

Four Smart, Fast and Safe Steps to Threadsafe using CICS Tooling

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Thursday, August 5, 2010: 1:30 PM - 2:30 PM



SHARE in Boston

Preface

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Session Agenda

- Threadsafe Review
 - TCB Mode Switching
 - Threadsafe Risks
 - Threadsafe Challenges
 - Threadsafe Checklist for your CICS Enterprise
- “Threadsafe Considerations for CICS” Redbook Update
- CICS Tools Four Step Process for Applications
 - Step 1 - Identify candidates and capture baseline
 - Step 2 - Analyze program behavior and make modifications
 - Step 3 - Change program definitions to threadsafe
 - Step 4 - Test and benchmark results
- Reference Material
- Questions

Threadsafe Review

- **Why make Applications threadsafe?**
 - Improve performance
 - CICS QR TCB is CPU constrained
 - Application tasks are waiting excessively for the QR TCB
 - CICS region in general is CPU constrained
 - Take advantage of multiple engines
 - Reduce cost by reducing the instruction path length
 - Each TCB switch is approximately 2,000 instructions
 - In CICS V3.2† and above, non-threadsafe DB2 and MQ transactions switch TCBs for each SQL statement or MQ command

Threadsafe Review

- **TCB Mode Switching**

- **Non-threadsafe**

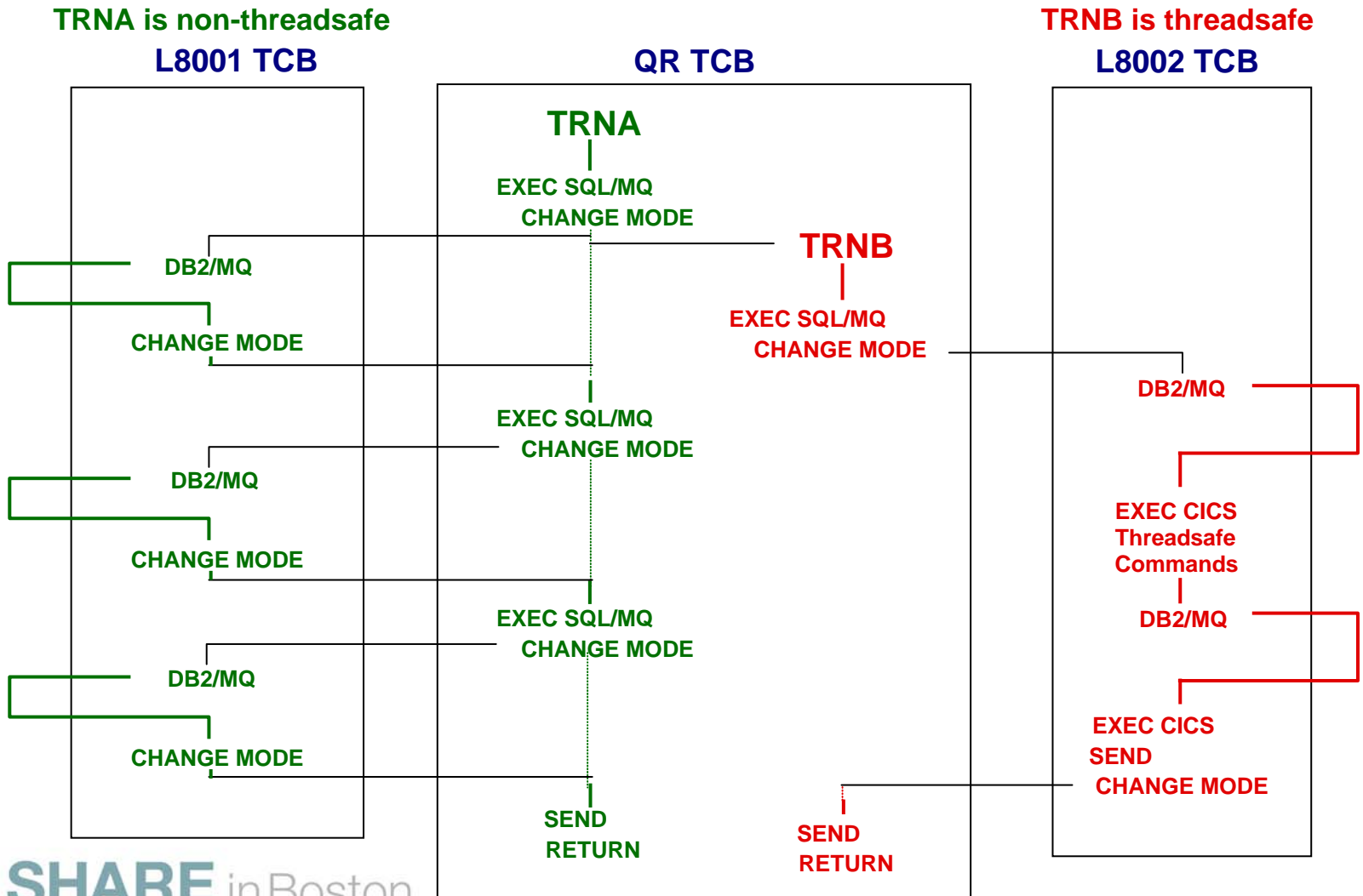
- Programs run on the Quasi-reentrant (QR) TCB
- TCB mode switch to the L8 occurs on each SQL/MQ command
 - *CICS V3.2† and above - MQ runs on the L8*
- Each TCB switch is approximately 4,000 instructions roundtrip

- **Threadsafe**

- Program starts on the QR TCB
- SQL/MQ commands cause a TCB mode switch to the L8 TCB
- Stay on the L8 TCB until a non-threadsafe CICS command is encountered
- Non-threadsafe CICS commands switch back to the QR
- SQL/MQ command is required to switch back to the L8

Threadsafe Review

CICS API/Threadsafe – CICS 3.2[↑]

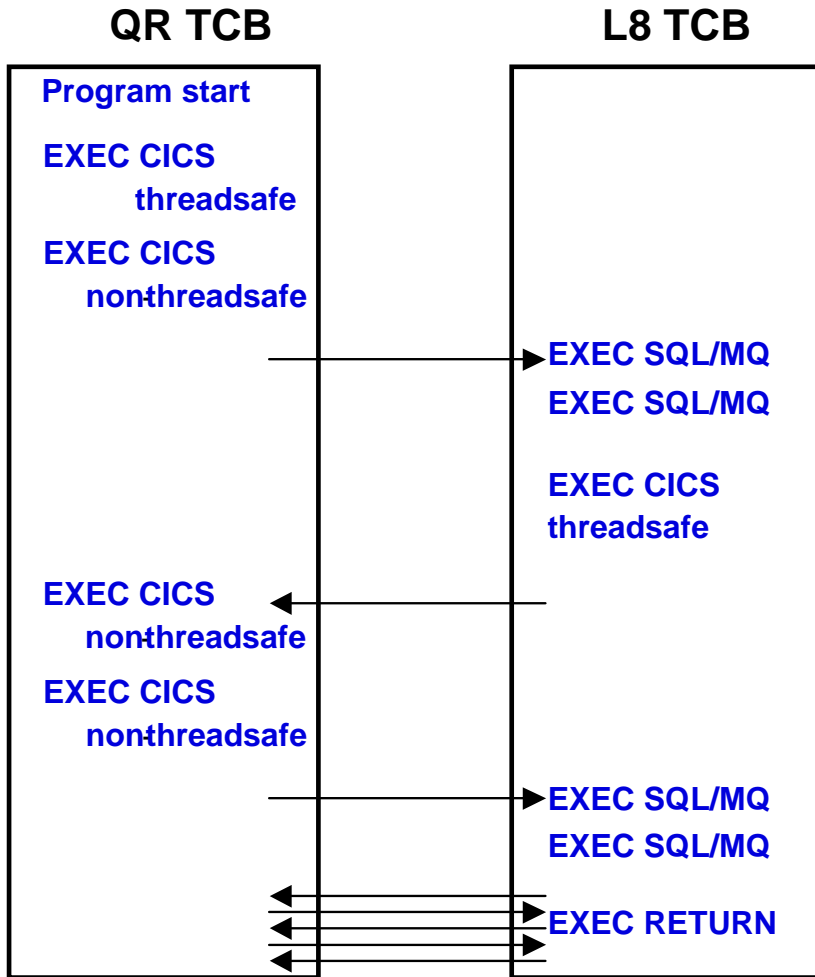


Threadsafe Review

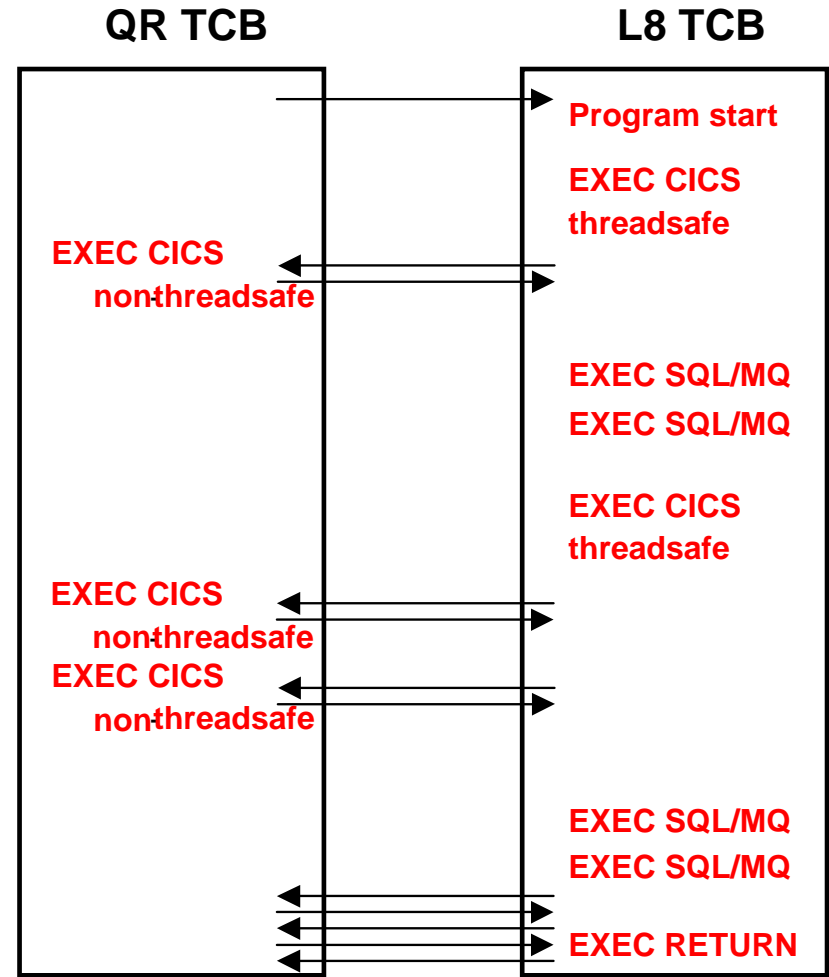
- **TCB Mode Switching**
 - Open API, Threadsafe, **CICS Key**
 - Program starts on the L8 TCB
 - Stays on the L8 TCB until a non-threadsafe CICS command is encountered
 - Non-threadsafe CICS commands automatically switch back to the QR
 - Once the non-threadsafe CICS command is processed, a TCB mode switch occurs back to the L8
 - Open API, Threadsafe, **User Key**
 - Program starts on the L9 TCB
 - Stays on the L9 TCB until a non-threadsafe command is encountered
 - Non-threadsafe CICS commands switch back to the QR
 - Once the non-threadsafe CICS command is processed, a TCB mode switch occurs back to the L9
 - SQL/MQ commands switch to the L8, then switch right back to the L9
 - Not recommended for programs with SQL, MQ or IP CICS Sockets

Threadsafe Review

Threadsafe vs OPENAPI, Threadsafe

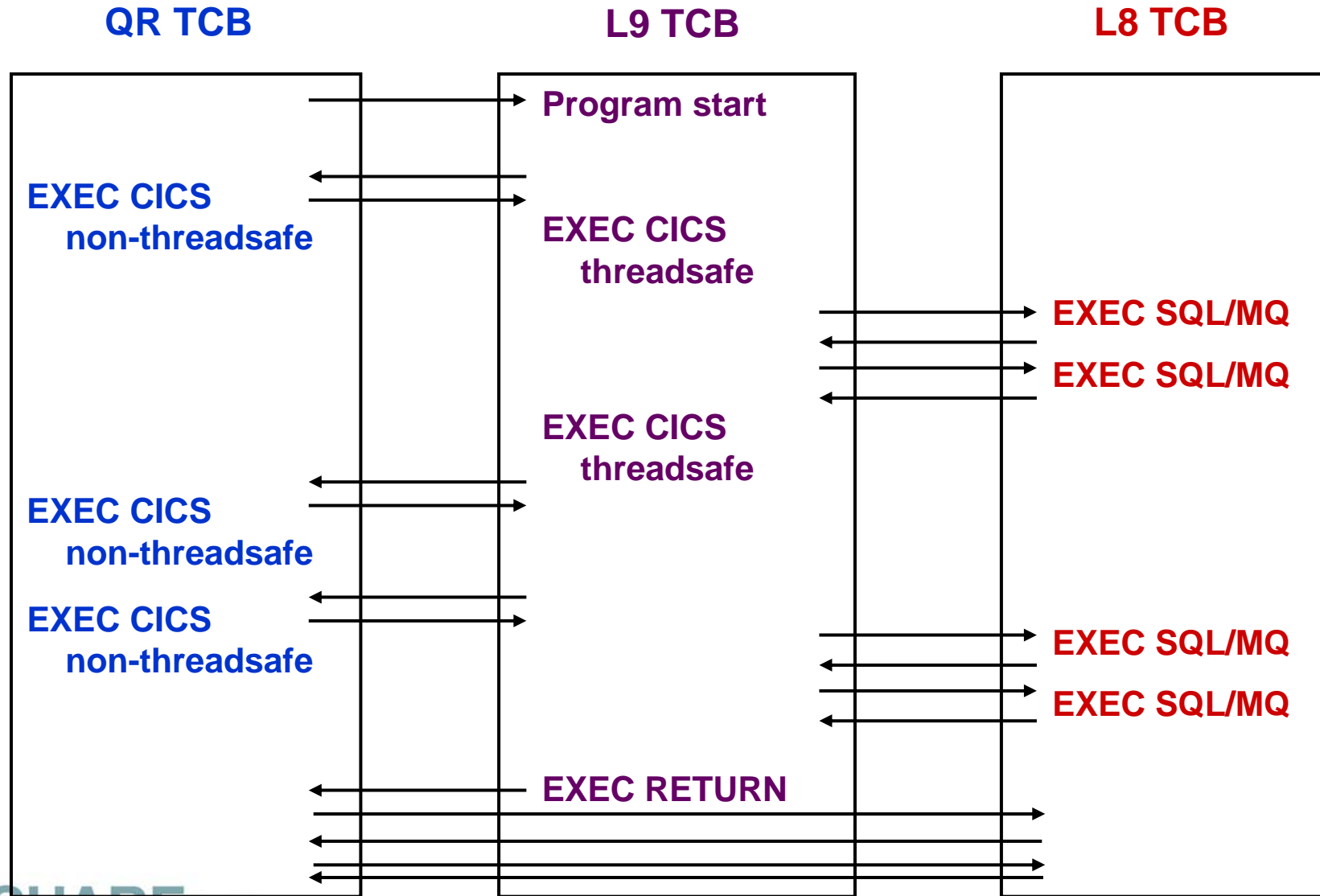


Blue = CICSAPI, Threadsafe



Red = OPENAPI, Threadsafe, CICS Key

OPENAPI CICS - User Key SQL, MQ and IP CICS Sockets (not recommended)



Threadsafe Review Exception - Storage Protection

- **STGPROT=NO**
 - OPENAPI programs will run under L8 TCBs
 - regardless of their EXECKEY value
 - CICS operates without any storage protection
 - runs in a single storage key (key 8)

Threadsafe Review

- **Threadsafe Risks**

- Data Integrity

- Programs must be reentrant to run on multiple TCBs
 - *QR provided serialization by default since only 1 copy of the program could run at a time*
 - *Threadsafe allows the program to have multiple copies running on multiple TCBs at the same time*
- Programs must be coded to CICS threadsafe standards
- Access to shared storage must be serialized or eliminated

Threadsafe Review

- **Threadsafe Challenges – Program Requirements**
 - Capable of being invoked on multiple TCBs concurrently
 - Normally read-only, they do not in general overwrite themselves
 - However they could overwrite themselves if updates are serialized correctly
 - For example, serialized update access to shared storage
 - Cannot rely on quasi-reentrancy for serialization
 - Must use serialization techniques to access shared resources with integrity
 - Compare and swap (CS)
 - Enqueue/dequeue to access shared resources with integrity

Threadsafe Review

- **Threadsafe Challenges – Program Requirements**
 - All programs accessing the same shared resource must be made threadsafe
 - For example, existing program's reliance on quasi-reentrancy to serialize access to the CWA is made invalid if just one other program can run concurrently on another TCB and access the same CWA field
 - Sometimes referred to as fully MVS reentrant programs
 - MVS reentrant is often misunderstood to mean that programs do not overwrite themselves. We add the term threadsafe as an indicator in CICS to run multiple copies of the program on multiple TCBs

Threadsafe Review

- **Threadsafe Challenges – CICS Environment**
 - Threadsafe your CICS environment before you begin with Applications
 - Use “Threadsafe Considerations for CICS Redbook” as a Threadsafe Project Guide, SG24-6351

Threadsafe Review

Threadsafe Checklist for your CICS Enterprise

- | Task | Description |
|----------------------------|--|
| <input type="checkbox"/> 1 | Migrate to DB2 V7 or later <ul style="list-style-type: none">▪ <i>User Dynamic plan exit name DFHD2PXT defined as threadsafe</i> |
| <input type="checkbox"/> 2 | Install pre-req CICS PTFs |
| <input type="checkbox"/> 3 | Install pre-req DB2 PTFs |
| <input type="checkbox"/> 4 | Review SIT parameters <ul style="list-style-type: none">▪ FORCEQR<ul style="list-style-type: none">▪ <i>Emergency stopgap to shift programs back onto the QR TCB to provide resource serialization</i>▪ <i>Must not be set to yes for threadsafe</i>▪ FCQRONLY<ul style="list-style-type: none">▪ <i>Yes (default) - Force all CICS API user application programs specified as threadsafe to run file control requests under the CICS QR TCB</i>▪ <i>No – Run programs as specified with concurrency parameter.</i> |

Threadsafe Review

Threadsafe Checklist for your CICS Enterprise

Task Description

- ❑ 5 **Address your exits**
 - Identify all your exits (CICS IA)
 - Contact vendors if necessary about their exits
 - Review each exit for non threadsafe commands (CICS IA)
 - Review each exit for use of shared resources (CICS IA)
 - Make any coding adjustments and test (CICS IA/PA)
 - Define them as threadsafe (CICS CM)
 - Define phase one Global user exits as threadsafe by overriding with the threadsafe keyword on the EXEC CICS ENABLE command (CICS V3.2)

Threadsafe Review

Threadsafe Checklist for your CICS Enterprise

Task Description

- 6 Review system parameters and make adjustments
 - MAXOPENTCBS (make sure you do not over allocate)
 - TCBLIMIT
 - THREADLIMIT
 - MXT
 - RENTPGM=PROTECT (recommended but not required)
- 7 For best results, upgrade to CICS TS V3.2 or CICS TS V4.1
- 8 Retest exits in a threadsafe environment (CICS PA/IA)

“Threadsafe Considerations for CICS” Redbook Update Draft



<http://www.redbooks.ibm.com/redpieces/abstracts/sg246351.html>



- **SG24-6351-03**
- Chapter 5 – CICS Migration Tools
 - Rewritten
- CICS Explorer Plug-ins
 - CICS PA
 - CICS IA
 - CICS CM

Threadsafe considerations for CICS



ibm.com/redbooks

Redbooks

CICS Tools 4 Step Process for Applications

- Step 1 - Identify candidates and capture baseline
- Step 2 - Analyze program behavior and make modifications
- Step 3 - Change program definitions to threadsafe
- Step 4 - Test and benchmark results

CICS Tools 4 Step Process for Applications

Step 1 - Identify candidates and capture baseline

- Determine best candidates
 - Target transactions with biggest payback relative to effort
 - Applications/transactions using the most CPU due to switching
 - How many switches (change modes) occurred?
 - What was the delay as the result?
 - How much CPU time did they use?
 - What is this costing me?
- Run test script to establish baseline SMF 110 data
 - Use as input to benchmark results in Step 4

CICS Tools 4 Step Process for Applications

Step 1 - Identify candidates and capture baseline

Tooling

- CICS Performance Analyzer
- CICS Statistics –
 - DFH0STAT
 - Shutdown statistics
- SMF 110 records – Key fields
 - DSCHMDLY
 - *Wait time for redispach caused by TCB mode switch*
 - *TCB mode switch count*
 - TCB/CPU timings

CICS Tools 4 Step Process for Applications

Step 1 - Identify candidates and capture baseline

CICS Performance Analyzer

- SMF 110 data
- Supplied reports
 - CPU Usage, Delays, Change Mode Delays
 - TCB Analysis Report
 - Wait Analysis
- Historical Database
 - Optionally DB2
- CSV files
- Excel Spreadsheet charts and graphs
- CICS Explorer Extracts

CICS Tools 4 Step Process for Applications

Step 2 - Analyze behavior and make modifications

- Determine good candidate programs based on program behavior
 - What programs can be made threadsafe without program modification?
 - Which commands are threadsafe or not in a program?
 - What programs have commands requiring investigation?
 - Are there commands causing potential data integrity issues?
 - What commands need serialization wrapped around them?
 - What is the offset of the suspect command into the load module?

CICS Tools 4 Step Process for Applications

Step 2 - Analyze behavior and make modifications

- What TCB does the command currently run on?
- What commands will cause a TCB mode switch because the API is not threadsafe and must run on the QR TCB?
- Which transactions use GETMAIN SHARED, who GETMAINED it, and where?
- Are transactions FREEMAINing shared storage?
- What is the affect on the transaction flow after you change the program(s) to threadsafe compliance?

CICS Tools 4 Step Process for Applications

Step 2 - Analyze behavior and make modifications

Tooling

- CICS Interdependency Analyzer
- CICS Load Module Scanner – DFHEISUP
 - Modified DFHEIDTH table (Redbook)
 - *Commands to create or address a shared resource may not necessarily be confined to the programs that access or update it*
- Aux Trace
 - Chronological view of the transaction run in that region
- CEDF
- CICS Statistics - DFH0STAT (Redbook)

CICS Tools 4 Step Process for Applications

Step 2 - Analyze behavior and make modifications

CICS Interdependency Analyzer

- DB2 database
- Resource relationships based on real time capture
- CICS IA Explorer
 - Threadsafe Queries
- Dynamic Threadsafe Analysis Report
- Command Flow
 - Chronological view of the transaction
- Load Module/CSECT Scanner reports

CICS Tools 4 Step Process for Applications

Step 3 - Change program definitions to threadsafe

- Change resource definitions to make programs threadsafe from quasirent
- Install
- Newcopy
- Maintain audit history of CICS resource modifications
- Back-out to previous state if required

CICS Tools 4 Step Process for Applications

Step 3 - Change program definitions to threadsafe

Tooling

- CICS Configuration Manager
- CICS Explorer
- CPSM - BAS
- RDz
- CEDA
- CEMT

CICS Tools 4 Step Process for Applications

Step 3 - Change program definitions to threadsafe

CICS Configuration Manager

- Simplify management of CICS resources
- Controlled management of CICS resources definitions
- Create transformation rules for mass changes to threadsafe
- Can be across multiple regions and/or environments
- Package change, promote and install
- Maintain audit history of CICS resource modifications
- Compare resources across multiple definitions
- Back-out-to-previous state if required

CICS Tools 4 Step Process for Applications

- **Step 4 - Test and benchmark results**
- Test
 - Use the same test script as used in Step 1
 - Make program and definition changes as required in Steps 2 and 3
 - Run test script
 - Repeat the process outlined in Steps 1 and 2
 - Review the results after every change
 - Update databases for PA and IA with the collected data

CICS Tools 4 Step Process for Applications

- **Step 4 - Test and benchmark results**
- Benchmark
 - SMF 110 – Baseline and Change Results data
 - CICS PA Transaction Profiling report to verify results
 - Write your own report to compare baseline to Change Results
 - Rerun reports and queries from Step 2 to compare results
 - Analyze Chronological flow of Transaction
 - CICS IA Command Flow
 - CICS Aux Trace
 - Verify improvement in switching
 - Send report to management to show improvement

CICS Tools 4 Step Process for Applications

- **Step 4 - Test and benchmark results**
- Benchmark
 - What if the benchmark does not show improvement?
 - You could still be experiencing high TCB mode switches
 - *Review CICS PA Transaction Profiling report for switch improvement*
 - You may have non-threadsafe commands intermingled with SQL and/or MQ
 - *Review the CICS IA Command Flow to look for commands causing a TCB mode switch*

CICS Tools 4 Step Process for Applications

- **Step 4 - Test and benchmark results**

Tooling

- CICS Performance Analyzer
- CICS Interdependency Analyzer
- CICS Statistics –
 - DFH0STAT
 - Shutdown statistics
- SMF 110 records – Key fields
 - DSCHMDLY
 - *Wait time for redispach caused by TCB mode switch*
 - *TCB mode switch count*
 - TCB/CPU timings

CICS Tools 4 Step Process for Applications

- **Application Case Scenario**
 - Redbook application for DB2
 - COBOL
 - DB2
 - VSAM
 - DRIVERP – driver program that performs setup work
 - WORKM - program that performs the DB2/VSAM work

CICS PA Explorer - Threadsafe Chart

TXM1 is not Threadsafe



IBM CICS Explorer

Explorer Edit Window Help

Resource CICS IA CICS CM CICS SM

Project Explorer

- CICS PA Redbook
 - CICS PA Redbook CSV's
 - WORKJ02.CSV
 - WORKJOB.CSV
 - 2009-12-15
 - 11:04:00.000
 - 11:05:00.000
 - 11:06:00.000
 - 11:07:00.000
 - 11:08:00.000
 - 11:09:00.000
 - 11:10:00.000
 - 11:11:00.000
 - 11:12:00.000
 - 11:13:00.000
 - 11:14:00.000

- CICS PA Sample
- Interdependency Analyzer Queries

Threadsafe

/CICS PA Redbook CSV's/WORKJOB.CSV/-418015661/DSCHMDLY_COUNT_AVG-desc

Transaction ID (number of transactions)	Time (seconds)
TXM1 (339)	0.03
-FOR (2369)	0.001
DE1 (282)	0.002
DE20 (97)	0.003
DE21 (94)	0.003
DE22 (91)	0.003
HR1 (108)	0.002
HR2 (109)	0.002
IT1 (117)	0.001
IT2 (224)	0.005
IT8 (261)	0.005
OE1 (184)	0.002
OE2 (182)	0.003
OE4 (184)	0.005
OE5 (178)	0.01
PA	0.001

Transaction ID (number of transactions) ordered by Change TCB modes

CICS PA Explorer - Threadsafe Detail View

TXM1 is not Threadsafe



IBM CICS Explorer

Explorer Edit Window Help

Project Explorer: CICS PA Redbook, CICS PA Redbook CSV's, WORKJOB2.CSV, 2009-12-15, WORKJOB.CSV, 2009-12-15, 11:04:00.000, 11:05:00.000, 11:06:00.000, 11:07:00.000, 11:08:00.000, 11:09:00.000, 11:10:00.000, 11:11:00.000, 11:12:00.000, 11:13:00.000, 11:14:00.000, CICS PA Sample, Interdependency Analyzer Queries

Threadsafe Transaction detail for: TXM1

Start date=2009-12-15, Start time=11:08:00.000, Applid=IYDZEJOB, Transaction ID=TXM1

Transaction detail for: 2009-12-15, 11:08:00.000, IYDZEJOB, TXM1

Overview:

Threadsafe: CPU time: Response time: Storage: File usage:

Threadsafe: (averages)

339 transaction(s). 406 TCB mode switches (average). 101 DB2 requests. 100 File control requests. 0 MQ requests. 106 RMI requests.

CPU measurement	Time (avg)	Count	%Overall	%Relative
Threadsafe:				
User CPU time	0.037900	515	100%	100%
CICS Key 8 TCB CPU time	0.013500	258	36%	36%
J8 TCB CPU time	0	0	-	-
L8 TCB CPU time	0.013500	258	36%	100%
S8 TCB CPU time	0	0	-	-
T8 TCB CPU time	0	0	-	-
X8 TCB CPU time	0	0	-	-
CICS Key 9 TCB CPU time	0	0	-	-
J9 TCB CPU time	0	0	-	-
L9 TCB CPU time	0	0	-	-
X9 TCB CPU time	0	0	-	-
Miscellaneous TCB CPU time	0	0	-	-
RO TCB CPU time	0	0	-	-
QR TCB CPU time	0.024400	257	64%	64%

Restrict tree nodes to those applicable to visible chart.
 Exclude zero or indeterminate values in tree

Problems: 0 items

Description	Resource	Path	Locat...	Type

/2009-12-15/11.08.00.000/IYDZEJOB/TXM1

CICS PA Explorer - Detail View

File Usage



IBM CICS Explorer

Explorer Edit Window Help

Resource CICS IA CICS CM CICS SM

Transaction detail for: TXM1

Start date=2009-12-15, Start time=11:08:00.000, Applid=IYDZEJOB, Transaction ID=TXM1

Transaction detail for: 2009-12-15, 11:08:00.000, IYDZEJOB, TXM1

Overview:

Threadsafe: CPU time: Response time: Storage: File usage:

File usage: (averages)

File wait time average=0. RLS file wait time average=0.

Function	Count	%Overall	%Relative
File usage:	-	-	-
File request total count	100	100%	100%
File add count	0	-	-
File browse count	0	-	-
File delete count	0	-	-
File get count	100	100%	100%
File put count	0	-	-

Restrict tree nodes to those applicable to visible chart.

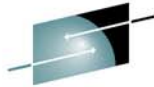
Exclude zero or indeterminate values in tree

Problems 0 items

Description	Resource	Path	Locat...	Type
0 items				

2009-12-15/11.08.00.000/IYDZEJOB/TXM1

CICS PA Explorer - PA to IA Integration



SHARE
Technology - Connections - Results

The screenshot displays the IBM CICS Explorer interface. The main window shows a bar chart titled 'CICS PA Redbook CSV's/WORKJOB.CSV/-418015661/DSCHMDLY_COUNT_AVG-desc'. The y-axis represents 'Time (seconds)' ranging from 0 to 0.03. The x-axis lists various transaction IDs (TXM1, -FOR, DE1, DE20, DE21, DE22, HR1, HR2, IT1, IT2, IT8, OE1, OE2, OE4, OE5, PA2, PS2, PS3, SC2, SC6, TS1) along with the number of transactions in parentheses. The TXM1 transaction is the most prominent, with a value of 406. A context menu is open over the TXM1 bar, showing options: 'Show View', 'Dependencies' (with sub-options 'Used By Programs' and 'Used By Transactions'), 'Performance history', and 'Uses Resources' (highlighted by the mouse).

Below the chart, the 'Uses' window is open for transaction TXM1 in Region IVDZEJOB. It shows a list of resources used by the transaction:

- Program (1)
- (1)
- Temporary Storage (1)
- File (1)
- TEXT (1)
- Table (2)

The 'By Resource' section is currently empty. The right pane shows the transaction TXM1 and its associated WORKM resource.

The status bar at the bottom indicates the current view is for /2009-12-15/11.08.00.000/IVDZEJOB/TXM1.

CICS IA Explorer - Edit query



Explorer Edit Search Window Help

Find: Resource Filter by ID: Filter by Region:

Queries Regions Applications Resources Uses Command Flow

- Supplied Samples
 - CICS
 - Affinities
 - Exits
 - General
 - Migration
 - Specific
 - All programs that issue a GETMAIN
 - All programs that issue an ADDRESS CW
 - All programs that issue an EXTRACT EXIT
 - All programs that issue a LOAD
 - All programs which may have threadsafe
 - CICS commands by TCB mode and program
 - DB2 commands by TCB mode and program
 - IMS commands by TCB mode and program
 - MQ commands by TCB mode and program
 - TS41 migration
 - Threadsafe
 - Webservices
 - Command Flow
 - DB2

Context menu for 'All programs that issue an ADDRESS CW':

- New
- Edit query
- Run
- Copy
- Paste
- Delete
- Rename

TCB Modes Used

TCB Mode Switches

TCB Mode	Previous TCB Mode

CICS IA Explorer - Edit query



Edit CICS query [Close]

Edit query "All programs that issue an ADDRESS CWA"
Add, remove or change criteria for which resources to include or exclude

Name:

Show [Add] [Remove] [Up] [Down]

- Program
 - Command
 - Resource type
 - Resource name
 - Offset of Comm

Filter results [Add] [Remove]

- Command is ADDRESS
- Resource name is CWA%

Command [Operator] is [Dropdown]

- ADDPOOL
- ADDRESS
- ALLOCATE
- ASSIGN
- BIF DIGEST
- BUILD
- BUILD WSACONTEXT
- CALL
- CONNECT
- CONVERSE
- CREATE
- CSDADD
- CSDADD GROUP TO
- CSDALTER

[OK] [Cancel]

CICS IA Explorer - TXM1 Used Resources CWA Offset results



IBM CICS Explorer

Explorer Edit Search Window Help

Find Resource with ID in Region

Queries Regions Applications

Supplied Samples

- CICS
 - Affinities
 - Exits
 - General
 - Migration
 - Specific
 - TS41 migration
 - Threadsafe
 - All programs that issue a GETMAIN
 - All programs that issue an ADDRESS CWA
 - All programs that issue an EXTRACT EXIT
 - All programs that issue an LOAD
 - All programs which may have threadsafe data
 - CICS commands by TCB mode and program
 - DB2 commands by TCB mode and program

Programs Transactions

TXM in Region (6)

- TXM0
- TXM1
 - Show Command Flow runs
 - Show Tasks
 - Used By Programs
 - Used By Transactions
 - Uses Resources
 - All Regions
 - Specific Region...
 - Performance history
 - Show View
 - Asset details

*Resources (31)

All programs that issue an ADDRESS CWA

- PROGRAM (AFFTESTZ) (1)
- PROGRAM (DRIVERM) (1)
- PROGRAM (DRIVERP) (1)
- PROGRAM (DSWDE1VV) (1)
- PROGRAM (DSWDE2VV) (1)
- PROGRAM (DSWFORVV) (1)
- PROGRAM (DSWHR1VV) (1)
- PROGRAM (DSWHR2VV) (1)
- PROGRAM (DSWIT1VV) (1)
- PROGRAM (DSWIT2VV) (1)
- PROGRAM (DSWIT8VV) (1)
- PROGRAM (DSWOE1VV) (1)
- PROGRAM (DSWOE2VV) (1)
- PROGRAM (DSWOE4VV) (1)
- PROGRAM (DSWOE5VV) (1)
- PROGRAM (DSWPS2VV) (1)
- PROGRAM (DSWPS3VV) (1)
- PROGRAM (DSWSC2VV) (1)
- PROGRAM (DSWSC6VV) (1)
- PROGRAM (DSWTS1VV) (1)
- PROGRAM (EMSTESTS) (1)
- PROGRAM (EMSTEST2) (1)
- PROGRAM (WORKM) (1)
 - ADDRESS (1)
 - Resource type 0 (1)
 - CWA (4)
 - Offset of Command (000005AE)
 - Offset of Command (000005CA)
 - Offset of Command (000005EE)
 - Offset of Command (0000058A)

Transaction(TXM1) in Region IYDZEJOB (7)

Resources used

- Program (1)
 - WORKM (1)
- (1)
 - CWA (1)
 - ADDRESS
- Temporary Storage (1)
 - OUTPUTQ (1)
 - WRITEQ
- File (1)
 - FILEA (1)
 - READ
- TEXT (1)
 - SEND TEXT (1)
 - SEND
- Table (2)
 - (1)
 - SELECT
 - DSN8810.EMP (1)
 - SELECT

By Resource

- WORKM

Programs using CWA (2)

- TXM1
 - WORKM

Detail Dynamic Threadsafe Analysis Report

Quasirent



Program Dynamic Analysis - THREADSAFE DETAIL LISTING FOR CICS TS 3.1

APPLID	Program	Linkedit Date	Execution Key	Concurrency	APIST	Storage Protect	CICS Rel	LIB Dataset Name					
		CMD Type	Function	Type	Resource	Offset	Program Length	Use Count	Threadsafe				
IYDZEJOB	DRIVERM	0001-01-01	USER	QUASIRENT	CICSAPI INACTIVE 0640								
			CICS ADDRESS		CWA	502	1668	1	N *				
			CICS DELETEQ	TSQUEUE AUX	OUTPUTQ	48E	1668	1	Y				
			CICS INQUIRE	PROGRAM	WORKM	6CA	1668	1	N				
			CICS SEND	TEXT	SEND TEXT	7E6	1668	1	N				
			CICS WRITEQ	TSQUEUE AUX	OUTPUTQ	78A	1668	1	Y				
			Total CICS calls:	5	Threadsafe:	2	Non-Threadsafe:	3	Indeterminate	0			
					DB2 calls:	0	MQ calls:	0	IMS calls:	0			
					Dynamic calls:	0	Threadsafe Inhibitor calls:	1					
IYDZEJOB	WORKM	0001-01-01	USER	QUASIRENT	CICSAPI INACTIVE 0640								
			CICS ADDRESS		CWA	5CA	1928	1	N *				
			CICS ADDRESS		CWA	58A	1890	1	N *				
			CICS READ	FILE	FILEA	8B2	1890	1	N				
			CICS READ	FILE	FILEA	8F2	1928	1	N				
			CICS SEND	TEXT	SEND TEXT	9A2	1928	1	N				
			CICS WRITEQ	TSQUEUE	OUTPUTQ	912	1890	1	Y				
			CICS WRITEQ	TSQUEUE	OUTPUTQ	952	1928	1	Y				
			CICS ADDRESS		CWA	5CA	1928	1	N *				
			CICS ADDRESS		CWA	58A	1890	1	N *				
			CICS READ	FILE	FILEA	8B2	1890	1	N				
			CICS READ	FILE	FILEA	8F2	1928	1	N				
			CICS SEND	TEXT	SEND TEXT	9A2	1928	1	N				
			CICS WRITEQ	TSQUEUE	OUTPUTQ	912	1890	1	Y				
			CICS WRITEQ	TSQUEUE	OUTPUTQ	952	1928	1	Y				
			CICS ADDRESS		CWA	5CA	1928	1	N *				
			CICS ADDRESS		CWA	58A	1890	1	N *				
			CICS READ	FILE	FILEA	8B2	1890	1	N				
			CICS READ	FILE	FILEA	8F2	1928	1	N				
			CICS SEND	TEXT	SEND TEXT	9A2	1928	1	N				
			CICS WRITEQ	TSQUEUE	OUTPUTQ	912	1890	1	Y				
			CICS WRITEQ	TSQUEUE	OUTPUTQ	952	1928	1	Y				
			CICS ADDRESS		CWA	5CA	1928	1	N *				
			CICS ADDRESS		CWA	58A	1890	1	N *				
			CICS READ	FILE	FILEA	8B2	1890	1	N				
			CICS READ	FILE	FILEA	8F2	1928	1	N				
			CICS SEND	TEXT	SEND TEXT	9A2	1928	1	N				
			CICS WRITEQ	TSQUEUE	OUTPUTQ	912	1890	1	Y				
			CICS WRITEQ	TSQUEUE	OUTPUTQ	952	1928	1	Y				
			DB2 SELECT	TABLE		64A	1890	1	Y				
			DB2 SELECT	TABLE	DSN8810.EMP	68E	1928	1	Y				
			DB2 SELECT	TABLE		64A	1890	1	Y				
			DB2 SELECT	TABLE	DSN8810.EMP	68E	1928	1	Y				
			DB2 SELECT	TABLE		64A	1890	1	Y				
			DB2 SELECT	TABLE	DSN8810.EMP	68E	1928	1	Y				
			DB2 SELECT	TABLE	DSN8810.EMP	68E	1928	1	Y				
			DB2 SELECT	TABLE	DSN8810.EMP	68E	1928	1	Y				
			Total CICS calls:	35	Threadsafe:	10	Non-Threadsafe:	25	Indeterminate	0			
					DB2 calls:	8	MQ calls:	0	IMS calls:	0			
					Dynamic calls:	0	Threadsafe Inhibitor calls:	10					

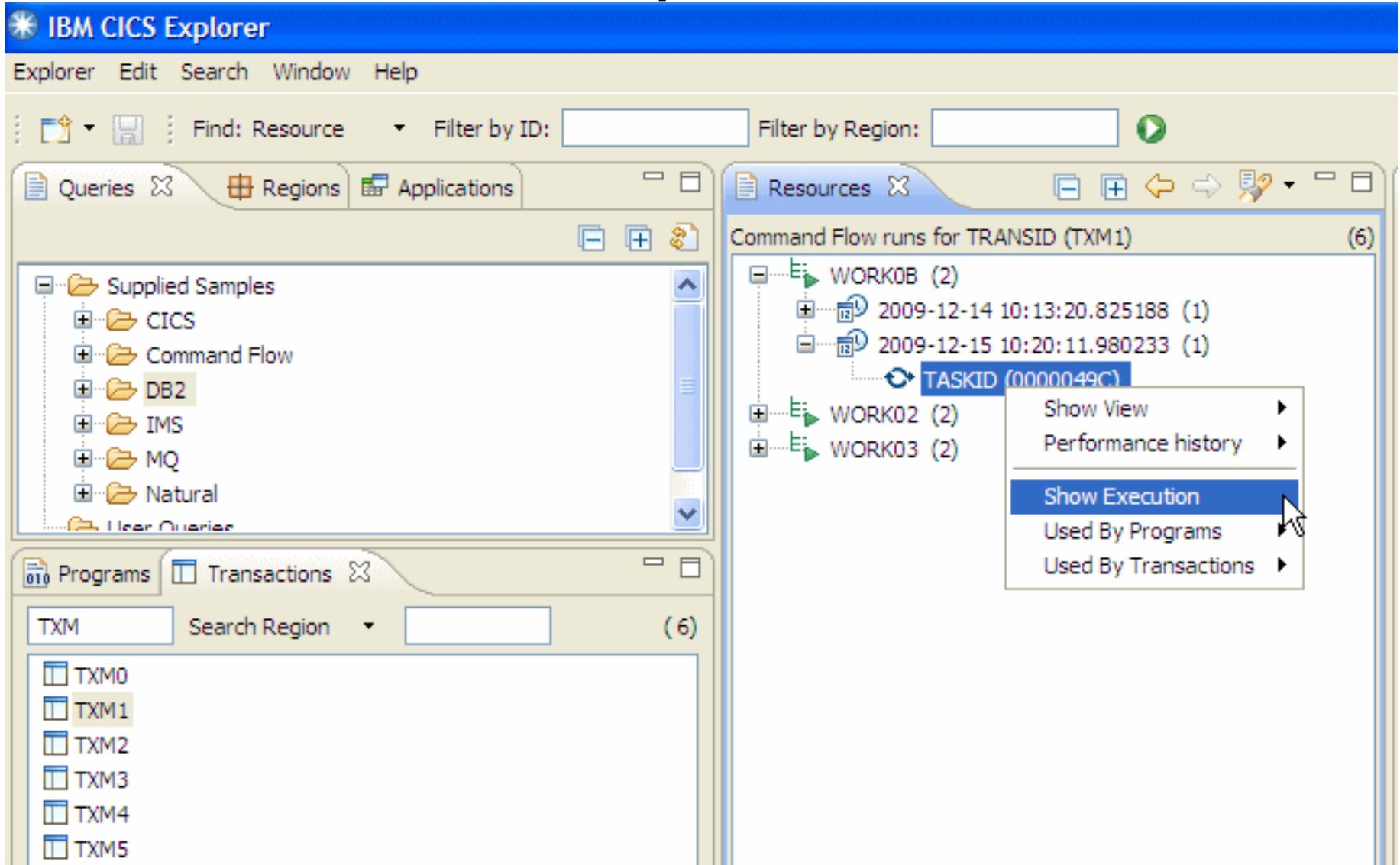
CICS IA Explorer – Select Command Flow runs for transaction TXM1



The screenshot displays the IBM CICS Explorer application. The top menu bar includes Explorer, Edit, Search, Window, and Help. Below the menu bar are search filters for 'Find: Resource', 'Filter by ID', and 'Filter by Region'. The main interface is divided into several panels:

- Queries Panel:** Contains a tree view with folders for Supplied Samples, CICS, Command Flow, DB2, IMS, MQ, Natural, and User Queries.
- Resources Panel:** Titled 'Resources', it shows 'Command Flow runs for TRANSID (TXM1) (6)'. The list includes:
 - WORK0B (2)
 - WORK02 (2)
 - WORK03 (2)
- Programs Panel:** Titled 'Programs', it shows a search for 'TXM' with '(6)' results. A context menu is open over the 'TXM' entry, listing options:
 - Show Command Flow runs (highlighted)
 - Show Tasks
 - Used By Programs
 - Used By Transactions
 - Uses Resources
 - Performance history
 - Show View

CICS IA Explorer - Select Command Flow Run WORK0B Quasirent TXM1 capture



The screenshot displays the IBM CICS Explorer application window. The title bar reads "IBM CICS Explorer". The menu bar includes "Explorer", "Edit", "Search", "Window", and "Help". Below the menu bar, there are search and filter fields: "Find: Resource", "Filter by ID:", and "Filter by Region:". The main interface is divided into several panes:

- Queries, Regions, Applications:** A tabbed interface with "Regions" selected. The "Regions" pane shows a tree view with folders: "Supplied Samples", "CICS", "Command Flow", "DB2", "IMS", "MQ", "Natural", and "User Queries".
- Programs, Transactions:** A tabbed interface with "Transactions" selected. The "Transactions" pane shows a search for "TXM" with a "Search Region" dropdown and a list of transactions: TXM0, TXM1, TXM2, TXM3, TXM4, and TXM5.
- Resources:** A pane titled "Command Flow runs for TRANSID (TXM1) (6)". It displays a tree view of command flow runs:
 - WORK0B (2)
 - 2009-12-14 10:13:20.825188 (1)
 - 2009-12-15 10:20:11.980233 (1)
 - TASKID (0000049C)
 - WORK02 (2)
 - WORK03 (2)

A context menu is open over the "TASKID (0000049C)" node, with the following options:

- Show View
- Performance history
- Show Execution
- Used By Programs
- Used By Transactions

CICS IA Explorer - Command Flow execution WORK0B Quasirent TXM1 capture

Uses Command Flow X

TASKID(0000049C) under TRANSID (TXM):

TCB Modes ...	TCB Mode Switches		Task Control Block (TCB)	Previous...	Command Time Local
QR (106)	QR (101)	TXM1			
L8 (101)	L8 (101)	WORKM			
		Start of transaction Transaction()	QR	QR	2009-12-15 10:20:11.980233
		Address	QR	QR	2009-12-15 10:20:12.600388
		Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0001,STMTNUMBER=0135)	L8	QR	2009-12-15 10:20:12.616264
		Asktime abstime TIME()	QR	L8	2009-12-15 10:20:12.628469
		Formattime TIME()	QR	QR	2009-12-15 10:20:12.628528
		Read File(FILEA)	QR	QR	2009-12-15 10:20:33.317241
		Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	QR	2009-12-15 10:20:33.317935
		Read File(FILEA)	QR	L8	2009-12-15 10:20:33.318109
		Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	QR	2009-12-15 10:20:33.318268
		Read File(FILEA)	QR	L8	2009-12-15 10:20:33.318408
		Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	QR	2009-12-15 10:20:33.318561
		Read File(FILEA)	QR	L8	2009-12-15 10:20:33.318697
		Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	QR	2009-12-15 10:20:33.318847
		Read File(FILEA)	QR	L8	2009-12-15 10:20:33.318981
		Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	QR	2009-12-15 10:20:33.319131
		Read File(FILEA)	QR	L8	2009-12-15 10:20:33.319379
		Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	QR	2009-12-15 10:20:33.319543
		Read File(FILEA)	QR	L8	2009-12-15 10:20:33.319681
		Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	QR	2009-12-15 10:20:33.319831

CICS CM Explorer - View of program WORKM Quasirent



Configurations (15)

Name	CSD/Context
REDCSD41	REDTOOLS.CSDTST41.DFHCS
REDDEV23	REDTOOLS.REDDEV23.DFHCS
REDDEV31	REDTOOLS.REDDEV31.DFHCS
REDDEV32	REDTOOLS.REDDEV32.DFHCS

Lists in (REDDEV31) (3)

- DFH\$IVPL
- DFHLIST
- REDLIST

Groups in (REDDEV31) (149)

- DFHTYPE
- DFHVTAM
- DFHVTAMP
- DFHWEB
- DFHWSAT
- FILDSWL
- MAIL
- MAILGRP
- MRO
- PRGDSW
- TRNDSWL
- WORKSHOP

Find: Resource Name Workm* (1)
Resource Type PROGDEF in REDDEV31

WORKM

History | **Propert**

Revision	Time	Resour

Resource | CICS IA | CICS CM | CICS SM

Threadsafesafe | Program Definition (WORKM)

Program Definition (WORKM)

Overview

Basic

Name: WORKM Description:

CSD Group: WORKSHOP Created:

Enabled Changed: Nov 30, 2009 11:00:35 AM

Details

Language: N_A Non-CICS (Open) API

Threadsafesafe (able to use open TCB)

Display Execution Diagnostic Facility (EDF) screens

Storage

Can handle 31 bit addresses (above the 16MB line)

Use Program from the Link Pack Area (LPA)

Program can write to CICS-key storage

Program reuse

Reuse if possible

Force reuse

Always load a new copy

Load a new copy whenever use count drops to zero

Overview | Remote | Java™ | Attributes

CICS CM Explorer – Detail Attributes

WORKM Quasirent



Threadsafe Program Definition (WORKM)

Attributes

Property	Value
Basic	
Description	
Details	
Api	CICSAPI
Cedf	YES
Concurrency	QUASIRENT
Datalocation	BELOW
Execkey	USER
Language	N_A
Reload	NO
Resident	NO
Status	✓ ENABLED
Usage	NORMAL
Uselpacopy	NO
Java	
Hotpool	NO
Jvm	NO
Jvmclass	
Jvmprofile	DFHJVMPR
Remote	
Dynamic	NO
Executionset	FULLAPI
Remotename	
Remotesystem	
Transid	

Overview Remote Java™ Attributes

CICS CM Explorer - Install Program WORKM

Perform Operation

Perform INSTALL Operation
INSTALL operation will be performed on all items in the execution queue

CICSplex: REDBPLEX

Execution Queue:

State	Object
	WORKM

Target

REDTST41 (IYDZEJ03)

OK Cancel

CICS CM Explorer - View History



Configurations (15)

Name	CSD/Context
REDDEV23	REDTOOLS.RE
REDDEV31	REDTOOLS.RE
REDDEV32	REDTOOLS.RE
REDDEV41	REDTOOLS.RE
REDPRD23	REDTOOLS.RE
REDPRD31	REDTOOLS.RE
REDPRD32	REDTOOLS.RE
REDPRD41	REDTOOLS.RE
REDTST23	REDTOOLS.RE
REDTST31	REDTOOLS.RE
REDTST32	REDTOOLS.RE
REDTST41	REDTOOLS.RE

Lists

- DFH\$IVF
- DFHLIST
- REDLIST

Groups in (REDTST41) (156)

- MRO
- REDATOMS
- SOS7
- WORKSHOP

Search Results Program Definitions Name: work*

CNX0211I Context: REDTST41. Resource: PROGDEF. 2 records collected at Feb 21, 2010 11:53:46 AM

Name	Version	Create Time	Change Time	Description	Status
WORKM	0	Nov 30, 2009 ...	Feb 21, 2010 6:4...	CICS Threadsafe Re...	✓ ENABLED
WORKP	0	May 14, 2009 ...	May 14, 2009 4:4...		✓ ENABLED

History Properties

Resource History for REDTST41 from 2009/11/20 17:06:47 to latest entry

Revision	Time	Resource Name/After	Resource Type/Before	Group	User Name	Command
2010/02/21 18:45:16		WORKM	PROGDEF	WORKSHOP	CICSUSER	UPDATE
		description	CICS Threadsafe Re...			
2010/02/21 18:11:36		WORKM	PROGDEF	WORKSHOP	CICSUSER	UPDATE
		concurrency	THREADSAFE	QUASIRENT		
2010/02/21 18:10:56		WORKM	PROGDEF	WORKSHOP	CICSUSER	UPDATE
		concurrency	QUASIRENT	THREADSAFE		

CICS CM ISPF - Compare Resources



File Menu Settings Hilite Help

Compare Command ==>	Program	
	Program . . . :	WORKM
	ResGroup . . . :	WORKSHOP
==>	Location . . . :	REDTOOLS.REDEV31.DFHCS
==>	Change Date . . . :	2009/11/30 11:00:35
==>	Description . . . :	CICS Threadsafe Redbook Pr
		More: +
	Language . . . :	N_A
	Reload . . . :	NO
	Resident . . . :	NO
	Usage :	NORMAL
	UseLPACopy . . . :	NO
	Status :	ENABLED
	CEDF :	YES
	DataLocation :	BELOW
	ExecKey :	USER
==>	Concurrency . . . :	QUASIRENT
	API :	CICSAPI
	Remote Attributes	
	Dynamic :	NO
	RemoteSystem :	
	RemoteName . . . :	
	TransID :	
	ExecutionSet :	FULLAPI
	JVM Attributes	
	JVM :	NO

CICS IA Explorer - Command Flow execution

WORK03 Threadsafe TXM1 capture



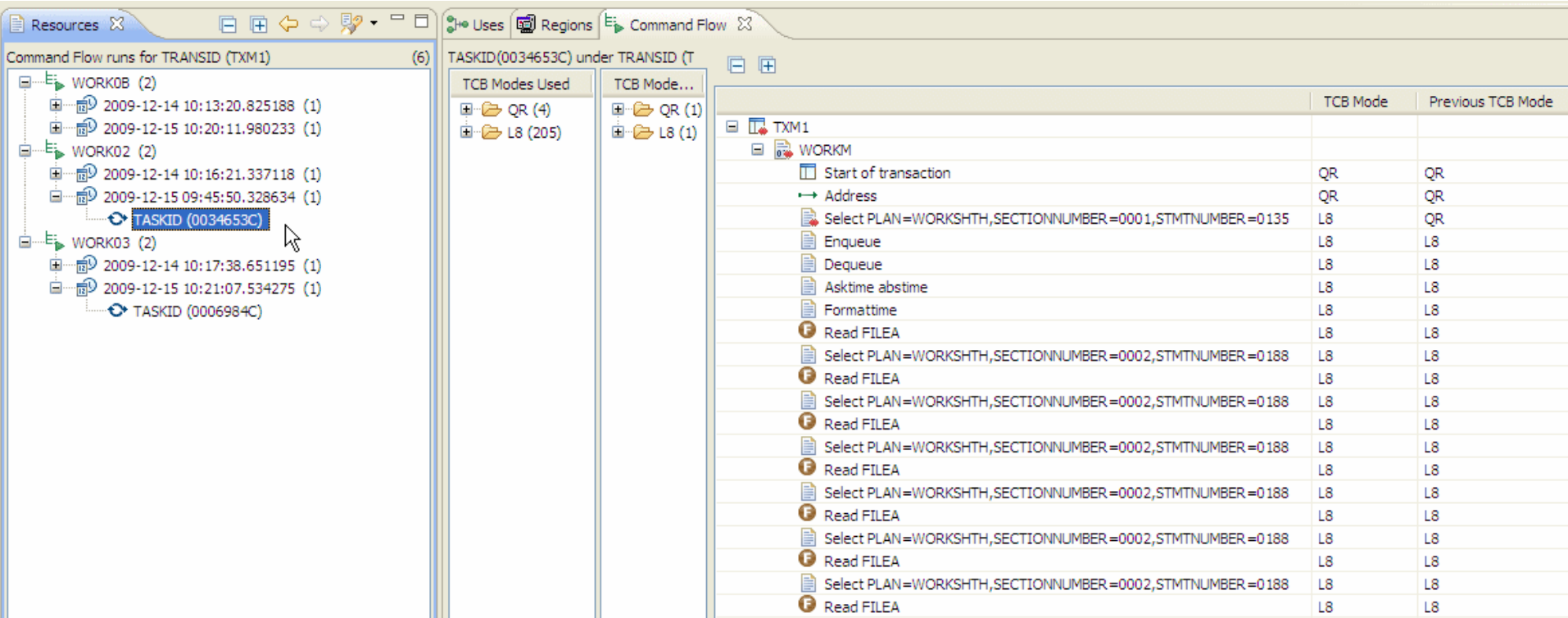
Command Flow (6) runs for TRANSID (TXM1)

TASKID(0006984C) under TRANSI

Task Control Block (TCB)	Previous...	Command Time Local
TXM1		
WORKM		
Start of transaction Transaction()	QR	2009-12-15 10:21:07.534275
Address	QR	2009-12-15 10:21:07.578666
Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0001,STMTNUMBER=0135)	QR	2009-12-15 10:21:07.579858
Asktime abstime TIME()	L8	2009-12-15 10:21:07.592008
Formattime TIME()	L8	2009-12-15 10:21:07.592063
Read File(FILEA)	L8	2009-12-15 10:21:07.592217
Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	2009-12-15 10:21:07.592407
Read File(FILEA)	L8	2009-12-15 10:21:07.592501
Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	2009-12-15 10:21:07.59264
Read File(FILEA)	L8	2009-12-15 10:21:07.592727
Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	2009-12-15 10:21:07.592868
Read File(FILEA)	L8	2009-12-15 10:21:07.592956
Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	2009-12-15 10:21:07.593089
Read File(FILEA)	L8	2009-12-15 10:21:07.593177
Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	2009-12-15 10:21:07.593307
Read File(FILEA)	L8	2009-12-15 10:21:07.593398
Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	2009-12-15 10:21:07.593529
Read File(FILEA)	L8	2009-12-15 10:21:07.59362
Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	2009-12-15 10:21:07.593751
Read File(FILEA)	L8	2009-12-15 10:21:07.593839
Select Table(PLAN=WORKSHNT,SECTIONNUMBER=0002,STMTNUMBER=0173)	L8	2009-12-15 10:21:07.593982
Read File(FILEA)	L8	2009-12-15 10:21:07.59407

CICS IA Explorer - Command Flow execution

WORK02 Threadsafe TXM1 capture



The screenshot displays the CICS IA Explorer interface. The left pane shows a tree view of 'Command Flow runs for TRANSID (TXM1)'. The middle pane shows 'TASKID(0034653C) under TRANSID (T)'. The right pane shows a detailed command flow table for TXM1.

Command Flow runs for TRANSID (TXM1)

- WORK0B (2)
 - 2009-12-14 10:13:20.825188 (1)
 - 2009-12-15 10:20:11.980233 (1)
- WORK02 (2)
 - 2009-12-14 10:16:21.337118 (1)
 - 2009-12-15 09:45:50.328634 (1)
 - TASKID (0034653C)**
- WORK03 (2)
 - 2009-12-14 10:17:38.651195 (1)
 - 2009-12-15 10:21:07.534275 (1)
 - TASKID (0006984C)

TASKID(0034653C) under TRANSID (T)

TCB Modes Used	TCB Mode...	TCB Mode	Previous TCB Mode
QR (4)	QR (1)		
L8 (205)	L8 (1)		

TXM1

Command	TCB Mode	Previous TCB Mode
Start of transaction	QR	QR
Address	QR	QR
Select PLAN=WORKSHTH,SECTIONNUMBER=0001,STMTNUMBER=0135	L8	QR
Enqueue	L8	L8
Dequeue	L8	L8
Asstime abstime	L8	L8
Formattime	L8	L8
Read FILEA	L8	L8
Select PLAN=WORKSHTH,SECTIONNUMBER=0002,STMTNUMBER=0188	L8	L8
Read FILEA	L8	L8
Select PLAN=WORKSHTH,SECTIONNUMBER=0002,STMTNUMBER=0188	L8	L8
Read FILEA	L8	L8
Select PLAN=WORKSHTH,SECTIONNUMBER=0002,STMTNUMBER=0188	L8	L8
Read FILEA	L8	L8
Select PLAN=WORKSHTH,SECTIONNUMBER=0002,STMTNUMBER=0188	L8	L8
Read FILEA	L8	L8
Select PLAN=WORKSHTH,SECTIONNUMBER=0002,STMTNUMBER=0188	L8	L8
Read FILEA	L8	L8
Select PLAN=WORKSHTH,SECTIONNUMBER=0002,STMTNUMBER=0188	L8	L8
Read FILEA	L8	L8

Detail Dynamic Threadsafe Analysis Report

WORKM Threadsafe



APPLID	Program	Linkedit Date	Execution Key	Concurrency	APIST	Storage Protect	CICS Rel	LIB Dataset Name				
		CMD Type	Function	Type	Resource		Offset	Program Length	Use Count	Threadsafe		
IYDZEJ02	DRIVERM	0001-01-01	USER	QUASIRENT	CICSAPI	INACTIVE 0660		REDTOOLS.WORKSEM.LOADLIB2				
		CICS ADDRESS				CWA	502	1668	1	N	*	
		CICS DELETEQ		TSQUEUE	AUX	OUTPUTQ	48E	1668	1	Y		
		CICS INQUIRE		PROGRAM		WORKM	6CA	1668	1	N		
		CICS SEND		TEXT		SEND TEXT	7E6	1668	1	N		
		CICS WRITEQ		TSQUEUE	AUX	OUTPUTQ	730	1668	1	Y		
		CICS ADDRESS				CWA	502	1668	1	N		
		CICS DELETEQ		TSQUEUE	AUX	OUTPUTQ	48E	1668	1	Y		
		CICS INQUIRE		PROGRAM		WORKM	6CA	1668	1	N		
		CICS SEND		TEXT		SEND TEXT	7E6	1668	1	N		
		CICS WRITEQ		TSQUEUE	AUX	OUTPUTQ	730	1668	1	Y		
	Total CICS calls:	10	Threadsafe:	4	Non-Threadsafe:	6	Indeterminate	Threadsafe:	0			
			DB2 calls:	0	MQ calls:	0	IMS calls:		0			
			Dynamic Calls:	0	Threadsafe Inhibitor calls:	2						
IYDZEJ02	WORKM	0001-01-01	USER	THREADSAFE	CICSAPI	INACTIVE 0660		REDTOOLS.WORKSEM.LOADLIB2				
		CICS ADDRESS				CWA	5EE	1930	1	N	*	
		CICS DEQUEUE		ENQNAME		ADDR	7A2	1930	1	I		
		CICS ENQUEUE		ENQNAME		ADDR	6EA	1930	1	I		
		CICS READ		FILE		FILEA	994	1930	1	Y		
		CICS SEND		TEXT		SEND TEXT	A2E	1930	1	N		
		CICS WRITEQ		TSQUEUE		OUTPUTQ	9DE	1930	1	Y		
		CICS ADDRESS				CWA	5EE	1930	1	N	*	
		CICS DEQUEUE		ENQNAME		ADDR	7A2	1930	1	I		
		CICS ENQUEUE		ENQNAME		ADDR	6EA	1930	1	I		
		CICS READ		FILE		FILEA	994	1930	1	Y		
		CICS SEND		TEXT		SEND TEXT	A2E	1930	1	N		
		CICS WRITEQ		TSQUEUE		OUTPUTQ	9DE	1930	1	Y		
											
		DB2 SELECT		TABLE		DSN8810.EMP	6B2	1930	1	Y		
		DB2 SELECT		TABLE		DSN8810.EMP	6B2	1930	1	Y		
		DB2 SELECT		TABLE		DSN8810.EMP	6B2	1930	1	Y		
		DB2 SELECT		TABLE		DSN8810.EMP	6B2	1930	1	Y		
		DB2 SELECT		TABLE		DSN8810.EMP	6B2	1930	1	Y		
		DB2 SELECT		TABLE		DSN8810.EMP	66E	1928	1	Y		
		DB2 SELECT		TABLE		DSN8810.EMP	66E	1928	1	Y		
		DB2 SELECT		TABLE		DSN8810.EMP	66E	1928	1	Y		
	Total CICS calls:	45	Threadsafe:	16	Non-Threadsafe:	13	Indeterminate	Threadsafe:	16			
			DB2 calls:	8	MQ calls:	0	IMS calls:		0			
			Dynamic Calls:	0	Threadsafe Inhibitor calls:	8						

CICS PA ISPF Interface - Transaction Profiling

Default report

V3R1M0

CICS Performance Analyzer Transaction Profiling

PROF0001 Printed at 0:37:37 2/22/2010

Report Data from 11:29:59 12/15/2009 to 11:39:58 12/15/2009

Baseline Data from 11:04:58 12/15/2009 to 11:14:57 12/15/2009

CICS Threadsafe Redbook Transaction Profiling

Tran		#Tasks	Avg Response Time	Avg Dispatch Time	Avg User CPU Time	Avg Suspend Time	Avg Dispwait Time	Avg FC wait Time	Avg FCAMRq Count	Avg IR wait Time	Avg SC24UHwM Count	Avg SC31UHwM Count
TXM1	Report	3583	.0371	.0296	.0215	.0076	.0028	.0000	100	.0000	0	34016
TXM1	Baseline	3465	.5621	.0518	.0378	.5103	.1480	.0000	100	.0000	0	34000
	Delta	+118	-.5250	-.0222	-.0163	-.5028	-.1453	.0000	0	.0000	0	+16
	Change%	+3.41	-93.39	-42.92	-43.13	-98.51	-98.13	.00	.00	.00	.00	+0.05
Total	Report	3583	.0371	.0296	.0215	.0076	.0028	.0000	100	.0000	0	34016
	Baseline	3465	.5621	.0518	.0378	.5103	.1480	.0000	100	.0000	0	34000
	Delta	+118	-.5250	-.0222	-.0163	-.5028	-.1453	.0000	0	.0000	0	+16
	Change%	+3.41	-93.39	-42.92	-43.13	-98.51	-98.13	.00	.00	.00	.00	+0.05

CICS PA ISPF Interface - Modified report form CPUSUM



EDIT SUMMARY Report Form - CPUSUMTS Row 1 of 13 More: >

Command ==> _____ Scroll ==> PAGE

Description . . . Transaction Threadsafe CPU Version (VRM): 620

Selection Criteria:

Performance Page width . . . 132

Field	Sort					
/ Name +	K O	Type	Fn	Description		
<u>TRAN</u>	K A	_____	_____	Transaction identifier		
<u>TASKCNT</u>	-	_____	_____	Total Task count		
<u>RESPONSE</u>	-	_____	AVE	Transaction response time		
<u>RESPONSE</u>	-	_____	MAX	Transaction response time		
<u>DISPATCH</u>	-	<u>TIME</u>	AVE	Dispatch time		
<u>CPU</u>	-	<u>TIME</u>	AVE	CPU time		
<u>SUSPEND</u>	-	<u>TIME</u>	AVE	Suspend time		
<u>QRCPU</u>	-	<u>TIME</u>	AVE	CICS QR TCB CPU time		
<u>L8CPU</u>	-	<u>TIME</u>	AVE	CICS L8 TCB CPU time		
<u>DSCHMDLY</u>	-	<u>TIME</u>	AVE	Redispatch wait time caused by change-TCB mode		
<u>DSCHMDLY</u>	-	<u>COUNT</u>	AVE	Redispatch wait time caused by change-TCB mode		
EOR				----- End of Report -----		

CICS PA ISPF Interface - Transaction Profiling report

Using modified form

V3R1M0

CICS Performance Analyzer Transaction Profiling

PROF0001 Printed at 23:31:23 2/21/2010

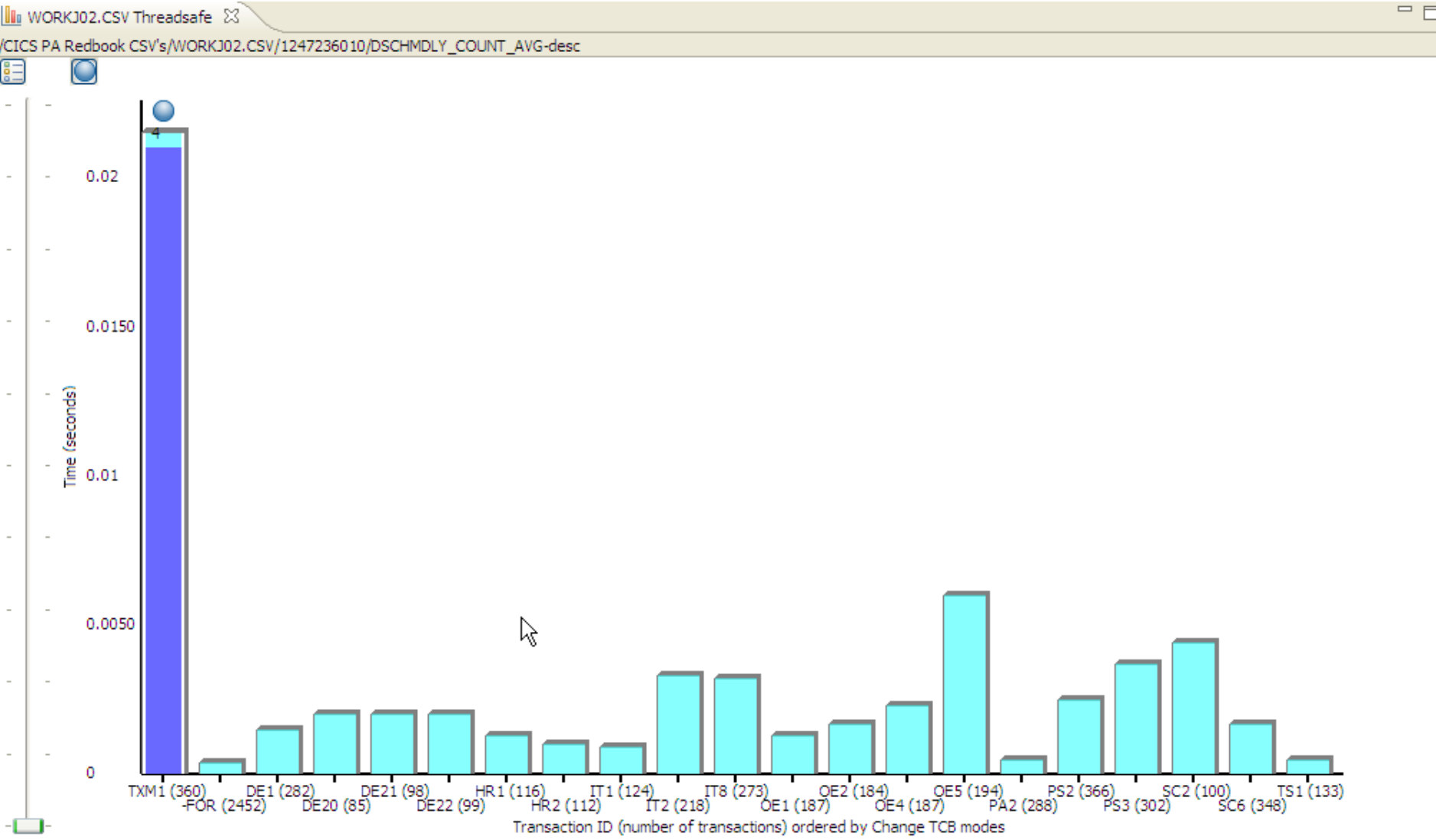
Report Data from 11:29:59 12/15/2009 to 11:39:58 12/15/2009
 Baseline Data from 11:04:58 12/15/2009 to 11:14:57 12/15/2009

CICS Threadsafe Redbook CPUSUM Transaction Profiling

Tran		#Tasks	Avg Response Time	Max Response Time	Avg Dispatch Time	Avg User CPU Time	Avg Suspend Time	Avg QR CPU Time	Avg L8 CPU Time	Avg DSCHMDLY Time	Avg DSCHMDLY Count
TXM1	Report	3583	.0371	.5399	.0296	.0215	.0076	.0005	.0210	.0027	4
TXM1	Baseline	3465	.5621	2.7829	.0518	.0378	.5103	.0243	.0135	.1324	406
	Delta	+118	-.5250	-2.2430	-.0222	-.0163	-.5028	-.0239	+.0075	-.1297	-402
	Change%	+3.41	-93.39	-80.60	-42.92	-43.13	-98.51	-98.00	+55.78	-97.94	-99.01
Total	Report	3583	.0371	.5399	.0296	.0215	.0076	.0005	.0210	.0027	4
	Baseline	3465	.5621	2.7829	.0518	.0378	.5103	.0243	.0135	.1324	406
	Delta	+118	-.5250	-2.2430	-.0222	-.0163	-.5028	-.0239	+.0075	-.1297	-402
	Change%	+3.41	-93.39	-80.60	-42.92	-43.13	-98.51	-98.00	+55.78	-97.94	-99.01

CICS PA Explorer - Threadsafe Detail View

TXM1 is Threadsafe



CICS Explorer RedBook SG24-7778-00

CICS Explorer

CICS Explorer

CICS Explorer tools plug-ins

CICS Explorer usage scenarios



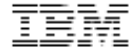
Chris Rayns
Chris Baker
Diana Blair
Em James
Kat Sharp
Peter Siddell
Colin Stone
Satish Tanna
Joe Winchester

ibm.com/redbooks

Redbooks

- This RedBook focuses on the new CICS Explorer
- The first part of the RedBook overviews the CICS Explorer, along with all the CICS Tools plug-ins
- The second part of the RedBook focuses on different scenarios in which the CICS Explorer can be used, along with the CICS Tools plug-ins to resolve different problems

CICS Explorer SDK Redbook SG24-7819-00



SG24-7819-00

- This **Redbook**® focuses on the new CICS Explorer SDK
- The first part of the **Redbook** gives an overview of the CICS Explorer, along with an overview of Plugins and Eclipse
- The second part of the **Redbook** focuses on the SDK and how to write a Plugin and how to Extend the Explorer via Plugins
- Two Demos are included
- <http://www.redbooks.ibm.com/rdpieces/abstracts/sq247819.html>

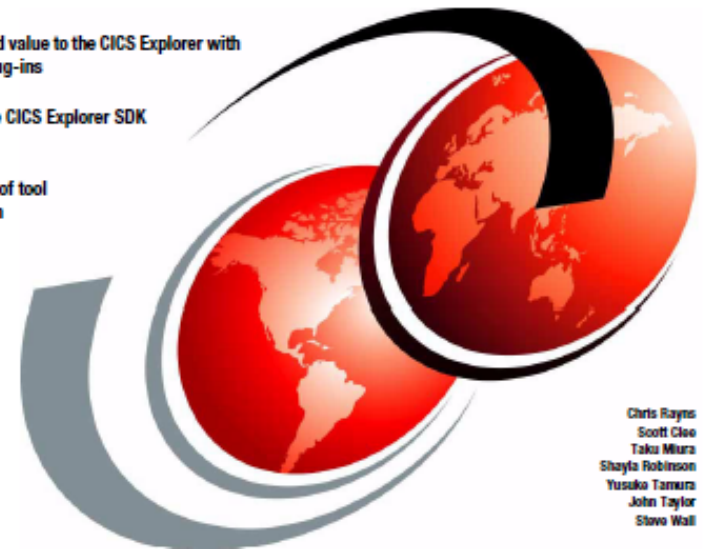
Draft Document for Review January 4, 2010 11:12 am

Extend the CICS Explorer: A smart way to manage your CICS

How to add value to the CICS Explorer with Eclipse plug-ins

Unlock the CICS Explorer SDK

Examples of tool Integration



Chris Rayns
Scott Cleo
Taku Miura
Shayla Robinson
Yusuko Tamura
John Taylor
Stova Wall

ibm.com/redbooks

Redbooks

Reference

- CICS Tools Web site: <http://www.ibm.com/cics/tools>
- Redbooks:
 - Threadsafe Considerations for CICS, SG24-6351-02
<http://www.redbooks.ibm.com/abstracts/sg246351.html?Open>
 - CICS Interdependency Analyzer
<http://www.redbooks.ibm.com/abstracts/sg246458.html?Open>
- Support Pac:
 - IBM CICS Explorer for Windows SupportPac –New Face of CICS
<http://tinyurl.com/6o6n9v>
- Running OMEGAMON XE for CICS as threadsafe
<http://www-01.ibm.com/software/tivoli/features/ccr2/ccr2-2004-06/features-cics.html>
- Try CICS tools for free for 60 days
www.ibm.com/software/os/zseries/trials/cicstools
- Contact your Local IBM Representative
- Program numbers (license):
 - 5697-J23: CICS Interdependency Analyzer

Reference

Tools WEB sites

- CICS tools, including library:
www.ibm.com/cics/tools
- WebSphere zSeries tools:
www.ibm.com/software/websphere/zadportal
- Try CICS tools for free for 60 days
www.ibm.com/software/os/zseries/trials/cicstools

Support Pacs

- CP12: CICS PA Historical Database Reporting
www.ibm.com/support/docview.wss?uid=swg24011321

Business Article

- The Wall Street Journal, June 24, 2007.
The Dinosaurs That Won't Die:
<http://blogs.wsj.com/biztech/2007/07/24/the-dinosaurs-that-wont-die/>



Program numbers (licence):

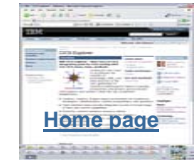
5697-J23: CICS Interdependency Analyzer
5697-N40: CICS Performance Analyzer
5697-I78: CICS Configuration Manager
5655-P30: CICS VSAM Recovery
5697-I76: CICS VSAM Transparency
5697-I94: CICS Batch Application Control
5655-K01: IBM Session Manager
5655-I05: CICS OTTO

CICS Communities and Information

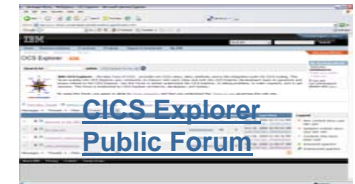
[zSeries](#)
[PD/CICS/Icing](#)
[Sales - CICS](#)
[Communities](#)



- CICS Transaction Server V4.1
 - <http://ibm.com/cics/tserver/v41/>
- [CICS Explorer home page](#)
 - Remember this link ibm.com/cics/explorer
- [CICS Explorer Forum](#)
 - <http://tinyurl.com/68bndw>
 - IBM developerWorks forum with FAQs, Links and resources, ISV Contributions, etc. Ask questions, suggest improvements, report problems, chat
- New! CICS Hub on the Rational COBOL Café
 - <http://ibm.com/software/rational/cafe/community/cobol/cics>
- Twitter
 - Subscribe to the [IBM System z channel](#) to get CICS Explorer news flashes
- CICS Blog
 - Comment and opinion at TheMasterTerminal.com
- [CICS eNews](#)
 - Subscribe for news about CICS and related products
- YouTube channels
 - [CICS Explorer](#) - Videos, demos and other cool stuff
 - [CICSFluff](#) - Other CICS videos



Home page



CICS Explorer
Public Forum



CICS Hub



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eNews



YouTube

Sources of Information

- Web
 - CICS IA
 - home page ibm.com/cics/ianaly
 - Library page http://www-01.ibm.com/software/sw-library/en_US/products/W202225T13749V07
 - CICS Tools
 - Home page ibm.com/cics/tools/
 - Trial download ibm.com/software/os/zseries/trials/cicstools/
 - CICS Explorer
 - Home page ibm.com/cics/explorer
 - Download page <http://ibm.com/cics/explorer/download>
 - CICS TS home page ibm.com/cics
- Demos and animations
 - CICS Explorer demo - featuring Threadsafe Analysis using the CICS PA and CICS IA perspectives - <http://www.youtube.com/watch?v=Jk3Ydvl8Ino>
 - CICS Explorer animation - <http://www.youtube.com/watch?v=-NzWwUi5ILw>
 - CICS Transaction Server in your SOA - Great source of links to more CICS ecosystem information - [ftp://ftp.software.ibm.com/software/http/cics/presentations/CICS_TS_in_your_SOA - Links - Issue 3.ppt](ftp://ftp.software.ibm.com/software/http/cics/presentations/CICS_TS_in_your_SOA_-_Links_-_Issue_3.ppt)

Thank You !
Any questions?

