022 12:00 AM - 4/18/2022 5:59 AM**  
 Interestgroup IGT, All Sysplexes, All shifts  
 Reporting interval Hour

Program Name	Package Collection Id	Plan Name	DB2 Member Name	System ID	Correlation Name	SQL statements issued (stmt)	Total CP time (hr)
BU101106	COLLBUA1	BU101106	DP1	DP1	SBU2103D	451,063,345.00	23.37
AM461120	COLLAMA1	AM461120	DP1	DP1	SAM4610D	316,117,743.00	8.81
DSNTIAUL	DSNTIAUL	DSNTIAUL	DP4	DP4	SAM8220D	297,525,324.00	7.16
SYSLH200	NULLID	DISTSERV	DP1	DP1	ALRBACKUP	211,547,473.00	6.08
IP621120	COLLIPA1	IP515110	DP1	DP1	SIP3441D	63,572,779.00	7.10
IP532120	COLLIPA3	IP515110	DP1	DP1	VIP08973	51,784,000.00	6.01
SYSLH200	NULLID	DISTSERV	DP4	DP4	SQAUTOLRM	6,080,055.00	22.30
SYSLH200	NULLID	DISTSERV	DP1	DP1	db2jcc_appli	5,007,345.00	6.77
SI229010	COLLCIC1	PLANCIC1	DP1	DP1	SIDC	639,919.00	45.15
SYSLH200	NULLID	DISTSERV	DP4	DP4	OPTMRUNNERLR	247,940.00	14.35
SYSLH200	CONNMBU001P	DISTSERV	DP1	DP1	db2jcc_appli	117,842.00	6.27
ASNQAPAG	ASNQAPPLY	ASNQAPP	DP1	DP1	D2P1ASIQ	27,532.00	21.88
SYSSH200	CONNCVS001L	DISTSERV	DP1	DP1	CSPServer	23,246.00	8.42
ASNQBRWZ	ASNQAPPLY	ASNQAPP	DP1	DP1	D2P1ASIQ	17,300.00	10.48
SYSLH200	CONNMBU003P	DISTSERV	DP1	DP1	db2jcc_appli	17,095.00	9.09
ASNQAPAG	ASNQAPPLY	ASNQAPP	DP1	DP1	D2P1ASIQ	16,873.00	12.79

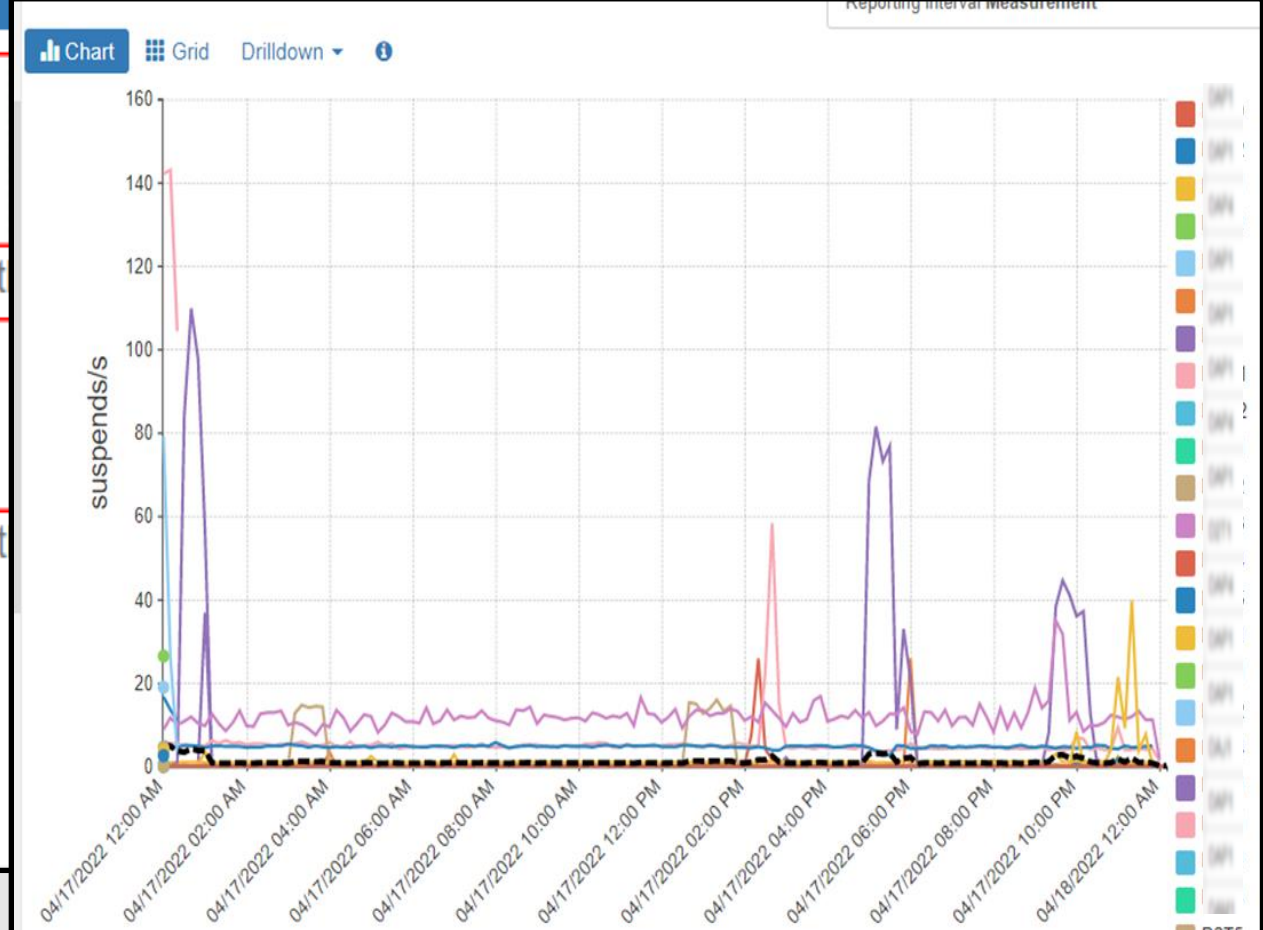
«  
4  
»  
COLLECTED

# Intellimagic – Health Checks

IntelliMagic Vision     

Navigation « Previews report set DB2

Data Sharing Group	Successful Rollback Requests	SSAM End of Tasks	SSAM End of Memory	Queued Create Thread Requests	Abort Requests Sent	Abort Requests Received	Columns with Invalid Select (Rebind needed)	Max Allowable Storage Usage Limit Exceeded
DSND2D1	■	■	■	■	■	■	■	■
DSND2D2	❗	⚠	■	■	■	■	■	■
DSND2J1	■	■	■	■	■	■	■	■
DSND2J2	■	■	■	■	■	■	■	■
DSND2M1	■	❗	■	■	■	■	■	■
DSND2M2	❗	❗	■	■	■	■	❗	■
DSND2M3	■	❗	■	■	■	■	■	■
DSND2M4	■	■	■	■	■	■	■	■
DSND2P1	■	■	■	■	■	■	■	■
DSND2P3	❗	❗	■	■	■	■	■	■
DSND2P4	■	■	■	■	■	■	■	■



# Monitoring Q-Replication:

1. We monitor critical conditions using ASNMON
2. Batch jobs to monitor latency for each schema - CAPTURE/APPLY
3. We have weekly jobs showing any Q-apply exceptions by schema
4. AO alerts on certain errors like long running unit of work in progress, capture/apply taking dumps, etc...

ASN1096W

Page\_DB2\_DBA\_Oncall (All)

ASN0197W

Page\_DB2\_DBA\_Level1\_Oncall (All)

ASN0575E

Page\_DB2\_DBA\_Level1\_Oncall (PROD and C...)

Page\_DB2\_DBA\_Oncall (HA)

ASN7017I

Page\_DB2\_DBA\_Oncall (C... Only)

ASN7550E

Page\_DB2\_DBA\_Level1\_Oncall (PROD)

Page\_DB2\_DBA\_Oncall (HA/C...)

ASN7551E

Page\_DB2\_DBA\_Level1\_Oncall (PROD)

Page\_DB2\_DBA\_ONCALL (HA/C...)

ASN7553E

Page\_DB2\_DBA\_Level1\_Oncall (PROD)

Page\_DB2\_DBA\_Oncall (HA/C...)

ASN8998I

Page\_DB2\_DBA\_Level1\_Oncall (PROD/HA Only)

# Monitoring Q-Replication:

Define parameters to monitor Q-Rep

Table Name

```
-----  
ASN.IBMSNAP_ALERTS  
ASN.IBMSNAP_APPPARMS  
ASN.IBMSNAP_COMPENSATE  
ASN.IBMSNAP_CONDITIONS  
ASN.IBMSNAP_CONTACTGRP  
ASN.IBMSNAP_CONTACTS  
ASN.IBMSNAP_GROUPS  
ASN.IBMSNAP_MONENQ  
ASN.IBMSNAP_MONPARMS  
ASN.IBMSNAP_MONSERVERS  
ASN.IBMSNAP_MONTRACE  
ASN.IBMSNAP_MONTRAIL  
ASN.IBMSNAP_SUBS_COLS  
ASN.IBMSNAP_SUBS_MEMBR  
ASN.IBMSNAP_SUBS_STMTS  
ASN.IBMSNAP_SUSPENDS  
ASN.IBMSNAP_TEMPLATES
```



# Monitoring Q-Replication: ASNMON Alerts

The image displays several overlapping Outlook email windows, each showing an alert from 'ASN5134I MONITOR'. The alerts are technical in nature, reporting on Q-Replication exceptions. Key details visible in the alerts include:

- Alert 1 (Leftmost):** Reports an exception where latency exceeds the threshold. The schema is SIQ. The receive queue is SIQ. The reason code is NOTFOUND. The SQLCODE is 100.
- Alert 2 (Middle):** Reports an exception where latency exceeds the threshold. The schema is GIQ. The receive queue is IBMQREP\_P1CSIQ\_BI\_C1ASIQ\_RECQ11. The reason code is CHECKFAILED. The SQLCODE is 100. The SQLSTATE is 02000. The SQLERRMC is \*.
- Alert 3 (Rightmost):** Reports an exception where latency exceeds the threshold. The schema is SIQ. The receive queue is IBMQREP\_P1CSIQ\_BI\_C1ASIQ\_RECQ11. The reason code is CHECKFAILED. The SQLCODE is 100. The SQLSTATE is 02000. The SQLERRMC is \*.

The email windows also show standard Outlook interface elements such as the 'File', 'Message', and 'Help' menus, and the 'Mastercard Tools' ribbon. The 'To' field in each email is redacted with a grey box.



# CDC Replication: Change Data Capture

IBM InfoSphere Data Replication Management Console

File Edit Subscription Mapping View Help

Monitoring Configuration Access Manager

Subscriptions Performance

Monitor Performance

Enter search...

Subscription	State	Latency	Source	Target
Default Project				
P11MPIDBZ	Mirror Continuous	Normal	P11MPIDBZ	D2P1
P11STLSAMMF	Mirror Continuous	Normal	PRDSAMSTL	D2P1
P11DB2ORA	Mirror Continuous	Normal	D2P1	P11MPSORACLE
P11KSCSA	Unknown	Normal	Unknown	D2P1
M11MFORA	Mirror Continuous	Normal	D2M1	MTFMPSORA
M11SAMMF	Mirror Continuous	Normal	MTFSAM	D2M1

PRDSAMSTL → P11STLSAMMF → D2P1

Collect Statistics

**Latency**

Current latency: 0:00:02

**Activity - Mirroring**

258,500

**Current Replication Events**

Error	0
Warning	46
Information	1571

Type	Message	Event ID	Object	Tu
Error	CHC9500E TCP/IP recvmsg("HDR") service call has failed. The returned errno is ECONNRESET for v...	9500	D2M1	Apr 27,
Error	CHC9500E TCP/IP recvmsg("HDR") service call has failed. The returned errno is ECONNRESET for v...	9500	D2M1	Apr 27,
Error	CHC9500E TCP/IP recvmsg("HDR") service call has failed. The returned errno is ECONNRESET for v...	9500	D2M1	Apr 27,
Information	CHC6404I Communications session open to remote sy [REDACTED] session slot 1	6404	D2M1	Apr 26,

cdcadm | 7 of 8 connected | 6

# CDC Replication: Monitoring Messages

The image shows two overlapping windows from Oracle Enterprise Manager. The background window is titled "Notifications - P11STLSAMMF" and shows the configuration for a source datastore named "PRDSAMSTL". It features a "Notification Categories" table and "Notification Settings" for the "Fatal" category under the "Scrape/Refresh" group. The foreground window is titled "Notifications - D2M1" and shows the configuration for a target datastore. It also features a "Notification Categories" list and "Notification Settings" for the "Fatal" category under the "Describe Transmitter" group. Both windows include "Filter Messages..." and "Copy Settings..." buttons.

**Notifications - P11STLSAMMF**

Source Datastore: PRDSAMSTL

Notification Categories:

Category	Use Default
Scrape/Refresh	
Fatal	<input checked="" type="checkbox"/>
Error	<input checked="" type="checkbox"/>
Information	<input checked="" type="checkbox"/>
Status	<input checked="" type="checkbox"/>
Operational	<input checked="" type="checkbox"/>
Communications	
Fatal	<input checked="" type="checkbox"/>
Error	<input checked="" type="checkbox"/>
Information	<input checked="" type="checkbox"/>
Status	<input checked="" type="checkbox"/>
Operational	<input checked="" type="checkbox"/>
Environment	
Fatal	<input checked="" type="checkbox"/>
Error	<input checked="" type="checkbox"/>
Information	<input checked="" type="checkbox"/>
Status	<input checked="" type="checkbox"/>
Operational	<input checked="" type="checkbox"/>
Journal/Log Maintenance	
Fatal	<input checked="" type="checkbox"/>
Error	<input checked="" type="checkbox"/>

Notification Settings:

**Source > Scrape/Refresh > Fatal**

INTERNET MAIL

SMTP Mail Host: [ ]

Alert Account: [ ]

Sender Mail Address: [ ]

Sender Mail Password: [ ]

USER HANDLER

Java Class Name: [ ]

**Notifications - D2M1**

Specify notification settings for this datastore. By default, these settings apply to all subscriptions that use this datastore.

Notification Categories:

- Describe Transmitter
  - Fatal
  - Error
  - Informational
  - Status
  - Operational
- Refresh
  - Fatal
  - Error
  - Informational
  - Status
  - Operational
- Log Scraper
  - Fatal
  - Error
  - Informational
  - Status
  - Operational
- Communications
  - Fatal
  - Error
  - Informational
  - Status

Notification Settings:

**Source > Describe Transmitter > Fatal**

CHCPRINT

SYSLOG

User Exit

Module Name: [ ]

Filter Messages... Copy Settings...

Close

# CDC Replication: Email examples

IBM InfoSphere Data Replication Notification : I11MFOR

ITFM  
To [redacted]

Retention Policy Default Inbox (1 year) Expires 4/21/2023

Event ID: 315  
Publisher(S)/Subscriber(T): T  
System ID: I11MFOR  
Event Text: Failed to add a row to table I11.MPS\_BUSN\_SVC\_ICHG [1443770] . Database operation failed.  
A SQL exception has occurred. The SQL error code is '1'. The SQL message is:  
[CDC][Oracle JDBC Driver][Oracle]ORA-00001: unique constraint violated

IBM InfoSphere Data Replication Notification :

[redacted]  
To [redacted]

Retention Policy Default Inbox (1 year) Expires 4/12/2023 7:57 AM

Event ID: 6645  
Publisher(S)/Subscriber(T): S  
System ID:  
Event Text: Exception occurred during replication. Exception at continue reading  
IBM InfoSphere Data Replication identified that no data was returned from the database for the query "SELECT REFERENCE INDEX, FILE NUMBER, FILE INFORMATION FROM TABLE\_ALIAS WHERE ORIGIN\_STATUS = 'I' AND SOURCE\_INDEX = 'I' AND LOWER(NAME) = LOWER('I')" with parameters "I, I11MFOR, I SOURCE\_111MFOR\_111MFOR\_111MFOR.dbf". The possible reason includes having the files "I11MFOR\_111MFOR\_111MFOR\_111MFOR.dbf" removed from the system. IBM InfoSphere Data Replication will have to be able to locate data in the metadata for the query "SELECT REFERENCE INDEX, FILE NUMBER, FILE INFORMATION FROM TABLE\_ALIAS WHERE ORIGIN\_STATUS = 'I' AND SOURCE\_INDEX = 'I' AND LOWER(NAME) = LOWER('I') in order to continue.

# Failed Jobs Alert Examples

JOB SDB6515D JOB11545 - Message...

File Message Help Mastercard Tools Tell me what you want to do

JOB SDB6515D JOB11545

AUTC [REDACTED]  
To DB2-SUI [REDACTED]

Retention Policy Default One Year Delete (1 year)

We removed extra line breaks from this message.

Job not executed due to DBA [REDACTED] required this is information [REDACTED]

Do not reply to this message

SDB7537W Abended - Message (Pl...

File Message Help Mastercard Tools Tell me what you want to do

SDB7537W Abended

AUT [REDACTED] OM  
To EMMFA [REDACTED]

Retention Policy Default One Year Delete (1 year)

We removed extra line breaks from this message.

IEF450I SDB7537W S20ABND - ABEND=S [REDACTED]  
Message from AutoOPERATOR

STAND-IN REPL MONITORING JOB S...

File Message Help Mastercard Tools Tell me what you want to do

STAND-IN REPL MONITORING JOB SDB7223D ABENDED

AUT [REDACTED] COM  
To EMMFA [REDACTED] ALL.DB2 [REDACTED] Sun 4/3

Retention Policy Default One Year Delete (1 year) Expires 4/4/2023

JOB=SDB7223D  
DATE=22093 - 20220403  
TIME=02.00.38  
JOBNUM=41600  
IEF450I SDB7223D S055ABND - ABEND=S000 U4095 REASON=00000000  
TIME=02.00.38

# Home Grown

- We all have home grown software
- Each company is unique with different requirements
- Do you build your own or do you purchase it?
  - Can you support home grown, after the inventors leave/retire?
  - Can you justify the purchase?
  - Is the software even available?
- TSO Panels to monitor Q-Rep
- TSO Panels to monitor access paths
- TSO Panels to monitor IDAA
- Batch interface to handle binds throughout the company



No one is perfect and there will be things that are new that could cause an outage...



“Never waste a good outage” ....John Campbell

Learn from it and grow forward and get better.

# Thank You

**Speaker:** Tom Glaser

**Company:** Mastercard

**Email Address:** [tom.glaser@mastercard.com](mailto:tom.glaser@mastercard.com)

**Session Code:** B07

*Please fill out your session evaluation before leaving!*

# **IBM Db2 Messages and Codes**

Message	Description	Email/Paged?
DSNB204I	OPEN OF DATA SET FAILED	paged
DSNB217I	ONLINE RECOVERY FOR AN INCONSISTENT PAGE WAS UNSUCCESSFUL	paged
DSNB224I	DSNB224I csect-name- BUFFER MANAGER I/O ERROR DURING function, DSNAME = data-set-name , PAGE NUMBER=X'page-number', MM ERROR FLAG=X'aa', CSW STATUS=X'bbbb', SENSE BYTES=X'cccc', SEEK ADDRESS=X'ddddddddddddddd'	skip
DSNB225I	DSNB225I csect-name- BUFFER MANAGER I/O ERROR DURING function, DSNAME = data-set-name , MM ERROR CODES=X'aaaaaaaa' DB2 REASON CODE=X'reason-code'	skip
DSNB228I	csect-name GROUP BUFFER POOL gbpname CANNOT BE ACCESSED FOR function	paged
DSNB235A	GRS RESOURCE SHORTAGE DETECTED BY DB2	email
DSNB250E	A PAGE RANGE WAS ADDED TO THE LOGICAL PAGE LIST	email
DSNB301E	GROUP BUFFER POOL gbp-name CANNOT BE CONNECTED DB2 REASON CODE	email
DSNB303E	A LOSS OF CONNECTIVITY WAS DETECTED TO GROUP BUFFER POOL	paged
DSNB304I	GROUP BUFFER POOL gbpname WAS SET TO 'DAMAGE ASSESSMENT PENDING' STATUS	email
DSNB311I	DBNAME database-name SPACENAME space-name INSTANCE instance-number PARTITION partition-number HAS PAGES IN THE LOGICAL PAGE LIST	email
DSNB312I	DBNAME database-name SPACENAME space-name INSTANCE instance-number PARTITION partition-number HAS PAGES IN THE LOGICAL PAGE LIST	email
DSNB313I	GROUP BUFFER POOL gbpname TO BE DISCONNECTED REASON=reason LOSSCONN PERCENTAGE=percentage	email
DSNB314I	DAMAGE ASSESSMENT TO BE TRIGGERED FOR GROUP BUFFER POOL gbpname REASON=reason	email
DSNB319A	THERE IS A SHORTAGE OF SPACE IN GROUP BUFFER POOL	email
DSNB325A	THERE IS A CRITICAL SHORTAGE OF SPACE IN GROUP BUFFER POOL	email
DSNB327I	GROUP BUFFER POOL gbp-name HAS ADEQUATE FREE SPAC	skip
DSNB355I	GROUP BUFFER POOL gbpname RECOVERY LRSN VALUES MIGHT CAUSE A DELAY IN GRECP RECOVERY. PAGE LEVEL	skip
DSNB356I	FOR GROUP BUFFER POOL gbp-name , THE CONDITION THAT CAUSED THE PREVIOUS DSNB355I MESSAGE DOES NOT CURRENTLY EXIST	skip

Message	Description	Email/Paged?
DSNB357I	AUTOMATIC LPL RECOVERY SUPPRESSED FOR OBJECT TYPE object-type OBJECT	email
DSNB741I	DUPLEXING COULD NOT BE ESTABLISHED FOR GROUP BUFFER POOL gbpname	email
DSNI005I	LPL OR GRECP RECOVERY CANNOT BE DONE FOR function-name - ID = function-id	paged
DSNI010I	BROKEN PAGE ACCESSED TYPE type NAME name MODNAME csect-name CONN-ID id	paged
DSNI012I	PAGE LOGICALLY BROKEN	skip
DSNI013I	POTENTIALLY INCONSISTENT DATA REASON reason ERQUAL erqual TYPE type	skip
DSNI014I	DATA IN USE DURING ABEND REASON 00C90101 ERQUAL error-qualifier TYPE	skip
DSNI031I	LOCK ESCALATION HAS OCCURRED FOR RESOURCE NAME = resource-name, LOCK	skip
DSNI033I	PAGE SET dbname.ppname PART part-number IS MARKED REFP AND status ON BEHALF UR	email
DSNI052I	AN AGENT HAS EXCEEDED THE THRESHOLD FOR STORAGE USE IN WORK FILE DATABASE	email; feb 2021
DSNI053I	THE DB2 SUBSYSTEM HAS EXCEEDED THE THRESHOLD FOR STORAGE USE IN WORK FILE DATABASE	email; feb 2021
DSNJ004I	ACTIVE LOG COPY n INACTIVE, LOG IN SINGLE MODE	skip
DSNJ008E	nn OF mm ACTIVE LOGS ARE FULL	paged
DSNJ016E	WARNING - SYSTEM CHECKPOINT PROCESSOR MAY HAVE STALLED	paged
DSNJ017E	WARNING - OFFLOAD TASK HAS BEEN ACTIVE SINCE date-time	email
DSNJ030I	RBA RANGE start-rba TO end-rba NOT AVAILABLE IN ACTIVE LOG DATA SETS	skip
DSNJ031I	WARNING - UNCOMMITTED UR HAS WRITTEN number LOG RECORDS	skip
DSNJ032I	APPROACHING END OF THE LOG RBA RANGE	skip
DSNJ033E	THE LOG RBA MUST BE RESET BEFORE THE END OF THE LOG RBA RANGE IS REACHED	email



Message	Description	Email/Paged?
DSNJ034I	ACTION MUST BE TAKEN BEFORE THE END OF THE LRSN RANGE IS REACHED	email
DSNJ035E	ACTION MUST BE TAKEN BEFORE THE END OF THE LRSN RANGE IS REACHED	email
DSNJ100I	ERROR OPENING BSDSn DSNAME=..., ERROR STATUS=eeii	paged
DSNJ102I	LOG RBA CONTENT OF LOG DATA SET DSNAME=..., STARTRBA=	paged
DSNJ103I	LOG ALLOCATION ERROR DSNAME=dataset-name, ERROR STATUS=status-indicator	paged
DSNJ104I	RECEIVED ERROR STATUS nnn FROM macro-name FOR DSNAME dsname	paged
DSNJ105I	LOG WRITE ERROR DSNAME=dataset-name LOGRBA=rba-value, ERROR STATUS	paged
DSNJ106I	LOG READ ERROR DSNAME=dsname-value, LOGRBA=log-rba-value	paged
DSNJ107I	READ ERROR ON BSDS DSNAME=name ERROR STATUS=status	
DSNJ108I	WRITE ERROR ON BSDS DSNAME=... ERROR STATUS	paged
DSNJ110E	LAST COPYn ACTIVE LOG DATA SET IS nnn PERCENT FULL	skip
DSNJ111E	OUT OF SPACE IN ACTIVE LOG DATA SETS	email
DSNJ113E	log-type log-value NOT IN ANY ACTIVE OR ARCHIVE LOG DATA SET	email
DSNJ114I	ERROR ON ARCHIVE DATA SET, OFFLOAD CONTINUING WITH ONLY ONE ARCHIVE DATA SET BEING GENERATED	skip
DSNJ115I	OFFLOAD FAILED, COULD NOT ALLOCATE AN ARCHIVE DATA SET	skip
DSNJ119I	BOOTSTRAP ACCESS INITIALIZATION PROCESSING FAILED	paged
DSNJ120I	DUAL BSDS DATA SETS HAVE UNEQUAL TIMESTAMPS, BSDS1 SYSTEM=timestamp	paged
DSNJ122I	DUAL BSDS DATA SETS ARE OUT OF SYNCHRONIZATION	paged
DSNJ124I	OFFLOAD OF ACTIVE LOG SUSPENDED FROM RBA xxxxxx TO RBA xxxxxx DUE TO I/O ERROR	paged

Message	Description	Email/Paged?
DSNJ125I	ERROR DUMPING BSDS, OFFLOAD CONTINUING WITHOUT PRODUCING THE BSDS DUMP	skip
DSNJ126I	BSDS ERROR FORCED SINGLE BSDS MODE	paged
DSNJ128I	LOG OFFLOAD TASK FAILED FOR ACTIVE LOG nnnnn	email
DSNL007I	DDF IS ABNORMALLY TERMINATING	paged
DSNL008I	DDF ABNORMAL TERMINATION COMPLETE	skip
DSNL030I	DDF PROCESSING FAILURE FOR LUWID=luw-id REASON=reason-code	skip
DSNL074I	NUMBER OF CLIENT CONNECTIONS HAS EXCEEDED exceeded-percent % OF THE MAXIMUM ALLOWED	email
DSNL405I	THREAD luwid=token PLACED IN INDOUBT STATE BECAUSE OF COMMUNICATION FAILURE	Paged
DSNL406I	THREAD luwid=token AT PARTICIPANT location MAY BE INDOUBT BECAUSE OF A COMMUNICATION FAILURE. DB2 COMMITTED THE THREAD. INFORMATION RECORDED	Paged
DSNL501I	CNOS PROCESSING FAILED FOR LU luname AND MODE modename	email
DSNL700I	CDB RESOURCE UNAVAILABLE, DEFAULTS MAY BE USED REASON=reason	email
DSNP001I	data-set-name IS WITHIN n BYTES OF AVAILABLE SPACE	skip
DSNP002I	DEFINE FAILED FOR data-set-name RC=reason-code CONNECTION-ID=connection-id	skip
DSNP007I	EXTEND FAILED FOR data-set-name	
DSNP011I	MEDIA MANAGER SERVICES ERROR FOR data-set-nam	skip
DSNP012I	ERROR IN ICF CATALOG LOCATE FUNCTION FOR data-set-name	skip
DSNP031I	CURRENT SPACE HAS nn EXTENTS FOR data-set-name	skip
DSNR035I	WARNING - UNCOMMITTED UR AFTER number CHECKPOINTS - CORRELATION NAME	skip
DSNR055I	RESTART SUSPENDED SINCE time IN module offset maint-lvl	skip

Message	Description	Email/Paged?
DSNR056I	RESTART SUSPENDED ON IRLM REQUEST. ONE HOLDER OF RESOURCE IS ss-name	skip
DSNS001I	SUBSYSTEM HAS EXCEEDED THE USER SPECIFIED REAL STORAGE USAGE THRESHOLD	email
DSNS002I	THE VALUE SPECIFIED FOR SUBSYSTEM PARAMETER REALSTORAGE_MAX IS EQUAL OR GREATER THAN AVAILABLE REAL STORAGE	skip
DSNS003I	SUBSYSTEM WARNING THRESHOLD FOR REAL STORAGE HAS BEEN DETECTED	skip
DSNS004I	SUBSYSTEM THRESHOLD FOR REAL STORAGE RELIEVED	skip
DSNT318I	PLAN=plan-name WITH CORRELATION-ID=correlation-id CONNECTION-ID=connection-id	skip
DSNT500I	RESOURCE UNAVAILABLE REASON reason-code TYPE resource-type NAME resource-name	skip
DSNT772I	Fail the connection request and issue the console message; issue every 5 min	email
DSNT774I	Fail the connection request and issue the console message	email
DSNU086I	I/O ERRORS ON SPACE= dddddddd. DATA SET NUMBER= nnn. I/O ERROR PAGE	email
DSNV086E	DB2 ABNORMAL TERMINATION REASON=reason-code	skip
DSNV508I	DSNVMON - DB2 DBM1 BELOW THE BAR STORAGE alert-level	email
DSNV509I	DSNVMON - DB2 monitor-name INTERNAL MONITOR STOPPING	email
DSNV516I	BEGINNING STORAGE CONTRACTION MODE	skip
DSNV517I	ENDING STORAGE CONTRACTION MODE	skip
DSNV522I	BEGIN DISPLAY OF OLDEST LATCH WAITERS CAUSING A BOOST	skip
DSNX881I	An accelerator server returned an alert message. message	email
DSNX906I	PROCEDURE OR FUNCTION name TERMINATED ABNORMALLY. THE PROCEDURE HAS BEEN STOPPED	skip
DSN7501A	SCA STRUCTURE sca-structure-name CONNECTIVITY FAILURE	paged
DSN7502I	SCA STRUCTURE sca-structure-name FAILURE, ATTEMPT TO REBUILD IS IN PROGRESS	paged

Message	Description	Email/Paged?
<b>DSN7505A</b>	THERE IS A SHORTAGE OF FREE STORAGE IN SCA STRUCTURE sca-structure-name	paged
<b>DSN7506A</b>	CONNECT TO THE SCA STRUCTURE sca-structure-name FAILED. MVS IXLCONN	skip
<b>DSN7512A</b>	THERE IS A CRITICAL SHORTAGE OF FREE STORAGE IN SCA STRUCTURE	email
<b>DXR122E</b>	ABEND UNDER IRLM TCB/SRB IN MODULE xxxxxxxx ABEND CODE zzzz	paged
<b>DXR142E</b>	THE LOCK STRUCTURE wwwwwwww IS zzz% IN USE	skip
<b>DXR143I</b>	REBUILDING LOCK STRUCTURE BECAUSE IT HAS FAILED OR AN IRLM LOST CONNECTION TO IT	paged
<b>DXR145I</b>	REBUILDING LOCK STRUCTURE AT OPERATORS REQUEST	email
<b>DXR167E</b>	IRLM HAS DETECTED A DELAY IN COMPLETION OF vvvvvvvv PROCESS	email
<b>DXR168I</b>	DELAYED PROCESSES NO LONGER DETECTED	email
<b>DXR169I</b>	THE STORAGE SHORTAGE FOR LOCK STRUCTURE	email
<b>DXR170I</b>	THE LOCK STRUCTURE wwwwwwww IS zz% IN USE	skip
<b>DXR175E</b>	IRLM STORAGE SHORTAGE RELIEVED	skip
<b>DXR186I</b>	WAITER COUNT IS nnnnnnn FOR RESOURCE res-name HELD BY WU wu-addr	skip
<b>DXR187I</b>	WAITERS EXIST DURING DEADLOCK DETECTION CYCLE	skip
<b>IXL158I</b>	PATH chpid IS NOW NOT-OPERATIONAL TO CUID: cuid COUPLING FACILITY	paged

# **IBM Db2 Reason Codes for -904**



Reason Code	Description	Alert
00C200EA	Db2 is unable to perform the drain function on an object	email
00C200E0	A table space or index space cannot be accessed because Db2 is unable to create the referenced buffer pool	Paged
00C200E8	The buffer pool cannot be created because of insufficient virtual storage	Paged
00C20110	Db2 cannot access object because the highest formatted page is higher than that derived from the VSAM high-used RBA.	Paged
00C20206	An attempt was made to access a page which is currently in the logical page list	email
00C20208	The user attempted to access a group-buffer-pool-dependent page set or partition. However, the Db2 member was unable to connect to the group buffer pool because there was not enough hardware system area.	email
00C20252	Db2 is unable to obtain a physical lock	email
00C900A0	Object is in recover pending status	Paged
00C900A3	Object is in check pending status	Paged
00C90080	Object is readonly; an update is trying to take place	email
00C90081	An attempt was made to allocate a resource that is stopped for all access	email
00C90082	Db2 utility is executing against object	email
00C90083	Utility is executing, no updates permitted	email
00C90084	Our of temp space	email
00C90085	The limit of 253 extends for a temporary file has been reached	email
00C90086	In utility status	email
00C90096	The page or row lock on the page caused the total number of page or row locks concurrently held to reach the installation maximum number of page or row locks (NUMLKUS) allowed for a single agent in the system.	email
00C90305	Limit reached on thread for sort work-space	email
00D50001	You have exceeded the amount of space allowed for processing XML values.	email
00D70025	Could not create idcams file	Paged
00E7000E	IDAA Resource is unavailable	email
00E7000F	Deadlock condition	email

# **BMC Monitors Messages and Codes**

# BMC Mainview for Db2 (monitors):

Monitor	Title	Message #	Being used?
#PRLF	I/O PRLI-FALL SEQ	DW0360W	Email
#PRLS	SYS PRLI QUERY FAILURE	DW0390W	Online Only
#TMO	TIMED OUT WAITING LOCK	DW0100W	Email
@ELAP	AVG ELAPSED TIME - FOR ID	DW0120W	Email
@ELGL	AVG WAIT-GLBL LOCK	DW0480W	Online Only
@ELGM	AVG WAIT-NTFY MSG	DW0470W	Online Only
@ELLK	AVG WAIT ON LOCKS	DW0170W	Email
@ELPL	AVG WAIT ON LATCH	DW0280W	Online Only
@ELSP	ELAP WAIT-SPROC TCB	DW0420W	Email
ARCDL	ARC READ DELAYED	DS1040W	Online Only
CNVLM	MAX CONV ZPRM LIMIT	DS1160W	Online Only
CSAP	CSA UTILIZATION %	DS0550W	Both
DBATQ	MAXDBAT QUEUED	DS1660W	Paged
DBTQD	DB THREAD QUEUED	DS0650W	Paged
DBTUT	DBAT MAXDBAT	DS1680W	Paged
DB2DP	DEMAND PAGING	DS0530W	Online Only
DDFCQ	DDF CONV QUEUED	DS0760W	Online Only
DDFT1	CONN TERM MAX TYPE1	DS1650W	Online Only

## BMC Mainview for Db2 (monitors):

Monitor	Title	Message #	Being used?
ECSAP	ECSA UTILIZATION %	DS0560W	Both
EDMUT	EDM POOL IN USE%	DS0300W	Both
EOMFL	EOM FAILURES	DS0160W	Online Only
EOTFL	EOT FAILURES	DS0170W	Online Only
GFAIL	NO CF STORAGE	DS1560W	Online Only
GNOEN	NO ENGINE AVAILABLE	DS1450W	Online Only
G2WRF	NO WRITE CF STORAGE	DS1640W	Online Only
LOGWT	LOG BUFF WAIT	DS0470W	Both
PRLSF	SYSPLEX QUERY FAILURE	DS0830W	Online Only
RIDUT	RID POOL IN USE%	DS0620W	Paged
RMTUT	REMOTE THR CONDBAT%	DS1210W	Paged
RTO	RECALL TIMEOUTS	DS0600W	Online Only
RWP	READS WITH PAGING	DS0340W	Online Only
THDID	INDOUBT THREADS	DS0100W	Online Only
THDQD	QUEUED THREADS	DS0090W	Online Only
THDUT	ACT THRD CTHREAD%	DS0070W	Online Only
THDWT	CREATE THREAD WAIT	DS0120W	Online Only
USLOK	USER SUSPENDS	DS0210W	Online Only
WKNBF	WORKFILE NO BUFFER	DS1140W	Online Only

# **Segus Software Messages and Codes**



# Segus Software: Data Set Errors (ondemand)

Message	Remarks	Alert?
O2RTSU04 - 12W	for LPS threshold warnings	email
O2RTSU04 - 13W	for LPS threshold critical warnings	paged
O2RTSU04 - 14W	for partitioned LPS threshold warnings	email
O2RTSU04 - 15W	for partitioned LPS threshold critical warnings	paged
O2RTSU04 - 16W	for partitioned by growth LPS threshold warnings	email
O2RTSU04 - 17W	for partitioned by growth LPS threshold critical warnings	paged
O2RTS000 - 20W	Monitor Sequences	email
Note: Messages are written to SYSLOG, not MSTR		

# **Db2 Profiles for monitoring DDF**

# Db2 Profiles:

- Insert record into SYSIBM.DSN\_PROFILE\_TABLE

```
----- Browse DB2 Table -----  
Command ==>   
SYSIBM.DSN_PROFILE_TABLE (4/5)  
NAME          TYPE          LENGTH NULL VALUE  
AUTHID        VARCHAR       128 N  
PLANNAME      VARCHAR       24 Y  
COLLID        VARCHAR       128 Y  
PKGNAME       VARCHAR       128 Y  
LOCATION        VARCHAR       254 Y  
  
PROFILEID     INTEGER        4          22  
PROFILE_TIMESTAMP Timestmp      26          2020-11-14-19.02.38.437968  
PROFILE_ENABLED CHAR           1          Y  
GROUP_MEMBER  VARCHAR       24 N  
REMARKS       VARCHAR       762 N      'LIMIT SERVER THREADS FOR MAX 600'
```

# Db2 Profiles:

- Insert record into SYSIBM.DSN\_PROFILE\_ATTRIBUTES

```
----- Browse DB2 Table -----  
Command ==>  
SYSIBM.DSN_PROFILE_ATTRIBUTES (4/8)  
NAME          TYPE          LENGTH NULL VALUE  
PROFILEID     INTEGER        4      22  
KEYWORDS      VARCHAR       128    'MONITOR THREADS'  
ATTRIBUTE1    VARCHAR       1024 N    'EXCEPTION_DIAGLEVEL3'  
  
ATTRIBUTE2    INTEGER        4 N      600  
ATTRIBUTE3    FLOAT          8 Y  
ATTRIBUTE_TIMESTAMP  TIMESTMP      26      2020-11-14-19.07.07.280596  
REMARKS       VARCHAR       762 N    'LIMIT 600 THREADS'
```

# Db2 Profiles:

DSN\_PROFILE\_ATTRIBUTES table:

**ATTRIBUTE1** column specifies how DB2 responds when a threshold is met.

- Action Taken:

- WARNING - A console message is issued at most every five minutes.
- EXCEPTION - If profile threshold is exceeded, DB2 takes action (the connection rejected, or thread queued, or thread canceled).

- Messaging:

- DIAGLEVEL1 (default) with minimal information
- DIAGLEVEL2 includes PROFILEID and reason code

For example: WARNING\_DIAGLEVEL1

**ATTRIBUTE2** column specifies the threshold value

- Number of connections or threads
- Number of seconds for idle threads



## Db2 Profiles:

-STOP PROFILE

-START PROFILE

-DISPLAY PROFILE

```
DSNT753I [REDACTED] DSNT1DSP DISPLAY PROFILE REPORT FOLLOWS:  
          STATUS = ON  
          TIMESTAMP = 2022-04-03-02.43.36.620156  
          PUSHOUTS = 0 OUT OF 10000  
          DISPLAY PROFILE REPORT COMPLETE.  
DSN9022I [REDACTED] DSNT1DSP 'DISPLAY PROFILE' NORMAL COMPLETION  
***
```

# Overhead

- **IBM Query Monitor/TSO:** 60 hours of CPU per month
- **IBM Query Monitor/CAE:** 4 hour of CPU per month
- **Segus Software:** .1 hour of CPU per month
- **Mainview for Db2:** 1475 hours of CPU per month
- **ASNMON (Q-Rep):** 7 hours of CPU per month