IBM Software Group

OMEGAMON XE for CICS on z/OS, CICS Performance Analyzer for z/OS, and IBM Application Performance Analyzer

The IBM Complete Solution for your CICS Performance problems

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Performance and Availability Management Solutions for CICS

Managing system performance and planning capacity for the future

OMEGAMON XE for CICS™

- Provides a real-time and historical performance management, monitoring and troubleshooting solution for CICS
- Helps you to detect performance problems early, identify cause and change system and resource parameters to avoid problems

CICS Performance Analyzer™

- Provides ongoing system management and measurement reports on all aspects of CICS application performance
- Enables deep-dive CICS performance analysis and understanding of usage trends
- Aids capacity planning and tuning
- Helps quickly identify and eliminate trends leading to online performance problems

• Plan capacity to reduce MIPS cost

• Proactively analyze performance trends to reduce down time and increase customer satisfaction

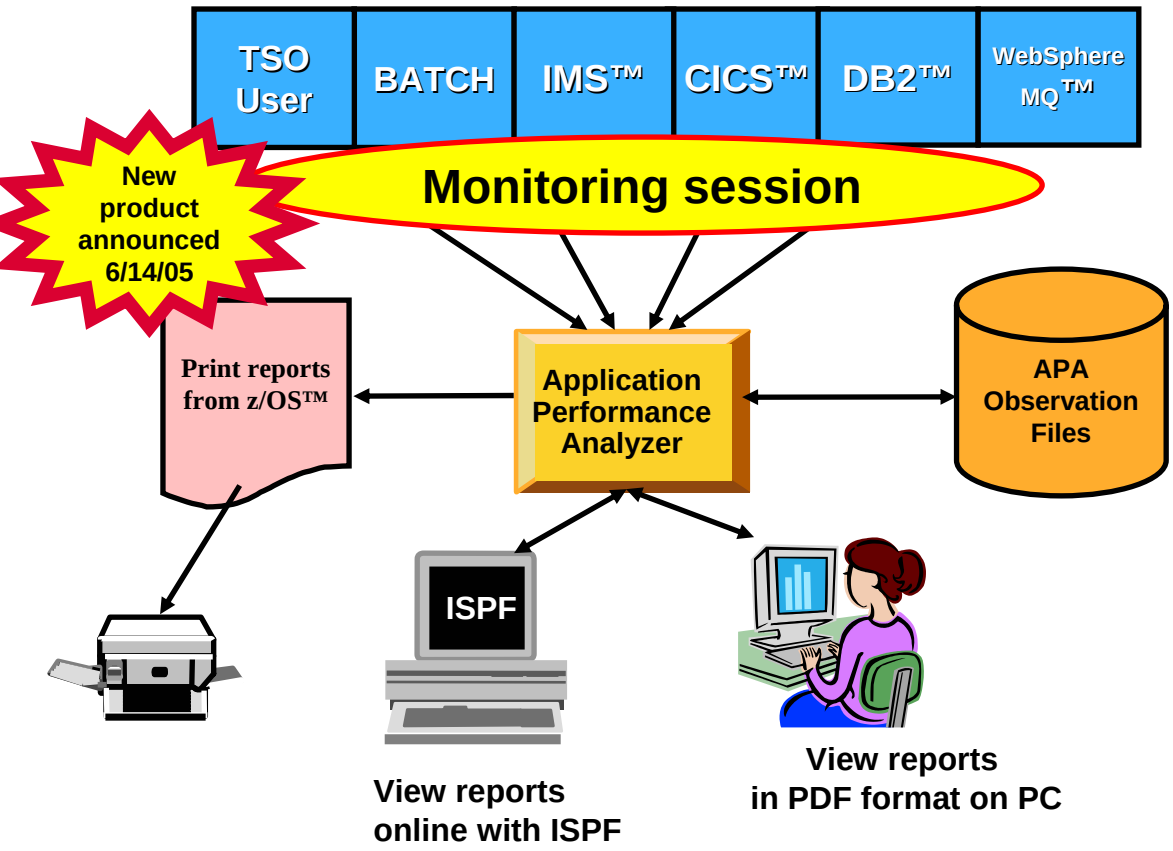
• Reduce cost of outages

• Reduce risk of missing the service level commitments

• Reduce time and cost of managing system performance and availability

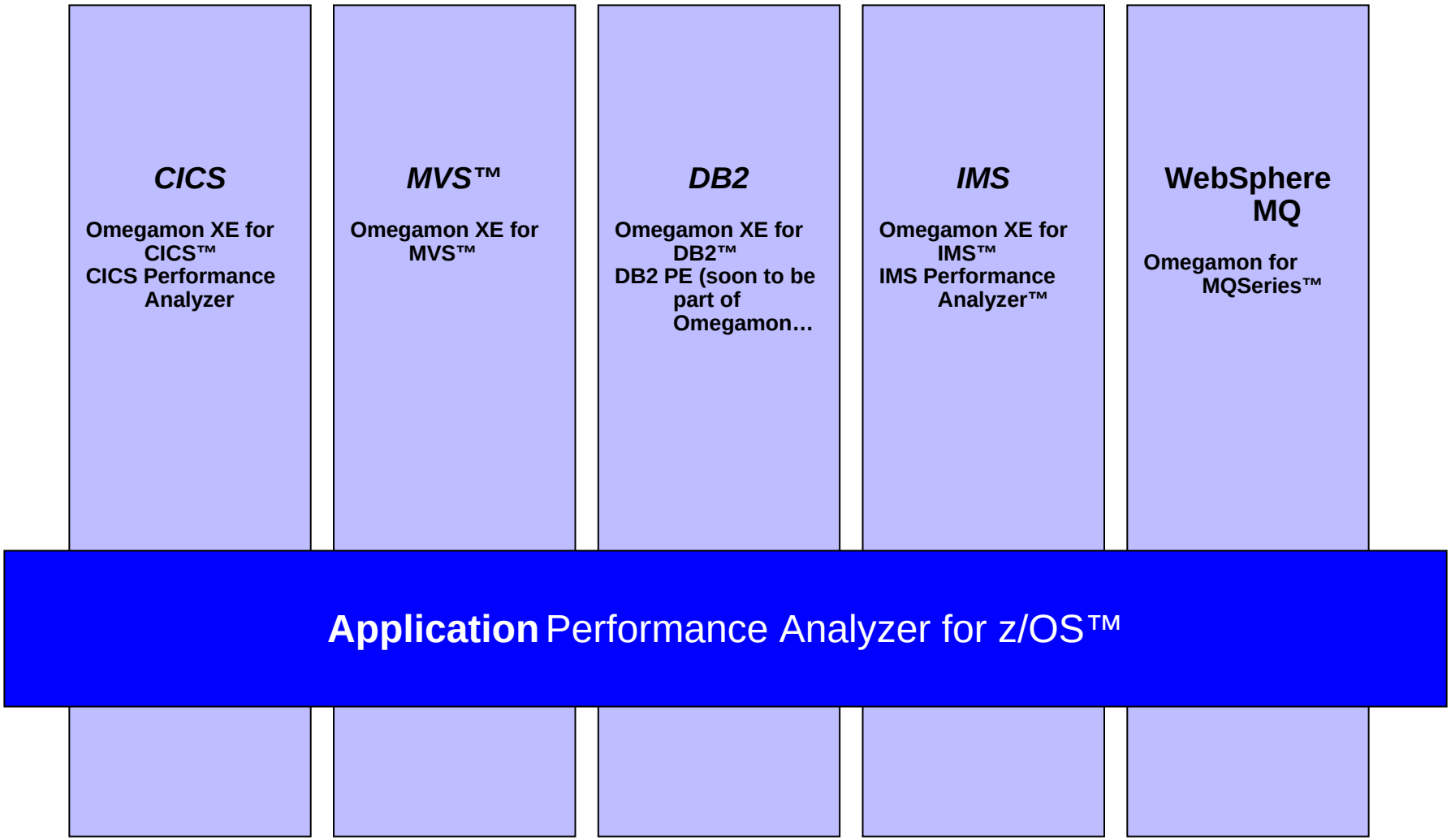
Application Performance Analyzer Functional Overview

Application performance analysis tooling for application developers



- Features:
  - Summary/Profile Reports with drill down into detailed levels via an ISPF interface or PDF hardcopy
  - CPU, Load Module, and CSECT Analysis of all modules in bSphere MQthe address space
  - Source Statement (COBOL™ or PL1™) or Instruction utilization in each CSECT
  - Supports IBM Fault Analyze™r / Debug Tool Side files
  - Wait Time Analysis by Category, Task/Module, or Attribution
  - DASD I/O Analysis by Device, DD Name, Dataset and Dataset Attributes, EXCP's, VSAM with Buffer Pool, I/O Wait, Over Time
  - Sysplex Coupling Facility Reports
  - DB2 SQL Analysis – Static and Dynamic – Service Times
  - DB2 Analysis by DBRM, Statement, and Plan
  - CICS Session Statistics, Transaction Analysis by CPU Usage, Mean and Total Service Time, and Waits by Transaction
  - IMS CPU and Service Time Analysis
  - MQ Series Analysis by Queue, Request, and Transaction
  - Interval Reporting
  - Adjustable Sampling Rate
  - Repeated Observation Sessions
  - Internal (APA) and External (RACF, etc) Security

Application Performance Analyzer & IBM Performance Tools

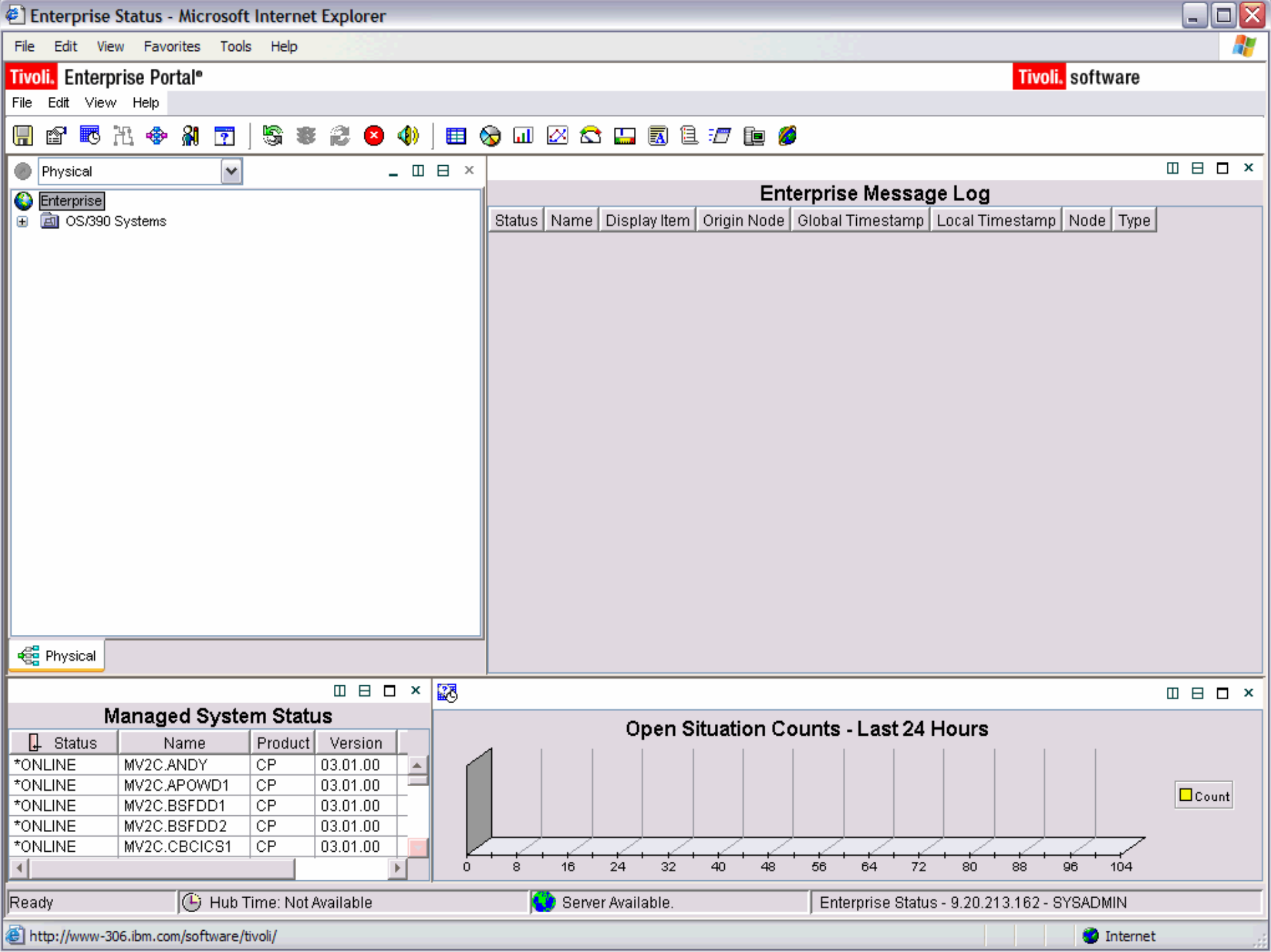


OMEGAMON XE and CICS PA and APA Sample Scenario to show synergy

- Use **OMEGAMON™** online alert to detect a performance problem, e.g a ‘bottleneck’ transaction

- Since it is a CICS transaction, use **CICS Performance Analyzer** to go deeper and understand the root cause of the problem, eg contention problems by holding lock, resources held, interaction from cross systems (**cross system reports to show CICS, DB2, IMS, MQ resources used by the transaction** …)

- To go to the application level, use **Application Performance Analyzer** to step through the application code and fix the root cause of the performance problem caused by the application


Enterprise Status - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Tivoli. Enterprise Portal®
Tivoli. software
File Edit View Help
Physical
Enterprise
OS/390 Systems
Physical
Enterprise Message Log
Status Name Display Item Origin Node Global Timestamp Local Timestamp Node Type
Managed System Status
Status Name Product Version
*ONLINE MV2C.ANDY CP 03.01.00
*ONLINE MV2C.APOWD1 CP 03.01.00
*ONLINE MV2C.BSFDD1 CP 03.01.00
*ONLINE MV2C.BSFDD2 CP 03.01.00
*ONLINE MV2C.CBCICS1 CP 03.01.00
Open Situation Counts - Last 24 Hours
0 8 16 24 32 40 48 56 64 72 80 88 96 104
Count
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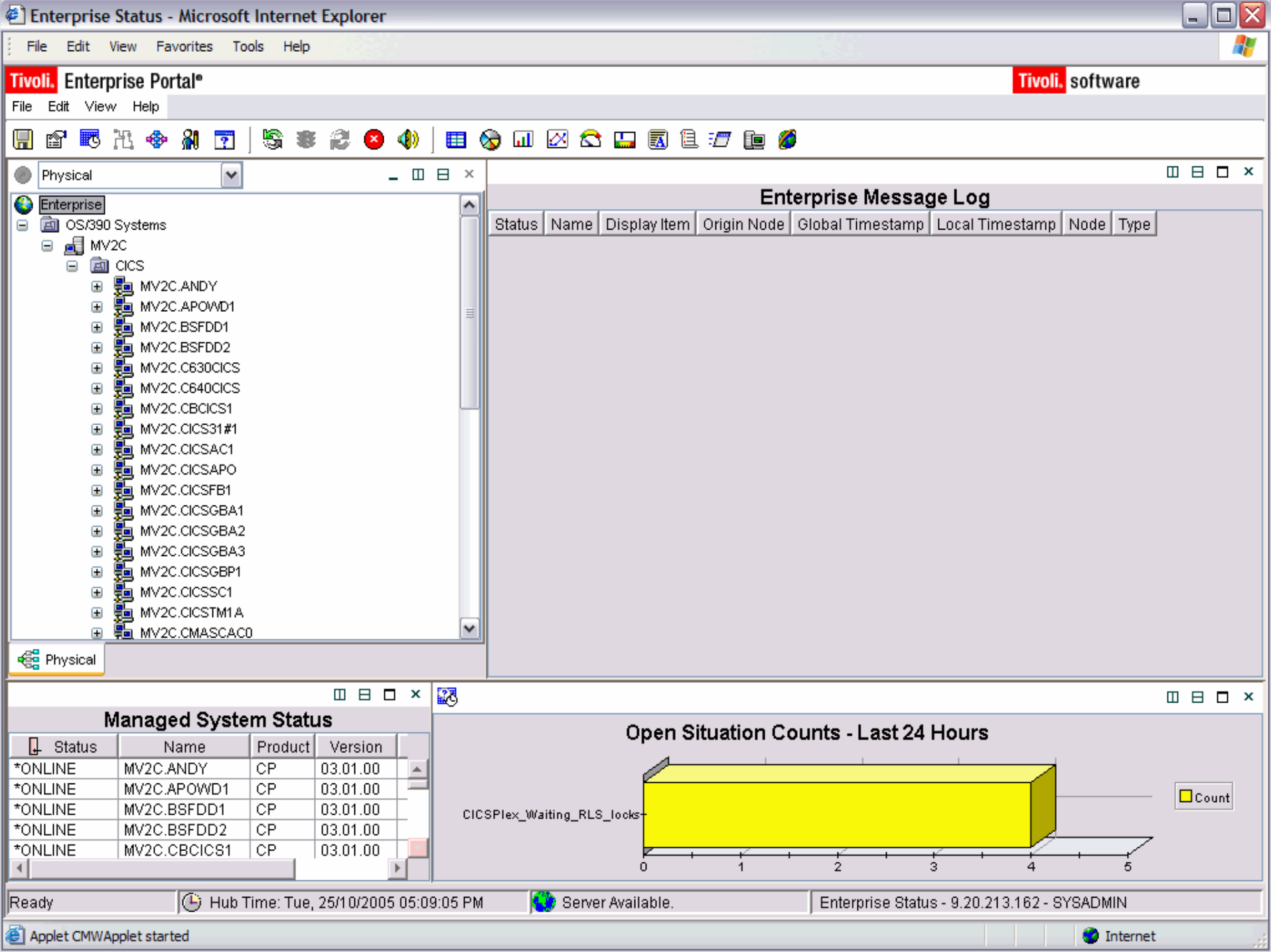
Hub Time: Not Available
Server Available.
Enterprise Status - 9.20.213.162 - SYSADMIN
http://www-306.ibm.com/software/tivoli/
Internet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File Edit View Help
Physical
Enterprise
OS/390 Systems
MV2C
CICS
MV2C.ANDY
MV2C.APOWD1
MV2C.BSFDD1
MV2C.BSFDD2
MV2C.C630CICS
MV2C.C640CICS
MV2C.CBCICS1
MV2C.CICS31#1
MV2C.CICSAC1
MV2C.CICSAPO
MV2C.CICSFB1
MV2C.CICSGBA1
MV2C.CICSGBA2
MV2C.CICSGBA3
MV2C.CICSGBP1
MV2C.CICSSC1
MV2C.CICSTM1A
MV2C.CMASCAC0
Physical
Enterprise Message Log
Status Name Display Item Origin Node Global Timestamp Local Timestamp Node Type
Managed System Status
Status Name Product Version
*ONLINE MV2C.ANDY CP 03.01.00
*ONLINE MV2C.APOWD1 CP 03.01.00
*ONLINE MV2C.BSFDD1 CP 03.01.00
*ONLINE MV2C.BSFDD2 CP 03.01.00
*ONLINE MV2C.CBCICS1 CP 03.01.00
Open Situation Counts - Last 24 Hours
CICSPlex_Waiting_RLS_locks
0 1 2 3 4 5
Count
Ready
Hub Time: Tue, 25/10/2005 05:09:05 PM
Server Available.
Enterprise Status - 9.20.213.162 - SYSADMIN
Applet CMWApplet started
Internet

Transaction Analysis - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Tivoli. Enterprise Portal®

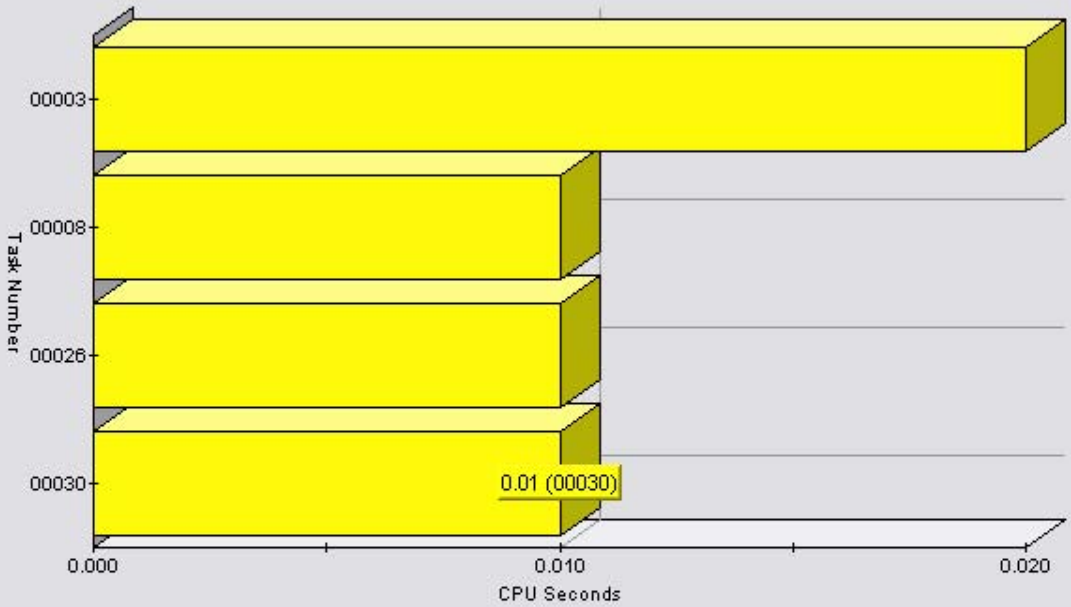
Tivoli. software

File Edit View Help

Physical

- TCPIP Service Statistics
- TCPIP Statistics
- Temporary Storage Queues
- Temporary Storage Summary
- Terminal Storage Violations
- Transaction Analysis
- Transaction Storage Violations
- Transient Data Queues
- Transient Data Summary
- Transaction Manager Statistics
- UOW Analysis
- UOW Enqueue Analysis
- VSAM Analysis
- VSAM RLS Lock Analysis
- MV2C.CICSGBA2
- MV2C.CICSGBA3
- MV2C.CICSGBP1
- MV2C.CICSSC1
- MV2C.CICSTM1A
- MV2C.CMASCAC0

Physical



Transaction Analysis

System ID	CICS Region Name	CICS SYSIDNT	Transaction ID	User ID	Terminal ID	Task Number	Resource Type	Resource Name	Task State	Elapsed Time	CPU Time	Program ID	E
MV2C	CICSGBA1	GMB1	OSEC	CICSUSER	n/a	00052	USERWAIT	SR2WORK	Suspend	00:00:35.59	00:00:00	KOCSR2ZZ	N
MV2C	CICSGBA1	GMB1	OSRV	CICSUSER	n/a	00051	USERWAIT	SRVWORK	Suspend	00:00:35.6	00:00:00	KOCSRVZZ	N
MV2C	CICSGBA1	GMB1	CSNE	n/a	n/a	00030	ZC	DFHZNAC1	Suspend	00:00:39.53	00:00:00.01	DFHZNAC	N
MV2C	CICSGBA1	GMB1	CSHQ	n/a	n/a	00026	SHSYSTEM		Suspend	00:00:40.47	00:00:00.01	DFHSHSY	N
MV2C	CICSGBA1	GMB1	CEX2	n/a	n/a	00024	USERWAIT	CDB2TIME	Suspend	00:00:41.34	00:00:00	DFHD2EX2	N
MV2C	CICSGBA1	GMB1	CSNC	n/a	n/a	00021	CSNC	MROQUEUE	Suspend	00:00:43.18	00:00:00	DFHCRNP	N

Ready | Hub Time: Mon, 31/10/2005 02:21:01 PM | Server Available. | Transaction Analysis - 9.20.213.162 - SYSADMIN

Transaction Analysis - Microsoft Internet Explorer

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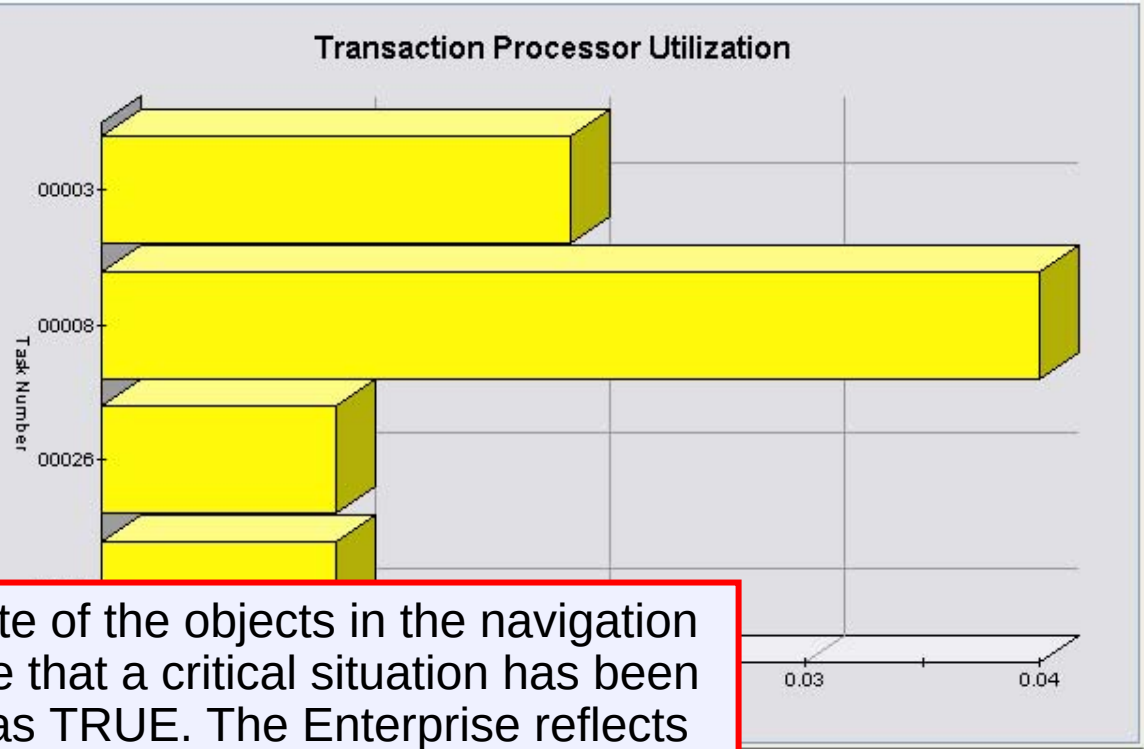
Physical

- MV2C.CBCICS1
- MV2C.CICS31#1
- MV2C.CICS31#2
- MV2C.CICSAC1
- MV2C.CICSAPO
- MV2C.CICSFB1
- MV2C.CICSGBA1
- MV2C.CICSGBA2
- MV2C.CICSGBA3
- MV2C.CICSSC1
- MV2C.CICSTM1A
- MV2C.CMASCAC0
- MV2C.CMASJT1A
- MV2C.CMASZCGD
- MV2C.CTGHI1
- MV2C.CTGHI2
- MV2C.FVFNT01A
- MV2C.FVFNT01C
- MV2C.FVFNT01D
- MV2C.FVFNT02A
- MV2C.FVFNT02C

Physical



The red state of the objects in the navigation tree indicate that a critical situation has been evaluated as TRUE. The Enterprise reflects the state of the highest TRUE situation.

System ID	CICS Region Name	CICS SYSIDNT	Transaction ID	User ID	Terminal ID	Task Number	Resource Type	Resource Name	Task State	Elapsed Time	CPU Time	Program ID	E
MV2C	CICSGBA1	GMB1	LOCK	CICSUSER	TC16	00105	ICWAIT	TC16	Suspend	00:02:01.9	00:00:00	GENERAL	N
MV2C	CICSGBA1	GMB1	OSEC	CICSUSER	n/a	00052	USERWAIT	SR2WORK	Suspend	00:10:20.4	00:00:00	KOCSR2ZZ	N
MV2C	CICSGBA1	GMB1	OSRV	CICSUSER	n/a	00051	USERWAIT	SRVWORK	Suspend	00:10:20.41	00:00:00	KOCSRVZZ	N
MV2C	CICSGBA1	GMB1	CSNE	n/a	n/a	00030	ZC	DFHZNAC1	Suspend	00:10:24.34	00:00:00.01	DFHZNAC	N

Ready | Hub Time: Mon, 31/10/2005 02:32:01 PM | Server Available. | Transaction Analysis - 9.20.213.162 - SYSADMIN

Applet CMWApplet started | Internet

VSAM RLS Lock Analysis - Microsoft Internet Explorer

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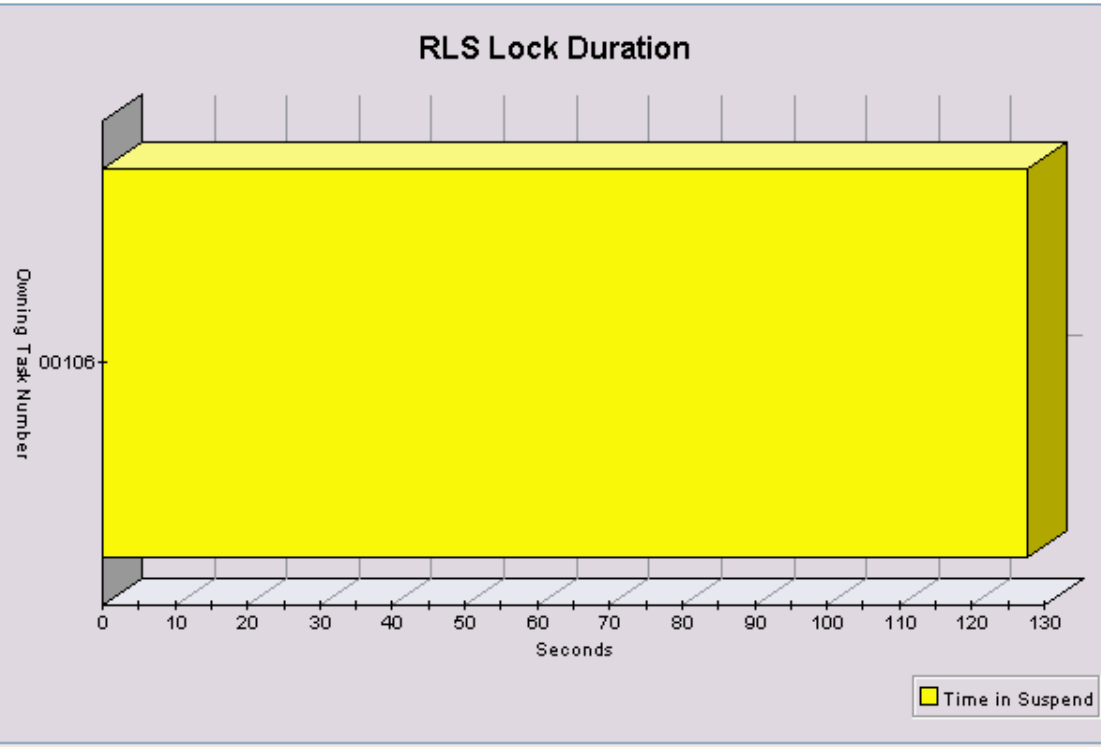
File Edit View Help

Physical

- CICS
  - MV2C.ANDY
  - MV2C.APOWD1
  - MV2C.BSFDD1
  - MV2C.BSFDD2
  - MV2C.C630CICS
  - MV2C.C640CICS
  - MV2C.CBCICS1
  - MV2C.CICS31#1
  - MV2C.CICSAC1
  - MV2C.CICSAPO
  - MV2C.CICSFB1
  - MV2C.CICSGBA1
  - MV2C.CICSGBA2
    - VSAM RLS Lock Analysis
      - CICSPlex_Waiting_RLS_locks
    - More...
  - MV2C.CICSGBA3
  - MV2C.CICSGBP1
  - MV2C.CICSSC1
  - MV2C.CMASCAC0
  - MV2C.CMASJT1A

Physical

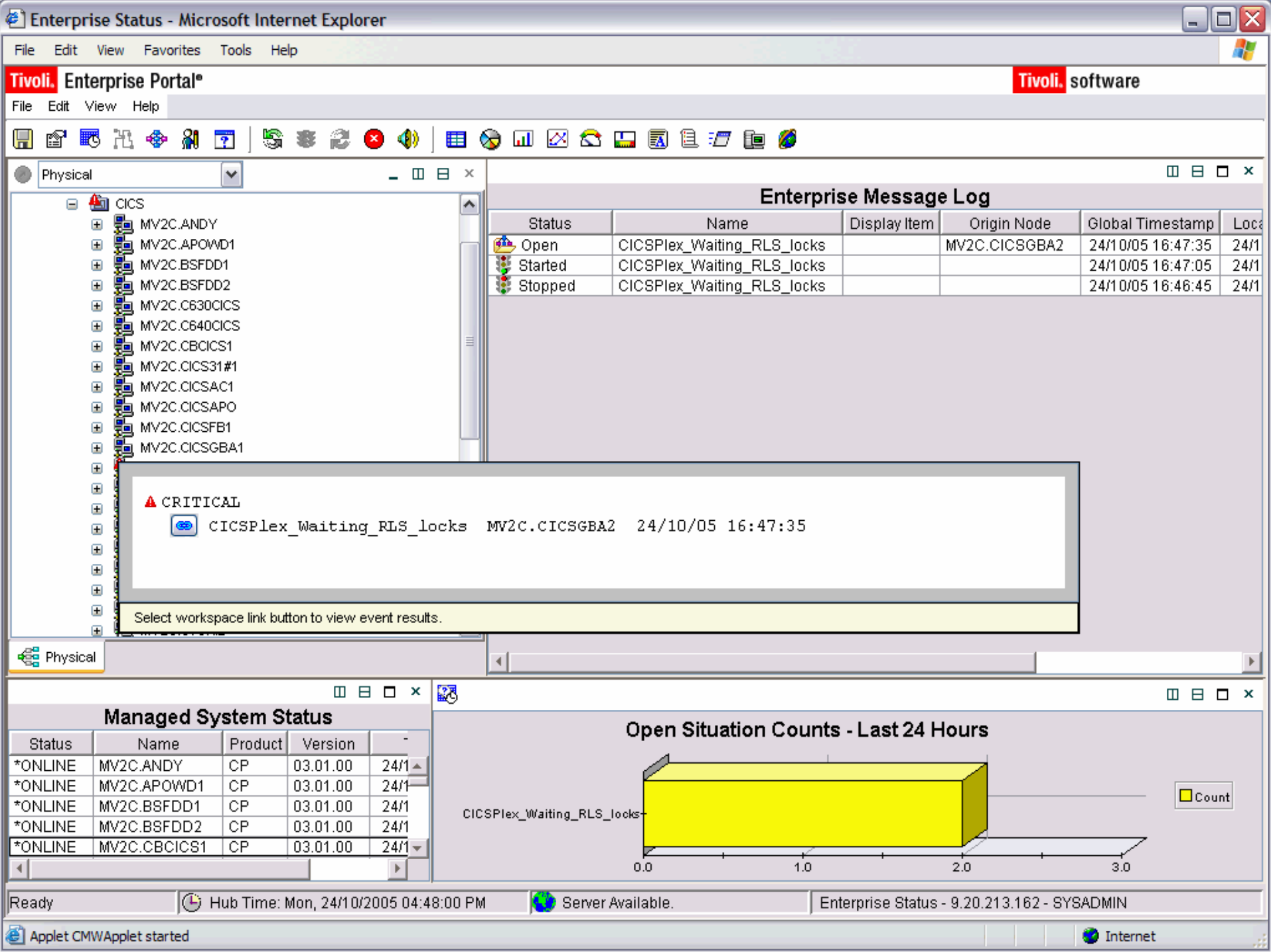


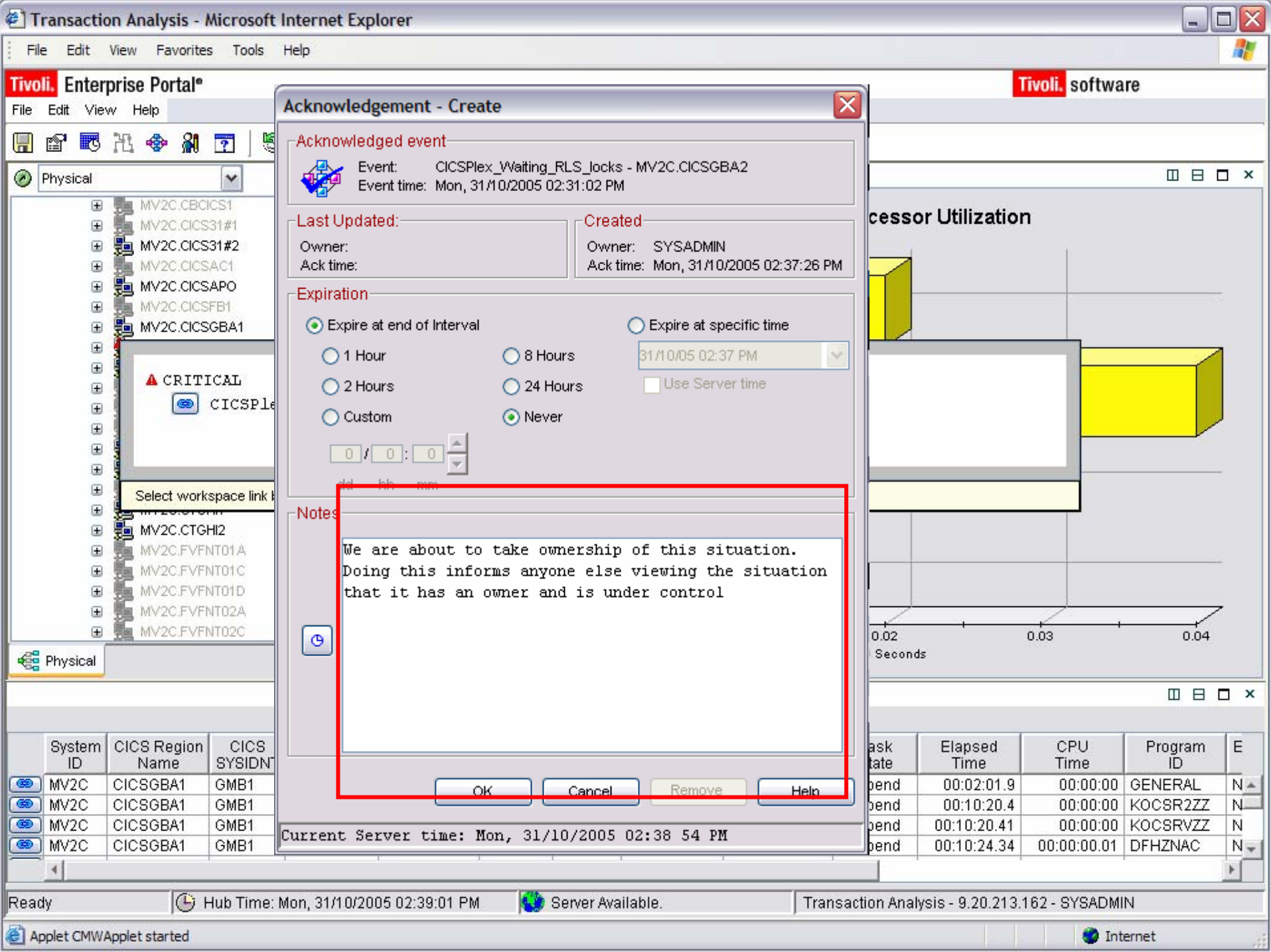
VSAM Record Level Sharing Lock Analysis

System ID	CICS Region Name	Transaction ID	Task Number	Task State	Time in Suspend	Dataset Type	Dataset Name	Key Length	Argument or Key
MV2C	CICSGBA1	LOCK	00106	Holder	00:02:07.67	KSDS	GBURGES.TESTFILE.KSDS	8	AAAAAAAA
MV2C	CICSGBA2	LOCK	00081	Waiter	00:01:55.42	KSDS	GBURGES.TESTFILE.KSDS	8	AAAAAAAA

Ready | Hub Time: Mon, 24/10/2005 04:49:00 PM | Server Available. | VSAM RLS Lock Analysis - 9.20.213.162 - SYSADMIN

Applet CMWApplet started | Internet


Enterprise Status - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Tivoli. Enterprise Portal®
Tivoli. software
File Edit View Help
Physical
CICS
MV2C.ANDY
MV2C.APOWD1
MV2C.BSFDD1
MV2C.BSFDD2
MV2C.C630CICS
MV2C.C640CICS
MV2C.CBCICS1
MV2C.CICS31#1
MV2C.CICSAC1
MV2C.CICSAPO
MV2C.CICSFB1
MV2C.CICSGBA1
Enterprise Message Log
Status Name Display Item Origin Node Global Timestamp Loca
Open CICSPlex_Waiting_RLS_locks MV2C.CICSGBA2 24/10/05 16:47:35 24/1
Started CICSPlex_Waiting_RLS_locks 24/10/05 16:47:05 24/1
Stopped CICSPlex_Waiting_RLS_locks 24/10/05 16:46:45 24/1
CRITICAL
CICSPlex_Waiting_RLS_locks MV2C.CICSGBA2 24/10/05 16:47:35
Select workspace link button to view event results.
Physical
Managed System Status
Status Name Product Version
*ONLINE MV2C.ANDY CP 03.01.00 24/1
*ONLINE MV2C.APOWD1 CP 03.01.00 24/1
*ONLINE MV2C.BSFDD1 CP 03.01.00 24/1
*ONLINE MV2C.BSFDD2 CP 03.01.00 24/1
*ONLINE MV2C.CBCICS1 CP 03.01.00 24/1
Open Situation Counts - Last 24 Hours
CICSPlex_Waiting_RLS_locks
0.0
1.0
2.0
3.0
Count
Ready
Hub Time: Mon, 24/10/2005 04:48:00 PM
Server Available.
Enterprise Status - 9.20.213.162 - SYSADMIN
Applet CMWApplet started
Internet


Transaction Analysis - Microsoft Internet Explorer
File Edit View Favorites Tools Help
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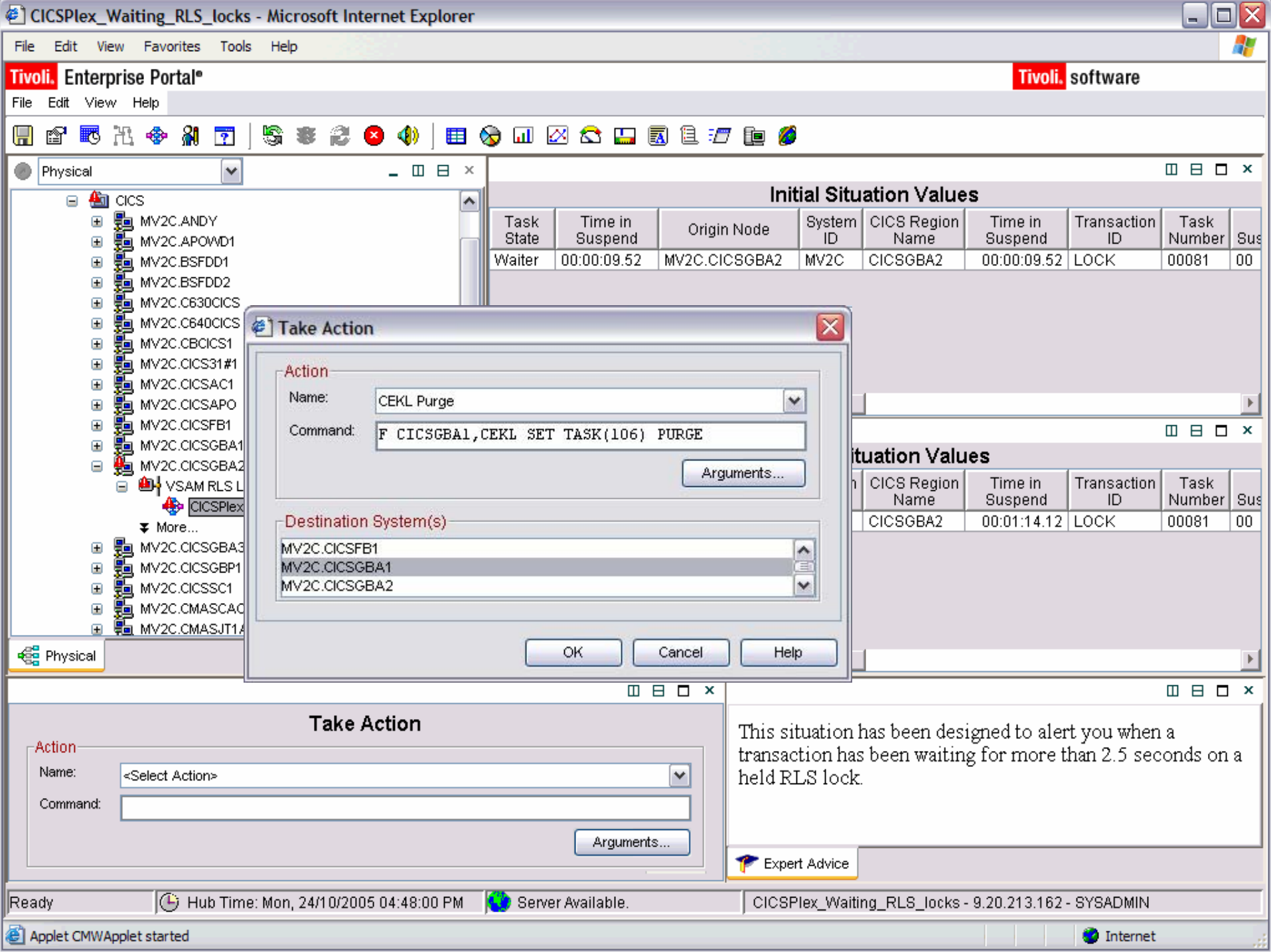
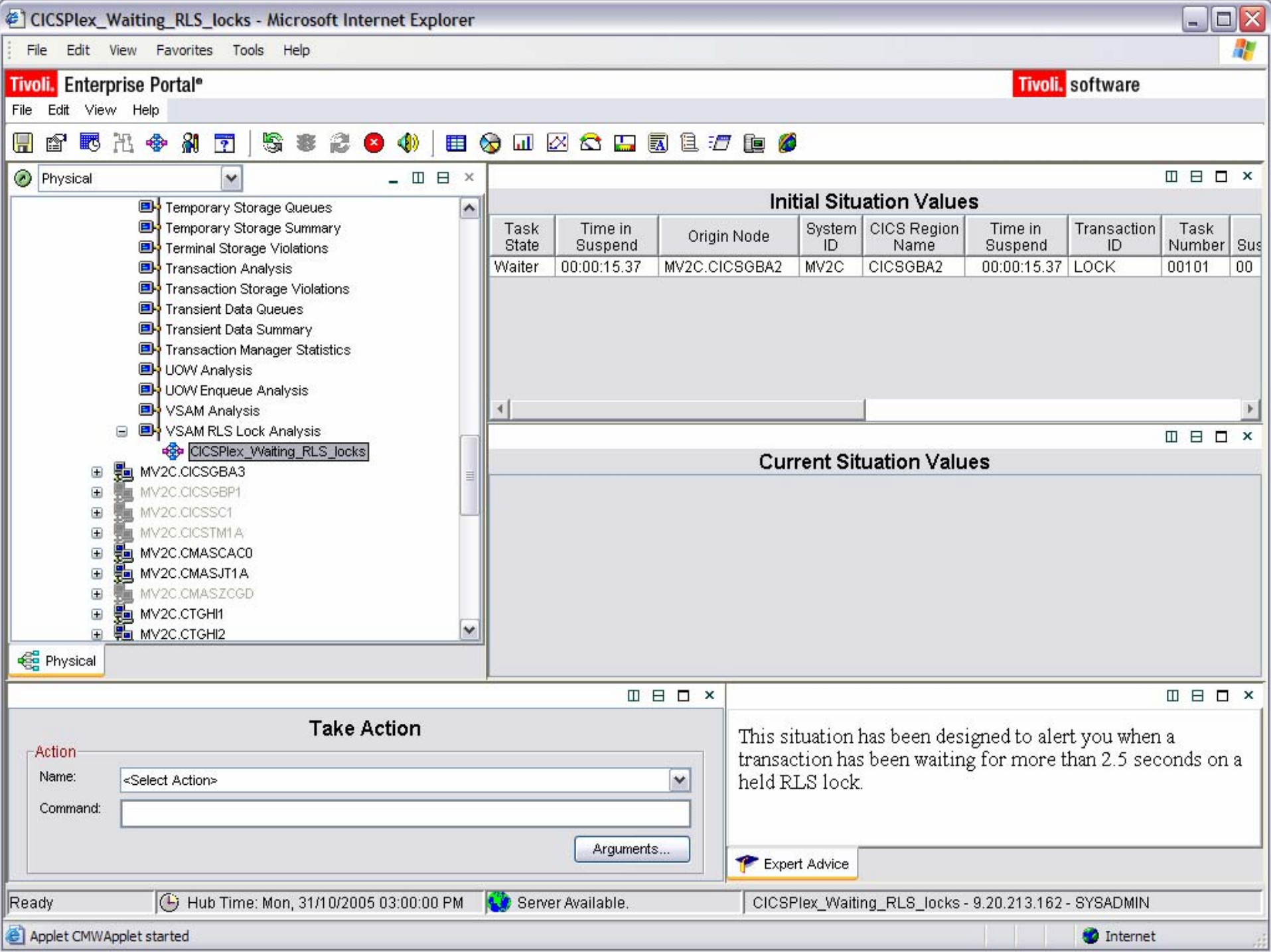
File Edit View Help
Acknowledgement - Create
Acknowledged event
Event: CICSPlex_Waiting_RLS_locks - MV2C.CICSGBA2
Event time: Mon, 31/10/2005 02:31:02 PM
Last Updated:
Owner:
Ack time:
Created
Owner: SYSADMIN
Ack time: Mon, 31/10/2005 02:37:26 PM
Expiration
Expire at end of Interval
1 Hour
2 Hours
Custom
8 Hours
24 Hours
Never
Expire at specific time
31/10/05 02:37 PM
Use Server time
Notes
We are about to take ownership of this situation.
Doing this informs anyone else viewing the situation
that it has an owner and is under control
OK
Cancel
Remove
Help
Current Server time: Mon, 31/10/2005 02:38 54 PM
Physical
MV2C.CBCICS1
MV2C.CICS31#1
MV2C.CICS31#2
MV2C.CICSAC1
MV2C.CICSAPO
MV2C.CICSFB1
MV2C.CICSGBA1
CRITICAL
Select workspace link
MV2C.CTGHI2
MV2C.FVFNT01A
MV2C.FVFNT01C
MV2C.FVFNT01D
MV2C.FVFNT02A
MV2C.FVFNT02C
cessor Utilization
0.02
0.03
0.04
Seconds
System ID
CICS Region Name
CICS SYSIDN
Elapsed Time
CPU Time
Program ID
MV2C CICSGBA1 GMB1 00:02:01.9 00:00:00 GENERAL
MV2C CICSGBA1 GMB1 00:10:20.4 00:00:00 KOCSR2ZZ
MV2C CICSGBA1 GMB1 00:10:20.41 00:00:00 KOCSRVZZ
MV2C CICSGBA1 GMB1 00:10:24.34 00:00:00.01 DFHZNAC
Ready
Hub Time: Mon, 31/10/2005 02:39:01 PM
Server Available.
Transaction Analysis - 9.20.213.162 - SYSADMIN
Applet CMWApplet started
Internet


CICSPlex_Waiting_RLS_locks - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Tivoli. Enterprise Portal®
Tivoli. software
File Edit View Help
Physical
CICS
MV2C.ANDY
MV2C.APOWD1
MV2C.BSFDD1
MV2C.BSFDD2
MV2C.C630CICS
MV2C.C640CICS
MV2C.CBCICS1
MV2C.CICS31#1
MV2C.CICSAC1
MV2C.CICSAPO
MV2C.CICSFB1
MV2C.CICSGBA1
MV2C.CICSGBA2
VSAM RLS L
CICSPlex
More...
MV2C.CICSGBA3
MV2C.CICSGBP1
MV2C.CICSSC1
MV2C.CMASCAC
MV2C.CMASJT1A
Physical
Initial Situation Values
Task State
Time in Suspend
Origin Node
System ID
CICS Region Name
Time in Suspend
Transaction ID
Task Number
Waiter
00:00:09.52
MV2C.CICSGBA2
MV2C
CICSGBA2
00:00:09.52
LOCK
00081
Take Action
Action
Name:
CEKL Purge
Command:
F CICSGBA1,CEKL SET TASK(106) PURGE
Arguments...
Destination System(s)
MV2C.CICSFB1
MV2C.CICSGBA1
MV2C.CICSGBA2
OK
Cancel
Help
ituation Values
CICS Region Name
Time in Suspend
Transaction ID
Task Number
CICSGBA2
00:01:14.12
LOCK
00081
Take Action
Action
Name:
<Select Action>
Command:
Arguments...
This situation has been designed to alert you when a transaction has been waiting for more than 2.5 seconds on a held RLS lock.
Expert Advice
Ready
Hub Time: Mon, 24/10/2005 04:48:00 PM
Server Available.
CICSPlex_Waiting_RLS_locks - 9.20.213.162 - SYSADMIN
Applet CMWApplet started
Internet


CICSPlex_Waiting_RLS_locks - Microsoft Internet Explorer
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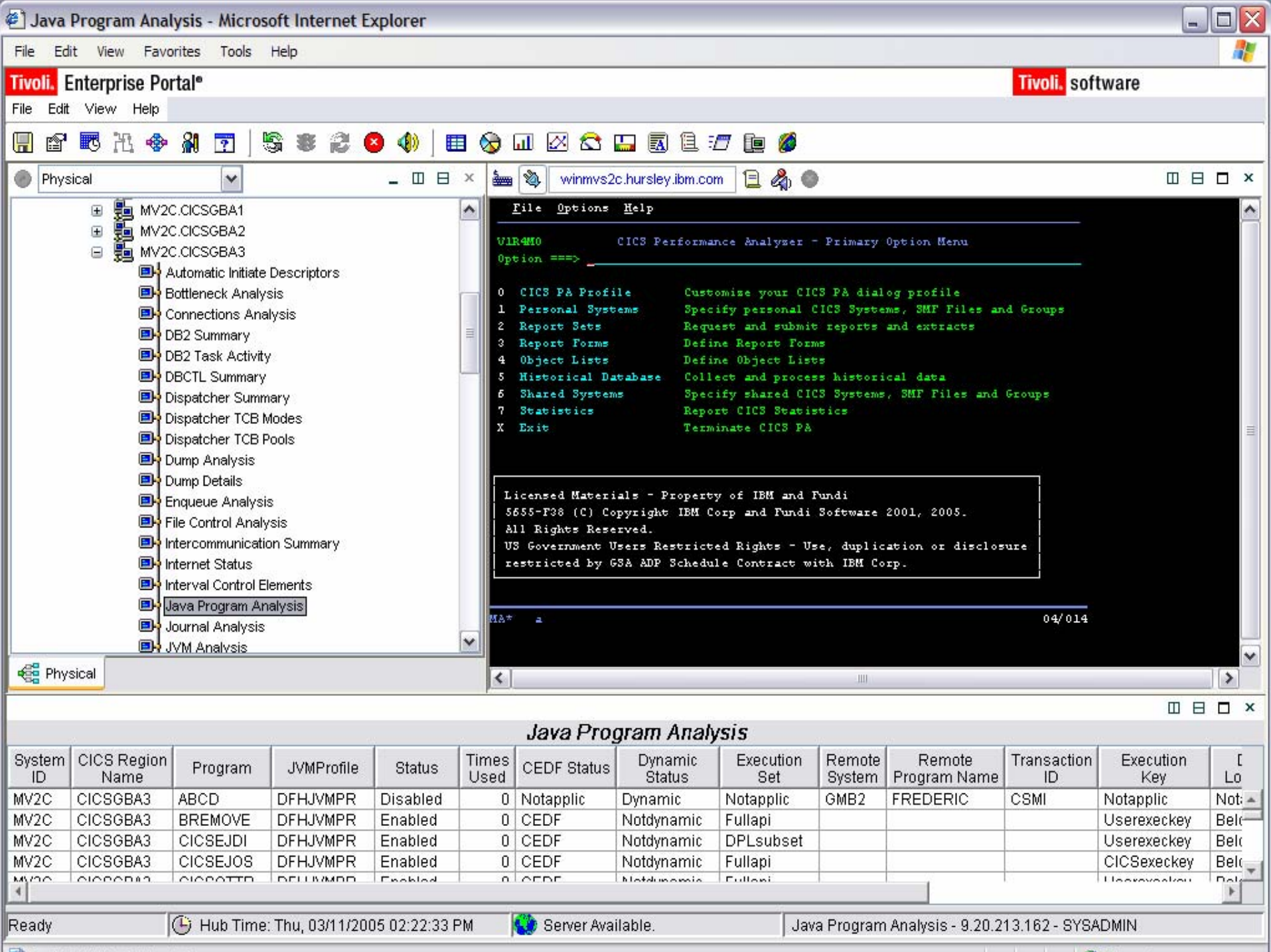
File Edit View Help
Physical
Temporary Storage Queues
Temporary Storage Summary
Terminal Storage Violations
Transaction Analysis
Transaction Storage Violations
Transient Data Queues
Transient Data Summary
Transaction Manager Statistics
UOW Analysis
UOW Enqueue Analysis
VSAM Analysis
VSAM RLS Lock Analysis
CICSPlex_Waiting_RLS_locks
MV2C.CICSGBA3
MV2C.CICSGBP1
MV2C.CICSSC1
MV2C.CICSTM1A
MV2C.CMASCAC0
MV2C.CMASJT1A
MV2C.CMASZCGD
MV2C.CTGHI1
MV2C.CTGHI2
Physical
Initial Situation Values
Task State
Time in Suspend
Origin Node
System ID
CICS Region Name
Time in Suspend
Transaction ID
Task Number
Sus
Waiter
00:00:15.37
MV2C.CICSGBA2
MV2C
CICSGBA2
00:00:15.37
LOCK
00101
00
Current Situation Values
Take Action
Action
Name:
<Select Action>
Command:
Arguments...
This situation has been designed to alert you when a transaction has been waiting for more than 2.5 seconds on a held RLS lock.
Expert Advice
Ready
Hub Time: Mon, 31/10/2005 03:00:00 PM
Server Available.
CICSPlex_Waiting_RLS_locks - 9.20.213.162 - SYSADMIN
Applet CMWApplet started
Internet

OMEGAMON XE for CICS, and CICS PA
- what can we do to prevent this happening again ?

- We dealt with our alert online using OMEGAMON and resolved the problem.

- Now we’re going to use CICS PA reports to do more in-depth analysis of these locks to see if they are occurring frequently.


Java Program Analysis - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Tivoli. Enterprise Portal®
Tivoli. software
File Edit View Help
Physical
MV2C.CICSGBA1
MV2C.CICSGBA2
MV2C.CICSGBA3
Automatic Initiate Descriptors
Bottleneck Analysis
Connections Analysis
DB2 Summary
DB2 Task Activity
DBCTL Summary
Dispatcher Summary
Dispatcher TCB Modes
Dispatcher TCB Pools
Dump Analysis
Dump Details
Enqueue Analysis
File Control Analysis
Intercommunication Summary
Internet Status
Interval Control Elements
Java Program Analysis
Journal Analysis
JVM Analysis
Physical
winmvs2c.hursley.ibm.com
File Options Help
V1R4M0 CICS Performance Analyzer - Primary Option Menu
Option ===>
0 CICS PA Profile Customize your CICS PA dialog profile
1 Personal Systems Specify personal CICS Systems, SMF Files and Groups
2 Report Sets Request and submit reports and extracts
3 Report Forms Define Report Forms
4 Object Lists Define Object Lists
5 Historical Database Collect and process historical data
6 Shared Systems Specify shared CICS Systems, SMF Files and Groups
7 Statistics Report CICS Statistics
X Exit Terminate CICS PA
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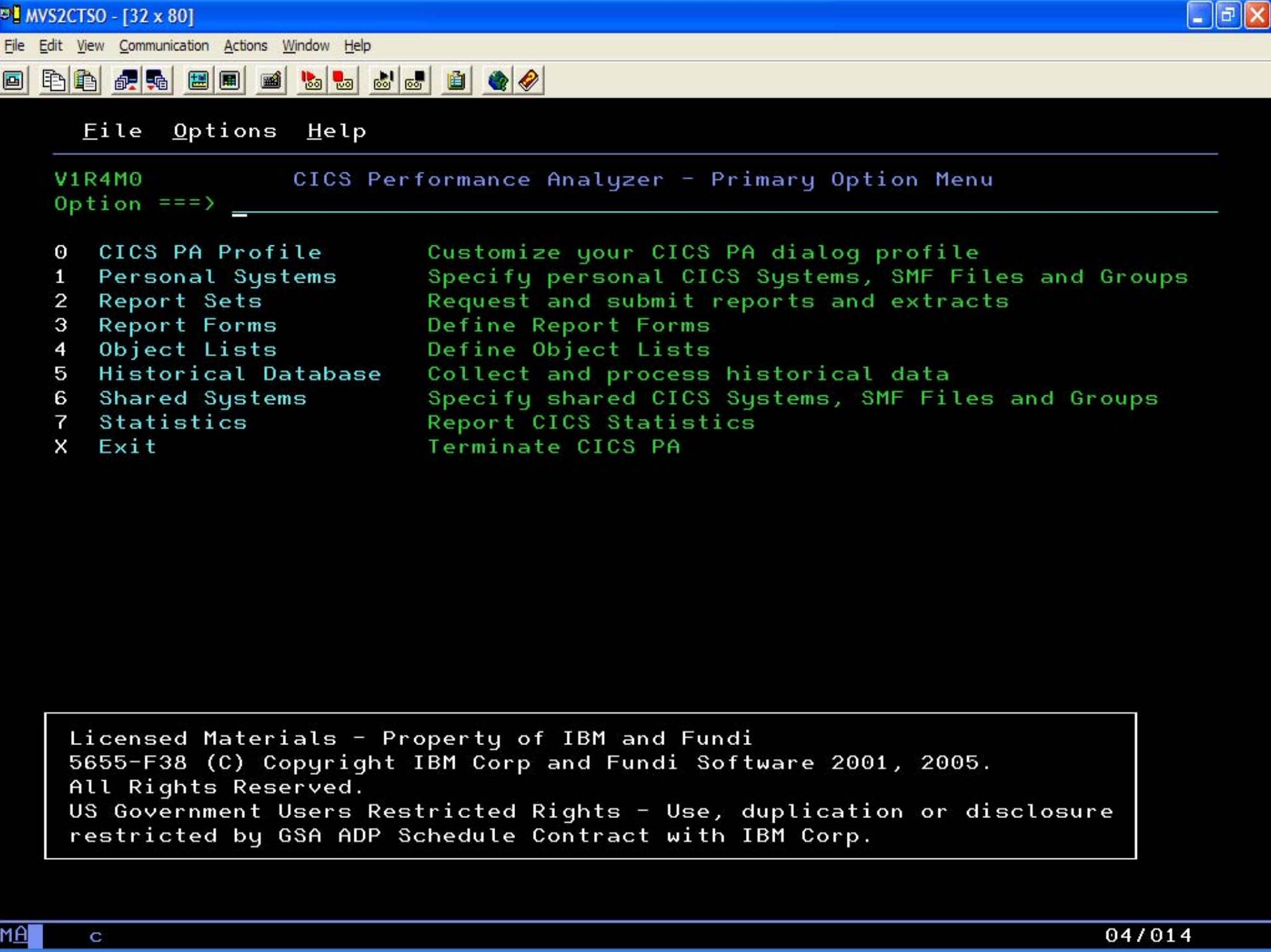
MA* a 04/014
Java Program Analysis
System ID
CICS Region Name
Program
JVMProfile
Status
Times Used
CEDF Status
Dynamic Status
Execution Set
Remote System
Remote Program Name
Transaction ID
Execution Key
MV2C CICSGBA3 ABCD DFHJVMPR Disabled 0 Notapplic Dynamic Notapplic GMB2 FREDERIC CSMI Notapplic
MV2C CICSGBA3 BREMOVE DFHJVMPR Enabled 0 CEDF Notdynamic Fullapi Userexeckey
MV2C CICSGBA3 CICSEJDI DFHJVMPR Enabled 0 CEDF Notdynamic DPLsubset Userexeckey
MV2C CICSGBA3 CICSEJOS DFHJVMPR Enabled 0 CEDF Notdynamic Fullapi CICSexeckey
Ready
Hub Time: Thu, 03/11/2005 02:22:33 PM
Server Available.
Java Program Analysis - 9.20.213.162 - SYSADMIN


MVS2CTSO - [32 x 80]
File Edit View Communication Actions Window Help
File Options Help
V1R4M0 CICS Performance Analyzer - Primary Option Menu
Option ===>
0 CICS PA Profile Customize your CICS PA dialog profile
1 Personal Systems Specify personal CICS Systems, SMF Files and Groups
2 Report Sets Request and submit reports and extracts
3 Report Forms Define Report Forms
4 Object Lists Define Object Lists
5 Historical Database Collect and process historical data
6 Shared Systems Specify shared CICS Systems, SMF Files and Groups
7 Statistics Report CICS Statistics
X Exit Terminate CICS PA
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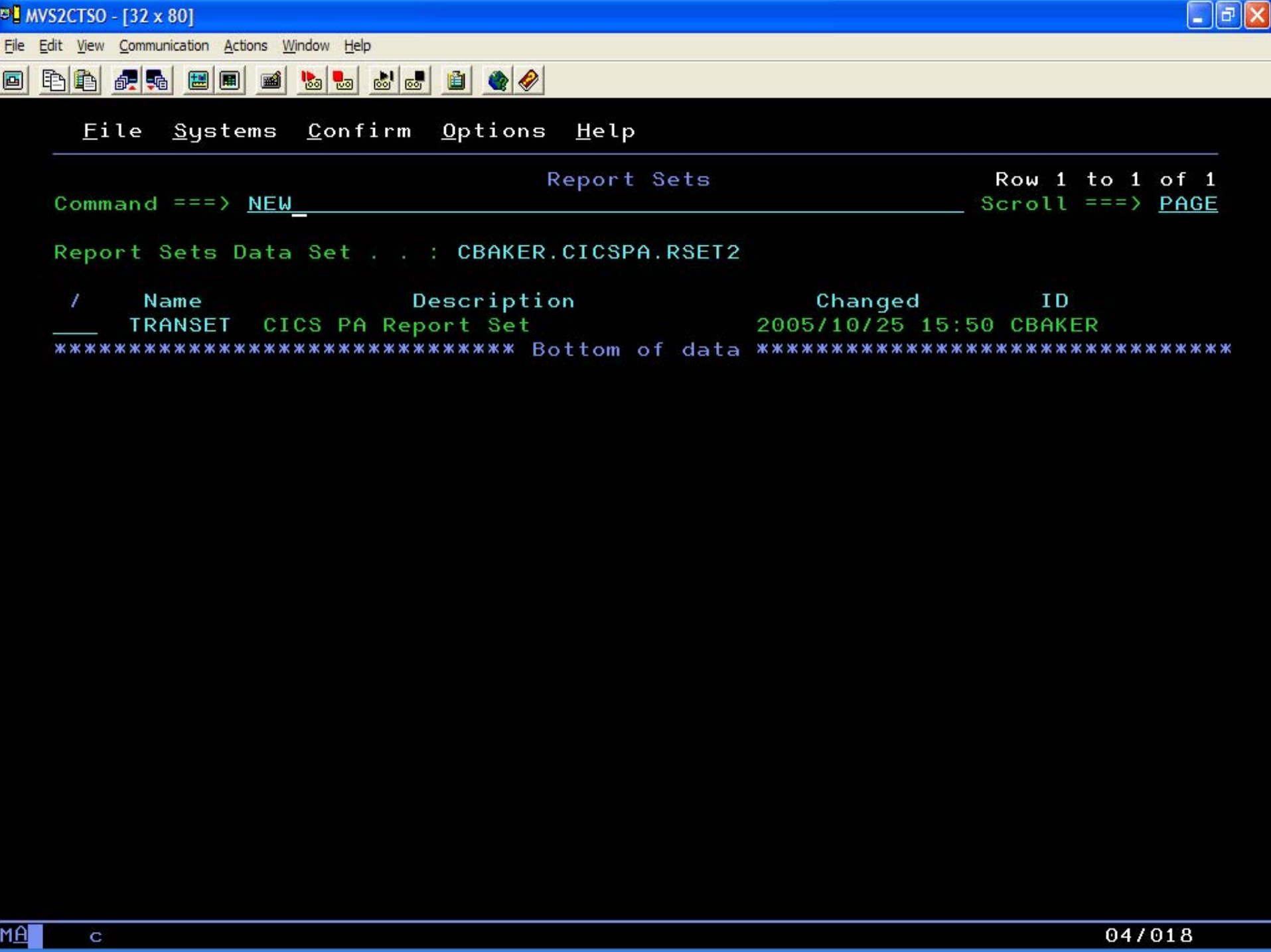
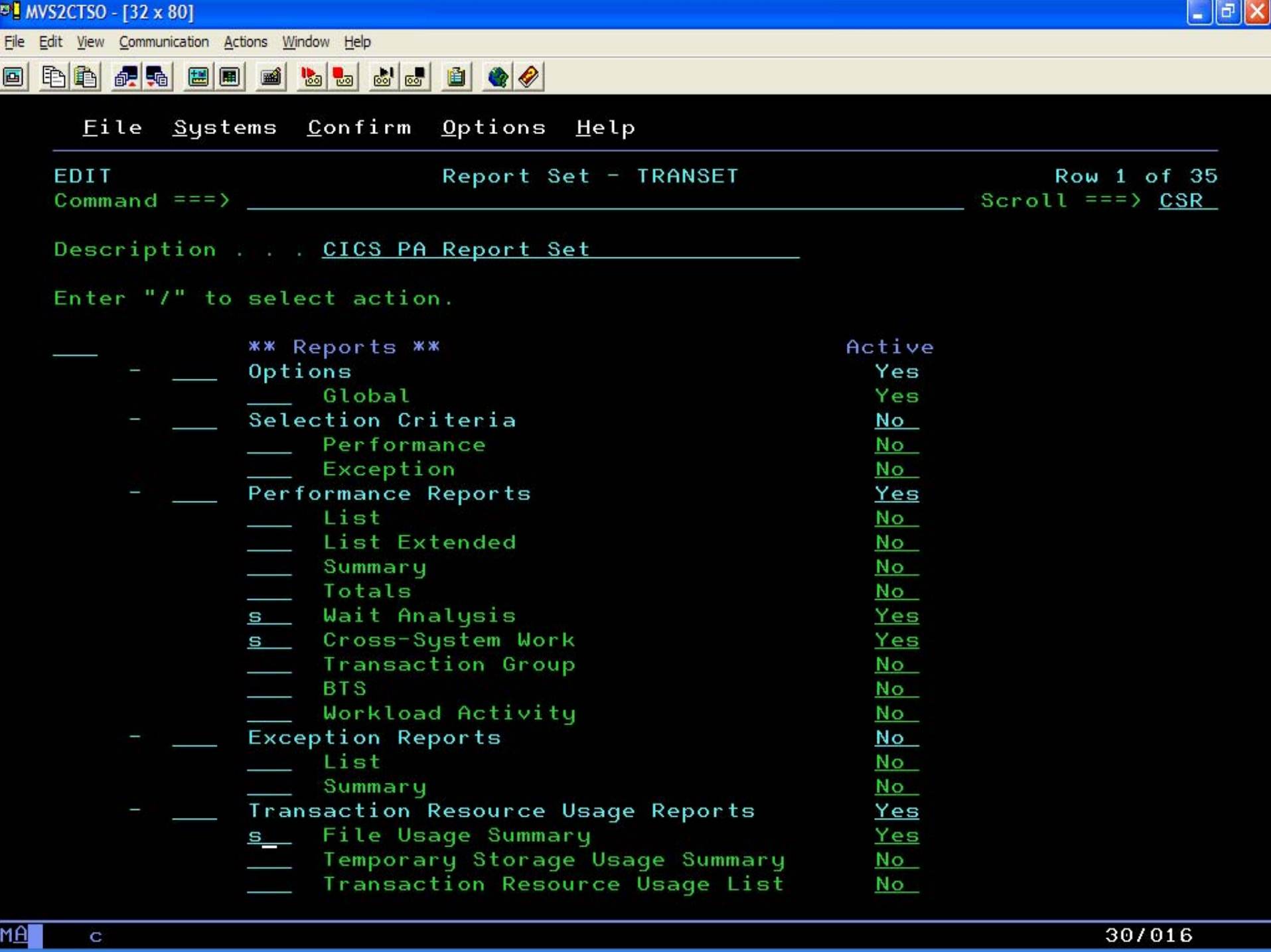
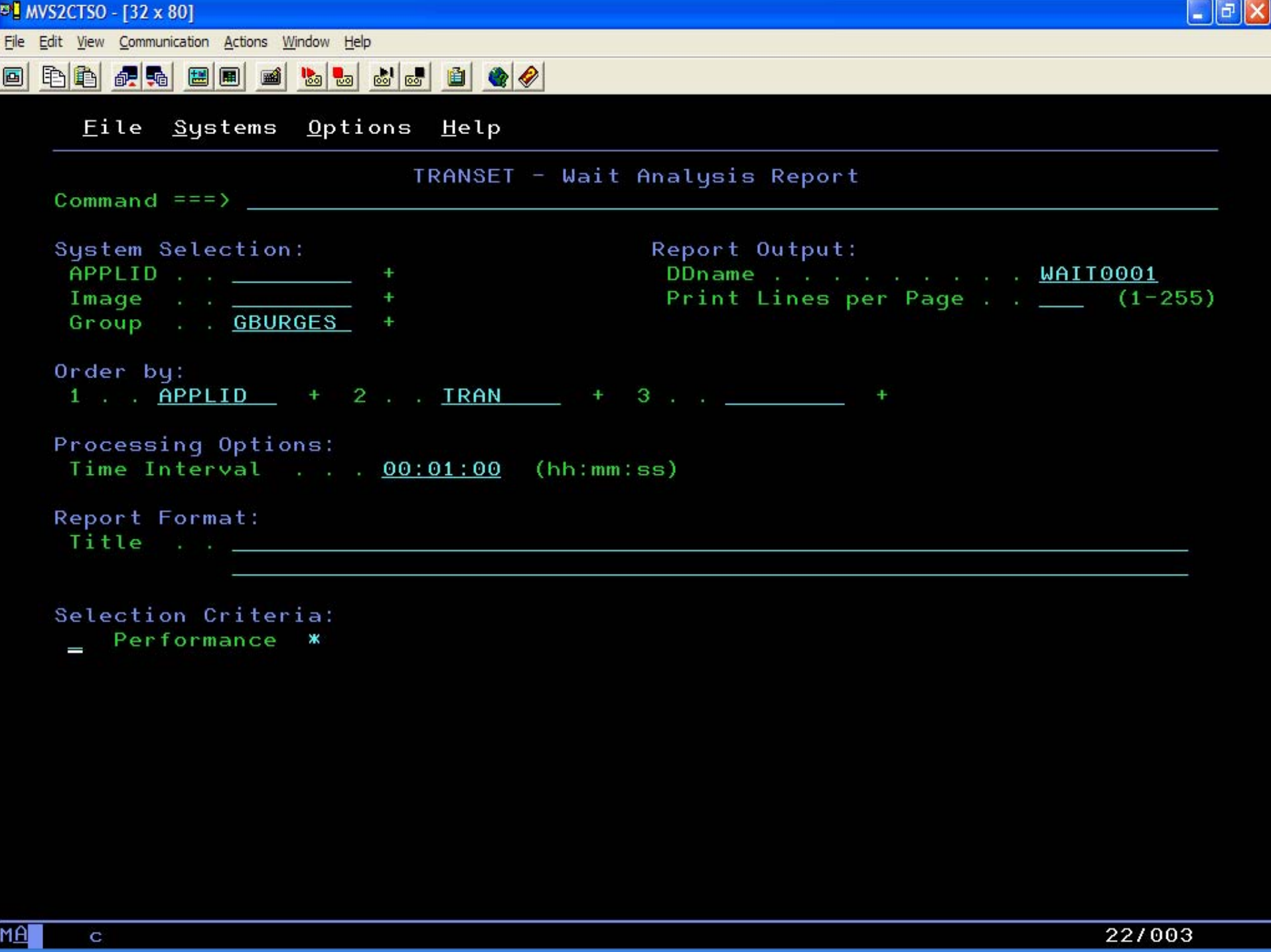
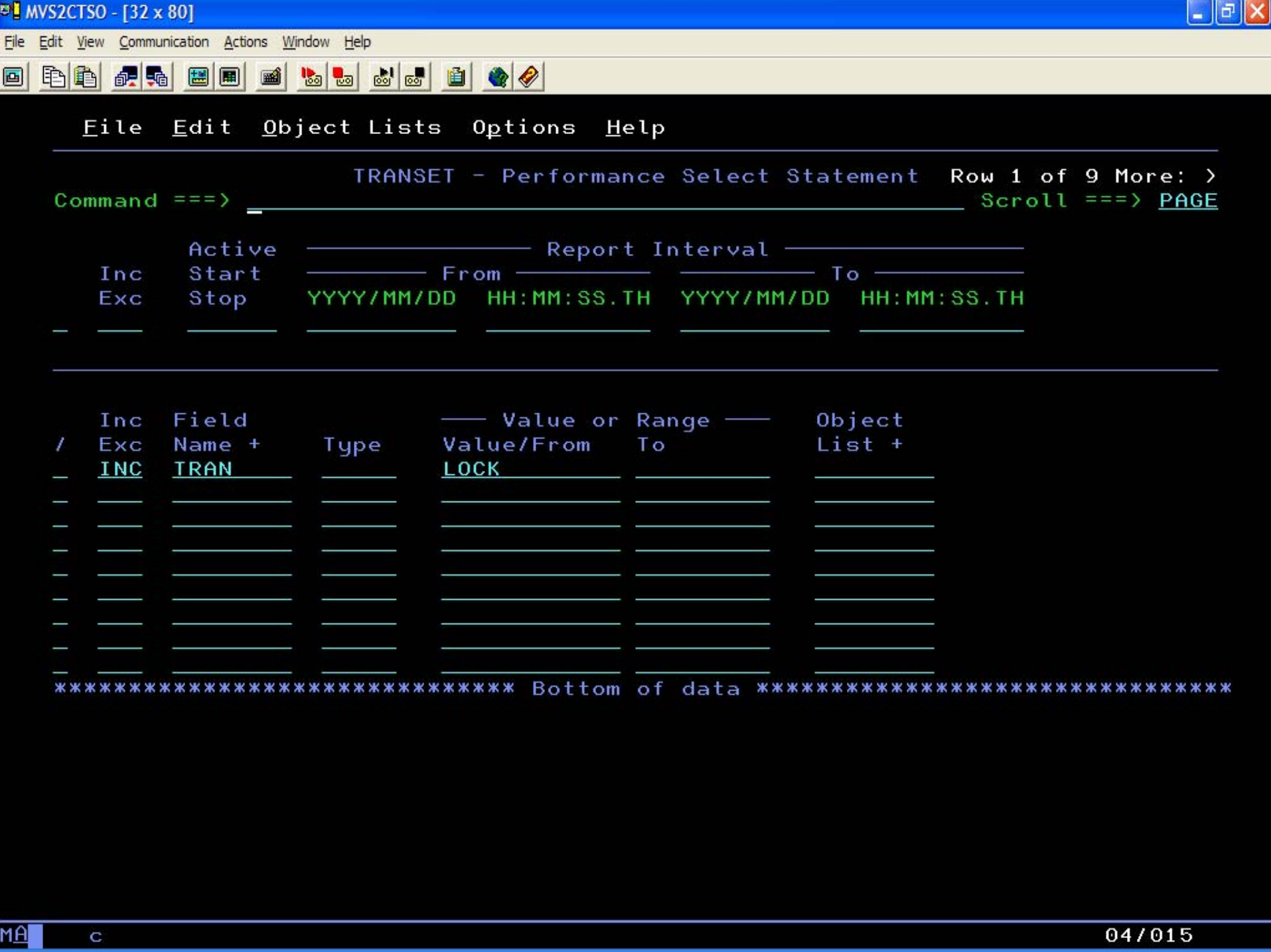
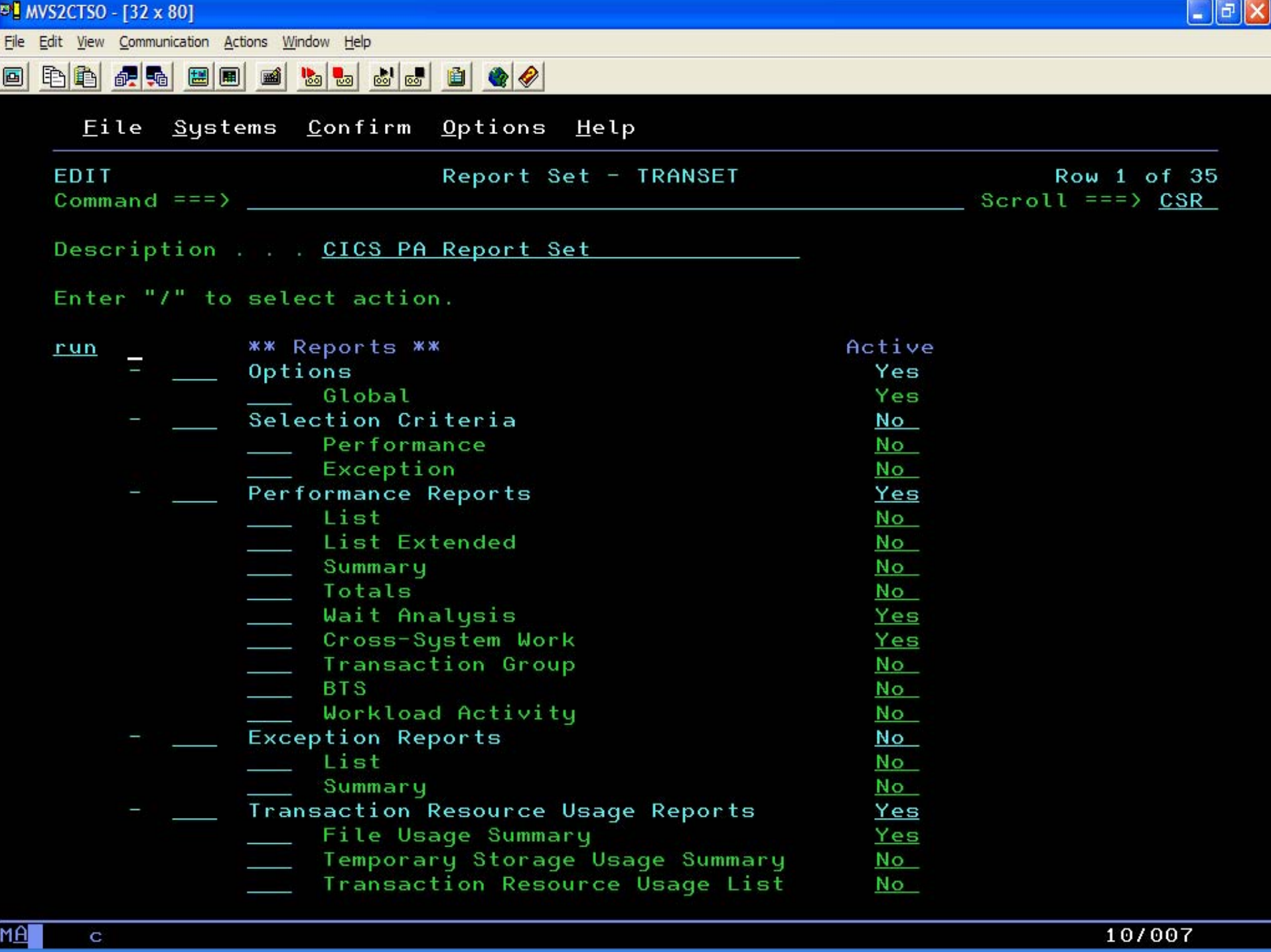
MA c
04/014

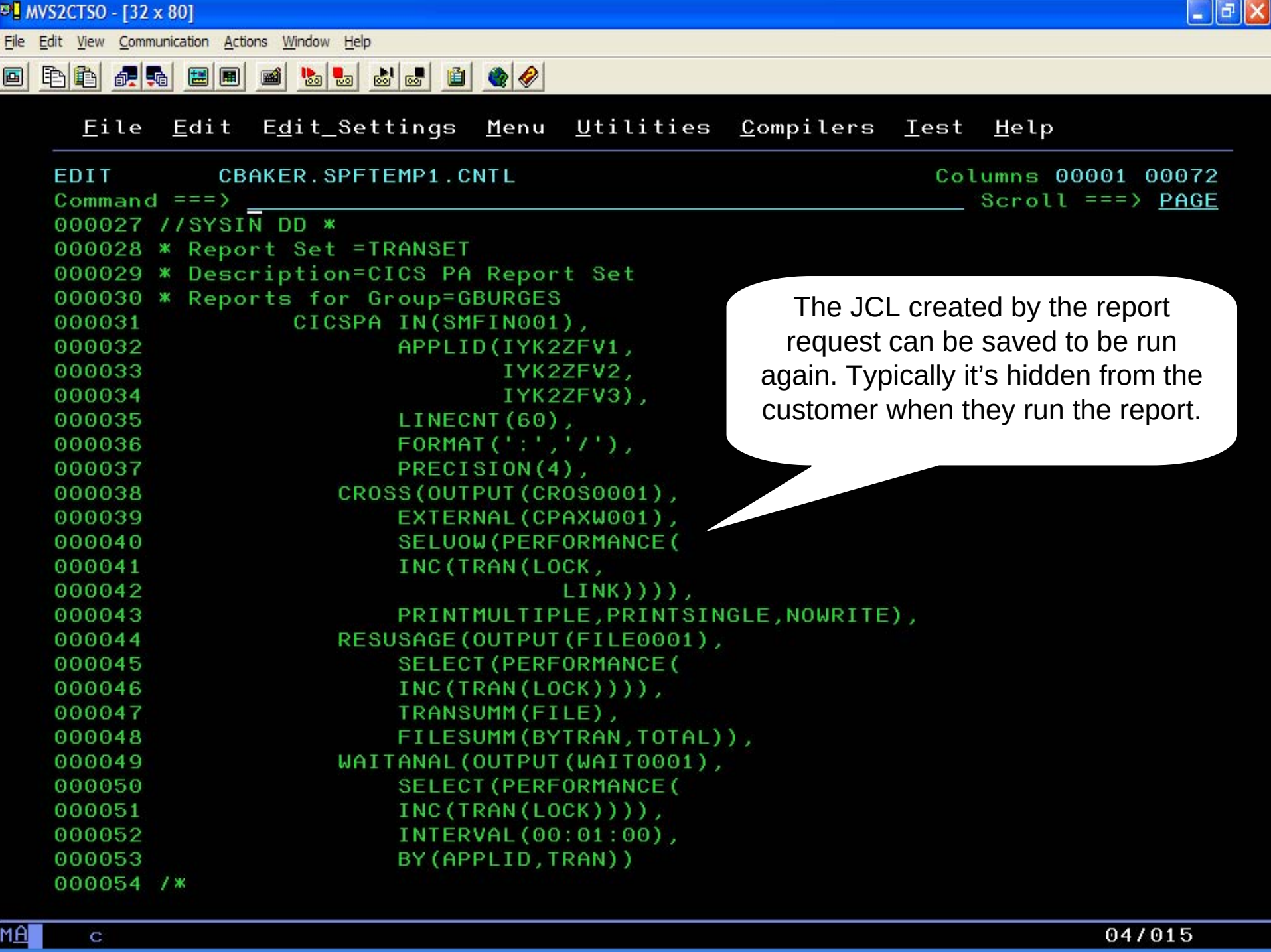

MVS2CTSO - [32 x 80]
File Edit View Communication Actions Window Help
File Systems Confirm Options Help
Report Sets
Row 1 to 1 of 1
Command ===> NEW
Scroll ===> PAGE
Report Sets Data Set . . : CBAKER.CICSPA.RSET2
/ Name Description Changed ID
TRANSET CICS PA Report Set 2005/10/25 15:50 CBAKER
********** Bottom of data **********
MA c
04/018


MVS2CTSO - [32 x 80]
File Edit View Communication Actions Window Help
File Systems Confirm Options Help
EDIT Report Set - TRANSET Row 1 of 35
Command ===> Scroll ===> CSR
Description . . . CICS PA Report Set
Enter "/" to select action.
** Reports ** Active
- Options Yes
Global Yes
- Selection Criteria No
Performance No
Exception No
- Performance Reports Yes
List No
List Extended No
Summary No
Totals No
s Wait Analysis Yes
s Cross-System Work Yes
Transaction Group No
BTS No
Workload Activity No
- Exception Reports No
List No
Summary No
- Transaction Resource Usage Reports Yes
s File Usage Summary Yes
Temporary Storage Usage Summary No
Transaction Resource Usage List No
MA c 30/016


MVS2CTSO - [32 x 80]
File Edit View Communication Actions Window Help
File Systems Options Help
TRANSET - Wait Analysis Report
Command ===>
System Selection:
APPLID . . + Image . . + Group . . GBURGES +
Report Output:
DDname WAIT0001
Print Lines per Page . . ___ (1-255)
Order by:
1 . . APPLID + 2 . . TRAN + 3 . . +
Processing Options:
Time Interval . . . 00:01:00 (hh:mm:ss)
Report Format:
Title . .
Selection Criteria:
Performance *
MA c 22/003


MVS2CTSO - [32 x 80]
File Edit View Communication Actions Window Help
File Edit Object Lists Options Help
TRANSET - Performance Select Statement Row 1 of 9 More: >
Command ===> Scroll ===> PAGE
Active Report Interval
Inc Start From To
Exc Stop YYYY/MM/DD HH:MM:SS.TH YYYY/MM/DD HH:MM:SS.TH
Inc Field Value or Range Object
/ Exc Name + Type Value/From To List +
INC TRAN LOCK
Bottom of data
MA c 04/015


MVS2CTSO - [32 x 80]
File Edit View Communication Actions Window Help
File Systems Confirm Options Help
EDIT Report Set - TRANSET Row 1 of 35
Command ===> Scroll ===> CSR
Description . . . CICS PA Report Set
Enter "/" to select action.
run ** Reports ** Active
Options Yes
Global Yes
Selection Criteria No
Performance No
Exception No
Performance Reports Yes
List No
List Extended No
Summary No
Totals No
Wait Analysis Yes
Cross-System Work Yes
Transaction Group No
BTS No
Workload Activity No
Exception Reports No
List No
Summary No
Transaction Resource Usage Reports Yes
File Usage Summary Yes
Temporary Storage Usage Summary No
Transaction Resource Usage List No
MA c 10/007


MVS2CTSO - [32 x 80]
File Edit View Communication Actions Window Help
File Edit Edit_Settings Menu Utilities Compilers Iest Help
EDIT CBAKER.SPFTEMP1.CNTL Columns 00001 00072
Command ===> Scroll ===> PAGE
000027 //SYSIN DD *
000028 * Report Set =TRANSET
000029 * Description=CICS PA Report Set
000030 * Reports for Group=GBURGES
000031 CICSPA IN(SMFIN001),
000032 APPLID(IYK2ZFV1,
000033 IYK2ZFV2,
000034 IYK2ZFV3),
000035 LINECNT(60),
000036 FORMAT(':','/'),
000037 PRECISION(4),
000038 CROSS(OUTPUT(CROS0001),
000039 EXTERNAL(CPAXW001),
000040 SELUOW(PERFORMANCE(
000041 INC(TRAN(LOCK,
000042 LINK)))),
000043 PRINTMULTIPLE,PRINTSINGLE,NOWRITE),
000044 RESUSAGE(OUTPUT(FILE0001),
000045 SELECT(PERFORMANCE(
000046 INC(TRAN(LOCK)))),
000047 TRANSUMM(FILE),
000048 FILESUMM(BYTRAN,TOTAL)),
000049 WAITANAL(OUTPUT(WAIT0001),
000050 SELECT(PERFORMANCE(
000051 INC(TRAN(LOCK)))),
000052 INTERVAL(00:01:00),
000053 BY(APPLID,TRAN))
000054 /*
MA c 04/015
The JCL created by the report request can be saved to be run again. Typically it's hidden from the customer when they run the report.

Cross-System Work Report

V1R4M0 CICS Performance Analyzer
Cross-System Work

CROS0001 Printed at 11:23:00 11/02/2005 Data from 15:02:24 10/24/2005 to 16:58:46 10/24/2005 Page 1

Tran	Userid	SC	TranType	Term	LUName	Request Type	Program	Fcty T/Name	Conn Name	NETName	UOW Seq	APPLID	Task	R T	Stop Time	Response Time	A B
LOCK	CICSUSER	TO	U	T169	IYCWT169	AP:	GENERAL	T/T169		GBIBMIYA.IYCWT169	1	IYK2ZFV2	115	T	15:11:48.050	32.5170	Y
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	115	T	15:13:21.977	31.1209	Y
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	119	T	15:14:30.257	54.6545	
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	124	T	15:20:28.159	32.2999	Y
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	126	T	15:21:39.152	32.4154	Y
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	139	T	15:39:55.933	220.846	
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	145	T	15:44:23.287	239.740	
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	106	T	15:52:01.735	448.871	
LOCK	CICSUSER	TO	U	T171	IYCWT171	AP:	GENERAL	T/T171		GBIBMIYA.IYCWT171	1	IYK2ZFV2	129	T	15:14:25.050	32.1299	Y
LOCK	CICSUSER	TO	U	T171	IYCWT171	AP:	GENERAL	T/T171		GBIBMIYA.IYCWT171	1	IYK2ZFV2	081	T	15:34:33.430	894.431	
LOCK	CICSUSER	TO	U	T171	IYCWT171	AP:	GENERAL	T/T171		GBIBMIYA.IYCWT171	1	IYK2ZFV2	144	T	15:35:10.963	37.5284	
LOCK	CICSUSER	TO	U	T171	IYCWT171	AP:	GENERAL	T/T171		GBIBMIYA.IYCWT171	1	IYK2ZFV2	162	T	15:41:05.046	31.8238	Y
LOCK	CICSUSER	TO	U	T171	IYCWT171	AP:	GENERAL	T/T171		GBIBMIYA.IYCWT171	1	IYK2ZFV2	164	T	15:42:16.052	31.8847	Y

Wait Analysis Report

```
V1R4M0                                          CICS Performance Analyzer
                                                   Wait Analysis Report

WAIT0001 Printed at 11:23:00 11/02/2005    Data from 15:11:15 10/24/2005 to 16:56:27 10/24/2005                    Page       1

-------------------------------------------------------------------------------------------------------------------------------
APPLID=IYK2ZFV1  Tran=LOCK
  Summary Data                                        -------- Time ---------    ------ Count ------    ------ Ratio ------
                                                           Total     Average       Total    Average
    # Tasks                                                                          13
    Response Time                                     1608.6077    123.7391
    Dispatch Time                                        1.5424      0.1186         121        9.3      0.1% of Response
    CPU Time                                             0.4230      0.0325         121        9.3     27.4% of Dispatch
    Suspend Wait Time                                 1607.0653    123.6204         121        9.3     99.9% of Response
    Dispatch Wait Time                                   0.1136      0.0087         108        8.3      0.0% of Suspend
    Resource Manager Interface (RMI) elapsed time        0.0110      0.0008          26        2.0      0.0% of Response
    Resource Manager Interface (RMI) suspend time        0.0000      0.0000           0        0.0      0.0% of Suspend

  Suspend Detail                                      ------------------- Suspend Time ------------------- ----- Count -----
                                                           Total     Average   %age  Graph                  Total  Average
    ICDELAY  Interval Control (IC) wait time          1239.9434     95.3803  77.2% |***************          7      0.5
    RLSWAIT  RLS File I/O wait time                    318.4543     24.4965  19.8% |***                     13      1.0
    N/A      Other Wait Time                            48.6477      3.7421   3.0% |                        24      1.8
    JCIOWTT  Journal I/O wait time                       0.0067      0.0005   0.0% |                         6      0.5
    IRIOWTT  MRO link wait time                          0.0065      0.0005   0.0% |                        22      1.7
    GVUPWAIT Give up control wait time                   0.0055      0.0004   0.0% |                        20      1.5
    DSPDELAY First dispatch wait time                    0.0007      0.0001   0.0% |                        13      1.0
    DSCHMDLY Redispatch wait time caused by change-TCB mode 0.0004   0.0000   0.0% |                        16      1.2

-------------------------------------------------------------------------------------------------------------------------------
```

File Usage Summary Report

V1R4M0 CICS Performance Analyzer
Transaction File Usage Summary

FILE0001 Printed at 11:23:00 11/02/2005 Data from 15:05:40 10/24/2005 to 15:52:01 10/24/2005 APPLID IYK2ZFV1 Page 1

Tran	#Tasks		FC Calls Get	Put	Browse	Add	Delete	Total	I/O Waits File	RLS	CFDT	AccMeth Requests
LOCK	0											
File	#Tasks		Get	Put	Browse	Add	Delete	Total	File	RLS	CFDT	Requests
TESTKSDS	12	Elapse Avg	16.0119	.0003	.0000	.0000	.0000	16.0122	.0000	15.9835	.0000	
		Max	32.3834	.0034	.0000	.0000	.0000	32.3834	.0000	32.3817	.0000	
		Count Avg	1	0	0	0	0	1	0	1	0	2
		Max	2	1	0	0	0	4	0	2	0	4

V1R4M0 CICS Performance Analyzer
Transaction File Usage Summary

FILE0001 Printed at 11:23:00 11/02/2005 Data from 15:05:40 10/24/2005 to 15:52:01 10/24/2005 APPLID IYK2ZFV2 Page 2

Tran	File	#Tasks		FC Calls Get	Put	Browse	Add	Delete	Total	I/O Waits File	RLS	CFDT	AccMeth Requests
LOCK	TESTKSDS	7	Elapse Avg	22.9281	.0000	.0000	.0000	.0000	22.9281	.0000	22.9016	.0000	
			Max	32.4540	.0000	.0000	.0000	.0000	32.4540	.0000	32.4533	.0000	
			Count Avg	1	0	0	0	0	1	0	1	0	2
			Max	1	0	0	0	0	2	0	1	0	2

CICS PA Support Pac (CP12)

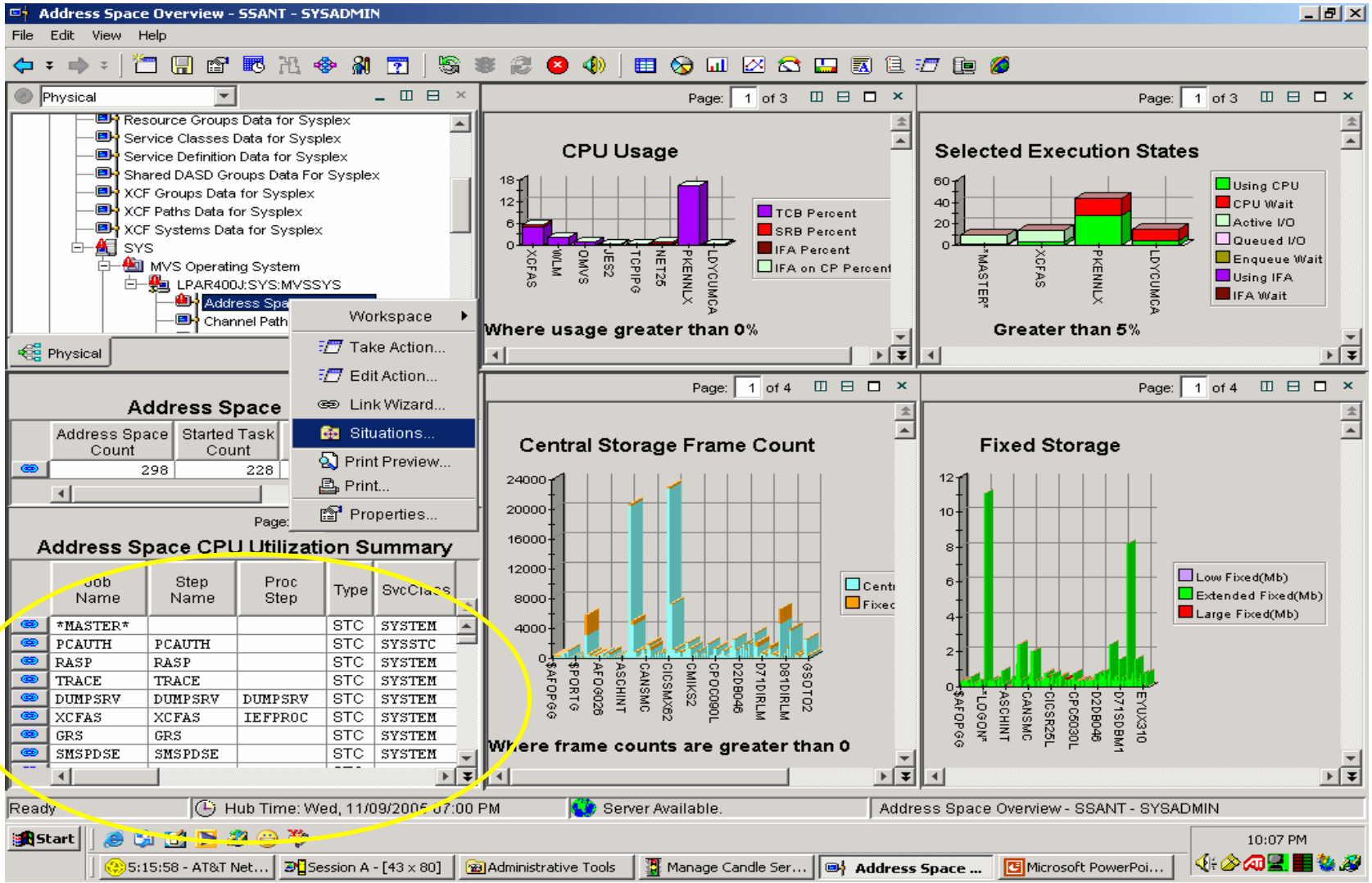
- Scenario 1 : Are we meeting service level agreements ?
- Scenario 2 : Why is a transaction slow ?
- Scenario 3 : Tuning LSR pool

- For more info :http://www-306.ibm.com/software/htp/cics/panaly/
  - Download New Support Pac CP12

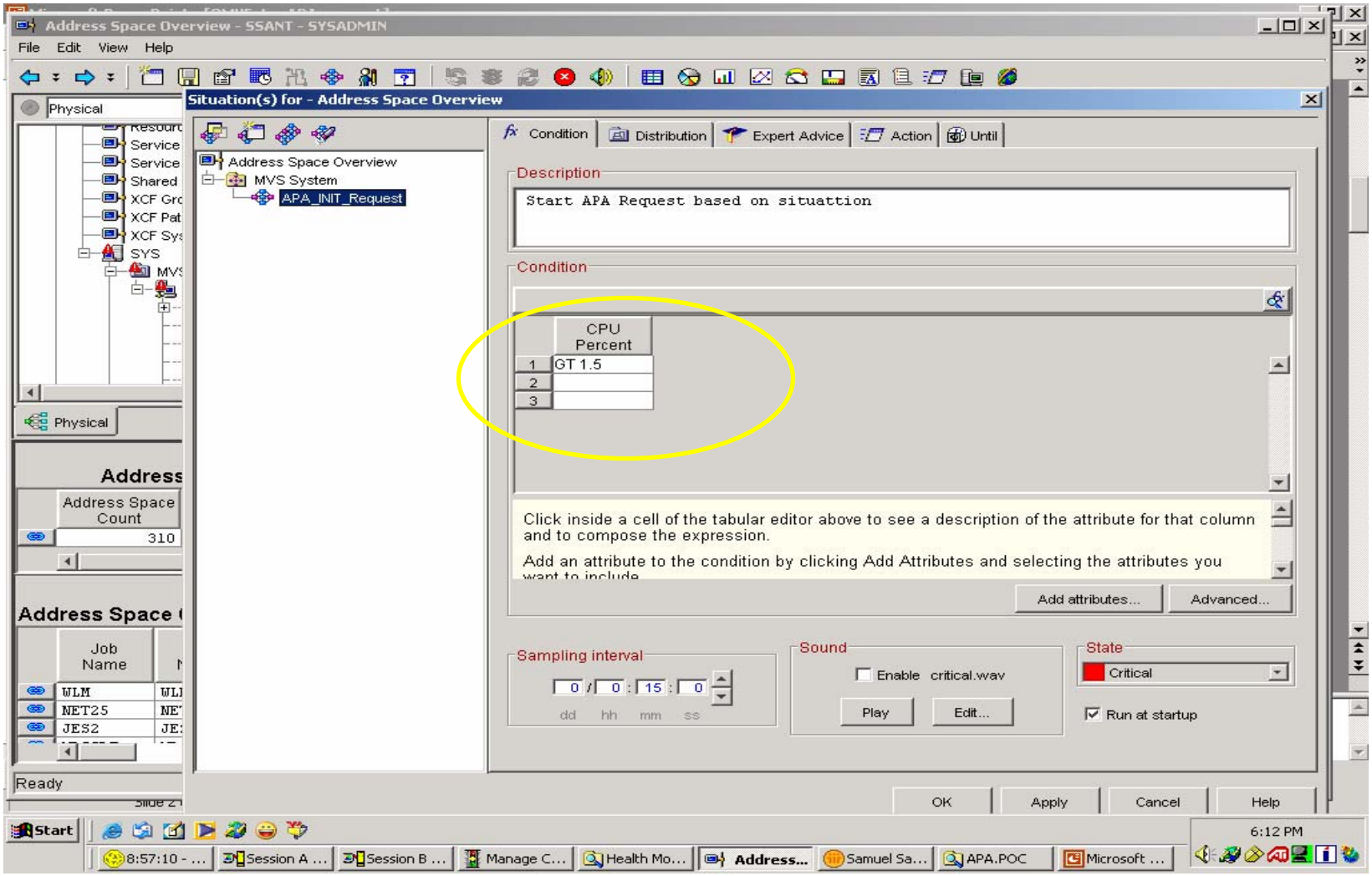
CICS PA capabilities complementary to OMEGAMON: Summary

- Ease of installation, set-up, and use
  - Requires no additional setup or customization – just SMF data collection
  - Familiar CICS terms and concepts
  - Comes with over 130 supplied reports to help you get started quickly
  - Provides a comprehensive ISPF dialog to manage and tailor reports
- Powerful and flexible analysis capabilities
  - Statistics reports to help improve system and resource usage
  - Detailed and summary reports on all aspects of CICS system activity and resource usage
  - Ability to tailor your reports easily to display data in the order and format needed
  - Extensive online help to enable easy CICS PA operation and maintenance
- Comprehensive data coverage and a variety of reports on all aspects of CICS performance, also covers CICS-related DB2, IMS, MVS Logger, and WebSphere MQ performance data
- Customizable extracts capability
  - Export for importing into PC tools and DB2
  - Record selection for filtering large SMF files to improve speed of processing
- Historical database for performance problem analysis and capacity planning
- Full support for all the new performance data introduced in CICS TS for z/OS V3.1

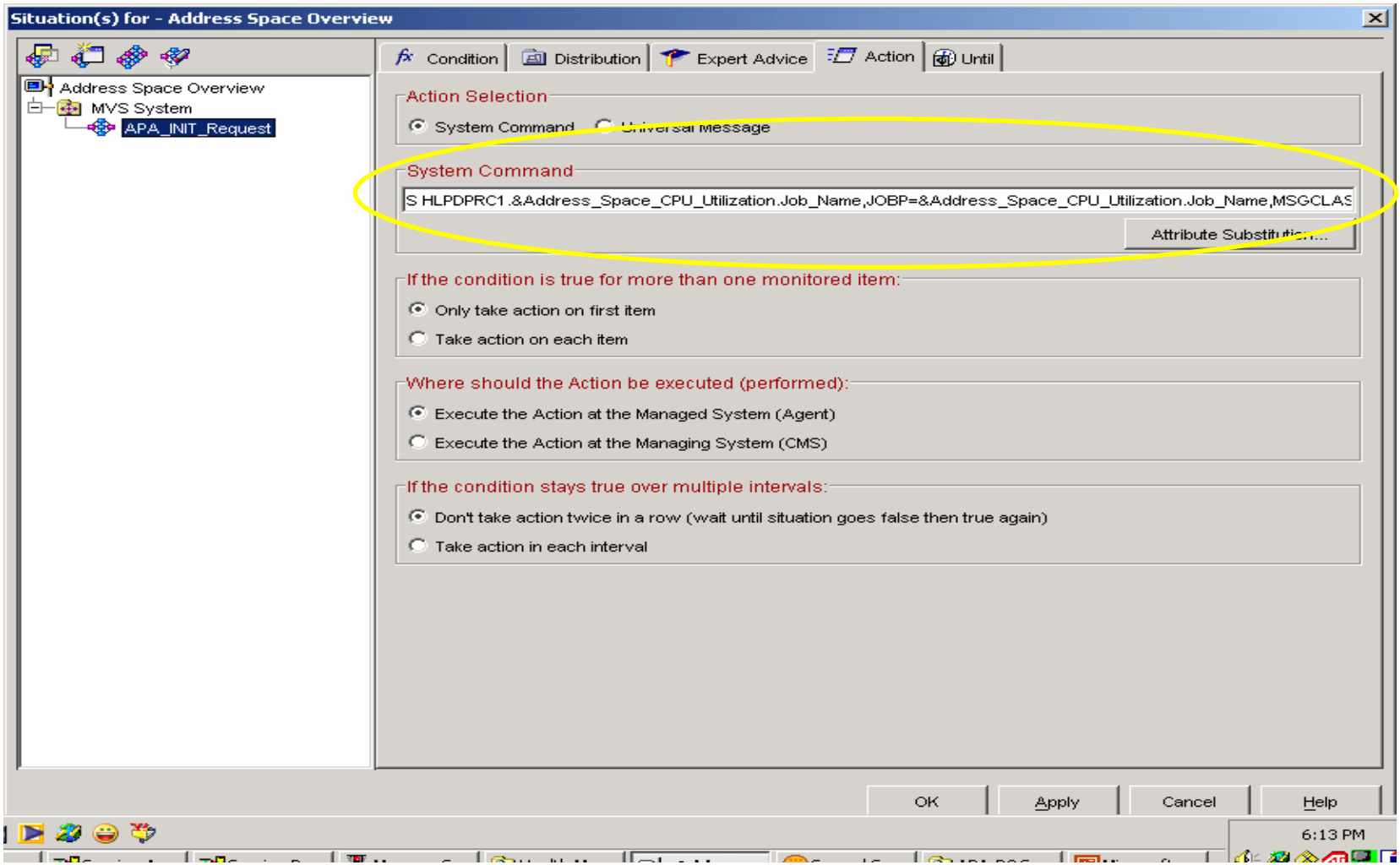
OMEGAMON XE Monitors the z/OS Address Space Table for Anomalies



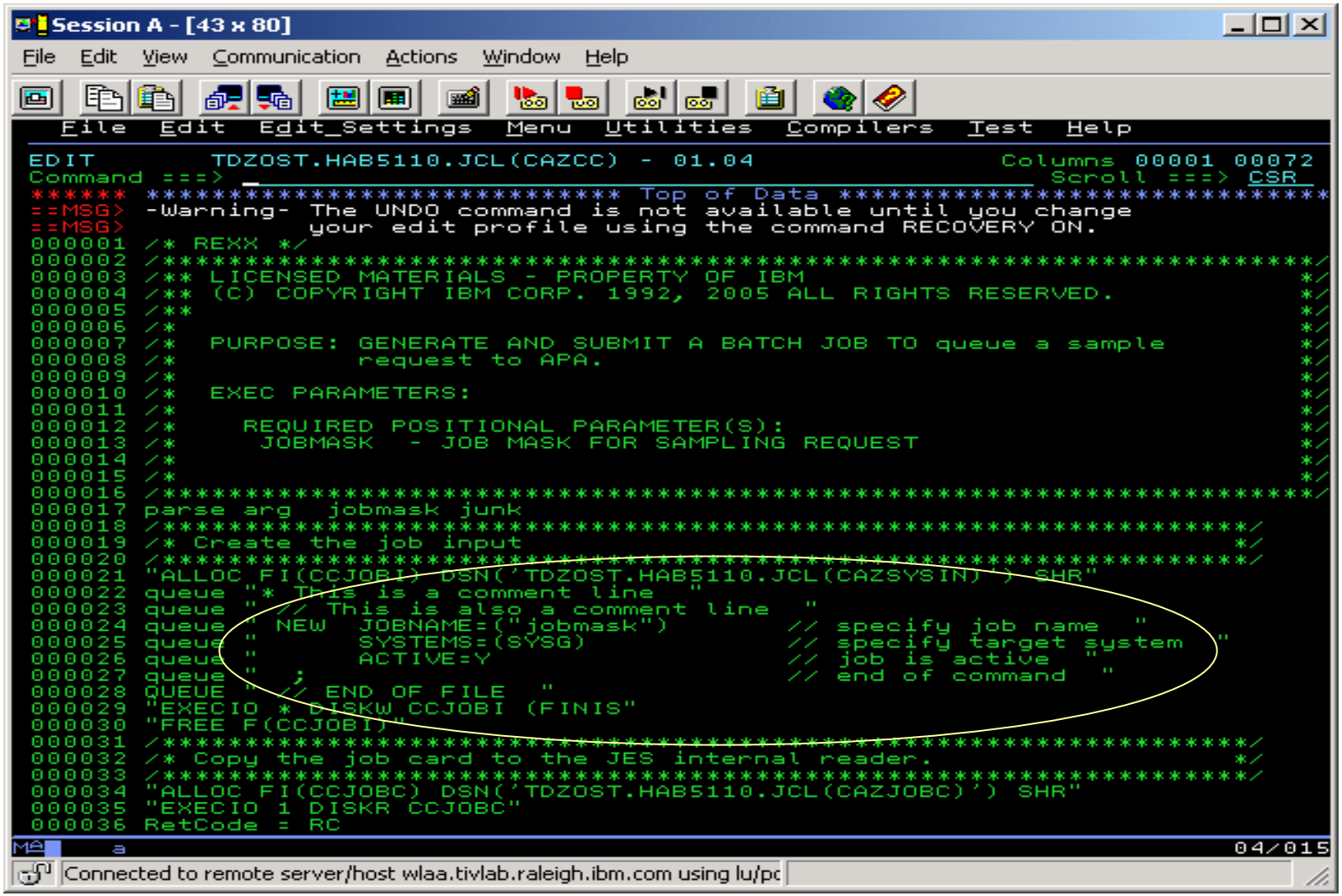
Omegamon “Situation” – Activate Application Performance Analyzer



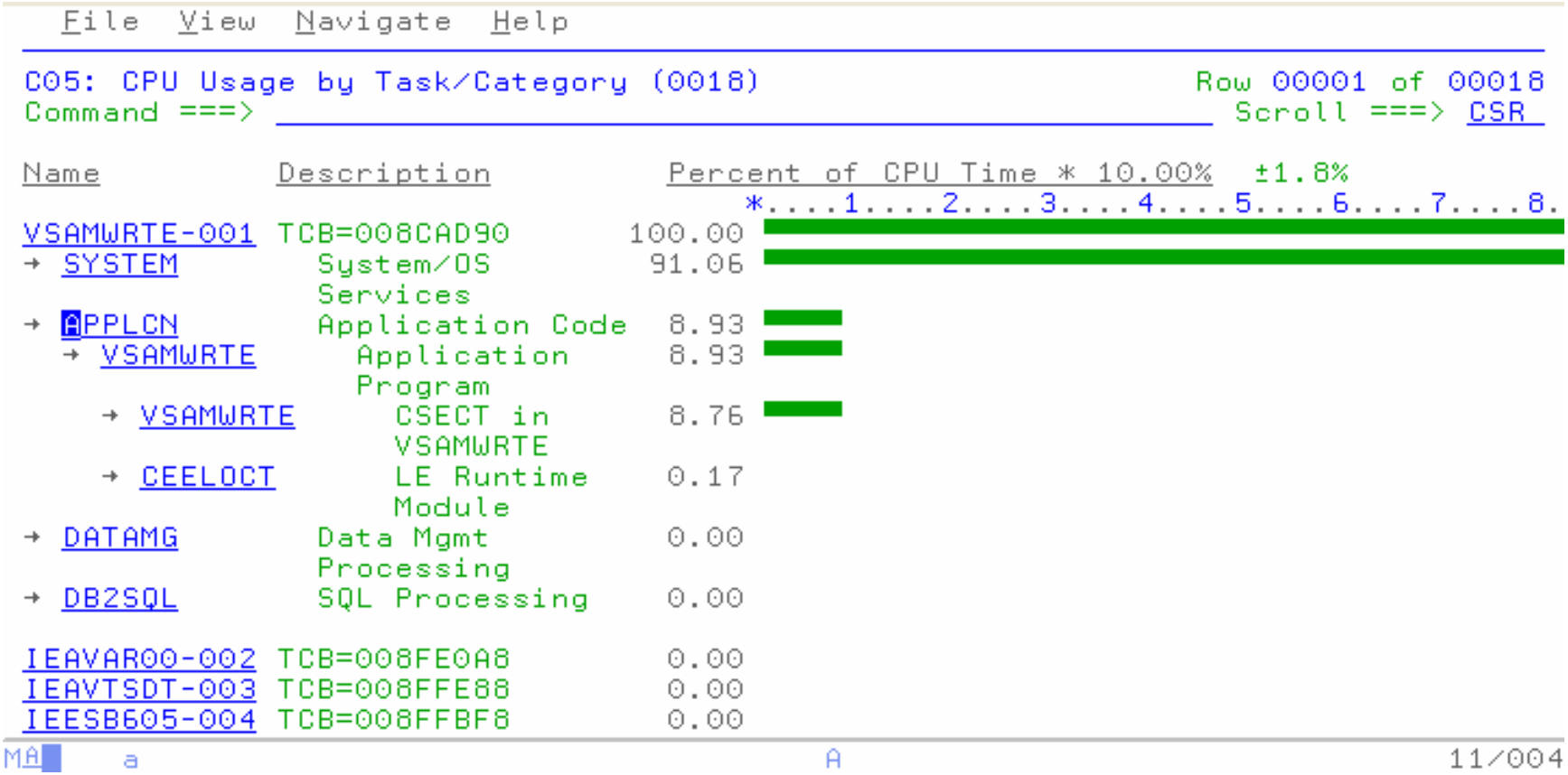
Omegamon “Action” for the Situation



Omegamon Tailors the APA Session



C05: CPU Usage by Task/Category - Expanded



P01: Source Program Attribution

File View Navigate Help

P01: Source Program Attribution (0018) Row 00018 of 00047
Command ===> Scroll ===> CSR

LineNo	Offset	Count	Source Statement
000049	0006D6	17	PERFORM CAL-PARA UNTIL TIME-INTERVAL > TIME-DURA
000050	000710		STOP RUN.
000051			
000052			CAL-PARA.
000053	000730	21	PERFORM STOP-PARA.
000054			
000055			START-PARA.
000056	00074E		ACCEPT TIME-START FROM TIME.
000057			
000058			STOP-PARA.
000059	00078E	47	ACCEPT TIME-STOP FROM TIME.
		2546	<- CPU time attributed to above statement
000060	0007C8	129	COMPUTE TIME-INTERVAL = TIME-START - TIME-STOP.
000061			
000062			INITIALIZE-PARA.
000063			
000064	0007F2		MOVE 'SIRISHA' TO TABLE-VALUES(1).
000065	0007F8		MOVE 'SUSARLA' TO TABLE-VALUES(2).

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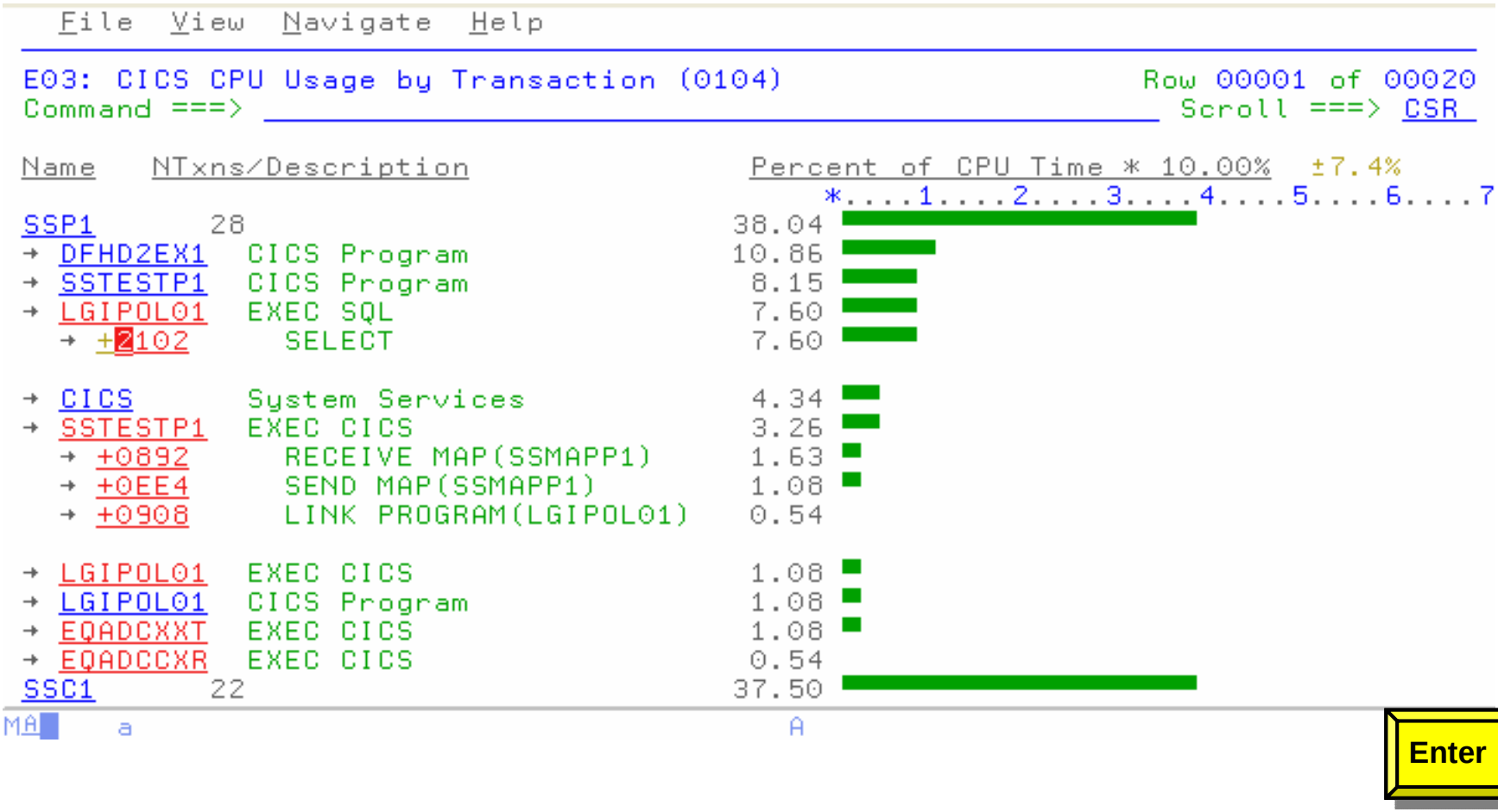
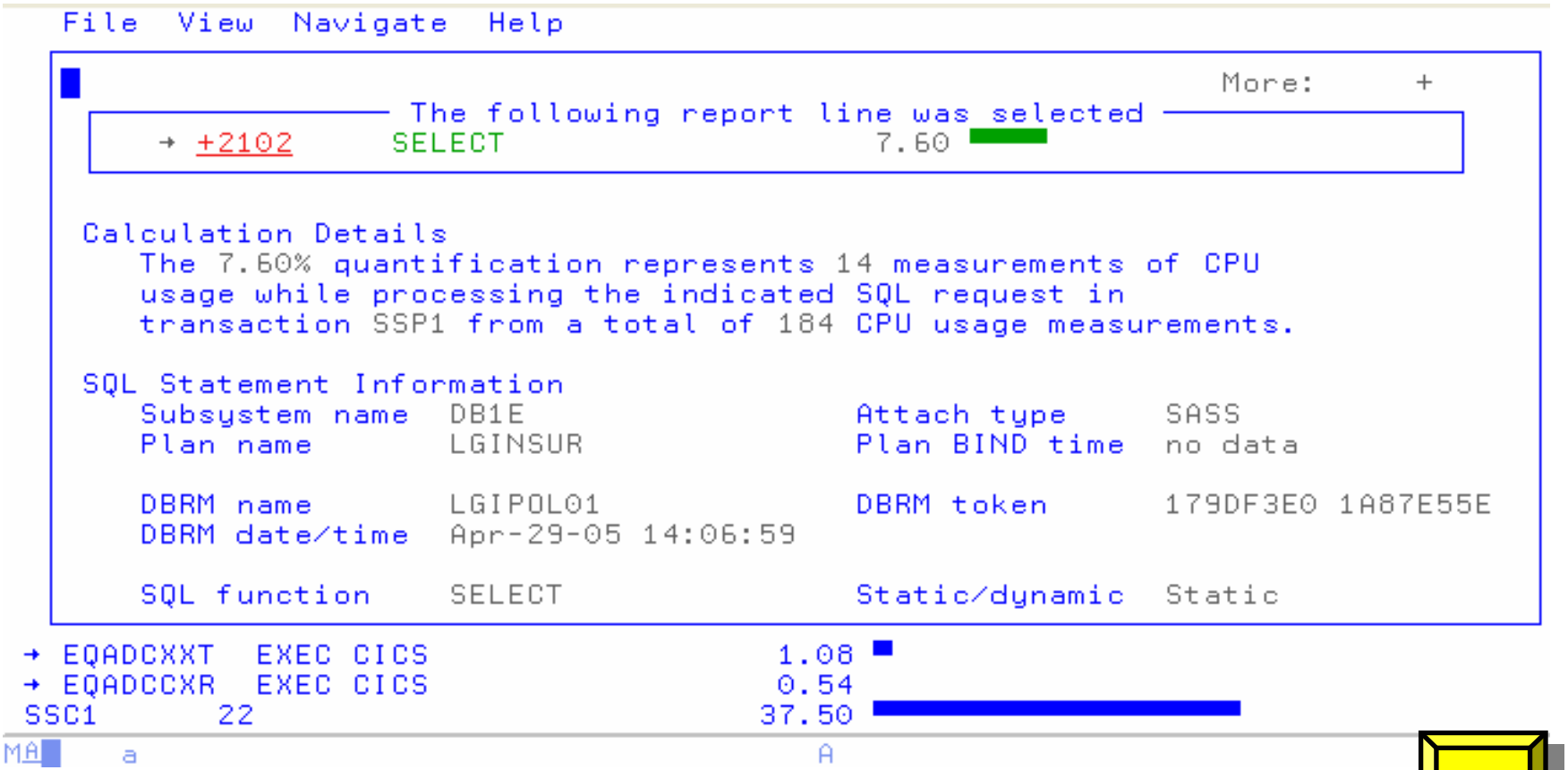
E03: CICS CPU Usage by Transaction – Expand SQL Service



E03: CICS CPU Usage by Transaction – SQL Service Detail



E03: CICS CPU Usage by Transaction – SQL Service Detail

File View Navigate Help

More: -

Precmplr stmt#	618	DBRM section#	3
CSECT/module	LGIPOL01	Offset of call	00002102
Sample count	15	SQL req count	26
SQL CPU time	0.00	Service time	0.01

SQL Statement:

```
SELECT ISSUEDATE , EXPIRYDATE , LASTCHANGED ,
BROKERID , BROKERSREFERENCE , PAYMENT , MAKE , MODEL
, VALUE , REGNUMBER , COLOUR , CC ,
YEAROFMANUFACTURE INTO : H , : H , : H , : H : H , :
H : H , : H : H , : H , : H , : H , : H , : H , : H
, : H FROM LGINSUR . POLICY , LGINSUR . MOTOR WHERE
( LGINSUR . POLICY . POLICYNUMBER = LGINSUR . MOTOR
. POLICYNUMBER AND LGINSUR . POLICY . CUSTOMERNUMBER
= : H AND LGINSUR . POLICY . POLICYNUMBER = : H )
```

→ EQADCXXT EXEC CICS	1.08	
→ EQADCCXR EXEC CICS	0.54	
SSC1 22	37.50	

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E04: CICS Mean Service Time by Txn - Expanded

File View Navigate Help

E04: CICS Mean Service Time by Txn (0104) Row 00001 of 00015
Command ===> Scroll ===> CSR

Name	NTxns	Description	Error	Mean Time in Seconds: Execution	+ Suspend	+ Delay	= Service
FBII	1		±99.9%	0.004	119.894	0.001	119.900
→ FBIMPL20		EXEC CICS		0.003	119.894	0.001	119.898
→ +0562		DELAY		0.000	119.894	0.001	119.895
→ +0534		INQUIRE SYSTEM		0.003	0.000	0.000	0.003
→ FBIMPL20		CICS Program		0.001	0.000	0.000	0.001
MQPT	1		±99.9%	0.009	21.222	0.185	21.417
SSP1	28		±19.2%	0.002	0.074	0.000	0.078
SSC2	1		±99.9%	0.001	0.010	0.001	0.013
→ CICS		System Services		0.001	0.010	0.000	0.011
→ CICS		System Services		0.001	0.010	0.000	0.011
→ CICSSusp		Suspend		0.000	0.010	0.000	0.010
→ DFHACP		CICS Program		0.000	0.000	0.001	0.001
SSC1	22		±21.7%	0.003	0.000	0.005	0.009

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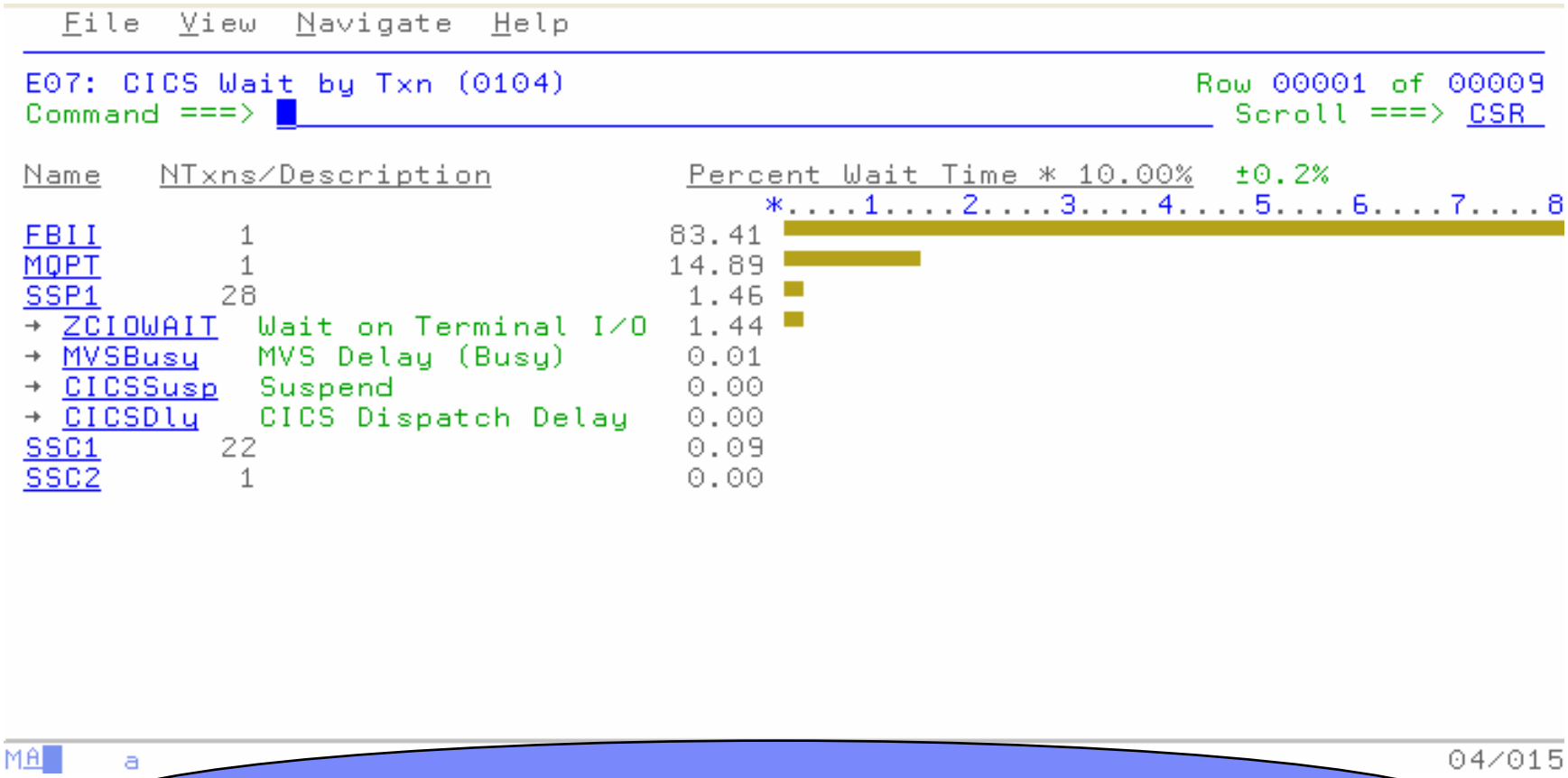
Time spent in CICS by subsystems (IMS, SQL, MQ) will appear in the Expanded (+) view

E07: CICS Wait by Txn - Expanded



Wait conditions experienced by a CICS Transaction

Application Performance Analyzer capabilities complementary to OMEGAMON: Summary

- Ease of installation, set-up, and use
  - Easy SMP/E installation – provides interface to current security package (RACF, etc) or used of APA internal security rules to control usage and viewing of reports
  - OMEGAMON rules used to invoke Application Performance Analyzer
  - Comes with over 80 supplied reports covering 9 categories to help you pinpoint application related performance/resource issues
  - Provides a comprehensive ISPF dialog to easily navigate reports
- Powerful and flexible analysis capabilities
  - Statistics reports to help improve the applications use of system resources
  - Overview reports provide summary level analysis with detailed drill down into resources consumed by the application
  - Reports employed by Systems Programmers, Capacity Planners, DBA's, and Developers
- Comprehensive application resource coverage and a variety of reports on all aspects of resource usage from application source to subsystem usage
  - Supports COBOL, PL/I and Assembler at the source level
  - Reports on applications usage of resources in CICS, DB2 (including DRDA and Stored Procedures), IMS, WebSphere MQ
  - Reports on TSO UserID consumption and Batch applications
- Export/Import capability
  - APA Observation Session can be exported from production environments for viewing importing and viewing on test environment

Summary

- Use Omegamon to detect a performance situation that was raised during the day to day operation of our systems
- Use Omegamon to start an Observation Session in Application Performance Analyzer when a warning/critical resource consumption level is found in a application
- Use CICS PA to fully understand the nature of the issue and what it's impact has been on our operations
- Use APA to step through the code and get down to the application level
- Having completely analyzed the problem, we are in a position to recommend changes that will result in improved system performance

•The IBM End-To-End Set of Tools to help with Performance

For more information …

http://www-306.ibm.com/software/tivoli/products/omegamon-xe-cics/
http://www.ibm.com/cics/
hppt://www.ibm.com/software/awdtools/deployment/apa/