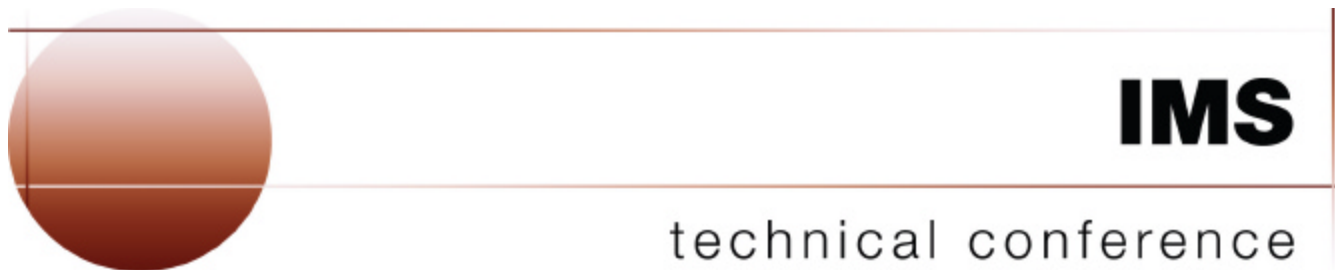


# E87

## Using IMS Tools for IMS Performance Analysis and Problem Investigation

David Mierowsky



**Las Vegas, NV**

**September 15 – September 18, 2003**



## IMS Performance Analyzer V3.2

Performance Reporting and analysis from the IMS Log and Monitor

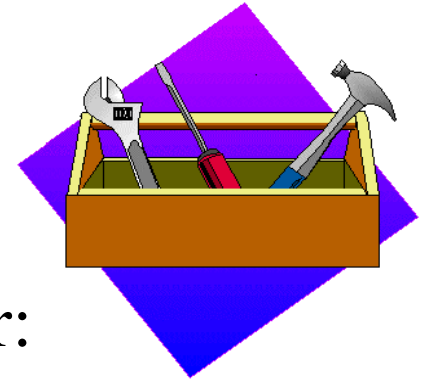


## IMS Problem Investigator V1.1

Analysis of the IMS Log for problem investigation



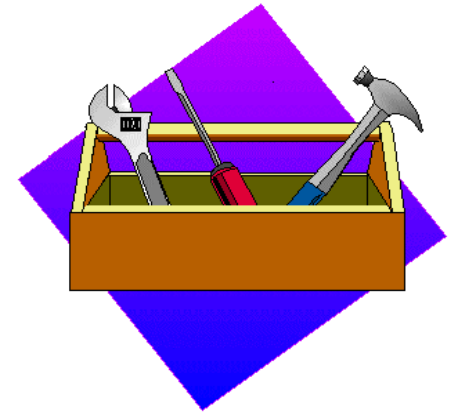
# IMS PA provides ...



- Information on IMS system performance for:
  - Tuning
  - Capacity Planning
  - Management Reporting
- Comprehensive reporting from IMS log or monitor data sets via ISPF dialog or batch commands
- Support for IMS V6 and higher
  - Shared Queue support - merges logs to produce end to end transaction response times
  - Fast Path reporting for log (IMS V6+) and monitor (IMS V7+)
- Replacement for IMSPARS and IMSASAP

# IMS PA Advantages

- Comprehensive Log and Monitor reporting
- Non-intrusive log reporting
- Replaces IMS reporting utilities
- Shared queues support
- IMS V8 support, including new Fast Path monitor records
- DBRC log selection
- Easy to use, no initial set-up required
- Constantly growing and improving
  - Full exploitation support for new IMS releases
  - Responsive to customer requirements and expectations
- Used by IBM for product development and customer support



# What's New in IMS PA V3R2?

- Dialog enhancements
- Enhanced log reporting
- Transaction History Files
- Enhanced monitor reporting
- Documentation improvements



# Dialog Enhancements

- Define IMS subsystems
  - System attributes such as IMSID, RESLIB, description
  - DBRC information
  - LOG details
  - Monitor details
  - Usability improvements

# Log Reports

- Internal Resource Usage Reports (IRUR)
- DC Tracker (enhanced DC Trace)
- Three new log reports
  - Transaction Resource Usage
  - Deadlock
  - Checkpoint
- Transaction History Files

# Monitor Reports

- Integration of External Subsystem events with DLI and FP events
  - Integrates DB2 and MQ stats with existing reports
- Alternate Sequencing
  - Allows existing reports to be sequenced so significant events are easier to find



# IMS PA V3R2 Primary Option Menu

```
File Options Help
-----
          IMS Performance Analyzer 3.2 - Primary Option Menu
Option ==> 1_
-----
0  IMS PA Profile      Customize your IMS PA dialog profile
1  System Definitions  Specify your IMS Subsystems, Log and Monitor Files
2  Groups              Specify your IMS Subsystem Groups (Sysplexes)
3  Report Sets         Request and submit reports and extracts
4  Expectation Sets    Define Expectation Sets (Log exception reporting)
5  Averages            Edit Averages data sets (Log exception reporting)
6  Object Lists        Define Object Lists
7  Distributions       Define Distributions
8  Graphing & Export   Graph or export Log Extract by Interval data
X  Exit                Terminate IMS PA
```



# System Definitions

```

File Edit Options Help
-----
                                System Definitions                                Row 1 to 3 of 3
Command ==> _____ scroll ==> CSR

Specify IMS subsystems.

Enter "/" to select action.

----- Files -----
  IMSID  VRM +      Description      DBRC  Log  Monitor
-----  -  -  -----  -  -  -
  IMSP   710  IMS Production  Yes   No   Yes
  IMSD   710  IMS Development Yes   Yes  No
  IMST   810  IMS Test         No    Yes  No
  
```

```

File Options Help
-----
                                IMS Subsystem
Command ==> _____

Specify IMS subsystem definition.

IMS Subsystem ID . . . . IMSP  IMS Version (VRM) . . . 710 +
Description . . . . . IMS Production
RESLIB Data Set . . . . .

-----
Specify Required View . . 1  1. DBRC settings    3. Monitor Files
                          2. Log Files           4. Groups
  
```



# Groups

```
File Edit Options Help
-----
Group of IMS subsystems Row 1 to 3 of 3
Command ==> _____ scroll ==> CSR

Group . . . . . PLEXP
Description . . . Production IMS Plex

Enter "/" to select action.

- Files -
IMSID + VRM Description DBRC Log
- IMP1 710 IMS Production 1 Yes No
- IMP2 710 IMS Production 2 Yes No
- IMP3 710 IMS Production 3 Yes No
```



# Log Reports – V3.1

```
File LogInput View Options Help
-----
EDIT Report Set (LOG) - SAMPLOG
Command ==> _____
Select to review Options or Reports. Updates will be saved at Report Set Exit
Description . . . . Sample Log Report Set

Options
_ Log Global

Transit Options
_ Transaction (MSGQ)

Resource Usage & Availability Reports
_ Management Exception
_ Resource Availability
_ CPU Usage
_ Internal Resource Usage
_ Message Queue Utilization
_ Database Update Activity
_ Database Trace
_ Region Histogram
_ DC Queue Manager Trace
_ OSAM Sequential Buffering
_ ESAF

Transaction Transit Reports
_ Analysis
_ Statistics
_ Log
_ Graphic Summary
_ Extract By Interval
_ Transaction Exception

User-Written Reports
_ User Processors...

More Reports (Scroll Right)
Fast Path
```



# Log Reports – V3.2

```
File View SysDefs Options Help
-----
EDIT                               Report Set - SAMPLOG                               Line 1 of 7
Command ==> _____ Scroll ==> PAGE
Description . . . Sample Log Report Set
Enter "/" to select action.

_____  ** Reports **                               Active
+ _____ Options                               Yes
+ _____ Transaction Transit Reports           Yes
+ _____ Resource Usage & Availability Reports  Yes
+ _____ Fast Path Transit Reports             No
+ _____ Fast Path Resource Usage Reports       No
+ _____ Trace Reports                          No
_____  User-Written Reports                         No
_____  ** End of Reports **
```



# Log Reports – V3.2

```
File View SysDefs Options Help
-----
EDIT                               Report Set - LOG320                               Run pending
Command ==> _____ scroll ==> PAGE

Description . . . IMS PA Report Set

Enter "/" to select action.

_____ ** Reports **                               Active
+ _____ Options                               Yes
- _____ Transaction Transit Reports           Yes
  _____ Transit Options                         Yes
  _____ Analysis                               Yes
  _____ Statistics                             No
  _____ RUN Log                                 No
  _____ Graphic Summary                         No
  _____ Extract by Interval                     No
  _____ Transaction Exception                   No
+ _____ RUN Resource Usage & Availability Reports Yes
+ _____ Fast Path Transit Reports               No
+ _____ Fast Path Resource Usage Reports         No
+ _____ Trace Reports                           No
  _____ User-Written Reports                     No
```



# Transaction Resource Usage Report

The Transaction Resource Usage report provides a comprehensive overview of transaction resource usage, including:

- Scheduling statistics, including WFI
- CPU usage
- DL/I call statistics
- Enqueue statistics
- DBCTL DB and I/O usage

It provides complete detail and summary reporting for type 07 application termination statistics records



# Transaction Resource Usage Summary

## IMS Transaction Resource Usage - Summary

Report From: 06May2002 00:54:00:69 To: 06May2002 03:04:22:26 Elapsed= 2 Hrs 10 Mins 21.563.977 Secs

Tran : ACMA

\*\*\*\*\* DLI Calls \*\*\*\*\* \*\*\* Enqueues \*\*\* \* WFI \*

Type : MPP	CPU	Sched	Trans	DB	DC	Other	Count	Wait	SUBQ6
Total	7162	2	593	2369	1186	592	593	0	17629K
/Sched	3581	1.0	296.5	1184.5	593.0	296.0	296.5	0.0	8814300
/Tran	12	0.0	1.0	4.0	2.0	1.0	1.0	0.0	29727
/Minute	55	0.0	4.6	18.2	9.1	4.6	4.6	0.0	135604
% Total	0.00	0.12	23.53	17.12	11.81	2.60	78.96	0.00	19.16

\* DB Call \*

	GU	GN	GNP	GHU	GHN	GHNP	ISRT	DLET	REPL	DEQ
Total	593	0	0	592	0	0	592	0	592	0
/Tran	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0
% DLI	1.27	0.00	0.00	1.27	0.00	0.00	1.27	0.00	1.27	0.00

\* DC Call \*

	GU	GN	ISRT	PURG
Total	594	0	592	0
/Tran	1.0	0.0	1.0	0.0
% DLI	1.27	0.00	1.27	0.00





# Checkpoint Report

**Provides a detailed analysis of IMS internal checkpoint activity.**

**The report provides details of your IMS resources, including**

- **Databases, with system definition information**
- **Transactions, with system definition information and basic usage indicators**
- **Terminals, with message statistics**

**The report also provides a summary of checkpoint activity, including:**

- **A breakdown of checkpoint records by type**
- **The frequency and overhead of internal checkpoint processing**



# Checkpoint Report - Part 1

Start 21Jan2002 11.49.45.70

IMS Performance Analyzer

End 21Jan2002 12.58.45.16 Page 1

## Database Definitions - IMSPAPROD

Database R I S O	Database R I S O	Database R I S O	Database R I S O	Database R I S O	Database R I S O	Database R I S O
ACMDIRIO R I 2 O	ACMDIRPO R 1 O	ACMDIRX1 R 1 O	ACMTRNIO I 3 O	ACMTRNPO I 2 O	ACMTRNX1 R 2 O	ACMTRNX0 R I 1 O
AOIDBX50 1 O	AOIDBX20 I 2 O	AOIDBX30 I 1 O	AOIDBX31 R 2 O	AOIDBX32 R 1 O	AOIDBX40 I 3 O	AOIDBX39 2 O

## Transaction Definitions - IMSAPROD

TranCode	Program	S REG	T TYP Mode	CLS	NRM	LIM	LIMCT	Count	CPU	Size	TF Limit	RGN	Enq	Deq	Len	Options
ADDINV	DFSSAM04	1 MPP	MULT	1	2	4	2	65535	65535				0	0	0	RSP NR
ADDPART	DFSSAM04	1 MPP	MULT	1	2	4	2	65535	65535				132	4032	4032	WFI INQ
CLOSE	DFSSAM05	1 MPP	MULT	1	2	4	2	65535	65535							FPP FFX
CMDBMP	CMDBMP	1 BMP	MULT	1	0	0	65535	65535	65535		65535	0				RMT DLO RES

## Terminals sorted in PTERM Sequence - IMSAPROD

VTAMNODE		-----Messages-----					VTAMNODE		-----Messages-----				
/PTERM	LTERM	Input	Outpt	Enq	Deq	Len	/PTERM	LTERM	Input	Outpt	Enq	Deq	Len
ACDV1A	ACDV1A			0	0	132	ACDV1B	ACDV1B	0	0	0	0	0
ACDV18	ACDV18	34	34	534	534	232	ACDV19	ACDV19	0	0	0	0	0



# Checkpoint Report - Part 2

```

Completed Checkpoints      =          7
Average Checkpoint Duration =          0.204      (hhhh.mm.ss.ths)
Average Checkpoint Frequency =      11.29.713      (hhhh.mm.ss.ths)
CPLOG                      =          46613
    
```

<u>Subtype</u>	<u>Description</u>	<u>Count</u>	<u>Bytes</u>	<u>%Total</u>
01	Begin Checkpoint	1	1,504	0.24
03	CNT - Communication Name (Node) Table	2	6,064	0.49
04	SMB - Scheduler Message Block	173	685,128	42.09
05	CTB - Communication Terminal Block	1	3,488	0.24
06	DDIR - DMB Directory Entry	50	50,080	12.17
07	PDIR - PSB Directory Entry	82	83,720	19.95
08	CLB - Communication Line Block	1	192	0.24
0D	CCB - Conversational Control Block	1	1,376	0.24
0F	LCB - Link Control Block	1	176	0.24
10	CRB - Communication Restart Block	1	352	0.24
14	SPQB - Subpool Queue Block	16	60,636	3.89
21	VTCB - VTAM Terminal Control Block	8	30,796	1.95
22	Queue Anchor block (LU 6.2)	1	32	0.24
30	RRE - Residual Recovery Element	6	5,330	1.46
31	SIDX - Subsystem Index Entry	1	132	0.24
32	OTMA TPIPES/QABS	1	240	0.24
33	OTMA MTES/MCBS	1	248	0.24
80	Fast Path Begin Checkpoint	1	307	0.24
83	RCTE - Routing Code Table Entry	1	56	0.24
84	DMCB - DEDB Master Control Block	49	32,396	11.92
86	DMHR - Fast Path Buffer Header	3	13,176	0.73
87	ADSC - Area Data Set Control Block	8	7,696	1.95
89	Fast Path End Checkpoint	1	52	0.24
98	End Checkpoint	1	40	0.24
TOTAL		411	983,217	100.00



# Deadlock Report

**The Deadlock report provides a comprehensive list of deadlock events, similar to DFSERA30.**

**In addition the report summarizes deadlock activity to show at a glance:**

- **The frequency of each losing transaction/database combination**
- **The associated winning transaction/database combinations**

**The information provided is a useful aid for tuning applications and adjusting scheduling parameters to avoid this expensive overhead.**

**For IMS V7+, deadlocks involving DB2 are also reported.**



# Deadlock Report

## Deadlock Summary

\*\*\*\*\* Losing Program \*\*\*\*\*

\*\*\*\*\* Winning Program \*\*\*\*\*

DMB-name	IMS-name	Tran/Job	PSB-name	PCB--DBD	Deadlocks	DMB-name	IMS-name	Tran/Job	PSB-name	PCB--DBD	# Waits
DBD01P	IMD3	MKR#LK1A	FUNPSB01	DBD01P	1	DBD01P	IMD3	MKR#LK1B	FUNPSB01	DBD01P	1
						DBD01P	IMD3	MKR#LK1C	FUNPSB01	DBD01P	1
						DBD01P	IMD3	MKR#LK1D	FUNPSB01	DBD01P	1
DBD01P	IMD3	MKR#LK1D	FUNPSB01	DBD01P	1	DBD01P	IMD3	MKR#LK1A	FUNPSB01	DBD01P	1
						DBD01P	IMD3	MKR#LK1B	FUNPSB01	DBD01P	1
						DBD01P	IMD3	MKR#LK1C	FUNPSB01	DBD01P	1
Total number of Deadlocks =					2						

## DB2 Deadlock Summary

\*\*\*\*\* Losing Program \*\*\*\*\*

Subsystem	IMS-name	SMB/Job	PSB-name	Deadlocks
DB2P	IMD3	MKR#LKA	FUNPSB02	3
DB2P	IMD3	MKR#LKA7	FUNPSB02	5
Total number of Deadlocks =				8



# Internal Resource Utilization Report - PSB Statistics + more

## PSB Pool Get Statistics

Requests	795	.07	.01	
CSA PSB pool				
Space not immediately available	1	.00	.00	.13% of PSB pool Get
PSBs cast out to make room for new PSB	76	.01	.00	9.56% of PSB pool Get
Failed	0	.00	.00	.00% of PSB pool Get
DLI PSB pool				
Space not immediately available	119	.01	.00	14.97% of PSB pool Get
PSBs cast out to make room for new PSB	648	.06	.01	81.51% of PSB pool Get
Failed	0	.00	.00	.00% of PSB pool Get
Space not immediately available in CSA and DLI	1	.00	.00	.13% of PSB pool Get
Time getting PSB pool space with no PSB cast out	3.55.41			
Time getting PSB pool space with PSB cast out	2.22.54.74			

## PSB Pool Free Statistics

Requests	9,890	.93	.12
Time Freeing PSB pool space	1.12.13.85		

## PSB Work Area Get Statistics

Requests	9,895	.93	.12	
Failed requests	0	.00	.00	.00% of PSB Work Area pool Get
Time getting PSB work area pool space	14.48.84			

1. PSB Pool Manager statistics (4506) introduced by IMS APAR PQ61259 (UQ67565)
2. /CHE STATISTICS support, 40's no longer required



# Internal Resource Utilization Report – misc statistics

Start 14May2003 00.10.00.36

IMS Performance Analyzer

End 15May2003 00.01.05.01 Page 13

## Internal Resource Usage - IMSP

Miscellaneous Statistics

Interval : 23.51.05 (HHH.MM.SS)

	<u>Count</u> / <u>Transact</u>	<u>/Second</u>	
Highest PST used	14		
Highest CCB ID used	1		
Current # of CCBs in use	1		
Number of Conversations started	154	.00	
Number of Conversational Transactions	7,996	.09	74.80% of all Transactions
Number of Wait-For-Input Transactions	0	.00	.00% of all Transactions
Number of NonRecoverable Transactions	0	.00	.00% of all Transactions
Number of Response-Mode Transactions	8,235	.10	77.03% of all Transactions
	<u>Average</u>	<u>Minimum</u>	<u>Maximum</u>
Number of RECANY Buffers used	0	0	1
Maximum number of RECANY Buffers used	2	1	4
Number of Statistics Intervals	36		
IMS Release Level	8.1.0		
Statistic records Version Level	1		

**More statistics and improved presentation, including Dynamic SAP statistics and RECANY buffers**



# DCTRACE – Unit-of-Work Tracker

Start 13Sep2002 16.08.02.29

IMS Performance Analyzer

Page 1

## DC UOW Tracker

UTC(Local)	Reason for	Dest	Userid/	DRRN	PST/	Tracking UOW -----				
<u>Msg#/Rel Time+</u>	<u>Entry</u>	<u>In/Out</u>	<u>Terminal</u>	<u>Msg/Rec</u>	<u>Data</u>	<u>Org ID</u>	<u>Org STCK Token</u>	<u>Proc ID</u>	<u>Proc STCK Token</u>	<u>Log Seq Number</u>
160802.298.728	Input	LTRM0003	JOHN	04000004		IMSP	B83991AAE59EFFF3	IMSP	B83991AAE59EFFF3	00000000007691F
<b>Msg #</b> 1	01C18194	ORDER	NODE0003	04000004	+0000	'ORDER	0250003111019008605269385	ORDR	10-32-33'	
160802.298.728	Enq SMB	LTRM0003	JOHN	04000004		IMSP	B83991AAE59EFFF3	IMSP	B83991AAE59EFFF3	000000000076920
Rel + 0	350C84	ORDER	NODE0003							
160802.298.990	GU DLI	LTRM0003	JOHN	04000004	0004	IMSP	B83991AAE59EFFF3	IMSP	B83991AAE59EFFF3	000000000076923
Rel + 262	31E00064	ORDER	NODE0003							
160802.298.728	Input	LTRM0003	JOHN	04000009		IMSP	B83991AAE59EFFF3	IMSP	B83991AAE83179F1	000000000076926
<b>Msg #</b> 2	03C18190	SECURE	NODE0003	04000009	+0000	'SECURE	50			
160802.309.381	Enq SMB	LTRM0003	JOHN	04000009		IMSP	B83991AAE59EFFF3	IMSP	B83991AAE83179F1	000000000076927
Rel + 10.653	358C80	SECURE	NODE0003							
160802.310.081	GU DLI	LTRM0003	JOHN	04000009	0004	IMSP	B83991AAE59EFFF3	IMSP	B83991AAE83179F1	000000000076930
Rel + 11.353	31E00064	SECURE	NODE0003							
160802.298.728	Output	LTRM0003	JOHN	04000004		IMSP	B83991AAE59EFFF3	IMSP	B83991AAF41FA3F1	000000000076932
<b>Msg #</b> 3	03C18210	LTRM0003	NODE0003	04000004	+0000	'You have authority to proceed with order number ORDR 10-32-330. '				
					+0040	'Press Enter to continue.'				
160802.358.540	Enq CNT	LTRM0003	JOHN	04000004	0004	IMSP	B83991AAE59EFFF3	IMSP	B83991AAF41FA3F1	000000000076933
Rel + 59.812	359C13	LTRM0003	NODE0003							





# Transaction History File

**Provides the capability to perform long-term trend analysis of IMS transaction performance.**

**The new function is provided in two parts:**

- 1. Data Collection (APAR PQ70267 available now), including direct import into DB2 table for analysis using your favorite SQL reporting tool**
- 2. Reporting (coming soon in APAR PQ70268)**

**Transaction History data is collected by running the usual IMS PA batch reporter.**

**Transaction statistics are saved for each user specified time interval, from 1 second to 24 hours.**

**Data is in DB2 Load format for easy input into a DB2 Table**



# Transaction History File – Load into DB2

```
LOAD DATA
INTO TABLE <IPITHIST>.TRANHIST (
    TRHRDATE          POSITION(1)    DATE EXTERNAL(10),
    TRHRTIME          POSITION(12)   TIME EXTERNAL(8),
    TRHRPRID          POSITION(20)   CHAR(4),
    TRHRTRAN          POSITION(24)   CHAR(8),
    TRHRTRA#          POSITION(32)   FLOAT,
    TRHRRSP#          POSITION(40)   FLOAT,
    TRHRTINQ          POSITION(48)   FLOAT,
    TRHRTPRO          POSITION(56)   FLOAT,
    TRHRTOUT          POSITION(64)   FLOAT,
    TRHRTTOT          POSITION(72)   FLOAT,
    TRHRTRSP          POSITION(80)   FLOAT,
    . . .
    TRHRDLI#          POSITION(128)  FLOAT,
    TRHRCPUT          POSITION(136)  FLOAT,
    TRHRDBCL          POSITION(144)  FLOAT,
    TRHRDCCL          POSITION(152)  FLOAT,
    TRHRDBWT          POSITION(160)  FLOAT)
```

**Use the DB2 Load Utility (DSNUTILB) to load History File data directly into a DB2 table**

**Then try one of the three supplied sample QMF queries**



# History File – Sample Query #1

## QMF Query of Transaction History File, showing average Transit Queue times

DATE	TIME	IMS	TRANCODE	TRAN COUNT	AVG INQ	AVG PROC	AVG OUTQ	AVG TOTAL
2003-05-06	00.00.00	IMW1	BANK	4	9.4	44.7	0.0	54.1
2003-05-06	00.00.00	IMW1	ENTER	12	15262.1	632.8	0.0	15895.0
2003-05-06	00.00.00	IMW1	FINANCE	1086	26922.2	62.2	0.0	26984.5
2003-05-06	00.00.00	IMW1	GRAPH	2	0.0	0.0	0.0	0.0
2003-05-06	00.00.00	IMW1	HELP	3	0.0	0.0	0.0	0.0
2003-05-06	00.00.00	IMW1	LIST	310	54131.7	126.7	0.0	54258.5
2003-05-06	00.00.00	IMW1	MENU	68	0.0	0.0	0.0	0.0
2003-05-06	00.00.00	IMW1	ORDER	69	0.0	0.0	0.0	0.0
2003-05-06	00.00.00	IMW1	PARTS	2	33.0	69.0	83.4	185.5
2003-05-06	00.00.00	IMW1	QUERY	26	3551.1	61.9	10.6	3623.7
2003-05-06	00.00.00	IMW1	REPORT	3	19319.6	23752.5	0.0	43072.2
2003-05-06	00.00.00	IMW1	STOCK	4	0.2	103.7	0.0	104.0
2003-05-06	00.00.00	IMW1	TRANSMIT	3	2722.1	23986.6	0.0	26708.8
2003-05-06	00.00.00	IMW1	VEHICLES	9	1010.9	19.0	0.0	1029.9
2003-05-06	00.00.00	IMW1	ZSWITCH	47	19842.5	1729.6	520.9	22093.1
2003-05-07	00.00.00	IMW1	BANK	9	891.4	83.0	0.0	974.5
2003-05-07	00.00.00	IMW1	ENTER	5	7.1	1.8	0.0	9.0



# History File – Sample Query #2

## QMF Query of Transaction History File, showing average Transit Queue times and average End-User Response time

DATE	TIME	IMS	TRANCODE	TRAN COUNT	RESP COUNT	AVG INQ	AVG PROC	AVG TOTAL	AVG RESPONSE
2003-05-06	00.00.00	IMW1	BANK	4	4	9.4	44.7	54.1	54.1
2003-05-06	00.00.00	IMW1	FINANCE	1086	1	26922.2	62.2	26984.5	128.3
2003-05-06	00.00.00	IMW1	PARTS	2	2	33.0	69.0	185.5	185.5
2003-05-06	00.00.00	IMW1	QUERY	26	2	3551.1	61.9	3623.7	521.9
2003-05-06	00.00.00	IMW1	STOCK	4	2	0.2	103.7	104.0	148.0
2003-05-06	00.00.00	IMW1	ZSWITCH	47	18	19842.5	1729.6	22093.1	28313.5
2003-05-07	00.00.00	IMW1	TRANSMIT	11	6	3.2	9.7	12.9	40.9
2003-05-07	00.00.00	IMW1	ZSWITCH	11	5	13.9	30.0	44.0	31.2
2003-05-07	00.00.00	IMW1	NCBT802H	1	1	0.3	7.3	7.7	7.7
2003-05-07	00.00.00	IMW1	SW	26	15	2.4	28.6	31.0	40.6



# History File – Sample Query #3

## QMF Query of Transaction History File, showing average Transit Queue times and approximate CPU and DL/I resource usage

DATE	TRANCODE	TRAN COUNT	AVG INQ	AVG PROC	AVG TOTAL	AVG CPU	AVG DB CALLS	AVG DC CALLS	AVG DB WAITS
2003-05-06	BANK	4	9.4	44.7	54.1	5.0	0.0	2.2	0.0
2003-05-06	FINANCE	1086	26922.2	62.2	26984.5	2.4	0.0	1.0	0.0
2003-05-06	LIST	310	54131.7	126.7	54258.5	5.6	13.6	1.1	0.0
2003-05-06	PARTS	2	33.0	69.0	185.5	7.3	0.5	72.0	0.0
2003-05-06	QUERY	26	3551.1	61.9	3623.7	3.8	3.1	5.1	0.0
2003-05-06	STOCK	4	0.2	103.7	104.0	1.7	0.0	2.0	0.0
2003-05-06	TRANSMIT	3	2722.1	23986.6	26708.8	50091.1	0.0	3.6	0.0
2003-05-06	VEHICLES	9	1010.9	19.0	1029.9	0.9	0.0	5.5	0.0
2003-05-06	ZSWITCH	47	19842.5	1729.6	22093.1	86399977.8	1.1	121.7	0.0
2003-05-07	BANK	9	891.4	83.0	974.5	1.4	0.0	1.8	0.0
2003-05-07	ENTER	5	7.1	1.8	9.0	1.8	1.0	3.0	0.0
2003-05-07	FINANCE	5	0.4	10.1	10.6	3.3	2.0	3.0	0.0
2003-05-07	HELP	7	4597.3	246.9	4844.2	4.9	0.0	3.2	0.0
2003-05-07	STOCK	8	3695.7	783.3	4479.0	5.5	0.0	3.3	0.0
2003-05-07	TRANSMIT	11	3.2	9.7	12.9	5.1	2.0	2.0	0.0
2003-05-07	VEHICLES	6	0.3	31.2	31.5	6.3	2.0	4.0	0.0
2003-05-07	ZSWITCH	11	13.9	30.0	44.0	4.2	5.5	1.7	0.0



# Monitor Reports

EDIT Report Set - SAMPMON Line 1 of 38  
Command ==> Scroll ==> PAGE

Description . . . Sample Monitor Report Set

Enter "/" to select action.

___	** Reports **	Active
- ___	Options	Yes
___	Monitor Global	Yes
___	Transactions by Time Period	Yes
___	Application Grouping	Yes
___	DDname Grouping	Yes
___	ESAF Integration	Yes
___	Alternate Sequencing	Yes

**ESAF Integration  
&  
Alternate Sequencing**

SAMPMON - Alternate Sequencing

Required Sequence:

- 1 1. Name
2. Occupancy
3. Calls
4. Delay (IWAIT)

Limit reporting to . . . 100%

Limit applies only to Occupancy, Calls and Delay.



# Database IWAIT - Alternate Sequencing

Report from 06May2003 07.00.01.21 IMS 6.1.0 IMS Performance Analyzer 3.2 Report to 06May2003 07.30.00.24  
 Database IWAIT Summary (Sorted by Total IWAIT Elapsed time)

Region Totals		From 06May2003 7.00.01.21 To 06May2003 7.30.00.24		Elapsed= 0 Hrs 29 Mins 59.029.373 Secs							
DDname	Type	IWAITs	Elap/IWAIT	StdDev	Max IWAIT	Calls	IWAITs	Pct Tot	Pct Tot	Pct Tot	Pct Tot
			Sc.Mil.Mic	X Avg	Sc.Mil.Mic	Waiting	/Call	Calls	IWAITs	IWTElp	DLAElp
MSTP1A	OSAM	47,091	6.981	1.886	513.964	47,090	1.00	2.75%	22.43%	39.307%	8.958%
ACFRAN2	OSAM	19,394	3.423	2.699	576.545	5,129	3.78	.30%	9.24%	7.937%	1.809%
LTQCM1	OSAM	27,557	1.966	3.556	681.636	27,548	1.00	1.61%	13.12%	6.479%	1.477%
MP12RT	OSAM	17,240	2.555	1.958	278.991	17,227	1.00	1.01%	8.21%	5.267%	1.200%
TIMERA	OSAM	33,589	1.145	1.046	33.068	33,589	1.00	1.96%	16.00%	4.598%	1.048%
AAJAZM	OSAM	4,033	7.726	1.983	463.348	3,882	1.04	.23%	1.92%	3.726%	.849%
MSIOPQ	OSAM	11,843	2.333	3.468	342.467	11,782	1.01	.69%	5.64%	3.303%	.753%
CSFQWE	OSAM	2,065	7.848	1.521	171.463	1,792	1.15	.10%	.98%	1.938%	.442%
CRUPA02	OSAM	4,197	3.717	2.736	565.916	2,911	1.44	.17%	2.00%	1.865%	.425%
TAMPA1	OSAM	1,781	7.260	3.475	571.519	1,246	1.43	.07%	.85%	1.546%	.352%
ATTAM01	OSAM	1,721	6.496	2.516	618.581	1,424	1.21	.08%	.82%	1.337%	.305%
AAGRRAF	OSAM	2,220	4.426	3.111	349.897	2,188	1.01	.13%	1.06%	1.175%	.268%
TRNOTA3	OSAM	872	11.246	.923	271.453	822	1.06	.05%	.42%	1.173%	.267%

**Sorted by Total IWAIT  
elapsed time**



# Program Summary - Alternate Sequencing

Sorted by Total IWAIT elapsed time

## PROGRAM SUMMARY

Region No. 85 From 18Mar2003 8.22.09.14 To 18Mar2003 8.23.08.81 Elapsed= 0 Hrs 0 Mins 59.664.054 Secs

\*\* Program Analysis \*\* (Sorted by Total IWAIT Elapsed time)

PSBname	TranCode	Scheds	Per Schedule					Per Transaction							
			Trans	Scd-DLI	DLI-Term	Schd	on Q	Elapsed	CPUtime	Pct of Tran	Elap				
			/Schd	Mil.Mic	Sc.Mil.Mic		Calls	IWTs	Sc.Mil.Mic	Mil.Mic	CPU	Call	IWT		
JACIS028		3	3	1.00	707.178	934.215	.0	149.3	60.0	934.215	10.010	1.1%	33.7%	55.4%	
WILBUINS		4	4	1.00	796.385	643.340	.0	66.5	27.8	643.340	10.010	1.6%	5.1%	54.1%	
JOSHUXMO		3	3	1.00	762.783	620.299	.0	110.3	46.0	620.299	10.010	1.6%	3.6%	3.6%	
CLUBSDED		2	2	1.00	448.699	534.740	.0	57.0	15.0	534.740	10.010	1.9%	2.4%	3.5%	
Rgn	85	*TOTALS*	12	12	1.00	707.735	692.198	.0	96.6	38.3	692.198	10.010	1.4%	14.0%	36.7%

\*\* Call Analysis \*\* (Sorted by Total IWAIT Elapsed time)

PSBname	TranCode	Message Queue Calls						Database Calls									
		Calls	IWTs	IWTs	CPY Elp	DLA Elp	Elp/IWT	Calls	IWTs	IWTs	CPY Elp	DLA Elp	Elp/IWT	Pct DB	Call	Elap	
		/Tran	/Tran	/Call	Mil.Mic	Mil.Mic	Mil.Mic	/Tran	/Tran	/Call	Mil.Mic	Mil.Mic	Mil.Mic	CPY	DLA	IWT	
JACIS028		4.7	1.0	.21	1.908	0.000	1.774	37.0	18.3	.50	0.023	8.243	15.367	.3%	99.7%	92.1%	
WILBUINS		7.0	.0	.00	4.463	0.000	0.000	5.0	.0	.00	0.121	0.167	0.000	42.0%	58.0%	.0%	
JOSHUXMO		5.0	3.0	.60	4.216	0.000	2.873	5.0	.0	.00	0.021	0.204	0.000	9.2%	90.8%	.0%	
CLUBSDED		5.0	2.0	.40	2.381	0.000	0.646	5.0	.0	.00	0.019	0.150	0.000	11.2%	88.8%	.0%	
Rgn	85	*TOTALS*	5.6	1.3	.24	3.563	0.000	2.110	13.0	4.6	.35	0.035	5.916	15.367	.6%	99.4%	91.0%





# Program Summary – ESAF Integration

\*\* Call Analysis (FP) \*\* (Sorted by Total IWAIT Elapsed time)

		----- E M H C a l l s -----				----- D E D B C a l l s -----				----- M S D B C a l l s -----			
PSBname	TranCode	Calls /Tran	IWTs /Call	Elap/Call Sc.Mil.Mic	Pct of IWAIT	Calls /Tran	IWTs /Call	Elap/Call Sc.Mil.Mic	Pct of IWAIT	Calls /Tran	IWTs /Call	Elap/Call Sc.Mil.Mic	Pct of IWAIT
JACIS028		0.0				86.3	0.24	2.136	96.9%	0.0			
WILBUINS		0.0				54.5	0.51	8.464	75.5%	0.0			
JOSHUXM0		0.0				58.3	0.07	0.093	74.3%	0.0			
CLUBSDED		0.0				37.0	0.14	0.458	93.2%	0.0			
Rgn	85 *TOTALS*	0.0				60.5	0.27	3.372	80.6%	0.0			

\*\* Call Analysis (ESAF) \*\* (Sorted by Total IWAIT Elapsed time)

		- Initialization -		-- Normal Call --		--- Commit Ph1 ---		--- Commit Ph2 ---		--- Termination --		
PSBname	TranCode	ESAF SSID	Calls /Tran	Elap/Call Sc.Mil.Mic	Calls /Tran	Elap/Call Sc.Mil.Mic	Calls /Tran	Elap/Call Sc.Mil.Mic	Calls /Tran	Elap/Call Sc.Mil.Mic	Calls /Tran	Elap/Call Sc.Mil.Mic
JACIS028		DB2P	1.3	0.170	19.0	2.879	0.3	1.927	0.3	2.888	0.3	0.506
JOSHUXM0		DB2P	2.0	0.186	37.0	0.248	1.0	5.201	1.0	2.847	1.0	0.572
CLUBSDED		DB2P	2.0	0.206	6.0	0.175	1.0	0.345			1.0	0.947
Rgn	85 *TOTALS*	DB2P	1.2	0.187	15.0	1.076	0.5	3.037	0.3	2.858	0.5	0.686

**External Subsystem  
statistics included**





## IMS Performance Analyzer V3.2

Performance Reporting and analysis from the IMS Log and Monitor



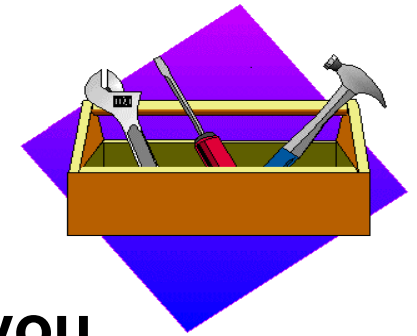
## IMS Problem Investigator V1.1

Analysis of the IMS Log for problem investigation

# An age old problem.....

You have a problem with your IMS system.....

You know the information on the log can help you.....



```
OPTION PRINT OFFSET=5,FLDTYP=X,VALUE=50,FLDLLEN=1,E=DFSERA30,COND=E
```

```
END
```

```
DFSERA30 - FORMATTED LOG PRINT
```

```
50 RECORD
```

```
00000000 000000 00AC0000 50500001 C9D4C4F3 40404040 00000048 00000000 B7A092E3 3154C480
00000020 000020 81000000 00000000 67004088 D7E2C2F3 F6404040 C8C4D7E5 F3F64040 01002000
00000040 000040 00063000 00000000 0000004C 0000006C 007A0000 00000000 00000082 008C0000
00000060 000060 2002134F 22315255 2401000C 00000001 00000000 00000000 0002D7E2 C2F3F640
00000080 000080 40408040 004C0004 00063088 8040004C 00040006 30C60000 00000000 B7A092E3
000000A0 0000A0 31551B80 00000000 00003ADA
```

# BUT

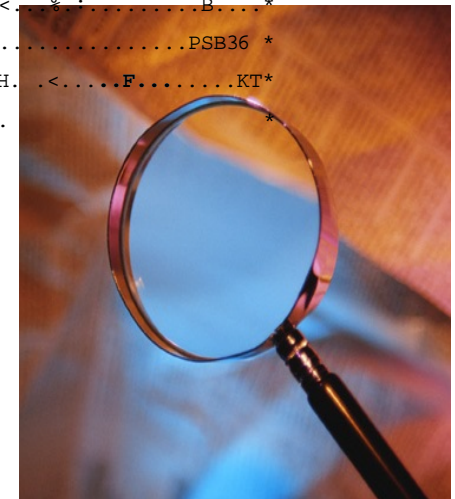
```
PAGE 0001
```

```
*....&&...IMD3 .....KT..D.*
*A..... HPSB36 HDPV36 ....*
*.....<...% : .....B....*
*...|.....PSB36 *
* .<.....H.<.....F.....KT*
*.....*
```

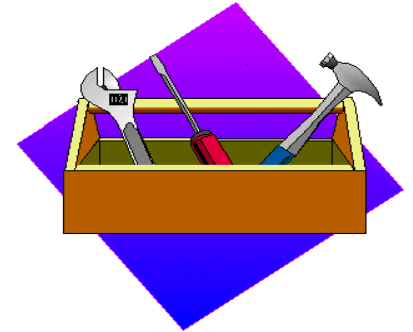
## How do you get there ??

You need a tool to help you look!!! →

And... it needs to be easy to use and allow you to unlock the log's secrets

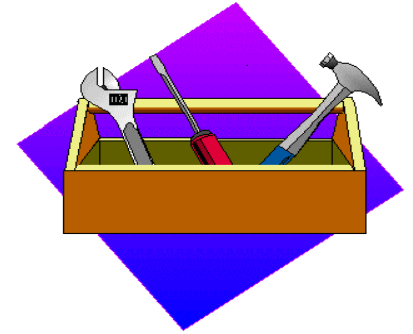


# IMS PI provides ...



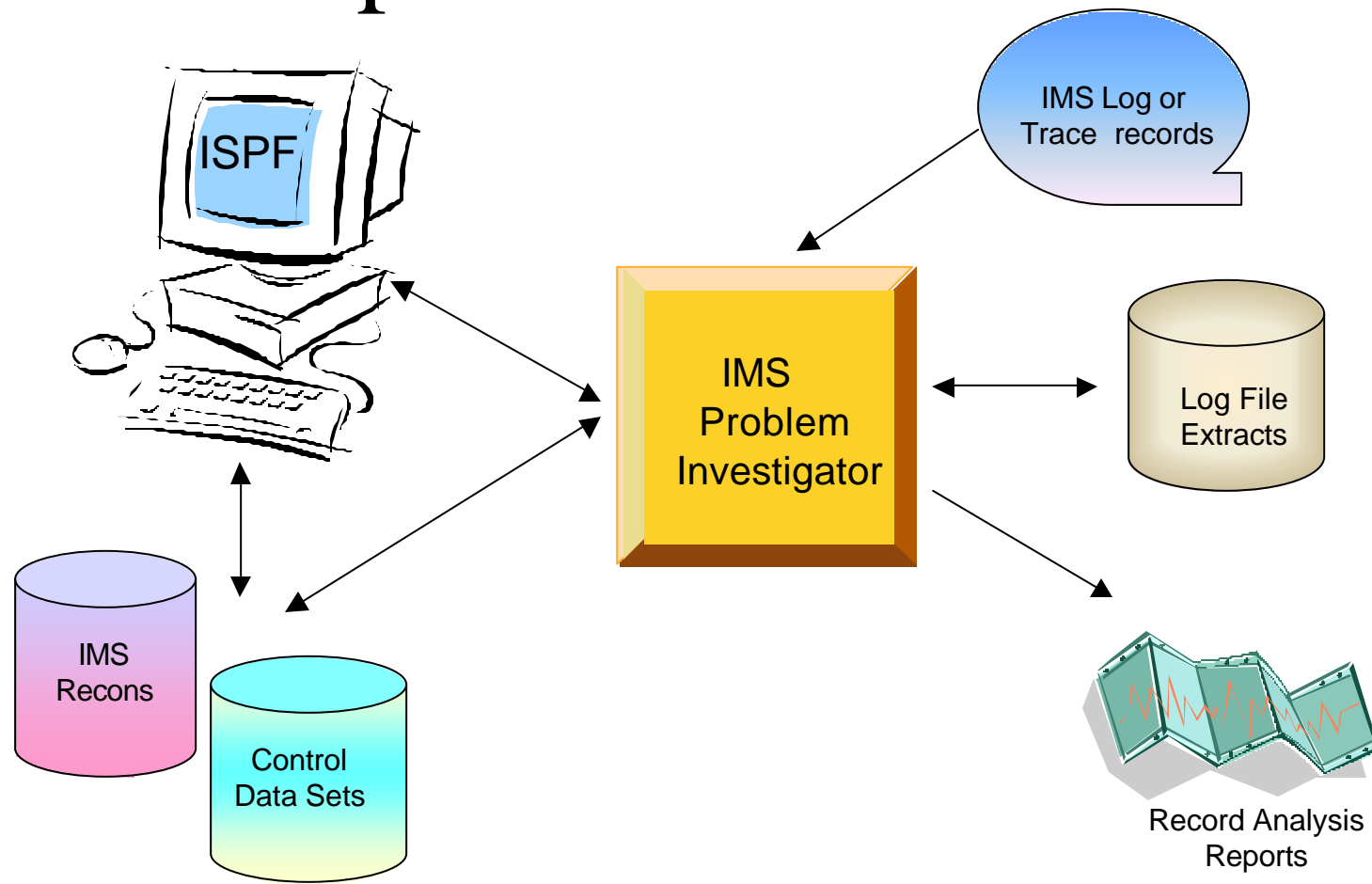
- **The complete tool for IMS Log data analysis, providing enhanced levels of problem determination services**
- **ISPF Dialog utility with a powerful viewing facility that enables easy navigation and formatted or ISPF Browse log data presentation. You can drill-down to display information at the field level**
- **Batch reporting utility that lets you produce personalized formatted reports**
- **Extract function can be used to produce a reduced log file for easier online analysis**
- **Record Forms lets you design a customized record reporting layout, so you view only the information you require**
- **Filtering Criteria lets you select records by field name, avoiding field-offset calculations; conditional logic adds flexibility by allowing record selection using complex criteria**
- **DBRC Log Selection automatically selects the required log files for the specified reporting period**
- **IMS Sysplex support, merging log data from participating IMS systems for a single view**

# Why choose IMS PI?



- **Get the information you need quickly, without having to review large volumes of hexadecimal record dumps**
- **Provides an insight into all IMS log record fields - from the bit settings of flag bytes to the text content of messages and database updates**
- **ISPF dialog makes log file navigation quick and easy**
- **Easy to use, minimal setup required**
- **Supports IMS versions 6, 7 and 8**

# IMS PI Operation



# Primary Option Menu

```
File Help
-----
VIR1M0      IMS Problem Investigator - Primary Option Menu
Option ==> _____

0 Profile   Customize your ISPF dialog profile
1 Process   View, report or extract IMS log data
2 Filter    Specify record Filtering Criteria
3 Forms     Design record presentation formats
X Exit      Terminate IMS PI

Control Data Set . . . 'DAM.IMSPI.CDS'      +

Start using IMSPI immediately, no setup is required.
Use option 1 to view your Log files.
```



# Process Log Files

```
File Menu DBRC Help
-----
Process Log Files                               Row 1 of 4 More: < >
Command ==> _____ Scroll ==> PAGE

Select a Log File to browse.                    IMS Release 710 +      Zone _____

/  IMS Log File                                Rel + Filter +   Zone
____ 'IMD3.V710.SLDSP.D02101.T1416219.V9E'      710              _____
____ 'IPIX.IMS710.PMR24464.LOG'                 710      CHKP      _____
____ 'IPIX.V710.DEADLOCK.LOG1'                 710              _____
____ 'IMD2.V610.OLP01'                          610              _____
***** Bottom of data *****
```

Specify the required IMS Log file data set name in the list and select it to start your analysis.





# View log records – Date/Time

```

File  Menu  Mode  Navigate  Track  UTC  Help
-----
BROWSE      IPIX.IMS710.PMR24464.LOG      Record 00001895 More: < >
Command ==>                               Scroll ==> PAGE
Forwards / Backwards . . HH.MM.SS.THMIJU  Time of Day . . HH.MM.SS.THMIJU
Code Description          Date 2002-04-21 Sunday  Time (LOCAL)
/-----
01  IMS Message          10.38.06.468480
35  Enqueue or Re-Enqueue a Message 10.38.06.468498
36  Dequeue/Save/Delete a Message on a Permanent Dest 10.38.06.469872
33  Free Message         10.38.06.469885
37  Transfer Message from Temp to Perm Dest at SYNCPOINT 10.38.06.469903
33  Free Message         10.38.06.469915
41  Batch Checkpoint     10.38.06.469937
03  IMS Message          10.38.06.470054
35  Enqueue or Re-Enqueue a Message 10.38.06.470068
03  IMS Message          10.38.06.470120
35  Enqueue or Re-Enqueue a Message 10.38.06.470138
31  GU from the Message Queue 10.38.06.470214
36  Dequeue/Save/Delete a Message on a Permanent Dest 10.38.06.470300
33  Free Message         10.38.06.470311
5612 External Subsystem - End of Phase 2 Syncpoint (DBCTL) 10.38.06.474147
5607 External Subsystem - Start of a Unit-of-Recovery 10.38.06.474148
31  GU from the Message Queue 10.38.06.474190
02  Condensed Command
37  Transfer Message from Temp to Perm Dest at S
33  Free Message
41  Batch Checkpoint
5612 External Subsystem - End of Phase 2 Syncpoint
5607 External Subsystem - Start of a Unit-of-Recovery
03  IMS Message
35  Enqueue or Re-Enqueue a Message

```

Records are displayed in the usual sequence.

Scroll or Navigate through the records.



# View log records – sequence no

```

File  Menu  Mode  Navigate  Track  UTC  Help
-----
BROWSE      IPIX.IMS710.PMR24464.LOG      Record 00001895 More: < >
Command ==>                               Scroll ==> PAGE
Forwards / Backwards . . HH.MM.SS.THMIJU   Time of Day . . HH.MM.SS.THMIJU
Code Description                               Date 2002-04-21 Sunday       LSN
/-----
01  IMS Message                                0000000000000767
35  Enqueue or Re-Enqueue a Message            0000000000000768
36  Dequeue/Save/Delete a Message on a Permanent Dest 0000000000000769
33  Free Message                                000000000000076A
37  Transfer Message from Temp to Perm Dest at SYNCPOINT 000000000000076B
33  Free Message                                000000000000076C
41  Batch checkpoint                            000000000000076D
03  IMS Message                                000000000000076E
35  Enqueue or Re-Enqueue a Message            000000000000076F
03  IMS Message                                0000000000000770
35  Enqueue or Re-Enqueue a Message            0000000000000771
31  GU from the Message Queue                  0000000000000772
36  Dequeue/Save/Delete a Message on a Permanent Dest 0000000000000773
33  Free Message                                0000000000000774
5612 External subsystem - End of Phase 2 Syncpoint (DBCTL) 0000000000000775
5607 External subsystem - Start of a Unit-of-Recovery 0000000000000776
31  GU from the Message Queue                  0000000000000777

```

Time or Log Sequence  
Number can be displayed.



# View log records - detailed

```
File  Menu  Mode  Navigate  Track  UTC  Help
-----
BROWSE      IPIX.IMS710.PMR24464.LOG      Record 00001895 More: < >
Command ==>                               Scroll ==> PAGE
Forwards / Backwards . . HH.MM.SS.THMIJU   Time of Day . . HH.MM.SS.THMIJU
Code Description                               Date 2002-04-21 Sunday   Time (LOCAL)
-----
/
S 01  IMS Message                               10.38.06.468480
    UTC=10.38.06.468470 Userid=DFSMTCNT LTerm=DFSMTCNT Terminal=000/001
    OrgUOWID=IMSA/B7830768C0533D00
-----
35  Enqueue or Re-Enqueue a Message           10.38.06.468498
    UTC=10.38.06.468470 LTerm=DFSMTCNT OrgUOWID=IMSA/B7830768C0533D00
-----
36  Dequeue/Save/Delete a Message on a Permanent Dest 10.38.06.469872
    UTC=10.38.06.469866 Userid=DFSMTCNT LTerm=DFSMTCNT Terminal=000/001
    OrgUOWID=IMSA/B7830768C0533D00
-----
33  Free Message                               10.38.06.469885
    OrgUOWID=IMSA/B7830768C0533D00
-----
37  Transfer Message from Temp to Perm Dest at SYNCPOINT 10.38.06.469903
    RecToken=IMSA/0000000C00000001
-----
```

Scroll Right/Left to view additional information about the records



# Navigation through the Log file

You can navigate through the log file looking for particular problems or events of interest.

Move forwards or backwards in time by a specified amount.

Look for events associated with a particular IMS resource:

- Transaction
- Program
- User ID
- LTERM or VTAM Terminal
- Database (and optionally RBA/RBN)
- IMS Dependent Region ID
- Transaction Origin Tracking UOW ID
- UOW Recovery ID

# View the Formatted Record – Part 1

```
JCH - EXTRA! Personal Client
File Edit View Tools Session Options Help
File Menu Help
-----
BROWSE      IPIX.IMS610.PMR03284.LOG                      Line 00000000
Command ==> [ ]                                         Scroll ==> CSR
***** Top of data *****
+0004 Code... 01      IMS Message
+0A3A STCK... B233C2A4649A3506      LSN.... 00000000056CF420
      Date... 1999-05-06 Thursday      Time... 07.54.18.076579

+0000 MSGLRLL... 0A4A      MSGLRZZ... 0000      MSGLCODE... 01
+0005 MSGFLAGS... D1      MSGDFLG2... 81      MSGFPADL... 94
+0008 MSGMDRRN... 080000ED      MSGRDRRN... 080000ED      MSGPRFLL... 0264
+0012 MSGCSW... 00      MSGDFLG3... 00
+0014 MSGUOW... Unit of Work (UOW) - Tracking
+0014 MSGGORGID... 'IMW1'      MSGGORTK... B233C2A464942D06
+0024 MSGPROID... 'IMW1'      MSGPROTK... B233C2A464942D06
+0034 MSGUFLG1... 00      MSGUFLG2... 00
+0036 MSGRSQTY... 00      MSGDOFS... 0000      MSGDRBN... 00000000

+0040 MSGSSEGM... Message Prefix System Segment; Item ID = 81
+0040 MSGSILL... 0040      MSGSIID... 81      MSGCFLG1... 00
+0044 MSGCFLG2... C8      MSGCFLG3... 00      MSGCQSF1... 00
+0047 MSGCQSF2... 00
+0048 MSGPTERM... Full Physical Input Terminal ID
+0048 MSGILINE... 00000000      MSGITERM... 00000000
+0050 MSGTISEQ... 0000      MSGPREFO... 0      MSGPREFI... 0
+0056 MSGSETS... 00      MSGRES01... 00      MSGRECCT... 0
+0060 MSGIDSTN... FFFFFFFF1D8AF460
+0068 MSGODSTN... 'TAST075N'      MSGIHSQN... 0000000000000000
+0078 MSGFMTNM...

+0080 MSGEPHDR... Extended Prefix System Segment; Item ID
4B [ ] :00.1
```

Every IMS Log record type (including Traces) are formatted by IMSPI.



# View the Formatted Record – Part 2

```
JCH - EXTRA! Personal Client
File Edit View Tools Session Options Help
File Menu Help
-----
BROWSE      IPIX.IMS610.PMR03284.LOG                      Line 0000028
Command ==> |                                           Scroll ==> CSR
+0080 MSGSILL.... 0010                      MSGSIID.... 86                      MSGEPTL.... 01E4
+0086 MSGEPFL1... FC                      MSGEPFL2... 00

+0090 LU62PREF... MVS APPC System Segment for LU6.2; Item ID = 87
+0090 LUP_LENGTH..... 00F6
+0094 LUP_MSG_PREFIX_TYPE..... 00
+0095 LUP_CONVERSATION_TYPE..... 'M'
+0096 LUP_SYNC_LEVEL..... 'N'
+0097 LUP_MSG_TYPE..... 89 LUP_MSG_FLAG..... 80
+0099 LUP_RACF_OPT..... 00 LUP_NETWORK_ID..... 'GTEDCAL '
+00A4 LUP_LUNAME..... 'SAAMVSS3'
+00AC LUP_MODENAME..... 'OPENAPPC'
+00B4 LUP_SIDENAME..... '
+00C4 LUP_LUMBLK_TOKEN... 1D8AF460
+00C8 LUP_USER_ID..... 'DTPACGOS'
+00D0 LUP_GROUP_NAME..... 0000000000000000
+00D8 LUP_TP_ID..... 1C7A0BD000048941
+00E0 LUP_TRANCODE..... 'TASTO75N'
+00E8 LUP_LTERM..... 'SAAMVSS3'
+00F4 LUP_TOKEN..... B233C2A46423C806
+00FC LUP_FLAGS..... 00000000
+0100 LUP_LUWID..... LUW ID
+0100 LUP_LUWID_LENGTH... 00
+011A LUP_TPN_LENGTH..... 0008
+011C LUP_TPNAME..... 'TASTO75N'
+0124 UTOKLENGTH..... 50
+0125 UTOKNAME...
+0000 01804655 51555555 55555555 55555555 *.....*
4B | :00.1 04/15
```

Notice the APPC data in this 01 message record.

IMSPI “understands” the information contained in every IMS Log record and makes it available to you.



# View the Formatted Record – Part 3

```
JCH - EXTRA! Personal Client
File Edit View Tools Session Options Help
File Menu Help
-----
BROWSE      IPIX.IMS610.PMR03284.LOG                      Line 00000056
Command ==>                                     Scroll ==> CSR
+0010  55555555 55555555 55555555 55555555  *.....*
+0020  55555555 55555555 55555555 555555B7  *.....*
+0030  949481B0 B7B7A655 55555555 55555591  *mma...w.....j*
+0040  B6829496 9283B755 55555555 55555500  *.bmokc.....*
+0175  CTOKNAME... 00000000000000000000000000000000
+0186  MSGSEC.... Security System Segment; Item ID = 88
+0186  MSGSILL.... 0014          MSGSIID.... 88
+018A  MSGGRACUS... 'DTPACGOS'  MSGSAFNM... 0000000000000000
+019A  MSGWLM.... Workload Manager (WLM) System Segment; Item ID = 89
+019A  MSGSILL.... 0010          MSGSIID.... 89          MSGWLMSC... 000B8004
+01A2  MSGMGATM... B233C2A464992D06
+01AA  MSGMSE.... Message System Extension; Item ID = 8A
+01AA  MSGSILL.... 0018          MSGSIID.... 8A
+01AE  MSGUTC.... Coordinated Universal Time (UTC)
+01AE  MSGUDATE... 1999126F    MSGUTIME... 075418076562
+01B8  MSGUZONE... 028D
+01C2  MSGMSCE.... MSC Extension System Segment; Item ID = 8B
+01C2  MSGSILL.... 005C          MSGSIID.... 8B
+01C6  MSGMSCEX... Coordinated Universal Time (UTC)
+01C6  MSGMDATE... 00000000    MSGMTIME... 000000000000
+01D0  MSGMZONE... 0000
+01D2  MSGMSEFL... Flags Multiple-system use
+01D2  MSGMSFL5... 00          MSGMSFL6... 00          MSGMSFL7... 00
+01D5  MSGMSFL8... 80
4B | :00.1 04/15
```

IMSPI presents the information logically, breaking down sub-component sections in the Log record



# View the Formatted Record – Part 4

```

JCH - EXTRA! Personal Client
File Edit View Tools Session Options Help
File Menu Help
-----
BROWSE      IPIX.IMS610.PMR03284.LOG                      Line 00000084
Command ==> █                                           Scroll ==> CSR
-----
+01D6 MSGSQSID... 0000          MSGESINM... 0000000000000000
+01E2 MSGESONM... 0000000000000000
+01EA MSGMETRA... 0000000000000033
+01F2 MSGMEVID... 0000000000000000000000000000000033      MSGDSSID... 0033
+0204 MSGRSID... 0033          MSGMORID... 'IMW1          '
+020E MSGMMOTK... B233C2A464942D06

+021E MSGMSC..... TMR System Segment; Item ID = 8C
+021E MSGSILL.... 0046          MSGSIID.... 8C          MSGMSCZ2... 00
+0222 MSGMSTRA... 00000033      MSGMSVID... 0000000000000097
+022E MSGMSONM... 'TASTO75N'      MSGMSINM... FDFFFFFFF1D8AF460
+023E MSGMSOID... 33          MSGMSIID... 33          MSGMSFL1... 01
+0241 MSGMSFL2... 4C          MSGMSFL3... 40          MSGMSFL4... 08
+0244 MSGMSUID... 0000000000000000      MSGMSGID... 0000
+024E MSGMSPAD... 0000000000000000

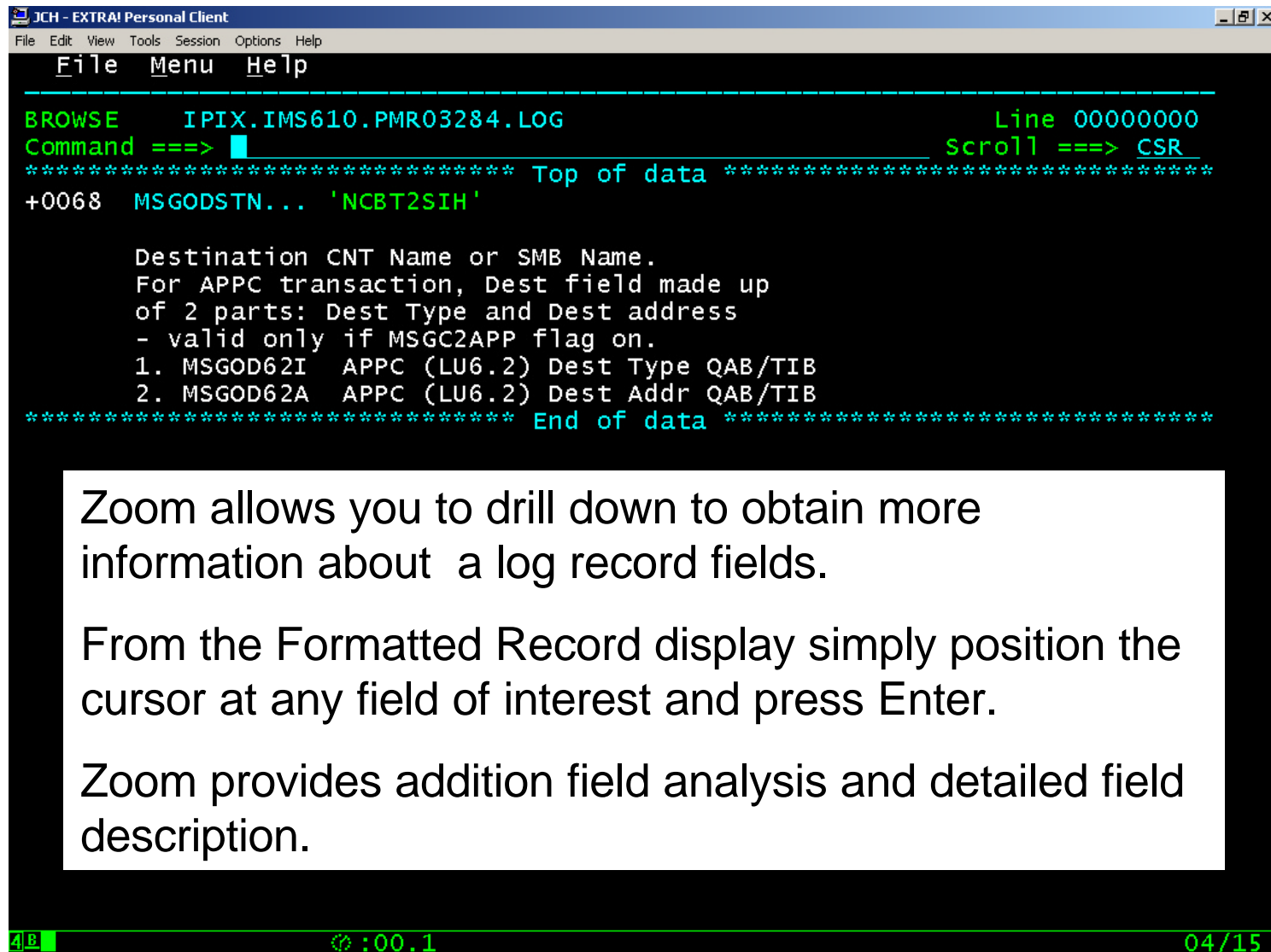
+0264 QLOGMSGD... Message Text
+0264 MSGXDLEN... 07D6          MSGXFLG1... 03          MSGXFLG2... 00
+0268 MSGXSTXT...
+0000 E3C1E2E3 D6F7F5D5 40C1C3C8 C7F0F5F0 *TASTO75N ACHG050*
+0010 F6F9F9F0 F6F1F3D5 E6F1F8F6 C8C3C6E2 *6990613Nw186HCFS*
+0020 F1F0F0F2 F5F8C7E3 C5E64040 40404040 *100258GTEW *
+0030 40404040 404040C3 40404040 40404040 * C *
+0040 40404040 40404040 40404040 40404040 * *
+0050 40404040 40404040 40404040 40404040 * *
+0060 40404040 40404040 40404040 40404040 * *
+0070 40404040 40404040 40404040 40404040 * *
+0080 40404040 40404040 40404040 40404040 * *
4B █ :00.1
    
```

Data like message text and database updates are dumped





# Zoom to a Character or Hex field



```
JCH - EXTRA Personal Client
File Edit View Tools Session Options Help
File Menu Help
-----
BROWSE      IPIX.IMS610.PMR03284.LOG                      Line 00000000
Command ==> █                                          Scroll ==> CSR
***** Top of data *****
+0068  MSGODSTN... 'NCBT2SIH'

Destination CNT Name or SMB Name.
For APPC transaction, Dest field made up
of 2 parts: Dest Type and Dest address
- valid only if MSGC2APP flag on.
1. MSGOD62I  APPC (LU6.2) Dest Type QAB/TIB
2. MSGOD62A  APPC (LU6.2) Dest Addr QAB/TIB
***** End of data *****

Zoom allows you to drill down to obtain more
information about a log record fields.

From the Formatted Record display simply position the
cursor at any field of interest and press Enter.

Zoom provides addition field analysis and detailed field
description.
```

4B █      ⌚ :00.1      04/15



# Zoom to a Flag field

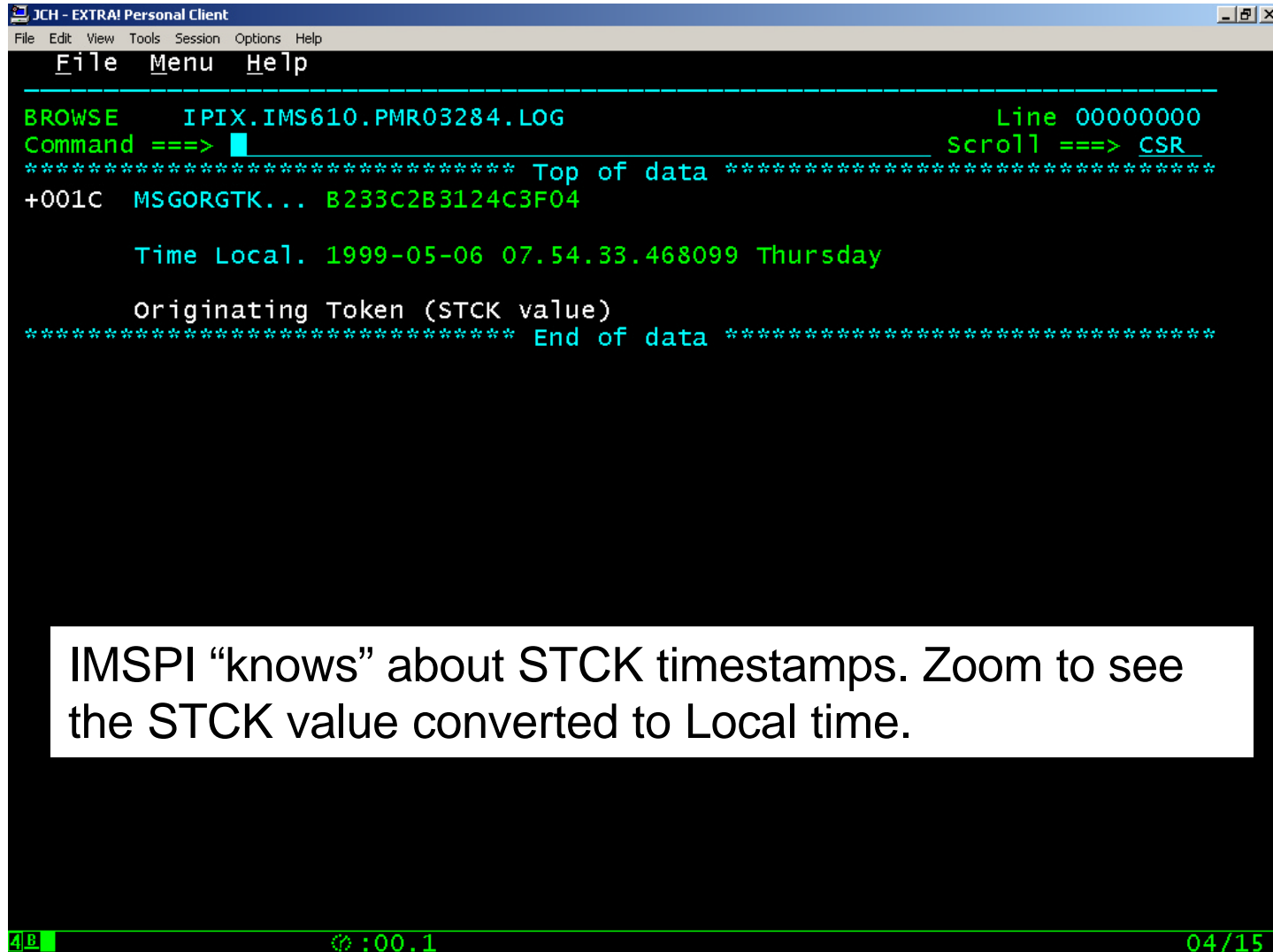
```
JCH - EXTRA! Personal Client
File Edit View Tools Session Options Help
File Menu Help
-----
BROWSE      IPIX.IMS610.PMR03284.LOG                      Line 00000000
Command ==> █                                         Scroll ==> CSR
***** Top of data *****
+0006  MSGDFLG2... 81  Flags from QDFLG2 of QDEST
On     QDF2PRM.... 80  This Destination is permanent and
                           implies that fields exist for
                           1. Average Msg length
                           2. Enqueue and Dequeue counts
                           3. Name field
                           If the above bit is off,
                           the fields are assumed to be absent
Off    QDF2BKR.... 40  Backup queue is required, either
                           for Resend or Conversational process
Off    QDF2QMOV... 20  QMOVE in Process : XRF
Off    QDF2LQUE... 10  Local QPOOL in Use : XRF
Off    QDF2CLNR... 08  Cleanup Check Request Flag : XRF
Off    QDF2MDEL... 04  Message Deletion in Progress Flag : XRF
Off    QDF2BTYP... 03  Destination Type bits
On     QDF2SMB.... 81  Generated SMB - Transaction
Off    QDF2CNT.... 82  Generated CNT - Logical Terminal
***** End of data *****
```

IMSPI “knows” about Flags. Zoom to see which bits are on or off.

4B █ :00.1 04/15



# Zoom to a STCK field

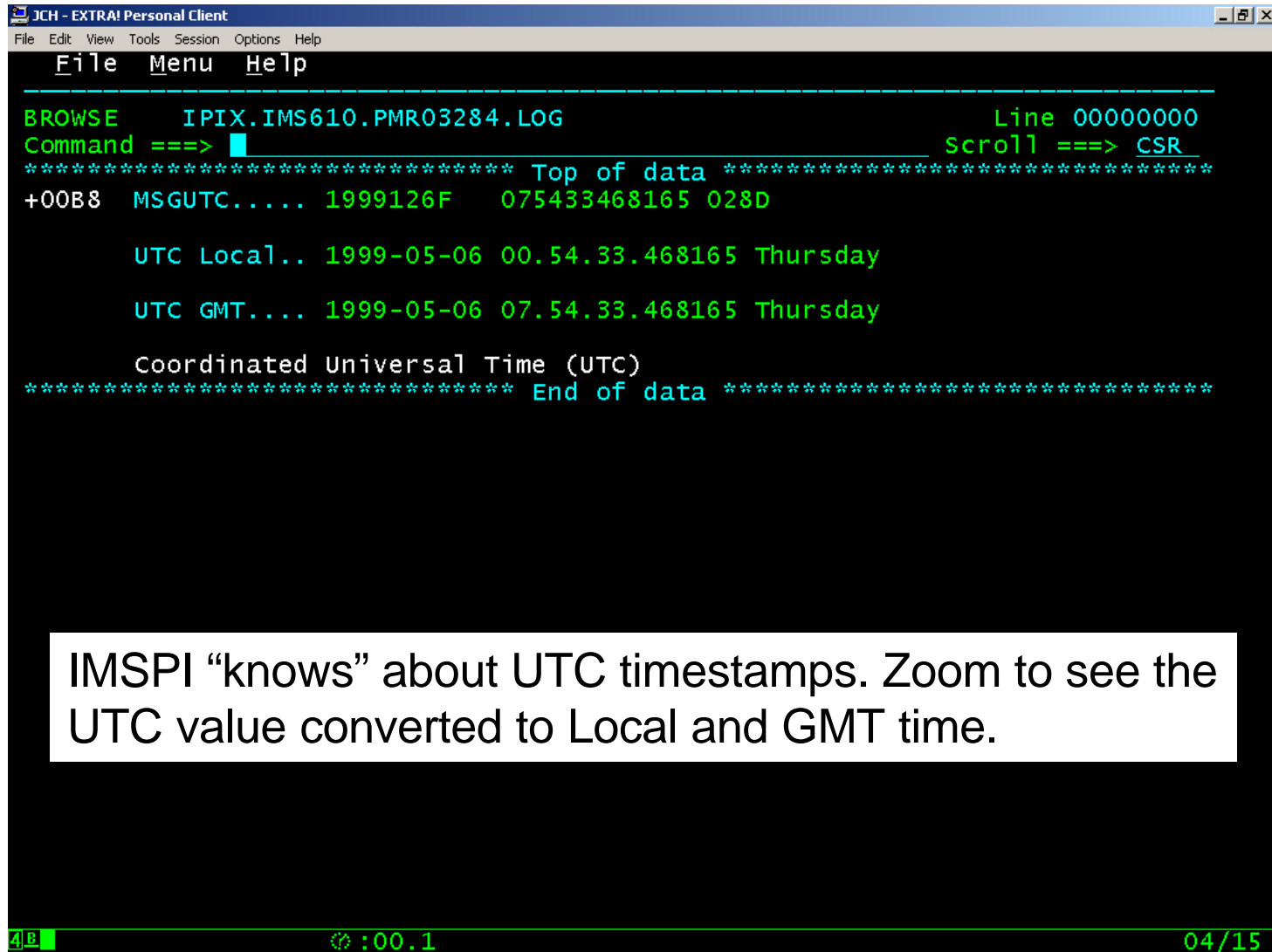


```
JCH - EXTRA! Personal Client
File Edit View Tools Session Options Help
File Menu Help
-----
BROWSE      IPIX.IMS610.PMR03284.LOG                      Line 00000000
Command ==> █                                         Scroll ==> CSR
***** Top of data *****
+001C  MSGGORTK... B233C2B3124C3F04
      Time Local. 1999-05-06 07.54.33.468099 Thursday
      Originating Token (STCK value)
***** End of data *****
-----
4B █          :00.1          04/15
```

IMSPI “knows” about STCK timestamps. Zoom to see the STCK value converted to Local time.



# Zoom to a UTC field



```
JCH - EXTRA! Personal Client
File Edit View Tools Session Options Help
File Menu Help
-----
BROWSE      IPIX.IMS610.PMR03284.LOG                      Line 00000000
Command ==> [ ]                               Scroll ==> CSR
***** Top of data *****
+00B8 MSGUTC..... 1999126F   075433468165 028D
      UTC Local.. 1999-05-06 00.54.33.468165 Thursday
      UTC GMT.... 1999-05-06 07.54.33.468165 Thursday
      Coordinated Universal Time (UTC)
***** End of data *****
4B | :00.1 | 04/15
```

IMSPI “knows” about UTC timestamps. Zoom to see the UTC value converted to Local and GMT time.



# Switch to ISPF Browse mode

```
JCH - EXTRA! Personal Client
File Edit View Tools Session Options Help
File Menu Mode Help
-----
BROWSE      IPIX.IMS610.PMR03284.LOG      Line 00002298 Col 001 080
Command ==> █                               Scroll ==> CSR
-----
.Jam...Ô...Ô.À..IMW1      ¥.BuÀm..IMW1      ¥.BuÀm.....a.H.....
0D89000E000E0600CDEF4444B3CA6920CDEF4444B3CA69200000000000000000480C0000000000000000
1114800D800D240094610000232444D694610000232444D600000000000000001080000000000000000
-----
.....«5qTASTO75N.r.?.è..ÁÁ.ý...Ô.....IMW1      ¥.BuÀm..IMW1      ¥.
300000018F9ECEEDFFD191605106608000E000000000000000000000CDEF4444B3CA6920CDEF4444B3
5C400100DA5831236755992F7487522D800D00000000000000000094610000232444D69461000023
-----
.\.Á...Ô.r.?.è..Àì.ýIMW1      ..^<.....IMW1      ¥.BuÀm..IMW1      ¥.BuÀm.....TAST
3E06000E191605106508CDEF444401B400000000CDEF4444B3CA6920CDEF4444B3CA69200000ECE
1004800D992F7487782D94610000D0C0001000894610000232444D694610000232444D600003123
-----
&&..IMW1      ..^<...¥.BuÃ`ÿ.a.....|.. TASP075NTASBEDAN..Ø....S....à..à...%.:...
5500CDEF444401B40000B3CA6BD0800000004024ECEDDFDECECCCD0080000E0000400400060700
000894610000D0C000123246DF110000000F00031276755312254151300002200004094000COA00
-----
&&..IMW1      ..^<...¥.BuÃ2b.a..... TASP075NTASBEDAN..Ø....S.... ..à...%.:...
5500CDEF444401B40000B3CA6F80800000004024ECEDDFDECECCCD0080000E0000400400060700
000894610000D0C00012324622110000000B00031276755312254151300002200000094000COA00
-----
&&..IMW1      ..^<...¥.BuÃ3..a..... TASP075NTASBEDAN..Ø....S.....%.:...
5500CDEF444401B40000B3CA6F30800000004024ECEDDFDECECCCD0080000E0000000000060700
000894610000D0C0001232463F110000000B0003127675531225415130000220000008A000COA00
-----
&&..IMW1      ..^<...¥.BuÃ¼.a..... TASP075NTASBEDAN..Ø.....%.:...
5500CDEF444401B40000B3CA60B0800000004024ECEDDFDECECCCD00800000000000000060700
000894610000D0C0001232478711000000
-----
4B █                               :00.1
```

Switch between IMSPI and ISPF Browse, retaining relative record position in both



# Filtering Criteria

```
File  Menu  View  Help
-----
EDIT                               Filter - FILT01                               Row 1 of 5 More: < >
Command ==> █                               Scroll ==> PAGE
Description . . . IMS PI Log Record Filter
-----
Log
/ Code + Description
- ALL   Global Criteria for all Log Record Codes
Conditions . . Yes   Form . . _____ +
-----
- 01    IMS Message
Conditions . . Yes   Form . . _____ +
-----
- 07    Application Terminate Accounting
Conditions . . No    Form . . _____ +
-----
- 50    Database Update
Conditions . . No    Form . . _____ +
-----
- 5937  Fast Path Syncpoint
Conditions . . No    Form . . _____ +
-----
```

Use Filtering Criteria to select only the records of interest.  
Filter records by log record code and by setting conditions.



# Filtering Criteria

```
File Menu Object Lists Help
-----
Conditions Row 1 to 15 of 15
Command ==> █ Scroll ==> PAGE
Code: ALL Global Criteria for all Log Record Codes

/ Field Name + Oper Value +
- CODE EQ 01
- LSN EQ 0000000000000001
- TRANCODE EQ TRAN*
- PROGRAM EQ PROG*
- USERID EQ LOC*
- LTERM EQ LT01
- TERMINAL EQ TERM01
- DATABASE EQ DB01
- RBA EQ 00001000
- REGION EQ 0002
- ORGUOWID EQ */B7FD5E8A95FCD400
- RECTOKEN EQ */0000000100000001
- IMSID EQ IMSA
- 6 EQ X'80'
- X'0A' GE 1
```

Set conditions by comparing :

1. Specialized field names, eg. Trancode, Userid, Database etc.
2. Field names from the IMS macros, eg. MSGODSTN
3. Offsets like DFSERA10 supports



# Filtering Criteria

```
File Menu Object Lists Help
-----
Conditions Row 1 to 5 of 5
Command ==> █ Scroll ==> PAGE

Code: 01  IMS Message

/ Field Name + Oper Value +
- QDF2SMB ON
- MSGODSTN EQ 'TR*'
- TRANCODE EQ 'TR*'
- MSGXSTXT(*) EQ 'UNAUTHORIZED'
- MSGXSTXT(40) EQ 'ERROR'
```

Use :

- Bit fields
- Actual field names and symbolic names
- Masking and position searching





# Record Forms

- \* Tailor the format of your reports in the Batch reports
- \* Display only the log record fields of interest
- \* Specialized Editor in the dialog makes designing simple

# Record Forms

```
File  Menu  Edit  Help
-----
EDIT                               Form - MY01                               Block command incomplete
Command ==> █                               Scroll ==> CSR
-----
Description . . . IMS PI Log Record Form                               Log Code . . . : 01
-----
/  ID  Name          Description
01  MSGPRFX        IMS Message
DD 01  MSGLRLL      Length of Log record or used portion of Disk record
   01  MSGLRZZ      ZZ field reserved for QSAM
   01  MSGLCODE     Log Code (01 or 03)
   01  MSGFLAGS     Message Flags
   01  MSGDFLG2     Flags from QDFLG2 of QDEST
DD 01  MSGFPADL     Prefix Additional Info Flag
   01  MSGMDRRN     Message DRRN
DD 01  MSGRDRRN     Record DRRN. Normally, and when
   01  MSGPRFLL     Length of total message prefix
   01  MSGCSW       Communications switches
   01  MSGDFLG3     Additional Message Flags
   01  MSGUOW       Unit of Work (UOW) - Tracking
   01  MSGORGID     Originating IMSID
   01  MSGORGTK     Originating Token (STCK value)
   01  MSGPROID     Processing IMSID
   01  MSGPROTK     Processing Token (STCK value)
   01  MSGUFLG1     UOW ID Suffix Flag Byte 1
   01  MSGUFLG2     UOW ID Suffix Flag Byte 2
   01  MSGRSQTY     QTYPE for Restart
   01  MSGDOFS      Offset within Disk Log Block
   01  MSGDRBN      RBN on Disk Log
```



# Record Forms

```
File  Menu  Edit  Help
-----
EDIT                               Form - MY01                               Row 1 of 9
Command ==> █                               Scroll ==> CSR
Description . . . IMS PI Log Record Form           Log Code . . . : 01

/ ID  Name           Description
 01 MSGPRFX        IMS Message
 01 MSGMDRRN       Message DRRN
 01 MSGORGID       Originating IMSID
 01 MSGORGTK       Originating Token (STCK value)
 02 MSGINODE       VTAM Node name
 02 MSGIDSTN       Input CNT Name
 02 MSGODSTN       Destination CNT Name or SMB Name.
 16 MSGRACUS       RACF Userid
 24 MSGXSTXT       Message Text
```

**Select only the fields you want**



# Batch Reporting

```
V1R1M0                IMS V7.1                IMS Problem Investigator - Log Report                Page 1

+0004 Code... 01      IMS Message
+0375 STCK... B9BA52D4955F2CC0      LSN.... 0000000000001925
      Date... 2003-07-16 Wednesday Time... 15.34.35.507186

+0000 MSGLRLL.... 0385      MSGLRZZ.... 0000      MSGLCODE... 01      MSGFLAGS... D1
MSGDFLG2... 81
+0007 MSGFPADL... 94      MSGMDRRN... 080000D7      MSGRDRRN... 080000D7      MSGPRFLL... 0364
MSGCSW..... 00
+0013 MSGDFLG3... 00
+0014 MSGUOW..... Unit of Work (UOW) - Tracking
+0014 MSGORGID... 'IMD3      ' MSGORGTK... B9BA52D49556B1C0      MSGPROID... 'IMD3      '
+002C MSGPROTK... B9BA52D49556B1C0      MSGUFLG1... 00      MSGUFLG2... 00
+0036 MSGRSQTY... 00      MSGDOFS.... 0000      MSGDRBN.... 00000000
+0040 MSGSSEGM... Message Prefix System Segment; Item ID = 81
+0040 MSGSILL.... 0040      MSGSIID.... 81      MSGCFLG1... 00      MSGCFLG2... 88
MSGCFLG3... 00
+0046 MSGCQSF1... 00      MSGCQSF2... 00
+0048 MSGPTERM... Full Physical Input Terminal ID
+0048 MSGILINE... 00000000      MSGITERM... 00000000
+0050 MSGTISEQ... 001C      MSGPREFO... +0      MSGPREFI... +0      MSGSETS.... 00
MSGRES01... 00
+005C MSGRECCT... +1      MSGIDSTN... FDFFFFFFF0BA17060      MSGODSTN... 'PART      '
+0070 MSGIHSQN... 0000000000000000      MSGFMTNM... 0000000000000000
```

All features available in the dialog are also available in the Batch reporter, plus more features like record extraction.



# Batch Reporting – Form Active

```
V1R1M0          IMS V7.1          IMS Problem Investigator - Log Report          Page 1

+0004 Code... 01      IMS Message
+0375 STCK... B9B146DF1E7FBD00      LSN.... 0000000000001693
      Date... 2003-07-09 Wednesday Time... 10.53.10.038523

+0008 MSGMDRRN... 080000D0      MSGORGID... 'IMD3      '      MSGORGTK... B9B146DF18969740
+0060 MSGIDSTN... 'LOCAL01      '      MSGODSTN... 'PART      '      MSGRACUS... 'DAM      '
+0368 MSGXSTXT...
      +0000 D7C1D9E3 40C1D5F9 F6F0C3F1 F0          *PART BUMPER10          *
```

Fields displayed limited to those on the form





# IMS Performance Analyzer V3R2

5655-E15

<http://www-3.ibm.com/software/data/db2imstools/imstools/imspa.html>



# IMS Problem Investigator V1R1

5655-K50

<http://www-3.ibm.com/software/data/db2imstools/html/imsprobleminvestv11.html>

