IMS32

IMS V9 KBLA Overview:
A new interface for accessing utilities to analyze IMS log records

Alison Coughtrie

alison_coughtrie@uk.ibm.com

ON DEMAND BUSINESS™

KBLA

- **New facility for IMS log record analysis**
  - ▶ ISPF driven interface
    - ▪ 39 panels
  - ▶ Set of log record formatting and analysis routines

- **Benefit**
  - ▶ Provides an easy to use, easy to read interpreted version of the IMS log records
  - ▶ Creates syntactically correct control statements and valid JCL for the utilities
    - ▪ Reduces the need to reference the manuals and minimizes errors
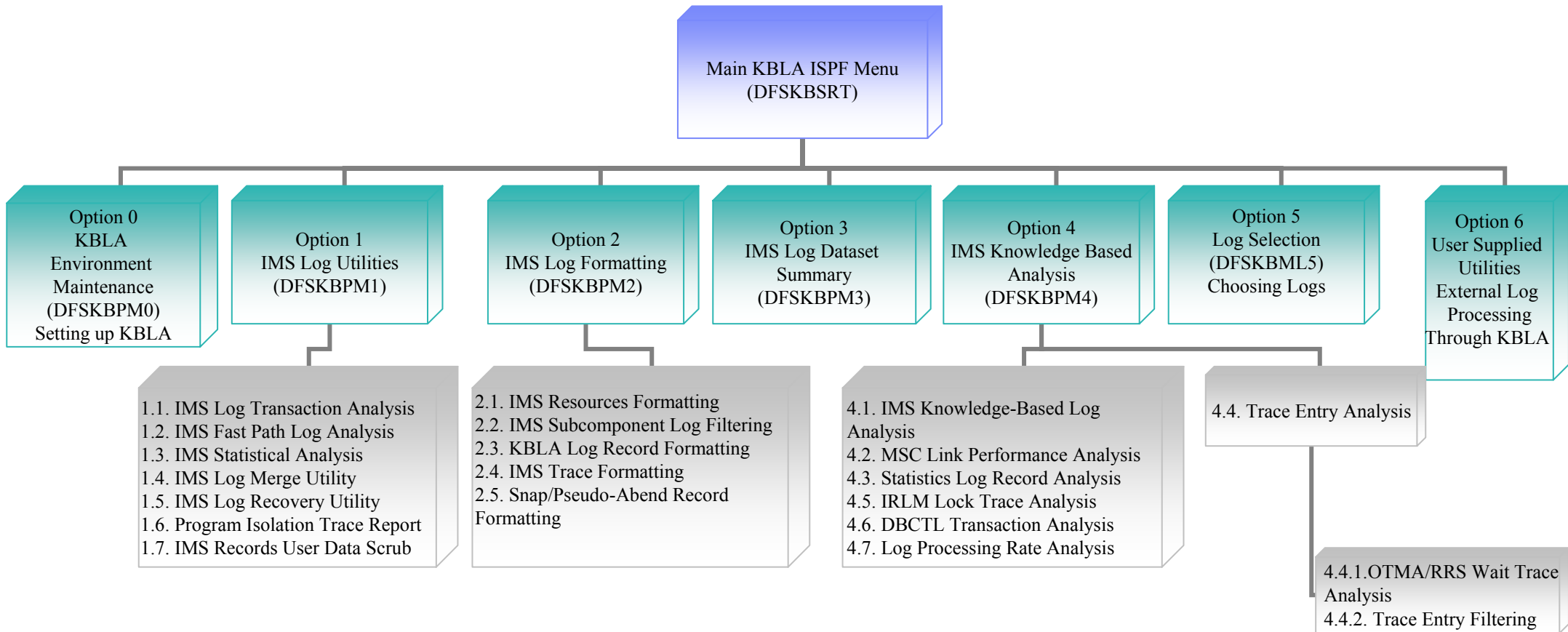 - ▶ Introduces new log analysis utilities
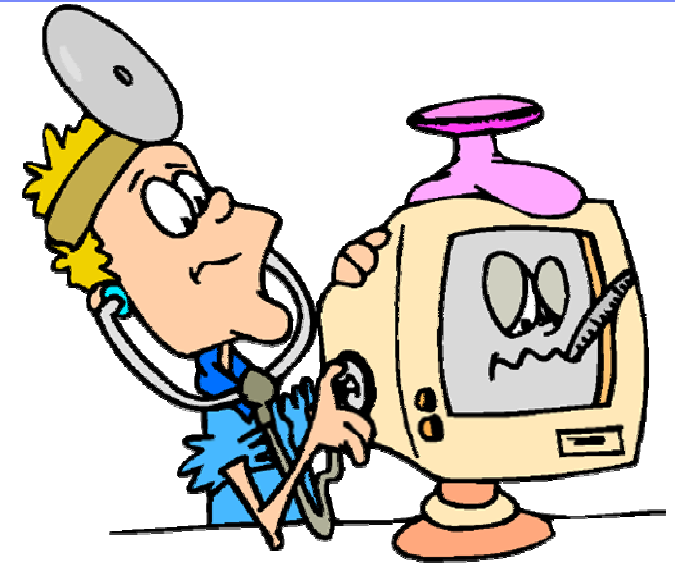
Log Records Analyzed

- X'01'
- X'02'
- X'03'
- X'06'
- X'07'
- X'08'
- X'10'
- X'11'
- X'12'
- X'16'
- X'20'
- X'21'
- X'24'
- X'31'
- X'32'
- X'33'

- X'34'
- X'35'
- X'36'
- X'37'
- X'38'
- X'39'
- X'40' (13 of 48 subcodes formatted)
- X'42'
- X'48'
- 'X50'
- X'55'
- X'56'
- X'59'
- X'63'
- X'72'

KBLA Panel Structure

Main KBLA ISPF Menu
(DFSKBSRT)

Option 0
KBLA Environment Maintenance (DFSKBPM0)
Setting up KBLA

Option 1
IMS Log Utilities (DFSKBPM1)

Option 2
IMS Log Formatting (DFSKBPM2)

Option 3
IMS Log Dataset Summary (DFSKBPM3)

Option 4
IMS Knowledge Based Analysis (DFSKBPM4)

Option 5
Log Selection (DFSKBML5) Choosing Logs

Option 6
User Supplied Utilities External Log Processing Through KBLA

1.1. IMS Log Transaction Analysis
1.2. IMS Fast Path Log Analysis
1.3. IMS Statistical Analysis
1.4. IMS Log Merge Utility
1.5. IMS Log Recovery Utility
1.6. Program Isolation Trace Report
1.7. IMS Records User Data Scrub

2.1. IMS Resources Formatting
2.2. IMS Subcomponent Log Filtering
2.3. KBLA Log Record Formatting
2.4. IMS Trace Formatting
2.5. Snap/Pseudo-Abend Record Formatting

4.1. IMS Knowledge-Based Log Analysis
4.2. MSC Link Performance Analysis
4.3. Statistics Log Record Analysis
4.5. IRLM Lock Trace Analysis
4.6. DBCTL Transaction Analysis
4.7. Log Processing Rate Analysis

4.4. Trace Entry Analysis

4.4.1. OTMA/RRS Wait Trace Analysis
4.4.2. Trace Entry Filtering

Invoking KBLA ...

- EX 'hlq.SDFSEXEC(DFSKBSRT)' 'HLQ(hlq)'

- Can be invoked from the IMS Application Menu:

```
Help
                IMS Application Menu


 Select the desired application and press Enter.



         1     Single Point of Control (SPOC)
         2     Knowledge-Based Log Analysis (KBLA)
         3     HALDB Partition Definition Utility (PDU)
         4     Syntax Checker for IMS parameters (SC)
         5     Installation Verification Program (IVP)
         6     IVP Export Utility (IVPEX)
         7     IPCS with IMS Dump Formatter (IPCS)




 To exit the application, press F3.
 Command ===>
 F1=Help    F12=Cancel
```

KBLA Primary Menu

```
         Knowledge-Based Log Analysis    IMS Version 9.1
Command ===>


                                         TIME....18:18:33
                                         DATE....2004/11/23
                                         JULIAN..2004.328
Select any of the following tasks and press ENTER .    USERID..COUGHTA




      Tasks . .    0. KBLA Environment Maintenance
                   1. IMS Log Utilities
                   2. IMS Log Formatting
                   3. IMS Log Data Set Summary
                   4. IMS Knowledge-Based Analysis
                   5. Log Selection

                   6. User-Supplied Utilities


To Exit the KBLA MAIN menu, press END .
For Help place cursor on any field and press PF1 .
 F1=HELP        F2=SPLIT      F3=END        F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP          F8=DOWN       F9=SWAP       F10=LEFT      F11=RIGHT     F12=RETRIEVE
```

First Things First - KBLA Environment

- Set up the environment
  - From the main panel, choose Task 0

```
                   IMS K.B.L.A. - Environment Maintenance
Command ===>

                                                TIME....18:25:54.16
                                                DATE....2004/11/23
                                                JULIAN..2004.328

Select any of the following subtasks and press ENTER .



    Subtasks . .     1. KBLA Default Parameter Maintenance
                     2. KBLA Create Work Dataset List
                     3. KBLA View Work Dataset List
                     4. KBLA Delete Work Datasets


To Exit the KBLA menu, press END .
For Help place cursor on any field and press PF1 .
 F1=HELP        F2=SPLIT       F3=END         F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP          F8=DOWN        F9=SWAP        F10=LEFT      F11=RIGHT     F12=RETRIEVE
```
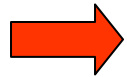
First Things First

- Define the data sets

  - From the KBLA Environment Maintenance panel, choose subtask 1

```
                              IMS K.B.L.A. - Define KBLA Environment
Command ===>
                                                    TIME....18:31:31
                                                    DATE....2004/11/23
Fill out the following variables and press ENTER .       JULIAN..2004.328

  KBLA Loadlib . . . . . . .  IMS.V91.DBDC.SDFSRESL
  IMS Version 9   Reslib DSN  IMS.V91.DBDC.SDFSRESL
  IMS Version     Reslib DSN
  IMS Version     Reslib DSN
  IMS Version     Reslib DSN

  COPY1 DSN. . . . . . . . .
  COPY2 DSN. . . . . . . . .
  Verify LOG DSN Exists  . . Y  (Y/N)  Default: Y
  Default Output Space Parms: Type CYL   Primary 100  Secondary 50
  Default SLDS Unit. . . . .
  Retain output reports in dataset    (Y/N)  Default: Y
  JOB JCL statement . . . . . . .  Y  (Y/N)  Default: N
  Route output to alternate system N  (Y/N)  Default: N
 F1=HELP      F2=SPLIT      F3=END      F4=RETURN    F5=RFIND     F6=RCHANGE
 F7=UP        F8=DOWN       F9=SWAP     F10=LEFT     F11=RIGHT    F12=RETRIEVE
```
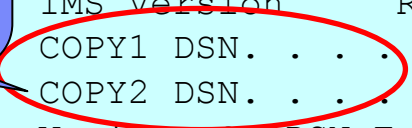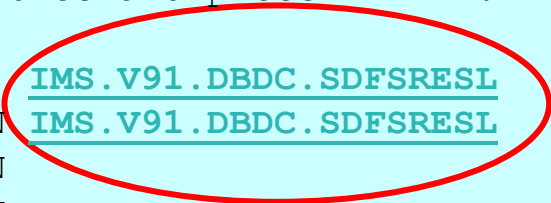
Specifies the names of the ACTIVE RECON datasets

Job Card

- After defining the KBLA environment, press enter to see what the JOB card will look like for all jobs generated by the utility

  ▸ Modify as needed

```
  File   Edit   Edit_Settings   Menu   Utilities   Compilers   Test   Help


EDIT        COUGHTA.KBLA.SDFSKJCL(DFSKJOBU) - 01.00        Columns 00001 00072
****** ************************** Top of Data ****************************
==MSG> -Warning- The UNDO command is not available until you change
==MSG>          your edit profile using the command RECOVERY ON.
000001 //COUGHTAA  JOB ,
000002 //     MSGCLASS=H,MSGLEVEL=1,TIME=(10),USER=COUGHTA,
000003 //     REGION=0K,NOTIFY=COUGHTA
****** ************************** Bottom of Data ************************
```

◀ **PF3 To Return**

Log Selection

- From the main panel select option 5 – Log Selection

```
              IMS K.B.L.A. - Log Selection and Tailoring
Command ===>


                                          TIME....02:54:38
                                          DATE....2004/11/26
                                          JULIAN..2004.331
Select any of the following subtasks and press ENTER .




   Subtasks . .     1. Select Logs from RECON
                    2. Input List of Logs
                    3. Create PDS Member(s) from Sorted Input List
                    4. Sort Records Within Logs


To Exit the KBLA menu, press END .
For Help place cursor on any field and press PF1 .
 F1=HELP       F2=SPLIT      F3=END        F4=RETURN    F5=RFIND      F6=RCHANGE
 F7=UP         F8=DOWN       F9=SWAP       F10=LEFT     F11=RIGHT     F12=RETRIEVE
```

Log Selection

- Select subtask 1 – select Logs from RECON

```
                        IMS K.B.L.A. - Select Logs From RECON
Command ===>


                                              TIME....16:54:21
                                              DATE....2005/03/29
Fill out the following variables and press ENTER .     JULIAN..2005.088

   COPY1 DSN. . . . . . . .    IMSDATA.IM9A.RECON1
   COPY2 DSN. . . . . . . .    IMSDATA.IM9A.RECON2
   IMS Log Version . . . . 9

   Start Date. . . . . . . . . . . 2005001    (Julian Date eg: 2002190)
   Start Time (UTC). . . . . . . .            (hhmmss eg: 133000)
   Stop Date . . . . . . . . . . .            (Julian Date eg: 2002190)
   Stop Time (UTC) . . . . . . . .            (hhmmss eg: 133500)
   Output DSN Keyword. . . . . . . IM9A       The Output DSN will be:
   Use Existing LIST.LOG? .    (Y/N)          COUGHTA.keyword.KBLA
   DSN Containing LIST.LOG.
   SSIDS. IM9A          IM9B

 F1=HELP       F2=SPLIT       F3=END        F4=RETURN     F5=RFIND     F6=RCHANGE
 F7=UP         F8=DOWN        F9=SWAP       F10=LEFT      F11=RIGHT    F12=RETRIEVE
```

Log Selection

- Select subtask 1 – select Logs from RECON – sample output

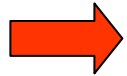```
START TIME USED   : 20050010000000
NUMBER OF CNTLCRDS RECORDS READ   :   5
NUMBER OF SSIDS SUPPLIED   :   2
NUMBER OF SYSPRINT LINES READ   :   850
MAX. ALLOWABLE NUMBER OF LOG DSNS :   100
NUMBER OF LOG DSNS SELECTED   :   10

SELECTED LOG DSN=IMSDATA.IM9A.SLDSP.D04352.T1236092.V02   SSID=IM9A
  LOG TIME RANGE: 04352/1236092 - 05029/0223398
SELECTED LOG DSN=IMSDATA.SLDSP.IM9B.D04352.T1312330.V02   SSID=IM9B
  LOG TIME RANGE: 04352/1312330 - 05025/1110422
SELECTED LOG DSN=IMSDATA.IM9A.SLDSP.D05042.T1641082.V03   SSID=IM9A
  LOG TIME RANGE: 05042/1641082 - 05047/2000157
SELECTED LOG DSN=IMSDATA.SLDSP.IM9B.D05046.T1544213.V02   SSID=IM9B
  LOG TIME RANGE: 05046/1544213 - 05047/2000153
SELECTED LOG DSN=IMSDATA.IM9A.SLDSP.D05047.T2004548.V04   SSID=IM9A
  LOG TIME RANGE: 05047/2004548 - 05071/0805155
SELECTED LOG DSN=IMSDATA.SLDSP.IM9B.D05047.T2008507.V03   SSID=IM9B
 LOG TIME RANGE: 05047/2008507 - 05071/0805156
SELECTED LOG DSN=IMSDATA.IM9A.SLDSP.D05073.T1139375.V05   SSID=IM9A
  LOG TIME RANGE: 05073/1139375 - 05081/1408276
SELECTED LOG DSN=IMSDATA.SLDSP.IM9B.D05073.T1141531.V04   SSID=IM9B
  LOG TIME RANGE: 05073/1141531 - 05081/1408274
SELECTED LOG DSN=IMSDATA.IM9A.SLDSP.D05081.T1409270.V06   SSID=IM9A
  LOG TIME RANGE: 05081/1409270 - 05081/1414346
SELECTED LOG DSN=IMSDATA.IM9A.SLDSP.D05081.T1414346.V02   SSID=IM9A
  LOG TIME RANGE: 05081/1414346 - 05082/1606171
```

# KBLA Task Selection 1 - IMS Log Utilities

- Bring up the IMS Log Utilities Panel
  - From the main panel, select Task 1

```
                    IMS K.B.L.A. - IMS Log Utilities
Command ===>
                                               TIME....21:26:46
                                               DATE....2004/11/23
                                               JULIAN..2004.328
Select any of the following subtasks and press ENTER.


   Subtasks . .     1. IMS Log Transaction Analysis   - (DFSILTA0)
                    2. IMS Fast Path Log Analysis      - (DBFULTA0)
                    3. IMS Statistical Analysis        - (DFSISTS0)
                    4. IMS Log Merge Utility           - (DFSLTMG0)
                    5. IMS Log Recovery Utility        - (DFSULTR0)
                    6. Program Isolation Trace Report  - (DFSPIRP0)
                    7. IMS Records User Data Scrub      - (DFSKSCR0)


To Exit the KBLA menu, press END .
For Help place cursor on any field and press PF1 .
 F1=HELP        F2=SPLIT       F3=END         F4=RETURN    F5=RFIND      F6=RCHANGE
 F7=UP          F8=DOWN        F9=SWAP        F10=LEFT     F11=RIGHT     F12=RETRIEVE
```

Help Panels

```
              K.B.L.A. - Subtask 1 - IMS Log Utilities HELP Panel


This is the ISPF Panel interface for using the most important IMS
Log Analysis Utility. In Specific:

1.  IMS Log Transaction Analysis - (DFSILTA0)
    -------------------------------
    This KBLA panel allows you to interface with the IMS log utility
    named "DFSILTA0", without coding any JCL statements.


    More information about the utility itself and the information
    produced by its output are available in the help panel for this
    option. Field level help is also supported.




2.  IMS Fast Path Log Analysis - (DBFULTA0)
    -------------------------
    This KBLA panel allows you to interface with the IMS Fast Path
    (FP) Log Analysis utility DBFULTA0.


                                           Continue...
F1=HELP       F2=SPLIT      F3=END        F4=RETURN    F5=RFIND     F6=RCHANGE
F7=UP         F8=DOWN       F9=SWAP       F10=LEFT     F11=RIGHT    F12=RETRIEVE
```

ENTER to Continue
PF3 To Return

IMS Statistical Analysis Utility

- Bring up the IMS Statistical Analysis Utility Panel - from the IMS Log Utilities Panel, select Subtask 3

```
              == K.B.L.A.  Statistical Analysis Utility ==


Input IMS Log DSN IMSDATA.IM9A.SLDSP.D04323.T1550387.V00        Cataloged? Y
IMS Log Version. . . . . . . . . .   9
Normal or Date Sort . . . . . . . . . .    N        (N/D)
Message Select Output. . . . . . . . .    Y        (Opt. Y/N)
    Start Date/Time (UTC) . . . . . . .                  (Date: Julian)
    Stop Date/Time (UTC). . . . . . . .                  (Time: HHMMSS)
      Extract by TRAN Code . . . . . .    ALL       (TRANname/All/None)
      Extract Input Messages  . . . .             (Y/N)
      Extract Output Messages. . . . .             (Y/N)


      Extract by LTERM Name. . . . . .    ALL       (LTERMname/All/None)
      Extract Input Messages  . . . .             (Y/N)
      Extract Output Messages. . . . .             (Y/N)
         Output Msgs by LTERM . . . .             (LTERMname/All)
      Extract by NODE Name . . . . . .             (NODEname/All/None)
      Extract Input Messages . . . .             (Y/N)
      Extract Output Messages. . . . .             (Y/N)
         Output Msgs by NODE . . . .             (NODEname/All)
Output DSN Keyword . . . . . . . .    IM9A        The Output DSN will be:
COMMAND ===>
```

Help Panels – Field Level

```
           K.B.L.A. - FIELD HELP - Extract by TRAN Code

 This field generates the necessary JCL SYSIN control statement to
 obtain DFSISTS0 reports exclusively for the supplied eight characters
 transaction code (tranname) and it is valid only if the above field
 "Message Select Output" has been set to Y (Yes).

 The values the user can specify in this field are:
   1. Valid tranname (up to 8 characters); wildcard character ("*") allowed
   2. ALL (for selecting all transaction codes)
   3. BLANK or NONE (for no transaction code filtering)

 Using the next two fields in this panel (Extract Input Messages, Extract
 Output messages) the user can further limit the reports produced to
 the sole input or output messages respectively, for the supplied
 transaction code (tranname).

 For more information refer to the following manual:

 "Utility Reference: System"
 Chapter: "Statistical Analysis Utility (DFSISTS0)"

 F1=HELP      F2=SPLIT      F3=END       F4=RETURN    F5=RFIND      F6=RCHANGE
 F7=UP        F8=DOWN       F9=SWAP      F10=LEFT     F11=RIGHT     F12=RETRIEVE
```

IMS Statistical Analysis Utility

- Example of the JCL generated

```
 File   Edit   Edit_Settings   Menu   Utilities   Compilers   Test   Help
EDIT          COUGHTA.KBLA.SDFSKJCL(DFSKBJ10) - 01.01          Columns 00001 00072
 000143 //IST40      EXEC PGM=DFSIST40
 000144 //IMSLOGP    DD DISP=(NEW,CATLG,CATLG),
 000145 //   DSN=COUGHTA.IM9A.KBLA.I.X04328.Y222314,
 000146 //   UNIT=SYSDA,
 000147 //   SPACE=(CYL,(100,50),RLSE),
 000148 //   DCB=(LRECL=133,BLKSIZE=6118,RECFM=FBA)
 000149 //IMSLOGI    DD DSN=COUGHTA.DFSKBL10.EDIT34IN,
 000150 //              DISP=(OLD,DELETE)
 000151 //SYSPRINT DD SYSOUT=*
 000152 //SYSIN      DD *
 000153 TRANS CODE=(ALL,,)
 000154 SYM NAME=(ALL,,,)
 000155 //*********************************************************************
 000156 //***** STEP 8   ******************************************************
 000157 //*********************************************************************
 000158 //PRTDCB   EXEC   PGM=IEBGENER
 000159 //SYSPRINT  DD SYSOUT=*
 000160 //SYSUT1     DD DISP=SHR,DSN=*.IST30.PRINTDCB
Command ===>                                              Scroll ===> PAGE
 F1=Help       F2=Split      F3=Exit       F5=Rfind      F6=Rchange    F7=Up
 F8=Down       F9=Swap       F10=Left      F11=Right     F12=Cancel
```

IMS Log Utilities - Records User Data Scrub

- IMS Records User Data Scrub
  - From the IMS Log Utilities Panel, select Subtask 7

```
                      IMS K.B.L.A. - IMS Log Utilities
   Command ===>

                                              TIME....21:26:46
                                              DATE....2004/11/23
                                              JULIAN..2004.328

   Select any of the following subtasks and press ENTER .



        Subtasks . .     1. IMS Log Transaction Analysis   - (DFSILTA0)
                         2. IMS Fast Path Log Analysis     - (DBFULTA0)
                         3. IMS Statistical Analysis       - (DFSISTS0)
                         4. IMS Log Merge Utility          - (DFSLTMG0)
                         5. IMS Log Recovery Utility       - (DFSULTR0)
                         6. Program Isolation Trace Report - (DFSPIRP0)
                         7. IMS Records User Data Scrub  - (DFSKSCR0)

   To Exit the KBLA menu, press END .
   For Help place cursor on any field and press PF1 .
    F1=HELP       F2=SPLIT       F3=END       F4=RETURN     F5=RFIND     F6=RCHANGE
```

Use this to remove customer sensitive data from a copy of the log before sending the log to IBM or Vendors

IMS Records User Data Scrub

```
                    IMS K.B.L.A. - IMS Records User Data Scrub
Command ===>


Fill out the following variables and press ENTER .

Input IMS Log DSN IMSDATA.IM9A.SLDSP.D04323.T1550387.V00          Cataloged? Y
IMS Log Version . . . . 9


Output DSN Keyword . .   IM9A        Output DSN: COUGHTA.Keyword.KBLA.L.*



Create a New Log dataset with no User Data. . Y   (Y/N)


Log DSNs were extracted from RECON . .   N
PDS member containing logs . . . . . .


 F1=HELP       F2=SPLIT      F3=END       F4=RETURN    F5=RFIND     F6=RCHANGE
 F7=UP         F8=DOWN       F9=SWAP      F10=LEFT     F11=RIGHT    F12=RETRIEVE
```

Log records processed:
- *x'01' Input message*
- *x'03' Output message*
- *x'18' User checkpoint*
- *x'4002' Checkpoint message queue records*
- *x'50' FF DB update*
- *x'5901' FP input message*
- *x'5903' FP output message*
- *x'595x' FP database update*
- *x'67' trace and dump records*
- *All other records ignored*

IMS Records User Data Scrub ... Summary output

```
CONTROL CNTL STOPAFT=EOF
***********************************************
* IMS-V9 INPUT LOG DATA SET NAME(S):
* IMSDATA.IM9A.SLDSP.D04323.T1550387.V00
***********************************************
*
* RECORDS USER DATA SCRUB
*
***********************************************
OPTION COPY E=DFSKSCR0
*
DFS707I END OF FILE ON INPUT
#01 RECORDS PROCESSED:      384
#03 RECORDS PROCESSED:    2,929
#50 RECORDS PROCESSED:   12,120
#5901 RECORDS PROCESSED: 1,967
#5903 RECORDS PROCESSED: 1,967
#5950 RECORDS PROCESSED:26,917
#67 RECORDS PROCESSED: 0
DFS708I OPTION COMPLETE
DFS703I END OF JOB
```

Database Change Record *before* running Scrub

```
5050 RECORD - RECOVERY/BACKOUT DATA
    RBA/RBN: 00001000            PST: 0001            PSB: IVPQPP2
    DBD: QPPDB22    DCB: 01    BACKOUT RECORD: NO    CALL TYPE: ISRT
    RCVY TOKEN: C9D4F9C1404040400000000100000000
    UNDO (PHYSICAL ISRT) DATA FOLLOWS:
0004CFF8 000000   8080062C 003A0100  0000116A 000015F2   0000162C 0002000B  D3C1E2E3 F7F14040   *..............2.......LAST71 *
0004D018 000020   4040C6C9 D9E2E3F2  40404040 F860F1F1   F160F2F2 F2F2C4F0  F261D9F0 F2404040   * FIRST2    8-111-2222D02/R02  *
    DATE/TIME: 2005-03-22 12:52:53.403819 UTC            LOG SEQ NO: 000000CC
```

Database Update Record *after* running Scrub

```
5050 RECORD - RECOVERY/BACKOUT DATA
    RBA/RBN: 00001000              PST: 0001              PSB: IVPQPP2
    DBD: QPPDB22    DCB: 01    BACKOUT RECORD: NO    CALL TYPE: ISRT
    RCVY TOKEN: C9D4F9C1404040400000000100000000
    UNDO (PHYSICAL ISRT) DATA FOLLOWS:
00064FF8 000000   8080062C 003A60C3  D3C5C1D9 C5C4606E   00000000 00000000  000 00000 00000000   *......-CLEARED->...............*
00065018 000020   00000000 00000000  00000000 00000000   00000000 00000000  000 00000 00000000   *..............................*
    DATE/TIME: 2005-03-22 12:52:53.403819 UTC           LOG SEQ NO: 000000CC
```

KBLA Task Selection 2 - IMS Log Formatting
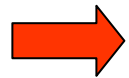
- Bring up the IMS Log Formatting Panel
  - From the Main panel, choose Task 2

```
                    IMS K.B.L.A. - Log Formatting Selections
Command ===>


                                                TIME....23:20:11
                                                DATE....2004/11/23
                                                JULIAN..2004.328

Select any of the following subtasks and press ENTER .




    Subtasks . .    1. IMS Resources Formatting
                    2. IMS Subcomponent Log Filtering
                    3. KBLA Log Record Formatting
                    4. IMS Trace Formatting
                    5. Snap/Pseudo-Abend Record Formatting


To Exit the KBLA menu, press END .
For Help place cursor on any field and press PF1 .
 F1=HELP         F2=SPLIT        F3=END          F4=RETURN     F5=RFIND       F6=RCHANGE
 F7=UP           F8=DOWN         F9=SWAP         F10=LEFT      F11=RIGHT      F12=RETRIEVE
```

KBLA IMS Resources Formatting

- Bring up the KBLA Log Record Formatting panel
  - From the Log Formatting Selections panel, enter subtask 1
    - Key in the resource name to audit and the associated information type.

```
                == K.B.L.A.  Resources Formatting ==

COMMAND ===>
Input IMS Log DSN IMSDATA.IM9A.LOG                         Cataloged? Y
IMS Log Version  . . . . . . . . . . . . . . 9
Resource Name to Audit . . . . .    0QPPDB21     (Required - Any Name)
Terminal Input/Output Messages . . . . . . . N  (Y/N)
Transaction Scheduling Instances . . . . . . Y  (Y/N)
SIGN ON for Given Terminal . . . . . . . . . N  (Y/N)
Security Violation Records . . . . . . . . . N  (Y/N)
DB Update Records  . . . . . . . . . . . . . N  (Y/N)
FP Update Records  . . . . . . . . . . . . . N  (Y/N)
Recoverable Commands entered . . . . . . . . N  (Y/N)


Log Formatting Type  . . . . . . . . . . . . K  (B,S,K or U)
Output DSN  Keyword  . . . . . . . .    IM9A     The Output DSN will be:
                                                 COUGHTA.keyword.KBLA

Log DSNs were extracted from RECON. N
PDS member containing logs. . . . .
 F1=HELP        F2=SPLIT      F3=END        F4=RETURN      F5=RFIND      F6=RCHANGE
 F7=UP          F8=DOWN       F9=SWAP       F10=LEFT       F11=RIGHT     F12=RETRIEVE
```
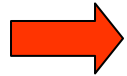
This will generate JCL requesting all log records associated with transaction scheduling and termination for resource 0QPPDB21 (an OLR)

KBLA IMS Resources Formatting Output

- Sample of the generated output

  - In this example Log Formatting Type "K" (KBLA) was selected

```
08 RECORD     APPLICATION PROGRAM SCHEDULED
   PSB NAME: 0QPPDB21
   REGION #: 0004        RCVY TOKN: N/A
   REG TYPE: FP NON-MESSAGE DRIVEN BMP
   DATE/TIME: 2005-02-16 18:28:50.038234 UTC          LOG SEQ NO: 00000301

07 RECORD     APPLICATION PROGRAM TERMINATED
   PSB NAME: 0QPPDB21       TRAN CODE:                JOB NAME: QPPDB2
   REGION #: 0004        RCVY TOKN: C9D4F9C1404040400000000800000003
   REG TYPE: BMP REGION                               STEP NAME: QPPDB21
   DATE/TIME: 2005-02-16 18:29:28.385318 UTC          LOG SEQ NO: 00000484

08 RECORD     APPLICATION PROGRAM SCHEDULED
   PSB NAME: 0QPPDB21
   REGION #: 0001        RCVY TOKN: N/A
   REG TYPE: FP NON-MESSAGE DRIVEN BMP
   DATE/TIME: 2005-02-16 19:37:30.155332 UTC          LOG SEQ NO: 00000583

07 RECORD     APPLICATION PROGRAM TERMINATED
   PSB NAME: 0QPPDB21       TRAN CODE:                JOB NAME: QPPDB2
   REGION #: 0001        RCVY TOKN: C9D4F9C1404040400000000B00000003
   REG TYPE: BMP REGION                               STEP NAME: QPPDB21
   DATE/TIME: 2005-02-16 19:38:06.638508 UTC          LOG SEQ NO: 000007AB
```
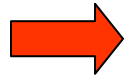
KBLA IMS Resources Formatting Output…

- Sample of the generated output
  - In this example Log Formatting Type "B" (Basic) was selected

```
-08 RECORD     APPLICATION PGM SCHEDULED     DATE/TIME: 2005-02-16 18:28:50.0382 34 UTC
  00000000 000000   00700000 0850F0D8  D7D7C4C2 F2F10000   00000000 00000000  00 000000 00000040   *.....&0QPPDB21................. *
  00000020 000020   00040000 00000000  00000000 00000000   00000000 000F0000  00 000000 00000000   *...............................*
  00000040 000040   00000000 00000000  00000000 00000000   00000000 2005047F  18 283003 8231000C   *......................."....B...*
  00000060 000060   BC94F563 9B1DA809  00000000 00000301                                            *.M5...Y.........             *
-07 RECORD     APPLICATION PGM TERMINATED    DATE/TIME: 2005-02-16 18:29:28.3853 18 UTC
  00000000 000000   015C0000 07F0D8D7  D7C4C2F2 F1404040   40404040 40000200  00 000000 00000000   *.*...0QPPDB21      ...........*
  00000020 000020   D8D7D7C4 C2F24040  D8D7D7C4 C2F2F140   00000000 00000002  00 000019 0000001B   *QPPDB2  QPPDB21 ...............*
  00000040 000040   00000000 00000000  00000000 0000001B   00000000 00000000  00 000051 00000000   *...............................*
  00000060 000060   00000000 00000000  00000000 00000000   00000000 00000000  00 000000 00000000   *...............................*
  00000080 000080   00000000 00000000  00000000 00000000   00000003 00000000  00 000000 00000000   *...............................*
```

KBLA IMS Resources Formatting Output…

- Sample of the generated output
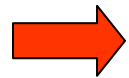
➡ - In this example Log Formatting Type "S" (Summary) was selected

```
07 RECORD   APPLICATION PGM TERMINATED         LSN: 00000484    DATE/TIME: 2005-02-16    18:29:28.385318 UTC
08 RECORD   APPLICATION PGM SCHEDULED          LSN: 00000583    DATE/TIME: 2005-02-16    19:37:30.155332 UTC
07 RECORD   APPLICATION PGM TERMINATED         LSN: 000007AB    DATE/TIME: 2005-02-16    19:38:06.638508 UTC
08 RECORD   APPLICATION PGM SCHEDULED          LSN: 000007BA    DATE/TIME: 2005-02-16    19:42:15.640723 UTC
07 RECORD   APPLICATION PGM TERMINATED         LSN: 000009DB    DATE/TIME: 2005-02-16    19:42:52.168843 UTC
08 RECORD   APPLICATION PGM SCHEDULED          LSN: 000009F0    DATE/TIME: 2005-02-16    19:55:28.824606 UTC
07 RECORD   APPLICATION PGM TERMINATED         LSN: 00000C11    DATE/TIME: 2005-02-16    19:56:05.877636 UTC
```

KBLA IMS Resources Formatting Output…
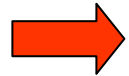
- Sample of the generated output
  - In this example Log Formatting Type "U" (Unformatted) was selected

```
.&0QPPDB21.............. ..................................."....b...~m5Ä°.y........
.0QPPDB21        ...........QPPDB2  QPPDB21 .......................................é.............................................................
.&0QPPDB21DFSDDLT0........ ...................................."....ë...~n.~û.|.......c
.0QPPDB21        0.........QPPDB2  QPPDB21 .......................................é.............................................................
.&0QPPDB21.............. ..................................".  íÀ....~n.ò.z.........^
.0QPPDB21        ...........QPPDB2  QPPDB21 .......................................é.............................................................
.&0QPPDB21.............. ..................................".í.bã...~n.Aþ.Yµ.......0
.0QPPDB21        ...........QPPDB2  QPPDB21 .......................................é.............................................................
```

KBLA IMS Subcomponent Log Filtering

- Bring up the KBLA Log Record Formatting panel
  - From the Log Formatting Selections panel, enter subtask 2
    - Key in the subcomponent that you wish to select related log records for

```
              == K.B.L.A.  Subcomponent Log Filtering ==
Input IMS Log DSN IMSDATA.IM9A.SLDSP.D05042.T1641082.V03         Cataloged? Y
IMS Log Version. . . . . . . 9

DC Log Records . . . . . . N   (Y/N)
DB Log Records . . . . . . N   (Y/N)
FP Log Records . . . . . . N   (Y/N)
System Log Records . . . . N   (Y/N)
QMGR Log Records . . . . . N   (Y/N)
RSR Log Records. . . . . . N   (Y/N)
OLR Log Records. . . . . . Y   (Y/N)
CQS Log Records. . . . . . N   (Y/N)
DPROP Log Records. . . . . N   (Y/N)
Filter Log With Keyword. .          (Optional - Any Name)
Log Formatting Type. . . . K        (B,S,K or U)
Output DSN  Keyword. . . . IM9A     The Output DSN will be:
                                    COUGHTA.keyword.KBLA

Log DSNs were extracted from RECON. N
COMMAND ===>
 F1=HELP       F2=SPLIT      F3=END        F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP         F8=DOWN       F9=SWAP       F10=LEFT      F11=RIGHT     F12=RETRIEVE
```
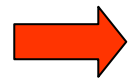
This panel will generate JCL requesting a subset of log records related to a specific IMS subcomponent (in this case an OLR)

IMS V9 KBLA Overview

29

KBLA IMS Subcomponent Log Filtering Output…

- Sample of the generated output

➡ - In this example Log Formatting Type "K" (KBLA) was selected and all log records associated with OLR (type 29) are selected

```
  BROWSE      COUGHTA.IM9A.KBLA.X05080.Y161009              Line 00000051 Col 001 080
2990 RECORD - OLR: OWNERSHIP RELINQUISHED
     PST NO: 0001             DBD NAME: QPPDB2              PSB NAME: 0QPPDB23
     PARTITION NAME: QPPDB23          RSE NAME: IM9A
     REASON:                  ABEND CODE: N/A              SEGMENTS COPIED: 00000000
     DATE/TIME: 2005-02-11 16:58:22.674742 UTC             LOG SEQ NO: 00000094

2910 RECORD - OLR: OWNERSHIP ESTABLISHED
     PST NO: 0000             DBD NAME: QPPDB2              PSB NAME: 0QPPDB23
     PARTITION NAME: QPPDB23          RSE NAME: IM9A
     EFFECTIVE RATE VALUE: 100        OWNERSHIP: INIT CMD, NODEL OPT
     DATE/TIME: 2005-02-15 13:00:43.264891 UTC             LOG SEQ NO: 000000C8

2901 RECORD - OLR: PARTITION RESPONSE DATA
     RSE NAME: IM9A           OM CMD TOKN: 0000000000FCC3900000000000000000
     OM COMPL CODE: 404040F0
     DATE/TIME: 2005-02-15 13:00:43.265567 UTC             LOG SEQ NO: 000000C9

2909 RECORD - OLR: OM COMMAND RESPONSE SENT
     RSE NAME: IM9A           OM CMD TOKN: 0000000000FCC3900000000000000000
     OM COMPL CODE: BC936A2F
     DATE/TIME: 2005-02-15 13:00:43.265775 UTC             LOG SEQ NO: 000000CA

2930 RECORD - OLR: OUTPUT DATA SET INFO
     PST NO: 0001             DBD NAME: QPPDB2              PSB NAME: 0QPPDB23
     PARTITION NAME: QPPDB23          RSE NAME: IM9A
     USN: 00000000                    USID: 00000007
     OUTPUT DATA SETS: A-J,X          DB ORG: PHIDAM    Dataset Entries: 003
       ----------------------------------------------------------------------
       VSAM DATA SET INFO FOR DDNAME: QPPDB23A   (NON-KSDS)
       CI SIZE: 00002048   REC SIZE: 00002041   SHARE OPTIONS: (3 3)
       CI FREESPACE PERCENT: 000   CA FREESPACE PERCENT: 000
       PRI/SEC ALLOC: 00000010/00000005(MB)     REQUESTED VOLUMES: 01
       VOLSERS: ...QPP
       CREATED  D/S - SMS MANAGED               NON-REPLICATE ATTRIBUTE
```

KBLA Log Record Formatting

- Bring up the KBLA Log Record Formatting panel
  - From the Log Formatting Selections panel, enter subtask 3
    - Key in the records to extract. In this example, we are extracting type 2950 records

```
                == K.B.L.A.  Log Record Formatting ==
Input IMS Log DSN IMSDATA.IM9A.SLDSP.D04322.T0927541.V00          Cataloged? Y
IMS Log Version. . . . . .  9
Extract Record(s). . . . .  2950                               (eg. 01 02 5912)


Log Formatting Type. . . .  K              (B,S,K or U)
Output DSN Keyword . . . .  IM9A

                                     Output DSN: COUGHTA.Keyword.KBLA

Optional parameters
  Print /TRA Log Record . . . . . . . . N       (Y/N)
  Print Internal Traces . . . . . . . . N       (Y/N)
  Filter by Keyword. . . .                 Keyword Type: DATA    (below)
   (SYSID,PSB,PST,DBD,RBA,BLOCK,USERID,KEY,OFFSET,UNDO,REDO,DATA)
  Number of Records to Scan . . . . . EOF
  Number of Records to Skip . . . . .
  Log DSNs were Extracted from RECON. N
  PDS member Containing Logs . . . . .
COMMAND ===>
 F1=HELP       F2=SPLIT      F3=END        F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP         F8=DOWN       F9=SWAP       F10=LEFT      F11=RIGHT     F12=RETRIEVE
```

Use this panel when you know exactly the log record types you need

IMS Traces Formatting

- Bring up the IMS Traces Formatting panel
  - ▶ From the main panel, choose Task 2 to bring up the IMS Log Formatting
    - In the IMS Log Formatting panel, select Subtask 4

```
                    IMS K.B.L.A. - Log Formatting Selections
Command ===>


                                              TIME....23:20:11
                                              DATE....2004/11/23
                                              JULIAN..2004.328


Select any of the following subtasks and press ENTER.


   Subtasks . .   4  1.  IMS Resources Formatting
                     2.  IMS Subcomponent Log Filtering
                     3.  KBLA Log Record Formatting
                     4.  IMS Trace Formatting
                     5.  Snap/Pseudo-Abend Record Formatting


To Exit the KBLA menu, press END.
For Help place cursor on any field and press PF1.
 F1=HELP        F2=SPLIT      F3=END        F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP          F8=DOWN       F9=SWAP       F10=LEFT      F11=RIGHT     F12=RETRIEVE
```

IMS Traces Formatting ...

➡️ ▪ Select the traces to be analyzed or specify "Y" in the field labelled ALL TRACES

   ▸ This example requests extraction of all active trace records in the log

```
              == K.B.L.A.   IMS Trace Formatting ==


Input IMS Log DSN IMSDATA.IM9A.SLDSP.D04322.T0927541.V00      Cataloged? Y
IMS Log Version. . . . . . 9


 Select one or more traces
APPC. . . . . N  (Y/N)       Log Router. N   (Y/N)      Shared Queue . N   (Y/N)
DC Error. . . N  (Y/N)       MSC . . . . N   (Y/N)      Storage Mgr. . N   (Y/N)
DIAG Records. N  (Y/N)       MSCT. . . . N   (Y/N)      Subsystems . . N   (Y/N)
Disk Log. . . N  (Y/N)       Node. . . . N   (Y/N/S)    Transaction. . N   (Y/N)
Dispatcher. . N  (Y/N)       OCMD. . . . N   (Y/N)
DL/1. . . . . N  (Y/N)       ORS . . . . N   (Y/N)      ALL TRACES . . Y   (Y/N)
FORCE . . . . N  (Y/N)       OTMA. . . . N   (Y/N)
FP Region . . N  (Y/N)       Queue Mgr . N   (Y/N)
FP Table. . . N  (Y/N)       RRST. . . . N   (Y/N)
Latch . . . . N  (Y/N)       Scheduler . N   (Y/N)


Filter Selected Traces That Contain.
COMMAND ===>
 F1=HELP        F2=SPLIT       F3=END        F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP          F8=DOWN        F9=SWAP       F10=LEFT      F11=RIGHT     F12=RETRIEVE
```

Extract 67FA/6701 log records produced as a result of /TRACE SET ON TABLE xxx

IMS Traces Formatting ...

- The appropriate JCL and control cards for the selected traces are generated

```
 File   Edit   Edit_Settings   Menu   Utilities   Compilers   Test   Help


 EDIT          COUGHTA.KBLA.SDFSKJCL(DFSKBJ03) - 01.00        Columns 00001 00072
 000066 //SYSIN     DD  *
 000067 CONTROL  CNTL  STOPAFT=EOF
 000068 *********************************************************
 000069 * INPUT LOG DATA SET NAME(S):                           *
 000070 * IMSDATA.IM9A.SLDSP.D04322.T0927541.V00
 000071 *********************************************************
 000072 *
 000073 *********************************************************
 000074 * ORS TRACE FORMATTING                                  *
 000075 *********************************************************
 000076 *
 000077 OPTION PRINT O=5,FLDTYP=X,V=67FA,L=2,C=M
 000078 OPTION PRINT O=23,FLDTYP=C,V=OR,L=2,C=E,E=DFSERA60
 000079 *
 000080 *********************************************************
 000081 * DL/1 TRACE FORMATTING                                 *
 000082 *********************************************************
 Command ===>                                           Scroll ===> PAGE
  F1=Help       F2=Split      F3=Exit      F5=Rfind     F6=Rchange    F7=Up
  F8=Down       F9=Swap       F10=Left     F11=Right    F12=Cancel
```
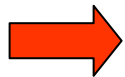
IMS Snap/Pseudo Abend Record Formatting

- Bring up the IMS Snap/Pseudo-Abend Record Formatting panel
  - ▶ From the Log Formatting Selections panel, select Task 5

```
               == K.B.L.A.  Snap/Pseudo-Abend Record Formatting  ==


Input IMS Log DSN IMSDATA.IM9A.SLDSP.D04323.T1550387.V00        Cataloged? Y
IMS Log Version. . . . . . 9
Log Formatting Type. . . .      (B or K)
Log Selection Type: (Only one can be specified)    Specify (Y/N)
All Types ——— DB Deadlock ———

Optional Fields
  Start Date/Time (UTC)            -         (YYYYDDD - HHMMSS)
  Stop Date/Time  (UTC)            -         (YYYYDDD - HHMMSS)
  Start LSN . . . . . .                Stop LSN . . . . . . . . . . .
  Number of Records to Skip            Number of Records to Process
  Copy images of records


Output DSN Keyword. . . . . . . . .    IM9A     The Output DSN will be:
Log DSNs Were Extracted From RECON.  N         COUGHTA.keyword.KBLA.R.*
COMMAND ===>
 F1=HELP        F2=SPLIT       F3=END        F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP          F8=DOWN        F9=SWAP       F10=LEFT      F11=RIGHT     F12=RETRIEVE
```

All Types – x'67FD' and x'67FF'
DB Deadlock – x'67FF'

IMS Snap/Pseudo Abend Record Formatting Output

- Sample output for Deadlock Trace Information Summary
  - Log formatting type=K and DB Deadlock = Y

```
*                    DEADLOCK TRACE INFORMATION SUMMARY
* TRACE HEADER LENGTH          :      48
* DEADLOCK ENTRY LENGTH        :     428
* TIME STAMP ON FIRST TRACE RECORD            : 200
* TIME STAMP ON FIRST PROCESSED RECORD        : 200
* TIME STAMP ON LAST PROCESSED TRACE RECORD   : 200
* LSN ON FIRST TRACE RECORD                   : 5820
* LSN ON FIRST PROCESSED RECORD               : 5820
* LSN ON LAST PROCESSED TRACE RECORD          : 705
* TOTAL # OF NON COMMENT CNTLCRDS RECORDS READ   :
* REQUESTED # OF LOG RECORDS TO BE SKIPPED       :
* TOTAL # OF LOG RECORDS SKIPPED                 :
*
* TOTAL # OF LOG RECORDS READ                 :
* TOTAL # OF 67FF TRACE RECORDS READ          :
* TOTAL # OF 67FF TRACE RECORDS EVALUATED     :
* TOTAL # OF RECORDS WRITTEN TO DETAIL REPORT :
* TOTAL # OF RECORDS WRITTEN TO VICTIM REPORT :
* TOTAL # OF DEADLOCK RECORDS EVALUATED       :
* TOTAL # OF COMPLETE DEADLOCK RECORDS        :
* TOTAL # OF MULTI-RECORD DEADLOCK RECORDS    :
* TOTAL # OF ADDITIONAL PARTS FOR DEADLOCK RECS :
* TOTAL # OF DEADLOCKS EXCEEDING RECORD CAPACITY :
* TOTAL # OF RECORDS EXCEEDING BUCKET SIZE       :
* TOTAL # OF DEADLOCK SITUATIONS ANALYZED        :
*
* LARGEST CYCLE COUNT ENCOUNTERED             :
* LARGEST BUCKET COUNT ENCOUNTERED            :
* TOTAL NUMBER OF DEADLOCKS                   :
* TOTAL NUMBER OF DEADLOCK ENTRIES WITH DETAILS :
```

```
*****************************************************************
* 1 IMS TOOL / DFSKTDL0              DATE: 2004/161   TIME: 14:56
*****************************************************************
*
*                 DEADLOCKS BY HOUR
* START TIME          STOP TIME                COUNT
*
* 2003190/210234 -  2003190/222241              144
* 2003190/222241 -  2003190/230053               12
* 2003190/230053 -  2003191/003002                6
*
*
*****************************************************************
* 1 IMS TOOL / DFSKTDL0              DATE: 2004/161   TIME: 14:56
*****************************************************************
*
*                 DEADLOCKS BY DBMS
* DBMS                  COUNT
*
* PROD            7458
*****************************************************************
* 1 IMS TOOL / DFSKTDL0              DATE: 2004/161   TIME: 14:56
*****************************************************************
*
*                 DEADLOCKS BY STATE
* STATE             COUNT
*
* 00               1650
* 01                170
* 03                262
* 04               5376
```

IMS Snap/Pseudo Abend Record Formatting Output

- Sample output for Deadlock Trace Analysis Victim report
  - Log formatting type=K and DB Deadlock = Y

```
******************************** TOP OF DATA ********************************
IMS TOOL / DFSKTDL0             DATE: 2004/161   TIME: 14:56   PAGE:        1
1ST-LSN    TIME        CNT   TRAN/JOB DBMS-PST    TRAN/JOB DBMS-PST    TRAN/JOB DBM
-------    ----------  ---   -------- --------    -------- --------    -------- ---


5820C9F2   21:02:34.3    2   TRAN1    (PROD- 55)  S00      (PROD- 71)V

5831D2F6   21:04:55.3    2   TRAN2    (PROD-139)  JOB1     (PROD-228)V

58332504   21:05:06.0    2   TRAN1    (PROD-100)  TRAN2    (PROD- 54)V

583394BD   21:05:09.9    3   TRAN1    (PROD-139)  TRAN3    (PROD-100)  JOB1     (PROD-4)V

5834DE7E   21:05:21.4    2   TRAN3    (PROD-100)  TRAN5    (PROD- 54)V

5834F6E8   21:05:22.3    2   TRAN3    (PROD-100)  TRAN5    (PROD- 54)V

583665F2   21:05:36.2    2   TRAN1    (PROD-100)  TRAN9    (PROD-139)V
```

IMS Snap/Pseudo Abend Record Formatting Output

- Sample output for Deadlock Trace Analysis Detail report
  - Log formatting type=K and DB Deadlock = Y

```
IMS TOOL / DFSKTDL0           DATE: 2004/179   TIME: 13:08    PAGE:      1
# 1ST-LSN  VIC DMB-NAME PCB--DBD RBA/RBN  DMB# DCB# TYPE   IMS-NAME TRAN/JOB PSB-NAME PST RGN CALL LOCKFUNC STATE
 - -------- --- -------- -------- -------(LOCKNAME)-------  -------- -------- -------- --- --- ---- -------- -----

** 00:28:19.1 *****************************************************************
 1 D9FD98A1     DBDDAP   DBDDAP   00AAB008 84BF  01   400002 IMS1     ARS1047  PSB142CP  42 DBT GET  GRIDX       06-P
   KEY FOR RESOURCE IS NOT AVAILABLE

 2          V  DBDDAP   DBDDAP   06A0A004 83D9  01   400002 IMS1     ARS1047  PSB12CP  246 DBT GET  GRIDX       06-P
   KEY FOR RESOURCE IS NOT AVAILABLE

** 00:28:21.1 *****************************************************************
 1 D9FD98A1     DBDDAP   DBDDAP   00AAB008 84BF  01   400002 IMS1     ARS1047  PSB142CP  42 DBT GET  GRIDX       06-P
   KEY FOR RESOURCE IS NOT AVAILABLE

 2          V  DBDDAP   DBDDAP   06A0A004 83D9  01   400002 IMS1     ARS1047  PSB12CP  246 DBT GET  GRIDX       06-P
   KEY FOR RESOURCE IS NOT AVAILABLE

** 00:35:18.1 *****************************************************************
 1 DA15F71D     DBDDAP   DBDDAP   003E700C 8CBA  01   400002 IMS1     ARS1047  PSB146CX  34 DBT ISRT GRIDX       06-P
   KEY: C7C9F5F7
 2 DA15F71D     DBDDAP   DBDDAP   003E700C 8CBA  01   400002 IMS1     ARS2047  PSB246CX  37 DBT ISRT GRIDX       06-P
   KEY: C7C9F5F9
 3         V  DBDDAP   DBDDAP   03674004 84BF  01   400002 IMS1     ARS1047  PSB146CX  71 DBT GET  GRIDX       06-P
   KEY: C7D3D340F3F1F7F4F8F0404040
```
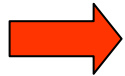
IMS Log Data Set Summary

- Bring up the IMS Log Data Set Summary panel
  - ▶ From the main panel, select Task 3

```
                        IMS K.B.L.A. - Log Data Set Summary
Command ===>

Fill in the following fields and press ENTER .

Input IMS Log DSN IMSDATA.IM9A.SLDSP.D04322.T0927541.V00        Cataloged? Y
IMS Log Version . . . .  9


Output DSN Keyword . .  IM9A      Output DSN: COUGHTA.Keyword.KBLA.R



(Optional) Processing Criteria

   Create/Process Subset of Log .    (Y/N) A selection panel will be displayed
   Log DSNs Extracted From RECON. N  (Y/N)
   PDS Member Containing Logs . .              Check LSN Seq     (Y/N)


 F1=HELP        F2=SPLIT       F3=END        F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP          F8=DOWN        F9=SWAP       F10=LEFT      F11=RIGHT     F12=RETRIEVE
```

IMS Log Data Set Summary

- Optional filtering panel:

```
                              IMS K.B.L.A. - Log Data Set Analysis
Command ===>


Fill out the following variables and press ENTER .

(Optional) Select Search Criteria
 Start Date (UTC)  . . . . . . .              (Julian Date eg: 2002190)
 Start Time (UTC). . . . . . . .              (hhmmss eg: 133000)
 Stop Date  (UTC)  . . . . . . .              (Julian Date eg: 2002190)
 Stop Time  (UTC). . . . . . . .              (hhmmss eg: 133500)


 Start LSN . . . . . . . . . . .              (Hex: eg: 001A3000)
 Stop LSN  . . . . . . . . . . .              (Hex: eg: 001A3000)
 Only Process records in Recovery Token Range      (Y/N)
 Recovery Token. . . .


 Number of records to skip . . .          Mutually exclusive with Start parms
 Number of records to process. .          Mutually exclusive with Stop parms


 /LOG Command Start String                    Stop String
 Create Subset of log     (Y/N)        DSN: COUGHTA.Keyword.KBLA.L.*
 F1=HELP       F2=SPLIT      F3=END       F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP         F8=DOWN       F9=SWAP      F10=LEFT      F11=RIGHT     F12=RETRIEVE
```

IMS Log Data Set Summary ...

- Sample output

```
  SDSF OUTPUT DISPLAY TNGUYENA J0052642  DSID   109 LINE 11       COLUMNS 02- 81
 COMMAND INPUT ===>                                         SCROLL ===> PAGE
*
* ********************************************************************************
* LOG INFORMATION SUMMARY FOR IMSID: IMS1
*
* FIRST LSN: 000B673C     LAST LSN: 0012B188
* FIRST SELECTED LSN: 000B673C
*
* FIRST LOG RECORD STCK   (GMT): 2003260 1459291     (LOCAL): 2003260 0759291
* LAST LOG RECORD STCK    (GMT): 2003260 1511522     (LOCAL): 2003260 0811522
* FIRST SELECTED LOG STCK (GMT): 2003260 1459291     (LOCAL): 2003260 0759291
* DIFFERENCE BETWEEN GMT AND LOCAL TIME (HHMM): -0700
* ELAPSED TIME ON SELECTED LOG(S):                            000 00:12:23.1
*
* TOTAL # OF LOG RECORDS READ AND PROCESSED       :    477773
*
* IMS START RECORD  DETECTED        (X'0601')     : NO
* TRACE LOG RECORDS DETECTED        (X'6701')     : NO
* SYS. DIAGNOSTIC RECS. DETECTED    (X'67D0')     : NO
* TRACE TABLE LOG RECORDS DETECTED (X'67FA')      : YES
```

IMS Log Data Set Summary ...

- Sample output ...

```
 SDSF OUTPUT DISPLAY TNGUYENA J0052642  DSID    109 LINE 55      COLUMNS 02- 81
 COMMAND INPUT ===>                                        SCROLL ===> PAGE
*           LOG RECORD OCCURRENCES STATISTICS
*
* OCCURRENCES OF RECORD TYPE 01:      7925      INPUT MESSAGE QUEUED
* OCCURRENCES OF RECORD TYPE 03:     18147      OUTPUT MESSAGE QUEUED
* OCCURRENCES OF RECORD TYPE 07:      2981      APPLICATION PGM TERMINATED
* OCCURRENCES OF RECORD TYPE 08:      2981      APPLICATION PGM SCHEDULED
* OCCURRENCES OF RECORD TYPE 11:      1167      CONVERSATIONAL PGM STARTED
* OCCURRENCES OF RECORD TYPE 12:      1157      CONVERSATIONAL PGM TERMINATED
* OCCURRENCES OF RECORD TYPE 27:       334      DATA BASE WAS EXTENDED
*    OCCURRENCES OF SUBCODE 2701:      167      DATA BASE WAS EXTENDED-PHASE 1
*    OCCURRENCES OF SUBCODE 2702:      167      DATA BASE WAS EXTENDED-PHASE 2
* OCCURRENCES OF RECORD TYPE 28:      1780      INPUT SEQNO UPDATED BY RESTART
* OCCURRENCES OF RECORD TYPE 31:     27217      GET UNIQUE (GU) ISSUED FOR MSG
* OCCURRENCES OF RECORD TYPE 33:     26064      QMGR RELEASED A DDRN
* OCCURRENCES OF RECORD TYPE 34:        22      THIS MESSAGE WAS CANCELLED
* OCCURRENCES OF RECORD TYPE 35:     26050      MSG WAS ENQUEUED/RE-ENQUEUED
* OCCURRENCES OF RECORD TYPE 36:     18427      THIS MESSAGE WAS DEQ/SAVED/DEL
* OCCURRENCES OF RECORD TYPE 37:     22303      SYNCPOINT PROCESSOR LOG RECORD
*    OCCURRENCES OF SUBCODE 37QL:    11721      QLOGXFER
```

IMS Log Data Set Summary ...

- Sample output ...

```
  SDSF OUTPUT DISPLAY TNGUYENA J0052642  DSID   109 LINE 177     COLUMNS 02- 81
 COMMAND INPUT ===>                                        SCROLL ===> PAGE
*   DATABASE LOG RECORDS STATISTICS (FROM X'50' AND '59' RECORDS)
*
* DATABASE ACCTA    : # OF DB UPDATE RECORDS     5319
* DATABASE BOCTR    : # OF DB UPDATE RECORDS     8341
* DATABASE CMF      : # OF DB UPDATE RECORDS    17526
* DATABASE CUALTA1  : # OF DB UPDATE RECORDS      395
* DATABASE CUALTA2  : # OF DB UPDATE RECORDS      364
* DATABASE CUALTA3  : # OF DB UPDATE RECORDS      312
* DATABASE CUALTA4  : # OF DB UPDATE RECORDS       68
* DATABASE CUALTB1  : # OF DB UPDATE RECORDS      419
* DATABASE CUALTB2  : # OF DB UPDATE RECORDS      338
* DATABASE CUALTB3  : # OF DB UPDATE RECORDS      353
* DATABASE CUALTB4  : # OF DB UPDATE RECORDS      200
* DATABASE CUALTC1  : # OF DB UPDATE RECORDS      352
* DATABASE CUALTC2  : # OF DB UPDATE RECORDS      467
* DATABASE CUALTC3  : # OF DB UPDATE RECORDS      507
* DATABASE CUALTC4  : # OF DB UPDATE RECORDS       86
* DATABASE CUALTD1  : # OF DB UPDATE RECORDS      352
* DATABASE CUALTD2  : # OF DB UPDATE RECORDS      348
```

IMS Log Data Set Summary ...

- Sample output ...

```
 SDSF OUTPUT DISPLAY TNGUYENA J0052642  DSID   109 LINE   CHARS 'PROGRAM' FOUND
 COMMAND INPUT ===>                                   SCROLL ===> PAGE
*   PROGRAM LOG RECORDS STATISTICS (FROM X'07' RECORDS)
*
* PROGRAM PROGDE1A TRANSACTION: DE1A         OCCURRED:       41
* PROGRAM PROGDE1B TRANSACTION: DE1B         OCCURRED:       41
* PROGRAM PROGDE1C TRANSACTION: DE1C         OCCURRED:       44
* PROGRAM PROGDE1D TRANSACTION: DE1D         OCCURRED:       34
* PROGRAM PROGDE1E TRANSACTION: DE1E         OCCURRED:       46
* PROGRAM PROGDE2A TRANSACTION: DE2A         OCCURRED:       32
* PROGRAM PROGDE2B TRANSACTION: DE2B         OCCURRED:       31
* PROGRAM PROGDE2C TRANSACTION: DE2C         OCCURRED:       31
* PROGRAM PROGDE2D TRANSACTION: DE2D         OCCURRED:       28
* PROGRAM PROGDE2E TRANSACTION: DE2E         OCCURRED:       36
* PROGRAM PROGHR1A TRANSACTION: HR1A         OCCURRED:       10
* PROGRAM PROGHR1B TRANSACTION: HR1B         OCCURRED:       69
* PROGRAM PROGHR1C TRANSACTION: HR1C         OCCURRED:       62
* PROGRAM PROGHR1D TRANSACTION: HR1D         OCCURRED:       88
* PROGRAM PROGHR1E TRANSACTION: HR1E         OCCURRED:        7
* PROGRAM PROGHR2A TRANSACTION: HR2A         OCCURRED:        9
* PROGRAM PROGHR2B TRANSACTION: HR2B         OCCURRED:       67
```

IMS Knowledge Based Analysis

- From the main panel, select Task 4 to bring up the IMS Knowledge Based Analysis panel

  ▸ Choose Subtask 1 to bring up the Log Analysis panel

```
                 IMS K.B.L.A. - IMS Knowledge-Based Analysis
Command ===>


                                          TIME....03:56:26
                                          DATE....2004/11/26
                                          JULIAN..2004.331


Select any of the following subtasks and press ENTER .
   Subtasks . .     1. IMS Knowledge-Based Log Analysis
                    2. MSC Link Performance Analysis
                    3. Statistics Log Record Analysis
                    4. Trace Entry Analysis
                    5. IRLM Lock Trace Analysis
                    6. DBCTL Transaction Analysis
                    7. Log Processing Rate Analysis



To Exit the KBLA menu, press END .
For Help place cursor on any field and press PF1 .
 F1=HELP        F2=SPLIT       F3=END         F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP          F8=DOWN        F9=SWAP        F10=LEFT      F11=RIGHT     F12=RETRIEVE
```

IMS Log Data Set Analysis

- In the Log Data Set Analysis panel, define which resource you want to analyze
  - ▶ For this example, analyze 'QPPDB2' database records

```
              IMS K.B.L.A. - Log Data Set Analysis
Command ===>
Fill in the following fields and press ENTER.


Input IMS Log DSN IMSDATA.IM9A.SLDSP.D04352.T1236092.V02        Cataloged? Y
IMS Log Version . . . . . 9


Output DSN Keyword. .  IM9A        Output DSN: COUGHTA.Keyword.KBLA.R.*
Log Formatting Type .  K  (B,S,K)  Output DSN: COUGHTA.Keyword.KBLA.S.*
(Optional) Processing Criteria
 Create/Process Subset of log    (Y/N) A selection panel will be displayed


PGM                 TRAN              DBD  qppdb2      AREA
NODE                LTERM             USER            RBA
Recovery Token. . .                                        DRRN
UOW
Scan
Create Dynamic Search Keys     (Y/N) Output DSN: COUGHTA.Keyword.KBLA.D.*


Log DSNs were extracted from RECON. N
PDS member containing logs. . . . .               Check LSN Seq    (Y/N)
```

IMS Log Data Set Analysis ...

- Further qualify the criteria for analysis
    - Example, specify that only 1000 records are to be analyzed

```
                 IMS K.B.L.A. - Log Data Set Analysis
Command ===>
Fill out the following variables and press ENTER.
(Optional) Select Search Criteria
 Start Date (GMT) . . . . . . .            (Julian Date eg: 2002190)
 Start Time (GMT). . . . . . . .           (hhmmss eg: 133000)
 Stop Date  (GMT) . . . . . . .            (Julian Date eg: 2002190)
 Stop Time  (GMT). . . . . . . .           (hhmmss eg: 133500)


 Start LSN . . . . . . . . . . .           (Hex: eg: 001A3000)
 Stop LSN  . . . . . . . . . . .           (Hex: eg: 001A3000)
 Only Process records in Recovery Token Range      (Y/N)
 Recovery Token. . . .
 Number of records to skip . . .       Mutually exclusive with Start parms
 Number of records to process. .  1000   Mutually exclusive with Stop parms
 /LOG Command Start String              Stop String
 Create Subset of log     (Y/N)     DSN: TNGUYEN.Keyword.KBLA.L.*
 Copy images of filter-selected records       (Y/N)
```

IMS Log Data Set Analysis ...

- Sample output

```
 SDSF OUTPUT DISPLAY COUGHTAA JOB05851  DSID   109 LINE 17      COLUMNS 01- 80
COMMAND INPUT ===>                                       SCROLL ===> PAGE
* LOG INFORMATION SUMMARY FOR IMSID: IM9A  *
* FIRST LSN: 00000001      LAST LSN: 00000584
* FIRST SELECTED LSN: 00000001
*
* FIRST LOG RECORD STCK   (UTC): 2004352 1236294    (LOCAL): 2004352 1236294
* LAST LOG RECORD STCK    (UTC): 2005029 0223597    (LOCAL): 2005029 0223597
* FIRST SELECTED LOG STCK (UTC): 2004352 1236294    (LOCAL): 2004352 1236294
* DIFFERENCE BETWEEN UTC AND LOCAL TIME (HHMM): +0000
* ELAPSED TIME ON SELECTED LOG(S):                        041 13:47:30.3
*
*
* TOTAL # OF LOG RECORDS READ AND PROCESSED     :      1412
*
* # OF LOG RECORDS WRITTEN TO SYSPRINT FILE     :        20
*
* IMS START RECORD  DETECTED        (X'0601')    : YES
* TRACE LOG RECORDS DETECTED        (X'6701')    : NO
*
* SYS. DIAGNOSTIC RECS. DETECTED    (X'67D0')    : YES
* TRACE TABLE LOG RECORDS DETECTED (X'67FA')    : NO
* SNAP DUMP LOG RECORDS DETECTED    (X'67FD')    : NO
* PSEUDO ABEND RECORDS DETECTED     (X'67FF')    : NO
* # OF PGM ABENDS (X'67FF' PSEUDO ABEND RECORDS):       0
* # OF DEADLOCKS  (X'67FF' DEADLOCK RECORDS    ):       0
```

IMS Log Data Set Analysis ...

- Sample output ...

```
* SYSTEM CHKPT LOG RECORDS DETECTED (X'4001')   : YES
* SYSTEM CONFIGURATION STATS AVAILABLE (X'45FF'): YES
* STATISTICS BEGIN RECORD AVAILABLE    (X'4500'): YES
* LOGGER STATISTICS RECORD AVAILABLE   (X'4507'): YES
* *********************************************************
*         IMS SYSTEM CONFIGURATION
* REGION TYPE: ONLINE DB/DC
* IMS LEVEL  :  910
* *********************************************************
*  IMS TOOL / DFSKSUM              DATE: 2005/046   TIME: 01:12    PAGE:
* *********************************************************
*
* APPC=N SPECIFIED
* ETO=Y  SPECIFIED
* HSB=N  SPECIFIED
 * LSO=S SPECIFIED
 * SYSTEM IS NOT XRF CAPABLE
 * SYSTEM IS NOT RSR CAPABLE
```

IMS Log Data Set Analysis ...

- Sample output ...

```
*  LOG RECORD OCCURRENCES STATISTICS
*
*  OCCURRENCES OF RECORD TYPE 01:         8      INPUT MESSAGE QUEUED
*  OCCURRENCES OF RECORD TYPE 02:         1      IMS COMMAND ENTERED
*  OCCURRENCES OF RECORD TYPE 03:        49      OUTPUT MESSAGE QUEUED
*  OCCURRENCES OF RECORD TYPE 04:         2      TRACKING SITE INFORMATION
*    OCCURRENCES OF SUBCODE 0403:         1      RSR: SUBSYS RECOVERY COMPLETE
*    OCCURRENCES OF SUBCODE 0409:         1      LOG BUFFERS PURGED
*  OCCURRENCES OF RECORD TYPE 06:         2      ACCOUNTING RECORD
*  OCCURRENCES OF RECORD TYPE 07:         5      APPLICATION PGM TERMINATED
*  OCCURRENCES OF RECORD TYPE 08:         5      APPLICATION PGM SCHEDULED
*  OCCURRENCES OF RECORD TYPE 20:        15      DATABASE WAS OPENED
*  OCCURRENCES OF RECORD TYPE 21:        15      DATABASE WAS CLOSED
*  OCCURRENCES OF RECORD TYPE 27:        12      DATA BASE WAS EXTENDED
*    OCCURRENCES OF SUBCODE 2701:         9      DATA BASE WAS EXTENDED-PHASE 1
*    OCCURRENCES OF SUBCODE 2702:         3      DATA BASE WAS EXTENDED-PHASE 2
*  OCCURRENCES OF RECORD TYPE 29:        24      ON-LINE REORGANIZATION RECORD
*    OCCURRENCES OF SUBCODE 2901:         3      OLR: PARTITION RESPONSE DATA
*    OCCURRENCES OF SUBCODE 2909:         1      OLR: OM COMMAND RESPONSE SENT
```

IMS Log Data Set Analysis ...

➡ ▪ Sample output ... Records associated with the request

```
 Display   Filter   View   Print   Options   Help
 ------------------------------------------------------------
 SDSF OUTPUT DISPLAY COUGHTAA JOB05851  DSID   111 LINE 15      COLUMNS 01- 80
 COMMAND INPUT ===>                                          SCROLL ===> PAGE
      PST NO: 0000            DBD NAME: QPPDB2            PSB NAME: 0QPPDB23
      PARTITION NAME: QPPDB23         RSE NAME: IM9A
      EFFECTIVE RATE VALUE: 050        OWNERSHIP: INIT CMD, DEL OPT
      DATE/TIME: 2005-01-19 22:50:36.592440 UTC        LOG SEQ NO: 0000028


 -2930 RECORD - OLR: OUTPUT DATA SET INFO
      PST NO: 0003            DBD NAME: QPPDB2            PSB NAME: 0QPPDB22
      PARTITION NAME: QPPDB22         RSE NAME: IM9A
      USN: 00000000                   USID: 00000004
      OUTPUT DATA SETS: M-V,Y         DB ORG: PHIDAM    Dataset Entries: 003
         -------------------------------------------------------------
         VSAM DATA SET INFO FOR DDNAME: QPPDB22M    (NON-KSDS)
         CI SIZE: 00002048   REC SIZE: 00002041  SHARE OPTIONS: (3 3)
         CI FREESPACE PERCENT: 000   CA FREESPACE PERCENT: 000
         PRI/SEC ALLOC: 00000010/00000005(MB)   REQUESTED VOLUMES: 01
```

IMS Log Data Set Analysis ...

- Sample output ... Logical Record Selection Flow Report Example

```
1 IMS TOOL / DFSKSUM LOG RECORD SELECTION FLOW    DATE: 2005/089   TIME: 11:57
0LC SC LSN        REASON                      PST    HEXPST   DATA
 29     00000276 DBD MATCHED CNTLCRDS          0 0000     QPPDB2
 29     0000027E DBD MATCHED CNTLCRDS          0 0000     QPPDB2
 29     00000286 DBD MATCHED CNTLCRDS          0 0000     QPPDB2
 29     000002A7 DBD MATCHED CNTLCRDS          3 0003     QPPDB2
 29     000002A7    PSB FOR 29                 3 0003     0QPPDB22
 29     000002A7    PGM FOR 29                 3 0003     0QPPDB22
 50 50 000002A8 PST MATCH                      3 0003        3
 50 50 000002A8 PSB MATCH                      3 0003     0QPPDB22
 50 50 000002A8 PGM MATCH                      3 0003     0QPPDB22
 50 50 000002A8    TOKEN FOR 50                3 0003     C9D4F9C14040404000000004
 50 50 000002A8    PGM FOR 50                  3 0003     0QPPDB22
 50 50 000002A9 TOKEN MATCH                    3 0003     C9D4F9C14040404000000004
 50 50 000002A9 PST MATCH                      3 0003        3
 50 50 000002A9 PSB MATCH                      3 0003     0QPPDB22
 50 50 000002A9 PGM MATCH                      3 0003     0QPPDB22
 50 50 000002A9    PGM FOR 50                  3 0003     0QPPDB22
```

MSC Link Performance Analysis

- From the main panel, select Task 4 to bring up the IMS Knowledge Based Analysis panel

  ▸ Choose Subtask 2 to bring up the MSC Link Performance Analysis panel

```
              IMS K.B.L.A. - IMS Knowledge-Based Analysis
Command ===>


                                          TIME....03:56:26
                                          DATE....2004/11/26
                                          JULIAN..2004.331


Select any of the following subtasks and press ENTER .
   Subtasks . .    1. IMS Knowledge-Based Log Analysis
                   2. MSC Link Performance Analysis
                   3. Statistics Log Record Analysis
                   4. Trace Entry Analysis
                   5. IRLM Lock Trace Analysis
                   6. DBCTL Transaction Analysis
                   7. Log Processing Rate Analysis


To Exit the KBLA menu, press END .
For Help place cursor on any field and press PF1 .
 F1=HELP       F2=SPLIT       F3=END        F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP         F8=DOWN        F9=SWAP       F10=LEFT      F11=RIGHT     F12=RETRIEVE
```

Log records are produced as a result of /TRACE SET ON LINK link

MSC Link Performance Analysis

- Sample Report Output

This report can help isolate performance problems with MSC links

```
           CONTROL   CNTL   STOPAFT=EOF
**************************************************
* IMS-V9 INPUT LOG DATA SET NAME(S):          *
* IMSV9.TEST.LOG
**************************************************
*                                             *
* MSC TRACE SELECTION                         *
                                              *
**************************************************
OPTION    PRINT E=DFSKMSC0
*
                   RECV DATA TO ACK (MS)                          SEND DATA TO ACK (MS) SEND CHECK WRITE (MS)          TIME
RECV FOR ID = WB                     6                                                                       11:38:29.652
SEND FOR ID = WB                                                          13                       23       11:38:29.693
RECV FOR ID = WB                     8                                                                       11:38:29.775
SEND FOR ID = WB                                                           6                       21       11:38:29.804
SEND FOR ID = WB                                                          14                       28       11:38:29.849
RECV FOR ID = WB                    28                                                                       11:38:29.883
RECV FOR ID = WB                    13                                                                       11:38:29.924
SEND FOR ID = WB                                                          26                       21       11:38:29.985
RECV FOR ID = WB                    14                                                                       11:38:30.026
RECV FOR ID = WB                     5                                                                       11:38:30.089
SEND FOR ID = WB                                                          13                       21       11:38:30.136
RECV FOR ID = WB                    24                                                                       11:38:30.162
RECV FOR ID = WB                     8                                                                       11:38:30.219
LINK PARTNER NAME       RECV DATA TO ACK (MS) # RECV SAMPLES SEND DATA TO ACK (MS) SEND CHECK WRITE (MS) # SEND SAMPLES
               WB                      15          1,041                  23                       22            667
```

Statistics Log Record Analysis

- From the main panel, select Task 4 to bring up the IMS Knowledge Based Analysis panel
  - ▶ Choose Subtask 3 to bring up the Statistics Log Record Analysis panel

```
            IMS K.B.L.A. - IMS Knowledge-Based Analysis
Command ===>

                                        TIME....03:56:26
                                        DATE....2004/11/26
                                        JULIAN..2004.331

Select any of the following subtasks and press ENTER .
   Subtasks . .    1. IMS Knowledge-Based Log Analysis
                   2. MSC Link Performance Analysis
                   3. Statistics Log Record Analysis
                   4. Trace Entry Analysis
                   5. IRLM Lock Trace Analysis
                   6. DBCTL Transaction Analysis
                   7. Log Processing Rate Analysis


To Exit the KBLA menu, press END .
For Help place cursor on any field and press PF1 .
 F1=HELP        F2=SPLIT       F3=END        F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP          F8=DOWN        F9=SWAP       F10=LEFT      F11=RIGHT     F12=RETRIEVE
```

Processes x'45' IMS checkpoint records.
Must have at least two sets of records.
Useful for detecting bottlenecks or trends

Trace Entry Analysis

- From the main panel, select Task 4 to bring up the IMS Knowledge Based Analysis panel
  - Choose Subtask 4 to bring up the Trace Entry Analysis panel

```
                 IMS K.B.L.A. - IMS Knowledge-Based Analysis
Command ===>


                                        TIME....03:56:26
                                        DATE....2004/11/26
                                        JULIAN..2004.331


Select any of the following subtasks and press ENTER .
   Subtasks . .    1. IMS Knowledge-Based Log Analysis
                   2. MSC Link Performance Analysis
                   3. Statistics Log Record Analysis
                   4. Trace Entry Analysis
                   5. IRLM Lock Trace Analysis
                   6. DBCTL Transaction Analysis
                   7. Log Processing Rate Analysis



To Exit the KBLA menu, press END .
For Help place cursor on any field and press PF1 .
 F1=HELP       F2=SPLIT      F3=END        F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP         F8=DOWN       F9=SWAP       F10=LEFT      F11=RIGHT     F12=RETRIEVE
```

Trace Entry Analysis

- Choose Subtask 4 to bring up the Trace Entry Analysis panel
  - Select one of the two options

```
                     IMS K.B.L.A. - Trace Entry Analysis
Command ===>

                                              TIME....13:53:13
                                              DATE....2005/03/29
                                              JULIAN..2005.088

Select one of the following subtasks and press ENTER .




   Subtasks . .    1. OTMA/RRS Wait Trace Analysis
                   2. Trace Entry Filtering




 F1=HELP      F2=SPLIT      F3=END        F4=RETURN    F5=RFIND     F6=RCHANGE
 F7=UP        F8=DOWN       F9=SWAP       F10=LEFT     F11=RIGHT    F12=RETRIEVE
```

OTMA/RRS Wait Trace Entry Filtering

- Choose Subtask 1 to bring up the OTMA/RRS Wait Trace panel

```
                  == K.B.L.A.  OTMA/RRS Wait - Trace Entry Filtering ==
COMMAND ===>


IMS Log Version. . . . . . . . . . . . . . 9


  Process Front End Trace Information Y (Y/N)
     Log DSN                                        PDS Mbr
     PST Number (hex)            CLB Address


  Process Back End Trace Information Y (Y/N)
     Log DSN                                        PDS Mbr
     PST Number (hex)            YTIB Address


  Optional Fields for OTMA/RRS Waits
     Wait Detection Date-Time. .        -        (YYYYDDD - HHMMSS)
     Scan Only (report only - no output) .        (Y/N)


  Optional Fields for Trace Record Filtering (Single trace processing only)
     Number of Records to Skip . . . . . .        (e.g. 75000)
     Number of Records to Process. . . . .        (e.g. 10000)


User Keyword for Output Data Sets. . . . . IM9A       Specify Any Keyword
 F1=HELP       F2=SPLIT     F3=END      F4=RETURN    F5=RFIND     F6=RCHANGE
 F7=UP         F8=DOWN      F9=SWAP     F10=LEFT     F11=RIGHT    F12=RETRIEVE
```
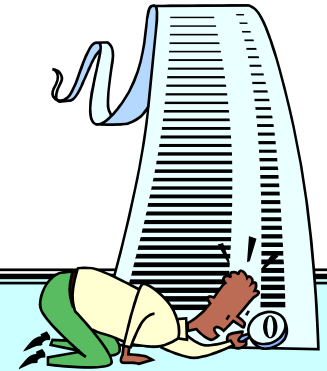
Use this option if using Synchronous APPC/OTMA SMQ support and need to determine reason for OTMA/RRS waits

Trace Entry Filtering

➡ ▪ Choose Subtask 2 to bring up the Trace Entry Filtering panel

```
                          == K.B.L.A.  Trace Entry Filtering ==
COMMAND ===>

Input IMS Log DSN                                      Cataloged? Y
IMS Log Version . . . . .  9
Trace Table Ids:
Search Criteria:
 1: W*   D8D7D7C4
 2:
 3:
 4:
 5:
 6:
 7:
  Optional Fields For Trace Records Filtering
     Start Date/Time (UTC)         -      (e.g YYYYDDD-HHMMSS)
     Stop Date/Time  (UTC)         -      (e.g YYYYDDD-HHMMSS)
     Records to Skip. . . .            Records to Process. . .
     Scan Only . .         Merge      Extract Log Record. . . Y
Output DSN Keyword. . . . . . . . . .  IM9A
```

Use this to search individual
trace table entries for certain selection criteria

IRLM Lock Trace Analysis

- From the main panel, select Task 4 to bring up the IMS Knowledge Based Analysis panel
  - ▸ Choose Subtask 5 to bring up the IRLM Lock Trace Analysis panel

```
              IMS K.B.L.A. - IMS Knowledge-Based Analysis
Command ===>

                                        TIME....03:56:26
                                        DATE....2004/11/26
                                        JULIAN..2004.331

Select any of the following subtasks and press ENTER .
   Subtasks . .    1. IMS Knowledge-Based Log Analysis
                   2. MSC Link Performance Analysis
                   3. Statistics Log Record Analysis
                   4. Trace Entry Analysis
                   5. IRLM Lock Trace Analysis
                   6. DBCTL Transaction Analysis
                   7. Log Processing Rate Analysis


To Exit the KBLA menu, press END .
For Help place cursor on any field and press PF1 .
 F1=HELP       F2=SPLIT      F3=END       F4=RETURN     F5=RFIND      F6=RCHANGE
 F7=UP         F8=DOWN       F9=SWAP      F10=LEFT      F11=RIGHT     F12=RETRIEVE
```

Useful for finding database or application related issues causing long lock waits

IRLM Lock Trace Analysis

▸ Sample summary report output

```
              Suspended IRLM Lock Requests Summary Report - DMB Name Order   Page 001
Trace Date = 11/04/2003  Trace Start Time = 17:18:38  Trace End Time = 17:20:26
Trace Elapsed Time (secs) =       107
Trace Input DSN = IDOC.D031104.V9FPATH.LOCKTRA.IM1OLP01
   Database   DS    Lock Req     Wait   Not Int      Total     Average    Maximum
      Name    Id     Count      Count    Count       Time        Time       Time

   CUSTDB     01       21          0       0         0.000       0.000      0.00
   CUSTDB     02       19          0       0         0.000       0.000      0.00
   CUSTDB     03       26          0       0         0.000       0.000      0.00
   CUSTDB     04       49          0       0         0.000       0.000      0.00
   CUSTDB     05       18          0       0         0.000       0.000      0.00|
Suspended IRLM Lock Requests Summary Report - Wait Time Order Page 001
Trace Date = 11/04/2003  Trace Start Time = 17:18:38  Trace End Time = 17:20:26
Trace Elapsed Time (secs) =       107
Trace Input DSN = IDOC.D031104.V9FPATH.LOCKTRA.IM1OLP01
   Database   DS    Lock Req     Wait   Not Int      Total     Average    Maximum
      Name    Id     Count      Count    Count       Time        Time       Time
   FP AREA    00       83          1       1         2.192       2.192      2.19
   CUSTDB     01       21          0       0         0.000       0.000      0.00
   CUSTDB     02       19          0       0         0.000       0.000      0.00
   CUSTDB     03       26          0       0         0.000       0.000      0.00
   CUSTDB     04       49          0       0         0.000       0.000      0.00
```

IRLM Lock Trace Analysis
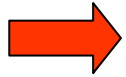
▸ Sample detail report output

```
                 Suspended IRLM Lock Requests Report - Req Comp Order                    Page 0001
Trace Date = 11/04/2003 DSN = IDOC.D031104.V9FPATH.LOCKTRA.IM1OLP01
Lock Request Lock Request ----Wait----- PST --Lock-- -------Resource------- Flag --IRLM--- ------Call----- Trace
Start Time   End Time     Elapsed Type Num Type Lvl    DB     DS RBA/HASH S      RCFB TRAC Type Num    Time   Seq#

17:18:41.262 17:18:43.455    2.192  L  163 FPAR  6  FP AREA  C2 F8E2E3C3   KF    0000 2080                     C7CD
17:18:50.413 17:18:50.413    0.004  L  134 FPCI  8  WAREDB   04 000000C0 F K    0440 2080                     3A1C
17:20:07.202 17:20:07.202    0.004  L  134 FPCI  8  WAREDB   0C 000000F0 F K    0440 2080                     9C2A
```

DBCTL Transaction Analysis

- From the main panel, choose Task 4 to bring up the IMS Knowledge Based Analysis panel
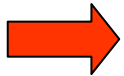
  ▸ Choose Subtask 6 to bring up the DBCTL Transaction Analysis panel

```
              IMS K.B.L.A. - IMS Knowledge Based Analysis
Command ===>

                                              TIME....15:40:11
                                              TIME....15:40:11
                                              DATE....2003/10/30
                                              JULIAN..2003.303


Select any of the following subtasks and press ENTER.
   Subtasks . . 6  1. IMS Knowledge Based Log Analysis
                   2. MSC Link Performance Analysis
                   3. Statistic Log Record Analysis
                   4. DL/1 Trace Analysis
                   5. IRLM Lock Trace Analysis
                   6. DBCTL Transaction Analysis
                   7. Log Processing Rate Analysis
To Exit the KBLA menu, press END.
For Help place cursor on any field and press PF1
```

Use the report output to find bottlenecks in the system. Useful for system tuning and troubleshooting

DBCTL Transaction Analysis ...

- Select one field for Sort specifications
  ➤ A=Ascending, D=Descending, N=Not to be used for the sort
  ➤ In this example, the sort selection is "Descending" DL/I I/O time
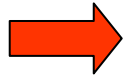
```
                == K.B.L.A.   DBCTL Transaction Analysis ==

COMMAND ===>
Input IMS Log DSN IDOC.IMSV9.IMS1.DFSOLP02.D03260            Cataloged? Y
IMS Log Version. . . . . . . . . . . . 9
 Transaction Summary Report Sorted by:
        DLI I/O Time . . . . . . . . . d    (A/D/N)
        NBA Buffers Used . . . . . . . N    (A/D/N)
        PSBNAME . . . . . . . . . . . N    (A/D/N)
        Scheduling Elapsed Time. . . . N    (A/D/N)
        SYNC Failure . . . . . . . . . N    (A/D/N)
        Time Waiting for DEDB BUFFER . N    (A/D/N)
        Time Waiting for INTENT. . . . N    (A/D/N)
        Time Waiting for POOL SPACE. . N    (A/D/N)
        Time Waiting for LOCKS . . . . N    (A/D/N)
        Time Waiting for CI LOCK . . . N    (A/D/N)
        Time Waiting for UOW LOCK. . . N    (A/D/N)
Output DSN  Keyword. . . . . . . . . . ALISON   The Output DSN will be:
                                               TNGUYEN.keyword.KBLA.*

Log DSNs were extracted from RECON . .

PDS member containing logs . . . . . .
```

DBCTL Transaction Analysis ...

- The help panel documents and explains each field
  - ▶ Combines information from DBFULTA0 and DFSILTA0

```
        K.B.L.A. - Panel HELP - DBCTL Transaction Analysis


 This utility sort and combines the DBFULTA0 and DFSILTA0 functions.
 It should be used primarily for a DBCTL environments since it relies
 on both a x'07' and a x'5937/5938' record to gather the statistics.
 Usually only in DBCTL environments will we have both of these records
 on a per transaction basis (unless a TM account used a PROCLIM of 1).


 These are the fields presented by the utility in the report:


SCHEL - ELAPSED TIME IN SCHEDULING     INT - TIME WAITING FOR INTENT
DLI    - TOTAL FULL FUNCTION CALLS      IOT - DLI I/O TIME
DEC    - TOTAL DEDB CALLS               DEG - DEDB GET CALLS
OVF    - OVERFLOW BUFFERS USED          BWT - DEDB BUFFER WAITS
UPD    - BUFFERS SENT TO OTHREAD        SDP - BUFFERS USED FOR SDEP
ULK    - UOW LOCK WAITS                 VRD - VSO RADS FROM DATA SPAC
VWR    - UPDATES TO VSO DATA SPACE      S/F - SYNC FAILURE CODE

                                              Continue...
```

DBCTL Transaction Analysis ...

- Sample output

```
CONTROL   CNTL   H=EOF
|************************************************
|* IMS-V9 INPUT LOG DATA SET NAME(S):          *
|* IMSV9.TEST.LOG                              *
|************************************************
|* DBCTL TRANSACTION ANALYSIS
|************************************************
|OPTION    PRINT E=DFSKDBC0
|COLUMN HEADING EXPLANATIONS:
|SCHEL - ELAPSED TIME IN SCHEDULING    INT - TIME WAITING FOR INTENT    PWT - TIME WAITING FOR POOL SPACE
|DLI   - TOTAL FULL FUNCTION CALLS     IOT - DLI I/O TIME               LWT - TIME WAITING FOR LOCKS
|DEC   - TOTAL DEDB CALLS              DEG - DEDB GET CALLS             DEP - DEDB PUT CALLS
|OVF   - OVERFLOW BUFFERS USED         BWT - DEDB BUFFER WAITS          NBA - NBA BUFFERS USED
|UPD   - BUFFERS SENT TO OTHREAD       SDP - BUFFERS USED FOR SDEP      CLK - CI LOCK WAITS
|ULK   - UOW LOCK WAITS               VRD - VSO RADS FROM DATA SPACE    VDR - VSO READS FROM DASD
|VWR   - UPDATES TO VSO DATA SPACE     S/F - SYNC FAILURE CODE - SEE UTILITIES REF MANUAL FOR EXPLANATION
|PSBNAME    SUBSYS R RGN ELAP SCHED_TIME SCHEL INT PWT DLI   IOT     LWT DEC DEG DEP OVF BWT NBA UPD SDP CLK ULK VRD VDR VWR S
|            ID T NBR SS.T HH:MM:SS.T   MS  MS  MS  #    MS     MS  #   #   #   #   #   #   #   #   #   #   #   #   # F
|TXSQL6C  SYS6         2  1.3 18:18:21.9           0           0   0   0   0   0   0   0   0   0   0   0   0   0
|TXSQL6C  SYS6         2   .5 18:18:23.5           0           0   0   0   0   0   0   0   0   0   0   0   0   0
|EMHPSB2  SYS6     B   1 13.5 18:18:12.6           0           0   0   0   0   0   0   0   0   0   0   0   0   0 U
|TXSQL6C  SYS6         2   .7 18:18:41.1           0           0   0   0   0   0   0   0   0   0   0   0   0   0
|EMHPSB2  SYS6     B   1 16.6 18:18:27.3           0           0   0   0   0   0   0   0   0   0   0   0   0   0 L
|DFS707I END OF FILE ON INPUT
|NUMBER OF SYNC RECORDS  (5937)           3
|NUMBER OF SYNC FAILURES (5938)           4
|NUMBER OF SCHD RECORDS  (08)             5
|NUMBER OF TERM RECORDS  (07)             5
|DFS708I OPTION COMPLETE
|DFS703I END OF JOB
```

Log Processing Rate Analysis

- From the main panel, choose Task 4 to bring up the IMS Knowledge Based Analysis panel
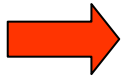
  ▶ Choose Subtask 7 to bring up the Log Processing Rate Analysis panel

```
                    IMS K.B.L.A. - IMS Knowledge Based Analysis
Command ===>

                                                  TIME....15:40:11
                                                  TIME....15:40:11
                                                  DATE....2003/10/30
                                                  JULIAN..2003.303

Select any of the following subtasks and press ENTER.


   Subtasks . .  7  1. IMS Knowledge Based Log Analysis
                    2. MSC Link Performance Analysis
                    3. Statistic Log Record Analysis
                    4. DL/1 Trace Analysis
                    5. IRLM Lock Trace Analysis
                    6. DBCTL Transaction Analysis
                    7. Log Processing Rate Analysis
To Exit the KBLA menu, press END.
For Help place cursor on any field and press PF1
```

Log Processing Rate Analysis

- Sample input panel

```
== K.B.L.A.  Log Processing Rate Analysis  ==


Input IMS Log DSN IMSDATA.IM9A.SLDSP.D05073.T1139375.V05        Cataloged? Y
IMS Log Version. . . . . . 9
 Selection by log record type:
  Log Types:


Optional Fields
  Include breakdown by Subtype     (Y/N)    Analysis Interval      (Minutes)
  Start Date/Time (UTC)            -        (YYYYDDD - HHMMSS)
  Stop Date/Time  (UTC)            -        (YYYYDDD - HHMMSS)
  Start LSN . . . . . .                  Stop LSN . . . . . . . . . .
  Number of Records to Skip             Number of Records to Process


Output DSN Keyword. . . . . . . . .   IM9A      The Output DSN will be:
Log DSNs Were Extracted From RECON.   N         COUGHTA.keyword.KBLA.R.*
COMMAND ===>
 F1=HELP        F2=SPLIT        F3=END         F4=RETURN      F5=RFIND        F6=RCHANGE
 F7=UP          F8=DOWN         F9=SWAP        F10=LEFT       F11=RIGHT       F12=RETRIEVE
```

Log Processing Rate Analysis

- Sample Log Record Processing Rate Analysis Summary Report

```
|* ***********************************************************************
|* Log Rate Analysis / DFSKRSR0      DATE: 2004/173   TIME: 10:25    PAGE:        1
|* ***********************************************************************
|* CNTLCRDS:   SUBTYPE
|* ***********************************************************************
|* ***********************************************************************
|* Log Rate Analysis / DFSKRSR0      DATE: 2004/173   TIME: 10:25    PAGE:        2
|* ***********************************************************************
|* INPUT LOG DATA SET NAME(S)
|* IMSVS.TESTLOG
|* ***********************************************************************
|* ***********************************************************************
|* Log Rate Analysis / DFSKRSR0      DATE: 2004/173   TIME: 10:25    PAGE:        3
|* ***********************************************************************
|* RATE STATS  (00:07:47.9 - 00:47:27.5)  ELAPSED: 000 00:39:39.6      2379 SECS
|*   LOG       TOTAL     RECORDS     AVG.    BYTES     LOG RECORD
|*   TYPE     RECORDS     /SEC       LEN.    /SEC      DESCRIPTION
|*   -----   --------   --------    -----   --------   -----------------------------
|*
|*   07       148634        62       348     21742     APPLICATION PGM TERMINATED
|*   08       148638        62       112      6997     APPLICATION PGM SCHEDULED
|*   09           88         0       336        12     SEQUENTIAL BUFFERING RECORD
|*   18         3710         1       359       560     USER PGM ISSUED CHPT CALL
|*   27         5465         2        72       166     DATA BASE WAS EXTENDED
|*   2701       2733         1        84        96     DATA BASE WAS EXTENDED-PHASE 1
|*   2702       2732         1        61        70     DATA BASE WAS EXTENDED-PHASE 2
|*   37       150411        63       104      6613     SYNCPOINT PROCESSOR LOG RECORD
|*   3730     150411        63       104      6613     SYNCPOINT PROCESSOR LOG RECORD
|*   38           54         0       112         2     MSG PUT BACK ON Q. APPL ABEND
|*   40         2002         0      1000       841     TOTAL NUMBER OF CHECKPOINT REC
|*   4001         11         0       440         2     CHECKPOINT PROCESS START
```

Log Processing Rate Analysis

- **Sample Log Record Processing Rate Analysis Summary Report**

```
|*   4006       484         0    1000        203   DMB(S) FOLLOW
|*   4007      1452         0    1020        623   PSB(S) FOLLOW
|*   4030        33         0     774         10   RRE(S) FOLLOW
|*   4031        11         0     392          1   SIDX FOLLOW
|*   4098        11         0     104          0   CHKPT INFORMATION ENDS HERE
|*   41        1834         0     106         81   BATCH OR BMP ISSUED A CHKP
|*   42          12         0     600          3   OLDS SWITCH/CHKPT WAS TAKEN
|*   43      417365       175      24       4212   STATUS OF CURRENT OLDS D/S
|*   45         297         0     529         66   BEGIN-STATISTICS RECORD
|*   4500        11         0      52          0   BEGIN-STATISTICS RECORD
|*   4504        55         0     144          3   DL/I BUFFER POOL STATISTICS
|*   4505        11         0     120          0   VARIABLE STORAGE POOL STATS
|*   4506        11         0     144          0   APPLICATION SCHEDULING STATS
|*   4507        11         0      76          0   LOGGING STATISTICS
|*   4508        66         0     136          3   VSAM BUFFER POOL STATISTICS
|*   4509        11         0      48          0   PROGRAM ISOLATION STATISTICS
|*   450A        11         0    2148          9   LATCH MANAGEMENT STATISTICS
|*   450B        11         0      52          0   SELECTIVE DISPATCHER STATS
|*   450C        11         0    3556         16   STORAGE POOL STATISTICS
|*   450E        33         0     856         11   FIXED STORAGE POOL STATISTICS
|*   450F        11         0    3248         15   DISPATCHER STATISTICS
|*   4510        11         0      48          0   RCF MULTI-TCB STATISTICS
|*   4521        11         0     172          0   IRLM SUBSYSTEM STATISTICS
|*   4522        11         0     484          2   IRLM SYSTEM STATISTICS
|*   45FF        11         0      56          0   END OF STATISTICS RECORD
|*   47         183         0    1026         78   CHKPT JUST TAKEN.PST(S) LISTED
|*   48       49500        20      58       1206   OLDS PADDING RECORD
|*   4C           4         0      70          0   A BACKOUT FOR TOKEN WAS DONE
|*   50     5887602      2474     185     458622   DB UPDATE RECORD
|*   5050   5727294      2407     184     443813   RECOVERY/BACKOUT DATA
|*   5052    160308        67     219      14809   PREVIOUS KSDS UPDATE FAILED
```

Log Processing Rate Analysis

- **<u>Sample Log Record Processing Rate Analysis Summary Report</u>**

```
|*   56         526637       221      98      21882    EXT SUBSYSTEM SUPPORT RECOVERY
|*   5600         1232         0     100         51    EXT SUBSYSTEM SUPPORT RECOVERY
|*   5607       150472        63      92       5819    START OF A UNIT-OF-RECOVERY
|*   5610       148529        62     104       6493    PHASE 1 SYNCPOINT START
|*   5611        75885        31      92       2934    PHASE 1 SYNCPOINT END
|*   5612       150467        63     104       6577    PHASE 2 SYNCPOINT END
|*   5616           52         0     256          5    START OF PROTECTED UOW
|* **********************************************************************************
|* Log Rate Analysis / DFSKRSR0    DATE: 2004/173   TIME: 10:25    PAGE:        4
|* **********************************************************************************
|*
|* RATE STATS  (00:07:47.9 - 00:47:27.5)  ELAPSED: 000 00:39:39.6     2379 SECS
|*
|*   LOG       TOTAL     RECORDS     AVG.     BYTES     LOG RECORD
|*   TYPE     RECORDS     /SEC       LEN.     /SEC      DESCRIPTION
|*   -----    --------   --------   -----   --------    -----------------------------
|*   67          356         0      783       117    SYSTEM DIAGNOSTIC LOG RECORD
|*   6705          9         0      731         2    TERMINATE THREAD RECORD
|*   67FF        347         0      784       114    EXCEPTION CONDITION SNAP
|*
|* **********************************************************************************
|*            LOG RECORD PROCESSING RATE INFORMATION SUMMARY                     *
|* FIRST LSN: 598F405B       LAST LSN: 59FF4B22
|* FIRST SELECTED LSN: 598F405B
|* FIRST LOG RECORD STCK   (UTC): 2004160 0007479
|* FIRST SELECTED LOG STCK (UTC): 2004160 0007479
|* LAST LOG RECORD STCK    (UTC): 2004160 0047275
|* ELAPSED TIME ON SELECTED LOG(S):                        000 00:39:39.6
|* TOTAL # OF NON COMMENT CNTLCRDS RECORDS READ    :        1
|* REQUESTED # OF LOG RECORDS TO BE SKIPPED        :        0
|* TOTAL # OF LOG RECORDS SKIPPED                  :        0
|* TOTAL # OF LOG RECORDS READ                     : 7342792
|* TOTAL # OF LOG RECORDS EVALUATED                : 7342792
|* TOTAL # OF REPORTING INTERVALS                  :        1
```

User-Supplied Utilities

```
        Knowledge-Based Log Analysis    IMS Version 9.1
Command ===>

                                              TIME....18:18:33
                                              DATE....2004/11/23
                                              JULIAN..2004.328
Select any of the following tasks and press ENTER .    USERID..COUGHTA




        Tasks . .    0. KBLA Environment Maintenance
                     1. IMS Log Utilities
                     2. IMS Log Formatting
                     3. IMS Log Data Set Summary
                     4. IMS Knowledge-Based Analysis
                     5. Log Selection

                     6. User-Supplied Utilities


To Exit the KBLA MAIN menu, press END .
For Help place cursor on any field and press PF1 .
 F1=HELP      F2=SPLIT      F3=END       F4=RETURN    F5=RFIND      F6=RCHANGE
 F7=UP        F8=DOWN       F9=SWAP      F10=LEFT     F11=RIGHT     F12=RETRIEVE
```

Summary

- "Knowledge based" analysis of IMS logs
  - ▸ Easy to use, comprehensive tool
    - ISPF panel interface that simplifies and prevents errors in JCL creation
  - ▸ Ensures correct and complete selection of log data sets
  - ▸ Provides an interpreted version of most of the log records
  - ▸ Allows correlation of the log records pertinent to a unit of work

- KBLA Simplifies a complex task