CA Chorus™ Infrastructure Management for Networks and Systems

User Guide

Version 03.0.00, Fourth Edition

CA Technologies Product References

This document references the following CA Technologies products:

- CA ACF2™ for z/OS (CA ACF2)
- CA Chorus™
- CA Chorus™ Infrastructure Management for Networks and Systems (CA Chorus Infrastructure Management)
- CA Chorus™ Software Manager (CA Chorus Software Manager)
- CA Insight™ Database Performance Monitor for DB2 for z/OS (CA Insight DPM)
- CA NetMaster® Network Management for TCP/IP (CA NetMaster NM for TCP/IP)
- CA SYSVIEW® Performance Management (CA SYSVIEW)
- CA Top Secret® for z/OS (CA Top Secret)

Contact CA Technologies

Contact CA Support

For your convenience, CA Technologies provides one site where you can access the information that you need for your Home Office, Small Business, and Enterprise CA Technologies products. At http://ca.com/support, you can access the following resources:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

Providing Feedback About Product Documentation

If you have comments or questions about CA Technologies product documentation, you can send a message to techpubs@ca.com.

To provide feedback about CA Technologies product documentation, complete our short customer survey which is available on the CA Support website at http://ca.com/docs.

Documentation Changes

The following documentation updates have been made since the third edition of this documentation:

- Added the topic IMS Exception Alerts (see page 20).

The following documentation updates have been made since the second edition of this documentation:

- Updated the topic Policies (see page 13) to include the WebSphere Threshold and State Policies and IMS Threshold and State Policies.
- Updated the WebSphere MQ Resources to include the WebSphere MQ Exception Alerts (see page 24).
- Added the topic Use the Alerts Module to View and Manage Alerts (see page 46).
- Added the topic Use the Policy Status Light Module for Color-Coded Monitoring (see page 47).

The following documentation updates have been made since the first edition of this documentation:

- Legal Notices (see page 2)—Updated to reflect public documentation legal disclaimer.
- CA Chorus Infrastructure Management Architecture diagram—Removed this topic.
- Moved the Architecture diagram to the Site Preparation Guide.

Contents

Chapter 1: Introduction

Infrastructure Management Knowledge Center Best Practices

The Knowledge Center is the repository for all CA Chorus documentation. The Knowledge Center includes online help and guides from CA, user-generated documentation, and links to third-party content. Links to relevant topics appear in the Knowledge Center window when you click the online help icon or by searching. When you request online help, the search engine finds topics that are focused on the task you are performing. The engine also searches based on your location in the interface. This information appears in the Knowledge Center window and is updated whenever you refresh the window or click the online help icon.

We recommend that you add system and network performance-specific documentation to your Knowledge Center. For example, you could add the documentation that is associated with a specific release of IBM z/OS. This best practice ensures that your performance analysts have accurate and current infrastructure management information.

Note: For the steps to index content, see the *CA Chorus Product Guide*.

We recommend that you add the following content to your Knowledge Center:

- CA Customer Value Program reports. For more information, see http://ca.com/support.
- *IBM Introduction and Release Guide* for your supported z/OS versions.
- IBM z/OS glossaries.
- Infrastructure Management best practices for your site.

Note: Access to the Knowledge Center configuration is restricted. For details about defining Knowledge Center access permissions, see the *CA Chorus Site Preparation Guide*. To request access, contact your security administrator and performance administrator.

We also recommend that you configure your search settings so that only CA back-end product content specific to your role appears in Knowledge Center results. Implementing this recommendation can improve the relevance of search results. For the configuration steps, see the *CA Chorus Product Guide*.

Sample CA Chorus Infrastructure Management Workspace

With this topic, we demonstrate the possibilities for how you can customize the workspace according to your CA Chorus discipline. This customization can improve productivity and response time for customer issues. Use this sample as a starting point for exploring how you can customize the workspace for your user- and site-specific needs.

The following list details key product touch-points with real-world examples that demonstrate why you would use each component for your discipline. If you are unsure of how to proceed as you review this list with the UI, see the *CA Chorus Product Guide*. Additionally, you can also click the question mark icon from within a module for procedures and concept help topics.

Dashboards

Create four dashboards with the following names—Metrics, Performance, Data, and Tools.

Note: You can also simply apply a dashboard that a peer has shared; however, for the purposes of this sample, we build a new one.

Metrics Panel

Add the following three CA Chorus Infrastructure Management metrics to the Metrics panel, and then add them to your Metrics dashboard.

Using these metrics can help you prevent any system degradation by letting you see at a glance the usage status of these three metrics.

Channels

Let you monitor the z/OS and the LPAR channels.

CPUs

Let you monitor the CPU and LPAR CPU usage percentage for a system.

Devices

Let you monitor the z/OS device service time and busy percentage.

Policy Status Light Module

Add a Policy Status Light module to your Performance dashboard, and configure the module for one or more policies. You can create these policies as you configure the module.

You can add a z/OS State Policy for the CPU processor status (CPUSTAT) to trigger a warning for an offline state. This alert lets you investigate the warning before an offline state impacts your overall performance.

Alerts Module

Add the Alerts module to your Performance dashboard. Follow the wizard to configure this module to use your alerts policy. Name the module using the label option in the wizard. For example, give it the label IM Alerts.

Investigator Module

Add the Investigator module to your Data dashboard. The Investigator lets you customize details such that you can quickly see site-specific information.

Launch Investigator by clicking Start New Investigation. Under Infrastructure Management, select the Systems Summary, Systems Overview tree entry. Click the row for a system in which you are interested. When you do so, the Details pane opens at the bottom with several default tabs.

Your focus is mainly on the following five fields: CPU, CP, LCPU, LCP, and CPs. Using these fields can help you identify any poor systems performance to prevent any system degradation. Create a tab, right-click in the blank area, and insert these fields into this tab. Doing so lets you customize the view and find your key information quickly.

CPU

Displays the total percentage processor busy time.

CP

Displays the total percentage standard processor busy time.

LCPU

Displays the total percentage LPAR processor busy time.

LCP

Displays the total percentage LPAR standard processor busy time.

CPs

Display the CP processors that are online.

Web Application Module

Add a Web Application module to your Data dashboard, and configure the module for the CA Support site (http://ca.com/support). Doing so lets you integrate access to this site with your dashboard. At this dashboard, you can stay current with the latest news from CA Technologies such as new vulnerability alerts and announcements.

Quick Links Module

Add the Quick Links module to your Tools dashboard. Doing so gives you quick access to the network management interface. The interface supplements the information available in CA Chorus and helps you to troubleshoot issues.

Knowledge Center

Open the Knowledge Center (by clicking a question mark icon), and click Advanced Search. Under Show Results From, select the following sources:

- MVS/QuickRef
- User Documentation
- CA Chorus Documentation
- CA Database Management Solutions Documentation on CA Support
- CA NetMaster NM for TCP/IP Documentation on CA Support
- CA SYSVIEW Performance Management Documentation on CA Support

Doing so improves the relevance of the results as you search only the data sources that are related to your discipline.

Dashboard Sharing

Now that you have built the dashboards by function within your discipline, share these dashboards with your peers to help them start working quickly. To do so, simply right-click the dashboard and follow the prompts.

Chapter 2: Viewing Infrastructure Management Object Data in the Investigator

View Infrastructure Management Data in the Investigator

The Investigator module is the primary starting point for users to investigate and diagnose problems. The information in the Infrastructure Management repository is designed to service network, system, and DB2 resource activities. The Investigator simplifies your access to this information. The data in the Investigator is from the external engines.

The system groups the Infrastructure Management objects by categories in the expandable and collapsible infrastructure management object tree. The Investigator tree consists of options that support network and system (and combined) objects.

As you drill down into the data, the Investigator table header includes information to indicate how you arrived at the data. If you filter data, those values appear as header information in your results. As you drill into data, use the Actions pane on the right to view complementary displays, or other CA Chorus functions, such as Time Series.

Follow these steps:

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.

   The tree expands and lists the available categories.
4. Expand a category to list the objects included in that category.

   For example, scroll down and expand the Systems Summary category.

5. Select an object.

   For example, expand the Systems Summary category and select the Systems Overview object. The Investigator displays the Systems Overview object table.

   Note: When opening large objects, a message can be displayed stating that you must create a filter first. If you see this message, create a filter and click Search. The object is displayed with more manageable data.

6. Scroll through the data table or filter data by clicking the View Filter icon (Magnifying Glass icon at the top of the table).

   Note: To use a wildcard to filter on a string, enter the string and then the % sign.

7. (Optional) Select a row or multiple rows.

   The Actions panel opens to the right, and the Details pane expands under the object table:

   - The Actions pane lists navigational (see page 33) type actions available for the line item selected. If you select multiple rows, the Actions pane displays only the navigational and administrative type actions available for all the selected rows.
   - The Details pane displays a number of tabs dependent on the selected line item. The first tab displays the selected line item details. The remaining tabs display information from other objects pertaining to the selected line item. If you select multiple rows, the Details pane displays the line item details available for the last row you select.

The object data toolbar provides more options. Hover your cursor over the toolbar to see the available options described.

Infrastructure Management Resource Objects

As a performance analyst, you want to view performance information from the Investigator. The Investigator tree lists network performance and system performance objects by categories. Click the arrow next to the category to display the objects in the category.

Policies

Policies let you monitor performance by identifying the area to monitor and the states and thresholds that indicate an important change in your data. A policy is the rule to evaluate a data point in an object against a user-specified value. Policy defines the actions to be executed on the successful evaluation of the rule.

The available CA Chorus Infrastructure Management policies include:

- CICS Threshold Policies
- CICS State Policies
- IMS Threshold Policies
- IMS State Policies
- IP Stack Policies
- WebSphere MQ Threshold Policies
- WebSphere MQ State Policies
- z/OS Threshold Policies
- z/OS State Policies

Sysplexes

The System Complex (Sysplex) is a collection of z/OS system images. These images run independently of each other and appear to run as a single system image. A sysplex includes Resource Sharing, Data Sharing, Co-processing, and Parallelism.

The Sysplexes object displays network and system metrics. This folder offers several categories that are based on the monitored networks and systems. They are divided into the following resources:

CICS Resource Objects

Contain CICS performance information.

DB2 Resource Objects

Contain DB2 performance information.

IMS Resource Objects

Contain IMS performance information.

Network Objects

Contain network performance information.

WebSphere MQ Resource Objects

Contain WebSphere MQ performance information.

z/OS Resource Objects

Contain z/OS performance information.

The Sysplexes object includes the following sysplex-wide resources:

Open Systems Adapter (OSA) Object

Contains performance and configuration information about OSAs.

Sysplex Distributor Objects

Contain performance information about sysplex distributors.

Workload Manager Systems Capacity

The Workload Manager (WLM) systems capacity object contains available CPU capacity and resource constraint status.

Use this object to determine where to schedule work across multiple systems:

- Determine the best system for scheduling work
- Avoid scheduling work to overloaded systems
- Factor importance into scheduling

Use the results for understanding how well the central processors are achieving their processing objectives.

Example: Display CP processor statistics.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select Workload Manager Systems Capacity from the tree.

   The Workload Manager Systems Capacity table displays.
5. Reduce the table content by clicking the Filter icon, which resides above the table on the left.
6. Select the desired filter criteria. For example, to see the status for only the general CP processor select Type = CP.
7. Click Search.

   The table refreshes to display the general CP processor statistics.

Open Systems Adapter (OSA)

The Open Systems Adapter (OSA) object provides the following information about the OSAs in a sysplex. An OSA is an integrated IBM mainframe hardware feature that combines the functions of an I/O channel with the functions of a network port to provide direct connectivity between mainframe applications and their clients on the attached network.

- Traffic statistics
- Applications using the OSA
- Configuration information

Example: Identify the Business Applications on an OSA

As a performance analyst, you want to verify that the appropriate business applications are using a particular OSA.

Follow these steps:

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Expand the tree, Sysplexes-sysplex_name, and select Open Systems Adapter (OSA).

   The table view opens listing the OSAs in the sysplex with the busiest OSA first:

   - You can search for the required OSA by clicking the View Filter icon on the toolbar.
   - You can customize your view of the columns by clicking the Customize Your Data View icon (the spanner) on the toolbar.
5. Select the required OSA.

   The Details pane opens at the bottom.
6. Click the Applications Using this OSA Stack Interface tab.

   A list of business applications that are using the OSA appear. You can enlarge the pane by clicking the Expand icon at the top right corner of the pane.

   From the list, you can verify that only the appropriate business applications are using this OSA.

Sysplex Distributor Targets (by System)

The Sysplex Distributor Targets object provides the following sysplex-wide activity statistics:

- Statistics on connections that are distributed to the target address spaces
- Activity statistics on stacks to which connections are distributed

CICS Resources

This object contains CICS system performance region and exception alerts connection information. CICS (Customer Information Control System) is a transaction server designed for rapid, high-volume online processing.

CICS Regions

This object displays all CICS workload delays for the connections being monitored on the selected system. The status shows all active and suspended activity running in those address spaces.

Example: Display the CPU usage of a job.

You want to list your jobs with CPU usage of 50 or less for regions experiencing delays.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select CICS, CICS Regions from the tree.
5. Click the Filter icon, which resides above the table on the left.
6. Filter the data:
   a. Select JobCPU from the Search drop-down list.
   b. Select <= from the second drop-down list and type 50.
7. Click Search.

   The table displays all CICS regions with CPU usage of less than or equal to 50 for the last 30-second interval.

Use the metrics is this object to explain the reason CICS is experiencing delays.

CICS Exception Alerts

This object displays all CICS active tasks that provide the resource usage of the monitored CICS regions. Use this object to view CICS data collection exception alerts.

Example: Search a specified date for unacknowledged alerts.

You want to identify all alerts that have not been acknowledged on the date in question.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select CICS, CICS Exception Alerts from the object tree.
5. Click the Filter icon, which resides above the table on the left.
6. Filter the data:
   a. Select Date from the Search drop-down list.
   b. Select Ack from the second drop-down list and type BLANK.
7. Click Search.

   The table refreshes and displays the CICS alerts that were not acknowledged on the specified date.

Use the results to investigate what happened on the specified date that caused the unacknowledged alerts.

Statistics

This folder displays data for the following entities in TSF (trend) graphs or in the Topology Viewer:

- CICS system statistics
- CICS transaction statistics

DB2 Resources

This object contains all DB2 subsystems for a selected LPAR. Use this object to diagnose DB2 performance issues.

IMS Resources

This object contains an overview of your IMS regions. Use this object to diagnose performance issues on your IMS regions.

IMS Control Regions

The IMS Control Regions object shows the status of the control regions, some z/OS metrics about the control regions, and some configuration information. You can click the navigational action *Show activity overview* to see an IMS overview of activity including the status of the region.

Example: Display an overview of activity of an IMS region.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select IMS, IMS Control Regions from the tree.
5. (Optional) Click the Filter icon, which resides above the table on the left, and select your filter criteria and click search.

   The table refreshes.
6. Select a table row.

   The Actions pane provides navigational actions and the Details pane tabs contains system status information.
7. Select the Navigation action *Show activity overview*.

   Use the results for assessing the activity and status in the region.

IMS Exception Alerts

The IMS Exception Alerts object shows the IMS data collection exception alerts. Data collection values are displayed for:

- Transaction delays
- Threshold alerts
- State alerts

Example: Display the transaction times averaged over the last hour of an IMS exception alert.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select IMS, IMS Exception Alerts from the tree.
5. Click the Filter icon, which resides above the table on the left, and select Subgroup = TRAN and click search.

   The table refreshes.
6. Select a table row.

   The Actions pane provides navigational actions.
7. Select the Navigation action *Show transaction times 1 hour average*.

Statistics

This folder displays data for the following entities in TSF (trend) graphs or in the Topology Viewer:

- IMS system statistics
- IMS transaction statistics
- IMS buffer pools
- IMS pools

Network Resources

This object contains network performance information:

- List of network resources such as TCP ports and tasks
- Network infrastructure resources such as stacks and interfaces
- Remote network round-trip time (RTT)
- Sysplex distributors

IP Activity

The IP Activity category contains objects that provide traffic statistics on various types of network resources on a system. Each object initially shows the busiest resources. However, you can resort the list by any of the sortable columns.

Selecting a row displays more data in the Details pane. Some data is the same as the tabular data. Some data is retrieved at the time of selection (for example, data on the Top Active Conns tab).

Infrastructure

The Infrastructure category contains the following objects that provide performance data for a system:

IP Stacks

Provides stack traffic statistics.

Network Interfaces

Provides the following information about interfaces such as Open Systems Adapters (OSAs):

- Configuration information
- Traffic statistics
- Applications using the interface

VIPA Interfaces

Provides the following information about Virtual IP Addresses (VIPAs):

- Configuration information
- Traffic statistics
- Applications using the VIPA

DB2 Distributed Data Facility (DDF)

Provides traffic statistics on DB2 DDF address spaces.

Enterprise Extender (EE)

Provides traffic statistics on EE connections.

Response Time

The Response Time category contains an object that provides RTT (round-trip time) information to remote networks. This information helps you identify network bottlenecks. For a specific remote address, you can determine how the TCP retransmissions and IP fragmentation affect the network performance. You can also see how the RTT varies over the last 10 minutes.

Sysplex Distributor (by System)

The Sysplex Distributor category contains objects that provide traffic statistics on distributor and target addresses and ports on a system.

Note: For CA Chorus Infrastructure Management to report properly on a sysplex distributor, the distributed connections *must* use the Generic Routing Encapsulation (GRE) protocol. The TCP/IP stack profile *must* include the VIPAROUTE statement for the defined DVIPA (dynamic VIPA).

WebSphere MQ Resources

The WebSphere MQ resource object contains queues for performance-related metrics. Use this object to see the queue status and performance numbers for resolving departure or arrival delay times.

WebSphere MQ Queue Managers

The WebSphere MQ Queue Managers object displays data about WebSphere MQ queue managers.

Example: Display queue managers with a channel initiator status of inactive.

You want to narrow investigations to the channel initiators that are displaying an inactive status.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select WebSphere MQ, WebSphere MQ Queue Managers from the tree.
5. Click the Filter icon, which resides above the table on the left.
6. Filter the data:
   a. Select Chinit from the Search drop-down list.
   b. Select equal (=) from the second drop-down list and type INACTIVE.
7. Click Search.

   The table refreshes and displays only the channel initiators with a status of inactive.

You use this information to determine which channel initiators display a status of INACTIVE and then determine the cause.

WebSphere MQ Exception Alerts

The WebSphere MQ Exception Alerts object displays data collection exception alerts. Data collection values are displayed when the current value exceeds a threshold definition.

Example: Display alerts with a subgroup classification of channel.

You want to narrow investigations to the channel subgroups that are displaying exception alerts.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select WebSphere MQ, WebSphere MQ Exception Alerts from the tree.
5. Click the Filter icon, which resides above the table on the left.
6. Filter the data:
   a. Select Subgroup from the Search drop-down list.
   b. Select equal (=) from the second drop-down list and type CHANNEL.
7. Click Search.

   The table refreshes and displays only systems with a subgroup classification of channel.

You use this information to determine which channels display a status of problem or warning and then determine the cause.

Statistics

This folder displays data for the following entities in TSF (trend) graphs or in the Topology Viewer:

- WebSphere MQ queue managers
- WebSphere MQ queues
- WebSphere MQ buffer pools
- WebSphere MQ page sets

z/OS Resources

This object contains objects that provide system performance data. Use this object to diagnose z/OS performance issues.

Workload Manager Service Goals

This object provides a workload management summary of the workload activity response time and delay data. You use this information to initiate further investigations to resolve the problem.

Example: Identify workloads that are in a warning state.

You want to identify the batch workloads with a warning. Use this view to locate any status other than normal.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select z/OS, WLM Systems Summary from the tree.
5. Click the Filter icon, which resides above the table on the left.
6. Filter the data:
   a. Select Workload from the Search drop-down list.
   b. Select *contains* from the second drop-down list and type BATCH.
   c. Click the plus sign to add a second filtering row.
   d. Select Imp from the Search drop-down list and select less than or equal to (<=) from the second drop-down list and type 3.
7. Click Search.

   The table refreshes and displays systems with batch workloads with an importance level of 3 or less that are in a warning condition.

   Note: Importance levels range from one to five where one is the most important. Importance levels one and two indicate a problem condition.

z/OS Exception Alerts

An exception is an object that describes an error condition. Operations on exception objects allow errors to be reported and handled.

This object provides z/OS system data collection exception alerts for thresholds that have been defined to z/OS-related resources.

Example: Display systems with a group classification of ASID.

You want to narrow event investigations to the group containing the address space IDs that exceed a threshold and are displaying exception alerts.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select z/OS, z/OS Exception Alerts from the tree.
5. Click the Filter icon, which resides above the table on the left.
6. Filter the data:
   a. Select Group from the Search drop-down list.
   b. Select equals (=) from the second drop-down list and type ASID.
7. Click Search.

   The table refreshes and displays only systems with a group classification of ASID.

You use this information to determine which address space IDs display a status of problem or warning and then determine the cause.

Common Storage Tracking

This object provides common storage usage and ownership information. Use this information to identify and reclaim orphaned storage to maximize your storage capacity usage. Reclaiming the storage reduces the cost of storage and increases performance capacity.

Example: Display address spaces containing orphaned storage.

You want to obtain information for systems that have address spaces with orphaned storage.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select z/OS, VSM Common Storage Tracking from the tree.
5. Click the Filter icon, which resides above the table on the left.
6. Filter the data:
   a. Select EndDate from the Search drop-down list.
   b. Select less than or equal to (>=) from the second drop-down list and enter a date.
7. Click Search.

   The table refreshes and fields with orphaned storage contain values in the end date and end time. When these fields are blank, the owner is still active indicating no orphaned storage.

Job Activity

This object provides status information about jobs executing on the system. Use this object to monitor overall z/OS job activity.

Example: Display statistics for specific jobs.

You want to obtain status information for the JES job input class.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.

3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.

4. Select z/OS, z/OS System Activity from the tree.
5. Click the Filter icon, which resides above the table on the left.
6. Filter the data:
   a. Select Jobname from the Search drop-down list.
   b. Select *starts with* from the second drop-down list and type JES.
7. Click Search.

   The table refreshes and displays only jobs with names that start with JES.

You use this information to determine and status of the JES resources.

Job Degradation Delay Analysis

This object provides the status of delayed jobs by resource and impacted workloads. This object can include delays that are related to CPU, MEMORY, I/O, or SUBSYSTEM.

Example: Display systems with unavailable CPU time.

You want to obtain information for systems that are delayed because CPU time was not available.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.

3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.

4. Select z/OS, Job Degradation Delay Analysis from the folder list.
5. Click the Filter icon, which resides above the table on the left.
6. Filter the data:
   a. Select Reason from the Search drop-down list.
   b. Select equals (=) from the second drop-down list and type CPU.
7. Click Search.

   The table refreshes and displays only the resources with unavailable CPU times.

Job Spool Utilization

This object provides the job entry subsystem (JES) resource activity of the job spool volumes. Use this data to adjust usage of your spool space on the volume or all spool volumes.

Example: Display amount of used spool space on the volume.

You want to display spool space activity on a volume to identify jobs with large amounts of spool.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select z/OS, Job Spool Utilization from the tree.
5. Click the Filter icon, which resides above the table on the left.
6. Filter the data:
   a. Select SpoolPct from the Search drop-down list.
   b. Select greater than (>) from the second drop-down list and type 1.
7. Click Search.

   The table refreshes and displays systems with a used spool space of one or more percent.

Statistics

This folder displays statistics for the following entities in TSF (trend) graphs or in the Topology Viewer:

- z/OS system
- z/OS USS
- z/OS CPUs
- z/OS jobs
- z/OS channels
- z/OS devices

Systems Summary

This category lists all the Summary Objects available in the performance object tree. They are divided into sub categories.

Systems Overview

This object provides the current z/OS processing complex overview of the health of your systems and the top resource users. Use this information to assess that all systems are configured optimally and operating typically.

Example: Display active systems.

You begin work each day by assessing the health and performance of your active systems.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select Systems Summary, Systems Overview from the tree.
5. Click the Filter icon, which resides above the table on the left.
6. Filter the data:
   a. Select Status from the Search drop-down list.
   b. Select the equal sign (=) from the second drop-down list and type ACTIVE.
7. Click Search.

   The table refreshes and displays all active systems.
8. Select a table row.

   The Actions pane provides navigational actions and the Details pane tabs contain additional system status information.

PR/SM and LPAR Information

This object contains objects that display different system aspects in the PR/SM (processor resource/system manager) and LPARs (logical partitions) where you are connected.

Example: Display processor busy status.

You want to obtain a list of systems with a processor busy status of warning. This information can help you correct poor systems performance.

Add the Investigator module to your dashboard from the Module Library.

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Select Systems Summary, PR/SM And LPAR Information from the tree.
5. Click the Filter icon, which resides above the table on the left.
6. Filter the data:
   a. Select BusyStat from the Search drop-down list.
   b. Select equals (=) from the second drop-down list and type WARNING.
7. Click Search.

   The table refreshes and displays all systems that show a processor busy status of warning.

Network Overview

This object provides traffic statistics for each host in the network.

You can display the statistics from the Network Overview object in TSF (trend) graphs or in the Topology Viewer.

Perform Infrastructure Management Actions on Object Data in the Investigator

The two types of Actions available when an object row is selected in the Investigator are:

Navigation

The navigational actions available include:

Add to Topology Viewer

Adds the selected item to the topology viewer. The viewer lets you visualize object data.

Add Entity to Time Series

Adds the selected item to the Time Series. This action is only available for TSF items. For more information, see View Object Performance Data in the Time Series Facility (see page 43).

Show other (related) objects to the selected row

Displays the selected item in another object. For more information, see Show Related Object Navigational Actions (see page 33).

Operational Actions

The Operational Actions (see page 35) are operational type functions that you perform on an object or object row. For example, canceling a job. The selectable actions depend on the specific functionality of the object and the line item being accessed.

For more information, see Perform Operational Actions on Selected Objects (see page 35).

View Infrastructure Management Object Relationships in the Topology Viewer

The CA Chorus Infrastructure Management role lets you visualize performance object relationships.

The Topology Viewer provides a pictorial view of data in your system and their relationships. This view can simplify your ability to identify relationships as you manage your data.

A visualization is useful when you want to see the relationships of performance objects and their dependencies.

Example: Show child objects for all relations.

You want to display a select group of metrics and conditions as a single package.

Follow these steps:

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Expand the Systems Summary category, and select the Systems Overview subcategory.

   The Systems Overview object opens and displays data in the object table.
5. Click a Systems Overview table row.
6. Click Add to Topology Viewer in the Actions panel (in the right-hand pane).

   The Topology Viewer opens, loads, and displays the objects in graphical format.
7. Right-click the overview record in the Topology Viewer pane and select the *Show child object* from.

   You can add information to the graphical topology view from the available children in the drop-down list.

Show Related Infrastructure Management Object Navigational Actions

The Infrastructure Management Object Navigation actions category includes Show under the *object_name* navigational type action. This action displays the selected item in another object. These options are referred to as *zooming* to another object.

Follow these steps:

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.

4. Select an object display of Workload service goals.
5. Select a row with one of the workloads of interest.

   The Actions pane opens with a Navigation show actions list of the related objects.
6. Select a Navigation *show action* for the address space activity (for that job).

   The action drills down to the related object based on the information in the selected row.

You can also select the *show action* tab in the Detail pane. The Detail pane expands at the bottom of the Investigator window when you select an object line item. When you select a *show action* tab in the Detail pane, the details of the item in another object is displayed.

The difference between selecting *show actions* in the Details pane and the Actions pane is:

- When you select the *show action* in the Actions pane, the selected line item information from the object displays in the Investigator table pane.
- When you select the *show action* in the Details pane, the related line item information from the object displays in the Details pane. The table in the Investigator table pane does not change.

Example: Active System Connections and Sockets

Display your systems active CICS connections and sockets.

1. Navigate to the CICS Regions.
2. Select a row.
3. Click the Navigational item Show connection status.

Example: Network Connections and Activity

Display your network TCP socket activity and the TCP connections for the selected port.

1. Navigate to Network, IP Activity, TCP Ports.
2. Select a row.
3. Click the Navigational items:
   - Show TCP activity
   - Show TCP connections

Object Operational Actions

The Operational Actions category in the Actions pane are operational type functions that you perform on an object or object row. For example, canceling a job.

The selectable actions depend on the specific functionality of the object and the line item being accessed.

Observe the following notes:

- CA Chorus users require authority in the system engine (see page 36) to perform Operational Actions in CA Chorus.
- Not all objects have Operational Actions.
- The available Operational Actions differ from one object to the next, the procedure for performing an action (see page 35) is similar for all objects.

Perform Operational Actions on Selected Objects

The Operational Actions category in the Actions pane are operational type functions that you perform on an object or object row. For example, start a job.

The selectable actions depend on the specific functionality of the object and the line item being accessed.

Follow these steps:

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Drill down and select z/OS Job Activity.
5. Select a row in the Job Activity table.

   The Operational Actions section of the Actions pane lists the actions that you can take against the selected row.
6. Select an Action to perform. For example, click Make address space swappable.

   The Confirm Action dialog box appears and displays the address space ID and the jobname.
7. Click Submit or Cancel.

   The Infrastructure Management systems engine performs the action and displays a confirmation dialog.

Example Operational Actions

z/OS Job Activity Object

- Cancel address space
- Cancel address space with a dump
- Force address space

CICS Regions Object

- Shutdown region
- Shutdown region immediate
- Start region

CICS Active Tasks Object

- Purge task
- Force purge task
- Cancel task

CICS Transaction Summary Object

- Disable transaction
- Enable transaction
- Set transaction not purgeable

CICS Listener Sockets Object

- Close service
- Close service immediate
- Open service

How to Authorize Users to Perform Operational Actions

The CA SYSVIEW engine lets users request the systems operational actions.

Review the following tables and apply the appropriate security to the commands issued by CA SYSVIEW that correspond to the CA Chorus Infrastructure Management operational actions.

Note: For more information, see the *CA SYSVIEW Security Guide*.

- z/OS Job Activity Object

Operational Actions	Corresponding CA SYSVIEW Commands
Cancel address space	ASCANCEL *asid* NODUMP NOCONFIRM

Operational Actions	Corresponding CA SYSVIEW Commands
Cancel address space with a dump	ASCANCEL *asid* DUMP NOCONFIRM
Force address space	ASFORCE asid NOCONFIRM
Kill address space	ASKILL *asid* NOCONFIRM
Make address space swappable	ASNOSWAP *asid* NOCONFIRM
Make address space non-swappable	ASOKSWAP *asid* NOCONFIRM
Stop address space	MVS STOP *jobname*

- CICS Regions Object

Operational Actions	Corresponding CA SYSVIEW Commands
Shutdown region	MVS F *jobname*,CEMT PERFORM SHUTDOWN
Shutdown region immediate	MVS F *jobname*,CEMT PERFORM SHUTDOWN,IMMEDIATE
Start region	MVS START *jobname*

- CICS Active Tasks Object

Operational Actions	Corresponding CA SYSVIEW Commands
Purge task	CICSSET PURGE *task* JOBNAME *jobname*
Force purge task	CICSSET FORCE *task* JOBNAME *jobname*
Cancel task	CICSSET CANCEL *task* JOBNAME *jobname*
Kill task	CICSSET KILL *task* JOBNAME *jobname*
CICS kill task	CICSSET CKILL *task* JOBNAME *jobname*

- CICS Transaction Summary Object

Operational Actions	Corresponding CA SYSVIEW Commands
Disable transaction	CICSSET TRAN *tran* DISABLE JOBNAME *jobname*
Enable transaction	CICSSET TRAN *tran* ENABLE JOBNAME *jobname*
Set transaction not purgeable	CICSSET TRAN *tran* NOTPURGEABLE JOBNAME *jobname*

Operational Actions	Corresponding CA SYSVIEW Commands
Set transaction purgeable	CICSSET TRAN *tran* PURGEABLE JOBNAME *jobname*
Newcopy program	CICSSET PROGRAM *program* NEWCOPY JOBNAME *jobname*

- CICS Listener Sockets Object

Operational Actions	Corresponding CA SYSVIEW Commands
Close service	CICSSET TCPIPSERVICE *service* CLOSE JOBNAME *jobname*
Close service immediate	CICSSET TCPIPSERVICE *service* IMMCLOSE JOBNAME *jobname*
Open service	CICSSET TCPIPSERVICE *service* OPEN JOBNAME *jobname*

Chapter 3: Viewing Infrastructure Management Object Performance Data in the Investigator

Infrastructure Management Resources Performance Data

CA Chorus Infrastructure Management lets you view, monitor, and compare resource statistics in the Investigator, Metrics panel, and Time Series Facility (TSF).

The Statistics category displays the object performance data in the Time Series Facility (TSF). TSF stores data that the back-end engines collect and provide.

Note: For a list of Infrastructure Management objects available for collecting data for TSF, see the section Time Series (Trend) Data for Infrastructure Management Objects (see page 45).

View Infrastructure Resource Statistics in the Investigator

Use the following procedure to review performance statistics in the Investigator for your Infrastructure Management data. Reviewing this information can help you identify trends and set thresholds for acceptable performance.

Note: The Filter in the Investigator for TSF objects is case-sensitive when you use some of the operators. In all the non TSF performance objects (those objects not in the Statistics category), the Filter is not case-sensitive.

Example: Monitor Infrastructure Management Groups

Your team monitors available space on performance groups so applications have enough space and to avoid space abends. Having sufficient space on performance groups improves the efficiency of your site. Retrieve a baseline of acceptable levels so you can compare current conditions against the baseline and measure performance.

Follow these steps:

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.

3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.

4. Expand a performance category to list the performance objects included in that category.

5. Expand the Statistics category.

   Performance objects that have been set up to collect performance object metrics for TSF are displayed.

6. Select the desired target performance group object.

7. Perform *one* of the following sequences:

   - To review the data using the TSF:
     a. Select a row in the table.
     b. Click Add Entity to Time Series in the Actions pane on the right-hand side.
     c. Select the Entity and Metrics for comparison, and click Perform Charting.
     d. Click the icon next to the Contributors button to duplicate the chart.
     e. Modify the End Date/Time or Period for each chart to compare a *baseline* view with a more current view.
   - To review all of the data in a tabular view while in the table view:
     a. Select the wrench icon.
     b. Add all of the Infrastructure Management Group fields to the grid, and click Save.
     c. The Infrastructure Management Group statistics appear in the table in the center pane.
     d. Click the export icon in the upper-right corner of the center pane.
     e. Save the table data to a comma-separated value (CSV) file.

8. Repeat these steps periodically and compare the data in TSF graphs or the CSV file.

View and Investigate Object Performance Data in the Metrics Panel

The Metrics panel displays performance statistics metrics. For the CA Chorus Infrastructure Management, you can monitor performance statistics in the Metrics panel. You can investigate the metric directly from the Metrics panel. You can also add it to your workspace or launch the Investigator for further monitoring. To monitor the performance of your systems, add metric groups to the Metrics panel.

This example procedure shows how a performance administrator configures the Metrics panel to monitor active and inactive address spaces. This indication is important because when an active task becomes inactive, it is available to be started.

Follow these steps:

1. Log in to CA Chorus.
2. Click the plus sign control (+) on the Metrics panel.
3. Identify the metric and the data source to populate your Metrics panel by following the prompts.
4. Select available metrics as follows:
   a. Use the right arrow keys to select individual or all metrics. The available metrics change based on the category that is specified on the previous dialog.
   b. Specify the name of the metric group in the Name the Metric Group field.

      Default: Name of the system that the user selected.

   c. Click Finish.

   The new group is added to the Metric panel.

You can now configure thresholds and investigate the metric directly from the Metrics panel or add it to your dashboard for further monitoring.

View and Investigate Metrics

You can view a metric on the Metrics panel related to resource use on your systems that you want to monitor. You can then investigate the metric directly from the Metrics panel or add it to your dashboard for further monitoring. When you add the metric to the dashboard, the larger view makes it easier to view the activity for the metric. To investigate the metric directly from the Metrics panel, click the applicable metric, and click Investigate.

You can manipulate the metrics in a metric group as follows:

- Hover over a metric to view the full metric name, value, and description.
- Move a metric anywhere in its group by dragging and dropping it where you want.
- Click the down arrow in a metric to investigate it or to view a larger graphical representation version of the metric on the dashboard.

Note: Hover over the panel controls to manage the Metrics panel.

Follow these steps:

1. Click the metric you want to investigate, and select Add to Dashboard.

   The metric appears on the dashboard in a larger view for monitoring. The metric group name and metric name appear in the header of the graph. You can hover over the graph to see the value (time, metric value) at any point. Use the slider control to adjust time and to see data during the changed time. The slider control refreshes when the graph is updated.

2. Click Actions, Investigate.

   The Investigator opens at the source of the metric data. You can now review the data source to identify dependencies and relationships.

Configure Metric Thresholds

Metric thresholds are visual tools that let you monitor activity spikes for a metric. You can specify the direction of the spike (above or below the specified value) and the value of the threshold. When activity reaches the specified value, the metric color changes.

Note: You can perform this procedure at any time to edit your thresholds.

Follow these steps:

1. Log in to CA Chorus.
2. Click the plus sign control (+) on the Metrics panel.

   Note: If you are creating a metric group for the first time, you can also use the link Click here to add metrics.

3. Identify the metric and the data source to populate your Metrics panel by following the prompts.
4. Click the applicable metric, and click Set Threshold.

   A blue threshold bar appears at the bottom of the metric.

   Note: If a threshold has been set, you can also select Edit Threshold or Delete Threshold.
5. Specify the threshold value for Caution State or Danger State or both, and click Set Threshold.

   Caution State

   Identifies the level above or below the specified value in the adjacent field that is associated with the Caution state threshold.

   Default: Above

   Limits: Dependent on metric value range

   Danger State

   Identifies the level above or below the specified value in the adjacent field that is assigned to the Danger state threshold.

   Default: Above

   Limits: Dependent on metric value range

   The metric now responds to the specified threshold criteria. The threshold bar and the metric color changes to yellow when the caution criteria is met and the color changes to red when the danger criteria is met.

   Note: The value for Caution or Danger can be set to 0 but not when the state is set to below.

View Infrastructure Management Object Performance Data in the Time Series Facility

The *Time Series Facility* (TSF) stores data that is collected and provided by CA products. TSF provides a single point for collection, storage, management, and organization of the product data. When you request a Time Series chart from the Investigator, TSF provides the data content for the chart.

The TSF displays historical performance statistics. When you add a Infrastructure Management discipline object to TSF, it becomes an entity. You can use it to create a chart. Doing so lets you determine trends and identify valid anomalies. The TSF charts allow up to four lines.

An *entity* is an application performance object that has been added to TSF. You can add the system entity to TSF with the CA Chorus Infrastructure Management discipline.

Note: For detailed common TSF concepts and procedures, see the *CA Chorus Product Guide*.

Example: Analyze the active address spaces metrics for all entities.

In this example, the Infrastructure Management Group object is added to the TSF and the active address spaces per group are analyzed.

Monitoring CPU consumption for an address space lets you compare the address space statistics for the desired time ranges. Use the results to identify storage threshold problems.

Follow these steps:

1. Log in to CA Chorus.
2. Add the Investigator module to your dashboard from the Module Library, and click Start New Investigation.

   The Investigator opens.
3. Select Infrastructure Management from the discipline drop-down list.

   The Infrastructure Management object tree opens.
4. Expand the Statistics category.

   A list of the performance objects that you have set up to generate TSF metrics are displayed.
5. Select the record in the table.
6. Click Add Entity to Time Series in the Actions pane on the right-hand side.

   The system is added to the TSF and the TSF panel appears.
7. Select the Entity and the Metrics, ASIACT for active address spaces, and click Perform Charting.

   TSF produces a chart for the selected metric. The selected entity becomes a line on the chart.
8. Select an entity from the Contributors drop-down list and click Contributors.

   The Entities panel becomes the Base Entities panel and shows the original criteria that the Investigator passes for the selected entity.
9. Click the Contributors drop-down list.

   The drop-down list shows the valid contributors.

   Note: To exit the contributors function, click Back to Entities.

10. Select a contributor type.

    A list of all the contributors for the selected entity and metric combination appears. If no contributors appear, then clear one or more base entities.

    Note: All Performance metrics are defined as averages. When multiple values are rolled up for a time period or across multiple entities, the average value is represented on the Time Series charts.

11. Click Perform Charting.

    The new chart is generated from the selected entities.

12. Duplicate the chart by clicking the plus icon next to the Contributors drop-down list.

    The second chart displays below the original chart.

13. Set your desired date and time ranges for the second chart.

    The timeline bar works independently between the top and bottom graph. Changing the time in these charts lets you compare the statistics for the desired time ranges.

Time Series (Trend) Data for Infrastructure Management Objects

You can send various resource metrics about Infrastructure Management performance data from the CA NetMaster NM for TCP/IP and CA SYSVIEW back-end products to CA Chorus Infrastructure Management. CA Chorus Infrastructure Management displays these metrics in TSF (trend) graphs that let you see the historical usage trend for each metric over a selected time period. Control the resources sent to TSF by configuring each type of collection.

- For each region on a system that is remote to CA Chorus, set up a CA SYSVIEW start request.

  Note: For information about how to enable TSF processing for remote systems, see the *CA Chorus Installation Guide*.

Resource metrics are available for entities in the following Infrastructure Management objects:

- CICS Statistics
- IMS Statistics
- Network Infrastructure
- WebSphere MQ Statistics
- z/OS Statistics
- Systems Summary

Use the Alerts Module to View and Manage Alerts

The Alerts module lets you monitor and investigate alerts from the dashboard as they are generated. The alert provides immediate knowledge about a problem occurring on your CA Chorus Infrastructure Management discipline. The Alerts module displays only current information.

As a network administrator, I want to monitor the network activity. Use this procedure when you configure the network alerts.

Follow these steps:

1. Log in to CA Chorus
2. Click the plus sign icon on the dashboards tab, enter a name for your dashboard, and click Add Dashboard.

   The dashboard name can be up to 21 characters. Valid characters are numeric (0 through 9), alpha (a to z) and (A to Z), underscores, and blank spaces.
3. Add the Alerts module to your customized dashboard from the Module Library.
4. Follow the prompts to configure the module. For example, click the alerts configuration link, select Network Alerts.
5. (Optional) Customize the module label. For example, rename Network Alerts to NetMaster Region.

   This text appears in your module header. This information is useful when you have multiple Network Alerts modules on the same dashboard.
6. Click Save.

   The Alerts module opens.
7. Click the wrench icon and use the Select and Reorder Columns dialog to customize the tabular data view to display the NetMaster Region.
   a. Move the NetMaster Region from the Available column to the All selected Columns.
   b. Move the NetMaster Region up to the first entry in the list by clicking the up arrow.
8. Click the Save button.

   The customized Alerts module is available to display alerts on the NetMaster Region.
9. (Optional) Repeat this procedure when you are adding multiple modules to one or more dashboards.

Your customized Network Alerts module is available for monitoring on your dashboard.

Use the Policy Status Light Module for Color-Coded Monitoring

The Policy Status Light module lets you monitor your policies from the dashboard with a color-coded view. This color-coded view lets you see at a glance when the system exceeds the specified limits in your policies.

Follow these steps:

1. Choose the Policy Status Light module from the Module Library and click Add.

   The Policy Status Light is added to your dashboard.

2. Click configure the policy status light link.

   The Policies Object Picker opens.

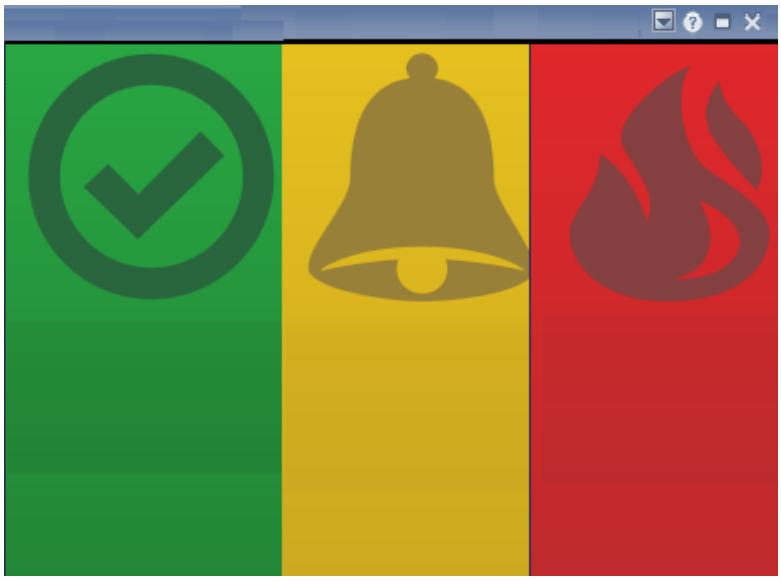
3. Select Infrastructure Management from the Policies drop-down list.

4. Select the policies that you want to monitor. The available CA Chorus Infrastructure Management policies include:

   - CICS Threshold Policies
   - CICS State Policies
   - IMS Threshold Policies
   - IMS State Policies
   - IP Stack Policies
   - WebSphere MQ Threshold Policies
   - WebSphere MQ State Policies
   - z/OS Threshold Policies
   - z/OS State Policies

5. Select the rows for monitoring by clicking each check box. You can also use the Select All check box in the header row to select all policies in the table. If you use Select All, then future policies for that system are automatically added to the Policy Status Light module. Click Save to apply your changes.

   The Policy Status Light displays policy status in your Dashboard. The following colors and icons indicate the health state of your policies:



Note: Unknown state indicates that the performance data of the policy object cannot be retrieved.

Hover over a Policy Status Light to see the list of objects that are in the same condition.

Example: Add two Policy Status Modules. A z/OS Policy containing MSU consumption rates and a WebSphere MQ Policy containing inactive channels.

You noticed the z/OS threshold policies registering high MSU (millions service units) consumption rates on a specified system. You want to add a traffic light to track the MSU four-hour average and the MSU four-hour average percentage consumption spikes.

You also want to monitor the status of your WebSphere MQ inactive channels.

Follow these steps:

1. Add the Policy Status Light module to your dashboard.
2. Click the link configure the policy status light.
3. Select Infrastructure Management from the policies drop-down list.
4. Select z/OS Threshold Policies.
5. Check the boxes for MSU4HAVG and MSU4HPCT and click Save.
6. Add a title and description and click Save.

   The Policy Status box for MSU4HAVG and MSU4HPCT displays on your dashboard.
7. Use drop-down and click the Group by Policy.

To add the Policy Status Light module for the WebSphere MQ inactive channels:

1. Perform steps 1 through 3 and select WebSphere MQ State Policies.
2. Click View Filter, select State equal (=) and type INACTIVE, and click Search.
3. The display refreshes and displays Check the boxes for monitoring and click Save.
4. Add a title and description and click Save.

   The Policy Status box containing the WebSphere MQ inactive state policies displays on your dashboard. You can optionally use the drop-down to filter your views.

You can see at a glance the two traffic lights on your dashboard:

This color-coded view provides a visual status when these policies have changed or exceeded the thresholds.

Chapter 4: Network Management Interface

Access the Interface

The Quick Links module contains links to CA Chorus discipline-specific interfaces. The network management interface supplements the information available in CA Chorus and helps you to troubleshoot issues. You can also access this interface in context through the Actions pane from several objects in the Investigator.

Note: If you use Firefox, the browser requires the Java Platform plug-in.

Follow these steps:

1. Log in to CA Chorus.
2. Add the Quick Links Module to your dashboard.
3. Click Network Management in the Quick Links window.

   The interface opens in a separate browser window.

   Note: This interface includes its own online help. The Knowledge Center does not offer help topics for this interface.

Chapter 5: Troubleshooting

Performance Data History Versus Current Interval

Symptom:

How do I view the history interval as opposed to the current interval?

Solution:

Time-based CA Chorus Infrastructure Management objects contain a history and a current interval view. Complete the following tasks from the Investigator to view current or historical data:

- To view current interval data:
  - Set the Start Date and End Date to the current date.
  - Set the Start Time and End Time to the same value.
- To view historical data:
  - Set the Start Date and End Date to the desired interval.
  - Set the Start Date and End Date to the desired interval.

Sysplex Distributor Connections Missing

Symptom:

I cannot see some or all sysplex distributor connections.

Solution:

CA NetMaster NM for TCP/IP currently only identifies sysplex distributor cross-system connections through the GRE protocol. However, a stack handles cross-system connections with the GRE protocol only if DVIPA is defined with VIPAROUTE.

To see the connections in CA Chorus, the TCP/IP stack PROFILE must include the VIPAROUTE statement in the VIPADEFINE for the DVIPA.

Note: For more information, see IBM *z/OS Communications Server IP Configuration Reference*.

Appendix A: Metrics Used by the Time Series Facility

Important! For optimal performance, limit CA SYSVIEW metrics in TSF to those that you deem highly valuable.

IP Network Activity

CA Chorus collects the following activity metrics for IP network resources:

- Bytes In
- Bytes Out

System Activity

CA Chorus collects system activity metrics for system resources to display in TSF. The performance analyst monitoring the system uses this data to identify performance anomalies and solve performance problems.

These metrics reflect the data for the systems performance of the following resources:

- IMS systems, transactions, buffer pools, and pools
- z/OS systems, USS, cpus, jobs, channels, and devices
- WebSphere MQ page sets, buffer pools, systems and queues

Metrics for IMS Systems

IMDPCNT

Displays the number of dispatches.

IMITASKS

Displays the number of ITASKS created.

IMLMSGMX

Displays the number of maximum long message queue records.

IMLMSGQ

Displays the number of long message queue records in use.

IMLMSGQP

Displays the percentage of long message queue records in use.

IMQBLKMX

Displays the maximum queue block records.

IMQBLKS

Displays the queue block records in use.

IMQBLKSP

Displays the percentage of queue block records in use.

IMQEOELP

Displays the percentage of the IMS expedited message handling (EMH) overflow element usage.

IMQEOENP

Displays the percentage of IMS EMH overflow entry usage.

IMQEPELP

Displays the percent of IMS EMH primary element usage.

IMQEPENP

Displays the percent of IMS EMH primary entry usage.

IMQMOELP

Displays the percent of IMS MSG overflow element usage.

IMQMOENP

Displays the percent of IMS MSG overflow entry usage.

IMQMPELP

Displays the percent of IMS MSG primary element usage.

IMQMPENP

Displays the percent of IMS MSG primary entry usage.

IMQPBCNT

Displays the number of queued pool buffers.

IMQPBPRG

Displays the current writes for a purge.

IMQPBSIZ

Displays the current queue pool block size.

IMQPCANC

Displays the calls to cancel input or output.

IMQPCLAL

Displays the number locate and alter calls from the queue manager.

IMQPCLOC

Displays the number locate calls from the queue manager.

IMQPCPRG

Displays the number of requests to purge the queue pool.

IMQPCREA

Displays the number of Read requests.

IMQPCREL

Displays the record release calls from the queue manager.

IMQPCWRI

Displays the total Write requests.

IMQPDEQ

Displays the calls to dequeue one or more messages.

IMQPENQ

Displays the calls to enqueue a message.

IMQPINUS

Displays the number of records in use.

IMQPIOER

Displays the I/O errors not retried.

IMQPLOCK

Displays the number of buffers that are locked.

IMQPPROC

Displays the total in process ENQ/DEQ operations.

IMQPREPO

Displays the reposition at lost buffer count.

IMQPREQS

Displays the total calls to the queue manager.

IMQPUNLK

Displays the buffers unlocked count.

IMQPWBUF

Displays the buffer wait count.

IMQPWIN

Displays the buffer waits for other data event control blocks (DECB) to read.

IMQPWOUT

Displays the buffer waits for other data event control blocks (DECB) to write.

IMQPWPRG

Displays the buffer wait for a purge to complete total.

IMQPWQ

Displays the buffer wait for conflicting ENQ/DEQ requests.

IMRCUC

Displays the number of receives for any buffer in-use.

IMRCUCP

Displays the percentage of receives for any buffer in-use.

IMSBSIZ

Displays the maximum sequential buffer storage.

IMSBSIZP

Displays the maximum sequential buffer storage percent.

IMSLACT

Displays the number of active online log data sets (OLDs).

IMSLARCH

Displays the number of archive required OLDs.

IMSLBUFW

Displays the output buffer waits during a checkpoint.

IMSLCHKW

Displays the number of OLDs checkpoint write requests.

IMSLERR

Displays the number of OLDs with I/O errors.

IMSLFULL

Displays the number of full OLDs.

IMSLINAC

Displays the number of inactive OLDs.

IMSLREAD

Displays the number of OLDs read requests.

IMSLSTOP

Displays the number of stopped OLDs.

IMSLWRIT

Displays the number of OLDs write requests.

IMSMSGMX

Displays the maximum short message queue records.

IMSMSGQ

Displays the number of short message queue records in use.

IMSMSGQP

Displays the percentage of short message queue records in use.

Metrics for IMS Transactions

IMTFACTT

Displays the IMS fast-path activity time.

IMTFDDWT

Displays the IMS fast-path data entry database (DEDB) read internal wait state (IWAIT) time.

IMTFIMWT

Displays the IMS fast-path input message IWAIT time.

IMTFMDWT

Displays the IMS fast-path main storage database (MSDB) write IWAIT time.

IMTFOBWT

Displays the IMS fast-path overflow buffer allocation (OBA) IWAIT time.

IMTFOTWT

Displays the IMS fast-path DEDB output thread (OTHREAD) IWAIT time.

IMTRCKPT

Displays the IMS checkpoint time.

IMTRCNT

Displays the IMS transaction count.

IMTRDLBT

Displays the IMS DLA (DB) time.

IMTRDLKT

Displays the IMS fast-path DEDB lock IWAIT time.

IMTRDLMT

Displays the IMS DLA (MSG) time.

IMTRHIWT

Displays the IMS HSAM I/O IWAIT time.

IMTRIQUE

Displays the IMS Transaction input queue time.

IMTRLIFE

Displays the IMS Transaction total life time.

IMTRMCPU

Displays the IMS MPP CPU time.

IMTROIWT

Displays the IMS OSAM IWAIT time.

IMTROQUE

Displays the IMS Tran output queue time.

IMTRPIIT

Displays the IMS PI enqueue IWAIT time.

IMTRPROC

Displays the IMS Tran processing time.

IMTRSIWT

Displays the IMS STG storage IWAIT time.

IMTRSSC

Displays the IMS external subsystem call time.

IMTRVIWT

Displays the IWAIT time for the IMS VSAM I/O to complete.

Metrics for IMS Buffer Pools

IMBPFREE

Displays the number of free buffer pools that are defined to the IMS control region.

IMBPOVER

Displays the buffer pool overflow size for fixed pools.

IMBPSIZE

Displays the buffer pool size.

IMBPUSEP

Displays the percentage of total pool storage currently being used.

IMBPUSED

Displays the current storage used in the buffer pool.

Metrics for IMS Pools

IMPLFREE

Displays the total number of freemains for the pool.

IMPLGETS

Displays the total number of getmains for the pool.

IMPLMAX

Displays the maximum storage that is allocated to the pool in the private storage area.

IMPLSIZE

Displays the current pool size.

Metrics for z/OS Systems

ASIACT

Displays the active address spaces.

ASIINACT

Displays the inactive address spaces.

ASIINIT

Displays the address spaces on the initiators.

ASIJOB

Displays address spaces that are ready for processing by batch jobs.

ASILOST

Displays lost address spaces.

ASIOTX

Displays the address spaces for OpenEdition transactions.

ASIREADY

Displays the address spaces that are ready to dispatch.

ASIRTASK

Displays the tasks that are ready to dispatch.

ASISTC

Displays the address spaces of started tasks.

ASISYS

Displays the address spaces of system tasks.

ASITSO

Displays the address spaces of TSO users.

CECCPUP

Displays the CEC (central electronic complex) CPU busy percentage.

JESSTGP

Displays the spool track groups percentage.

MSU4HAVG

Displays the four-hour average MSU.

MSU4HPCT

Displays the four-hour average MSU percentage.

PAGERATE

Displays the demand page-in rate.

PAGSLOTP

Displays the percentage of used page data set slots.

Storage (z/OS common storage tracking)

STGAFQA

Displays the available frame queue average.

STGCSA

Displays the allocated CSA (common service area) storage.

STGCSAP

Displays the percentage of allocated CSA storage.

STGCSAF

Displays the free (unallocated) CSA storage.

STGECSA

Displays the allocated E-CSA (extended common service area) storage.

STGECSAP

Displays the percentage of allocated E-CSA storage.

STGECSAF

Displays the free E-CSA storage.

STGESQA

Displays the allocated E-SQA (extended system queue area) storage.

STGESQAP

Displays the percentage of allocated E-SQA storage.

STGESQAF

Displays the free E-SQA storage.

STGSQA

Displays the allocated SQA storage.

STGSQAP

Displays the percentage of allocated SQA storage.

STGSQAF

Displays the free SQA storage.

STGUICA

Displays the unreferenced interval count average.

SYSIOR

Displays the total I/Os per second.

Metrics for z/OS USS

UXAUIDP

Displays the percentage of maximum active UIDs.

UXCALLS

Displays the total system calls.

UXCPUTIM

Displays the CPU time in kernel tasks.

UXMMAPP

Displays the percentage of memory mapped storage pages.

UXMSGQP

Displays the percentage of message queue IDs.

UXPROCP

Displays the percentage of maximum processes.

UXSEMAP

Displays the percentage of semaphore IDs.

UXSHRMP

Displays the percentage of shared memory IDs.

UXSHRPP

Displays the percentage of shared memory pages.

UXSHRSP

Displays the percentage of shared storage pages.

Metrics for z/OS CPUs

CPUP

Displays the CPU usage percentage.

CPUPLPAR

Displays the LPAR CPU usage percentage.

Metrics for z/OS Jobs

JOBASTG

Displays the auxiliary storage.

JOBCPTP

Displays the CP CPU usage percentage total.

JOBCPUTP

Displays the CPU usage percentage total.

JOBCSA

Displays the allocated CSA storage.

JOBECSA

Displays the allocated E-CSA (extended common service area) storage.

JOBEIPTM

Displays enclave IIP processor time (interval).

JOBENCLP

Displays the enclave percent of interval CPU time.

JOBEPVTP

Displays the E-Private (extended private) storage usage percent of the specified limit.

JOBESQA

Displays the allocated E-SQA (extended system queue area) storage.

JOBGCSA

Displays the allocated G-CSA (grande or 64-bit storage) storage.

JOBGPVTA

Displays the allocated G-Private (grande or 64-bit storage) storage.

JOBIFATP

Displays the IFA usage percentage total.

JOBIIPTP

Displays the IIP usage percentage total.

JOBIOR

Displays the I/Os per second.

JOBPAGER

Displays the paging rate.

JOBPVTP

Displays the private storage usage percentage of the specified limit.

JOBRSTG

Displays the real storage.

JOBSQA

Displays the allocated SQA storage.

JOBWKST

Displays the working set size, which equals the Real + Auxiliary storage.

Metrics for z/OS Channels

CHANBUSY

Displays the channel busy percentage.

CHANLPAR LPAR

Displays the LPAR channel busy percentage.

Metrics for z/OS Devices

DEVBUSYP

Displays the device busy percentage.

DEVSERV

Displays the device service time.

Metrics for WebSphere MQ Page Sets

MQPSETP

Displays the percentage of used data pages.

MQPSEXT

Displays the count of extensions.

MQPSFREE

Displays the unused data pages.

MQPSNPER

Displays the number of pages holding nonpersistent data.

MQPSPERP

Displays the percentage of persistent data pages.

MQPSPERS

Displays the number of pages holding persistent data.

MQPSSECX

Displays the secondary extents before restarting the system.

MQPSTOT

Displays the total data pages.

MQPSUSED

Displays the used data pages.

Metrics for WebSphere MQ Buffer Pools

MQBPAPWO

Displays the total asynchronous page write operations.

MQBPCNT

Displays the total number of allocated buffers.

MQBPCSTL

Displays the number of altered chains during page steals.

MQBPFREE

Displays the number of free or unused buffers.

MQBPGETS

Displays the number of requests to get pages.

MQBPNEW

Displays the number of get new page requests.

MQBPNOB

Displays the number of times no buffers were available.

MQBPPAGU

Displays the number of page updates.

MQBPPAGW

Displays the total page write operations.

MQBPPIOR

Displays the number of page read DASD operations.

MQBPPIOW

Displays the total page write to DASD operations.

MQBPSPWO

Displays the total synchronous page write operations.

MQBPSTL

Displays the count of pages not in the pool.

MQBPSWPS

Displays the total synchronous page write process starts.

MQBPUSED

Displays the current number of used buffers.

MQBPUSEP

Displays the percentage of total buffers currently in use.

Metrics for WebSphere MQ Systems

MQCLOSE

Displays the total CLOSE requests.

MQDADAPA

Displays the active adapter subtasks.

MQDADAPF

Displays the failed adapter subtasks.

MQDADAPR

Displays the requested adapter subtasks.

MQDCONNA

Displays the active channel connections.

MQDCONNC

Displays the number of current channel connections.

MQDCONNP

Displays the number of stopped channel connections.

MQDCONNR

Displays the retry attempts at channel connections.

MQDCONNS

Displays the number of starting channel connections.

MQDCONPA

Displays the number of paused channel connections.

MQDDISPA

Displays the number of active dispatchers.

MQDDISPF

Displays the number of failed dispatchers.

MQDDISPR

Displays the number of requested dispatchers.

MQGET

Displays the number of GET requests.

MQINQ

Displays the number of inquire requests.

MQOPEN

Displays the number of OPEN requests.

MQPUT

Displays the number of PUT requests.

MQPUT1

Displays the number of PUT1 requests.

MQREQS

Displays the total requests.

MQSET

Displays the number of SET requests.

Metrics for WebSphere MQ Queues

MQQDEPTH

Displays the current queue depth.

MQQFULLP

Displays the queue full percentage.

MQQGETS

Displays the queue Get count.

MQQPUTS

Displays the queue Put count.

MQQSRVTM

Displays the queue service time.

Metrics for CICS Systems

ACTTASKS

Displays the active tasks.

AUXSTORP

Displays auxiliary temporary storage usage.

CDSAP

Displays CDSA (CICS dynamic storage area) percent used of limit.

CDUMPSYS

Displays CICS system dumps.

CDUMPTRN

Displays CICS transaction dumps.

DSAP

Displays CICS DSA percent used of limit.

DSASIZE

Displays CICS DSA size.

ECDSAP

Displays ECDSA (extended CDSA) percent used of limit.

EDSAP

Displays ECDSA percent used of limit.

EDSASIZE

Displays ECDSA size.

EPVTALLO

Displays E-PVT (extended private) storage allocated.

EPVTFREE

Displays E-PVT free user storage.

EPVTPLIM

Displays E-PVT storage percent allocated of limit.

EPVTPSIZ

Displays E-PVT storage percent allocated of size.

EPVTSYS

Displays E-PVT system storage allocated.

EPVTUSER

Displays E-PVT user storage allocated.

ERDSAP

Displays ERDSA (extended read-only DSA) percent used of limit.

ESDSAP

Displays ESDSA (extended shared DSA)percent used of limit.

EUDSAP

Displays EUDSA (extended user DSA)percent used of limit.

GDSAP

Displays grande (64-bit storage) CICS DSA percent used of limit.

GDSAALLO

Displays grande CICS DSA allocated.

GDSAFREE

Displays grande CICS DSA free.

GDSASIZE

Displays grande CICS DSA size.

MXTTASKP

Displays CICS maximum task percent.

PVTPLIM

Displays private storage percent allocated of limit.

PVTPSIZ

Displays private storage percent allocated of size.

PVTALLOC

Displays private storage allocated.

PVTFREE

Displays private free user storage.

PVTSYS

Displays private system storage allocated.

PVTUSER

Displays private user storage allocated.

RDSAP

Displays RDSA (read-only DSA) percent used of limit.

SDSAP

Displays SDSA (shared DSA) percent used of limit.

SOS

Displays short on storage total.

STGVIOLS

Displays storage violations.

TEMPBUFW

Displays temporary storage buffer waits.

TEMPSTG

Displays temporary main storage in use.

TEMPSTGQ

Displays temporary storage queues.

TEMPSTRW

Displays temporary storage string waits.

TQINTRAP

Displays percent of transient data CIs (configuration items) in use.

TRANRATE

Displays number of transaction per second.

UDSAP

Displays UDSA (user DSA) percent used of limit.

Metrics for CICS Transactions

CPUTIME

Displays CPU time used by transaction.

DISPTIME

Displays dispatch time.

DSCHMDLY

Displays CICS TCB (task control block) change mode delay time.

DSPDELAY

Displays dispatch delay time.

EXWTIME

Displays CICS exception wait time.

FCPREQS

Displays file requests.

FCPTIME

Displays file I/O wait time.

JVMSUSP

Displays Java suspend time.

JVMTIME

Displays Java time.

LIFETIME

Displays life time of transaction.

MXTDELAY

Displays MXT delay first dispatch.

PCPLTIME

Displays program load time.

RMICPSM

Displays RMI (resource manager interface) time - CICSPlex SM.

RMIDB2

Displays RMI time - DB2.

RMIDBCTL

Displays RMI time – DBCTL.

RMIEXDLI

Displays RMI time - EXEC DLI.

RMIMQM

Displays RMI time - WebSphere MQ.

RMIOTHER

Displays RMI time – Other.

RMISUSP

Displays resource manager suspend time.

RMITCPIP

Displays RMI time - TCP/IP sockets.

RMITIME

Displays resource manager interface time.

RMITOTAL

Displays RMI time – Total.

SUSPTIME

Displays suspend time.

TCLDELAY

Displays transaction class delay of the first dispatch.

TDATTIME

Displays TD (transient data) request time.

TERMTIME

Displays terminal I/O wait time.

TRANUSE

Displays transaction count.

TSPTIME

Displays temporary storage wait time.

WTCEWAIT

Displays CICS ECB wait time.

WTEXWAIT

Displays external ECB wait time.

WTRTIME

Displays waiting to run time.