CA Cross-Enterprise Application Performance Management

User Guide

Version 3.0

technologies

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CA Technologies Product References

This document references the following CA Technologies products and features:

- CA Application Performance Management (CA APM)
- CA Application Performance Management for IBM CICS Transaction Gateway (CA APM for IBM CICS Transaction Gateway)
- CA Application Performance Management for IBM WebSphere MQ (CA APM for IBM WebSphere MQ)
- CA Cross-Enterprise Application Performance Management
- CA Insight™ Database Performance Monitor for DB2 for z/OS® (CA Insight DPM)
- CA Introscope®
- CA NetMaster® Network Management for TCP/IP (CA NetMaster NM for TCP/IP)
- CA SYSVIEW® Performance Management (CA SYSVIEW)

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Contact CA Support

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- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
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Contents

Chapter 1: How to use the Console to Identify Problems

This section contains the following topics:

About CA Cross-Enterprise APM Dashboards

CA APM Cross-Enterprise provides a series of out-of-the-box dashboards that can be viewed in the console. The dashboards that are included:

CA APM Cross-Enterprise: Mainframe Health Overview

Provides general system status at a glance.

CA APM Cross-Enterprise: z/OS System Health

This dashboard displays key metrics to help identify problems with the health of the z/OS system.

CA APM Cross-Enterprise: CICS Regions Health

Displays the metrics that report on the health of the CICS regions.

CA APM Cross-Enterprise: CICS Transaction Groups Details

Displays the metrics that report CICS transaction groups details.

CA APM Cross-Enterprise: IMS Subsystems Health

Displays the metrics that report on the health of the IMS subsystems.

CA APM Cross-Enterprise: IMS Transaction Groups

Displays the metrics that report on the health of the IMS transaction groups.

CA APM Cross-Enterprise: DATACOM Address Spaces Health

Displays the metrics that report on the health of the DATACOM address spaces.

CA APM Cross-Enterprise: Websphere MQ Queue Managers Health

Displays the metrics that report on the health of the Websphere MQ queue managers.

CA APM Cross-Enterprise: Websphere MQ Queues Health

Displays the metrics that report on the health of the Websphere MQ queues.

CA APM Cross-Enterprise: TCPIP Stacks Health

Displays the metrics that report on the health of the TCPIP stacks.

CA APM Cross-Enterprise: DB2 z/OS Performance Overview

Provides an overview of the health of all monitored DB2 subsystems.

CA APM Cross-Enterprise: DB2 z/OS Subsystem Information

Displays environmental information about each monitored DB2 subsystem.

CA APM Cross-Enterprise: DB2 z/OS CPU Activity

Displays the CPU usage information from each monitored DB2 subsystem.

CA APM Cross-Enterprise: DB2 z/OS Buffer Pool Activity

Displays the metrics that show how buffer pools are being utilized in each monitored DB2 subsystem.

CA APM Cross-Enterprise: DB2 z/OS EDM Pool Activity

Displays the metrics that show how the EDM pools are performing in each monitored DB2 subsystem.

CA APM Cross-Enterprise: DB2 z/OS Lock Activity

Displays database lock processing metrics from each monitored DB2 subsystem.

CA APM Cross-Enterprise: DB2 z/OS Log Activity

Displays transaction log metrics from each monitored DB2 subsystem.

CA APM Cross-Enterprise: DB2 z/OS Workload

Displays summary workload performance metrics from each monitored DB2 subsystem (including SQL processing metrics).

CA APM Cross-Enterprise: DB2 z/OS More Information

Displays summary metrics such as workfile shortages, RID and Starjoin pool failures, and dataset allocation percentages from each monitored DB2 subsystem.

CA NetMaster NM for TCP/IP integration provides additional dashboards. The names of these dashboards begin with NetMaster (for example, NetMaster - Mainframe Network Overview).

CA NetMaster NM for TCP/IP integration provides additional dashboards. The names of these dashboards begin with NetMaster (for example, NetMaster - Mainframe Network Overview).

View Dashboards in the Introscope Console

You view dashboards in the CA Introscope Console. Select a dashboard from the Dashboard drop-down list or by clicking tabs.

Follow these steps:

1. Connect to the CA Introscope Workstation.
2. Go to Workstation > New Console.
3. Select a dashboard from the Dashboard drop-down list.

   After you have selected a CA APM Cross-Enterprise dashboard, use the dashboard drop-down list or click tabs to view other CA APM Cross-Enterprise dashboards.

Alert Indicators

Alert indicators show the current status of an alert by lighting one of three colored symbols that correspond to conditions defined in the alert.

- Red octagon = danger threshold was crossed
- Yellow diamond = caution threshold was crossed
- Green disc = status normal

If the alert has no data, the alert indicator is a gray disc.

An alert indicator with three color states can also be shown as a single symbol.

For more information about alert indicators, see *CA APM Workstation User Guide.* You can access this guide from CA Technical Support site.

CA Cross-Enterprise APM - Mainframe Health Overview Dashboard

This dashboard offers a quick view of the health of the entire z/OS environment monitored by CA Introscope. It shows alert indicators that report the status for the dashboards available from the Overview dashboard. Double-click the alert indicator to open the corresponding dashboards.

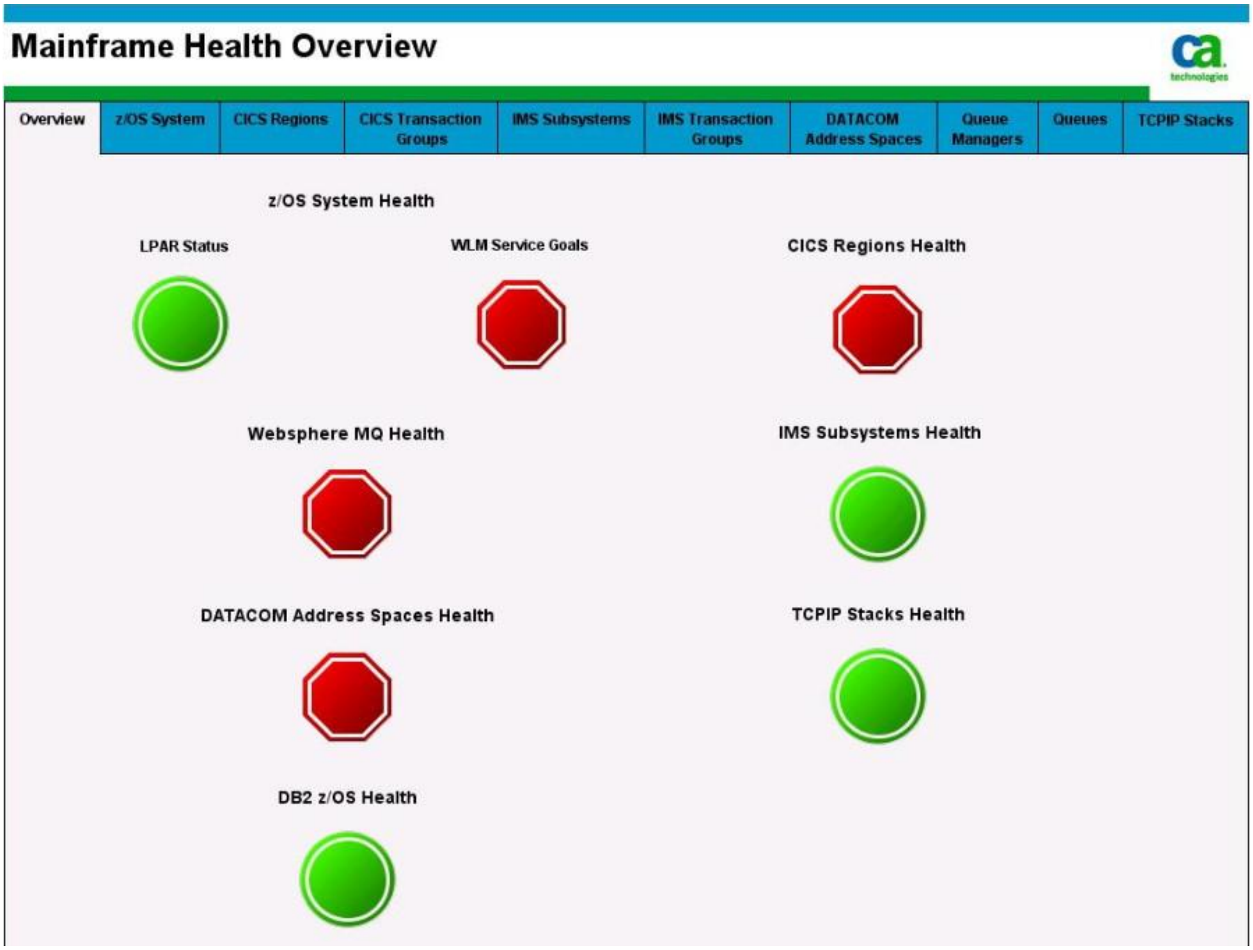
The following table identifies the dashboard alert indicators and corresponding dashboards monitored on this dashboard:

Dashboard alert indicator	Dashboard
z/OS System Health - LPAR Status	CA APM Cross-Enterprise: z/OS System Health as it relates to LPAR Status
z/OS System Health - WLM Service Goals	CA APM Cross-Enterprise: z/OS System Health as it relates to Workload Management Service Goals
CICS Regions Health	CA APM Cross-Enterprise: CICS Regions Health
Websphere MQ Health	CA Cross-Enterprise APM: Websphere MQ Queue Managers Health
IMS Subsystems Health	CA APM Cross-Enterprise: IMS Subsystems Health
DATACOM Address Spaces Health	CA APM Cross-Enterprise: DATACOM Address Spaces Health
TCPIP Stacks Health	CA APM Cross-Enterprise: TCPIP Stacks Health

Follow these steps:

- To view the dashboard, from the Introscope console, select CA APM Cross-Enterprise Mainframe Health Overview from the Dashboard drop-down menu.

  The Mainframe Health Overview dashboard appears.



- Double-click any of the status indicators to view its corresponding dashboard.

z/OS System Health Dashboard

This dashboard displays the following key metrics to help identify problems with the health of the z/OS system:

- LPAR Status alert indicator
- LPAR Status

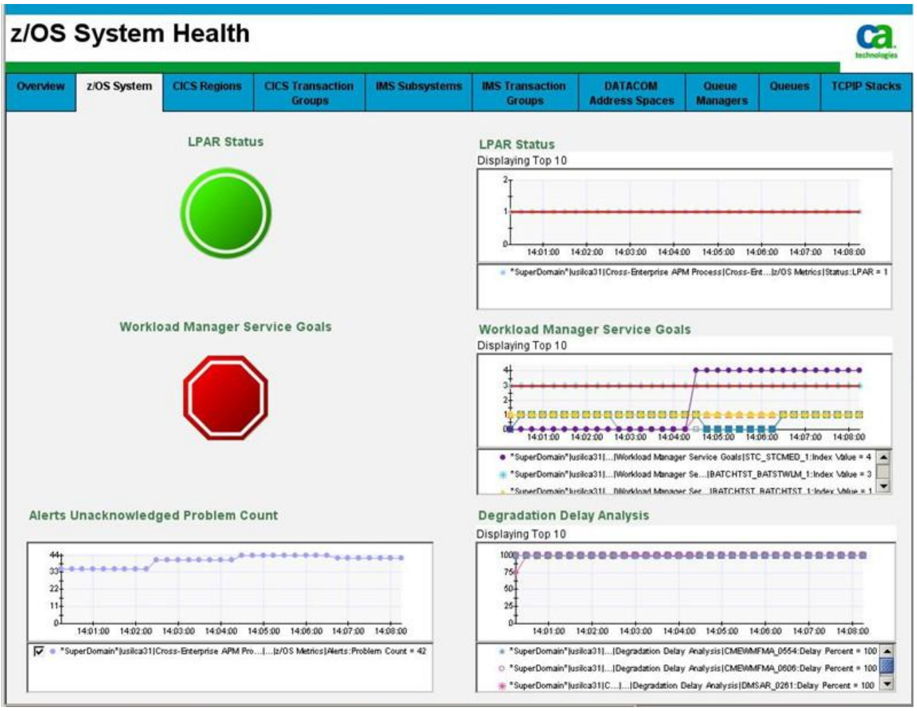
- Alerts Unacknowledged Problem Count Graph
- Workload Manager Service Goals
- Degradation Delay Analysis
- Common Storage Area (CSA %)
- Extended Storage Area (ECSA %)
- z/OS CP Busy (%)
- z/OS LPAR CP Busy (%)
- Tasks Ready To Dispatch
- I/O Rate Per Second

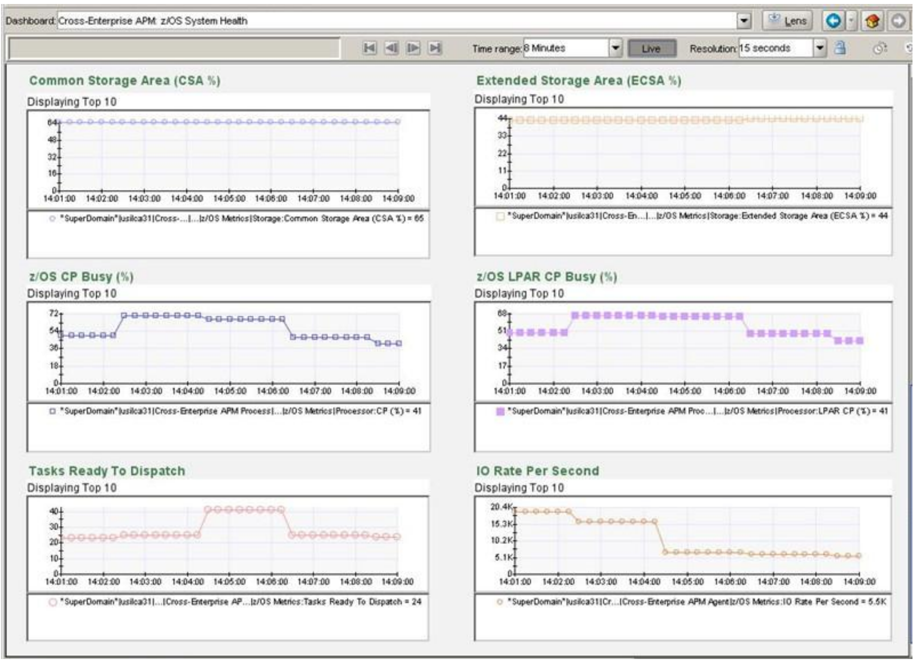
For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: z/OS System Health from the Dashboard drop-down menu, or the z/OS System tab.

The two-page z/OS System Health dashboard opens. Scrolling maybe necessary to reach the second page.


z/OS System Health
ca technologies
Overview
z/OS System
CICS Regions
CICS Transaction Groups
IMS Subsystems
IMS Transaction Groups
DATACOM Address Spaces
Queue Managers
Queues
TCPIP Stacks
LPAR Status
LPAR Status
Displaying Top 10
2
1
0
14:01:00
14:02:00
14:03:00
14:04:00
14:05:00
14:06:00
14:07:00
14:08:00
"SuperDomain"|usilca31|Cross-Enterprise APM Process|Cross-Ent...|z/OS Metrics|Status:LPAR = 1
Workload Manager Service Goals
Workload Manager Service Goals
Displaying Top 10
4
3
2
1
0
"SuperDomain"|usilca31|...|Workload Manager Service Goals|STC_STCMED_1:Index Value = 4
"SuperDomain"|usilca31|...|Workload Manager Se...|BATCHTST_BATSTWLM_1:Index Value = 3
"SuperDomain"|usilca31|...|Workload Manager Se...|BATCHTST_BATCHTST_1:Index Value = 1
Alerts Unacknowledged Problem Count
44
33
22
11
0
☑ "SuperDomain"|usilca31|Cross-Enterprise APM Pro...|...|z/OS Metrics|Alerts:Problem Count = 42
Degradation Delay Analysis
Displaying Top 10
100
75
50
25
0
"SuperDomain"|usilca31|...|Degradation Delay Analysis|CMEWMFMA_0554:Delay Percent = 100
"SuperDomain"|usilca31|...|Degradation Delay Analysis|CMEWMFMA_0606:Delay Percent = 100
"SuperDomain"|usilca31|C...|...|Degradation Delay Analysis|DMSAR_0261:Delay Percent = 100


Dashboard: Cross-Enterprise APM: z/OS System Health

Time range: 8 Minutes

Resolution: 15 seconds

Lens
Live
Common Storage Area (CSA %)
Displaying Top 10
64
48
32
16
0
14:01:00
14:02:00
14:03:00
14:04:00
14:05:00
14:06:00
14:07:00
14:08:00
14:09:00
"SuperDomain"|usilca31|Cross-...|...|z/OS Metrics|Storage:Common Storage Area (CSA %) = 65
Extended Storage Area (ECSA %)
Displaying Top 10
44
33
22
11
0
"SuperDomain"|usilca31|Cross-En...|...|z/OS Metrics|Storage:Extended Storage Area (ECSA %) = 44
z/OS CP Busy (%)
Displaying Top 10
72
54
36
18
0
"SuperDomain"|usilca31|Cross-Enterprise APM Process|...|z/OS Metrics|Processor:CP (%) = 41
z/OS LPAR CP Busy (%)
Displaying Top 10
68
51
34
17
0
"SuperDomain"|usilca31|Cross-Enterprise APM Proc...|...|z/OS Metrics|Processor:LPAR CP (%) = 41
Tasks Ready To Dispatch
Displaying Top 10
40
30
20
10
0
"SuperDomain"|usilca31|...|Cross-Enterprise AP...|z/OS Metrics:Tasks Ready To Dispatch = 24
IO Rate Per Second
Displaying Top 10
20.4K
15.3K
10.2K
5.1K
0
"SuperDomain"|usilca31|Cr...|Cross-Enterprise APM Agent|z/OS Metrics:IO Rate Per Second = 5.5K

CICS Regions Health Dashboard

This dashboard displays the following key metrics to help identify problems with the health of CICS regions:

- CICS Regions Status alert indicator

  Displays the regions status value for all metrics.

- CICS Regions Monitoring alert indicator

  Displays the region monitoring value metrics for all regions.

- CICS Region Statuses

  Displays the regions status value for the top ten CICS regions.

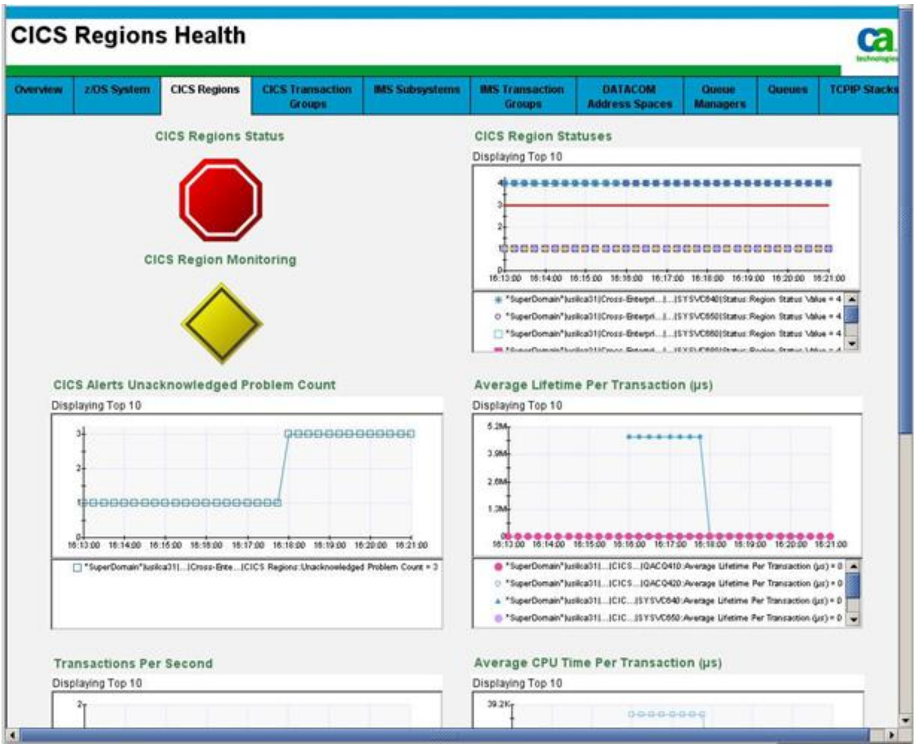
- CICS Alerts Unacknowledged Problem Count
- Average CPU Time Per Transaction (µs)
- Average Lifetime Per Transaction (µs)
- Average Suspend Time Per Transaction (µs)
- Transactions Per Second

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: CICS Regions Health from the Dashboard drop-down menu, or the CICS Regions tab.

  The CICS Regions Health dashboard opens.


CICS Regions Health
Overview
z/OS System
CICS Regions
CICS Transaction Groups
IMS Subsystems
IMS Transaction Groups
DATACOM Address Spaces
Queue Managers
Queues
TCPIP Stacks
CICS Regions Status
CICS Region Monitoring
CICS Region Statuses
Displaying Top 10
0
1
2
3
4
16:13:00
16:14:00
16:15:00
16:16:00
16:17:00
16:18:00
16:19:00
16:20:00
16:21:00
SuperDomain|usilca31|Cross-Enterpri...|...|SYSVC640|Status:Region Status Value = 4
SuperDomain|usilca31|Cross-Enterpri...|...|SYSVC650|Status:Region Status Value = 4
SuperDomain|usilca31|Cross-Enterpri...|...|SYSVC660|Status:Region Status Value = 4
CICS Alerts Unacknowledged Problem Count
Displaying Top 10
0
1
2
3
16:13:00
16:14:00
16:15:00
16:16:00
16:17:00
16:18:00
16:19:00
16:20:00
16:21:00
SuperDomain|usilca31|...|Cross-Ente...|CICS Regions:Unacknowledged Problem Count = 3
Average Lifetime Per Transaction (µs)
Displaying Top 10
0
1.3M
2.6M
3.9M
5.2M
16:13:00
16:14:00
16:15:00
16:16:00
16:17:00
16:18:00
16:19:00
16:20:00
16:21:00
SuperDomain|usilca31|...|CICS...|QACQ410:Average Lifetime Per Transaction (µs) = 0
SuperDomain|usilca31|...|CICS...|QACQ420:Average Lifetime Per Transaction (µs) = 0
SuperDomain|usilca31|...|CIC...|SYSVC640:Average Lifetime Per Transaction (µs) = 0
SuperDomain|usilca31|...|CIC...|SYSVC650:Average Lifetime Per Transaction (µs) = 0
Transactions Per Second
Displaying Top 10
2
Average CPU Time Per Transaction (µs)
Displaying Top 10
39.2K

CICS Transaction Groups Details Dashboard

This dashboard displays the following key metrics to help identify problems with CICS transaction groups:

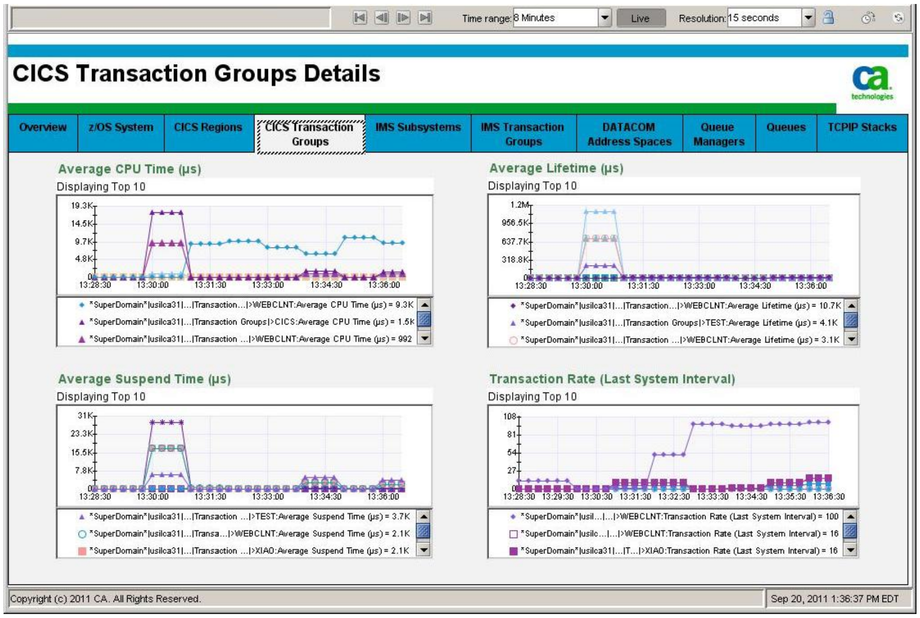
- Average CPU Time Used (µs)
- Average Lifetime (µs)
- Average Suspend Time (µs)
- Transaction Rate (Last System Interval)

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: CICS Transaction Groups from the Dashboard drop-down menu, or the CICS Regions tab.

  The CICS Transaction Groups Details dashboard opens.



◆ *SuperDomain*|usilca31|...|Transaction...|>WEBCLNT:Average CPU Time (µs) = 9.3K
▲ *SuperDomain*|usilca31|...|Transaction Groups|>CICS:Average CPU Time (µs) = 1.5K
▲ *SuperDomain*|usilca31|...|Transaction ...|>WEBCLNT:Average CPU Time (µs) = 992

◆ *SuperDomain*|usilca31|...|Transaction...|>WEBCLNT:Average Lifetime (µs) = 10.7K
▲ *SuperDomain*|usilca31|...|Transaction Groups|>TEST:Average Lifetime (µs) = 4.1K
○ *SuperDomain*|usilca31|...|Transaction ...|>WEBCLNT:Average Lifetime (µs) = 3.1K

▲ *SuperDomain*|usilca31|...|Transaction ...|>TEST:Average Suspend Time (µs) = 3.7K
○ *SuperDomain*|usilca31|...|Transa...|>WEBCLNT:Average Suspend Time (µs) = 2.1K
■ *SuperDomain*|usilca31|...|Transaction ...|>XIAO:Average Suspend Time (µs) = 2.1K

◆ *SuperDomain*|usil...|...|>WEBCLNT:Transaction Rate (Last System Interval) = 100
□ *SuperDomain*|usilc...|...|>WEBCLNT:Transaction Rate (Last System Interval) = 16
■ *SuperDomain*|usilca31|...|T...|>XIAO:Transaction Rate (Last System Interval) = 16

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Sep 20, 2011 1:36:37 PM EDT

IMS Subsystems Health Dashboard

This dashboard displays the following key metrics to help identify problems with the health of IMS subsystems:

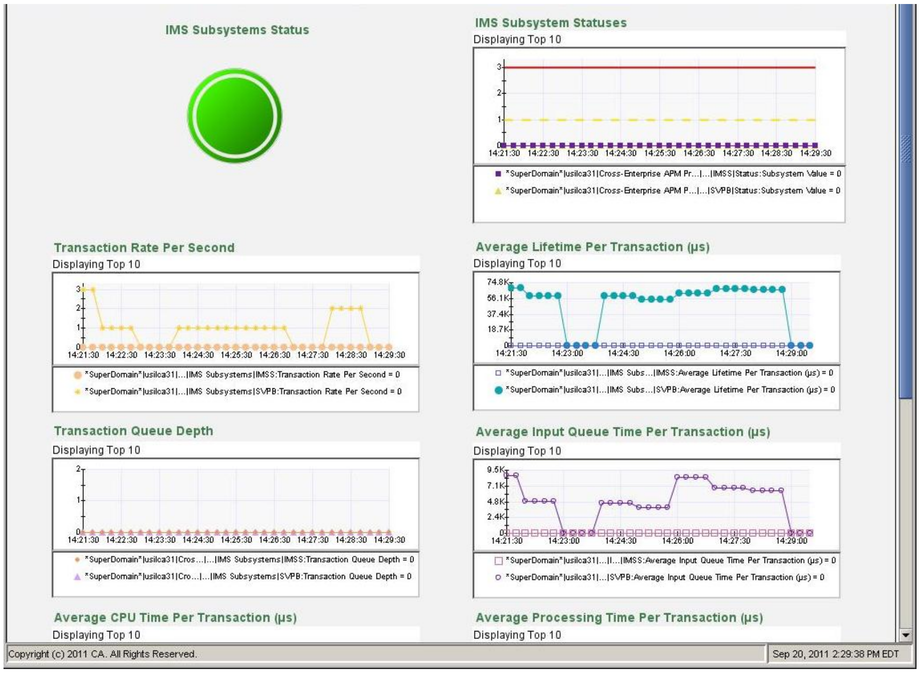
- IMS Subsystems Status alert indicator
- Transactions Rate Per Second
- Average Lifetime Per Transaction(µs)
- Transaction Queue Depth
- Average Input Queue Time Per Transaction(µs)
- Average CPU Time Per Transaction(µs)
- Average Processing Time Per Transaction(µs)
- Average Output Queue Time Per Transaction(µs)

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: IMS Subsystems Health from the Dashboard drop-down menu, or the IMS Subsystems tab.

The IMS Subsystems Health dashboard opens.


IMS Subsystems Status
IMS Subsystem Statuses
Displaying Top 10
3
2
1
0
14:21:30 14:22:30 14:23:30 14:24:30 14:25:30 14:26:30 14:27:30 14:28:30 14:29:30
SuperDomain|usilca31|Cross-Enterprise APM Pr…|…|IMSS|Status:Subsystem Value = 0
SuperDomain|usilca31|Cross-Enterprise APM P…|…|SVPB|Status:Subsystem Value = 0
Transaction Rate Per Second
Displaying Top 10
3
2
1
0
14:21:30 14:22:30 14:23:30 14:24:30 14:25:30 14:26:30 14:27:30 14:28:30 14:29:30
SuperDomain|usilca31|…|IMS Subsystems|IMSS:Transaction Rate Per Second = 0
SuperDomain|usilca31|…|IMS Subsystems|SVPB:Transaction Rate Per Second = 0
Average Lifetime Per Transaction (µs)
Displaying Top 10
74.8K
56.1K
37.4K
18.7K
0
14:21:30 14:23:00 14:24:30 14:26:00 14:27:30 14:29:00
SuperDomain|usilca31|…|IMS Subs…|IMSS:Average Lifetime Per Transaction (µs) = 0
SuperDomain|usilca31|…|IMS Subs…|SVPB:Average Lifetime Per Transaction (µs) = 0
Transaction Queue Depth
Displaying Top 10
2
1
0
14:21:30 14:22:30 14:23:30 14:24:30 14:25:30 14:26:30 14:27:30 14:28:30 14:29:30
SuperDomain|usilca31|Cros…|…|IMS Subsystems|IMSS:Transaction Queue Depth = 0
SuperDomain|usilca31|Cro…|…|IMS Subsystems|SVPB:Transaction Queue Depth = 0
Average Input Queue Time Per Transaction (µs)
Displaying Top 10
9.5K
7.1K
4.8K
2.4K
0
14:21:30 14:23:00 14:24:30 14:26:00 14:27:30 14:29:00
SuperDomain|usilca31|…|I…|IMSS:Average Input Queue Time Per Transaction (µs) = 0
SuperDomain|usilca31|…|SVPB:Average Input Queue Time Per Transaction (µs) = 0
Average CPU Time Per Transaction (µs)
Displaying Top 10
Average Processing Time Per Transaction (µs)
Displaying Top 10
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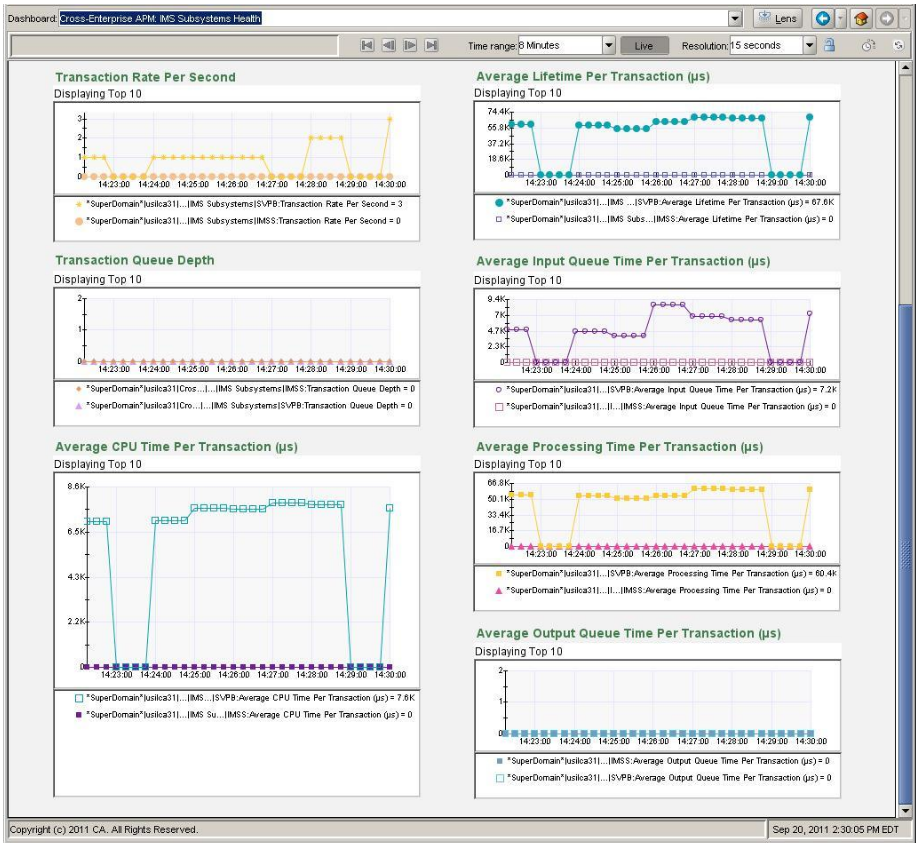
Sep 20, 2011 2:29:38 PM EDT



Dashboard: Cross-Enterprise APM: IMS Subsystems Health

Time range: 8 Minutes

Resolution: 15 seconds

Lens
Live
Transaction Rate Per Second
Displaying Top 10
3
2
1
0
14:23:00 14:24:00 14:25:00 14:26:00 14:27:00 14:28:00 14:29:00 14:30:00
SuperDomain|usilca31|…|IMS Subsystems|SVPB:Transaction Rate Per Second = 3
SuperDomain|usilca31|…|IMS Subsystems|IMSS:Transaction Rate Per Second = 0
Average Lifetime Per Transaction (µs)
Displaying Top 10
74.4K
55.8K
37.2K
18.6K
0
14:23:00 14:24:00 14:25:00 14:26:00 14:27:00 14:28:00 14:29:00 14:30:00
SuperDomain|usilca31|…|IMS …|SVPB:Average Lifetime Per Transaction (µs) = 67.6K
SuperDomain|usilca31|…|IMS Subs…|IMSS:Average Lifetime Per Transaction (µs) = 0
Transaction Queue Depth
Displaying Top 10
2
1
0
14:23:00 14:24:00 14:25:00 14:26:00 14:27:00 14:28:00 14:29:00 14:30:00
SuperDomain|usilca31|Cros…|…|IMS Subsystems|IMSS:Transaction Queue Depth = 0
SuperDomain|usilca31|Cro…|…|IMS Subsystems|SVPB:Transaction Queue Depth = 0
Average Input Queue Time Per Transaction (µs)
Displaying Top 10
9.4K
7K
4.7K
2.3K
0
14:23:00 14:24:00 14:25:00 14:26:00 14:27:00 14:28:00 14:29:00 14:30:00
SuperDomain|usilca31|…|SVPB:Average Input Queue Time Per Transaction (µs) = 7.2K
SuperDomain|usilca31|…|I…|IMSS:Average Input Queue Time Per Transaction (µs) = 0
Average CPU Time Per Transaction (µs)
Displaying Top 10
8.6K
6.5K
4.3K
2.2K
0
14:23:00 14:24:00 14:25:00 14:26:00 14:27:00 14:28:00 14:29:00 14:30:00
SuperDomain|usilca31|…|IMS…|SVPB:Average CPU Time Per Transaction (µs) = 7.6K
SuperDomain|usilca31|…|IMS Su…|IMSS:Average CPU Time Per Transaction (µs) = 0
Average Processing Time Per Transaction (µs)
Displaying Top 10
66.8K
50.1K
33.4K
16.7K
0
14:23:00 14:24:00 14:25:00 14:26:00 14:27:00 14:28:00 14:29:00 14:30:00
SuperDomain|usilca31|…|SVPB:Average Processing Time Per Transaction (µs) = 60.4K
SuperDomain|usilca31|…|I…|IMSS:Average Processing Time Per Transaction (µs) = 0
Average Output Queue Time Per Transaction (µs)
Displaying Top 10
2
1
0
14:23:00 14:24:00 14:25:00 14:26:00 14:27:00 14:28:00 14:29:00 14:30:00
SuperDomain|usilca31|…|IMSS:Average Output Queue Time Per Transaction (µs) = 0
SuperDomain|usilca31|…|SVPB:Average Output Queue Time Per Transaction (µs) = 0
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Sep 20, 2011 2:30:05 PM EDT

IMS Transaction Groups Health Dashboard

The Transaction Groups dashboard shows the top ten for the following metrics in the transaction groups:

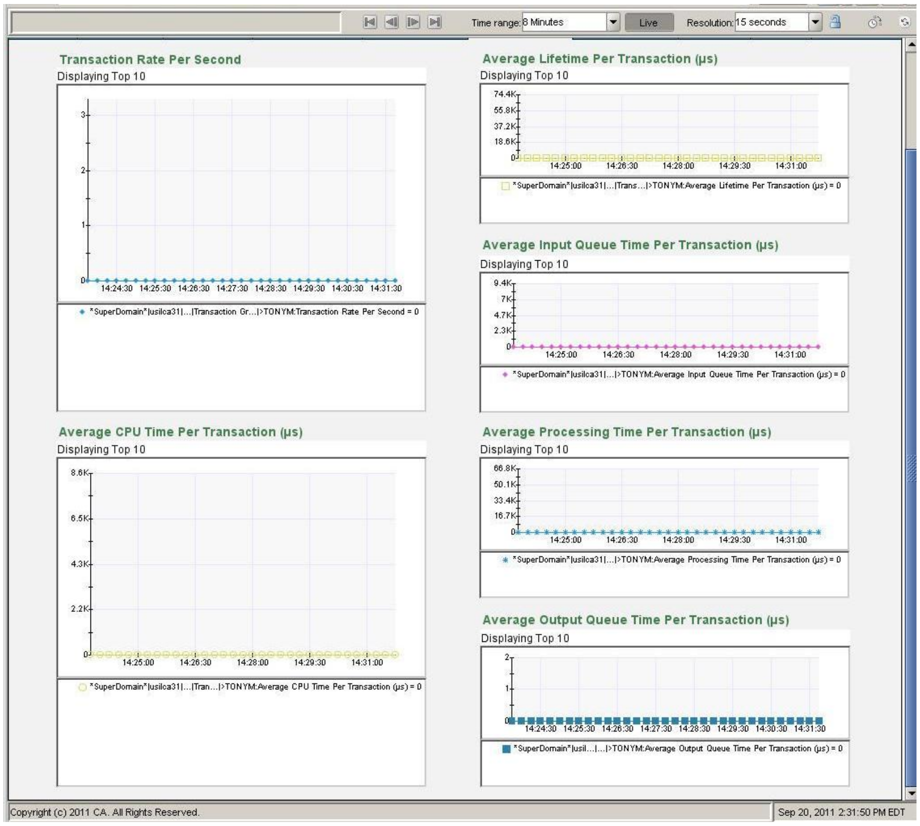
- Transaction Rate Per Second
- Average Input Queue Time Per Transaction(µs)
- Average Processing Time Per Transaction(µs)
- Average Output Queue Time Per Transaction(µs)
- Average Lifetime per Transaction(µs)
- Average CPU Time Per Transaction(µs)

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: IMS Subsystems Health from the Dashboard drop-down menu, or the IMS Subsystems tab.

  The IMS Transaction Group dashboard opens.



Time range: 8 Minutes

Resolution: 15 seconds

Transaction Rate Per Second

Displaying Top 10

SuperDomain|usilca31|...|Transaction Gr...|>TONYM:Transaction Rate Per Second = 0

Average Lifetime Per Transaction (µs)

Displaying Top 10

SuperDomain|usilca31|...|Trans...|>TONYM:Average Lifetime Per Transaction (µs) = 0

Average Input Queue Time Per Transaction (µs)

Displaying Top 10

SuperDomain|usilca31|...|>TONYM:Average Input Queue Time Per Transaction (µs) = 0

Average CPU Time Per Transaction (µs)

Displaying Top 10

SuperDomain|usilca31|...|Tran...|>TONYM:Average CPU Time Per Transaction (µs) = 0

Average Processing Time Per Transaction (µs)

Displaying Top 10

SuperDomain|usilca31|...|>TONYM:Average Processing Time Per Transaction (µs) = 0

Average Output Queue Time Per Transaction (µs)

Displaying Top 10

SuperDomain|usil...|...|>TONYM:Average Output Queue Time Per Transaction (µs) = 0

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Sep 20, 2011 2:31:50 PM EDT

CA Datacom Address Spaces Health Dashboard

This dashboard displays the following key metrics to help identify problems with the health of CA Datacom address spaces:

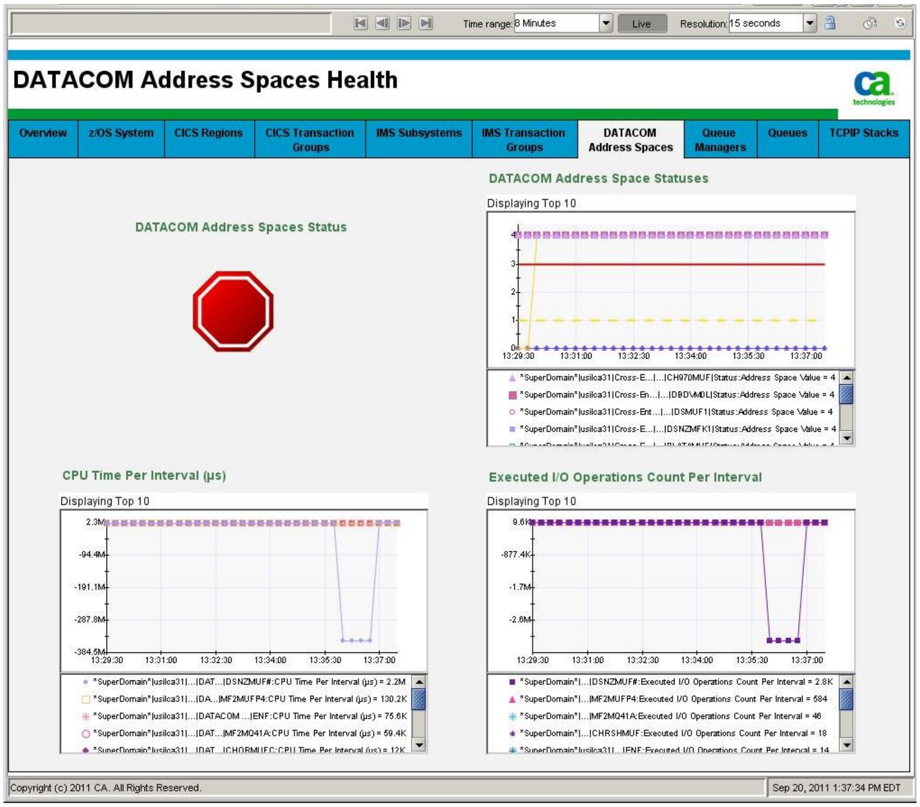
- CA Datacom Address Spaces Status alert indicator
- CA Datacom Address Space Statuses
- CPU Time Per Interval (µs)
- Executed I/O Operations Count Per Interval

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: DATACOM Address Spaces from the Dashboard drop-down menu, or the DATACOM Address Spaces tab.

  The DATACOM Address Spaces dashboard opens.


Time range: 8 Minutes
Live
Resolution: 15 seconds
DATACOM Address Spaces Health
ca technologies
Overview
z/OS System
CICS Regions
CICS Transaction Groups
IMS Subsystems
IMS Transaction Groups
DATACOM Address Spaces
Queue Managers
Queues
TCPIP Stacks
DATACOM Address Spaces Status
DATACOM Address Space Statuses
Displaying Top 10
4
3
2
1
0
13:29:30
13:31:00
13:32:30
13:34:00
13:35:30
13:37:00
SuperDomain|usilca31|Cross-E...|...|CH970MUF|Status:Address Space Value = 4
SuperDomain|usilca31|Cross-En...|...|DBDVM0L|Status:Address Space Value = 4
SuperDomain|usilca31|Cross-Ent...|...|DSMUF1|Status:Address Space Value = 4
SuperDomain|usilca31|Cross-E...|...|DSNZMFK1|Status:Address Space Value = 4
CPU Time Per Interval (µs)
Displaying Top 10
2.3M
-94.4M
-191.1M
-287.8M
-384.5M
13:29:30
13:31:00
13:32:30
13:34:00
13:35:30
13:37:00
SuperDomain|usilca31|...|DAT...|DSNZMUF#:CPU Time Per Interval (µs) = 2.2M
SuperDomain|usilca31|...|DA...|MF2MUFP4:CPU Time Per Interval (µs) = 130.2K
SuperDomain|usilca31|...|DATACOM ...|ENF:CPU Time Per Interval (µs) = 75.6K
SuperDomain|usilca31|...|DAT...|MF2MQ41A:CPU Time Per Interval (µs) = 59.4K
SuperDomain|usilca31|...|DAT...|CHORMUFC:CPU Time Per Interval (µs) = 12K
Executed I/O Operations Count Per Interval
Displaying Top 10
9.6K
-877.4K
-1.7M
-2.6M
13:29:30
13:31:00
13:32:30
13:34:00
13:35:30
13:37:00
SuperDomain|...|DSNZMUF#:Executed I/O Operations Count Per Interval = 2.8K
SuperDomain|...|MF2MUFP4:Executed I/O Operations Count Per Interval = 584
SuperDomain|...|MF2MQ41A:Executed I/O Operations Count Per Interval = 46
SuperDomain|...|CHRSHMUF:Executed I/O Operations Count Per Interval = 18
SuperDomain|usilca31|...|ENF:Executed I/O Operations Count Per Interval = 14
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Sep 20, 2011 1:37:34 PM EDT

Queue Managers Health Dashboard

This dashboard displays the following key metrics to help identify problems with the health of Websphere MQ queue managers:

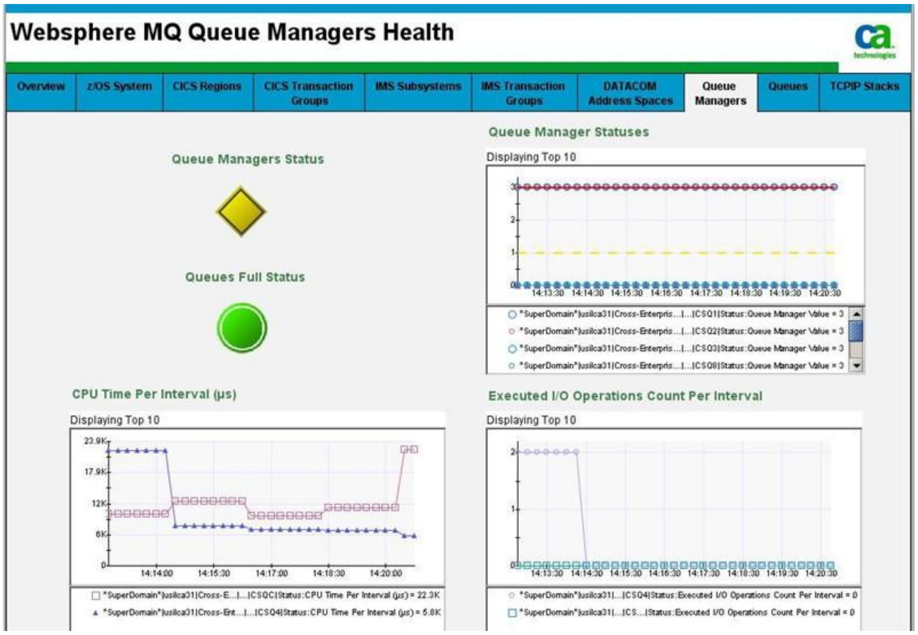
- Websphere MQ Queue Managers Status alert indicator
- Websphere MQ Queues Full Status alert indicator
- CPU Time Per Interval (µs)
- Websphere MQ Queue Manager Statuses
- Executed I/O Operations Count Per Interval

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: Websphere MQ Queue Managers Health from the Dashboard drop-down menu, or the Queue Managers tab.

  The Websphere MQ Queue Managers Health dashboard opens.



○ "SuperDomain"|usilca31|Cross-Enterpris...|...|CSQ1|Status:Queue Manager Value = 3
○ "SuperDomain"|usilca31|Cross-Enterpris...|...|CSQ2|Status:Queue Manager Value = 3
○ "SuperDomain"|usilca31|Cross-Enterpris...|...|CSQ3|Status:Queue Manager Value = 3
○ "SuperDomain"|usilca31|Cross-Enterpris...|...|CSQ8|Status:Queue Manager Value = 3

□ "SuperDomain"|usilca31|Cross-E...|...|CSQC|Status:CPU Time Per Interval (µs) = 22.3K
▲ "SuperDomain"|usilca31|Cross-Ent...|...|CSQ4|Status:CPU Time Per Interval (µs) = 5.8K

○ "SuperDomain"|usilca31|...|CSQ4|Status:Executed I/O Operations Count Per Interval = 0
□ "SuperDomain"|usilca31|...|CS...|Status:Executed I/O Operations Count Per Interval = 0

Websphere MQ Queues Health Dashboard

This dashboard displays the following key metrics to help identify problems with the health of Websphere MQ queues:

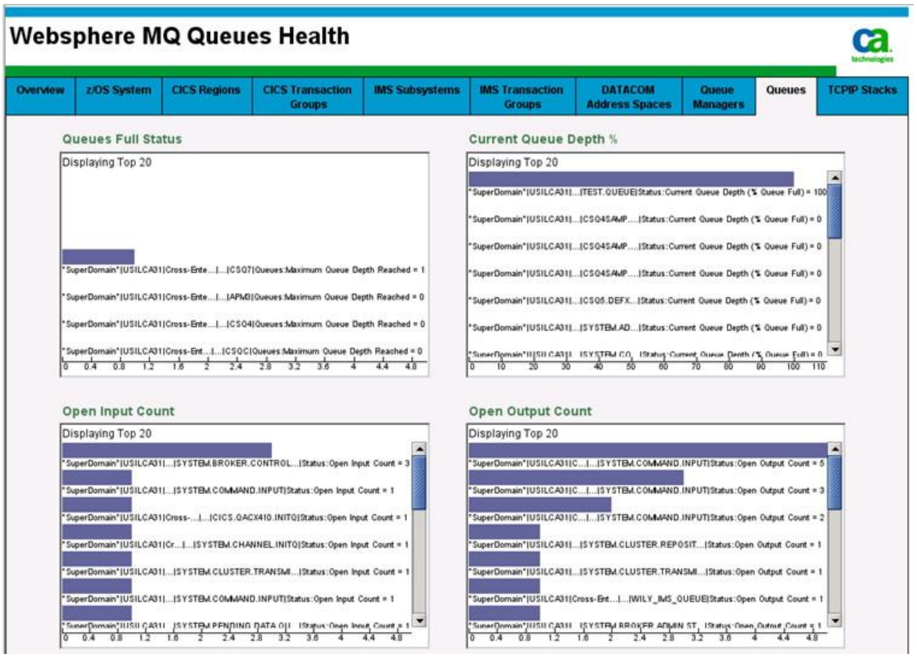
- Websphere MQ Queues Full Status
- Current Queue Depth %
- Open Input Count
- Open Output Count
- Queue Time (short term average)
- Queue Time (long term average)

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: Websphere MQ Queues Health from the Dashboard drop-down menu, or the Queues tab.

  The Websphere MQ Queues Health dashboard opens.


Websphere MQ Queues Health
Overview
z/OS System
CICS Regions
CICS Transaction Groups
IMS Subsystems
IMS Transaction Groups
DATACOM Address Spaces
Queue Managers
Queues
TCPIP Stacks
Queues Full Status
Displaying Top 20
SuperDomain|USILCA31|Cross-Ente...|...|CSQ7|Queues:Maximum Queue Depth Reached = 1
SuperDomain|USILCA31|Cross-Ente...|...|APM3|Queues:Maximum Queue Depth Reached = 0
SuperDomain|USILCA31|Cross-Ente...|...|CSQ4|Queues:Maximum Queue Depth Reached = 0
SuperDomain|USILCA31|Cross-Ent...|...|CSQC|Queues:Maximum Queue Depth Reached = 0
0 0.4 0.8 1.2 1.6 2 2.4 2.8 3.2 3.6 4 4.4 4.8
Current Queue Depth %
Displaying Top 20
SuperDomain|USILCA31|...|TEST.QUEUE|Status:Current Queue Depth (% Queue Full) = 100
SuperDomain|USILCA31|...|CSQ4SAMP....|Status:Current Queue Depth (% Queue Full) = 0
SuperDomain|USILCA31|...|CSQ4SAMP....|Status:Current Queue Depth (% Queue Full) = 0
SuperDomain|USILCA31|...|CSQ4SAMP....|Status:Current Queue Depth (% Queue Full) = 0
SuperDomain|USILCA31|...|CSQ5.DEFX...|Status:Current Queue Depth (% Queue Full) = 0
SuperDomain|USILCA31|...|SYSTEM.AD...|Status:Current Queue Depth (% Queue Full) = 0
SuperDomain|USILCA31|...|SYSTEM.CO...|Status:Current Queue Depth (% Queue Full) = 0
0 10 20 30 40 50 60 70 80 90 100 110
Open Input Count
Displaying Top 20
SuperDomain|USILCA31|...|SYSTEM.BROKER.CONTROL...|Status:Open Input Count = 3
SuperDomain|USILCA31|...|SYSTEM.COMMAND.INPUT|Status:Open Input Count = 1
SuperDomain|USILCA31|Cross-...|...|CICS.QACX410.INITQ|Status:Open Input Count = 1
SuperDomain|USILCA31|Cr...|...|SYSTEM.CHANNEL.INITQ|Status:Open Input Count = 1
SuperDomain|USILCA31|...|SYSTEM.CLUSTER.TRANSMI...|Status:Open Input Count = 1
SuperDomain|USILCA31|...|SYSTEM.COMMAND.INPUT|Status:Open Input Count = 1
SuperDomain|USILCA31|...|SYSTEM.PENDING.DATA.QU...|Status:Open Input Count = 1
0 0.4 0.8 1.2 1.6 2 2.4 2.8 3.2 3.6 4 4.4 4.8
Open Output Count
Displaying Top 20
SuperDomain|USILCA31|C...|...|SYSTEM.COMMAND.INPUT|Status:Open Output Count = 5
SuperDomain|USILCA31|C...|...|SYSTEM.COMMAND.INPUT|Status:Open Output Count = 3
SuperDomain|USILCA31|C...|...|SYSTEM.COMMAND.INPUT|Status:Open Output Count = 2
SuperDomain|USILCA31|...|SYSTEM.CLUSTER.REPOSIT...|Status:Open Output Count = 1
SuperDomain|USILCA31|...|SYSTEM.CLUSTER.TRANSMI...|Status:Open Output Count = 1
SuperDomain|USILCA31|Cross-Ent...|...|WILY_IMS_QUEUE|Status:Open Output Count = 1
SuperDomain|USILCA31|...|SYSTEM.BROKER.ADMIN.ST...|Status:Open Output Count = 1
0 0.4 0.8 1.2 1.6 2 2.4 2.8 3.2 3.6 4 4.4 4.8

TCPIP Stacks Health Dashboard

This dashboard displays the following key metrics to help identify problems with the health of TCPIP stacks:

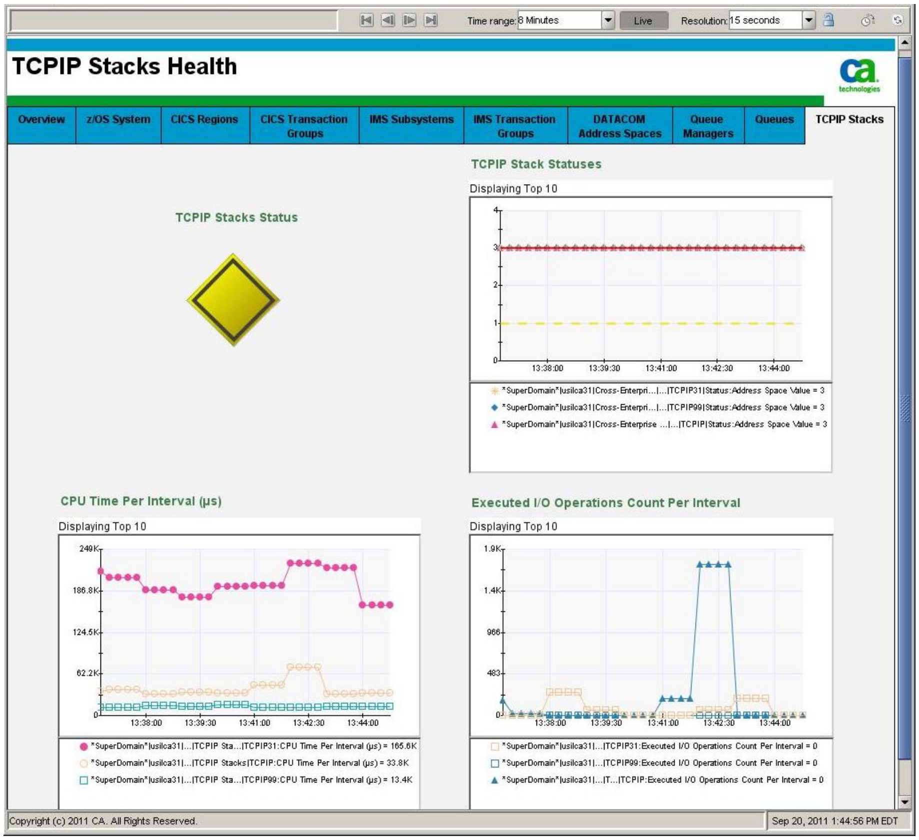
- TCPIP Stacks Status alert indicator
- TCPIP Stack Statuses
- CPU Time Per Interval (µs)
- Executed I/O Operations Count Per Interval

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: TCPIP Stacks Health from the Dashboard drop-down menu, or the TCPIP Stacks tab.

  The TCPIP Stacks Health dashboard opens.



Time range: 8 Minutes
Resolution: 15 seconds

Live
TCPIP Stacks Health
ca technologies
Overview
z/OS System
CICS Regions
CICS Transaction Groups
IMS Subsystems
IMS Transaction Groups
DATACOM Address Spaces
Queue Managers
Queues
TCPIP Stacks
TCPIP Stacks Status
TCPIP Stack Statuses
Displaying Top 10
4
3
2
1
0
13:38:00
13:39:30
13:41:00
13:42:30
13:44:00
SuperDomain|usilca31|Cross-Enterpri...|...|TCPIP31|Status:Address Space Value = 3
SuperDomain|usilca31|Cross-Enterpri...|...|TCPIP99|Status:Address Space Value = 3
SuperDomain|usilca31|Cross-Enterprise ...|...|TCPIP|Status:Address Space Value = 3
CPU Time Per Interval (µs)
Displaying Top 10
249K
186.8K
124.5K
62.2K
0
13:38:00
13:39:30
13:41:00
13:42:30
13:44:00
SuperDomain|usilca31|...|TCPIP Sta...|TCPIP31:CPU Time Per Interval (µs) = 165.6K
SuperDomain|usilca31|...|TCPIP Stacks|TCPIP:CPU Time Per Interval (µs) = 33.8K
SuperDomain|usilca31|...|TCPIP Sta...|TCPIP99:CPU Time Per Interval (µs) = 13.4K
Executed I/O Operations Count Per Interval
Displaying Top 10
1.9K
1.4K
966
483
0
13:38:00
13:39:30
13:41:00
13:42:30
13:44:00
SuperDomain|usilca31|...|TCPIP31:Executed I/O Operations Count Per Interval = 0
SuperDomain|usilca31|...|TCPIP99:Executed I/O Operations Count Per Interval = 0
SuperDomain|usilca31|...|T...|TCPIP:Executed I/O Operations Count Per Interval = 0

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DB2 z/OS Performance Overview Dashboard

This dashboard offers a quick view of the health of all DB2 for z/OS subsystems monitored by CA Introscope. It shows alert indicators that report the status for the dashboards available from this Overview dashboard. Double-click the alert indicator to open the corresponding dashboards.

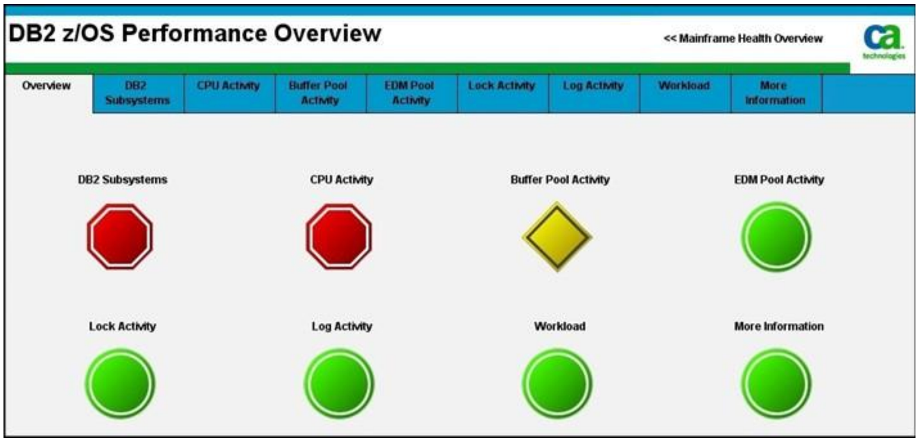
The following table identifies the dashboard alert indicators and corresponding dashboards monitored on this dashboard:

Dashboard alert indicator	Dashboard
DB2 Subsystems	CA APM Cross-Enterprise: DB2 z/OS Subsystem Information
CPU Activity	CA APM Cross-Enterprise: DB2 z/OS CPU Activity
Buffer Pool Activity	CA APM Cross-Enterprise: DB2 z/OS Buffer Pool Activity
EDM Pool Activity	CA APM Cross-Enterprise: DB2 z/OS EDM Pool Activity
Lock Activity	CA APM Cross-Enterprise: DB2 z/OS Lock Activity
Log Activity	CA APM Cross-Enterprise: DB2 z/OS Log Activity
Workload	CA APM Cross-Enterprise: DB2 z/OS Workload
More Information	CA APM Cross-Enterprise: DB2 z/OS More Information

Follow these steps:

To view the dashboards, from the CA Introscope console, select CA APM Cross-Enterprise: DB2 z/OS Performance Overview from the Dashboard drop-down menu.

The DB2 z/OS Performance Overview dashboard opens.



- Double-click any of the status indicators to view its corresponding dashboard.
- To navigate to the Mainframe Health Overview dashboard, double-click on the Mainframe Health Overview in the upper right hand corner.

DB2 z/OS Subsystem Information Dashboard

This dashboard displays the following information for each monitored DB2 for z/OS subsystem:

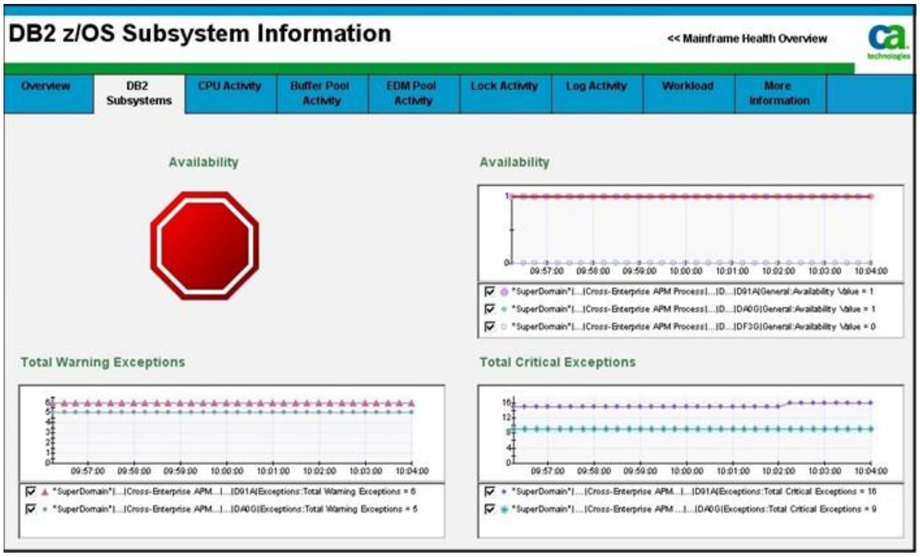
- Subsystem availability
- Total warning exceptions
- Total critical exceptions

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: DB2 z/OS Subsystem Information from the Dashboard drop-down menu.

  The DB2 z/OS Subsystem Information dashboard opens.


DB2 z/OS Subsystem Information
<< Mainframe Health Overview
Overview
DB2 Subsystems
CPU Activity
Buffer Pool Activity
EDM Pool Activity
Lock Activity
Log Activity
Workload
More Information
Availability
Availability
1
0
09:57:00
09:58:00
09:59:00
10:00:00
10:01:00
10:02:00
10:03:00
10:04:00
☑ ● "SuperDomain"|...|Cross-Enterprise APM Process|...|D...|D91A|General:Availability Value = 1
☑ ● "SuperDomain"|...|Cross-Enterprise APM Process|...|D...|DA0G|General:Availability Value = 1
☑ ○ "SuperDomain"|...|Cross-Enterprise APM Process|...|D...|DF3G|General:Availability Value = 0
Total Warning Exceptions
6
5
4
3
2
1
0
09:57:00
09:58:00
09:59:00
10:00:00
10:01:00
10:02:00
10:03:00
10:04:00
☑ ▲ "SuperDomain"|...|Cross-Enterprise APM...|...|D91A|Exceptions:Total Warning Exceptions = 6
☑ ● "SuperDomain"|...|Cross-Enterprise APM...|...|DA0G|Exceptions:Total Warning Exceptions = 5
Total Critical Exceptions
16
12
8
4
0
09:57:00
09:58:00
09:59:00
10:00:00
10:01:00
10:02:00
10:03:00
10:04:00
☑ ● "SuperDomain"|...|Cross-Enterprise APM...|...|D91A|Exceptions:Total Critical Exceptions = 16
☑ ● "SuperDomain"|...|Cross-Enterprise APM ...|...|DA0G|Exceptions:Total Critical Exceptions = 9

DB2 z/OS CPU Activity Dashboard

This dashboard displays the following information for each monitored DB2 for z/OS subsystem:

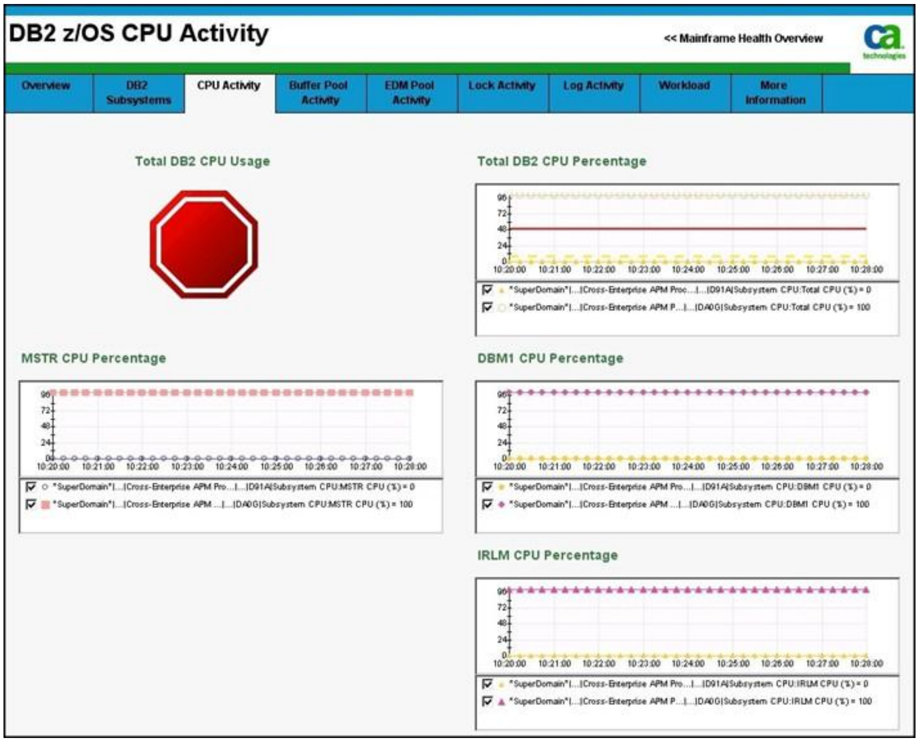
- Total DB2 CPU Percentage
- MSTR CPU Percentage
- DBM1 CPU Percentage
- IRLM CPU Percentage
- MSTR CPU Usage (CP and zIIP)
- DBM1 CPU Usage (CP and zIIP)
- IRLM CPU Usage (CP and zIIP)

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: DB2 z/OS CPU Activity from the Dashboard drop-down menu.

  The DB2 z/OS CPU Activity dashboard opens.



☑ "SuperDomain"|...|Cross-Enterprise APM Proc...|...|D91A|Subsystem CPU:Total CPU (%) = 0

☑ "SuperDomain"|...|Cross-Enterprise APM P...|...|DA0G|Subsystem CPU:Total CPU (%) = 100

☑ "SuperDomain"|...|Cross-Enterprise APM Pro...|...|D91A|Subsystem CPU:MSTR CPU (%) = 0

☑ "SuperDomain"|...|Cross-Enterprise APM ...|...|DA0G|Subsystem CPU:MSTR CPU (%) = 100

☑ "SuperDomain"|...|Cross-Enterprise APM Pro...|...|D91A|Subsystem CPU:DBM1 CPU (%) = 0

☑ "SuperDomain"|...|Cross-Enterprise APM ...|...|DA0G|Subsystem CPU:DBM1 CPU (%) = 100

☑ "SuperDomain"|...|Cross-Enterprise APM Pro...|...|D91A|Subsystem CPU:IRLM CPU (%) = 0

☑ "SuperDomain"|...|Cross-Enterprise APM P...|...|DA0G|Subsystem CPU:IRLM CPU (%) = 100

DB2 z/OS Buffer Pool Activity Dashboard

This dashboard displays the following information for each monitored DB2 for z/OS subsystem:

- Page Read Efficiency
- Prefetch Failures
- Page Write Efficiency
- Page Write Requests
- Synchronous I/O
- Asynchronous Writes
- Available Pages Percentage
- Buffer Pool Size

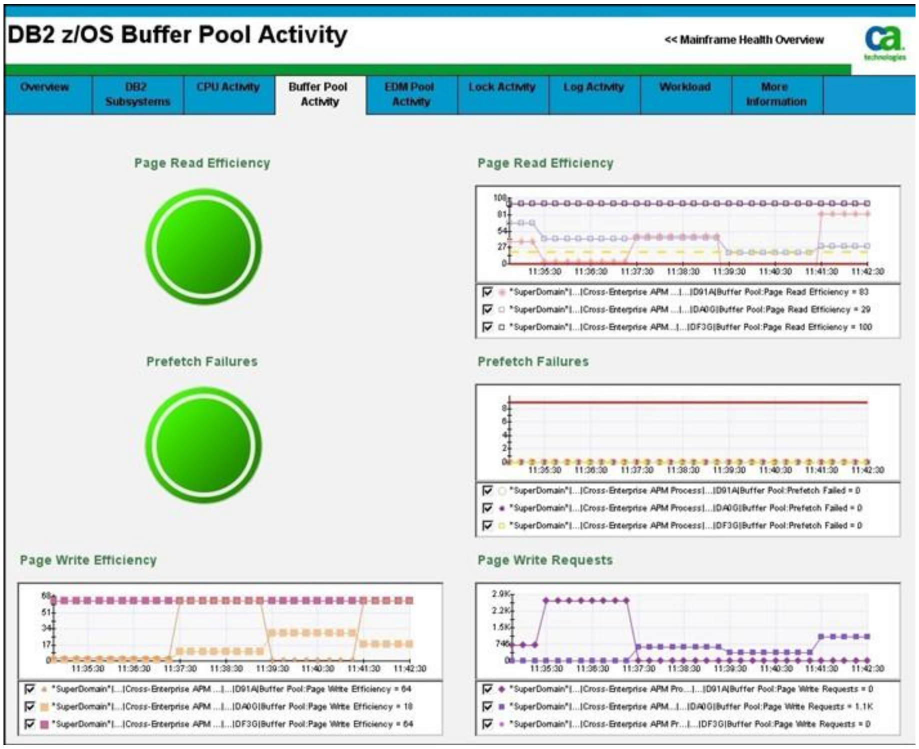
- Prefetch I/O
- Prefetch Reads
- Page Get Requests
- Prefetch Requests
- Group Buffer Pool Statistics
    - Page Read Efficiency
    - Page Data Reads
    - Page Empty Reads
    - Write Failures

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: DB2 z/OS Buffer Pool Activity from the Dashboard drop-down menu.

  The DB2 z/OS Buffer Pool Activity dashboard opens.



☑ "SuperDomain"|...|Cross-Enterprise APM ...|...|D91A|Buffer Pool:Page Read Efficiency = 83
☑ "SuperDomain"|...|Cross-Enterprise APM ...|...|DA0G|Buffer Pool:Page Read Efficiency = 29
☑ "SuperDomain"|...|Cross-Enterprise APM...|...|DF3G|Buffer Pool:Page Read Efficiency = 100

☑ "SuperDomain"|...|Cross-Enterprise APM Process|...|D91A|Buffer Pool:Prefetch Failed = 0
☑ "SuperDomain"|...|Cross-Enterprise APM Process|...|DA0G|Buffer Pool:Prefetch Failed = 0
☑ "SuperDomain"|...|Cross-Enterprise APM Process|...|DF3G|Buffer Pool:Prefetch Failed = 0

☑ "SuperDomain"|...|Cross-Enterprise APM ...|...|D91A|Buffer Pool:Page Write Efficiency = 64
☑ "SuperDomain"|...|Cross-Enterprise APM ...|...|DA0G|Buffer Pool:Page Write Efficiency = 18
☑ "SuperDomain"|...|Cross-Enterprise APM ...|...|DF3G|Buffer Pool:Page Write Efficiency = 64

☑ "SuperDomain"|...|Cross-Enterprise APM Pro...|...|D91A|Buffer Pool:Page Write Requests = 0
☑ "SuperDomain"|...|Cross-Enterprise APM...|...|DA0G|Buffer Pool:Page Write Requests = 1.1K
☑ "SuperDomain"|...|Cross-Enterprise APM Pr...|...|DF3G|Buffer Pool:Page Write Requests = 0

DB2 z/OS EDM Pool Activity Dashboard

This dashboard displays the following information for each monitored DB2 for z/OS subsystem:

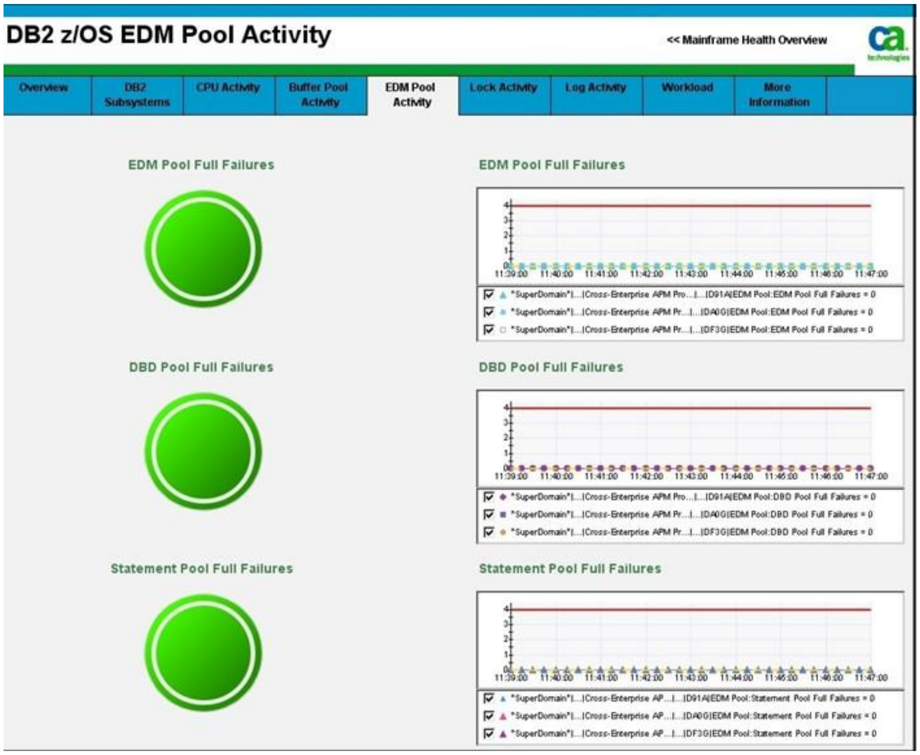
- EDM Pool Full Failures
- DBD Pool Full Failures
- Statement Pool Full Failures
- Cursor Table Load Percentage
- Package Table Load Percentage
- DBD Load Percentage
- Dynamic Statement Load Percentage
- DBD Pool Free Pages
- Statement Pool Free Pages
- DBD Pool Available Percentage
- Skeleton Package Table Available Percentage
- Skeleton Cursor Table Pages
- Skeleton Package Table Pages

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: DB2 z/OS EDM Pool Activity from the Dashboard drop-down menu.

  The DB2 z/OS EDM Pool Activity dashboard opens.



☑ ▲ "SuperDomain"|...|Cross-Enterprise APM Pro...|...|D91A|EDM Pool:EDM Pool Full Failures = 0
☑ ● "SuperDomain"|...|Cross-Enterprise APM Pr...|...|DA0G|EDM Pool:EDM Pool Full Failures = 0
☑ □ "SuperDomain"|...|Cross-Enterprise APM Pr...|...|DF3G|EDM Pool:EDM Pool Full Failures = 0

☑ ◆ "SuperDomain"|...|Cross-Enterprise APM Pro...|...|D91A|EDM Pool:DBD Pool Full Failures = 0
☑ ■ "SuperDomain"|...|Cross-Enterprise APM Pr...|...|DA0G|EDM Pool:DBD Pool Full Failures = 0
☑ ● "SuperDomain"|...|Cross-Enterprise APM Pr...|...|DF3G|EDM Pool:DBD Pool Full Failures = 0

☑ ▲ "SuperDomain"|...|Cross-Enterprise AP...|...|D91A|EDM Pool:Statement Pool Full Failures = 0
☑ ▲ "SuperDomain"|...|Cross-Enterprise AP...|...|DA0G|EDM Pool:Statement Pool Full Failures = 0
☑ ▲ "SuperDomain"|...|Cross-Enterprise AP...|...|DF3G|EDM Pool:Statement Pool Full Failures = 0

DB2 z/OS Lock Activity Dashboard

This dashboard displays the following information for each monitored DB2 for z/OS subsystem:

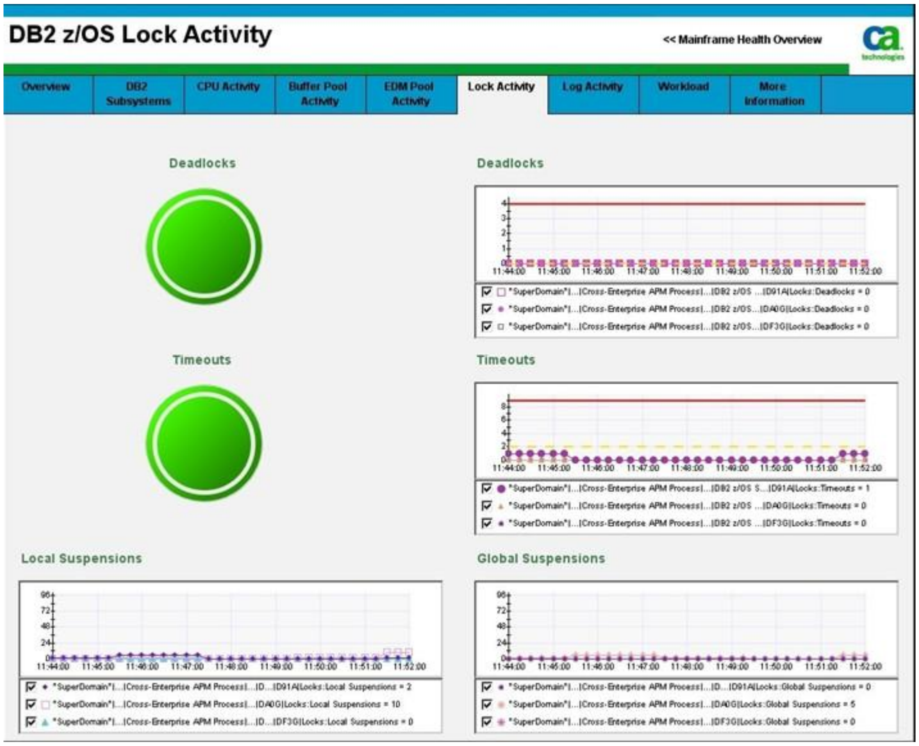
- Deadlocks
- Timeouts
- Local Suspensions
- Global Suspensions
- Local Requests
- Global Requests
- Escalations

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: DB2 z/OS Lock Activity from the Dashboard drop-down menu.

  The DB2 z/OS Lock Activity dashboard opens.


DB2 z/OS Lock Activity
<< Mainframe Health Overview
Overview
DB2 Subsystems
CPU Activity
Buffer Pool Activity
EDM Pool Activity
Lock Activity
Log Activity
Workload
More Information
Deadlocks
Deadlocks
4
3
2
1
0
11:44:00
11:45:00
11:46:00
11:47:00
11:48:00
11:49:00
11:50:00
11:51:00
11:52:00
☑ □ "SuperDomain"|...|Cross-Enterprise APM Process|...|DB2 z/OS ...|D91A|Locks:Deadlocks = 0
☑ ● "SuperDomain"|...|Cross-Enterprise APM Process|...|DB2 z/OS...|DA0G|Locks:Deadlocks = 0
☑ □ "SuperDomain"|...|Cross-Enterprise APM Process|...|DB2 z/OS...|DF3G|Locks:Deadlocks = 0
Timeouts
Timeouts
8
6
4
2
0
☑ ● "SuperDomain"|...|Cross-Enterprise APM Process|...|DB2 z/OS S...|D91A|Locks:Timeouts = 1
☑ ▲ "SuperDomain"|...|Cross-Enterprise APM Process|...|DB2 z/OS ...|DA0G|Locks:Timeouts = 0
☑ ● "SuperDomain"|...|Cross-Enterprise APM Process|...|DB2 z/OS ...|DF3G|Locks:Timeouts = 0
Local Suspensions
96
72
48
24
0
☑ ● "SuperDomain"|...|Cross-Enterprise APM Process|...|D...|D91A|Locks:Local Suspensions = 2
☑ □ "SuperDomain"|...|Cross-Enterprise APM Process|...|DA0G|Locks:Local Suspensions = 10
☑ ▲ "SuperDomain"|...|Cross-Enterprise APM Process|...|D...|DF3G|Locks:Local Suspensions = 0
Global Suspensions
96
72
48
24
0
☑ ● "SuperDomain"|...|Cross-Enterprise APM Process|...|D...|D91A|Locks:Global Suspensions = 0
☑ ● "SuperDomain"|...|Cross-Enterprise APM Process|...|DA0G|Locks:Global Suspensions = 5
☑ ● "SuperDomain"|...|Cross-Enterprise APM Process|...|DF3G|Locks:Global Suspensions = 0

DB2 z/OS Log Activity Dashboard

This dashboard displays the following information for each monitored DB2 for z/OS subsystem:

- Active Log Space Available Percentage
- Checkpoints
- Minutes Between Checkpoints
- Active Reads
- Archive Reads
- Unavailable Buffer Waits
- Write Forced

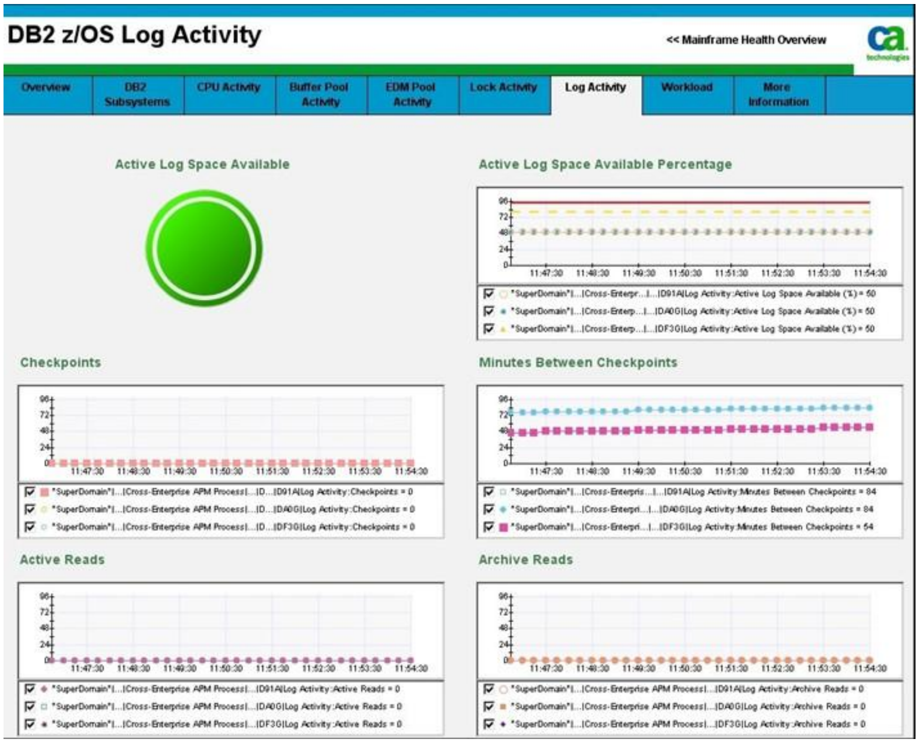
- Write Waits
- Write No Waits

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: DB2 z/OS Log Activity from the Dashboard drop-down menu.

  The DB2 z/OS Log Activity dashboard opens.


DB2 z/OS Log Activity
<< Mainframe Health Overview
Overview
DB2 Subsystems
CPU Activity
Buffer Pool Activity
EDM Pool Activity
Lock Activity
Log Activity
Workload
More Information
Active Log Space Available
Active Log Space Available Percentage
96
72
48
24
0
11:47:30
11:48:30
11:49:30
11:50:30
11:51:30
11:52:30
11:53:30
11:54:30
☑ ○ "SuperDomain"|...|Cross-Enterpr...|...|D91A|Log Activity:Active Log Space Available (%) = 50
☑ ● "SuperDomain"|...|Cross-Enterp...|...|DA0G|Log Activity:Active Log Space Available (%) = 50
☑ ▲ "SuperDomain"|...|Cross-Enterp...|...|DF3G|Log Activity:Active Log Space Available (%) = 50
Checkpoints
☑ ■ "SuperDomain"|...|Cross-Enterprise APM Process|...|D...|D91A|Log Activity:Checkpoints = 0
☑ ○ "SuperDomain"|...|Cross-Enterprise APM Process|...|D...|DA0G|Log Activity:Checkpoints = 0
☑ ○ "SuperDomain"|...|Cross-Enterprise APM Process|...|D...|DF3G|Log Activity:Checkpoints = 0
Minutes Between Checkpoints
☑ □ "SuperDomain"|...|Cross-Enterpris...|...|D91A|Log Activity:Minutes Between Checkpoints = 84
☑ ◆ "SuperDomain"|...|Cross-Enterpri...|...|DA0G|Log Activity:Minutes Between Checkpoints = 84
☑ ■ "SuperDomain"|...|Cross-Enterpri...|...|DF3G|Log Activity:Minutes Between Checkpoints = 54
Active Reads
☑ ◆ "SuperDomain"|...|Cross-Enterprise APM Process|...|D91A|Log Activity:Active Reads = 0
☑ □ "SuperDomain"|...|Cross-Enterprise APM Process|...|DA0G|Log Activity:Active Reads = 0
☑ ● "SuperDomain"|...|Cross-Enterprise APM Process|...|DF3G|Log Activity:Active Reads = 0
Archive Reads
☑ ○ "SuperDomain"|...|Cross-Enterprise APM Process|...|D91A|Log Activity:Archive Reads = 0
☑ ■ "SuperDomain"|...|Cross-Enterprise APM Process|...|DA0G|Log Activity:Archive Reads = 0
☑ ◆ "SuperDomain"|...|Cross-Enterprise APM Process|...|DF3G|Log Activity:Archive Reads = 0

DB2 z/OS Workload Dashboard

This dashboard displays the following information for each monitored DB2 for z/OS subsystem:

- Maximum Users Percentage
- Maximum TSO Users Percentage
- Maximum Batch Users Percentage
- Maximum Remote Users Percentage

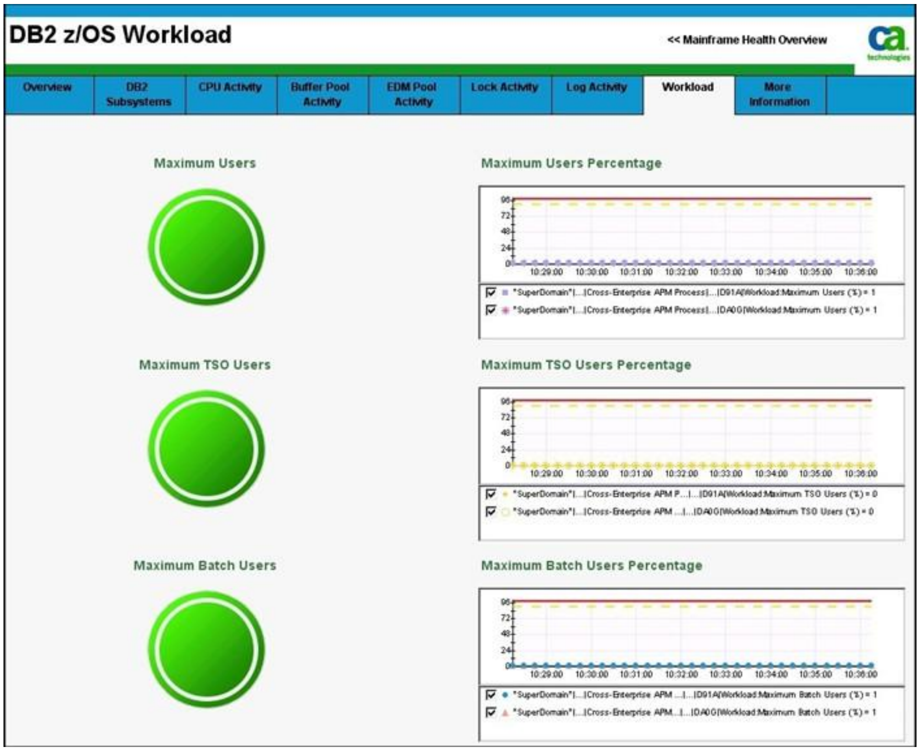
- Current Threads
- Maximum Threads
- Queued Create Thread Requests
- Create Thread Requests
- Single Phase Commits
- Aborts
- Select / Open Requests
- Insert / Update / Delete Requests
- Distributed SQL Activity
  - SQL Statements Sent
  - SQL Statements Received
  - Rows Sent
  - Rows Received

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: DB2 z/OS Workload Activity from the Dashboard drop-down menu.

  The DB2 z/OS Workload Activity dashboard opens.


DB2 z/OS Workload
<< Mainframe Health Overview
ca technologies
Overview
DB2 Subsystems
CPU Activity
Buffer Pool Activity
EDM Pool Activity
Lock Activity
Log Activity
Workload
More Information
Maximum Users
Maximum Users Percentage
96
72
48
24
0
10:29:00
10:30:00
10:31:00
10:32:00
10:33:00
10:34:00
10:35:00
10:36:00
☑ ■ "SuperDomain"|...|Cross-Enterprise APM Process|...|D91A|Workload:Maximum Users (%) = 1
☑ ✱ "SuperDomain"|...|Cross-Enterprise APM Process|...|DA0G|Workload:Maximum Users (%) = 1
Maximum TSO Users
Maximum TSO Users Percentage
☑ ✦ "SuperDomain"|...|Cross-Enterprise APM P...|...|D91A|Workload:Maximum TSO Users (%) = 0
☑ ○ "SuperDomain"|...|Cross-Enterprise APM ...|...|DA0G|Workload:Maximum TSO Users (%) = 0
Maximum Batch Users
Maximum Batch Users Percentage
☑ ● "SuperDomain"|...|Cross-Enterprise APM ...|...|D91A|Workload:Maximum Batch Users (%) = 1
☑ ▲ "SuperDomain"|...|Cross-Enterprise APM...|...|DA0G|Workload:Maximum Batch Users (%) = 1

DB2 z/OS More Information Dashboard

This dashboard displays the following information for each monitored DB2 for z/OS subsystem:

- Dataset Open Percentage
- 4K Workfile Shortages
- 32K Workfile Shortages
- RID Pool Failures
- Starjoin Pool Failures
- Current Starjoin Pool Used Percentage
- Maximum Starjoin Pool Used Percentage

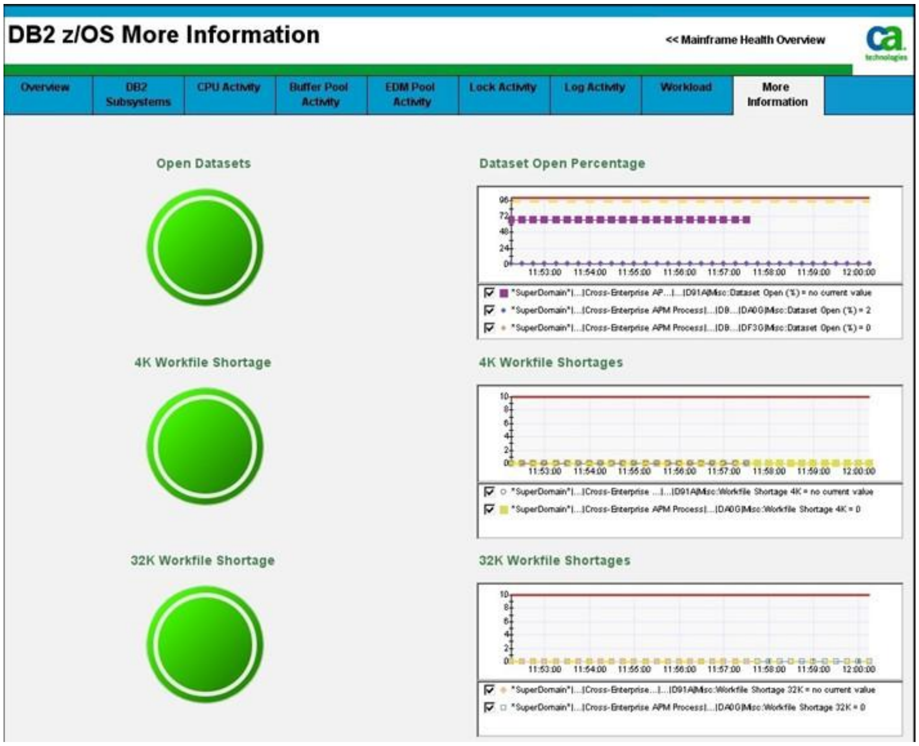
- Current Starjoin Pool Size
- Maximum Starjoin Pool Size

For more information, see CA Cross-Enterprise APM Metrics (see page 75).

Follow these steps:

- To view the dashboard, from the CA Introscope console, select CA APM Cross-Enterprise: DB2 z/OS More Information from the Dashboard drop-down menu.

  The DB2 z/OS More Information dashboard opens.



DB2 z/OS More Information

Open Datasets

Dataset Open Percentage

☑ ■ "SuperDomain"|...|Cross-Enterprise AP...|...|D91A|Misc:Dataset Open (%) = no current value
☑ • "SuperDomain"|...|Cross-Enterprise APM Process|...|DB...|DA0G|Misc:Dataset Open (%) = 2
☑ • "SuperDomain"|...|Cross-Enterprise APM Process|...|DB...|DF3G|Misc:Dataset Open (%) = 0

4K Workfile Shortage

4K Workfile Shortages

☑ ○ "SuperDomain"|...|Cross-Enterprise ...|...|D91A|Misc:Workfile Shortage 4K = no current value
☑ ■ "SuperDomain"|...|Cross-Enterprise APM Process|...|DA0G|Misc:Workfile Shortage 4K = 0

32K Workfile Shortage

32K Workfile Shortages

☑ • "SuperDomain"|...|Cross-Enterprise...|...|D91A|Misc:Workfile Shortage 32K = no current value
☑ □ "SuperDomain"|...|Cross-Enterprise APM Process|...|DA0G|Misc:Workfile Shortage 32K = 0

Chapter 2: How to Trace and Analyze Events

CA Introscope allows the system administrator to select trace filter criteria and then analyze the results to improve system performance.

This section contains the following topics:

About CA Introscope

The following list contains CA Introscope features for tracing events:

- Create, view, browse, and search trace transactions events.
- Trace the transaction activity at the event level.
- Reduce the time that is required to identify a problem event.
- Cross-process transaction traces.
- Trace synchronous transactions that cross boundaries in the homogeneous application server environments.

See the CA Cross-Enterprise APM *Integration Guide and CA Cross-Enterprise APM Workstation User Guide* for a complete picture of the CA Introscope features functionality.

Note: Optional conditional error matching filter criteria are detailed in the *CA Cross-Enterprise APM Workstation User Guide* and are not covered in this guide.

Important! You need the appropriate Workstation permission to create a transaction trace. Contact your CA Introscope administrator for the appropriate permissions.

About Cross-Process Transaction Traces

Modern applications are often multi-tier with processes running in the differing tiers calling each other. Often performance problems happening in the front-end application process are due to problems happening on the back-end process it uses. Tracing the front-end process is not sufficient to determine the cause of the issue. And it is often impossible to tell which back-end processes it is calling.

Cross-process transaction tracing solves this problem by correlating the trace events of the front-end applications with the corresponding trace events from back-end processes. Use the CA Introscope Workstation to diagnose back-end processes problems by viewing a problematic front-end transaction trace event. Then use the trace event to find the corresponding back-end trace events.

That back-end trace provides the “when, where, and why” of information that determines the cause of the problem. The Information provided includes server name, transaction processor, unit of work ID, transaction ID, and internal transaction timings.

Cross-Process tracing is enabled when the appropriate front-end and back-end Agents and tracers are installed. For more information about installing the tracers, see Install and Configure the Extension.

Back end

Back ends are external systems, such as a:

- Database
- Mail server
- Transaction processing system such as CICS or IMS
- Messaging system such as WebSphere MQ

Front end

Front ends are the component of an application that first handles an incoming request such as a:

- Servlet
- JSP
- Management database
- EJB

When a front-end transaction invokes a back-end transaction, two trace events are created and sent to the CA Introscope EM. One from the front-end agent and the other from the back-end CA APM Cross-Enterprise Agent. Additional back-end traces are generated for each additional back-end call that the front-end application makes. The CA Introscope Workstation can display all these traces together on the Trace View tab. Selecting the front-end trace event allows the CA Introscope Workstation to fetch and display all correlated back-end traces on the same pane. Also, selecting a back-end trace event causes the front-end and all correlated back-end traces to display together.

The front-end tracers for CTG and web services insert a unique correlation identifier in the front-end traces. This identifier decorates the back-end calls into CICS with the same correlation identifier. This decoration flags the back-end transaction call as originating from a monitored front-end transaction and provides a unique identifier. CA APM Cross-Enterprise adds the same correlation identifier to the corresponding CICS back-end trace. The CA Introscope Workstation uses the unique identifier in the front-end and back-end trace events to fetch corresponding front-end or back-end traces for display. Only the CICS transactions can be invoked using CTG, and web services.

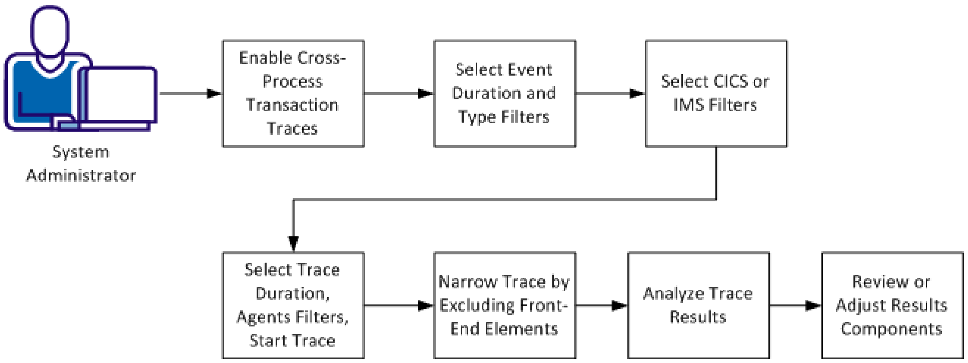
The front-end tracer for the MQ flags and MQ messages come from a monitored application. The MQ trace is correlated with MQ message ID, correlation ID, or both. The MQ message ID or correlation ID provides a unique identifier for the correlation between both the front-end MQ traces and back-end traces. The back-end traces from both CICS and IMS transactions have this correlation ID when MQ is the communication method that is used to invoke the transaction.

Generating Cross-Process Transaction Traces

As a system administrator, your responsibilities often include monitoring systems, addressing known issues, and then triaging these issues. You trace these systems issues using CA Introscope to find the components that caused them. To find these components, you construct filter criteria on the Transaction Trace screen. You then analyze the results to determine the problem.

The following illustration provides an overview of the basic trace processes:

Event Trace Processes


System Administrator
Enable Cross-Process Transaction Traces
Select Event Duration and Type Filters
Select CICS or IMS Filters
Select Trace Duration, Agents Filters, Start Trace
Narrow Trace by Excluding Front-End Elements
Analyze Trace Results
Review or Adjust Results Components

This process has the following tasks:

1. Enable Cross Process Transaction Tracing (see page 43).
2. Select Event Duration and Type filters (see page 44).
3. Select CICS/IMS filters (see page 46).
4. Select Trace Duration, agent filters, and start trace (see page 50).
5. Narrow Trace by Excluding Front-End Elements (see page 51).
6. Analyze Trace Results (see page 53)
7. Review or Adjust Results Components (see page 66)

Important! Running a transaction trace can have a negative impact on the performance of the monitored application.

Completing this process lets you understand which filters criteria to select to find the problematic components and how to analyze the results.

Enable Cross Process Transaction Tracing

The CA Cross-Enterprise APM component is designed to allow transaction tracing across the multiple tiers of an application that invokes transactions on the mainframe. The currently supported communications methods available out of the box are:

- CICS Transaction Gateway using Channels invoking the CICS transactions
- HTTP invocations from Java applications that extend HttpURLConnection which invoke CICS transactions
- HTTP invocations from Java applications that extend HttpURLConnection which invoke Java servlet applications extending HttpServlet
- Web Services Calls into CICS
- Websphere MQ Series messages sent to CICS or IMS transactions which the mainframe transaction retrieves using function MQget()

When properly configured traces can be generated from all instrumented tiers of an application and shown in the Workstation together in the Trace View tab. The Trace View tab is accessible in the Workstation Investigator from the Transaction Trace Viewer launched during a Transaction Trace session. The Trace View tab is also accessible from the Agents tab of the Cross-Enterprise APM agent in the Investigator.

The Workstation is able to correlate the separate traces that run together into one view because the traces generated for the corresponding transactions contain the same correlation ID. This correlation ID is generated in the first tier of the application and passed to the agents instrumenting transactions invoked on subsequent tiers via the communications methods that are supported. In order for this to work each tier must be instrumented and every communications method that is used must be supported and instrumented.

Additional Information on how to instrument the application tiers for the various communications methods is located in Install and Enable Java Agent Components.

Select Event Duration and Type Filters

In the CA Introscope Workstation select the event duration and type transaction filters to construct your trace filter criteria.

Event duration

Allows you to select the minimum amount of time an event runs before it is added to the trace results.

Filtered Property: The Event duration filter does not use a property but is instead applied against the duration of the transaction.

Value: Contains the minimum duration of the transaction in milliseconds

Supported Trace Sources: Web Services, CTG, or MQ front-end; CICS or IMS back-end traces

Note: The minimum granularity for the duration filter is one millisecond which can be longer than the typical back-end z/OS transaction runs. To get the microsecond duration filter granularity on back-end transactions, omit this filter and use the Microsecond Lifetime filter instead. If you use the Microsecond Lifetime filter, the Workstation does not receive any transaction traces from the front end distributed tiers of the application. Run multiple transaction traces in parallel to get the traces you want from the different tiers.

Important! A duration filter that is applied to a front-end agent causes all transaction correlated to any front-end transaction to be returned from the CA APM Cross-Enterprise Agent or any other back-end agent. This can have a substantial negative impact on the performance. Applying this filter to a subset of available front-end agents mitigates the performance degradation.

Type Transaction Filters

Allows you to select the transaction filters types including user ID, URL, URL Query, header, parameters, and session attributes.

Note: If you want to correlate traces across the tiers, then match at least one trace session to transactions running on your front-end tier. Ensure all the filters that are used are crafted to include the transactions you are interested in generating traces from on the front-end tier of your application. If the agent decides to generate a trace on the front-end tier, it communicates with the back-end agents. This informs them to propagate this decision and generate correlated traces on the other tiers. There is a propagation flag that passed using the instrumented communication method that informs downstream agents of this decision.

Follow these steps:

1. Log in to the CA Introscope Workstation.
2. Select Workstation and then New Transaction Session.
3. Select the Minimum transaction duration check box.

4. Enter the Minimum transaction duration value and from the drop-down list select Milliseconds or seconds.

   Specify the minimum time that a transaction is traced.

   Format: Numeric milliseconds or seconds.

   Default: 5 seconds

5. (Optional) Enter transaction filters.

   Note: Data is only available for use in these filters if the CA Introscope Agent is configured to capture it.

   Click the check box and select one of the following:

   User ID

   Select user ID from the drop-down list and enter the user ID value.

   Filtered Property: user ID

   Value: Matches the user ID property of the transaction trace. Indicates the user ID which ran the transaction.

   Supported Trace Sources: IMS back-end only

   Note: Some values of this filter such as user ID does not exist. These values can unexpectedly cause all unsupported source traces to appear in the trace results because they do not contain the user ID property.

   URL

   Select URL from the drop-down list and enter the URL.

   Value: The portion of the URL that is passed through to the servlet or JSP.

   Supported Trace Sources: Not applicable to any trace source. Entering a value for this filter results in no trace results.

   Format: Remove the leading protocol specifier, computer name, and port number.

   Example: */ExampleAppClientV6Web*

   URL Query

   Select URL Query from the drop-down list and enter the URL.

   Value: The portion of the URL that specifies query parameters in the HTTP request.

   Supported Trace Sources: Not applicable to any trace source. Entering a value for this filter results in no trace results.

   Format: Remove the leading protocol specifier, computer name, and port number.

   Example: */ExampleAppClientV6Web*

Request Header

Enter Request Header from the drop-down list and enter the request the header value.

Value: The HTTP request header.

Supported Trace Sources: Not applicable to any trace source. Entering a value for this filter results in no trace results.

Request Parameter

Enter Request Parameter from the drop-down list and enter the request parameter value.

Supported Trace Sources: Not applicable to any trace source. Entering a value for this filter results in no trace results.

Session Attribute

Enter a session attribute from the drop-down list and enter the session attribute.

Value: Your session information that consists of a name and value.

Supported Trace Sources: Not applicable to any trace source. Entering a value for this filter results in no trace results.

6. (Optional) Enter conditional error-matching-processing Boolean filters.

Important! These transaction filters can negatively affect the performance.

The event duration and type filters are set. Proceed to selecting the CICS or IMS filters.

Select CICS or IMS Filters

After entering the event duration and type filters on the Transaction Trace screen, continue by entering the CICS or IMS filter criteria. You can skip this step if you do not want to restrict the trace generation to the mainframe system. If you want to generate traces from the front end distributed tiers, it is best to skip this step.

Note: The CICS and IMS filters are mutually exclusive.

Select the check box and enter the value for each filter as needed.

CICS server name (CTG) equals

Filtered Property: Job Name or Server Name

Supported Trace Sources: CICS back-end traces that were invoked using CTG.

Value: The name of the server that was used to invoke the CTG call.

CICS/IMS communication method equals

Filtered Property: Communication Method

Supported Trace Sources: CICS or IMS back-end

Value: Cross-process tracing into CICS or IMS is available for the front-end application that invoke the transaction through the following communication CICS or IMS methods.

Enter one of these methods:

CICS methods

- Web Service

  The web services CA SYSVIEW tracer is installed on top of the Service-Oriented Architecture (SOA) tracer. A correlation ID with the front-end transaction trace is included so it can be matched up with the corresponding back-end trace from the mainframe.

  Recommend filter criteria:

  Select the minimum transaction duration, enter a numeric value, and then select a duration unit from the drop-down list.

  Example: 5000 milliseconds

  (Optional) Select URL of the application from the drop-down list and enter the URL.

  Note: Remove the leading protocol specifier, computer name, and port number.

  Example URL: /ExampleAppClientV6Web

- CTG Channel

  The CTG CA SYSVIEW tracer includes a correlation ID with the front-end transaction trace that can be associated with the corresponding mainframe back-end trace.

  Recommend filter criteria:

  Select the minimum transaction duration, enter a numeric value, and then select a duration unit from the drop-down list.

  (Optional) For CTG front-end traces with Program Name and Transaction Name properties, select CICS Program Name CTG equals and enter the program name or transaction name.

  Note: CTG front-end traces never have server name, web service name, or microsecond lifetime properties. If these properties are entered in the filter criteria, no front-end traces appear in the Trace Viewer.

- MQ Trigger Message

  The traces into the MQ Series do not use correlation IDs, so the front-end and back-end correlation cannot be made using this correlation ID. Instead, the correlation is done using a preexisting MQ message ID and MQ correlation ID.

  Recommend filter criteria:

  Select the minimum transaction duration, enter a numeric value, and then select a duration unit from the drop-down list.

  This filter restricts the display to those transactions that run longer than the specified time.

  Example: 5000 milliseconds

  Note: The IBM Websphere MQ Connectors and Messaging System Extension tracer is used as the MQ series front-end tracer.

- HTTP

  The HTTP CA SYSVIEW tracer includes a correlation ID with the front-end transaction trace that can be associated with the corresponding mainframe back-end trace.

  Recommend filter criteria:

  Select the minimum transaction duration, enter a numeric value, and then select a duration unit from the drop-down list.

  Example: 5000 milliseconds

  (Optional) Select CICS/IMS Communication Method equals HTTP.

  (Optional) Select URL of the application from the drop-down list and enter the URL. Be careful when using the URL because it is specific to the tier being traced. If used, set the URL of the servlet of first tier of the application that has an installed HTTP tracer.

  Note: Remove the leading protocol specifier, computer name, and port number from any URL.

  Example Servlet URL: /HTTPTest/servlet/FrontEndClient

  Example CICS URL: /CICS/CWBA/DFJ$JWB1

IMS methods

- MQ IMS Bridge

  The front-end application used the IMS Bridge Queue to invoke the IMS transaction.

- MQ IMS Adapter.

  The MQ IMS Adapter was used to get the MQ message that was sent from the front-end application.

CICS program name (CTG) equals

Filtered Property: Program Name

Supported Trace Sources: CTG front-end; CICS back-end

Value: The name of the program that was executed on the CICS region.

IMS transaction ID equals

Filtered Property: Transaction ID

Supported Trace Sources: IMS back-end

Value: The transaction name.

IMS job name equals.

Filtered Property: Job Name (Dependent Region)

Supported Trace Sources: IMS back-end

Value: IMS-dependent region job name that processed the transaction.

CICS web service name equals

Filtered Property: Web Service Name

Supported Trace Sources: Web Services front-end; CICS back-end

Value: Name of the web service that is used to execute this transaction. This property is applicable only to web service transaction tracers.

CICS/IMS transaction lifetime lasting longer than

Filtered Property: Microsecond Lifetime

Supported Trace Sources: CICS or IMS back-end

Value: The transaction lifetime in microseconds

Minimum value: One microsecond

CICS/IMS transaction processor name equals

Filtered Property: Transaction Processor

Supported Trace Sources: CICS or IMS back-end

Value: The transaction processor that ran the transaction.

- CICS
- IMS

IMS PSB name equals

Filtered Property: PSB Name

Supported Trace Sources: IMS back-end

Value: The PSB name that is associated with the transaction.

CICS transaction name (CTG) equals

Filtered Property: Transaction Name

Supported Trace Sources: CTG front-end; CICS back-end

Value: Name of the transaction on the CICS region.

The CICS/IMS filters are set. Proceed to setting the trace duration and agents filters.

Select Trace Duration, Agent Filters, and Start Trace

After entering the CICS or IMS filters, on the Transaction Trace screen, continue by entering the trace duration and Agent Filters. At the end of this procedure, start the trace.

Trace Duration

Allows you to set the maximum mount a time in minutes a trace session can take.

Agent Filters

Allows you to select which agent to trace.

You can apply different filters to the front-end application transactions, and the back-end z/OS transactions. In this case one or more transaction traces can be run simultaneously where each selects different agents. For example, use a duration filter on the front end traces, while using the Microsecond Lifetime filter on the back-end traces.

Follow these steps:

1. Enter the trace session duration in minutes.

   Values: Numeric

   Default: 10

2. Click either the Trace all supported Agents or Trace Selected Agents check box.

   Trace all supported Agents

   Traces supported agents that are currently connected, and any that connect during the Trace session.

   Default

   Trace selected Agents

   Select agents from the list. Use CTRL + click to select multiple agents.

3. Click OK to start the Transaction Trace session.

   The Transaction Trace Viewer opens.

You have now set the filter criteria for:

- Event duration
- Type
- CICS or IMS
- Trace Duration
- Agents

Narrow Trace by Excluding Front-End Elements

You can exclude front-end elements from the trace by selecting options on the New Transaction Trace Screen.

To exclude front-end traces

Follow these steps:

1. Create a transaction trace session.
2. Click the following check boxes and enter the value for each filter.
   - CICS/IMS transaction lifetime lasting longer than
   - CICS transaction name (CTG) equals
   - CICS server name (CTG) equals
   - CICS program name (CTG) equals
3. Enter any other needed information and click OK.

To return CTG front end-traces

Follow these steps:

1. Create a transaction trace session.
2. Click the following check boxes and enter the value for each filter.
   - CICS/IMS transaction name (CTG) equals
   - CICS program name (CTG) equals
3. Enter any other needed information and click OK.

To exclude CTG front-end traces

Follow these steps:

1. Create a transaction trace session.
2. Click the following check boxes and enter the value for each filter.
   - CICS/IMS transaction lifetime lasting longer than
   - CICS web service name equals
   - CICS server name (CTG) equals
3. Enter any other needed information and click OK.

To exclude HTTP front-end traces

Follow these steps:

1. Create a transaction trace session.
2. Click the following check boxes and enter the value for each filter.
   - CICS/IMS transaction lifetime lasting longer than
   - CICS/IMS Communication Method equals
   - CICS server name (CTG) equals
   - CICS program name (CTG) equals
3. Enter any other needed information and click OK.

To exclude MQ front-end traces

Follow these steps:

1. Create a transaction trace session.
2. Click the following check boxes and enter the value for each filter.
   - CICS/IMS transaction lifetime lasting longer than
   - CICS transaction name (CTG) equals
   - CICS server name (CTG) equals
   - CICS web service name equals
   - CICS program name (CTG) equals
3. Enter any other needed information and click OK.

Analyze Trace Results

Change Duration Time Intervals

Set the display units used for duration and call time by right-clicking the Duration column header on the Transaction Trace Viewer window. Select one the following from the drop-down menu:

- Microseconds
- Milliseconds
- Seconds

Cross-Process Traces Time Alignment

Time alignments between system clocks in a cross-process trace often are not synchronized. Cross-process traces align the trace with the front-end trace that invoked it.

Note: Usually traces are displayed in order based on the system clock where they originated. All back-end traces sourced from the same CA APM Cross-Enterprise agent can be synchronized properly relative to each other but not the correlated front-end transaction.

CTG and web services

CTG and web services calls are not displayed relative to their actual synchronization with the front end calling transaction. The associated events for these back-end traces are group together, enlarged, and aligned to the left in the Trace View.

MQ calls

MQ calls are asynchronous and occur after the front-end application terminates. The delay is shown regardless of discrepancies introduced by clock synchronization. In the Trace View these events are not aligned, enlarged, or grouped together.

IMS transaction trace timestamp

The IMS transaction trace timestamp starts when the transaction is placed on the input queue.

When searching for the corresponding IMS SMF record for a transaction trace always use the Unit of Work ID from the trace and the command:

```
IMSTLOG UOW <value_of_Unit_of_Work_ID>;
```

Do not attempt to use the timestamp from the IMS transaction trace in the Workstation to find the corresponding IMS SMF record in CA SYSVIEW. The IMS SMF record time shows process start time instead. For transactions that stay on the input queue for a long time these two values can differ significantly.

About Transaction Trace View

You could organize the information in one of two ways here.

The Transaction Trace View consists of top and bottom panes that help you analyze your trace results. The top pane contains all the events selected from the filter criteria. The bottom pane contains a set of views that let you view the trace results in different ways.

- Summary View (see page 54)
- Trace View (see page 55)
- Tree View (see page 55)
- Sequence View (see page 57)

Summary View

The Summary View shows metrics for the components in the selected transaction. Metrics include the path, number of calls, the length of the call in milliseconds, and the minimum, average, and maximum call times.

The Call Time (ms) column is the duration spent in the component excluding any time spent in any child components.

Note: The first time you select a transaction in the transaction table, the Summary View opens. When you select a transaction that has been opened before, it opens in the most recently selected view.

This information appears for the currently selected transaction:

- Fully qualified agent name
- Start time, in the agent computer system clock, of the invocation of the root component
- Execution time of the root component in milliseconds

Trace View

The Trace View shows selected transactions in a graphical stack display. Click on the triangular arrow to the left of a transaction to expand and collapse the stack of components. When you select one of the components of a transaction, you can see component details in the bottom pane of the viewer. The details include any properties the component have. Most properties are located in at the top component of the stack, however subcomponents can also contain properties.

This view also shows any correlated cross-process traces. Click on any trace to make it the focus and investigate its components further. For more information, see About Cross-Process Transaction Traces (see page 40).

Tranasaction traces generated from front-end agents where the CTG Tracer is installed have addition options that allow the launching of a back-end trace session. For more information about launching a back-end trace, see Launch a New Back-End Transaction Trace Session from an Existing One (see page 60).

Tree View

The Tree View is a hierarchical view of the amount of time each transaction event performs the task.

Note: For the back-end traces generated by the CA APM Cross-Enterprise agent on z/OS, the tree view does not represent an actual call stack.

The Transaction traces consist of a series of CICS and IMS components.

CICS components

Transaction Lifetime

The total time or transaction lifetime that equals the sum of input, processing, and output time.

Dispatch Time

Dispatch Time is a child of Transaction Lifetime and contains the CPU time for the total amount of CPU usage. The CPU time is the portion of dispatch time when the task is using processor cycles.

Program Load Time

Program load time is a child of dispatch time that shows how long the program took to load.

Suspend Time

Suspend Time accompanies Dispatch Time and it represents time that is wasted in waiting for system resources.

Suspend time has extra child components representing non-overlapping timings.

Suspend Time also includes various overlapping timings that cannot be represented as a hierarchy. These timings are represented as properties in the lower pane of the Trace View tab.

Note: High suspend times on a running transaction indicates an issue.

Note: Zero duration timing properties and components are not presented.

For more information, see CICS Transaction Lifetime Properties (see page 67) and CICS Suspend Time Properties (see page 70).

IMS Components

Transaction Lifetime

The total time or transaction lifetime equals the sum of input, processing, and output time which are its child components.

Input Queue Time

The amount of time the input transaction waited in the message queue before being scheduled.

Process Time

Process Time has extra child components representing non-overlapping timing events. These optional components are IMS Monitor type events such as, IWAITs, DL/1 and External Subsystem calls that occur during the transaction lifetime.

A single optional child component that contains properties for Event Count and Maximum Event Time represent multiple events. The Event Count property indicates the number of events. The Maximum Event Time property has the duration of the slowest instance of the event.

Output Queue Time

The amount of time the transaction output waited in the output message queue before being forwarded to its destination.

For more information, see IMS Transaction Lifetime Properties (see page 71).

Sequence View

The Sequence View tab displays the caller-callee relationship between the segments of a transaction to make the sequencing order of the calls visually apparent.

Use the Sequence View if the following is true:

- A transaction includes asynchronous calls
- Call processes running on agents that are not time synchronized with each other
- Complex synchronous calls across multiple JVMs or CLRs

CICS with MQ Trigger Message Example Using the Tree View

This example shows the results from the following filter selections.

- Duration time greater the 40 microseconds
- CICS/IMS communication method equals CICS with MQ Trigger Message

The following procedure explains how to analyze these trace results using the tree view.

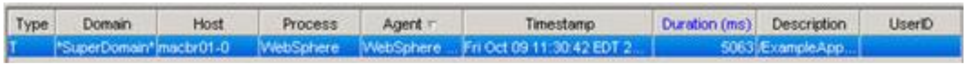
Follow these steps:

1. Click the Tree View tab in the Transaction Trace Viewer window to see the tree structure of the web service transaction trace components.
2. Highlight the transaction trace component to see the properties associated with that component.

Web Services Example Using Large Duration Time

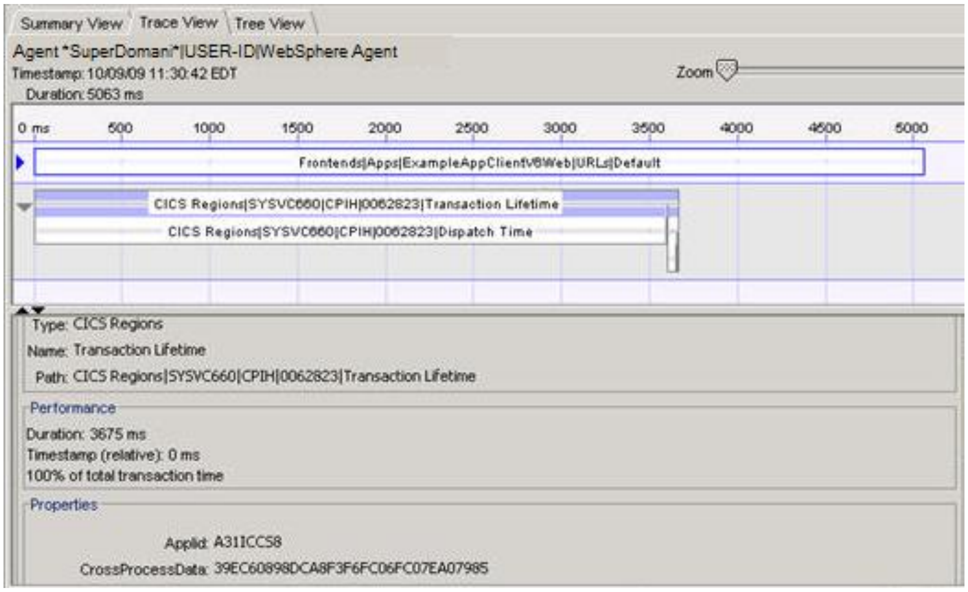
This example shows how to analyze a duration time using the Trace View. The duration time on the transaction trace screen was set to time greater than 5000 milliseconds.

The Transaction Trace Viewer shows a front-end task with a 5063-millisecond duration.



Type	Domain	Host	Process	Agent	Timestamp	Duration (ms)	Description	UserID
T	*SuperDomain*	macbr01-0	WebSphere	WebSphere ...	Fri Oct 09 11:30:42 EDT 2...	5063	ExampleApp...	

The Trace View shows that the front-end transaction calls a correlated back-end CICS transaction. The CICS transaction has a 3675-millisecond duration. Over 70 percent of the transaction time was spent waiting on completion of the CICS transaction. Most of that time was spent with the program dispatched.


Summary View
Trace View
Tree View
Zoom
0 ms
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
Frontends|Apps|ExampleAppClientV6Web|URLs|Default
CICS Regions|SYSVC660|CPIH|0062823|Transaction Lifetime
CICS Regions|SYSVC660|CPIH|0062823|Dispatch Time
Performance
Properties

Agent *SuperDomani*|USER-ID|WebSphere Agent
Timestamp: 10/09/09 11:30:42 EDT
Duration: 5063 ms

Type: CICS Regions
Name: Transaction Lifetime
Path: CICS Regions|SYSVC660|CPIH|0062823|Transaction Lifetime

Duration: 3675 ms
Timestamp (relative): 0 ms
100% of total transaction time

Applid: A31ICCS8
CrossProcessData: 39EC60898DCA8F3F6FC06FC07EA07985

CTG Example for High Suspend Time

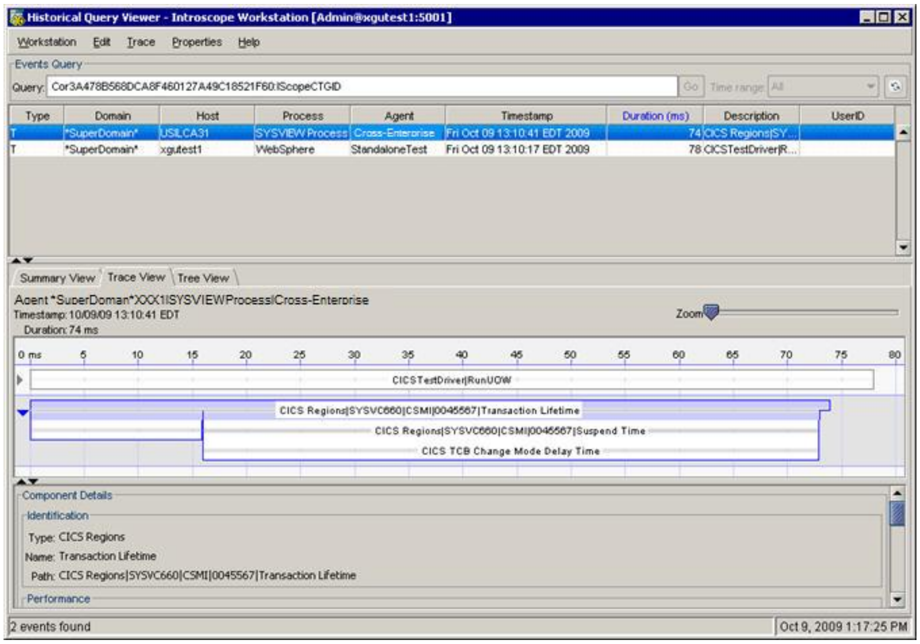
This example shows how to analyze a high suspend time using the Trace and Tree Views.

The filter criteria that was used for this example was an event duration of 78. The results for this selected criteria follow.

Follow these steps:

1. Highlight the transaction with the high duration time.
2. Click the Trace View.

3. The Trace View opens displaying the correlated front end and back-end traces.


Historical Query Viewer - Introscope Workstation [Admin@xgutest1:5001]
Workstation
Edit
Trace
Properties
Help
Events Query
Go
Time range
All
Summary View
Trace View
Tree View
Zoom
0 ms
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
CICSTestDriver|RunUOW
CICS Regions|SYSVC660|CSMI|0045567|Transaction Lifetime
CICS Regions|SYSVC660|CSMI|0045567|Suspend Time
CICS TCB Change Mode Delay Time

Query: Cor3A478B568DCA8F460127A49C18521F60:IScopeCTGID

Type	Domain	Host	Process	Agent	Timestamp	Duration (ms)	Description	UserID
T	*SuperDomain*	USILCA31	SYSVIEW Process	Cross-Enterprise	Fri Oct 09 13:10:41 EDT 2009	74	CICS Regions|SY...	
T	*SuperDomain*	xgutest1	WebSphere	StandaloneTest	Fri Oct 09 13:10:17 EDT 2009	78	CICSTestDriver|R...	

Agent *SuperDoman*XXX1ISYSVIEWProcessICross-Enterprise
Timestamp: 10/09/09 13:10:41 EDT
Duration: 74 ms

Component Details

Identification

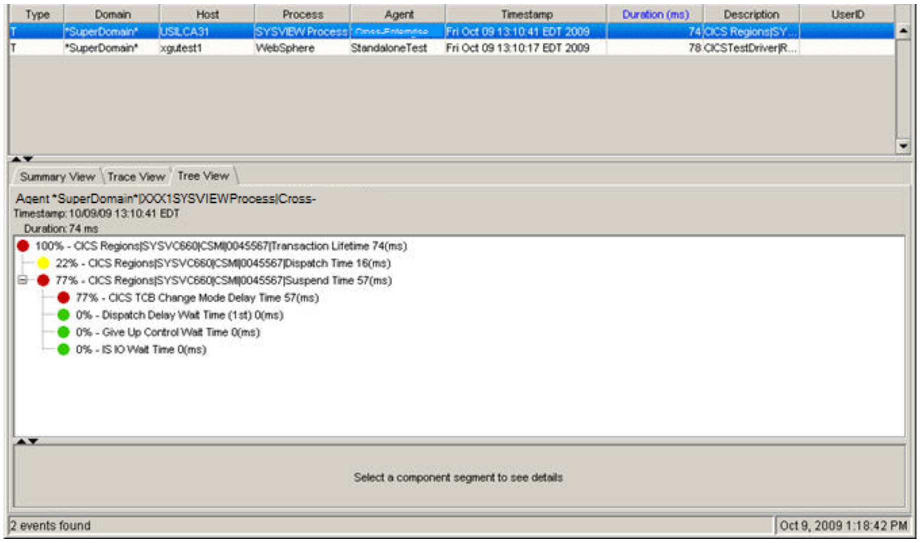
Type: CICS Regions
Name: Transaction Lifetime
Path: CICS Regions|SYSVC660|CSMI|0045567|Transaction Lifetime

Performance

2 events found
Oct 9, 2009 1:17:25 PM

4. Select the Tree View tab to diagnose the problem and highlight the transaction trace component to see the properties associated with it.

   The following example shows that the CICS transaction spends 77 percent of its time suspended. The dispatch time is longer than the run time. Correct this issue.



Type	Domain	Host	Process	Agent	Timestamp	Duration (ms)	Description	UserID
T	*SuperDomain*	USILCA31	SYSVIEW Process	Cross-Enterprise	Fri Oct 09 13:10:41 EDT 2009	74	CICS Regions|SY...	
T	*SuperDomain*	xgutest1	WebSphere	StandaloneTest	Fri Oct 09 13:10:17 EDT 2009	78	CICSTestDriver|R...	

Agent *SuperDomain*|XXX1SYSVIEWProcess|Cross-
Timestamp: 10/09/09 13:10:41 EDT
Duration: 74 ms

```
● 100% - CICS Regions|SYSVC660|CSMI|0045567|Transaction Lifetime 74(ms)
   ● 22% - CICS Regions|SYSVC660|CSMI|0045567|Dispatch Time 16(ms)
⊟ ● 77% - CICS Regions|SYSVC660|CSMI|0045567|Suspend Time 57(ms)
      ● 77% - CICS TCB Change Mode Delay Time 57(ms)
      ● 0% - Dispatch Delay Wait Time (1st) 0(ms)
      ● 0% - Give Up Control Wait Time 0(ms)
      ● 0% - IS IO Wait Time 0(ms)
```

Select a component segment to see details

2 events found
Oct 9, 2009 1:18:42 PM

Problematic Transaction for Unit of Work

If the transaction is problematic, use the Unit of Work ID to investigate the back-end transaction using CA SYSVIEW. CA SYSVIEW administrators can find the corresponding SMF record for this transaction using the CA SYSVIEW GUI.

The value in this field can be used to look up the associated SMF record in SYSVIEW.

For IMS transactions:

```
IMSTLOG UOW <value_of_Unit_of_Work_ID>;
```

For CICS transactions:

```
CTRANLOG; SELECT UOWID EQ <value_of_Unit_of_Work_ID>;
```

Additional transaction trace events that show the transaction activity within the back-end system can also be viewed from the Workstation. These events are produced from the CA APM Cross-Enterprise running on the mainframe, and are correlated with traces generated from the front-end Agent.

The CICS back-end trace events provide information about the performance of transactions that run on CICS. Trace events provide the following information in the Trace Viewer to help you diagnose the problem:

- Transaction name
- Transaction lifetime
- CPU time
- Suspend time
- Dispatch time

The IMS back-end trace events provide information about the performance of transactions that run on IMS. Trace events provide the following information in the Trace Viewer to help you diagnose the problem.

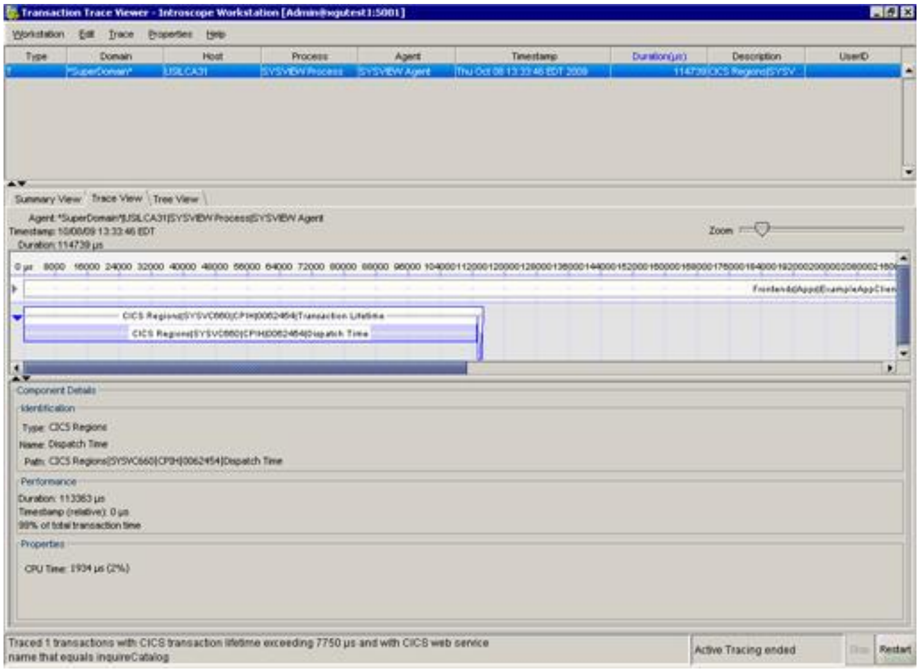
Launch a New Back-End Transaction Trace Session from an Existing One

Correlating front-end and back-end traces can be challenging when the filter is not narrowed to include fewer traces. When there is a heavy volume of traces coming from the front-end and back-end, CA APM Cross-Enterprise lets you launch a new transaction trace session from an existing one. This launch creates a new back-end transaction trace session from the selected web service or CTG front-end transaction trace and makes correlation are more likely.

Follow these steps:

1. Click the problematic web service or CTG front-end transaction trace, on the Transaction Trace Viewer.
2. Highlight the last item on the Trace View tab, right-click, and select Launch New Trace from the pop-up menu.

   A New Transaction Trace Session window opens with populated fields from the front-end trace.
3. Click OK to view transactions that meet the specified criteria in the Transaction Trace Viewer window:


Transaction Trace Viewer - Introscope Workstation [Admin@xgutest1:5001]
Workstation
Edit
Trace
Properties
Help
Summary View
Trace View
Tree View
Zoom
0 µs 8000 16000 24000 32000 40000 48000 56000 64000 72000 80000 88000 96000 104000 112000 120000 128000 136000 144000 152000 160000 168000 176000 184000 192000 200000 208000 216
Frontends|Apps|ExampleAppClien
CICS Regions|SYSVC660|CPIH|0062454|Transaction Lifetime
CICS Regions|SYSVC660|CPIH|0062454|Dispatch Time
Stop
Restart

Type	Domain	Host	Process	Agent	Timestamp	Duration(µs)	Description	UserID
T	*SuperDomain*	USILCA31	SYSVIEW Process	SYSVIEW Agent	Thu Oct 08 13:33:46 EDT 2009	114739	CICS Regions|SYSV...	

Agent: *SuperDomain*|USILCA31|SYSVIEW Process|SYSVIEW Agent
Timestamp: 10/08/09 13:33:46 EDT
Duration: 114739 µs

Component Details

Identification

Type: CICS Regions
Name: Dispatch Time
Path: CICS Regions|SYSVC660|CPIH|0062454|Dispatch Time

Performance

Duration: 113363 µs
Timestamp (relative): 0 µs
99% of total transaction time

Properties

CPU Time: 1934 µs (2%)

Traced 1 transactions with CICS transaction lifetime exceeding 7750 µs and with CICS web service name that equals inquireCatalog

Active Tracing ended

The returned trace is the correlated front-end and back-end trace.

HTTP Transaction Trace Components Properties

The section describes the components and properties added to Java traces by the HTTP SYSVIEW Tracer. Each of the transaction trace components and its properties are described.

HTTP Servlett Tracing Properties

Any subclass of HTTPServlet will generate the HTTP Servlett component when one of the methods that implements methods doGet(), doPut(), doPost() or doDelete() is called. Properties that can be filtered in the Transaction Trace Session dialog box list the filter name.

Class

The class that implemented the HTTPServlett class.

CrossProcessData

Specifies a UUID used for correlation and is applicable only to HTTP transaction tracers.

This property will appear only if this component is the root component.

Format: A 32-byte UUID

Communication Method

The communication method used to invoke the transaction. This will always be set to the value HTTP.

Filter: CICS/IMS communication method equals

Method

The called method that was instrumented and which caused the component to be inserted.

Values

- doGet
- doPut
- doPost
- DoDelete

SeqNoCrossProcessData

Specifies the sequence ID of the correlation UUID.

This property will appear only if this component is the root component.

Trace ID

Specifies the trace identifier, a unique value generated for each trace event

This property will appear only if this component is the root component.

Trace Type

Specifies the transaction trace type.

This property will appear only if this component is the root component.

Normal

A normal trace taken during a transaction trace session.

Alternately, a trace that correlates with a sample from another agent.

Sampled

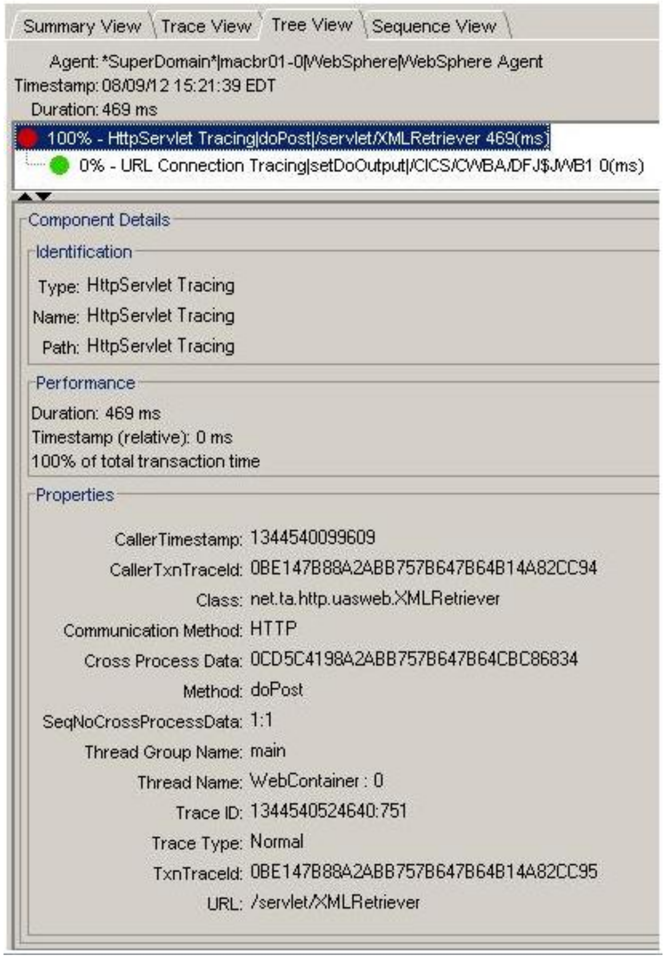
A sample trace taken because sampling is set. Sample trace appears in the Transaction Trace Viewer pane as correlated traces.

URL

Indicates the URL of the servlet. The leading protocol specifier, computer name, and port number are not included.

Example: /HTTPTest/servlet/FrontEndClient

Filter: URL (from dropdown menu)



Agent: *SuperDomain*|macbr01-0|WebSphere|WebSphere Agent
Timestamp: 08/09/12 15:21:39 EDT
Duration: 469 ms

● 100% - HttpServlet Tracing|doPost|/servlet/XMLRetriever 469(ms)
● 0% - URL Connection Tracing|setDoOutput|/CICS/CWBA/DFJ$JWB1 0(ms)

Component Details

Identification

Type: HttpServlet Tracing
Name: HttpServlet Tracing
Path: HttpServlet Tracing

Performance

Duration: 469 ms
Timestamp (relative): 0 ms
100% of total transaction time

Properties

CallerTimestamp: 1344540099609
CallerTxnTraceId: 0BE147B88A2ABB757B647B64B14A82CC94
Class: net.ta.http.uasweb.XMLRetriever
Communication Method: HTTP
Cross Process Data: 0CD5C4198A2ABB757B647B64CBC86834
Method: doPost
SeqNoCrossProcessData: 1:1
Thread Group Name: main
Thread Name: WebContainer : 0
Trace ID: 1344540524640:751
Trace Type: Normal
TxnTraceId: 0BE147B88A2ABB757B647B64B14A82CC95
URL: /servlet/XMLRetriever

URL Connection Tracing Properties

This section lists all of the properties of the URLConnection Tracing component. Any subclass of URLConnection or HttpURLConnection will generate the URLConnection Tracing component when the method that implements setDoOutput () is called. Properties that can be filtered in the Transaction Trace Session dialog box list the filter name.

Class

The class that implemented the URLConnection or HttpURLConnection class.

Communication Method

The communication method used to invoke the transaction. This will always be set to the value HTTP.

Filter: CICS/IMS communication method equals

Method

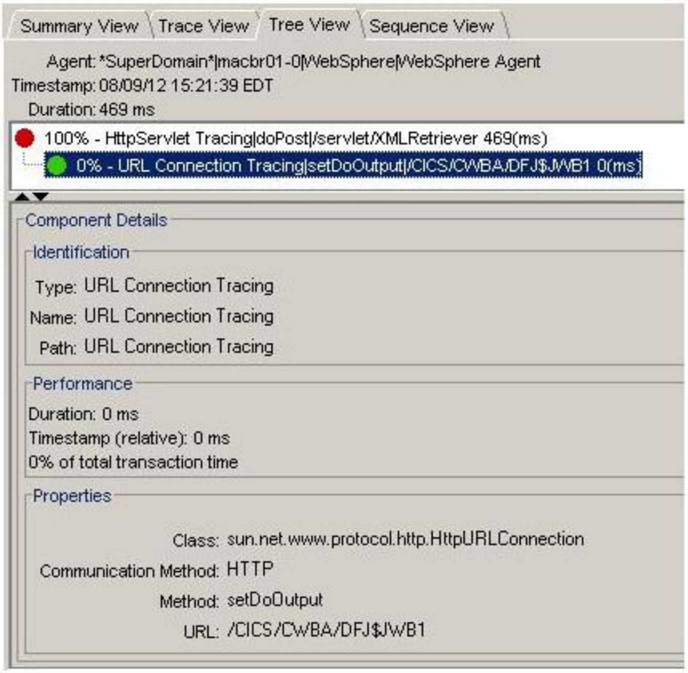
The called method that was instrumented and which caused the component to be inserted.   This will always have a value of setDoOutput.

URL

Indicates the URL being invoked. The leading protocol specifier, computer name, and port number are not included.

Example: /CICS/CWBA/DFJ$JWB1

Filter: URL (from dropdown menu)



Agent: *SuperDomain*|macbr01-0|WebSphere|WebSphere Agent
Timestamp: 08/09/12 15:21:39 EDT
Duration: 469 ms

100% - HttpServlet Tracing|doPost|/servlet/XMLRetriever 469(ms)
0% - URL Connection Tracing|setDoOutput|/CICS/CWBA/DFJ$JWB1 0(ms)

Component Details

Identification

Type: URL Connection Tracing
Name: URL Connection Tracing
Path: URL Connection Tracing

Performance

Duration: 0 ms
Timestamp (relative): 0 ms
0% of total transaction time

Properties

Class: sun.net.www.protocol.http.HttpURLConnection
Communication Method: HTTP
Method: setDoOutput
URL: /CICS/CWBA/DFJ$JWB1

Review or Adjust Results Components

The section describes the mainframe transaction trace components and properties generated from the Cross-Enterprise APM agent for the mainframe transactions. Each of the transaction trace components and its properties are listed below.

The transaction trace results are built from standard performance information recorded in the SMF records generated by CA SYSVIEW. These results consist of a series of components that help you diagnose problems. Each component has properties with names and values.

Some components are permanent and appear in every trace, while others are optional to reduce the size of the traces. These optional components appear in the trace only if they are in one of these two sets:

- The top ten longest non-zero duration components
- Components whose duration is greater than five percent of their parent component

CICS Transaction Lifetime Properties

This section lists all of the properties of the CICS transaction lifetime component. CICS transaction lifetime is the root component of every CICS transaction trace, and any of its child components are nested within it. Properties that can be filtered in the Transaction Trace Session dialog box list the filter name.

ABEND Code

An ABEND code appears in the bottom pane of the Trace View only when a transaction ends abnormally.

Applid

Specifies the network ID of the target CICS server.

Format: A string up to eight characters in length.

CrossProcessData

Specifies a UUID used for correlation and is applicable only to web service transaction tracers.

Format: A 32-byte UUID

Communication Method

The communication method used to invoke the transaction.

CICS values

- Web Service
- CTG Channel
- MQ Trigger Message
- HTTP

Filter: CICS/IMS communication method equals

IscopeMQID

Specifies a 48-byte hexadecimal string used for correlation with multiple UUIDs; used with WebSphere MQ series tracers only. The name and value are reversed for performance improvements on correlation.

IscopeCTGID

Specifies a 32-byte UUID used for correlation with only one UUID; used with CTG tracers only. The name and value are reversed for performance improvements on correlation.

Job Name (Server Name)

Indicates the region where the CICS transaction was processed.

Filter: CICS server name (CTG) equals

Microsecond Lifetime

Specifies the transaction duration expressed in microseconds.

Filter: CICS/IMS transaction lifetime lasting longer than

Program Name

Indicates the name of the program executed in the CICS region

Filter: CICS program name (CTG) equals

SMF SysId

Specifies the identifier of the system delivering SMF records.

SeqNoCrossProcessData

Specifies the sequence ID of the correlation UUID.

Trace ID

Specifies the trace identifier, a unique value generated for each trace event.

Trace Type

Specifies the transaction trace type.

Normal

A normal trace taken during a transaction trace session.

Alternately, a trace that correlates with a sample from another agent.

Sampled

A sample trace taken because sampling is set. Sample trace appears in the Transaction Trace Viewer pane as correlated traces.

Transaction Name

Indicates the name of the transaction in the CICS region.

Filter: CICS transaction name (CTG) equals

Transaction Number

Specifies the number of this transaction.

Transaction Processor

Specifies the transaction processor that ran the transaction.

CICS

Transaction was run on CICS.

Filter: CICS/IMS transaction processor name equals

Umbrella Name

When the transaction is invoked by an umbrella transaction, this will be the transaction ID of the umbrella transaction.

Umbrella Type

The type of the umbrella transaction if present.

Unit of Work ID

Specifies the unit of work ID associated with the transaction.

Use the contents of this field to find the associated SMF record in CA SYSVIEW when the CICS transaction is an issue.

CICS transactions:

```
CTRANLOG; SELECT UOWID EQ <value_of_Unit_of_Work_ID>;
```

Note: The CA SYSVIEW administrators can find the corresponding SMF record for this transaction using the CA SYSVIEW GUI.

Web Service Name

Indicates the name of the web service used to execute this transaction. This property is applicable only to web service transaction tracers.

Filter: CICS web service name equals

CICS Dispatch Time Properties

CICS Dispatch Time is a child component of the CICS Transaction Lifetime root component. Dispatch time contains a single property:

CPU Time

The CPU time is the portion of dispatch time when the task is using processor cycles.

CICS Suspend Time Properties

CICS Suspend Time is a child component of the CICS Transaction Lifetime root component. Suspend time contains these properties:

CICS Exceptions Wait Time

Specifies the accumulated wait time from all the exception conditions.

Java Suspend Time

Specifies the elapsed time the user task was suspended by the CICS dispatcher domain while running in the CICS Java Virtual Machine (JVM).

Java Time

Specifies the total elapsed time that the user task spent in the CICS Java Virtual Machine (JVM)

Max Hot-Pooling TCB Delay Time

Specifies the elapsed time the user task waited to obtain a CICS Hot-Pooling TCB (H8 mode). The MAXHPTCBS system parameter sets the time limit that the CICS system can wait. The H8 mode open TCB is used by HPJ-compiled Java programs defined with HOTPOOL(YES) exclusively.

QR TCB Wait For Dispatch

Specifies the elapsed time the user task waited for to be redispatched on the CICS QR mode TCB. QR TCB Wait For Dispatch is defined as aggregate wait times between each wait event completion and the user task redispatched by the CICS dispatcher domain on the QR mode TCB.

Ready To Run Time

Specifies the elapsed time the user task waited for to be redispatched by the CICS dispatcher domain. Ready To Run Time is defined as aggregate wait times between each wait event completion and the user task redispatched by the CICS dispatcher domain.

Components appear in the Suspend Time tier if they:

- Take a substitutional portion of the suspend time.
- Use non-zero time.
- Are in the top ten components by usage.
- Represent more than 5 percent of the Transaction Lifetime.

IMS Transaction Lifetime Properties

This section lists all the properties of the IMS transaction lifetime component. IMS transaction lifetime is the root component of every IMS transaction trace, and any of its child components are nested within it. Properties that can be filtered in the Transaction Trace Session dialog box list the filter name.

ABEND Code

An ABEND code appears in the bottom pane of the Trace View only when a transaction ends abnormally.

Communication Method

Specifies the communication method used to invoke the transaction.

IMS values

- MQ IMS Bridge
- MQ IMS Adapter

Filter: CICS/IMS communication method equals

CPU Time

Specifies the CPU time used by the dependent region to process the transaction in microseconds. The percentage of the Transaction Lifetime or Process time spent on CPU is displayed in parenthesis.

IscopeMQID

Specifies a 48-byte hexadecimal string used for correlation with multiple UUIDs; used with WebSphere MQ series tracers only. The name and value are reversed for performance improvements on correlation.

Job Name (Dependent Region)

Specifies the dependent region job name of the IMS dependent region that processed the transaction.

Filter: IMS job name equals

LTerm Name

Specifies the logical terminal name associated with this instance of the transaction.

Microsecond Lifetime

Specifies the duration of the Transaction Lifetime in microseconds.

Filter: CICS/IMS transaction lifetime lasting longer than

PSB Name

Specifies the program specification block (PSB) name associated with the transaction.

Filter: IMS PSB name equals

Region ID

Specifies the PST ID associated with the IMS-dependent region that processed the transaction.

Trace Type

Specifies the transaction trace type.

Normal

A normal trace taken during a transaction trace session.

Alternately, a trace that correlates with a sample from another agent.

Sample

A sample trace taken because sampling is set. Sample trace appears in the Transaction Trace Viewer pane as correlated traces.

Transaction Class

Specifies the transaction class where the transaction was scheduled.

Transaction ID

Specifies the transaction name

Filter: IMS transaction ID equals

Transaction Origin

Specifies the origin which can be either Shared Queues, OTMA, APPC, LOCAL, or the bit settings in the record description.

Transaction Priority

Specifies the priority at which the transaction was dispatched.

Transaction Processor

Specifies the transaction processor that ran the transaction.

IMS

Transaction was run on IMS.

Filter: CICS/IMS transaction processor name equals

Transaction Type

Specifies the transaction types.

- A - Program ABEND
- B - Processing restarted
- C - Conversational send/receive
- D - Transmit only conversations

- F - FORMAT entered
- M - Message switch
- O - Region Occupancy
- P - Program switch
- Q - Transmit only program switch
- R - Program running at ABEND
- S - Send/Receive processing
- T - Transmit only
- X - Conversational program switch
- Y - Transmit only conversational program switch
- Z - Transaction IMLB timeout

Unit of Work ID

Specifies the unit of work ID associated with the transaction.

Use the contents of this field to find the associated SMF record in CA SYSVIEW.

IMS transactions:

```
IMSTLOG UOW <value_of_Unit_of_Work_ID>;
```

User ID

Specifies the user ID associated with this instance of the transaction.

Filter: user ID

IMS Optional Component Properties

This section lists all IMS optional component properties. These are optional properties of the *Process Time* child component. Process Time is a child component of the IMS transaction lifetime root component. The Optional Components are IMS Monitor type events such as, IWAITs, DL/1 and External Subsystem calls that occur during the transaction lifetime. There is only a single component for each event type. These properties exist only if more than one event has occurred.

Event Count

Specifies the number of times the event occurred during the processing of the transaction.

Maximum Event Time

Specifies the longest duration of any event of this type.

IMS Process Time Properties

This section lists all properties of the IMS Process Time child component. Process Time is a child component of the IMS transaction lifetime root component.

CPU Time

Specifies the CPU time used by the dependent region to process the transaction in microseconds. The percentage of the Process Time spent on CPU is displayed in parenthesis.

Chapter 3: CA APM Cross-Enterprise Metrics

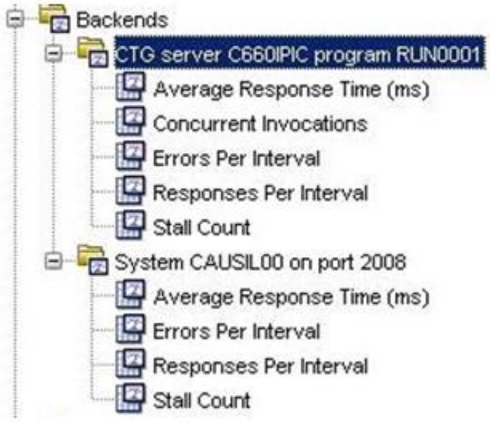
This section contains the following topics:

About CTG CA SYSVIEW Tracer Metrics

If you have installed the CTG CA SYSVIEW tracer, you will receive metrics concerning CTG calls made by the application that was instrumented with the tracer. These are blamepoint metrics for the calls to the method com.ibm.ctg.client.JavaGateway.flow().

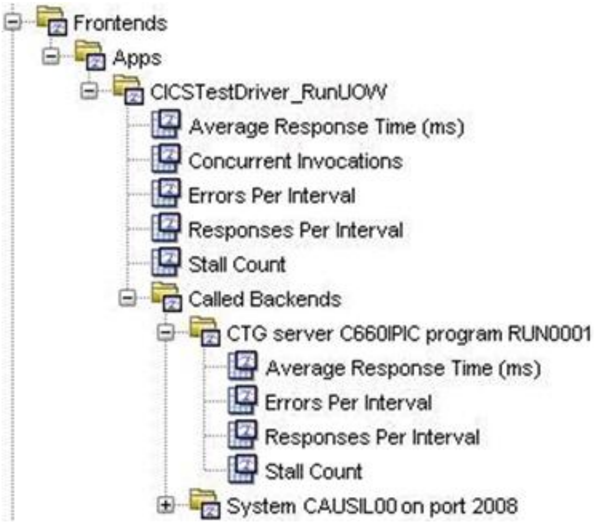
These metrics are generated under the backend metrics and are called *backends* of the frontend metrics. They will also appear on the Triage map. You can mouse over the circular green metric icon that appears to the left of the triage map component (at which the arrow head points) to see these same metrics from the Triage map.

Backend metrics for the sockets (host/port pairs) used to communicate with the CTG server will also appear (which in this case is host CAUSIL00 and port 2008). This example has a single server/program folder and a single socket (host/port) folder but could have multiple of both.



```
Backends
  CTG server C660IPIC program RUN0001
    Average Response Time (ms)
    Concurrent Invocations
    Errors Per Interval
    Responses Per Interval
    Stall Count
  System CAUSIL00 on port 2008
    Average Response Time (ms)
    Errors Per Interval
    Responses Per Interval
    Stall Count
```

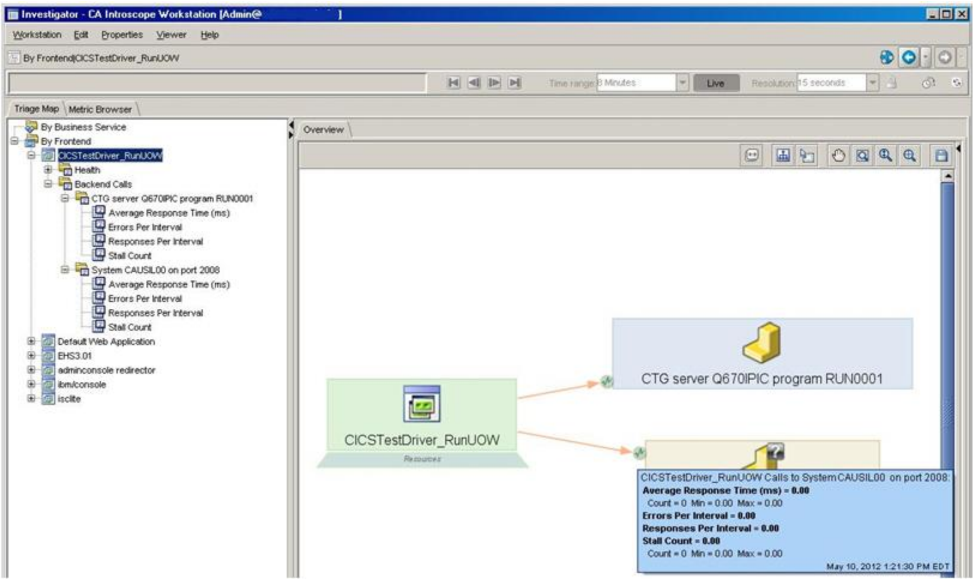
The CTG backend metrics will also appear under Called Backends for any frontends that call it. This is along with backend metrics for the host and port of the CTG server (which in this case is CAUSIL00:2008).



- Frontends
  - Apps
    - CICSTestDriver_RunUOW
      - Average Response Time (ms)
      - Concurrent Invocations
      - Errors Per Interval
      - Responses Per Interval
      - Stall Count
      - Called Backends
        - CTG server C660IPIC program RUN0001
          - Average Response Time (ms)
          - Errors Per Interval
          - Responses Per Interval
          - Stall Count
        - System CAUSIL00 on port 2008

Participation in the Application Map will be as a backend with the same naming convention for the vertex being "CTG server *server* program *program*."

On the Workstation Triage Map you can view the backend generated by the CTG Tracer by selecting the frontend that calls it. A frontend must be generated to see this backend, so some pbd used must define frontend metrics for some method that in turn calls the method com.ibm.ctg.client.JavaGateway.flow().



By Business Service
By Frontend
CICSTestDriver_RunUOW
Health
Backend Calls
CTG server Q670IPIC program RUN0001
Average Response Time (ms)
Errors Per Interval
Responses Per Interval
Stall Count
System CAUSIL00 on port 2008
Average Response Time (ms)
Errors Per Interval
Responses Per Interval
Stall Count
Default Web Application
EHS3.01
adminconsole redirector
ibm/console
isclite

CICSTestDriver_RunUOW Calls to System CAUSIL00 on port 2008:
Average Response Time (ms) = 0.00
Count = 0 Min = 0.00 Max = 0.00
Errors Per Interval = 0.00
Responses Per Interval = 0.00
Stall Count = 0.00
Count = 0 Min = 0.00 Max = 0.00
May 10, 2012 1:21:30 PM EDT

On the Triage Map above, the circular green metric icons at which the arrows point (located to the left of the CTG vertex labeled SYSTEM CAUSIL00 on port 2008) indicate that metrics exist. These metric icons can be used to access blame point metrics for the call to the method com.ibm.ctg.client.JavaGateway.flow(). These metric icons appear only when the application is up and the agent is connected to the EM. Just mouse over the metric icon and the metrics will appear as above.

About CA Cross-Enterprise APM z/OS Metrics

Use the metrics produced by CA Cross-Enterprise APM to identify problems. They can be viewed in the CA Introscope® Workstation. For more information see, How to use the Console to Identify Problems (see page 9) and How to use the Investigator to Diagnose Problems.

For more information about GC Heap and Host metrics, see the *CA APM Workstation User Guide*. You can access this guide from CA Technical Support site.

CA SYSVIEW Metric Categories

You can configure the CA Cross-Enterprise APM Agent to collect metrics from a single instance of CA-SYSVIEW. The CE APM agent must be running on the same LPAR as that instance is running.

The configuration file, Cross-Enterprise_APM_Dynamic.properties, has configuration properties for collection (yes,no) or regex (regular expression) for each metric category. The properties that end with '.collect' control whether the associated CA SYSVIEW command is executed at all. The properties that end with '.regex' can be set to blank to prevent the collection or to a regular expression to filter the queue managers, queues, address spaces, subsystems, or regions to collect. Within the regex value, you can also use selection criteria wildcards. For example, regex=CQ* gathers only those regions beginning with the letters CQ.

If the CA-SYSVIEW command associated with a metric category is configured to be executed, then you can also specify how often a metric category is collected using the skip interval properties.

The configuration file has specific examples and helping instructions that are contained within the file.

Each monitored CA SYSVIEW subsystem reports metrics. The metric categories are as follows:

z/OS Metrics (see page 81)

Folders:

- z/OS Metrics
- z/OS Metrics|Paging
- z/OS Metrics|Processor
- z/OS Metrics|Status
- z/OS Storage

Configuration properties:

- SYSVIEW.ZOS.Metrics.collect=yes
- SYSVIEW.ZOS.Skip.Intervals=0

z/OS Alerts (see page 86)

Folders:

- z/OS Metrics|Alerts

Configuration properties:

- SYSVIEW.ZOS.Alerts.Metrics.collect=yes
- SYSVIEW.ZOS.Alerts.Skip.Intervals=0

z/OS Degradation Delay Analysis (see page 88)

Folders:

- z/OS Metrics|Degradation Delay Analysis

Configuration properties:

- SYSVIEW.ZOS.Delays.Metrics.collect=yes
- SYSVIEW.ZOS.Delays.Skip.Intervals=0

z/OS Workload Manager Service Goals (see page 91)

Folders:

- z/OS Metrics|Workload Manager Service Goals

Configuration properties:

- SYSVIEW.ZOS.WLM.Metrics.collect=yes
- SYSVIEW.ZOS.WLM.Skip.Intervals=0

CICS Regions (see page 92)

Folders:

- CICS Regions|<region name>
- CICS Regions|<region name>|Dynamic Storage Area
- CICS Regions|<region name>|Status

Configuration properties:

- SYSVIEW.CICS.Regions.regex=*
- SYSVIEW.CICS.Skip.Intervals=0

CICS Transaction Groups (see page 97)

Folders:

- CICS Regions|<region name>|Transaction Groups|<Group name>

Configuration properties:

- SYSVIEW.CICS.TransactionGroups.regex=*
- SYSVIEW.CICS.Skip.Intervals=0

CICS Alerts (see page 98)

Folders:

- CICS Regions

  Metrics

  - Unacknowledged Alert Count
  - Unacknowledged Problem Count

- CICS Regions|<region name>|Alerts

Configuration properties:

- SYSVIEW.CICS.Alerts.Regions.regex=*
- SYSVIEW.CICS.Alerts.Skip.Intervals=0

CICS Degradation Analysis (see page 99)

Folders:

- CICS Regions|<region name>|Degradation Analysis|<Resource>

Configuration properties:

- SYSVIEW.CICS.Degradation.Regions.regex=*
- SYSVIEW.CICS.Degradation.Skip.Intervals=0

DATACOM Address Spaces (see page 100)

Folders:

- DATACOM Address Spaces|<address space name>

Configuration properties:

- SYSVIEW.Datacom.Address.Space.regex=*
- SYSVIEW.Datacom.Address.Space.Skip.Intervals=0

IMS Subsystems (see page 103)

Folders:

- IMS Subsystems|<subsystem name>
- IMS Subsystems|<subsystem name>|Configuration Properties
- IMS Subsystems|<subsystem name>|Status

Configuration properties:

- SYSVIEW.IMS.Subsystem.regex=*
- SYSVIEW.IMS.Subsystem.Skip.Intervals=0

IMS Transaction Groups (see page 105)

Folders:

- IMS Subsystems|<subsystem name>|Transaction Groups|<group name>

Configuration properties:

- SYSVIEW.IMS.TransactionGroups.regex=*
- SYSVIEW.IMS.Subsystem.Skip.Intervals=0

MQ Queue Managers (see page 106)

Folders:

- MQ Queue Managers
- MQ Queue Managers|<queue manager name>|Configuration Properties
- MQ Queue Managers|<queue manager name>|Status
- MQ Queue Managers|<queue manager name>|Queues [partial control]

Configuration properties:

- SYSVIEW.MQ.QMs.regex=*
- SYSVIEW.MQ.Skip.Intervals=0

MQ Queues (see page 110)

Folders:

- MQ Queue Managers|<queue manager name>|Queues
- MQ Queue Managers|<queue manager name>|Queues|<queue name>|Configuration Properties
- MQ Queue Managers|<queue manager name>|Queues|<queue name>|Status

Configuration properties:

- SYSVIEW.MQ.Queues.regex=*
- SYSVIEW.MQ.Skip.Intervals=0

TCP/IP Stacks (see page 113)

Folders:

- TCPIP Stacks|<stack>
- TCPIP Stacks|<stack>|Status

Configuration properties:

- SYSVIEW.TCPIP.Stack.regex=*
- SYSVIEW.TCPIP.Stack.Skip.Intervals=0

z/OS Metrics

CA APM Cross-Enterprise monitors data for the z/OS metrics.

The z/OS metrics appear under the folder: z/OS Metrics.

Additionally, the following z/OS-related data is reported in subfolders:

- Paging (see page 82)
- Processor (see page 83)
- Status (z/OS Metrics) (see page 84)
- Storage (see page 85)

These are the z/OS metrics are in the z/OS metrics folder:

IO Rate Per Second

Displays the number of start I/Os per second for the system.

Disk I/O only.

LPAR Name

Displays the name of the LPAR.

Spool Utilization (%)

Displays the indication of spool utilization.

Print spool %

Tasks Ready To Dispatch

Displays the number of tasks that are ready to dispatch.

Paging

The z/OS paging metrics appear under the folder: z/OS Metrics|Paging.

These paging metrics are reported for z/OS.

Available Frame Queue Average

Displays the average of the available frame queue.

Local Page Dataset Slots In Use (%)

Displays the percentage of local page dataset slots in use.

Paging Per Second

Displays the paging rate per second for the system.

Unreferenced Interval Count Average

Displays the average of unreferenced interval counts.

Processor

The z/OS processor metrics appear under the folder: z/OS Metrics|Processor.

These processor metrics are reported for z/OS.

CP (%)

Displays the percentage of busy CPU from a z/OS point of view. This includes only CP processors.

CPU (%)

Displays the percentage of busy CPU from a z/OS point of view. This includes all processors.

IFA (%)

Displays the percentage of busy CPU from a z/OS point of view. This includes only IFA processors.

IIP (%)

Displays the percentage of busy CPU from a z/OS point of view. This includes only IIP processors.

LPAR CP (%)

Displays the percentage of busy CPU from a LPAR point of view. This includes only CP processors.

LPAR CPU (%)

Displays the percentage of busy CPU from a LPAR point of view. This includes all processors.

LPAR IFA (%)

Displays the percentage of busy CPU from a LPAR point of view. This includes only IFA processors.

LPAR IIP (%)

Displays the percentage of busy CPU from a LPAR point of view. This includes only IIP processors.

Status (z/OS Metrics)

The z/OS status metrics appear under the folder: z/OS Metrics|Status.

These status metrics are reported for z/OS.

Dump Data Sets

Indicates a dump dataset is in use.

Enqueue Conflicts

Indicates a potential enqueue conflict could exist.

Enqueue Reserves

Indicates a potential enqueue reserve problem could exist. If this value is blank, it indicates no problem exists.

LPAR

Displays the LPAR with these values.

- ACTIVE
- NO_COMM
- NO_SRVR

Indicates metric values.

1

ACTIVE

0

All values except ACTIVE

SMF

Indicates a potential SMF problem could exist with these values.

0

If the field is blank, no problem exists.

1

The field has the same value as the metric, which means a problem exists. In this case, the value would be SMF for a problem.

Tape Mounts

Indicates a tape mount is pending with these values.

0

If the field is blank, no problem exists.

1

The field has the same value as the metric, which means a problem exists. In this case, the value would be TAP for a problem.

WTO

Indicates a potential WTO problem could exist with these values.

0

If the field is blank, no problem exists.

1

The field has the same value as the metric, which means a problem exists. In this case, the value would be WTO for a problem.

Storage

The z/OS storage metrics appear under the folder: z/OS Metrics|Storage.

These storage metrics are reported for z/OS.

Common Storage Area (CSA %)

Displays the percentage of common storage area in use.

Extended Storage Area (ECSA %)

Displays the percentage of extended common storage area in use.

Extended System Queue Area (ESQA %)

Displays the percentage of extended system queue area in use.

System Queue Area (SQA %)

Displays the percentage of system queue area in use.

z/OS Alerts

All metrics will be reported on every polling interval unless the alert has been acknowledged, in which case, the metrics are absent and will go gray.

Only alerts that are unacknowledged will appear in the Workstation Investigator tree. Two metrics appear under the z/OS Metrics|Alerts folder, which give total counts of these unacknowledged alerts. These two metrics can be used to generate APM alerts using the management module editor if there is a desire to be alerted to CA-SYSVIEW z/OS alert activity.

z/OS Metrics|Alerts: Unacknowledged Problem Count

The current number of alerts that have a status of problem.

z/OS Metrics|Alerts: Unacknowledged Alert Count

The current number of unacknowledged alerts.

The metrics for each z/OS alert appear under the folder: z/OS Metrics|Alerts|<Alert Name>_<Resource Name>_<Alias Name>.

Alert Name

The name of the alert. In CA SYSVIEW it is the variable name for the data collection element of the alert. This metric is the prefix of the alert's folder name.

Alert Status

The current alert threshold status. This can be NONE, NORMAL, HIGH, WARNING, or PROBLEM.

Alert Status Value

The current alert threshold status as a numeric value. This can be 0=NONE, 1=NORMAL, 2=HIGH, 3=WARNING, or 4=PROBLEM.

Alias

The alias of the alert. In CA SYSVIEW, it is the alias for the resource argument. This metric will not appear if it has no value. This becomes the third underscore separated segment of the metric folder name for the alert when it exists.

Description

A description of the alert.

Group

A group classification for the alert.

Priority

The priority of the alert from 0-999 with 999 having the highest priority.

Resource Name

The resource of the alert. In CA SYSVIEW it is the resource argument used to qualify the collection element of the alert. This metric will not appear if it has no value. This becomes the second underscore separated segment of the alert's folder name when it exists.

Rule Type

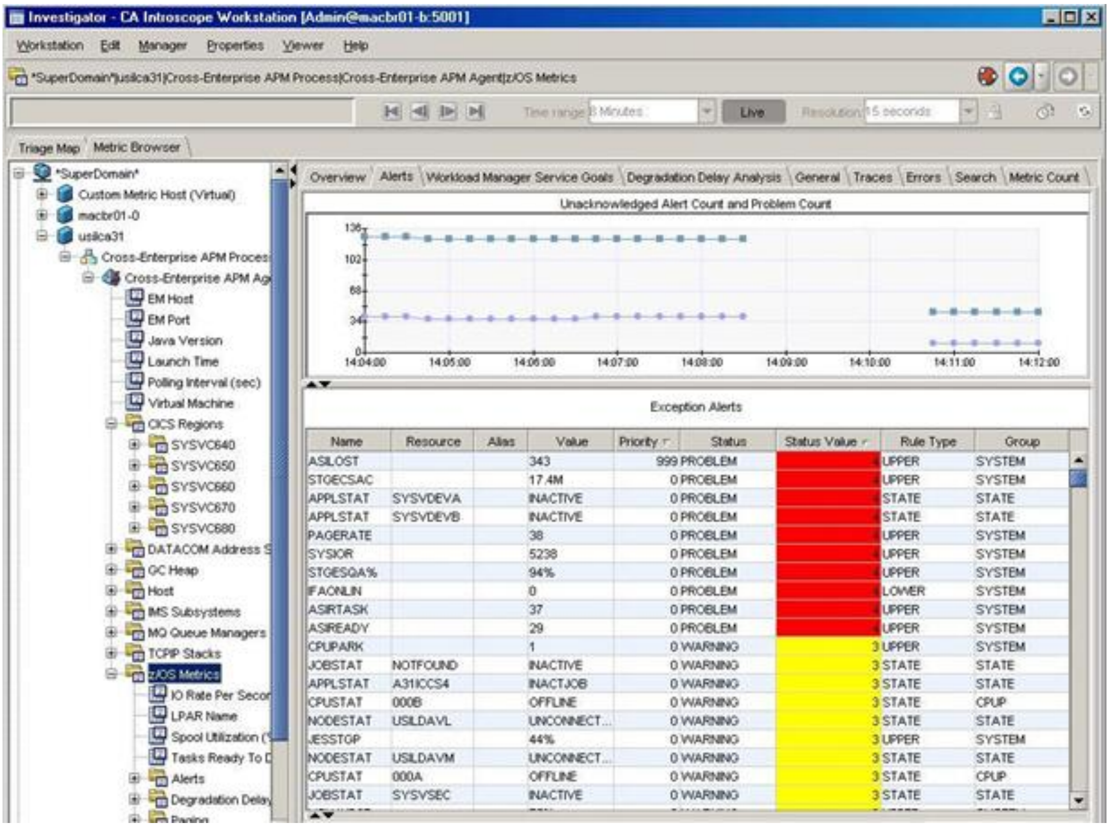
The exception rule type. Possible values are:

- UPPER — Upper limit threshold
- LOWER — Lower limit threshold
- CHANGE — Change in value threshold
- STATE — State exception
- SUMMARY — Summarized entry

Value

The value last used during threshold processing. If the resource does not currently have an associated threshold definition, the value is the last value collected by the data Collector.

The typeview on the z/OS Metrics folder tab Alerts will display the Unacknowledged Problem Count and Unacknowledged Alert Count on a single graph at the top as well as display individual alerts in the table below. Similarly, the typeview will also display on the Alerts folder tab Overview. The columns will be sorted on Priority and then Status. In this way, the highest priority items appear at the top of the list and the highest status of those first. The status value column is color coded to severity with Red = Problem and Yellow = Warning. Selecting the z/OS Metrics | Alerts folder tab Overview brings up the identical typeview.



Name	Resource	Alias	Value	Priority	Status	Status Value	Rule Type	Group
ASILOST			343	999	PROBLEM	4	UPPER	SYSTEM
STGECSAC			17.4M	0	PROBLEM	4	UPPER	SYSTEM
APPLSTAT	SYSVDEVA		INACTIVE	0	PROBLEM	4	STATE	STATE
APPLSTAT	SYSVDEVB		INACTIVE	0	PROBLEM	4	STATE	STATE
PAGERATE			38	0	PROBLEM	4	UPPER	SYSTEM
SYSIOR			5238	0	PROBLEM	4	UPPER	SYSTEM
STGESQA%			94%	0	PROBLEM	4	UPPER	SYSTEM
IFAONLIN			0	0	PROBLEM	4	LOWER	SYSTEM
ASIRTASK			37	0	PROBLEM	4	UPPER	SYSTEM
ASIREADY			29	0	PROBLEM	4	UPPER	SYSTEM
CPUPARK			1	0	WARNING	3	UPPER	SYSTEM
JOBSTAT	NOTFOUND		INACTIVE	0	WARNING	3	STATE	STATE
APPLSTAT	A31ICCS4		INACTJOB	0	WARNING	3	STATE	STATE
CPUSTAT	000B		OFFLINE	0	WARNING	3	STATE	CPUP
NODESTAT	USILDAVL		UNCONNECT...	0	WARNING	3	STATE	STATE
JESSTOP			44%	0	WARNING	3	UPPER	SYSTEM
NODESTAT	USILDAVM		UNCONNECT...	0	WARNING	3	STATE	STATE
CPUSTAT	000A		OFFLINE	0	WARNING	3	STATE	CPUP
JOBSTAT	SYSVSEC		INACTIVE	0	WARNING	3	STATE	STATE

z/OS Degradation Delay Analysis

Degradation delay metrics will appear only for the top 20 worst 'Job Name_ASID' as determined by the delay percent value. If a job is no longer within the top 20, the metrics will not be reported; the metrics will be absent and the job name will change to gray.

The metrics for each degradation delay appear under the folder: z/OS Metrics|Degradation Delay Analysis|<Job Name>_<ASID>.

These metrics are listed in the order they appear on the Degradation Delay Analysis Typeview table and so are not in alphabetical order.

Job Name

Specifies the name of the job. The value of this metric forms the first part of the degradation delay's folder name.

ASID

Specifies the hexadecimal address space ID. This metric will not appear if it has no value. This becomes the second underscore separated segment of the degradation delay's folder name when it exists.

Reason

Specifies the reason for the delay. The value of this metric determines how the ‘Detail’ metric should be interpreted. This table lists the possible reasons and the meaning of the details provided.

Reason	Explanation of the delay	The 'Detail' metric provides
CPU	CPU time was not available	The top five users upon which the CPU resources were waiting. It is possible for a multi-TCB ASIC to be waiting on itself.
DEVICE	Device(s) were not available	The top six devices upon which the job was waiting.
STORAGE	Storage was not available	No additional details are available.
JES	JES resources were not available	**JES2 Code Explanation:** **0001** - Processing TSO OUTPUT command request **0002** - Waiting for JES2 to cancel a job **0003** - Waiting for job status information from JES2 **0012** - Waiting for JES2 to purge a SYSOUT file 0013 Waiting for JES2 to restart a job **JES3 Code Explanation:** **0023** - Dynamically allocating data set to JES3 **0026** - Changing DDNAME of device or data set **0027** - Changing data set use from SHR to OLD **0132** - Allocate or deallocate spool data set

Reason	Explanation of the delay	The 'Detail' metric provides
HSM	HSM resources were not available	**Code Explanation** **03** - A data set is being recalled from auxiliary storage **05** - A data set is being recovered **06** - A data set is being migrated **07** - A data set is being backed up **08** - A control data set record is being read, or a JES3 C/I locate is being done **12** - A data set is being deleted
XCF	XCF resources were not available	No additional details are available.
MOUNT	A device was waiting to be mounted	VOLSER waiting to be mounted.
MESSAGE	An operator reply was pending	The operator reply number.
ENQUEUE	An enqueue conflict exists	The QNAME:RNAME of the enqueue.

CPU

Specifies the percent of time the job was waiting for CPU resources during the interval.

Device

Specifies the percent of time the job was waiting for a device during the interval.

Storage

Specifies the percent of time the job was waiting for storage during the interval.

Subsystem

Specifies the percent of time the job was waiting for a subsystem request during the interval.

Operator

Specifies the percent of time the job was waiting for an operator response during the interval.

Enqueue

Specifies the percent of time the job was waiting for access to an enqueue during the interval.

Delay Percent

Specifies the percent of time the job was waiting for resources during the interval. On the typeview Degradation Delay Analysis table this field will highlight yellow to indicate warning if it is 50 percent or greater but less than 75 percent. It will highlight red to indicate problem if the percent is 75 percent or more. The typeview threshold values for the warning and problem status modes are not modifiable.

Detail

See the detail supplied in the table for the Reason metric.

The typeview on the z/OS Metrics folder tab Degradation Delay Analysis displays all the individual degradation delays. The Degradation Delay Analysis displays all the individual delays in a single table. The columns appear in the general order as the CA SYSVIEW delays display; with the different that ASID will be displayed to the immediate right of the Job Name and several other fields are not displayed. The rows are sorted on the Delay Percent column, so that the most delayed items appear at the top and the highest status is first. The Delay Percent column will be color coded as to severity with Red indicating greater than 75% delay and yellow indicating greater than 50% delay. This typeview is also available by selecting the z/OS Metrics|Degradation Delay Analysis folder in the tree and tab Overview in the right hand panel.

z/OS Workload Manager Service Goals

The workload manager metrics will appear in the investigator tree under the folder Workload Manager Service Goals, which is inside the z/OS Metrics folder. There will be one subfolder for each service goal as a Workload_Class_Period triplet. The three part folder name will use underscore separators between Workload, Class, and Period.

They all appear under the folder: z/OS Metrics|Workload Manager Service Goals|<Workload>_<Class>_<Period>.

Workload

The name of the workload that is associated with this service class.

Class

The service class name.

Period

The period number.

Importance

The importance level ranging from 1 to 5 where 1 is most important. For discretionary goal types the character 'D' is displayed.

Index

The performance index. The condition level is set based on the following rules:

Index	Importance	Condition	Index Value	Color
Greater than 1.0	1, 2	Problem	4	Red
Greater than 1.0	3, 4, 5, D	Warning	3	Yellow
Less than or equal to 1.0	any	Normal	1	None
Equal to 0 (zero)	any	None	0	None

Index Value

The index's condition value. Values are 0 = none, 1 = normal, 2 = warning, and 3 = problem.

Goal Type

Goal type. Possible values are:

Value	Meaning
RESPPCT	Response time percent
RESPAVG	Response time average
VELOCITY	Velocity
DISCRETE	Discrete
SYSTEM	System

The typeview on the z/OS Metrics folder tab Workload Manager Service Goals displays all individual workload manager service goals. The rows are sorted on Index Value so that the service goals most in threat will appear at the top of the table. The Index Value column will be color coded as to severity with red indicating problem and yellow indicating warning.

CICS Regions

CA APM Cross-Enterprise monitors data for the CICS regions configured for your environment. For more information about configuring CICS regions, see Configure the Cross-Enterprise_APM_Dynamic.properties File.

The CICS Regions metrics appear under the folders (one for each region): CICS Regions|<region name>.

Additionally, the following CICS regions-related data is reported in subfolders:

- Dynamic storage area (see page 96)
- Status (see page 93)
- Transaction groups (see page 97)

The following are the CICS regions metrics:

Average CPU Time Per Transaction (µs)

Specifies the average CPU time per transaction in microseconds.

Average Lifetime Per Transaction (µs)

Specifies the average lifetime per transaction response time in microseconds.

Average Suspend Time Per Transaction (µs)

Specifies the average suspend time per transaction per second in microseconds.

Average Time Spent On File Control (µs)

Specifies the average time spent doing file control in microseconds.

Average Waiting To Run Time (µs)

Average suspend time per transaction per second in microseconds.

Number of Transactions

Specifies the number of transactions since the monitor has been running.

Transactions Per Second

Specifies the number of transactions per second.

Status (CICS Regions)

The CICS regions status metrics appear under the folder: CICS Regions|<region name>|Status.

These status metrics are reported for CICS regions. For the status metrics, every field from CA SYSVIEW is displayed as two metrics.

The first metric without the *value* suffix shows the actual status as a string. The possible values vary from one metric to another.

The second metric with the *value* suffix shows a numeric value for the status of the metric. This applies to all status metrics. They usually have the same mapping. In the case of CICS metrics,

Possible values are:

0

NONE

1

NORMAL

2

HIGH

3

WARNING

4

PROBLEM

These are the status metrics:

DB Control Connection

Displays the database control connection status.

DB Control Connection Value

Displays the value of the database control connection status. The values are.

- Connected
- None

DB2 Connection

Displays the database connection status.

DB2 Connection Value

Displays the value of the database connection status. The values are.

- Connected
- None

Maximum CICS Task

Displays the status indicator for the maximum CICS task status.

Maximum CICS Task Value

Displays the value of the maximum CICS task status.

Region Monitoring

Displays the CICS region. Region Monitoring shows the actual values which are:

Active

The CICS monitor is active.

Cancelled

The address space has been cancelled and monitoring is terminated.

Inactive

The CICS monitor is inactive.

Nostart

The CICS monitor has never been started within this CICS region. The product may not have been installed in the region.

Restart

The CICS monitor needs to be restarted. In most cases, this is due to the CICS region terminating abnormally. The CICS monitor was not able to terminate properly. Restart the CICS monitor by using the INIT line command or execute the CICS transaction XPFS from within the CICS address space.

Region Monitoring Value

Displays the value of the CICS Region Monitoring.

Region Status

Displays the maximum of any of the other CICS status values (except the region monitoring value) as a string:

None

The maximum status is none.

Normal

The maximums status is normal.

High

The maximums status is high.

Warning

The maximums status is warning.

Problem

The maximums status is problem.

Region Status Value

Displays the maximum value of any CICS region status.

TCPIP Connection

Displays the status of the TCPIP connection.

TCPIP Connection Value

Displays the value of the TCPIP connection.

VTAM Connection

Displays the status of the VTAM connection.

VTAM Connection Value

Displays the value of the VTAM connection.

Web Connection

Displays the status of the Web connection.

Web Connection Value

Displays the value of the Web connection status.

WebSphere MQ Connection

Displays the status of the WebSphere MQ connection.

WebSphere MQ Connection Value

Displays the value of the WebSphere MQ connection status.

Dynamic Storage Area

The CICS regions dynamic storage area metrics appear under the folder: CICS Regions|<region name>|Dynamic Storage Area.

These dynamic storage area metrics are reported for CICS regions.

Dynamic Storage Area (DSA) Amount Free

Specifies the amount of free dynamic storage area.

Dynamic Storage Area (DSA) Free (%)

Specifies the percentage of free dynamic storage area.

Extended Dynamic Storage Area (EDSA) Amount Free

Specifies the amount of free extended dynamic storage area.

Extended Dynamic Storage Area (EDSA) Free (%)

Specifies the percentage of free extended dynamic storage area.

Global Dynamic Storage Area (GDSA) Amount Free

Specifies the amount of free global dynamic storage area.

Global Dynamic Storage Area (GDSA) Free (%)

Specifies the percentage of free global dynamic storage area.

CICS Transaction Groups

The CICS regions transaction group metrics appear under the folders: CICS Regions|<region name>|Transaction Groups|<Group name>.

Metrics are shown for transactions groups, not individual transactions. The CICS Transaction Groups are defined in CA SYSVIEW.

You can configure what transaction groups are monitored for your environment's CICS regions. For more information about configuring transaction groups, see Configure the Cross-Enterprise_APM_Dynamic.properties File.

These are the metrics shown for each transaction group:

Average CPU Time (µs)

Displays the average CPU time used in microseconds.

Average File Control Time (µs)

Displays the average file control time in microseconds.

Average Lifetime (µs)

Displays the average lifetime of the transaction in microseconds.

Average Suspend Time (µs)

Displays the average time spent in a suspended state in microseconds.

Average Waiting to Run Time (µs)

Displays the average time spent waiting to run in microseconds.

Elapsed Time Since the Transaction Last Ran (sec)

The time elapsed in seconds since the last transaction ran in seconds.

Executed Transaction Count (This Interval)

Displays an aggregate of the number of times the transaction executed.

Last Date Since the Transaction Ran

Displays the date since the last transaction ran.

Last Time Since the Transaction Ran

Displays the time since the last transaction ran.

Transaction Rate (Last System Interval)

Displays the transaction rate within the last system interval.

CICS Alerts

All metrics will be reported on every polling interval unless the alert has been acknowledged. In which case the metrics will be absent and will go gray. CICS Alerts will show partially blank rows when the time range other than current is selected. This is because it does not support strings in historical mode.

Only alerts that are unacknowledged will appear in the Workstation Investigator tree. Two metrics appear under the CICS Regions folder, which give total counts of these unacknowledged alerts over all CICS Regions. These two metrics can be used to generate APM alerts using the management module editor if there is a desire to be alerted to CA-SYSVIEW CICS alert activity.

Unacknowledged Problem Count

The current number of CICS alerts that have a status of problem.

Unacknowledged Alert Count

The current number of unacknowledged CICS alerts.

The metrics for each CICS alert appear under the folder structure: CICS Regions|<Region>|Alerts|<Name> <Arg1> <Arg 2> <Task>.

Alert Status

The current alert threshold status. This can be NONE, NORMAL, HIGH, WARNING, or PROBLEM.

Alert Status Value

The current alert threshold status as a numeric value. This can be 0=NONE, 1=NORMAL, 2=HIGH, 3=WARNING, or 4=PROBLEM.

Description

A description of the alert.

Job Name

The CICS Region job name of the owning resource.

Name

The name of the alert. In CA SYSVIEW it is the variable name for the data collection element of the alert. This metric is the prefix of the alert’s folder name.

Priority

The priority of the alert from 0-999 with 999 having the highest priority.

Resource Argument 1/Resource Argument 2

The first/second resource argument. In CA SYSVIEW it is the first/second resource argument to qualify the collection element of the alert. This metric will not appear if it has no value. This becomes the second and third underscore separated segments of the alert’s folder name when they exist.

Rule Type

The exception rule type. Possible values are: UPPER - Upper limit threshold; LOWER - Lower limit threshold; CHANGE - Change in value threshold; STATE - State exception.

Subgroup

The subgroup classification for the alert.

Task

The transaction number of the task that is being monitored dynamically. This metric will not appear if it has no value. This becomes the fourth pound sign (#) separated portion of the alert's folder name when it exists.

Value

The value last used during threshold processing. If the resource does not currently have an associated threshold definition, the value is the last value collected by the data collector.

CICS Degradation Analysis

CICS Degradation Analysis will show partially blank rows when the time range other than current is selected. This is because it does not support strings in historical mode.

The metrics for each CICS degradation analysis appear under the folder structure:

CICS Regions|<Region>|Degradation Analysis|<Resource>

Average

Displays the average time for each transaction monitored.

Job Name

Specifies the name of the CICS region.

Row

Displays the row number to allow sorting to match how they are presented in CA-SYSVIEW.

Percent

Displays the percent of lifetime spent on this resource activity.

Resource

Displays the name of the resource for which timings were collected.

Datacom Address Spaces

Cross-Enterprise APM monitors data for CA Datacom address spaces.

The DATACOM address space metrics appear under the folders (one for each address space): DATACOM Address Spaces|<address space>.

Additionally, the status for CA Datacom address spaces is reported in the alert subfolder. For more information about these metrics, see Status (Datacom Address Spaces) (see page 101).

These are the status metrics:

Amount of Real Storage Used (kb)

Displays the amount of real storage in kilobytes the job is using in the private region.

CPU Time Accumulated (µs)

Displays the accumulated CPU time in microseconds used by the job.

CPU Time Per Interval (µs)

Displays the accumulated CPU time in microseconds used by the job for the interval specified.

Datacom Release

Displays the CA Datacom release.

EXCPs Outstanding

Displays the EXCPs outstanding. If this value reaches zero, an SC22 abend occurs.

Executed Amount Of Wall Clock Time (sec)

The amount of time it takes the wall clock to execute for the Datacom address space.

Executed I/O Operations Count

Displays the number of I/O operations performed by the Datacom address space.

Executed I/O Operations Count Per Interval

Displays the number of I/O operations performed by the Datacom address space for the specified interval.

SVC Number

Displays the Datacom SVC number as defined in the DBSIDPR module.

SubID

Displays the Datacom SUBID defined in the DBSIDPR module.

System Table Value

Displays the system table value specified in the DATACOM parmlib member. The default value is 1000.

Status (CA Datacom Address Spaces)

The DATACOM address space status metrics appear under the folder: DATACOM Address Spaces|<address space>|Status.

The CA Datacom address spaces status is reported by a severity level status indicator and a symbolic job specifier.

Address Space Value

Displays the values for the severity status indicator. Possible values with descriptions:

0 and 1

Normal condition

2

A notification or highlighted condition

3

A warning condition

4

A problem or critical condition

Symbolic Job Specifier

Displays the symbolic job specifier. Possible values with descriptions:

NS

Nonswappable

LSW

Logically swapped

GO OUT

Currently being swapped out

GO IN

Currently being swapped in

IN

Swapped in

OUT TO

Swapped out--terminal output wait

OUT TI

Swapped out--terminal input wait

OUT LW

Swapped out--long wait

OUT XS

Swapped out--auxiliary storage shortage

OUT RS

Swapped out--real storage shortage

OUT DW

Swapped out--detected wait

OUT RQ

Swapped out--requested swap

OUT NQ

Swapped out--enqueue exchange swap

OUT EX

Swapped out--exchange on recommended value

OUT US

Swapped out--unilateral swap

OUT TS

Swapped out--transition swap

OUT IC

Swapped out--improve central storage

OUT IP

Swapped out--improve system paging

OUT MR

Swapped out--make room

OUT AW

Swapped out--APPC wait

OUT OI

Swapped out--input wait

OUT OO

Swapped out--output wait

OUT LS

Swapped out--logical swap

OUT LF

Swapped out--logical swap fail

OUT SR

Swapped out--real swap

IMS Subsystems

Cross-Enterprise APM monitors data for IMS subsystems.

The IMS Subsystem metrics appear under the folders (one for each subsystem): IMS Subsystems|<subsystem name>.

Additionally, the status for IMS subsystems is reported. For more information about status metrics, see Status (IMS Subsystems) (see page 105).

These are the status metrics:

Amount Of Real Storage Used (kb)

Displays the amount of real storage in kilobytes the control region is using in the private region.

Average CPU Time Per Transaction(µs)

Displays the CPU time per transaction in microseconds.Average Input Queue Time Per Transaction (µs)

Displays the input queue time in microseconds. This is the time input transactions waited in the input message queue for scheduling. This is an average.

Average Lifetime per Transaction(µs)

Displays the sum of inqueue, process and outqueue time. This is the average in microseconds.

Average Output Queue Time Per Transaction(µs)

Displays the amount of time transaction output waiting in the message queue before being delivered to its final destination. This is the average in microseconds.

Average Processing Time Per Transaction(µs)

Displays the transaction processing time in microseconds. This is the amount of time it took to process the transaction once it’s scheduled. This is an average.

CPU Time accumulated (µs)

Displays the accumulated CPU time in CPU microseconds the control region is using in the private region.

CPU Time Per Interval (µs)

Displays the accumulated CPU time in CPU microseconds the control region is using in the private region during the last metric polling interval.

Count of Programs Stopped

Displays the number of programs that are currently in a stopped state.

Count of Transactions Stopped

Displays the number of transactions that are currently in a stopped state.

Executed I/O Operations Count

The number of I/O operations performed by the control region.

Jobname

Displays the name of the IMS control region.

Monitored By SYSVIEW

Indicates whether or not the IMS subsystem is being monitored by CA SYSVIEW. Possible values are:

MON

The IMS subsystem is being monitored by the product.

blank

The IMS subsystem is not being monitored by the product.

Transaction Queue Depth

Displays the volume of jobs in the IMS transaction queue.

Transactions Per Second

Displays the transaction rate per second over the requested interval.

Transaction Rate Per Interval

Displays the rate of IMS transactions per CA SYSVIEW monitoring interval.

Configuration Properties|IMS Subsystem Name

Displays the IMS subsystem name.

Status (IMS Subsystems)

The status of the IMS subsystems.

The IMS Subsystem status metrics appear under the folder: IMS Subsystems|<subsystem name>|Status.

This metric appears as a string value and numeric status indicator.

Subsystem

Displays the status of the current control region status.

Subsystem Value

Displays the value of the status of the current control region status with these values.

0

NONE

1

NORMAL

2

HIGH

3

WARNING

4

PROBLEM

IMS Transaction Groups

Metrics are shown for transactions groups, not individual transactions. The IMS Transaction Groups are defined in CA SYSVIEW.

The IMS Subsystem transaction groups metrics appear under the folder: IMS Subsystems|<subsystem name>|Transaction Groups|<group name>.

You can configure what transaction groups are monitored for your environment's IMS subsystem. For more information about configuring transaction groups, see Configure the Cross-Enterprise_APM_Dynamic.properties File.

These are the metrics shown for each transaction group:

Average CPU Time Per Transaction(µs)

Displays the CPU time per transaction.

Average Input Queue Time Per Transaction(µs)

Displays the average input queue time. This is the time input transactions waited in the input message queue for scheduling.

Average Lifetime per Transaction(µs)

Displays the sum of inqueue, process and outqueue time. This is an average.

Average Output Queue Time Per Transaction(µs)

Displays the average amount of time transaction output waiting in the message queue before being delivered to its final destination.

Average Processing Time Per Transaction(µs)

Displays the average transaction processing time. This is the amount of time it took to process the transaction once it's scheduled.

Transaction Group Name

Displays the name of the transaction group.

Transaction Rate Per Second

Displays the transaction rate per second over the requested interval.

MQ Queue Managers

CA APM Cross-Enterprise monitors data for the Queue managers configured for your environment. For more information about configuring queue managers, see, Configure the Cross-Enterprise_APM_Dynamic.properties File.

The MQ queue manager metrics appear under the folder: MQ Queue Managers|<queue manager name>.

Additionally, the following queue manager-related data is reported in subfolders:

- Configuration properties (see page 107)
- Queues (see page 110)
- Status (Queue Managers) (see page 108)

These are the MQ queue manager metrics:

Aggregated Maximum Queue Depth Reached

Displays an aggregated value of all the queue managers for the maximum value from all maximum queue depth reached.

Aggregated Queue Manager Value

Displays an aggregated value of all the queue managers for the maximum value from all queue manager values.

Configuration Properties (Queue Managers)

Configuration Properties for the queue manager. The values of these do not change frequently.

The MQ queue manager configuration properties metrics appear under the folder: MQ Queue Managers|<queue manager name>|Configuration Properties.

These configuration property metrics are reported for queue managers.

Channel Initiator Address Space ID

Displays the identifier of the channel initiator address space.

Channel Initiator Job Name

Displays the name of the channel initiator job.

Command Prefix

Displays the command prefix.

DB2 Data Sharing Group Name

Displays the name of the DB2 Data Sharing Group.

DB2 Name

Displays the name of the group attach or DB2.

Monitored by CA SYSVIEW

Indicates whether the queue manager is or is not being monitored by CA SYSVIEW.

Possible values are:

MON

The queue manager is being monitored by the product.

blank

The queue manager is not being monitored by the product

To have the product monitor a queue manager you must have a MONITOR statement specified in the MQSMON member of PARMLIB to INCLUDE the queue manager either explicitly or through generics.

OTMA XCF Group Member Name Of The IMS Bridge

Displays the OTMA XCF group member name of the IMS Bridge.

OTMA XCF Group Of The IMS Bridge

Displays the OTMA XCF group of the IMS Bridge.

Queue Manager Address Space ID

Displays the address space identifier of the queue manager.

Queue Manager Job Name

Displays the name of the queue manager job.

Queue Manager Name

Displays the name of the queue manager.

Queue Sharing Group Name

Displays the name of the queue sharing group.

Web Sphere MQ Version

Displays the version of the WebSphere MQ.

Status (Queue Managers)

Status metrics for the queue manager. The values of these change frequently.

The MQ queue manager status metrics appear under the folder: MQ Queue Managers|<queue manager name>|Status.

These status metrics are reported for queue managers:

Amount of Real Storage Used (kb)

Displays the amount of real storage in kilobytes the queue manager address space is using in the private region.

CPU Time Accumulated (µs)

Displays the accumulated CPU time in CPU microseconds used by the queue manager address space.

CPU Time Per Interval (µs)

Displays the accumulated CPU time in CPU microseconds used by the job for the interval specified.

Channel Initiator

Displays the channel initiator status. Possible values are:

ACTIVE

The channel initiator is active.

INACTIVE

The channel initiator is not active.

Executed Amount Of Wall Clock Time (sec)

Displays the amount of time it takes the wall clock to execute for the queue manager address space.

Executed I/O Operations Count

The number of I/O operations performed by the queue manager address space.

Executed I/O Operations Count Per Interval

Displays the number of I/O operations performed by the queue manager address space for the specified interval.

Queue Manager

Displays the queue manager status. Possible values are:

ACTIVE

The queue manager is active.

INACTIVE

The queue manager is not active.

QUIESCE

The queue manager is quiescing.

Queue Manager Value

Displays the status indicator for the Queue Manager Status with these values.

0

NONE

1

NORMAL

2

HIGH

3

WARNING

4

PROBLEM

MQ Queues

CA APM Cross-Enterprise monitors data for the queues that belong to queue managers configured for your environment. For more information about configuring queues, see Configure the Cross-Enterprise_APM_Dynamic.properties File.

The MQ queues metrics appear under the folder: MQ Queue Managers|<queue manager name>|Queues.

Additionally, the following queue-related data is reported in subfolders:

- Configuration Properties (Queues) (see page 110)
- Status (Queues) (see page 111)

These are the queues metrics:

Aggregated Get Messages Value

Displays the aggregate value of the maximum value from all get messages value metrics for all queues specified in the queue manager.

Aggregated Put Messages Value

Displays the aggregate value of the maximum value from all put messages value metrics for all queues specified in the queue manager.

Maximum Queue Depth (% Queue Full)

Displays the aggregate value of the maximum value from all current queue depth (% Queue Full) for all queues specified in the queue manager.

Maximum Queue Depth Reached

Displays the aggregate value of the maximum value from all maximum queue depth reached for all queues specified in the queue manager.

Configuration Properties (Queues)

Configuration Properties for the queues. The values of these do not change frequently. These configuration property metrics are reported for queues that belong to queue managers.

The MQ queue configuration properties metrics appear under the folder: MQ Queue Managers|<queue manager name>| Queues|<queue name>|Configuration Properties.

These are the queues metrics:

Description

Displays the description of the queue.

Get Messages

Displays Get operations allowed or inhibited with these values.

- Enabled
- Disabled

Get Messages Value

Displays the value of the Get Messages command with these values.

0

Enabled

1

Disabled

Max Queue Depth

Maximum number of messages allowed on queue.

Put Messages

Displays the Put operations allowed or inhibited with these values.

- Enabled
- Disabled

Put Messages Value

Displays the value of the Put Messages command with these values.

0

Enabled

1

Disabled

Queue Name

Displays the name of the queue.

Status (Queues)

Status metrics for the queues. The values of these change frequently.

The MQ queue status metrics appear under the folder: MQ Queue Managers|<queue manager name> Queues|<queue name>|Status.

These status metrics are reported for queues that belong to queue managers.

Current Queue Depth

Displays the number of messages on the queue.

Current Queue Depth Percentage (% Queue Full)

Displays the percentage of fullness of the queue.

Last Elapsed Get Time (ms)

Displays the time elapsed in milliseconds since the last Get command was executed.

Last Elapsed Put Time (ms)

Displays the time elapsed in milliseconds since the last Put command was executed.

Last Get Date

Displays the date of the last Get command.

Last Get Time

Displays the time of the last Get command.

Last Put Date

Displays the date of the last Put command.

Last Put Time

Displays the time of the last Put command.

Oldest Message (Age)

Controls the collection of the oldest message age metric for MQ queues. Collecting this metric has a performance impact, so it is off by default.

Open Input Count

Displays the number of handles that are currently valid for removing messages from the queue.

Open Output Count

Displays the number of handles that are currently valid for adding messages to the queue.

Queue Time (Long Term Avg.)

Displays the average time, in milliseconds, that a message spent on the queue, based on activity over a longer period. Compare with Queue Time (Short Term Avg).

Queue Time (Short Term Avg.)

Displays the average time, in milliseconds, that a message spent on the queue, based on activity over a shorter period. Compare with Queue Time (Long Term Avg.)

TCP/IP Stacks

Cross-Enterprise APM monitors data for TCP/IP stacks.

The TCP/IP Stacks metrics appear under the folders: TCPIP Stacks|<stack>.

The status for TCP/IP stacks is reported in the status subfolder. For more information about status metrics, see Status (TCP/IP Stacks) (see page 114).

Amount of Real Storage Used (kb)

Displays the amount of real storage in kilobytes the TCP/IP stack address space is using in the private region.

CPU Time Accumulated (µs)

Displays the accumulated CPU time in microseconds, used by the TCP/IP stack.

CPU Time Per Interval (µs)

Displays the CPU time per interval for the TCP/IP stack.

Communications Server Version and Release

Displays the Communications Server version and release in the format *v.r*. Possible values are:

1.7

Communications Server 1.7

1.6

Communications Server 1.6

1.5

Communications Server 1.5

1.4

Communications Server 1.4

Enabled for IPV6

Indicates whether the TCP/IP is enabled or not for Internet Protocol version 6 (IPv6).

Executed Amount Of Wall Clock Time (sec)

Displays the amount of time it takes the wall clock to execute for the TCP/IP stack address space.

Executed I/O Operations Count

Displays the number of I/O operations performed by the TCP/IP stack address space.

Executed I/O Operations Count Per Interval

The number of I/O operations performed by the TCP/IP stack address space for the specified interval.

Hostname

Displays the host name the TCP/IP stack retrieved at startup from the *TCPIP.DATA* file that was found.

Monitored By CA SYSVIEW

Indicates whether or not the TCP/IP stack is being monitored by the product with these values.

MON

The TCP/IP stack is being monitored by the product.

blank

The TCP/IP stack is not being monitored by the product.

To have the product monitor a TCP/IP stack, you must have a *MONITOR* statement specified in the *TCPMON* member of *PARMLIB* to *INCLUDE* the TCP/IP job name either explicitly or through generics.

Status (TCP/IP Stacks)

The TCP/IP stacks status metrics appear under the folder: TCPIP Stacks|<stack>|Status.

These status metrics are reported for TCPIP stacks:

Address Space

Displays the status of the TCP/IP address-space with these values.

ABENDED

The TCP/IP address space has ended abnormally.

ACTIVE

The TCP/IP address space is active.

STOPPING

The TCP/IP address space is in the process of stopping.

STOPPED

The TCP/IP address space has been stopped.

DOWN

The TCP/IP address space is in a DOWN condition.

Address Space Value

Displays the status indicator for the address space with these values.

0

NONE

1

NORMAL

2

HIGH

3

WARNING

4

PROBLEM

DB2 z/OS Subsystems Metrics

The Cross-Enterprise APM agent can be configured to collect metrics from one or more DB2 subsystems running on the local LPAR. Each monitored DB2 subsystem will report metrics in the following categories:

- Buffer Pool (see page 116)
- Distributed Activity (see page 117)
- EDM Pool (see page 117)
- Exceptions (see page 119)
- General (see page 120)
- Group Buffer Pool (see page 121)
- Locks (see page 121)
- Log Activity (see page 122)
- Misc (see page 123)
- Subsystem CPU (see page 124)
- Workload (see page 125)

Buffer Pool

These buffer pool metrics are reported for each monitored DB2 subsystem.

Asynchronous Writes

Displays the number of write I/O operations made during the last polling interval.

Available Pages (%)

Displays the percentage of buffer pool pages that are free for use by other applications.

Dataset Opens

Displays the total number of times data sets were physically opened for the buffer pool during the last polling interval.

Page Get Requests

Displays the number of data page access requests made during the last polling interval.

Page Read Efficiency

Displays the percentage of time that the data requested is serviced by data already in the buffer pool and not loaded from disk during the last polling interval.

Page Write Efficiency

Displays the ratio of the number of buffer pool pages that are written to the number of write operations that are performed during the last polling interval.

Page Write Requests

Displays the number of update buffer pool pages that are written out to disk during the last polling interval.

Prefetch Failed

Displays the number of times that DB2 failed to honor a prefetch request because the prefetch threshold was reached during the last polling interval.

Prefetch IO

Displays the number of prefetch read I/O requests made during the last polling interval.

Prefetch Reads

Displays the number of pages that have been read into the buffer pool using sequential prefetch I/O operations during the last polling interval.

Prefetch Requests

Displays the number of requests to pre-read pages for index and table spaces during the last polling interval.

Synchronous IO

Displays the number of synchronous I/O operations that have occurred to or from DB2 pagesets during the last polling interval.

VPool Size

Displays the number of buffers that are allocated for all virtual buffer pools.

Distributed Activity

These distributed SQL activity metrics are reported for each monitored DB2 subsystem.

Rows Received

Displays the number of rows of data retrieved from the remote server location during the last polling interval.

Rows Sent

Displays the number of rows of data sent to the remote requester location during the last polling interval.

SQL Received

Displays the number of SQL statements received from the remote requester location during the last polling interval.

SQL Sent

Displays the number of SQL statements sent to the remote server during the last polling interval.

EDM Pool

These EDM pool metrics are reported for each monitored DB2 subsystem.

Cursor Table Load (%)

Displays the ratio of how many load requests resulted in no I/O due to the requested resource already being loaded during the last polling interval.

DBD Load (%)

Displays the ratio of how many load requests for DBD (database descriptor) pages resulted in no I/O due to the resource already being loaded during the last polling interval.

DBD Pool Free Pages

Displays the number of free pages in the DBD pool free chain.

DBD Pool Full Failures

Displays the number of times an application has a DBD loaded into the DBD pool, but was unable to do so because all pages in the DBD pool were in use during the last polling interval.

DBD Pool Pages

Displays the number of pages that are allocated to the DBD pool.

DBD Pool Pages Available (%)

Displays the percentage of DBD Pool pages that are free for use by other applications.

DBD Used Pages

Displays the number of pages of the DBD pool that are allocated to the database descriptors (DBDs).

Dynamic Statement Load (%)

Displays the percentage of how many requests for dynamic statements are satisfied using statements already contained within the dynamic statement cache during the last polling interval.

EDM Pool Full Failures

Displays the number of times that DB2 was unable to find or replace pages in the EDM pool because all pages were in use during the last polling interval.

Package Table Load (%)

Displays the ratio of how many load requests for package table pages resulted in no I/O due to the resource already being loaded during the last polling interval.

Skeleton Cursor Table Pages

Displays the number of pages of the EDM pool that are allocated to skeleton cursor tables (SKCTs).

Skeleton Package Table Pages

Displays the number of pages of the EDM (environmental descriptor manager) pool that are allocated to skeleton package tables (SKPTs).

Skeleton Package Table Pages Available (%)

Displays the percentage of skeleton package table pages that are free for use by other applications.

Statement Pool Free Pages

Displays the number of free pages in the EDM statement pool.

Statement Pool Full Failures

Displays the number of EDM statement pool full failures encountered during the last polling interval.

Statement Pool Pages

Displays the total number of pages in the EDM statement pool.

Statement Pool Used Pages

Displays the number of pages used in the statement pool.

Exceptions

These Insight exception metrics are reported for each monitored DB2 subsystem.

Application Critical Exceptions

Displays the number of critical application exceptions detected during the last exception cycle.

Application Warning Exceptions

Displays the number of warning application exceptions detected during the last exception cycle.

Database Critical Exceptions

Displays the number of critical database exceptions detected during the last exception cycle.

Database Warning Exceptions

Displays the number of warning database exceptions detected during the last exception cycle.

Subsystem Critical Exceptions

Displays the number of critical subsystem exceptions detected during the last exception cycle.

Subsystem Warning Exceptions

Displays the number of warning subsystem exceptions detected during the last exception cycle.

Total Critical Exceptions

Displays the total number critical exceptions (subsystem, database, and application) detected during the last exception cycle.

Total Warning Exceptions

Displays the total number of warning exceptions (subsystem, database, and application) detected during the last exception cycle.

General

These general metrics are reported for each monitored DB2 subsystem.

Availability

Displays whether you can connect to the database in text form. This metric can have one of the following values:

AVAILABLE

Displays if the Cross-Enterprise APM Agent can establish a connection to the Insight agent monitoring the selected instance of DB2.

UNAVAILABLE

Displays if the selected DB2 subsystem, Insight agent, or Xnet communication infrastructure is down. This value also displays if the monitored DB2 subsystem was recycled since the last polling interval.

Availability Value

Displays whether you can connect to the database in numeric form. This metric can have one of the following values:

1

Displays if the Cross-Enterprise APM Agent can establish a connection to the Insight agent monitoring the selected instance of DB2.

0

Displays if the selected DB2 subsystem, Insight agent, or Xnet communication infrastructure is down. This value also displays if the monitored DB2 subsystem was recycled since the last polling interval.

Data Sharing Group Name

Displays the DB2 data sharing group name (if any).

Data Sharing Member Name

Displays the DB2 member name within a DB2 data sharing group (if any).

Location Name

Displays the location name by which distributed applications connect to the DB2 subsystem.

Release Number

Displays the version number of the monitored DB2 subsystem.

SMF ID

Displays the SMF ID for the z/OS system.

Subsystem Name

Displays the name of the monitored DB2 subsystem.

Group Buffer Pool

These group buffer pool metrics are reported for each monitored DB2 subsystem.

Page Data Reads

Displays the number of pages that are read from the group buffer pool during the last polling interval.

Page Empty Reads

Displays the number of times a read was attempted from the group buffer pool where the requested data was not found in the pool during the last polling interval.

Page Read Efficiency

Displays the ratio of read requests where data was returned to total read requests during the last polling interval. A low hit ratio indicates that the average time that a page resides in the group buffer pool is too short.

Write Failures

Displays the number of coupling facility write requests that could not complete because of a lack of coupling facility storage resources during the last polling interval.

Locks

These locking metrics are reported for each monitored DB2 subsystem.

Deadlocks

Displays the number of times an application was unable to obtain a lock from the Lock Manager (IRLM) during the last polling interval because of a deadlock situation.

Escalations

Displays the number of times that DB2 successfully performed a lock escalation on a table space during the last polling interval.

Global Requests

Displays the global number of lock requests for physical locks (P-locks) during the last polling interval.

Global Suspensions

Displays the number of suspends occurring because of an IRLM global resource contention (IRLM lock states were in conflict) during the last polling interval.

Local Requests

Displays the number of times that DB2 sent a lock request to IRLM on behalf of the application during the last polling interval.

Local Suspensions

Displays the number of times that an application trying to obtain a lock from the lock manager (IRLM) was delayed during the last polling interval. These delays are due to the resource being held by another task with an incompatible lock.

Timeouts

Displays the number of times that an application was unable to obtain a lock from the lock manager (IRLM) due to timeout during the last polling interval.

Log Activity

These logging metrics are reported for each monitored DB2 subsystem.

Active Log Space Available (%)

Displays the percentage of active log space currently available.

Active Reads

Displays the number of DB2 log reads that were satisfied by data already in the active log data sets during the last polling interval.

Archive Reads

Displays the number of DB2 log reads that were satisfied by data in the archive log data sets during the last polling interval.

Checkpoints

Displays the number of checkpoints DB2 has taken during the last polling interval.

Minutes Between Checkpoints

Displays the average number of minutes between checkpoints since DB2 was last started.

Unavailable Buffer Waits

Displays the number of times DB2 places data into a log buffer but no log buffer was available during the last polling interval.

Write Forced

Displays the number of times DB2 issued a synchronous WRITE request to the active log during the last polling interval.

Write No Waits

Displays the number of times DB2 issued a NOWAIT WRITE request to the active log during the last polling interval.

Write Waits

Displays the number of wait log write requests that are encountered during the last polling interval.

Misc

These miscellaneous metrics are reported for each monitored DB2 subsystem.

Current Starjoin Pool Size

Displays the current size of the starjoin pool in MB.

Current Starjoin Pool Used (%)

Displays the percentage of the starjoin pool currently in use.

DDF Status

Indicates whether the Distributed Data Facility (DDF) is started (ACTIVE) or not (INACTIVE).

DDF Status Value

Indicates whether the Distributed Data Facility (DDF) is started (1) or not (0).

Dataset Open (%)

Displays the current number of database data sets open as a percentage of the DSMAX DSNZPARM parameter.

Maximum Starjoin Pool Size

Displays the maximum size of the starjoin pool in MB.

Maximum Starjoin Pool Used (%)

Displays the highest percentage of the starjoin pool that is used since DB2 was last started.

RID Pool Failures

Displays the number of times RID list processing failed due to either the lack of RID storage, the lack of RIDs, or too many concurrent processes during the last polling interval.

RLF Status

Indicates whether the resource limit facility (RLF) is started (ACTIVE) or not (INACTIVE).

RLF Status Value

Indicates whether the resource limit facility (RLF) is started (1) or not (0).

Starjoin Pool Allocation Requests

Displays the number of allocation requests in the starjoin pool that are issued during the last polling interval.

Starjoin Pool Failures

Displays the number of failures that a full starjoin pool causes during the last polling interval.

Workfile Shortage 32K

Displays the number of times that space in a 4-KB tablespace was used because space in a 32-KB tablespace was not available during the last polling interval.

Workfile Shortage 4K

Displays the number of times that space in a 32-KB tablespace was used because space in a 4-KB tablespace was not available during the last polling interval.

Subsystem CPU

These CPU metrics are reported for each monitored DB2 subsystem.

DB2 Elapsed Time

Displays the number of microseconds the DB2 subsystem was active during the last polling interval.

DBM1 CP CPU Usage

Displays the amount of CP CPU used by the DBM1 address space during the last polling interval, which is displayed in microseconds.

DBM1 CPU (%)

Displays the percentage of CPU used by the DBM1 address space during the last polling interval.

DBM1 zIIP CPU Usage

Displays the amount of zIIP CPU used by the DBM1 address space during the last polling interval, which is displayed in microseconds.

DDF CP CPU Usage

Displays the amount of CP CPU used by the DDF address space during the last polling interval, which is displayed in microseconds.

DDF CPU (%)

Displays the percentage of CPU used by the DDF address space during the last polling interval.

DDF zIIP CPU Usage

Displays the amount of zIIP CPU used by the DDF address space during the last polling interval, which is displayed in microseconds.

IRLM CP CPU Usage

Displays the amount of CP CPU used by the IRLM address space during the last polling interval, which is displayed in microseconds.

IRLM CPU (%)

Displays the percentage of CPU used by the IRLM address space during the last polling interval.

IRLM zIIP CPU Usage

Displays the amount of zIIP CPU used by the IRLM address space during the last polling interval, which is displayed in microseconds.

MSTR CP CPU Usage

Displays the amount of CP CPU used by the MSTR address space during the last polling interval, which is displayed in microseconds.

MSTR CPU (%)

Displays the percentage of CPU used by the MSTR address space during the last polling interval.

MSTR zIIP CPU Usage

Displays the amount of zIIP CPU used by the MSTR address space during the last polling interval, which is displayed in microseconds.

Processor Count

Displays the number of processors that are currently allocated for the LPAR.

Total CPU (%)

Displays the percentage of CPU used by all DB2 address spaces (except for DDF) during the last polling interval.

Workload

These workload metrics are reported for each monitored DB2 subsystem.

Aborts

Displays the number of implicit and explicit ROLLBACKs (ABORTs) processed by the Subsystem Services component of DB2 during the last polling interval.

Call Requests

Displays the number of SQL CALL statements that are issued during the last polling interval.

Create Thread Requests

Displays the number of successful create thread requests that the DB2 Subsystem Services component processed during the last polling interval.

Current Background Threads

Displays the current number of connections to DB2 from batch.

Current DBAT Threads

Displays the current number of active remote connections.

Current Foreground Threads

Displays the number of TSO connections in use as defined by the IDFORE DSNZPARM parameter.

Current Threads

Displays the current number of active users in DB2.

Delete Requests

Displays the number of SQL DELETE statements that are issued during the last polling interval.

Dynamic Requests

Displays the number of SQL DESCRIBE and SQL PREPARE statements that are issued during the last polling interval.

InsUpdDel Requests

Displays the number of SQL INSERT, SQL UPDATE, and SQL DELETE statements that are issued during the last polling interval.

Insert Requests

Displays the number of SQL INSERT statements that are issued during the last polling interval.

Maximum Background Threads

Displays the maximum number of concurrent connections that DB2 allows from batch.

Maximum Batch Users (%)

Displays the percentage of maximum batch connections in use as defined by the IDBACK DSNZPARM parameter.

Maximum DBAT Threads

Displays the maximum number of database access threads (DBATs) that can be allocated concurrently.

Maximum Foreground Threads

Displays the maximum number of users that are allowed to be identified to DB2 from the TSO foreground simultaneously.

Maximum Remote Users (%)

Displays the percentage of maximum remote connections in use as defined by the MAXDBAT DSNZPARM parameter.

Maximum TSO Users (%)

Displays the percentage of maximum TSO connections in use as defined by the IDFORE ZPARM parameter.

Maximum Threads

Displays the maximum number of allied threads (threads that are started at the local subsystem) that can be allocated concurrently.

Maximum Users (%)

Displays the percentage of maximum users currently active in DB2.

Queued Create Thread Requests

Displays the number of create threads the DB2 Subsystem Services component processes that have waited or were queued. This situation is because the maximum number of concurrent threads had been reached during the last polling interval.

SelectOpen Requests

Displays the number of SQL SELECT and SQL OPEN statements that are issued during the last polling interval.

Syncs

Displays the number of successful single phase COMMITs (SYNCs) processed by the Subsystem Services component of DB2 during the last polling interval.

Update Requests

Displays the number of SQL UPDATE statements that are issued during the last polling interval.

CA NetMaster NM for TCP/IP Metric Categories

EPAgent can be configured to collect metrics from one or more CA NetMaster NM for TCP/IP regions. Each monitored region reports metrics in the following categories. Click each category in Workstation Investigator to display and familiarize yourself with the metrics.

```
LPARs
    LPAR01
        DB2 DDF (see page 128)
        EE (see page 129)
        IP Internals (see page 130)
        IP Resources (see page 131)
           CSM (all)
           EE
           …
        IPSec (see page 131)
        Identification (see page 132)
        Interfaces (see page 133)
           INTRFC01
           INTRFC02
           …
        Network Activity (see page 134)
        Sockets (see page 135)
           Server
              Port n
              …
        Top Lists (see page 136)
           01
           …
           10
    LPAR02
    …
```

The following fields in the APMEPAGENT parameter group in a region determine the categories of metrics sent:

IP Server

Specifies whether metrics for the Sockets category are sent.

Network Interfaces

Specifies whether metrics for the Interfaces category are sent.

Performance Monitoring

Specifies whether metrics for the IP Resources category are sent.

Packet Analyzer

Specifies whether metrics for all other categories are sent.

DB2 DDF

CA APM Cross-Enterprise monitors data for the following DB2 Distributed Data Facility (DDF) metrics from a connected CA NetMaster NM for TCP/IP region:

DDF Active Conns

Displays the current number of active TCP/IP connections to all DDF tasks.

DDF Active Tasks

Displays the number of DDF tasks (active job names ending in *DIST) now active on this LPAR.

DDF Input Bytes/Sec

Displays the rate of DDF input in bytes per second for all DDF tasks over the last full minute of traffic.

DDF Output Bytes/Sec

Displays the rate of DDF output in bytes per second for all DDF tasks over the last full minute of traffic.

For detailed diagnosis of DB2 DDF network activities, use these functions in the CA NetMaster NM for TCP/IP region:

- Use DB2 for z/OS Network Information Center, accessible by the /DB2 panel shortcut.
- Set up DDF-related business applications to join or split DDF connections by remote addresses, data sharing groups, database applications, and so on.
- Set up packet-based events for real-time notification of critical DDF connection activities.

EE

CA APM Cross-Enterprise monitors data for the following Enterprise Extender (EE) metrics from a connected CA NetMaster NM for TCP/IP region:

EE Active Conns

Displays the current number of active EE connections.

EE Bytes Recv (% of stack)

Displays the number of EE bytes as a percentage of all IP bytes that the EE stack receives.

EE Bytes Sent (% of stack)

Displays the number of EE bytes as a percentage of all IP bytes that the EE stack sends.

EE RTP LU-LU Sessions

Displays the current number of active SNA LU-LU sessions that the EE Rapid Transport Protocol (RTP) pipes carry.

EE RTP Pipes

Displays the current number of active RTP pipes using EE connections.

EE RTP Pipes Red (%)

Displays the percentage of current EE RTP pipes with ARBMODE=RED.

EE Retransmission (%)

Displays the percentage of EE IP packets that were retransmitted.

Note: The RTP-related metrics measure only the activities that use EE. Some Advanced Peer-to-Peer Networking (APPN) activities do not use EE. To see these non-EE APPN activities on CA Introscope®, monitor and send the APPN Performance Monitoring metrics from the CA NetMaster NM for TCP/IP region.

All these EE metrics come from the latest sample values of EE data sampling. The calculation interval therefore depends on the monitoring interval that is chosen for EE Performance Monitoring.

For detailed diagnosis of EE activities, use Enterprise Extender Management in the CA NetMaster NM for TCP/IP region, accessible by the /EE panel shortcut.

IP Internals

CA APM Cross-Enterprise monitors data for the following metrics from a connected CA NetMaster NM for TCP/IP region:

IP Fragmentation (%)

Displays the percentage of IP fragmentation.

IP Reassembly (%)

Displays the percentage of IP reassemblies.

TCP Retransmission (%)

Displays the percentage of TCP retransmissions.

UDP Discards (%)

Displays the percentage of UDP discards.

Note: These percentage metrics show the latest sample values of the unqualified stack attributes. The value is the maximum of the latest attribute sample values over all monitored stacks (sample must have been within the last hour).

Stack Names

Displays the names of all monitored stacks on this LPAR.

These metrics provide a broad indicator that at least one of the monitored stacks on this LPAR has exceeded a stack internal performance threshold recently.

For example, an IP Fragmentation % value of 13 means that one of the IP stacks active on this LPAR had this value the last time IP Fragmentation was sampled.

Identify and examine in detail the individual stack with the high IP Fragmentation % value using the CA NetMaster NM for TCP/IP region. See the Condition Summary, Stack IP, TCP, and UDP Layers section.

To send metrics continually for a specific IP stack, specify the stack name in the Performance Monitoring filter. You specify the filter in the APMEPAGENT parameter group of the region.

IP Resources

CA APM Cross-Enterprise monitors data for IP resource and node metrics from a connected CA NetMaster NM for TCP/IP region. You configure the region to send these metrics (or numeric attributes) through the APMEPAGENT parameter group.

IPSec

CA APM Cross-Enterprise monitors data for the following IPSec metrics from a connected CA NetMaster NM for TCP/IP region:

Dynamic Tunnels

Displays the current number of dynamic tunnels.

IKE Tunnels

Displays the current number of IKE tunnels.

IP Pkts Denied (%)

Displays the percentage of packets that an IP filter denies for any reason.

IP Security Filters

Displays the number of IP filters.

IPSec Traffic Detected?

Displays whether any IPSec traffic has been detected on this LPAR: YES or NO.

For detailed diagnosis of IPSec and SSL/TLS network security, use IP Security in the CA NetMaster NM for TCP/IP region, accessible by the /SECURE panel shortcut.

Identification

CA APM Cross-Enterprise monitors data for the following Identifications metrics from a connected CA NetMaster NM for TCP/IP region:

IP Host address

Displays the IP host address of this LPAR.

IP Host name

Displays the IP host name of this LPAR.

LPAR

Displays the LPAR name (for example, SYSA).

Operating System

Displays the version of the operating system (for example, IBM z/OS 01.12.00).

Processor

Displays the ID of the physical processor (for example, IBM z Series, Physical Processor ID 002817.M32.IBM.02.00000006F686).

Sender

Displays details of the region sending this metric feed (for example, CA NetMaster, Region NETM44 Domain NM44 Release Level 070300).

Sender URL

Displays the web URL of the region.

If you have the CA NetMaster NM for TCP/IP license, you can access this URL to use the IP Summary and IP Growth Tracker links on the login page. These functions complement the metrics seen in CA Introscope®, and require no login ID or password to access.

Sysplex

Displays the name of the sysplex (for example, PLEXAA).

To identify an LPAR uniquely in the NetMasterAgent metric tree, its name has the sysplex name as the prefix (for example, PLEXAA-SYSA). LPAR names are unique within a sysplex, but can be duplicated in other sysplexes.

Interfaces

CA APM Cross-Enterprise monitors data for the following Interfaces metrics from a connected CA NetMaster NM for TCP/IP region:

Bandwidth

Displays the total available bandwidth.

Note: This metric is available only for physical interfaces such as OSAs, where the total available bandwidth is known.

Input Bandwidth (0.01%)

Displays the percentage of available bandwidth for this stack network interface that inbound data uses.

Output Bandwidth (0.01%)

Displays the percentage of available bandwidth for this stack network interface that outbound data uses.

Packets Discarded (0.01%)

Displays the percentage of packets (both sent and received) that were discarded, despite containing no errors.

This interface was unable to process these packets, possibly because of interface buffer space or other resource constraints. Interface capacity shortages or configuration problems can prevent processing.

Packets in Error (0.01%)

Displays the percentage of packets (both sent and received) that contained errors.

Interface hardware or line problems can cause interface packet errors.

All interface metrics are sent every 5 minutes. Values for the loopback and virtual (zero traffic) interfaces are not included.

All these Interface metrics come from the latest sample values of stack network interface data sampling. The calculation interval therefore depends on the monitoring interval that is chosen for stack network interface Performance Monitoring.

For detailed diagnosis of stack network interface activities, use these functions in the CA NetMaster NM for TCP/IP region:

- Use Stack Interface and Device Links, accessible by the /DEVLINK panel shortcut.
- Use the stack network interface performance data displays (WI command next to a stack on the IP Resource Monitor).

Network Activity

CA APM Cross-Enterprise monitors data for the following Network Activity metrics from a connected CA NetMaster NM for TCP/IP region:

TCP Active Conns

Displays the current number of active TCP/IP connections, summed for all monitored stacks.

IP Input Bytes/Sec

Displays the rate of total IP input in bytes per second for all stacks on this LPAR.

IP Output Bytes/Sec

Displays the rate of total IP output in byte per second for all stacks on this LPAR.

Telnet Active Conns

Displays the current number of active Telnet connections.

FTP Active Conns

Displays the current number of active File Transfer Protocol (FTP) transfers.

Sysplex Distributor Current Conns

Displays the number of currently and recently active connections that are redirected by this LPAR.

If there is no TCP/IP stack in this LPAR functioning as a sysplex distributor distributing host, then the value of this metric is always zero.

Redirected connections are counted in this metric feed until they have had no observed packet activity for the age-out period (a few minutes).

For detailed diagnosis of the network connection workload, use these functions in the CA NetMaster NM for TCP/IP region:

- Use STACK workload monitoring to alert on workload attributes.
- Use the TCP Applications activity display (accessible by the /ASMON.TC panel path) to compare how different tasks are contributing to network activity.
- Use connection lists to examine where the connections to an individual task are coming from.

Sockets

CA APM Cross-Enterprise monitors data for the following Sockets metrics from a connected CA NetMaster NM for TCP/IP region:

Active Conns

Displays the current number of active connections to this TCP server port, summed for all monitored stacks.

Input Bytes/Sec

Displays the rate of input to this TCP server port in bytes per second over the last full minute.

Output Bytes/Sec

Displays the rate of output from this TCP server port in bytes per second over the last full minute.

Backlog Q Depth

Displays the current number of requests in the TCP backlog queue.

Avg Appl Response (10 ms)

Displays the time between the following events:

- When the local application replied with the first ACK to a received request
- When the local application then sends the next data packet to respond to the request

An average of its local application response time is maintained for each TCP connection. Then the average of these values is taken for all concurrently active TCP connections with this port that have had packet activity within the last few minutes. This value is recalculated every 5 minutes.

Note: This metric is most meaningful with TCP applications that communicate in a regular request-response pattern, such as HTTP.

The measurement unit is 10 ms (1/100th second), that is, 234 = 2.34 seconds.

Time to 1st Response (10 ms)

Displays the time between the following events:

- When the local application replied with the first ACK to a received request
- When the local application then sends the next data packet to respond to the request

This metric is equivalent to the time to first response metrics other CA APM products provide.

The local average application response time is continually measured and averaged for every turn in the TCP connection. In contrast, the time to first response is only measured once per TCP connection. The average of these values is then taken for all concurrently active TCP connections with this port that have had packet activity within the last few minutes. This value is recalculated every 5 minutes.

Note: This metric is most meaningful with TCP applications that communicate in a regular request-response pattern, such as HTTP.

The measurement unit is 10 ms (1/100th second), that is, 234 = 2.34 seconds.

For detailed diagnosis of TCP server port activities, use these functions in the CA NetMaster NM for TCP/IP region:

- Use ASMON monitoring to alert on port attributes.
- Set up business applications to split connections to this port by remote addresses or to combine this port traffic with related ports.
- Set up packet-based events for real-time notification of critical TCP port connection, workload, fragmentation, and error activities.
- Use SmartTrace to for real-time packet stream viewing and deep packet inspection of the traffic flowing over a specific connection with a port.
- Use multiple TCP tracing in SmartTrace to trace different connections with a port separately.

Top Lists

CA APM Cross-Enterprise monitors data for the following Top Lists, *n* metrics from a connected CA NetMaster NM for TCP/IP region. *n* is 01 through 10.

App by Bytes name

Displays the name of the *n*th highest TCP application (address space) when sorted by byte throughput.

App by Bytes value

Displays the total (input and output) byte throughput for the *n*th application during the last full five clock minutes.

App by Conns name

Displays the name of the *n*th highest TCP application (address space) when sorted by active connections.

App by Conns value

Displays the number of concurrent active TCP/IP connections with the *n*th application, as at the sample time.

Port by Bytes name

Displays the name of the *n*th highest TCP server port when sorted by byte throughput.

Port by Bytes value

Displays the total (input and output) byte throughput for the *n*th TCP server port during the last full five clock minutes.

Port by Conns name

Displays the name of the *n*th highest TCP server port when sorted by active connections.

Port by Conns value

Displays the number of concurrent active TCP/IP connections with the *n*th TCP server port, as at the sample time.

The following metrics are available for *n*=01 through 05:

DDF by Bytes name

Displays the name of the *n*th highest DB2 DDF task when sorted by byte throughput.

DDF by Bytes value

Displays the total (input and output) byte throughput for the *n*th DB2 DDF task during the last full five clock minutes.

DDF by Conns name

Displays the name of the *n*th highest DB2 DDF task when sorted by active connections.

DDF by Conns value

Displays the number of concurrent active TCP/IP connections with the Nth DB2 DDF task, as at the sample time.

For more displays of the network top users, use these functions in the CA NetMaster NM for TCP/IP region:

- Use IP network Summary Display, accessible by the /IPSUM panel shortcut.
- Use IP Growth Tracker, accessible by the.IPGT panel shortcut.

Chapter 4: CA NetMaster NM for TCP/IP Reports

This section contains the following topics:

Report Templates

CA NetMaster NM for TCP/IP integration provides the following report templates:

- NetMaster Enterprise Extender Capacity Planning
- NetMaster Network Capacity Planning
- NetMaster Network Interface Performance
- NetMaster Server Port Performance

These templates work with the default metrics without modification. You can use these report templates as a basis for constructing other templates.

Note: For information about how to work with report templates, see the *Workstation User Guide*.

Appendix A: Troubleshoot CA APM Cross-Enterprise

This section contains the following topics:

Problems with the SMF Socket Connection

Symptom:

The CA APM Cross-Enterprise stops immediately after startup.

Reason:

This problem occurs when the port specified in the *ppz.smf.socket.port* property of the *Introscope_Cross-Enterprise_APM.profile* file is in use.

The CA APM Cross-Enterprise log file shows the following error message:

```
[ERROR]
    [com.wily.powerpack.sysview.multithread.SMFReaderMasterThread]
    Socket_Open: Error creating server socket: java.net.BindException: EDC8115I
    Address already in use.
[ERROR]
    [com.wily.powerpack.sysview.multithread.SMFReaderMasterThread]
    Socket_Open: Error probably caused by another copy listening on same port.
    Exiting
```

Solution:

Reserve the port specified in *ppz.smf.socket.port* property for the *WILYZOS* job.

This port is required for CA SYSVIEW to submit SMF transaction records to the CA APM Cross-Enterprise. By not reserving this port for the *WILYZOS* job, your Agent will continue to run, however, you will not get any SMF records from CA SYSVIEW, nor will you not get any CICS backend transaction traces from the CA APM Cross-Enterprise.

Some Transactions Do Not Appear in the Transaction Trace Viewer

Symptom:

Some frontend or backend transactions or do not appear in the Transaction Trace viewer.

Reason:

The following may cause transactions not to appear:

- The transaction trace may have been created to include or exclude backend transactions.
- A transaction trace may have been created and the Trace All Supported Agents option was not selected.
- Trace selected agents option and CA APM Cross-Enterprise was not selected for backend transactions.
- The frontend agent has not been selected for frontend transactions.
- The transaction trace may have been created with inapplicable criteria selected.

Solution:

Solutions follow:

- Verify that you have selected the appropriate criteria.

  Note: For more information about how to create a transaction trace to include frontend or backend transactions, see Understanding how backend trace options are used in frontend traces.

- To determine if this is the problem, clear all transaction trace options except for the User ID does not exist option. Selecting this option allows all traces to be delivered to the transaction trace session window. This will confirm if there is a filter specific issue.

Transactions do not appear in the Transaction Trace Viewer:

- If frontend transactions are not appearing in the Transaction Trace Viewer, verify that the transactions that invoke web services, CTG or MQ traces are running.

  You can verify web service, CTG tracer, or WebSphere MQ live metric data for respective frontend Agents in Introscope Investigator tree.

  - For the CTG tracer, you can see the metrics under the CTGTracer node.
  - For the web services tracer, you can see metrics under WebServices node.
  - For the MQ tracer, you can see metrics under WebSphereMQ node.

- If frontend and backend traces are not correlated in the Transaction Trace Viewer the backend trace corresponding to the selected frontend trace may not have arrived yet. Reselect the trace after a short delay to refresh the display. If it still is not correlating, it may be due to these issues:
  - The antiflood threshold is not set to low value. Antiflood threshold will limit the number of transactions sent to the Enterprise Manager. The default recommended antiflood threshold value is 200 transaction traces per 15 seconds. If you set low value for antiflood threshold, many traces are discarded before they are sent to the Enterprise Manager and hence likelihood of correlation will decrease.
  - If it is a large volume of transactions, you can start new transaction trace window with smaller duration or proper backend filter setting to increase the chance of retention of transaction of interest.

SMF Transactions Traces Missing

Symptom:

SMF Transactions are missing in the Transaction Trace Viewer

Reason:

The CA APM Cross-Enterprise SMF record port configuration (*ppz.smf.socket.port*) specified is not the same as the port specified in the group pointed to by the *Wily-Introscope-PortList* parameter for each CICS logger in CA SYSVIEW.

Solution:

To verify that the SMF record for a transaction contains the correlation ID, execute the SYSVIEW *CTRANLOG* command and select an SMF record that was run as the result of some frontend application. The SMF report should contain a Correlation IDs segment. If this segment is not listed in the SMF record, CA SYSVIEW did not find it in the transaction and the SMF record was not sent to the Agent.

Correlation ID NotFound

Symptom:

The Correlation ID was not fund in the SMF record.

Reason:

CA SYSVIEW may not have been able to find the decoration. For more information about how this is done, see About Cross-Process Transaction Traces (see page 40).

Note: A decoration is the the transaction attribute annotation.

When CA SYSVIEW finds a decorated transaction, it creates a Correlation IDs segment in the SMF record for the transaction and writes the SMF record to the CA APM Cross-Enterprise TCP/IP port.

Solution:

Verify that the SMF record for a transaction contains the correlation ID, execute the SYSVIEW CTRANLOG command and select an SMF record that was run as the result of some frontend application. The SMF report should contain a Correlation IDs segment. If this segment is not listed in the SMF record, CA SYSVIEW did not find it in the transaction and the SMF record was not sent to the agent.

Possible reasons why SMF records are not given with a correction ID

- The frontend web services, CTG, and MQ traces are not properly configured. Check the agent's log for errors related to respective frontend traces and correct them.
- If frontend traces are configured properly, then it could be a CA SYSVIEW specific issue. Please contact your CA SYSVIEW administrator if this is the case.

No Data in a CA NetMaster NM for TCP/IP Metric Category

Symptom:

I cannot see data in a metric category.

Solution:

Sometimes this condition is *not* an error.

Verify that you can see the metric values in the CA NetMaster NM for TCP/IP region.

You cannot see Socket, Interface, or IP Resource metric values can be because of the following reasons:

- You did not ask for them to be sent.
- You have not set up some underlying Performance Monitoring.

LPARs that do not have EE or IPSec implemented on them do not show these metric values.

Appendix B: MVS Message Console IDs

This section details the message identification codes sent to the MVS message console.

WILY001I

CA APM Cross-Enterprise has been started.

Reason:

CA APM Cross-Enterprise was started.

Action:

No action is required. This message is informational.

WILY002I

CA APM Cross-Enterprise is being initialized.

Reason:

CA APM Cross-Enterprise is initializing.

Action:

No action is required. This message is informational.

WILY003I

CA APM Cross-Enterprise has been stopped.

Reason:

CA APM Cross-Enterprise was stopped.

Action:

No action is required. This message is informational.

WILY004E

Failure to accept the end user license agreement is preventing the agent from starting.

Reason:

CA Cross Enterprise Application Performance Management has an End User License Agreement(EULA) that must be accepted in order to run the product.

Action:

Read the EULA located in the data/EULA.txt file. Setting the following configuration property to "yes" to enable the product indicates that you have read, understood, and will comply with all of the terms and conditions of the EULA: Cross-Enterprise.APM.I.Read.And.Accept.End.User.License.Agreement = yes.

This property is in the config/Cross-Enterprise_APM_Dynamic.properties file

WILY005E

The metric polling thread failed to initialize.

Reason:

A misconfiguration or fatal error prevented the metric polling thread from initializing.

Action:

Check your settings in *Cross-Enterprise_APM_Dynamic.properties*, the Cross-Enterprise_APM.*log*, or the JZOS console for more information about the error.

See the logs for additional messages which will identify the reason the polling thread failed to initialize

WILY006E

CA APM Cross-Enterprise failed to establish a connection to the Enterprise Manager.

Reason:

A misconfiguration or fatal error prevented the CA APM Cross-Enterprise Agent from connecting to the APM Enterprise Manager.

Action:

Check your settings in *Introscope_Cross-Enterprise_APM.profile*,and the Cross-Enterprise_APM.log for more information about the error.

See the logs for additional messages which will identify the reason it failed to connect.

WILY007E

The SMF record processor failed to initialize.

Reason:

A misconfiguration or fatal error prevented the Cross-Enterprise APM Agent from starting an internal thread which processes the SMF records delivered by CA SYSVIEW and turned into transaction traces.

Action:

Check your settings in *Introscope_Cross-Enterprise_APM.profile*, the Cross-Enterprise_APM.log, or the JZOS console for more information about the error

See the logs for additional messages which will identify the reason it failed to initialize.

WILY008E

Cross-Enterprise APM initialization failed on the Insight Metric Polling Thread.

Reason:

A misconfiguration or fatal error prevented the Cross-Enterprise APM Agent from starting thread for polling metrics from CA Insight DPM for DB2 for z/OS.

Action:

Check your settings in Introscope_Cross-Enterprise_APM.profile or the Cross-Enterprise_APM.log for more information about the error

See the logs for additional messages which will identify the reason metric polling failed to initialize.

WILY009E

Cross-Enterprise APM Insight Metrics Polling unable to proceed until connection options are changed.

Reason:

A misconfiguration prevented the Cross-Enterprise APM Agent connecting to Xnetmanager to poll metrics from CA Insight DPM for DB2 for z/OS.

Action:

See the Cross-Enterprise_APM.log for additional messages which will identify the reason metric polling stopped and correct the appropriate configuration options in Introscope_Cross-Enterprise_APM.profile. After the configuration is corrected the metric polling will resume automatically.

WILY010E

Cross-Enterprise APM Insight Metrics Polling unable to proceed and will now terminate.

Reason:

A fatal error prevented the Cross-Enterprise APM Agent from polling metrics from CA Insight DPM for DB2 for z/OS.

Action:

Check Cross-Enterprise_APM.log, or the JZOS console for more information about the error and contact technical support if required.