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IMS Application Crime Scene – Call the Log Detective

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SHARE in Anaheim 2012

Introduction!

- I have worked at BMC since April, 1997
- Currently manage product support personnel for:
  - MainView for IMS
    - (Online, Offline, DBCTL)
  - IMS System Administration
    - DELTA IMS/DELTA PLUS VIRTUAL TERMINAL
    - EXTENDED TERMINAL ASSIST
    - BMC Log Analyzer for IMS
    - Message Advisor for IMS
    - Energizer for IMS Connect
    - LOCAL COPY PLUS
  - IMS FAST PATH UTILITIES
  - APPLICATION RESTART CONTROL “ARC” (IMS/DB2/VSAM)
  - DATAPACKER/IMS

Agenda

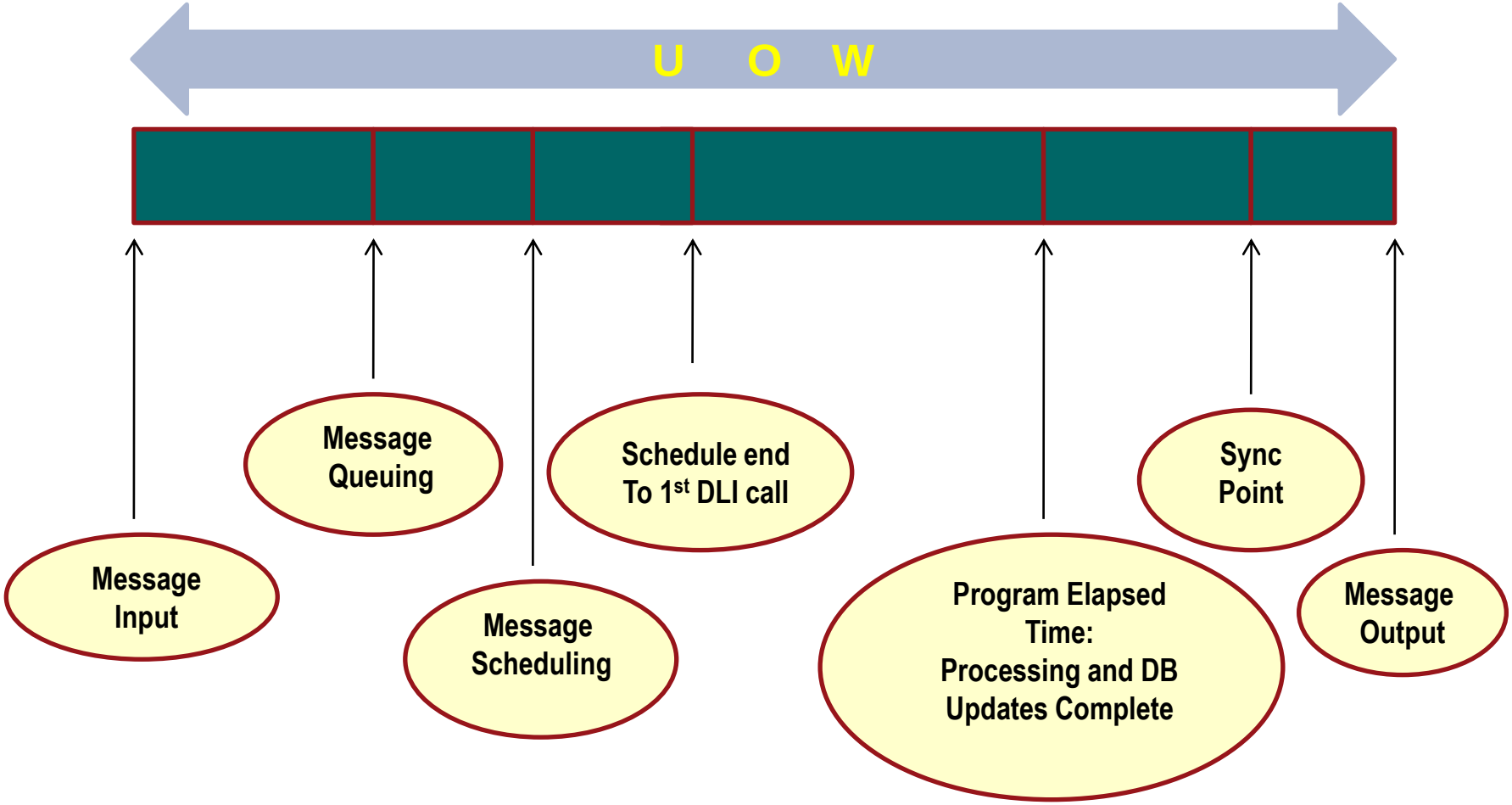
- Overview of Log Analyzer for IMS
  - Why BMC Log Analyzer for IMS?
    - Do I really need GPS?
    - Can't I just find my way through log data on my own?
- How does it work?
- What does it do for me?
  - Business Problem Examples
  - Ability to see the level of detail YOU want
- Questions?

Different technology – A new perspective

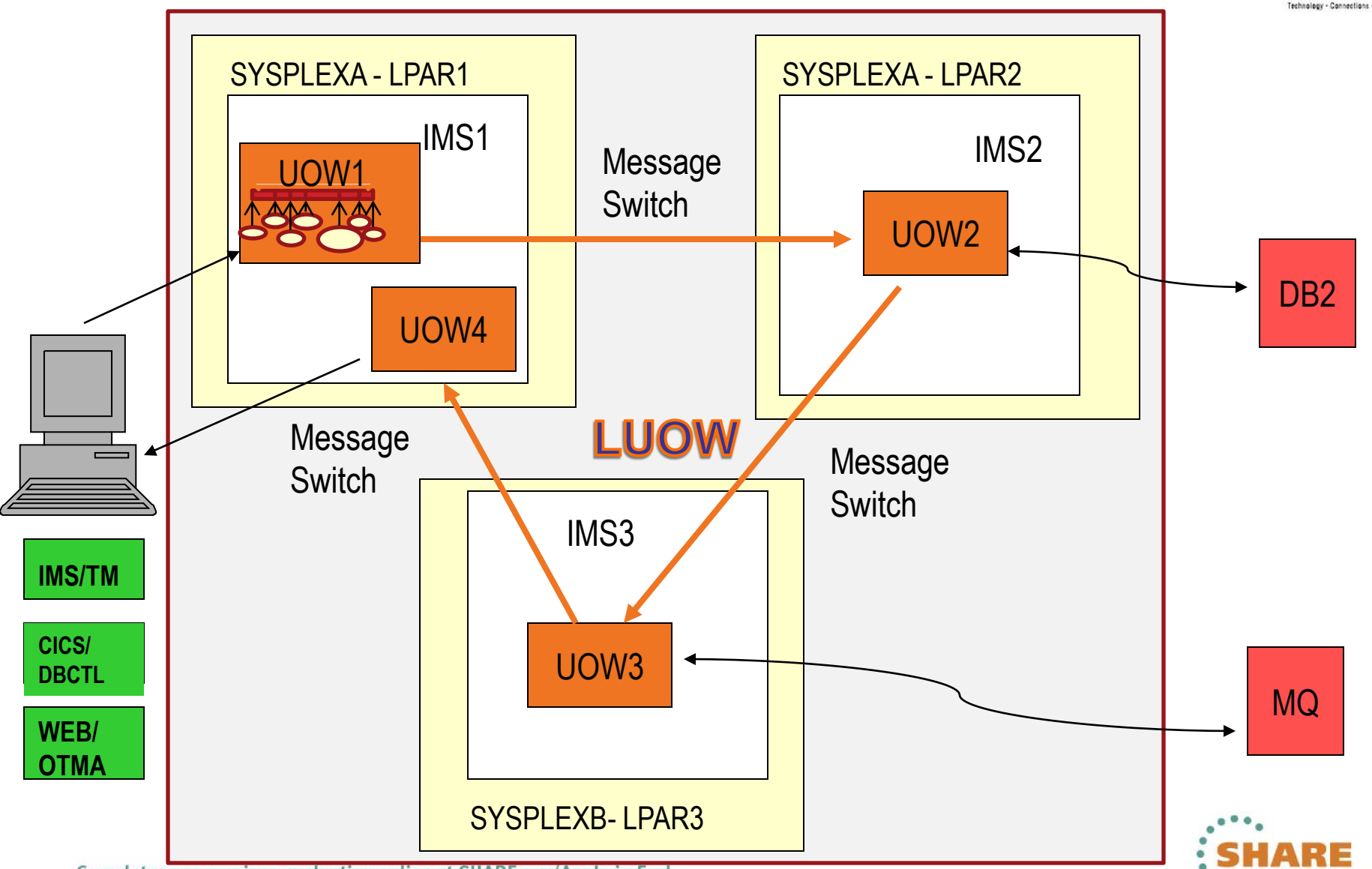
What is Log Analyzer for IMS?

- Easily navigate through your log data
  - IMS / DB2 / IMS Connect / WebSphere for MQ
- Patent pending technology presents log data as transaction work flows
  - Correlates log records into logical units of work (LUOW)
  - Across IMS images
    - MSC
    - Multiple IMSPLEX
- LUI is VERY easy to use. Requires NO up-front setup or customization. Simply install the product, and submit a batch job.
  - View output using batch reports or robust LUI ISPF interface
- Supports IMS 8.1, 9.1, 10.1, 11.1, 12.1
- What is a Logical Unit of Work (LUOW)?
  - First clear up confusion – what is a Unit of Work?

Unit of Work (UOW) Example



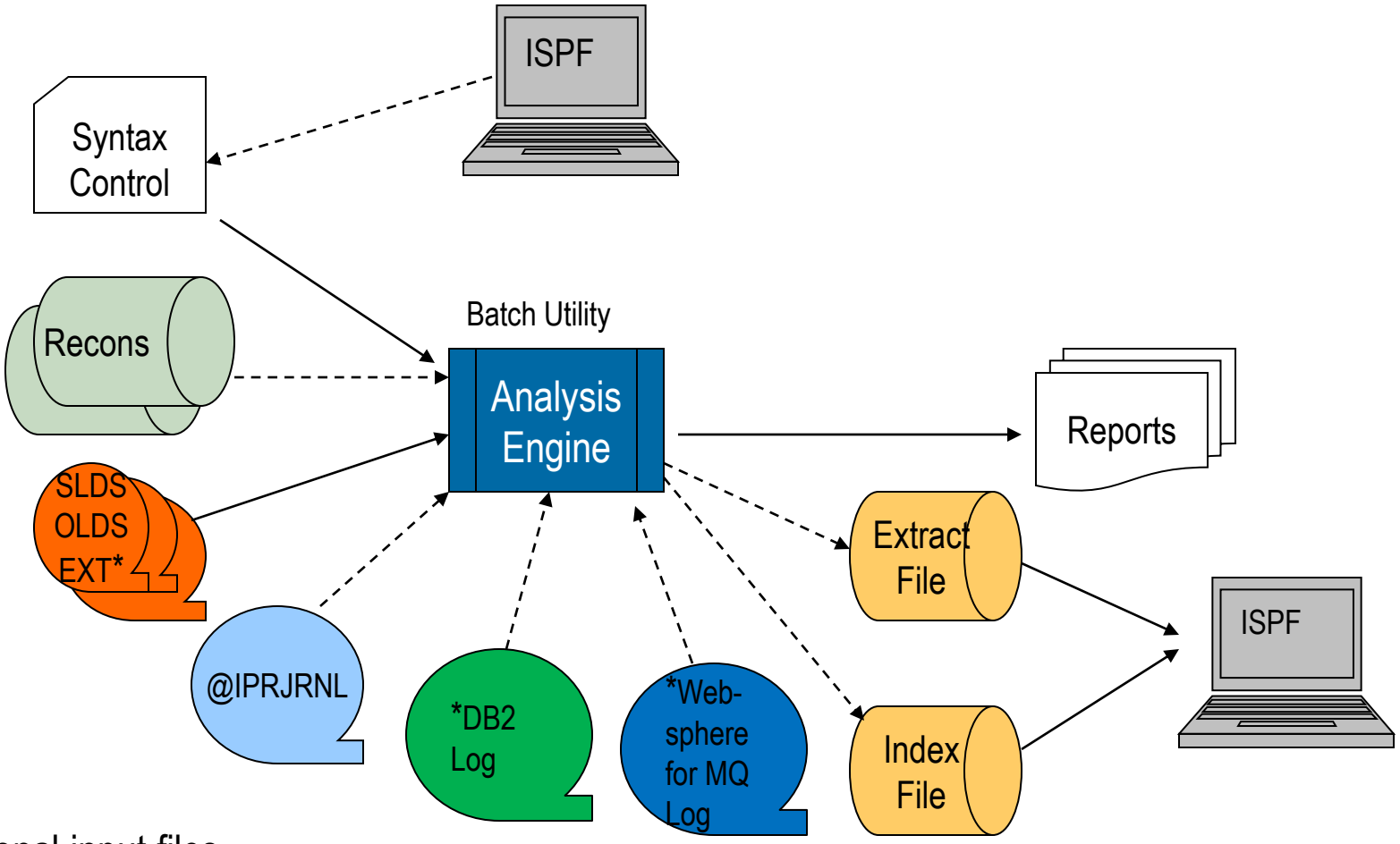
BMC Logical Unit of Work (LUOW) Flow Example



Bringing log records into focus

- Level set: A BMC Software Logical Unit of Work
  - Represents all log records that are related in some manner
    - Can be a transaction, session-related, command, checkpoint-related data, etc.
    - Can span message switches, shared queue systems, or MSC connected systems

How Log Analyzer works – The Picture



*Means optional input files
@IPRJRNL requires Energizer for IMS Connect

How Log Analyzer works – The Words

- Access Log Analyzer via ISPF interface or batch JCL
- Identify selection criteria used for reporting
  - Flexible selection criteria provided
  - Interactive syntax building
- Valid items you can FILTER on:
  - CONTENT – data within an ‘01/03’ message
  - DBD/RDBD/UDBD – Database activity (read-only/update only)
  - PSB / MPR / PST
  - DESTINATION / ORIGIN
  - USERID

How Log Analyzer works – The Words

- Valid items you can FILTER on (continued) :
  - PORT# / CLIENT ID / TPIPE / TMEMBER / LUNAME / TPNAME
  - NODE / LTERM / APPC LTERM
  - TRAN / CICS TRAN
  - OIMS (originating IMS)
  - ETIME - LUOW's that meet specific elapsed time criteria
    - (<, >, =)
  - UOW1 – LUOW's associated with a specific UOW-1

How Log Analyzer works – The words

- Once selections are made, batch job is submitted
  - Optionally, data can be stored in an INDEX file for viewing via ISPF
  - The extract file and index file are a sequential data set and KSDS respectively
    - Retention of the files is customer controlled
- Use ISPF interface to review extracted log data
  - Interactive view of selected log data
    - Slice and dice information for your viewing pleasure
- Batch reports can be requested
  - Many types of reports
    - SLDS/OLDS summary (exactly *'what'* is on this media)
    - LUOW Summary/Detail
    - Audit Report
    - ABENDs
    - DEADLOCKs
    - RBASTATS
    - APPCHECK (Application checkpoint report)

Crime scene #1 – Phone call “My IMS system is slow, but everybody around me isn’t having problems, what’s wrong with my IMS?”

```
  Menu  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                          Main Menu
Command ===> ____________________________________________________________________

Log Analyzer option.  Choose a selection.
1 1. JCL      - Build, view, submit JCL for extraction and analysis
  2. Analyze  - Analyze a report index file

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 F1=Help     F3=Exit     F12=Cancel
```

JCL Menu:

```
 Menu  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                          JCL Menu
Command ===> ____________________________________________________________________

JCL actions.
1 1. Build  - Specify JCL control cards and SYSIN
  2. View   - View generated JCL
  3. Submit - Submit generated JCL









 F1=Help    F3=Exit    F12=Cancel
```

Build JCL, will use MDALIB for recon allocation -

```
 File  Edit  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                          Build JCL
Command ===> ____________________________________________________________________
                                                                        More:     +
Control statements. Type an action code. S=Update, /=Include, blank=Exclude
Note: A / indicates the control statement will be included in the generated JCL
S ANALYZE    - Specify which logs to read
_ FILTER     - Specify which LUOWs to keep
_ INTERVAL   - Specify the time frames within the logs
_ REPORTS    - Specify which reports to produce
_ EXTRACT    - Specify the output SLDS extract file
_ INDEXFILE - Specify the output report index file
_ WORKFILE   - Specify the sort work file allocation information

Job card.
//GCBJOB        JOB (5510),'BAXTER',MSGCLASS=X,
//    TIME=1440,CLASS=Q,REGION=0M,NOTIFY=&SYSUID
_____________________________________________________________________________

STEPLIB libraries.
'LUI.LOADLIB'
'IMS.MDALIB'  <<<--Get the recon names here_____________________________________
 F1=Help    F3=Exit    F7=Up      F8=Down    F12=Cancel
```

I don’t know our SLDS names, but I do know the IMSID and when they said ‘IMS is broke”

```
 File  Edit  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                ANALYZE Control Statement
Command ===> ____________________________________________________________________
                                                                        More:     +
Specify input. Type an action code. S=Update, /=Include, blank=Exclude
S RECON         - Use RECONs to determine SLDS to use as input
_ SLDS          - Specify SLDS to use as input
_ Extract file - Use a previously created extract file as input
_ Active OLDS  - Use the active OLDS as input
_ IMS Connect  - Use an Energizer for IMS Connect journal file as input
_ DB2 log       - Use a DB2 log data set as input
_ DB2 BSDS      - Use a DB2 bootstrap data set as input
_ MQ extract    - Use a WebSphere MQ extract data set as input

Time zone. Specify time zone for time input.
_ 1. GMT
  2. Local
  3. Offset _____ (+/-hhmm)
  4. Original

Log record code PDS ____________________________________________________

Suppress elapsed time. Select this option if the systems that generated
input for analysis were NOT using the same sysplex timer.
 F1=Help    F3=Exit    F7=Up      F8=Down    F12=Cancel
```

Specify the IMSid

```
 File  Edit  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                          RECON Input
Command ===> ____________________________________________________________________

IMSIDs. Specify the IMSIDs to be included as input.
If no IMSIDs are specified, all IMSIDs in the RECONs will be included.
GCBA____ ________ ________ ________ ________ ________ ________ ________
________ ________ ________ ________ ________ ________ ________ ________

Maximum logs options. Select if desired.
  Maximum logs to process   ___ (leave blank for no maximum)
  _ If maximum logs reached, abend with user code ____
  _ If maximum logs reached, end with return code __

Specify the RECON data sets to use as input.
                                                  More:     +
  RECON 1 ____________________________________________________
  RECON 2 ____________________________________________________
  RECON 3 ____________________________________________________

  RECON 1 ____________________________________________________
  RECON 2 ____________________________________________________
 F1=Help     F3=Exit     F7=Up       F8=Down     F12=Cancel
```

INTERVAL is required, don't want to take in ALL SLDS!

```
 File  Edit  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                        Build JCL                  INTERVAL required
Command ===> ____________________________________________________________________
                                                                        More:     +
Control statements. Type an action code. S=Update, /=Include, blank=Exclude
Note: A / indicates the control statement will be included in the generated JCL
/ ANALYZE   - Specify which logs to read
_ FILTER    - Specify which LUOWs to keep
S INTERVAL  - Specify the time frames within the logs
_ REPORTS   - Specify which reports to produce
_ EXTRACT   - Specify the output SLDS extract file
_ INDEXFILE - Specify the output report index file
_ WORKFILE  - Specify the sort work file allocation information

Job card.
//GCBJOB        JOB (5510),'BAXTER',MSGCLASS=X,
//    TIME=1440,CLASS=Q,REGION=0M,NOTIFY=&SYSUID
________________________________________________________________________________

STEPLIB libraries.
'LUI.LOADLIB'
'IMS.MDALIB'_____________________________________
 F1=Help     F3=Exit     F7=Up       F8=Down    F12=Cancel
```

Let's look today from 09:00 to 09:15

```
 File  Edit  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                INTERVAL Control Statement
Command ===> ____________________________________________________________________

Start type.
1 1. Timestamp       Date 2009254 (YYYYDDD)    Time 09000000 (hhmmssth)
  2. First log record
  3. Log sequence number ________

Stop type.
1 1. Timestamp       Date 2009254 (YYYYDDD)    Time 09150000 (hhmmssth)
  2. Last log record
  3. Log sequence number ________

Additional intervals. Select if desired.
_ Start timestamp    Date ________ (YYYYDDD)    Time _________ (hhmmssth)
  Stop timestamp     Date ________ (YYYYDDD)    Time _________ (hhmmssth)

_ Start timestamp    Date ________ (YYYYDDD)    Time _________ (hhmmssth)
  Stop timestamp     Date ________ (YYYYDDD)    Time _________ (hhmmssth)


 F1=Help     F3=Exit     F7=Up       F8=Down    F12=Cancel
```

What do you want to look for?

```
 File  Edit  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                          Build JCL
Command ===> ____________________________________________________________________
                                                                        More:     +
Control statements. Type an action code. S=Update, /=Include, blank=Exclude
Note: A / indicates the control statement will be included in the generated JCL
/ ANALYZE   - Specify which logs to read
S FILTER    - Specify which LUOWs to keep
/ INTERVAL  - Specify the time frames within the logs
_ REPORTS   - Specify which reports to produce
_ EXTRACT   - Specify the output SLDS extract file
_ INDEXFILE - Specify the output report index file
_ WORKFILE  - Specify the sort work file allocation information

Job card.
//GCBJOB        JOB (5510),'BAXTER',MSGCLASS=X,
//    TIME=1440,CLASS=Q,REGION=0M,NOTIFY=&SYSUID
_______________________________________________________________________________

STEPLIB libraries.
'LUI.LOADLIB'
'IMS.MDALIB'
 F1=Help    F3=Exit    F7=Up      F8=Down    F12=Cancel
```

‘Manual’ or ‘Intuitive’ mode

```
 File  Options  Help
-------------------------------------------------------------------------------
Log Analyzer                FILTER Control Statement
Command ===> _____________________________________________________________

FILTER option. Select the type of FILTER keywords to update.
2 1. Log record codes    - Specify which log codes to include or exclude
  2. SELECT subkeywords - Specify destinations, userids, content, etc.
```

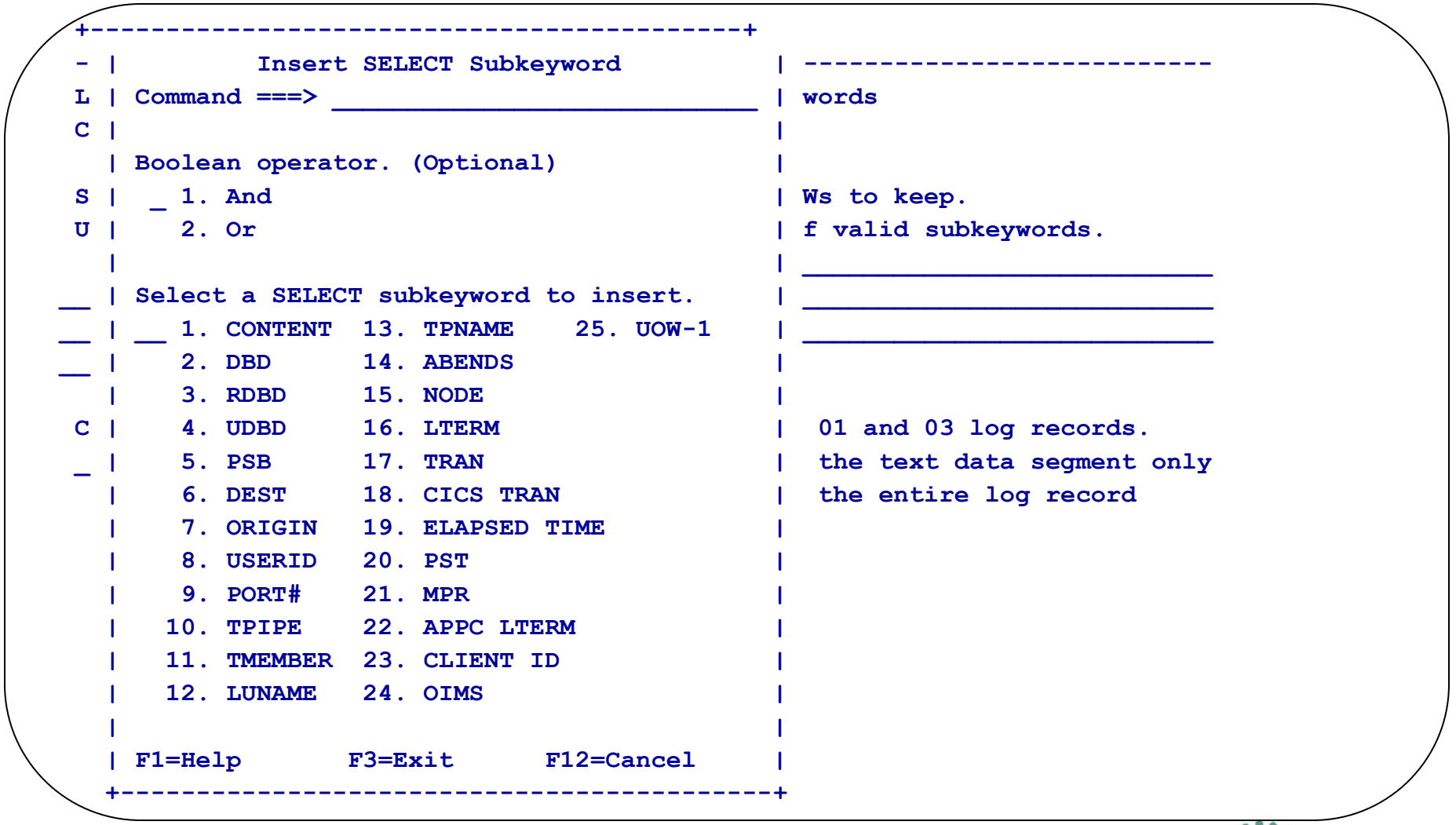
Option 1 – ‘Manual’ mode (I know log records, bring it on!)
Option 2 – ‘Intuitive’ mode (I don’t know log records, HELP!!)

```
 F1=Help     F3=Exit    F12=Cancel
```

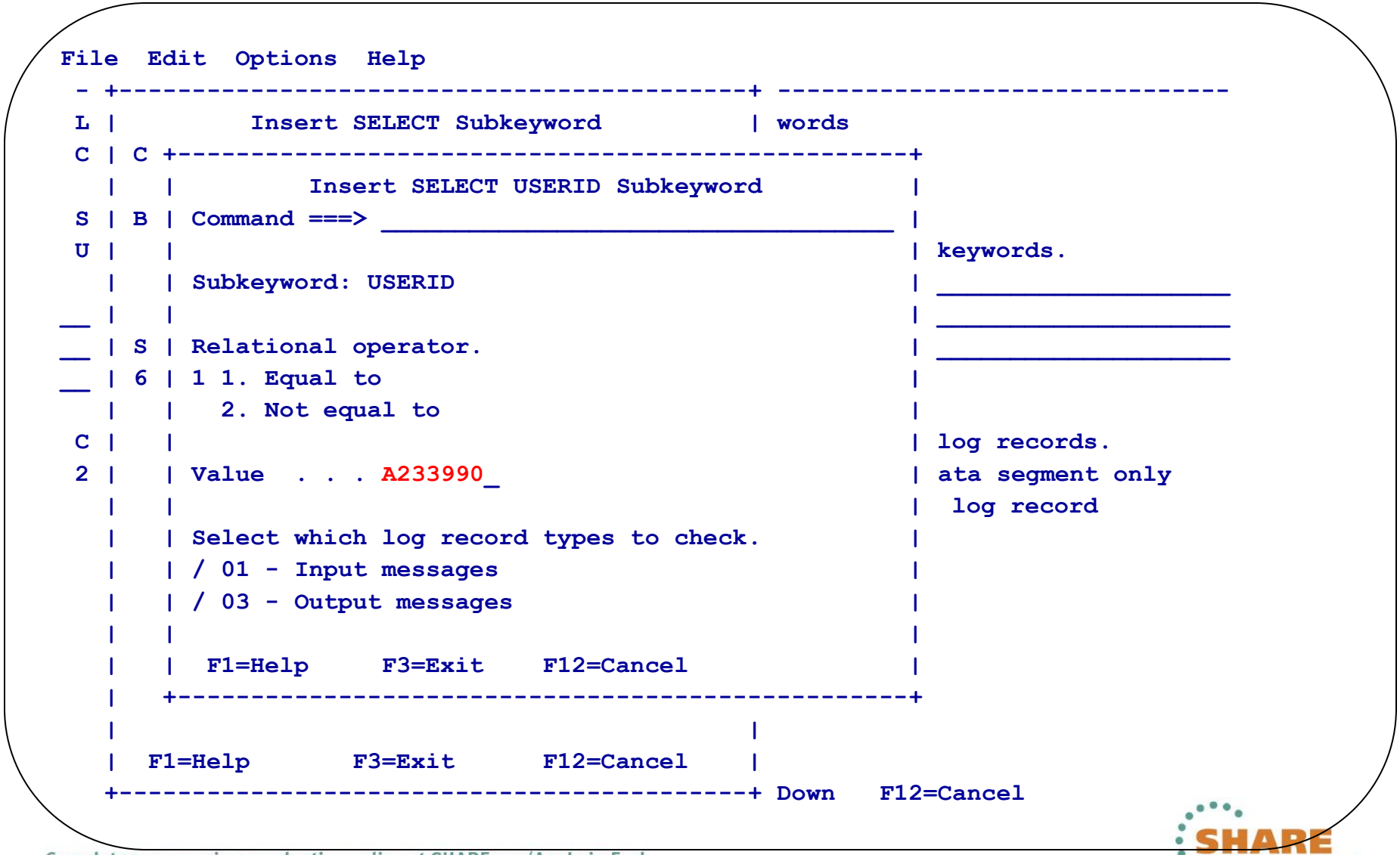
Hit PF4

```
 File  Edit  Options  Help
--------------------------------------------------------------------------------
Log Analyzer              FILTER - SELECT Subkeywords
Command ===> ____________________________________________________________________

Specify SELECT subkeywords to indicate which LUOWs to keep.
Use the PROMPT key to display a selection list of valid subkeywords.
  SELECT subkeywords    (Hit F4 - Prompt)


                       +

CONTENT option. Specify how to filter content in 01 and 03 log records.
2 1. Data only - Search for specified content in the text data segment only
  2. All       - Search for specified content in the entire log record




 F1=Help     F3=Exit     F4=Prompt  F7=Up       F8=Down    F12=Cancel
```

25 Unique items to SELECT – We are looking for a USERID



Looking for anything to do with user A233990



Will specify the REPORTS to produce

```
File  Edit  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                          Build JCL
Command ===> ____________________________________________________________________
                                                                        More:     +
Control statements. Type an action code. S=Update, /=Include, blank=Exclude
Note: A / indicates the control statement will be included in the generated JCL
/ ANALYZE   - Specify which logs to read
/ FILTER    - Specify which LUOWs to keep
/ INTERVAL  - Specify the time frames within the logs
S REPORTS   - Specify which reports to produce
_ EXTRACT   - Specify the output SLDS extract file
_ INDEXFILE - Specify the output report index file
_ WORKFILE  - Specify the sort work file allocation information

Job card.
//GCBJOB        JOB (5510),'BAXTER',MSGCLASS=X,
//    TIME=1440,CLASS=Q,REGION=0M,NOTIFY=&SYSUID
________________________________________________________________________________

STEPLIB libraries.
'LUI.LOADLIB'
'IMS.MDALIB'
 F1=Help    F3=Exit    F7=Up      F8=Down    F12=Cancel
```

Let's look at a SUMMARY of the SLDS data, and a LUOWSUMM for this USERID (bringing SLDS data into FOCUS!)

```
File  Options  Help
-------------------------------------------------------------------------------
Log Analyzer                REPORTS Control Statement
Command ===> _____________________________________________________________________
                                                                        More:     +
Reports. Select the reports to produce. (*=more options below for that report)
/ Analysis Summary          Limit SYSOUT to ________ lines
/ LUOW Summary              Limit SYSOUT to ________ lines
_ LUOW Detail             * Limit SYSOUT to ________ lines
_ LUOW Time Sequence        Limit SYSOUT to ________ lines
_ Log Record Dump         * Limit SYSOUT to ________ lines
_ Orphans                   Limit SYSOUT to ________ lines
_ Audit                     Limit SYSOUT to ________ lines
_ Application Checkpoint  *
 >>The following reports are mutually exclusive with the above and each other.
_ Abends                    Limit SYSOUT to ________ lines
_ Deadlock
_ RBA Buffer Statistics   *

LUOW Detail report options. Select if desired.
  _ Display 01 and 03 record data.  Offset ______  Length __
  Limit to LUOW ID(s) ____________________________________________________

 F1=Help     F3=Exit     F7=Up       F8=Down     F12=Cancel
```

Let's VIEW what we created -

```
Menu  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                          JCL Menu
Command ===> ____________________________________________________________________

JCL actions.
2 1. Build  - Specify JCL control cards and SYSIN
  2. View   - View generated JCL
  3. Submit - Submit generated JCL




 F1=Help    F3=Exit    F12=Cancel
```

Very simple!
Go ahead and SUB, and let's see what we get!

```
VIEW       RIHGCB3.ESAJ.SPFTEMP1.CNTL                          Columns 00001 00080
Command ===>                                                     Scroll ===> CSR
****** ********************************* Top of Data ***********************************
000001 //GCBJOB        JOB (5510),'BAXTER',MSGCLASS=X,
000002 //    TIME=1440,CLASS=Q,REGION=0M,NOTIFY=&SYSUID
000003 //*
000004 //LUIMAIN  EXEC  PGM=LUIMAIN,REGION=0M
000005 //STEPLIB  DD DSN=LUI.LOADLIB,DISP=SHR
000006 //         DD DSN=IMS.MDALIB,DISP=SHR
000007 //SYSOUT   DD SYSOUT=*
000008 //SYSMDUMP DD SYSOUT=*
000009 //SYSIN    DD *
000010 ANALYZE
000011          IMSID=(GCBA)
000012 FILTER
000013          SELECT=USERID=A233990
000014 INTERVAL
000015          START=2009254/09000000 STOP=2009254/09150000
000016 REPORTS
000017          SUMMARY=ALL
000018          LUOWSUMM=ALL
000019 END
000020 /*
```

SLDS summary report (10,000 foot level):

```
2009-254                                    Log Analyzer for IMS V1.2.01.02          Page 1
                                            Analysis Summary (SUMMARY)
LOG time span: FROM 2009-254 09:00:43.59 TO 2009-254 09:14:59.99 DURATION 00:14:16

**********************
Record and LUOW Counts
**********************
Log records read   001979386    Passed to select process   001826193    Selected log records 000000190
LUOWs              000000012    Unresolved associations    000071115    Extract file count   000000000
IMSIDs encountered: GCBA  GCBB  GCBC
Other IMSIDs encountered: GCB9

**********
LUOW Lists  (* indicates abend occurred in some LUOWs)
**********
 Origin summary        Destination summary   User ID summary      PSB summary          Other summary
********************  ********************  ********************  ********************  ******************
 Total number of       Total number of       Total number of       Total number of       Total number of
  Origins 0000001       Dests   0000006       Users   0000001       PSBs    0000004       Others  0000000
  LUOWs   0000012       LUOWs   0000012       LUOWs   0000012       LUOWs   0000010       LUOWs   0000000

 -Origin- -LUOWs-      -Dest-   -LUOWs-      -User-   -LUOWs-      -PSB-    -LUOWs-      -Other-  -LUOWs-
 appcotma 0000012      LK503001 0000001      A233990  0000012      X1TPDEP0 0000005
                       X1CSH001 0000001                           X1TPINQ0 0000001
                       X1DEP001 0000005                           X1TPNAM0 0000002
                       X1INQ001 0000001                           X1TPNON0 0000002
                       X1NAM001 0000002
                       X1NAM001 0000002
                       X1NON001 0000002
```

LUOWSUMM report (5,000 foot level). Notice elapsed time for these LUOW's is ALL sub-second. NO IMS PROBLEMS!

```
2009-254                                  Log Analyzer for IMS V1.2.01.02                                  Page 1
                                          LUOW Summary     (LUOWSUMM)
LOG time span: FROM 2009-161 09:00:43.59 TO 2009-161 09:14:59.99 DURATION 00:14:16
 -LUOW--  -Origin-  --Dest--  ---PSB--  --User--  -Recs--  ----1st rec date/time---  ----Elapsed----  ---------Notes-
 0002000  appcotma  X1DEP001  X1TPDEP0  A233990   0000018  2009.161-09:00:57.645777  00:00:00.058051  UPDT EXTSUB
           TPIPE=2145      TMEMBER=HP51T011
 0030150  appcotma  X1NON001  X1TPNON0  A233990   0000015  2009.161-09:04:58.388690  00:00:00.023773  UPDT
           TPIPE=2145      TMEMBER=HP51T011
 0030272  appcotma  X1DEP001  X1TPDEP0  A233990   0000018  2009.161-09:04:59.165712  00:00:00.026023  UPDT EXTSUB
           TPIPE=2145      TMEMBER=HP51T011
 0048484  appcotma  X1DEP001  X1TPDEP0  A233990   0000020  2009.161-09:07:35.775960  00:00:00.046494  UPDT EXTSUB
           TPIPE=2145      TMEMBER=HP51T011
 0065290  appcotma  LK503001             A233990   0000011  2009.161-09:09:59.211230  00:00:00.231651  M-IMS
           TPIPE=2145      TMEMBER=HP51T011
 0070404  appcotma  X1NON001  X1TPNON0  A233990   0000015  2009.161-09:10:43.403190  00:00:00.011843  UPDT
           TPIPE=2145      TMEMBER=HP51T011
 0071441  appcotma  X1DEP001  X1TPDEP0  A233990   0000018  2009.161-09:10:51.213487  00:00:00.039548  UPDT EXTSUB
           TPIPE=2145      TMEMBER=HP51T011
 0086293  appcotma  X1INQ001  X1TPINQ0  A233990   0000018  2009.161-09:12:58.680548  00:00:00.040451  UPDT EXTSUB
           TPIPE=2145      TMEMBER=HP51T011
 0094834  appcotma  X1NAM001  X1TPNAM0  A233990   0000017  2009.161-09:14:10.542987  00:00:00.051197  UPDT
           TPIPE=2145      TMEMBER=HP51T011
 0095849  appcotma  X1DEP001  X1TPDEP0  A233990   0000020  2009.161-09:14:18.764512  00:00:00.030345  UPDT EXTSUB
           TPIPE=2145      TMEMBER=HP51T011
 0096963  appcotma  X1CSH001             A233990   0000003  2009.161-09:14:28.399829  00:00:00.000102
           TPIPE=2145      TMEMBER=HP51T011
 0099537  appcotma  X1NAM001  X1TPNAM0  A233990   0000017  2009.161-09:14:48.899990  00:00:00.029118  UPDT
           TPIPE=2145      TMEMBER=HP51T011
```

Crime scene #2 – “New customer entry transaction is having problems”. Let’s do a LUOWSUMM report, and see what’s going on

```
ANALYZE
     SLDS=(LUI.IMSLOG,R101)
   FILTER
     SELECT=TRAN=XTK43EU
REPORTS
     LUOWSUMM=ALL
END
```

Let's see, we are getting some abends (U0777 timeout, and S0C7)…let's focus on LUOW 4295

```
2009-254                                    Log Analyzer for IMS V1.2.01.02                                  Page 1
                                            LUOW Summary     (LUOWSUMM)
LOG time span: FROM 2009-162 12:36:05.69 TO 2009-162 12:43:13.97 DURATION 00:07:08
 -LUOW--  -Origin-  --Dest--  ---PSB--  --User--  -Recs--  ----1st rec date/time---  ----Elapsed----  ---Notes--------
 0000025  VTN991    XTK43EU   XTK43EU   T006401   0000384  2009.162-12:36:06.135881  00:00:03.168778  UPDT DB2
           Additional DESTs=NIK805U
 0001910  TCPB3280  XTK43EU   XTK43EU   T772212   0000151  2009.162-12:37:00.896867  00:00:00.174632  UPDT DB2
           Additional DESTs=NIK805U
 0002510  VTN991    XTK43EU   XTK43EU   T006401   0000378  2009.162-12:37:14.385135  00:00:00.443042  UPDT DB2
           Additional DESTs=NIK805U
 0003496  TCPB1204  XTK43EU   XTK43EU   X124171   0000022  2009.162-12:37:39.616125  00:00:00.044582  EXTSUB
 0003600  VTN991    XTK43EU   XTK43EU   T006401   0000383  2009.162-12:37:41.307262  00:00:01.501282  UPDT DB2
           Additional DESTs=NIK805U
 0004295  TCPD1123  XTK43EU   XTK43EU   T830071   0000543  2009.162-12:37:57.544643  00:00:02.601395  UPDT ABEND=U0777 DB2
           Additional DESTs=NIK805U
 0004589  TCPB3281  XTK43EU   XTK43EU   X118814   0000327  2009.162-12:38:05.821450  00:00:00.253017  UPDT DB2
           Additional DESTs=NIK805U
 0005147  TCPB0809  XTK43EU   XTK43EU   X124181   0000022  2009.162-12:38:18.285654  00:00:00.034552  EXTSUB
 0005427  TCPD1123  XTK43EU   XTK43EU   T830071   0000229  2009.162-12:38:23.698856  00:00:02.494728  UPDT ABEND=U0777 DB2
           Additional DESTs=NIK805U
 0005488  TCPB2733  XTK43EU   XTK43EU   T835231   0000287  2009.162-12:38:24.889491  00:00:08.036146  UPDT ABEND=S0C7 DB2
           Additional DESTs=NIK805U
 0006248  TCPB0809  XTK43EU   XTK43EU   X124181   0000022  2009.162-12:38:38.953287  00:00:00.015610  EXTSUB
 0010287  TCPB2733  XTK43EU   XTK43EU   T835231   0000397  2009.162-12:39:51.018208  00:00:04.458467  UPDT ABEND=U0777 DB2
           Additional DESTs=NIK805U
 0010805  TCPB0634  XTK43EU   XTK43EU   T056912   0000301  2009.162-12:40:04.765967  00:00:00.277160  UPDT DB2
           Additional DESTs=NIK805U
..
..
..
```

Let's run Log Analyzer again with the DB2 log. We will also create an INDEX/EXTRACT file

SYNTAX:

```
ANALYZE
     SLDS=(LUI.IMSLOG,R101)
   DB2LOG=(LUI.DB2.DB2LOG)
FILTER
     SELECT=TRAN=XTK43EU
EXTRACT
     DSN=GCB.LUI.DB2.EXTRACT
     STORCLASS=DEVSMS
     PRISP=10
     SECSP=10
     SPACEUNITS=CYL
INDEXFILE
     DSN=GCB.LUI.DB2.INDEX
     STORCLASS=DEVSMS
     PRISP=10
     SECSP=10
     SPACEUNITS=CYL
END
```

ISPF, option ‘2’ - Analyze

```
 Menu  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                          Main Menu
Command ===> ____________________________________________________________________

Log Analyzer option.  Choose a selection.
2 1. JCL      - Build, view, submit JCL for extraction and analysis
  2. Analyze  - Analyze a report index file









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 F1=Help     F3=Exit    F12=Cancel
```

Let's select PSB's – notice other criteria

```
 File  Options  Help
-------------------------------------------------------------------------------
Log Analyzer                Report Index File Analysis
Command ===> ____________________________________________________________________
Analysis action.
5 1. LUOWs         - List logical units of work
  2. Destinations  - List transactions and destination LTERMs
  3. Origins       - List origins
  4. Userids       - List userids
  5. PSBs          - List PSBs
  6. CICSTRAN      - List CICS transactions
  7. Other LUOWs   - List LUOWs that have neither origin nor destination
  8. Deadlocks     - List victims of deadlock situations
  9. Summary       - Display summary of report index file contents

Report index file 'GCB.LUI.DB2.INDEX'

LUOW filter (for option 1 above). Enter information below to limit the list
of logical units of work. Leave blank for all LUOWs.
  Origin(s). . . . ____________________________________________________________
  Tran(s)/LTERM(s) ____________________________________________________________
  Userid(s). . . . ____________________________________________________________
  PSB(s) . . . . . ____________________________________________________________
  CICS trans(s)  . ____________________________________________________________

  Additional limitations. Select if desired.
  _ Limit to LUOWs that have abended
```

Select our “New customer entry” PSB

```
  File  Sort  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                          PSB List                        Row 1 of 1
Command ===> ____________________________________________________ Scroll ===> CSR

Report index file: 'GCB.LUI.DB2.INDEX'
Type one or more action codes.                              Sorted by:
  S=List LUOWs

A   PSB      LUOW count (24)
- --------   ------------------
S XTK43EU          24
****************************** Bottom of Data ********************************
```

```
 F1=Help     F3=Exit     F7=Up       F8=Down     F12=Cancel
```

This is the ISPF equivalent of the LUOWSUMM report from earlier, let's hit PF11

```
File  Filter  View  Sort  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                          LUOW List                        Row 1 of 24
Command ===> ____________________________________________________ Scroll ===> CSR

Report index file: 'GCB.LUI.DB2.INDEX'
Type one or more action codes. Enter ALTView for additional columns.
  S=LUOW detail  L=List log records                      Sorted by: LUOW_ID
                      Tran/
A LUOW Id   Origin   LTERM    Userid        Timestamp             Elapsed Time
- -------- -------- -------- -------- ------------------------ --------------
_ 00000025 VTN991   XTK43EU  T006401  2009.162 12:36:06.135881 00:00:03.168778
_ 00001910 TCPB3280 XTK43EU  T772212  2009.162 12:37:00.896867 00:00:00.174632
_ 00002510 VTN991   XTK43EU  T006401  2009.162 12:37:14.385135 00:00:00.443042
_ 00003496 TCPB1204 XTK43EU  X124171  2009.162 12:37:39.616125 00:00:00.044582
_ 00003600 VTN991   XTK43EU  T006401  2009.162 12:37:41.307262 00:00:01.501282
_ 00004295 TCPD1123 XTK43EU  T830071  2009.162 12:37:57.544643 00:00:02.601395
_ 00004589 TCPB3281 XTK43EU  X118814  2009.162 12:38:05.821450 00:00:00.253017
_ 00005147 TCPB0809 XTK43EU  X124181  2009.162 12:38:18.285654 00:00:00.034552
_ 00005427 TCPD1123 XTK43EU  T830071  2009.162 12:38:23.698856 00:00:02.494728
_ 00005488 TCPB2733 XTK43EU  T835231  2009.162 12:38:24.889491 00:00:08.036146
_ 00006248 TCPB0809 XTK43EU  X124181  2009.162 12:38:38.953287 00:00:00.015610
_ 00010287 TCPB2733 XTK43EU  T835231  2009.162 12:39:51.018208 00:00:04.458467
_ 00010805 TCPB0634 XTK43EU  T056912  2009.162 12:40:04.765967 00:00:00.277160
_ 00011579 TCPB0957 XTK43EU  X124159  2009.162 12:40:19.437252 00:00:00.062949
_ 00011994 TCPB1595 XTK43EU  T044765  2009.162 12:40:30.795742 00:00:00.634216
_ 00012812 TCPB1843 XTK43EU  X124157  2009.162 12:40:51.976192 00:00:00.037362
_ 00013007 TCPB1843 XTK43EU  X124157  2009.162 12:40:57.049054 00:00:00.066898
_ 00013090 TCPD1006 XTK43EU  T056048  2009.162 12:40:59.516666 00:00:00.972839
```

Notice we can see the data from the x'01' input message – PF11 again

```
 File  Filter  View  Sort  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                        LUOW List                        Row 1 of 24
Command ===> ____________________________________________________ Scroll ===> CSR

Report index file: 'GCB.LUI.DB2.INDEX'
Type one or more action codes. Enter ALTView for additional columns.
  S=LUOW detail  L=List log records                      Sorted by: LUOW_ID
                      Tran/
A LUOW Id   Origin   LTERM    Userid     Message Text ( Offset 0      )
- -------- -------- -------- -------- ---------------------------------------
_ 00000025 VTN991   XTK43EU  T006401  XTK43EU  N1P6045748220       02 60457482
_ 00001910 TCPB3280 XTK43EU  T772212  XTK43EU  N1P8669478867       01 86694788
_ 00002510 VTN991   XTK43EU  T006401  XTK43EU  N1P6045748220       02 60457482
_ 00003496 TCPB1204 XTK43EU  X124171  XTK43EU  N1P2508618791       01 25086187
_ 00003600 VTN991   XTK43EU  T006401  XTK43EU  N1P6045748220       02 60457482
_ 00004295 TCPD1123 XTK43EU  T830071  XTK43EU  N1P6044665846       03 60446658
_ 00004589 TCPB3281 XTK43EU  X118814  XTK43EU  N1P6044396783       01 60443967
_ 00005147 TCPB0809 XTK43EU  X124181  XTK43EU  N1P2508286159       03 25082861
_ 00005427 TCPD1123 XTK43EU  T830071  XTK43EU  N1P604463GEOR       01 604463GE
_ 00005488 TCPB2733 XTK43EU  T835231  XTK43EU  N1P604590CHUM       01 604590CH
_ 00006248 TCPB0809 XTK43EU  X124181  XTK43EU  N1P2508286159       03 25082861
_ 00010287 TCPB2733 XTK43EU  T835231  XTK43EU  N1P604590CHUM       02 604590CH
_ 00010805 TCPB0634 XTK43EU  T056912  XTK43EU  N1P2507531624       01 25075316
_ 00011579 TCPB0957 XTK43EU  X124159  XTK43EU  N1P6043033649       01 60430336
_ 00011994 TCPB1595 XTK43EU  T044765  XTK43EU  N1P6048747060       58 60487470
_ 00012812 TCPB1843 XTK43EU  X124157  XTK43EU  N1P6047348511       03 60473485
_ 00013007 TCPB1843 XTK43EU  X124157  XTK43EU  N1P6047348511       03 60473485
_ 00013090 TCPD1006 XTK43EU  T056048  XTK43EU  N1P6046699777       03 60466997
```

Now let's list the log records for this LUOW

```
  File  Filter  View  Sort  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                        LUOW List                          Row 1 of 24
Command ===> ____________________________________________________ Scroll ===> CSR

Report index file: 'GCB.LUI.DB2.INDEX'
Type one or more action codes. Enter ALTView for additional columns.
  S=LUOW detail  L=List log records                      Sorted by: LUOW_ID
                      Tran/                Log
A LUOW Id   Origin    LTERM    Userid    Records   Note
- -------- -------- -------- --------  ------- ------------------------------
_ 00000025 VTN991   XTK43EU  T006401        384 DB-UPDT DB2
_ 00001910 TCPB3280 XTK43EU  T772212        151 DB-UPDT DB2
_ 00002510 VTN991   XTK43EU  T006401        378 DB-UPDT DB2
_ 00003496 TCPB1204 XTK43EU  X124171         22 EXTSUB
_ 00003600 VTN991   XTK43EU  T006401        383 DB-UPDT DB2
L 00004295 TCPD1123 XTK43EU  T830071        543 ABEND=U0777 DB-UPDT DB2
_ 00004589 TCPB3281 XTK43EU  X118814        327 DB-UPDT DB2
_ 00005147 TCPB0809 XTK43EU  X124181         22 EXTSUB
_ 00005427 TCPD1123 XTK43EU  T830071        229 ABEND=U0777 DB-UPDT DB2
_ 00005488 TCPB2733 XTK43EU  T835231        287 ABEND=S0C7 DB-UPDT DB2
_ 00006248 TCPB0809 XTK43EU  X124181         22 EXTSUB
_ 00010287 TCPB2733 XTK43EU  T835231        397 ABEND=U0777 DB-UPDT DB2
_ 00010805 TCPB0634 XTK43EU  T056912        301 DB-UPDT DB2
_ 00011579 TCPB0957 XTK43EU  X124159         22 EXTSUB
_ 00011994 TCPB1595 XTK43EU  T044765        214 DB-UPDT DB2
_ 00012812 TCPB1843 XTK43EU  X124157         22 EXTSUB
_ 00013007 TCPB1843 XTK43EU  X124157         22 EXTSUB
_ 00013090 TCPD1006 XTK43EU  T056048        497 DB-UPDT DB2
```

Let's look at the various 'attributes'. (now we are at ground level!)

```
 File  View  Sort  Options  Help
-------------------------------------------------------------------------------
Log Analyzer              LUOW 00004295 Log Records              Row 1 of 543
Command ===> _____________________________________________ Scroll ===> CSR

Report index file: 'GCB.LUI.DB2.INDEX'
Type one or more action codes. Enter ALTview for additional columns.
  S=Log record detail   T=List adjacent records  K=Set delta benchmark
  D=Dump log record     B=Browse log record            Sorted by: TIMESTAMP
  Log
A Code     Type              Attributes
- ---- ------------ ------------------------------------------------------
_ 01   input msg    origims=IMSC destims=IMSC origin=TCPD1123 dest=XTK43EU
                    userid=T830071  drrn=0400019C (SMB dest)
_ 35   msg enqueue  dest=XTK43EU  drrn=0400019C
_ 08   pgm start    recovery token=IMSC    09EE1E1E00000000 tran=XTK43EU
                    pst=00056
_ 5607 ext subsys   (start unit-of-recovery) psb=XTK43EU
                    recovery token=IMSC    09EE1E1E00000000
_ 31   msg get      recovery token=IMSC    09EE1E1E00000000 dest=XTK43EU
                    drrn=0400019C pst=00056
_ 56   ext subsys   subsystem name=DB2C     (subsystem signon)
                    recovery token=IMSC    09EE1E1E00000000
_ 56   ext subsys   subsystem name=DB2C     (created subsys thread)
                    recovery token=IMSC    09EE1E1E00000000
_ 03   output msg   origims=IMSC destims=IMSC origin=TCPD1123 dest=NIK805U
                    userid=T830071  drrn=04000153 (SMB dest)
_ 35   msg enqueue  recovery token=IMSC    09EE1E1E00000000 dest=NIK805U
                    drrn=04000153 pst=00056
```

Let's look at the various 'attributes'. Notice the DB2 database ID/name, pageset ID/name

```
 File  View  Sort  Options  Help
-------------------------------------------------------------------------------
Log Analyzer              LUOW 00004295 Log Records              Row 52 of 543
Command ===> _____________________________________________ Scroll ===> CSR

Report index file: 'GCB.LUI.DB2.INDEX'
Type one or more action codes. Enter ALTview for additional columns.
  S=Log record detail   T=List adjacent records  K=Set delta benchmark
  D=Dump log record     B=Browse log record            Sorted by: TIMESTAMP
  Log
A Code     Type              Attributes
- ---- ------------ ------------------------------------------------------------
_ 5050 DB update    dbd=PSORDS09 dsid=00001 update user=T830071  pst=00028
                    recovery token=IMSC    09EE1E2200000000
_ 0020 DB2 record   (Begin unit of recovery) record type=0020 subtype=0001
                    URID=0A986F856B89
_ 0400 DB2 record   (Unit of recovery redo) record type=0400 subtype=0003
                    URID=0A986F856B89 database id=283=NIKD01
                    pageset id=24=NIKT05 page number=22021
_ 0600 DB2 record   (Unit of recovery undo/redo) record type=0600 subtype=0001
                    URID=0A986F856B89 database id=283=NIKD01
                    pageset id=24=NIKT05 page number=26239
_ 0600 DB2 record   (Unit of recovery undo/redo) record type=0600 subtype=0019
                    URID=0A986F856B89 database id=283=NIKD01
                    pageset id=27=NIKI0501 page number=14321
_ 5050 DB update    dbd=PSORDS09 dsid=00001 update user=T830071  pst=00028
                    recovery token=IMSC    09EE1E2200000000
_ 5050 DB update    dbd=PSORDS09 dsid=00001 update user=T830071  pst=00028
                    recovery token=IMSC    09EE1E2200000000
```

Other ‘attributes’

```
   File  View  Sort  Options  Help
-------------------------------------------------------------------------------
Log Analyzer              LUOW 00004295 Log Records              Row 125 of 543
Command ===> _____________________________________________ Scroll ===> CSR

Report index file: 'GCB.LUI.DB2.INDEX'
Type one or more action codes. Enter ALTview for additional columns.
  S=Log record detail   T=List adjacent records  K=Set delta benchmark
  D=Dump log record     B=Browse log record             Sorted by: TIMESTAMP
  Log
A Code     Type               Attributes
- ---- ------------ ------------------------------------------------------
_ 56   ext subsys   subsystem name=DB2C     (subsystem signon)
                    recovery token=IMSC    09EE1E2600000000
_ 56   ext subsys   subsystem name=DB2C     (created subsys thread)
                    recovery token=IMSC    09EE1E2600000000
_ 38   msg return   (Input message returned to msg Q) qlriflgs=01 qlriflg2=00
                    (no input moved) pst=00056
                    recovery token=IMSC    09EE1E2B00000000
_ 56   ext subsys   subsystem name=DB2C     (resolved rid)
                    recovery token=IMSC    09EE1E2B00000000
_ 38   msg return   (Input message returned to msg Q) qlriflgs=00 qlriflg2=00
                    origims=IMSC destims=IMSC pst=00004
                    recovery token=IMSC    09EE1E2B00000000
_ 07   pgm end      abendcode=U0777  psb=NOD600U  tran=NOD600U  pst=00056
                    jobname=IMSCMR36 recovery token=IMSC    09EE1E2B00000000
_ 0020 DB2 record   (Begin unit of recovery) record type=0020 subtype=0001
```

Can also ‘walk’ through the LUOW detail.

```
 File  View  Sort  Options  Help
-------------------------------------------------------------------------------
Log Analyzer              LUOW 00004295 Log Records              Row 1 of 543
Command ===> _____________________________________________ Scroll ===> CSR

Report index file: 'GCB.LUI.DB2.INDEX'
Type one or more action codes. Enter ALTview for additional columns.
  S=Log record detail   T=List adjacent records  K=Set delta benchmark
  D=Dump log record     B=Browse log record            Sorted by: TIMESTAMP
  Log
A Code     Type              Attributes
- ---- ------------ ------------------------------------------------------------
S 01   input msg    origims=IMSC destims=IMSC origin=TCPD1123 dest=XTK43EU
                    userid=T830071  drrn=0400019C (SMB dest)
_ 35   msg enqueue  dest=XTK43EU  drrn=0400019C
_ 08   pgm start    recovery token=IMSC    09EE1E1E00000000 tran=XTK43EU
                    pst=00056
_ 5607 ext subsys   (start unit-of-recovery) psb=XTK43EU
                    recovery token=IMSC    09EE1E1E00000000
_ 31   msg get      recovery token=IMSC    09EE1E1E00000000 dest=XTK43EU
                    drrn=0400019C pst=00056
_ 56   ext subsys   subsystem name=DB2C     (subsystem signon)
                    recovery token=IMSC    09EE1E1E00000000
_ 56   ext subsys   subsystem name=DB2C     (created subsys thread)
                    recovery token=IMSC    09EE1E1E00000000
_ 03   output msg   origims=IMSC destims=IMSC origin=TCPD1123 dest=NIK805U
                    userid=T830071  drrn=04000153 (SMB dest)
_ 35   msg enqueue  recovery token=IMSC    09EE1E1E00000000 dest=NIK805U
                    drrn=04000153 pst=00056
```

Let's continue hitting PF11

```
   File  View  Options  Help
-------------------------------------------------------------------------------
Log Analyzer                    Log Record Detail
Command ===> ____________________________________________________________________

Log code . . . . . . . : 01
Description  . . . . . : IMS input message
Sequence number  . . . : 000000019A223693
Timestamp  . . . . . . : 2009.162 12:37:57.5
LUOW ID  . . . . . . . : 00004295

Log record 01 details.
  Originating IMSID . . . : IMSC
  Origin  . . . . . . . . : TCPD1123
  Destination IMSID . . . : IMSC
  Destination . . . . . . : XTK43EU
  Userid  . . . . . . . . : T830071




  Message text  . . . . . : XTK43EU  N1P6044665846       03 60446658
```

Let's continue hitting PF11

```
  File  View  Options  Help
-------------------------------------------------------------------------------
Log Analyzer                    Log Record Detail
Command ===> ____________________________________________________________

Log code . . . . . : 35
Description  . . . . . : Message enqueue
Sequence number  . . . : 000000019A223694
Timestamp  . . . . . : 2009.162 12:37:57.5
LUOW ID  . . . . . : 00004295

Log record 35 details.
  Originating IMSID . . . : IMSC
  Destination IMSID . . . : IMSC
  Destination . . . . . : XTK43EU
  Recovery token  . . . . :         0000000000000000
  PCB address . . . . . : 1B94E1E8
  DRRN  . . . . . : 0400019C
  PST number  . . . . . : 0
  Queue number  . . . . . : 1
```

Let's continue hitting PF11

```
   File  View  Options  Help
-------------------------------------------------------------------------------
Log Analyzer                    Log Record Detail
Command ===> ____________________________________________________________________

Log code . . . . . . . : 08
Description  . . . . . : Application program start
Sequence number  . . . : 000000019A223695
Timestamp  . . . . . . : 2009.162 12:37:57.5
LUOW ID  . . . . . . . : 00004295

Log record 08 details.
  Recovery token  . . . . : IMSC    09EE1E1E00000000
  PSB name  . . . . . . . :
  Transaction code  . . . : XTK43EU




 F1=Help      F3=Exit      F7=Up        F8=Down     F10=Previous F11=Next
F12=Cancel
```

Let's continue hitting PF11

```
  File  View  Options  Help
-------------------------------------------------------------------------------
Log Analyzer                    Log Record Detail
Command ===> ___________________________________________________________________

Log code . . . . . . . : 56
Description  . . . . . : Start unit-of-recovery
Sequence number  . . . : 000000019A2236A6
Timestamp  . . . . . . : 2009.162 12:37:57.5
LUOW ID  . . . . . . . : 00004295

Log record 56 details.
  Recovery token  . . . . : IMSC    09EE1E1E00000000
  PSB name  . . . . . . . :
  Userid  . . . . . . . . :
  Group name  . . . . . . :
  Subsystem name  . . . . : DB2C
```

Easier to read this:

```
File  View  Options  Help
-------------------------------------------------------------------------------
Log Analyzer                    Log Record Detail
Command ===> ____________________________________________________________________

Log code . . . . . . . : 5050
Description  . . . . . : Database undo/redo
Sequence number  . . . : 000000019A2236AE
Timestamp  . . . . . . : 2009.162 12:37:57.5
LUOW ID  . . . . . . . : 00004295

Log record 5050 details.
  Database name . . . . . : PSORDS09
  Data set id . . . . . . : 1
  PSB name  . . . . . . . : XTK43EU
  Database org  . . . . . : HDAM
  Data set org  . . . . . : OSAM
  DL/I call . . . . . . . : REPLACE
  Physical function . . . : PHYSICAL REPLACE
  Userid  . . . . . . . . : T830071
  PST number  . . . . . . : 56
  Recovery token  . . . . : IMSC    09EE1E1E00000000
  STCK timestamp  . . . . : 2009.162 12:37:57.560814
  UNDO data for this update
  0000009C   80400008 00046025 6FEA                  *. ....-.?.                 *
  REDO data for this update
  000000A6   80400008 00040F7D 7010                  *. .....'..                 *
```

Or this:

```
    File  View  Help
-------------------------------------------------------------------------
Log Analyzer                                  Log Record 000000019A2236AE
Command ===> ____________________________________________________________________________________________

 Log record dump
00000000   028A0000 50500038 C9D4E2C3 40404040  09EE1E1E 00000000 C4526562 F95EEE06   *....&&..IMSC    ........D...9;..*
00000020   82000000 00000000 4F004040 D5C9D2F9  F3C5E440 D7E2D6D9 C4E2F0F9 01000040   *b.......|.  XTK43EU PSORDS09... *
00000040   00006080 00000000 00D91C84 0000006C  007A0000 00000000 00000082 017F0000   *..-......R.d...%.:.........b."..*
00000060   2009162F 17364416 7764028D 00001BA6  00000000 00000000 0F89E3F8 F3F0F0F7   *..............w.........iT83007*
00000080   F1400040 1C870001 0200401C 9E00E877  F019BF87 3B3EAE21 F6E6E1BF DB7FC049   *1 . .g.... ...Y.0..g....6W..."..*
000000A0   26644B0B 6B109616 C8F72AA1 0CD585B2  3FC5F8B7 292C9C7C F2BA6A72 7F1DE72E   *....,.o.H7...Ne..E8....@2..."..X.*
000000C0   75D373A3 8B640DBB 99DEEF53 B62AA09D  6EE677BB D4ED8C5E E456128A 294E7F3A   *.L.t....r.......>W..M..;U....+".*
000000E0   E7336FA8 095D07A5 F574E961 6D61620A  9F0C8961 6D616AD5 2F00D286 7C136122   *X.?y.).v5.z/_/....i/_/.N..Kf@./.*
00000100   B5496484 B0B602AC B0D12490 0D033A92  C8D30B6A A49A2D7E 22C89616 D616AD7C   *...d.....J.....kHL..u..=.Ho.O..@*
00000120   01367C7D 899DD7E5 6CAECA32 D87912C2  DAC2D5AA 3ED442AB 8750F5B2 99AB0B6B   *..@'i.PV%...Q..B.BN..M..g&5.r..,*
00000140   0B536C64 5FCC2153 E5A82513 B14BFC41  D6976B52 41CE2A75 6B8971FD D9785ABC   *..%.¬...Vy......Op,......,i..R.!.*
00000160   4F63BE1D 6DA4081D 2E79268A 04303FFB  1D69AF6A 685A7080 401D8600 02FE7400   *|..._u..............!.. .f.....*
00000180   401C8700 01008040 1C9E00E8 B3F0E767  D5C43EDC DC37FB6F F80924CC 89616D62   * .g.... ...Y.0X.ND.....?8...i/_.*
000001A0   12C2D91E E554219A B0B647F8 BF16E525  938F9E57 4D4E4FE3 BCE5CEBA 6E74716C   *.BR.V......8..V.l...(+|T.V..>..%*
000001C0   81B7733B DDEA76C5 5413ADDC CEF77A9D  B18BDC8A C2514529 CFE75CE6 6DF5012B   *a......E.....7:.....B....X*W_5..*
000001E0   A0F4BEAE 9D2C2DAC 2C4153E1 912C2DAC  2D5AA5E0 1A50CF82 6C2456A9 2C909616   *.4.........j....!v..&.b%..z..o.*
00000200   C055961A 249201A0 6752591A 616D5493  45AFC459 12C2DAC2 D5AF8026 CF8FB133   *..o..k....../_.l..D..B.BN.......*
00000220   BAFCAD95 D9465B0F 22585B58 5AB547DA  885570EA 1EB65335 616D616A 6D8C8BF9   *...nR.$...$.!...h......./_/._..9*
00000240   842A7CB5 04A27629 7F883AD2 ED6A4839  C54EAD71 2E3FBB2F 0B5789EC 77C3ADB4   *d.@..s.."h.K....E+........i..C..*
00000260   8103A5CF 24D14086 07FF63AD 35ED4D0B  5F70FC74 00000000 0000C452 6562F95F   *a.v..J f......(.¬.........D...9¬*
00000280   00860000 00019A22 36AE                                                    *.f........                          *
```

If you turned on the PSB trace, we format the x'5F' log records:

```
File  View  Options  Help
-------------------------------------------------------------------------------
Log Analyzer                    Log Record Detail
Command ===> ____________________________________________________________________
                                                                    More:     +

Log code . . . . . . . : 5F
Description  . . . . . : DL/I call trace
Sequence number  . . . : 00000000000017A2
Timestamp  . . . . . . : 2008.045 16:45:10.6
LUOW ID  . . . . . . . : 00000304

Log record 5F details.
  PSB name  . . . . . . : DFSSAM04
  PCB name. . . . . . . : DI21PART
  PST number  . . . . . : 1
  Type  . . . . . . . . : CALL
  Function. . . . . . . : ISRT
  Segment search argument : STANINFO



 F1=Help      F3=Exit      F7=Up        F8=Down     F10=Previous F11=Next
F12=Cancel
```

Let's continue hitting PF11

```
  File  View  Options  Help
-------------------------------------------------------------------------------
Log Analyzer                    Log Record Detail
Command ===> ___________________________________________________________________

Log code . . . . . . . : 0400
Description  . . . . . : Unit of recovery redo
Sequence number  . . . : 00000A986F856C19
Timestamp  . . . . . . : 2009.162 12:37:57.6
LUOW ID  . . . . . . . : 00004295

Log record 0400 details.
  DB2 record type . . . . : 0400
  DB2 record subtype  . . : 0003
  DB2 URID  . . . . . . . : 0A986F856B89
  DBID  . . . . . . . . . : 283 (NIKD01)
  Page set  . . . . . . . : 24 (NIKT05)
  Page  . . . . . . . . . : 22021
```

End of LUOW

```
  File  View  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                      Log Record Detail
Command ===> ____________________________________________________________________

Log code . . . . . : 07
Description  . . . . . : Application program terminate
Sequence number  . . . : 000000019A223880
Timestamp  . . . . . : 2009.162 12:37:57.8
LUOW ID  . . . . . : 00004295

Log record 07 details.
  Recovery token  . . . . : IMSC    09EE1E2B00000000
  Transaction code  . . . : NOD600U
  PSB name  . . . . . : NOD600U
  Jobname . . . . . : IMSCMR36
  Number of messages  . . : 1
  PST number  . . . . . : 56
  Completion code . . . . : 00000777
  Program type  . . . . . : MPP REGION
  Abend flag  . . . . . : 80
```

Crime Scene #3: Somebody said MQ isn't working, what does IMS think?

- Log Analyzer includes MQSeries log data in LUI version 1.3.01 (GA December 7th, 2011)
- LUI input data sources are now:
  - IMS log data
  - IMS Connect data via Energizer for IMS Connect
  - DB2 log data
  - WebSphere for MQ (MQSeries)
- You can see the entire 'round-trip' of an IMS transaction / program
- From IMS Connect client / MQSeries, IMS processing, DB2 related activity, MQSeries activity, then back again to the IMS Connect client / MQSeries.

Keyword ‘MQEXT’ to include MQSeries data:

>> Include MQ data in your LUI SYSIN:

```
ANALYZE
         SLDS=(IMSA.SLDS9,R101)
         MQEXT=customer.mq.data
         DB2LOG=DSNDGD.DGD1.ARCHLOG1.A0001169
         IPRJRNL=LUI.IMSCONN.IPR.JOURNAL1
FILTER
         SELECT=TRAN=ABC*
REPORTS
         LUOWDETAIL=ALL
         SUMMARY=ALL
         LUOWSUMM=ALL
END
```

NOTE: MQEXT file MUST already exist. How do I do that?

Create the MQEXT file:

- Unfortunately, LUI cannot take a ‘raw’ MQSeries log as input. This data must be taken into an IBM MQSeries utility for pre-processing. The utility is called CSQ1LOGP.
- LUI.CNTL library sample member “LUI#MQEX” can be modified and run to create the MQEXT file.
- JCL:

```
//PRTLOG EXEC PGM=CSQ1LOGP
//STEPLIB DD DISP=SHR,DSN=MQHLQ.SCSQANLE
//        DD DISP=SHR,DSN=MQHLQ.SCSQLOAD
//ARCHIVE  DD DISP=SHR,DSN=MQLOG.A0000NN1
//         DD DISP=SHR,DSN=MQLOG.A0000NN2
//         DD DISP=SHR,DSN=MQLOG.A0000NN3
//CSQBOTH  DD DISP=(,CATLG,DELETE),DSN=LUI.MQLOG.EXTRACT,
//     UNIT=DISK,SPACE=(CYL,(1700,50))
//SYSPRINT DD SYSOUT=*
//SYSSUMRY DD SYSOUT=*
//SYSIN DD *
   EXTRACT(YES)
   SUMMARY(ONLY)
```

Let's see an INDEX file with MQ data included (hit PF11 for time fields)

```
Log Analyzer                        LUOW List                          Row 1 of 1
Command ===> ____________________________________________________ Scroll ===> CSR

Report index file: 'GCB.LUI.MQX.INDEX'
Type one or more action codes. Enter LEFT or RIGHT for additional columns.
  S=LUOW detail  L=List log records                      Sorted by: LUOW_ID
                     Tran/              Log
A LUOW Id    Origin    LTERM    Userid   Records   Note
- -------- -------- -------- --------  ------- ------------------------------
L 00000007 otma_tib TESTR    nonusid        32 MQ
****************************** Bottom of Data ********************************
```

LUOW Detail report with MQ data -

```
2011-252                                Log Analyzer for IMS V1.3.00.02                                Page 1
                                      LUOW Detail Report        (LUOWDET)  R=10
LOG time span: FROM 2011-165 14:01:01.53 TO 2011-165 14:01:47.04 DURATION 00:00:45
 LUOW 0000007 Log recs=0000032 Rec tkns=0000001 UOW-1=XDWA    C7EC0F39546DC522
 Code  ---Type---- --Log Seq Num-- -----Time------  Variable-------------------------------------------------------------
 0004  WebsphereMQ   0000000051D4E 14:01:45.993062  (MQ put) queue manager name=XDWQ connection type=BATCH
                                                    status=committed
                                                    queue name=APPL0001.OTMA.LOCALQ
                                                    reply to queue=QPFT0001.OTMA.REPLYQ
 0006  WebsphereMQ   0000000052162 14:01:45.993178  (MQ commit phase 1) queue manager name=XDWQ connection type=BATCH
                                                    status=committed
 0007  WebsphereMQ   0000000052162 14:01:45.993178  (MQ commit phase 2) queue manager name=XDWQ connection type=BATCH
                                                    status=committed
 01    input msg     0000000000E6E 14:01:45.995038  origims=XDWA destims=XDWA origin=otma_tib dest=TESTR
                                                    tpipe=DWQ00023
                                                    tmember=XDWQ override lterm=PROGTS2  drrn=08000002 (SMB dest)
 08    pgm start     0000000000E70 14:01:46.012666  recovery token=XDWA    0000001400000000 tran=TESTR    pst=00001
                                                    (mpp region)
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 07    pgm end       0000000000E85 14:01:46.538471  psb=DGWTESTR tran=TESTR    jobname=XDWMPP10 (mpp region) pst=00001
                                                    msgs processed=1 recovery token=XDWA    0000001400000000
 0004  WebsphereMQ   00000000524EE 14:01:46.794016  (MQ put) queue manager name=XDWQ status=committed
                                                    queue name=QPFT0001.OTMA.REPLYQ
 0006  WebsphereMQ   00000000528B5 14:01:46.794139  (MQ commit phase 1) queue manager name=XDWQ status=committed
 0007  WebsphereMQ   00000000528B5 14:01:46.794139  (MQ commit phase 2) queue manager name=XDWQ status=committed
```

Crime Scene #4: Operations says IMS Connect isn't working, HELP!!!

```
ANALYZE
   SLDS=(LUI.IMSCONN.SLDS,R111)
   IPRJRNL=(LUI.IMSCONN.IPR.JOURNAL1)
   IPRJRNL=(LUI.IMSCONN.IPR.JOURNAL2)
   IPRJRNL=(LUI.IMSCONN.IPR.JOURNAL3)
FILTER
.
.
.
END
```

Would be able to see if there were any delays involving IMS Connect – none in this example

```
   File  Filter  Sort  Options  Help
--------------------------------------------------------------------------------
Log Analyzer                          LUOW List                        Row 1 of 40
Command ===> ____________________________________________________ Scroll ===> CSR

Report index file: 'LUI.SYSB.DEMO6.INDEX'
Type one or more action codes. Enter LEFT or RIGHT for additional columns.
  S=LUOW detail  L=List log records                      Sorted by: LUOW_ID
                      Tran/
A LUOW Id    Origin    LTERM    Userid        Timestamp              Elapsed Time
- -------- -------- -------- -------- ----------------------- ----------------
_ 00000377 otma_tib otma_tib SIMPLE   2009.043 10:05:16.599717          .013492
_ 00000380 otma_tib otma_tib SIMPLE   2009.043 10:05:16.613380          .024221
_ 00000383 otma_tib otma_tib SIMPLE   2009.043 10:05:16.637827          .016277
_ 00000386 otma_tib otma_tib SIMPLE   2009.043 10:05:16.654400          .014114
_ 00000389 otma_tib otma_tib SIMPLE   2009.043 10:05:16.668690          .015408
_ 00000392 otma_tib otma_tib SIMPLE   2009.043 10:05:16.684412          .019756
_ 00000395 otma_tib otma_tib SIMPLE   2009.043 10:05:16.704752          .021920
_ 00000398 otma_tib otma_tib SIMPLE   2009.043 10:05:16.727146          .039474
_ 00000401 otma_tib otma_tib SIMPLE   2009.043 10:05:16.766810          .017231
_ 00000404 otma_tib otma_tib SIMPLE   2009.043 10:05:16.784179          .030154
_ 00000407 otma_tib otma_tib SIMPLE   2009.043 10:05:16.816183          .023670
_ 00000410 otma_tib otma_tib SIMPLE   2009.043 10:05:16.840123          .025220
_ 00000414 otma_tib otma_tib SIMPLE   2009.043 10:05:16.868159          .016446
_ 00000417 otma_tib otma_tib SIMPLE   2009.043 10:05:16.884979          .017817
_

 F1=Help    F3=Exit    F7=Up      F8=Down   F10=Left   F11=Right  F12=Cancel
```

Synergy with Energizer for IMS Connect – ability to include IMS Connect events into LUOW

```
File  Filter  View  Sort  Options  Help
-------------------------------------------------------------------------------
Log Analyzer                          LUOW List                      Row 13 of 197
Command ===> _____________________________________________________ Scroll ===> CSR

Report index file: 'LUI.SYSB.DEMO6.INDEX'
Type one or more action codes. Enter ALTView for additional columns.
  S=LUOW detail  L=List log records                          Sorted by: LUOW_ID
                       Tran/                  Log
A LUOW Id   Origin   LTERM    Userid   Records   Note
- -------- -------- -------- --------  ------- ----------------------------
L 00000377 appcotma appcotma SIMPLE         10
_ 00000380 appcotma appcotma SIMPLE         10
_ 00000383 appcotma appcotma SIMPLE         10
_ 00000386 appcotma appcotma SIMPLE         10
_ 00000389 appcotma appcotma SIMPLE         10
_ 00000392 appcotma appcotma SIMPLE         10
_ 00000395 appcotma appcotma SIMPLE         10
_ 00000398 appcotma appcotma SIMPLE         10
_ 00000401 appcotma appcotma SIMPLE         10
_ 00000404 appcotma appcotma SIMPLE         10
_ 00000407 appcotma appcotma SIMPLE         10
_ 00000410 appcotma appcotma SIMPLE         10
_

 F1=Help      F3=Exit      F7=Up        F8=Down     F11=AltView  F12=Cancel
```

LUOW including IMS Connect events

```
File  View  Sort  Options  Help
-------------------------------------------------------------------------------
Log Analyzer              LUOW 00000377 Log Records                Row 1 of 10
Command ===> _____________________________________________ Scroll ===> CSR

Report index file: 'LUI.SYSB.DEMO6.INDEX'
Type one or more action codes. Enter ALTview for additional columns.
  S=Log record detail   T=List adjacent records  K=Set delta benchmark
  D=Dump log record     B=Browse log record            Sorted by: TIMESTAMP
  Log
A Code     Type              Attributes
- ---- ------------ ------------------------------------------------------
_ 0049 ims connect  event id=73 IMSConnect read socket
_ 0041 ims connect  event id=65 IMSConnect sent to IMS
_ 01   input msg    origims=RB1P destims=RB1P origin=appcotma dest=appcotma
                    tpipe=11255     userid=SIMPLE   drrn=08000004
_ 35   msg enqueue  dest=appcotma tpipe=11255    drrn=08000004
_ 31   msg get      dest=appcotma tpipe=11255    drrn=08000004
_ 36   msg dequeue  origims=RB1P destims=RB1P drrn=08000004
_ 33   msg free     origims=RB1P destims=RB1P drrn=08000004
_ 0042 ims connect  event id=66 IMS sent to IMSConnect
_ 0042 ims connect  event id=66 IMS sent to IMSConnect
_ 004A ims connect  event id=74 IMSConnect sent to client
_
```

Would be able to see if there were any delays involving IMS Connect – none in this example

```
File  View  Sort  Options  Help
-------------------------------------------------------------------------------
Log Analyzer              LUOW 00000377 Log Records              Row 1 of 10
Command ===> _____________________________________________ Scroll ===> CSR

Report index file: 'LUI.SYSB.DEMO6.INDEX'
Type one or more action codes. Enter ALTview for additional columns.
  S=Log record detail   T=List adjacent records  K=Set delta benchmark
  D=Dump log record     B=Browse log record            Sorted by: TIMESTAMP
  Log
A Code     Type       Sequence No.   Timestamp                 Delta
- ---- ------------ ------------ ------------------------ ----------------
_ 0049 ims connect  0000000000C01 2009.043 10:05:16.599569
_ 0041 ims connect  0000000000C1F 2009.043 10:05:16.599717
_ 01   input msg    00000000020AF 2009.043 10:05:16.600791
_ 35   msg enqueue  00000000020B0 2009.043 10:05:16.600808
_ 31   msg get      00000000020B1 2009.043 10:05:16.600849
_ 36   msg dequeue  00000000020B2 2009.043 10:05:16.600896
_ 33   msg free     00000000020B3 2009.043 10:05:16.600921
_ 0042 ims connect  0000000000C24 2009.043 10:05:16.601350
_ 0042 ims connect  0000000000C28 2009.043 10:05:16.601913
_ 004A ims connect  0000000000C43 2009.043 10:05:16.602021
****************************** Bottom of Data ********************************
```

Crime Scene # 5 – An old PERP is still on the street. How do we detect him?

- For many companies, BMP jobs that issue checkpoints at inappropriate frequencies are a growing problem, and you might not even know! Companies are still running BMP jobs that were developed and tuned for mainframes and DASD devices that were manufactured years ago, not for today's faster hardware.
- Example:
  - In the past, a BMP job that runs on a five-year-old mainframe/DASD can take an hour to run and issue one checkpoint every five seconds. In contrast, the same program that runs on a newer mainframe can run in 15 minutes and issue 10 checkpoints per second, most of which are unnecessary.
- Unnecessary checkpoints waste CPU cycles at a significant cost. Reducing the number of unnecessary checkpoints can save hundreds of thousands of dollars.

=

Sample APPCHECK report

```
2010-078                              Log Analyzer for IMS V1.2.02.01                              Page 1
                                      Checkpoint Report   (APPCHECK) R=A
LOG time span: FROM 2010-217 08:18:38.50 TO 2010-217 09:05:17.29 DURATION 00:46:38
                                                        JOB       CHECKPOINT FREQUENCY
JOB-----  PSB-----  LUOW#--  #CHKPTS/TYPE      DURATION        /MIN      /SEC      --------Exceptions--------
DAPBA00J  DAPAUA00  0000268     2288 SYMBOLIC  00:46:37       49.07
DAPBB00J  DAPAUB00  0000612      372 SYMBOLIC  00:45:08        8.24
FSTB0810  FSTA1155  0056944                    00:00:00                          *** No Checkpoints
FSTB0811  FSTA1150  0063034       30 SYMBOLIC  00:00:04                7.50      *** More than 1 chkp / sec
FSTB0812  FSTA1155  0073948                    00:00:00                          *** No Checkpoints
DCSB0PIP  DCSA0PIP  0318173        5 SIMPLE    00:00:03                1.66      *** More than 1 chkp / sec
DAPBA21J  DAPAU110  0340738     1048 SYMBOLIC  00:00:10              104.80      *** More than 1 chkp / sec
FSTBW28B  FSTA1160  0408442      126 SYMBOLIC  00:00:10               12.60      *** More than 1 chkp / sec
FSTBW28A  FSTA1160  0409434      126 SYMBOLIC  00:00:09               14.00      *** More than 1 chkp / sec
#FSMA28E  FSTA1160  0411806     1124 SYMBOLIC  00:01:00               18.73      *** More than 1 chkp / sec
```

NOTE: If a job takes no checkpoints, and has no database updates – it won't show up on report

Default 'Exceptions' column fields:

- no checkpoints with database updates
- more than 1 chkp / sec
- less than 4 chkp / min

Change APPCHECK defaults?

Don't like our defaults for APPCHECK=ALL, you have options:

```
ANALYZE
   SLDS=(ims.slds,R121)
REPORTS
APPCHECK = (JOB = ABC*,XYZ*
                  PSB = ABC,B*
                  CHKFREQ>=2
                           THRESH = SEC | MIN)
END
```

Crime Scene # 6 – Who's been reading my CLASSIFIED documents?

- **LUI will show you IMS full function databases that were 'READ' (not updated).**
- IMS does NOT log the fact that a database was 'READ'. You could have a IMS transaction that performs many reads of a database, but this is not seen in IMS log records. No way to track how much time is spent 'reading' databases.
- Using the Mainview for IMS 'FA' log record, LUI will format this information and report 'read-only' databases in the LUOWSUMM and LUOWDETAIL reports.
  - NOTE: Mainview for IMS Offline required (IOFTBL3x password).


```
ANALYZE
        SLDS=(IMS.SLDS2,R111)
 FILTER
        SELECT=DBD=*     (BOTH read/update activity)
        SELECT=RDBD=*    (only READ activity)
        SELECT=UDBD=*    (only UPDATE activity)
REPORTS
        LUOWSUMM=ALL
        LUOWDETAIL=ALL
END
```

LUOW Summary report (LUOWSUMM) -

```
2010-162                                    Log Analyzer for IMS V1.2.02.01                                    Page 1
                                            LUOW Summary     (LUOWSUMM)
LOG time span: FROM 2007-346 16:21:39.01 TO 2007-346 18:10:36.00 DURATION 01:48:56
 -LUOW--  -Origin-  --Dest--  ---PSB--  --User--  -Recs--  ----1st rec date/time---  ----Elapsed----  ----Notes--------
0000029  Z3504FT   UCA39016  UCA39016  Z3504FT   0000020  2011.346-16:21:54.429004  00:00:00.029150  EXTSUB
0000033  Z3504ZE1  UCA39016  UCA39016  Z3504ZE   0000020  2011.346-16:21:59.050222  00:00:00.046332  EXTSUB
0000034  Z3504ZE1  UCA39016  UCA39016  Z3504ZE   0000020  2011.346-16:21:59.472385  00:00:00.040360  EXTSUB
0000038  bmp       HB5005UC  HB9000UB  nonusid   0000049  2011.346-16:22:01.796925  00:00:00.482134  EXTSUB
           Additional DESTs=HB3001UC HB4400UC BMP job name=#HBAA01Z
0000052  Z3504ME   SWEU      DSLEUD    Z3504ME   0000021  2011.346-16:22:12.388245  00:00:25.202367  EXTSUB
0000053  Z3504ZE1  UCA39016  UCA39016  Z3504ZE   0000020  2011.346-16:22:12.448595  00:00:00.334704  EXTSUB
0000054  Z3504ZE1  UCA39016  UCA39016  Z3504ZE   0000020  2011.346-16:22:13.352956  00:00:00.068827  EXTSUB
0000056  ims       ED0247UC  ED0247UC  nonusid   0000026  2011.346-16:22:17.748536  00:00:12.724147  UPDT EXTSUB RO-DB
0000063  ims       DSLCXT    DSLCXT    nonusid   0000010  2011.346-16:22:23.646275  00:00:00.166152  RO-DB
0000064  Z3504ZE1  UCA39016  UCA39016  Z3504ZE   0000035  2011.346-16:22:26.954349  00:00:00.050712  EXTSUB
           Additional DESTs=DCA39000
0000066  Z3504ZE1  DCA39000  DCA39000  Z3504ZE   0000036  2011.346-16:22:27.267777  00:00:00.915322  UPDT EXTSUB RO-DB
           Additional DESTs=DCB11017
0000070  Z3504ZE1  DCB11017  DCB11017  Z3504ZE   0000021  2011.346-16:22:28.183242  00:00:00.284763  UPDT EXTSUB RO-DB
```

These LUOW's have 'read-only' database activity

LUOW Detail report (LUOWDET) -

```
2010-162                                Log Analyzer for IMS V1.2.02.01                                Page 72
                                          LUOW Detail     (LUOWDET)  R=9
LOG time span: FROM 2007-346 16:21:39.01 TO 2007-346 18:10:36.00 DURATION 01:48:56
 LUOW 0000213 Log recs=0000021 Rec tkns=0000001 UOW-1=IMO1    C1A298876119ED0B
 Code  ---Type---- --Log Seq Num-- -----Time------  Variable-----------------------------------------------------
 37    msg xfer      000000FC5EDE8 16:23:26.661002  origims=IMO1 destims=IMO1 drrn=00000015 pst=00064
 33    msg free      000000FC5EDE9 16:23:26.661037  origims=IMO1 destims=IMO1 drrn=08000008
 56    ext subsys    000000FC5EDEA 16:23:26.661055  subsystem name=D2O1     (commit found no work)
                                                    recovery token=IMO1    0015D64B00000000
 56    ext subsys    000000FC5EDEB 16:23:26.661055  subsystem name=WMO1     (commit found no work)
                                                    recovery token=IMO1    0015D64B00000000
 5612  ext subsys    000000FC5EDEC 16:23:26.661057  (end phase2 syncpoint) recovery token=IMO1 0015D64B0000000
                                                    psb=XD06202C userid=OR498HK  groupname=OR498
 5607  ext subsys    000000FC5EDED 16:23:26.661058  (end unit-of-recovery) recovery token=IMO1 0015D64B00000001
                                                    psb=XD06202C
 31    msg get       000000FC5EDEE 16:23:26.661160  dest=OR498HK  drrn=0800000A
 5612  ext subsys    000000FC5EDEF 16:23:26.661434  (end phase2 syncpoint) recovery token=IMO1  0015D64B00000001
                                                    psb=XD06202C userid=OR498HK  groupname=OR498
 FA    Mainview      000000FC5EDF0 16:23:26.661454  jobname=IMSYS99K userid=OR498HK  message GU count=2 pst=00064
                                                    message insert count=1 i/o pcb input characters=1845
                                                    i/o pcb output characters=1845
                                                    readDBs= ED0008(24), ED0001(956), ED0007(26), ED0061(1),
                                                    ED0003(68), ED0005(4920), ED0025(273)
```

Database name

non-update CALL count

Crime Scene # 7 – Operations has reported ‘a lot’ of transaction abends….let’s check it out!

```
ANALYZE
INTERVAL
  START=2011161/09000000 STOP=2011161/20000000
REPORTS
   ABENDS=ALL
END
```

ABENDs report

2012-111 Log Analyzer for IMS V1.3.01.03
ABEND report
LOG time span: FROM 2011-161 14:00:00.00 TO 2011-161 20:00:00.00 DURATION 06:00:00

--PSB--	--Tran--	--Type-	-Userid-	-Jobname-	-Abend-	-Abend date/time--	-Total Msgs-	-Fls Sched-
XCRQS37	XCRQS	mpp	EQ4510A	IMSMPP03	S0C7	2011.161-14:01:39.7	000001	
D33XFE3	D33XFE3	mpp	EQD2008	IMSMPP03	U4093	2011.161-15:20:54.4	000000	
W77FE	W77FQT	mpp	EQ2008A	IMSMPP01	U4093	2011.161-15:20:55.7	000000	
XRKPP502		bmp	EQ8351A	EQ8351AA	U1008	2011.161-16:03:14.2	000000	
QRCADVZ	QRWCADVZ	mpp	EQ1063A	IMSMPP03	S0C4	2011.161-16:50:01.3	000002	
PF990RL1		bmp	EQ6800A	EQ6800A	S0C4	2011.161-17:12:52.9	000000	
WY445022		bmp	EQ8351A	EQ8351AA	U1008	2011.161-17:28:50.3	000000	
PQ37P001	PQ37T001	mpp	EQ3955A	IMSMPP02	S0C4	2011.161-17:53:31.3	000001	
XLP728	TTT728	mpp	IMST80	IMSBM097	U0777	2011.161-18:04:52.4	000001	
XIP078	TTT078	mpp	IMST80	IMSBM113	U0777	2011.161-18:05:13.1	000004	
XIP650	TTT650	mpp	IMST80	IMSBM045	U0777	2011.161-18:05:44.3	000011	
BWE590F	BZT592	bmp	U2149	IMSGF038	U0777	2011.161-18:50:22.9	000002	

Crime Scene # 8 – DBA wants to know what filled up a particular database (too much data maybe?)

- This is a good example of the power of the LUOW. Able to quickly see how many x'50xx' database update log records were created. This is a good indication which (if any) LUOW's did an exorbitant number of DB updates.

```
ANALYZE
        SLDS=(IMS.SLDS2,R111)
 FILTER
        SELECT=UDBD=Z380DB
REPORTS
        LOGRECORDCODES=(50)   <--- ONLY show 50's
        LUOWSUMM=ALL
END
```

LUOWSUMM report. 197,280 DB update log records, now that looks a tad fishy! Notify the DBA that BMP job XR99UPDT is the culprit.

```
2012-165                                  Log Analyzer for IMS V1.3.01.03                                  Page 1
                                        LUOW Summary Report       (LUOWSUMM)
LOG time span: FROM 2012-058 05:45:00.34 TO 2012-058 05:50:16.12 DURATION 00:05:15
 -LUOW--  -Origin-  --Dest--  ---PSB--  --User--  -Recs--  ----1st rec date/time---  ----Elapsed----  ----Notes------
 0000009  appcotma  TRN026    PSB026    Q485530   0000038  2012.058-05:45:00.987206  00:00:00.009650  M-IMS UPDT
 0000013  appcotma  TRN026    PSB026    Q485530   0000038  2012.058-05:45:01.722229  00:00:00.008242  M-IMS UPDT
           Additional DESTs=FST141
 0000016  appcotma  TRN077    PSB077    Q775384   0000021  2012.058-05:45:02.031965  00:00:00.005793  M-IMS UPDT
 0000027  bmp       TRN026    PSB026    PRODJOB   0197280  2012.058-05:45:47.564877  00:03:01.207684  M-IMS UPDT
            BMP job name=XR99UPDT
 0000267  appcotma  TRN077    PSB077    Q183303   0000021  2012.058-05:45:50.452071  00:00:00.006144  M-IMS UPDT
 0000268  appcotma  TRN077    PSB077    Q291510   0000022  2012.058-05:45:51.369254  00:00:00.019844  M-IMS UPDT
 0000275  appcotma  TRN077    PSB077    Q827281   0000021  2012.058-05:45:52.615402  00:00:00.270775  M-IMS UPDT
 0000299  appcotma  TRN026    PSB026    Q289610   0000038  2012.058-05:45:52.983315  00:00:00.072049  M-IMS UPDT
 0000302  appcotma  TRN077    PSB077    Q183303   0000021  2012.058-05:45:53.152371  00:00:00.006144  M-IMS UPDT
 0000327  appcotma  TRN077    PSB077    Q291510   0000021  2012.058-05:45:53.569224  00:00:00.019844  M-IMS UPDT
 0000396  appcotma  TRN077    PSB077    Q827281   0000021  2012.058-05:45:53.615982  00:00:00.270775  M-IMS UPDT
 0000400  appcotma  TRN026    PSB026    Q289610   0000038  2012.058-05:45:53.883395  00:00:00.072049  M-IMS UPDT
```

Miscellaneous Reports:

- RBASTATS shows summary and detailed I/O count for each RBA/BLOCK in every database/dataset group. Good way to see I/O distribution.
- Show if you have a HOTSPOT in a database.

```
ANALYZE
            SLDS=(IMS.SLDS2,R111)
 FILTER
            SELECT=DBD=*
REPORTS
            RBASTATS=TOTALS
                 or
            RBASTATS=nnnnnn
END
```

Example RBASTATS 'TOTALS'

```
2010-292                          Log Analyzer for IMS V1.2.02.03                    Page 1
                                  RBA buffer stats(RBASTATS)
LOG time span: FROM 2009-154 06:12:10.04 TO 2009-155 18:10:36.00 DURATION > 24 hrs
Total this DBD/DSG (DBD=XD1002    DSG=001 ) 0002251   <<<<---  total RBA's updated

Total this DBD/DSG (DBD=XD1006    DSG=001 ) 0000003

Total this DBD/DSG (DBD=EX0002    DSG=002 ) 0000041

Total this DBD/DSG (DBD=EX0003    DSG=001 ) 0000674

Total this DBD/DSG (DBD=EX0004    DSG=001 ) 0001028

Total this DBD/DSG (DBD=DXRAS71   DSG=001 ) 0000077

Total this DBD/DSG (DBD=DXRAS71A DSG=001 ) 0000080

Total this DBD/DSG (DBD=DXRAS71X DSG=001 ) 0000052

Total this DBD/DSG (DBD=DXRAS72   DSG=001 ) 0000123

Total this DBD/DSG (DBD=DXRAS72A DSG=001 ) 0000606

Total this DBD/DSG (DBD=DXRAS72X DSG=001 ) 0000609

Total this DBD/DSG (DBD=DXRAS75   DSG=001 ) 0000019

Total this DBD/DSG (DBD=DX10FRD   DSG=001 ) 0000002
```

Example RBASTATS 'DETAIL' for DBD "XD1002" and "XD1006"

```
2010-292                          Log Analyzer for IMS V1.2.02.03                                    Page 1
                                  RBA buffer stats(RBASTATS)
LOG time span: FROM 2009-154 06:12:10.04 TO 2009-155 18:10:36.00 DURATION > 24 hrs
DBD      DS  RBA/BLK# CNT   | DBD      DS  RBA/BLK# CNT   | DBD      DS  RBA/BLK# CNT   | DBD      DS  RBA/BLK# CNT
XD1002   001 00007FE1 00100 | XD1002   001 0000A88F 31192 | XD1002   001 0000A890 00090 | XD1002   001 0000A891 00090
XD1002   001 0000A892 00090 | XD1002   001 0000A893 00090 | XD1002   001 0000A894 00090 | XD1002   001 0000A895 00090
XD1002   001 0000A896 00090 | XD1002   001 0000A897 00090 | XD1002   001 0000A898 00090 | XD1002   001 0000A899 00090
XD1002   001 0000A89A 00090 | XD1002   001 0000A89B 00090 | XD1002   001 0000A89C 00090 | XD1002   001 0000A89D 00090
XD1002   001 0000A89E 00090 | XD1002   001 0000A89F 00090 | XD1002   001 0000A8A0 00090 | XD1002   001 0000A8A1 00090
XD1002   001 0000A8A2 00090 | XD1002   001 0000A8A3 00090 | XD1002   001 0000A8A4 00090 | XD1002   001 0000A8A5 00090
XD1002   001 0000A8A6 00090 | XD1002   001 0000A8A7 00090 | XD1002   001 0000A8A8 00090 | XD1002   001 0000A8A9 00090
XD1002   001 0000A8AA 00090 | XD1002   001 0000A8AB 00090 | XD1002   001 0000A8AC 00090 | XD1002   001 0000A8AD 00090
XD1002   001 0000A8AE 00090 | XD1002   001 0000A8AF 00090 | XD1002   001 0000A8B0 00090 | XD1002   001 0000A8B1 00090
XD1002   001 0000A8B2 00090 | XD1002   001 0000A8B3 00090 | XD1002   001 0000A8B4 00090 | XD1002   001 0000A8B5 00090
XD1002   001 0000A8B6 00090 | XD1002   001 0000A8B7 00090 | XD1002   001 0000A8B8 00090 | XD1002   001 0000A8B9 00090
XD1002   001 0000A8BA 00090 | XD1002   001 0000A8BB 00090 | XD1002   001 0000A8BC 00090 | XD1002   001 0000A8BD 00090
.
.
.
.
Total this DBD/DSG (DBD=XD1002   DSG=001 ) 0002251

XD1006   001 00000001 00001 | XD1006   001 00000006 00003 | XD1006   001 00000021 00003 |

Total this DBD/DSG (DBD=XD1006   DSG=001 ) 0000003
```

Ability to use a time INTERVAL, and we'll figure out what IMS/DB2/Energizer data is needed:

Just give LUI the IMS RECON(s), DB2 BSDS dataset(s), and the Energizer journal prefix, along with the timeframe to be searched, and we'll take it from there!!

```
ANALYZE
        RECON=(IMSA.RECON1,IMSA.RECON2)
        DB2BSDS=BMC.DB2.BSDS <<--DB2 bootstrap
        IPRprefix=ICON27.IPR <<--Energizer journals
FILTER
        SELECT=TRAN=ABC*
INTERVAL
        START=2012060/1830
        STOP=2012060/1845
END
```

Summary

- Log Analyzer
  - Analyzes IMS log data to solve business problems
  - Correlates IMS log records into LUOWs
    - Traditional UOW vs a BMC Software LUOW
  - LUOWs reported at a high level but drill down for details (like a GPS!)
    - Review individual log records
    - Follow the log record flow from record to record
- Log Analyzer is the Log Expert
  - So you don’t have to be!!
- Clearly see what’s going on in IMS with Log Analyzer

Questions?

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