CICS Transaction Server for z/OS

# CICSPlex SM Managing Resource Usage

*Version 3 Release 2*

SC34-6846-04

CICS Transaction Server for z/OS

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*Version 3 Release 2*

SC34-6846-04

**Note!**
Before using this information and the product it supports, be sure to read the general information under “Notices” on page 185.

This edition applies to Version 3 Release 2 of CICS Transaction Server for z/OS, program number 5655-M15, and to all subsequent versions, releases, and modifications until otherwise indicated in new editions.

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# Contents

**Preface** . . . . . vii
Who this book is for . . . . . vii
What you need to know . . . . . vii
Notes on terminology . . . . . vii
Syntax notation and conventions used in this book . . . . . viii
CICS system connectivity . . . . . viii

**Summary of changes** . . . . . xi
Changes for CICS Transaction Server for z/OS, Version 3 Release 2 . . . . . xi
Changes for CICSPlex SM for CICS Transaction Server for z/OS Version 3 Release 1 . . . . . xi
Changes for CICSPlex SM for CICS Transaction Server for z/OS, Version 2 Release 3 . . . . . xi
Changes for CICSPlex SM for CICS Transaction Server for z/OS, Version 2 Release 2 . . . . . xi
Changes for CICSPlex SM for CICS Transaction Server for z/OS, Version 2 Release 1 . . . . . xii
Changes for CICSPlex SM for CICS Transaction Server for OS/390, Version 1 Release 3 . . . . . xii

**Part 1. Introduction** . . . . . 1

**Chapter 1. Using real-time analysis and resource monitoring views** . . . . 3
Views for managing real time analysis definitions . . . . . 3
Views for managing the RTA environment . . . . . 5
Views for managing resource monitoring administrative definitions . . . . . 6

**Part 2. Real-time analysis** . . . . . 9

**Chapter 2. Real-time analysis** . . . . . 11
Preparing to perform real-time analysis . . . . . 11
Defining real-time analysis attributes . . . . . 11
System availability monitoring . . . . . 12
MAS resource monitoring . . . . . 17
Analysis point monitoring . . . . . 18
Setting intervals and controlling oscillations . . . . . 19
Identifying primary CMASs . . . . . 20
Modifying resources with real-time analysis . . . . . 20
Real-time analysis definitions and their related views . . . . . 21
Working with real-time analysis administration views . . . . . 25
Action definitions . . . . . 26
Primary CMAS analysis point specifications . . . . . 26
Secondary CMAS analysis point specifications . . . . . 26
RTA analysis point specifications . . . . . 26
Evaluation definitions . . . . . 27
RTA definitions . . . . . 29
RTA groups . . . . . 32
RTA group in analysis point specifications . . . . . 34
RTA definitions in RTA groups . . . . . 35
RTA groups in RTA specifications . . . . . 36
RTA specifications to CICS system links . . . . . 36
RTA specifications to CICS system group links . . . . . 37

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RTA specifications . . . 38
Status definitions in RTA groups . . . 42
Status probe definitions . . . 42
Real Time Analysis (RTA) views . . . 44
Installed analysis definitions associated with an analysis point specification - APACTV . . . 44
Outstanding events - EVENT . . . 47
Real Time Analysis (RTA) installed analysis and status definitions - RTAACTV 56
Example tasks: real-time analysis . . . 59
Switching system availability monitoring (SAM) on for a MAS . . . 59
Changing the default actions for system availability monitoring (SAM) . . . 60
Monitoring resources temporarily . . . 61
Monitoring resources permanently . . . 65
Reusing analysis specifications and analysis groups . . . 67
Monitoring a resource type in a single CICS system . . . 70
Monitoring a resource type throughout the CICSplex . . . 71
Monitoring multiple resource types in a CICS system group (1) . . . 73
Monitoring multiple resource types in a CICS system group (2) . . . 76
Updating analysis and evaluation definitions . . . 80
Deactivating an analysis definition . . . 81
Using data gathered by the resource monitoring function . . . 81
Issuing one notification for multiple conditions(1) . . . 83
Issuing one notification for multiple conditions (2) . . . 87
Modifying the state of a resource . . . 89
Finding out why a CICSPlex SM event occurred . . . 91

**Part 3. Resource monitoring** . . . 93

**Chapter 3. Resource monitoring** . . . 95
Preparing to monitor resources . . . 95
Defining resource monitoring attributes . . . 95
Activating resource monitoring . . . 97
Historical data . . . 98
Overriding resource monitoring attributes . . . 101
Understanding resource monitoring times . . . 101
Understanding resource monitoring statistics . . . 103
Resource monitoring definitions and their related views . . . 104
Default monitor definitions . . . 106
Using resource monitoring views . . . 107
Active monitor specifications - POLMON . . . 107
Monitor specifications - MONSPEC . . . 108
Monitor groups - MONGROUP . . . 110
Monitor definitions - MONDEF . . . 111
Monitor specifications to CICS system links - LNKSMSCS . . . 113
Monitor specifications to system group links - LNKSMSCG . . . 115
Monitor groups in monitor specifications - MONINSPC . . . 116
Monitor definitions in groups - MONINGRP . . . 116
History Views . . . 117
Recent - HTASK . . . 117
History collection - MASHIST . . . 154
Example tasks: resource monitoring . . . 156
Monitoring transaction response times . . . 156
Monitoring programs in multiple CICS systems . . . 159
Finding out which resources are being monitored in a CICS system . . . 161

**Part 4. Appendixes** . . . . . 163

**Appendix A. Customizing programs that monitor status** . . . . . 165
Creating a status program . . . . . 165
Assembler EYURPESC format . . . . . 165
C language EYURPESC format . . . . . 165
Explanation. . . . . 166
Installing a status program . . . . . 166
390 Assembler . . . . . 166
Defining a status definition to CICSPlex SM . . . . . 167

**Appendix B. Generic alert and resolution structures** . . . . . 169
The generic alert structure . . . . . 169
The resolution structure . . . . . 171

**Bibliography** . . . . . 173
The CICS Transaction Server for z/OS library . . . . . 173
The entitlement set . . . . . 173
PDF-only books . . . . . 173
Other CICS books . . . . . 175
Determining if a publication is current . . . . . 175

**Accessibility** . . . . . 177

**Index** . . . . . 179

**Notices** . . . . . 185

**Trademarks** . . . . . 187

# Preface

This book provides administration information for CICSPlex® System Manager for CICS® Transaction Server for z/OS®. It describes how to establish and maintain the CICSPlex SM definitions necessary to perform real-time analysis and resource monitoring.

## Who this book is for

This book is for the individual responsible for administering the CICS systems in your enterprise.

## What you need to know

It is assumed that you have read:

**CICSPlex System Manager User Interface Guide**
For information about using the ISPF user interface to CICSPlex SM.

**CICSPlex System Manager Concepts and Planning**
For an introduction to CICSPlex SM and the CICSPlex SM Starter Set.

**Note:** Many of the views in this book are based on the Starter Set. For useful examples of the definitions and programs described in this book, explore the Starter Set itself. The Starter Set is described in *CICS Transaction Server for z/OS Installation Guide*

## Notes on terminology

In the text of this book, the term **CICSPlex SM** (spelled with an uppercase letter 'P') means the IBM® CICSPlex System Manager element of CICS Transaction Server for z/OS The term **CICSplex** (spelled with a lowercase letter 'p') means the largest set of CICS systems to be managed by CICSPlex SM as a single entity.

Other terms used in this book are:

**CICS** The CICS element of the CICS Transaction Server for z/OS.

**MVS™** The operating system, which is a base element of z/OS.

The phrase *issue the command* is used in this book to mean that a command may be either typed in the COMMAND field of an Information Display panel or invoked by pressing the PF key to which it is assigned. When the location of the cursor affects command processing, this phrase also means that you can do one of the following:

- Type the command in the COMMAND field, place the cursor on the appropriate field, and press Enter.
- Move the cursor to the appropriate field and press the PF key to which the command is assigned.

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## Syntax notation and conventions used in this book

The syntax descriptions of the CICSPlex SM commands use the following symbols:

- Braces { } enclose two or more alternatives from which one must be chosen.
- Square brackets [ ] enclose one or more optional alternatives.
- The OR symbol | separates alternatives.

The following conventions also apply to CICSPlex SM syntax descriptions:

- Commands and keyword parameters are shown in uppercase characters. If a command or parameter may be abbreviated, the minimum permitted abbreviation is in uppercase characters; the remainder is shown in lowercase characters and may be omitted.
- Variable parameters are shown in lowercase characters. You must replace them with your own information.
- Parameters that are not enclosed by braces { } or brackets [ ] are required.
- A default parameter value is shown like this: KEYWORD. It is the value that is assumed if you do not select one of the optional values.
- Punctuation symbols, uppercase characters, and special characters must be coded exactly as shown.

  **Note:** A semicolon ; is shown as the command delimiter in examples using multiple commands. For information about using and changing the command delimiter, see the *CICSPlex SM User Interface Guide*.
- The ellipsis ... means that the immediately preceding parameter can be included one or more times.

## CICS system connectivity

This release of CICSPlex SM can be used to control CICS systems that are directly connected to it.

For this release of CICSPlex SM, the connectable CICS systems are:

- CICS Transaction Server for z/OS 3.1
- CICS Transaction Server for z/OS 2.3
- CICS Transaction Server for z/OS 2.2
- CICS Transaction Server for OS/390® 1.3

You can use this release of CICSPlex SM to control systems running supported releases of CICS that are connected to, and managed by, your previous release of CICSPlex SM. However, if you have any directly-connectable release levels of CICS, as listed above, that are connected to a previous release of CICSPlex SM, you are strongly recommended to migrate them to the current release of CICSPlex SM, to take full advantage of the enhanced management services. See the *CICS Transaction Server for z/OS Migration from CICS TS Version 2.3* for information on how to do this.

Table 1 on page ix shows which supported CICS systems can be directly connected to which releases of CICSPlex SM.

*Table 1. Directly-connectable CICS systems by CICSPlex SM release*

| CICS system | CICSPlex SM component of CICS TS 3.1 | CICSPlex SM component of CICS TS 2.3 | CICSPlex SM component of CICS TS 2.2 | CICSPlex SM component of CICS TS 1.3 |
|---|---|---|---|---|
| CICS TS 3.1 | Yes | No | No | No |
| CICS TS 2.3 | Yes | Yes | No | No |
| CICS TS 2.2 | Yes | Yes | Yes | No |
| CICS TS 1.3 | Yes | Yes | Yes | Yes |
| TXSeries 4.3.0.4 | No | Yes | Yes | No |
| TXSeries 5.0 | No | Yes | Yes | No |

# Summary of changes

This book is based on the CICSPlex SM for CICS Transaction Server for z/OS Version 3 Release 1 edition. It has been updated to incorporate changes made for CICSPlex SM for CICS Transaction Server for z/OS Version 3 Release 2

Changes made since the last edition are marked by vertical bars in the left margin.

## Changes for CICS Transaction Server for z/OS, Version 3 Release 2

For information about changes that have been made in CICS Transaction Server for z/OS, Version 3 Release 2, please refer to *What's New* in the information center, or the following publications:

- *CICS Transaction Server for z/OS Release Guide*
- *CICS Transaction Server for z/OS Migration from CICS TS Version 3.1*
- *CICS Transaction Server for z/OS Migration from CICS TS Version 2.3*
- *CICS Transaction Server for z/OS Migration from CICS TS Version 2.2*
- *CICS Transaction Server for z/OS Migration from CICS TS Version 1.3*

## Changes for CICSPlex SM for CICS Transaction Server for z/OS Version 3 Release 1

The following changes have been made to this book for CICS Transaction Server for z/OS Version 3 Release 1:

- Tables, tasks and examples have been updated or rewritten, where appropriate, to give greater prominence to the use of CICSPlex SM Web User Interface (WUI) views and menus. Reference information continues to be largely based on the TSO end user interface.

CICSPlex SM support for the CICS for Windows component of IBM TXSeries (also known as Windows NT 4.3 and Windows NT 5.0) is no longer provided in CICS Transaction Server for z/OS, Version 3 Release 2.

However, you can continue to use the CICS Transaction Server Version 2.3 or Version 2.2 for CICSPlex SM support of TXSeries.

## Changes for CICSPlex SM for CICS Transaction Server for z/OS, Version 2 Release 3

This edition contains no significant changes.

## Changes for CICSPlex SM for CICS Transaction Server for z/OS, Version 2 Release 2

The following changes have been made to this book for CICS Transaction Server for z/OS, Version 2 Release 2:

- The CICSPlex SM interface to the NetView Resource Object Data Manager (RODM) has been removed.

There has been a change in CICSPlex SM field naming conventions in this release. Data set name fields such as DSNAME, file name fields such as LOCFILE and

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REMFILE, and transient data queue name fields such as EXTRATDQ and INTRATDQ are now case-sensitive. When entering data set and file names into the CICSPlex SM interfaces (EUI, API and WUI), ensure that you enter the data in the correct case. In previous releases of CICSPlex SM, the data set names and file names are automatically converted to upper case.

## Changes for CICSPlex SM for CICS Transaction Server for z/OS, Version 2 Release 1

There are no changes to this book for CICS Transaction Server for z/OS, Version 2 Release 1.

## Changes for CICSPlex SM for CICS Transaction Server for OS/390, Version 1 Release 3

The following changes have been made to this book for CICS Transaction Server for OS/390, Version 1 Release 3.

- The information on using the end user interface has been removed from this book. For details, see the *CICSPlex SM User Interface Guide*.
- The information in Appendix A, "Customizing programs that monitor status," on page 165 has been expanded and clarified.

# Part 1. Introduction

This part provides an introduction to the real-time analysis and resource monitoring administration tasks described in the remainder of the book.

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# Chapter 1. Using real-time analysis and resource monitoring views

This section identifies the administration views that you can use to establish and maintain the real-time analysis, and resource monitoring activity at your enterprise.

## Views for managing real time analysis definitions

Table 2, Table 3, and Table 4 on page 5 show the views you can use to create and manage real time analysis administration definitions. They also indicate the information you can display and the actions you can perform using these views. To access these views from the Web User Interface (WUI) main menu, click **Administration views**. The resource monitoring view menus are listed under the heading **Real Time Analysis (RTA) views**.

*Table 2. Views to create and maintain RTA system availability monitoring*

| Views | Menu | Actions Supported |
|---|---|---|
| CICS system definitions - CSYSDEF | System availability monitoring | • Display, create, update, and remove a CICS system definition.<br>• Add the CICS system definition to a CICS system group. |
| "RTA specifications" on page 38 | System availability monitoring | • Display, create, remove, or update an analysis specification.<br>• Add an association between an analysis specification and a CICS system or CICS system group. |
| "Action definitions" on page 26 | System availability monitoring | • Display, create, update, and remove an action definition. |
| Time periods - PERIODEF (see *CICSPlex System Manager Administration*) | System availability monitoring | • Display, create, remove, or update a time period definition. |
| "RTA specifications to CICS system links" on page 36 | System availability monitoring | • Display, create or remove the association between an analysis specification and a CICS system. |
| "RTA specifications to CICS system group links" on page 37 | System availability monitoring | • Display, create or remove the association between an analysis specification and a CICS system group. |

*Table 3. Views to create and maintain RTA MAS resource monitoring*

| Views | Menu | Actions Supported |
|---|---|---|
| "RTA specifications" on page 38 | MAS resource monitoring | • Display, create, remove, or update an analysis specification.<br>• Add an association between an analysis specification and a CICS system or CICS system group. |

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*Table 3. Views to create and maintain RTA MAS resource monitoring (continued)*

| Views | Menu | Actions Supported |
|---|---|---|
| "RTA groups" on page 32 | MAS resource monitoring | • Display, create, update, remove or install an analysis group.<br>• Change the description of an analysis group.<br>• Add an association between an analysis group and an analysis specification.<br>• Install an analysis group in an analysis point specification or in a CICS system or CICS system group. |
| "RTA definitions" on page 29 | MAS resource monitoring | • Display, create, remove, update and install an analysis definition.<br>• Add an association between an analysis definition and an analysis group.<br>• Install an analysis definition in an analysis point specification or in a CICS system or CICS system group. |
| "Evaluation definitions" on page 27 | MAS resource monitoring | • Display, create, update, and remove an evaluation definition. |
| "Status probe definitions" on page 42 | MAS resource monitoring | • Display, create, remove, update or install a status definition.<br>• Add an association between a status definition and an analysis group.<br>• Install a status definition in a CICS system or CICS system group. |
| "Action definitions" on page 26 | MAS resource monitoring | • Display, create, update, and remove an action definition. |
| Time periods - PERIODEF (see *CICSPlex System Manager Administration*) | MAS resource monitoring | • Display, create, remove, or update a time period definition. |
| "RTA specifications to CICS system links" on page 36 | MAS resource monitoring | • Display, create or remove the association between an analysis specification and a CICS system. |
| "RTA specifications to CICS system group links" on page 37 | MAS resource monitoring | • Display, create or remove the association between an analysis specification and a CICS system group. |
| "RTA groups in RTA specifications" on page 36 | MAS resource monitoring | • Remove an association between an analysis specification and an analysis group. |
| "RTA definitions in RTA groups" on page 35 | MAS resource monitoring | • Update or remove the association between an analysis definition and an analysis group. |
| "Status definitions in RTA groups" on page 42 | MAS resource monitoring | • Update or remove the association between an status definition and an analysis group. |

*Table 4. Views to create and maintain RTA analysis point monitoring*

| Views | Menu | Actions Supported |
|---|---|---|
| "RTA analysis point specifications" on page 26 | Analysis point monitoring | • Display, create, update or remove an analysis point specification.<br>• Add an association between an analysis point specification and a primary CMAS.<br>• Add an association between an analysis point specification and a secondary CMAS. |
| "RTA groups" on page 32 | Analysis point monitoring | • Display, create, update, remove or install an analysis group.<br>• Change the description of an analysis group.<br>• Add an association between an analysis group and an analysis specification.<br>• Install an analysis group in an analysis point specification or in a CICS system or CICS system group. |
| "RTA definitions" on page 29 | Analysis point monitoring | • Display, create, remove, update and install an analysis definition.<br>• Add an association between an analysis definition and an analysis group.<br>• Install an analysis definition in an analysis point specification or in a CICS system or CICS system group. |
| "Evaluation definitions" on page 27 | Analysis point monitoring | • Display, create, update, and remove an evaluation definition. |
| "Action definitions" on page 26 | Analysis point monitoring | • Display, create, update, and remove an action definition. |
| Time periods - PERIODEF (see *CICSPlex System Manager Administration*) | Analysis point monitoring | • Display, create, remove, or update a time period definition. |
| "Primary CMAS analysis point specifications" on page 26 | Analysis point monitoring | • Remove an analysis point specification and CMAS association. |
| "Secondary CMAS analysis point specifications" on page 26 | Analysis point monitoring | • Remove an association between an analysis group and an analysis point specification. |
| "RTA group in analysis point specifications" on page 34 | Analysis point monitoring | • Update or remove the association between an analysis or status definition and an analysis group. |
| "Status definitions in RTA groups" on page 42 | Analysis point monitoring | • Update or remove a status definition. |

## Views for managing the RTA environment

When a CICS system is active, you can use the views identified in Table 5 on page 6 to display information about and control their use of real-time analysis. To access these view from Web User Interface main menu, click **Real Time Analysis (RTA) views**.

For a detailed description of the WUI views, see “Real Time Analysis (RTA) views” on page 44.

**Note:** When you discard or deactivate an administration definition, it is removed from the active CICS system. It is not removed from the data repository. Thus, the next time the CICS system starts or the appropriate time period is reached, the definition is available for use.

*Table 5. Views to manage the real-time analysis environment*

| Views | Menu | Actions supported |
|---|---|---|
| “Installed analysis definitions associated with an analysis point specification - APACTV” on page 44 | Real Time Analysis (RTA) views | • Display information about analysis definitions associated with an analysis point specification.<br>• Deactivate or discard installed analysis definitions. |
| “Outstanding events - EVENT” on page 47 | Real Time Analysis (RTA) views | • Display information about outstanding changes in the status of a CICSplex or one of its CICS systems. |
| “Real Time Analysis (RTA) installed analysis and status definitions - RTAACTV” on page 56 | Real Time Analysis (RTA) views | • Display information about the analysis and status definitions associated with active CICS systems.<br>• Deactivate or discard an analysis or status definition. |

## Views for managing resource monitoring administrative definitions

Table 6 shows the views you can use to create resource monitoring administration definitions. The views are grouped by CICSPlex SM function. They also indicate the information you can display and the actions you can perform using these views. To access these views in the Web User Interface (WUI), click **Administration views > Monitor administration views**.

*Table 6. Views to create and maintain resource monitoring administration definitions*

| WUI view name | Menu | Actions supported |
|---|---|---|
| Definitions (“Monitor definitions - MONDEF” on page 111) | Monitor administration views | • Display, create, remove, or change a monitor definition.<br>• Add an association between a monitor definition and a monitor group.<br>• Install a monitor definition into a CICS system or CICS system group. |
| Groups (“Monitor groups - MONGROUP” on page 110) | Monitor administration views | • Display, create or remove a monitor group definition.<br>• Change the description of a monitor group.<br>• Add an association between a monitor group and a monitor specification.<br>• Install monitor definitions associated with the monitor group into a CICS system or CICS system group.<br>• Replace all installed monitor definitions with those associated with a monitor group. |

*Table 6. Views to create and maintain resource monitoring administration definitions (continued)*

| WUI view name | Menu | Actions supported |
|---|---|---|
| Definitions on groups (“Monitor definitions in groups - MONINGRP” on page 116) | Monitor administration views | • Add or remove a monitor definition to monitor group association.<br>• Change the time period associated with a monitor definition. |
| Specifications (“Monitor specifications - MONSPEC” on page 108) | Monitor administration views | • Create, display, remove, or update a monitor specification.<br>• Add an association between a monitor specification and a CICS system or CICS system group. |
| Monitor groups in monitor specifications (“Monitor groups in monitor specifications - MONINSPC” on page 116) | Monitor administration views | • Add and remove a monitor group to monitor specification association. |
| Specifications to system links (“Monitor specifications to CICS system links - LNKSMSCS” on page 113) | Monitor administration views | • Add and remove the association between a monitor specification and a CICS system. |
| “Monitor specifications to system group links - LNKSMSCG” on page 115 | Monitor administration views | • Add and remove the association between a monitor specification and a CICS system group. |

To display information about and control the use of resource monitoring, you can use the **Active monitor specifications** view identified in Table 7. To access this and other resource monitoring views, click **Monitoring views** on the WUI main menu.

**Note:** When you discard or deactivate an administration definition, it is removed from the active CICS system. It is not removed from the data repository. Thus, the next time the CICS system starts or the appropriate time period is reached, the definition is available for use.

*Table 7. Views to manage resource monitoring administration definitions*

| WUI view name | Menu | Actions supported |
|---|---|---|
| “Active monitor specifications - POLMON” on page 107 | Monitoring views | • Display information about monitor definitions installed in CICS systems known to the CICSplex identified as the context.<br>• Deactivate or discard an installed monitor definition. |

# Part 2. Real-time analysis

This part describes the CICSPlex SM real-time analysis facilities and the views you can use to analyze the activity in a CICSplex. It also includes sample tasks to help you establish real-time analysis at your enterprise.

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# Chapter 2. Real-time analysis

This part describes the CICSPlex SM real-time analysis facilities and the views you can use to analyze the activity in a CICSplex. It also includes sample tasks to help you establish real-time analysis at your enterprise.

## Preparing to perform real-time analysis

This section describes how you can use CICSPlex SM to analyze the status of one or more CICS systems and the resource information gathered about those systems. Based on its analysis, you can have CICSPlex SM generate external notifications when a condition occurs that you want to know about. In addition, you can have CICSPlex SM modify the attributes of a resource when it is not in the desired state.

The real-time analysis (RTA) component of CICSPlex SM performs the following types of monitoring and analysis:

**System availability monitoring (SAM)**
: You can be notified when a CICS system is not active during its expected hours of operation. While a CICS system is active, you can also be notified if any of a variety of predefined conditions occur that could affect the systems performance.

**MAS resource monitoring (MRM)**
: You can be notified when CICS resources being monitored at the CICS system level meet the criteria that you establish. You can also request to be notified when the status of a user-written program meets your criteria.

**Analysis point monitoring (APM)**
: You can be notified when CICS resources being monitored at the CICSplex level meet your criteria.

The notification you receive can be in the form of:

- A record in the CICSPlex SM EVENT view.
- An external MVS/ESA WTO message.
- An SNA generic alert transmitted to a NetView® system.

**Note:** You can also use the real-time analysis functions to produce data that will help in the selection of a target region during workload management. See the example tasks Using real-time analysis to select a target region for workload balancing in *CICSPlex SM Managing Workloads* for more information.

## Defining real-time analysis attributes

In order for CICSPlex SM to analyze information about CICS systems and the CICS resources being used by those systems, you must create analysis specifications, groups, and definitions.

- An *analysis specification* associates groups of analysis definitions with a CICS system or CICS system group. Analysis specifications are used for MAS resource monitoring. They can also be used to alter the default system availability monitoring values.
- An *analysis point specification* identifies one or more CMASs involved in managing a CICSplex that is to be analyzed. Analysis point specifications are used for analysis point monitoring.

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- An *analysis group* identifies the analysis definitions and status definitions that are to be associated with an analysis or analysis point specification.
- An *analysis definition* identifies the associated evaluation and action definitions.
  - *Evaluation definitions* identify the resources to be sampled, the criteria to be used in analyzing them, and, optionally, any modifications to be performed.
  - *Action definitions* identify what is to happen if a notifiable condition occurs.
- A *status definition* identifies user-written programs that are to be evaluated at specific intervals.

**Note:** You can create real-time analysis definitions to be installed in multiple CICSPlex SM managed CICS systems regardless of the version of the CICS system. CICSPlex SM will determine at installation time whether the resources specified in the definitions are supported by the target system. If not, CICSPlex SM issues a warning message indicating that the definition cannot be installed because the resource is not supported. This message does not require any corrective action.

## System availability monitoring

With system availability monitoring (SAM), you can be notified if a CICS system is not active at any point during its expected hours of operation. You can also be notified if any of the following conditions should start or stop:

- One or more CICS/ESA dynamic storage areas become short on storage (SOS).
- A CICS/ESA system dump (SYSDUMP) is taken. For CICS/ESA 3.3 or later, this condition indicates that an MVS SVC dump has been requested.
- A CICS/ESA transaction dump (TRANDUMP) is taken.
- The CICS system has reached the maximum number of tasks (MAXTASK) it is allowed at any one time.
- One or more resources have impacted the processing of a CICS/ESA application (STALL).

  A STALL condition occurs when resource contention impacts the processing of application tasks. Parameters you specify in the MAS startup JCL determine when a CICSPlex SM STALL message is issued. You can set the parameters conservatively, so that you receive notification while the system is still functioning, even though resource contention is having a serious impact.

  Resolution of a STALL condition may prevent a more serious situation (such as an SOS or MAXTASK) from occurring. For example, a lack of temporary storage could prevent a task from completing and trigger a STALL condition.

  For more information about the STALL parameters and a list of possible stall conditions, see CICSPlex SM system parameters in the *CICS Transaction Server for z/OS Installation Guide*. For more information about CICS/ESA suspend classes, see the *CICS/ESA Problem Determination Guide*.

If the CICS system becomes unavailable, or if one of the above conditions occurs, a severity level is assigned and the appropriate CICSPlex SM messages are issued. These messages, which are prefixed with EYUPN, are described in the *CICSPlex System Manager Messages and Codes* book.

### Default notification values

This section describes the default severity levels and actions associated with each condition for which system availability monitoring produces a notification.

**System unavailable**

**Event** Yes

**Event Severity**
VHS (very high severe)

**Event View**
n/a

**Priority**
255

**Event Text**
Currently unavailable

**External Message**
Yes

**Enter Text**
Currently unavailable

**Exit Text**
Currently Available

**Alert** No

**Enter Text**
Currently unavailable

**Exit Text**
Currently Available

**Short on storage (SOS)**

**Event** Yes

**Event Severity**
HS (high severe)

**Event View**
CICSDSA

**Priority**
255

**Event Text**
`dsname` SOS at `hh:mm:ss`

**External Message**
Yes

**Enter Text**
`dsname` SOS at `hh:mm:ss`

**Exit Text**
`dsname` SOS at `hh:mm:ss`

**Alert** No

**Enter Text**
`dsname` SOS at `hh:mm:ss`

**Exit Text**
`dsname` SOS at `hh:mm:ss`

**System dumps (SYSDUMP)**

**Event** Yes

**Event Severity**
VHS (very high severe)

**Event View**
SYSDUMP

**Priority**
255

**Event Text**
ID=dumpid tranid userid termid

**External Message**
Yes

**Enter Text**
ID=dumpid tranid userid termid

**Exit Text**
ID=dumpid tranid userid termid

**Alert** No

**Enter Text**
ID=dumpid tranid userid termid

**Exit Text**
ID=dumpid tranid userid termid

**Transaction dumps (TRANDUMP)**

**Event** Yes

**Event Severity**
HW (high warning)

**Event View**
TRANDUMP

**Priority**
128

**Event Text**
ID=dumpid tranid userid termid

**External Message**
Yes

**Enter Text**
ID=dumpid tranid userid termid

**Exit Text**
ID=dumpid tranid userid termid

**Alert** No

**Enter Text**
ID=dumpid tranid userid termid

**Exit Text**
ID=dumpid tranid userid termid

**Maximum number of tasks (MAXTASK)**

**Event** Yes

**Event Severity**
HS (high severe)

**Event View**
TASK

**Priority**
255

**Event Text**
MAXTASK at hh:mm:ss

**External Message**
Yes

**Enter Text**
MAXTASK at hh:mm:ss

**Exit Text**
MAXTASK at hh:mm:ss

**Alert** No

**Enter Text**
MAXTASK at hh:mm:ss

**Exit Text**
MAXTASK at hh:mm:ss

**System busy (STALL)**

**Event** Yes

**Event Severity**
VHS (very high severe)

**Event View**
TASK

**Priority**
255

**Event Text**
type STALLED at hh:mm:ss

**External Message**
Yes

**Enter Text**
type STALLED at hh:mm:ss

**Exit Text**
type STALLED at hh:mm:ss

**Alert** No

**Enter Text**
type STALLED at hh:mm:ss

**Exit Text**
type STALLED at hh:mm:ss

## Activating system availability monitoring

Depending on the level of system availability monitoring you want to activate, you can perform either or both of the following actions:

- To monitor system activity, use the **CICS system definition** view. To open this view from the main menu click **Administration views > System availability**

**monitoring administration views > CICS system definitions** This view allows you to change permanently the CICSPlex SM definition of the CICS system. You need to identify:

  – The primary CMAS. This is the CMAS that is assigned the task of monitoring the availability of the CICS system. (For additional information, see “Identifying primary CMASs” on page 20.)

  – The time period definition that identifies the hours during which you expect the CICS system to be running.

- To monitor a CICS system for the predefined conditions, use the **CICS system definition** detailed view to set the **Real time analysis status** field to either SAM or YES.

If any of the severity levels or actions shown in “Default notification values” on page 12 is not appropriate for your use, you can change it for a specific CICS system using the CICSSYS or MAS view. If you want the new default to apply to multiple CICS systems, you can, instead, modify the analysis specification with which the CICS systems are associated.

As illustrated in the example shown in Figure 1, you can implement system availability monitoring by simply modifying the appropriate CICSPlex SM definition of a CICS system.

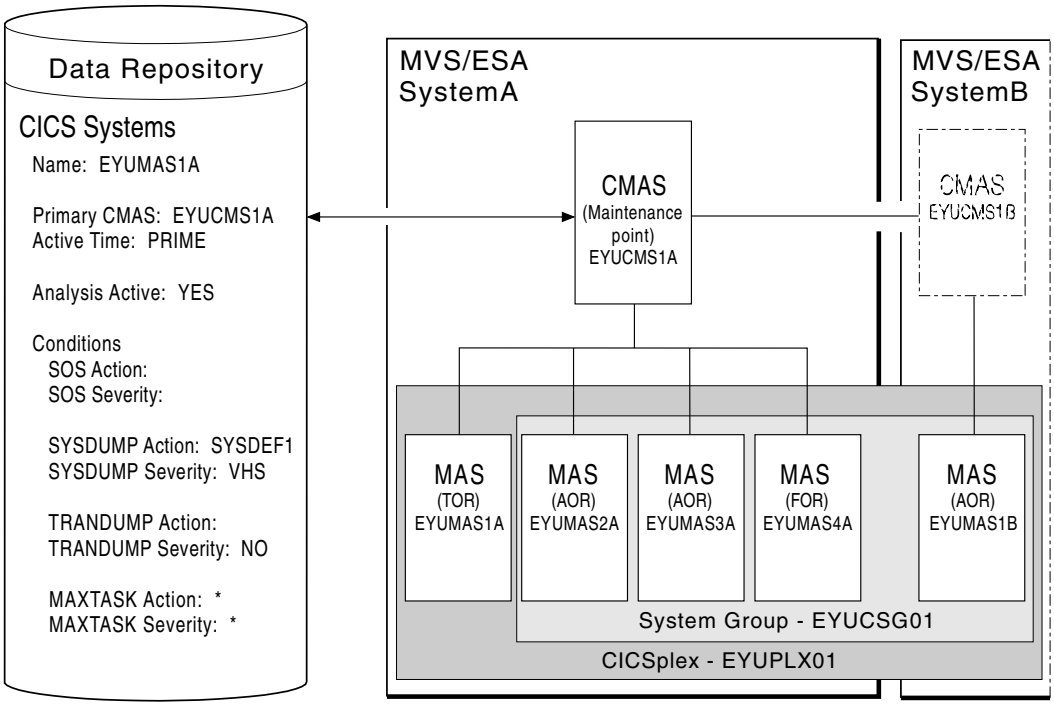



*Figure 1. System availability monitoring*

In this example, the definition of the CICS system named EYUMAS1A shows that:

- System activity monitoring is to occur because a primary CMAS (EYUCMS1A) and a time period definition (PRIME) are identified.
- Monitoring of predefined conditions is to occur because the Analysis Active field is set to YES.
- If the predefined condition short-on-storage (SOS) occurs, the default action and severity level are to be used.

This example also illustrates how other predefined conditions might be handled:

- For system dumps (SYSDUMP), the severity level is to be set to VHS (very high severe) and an action identified as SYSDEF1 is to be performed.
- For transaction dumps (TRANDUMP), no action is to be taken and no severity level is to be set.

## MAS resource monitoring

With MAS resource monitoring (MRM), you can analyze the current status of:

- Resources.

  You can use CICSPlex SM to sample and evaluate specific resource occurrences against criteria that you define. You can also control the action taken when the criteria is met.

  When analyzing a resource occurrence, CICSPlex SM resource monitoring does not have to be active. CICSPlex SM internally generates any needed monitor definitions based on the sample interval specified in the associated evaluation definitions.

- One or more user-written programs.

  You can also use MAS resource monitoring to identify one or more programs in use within your enterprise that are to be called on a regular basis to evaluate specific conditions.

  These programs must be written to respond to a CICSPlex SM status reporting call, where the programs return a value indicating their current status. For more information, see Appendix A, “Customizing programs that monitor status,” on page 165.

To use MAS resource monitoring, you need to establish analysis definitions, analysis groups, and analysis specifications.

Figure 2 on page 18 illustrates the type of definitions you need in order to be notified if a specific condition should occur.

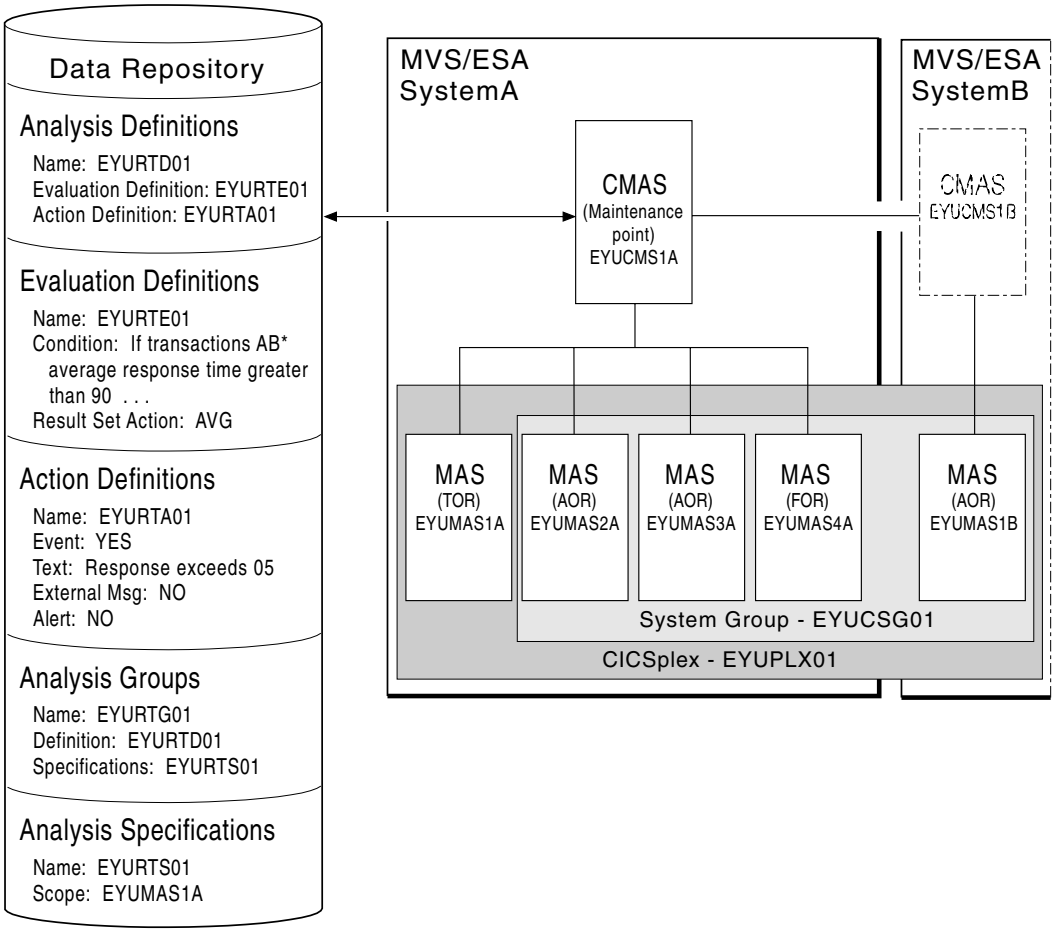



*Figure 2. MAS resource monitoring (MRM)*

In this illustration, all transactions starting with AB are to be evaluated. If the average response time of these transactions should be greater than 90 seconds, a CICSPlex SM event is to be generated and a record is added to the EVENT view.

## Analysis point monitoring

When you are using MAS resource monitoring to monitor multiple CICS systems and the same condition occurs in those systems, notification is generated for each system. There may be certain conditions, however, for which you do not want multiple notifications to be generated.

By using analysis point monitoring (APM), you can evaluate the resources being monitored in one or more CICS systems within a CICSplex and be notified when a condition meets your specified criteria. Should a condition then occur in multiple systems, a single notification message is generated for the CICSplex.

To use the analysis point monitoring facility, you must define analysis point specifications, analysis groups, and analysis definitions. Note that you can use the same analysis groups and analysis definitions with both analysis point monitoring and MAS resource monitoring.

Although you would probably not use analysis point monitoring and MAS resource monitoring to perform the same type of resource analysis, Figure 3 on page 19

illustrates that changing the analysis specification to an analysis point specification is all that is required to change the preceding example of MAS resource monitoring to analysis point monitoring.

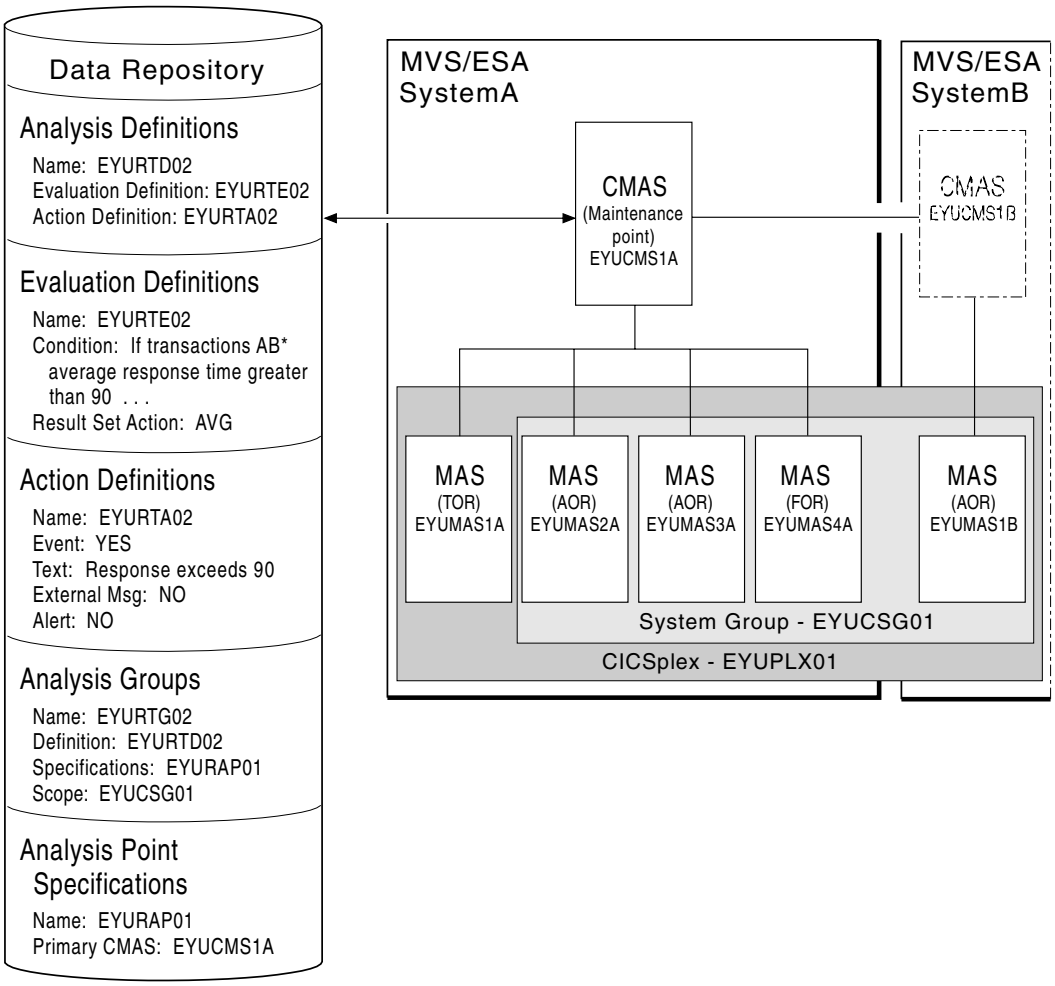



*Figure 3. Analysis point monitoring (APM)*

## Setting intervals and controlling oscillations

Information about the resources you are analyzing is gathered at specific intervals that are set when you create an evaluation definition.

You can set very short evaluation intervals, frequently updating your picture of the status of a system or program, or longer intervals, smoothing out your picture of the status of the system or program.

Although short intervals might give you a clearer picture of the dynamics of the attributes you are tracking, they consume more processor time than less frequent intervals. Depending on the condition being evaluated, however, you might want to have short intervals to ensure you are notified every time a given condition should occur. For example, you might want to be notified whenever a specific connection is out of service.

In other cases, you may receive an excessive number of notifications about nonrecurring conditions when using a short interval. To prevent this from happening, CICSPlex SM uses entry and exit intervals to even out rapid activity oscillations, where:

- Entry intervals define the number of consecutive times a condition must be true before notification occurs. That is, if a condition is not true the specified number of times, no notification is generated.
- Exit intervals define the number of times, following the resolution of a condition, that the condition must be false before the notification is removed. That is, once notification is generated, it remains active until the condition causing the notification has disappeared for a specific number of intervals.

For example, assume that a condition with a severity of HW (high warning) occurs. In order for this condition to cause notification to occur, you decide that the condition must remain true for two consecutive intervals. And the notification must remain in effect until the condition has been false for three consecutive intervals. Notice that the entry and exit intervals need not be the same.

## Identifying primary CMASs

You must identify a primary CMAS:

- To enable system availability monitoring.

  To do this, you must change the CICS system definition to identify the CMAS to which the CICS system normally connects. This primary CMAS is used to assist in balancing real-time analysis processing. That is, when the first CMAS involved in managing a CICSplex is started, it monitors all CICS systems comprising the CICSplex. As subsequent CMASs start, they begin monitoring the systems for which they are the primary CMAS. Over time, this helps to balance monitoring across all of the CMASs involved in the CICSplex.
- To enable analysis point monitoring.

  To do this, you can identify a primary CMAS and one or more secondary CMASs.
  - The existence of an analysis point specification causes analysis point processing to be activated when the CMAS identified as its primary CMAS is started.

    When you identify one primary CMAS, all CICSplex-level processing occurs within that CMAS. As an alternative, you can partition the CICSplex at the CMAS level. That is, each CMAS participating in the management of a CICSplex may process one or more analysis point specifications. This mode of operation allows greater flexibility when managing a CICSplex being managed by multiple CMASs. Note that this partitioning does not preclude any CMAS from acting on CICS systems attached to other CMASs.
  - Optionally, you can associate the analysis point specification with one or more secondary CMASs. This identifies the CMAS that is to take over if the primary CMAS becomes unavailable. When the primary CMAS is inactive, the active secondary CMAS with the lowest alphabetical SYSID will take control of the analysis point specification.

## Modifying resources with real-time analysis

In addition to analyzing and reporting the status of CICS resources, CICSPlex SM can also modify the attributes of a resource. You can tell the real-time analysis component what modifications to perform when it determines that a resource is not in the desired state.

To have real-time analysis modify a resource, you must:

1. Define the resource attributes you want to modify and their desired values in an evaluation definition (EVALDEF), as described in “Creating an evaluation definition” on page 29.
2. Tell real-time analysis to perform the modifications when the evaluation condition becomes true in an analysis definition (RTADEF), as described in “Creating an analysis point specification” on page 26.

real-time analysis performs any resource modifications that you request in addition to generating the usual external notifications for a condition. So when a notifiable condition occurs, you can have real-time analysis simply tell you about the condition, or tell you and attempt to correct it by modifying the affected resource.

**Note:** Using real-time analysis to modify resources is most effective for evaluations that involve a single operational value, such as ENABLED/DISABLED or OPEN/CLOSED. For evaluations that involve resource thresholds, you cannot specify different modifications for different severity levels.

## Real-time analysis definitions and their related views

You can use the real-time analysis administration views to define a variety of real-time analysis attributes. See Table 2 on page 3, Table 3 on page 3, and Table 4 on page 5 for a list of the WUI views. In addition to the views shown here, you can use the views described in Table 5 on page 6 to display information about and manage the real-time analysis activity in an active CICS system. You can also display a visual map of your real-time analysis definitions by using the **Map** button.

Figure 4 on page 22 shows the relationship between the views used for administration of real-time analysis.(The WUI view set names are followed by the object names in parentheses.)

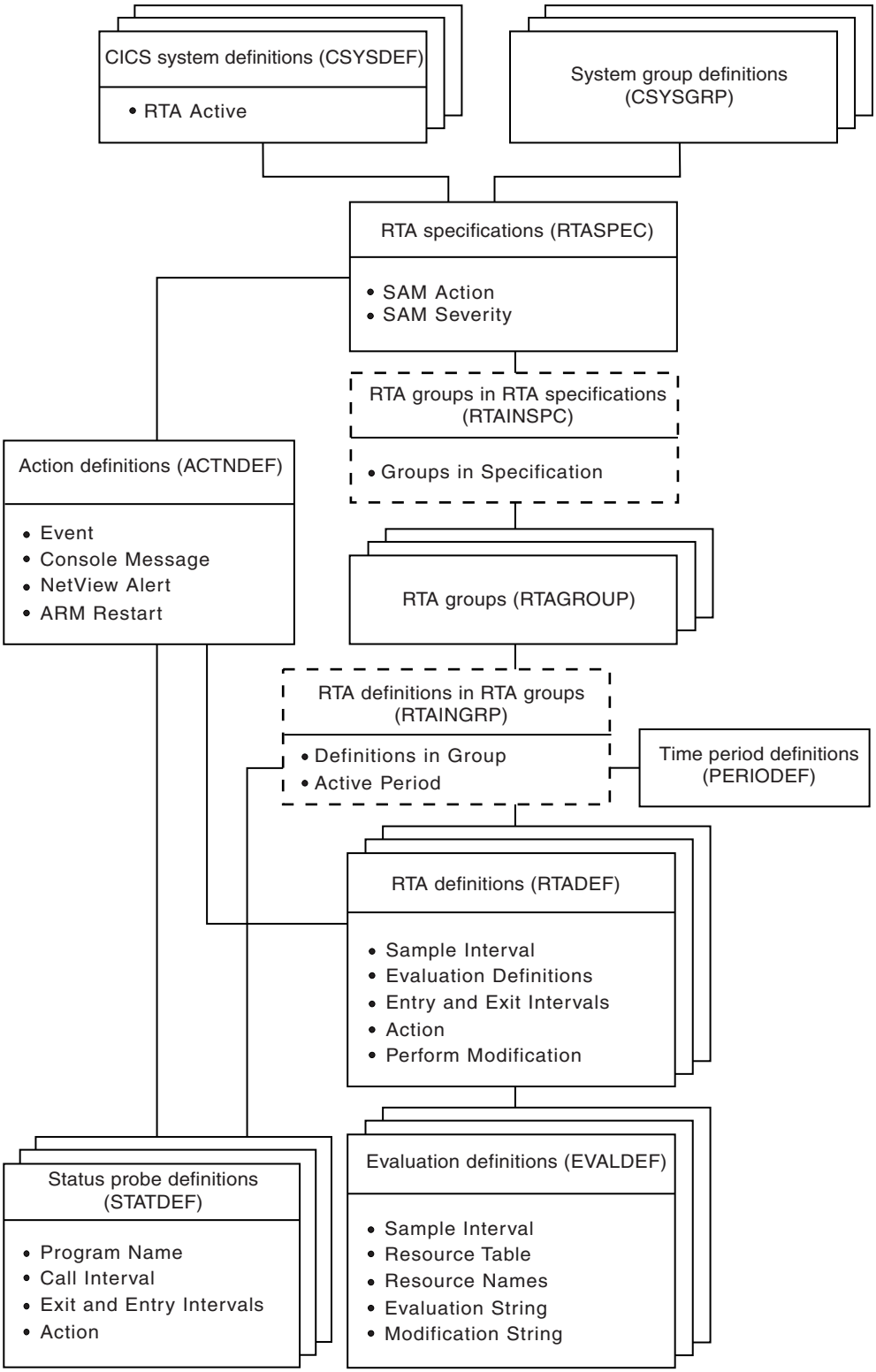



*Figure 4. Views for creating real-time analysis objects and associations*

Figure 5 on page 23 illustrates the relationship between system availability monitoring (SAM) and the views used to establish that type of real-time analysis in a CICSplex (object names are in parentheses). In this case, the **CICS system**

**definition** (CICSSYS) view is used to change the CICS system definition. The **RTA specification** (RTASPEC) view and **Link RTA specification to CICS system** and **Link RTA specification to CICS system group** (RTASCOPE) views are used to allow multiple CICS systems to use customized action definitions, severity levels, or both.

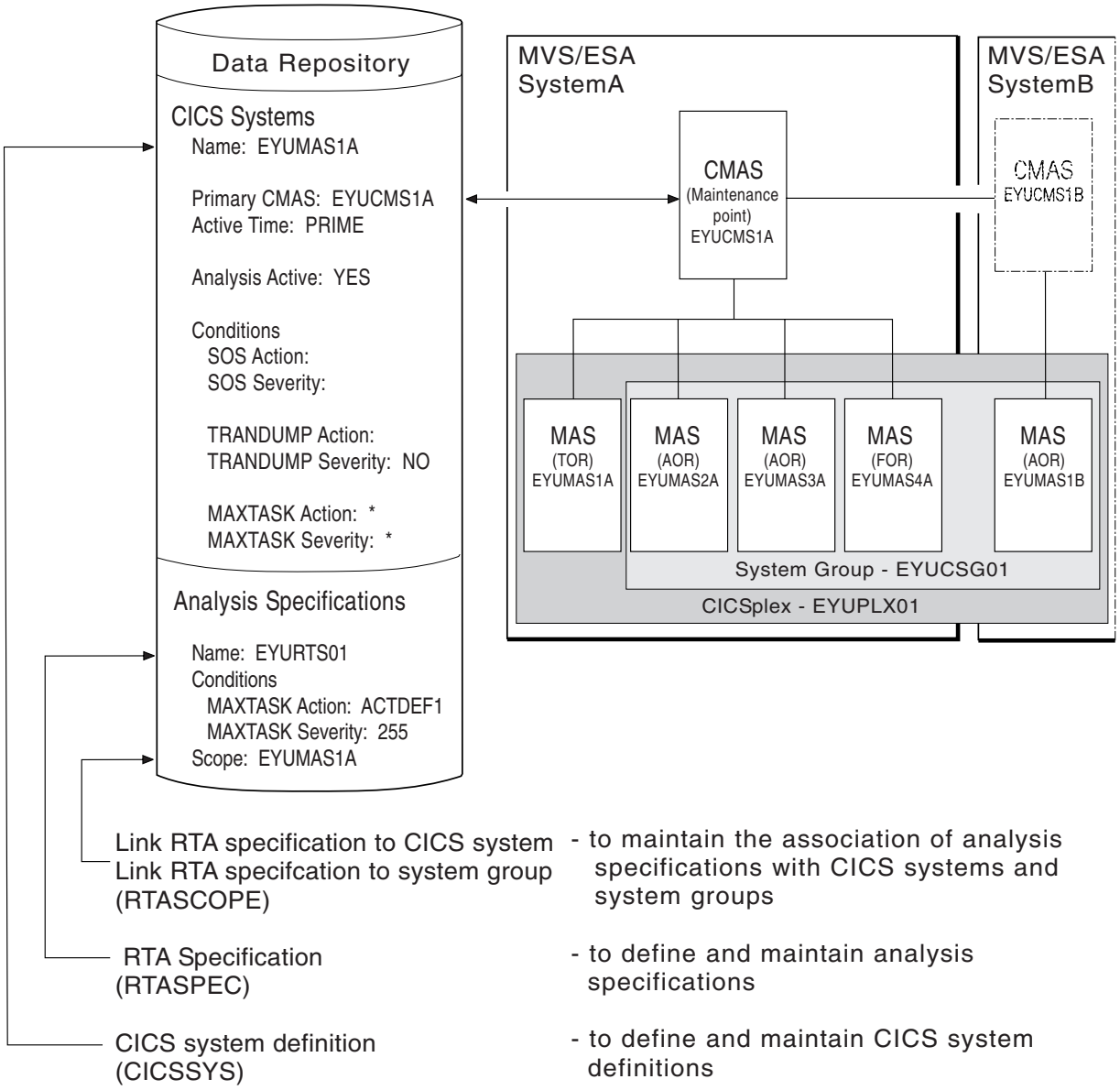



*Figure 5. The relationship between SAM, the* **CICS system definition** *(CICSSYS) view, and the real-time analysis views*

Figure 6 on page 24 illustrates the relationship between MAS resource monitoring (MRM) and the WUI views used to establish that type of real-time analysis (object names are in parentheses).

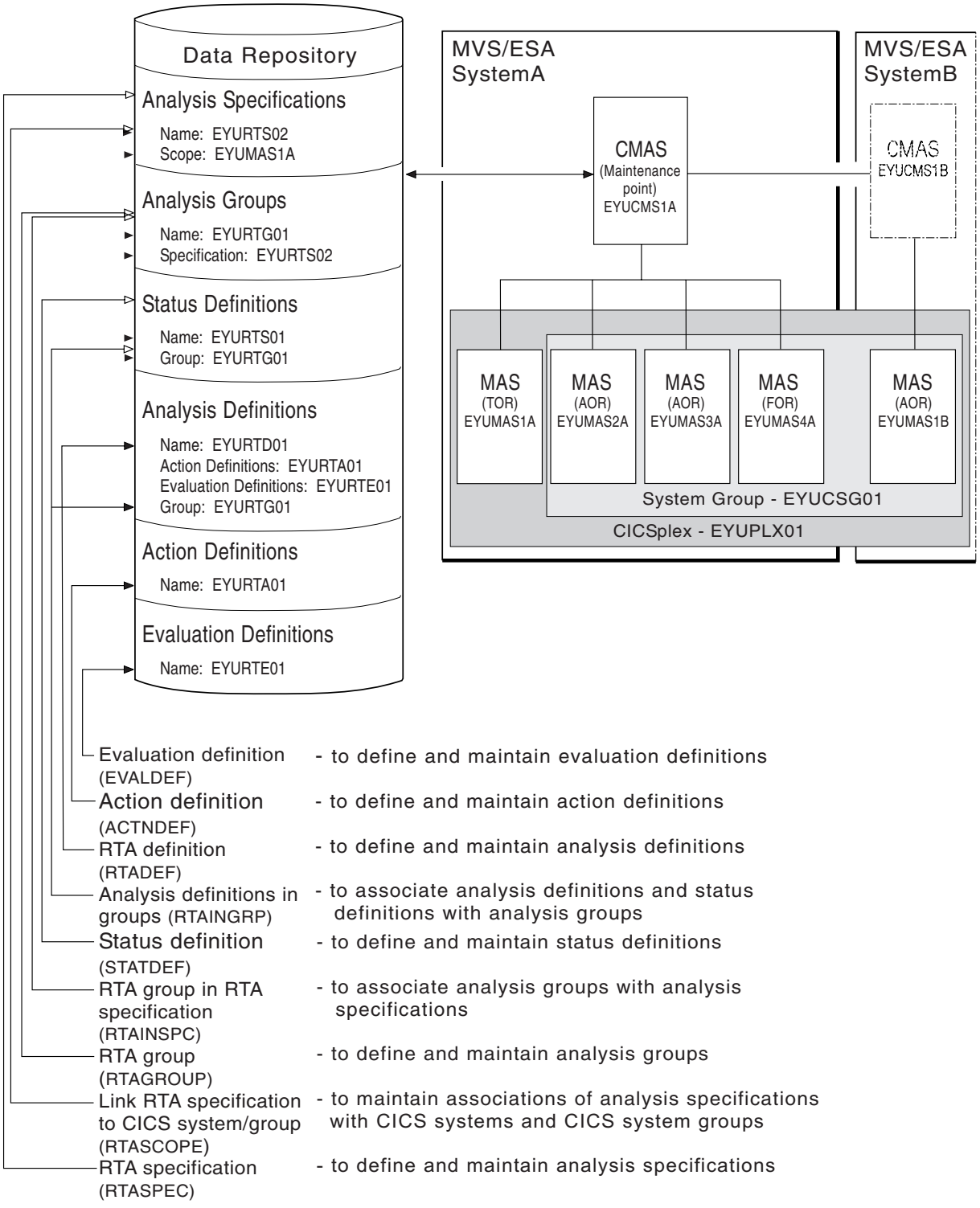



*Figure 6. The relationship between MRM and the real-time analysis views*

Figure 7 on page 25 illustrates the relationship between analysis point monitoring (APM) and the WUI views used to establish that type of real-time analysis (object names are in parentheses).

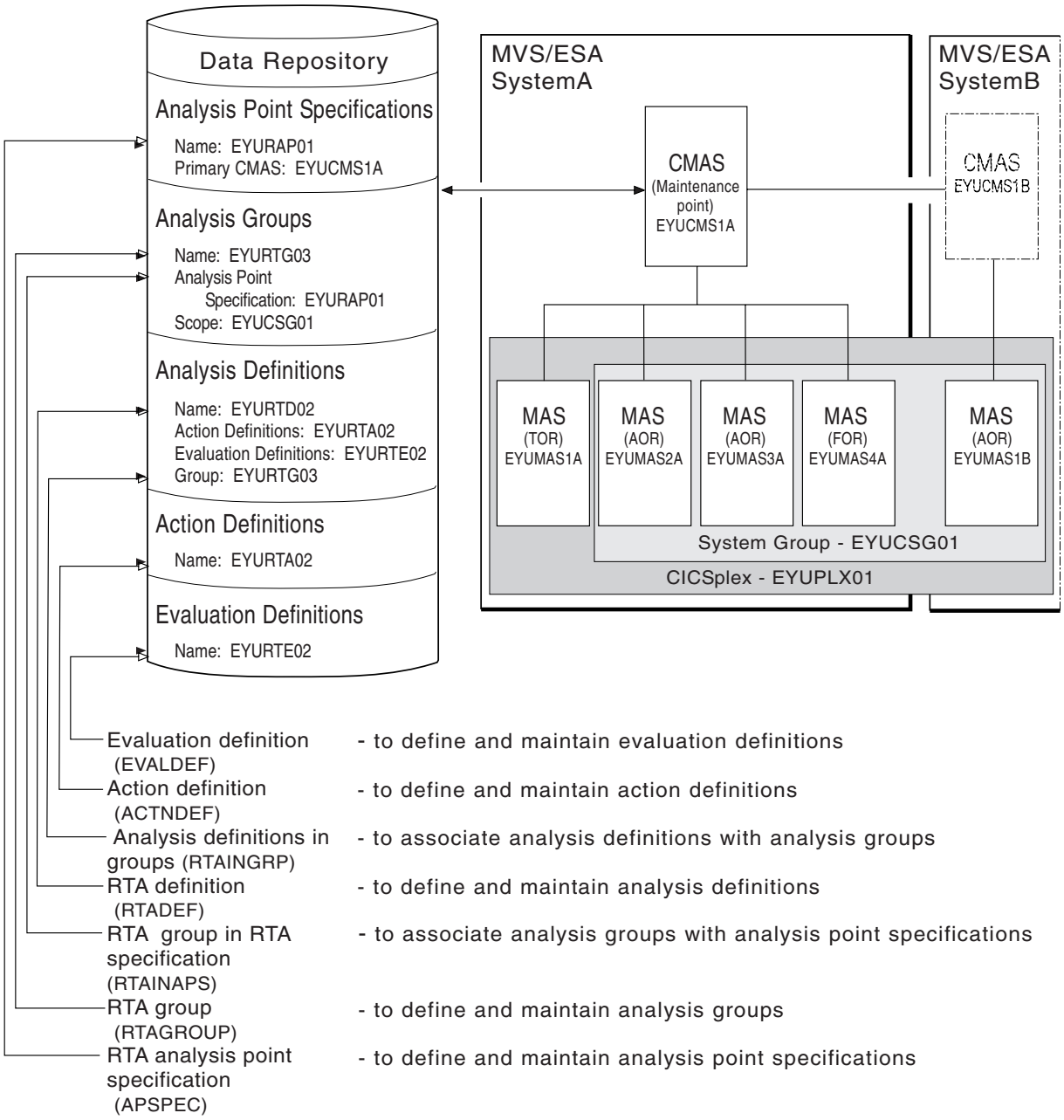



*Figure 7. The relationship between APM and the real-time analysis views*

## Working with real-time analysis administration views

This section contains descriptions of tasks used to create and maintain real-time analysis definitions.

For detailed descriptions of these views see CICS Transaction Server for z/OS CICSPlex SM Administration, in the *CICSPlex System Manager Administration*

**Note:** Unless noted otherwise, only the context setting is recognized when you are creating and maintaining real-time analysis definitions. For information about

setting the context, see 'Setting the context and scope' in the *CICSPlex System Manager Web User Interface Guide*.

## Action definitions

An action definition designates the type of external notification that is to occur when the condition or conditions identified in an analysis definition are true. Examples of how to use this view can be found in “Example tasks: real-time analysis” on page 59.

### Creating an action definition

To create an evaluation definition:

- From the main menu, click **Administration views > RTA system availability monitoring**.
- From the **RTA system availability monitoring** menu, click **Actions**.
- On the **Action definitions** tabular view (ACTION object), click the **Create...** button. To base the new definition on an existing one, click the Record check box before clicking the **Create...** button. The **Action definitions** create view is displayed.
- When you have completed the fields, click the **Yes** button to create the definition. Otherwise, click **No** to abandon the process.

## Primary CMAS analysis point specifications

During real-time analysis initialization, the association between analysis point specifications and primary CMASs is used to determine which specification should be installed within the CMAS in which real-time analysis is activated.

## Secondary CMAS analysis point specifications

During real-time analysis initialization, the association between analysis point specifications and CMASs is used to determine which specification should be installed within the CMAS in which real-time analysis is activated. Control of the analysis definitions associated with the analysis point specification are to be passed to a secondary CMAS only when the primary CMAS is unavailable.

## RTA analysis point specifications

The **RTA analysis point specifications** (APSPEC) views display information about RTA analysis point specifications. An analysis point specification identifies one or more CMASs that are to be responsible for analyzing CICS systems within the CICSplex identified as the context. An example of how to use this view can be found in “Issuing one notification for multiple conditions(1)” on page 83.

### Creating an analysis point specification

To create an evaluation definition:

- From the main menu, click **Administration views > RTA analysis point monitoring**.
- From the **RTA analysis point monitoring** menu, click **Analysis point specifications**.

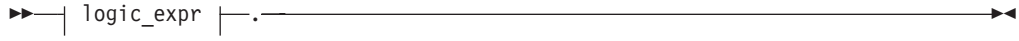
- On the **Analysis point specifications** tabular view (APSPEC object), click the **Create...** button. To base the new definition on an existing one, click the Record check box before clicking the **Create...** button. The **Analysis point specifications** create view is displayed.
- When you have completed the fields, click the **Yes** button to create the specification. Otherwise, click **No** to abandon the process.

# Evaluation definitions

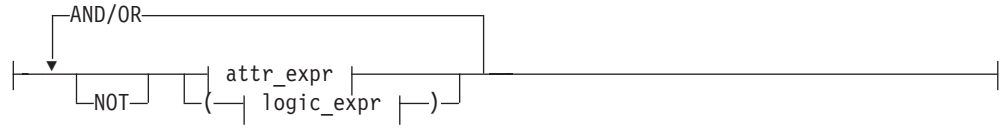
The **Evaluation definitions** views (EVALDEF objects) display information about the resources in CICS systems that are to be sampled and evaluated. For more information about the resources displayed in **Evaluation definitions** views (EVALDEF objects), see the *CICSPlex System Manager Resource Tables Reference*. When the result of the evaluation is true, an associated analysis definition is used to determine if a notifiable condition has occurred. Examples of how to use this view can be found in “Example tasks: real-time analysis” on page 59.

## Filter expressions in evaluation definitions

A filter expression can be made up of one or more attribute expressions in the form:




**logic_expr:**




**attr_expr:**

where:

**attr** Is the name of an attribute in the resource table. You can name the same attribute more than once in a filter expression.

**oper** Is one of the following comparison operators:

- **<** Less than
- **<=** Less than or equal to
- **=** Equal to
- **>=** Greater than or equal to
- **>** Greater than
- **¬=** Not equal to

**value** Is the value for which the attribute is being tested. The value must be a valid one for the attribute. The value must be a valid output value if the attribute is a CVDA datatype.

If the attribute accepts character data, this value can be a generic. Generic values can contain:

- An asterisk (*), to represent any number of characters, including zero. The asterisk must be the last or only character in the specified value. For example:

  ```
  TRANID=PAY*
  ```

- A plus sign (+), to represent a single character. A + can appear in one or more positions in the specified value. For example:

  ```
  TRANID=PAY++96
  ```

If the value contains imbedded blanks or special characters (such as periods, commas, or equal signs), the entire value string must be enclosed in single quotes. For example:

```
TERMID='Z AB'
```

To include a single quote or apostrophe in a value, you must repeat the character, like this:

```
DESCRIPTION='October''s Payroll'
```

**AND/OR**
Combines attribute expressions into compound logic expressions using the logical operators AND and OR, like this:

```
attr_expr AND attr_expr.
```

Filter expressions are evaluated from left to right. You can use parentheses to vary the meaning of a filter expression. For example, this expression:

```
attr_expr AND (attr_expr OR attr_expr).
```

has a different meaning than this one:

```
(attr_expr AND attr_expr) OR attr_expr.
```

**NOT** Negates one or more attribute expressions.

You can negate a single attribute expression, like this:

```
NOT attr_expr
```

You can also negate multiple attribute expressions or even a whole filter expression, like this:

```
NOT (attr_expr OR attr_expr).
```

Note that you must place parentheses around the attribute expressions (or the filter expression) to be negated.

## Modification expressions in evaluation definitions

A modification expression can be made up of one or more attribute expressions in the form:

where:

**attr** Is the name of a modifiable attribute in the resource table.

**value** Is the value to which you want the attribute set. The following restrictions apply:

- The value must be a valid one for the attribute.
- If the value contains imbedded blanks or special characters (such as periods, commas, or equal signs), the entire value string must be enclosed in single quotes, like this:

  ```
  DESCRIPTION='Payroll.OCT'
  ```

- To include a single quote or apostrophe in a value, you must repeat the character, like this:

  ```
  DESCRIPTION='October''s Payroll'
  ```

- The value must be a valid output value if the attribute is a CVDA datatype.

### Creating an evaluation definition

To create an evaluation definition:

- From the main menu, click **Administration views > RTA MAS resource monitoring**.
- From the **RTA MAS resource monitoring** menu, click **Evaluations**.
- On the **Evaluation definitions** tabular view (EVALDEF object), click the **Create...** button. To base the new definition on an existing one, click the Record check box before clicking the **Create...** button. The **Evaluation definitions** create view is displayed.
- When you have completed the fields, click the **Yes** button to create the definition. Otherwise, click **No** to abandon the process.

## RTA definitions

The **RTA definitions** (RTADEF) views display information about evaluations to be performed on a periodic basis and the actions to be taken should a notifiable condition occur. Examples of how to use this view can be found in “Example tasks: real-time analysis” on page 59.

### Resource modifications

Resource modifications are defined as part of the evaluation definitions (EVALDEFs) associated with this analysis definition (RTADEF).

If the modification executes without a CICS exception condition or CICSPlex SM error, and the condition generates a CICSPlex SM event, the event is cancelled. If the modification does not cause the condition to become false for any other reason (for example, the resource is in use or is not available, or the modification was not designed to modify the resource to cause a false condition), it is retried. The retry will occur at the next analysis interval, and will continue until the condition described by the evaluation definition is false.

If the modification executes with a CICS exception condition or CICSPlex SM error, it is not retried. If the condition generates a CICSPlex SM event and the modification cannot be made, the event remains displayed on the EVENT view.

For the **Execute evaluation modification string** field, the `Always` option should be used where the modification string includes an expression that will cause the evaluated condition to become false, for example:

```
Resource table: LOCTRAN
Evaluation    : STATUS NE ENABLED
Modification  : STATUS=ENABLED
```

The Always option would work well with this example because the modification will cause the evaluation to become false. The Always option should not be used if that is not the case, for example:

```
Resource table: LOCTRAN
Evaluation    : STATUS NE ENABLED
Modification  : PRIORITY=255
```

The Always option would not work well with this example because the modification will not cause the evaluation to become false.

The actions requested in an action definition (such as events or external messages) are always performed, regardless of whether any resource modification is requested.

## Adding an RTA definition to an analysis group

To add an RTA definition to an RTA analysis group:

- Click **Administration views** > **RTA analysis point monitoring** > **Definitions** to open the **RTA definitions** view.
- Select an RTA definition by clicking the Record check box.
- Click the **Add to RTA group...** button to display the **Add to RTA group** view.
- Provide the following information:

  **Analysis Group**
  Enter the specific or generic name of an existing analysis group. If you specify a generic value, a list of valid analysis groups is displayed.

  **Active Period**
  (Optional) Enter the specific or generic name of a period definition that identifies the range of hours during which the analysis definition is to be active. If you specify a generic value, a list of valid period definitions is displayed.

  If the name you specify is not an existing period definition, you can create that period definition later. If you leave this field blank, the analysis definition remains active for as long as the CICS system is running or until you discard it.
- Click **Yes** to add the RTA definition to the RTA group. Otherwise, click **No** to abandon the process.

If the appropriate analysis group does not currently exist, you must first create the group, as described in “Creating an analysis group” on page 32.

## Installing an analysis definition

You can install an analysis definition for one or more active CICS systems that are within the CICSplex identified as the context. An analysis definition can be automatically installed for a CICS system when that system starts. For this to occur, associate the definition with an analysis group. Then associate that group with an analysis specification that is defined to the CICS system.

To install an analysis definition:

- From the main menu, click **Administration views**.
- From the **Administration views** menu, click either **RTA MAS resource monitoring** or **RTA analysis point monitoring**.
- Click **Definitions** to display the **RTA definitions** tabular view (RTADEF object).

- Select an analysis definition by clicking the Record check box.
- Click the **Install...** button to display the **Install** view.
- Provide the following information:

  **Scope value**
  Enter the specific or generic name of a CICS system or CICS system group for which the definition is to be installed. The CICS system or CICS system group must be within the CICSplex identified as the current context. If you specify a generic value, a list of valid CICS systems and CICS system groups is displayed.

  **Period definition name**
  (Optional) Enter the specific or generic name of an existing period definition that identifies the range of hours during which the analysis definition is to be active. If you specify a generic value, a list of valid period definitions is displayed.
- Click **Yes** to install the definition in the designated CICS systems. Otherwise, click **No** to abandon the process.

For an installation to succeed, the CICS system must be running and real-time analysis must be active. Additionally, associated evaluation definitions must refer to resource tables that are supported in the target CICS system. If CICSPlex SM detects otherwise, it issues a message indicating that the definitions are not installed in those systems that do not support the specified resource table.

The analysis definition becomes active either:

- Immediately, if no period definition is associated with it and the CICS system is running
- At the time designated by the associated period definition

The analysis definition remains active as long as the CICS system is running, until you discard it, or until the time designated by an associated period definition is reached.

To discard an analysis definition installed in a CICS system, use the **Real time analysis (RTA) installed analysis and status definitions**view (RTAACTV object) as described in Table 5 on page 6.

## Installing an analysis specification

To install an analysis specification, and create an association between an analysis definition and an analysis specification:

- From the main menu, click **Administration views**.
- From the **Administration views** menu, click either **RTA MAS resource monitoring** or **RTA analysis point monitoring**.
- Click **Definitions** to display the **RTA definitions** tabular view (RTADEF object).
- Select an analysis definition by clicking the Record check box.
- Click the **Install analysis specification...** button to display the **Install analysis specification** view.
- Provide the following information:

  **Scope value**
  (Optional.) Enter the specific or generic name of a CICS system or CICS system group that is to be evaluated by the analysis point specification when processing analysis definitions. If you specify a generic value, a list

of valid CICS systems and CICS system groups is displayed. If you leave this field blank, all CICS systems in the CICSplex are evaluated.

**Analysis point specification name**
Enter the specific or generic name of an analysis point specification to which this definition is to be added. If you specify a generic value, a list of valid analysis point specifications is displayed.

**Period definition name**
(Optional) Enter the specific or generic name of an existing period definition that identifies the range of hours during which the analysis definition is to be active. If you specify a generic value, a list of valid period definitions is displayed.

- Click **Yes** to install the definition in the designated CICS systems. Otherwise, click **No** to abandon the process.

If an analysis definition is associated with an evaluation definition that refers to a resource table that is not supported in the target CICS system, CICSPlex SM issues a message indicating that the definitions are not installed because the resource is not supported.

# RTA groups

The RTA groups (RTAGROUP) views display information about the associations between related analysis definitions, and status definitions. For examples of how to use these views, see:

- “Monitoring resources permanently” on page 65
- “Monitoring multiple resource types in a CICS system group (2)” on page 76
- “Issuing one notification for multiple conditions(1)” on page 83

## Creating an analysis group

To create an analysis group:

- From the main menu, click **Administration views > RTA MAS resource monitoring**.
- From the **RTA MAS resource monitoring** menu, click **Evaluations**.
- On the **Evaluation definitions** tabular view (EVALDEF object), click the **Create...** button. To base the new definition on an existing one, click the Record check box before clicking the **Create...** button. The **Evaluation definitions** create view is displayed.
- When you have completed the fields, click the **Yes** button to create the definition. Otherwise, click **No** to abandon the process.

## Adding an association to an analysis point specification

To add an RTA group to an RTA analysis point specification, and create an association between the two:

- Display the **RTA groups** tabular view (RTAGROUP object).
- Select an RTA group by clicking the Record check box and click the **Add to RTA analysis point specification...** button. The **Add to RTA analysis point specification** add view is displayed.
- Provide the following information:

**APSPEC name**
Enter the specific or generic name of an existing analysis point specification. If you specify a generic value, a list of valid analysis point specifications is displayed.

**Scope name**
(Optional.) Enter the specific or generic name of a CICS system or CICS system group that is to be evaluated by the analysis point when processing analysis definitions. If you specify a generic value, a list of valid CICS systems and CICS system groups is displayed. If you leave this field blank, all CICS systems in the CICSplex are evaluated.

- Click **Yes** to create the association. Otherwise click **No** to abandon the process.

## Adding an RTA group to an analysis specification

To add an RTA group to an RTA analysis point specification, and create an association between the two:

- Display the **RTA groups** tabular view (RTAGROUP object).
- Select an RTA group by clicking the Record check box and click the **Add to RTA specification...** button. The **Add to RTA specification** add view is displayed.
- Provide the following information:

  **RTA spec name**
  Enter the specific or generic name of an existing analysis specification. If you specify a generic value, a list of valid analysis specifications is displayed.
- Click **Yes** to create the association. Otherwise click **No** to abandon the process.

If the appropriate analysis specification does not currently exist, you must first create it, as described in topicon page “Creating an RTA specification” on page 38.

## Installing an analysis group

When you install an analysis group, all of the analysis definitions associated with that group are installed in the CICS systems that are using the analysis specification to which the analysis group is associated.

**Note:** The analysis definitions associated with an analysis group can be automatically installed in a CICS system when that system starts. For this to occur, the analysis group must be associated with an analysis specification that is defined to the CICS system.

To install an analysis group:

- Display the **RTA groups** tabular view.
- Select an RTA group by clicking the Record check box and click the **Install...** button. The **Install** view is displayed.
- Provide the following information:

  **Scope value**
  Enter the specific or generic name of an active CICS system or CICS system group into which the analysis definitions associated with this analysis group are to be installed. The CICS system or CICS system group must be within the CICSplex identified as the current context. If you specify a generic value, a list of valid CICS systems and CICS system groups is displayed.
- Click **Yes** to install the RTA group. Otherwise click **No** to abandon the process.

For an installation to succeed, the CICS system must be running and real-time analysis must be active. The analysis definition becomes active either:

- Immediately, if no period definition is associated with it and the CICS system is running.
- At the time designated by the associated period definition.

The analysis definition remains active as long as the CICS system is running, until you discard it, or until the time designated by an associated period definition is reached.

To discard an analysis definition installed in a CICS system, use the **Real time analysis (RTA) installed analysis and status definition** view (RTAACTV object) as described in Table 5 on page 6.

### Installing an analysis group into an analysis specification

To install an analysis group into an analysis point specification:

- Display the **RTA groups** tabular view.
- Select an RTA group by clicking the Record check box and click the **Install into analysis specification...** button. The **Install** view is displayed.
- Provide the following information:

  **Scope value**
  Enter the specific or generic name of an active CICS system or CICS system group into which the analysis definitions associated with this analysis group are to be installed. The CICS system or CICS system group must be within the CICSplex identified as the current context. If you specify a generic value, a list of valid CICS systems and CICS system groups is displayed.

  **Analysis point specification value**
  Enter the specific or generic name of the analysis point specification to which the analysis definitions in this group are to be added. If you specify a generic value, a list of valid analysis point specifications is displayed.
- Click **Yes** to install the RTA group into the analysis specification. Otherwise click **No** to abandon the process.

## RTA group in analysis point specifications

The **RTA group in analysis point specifications** (RTAINAPS) views display information about RTA groups associated with analysis point specifications.

### Adding an analysis group to an analysis point specification

To add an analysis group to an analysis point specification:

- From the main menu, click **Administration views > Analysis point monitoring**.
- From the **Analysis point monitoring** menu, click **Group in analysis point specification**.
- On the **Group in analysis point specification** tabular view (RTAINSP object), click the Record check box beside the group entry to be added to an analysis point specification. The **Group in analysis point specification** detailed view is displayed.
- Provide the following information:

**Analysis Group Name**
Enter the specific or generic name of an existing analysis group. If you specify a generic value, a list of valid analysis groups is displayed.

**Analysis Specification Name**
Enter the specific or generic name of an existing analysis point specification to which the analysis group is to be added. If you specify a generic value, a list of valid analysis point specifications is displayed.

**Scope name**
(Optional) Enter the specific or generic name of CICS system or CICS system group that is to be evaluated by the analysis point specification when processing analysis definitions. If you specify a generic value, a list of valid CICS systems and CICS system groups is displayed. If you leave this field blank, all CICS systems in the CICSplex are evaluated.

- Click **Yes** to add the analysis group to the analysis specification. Otherwise, click **No** to abandon the process.

# RTA definitions in RTA groups

The **RTA definitions in RTA groups** (RTAINGRP) views display information about the about RTA definitions that are associated with RTA groups.

## Adding a definition to an analysis group

To add an analysis definition to an analysis group:

- From the main menu, click **Administration views**.
- From the **Administration views** menu, click either **RTA MAS resource monitoring** or **RTA analysis point monitoring**.
- Click **Definitions** to display the **RTA definitions** tabular view (RTADEF object).
- Click the Record check box beside the definition entry to be added to an analysis group and click the **Add to RTA group...** button. The Add **RTA definition to RTA group** view is displayed.
- Provide the following details:

**Analysis Group**
Enter the specific or generic name of an existing analysis group to which you are adding a definition. If you specify a generic value, a list of valid analysis groups is displayed.

**RTA or Status Definition**
Enter the specific or generic name of an existing analysis or status definition. If you specify a generic value, a list of valid analysis and status definitions is displayed.

**Definition Type**
Specify RTADEF or STATDEF to indicate the type of definition you are associating with the analysis group.

**Active Period**
(Optional.) Enter the specific or generic name of a period definition that identifies the range of hours during which the analysis or status definition is to be active. If you specify a generic value, a list of valid period definitions is displayed.

If the name you specify is not an existing period definition, you can create that period definition later. If you leave this field blank, the analysis definition remains active for as long as the CICS system is running or until you discard it.

- Click **Yes** to add the definition to the RTA group. Otherwise, click **No** to abandon the process.

# RTA groups in RTA specifications

The **RTA groups in RTA specifications** (RTAINSPC) views display information about the about RTA groups that are associated with RTA specifications.

## Removing an analysis group in specification association

To remove an analysis group in analysis specification association:

- Display the **RTA groups in RTA specifications** tabular view (RTAINSP object).
- Select an RTA specification by clicking the Record check box and click the **Remove...** button. The **Remove** view is displayed.
- Click **Yes** to remove the association between the RTA group and RTA specification. Otherwise click **No** to abandon the process.

# RTA specifications to CICS system links

The **RTA specifications to CICS system links** (LNKSRSCS) views display information about RTA specifications that are associated with CICS systems.

## Creating an RTA specification to CICS system link

To remove an analysis group in analysis specification association:

- Display the **RTA specifications to CICS system links** tabular view (LNKSRSCS object).
- Click the **Create...** button. The **RTA specifications to CICS system links** create view is displayed.
- Provide the following information:

  **RTA specification**

  **CICS system**
- Click **Yes** to create the link between the RTA specification and the CICS system. Otherwise click **No** to abandon the process.

## Removing an RTA specification to CICS system link

To remove an analysis group in analysis specification association:

- Display the **RTA specifications to CICS system links** tabular view (LNKSRSCS object).
- Select an RTA specification by clicking the Record check box and click the **Remove...** button. The **Remove** view is displayed.
- Click **Yes** to remove the link between the RTA specification and the CICS system. Otherwise click **No** to abandon the process.

## Updating a link between an RTA specification and a CICS system

1. From the main menu, click **Administration views** > **RTA MAS resource monitoring**.

2. From the RTA MAS resource monitoring views menu, click **Specification to system links**. The RTA specifications to CICS system links view (LNKSRSCS object) is displayed.
3. Check the box for the RTA specification to be updated. You can check more than one box.
4. Click the **Change Spec Association** button to display the Change Spec Association (EYUSTARTLNKSRSCS.CHGSPEC) view.
5. Type the new name in the **New RTA specification name** field and select an appropriate inherit option.
   - Click **Yes** to update the link between an RTA specification and a CICS system.
   - Click **No** to abandon the process.

# RTA specifications to CICS system group links

The RTA specifications to **CICS system group links** (LNKSRSCG) views display information about RTA specifications that are associated with CICS system groups.

## Creating an RTA specification to CICS system group link

To remove an analysis group in analysis specification association:

- Display the **RTA specifications to CICS system group links** tabular view (LNKSRSCG object).
- Click the **Create...** button. The **RTA specifications to CICS system group links** create view is displayed.
- Provide the following information:

  **RTA specification**

  **System group**
- Select one of the following options by clicking the radio button:
  - Force:
  - Null:
  - None:
- Click **Yes** to create the link between the RTA specification and the CICS system group. Otherwise click **No** to abandon the process.

## Removing an RTA specification to CICS system group link

To remove an analysis group in analysis specification association:

- Display the **RTA specifications to CICS system group links** tabular view (LNKSRSCG object).
- Select an RTA specification by clicking the Record check box and click the **Remove...** button. The **Remove** view is displayed.
- Select either **Keep** or **None** by clicking the radio button.
- Click **Yes** to remove the link between the RTA specification and the CICS system group. Otherwise click **No** to abandon the process.

## Updating a link between an RTA specification and a CICS system group

1. From the main menu, click **Administration views** > **RTA MAS resource monitoring**.

2. From the RTA MAS resource monitoring views menu, click **Specification to system group links**. The RTA specifications to CICS system group links view (LNKSRSCG object) is displayed.
3. Check the box for the RTA specification to be updated. You can check more than one box.
4. Click the **Change Spec Association** button to display the Change Spec Association (EYUSTARTLNKSRSCG.CHGSPEC) view.
5. Type the new name in the **New RTA specification name** field and select an appropriate inherit option.
   - Click **Yes** to update the link between an RTA specification and a CICS system.
   - Click **No** to abandon the process.

# RTA specifications

An RTA specification identifies the default control attributes that are used for system availability monitoring and provides an anchor for all analysis definitions and status definitions associated with a CICS system. Examples of how to use this view can be found in:

- “Monitoring resources permanently” on page 65
- “Monitoring multiple resource types in a CICS system group (2)” on page 76

## Creating an RTA specification

To create an RTA specification:

- Display the **RTA specifications** tabular view (RTASPEC object).
- Click the **Create...** button. To base the new specification on an existing one, click a Record check box before clicking the **Create...** button. The **RTA specifications** create view is displayed.
- When you have completed the fields, click **Yes** to create the specification. Otherwise click **No** to abandon the process.

Provide the following information, as appropriate:

**RTA Spec Name**
: Specify a 1- to 8-character name for the analysis specification. The name can contain alphabetic, numeric, or national characters. However, the first character must be alphabetic,

**Description**
: (Optional.) Specify a 1- to 30-character description of the specification.

**Action**
: Enter the specific or generic name of an action definition to be used when a predefined system availability monitoring condition occurs. If you specify a generic value, a list of valid action definitions is displayed. If you leave this field blank, the default action definition is used, as described in “Default notification values” on page 12.

**Severity**
: Indicate how the predefined condition is to be handled. Specify:

  **severity**
  : Identify the severity level that is to be associated with the designated condition. The severity codes are:

**VLS** Very low severe

**LS** Low severe

**LW** Low warning

**HW** High warning

**HS** High severe

**VHS** Very high severe

**NO** Exclude this condition from monitoring.

Press Enter to add the analysis specification to the data repository.

The severity, if not specified or N/A, will default to the default event security as described in “Default notification values” on page 12.

## Adding a scope to an analysis specification

Associating an analysis specification with a scope causes the specification to be automatically installed when a CICS system associated with the scope is started. Any definitions associated with the specification through analysis groups are also automatically installed.

To add a scope to an analysis specification:

- From the main menu, click **Administration views > RTA system availability monitoring > Specifications**.
- From the **Specifications** tabular view, click the Record check box beside the specification and click **Associate with CICS system...** button. The **Associate with CICS system** view is displayed.
- Provide the following information:

  **Scope name**

  Enter the specific or generic name of an existing CICS system or CICS system group that is not associated with any other analysis specification. If you specify a generic value, a list of valid CICS systems and CICS system groups is displayed.

  A CICS system or CICS system group can be associated with only one analysis specification at a time. A specification, however, can be associated with any number of CICS systems and CICS system groups.

  **Option**

  (Required only when the scope is a CICS system group.) Indicate how the CICS systems comprising the CICS system group are to handle analysis specifications. Specify:

  **FORCE**

  All CICS systems in the CICS system group are to use the analysis specification. (The analysis specification attribute for each CICS system changes to INHERIT, indicating that the CICS system acquired the specification from a CICS system group.)

  **NULL** Those CICS systems within the CICS system group that are not associated with an analysis specification are to use this specification. (The analysis specification attribute for those CICS systems changes to INHERIT.)

  **NONE** Only the CICS system group is to be associated with the

analysis specification. The CICS systems in the CICS system group are not affected. That is, if there is not association between a CICS system and an analysis specification, none is established; if there is an association, either explicitly established or inherited from another CICS system group, it is unchanged.

When the CICS system group includes other CICS system groups, all of the CICS systems, including those in the subordinate CICS system groups, are affected by the value specified in this field.

- Click **Yes** to add the scope to the analysis specification. Otherwise, click **No** to abandon the process.

However, if you associate the analysis specification with a CICS system that is already active, the new specification is not immediately available. To reset real-time analysis, you must display the **MASs known to CICSplex** tabular view and do one of the following:

- If real-time analysis is not already active (as indicated by NO in the **RTA Active** field):
  - Click the record check box beside the MAS entry and click the **Update...** button.
  - On the **MASs known to CICSplex** detailed view, change the **RTA Active** field to YES.
  - Click **Yes** to turn real-time analysis on.
- If real-time analysis is active (as indicated by YES or SAM in the **RTA Active** field),
  - Click the record check box beside the MAS entry and click the **Update...** button.
  - On the **MASs known to CICSplex** detailed view, change the **RTA Active** field to NO.
  - Click **Yes** to turn real-time analysis off. The **MASs known to CICSplex** tabular view is displayed.
  - Click the record check box beside the MAS entry and click the **Update...** button.
  - On the **MASs known to CICSplex** detailed view, change the **RTA Active** field to YES.
  - Click **Yes** to turn real-time analysis on.

Real-time analysis becomes active using the new analysis specification.

To remove the scope association, see topicpage “Removing scope-to-analysis specification associations” on page 42.

## Updating scope-to-analysis specification associations

To update a scope-to-analysis specification association:

- From the main menu, click **Administration views > RTA system availability monitoring > Specifications**.
- From the **Specifications** tabular view (APSPEC object), click the Record check box beside the specification you want to change and click the **Add to CICS system...** button. The **Add to CICS system** view is displayed.
- Change the following fields as necessary:

**Specification Name**
Enter the specific or generic name of an existing analysis specification. If you specify a generic value, a list of valid analysis specifications is displayed.

**Option**
When the scope of the analysis specification is a CICS system group, you must indicate how the CICS systems comprising the CICS system group are to use the specification. To do this, specify one of the following:

**FORCE**
All CICS systems in the CICS system group are to inherit the new specification.

**KEEP** Any CICS system that inherited a specification from the CICS system group is to be explicitly assigned the old specification; all other CICS systems in the group are to be unaffected.

**NAME** Any CICS system that inherited a specification from the CICS system group is to be explicitly assigned the new specification; all other CICS systems in the group are to be unaffected.

**NULL** Any CICS system in the CICS system group that is not explicitly associated with a specification is to inherit the new specification; all other CICS systems in the group are to be unaffected.

If the CICS system group includes other CICS system groups, all of the CICS systems, including those in the subordinate CICS system groups, are affected by the value specified in the Option field.

**Note:** The **Option** field does not appear on this view when the scope is a CICS system (CICSSYS).

- Click **Yes** to update the scope to analysis specification association. Otherwise, click **No** to abandon the process.

Change the following information, as appropriate: If you update the analysis specification for a CICS system that is already active, the new specification is not immediately available. To reset real-time analysis, you must display the**MASs known to CICSplex** tabular view and do one of the following:

- If real-time analysis is not already active (as indicated by NO in the **RTA Active** field):
  - Click the record check box beside the MAS entry and click the **Update...** button.
  - On the **MASs known to CICSplex** detailed view, change the **RTA Active** field to YES.
  - Click **Yes** to turn real-time analysis on.
- If real-time analysis is active (as indicated by YES or SAM in the **RTA Active** field),
  - Click the record check box beside the MAS entry and click the **Update...** button.
  - On the **MASs known to CICSplex** detailed view, change the **RTA Active** field to NO.
  - Click **Yes** to turn real-time analysis off. The **MASs known to CICSplex** tabular view is displayed.

– Click the record check box beside the MAS entry and click the **Update...** button.
– On the **MASs known to CICSplex** detailed view, change the **RTA Active** field to YES.
– Click **Yes** to turn real-time analysis on.

Real-time analysis becomes active using the new analysis specification.

### Removing scope-to-analysis specification associations

To remove a scope-to-analysis specification association:

- From the main menu, click **Administration views > RTA system availability monitoring > Specifications**.
- On the **Specifications** tabular view (APSPEC object), click the Record check box beside the specification to be changed and click the **Remove...** button.
- Provide the following information:

  **Option**
  Indicate how the CICS systems comprising the CICS system group are to use the analysis specification associated with that CICS system group. Specify:

  **KEEP** Those CICS systems that inherited the specification from the CICS system group are explicitly assigned that specification.

  **Blank** Those CICS system that inherited the specification from the CICS system group are not to use that specification.

  If the CICS system group includes other CICS system groups, all of the CICS systems, including those in the subordinate CICS system groups, are affected by the value specified in this field.

  **Note:** The **Option** field does not appear on this view when the scope is a CICS system (CICSSYS).
- Click **Yes** to remove the association. Otherwise, click **No** to abandon the process.

## Status definitions in RTA groups

The **Status definitions in RTA groups** (STAINGRP) views display information about the about status definitions that are associated with RTA groups.

## Status probe definitions

A status probe definition identifies a user-program that is to be called by CICSPlex SM at specific intervals.

### Creating a status probe definition

To create a status probe definition:

- Display the **Status probe definitions** tabular view (STATDEF object).
- Click the **Create...** button. To base the new definition on an existing one, click a Record check box before clicking the **Create...** button. The **Status probe definitions** create view is displayed.
- When you have completed the fields, click **Yes** to create the definition. Otherwise click **No** to abandon the process.

## Adding a status probe definition to an RTA group

To add a status probe definition to an RTA group:

- Display the **Status probe definitions** tabular view (STATDEF object).
- Select a status probe definition by clicking on the Record check box and click the **Add to RTA group...** button. The **Add to RTA group** view is displayed.
- Provide the following information:

  **Resource group name**
  Enter the specific or generic name of an analysis group with which this definition is to be associated. If you specify a generic value, a list of valid analysis groups is displayed.

  **Period Definition name**
  (Optional) Enter the specific or generic name of a period definition that identifies the range of hours during which the status definition is to be active. If you specify a generic value, a list of valid period definitions is displayed. If the name you specify is not an existing period definition, you can create that period definition later. If you leave this field blank, the status definition remains active for as long as the CICS system is running or until you discard it.
- Click **Yes** to add the status probe definition to the RTA group. Otherwise click **No** to abandon the process.

## Installing a status probe definition

You can install a status probe definition in one or more active CICS systems that are within the CICSplex identified as the context.

**Note:**

1. The RTA status probe program must be available for execution prior to installation of a status probe definition.
2. A status probe definition can be automatically installed in a CICS system when that system starts. For this to occur, associate the definition with an analysis group. Then associate that group with an analysis specification that is defined to the CICS system.

To install a status probe definition:

- Display the **Status probe definitions** tabular view (STATDEF object).
- Select a status probe definition by clicking the Record check box and click the **Install...** button. The **Install** view is displayed.
- Provide the following information:

  **Scope value**
  Enter the specific or generic name of a CICS system or CICS system group into which the definition is to be installed. The CICS system or CICS system group must be within the CICSplex identified as the current context. If you specify a generic value, a list of valid CICS systems and CICS system groups is displayed.

  **Period definition name**
  (Optional) Enter the specific or generic name of an existing period definition that identifies the range of hours during which the status definition is to be active. If you specify a generic value, a list of valid period definitions is displayed.

- Click **Yes** to install the status probe definition. Otherwise click **No** to abandon the process.

For an installation to succeed, the CICS system must be running and real-time analysis must be active. The status probe definition becomes active either:

- Immediately, if no period definition is associated with it and the CICS system is running
- At the time designated by the associated period definition

The status probe definition remains active as long as the CICS system is running, until you discard it, or until the time designated by an associated period definition is reached.

To discard a status probe definition installed in a CICS system, use the **Real time analysis (RTA) installed analysis and status definitions** view (RTAACTV object) as described in Table 5 on page 6.

# Real Time Analysis (RTA) views

The Real Time Analysis (RTA) views allow you to analyze the activity in a CICSplex.

# Installed analysis definitions associated with an analysis point specification - APACTV

The **Installed analysis definitions associated with an analysis point specification** (APACTV) views display information about RTA definitions associated with an analysis point specification.

## Supplied views

To access from the main menu, click:

**Real Time Analysis (RTA) views > Installed analysis definitions associated with an analysis point specification**

*Table 8. Views in the supplied* **Installed analysis definitions associated with an analysis point specification** *(APACTV) view set*

| View | Notes |
|---|---|
| Installed analysis definitions associated with an analysis point specification<br><br>EYUSTARTAPACTV.DISCARD | Discard an active or pending analysis definition from the CICS system in which it is installed. |
| Installed analysis definitions associated with an analysis point specification<br><br>EYUSTARTAPACTV.TABULAR | Tabular information about RTA definitions associated with an analysis point specifications for the CICSplex identified as the context. |
| Installed analysis definitions associated with an analysis point specification<br><br>EYUSTARTAPACTV.DETAILED | Detailed information about the association between a selected RTA definition and an analysis point specification. |
| Installed analysis definitions associated with an analysis point specification<br><br>EYUSTARTAPACTV.DEACTIVATE | Deactivate an active analysis definition for which a time period is defined. The status of the definition changes to pending. |

## Actions

*Table 9. Actions available for APACTV views*

| Action | Description |
|---|---|
| DISCARD | Discard an active or pending analysis definition from the CICS system in which it is installed. |
| DEACTIVATE | Deactivate an active analysis definition for which a time period is defined. The status of the definition changes to pending. |

## Fields

*Table 10. Fields in APACTV views*

| Field | Attribute name | Input values |
|---|---|---|
| Associated action | ACTION | The name of an action definition that is associated with the analysis definition. |
| Definition status | STATUS | The status of the analysis definition as one of the following:<br>• Active - The definition is active and the specified analysis is being done.<br>• Pending - The definition will become active at the time specified in its period definition. |
| Period definition | ACTIVETIME | The time period for which the analysis definition will be active.<br><br>If this field is blank, the analysis definition remains active as long as the CICS system in which it is installed is running. You cannot deactivate this type of analysis definition, but you can discard it from the system using the Discard action. |
| CMAS | CMAS | The name of the CMAS that is currently responsible for processing the analysis point specification. |
| Analysis definition | DEFNAME | The name of an installed analysis definition. |
| CMAS type | CMASTYPE | Indicates whether the CMAS that is currently responsible for analysis point processing is the primary CMAS (PRIMARY) or a secondary CMAS (SECONDARY). As long as the primary CMAS for an analysis point specification is available, it handles analysis point processing. A secondary CMAS takes over only when the primary CMAS is not available. |

*Table 10. Fields in APACTV views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Analysis point specification | APSPEC | The name of the analysis point specification with which the analysis definition is associated. |
| Interval between analysis activations (seconds) | RATE | Indicates how often, in seconds, CICSPlex SM is evaluating the analysis definition. |
| Analysis scope | SCOPE | The name of the CICS system or CICS system group that is associated with the analysis definition. This scope represents the system or system group that is being evaluated by the analysis point. |

## Deactivating or discarding an analysis definition

When an analysis definition is installed in an analysis point, its status (as illustrated by the **Status** field in "Installed analysis definitions associated with an analysis point specification - APACTV" on page 44) is either:

**ACTIVE**
The analysis definition is installed and active.

**PENDING**
The analysis definition is installed and ready to become active.

An analysis definition is active during the time period identified in the **Period** field. (When this field is blank, the definition is active as long as the analysis point in which it is installed is active.)

To change the status of an installed analysis definition:

- To deactivate a definition with an ACTIVE status for which a time period is defined:
  - Access the **RTA definitions** tabular view (RTADEF object).
  - Click the Record check box beside the RTA definition to be deactivated and click the **Deactivate...** button. The **Confirm** view is displayed.
  - Click **Yes** to deactivate the selected RTA definition. Otherwise, click **No** to abandon the process.

  The definition remains installed; its status is changed to PENDING. The next time the end of the associated time period is reached, the definition will become active again.
- To discard a definition with an ACTIVE or PENDING status and to remove the definition from the analysis point in which it is installed:
  - Access the **RTA definitions** tabular view (RTADEF object).
  - Click the Record check box beside the RTA definition to be discarded and click the **Discard...** button. The **Confirm** view is displayed.
  - Click **Yes** to discard the selected RTA definition. Otherwise, click **No** to abandon the process.

# Outstanding events - EVENT

The **RTA outstanding events** (EVENT) views display information about significant outstanding changes in the status of a CICSplex or one of its CICS systems.

## Supplied views

To access from the main menu, click:

**Real Time Analysis (RTA) views > Outstanding events**

*Table 11. Views in the supplied* **RTA outstanding events** *(EVENT) view set*

| View | Notes |
|---|---|
| RTA outstanding events<br><br>EYUSTARTEVENT.TABULAR | Tabular information about RTA events for the CICSplex identified as the context. |
| RTA outstanding events<br><br>EYUSTARTEVENT.DETAILED | Detailed information about a selected RTA event. |

## Actions

None.

## Fields

*Table 12. Fields in EVENT views*

| Field | Attribute name | Input values |
|---|---|---|
| Current LW false evaluation count | CURLWEXIT | The current number of consecutive evaluations for which a condition with a severity of LW (low warning) has been false. This value is compared to the Defined LW Exit to determine whether an event should be cancelled, or the severity of an existing event should be updated. If the condition is determined to be true, then the Current LW Exit value is reset to zero. When the Current LW Exit is equal to the Defined LW Exit, then the event is cancelled or (for a threshold event) the severity is decreased to LS and the current LW Exit value is reset to zero. |

*Table 12. Fields in EVENT views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Current HS true evaluation count | CURHSENTRY | The current number of consecutive evaluations for which a condition with a severity of HS (high severe) has been true. This value is compared to the Defined HS Entry to determine whether an event should be raised, or the severity of an existing event should be updated. If the condition is determined to be false, then the Current HS Entry value is reset to zero. When the Current HS Entry is equal to the Defined HS Entry, then an event is raised or the severity of an existing event is increased to HS, and the Current HS Entry value is reset to zero. |
| Current HW false evaluation count | CURHWEXIT | The current number of consecutive evaluations for which a condition with a severity of HW (high warning) has been false. This value is compared to the Defined HW Exit to determine whether an event should be cancelled, or the severity of an existing event should be updated. If the condition is determined to be true, then the Current HW Exit value is reset to zero. When the Current HW Exit is equal to the Defined HW Exit, then the event is cancelled, or (for a Threshold Event) the severity is decreased to LW, and the current HW Exit value is reset to zero. |
| External message generation | GENEXTMSG | Indicates whether external messages were generated for the event. |
| Event priority | PRIORITY | The priority of the event, as specified in the action definition associated with the analysis or status definition that generated the event. The priority of an event can range from 1 to 255, with 255 being the highest priority. |

*Table 12. Fields in EVENT views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Evaluation count with HS false before resolution | HSEXIT | The number of consecutive evaluations during which a condition with a severity of HS (high severe) must be false before the event is considered resolved. This exit value was specified in the analysis or status definition that generated the event. |
| Name of context to which event applies | CONTEXT | The CICSplex identified as the context to which the event applies. |
| CMAS to which Netview attached | NETVIEW | Indicates whether an interface to NetView is available from the CMAS in which the event was generated. |
| Evaluation count with LS true before event | LSENTRY | The number of consecutive evaluations during which a condition with a severity of LS (low severe) must be true before an event is generated. This entry value was specified in the analysis or status definition that generated the event. |
| Current event target | TARGET | The name of the CICS system or CICS system group that is the target of the event. **Note:** The target will be a CICS system group only for events whose type is APM. |
| Current LS true evaluation count | CURLSENTRY | The current number of consecutive evaluations for which a condition with a severity of LS (low severe) has been true. This value is compared to the Defined LS Entry to determine whether an event should be raised, or the severity of an existing event should be updated. If the condition is determined to be false, then the Current LS Entry value is reset to zero. When the Current LS Entry is equal to the Defined LS Entry, then an event is raised or the severity of an existing event is increased to LS, and the Current LS Entry value is reset to zero. |
| Action name | ACTION | The name of the action definition associated with the analysis or status definition that generated the event. |

*Table 12. Fields in EVENT views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| | VIEW | A string of up to 8 characters that allows you to provide additional site-specific data about the event. |
| Evaluation count with LW false before resolution | LWEXIT | The number of consecutive evaluations during which a condition with a severity of LW (low warning) must be false before the event is considered resolved. This exit value was specified in the analysis or status definition that generated the event. |
| Evaluation count with VHS true before event | VHSENTRY | The number of consecutive evaluations during which a condition with a severity of VHS (very high severe) must be true before an event is generated. This entry value was specified in the analysis or status definition that generated the event. |
| Current VLS false evaluation count | CURVLSEXIT | The current number of consecutive evaluations for which a condition with a severity of VLS (very low severe) has been false. This value is compared to the Defined VLS Exit to determine whether an event should be cancelled, or the severity of an existing event should be updated. If the condition is determined to be true, then the Current VLS Exit value is reset to zero. When the Current VLS Exit is equal to the Defined VLS Exit, then the event is cancelled or (for a Threshold Event) the severity is decreased to LS, and the Current VLS Exit value is reset to zero. |

*Table 12. Fields in EVENT views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Current VHS false evaluation count | CURVHSEXIT | The current number of consecutive evaluations for which a condition with a severity of VHS (very high severe) has been false. This value is compared to the Defined VHS Exit to determine whether an event should be cancelled, or the severity of an existing event should be updated. If the condition is determined to be true, then the Current VHS Exit value is reset to zero. When the Current VHS Exit is equal to the Defined VHS Exit, then the event is cancelled or (for a Threshold Event) the severity is decreased to HS, and the Current VHS Exit value is reset to zero. |
| Event severity | SEVERITY | The severity associated with the event:<br>• VHS - Very high severe<br>• HS - High severe<br>• HW - High warning<br>• LW - Low warning<br>• LS - Low severe<br>• VLS - Very low severe<br><br>For events generated as a result of evaluating an analysis definition, the severity is assigned as part of the associated evaluation definition. For events generated automatically, the severity is assigned by CICSPlex SM. |
| Evaluation count with HS true before event | HSENTRY | The number of consecutive evaluations during which a condition with a severity of HS (high severe) must be true before an event is generated. This entry value was specified in the analysis or status definition that generated the event. |
| Evaluation count with LS false before resolution | LSEXIT | The number of consecutive evaluations during which a condition with a severity of LS (low severe) must be false before the event is considered resolved. This exit value was specified in the analysis or status definition that generated the event. |

*Table 12. Fields in EVENT views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Current HW true evaluation count | CURHWENTRY | The current number of consecutive evaluations for which a condition with a severity of HW (high warning) has been true. This value is compared to the Defined HW Entry to determine whether an event should be raised, or the severity of an existing event should be updated. If the condition is determined to be false, then the Current HW Entry value is reset to zero. When the Current HW Entry is equal to the Defined HW Entry, then an event is raised and the Current HW Entry value is reset to zero. |
| Resource type | RESTYPE | The type of resource for which the event was generated. |
| CMAS in which event was raised | CMAS | The name of the CMAS in which the event was generated. Depending on what type of event it is, the named CMAS is one of the following:<br>• APM - The CMAS associated with the analysis point specification.<br>• MRM - The CMAS to which the target CICS system is connected.<br>• SAM - The primary CMAS for the target CICS system. |
| Evaluation count with HW false before resolution | HWEXIT | The number of consecutive evaluations during which a condition with a severity of HW (high warning) must be false before the event is considered resolved. This exit value was specified in the analysis or status definition that generated the event. |

*Table 12. Fields in EVENT views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Current LS false evaluation count | CURLSEXIT | The current number of consecutive evaluations for which a condition with a severity of LS (low severe) has been false. This value is compared to the Defined LS Exit to determine whether an event should be cancelled, or the severity of an existing event should be updated. If the condition is determined to be true, then the Current LS Exit value is reset to zero. When the Current LS Exit is equal to the Defined LS Exit, the event is canceled or (for a Threshold Event) the severity is decreased to VLS, and the Current LS Exit value is reset to zero. |
| Event type | EVALTYPE | The type of analysis that generated the event:<br>• APM - Analysis point monitoring<br>• MRM - MAS resource monitoring<br>• SAM - System availability monitoring |
| Event sequence number | SEQUENCE | The event sequence number. |
| Date and time when event was created | DATETIME | The local date and time when the event was created. |
| Current HS false evaluation count | CURHSEXIT | The current number of consecutive evaluations for which a condition with a severity of HS (high severe) has been false. This value is compared to the Defined HS Exit to determine whether an event should be cancelled, or the severity of an existing event should be updated. If the condition is determined to be true, then the Current HS Exit value is reset to zero. When the Current HS Exit is equal to the Defined HS Exit, then the event is cancelled or (for a Threshold Event) the severity is decreased to HW, and the Current HS Exit value is reset to zero. |
| Name of specific resource that caused event | KEY | The specific resource (such as a program or file) that caused the event to be generated. |

*Table 12. Fields in EVENT views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Evaluation count with VLS false before resolution | VLSEXIT | The number of consecutive evaluations during which a condition with a severity of VLS (very low severe) must be false before the event is considered resolved. This exit value was specified in the analysis or status definition that generated the event. |
| Current LW true evaluation count | CURLWENTRY | The current number of consecutive evaluations for which a condition with a severity of LW (low warning) has been true. This value is compared to the Defined LW Entry to determine whether an event should be raised, or the severity of an existing event should be updated. If the condition is determined to be false, then the Current LW Entry value is reset to zero. When the Current LW Entry is equal to the Defined LW Entry, then an event is raised and the Current LW Entry value is reset to zero. |
| Current VLS true evaluation count | CURVLSENTRY | The current number of consecutive evaluations for which a condition with a severity of VLS (very low severe) has been true. This value is compared to the Defined VLS Entry to determine whether an event should be raised, or the severity of an existing event should be updated. If the condition is determined to be false, then the Current VLS Entry value is reset to zero. When the Current VLS Entry is equal to the Defined VLS Entry, then an event is raised or the severity of an existing event is increased to VLS, and the Current VLS Entry value is reset to zero. |
| Detailed information availability | DETAIL | For events generated by analysis definitions, indicates whether detailed information about the event is available. The detailed information includes the evaluation definitions that make up the analysis definition.<br><br>A value of NO means the event was generated automatically by CICSPlex SM, rather than by an analysis definition. |

*Table 12. Fields in EVENT views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Event description | DESC | A description of the event, as specified in the action definition associated with the analysis or status definition that generated the event. |
| Evaluation count with VLS true before event | VLSENTRY | The number of consecutive evaluations during which a condition with a severity of VLS (very low severe) must be true before an event is generated. This entry value was specified in the analysis or status definition that generated the event. |
| Evaluation count with LW true before event | LWENTRY | The number of consecutive evaluations during which a condition with a severity of LW (low warning) must be true before an event is generated. This entry value was specified in the analysis or status definition that generated the event. |
| Evaluation count with VHS false before resolution | VHSEXIT | The number of consecutive evaluations during which a condition with a severity of VHS (very high severe) must be false before the event is considered resolved. This exit value was specified in the analysis or status definition that generated the event. |
| Current VHS true evaluation count | CURVHSENTRY | The current number of consecutive evaluations for which a condition with a severity of VHS (very high severe) has been true. This value is compared to the Defined VHS Entry to determine whether an event should be raised, or the severity of an existing event should be updated. If the condition is determined to be false,the Current VHS Entry value is reset to zero. When the Current VHS Entry is equal to the Defined VHS Entry, then an event is raised or the severity of an existing event is increased to VHS, and the Current VHS Entry value is reset to zero. |

*Table 12. Fields in EVENT views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Evaluation count with HW true before event | HWENTRY | The number of consecutive evaluations during which a condition with a severity of HW (high warning) must be true before an event is generated. This entry value was specified in the analysis or status definition that generated the event. |
| Event name | NAME | The name of the event. For events generated as a result of evaluating an analysis or status definition, the event name is the same as the definition name. For events generated automatically by CICSPlex SM, the name is one of the following:<br>• !!SAMOPS - System unavailable<br>• !!SAMSDM - System dump<br>• !!SAMTDM - Transaction dump<br>• !!SAMSOS - Short-on-storage<br>• !!SAMMAX - Maximum tasks<br>• !!SAMSTL - System stall |
| SNA generic alert generation | GENALERT | Indicates whether a SNA generic alert was sent to NetView for the event. |
| Interval between evaluations | RATE | The interval, in seconds, between evaluations of the the analysis or status definition that generated the event. |

# Real Time Analysis (RTA) installed analysis and status definitions - RTAACTV

The **RTA installed analysis and status definitions** (RTAACTV) views display information about analysis and status definitions installed in CICS systems known to the CICSplex identified as the current context.

## Supplied views

To access from the main menu, click:

**Real Time Analysis (RTA) views > Real Time Analysis (RTA) installed analysis and status definitions**

*Table 13. Views in the supplied* **Real Time Analysis (RTA) installed analysis and status definitions** *(RTAACTV) view set*

| View | Notes |
|---|---|
| Real Time Analysis (RTA) installed analysis and status definitions<br><br>EYUSTARTRTAACTV.DISCARD | Discard an active or pending analysis or status definition from the CICS in which it is installed. |

*Table 13. Views in the supplied* **Real Time Analysis (RTA) installed analysis and status definitions** *(RTAACTV) view set (continued)*

| View | Notes |
|---|---|
| Real Time Analysis (RTA) installed analysis and status definitions<br><br>EYUSTARTRTAACTV.TABULAR | Tabular information about analysis and status definitions installed in CICS systems |
| Real Time Analysis (RTA) installed analysis and status definitions<br><br>EYUSTARTRTAACTV.DETAILED | Detailed information about analysis and status definitions installed in a selected CICS system. |
| Real Time Analysis (RTA) installed analysis and status definitions<br><br>EYUSTARTRTAACTV.DEACTIVATE | Deactivate an active analysis or status definition for which a time period is defined. The status of the definition changes to pending. |

## Actions

*Table 14. Actions available for RTAACTV views*

| Action | Description |
|---|---|
| DISCARD | Discard an active or pending analysis or status definition from the CICS in which it is installed. |
| DEACTIVATE | Deactivate an active analysis or status definition for which a time period is defined. The status of the definition changes to pending. |

## Fields

*Table 15. Fields in RTAACTV views*

| Field | Attribute name | Input values |
|---|---|---|
| Analysis definition type (analysis or status) | TYPE | The type of definition (analysis or status) |
| Associated action name | ACTION | The name of an action definition that is associated with the analysis or status definition. |
| Definition status | STATUS | The status of the analysis or status definition as one of the following:<br>• ACTIVE - The definition is active and the specified analysis is being done.<br>• PENDING - The definition will become active at the time specified in its period definition. |

*Table 15. Fields in RTAACTV views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Period definition name | ACTIVETIME | The time period for which the analysis or status definition will be active.<br><br>If this field is blank, the analysis or status definition remains active as long as the CICS system in which it is installed is running. You cannot deactivate this type of definition, but you can discard it from the system using the Discard action. |
| Definition name | NAME | The name of an installed analysis or status definition. |
| CICS system name | CICSSYS | The name of the CICS system that is associated with the analysis or status definition. |
| Interval between evaluations (seconds) | RATE | The interval, in seconds, between evaluations of the analysis or status definition. |

## Deactivating or discarding a status definition

When a status definition is installed in a CICS system, its status (as illustrated by the **Status** field in "Real Time Analysis (RTA) installed analysis and status definitions - RTAACTV" on page 56) is either:

**ACTIVE**
The definition is installed and active.

**PENDING**
The definition is installed and ready to become active.

A status definition is active during the time period identified in the **Period** field. (When this field is blank, the definition is to be active as long as the CICS system in which it is installed is active.)

To change the status of an installed status definition:

- To deactivate a definition with an ACTIVE status for which a time period is defined:
  - Access the **Status definitions** tabular view (STATDEF object).
  - Click the Record check box beside the status definition to be deactivated and click the **Deactivate...** button. The **Confirm** view is displayed.
  - Click **Yes** to deactivate the selected status definition. Otherwise, click **No** to abandon the process.

  The definition remains installed; its status is changed to PENDING. The next time the end of the associated time period is reached, the definition will become active again.
- To discard a definition with an ACTIVE or PENDING status and to remove the definition from the analysis point in which it is installed:
  - Access the **Status definitions** tabular view (STATDEF object).

– Click the Record check box beside the status definition to be discarded and click the **Discard...** button. The **Confirm** view is displayed.
– Click **Yes** to discard the selected status definition. Otherwise, click **No** to abandon the process.

## Example tasks: real-time analysis

This section includes several examples of typical real-time analysis setup tasks.

## Switching system availability monitoring (SAM) on for a MAS

This example describes how to set up system availability monitoring (SAM) for a MAS.

CICSPlex SM's system availability monitoring is easy to set up and is extremely useful. When system availability monitoring is activated for a particular CICS system, CICSPlex SM warns you if the system becomes unavailable, or if any of these conditions occurs: short on storage (SOS); system dumps (SYSDUMP); transaction dump (TRANDUMP); maximum number of tasks (MAXTASK); system busy (STALL).

You activate monitoring of system availability (SAMOPS!!) by telling CICSPlex SM at which hours of the day you expect the CICS system to be available. You do this by specifying the name of a valid time-period definition in the **Period definition name** field of the **CICS system definitions** detail view.

You activate monitoring of the SOS (!!SAMSOS), SYSDUMP (!!SAMSDM), TRANDUMP (!!SAMTDM), MAXTASK (!!SAMMAX), and STALL (!!SAMSTL) conditions by switching on real-time analysis for the CICS system.

In this example, you'll see how to tell CICSPlex SM that CICS system CICSPA01, in CICSplex PLXPROD1, should be running problem-free between 09:00 and 17:30 and, if it isn't, to warn you. You want system availability monitoring to be switched on permanently for CICSPA01, and to take effect immediately. The time period definition PDFSHFTA, which covers the hours from 09:00 to 17:30, has already been created.

1. Update the CICS system definition.
   a. From the main menu, click **Administration views > RTA system availability monitoring > CICS system definitions** to open the **CICS system definitions** tabular view.
   b. If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   c. Select the entry for CICSPA01 and click the **Update...** action button. This opens a **CICS system definitions** detail view.
   d. In the **Primary CMAS name** field, type in the name of the CMAS to which CICS normally connects. For this task, type CMSSYS1.
   e. In the **Period definition name** field, type PDFSHFTA .
   f. Scroll down to the **Real time analysis status** field and select YES from the drop-down menu.

      If you wanted to activate monitoring of system availability only (and did not want the SOS, SYSDUMP, TRANDUMP, MAXTASK, and STALL conditions to be flagged), just specify SAM rather than YES in this field.
   g. Click **Yes** to confirm.

      The **CICS system definitions** tabular view is redisplayed. The change takes effect immediately.

2. Look at the CICSPlex SM event notifications.

   Now that system availability monitoring is switched on for CICS system CICSPA01, you can check the system's availability by clicking **Real Time Analysis (RTA) Outstanding Events** in the **General views** section of the WUI main menu. If CICSPA01 is not active, or is not problem-free, at a time that falls within the period defined in time-period definition PDFSHFTA, there will be an entry to that effect displayed in the view.

If you decide later to switch system availability monitoring off for CICS system CICSPA01, update the CICS system definition again (as described in step 1 on page 59), and specify NO in the **Real time analysis status** field instead of YES.

## Changing the default actions for system availability monitoring (SAM)

If you simply switch on system availability monitoring (SAM) for a particular CICS system, CICSPlex SM issues the default notifications when one of the predefined conditions occurs. That is, CICSPlex SM generates an external message and an event notification. The default values for these messages are shown in "Default notification values" on page 12. You can customize the external message and the event notification to suit local requirements. For example, you might want to change the message text for a particular condition, or change the severity of a condition, or selectively turn off parts of system availability monitoring.

This example shows you how to use the Web User Interface to modify the default system availability monitoring notifications you requested in the previous example ("Switching system availability monitoring (SAM) on for a MAS" on page 59) for CICS system CICSPA01. The changes you want to make are as follows:

- If CICSPA01 is not available between 09:00 and 17:30, an alert is to be sent to NetView by CMAS CMSSYS1, and an event notification, with a severity of HW, is to be issued. However, no external message is to be generated.
- If the system becomes short on storage (SOS), the default actions should be taken, but the priority of the event should be Very High Severe (VHS).
- No notification of system or transaction dumps is required.

1. Create an action definition.
   a. From the WUI main menu, click **Administration views > RTA system availability monitoring > Actions** to open the **Action definitions** tabular view.
   b. If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   c. Click the **Create...** button at the bottom of the screen.

      **Note:** If you want to use an existing definition as a template, select a definition from the list first.

   d. Provide the following information:

      **Action**
      RTAPAY01
      **Description**
      CICSPA01 unavailable
      **Generate event**
      YES
      **Action priority**
      255
      **Message to send when event occurs**
      AOR CICSPA01 is unavailable

**Generate external message**
NO
**Generate SNA generic alert**
YES
**CMAS to which NetView attached**
CMSSYS1
**Message text when alert is raised**
AOR CICSPA01 is unavailable
**Message text when alert is cleared**
AOR CICSPA01 is now available
**MVS automatic restart**
NO

e. Click **Yes** to create the definition. The **Action definitions** tabular view is redisplayed.

2. Change the default system availability monitoring actions for CICSPA01.
   a. From the WUI main menu, click **Administration views > RTA system availability monitoring > CICS system definitions** to open the **CICS system definitions** tabular view.
   b. Select the entry for CICSPA01, and click the **Update...** button.
   c. To replace the default system availability monitoring notifications with your own:
      - Type in the name of the action definition you created in step 1 on page 60 (RTAPAY01) in the **Action for system availability monitoring event** field
      - In the **Severity for system availability monitoring event** field, select HW from the drop-down menu.
   d. To change the severity of the SOS event to Very High Severe, select VHS from the drop-down menu in the **Severity for short-on-storage (SOS) event** field.
   e. To switch off notification of system and transaction dumps, select NO in the severity fields for both the system dump and transaction dump events.
   f. Click **Yes** to confirm the changes. The **CICS system definitions** tabular view is redisplayed.

   The updated system availability monitoring actions take effect immediately.

## Monitoring resources temporarily

Often, your reasons for monitoring a CICS resource are temporary. For example, a problem might arise with a particular MRO connection that you solve using real-time analysis for a limited period of time. Also, even if you know that you want monitoring of a resource to be regular and permanent, you are recommended to start by monitoring the resource temporarily, so that you can fine-tune the real-time analysis definitions and assess their results.

This example shows you how to use the Web User Interface to create real-time analysis definitions to monitor temporarily the number of DB2® thread aborts associated with particular transactions (those whose names begin with the letters AB) in particular CICS systems (CICSPA01 and CICSPA02). An external message and an event notification will be issued when the number of DB2 thread aborts goes above the number you specify.

1. Create a CICS system group.
   a. From the WUI main menu, click **Administration views > Topology administration views > System groups** to open the **System group definitions** tabular view.
   b. If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.

c. Click the **Create...** action button.
d. Type in the following information:
**System group name**
CSGAORS1
**Description**
AORs CICSPA01 and CICSPA02
e. Click **Yes** to confirm. The **System group definitions** tabular view is redisplayed showing an entry for the new group, CSGAORS1. At this point, the group exists, but is empty.

2. Add CICS systems to the CICS system group
a. Open the **CICS system definitions** tabular view (**Administration views > Topology administration views > System definitions**) and select the entries for CICSPA01 and CICSPA02.
b. Click **Add to CICS system group...**, and in the **Group which member will join** field, type in CSGAORS1.
c. Click the **Yes to 2 remaining** button to confirm.

3. Create an evaluation definition.

This step, and the two that follow, show which definitions you have to create to tell CICSPlex SM about the resource condition you're interested in, and what to do when it occurs. The order in which you create the definitions isn't particularly important, though the order shown here is probably the most logical.

Start with the evaluation definition which tells CICSPlex SM about the resource you're interested in. Then define the action definition, which tells CICSPlex SM how to notify you when the condition you've identified occurs. Finish with the analysis definition, which is basically a link between the evaluation definition and the action definition.

a. From the main menu, click **Administration views > RTA MAS resource monitoring > Evaluations** to open the **Evaluation definitions** tabular view.
b. Click the **Create...** button and provide the following information:
**Name** RTEPAY02
**Description**
DB2 thread aborts (TRANID AB*)
**Sample interval**
300
**Resource table**
DB2THRD
**Instance identifier of evaluated resource**
AB*
**Method of evaluating results in result set**
MAX
**Separate task indicator**
NO
**Field being evaluated**
ABORTCNT
**Lower bound of range for HW**
20
**Lower bound of range for HS**
40
**Lower bound of range for VHS**
80

You can leave the remaining fields blank.

The **Sample interval** value is the interval at which CICSPlex SM must check the state of the resource. In this example, the number of DB2 thread aborts is to be checked every 300 seconds.

The evaluation threshold values (**Lower bound of range for HW**, and so on) tell CICSPlex SM which severity to apply to the event notification. In this example, when the number of DB2 thread aborts reaches 20, the severity value of the event will be HW; when it reaches 40, the severity value of the event will be HS; and when it reaches 80, the severity value of the event will be VHS.

4. Create an action definition.
   a. From the main menu, click **Administration views > RTA MAS resource monitoring > Actions** to open the **Action definitions** tabular view.
   b. Click the **Create...** button and provide the following information:
      **Action**
      RTAPAY02
      **Description**
      DB2 thread aborts — High
      **Generate event**
      YES
      **Name of view that may provide useful information**
      DB2THRD
      **Action priority**
      100
      **Message to send when event occurs**
      DB2 thread aborts too high
      **Generate external message**
      YES
      **External message sent when event occurs**
      DB2 thread aborts too high
      **Generate SNA generic alert**
      NO
      **MVS Automatic restart**
      NO

      You can leave the other fields blank.

      You will see the message “DB2 thread aborts too high” when any of the threshold values you have specified is reached. Notice that the field **External message sent when event is cleared** is left empty. This is because there is no “reverse” condition of a DB2 thread abort.
   c. Click **Yes** to confirm. The **Action definitions** tabular view is redisplayed and includes an entry for the new definition RTAPAY02.
5. Create an analysis definition.
   a. From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to open the **RTA definitions** tabular view.
   b. Click the **Create..** button and provide the following information:
      **Name** RTDPAY02
      **Description**
      DB2 thread aborts
      **Execute evaluation modification string**
      NO
      **Analysis interval**
      300
      **Action definition name**
      RTAPAY02

The evaluation count fields (**Count of true evaluations before VLS raised** and so on) should all contain the default value of 1. You can leave the other fields blank.

The **Analysis interval** (300 seconds in this example) controls how often CICSPlex SM looks at the results of the evaluation definition to determine whether the condition has occurred. This interval should not be smaller than the sample interval you specify in the evaluation definition itself, because there is nothing to be gained by assessing the results of the evaluation more frequently than the evaluation itself occurs.

c. Click **Yes** to confirm. The **RTA definitions** tabular view is redisplayed and includes an entry for the new definition RTDPAY02.

At this point, all the definitions you need have been created, but they must be activated by installing the analysis definition RTDPAY02 in the CICS system group CSGAORS1.

6. Determine whether or not CICS system CICSPAO1 is already associated with an analysis specification.

To do this; from the WUI main menu, click **Administration views > RTA system availability monitoring > Specifications to system links**. This opens the **RTA specifications to CICS system links** tabular view, which lists the associations between CICS systems and RTA specifications.

If CICSPAO is not associated with an analysis specification, complete steps 7 and 8. If CICSPAO1 is associated with an analysis specification, go to step 9.

7. Create an analysis specification.
   a. From the WUI main menu, click **Administration views > RTA system availability monitoring > Specifications** to open the **RTA specifications** tabular view
   b. Click the **Create...** button and type in the following information
      **RTA specification name**
      RTSPAY02
      **Description**
      DB2 thread aborts

      You can leave the remaining fields blank.
   c. Click **Yes** to confirm. The **RTA specifications** tabular view is redisplayed and includes an entry for RTSPAY02.
8. Set the scope of the analysis specification.

The next step is to identify the CICS systems that are to use this specification.

   a. Select the entry for RTSPAY02 in the **RTA specifications** tabular view and click the **Associate CICS group...** button.
   b. In the **CICS system group** field, type CSGAORS1, and select **Force** to make all systems in CICS system group CSGAORS1 use this analysis specification.
   c. Click **Yes** to confirm.
9. Verify that real-time analysis is active.

Before you install the definitions, verify that the CICS systems defined in the CICS system group CSGAORS1 have real-time analysis active.

   a. From the main menu, click **Administration views > RTA system availability monitoring > CICS system definitions** to open the **CICS system definitions** tabular view.
   b. Click on the entry for for CICSPAO1:
      - If the **Real time analysis status** field specifies YES or MRM, skip the next step.

- If the **Real time analysis status** field specifies NO or SAM, return to the **CICS system definitions** tabular view, select the CICS system and click the **Update...** button. In the **Real time analysis status** field, type YES or MRM and click **Yes** to confirm.

Repeat this step for system CICSPAO2.

10. Install the analysis definition manually.
    a. From the WUI main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to open the **RTA definitions** tabular view.
    b. Select the entry for RTDPAY02 and click the **Install...** button.
    c. In the **Scope value** field type in the name of the CICS system group (CSGAORS1, in this example). The analysis definition takes immediate effect in any of the CICS systems in the group that are currently running.

    If you want to check where the analysis definition is currently active, go back to the WUI main menu and click **Real Time Analysis (RTA) views > Real Time Analysis (RTA) installed analysis and status definitions**. This view lists the analysis definitions that are currently installed in the CICS systems of the current scope.

The analysis definition you've just installed will remain active until you deactivate it, or until the CICS systems stop. If you decide, perhaps after some fine-tuning of intervals, that you're happy with the output you're getting from this analysis definition, you might want to install it automatically, so that it takes effect at CICS system-startup time and you don't have to install it manually again. How to do this is described in the next example.

## Monitoring resources permanently

This example is a development of the previous example (“Monitoring resources temporarily” on page 61) in which you saw how to monitor the number of DB2 thread aborts in a CICS system group on a temporary basis. In this example, you will again use the WUI to create the real-time analysis definitions required to make this monitoring regular and permanent.

Assume that you want the analysis definition RTDPAY02 to be in effect every day in CICS system group CSGAORS1, but only during prime shift (09:00 through 17:30). You have decided this because, outside of prime shift, you have few problems with DB2.

1. Create a time period definition.
   a. From the main menu, click **Administration views > RTA system availability monitoring >Time periods** to open the **Time period definitions** tabular view.
   b. Click the **Create...** button and type in the following information:

| | |
|---|---|
| Name | PDFPRIME |
| Description | Prime shift (0900 — 1730) |
| Start time | 09:00 |
| End time | 17:30 |
| Time zone | U |
| Time zone adjustment factor | 0 |

You have to give the time period definition a name (PDFPRIME, in this example), say when it starts and when it ends, and specify the time zone.

The description isn't mandatory, but you'll probably find it useful when you're looking at a list of period definitions and need to distinguish one from another. You can reuse this definition within the CICSplex any number of times, and for any of the CICSPlex SM functions.

c. Click **Yes** to confirm.

2. Create an analysis specification.

   To get an analysis definition installed in a CICS system automatically, you have to create both an analysis specification and an analysis group. Begin with the analysis specification, though the order isn't important.

   a. From the main menu, click **Administration views > RTA system availability monitoring > Specifications** to open the **RTA specifications** tabular view

   b. Click the **Create...** button and type in the following information

      **RTA specification name**
      RTSPAY02
      **Description**
      Install RTDPAY02 in CSGAORS1

      You can leave the remaining fields blank.

   c. Click **Yes** to confirm. The **RTA specification** tabular view is redisplayed and includes an entry for RTSPAY02.

3. Set the scope of the analysis specification.

   The next step is to identify the CICS systems that are to use this specification.

   a. Select the entry for RTSPAY02 in the **RTA specifications** tabular view and click the **Associate CICS group...** button.

   b. In the **CICS system group** field, type CSGAORS1, and select **Force** to make all systems in CICS system group CSGAORS1 use this analysis specification.

   c. Click **Yes** to confirm.

4. Create an analysis group.

   a. From the main menu, click **Administration views > RTA MAS resource monitoring > Groups** to open the **RTA groups** tabular view

   b. Click the **Create...** button and type in the following:

| | |
|---|---|
| RTA group | RTGPAY02 |
| Description | Install RTDPAY02 |

   c. Click **Yes** to confirm.

5. Associate the analysis group with the analysis specification.

   a. Select the for RTGPAY02 entry in the **RTA groups** view, and click the**Add to RTA specification...** button.

   b. In the **RTA specname** field, type in RTSPAY02.

   If you want to check that the analysis group has been added to the analysis specification, from the main menu click **Administration views > RTA MAS resource monitoring > Groups in Specifications** to open the **RTA groups in RTA specifications** tabular view. This view shows an entry for analysis specification RTSPAY02 with analysis group RTGPAY02.

6. Associate the analysis definition with the analysis group.

   a. From the main menu click **Administration views > RTA MAS resource monitoring > Definitions** to open the **RTA definitions** tabular view.

   b. Select the entry for RTDPAY02 entry, and click the **Add to RTA group...** button.

c. In the **Resource group name** field, type in RTGPAY02. In the **Period Definition name** field, type in PDFPRIME.
d. Click **Yes** to confirm.

**Note:** For a description of the **RTA definitions** view, see “RTA definitions” on page 29.

If you want to check that the analysis definition has been successfully added to the analysis group, from the main menu click **Administration views > RTA MAS resource monitoring > Definitions in groups** to open the **RTA definitions in RTA groups** tabular view. An entry is listed for RTA group RTGPAY02 with RTA definition RTDPAY02 for period PDFPRIME.

The newly installed analysis definition takes effect in any CICS system that belongs to group CSGAORS1 when that CICS system next starts. (You can also activate a new analysis definition immediately from the MAS view by switching real-time analysis off and back on again.)

## Reusing analysis specifications and analysis groups

In this example you will use the WUI to see how to use an analysis specification and an analysis group for more than one type of resource checking. This example is an extension of the previous example (“Monitoring resources permanently” on page 65), in which you saw how to monitor the number of DB2 thread aborts in CICS system group CSGAORS1 on a regular basis. In this example, you'll be monitoring files in the same CICS system group, CGSAORS1. The details are as follows:

- Files PAYFILA1, PAYFILA2, and PAYFILB1 are all used by an application that must be available during prime shift, which starts at 09:00. The application can run in either of the regions CICSPA01 and CICSPA02. The files are owned by region CICSPF01.

  Files PAYFILA1 and PAYFILA2 are the only remote files with names of the format PAYFILA* defined to CICSPA01 and CICSPA02. However, a *local* file PAYFILA9 and a remote file PAYFILB9 are also defined in CICSPA02. Because of this, two evaluation definitions will be required:

  – The first evaluation definition will check on remote files whose names begin with the characters PAYFILA. The file PAYFILA9 will not be checked by this definition because it is a local file in CICSPA02, and CICSPlex SM distinguishes between local and remote files.
  – The second evaluation definition will check on the single remote file PAYFILB1. A generic name cannot be used in this definition, because the file PAYFILB9, which you do not want to monitor, is also remote.
- To ensure that the application can be used when required, CICSPlex SM will check that the files are available in CICSPA01 and CICSPA02 from 08:00, one hour before prime shift starts. The checking will continue for the first 30 minutes of prime shift.
- An external message and an event notification (severity VHS) are to be issued if any of the files is not ENABLED between 08:00 and 09:30.

1. Create a time period definition.
   a. From the main menu, click **Administration views > RTA system availability monitoring > Time period definitions** to open the **Time period definitions** tabular view.
   b. Click the **Create...** button and type in the following information:
      **Name** PDFCHECK
      **Description**
      Prime shift lead in

**Start time**
08:00
**End time**
09:30
**Time zone**
U
**Time zone adjustment factor**
0

c. Click **Yes** to confirm.

2. Create the first evaluation definition.
   a. From the main menu, click **Administration views > RTA MAS resource monitoring > Evaluations** to open the **Evaluation definitions** tabular view.
   b. Click the **Create...** button and provide the following information:
   **Name** RTEPAY12
   **Description**
   REMFILE PAYFILA* enabling
   **Sample interval**
   60
   **Resource table**
   REMFILE
   **Instance identifier of evaluated resource**
   PAYFILA*
   **Method of evaluating results in result set**
   ANY
   **Separate task indicator**
   NO
   **Field being evaluated**
   ENABLESTATUS
   **Evaluation logical operator**
   NE
   **Evaluation data value**
   ENABLED
   **Severity assigned when result meets criteria**
   VHS

   You can leave the remaining fields blank.

3. Create the second evaluation definition.
   a. In the **Evaluation definitions** tabular view, select the entry for RTEPAY12 and click the **Create...** button. This opens the **Evaluation definitions** create panel showing the values you entered when creating RTEPAY12.
   b. Update the name, description, and instance values as follows:
   **Name** RTEPAY13
   **Description**
   REMFILE PAYFILB1* enabling
   **Instance identifier of evaluated resource**
   PAYFILB1

   The other fields can remain the same as for RTEPAY12.

4. Create an action definition.
   a. From the main menu, click **Administration views> RTA MAS resource monitoring > Definitions** to open the **Action definitions** tabular view.
   b. Click the **Create...** button and provide the following information:
   **Action**
   RTAPAY12

**Description**
Prime shift files not ENABLED
**Generate event**
YES
**Name of view that may provide useful information**
REMFILE
**Action priority**
255
**Message to send when event occurs**
Prime shift files not ready
**Generate external message**
YES
**External message sent when event occurs**
Prime shift files not ready
**External message sent when event is cleared**
Prime shift files now ENABLED
**Generate SNA generic alert**
NO
**MVS automatic restart**
NO

You can leave the other fields blank.

c. Click **Yes** to confirm. The **Action definitions** tabular view is redisplayed and includes an entry for the new definition RTAPAY12.

5. Create the analysis definition.
   a. From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to open the **RTA definitions** tabular view.
   b. Click the **Create...** button and provide the following information:

| | |
|---|---|
| Name | RTDPAY12 |
| Description | Application file check |
| Execute evaluation modification string | NO |
| Analysis interval | 60 |
| Action definition name | RTAPAY12 |
| Evaluation expression | RTEPAY12 \| RTEPAY13 |

The evaluation count fields (**Count of true evaluations before VLS raised** and so on) should all contain the default value of 1. You can leave the other fields blank.

c. Click **Yes** to confirm. The **RTA definitions** tabular view is redisplayed and includes an entry for the new definition RTDPAY02.

The evaluation expression causes CICSPlex SM to issue a notification if either evaluation returns a true condition.

**Note:** For a description of the **RTA definitions** view, see “RTA definitions” on page 29.

6. Associate the new analysis definition with the existing analysis group.
   a. In the **RTA definitions** tabular view, select the entry for RTDPAY12, and click the **Add to RTA group...** button.
   b. In the **Resource group name** field, type in RTGPAY02, and in the **Period Definition name** field, type PDFCHECK.
   c. Click **Yes** to confirm.

The Analysis Group RTGPAY02 already exists (you created it in the previous example) and it has already been associated with the analysis specification

RTSPAY02. Therefore, analysis definition RTDPAY12 is installed automatically in the CICS systems in group CSGAORS1 when those systems are next started, for the period of time defined in PDFCHECK.

## Monitoring a resource type in a single CICS system

In this example, you'll see how to get CICSPlex SM to monitor the LU 6.2 connections in CICS system CICSPT02, which has recently been experiencing LU 6.2 problems. Both an external message and an event notification are to be issued whenever any connection is found to be in RELEASED status. The monitoring will not be limited to specific hours of the day, but will be continuous.

The task is fundamentally the same as the one shown in the example “Monitoring resources permanently” on page 65. The interesting differences arise in the creation of the evaluation definition, the action definition, and the analysis definition. Those steps are shown here:

1. Create an evaluation definition.
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Evaluations** to display the **Evaluation definitions** tabular view (EVALDEF object).
   - Click the **Create...** button. To base the new definition on an existing one, click the Record check box before clicking the **Create...** button. The **Evaluation definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTEPAY03 |
| Description | Connections in CICSPT0 |
| Sample interval | 30 |
| Resource name | CONNECT |
| Instance identifier of evaluated resource | * |
| Method of evaluating results in result set | Any |
| Separate task indicator | NO |
| Field being evaluated | CONNSTATUS |
| Evaluation logical operator | EQ |
| Evaluation data value | RELEASED |
| Severity assigned when result meets criteria | VHS |
| View that may provide extra information | CONNECT |
| Filter string | TYPE=LU62. |

   - Click **Yes** to create the definition.

   In this example:
   - The evaluation values define the type of check to be made.
   - The **Method of evaluating results in result set** field value ensures that, if the condition is true of any single connection that's being monitored, the evaluation returns a severity of VHS.
   - The filter string limits the checking to LU 6.2 connections.

   **Note:** For a complete description of the **Evaluation definitions** view, see “Evaluation definitions” on page 27.
2. Create an action definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Actions** to display the **Action definitions** tabular view (ACTION object).
   - Click the **Create...** button. The **Action definitions** create view is displayed.

- Complete the fields as follows:

| | |
|---|---|
| Name | RTAPAY03 |
| Description | Connections lost in CICSPT02 |
| Generate event | YES |
| Name of view that may provide useful information | CONNECT |
| Action priority | 255 |
| Message sent when event occurs | Connections lost in CICSPT02 |
| Generate external message | YES |
| External message sent when event occurs | Connections lost in CICSPT02 |
| External message sent when event is cleared | CICSPT02 connections now OK |
| Generate generic SNA alert | NO |
| MVS automatic restart | NO |

- Click **Yes** to create the definition.

This action definition tells CICSPlex SM that you want both an event notification and an external message to be issued.

**Note:** For a complete description of the **Action definitions** view, see "Action definitions" on page 26.

3. Create an analysis definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to display the **RTA definitions** tabular view (RTA object).
   - Click the **Create...** button. The **RTA definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTDPAY03 |
| Description | Connections in CICSPT02 |
| Analysis interval | 30 |
| Evaluation expression | RTEPAY03 |
| Execute evaluation modification string | NO |
| Action definition name | RTAPAY03 |

Use the default value of 1 in the **Count of true evaluations** and **Count of false evaluations** fields.

- Click **Yes** to create the definition.

CICSPlex SM will evaluate the results of the evaluation definition (defined in RTEPAY03) every 30 seconds.

You would install the analysis definition in the CICS system CICSPT02 by specifying CICSPT02 in the **Scope value** field of the **Install** view.

**Note:** For a complete description of the **RTA definitions** view, see "RTA definitions" on page 29.

## Monitoring a resource type throughout the CICSplex

In this example, you will see how to monitor the availability of all MRO connections throughout CICSplex PLXPROD1. Whenever such a connection goes out of service, an event notification (but no external message) is to be generated, and its severity is to be VHS. Thus, if three connections are lost, three event notifications

will be issued. The monitoring is to be continuous. A CICS system group (CSGPLX01), which includes every CICS system in PLXPROD1, has already been created.

As in the previous example, the steps involved in the creation of the evaluation definition, the action definition, and the analysis definition are of most interest:

1. Create an evaluation definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Evaluations** to display the **Evaluation definitions** tabular view (EVALDEF object).Click **Evaluations**
   - Click the **Create...** button. The **Evaluation definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTEPAY04 |
| Description | All MRO connections in PLXPROD1 |
| Sample interval | 30 |
| Resource name | CONNECT |
| Instance identifier of evaluated resource | * |
| Method of evaluating results in result set | Any |
| Separate task indicator | NO |
| Field being evaluated | SERVSTATUS |
| Evaluation logical operator | NE |
| Evaluation data value | INSERVICE |
| Severity assigned when result meets criteria | VHS |
| View that may provide extra information | CONNECT |
| Filter string | TYPE=MRO. |

   - Click **Yes** to create the definition. Otherwise, click **No** to abandon the process.

   In this example:

   - The evaluation values define the type of check to be made.
   - The Result Set Action value ensures that, if the condition is true of any connection that's being monitored, the evaluation returns a severity of VHS.
   - The filter string limits the checking to MRO connections.

   **Note:** For a complete description of the **Evaluation definition** view, see “Evaluation definitions” on page 27.

2. Create an action definition:
   - From the main menu, click **Administration views** and one of **RTA system availability monitoring**, **RTA MAS resource monitoring** and **RTA analysis point monitoring**.
   - Click **Actions** to display the **Action definitions** tabular view (ACTION object).
   - Click the **Create...** button. To base the new definition on an existing one, click the Record check box before clicking the **Create...** button. The **Action definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTAPAY04 |
| Description | Connections lost in PLXPROD1 |
| Generate event | YES |

| | |
|---|---|
| Name of view that may provide useful information | CONNECT |
| Action priority | 120 |
| Message sent when event occurs | Connections lost in PLXPROD1 |
| Generate external message | NO |
| Generate generic SNA alert | NO |
| MVS automatic restart | NO |

- Click **Yes** to create the definition. Otherwise, click **No** to abandon the process.

The Priority value of 120 means that other VHS events with a priority greater than 120 will appear higher in the **Outstanding events** view.

**Note:** For a complete description of the **RTA definitions** view, see "Action definitions" on page 26.

3. Create an analysis definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to display the **RTA definitions** tabular view (RTA object).
   - Click the **Create...** button. The **RTA definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTDPAY04 |
| Description | MRO connections in PLXPROD1 |
| Analysis interval | 30 |
| Evaluation expression | RTEPAY04 |
| Execute evaluation modification string | NO |
| Action definition name | RTAPAY04 |

Use the default value of 1 in the **Count of true evaluations** and **Count of false evaluations** fields.

- Click **Yes** to create the definition.

**Note:** For a complete description of the **RTA definitions** view, see "RTA definitions" on page 29.

You would install the analysis definition in the CICS system group CSGPLX01 by specifying CSGPLX01 in the **Scope name** field of the **Install** view.

## Monitoring multiple resource types in a CICS system group (1)

This example shows how to monitor both the CDSA and the UDSA free sizes for two CICS systems, CICSPA01 and CICSPA02, which have already been defined as the only members of CICS system group CSGAORS1. When either the CDSA or UDSA free size falls below a specified value, an external message and an event notification are to be issued. The severity of the event notification will increase as the DSA free size reduces.

Because you are monitoring two resources in this example (UDSA and CDSA), two evaluation definitions are required. Here are the relevant steps:

1. Create the first evaluation definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Evaluations** to display the **Evaluation definitions** tabular view (EVALDEF object).

- Click the **Create...** button. The **Evaluation definitions** create view is displayed.
- Complete the fields as follows:

| | |
|---|---|
| Name | RTEPAY05 |
| Description | Check CDSA free size |
| Sample interval | 60 |
| Resource table | CICSDSA |
| Instance identifier of evaluated resource | CDSA |
| Result set action | No |
| Field being evaluated | STGFSIZE |
| Upper bound of range for VLS | 70000 |
| Upper bound of range for LS | 85000 |
| Upper bound of range for LW | 95000 |

- Click **Yes** to create the definition.

The evaluation threshold values are based on a CDSA cushion size of 64KB. Increasingly severe conditions will be flagged as the free storage drops closer to the cushion value. (An alternative approach would have been to use percentage measurements (PCTFREE) rather than absolute measures (STGFSIZE).) The resource will be sampled once every 60 seconds.

When you click **Yes**, the **Evaluation definitions** tabular view is redisplayed, showing an entry for RTEPAY05.

**Note:** For a complete description of the **Evaluation definition** view, see "Evaluation definitions" on page 27.

2. Create the second evaluation definition:
   - On the**Evaluation definitions** tabular view (EVALDEF object), click the Record check box beside the entry for RTEPAY05.
   - Click the **Create...** button. The **Evaluation definitions** create view is displayed showing the values entered for RTEPAY05.
   - Overtype the **Name**, **Description**, **Instance identifier of evaluated resource** and the evaluation threshold fields, as follows:

| | |
|---|---|
| Name | RTAPAY06 |
| Description | Check USDA free size |
| Instance identifier of evaluated resource | CDSA |
| Upper bound of range for VLS | 70000 |
| Upper bound of range for LS | 80000 |
| Upper bound of range for LW | 90000 |

   Leave the other fields with the values used for RTEPA05.
   - Click **Yes** to create the definition.

   As for the CDSA evaluation definition, the evaluation threshold values are based on a cushion size of 64KB.
3. Create an action definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Actions** to display the **Action definitions** tabular view (ACTION object).
   - Click the **Create...** button. The **Action definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTAPAY05 |

| | |
|---|---|
| Description | DSA free size low below 16MB |
| Generate event | Yes |
| Name of view that might provide useful information | CICSDSA |
| Action priority | 255 |
| Message to send when event occurs | Free DSA below 16MB dropping |
| Generate external message | Yes |
| External message sent when event occurs | Free DSA below 16MB dropping |
| External message sent when event is cleared | Free DSA below 16MB climbing |
| Generate SNA generic alert | No |
| MVS automatic restart | No |

- Click **Yes** to create the definition.

**Note:** For a complete description of the **Action definitions** view, see "Action definitions" on page 26.

4. Create an analysis definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to display the **RTA definitions** tabular view (RTA object).
   - Click the **Create...** button. The **RTA definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTDPAY05 |
| Description | DSA free below 16MB |
| Analysis interval | 300 |
| Evaluation expression | RTEPAY05\|RTEPAY06 |
| Execute evaluation modification string | No |
| Action definition name | RTAPAY05 |
| Count of true evaluations before VLS raised | 2 |
| Count of false evaluations before VLS resolved | 2 |
| Count of true evaluations before LS raised | 2 |
| Count of false evaluations before LS resolved | 2 |
| Count of true evaluations before LW raised | 2 |
| Count of false evaluations before LW resolved | 2 |
| Count of true evaluations before HW raised | 1 |
| Count of false evaluations before HW resolved | 1 |
| Count of true evaluations before HS raised | 1 |
| Count of false evaluations before HS resolved | 1 |
| Count of true evaluations before VHS raised | 1 |
| Count of false evaluations before VHS resolved | 1 |

- Click **Yes** to create the definition.

The counts of true and false evaluations are used to smooth out fluctuations in the values being seen. For example, an LW condition is not flagged until a severity of at least LW has been seen for two consecutive samples. Each condition is cleared after two, less severe samples have been seen in succession.

The evaluation expression value tells CICSPlex SM that either of the two evaluation definitions can identify a condition that is to be flagged. The action is the same for both evaluation definitions, and is defined in RTAPAY05.

**Note:** For a complete description of the **RTA definitions** view, see “RTA definitions” on page 29.

You would install the analysis definition RTDPAY05 in the CICS system group CSGAORS1 by specifying CSGAORS1 as the scope of the analysis specification.

## Monitoring multiple resource types in a CICS system group (2)

In the previous example (“Monitoring multiple resource types in a CICS system group (1)” on page 73), you saw how to monitor two types of resource (CDSA and UDSA) in a group of CICS systems. You created a single action definition, so that the same notifications were issued, regardless of which of the two types of resource was having problems.

In this example, you will see how to monitor those same resources (CDSA and UDSA), but with these differences:

- The message text of the external message and the event notification will identify whether UDSA or CDSA is having problems. This will require two action definitions rather than one.
- The monitoring will be activated every day, from 10:00 through 11:30 and from 14:00 to 16:00, but not outside those times. This will require two analysis groups to be created, one of which will be installed from 10:00 through 11:00, and one of which will be installed from 14:00 through 16:00.

The CICS system group CSGAORS1, containing CICS systems CICSPA01 and CICSPA02, has already been created, as have the two time-period definitions PDFBUSY1 (for the period 10:00 through 11:30) and PDFBUSY2 (for the period 14:00 through 16:00). You can reuse the two evaluation definitions (RTEPAY05 and RTEPAY06) from the previous example.

1. Create the first action definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Actions** to display the **Action definitions** tabular view (ACTION object).
   - Click the **Create...** button. The **Action definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTAPAY07 |
| Description | CDSA free size low below 16MB |
| Generate event | Yes |
| Name of view that might provide useful information | CICSDSA |
| Action priority | 255 |
| Message to send when event occurs | Free CDSA below 16MB dropping |
| Generate external message | Yes |
| External message sent when event occurs | Free CDSA below 16MB dropping |
| External message sent when event is cleared | Free CDSA below 16MB climbing |
| Generate SNA generic alert | No |
| MVS automatic restart | No |

   - Click **Yes** to create the definition.

   The **Action** tabular view is redisplayed, showing the new definition.
2. Create the second action definition:
   - From the **Action definitions** tabular view (ACTION object), click the Record check box by the entry for RTAPAY07.

- Click the **Create...** button. The **Action definitions** create view is displayed, showing the values you entered for RTAPAY07.
- Complete the fields as follows:

| | |
|---|---|
| Name | RTAPAY08 |
| Description | UDSA free size low below 16MB |
| Generate event | Yes |
| Name of view that might provide useful information | CICSDSA |
| Action priority | 255 |
| Message to send when event occurs | Free UDSA below 16MB dropping |
| Generate external message | Yes |
| External message sent when event occurs | Free UDSA below 16MB dropping |
| External message sent when event is cleared | Free UDSA below 16MB climbing |
| Generate SNA generic alert | No |
| MVS automatic restart | No |

- Click **Yes** to create the definition.

Notice that the messages generated by action definitions RTAPAY07 and RTAPAY08 differentiate between problems with CDSA and problems with UDSA.

3. Create the first analysis definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to display the **RTA definitions** tabular view (RTA object).
   - Click the **Create...** button. The **RTA definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTDPAY07 |
| Description | CDSA free size |
| Analysis interval | 60 |
| Evaluation expression | RTEPAY05\|RTEPAY06 |
| Execute evaluation modification string | No |
| Action definition name | RTAPAY07 |
| Count of true evaluations before VLS raised | 2 |
| Count of false evaluations before VLS resolved | 2 |
| Count of true evaluations before LS raised | 2 |
| Count of false evaluations before LS resolved | 2 |
| Count of true evaluations before LW raised | 2 |
| Count of false evaluations before LW resolved | 2 |
| Count of true evaluations before HW raised | 1 |
| Count of false evaluations before HW resolved | 1 |
| Count of true evaluations before HS raised | 1 |
| Count of false evaluations before HS resolved | 1 |
| Count of true evaluations before VHS raised | 1 |
| Count of false evaluations before VHS resolved | 1 |

   - Click **Yes** to create the definition.

   The **RTA definitions** view is redisplayed.

   This analysis definition is basically the same as the one you created in the previous example (“Monitoring multiple resource types in a CICS system group

(1)" on page 73), except that it names only one evaluation definition in the **Evaluation expression** field, has a shorter analysis interval, and triggers the CDSA-specific action definition, RTAPAY07.

4. Create the second analysis definition:
   - From the **RTA definitions** tabular view (RTA object), click the Record check box beside the entry for RTDPAY07.
   - Click the **Create...** button. The **RTA definitions** create view is displayed showing the values you entered for RTDPAY07.
   - Change the **Name**, **Description**, **Analysis interval**, **Evaluation expression**, and **Action definition** fields as follows:

| | |
|---|---|
| Name | RTDPAY08 |
| Description | UDSA free size |
| Analysis interval | 60 |
| Evaluation expression | RTEPAY06 |
| Action definition name | RTAPAY08 |

   - click **Yes** to create the definition.

   The **RTA definitions** view is redisplayed.
5. Create the first analysis group:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Groups** to display the **RTA groups** tabular view (RTAGROUP object)..
   - Click the **Create...** button. The **RTA definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| RTA group | RTGPAY07 |
| Description | Peak time DSA health - a.m. |

   - Click **Yes** to create the group.

   **Note:** For a complete description of the **RTA groups** view, see "RTA groups" on page 32.
6. Create the second analysis group.
   - From the **RTA groups** tabular view (RTAGROUP object), click the **Create...** button to display the **RTA definitions** create view.
   - Complete the fields as follows:

| | |
|---|---|
| RTA group | RTGPAY08 |
| Description | Peak time DSA health - p.m. |

   - Click **Yes** to create the group.
7. Add analysis definitions to analysis group RTGPAY07:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to display the **RTA definitions** tabular view (RTADEF object)..
   - Click the **Record** check box next to the entry for RTDPAY07, and click the **Add the RTA group...** button. The **Add to RTA Group** view is displayed.
   - Complete the panel as follows:

| | |
|---|---|
| Resource group name | RTGPAY07 |
| Period definition name | PDFBUSY1 |

- Click **Yes** to add the definition to the group.

The **RTA definitions** view is redisplayed.

In the same way,

- Add analysis definition RTDPAY08 to analysis group RTGPAY07, specifying **Period definition name** PDFBUSY1.
- Add analysis definitions RTDPAY07 and RTDPAY08 to analysis group RTGPAY08, specifying **Period definition name** PDFBUSY2.

8. To check that analysis definitions have been added successfully to both analysis groups:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions in groups** to display the **RTA definitions in RTA groups** tabular view (RTAINGRP object).
   - The **RTA definitions in RTA** groups view shows entries for analysis definitions RTDPAY07 and RTDPAY08 in each of the analysis groups RTGPAY07 and RTGPAY08.
9. Create an analysis specification:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Specifications** to display the **RTA specifications** tabular view (RTASPEC object)..
   - Click the **Create...** button to display the **RTA specifications** create view.
   - Complete the fields as follows:

| | |
|---|---|
| RTA specification name | RTSPAY07 |
| Description | General health checks |

   - Click **Yes** to create the specification.

   The **RTA specifications** view is redisplayed.

   **Note:** For a complete description of the **RTA specifications** view, see “RTA specifications” on page 38.
10. Set the scope of the analysis specification:
    - From the **RTA specifications** view, click the Record check box beside the entry for RTSPAY07.
    - Click the **Associate CICS group system...** button to display the **Associate CICS system group** add view.
    - Enter CSGAORS1 in the **CICS system group** field.
    - Click **Yes** to set the scope for this analysis specification.

    The **RTA specifications** view is redisplayed.
11. Add the analysis groups to the analysis specification:
    - From the main menu, click **Administration views > RTA MAS resource monitoring > Groups** to display the **RTA groups** tabular view (RTAGROUP object).
    - Click the Record box beside the entry for RTGPAY07, and click the **Add to RTA Specification...** button. The **Add to RTA specification** view is displayed.
    - Enter RTSPAY07 in the **RTA specname** field and click **Yes** to add the group to the specification.

    The **RTA groups** view is redisplayed.

Repeat this step to add analysis group RTGPAY08 to analysis specification RTSPAY07. The analysis definitions take effect for any CICS system in group CSGAORS1 when that system is next started. If any of the CICS systems in group CSGAORS1 is already active, you can make the analysis definitions take immediate effect as described in “Adding a scope to an analysis specification” on page 39.

## Updating analysis and evaluation definitions

This example shows how to update the evaluation definition and the analysis definition you used for the CDSA resource in the previous example. Assume that you want to reduce the sample intervals in both definitions from 60 seconds to 30 seconds.

1. If the current context isn't PLXPROD1, change the **Context** field on the main menu and click the **Refresh** button.
2. To update the evaluation definition RTEPAY05:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Evaluations** to display the **Evaluations definitions** tabular view (EVALDEF object).
   - Click the record check box beside the entry for RTEPAY05 and click the **Update...** button. The **Evaluation definitions** update view is displayed.
   - Change the **Sample interval** field (currently set to 60) to 30, and click the **Yes** button.

   The **Evaluation definitions** tabular view is redisplayed.

   **Note:** For a complete description of the **Evaluation definitions** view, see “Evaluation definitions” on page 27.
3. Update the analysis definition RTDPAY07:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to display the **RTA definitions** tabular view.
   - Click the Record check box beside the entry for RTDPAY07 and click the **Update...** button. The **RTA definitions** create view is displayed.
   - Change the **Sample Interval** field (currently set to 60) to 30, and click **Yes**.

   The **RTA definitions** tabular view is redisplayed.

   **Note:** For a complete description of the **RTA definitions** view, see “RTA definitions” on page 29.

   Although you have updated the relevant definitions, any active CICS system in which those definitions are installed will not pick up the changes until those systems are next started. If you want to make the changes take effect immediately, you must reinstall the analysis definition “manually”.
4. Install the changed analysis definition:
   - From the **RTA definitions** tabular view, click the Record check box beside the entry for RTDPAY07.
   - Click the **Install...** button. The **RTA definitions** install view is displayed.
   - In the **Scope value** field, enter CSGAORS1.
   - Click **Yes** to install the changed analysis definition.

   The **RTA definitions** tabular view is redisplayed.

   To check that the updated definition has been installed:
   - From the main menu, click **Real time analysis (RTA) views >Real time analysis (RTA) installed analysis and status definitions**.

The **Real time analysis (RTA) installed analysis and status definitions** tabular view (RTAACTV object) shows the current interval between evaluations.

## Deactivating an analysis definition

This example shows you how to deactivate an analysis definition, installed for a specific period of time, before that time has elapsed. Assume that the analysis definition RTDPAY02 (from the example “Monitoring resources permanently” on page 65) is now being installed automatically from 09:00 through 17:30 every day in CICS systems CICSPA01 and CICSPA02. The time-period definition that controls installation of RTDPAY02 is PDFPRIME. The current time is 14:45, and you want to deactivate the definition in CICSPA02.

- If the current context isn't PLXPROD1, change the **Context** field on the main menu and click **Refresh**.
- From the main menu, click **Real time analysis (RTA) views > Real time analysis (RTA) installed analysis and status definitions**. The **Real time analysis (RTA) installed analysis and status** definitions tabular view is displayed.
- Click the Record check box beside the entry for RTDPAY02 and click the **Deactivate...** button.
- The **Deactivate** view is displayed. Click **Yes** to deactivate the analysis definition.

The analysis definition RTDPAY02 will become active again in CICSPA02 when the start of time-period PDFPRIME is next reached.

## Using data gathered by the resource monitoring function

This example shows you how the real-time analysis functions of CICSPlex SM can interpret data from another CICSPlex SM function—resource monitoring—and issue appropriate notifications when problems occur.

Assume that a key transaction (PAY8) is experiencing poor response times, and that the cause is unclear. Transaction PAY8 is initiated from TOR CICSPT02 in CICSplex PLXPROD1. Appropriate monitoring definitions have been created to monitor the response time of transaction PAY8 at 5-minute intervals. (An example of how to do this is provided in “Monitoring transaction response times” on page 156.) CICSPlex SM's real-time analysis function will examine the data gathered by the resource monitoring function, and will issue an event notification and an external message when the response time is poor. The severity of the event notification will increase in line with the degradation in response times.

Analysis of PAY8's response times is not a permanent requirement, but is necessary only until the problem is solved. Because of this, the analysis definition is installed manually in TOR CICSPT02 on request.

1. If the current context isn't PLXPROD1, change the **Context** field on the main menu and click **Set**.
2. Create an evaluation definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Evaluations** to display the **Evaluation definitions** tabular view (EVALDEF object).
   - Click the **Create...** button. The **Evaluation definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTEPAY09 |

| | |
|---|---|
| Description | PAY8 response times check |
| Sample interval | 300 |
| Resource table | MREMTRAN |
| Instance identifier of evaluated resource | PAY8 |
| Result set action | MAX |
| Field being evaluated | CURAVGRESP |
| Upper bound of range for HW | 1.5 |
| Upper bound of range for HS | 3 |
| Upper bound of range for VHS | 4 |

- Click **Yes** to create the definition.

The evaluation threshold values are response times in seconds. Thus, an average response time of 4 in any one sampling, for example, will be flagged as VHS. (Note that, although a **Result Set Action** value has been specified, it has no particular effect in this example. It is most useful when multiple resources are being evaluated, rather than one. For example, if you had specified an instance pattern of PAY* and a **Result Set Action** value of MAX, the *maximum* average response time of transactions PAY* would be used by CICSPlex SM in determining whether to flag a condition.

**Note:** This example does not make use of the second Create Evaluation Definition panel. For a complete description of the **Evaluation definitions** view and the panels you use to create one, see “Evaluation definitions” on page 27.

3. Create an analysis definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to display the **RTA definitions** tabular view (RTA object).
   - Click the **Create...** button. The **RTA definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTDPAY09 |
| Description | PAY8 response times high |
| Analysis interval | 300 |
| Evaluation expression | RTEPAY09 |
| Execute evaluation modification string | No |
| Action definition name | RTAPAY09 |
| Count of true evaluations before VLS raised | 1 |
| Count of false evaluations before VLS resolved | 1 |
| Count of true evaluations before LS raised | 2 |
| Count of false evaluations before LS resolved | 1 |
| Count of true evaluations before LW raised | 1 |
| Count of false evaluations before LW resolved | 1 |
| Count of true evaluations before HW raised | 1 |
| Count of false evaluations before HW resolved | 1 |
| Count of true evaluations before HS raised | 1 |
| Count of false evaluations before HS resolved | 1 |
| Count of true evaluations before VHS raised | 1 |
| Count of false evaluations before VHS resolved | 1 |

- Click **Yes** to create the definition.

**Note:** For a complete description of the **RTA definitions** view, see “RTA definitions” on page 29.

4. Create an action definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Actions** to display the **Action definitions** tabular view (ACTION object).
   - Click the **Create...** button. The **Action definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTAPAY09 |
| Description | PAY8 response times high |
| Generate event | Yes |
| Name of view that might provide useful information | MREMTRAN |
| Action priority | 255 |
| Message to send when event occurs | Free DSA below 16MB dropping |
| Generate external message | Yes |
| External message sent when event occurs | PAY8 response times climbing |
| External message sent when event is cleared | PAY8 response times dropping |
| Generate SNA generic alert | No |
| MVS automatic restart | No |

   - Click **Yes** to create the definition.

   **Note:** For a complete description of the **Action definitions** view, see “Action definitions” on page 26.

5. Explicitly install the analysis definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to display the **RTA definitions** tabular view.
   - Click the Record check box beside the entry for RTDPAY09 and click the **Install...** button. The **Install** view is displayed.
   - Type CICST02 into the **Scope value** field and click **Yes** to install the analysis definition.

   The **RTA definitions** tabular view is redisplayed.

## Issuing one notification for multiple conditions(1)

In the real-time analysis examples you've seen so far, CICSPlex SM has monitored one or more instances of a resource in one or more CICS systems, and each occurrence of a notifiable condition has caused an external message or an event notification to be issued. So, for example, if the CDSA falls too low in three AORs, you see three sets of notifications. However, there are occasions when a single notification for a group of CICS systems, or even for the entire CICSplex, would be preferable.

To implement this “consolidated” reporting, you create an analysis point specification, in which you identify a single CMAS as the primary CMAS for analysis point monitoring (APM). The primary CMAS consolidates results from all the systems being checked to give a single result.

In this example, you will see how to monitor the number of current tasks throughout the CICSplex PLXPROD1. When the average number of current tasks in PLXPROD1 goes above a specified number, a single event notification will be issued, and an alert will be issued to NetView. The checking will occur from 09:30

through 11:30, for which period a time-period definition (PDFEARLY) has already been created. Also, the CICS system group CSGPLX01, which contains every CICS system in PLXPROD1, has been created.

1. If the current context isn't PLXPROD1, change the **Context** field on the main menu and click **Set**.
2. Create an evaluation definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Evaluations** to display the **Evaluation definitions** tabular view (EVALDEF object).
   - Click the **Create...** button. The **Evaluation definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTEPAY10 |
| Description | Current tasks in PLXPROD1 |
| Sample interval | 60 |
| Resource table | CICSRGN |
| Instance identifier of evaluated resource | * |
| Result set action | AVG |
| Field being evaluated | CURRTASKS |
| Upper bound of range for HW | 50 |
| Upper bound of range for HS | 65 |
| Upper bound of range for VHS | 70 |

   - Click **Yes** to create the definition.

   The current number of tasks is to be checked every 60 seconds. An average of 50 or higher will be notified, and the severity of the notification will increase as the average number of current tasks increases.

   **Note:** For a complete description of the **Evaluation definitions** view, see "Evaluation definitions" on page 27.
3. Create an action definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Actions** to display the **Action definitions** tabular view (ACTION object).
   - Click the **Create...** button. The **Action definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTAPAY10 |
| Description | High task load in PLXPROD1 |
| Generate event | Yes |
| Name of view that might provide useful information | CICSRGN |
| Action priority | 255 |
| Message to send when event occurs | High task load in PLXPROD1 |
| Generate external message | No |
| Generate SNA generic alert | Yes |
| CMAS to which NetView attached | CMSSYS1 |
| Message text when alert raised | Task load climbing in PLXPROD1 |
| Message text when alert cleared | Task load falling in PLXPROD1 |
| MVS automatic restart | No |

   - Click **Yes** to create the definition.

   The **Action definitions** tabular view is redisplayed.

**Note:** For a complete description of the **Action definitions** view, see "Action definitions" on page 26.

4. Create an analysis definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to display the **RTA definitions** tabular view (RTA object).
   - Click the **Create...** button. The **RTA definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTDPAY10 |
| Description | Average current tasks |
| Analysis interval | 60 |
| Evaluation expression | RTEPAY10 |
| Execute evaluation modification string | No |
| Action definition name | RTAPAY10 |
| Count of true evaluations before VLS raised | 1 |
| Count of false evaluations before VLS resolved | 1 |
| Count of true evaluations before LS raised | 1 |
| Count of false evaluations before LS resolved | 1 |
| Count of true evaluations before LW raised | 1 |
| Count of false evaluations before LW resolved | 1 |
| Count of true evaluations before HW raised | 4 |
| Count of false evaluations before HW resolved | 2 |
| Count of true evaluations before HS raised | 3 |
| Count of false evaluations before HS resolved | 2 |
| Count of true evaluations before VHS raised | 2 |
| Count of false evaluations before VHS resolved | 2 |

   - Click **Yes** to create the definition.

   CICSPlex SM will sample the results of its evaluations every 60 seconds. An HW condition will be flagged when a severity of at least HW has been seen in four successive samples. An HS condition will be flagged when a severity of at least HS has been seen in three successive samples. A VHS condition will be flagged when a severity of VHS has been seen in two successive samples. Each of the conditions will be cleared only when two, less severe samples are seen in succession.

   **Note:** For a complete description of the **RTA definitions** view, see "RTA definitions" on page 29.

5. Create an analysis group:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Groups** to display the **RTA groups** tabular view (RTA object).
   - Click the **Create...** button. To base the new definition on an existing one, click the Record check box before clicking the **Create...** button. The **RTA groups** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTGPAY10 |
| Description | AP - CICSplex health checks |

- Click **Yes** to create the definition.

The **RTA group** tabular view is redisplayed.

**Note:** For a complete description of the **RTA groups** view, see “RTA groups” on page 32.

6. Add the analysis definition to the analysis group:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to display the **RTA definitions** tabular view.
   - Click the Record check box beside the entry for RTDPAY10 and click the **Add to RTA group...** button. The **Add to RTA group** view is displayed.
   - Type RTGPAY10 in the **Resource group name field** and PDFEARLY in the **Period Definition name** field.
   - Click **Yes** to add the definition to the resource group.

   The **RTA definitions** tabular view is redisplayed.

   You can check that this step has worked by looking at the **RTA definitions in RTA groups** view (RTAINGRP object).
7. Create an analysis point specification:
   - From the main menu, click **Administration views > RTA analysis point monitoring > Analysis point specifications** to display the **RTA analysis point specifications** tabular view (APSPEC object).
   - Click the **Create...** button to display the **RTA analysis point specifications** create view.
   - Complete the fields as follows:

| | |
|---|---|
| RTA analysis point specification | RAPPAY10 |
| Description | Analysis point for PLXPROD1 |

   - Click **Yes** to add the definition to the resource group.

   The **RTA analysis point specifications** tabular view is redisplayed.

   **Note:** For a complete description of the **RTA analysis point specifications** view, see “RTA analysis point specifications” on page 26.
8. Add the analysis group to the analysis point specification:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Groups** to display the **RTA groups** tabular view.
   - Click the Record check box beside the entry for RTGPAY10 and click the **Add to analysis point specification...** button.
   - On the **Add to analysis point specification...** view, complete the fields as follows:

| | |
|---|---|
| APSPEC name | RAPPAY10 |
| Scope name | CSGPLX01 |

   - Click **Yes** to add the group to the analysis point specification.

   The **RTA groups** tabular view is redisplayed.

   You can check that this step has succeeded by looking at the **Groups in analysis point specifications** view (RTAINAPS object).
9. Identify the primary CMAS:

- From the main menu, click **Administration views > RTA analysis point monitoring > Specifications** to display the **RTA specifications** tabular view (APSPEC object).
- Click the Record check box beside the entry for RAPPAY10 and click the **Add primary CMAS...** button. The **Add primary CMAS** view is displayed.
- Type CMSSYS1 in the **CMAS name** field and click **Yes** to make this system the primary CMAS.

The **RTA specifications** tabular view is redisplayed.

When you identify the primary CMAS, the analysis point specification, and any analysis groups and analysis definitions associated with it, are installed automatically. For this reason, you should create the analysis definitions and analysis groups before you identify the primary CMAS. You can check that primary CMASs have been successfully identified by looking at the **Primary CMAS analysis point specifications** tabular view (CMDMPAPS object).

10. Identify a secondary CMAS (optional):
    - From the main menu, click **Administration views > RTA analysis point monitoring > Specifications** to display the **RTA specifications** tabular view (APSPEC object).
    - Click the Record check box beside the entry for RAPPAY10 and click the **Add secondary CMAS...** button. The **Add secondary CMAS** view is displayed.
    - Type CMSSYS2 in the **CMAS name** field and click **Yes** to make this system the secondary CMAS.

    The **RTA specifications** tabular view is redisplayed.

    When you identify a secondary CMAS (which is optional), that CMAS assumes the role of the primary CMAS if it ever loses contact with the primary CMAS. That is, the secondary CMAS monitors resources in those CICS systems it can communicate with until its contact with the primary CMAS is restored.

    You can check that secondary CMASs have been successfully identified by looking at the **Primary CMAS analysis point specifications** tabular view (CMDMSAPS object).

## Issuing one notification for multiple conditions (2)

This example is a variation on the previous example (“Issuing one notification for multiple conditions(1)” on page 83), in which you saw how to obtain a single set of notifications when the average number of current tasks in a CICSplex is high. In this example, you'll see how to monitor the availability of transactions whose names begin with the letters ETR throughout the CICSplex. (A transaction is not available if its status is DISABLED in any AOR in which it is locally defined.) An event notification and an alert will be issued if any ETR* transaction is unavailable in one or more AORs.

How to create the evaluation definition, the action definition, and the analysis definition is described here. The remaining steps (such as creating an analysis group and creating the analysis point specification) are as described in step 5 on page 85 through step 9 on page 86 of the previous example.

1. Create an evaluation definition:
    - From the main menu, click **Administration views > RTA MAS resource monitoring > Evaluations** to display the **Evaluation definitions** tabular view (EVALDEF object).
    - Click the **Create...** button. The **Evaluation definitions** create view is displayed.

- Complete the fields as follows:

| | |
|---|---|
| Name | RTEPAY11 |
| Description | Key transaction check |
| Sample interval | 300 |
| Resource table | LOCTRAN |
| Instance identifier of evaluated resource | ETR* |
| Result set action | ANY |
| Field being evaluated | STATUS |
| Evaluation logical operator | EQ |
| Evaluation data value | Disabled |
| Severity assigned when result meets criteria | VLS |
| View that may provide extra information | LOCTRAN |

- Click **Yes** to create the definition.

2. Create an action definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Actions** to display the **Action definitions** tabular view (ACTION object).
   - Click the **Create...** button. The **Action definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTAPAY11 |
| Description | Key application unavailable |
| Generate event | Yes |
| Name of view that might provide useful information | LOCTRAN |
| Action priority | 255 |
| Message to send when event occurs | Key application unavailable |
| Generate external message | No |
| Generate SNA generic alert | Yes |
| CMAS to which NetView attached | CMSSYS1 |
| Message text when alert raised | Key application unavailable |
| Message text when alert cleared | Key application available again |
| MVS automatic restart | No |

   - Click **Yes** to create the definition.

   Notice that the **Name of view that might provide useful information** value is LOCTRAN. Although the event notification issued in this example is not specific (that is, it doesn't identify the transactions, nor does it tell you in which AORs they are unavailable), you can look at the **Local or dynamic transactions** tabular view (LOCTRAN object) to find out which transactions are DISABLED, and in which AORs they are locally defined.

3. Create an analysis definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to display the **RTA definitions** tabular view (RTA object).
   - Click the **Create...** button. To base the new definition on an existing one, click the Record check box before clicking the **Create...** button. The **RTA definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTDPAY11 |
| Description | Key application check |

| | |
|---|---|
| Analysis interval | 300 |
| Evaluation expression | RTEPAY11 |
| Execute evaluation modification string | No |
| Action definition name | RTAPAY11 |
| Count of true evaluations before VLS raised | 1 |
| Count of false evaluations before VLS resolved | 1 |
| Count of true evaluations before LS raised | 1 |
| Count of false evaluations before LS resolved | 1 |
| Count of true evaluations before LW raised | 1 |
| Count of false evaluations before LW resolved | 1 |
| Count of true evaluations before HW raised | 1 |
| Count of false evaluations before HW resolved | 1 |
| Count of true evaluations before HS raised | 1 |
| Count of false evaluations before HS resolved | 1 |
| Count of true evaluations before VHS raised | 1 |
| Count of false evaluations before VHS resolved | 1 |

- Click **Yes** to create the definition.

## Modifying the state of a resource

In this example you'll see how to use an evaluation definition and an analysis definition to modify a CICS resource when it is not in the desired state. This example is an extension of the example in “Reusing analysis specifications and analysis groups” on page 67, in which you saw how to monitor files in the CICS system group called CGSAORS1. You will be using the Time Period Definition (PDFCHECK) and the Action Definition (RTAPAY12) from that example.

1. Create the evaluation definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Evaluations** to display the **Evaluation definitions** tabular view (EVALDEF object).
   - Click the **Create...** button. The **Evaluation definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTEPAY12 |
| Description | REMFILE PAYFILA* enabling |
| Sample interval | 60 |
| Resource table | REMFILE |
| Instance identifier of evaluated resource | PAYFILA* |
| Method of evaluating results in a result set | ANY |
| Separate task indicator | NO |
| Field being evaluated | ENABLESTATUS |
| Severity assigned when results meet criteria | VHS |
| View that may provide extra information | REMFILE |
| Modification string | ENABLESTATUS=ENABLED, OPENSTATUS=OPEN. |

   - Click **Yes** to create the definition.

In this example, the modification string expression modifies the ENABLESTATUS and OPENSTATUS attributes to make the specified files available.

2. Create the analysis definition:
   - From the main menu, click **Administration views > RTA MAS resource monitoring > Definitions** to display the **RTA definitions** tabular view (RTA object).
   - Click the **Create...** button. The **RTA definitions** create view is displayed.
   - Complete the fields as follows:

| | |
|---|---|
| Name | RTDPAY14 |
| Description | Appl file check and modify |
| Analysis interval | 60 |
| Evaluation expression | RTEPAY12 |
| Execute evaluation modification string | Yes |
| Action definition name | RTAPAY12 |
| Count of true evaluations before VLS raised | 1 |
| Count of false evaluations before VLS resolved | 1 |
| Count of true evaluations before LS raised | 1 |
| Count of false evaluations before LS resolved | 1 |
| Count of true evaluations before LW raised | 1 |
| Count of false evaluations before LW resolved | 1 |
| Count of true evaluations before HW raised | 1 |
| Count of false evaluations before HW resolved | 1 |
| Count of true evaluations before HS raised | 1 |
| Count of false evaluations before HS resolved | 1 |
| Count of true evaluations before VHS raised | 1 |
| Count of false evaluations before VHS resolved | 1 |

   - Click **Yes** to create the definition.

   The **Execute evaluation modification string** field indicates that the resource modification defined in the evaluation definition should be performed when the evaluation condition is true.

   **Note:** For a complete description of the **RTA definitions** view, see "RTA definitions" on page 29.

3. Associate the new analysis definition with the existing analysis group:
   - From the **RTA definitions** tabular view, click the Record check box beside the entry for RTDPAY14 and click the **Add to RTA group...** button.
   - On the **Add to RTA group** view, complete the fields as follows:

| | |
|---|---|
| Resource group name | RTGPAY02 |
| Period definition name | PDFCHECK |

   - Click **Yes** to add the definition to the RTA group.

The Analysis Group RTGPAY02 already exists and it has already been associated with the analysis specification RTSPAY02. Therefore, analysis definition RTDPAY14 is installed automatically in the CICS systems in group CSGAORS1 when those systems are next started, for the period of time defined in PDFCHECK.

## Finding out why a CICSPlex SM event occurred

This example shows you how to investigate what caused a real-time analysis event notification RTDPAY01 to be issued.

1. If the current context isn't PLXPROD1, change the **Context field** on the main menu to PLXPROD1 and click **Set**.
2. From the main menu, click **Real Time Analysis (RTA) outstanding events** to display the **RTA outstanding events** tabular view.
3. This view will show you that the CONNSTATUS value of the connection has triggered the event and that its current value is RELEASED. This might tell you all you need to know. If it doesn't, you can investigate further as described in the remaining steps of this example.
4. Look at the associated evaluation definition. To access this:
   - From the main menu, click **Administration views > RTA analysis point monitoring > Evaluations** to display the **Evaluation definitions** tabular view.
   - Click the**Name** field of the entry you are interested in to display **Evaluation definitions** detailed view.

     From this view, you can see that event RTDPAY01 is triggered when the value of the **CONNSTATUS** field in the CONNECT resource table is not ACQUIRED. (The **Field being evaluated** field is CONNSTATUS, the **Evaluation logical operator** field is NE (meaning “not equal to”); and the **Evaluation data value** field is ACQUIRED).
5. Next, you could look at the **ISC/MRO connections** view (CONNECT object):
   - From the main menu, click **ISC/MRO connections** to display the **ISC/MRO connections** tabular view.
   - If necessary, change the **Scope** field to CICSPT01 and click **Refresh**.
   - The**ISC/MRO connections** tabular view displays a list of connections for CICS system CICSPT01

# Part 3. Resource monitoring

This part describes the CICSPlex SM resource monitoring facilities and the views you can use to monitor the resources in a CICSplex. It also includes sample tasks to help you establish resource monitoring at your enterprise.

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# Chapter 3. Resource monitoring

This part describes the CICSPlex SM resource monitoring facilities and the views you can use to monitor the resources in a CICSplex. It also includes sample tasks to help you establish resource monitoring at your enterprise.

## Preparing to monitor resources

This section describes how CICSPlex SM can be used to monitor the resources in a CICSplex. The primary purpose of these resource monitoring facilities is to provide data to the real-time analysis component. As part of real-time analysis processing, monitor definitions are automatically created to support the types of analysis you request. The data is used by real-time analysis to evaluate the status of a resource. Data can be collected for any or all resource types.

You can request additional monitoring of specific resources in your CICSplex. However, be aware that resource monitoring is implemented by a periodic sampling process that can add significant overhead to your environment.

When resource monitoring is active, either because real-time analysis requires it or you requested it, you can use the WUI monitoring views to display the collected data. To access these views, open the **Monitoring views** menu by clicking on **Monitoring views** on the WUI main menu.

## Defining resource monitoring attributes

When you define the attributes of resource monitoring, you are telling CICSPlex SM exactly which occurrences of one or more resource types are to be monitored and when this monitoring is to occur. The resource monitoring attributes are based on information provided in monitor specifications, monitor definitions, and, optionally, monitor groups.

- A *monitor specification* identifies the types of resources to be monitored and how frequently information about these resources is to be gathered. After you associate a monitor specification with a CICS system, that specification is automatically installed every time the CICS system starts.
- A *monitor definition* qualifies the resource type identified by a monitor specification. For example, after creating a monitor specification that indicates the program resource type is to be monitored, you might create a monitor definition that causes all programs to be monitored or only those programs with names starting with PAY.

  A monitor definition also indicates which resources should be identified to the resource status facility.

  You can install a monitor definition either manually or automatically. To be automatically installed, a monitor definition must be part of a monitor group. Monitor definitions that are not part of a monitor group must be manually installed.
- A *monitor group* is a collection of monitor definitions that are treated as a single entity. This means that you can install all of the monitor definitions associated with a monitor group either by:
  - Associating the monitor group with a monitor specification. When a CICS system using that specification starts, the specification and all monitor definitions associated with it through the monitor group are automatically installed.

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– Manually installing the monitor group. Monitor definitions installed this way are known to the CICS system as long as the CICS system is running or until you discard the definitions.

  You might want to create a monitor group that is not associated with a monitor specification for those resource types that you want to monitor only occasionally.

**Note:** A monitor definition can be installed in variety of CICSPlex SM managed CICS systems. However, not all resource types are supported in all of those systems. Therefore, CICSPlex SM verifies that the resource to be monitored is supported in the target system prior to installing the definition. If it is not, CICSPlex SM issues a message indicating the definition cannot be installed because the resource is not supported. This message is informative in nature and does not require any corrective action.

Figure 8 on page 97 illustrates the attributes of resource monitoring. In this example:

- Monitor specification EYUMOS01 designates that the CICS region, program, and transaction resource types are to be monitored, using the monitor definitions associated with the monitor groups EYUMOG01, EYUMOG02, and EYUMOG03.
- Monitor groups, such as EYUMOG01, activate resource monitoring during the designated range of hours identified by the time period definition.
- Monitor definitions, such as EYUMOD01 and EYUMOD02, qualify the specific resource information to be gathered. That is, the monitor definition EYUMOD01 indicates that only the program named PAYX is to be monitored; while EYUMOD02 indicates that any transaction identifiers starting with PAY are to be monitored.

  Monitor definitions such as EYUMOD09 are not associated with any monitor group and must, therefore, be manually installed. These definitions are useful when you have a very specific resource occurrence you want to monitor occasionally.

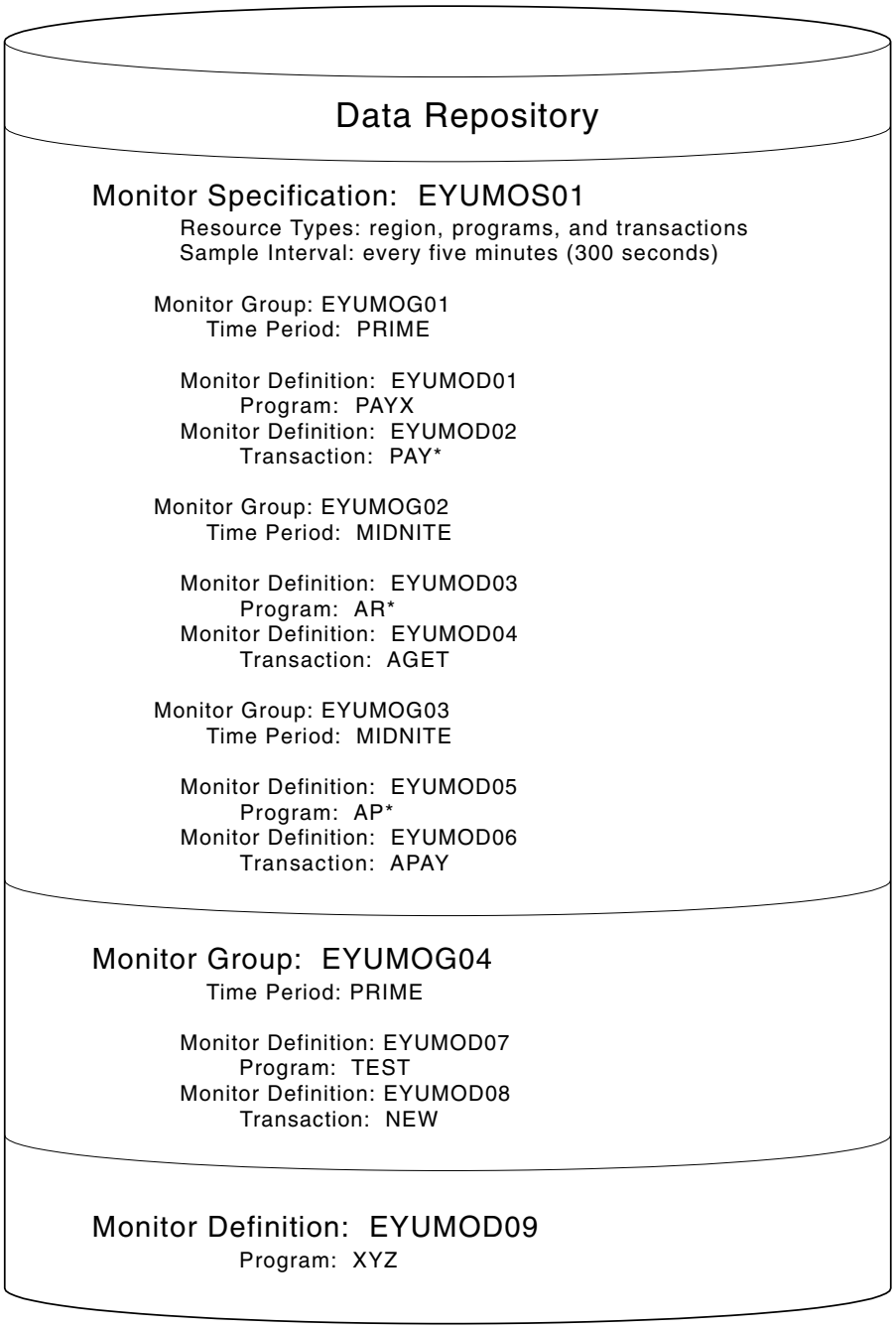


*Figure 8. An example of resource monitoring attributes*

## Activating resource monitoring

For resource monitoring to occur for a particular CICS system, you must:

1. Associate a monitor specification with the CICS system, using the **Monitor specifications** view. To open this view from the main menu, click **Administration views > Monitor administration views > Monitor specifications**.
2. Activate resource monitoring for the CICS system. There are two ways you can do this:

- Use the **CICS system definitions** WUI view (click **Administration views > Topology administration views > Monitor specifications > System definitions**) .
- Use the **MASs know to CICsplex** view (click **CICSPlex SM operations views > MASs known to CICSplex**).

3. Set the resource sample interval greater than 0. (The sample interval can be set from the associated monitor specification or from the CICS system definition.)

Monitor definitions that are associated with a monitor specification via monitor groups are automatically installed when that CICS system starts. As long as the CICS system remains active, additional monitor definitions can be manually installed in the CICS system.

Installed monitor definitions become active:
- At the time designated by the associated period definition.
- Immediately, when no period definition is associated with the definition, or if the CICS system is activated during the defined time period.

Monitor definitions remain active as long as the CICS system is running, until you discard them, or until the end of the time designated by the period definition is reached. To determine the current status of installed monitor definitions, you use the **Active monitor specifications** view (click **Monitoring views > Active monitor specifications**, as indicated in Table 7 on page 7.

Once resource monitoring is active, any changes you make to monitor definitions are noted in the data repository. To apply these changes to an active CICS system, you must manually install or discard the definitions.

## Historical data

CICSPlex SM provides the ability to save and view data for completed tasks, that is historical task data. When an active task completes, its data is stored in a historical data store. The data store is made up of a number of VSAM KSDS data sets. There must be a minimum of two data sets and a maximum of twenty six data sets.

Support for historical task data builds upon CICSPlex SM resource monitoring. It uses all the same definitional entities, for example monitor specifications (MONSPEC objects), monitor definitions (MONDEF objects), and monitor groups (MONGROUP objects). In particular, it uses monitor definitions with a Monitoring resource class of MTRAN to specify the IDs of the transactions for which you wish to save historical task data. Whereas, for example, with resource monitoring, monitor definitions with a Monitoring resource class of MTRAN and a resource name of FRED causes data to be accumulated and totalled for multiple instances of transaction FRED into one record, historical task data support provides the ability to separately save the entire CICS monitoring data for each instance of transaction FRED.

Existing users of CICSPlex SM monitoring can start using historical task data support. Simply define the history VSAM data sets, and allocate them to the MAS region by means of DD cards. CICSPlex SM will then start collecting historical task data for all transaction IDs named on installed monitor definitions.

For more information on how to define the CICSPlex SM history data sets refer to Preparing the MAS for history recording in the *CICS Transaction Server for z/OS Installation Guide*.

For those users who wish only to collect historical task data without collecting CICSPlex SM monitoring data as well, an EYUPARM called HISTORYONLY is provided. This should be set to a value of YES. The default is HISTORYONLY(NO) which means that both CICSPlex SM monitoring data and history data will be collected, assuming the appropriate monitor definitions have been installed and the VSAM data sets have been allocated to the MAS region.

Historical task data saved in the historical data store can be viewed using the Web User Interface **Completed tasks** views or retrieved using the CICSPlex SM API on the HTASK resource table. The following parameters are supported for the GET operation:

**STARTDATE**
Retrieve information for all tasks that were completed on or after the date specified. The date must be in the form MM/DD/YYYY. The default is today's date. If you specify STARTDATE with the RECENT parameter on a GET operation, the request will fail with a TABLEERROR response and a DATAERROR reason. A FEEDBACK operation for the failing command will result in a FEEDBACK error code of INV_COMB_RECENT.

**STARTTIME**
Retrieve information for all tasks that were completed at or after the time specified. The time must be in the form HH:MM:SS. The default is the previous midnight (00:00:00). If you specify STARTTIME with the RECENT parameter on a GET operation, the request will fail with a TABLEERROR response and a DATAERROR reason. A FEEDBACK operation for the failing command will result in a FEEDBACK error code of INV_COMB_RECENT.

**ENDDATE**
Retrieve information for all tasks that were completed on or before the date specified. The date must be in the form MM/DD/YYYY. The default is today's date. If you specify ENDDATE with either of the RECENT or INTERVAL parameters on a GET operation, the request will fail with a TABLEERROR response and a DATAERROR reason. A FEEDBACK operation for the failing command will result in a FEEDBACK error code of either INV_COMB_RECENT or INV_COMB_INTV_ED.

**ENDTIME**
Retrieve information for all tasks that were completed at or before the time specified. The time must be in the form HH:MM:SS. The default is one second to midnight (23:59:59).

If you specify ENDTIME with either of the RECENT or INTERVAL parameters on a GET operation, the request will fail with a TABLEERROR response and a DATAERROR reason. A FEEDBACK operation for the failing command will result in a FEEDBACK error code of either INV_COMB_RECENT or INV_COMB_INTV_ET.

If you specify an earlier ENDDATE and ENDTIME than the specified STARTDATE and STARTTIME on a GET operation, the request will fail with a TABLEERROR response and a DATAERROR reason. A FEEDBACK operation for the failing command will result in a FEEDBACK error code of INV_COMB_START_END.

**INTERVAL**
Retrieve information for all tasks that were completed within n seconds of

the STARTDATE and STARTTIME where n is the value specified for INTERVAL. The maximum value is 99,999,999. You can also use two special values for INTERVAL:

**HISTSECS**
Use the number of seconds specified by the HISTSECS EYUPARM.

**NOLIMIT**
Retrieve information for all tasks that were completed after STARTDATE and STARTTIME.

If you specify INTERVAL with any of the ENDDATE, ENDTIME, or RECENT parameters on a GET operation, the request will fail with a TABLEERROR response and a DATAERROR reason. A FEEDBACK operation for the failing command will result in a FEEDBACK error code of INV_COMB_INTV_ED, INV_COMB_INTV_ET, or INV_COMB_RECENT.

If you specify a value for the INTERVAL parameter which is not a numeric value or one of its special values, on a GET operation, the request will fail with a TABLEERROR response and a DATAERROR reason. A FEEDBACK operation for the failing command will result in a FEEDBACK error code of INV_INTERVAL.

**RECENT**
Retrieve information for all tasks that were completed within the last n seconds, where n is the value specified for RECENT. The maximum value is 99,999,999. You can also use three special values for RECENT:

**HISTSECS**
Use the number of seconds specified by the HISTSECS EYUPARM.

**NOLIMIT**
Retrieve information for all completed tasks that CPSM has recorded on its history data sets.

**0** Retrieve history data that is being accumulated for tasks that are still active. This data has not yet been written to the VSAM history data sets. It is monitoring data that is being written to CICS performance records for active tasks, where monitoring options have been specified.

If you specify the RECENT parameter with any of the STARTDATE, STARTTIME, ENDDATE, ENDTIME, or INTERVAL parameters on a GET operation, the request will fail with a TABLEERROR response and a DATAERROR reason. A FEEDBACK operation for the failing command will result in a FEEDBACK error code of INV_COMB_RECENT.

If you specify a value for the RECENT parameter which is not a numeric value or one of its special values, on a GET operation, the request will fail with a TABLEERROR response and a DATAERROR reason. A FEEDBACK operation for the failing command will result in a FEEDBACK error code of INV_RECENT.

**Note:** The CPSM API requires the formats of STARTDATE, STARTTIME, ENDDATE and ENDTIME to be as given in the above definitions, but when these dates and times are displayed on the Web User Interface, or input directly via the Web User Interface, the DATEFORMAT, DATESEPARATOR, TIMESEPARATOR and DECIMALSEPARATOR EYUWUI parameters in force

for the Web User Interface Server are used.

For more information on the HTASK resource table, see the CICSPlex SM: Resource Tables Reference manual.

### Deactivating history collection

History collection in a MAS can be deactivated by the following method:

1. From the CICSPlex SM main menu, click **History views > History collection** to open the “CICS region history collection” view.

   This view displays information about the status of CICSPlex SM history recording for CICS regions.
2. Select the CICS system, for which you want to stop history collection, by selecting the adjacent check box in the Record column.
3. Click the **Suspend** action button.

   History recording is suspended for that CICS region. Recording is resumed by selecting the CICS system, and clicking the **Resume** action button.

## Overriding resource monitoring attributes

The monitor specification associated with a CICS system determines:

- Whether resource monitoring is to be active when the CICS system starts
- How long collected data is to be retained after monitoring stops
- The sample interval to be used for one or more resource types

You can override any of the attributes defined in a monitor specification by changing the definition of the CICS system that is to use that specification. This might occur when, for example, multiple CICS systems are using the same monitor specification and you want the data retention period to be different for one of those systems. To override the monitor specification for a specific CICS system, you can use the views:

**CICS system definitions (CSYSDEF object)**
: To permanently override part or all of a monitor specification. Values changed via this view are stored in the data repository and used every time the CICS system starts. (For additional information about using the **CICS system definitions** view, see the *CICSPlex System Manager Administration* book.)

**MASs known to CICSplex (MAS object)**
: To temporarily override all or part of the monitor specification currently being used by an active CICS system. Values affected by this view remain in effect as long as the CICS system is running or until you change them. (For additional information about the **MASs known to CICSplex** views, see the *CICSPlex System Manager Administration* book.)

## Understanding resource monitoring times

When you define your resource monitoring attributes, you must identify a monitor interval, period definition, and sample interval, where:

**Monitor interval**
: The number of minutes during which data is to be collected and accumulated. At the end of an interval, the statistics counters are automatically reset.

  A monitor interval is associated with a CICSplex and applies to all CICS system and CICS system groups comprising that CICSplex. To create or display the monitor intervals associated with the CICSplex, use the

**CICSplex definition** view, as described in CMAS configuration administration views in the *CICSPlex System Manager Administration* book.

When a CICS system starts, it determines how much of the current interval has elapsed for its CICSplex and begins from there. Thus, the interval for a CICS system may be less than the defined interval. For example, if the monitor interval for a CICSplex is 60 minutes and a CICS system associated with that CICSplex starts at 09:15:00, the first monitor interval for that CICS system is 45 minutes. Subsequent intervals will be 60 minutes in length.

**Period definition**
The range of hours during which resource monitoring is to be active for a CICS system.

A time period definition can be associated with a monitor definition when you assign the monitor definition to a monitor group, as illustrated in Figure 8 on page 97. If no time period definition is associated with the monitor group, resource monitoring is active as long as the CICS system using the monitor definitions in that monitor group is active.

When a monitor definition is not associated with a monitor group, no period definition is associated with the monitor definition. In this case, the monitor definition becomes active when you manually install it in a CICS system. It remains active as long as the CICS system is active or until you discard the definition. To display information about existing time period definitions or create new ones, use the **Time period definition** view, as described in Time periods - PERIODEF in the *CICSPlex System Manager Administration* book.

**Sample interval**
The number of seconds between the collection of sample data for a resource type; the data is reported in monitoring views as the current sample.

A sample interval is associated with a resource type via a monitor specification, as illustrated in Figure 8 on page 97.

**Note:** One full sample interval must elapse before information about the resources being monitored is included in a monitoring view. This ensures that enough time has elapsed for meaningful data to be collected. Depending on when a CICS system starts, more than a full interval may elapse.

Figure 9 on page 103 identifies the monitor-related time periods and illustrates their relationship to each other. In this case, the period during which resource monitoring is to be active(the period definition), is between 09:00:00 and 12:00:00. Resource data is to be collected every 15 minutes (900 seconds) (the sample interval). During each monitor interval of 60 minutes, resource data is to be accumulated and reported as an average. After each 60 minute interval, the statistics counters containing the accumulated statistics are to be reset to zero.

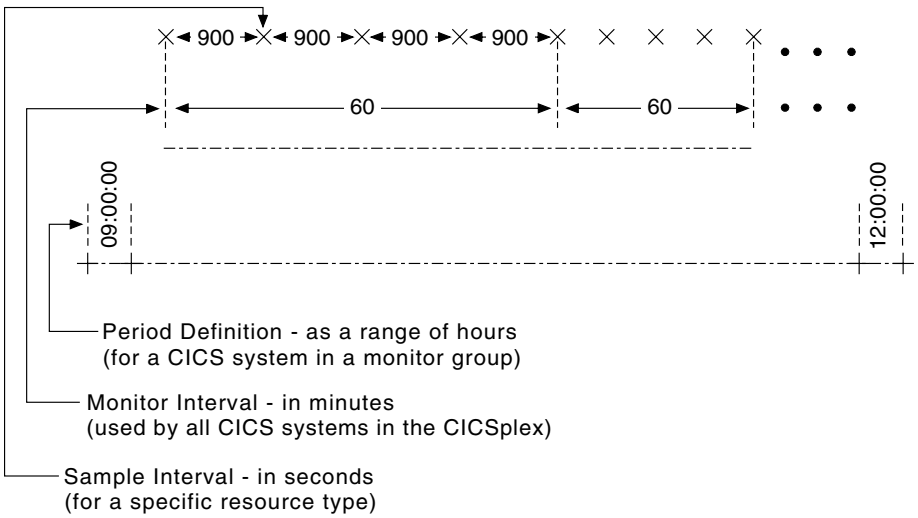


*Figure 9. Resource monitoring time periods*

## Understanding resource monitoring statistics

When resource monitoring is active, CICSPlex SM collects data about the specified resources as frequently as indicated by the sample interval. This data reflects:

- The type of information available via the CICS COLLECT STATISTICS command.
- CICSPlex SM *derived values*. A derived value is a rate, average, or percentage that results from CICSPlex SM processing of CICS statistics.

All of the data collected about the monitored resources is available via the monitoring views (monitor views are described in *CICSPlex System Manager Monitor Views Reference*).

### Important

In order for CICSPlex SM to gather certain task-related data shown in the WUI transaction monitoring views (LOCTRAN objects) and task monitoring views (TASK objects), the CICS monitoring facility (CMF) must be active and you must be collecting performance class data. For an active system, you can open the **CICS system definition** view and change the **Monitoring status** field to ON. This has the same effect as issuing the following EXEC CICS commands:

- EXEC CICS SET MONITOR STATUS(ON)
- EXEC CICS SET MONITOR PERFCLASS(PERF)

However, these changes remain in effect only while the CICS system is active. To permanently activate CICS performance class data monitoring, use the CICS system initialization parameters `MN=ON` and `MNPER=ON` . You can choose to collect this data for use by CICSPlex SM, but not have it written to an SMF data set. For information on suppressing CMF records, see the discussion of system parameters in Using the CICS Monitoring Facility (CMF) with CICSPlex SM in the *CICS Transaction Server for z/OS Installation Guide*.

### Data retention

When resource monitoring of a particular resource type is active, data is collected and accumulated until:

- The current monitor interval ends. At that time, the statistics counters are reset.
- The *retention period* has expired. A retention period is associated with a monitor specification. The period indicates the number of minutes accumulated data is to be retained after either the CICS system using that specification stops or you manually stop resource monitoring for that CICS system. At that time, the statistics counters are cleared.
- You explicitly initialize the statistics counters or remove the accumulated data. You can do this using the monitoring views (see *CICSPlex System Manager Monitor Views Reference*).

### A comparison of CICSPlex SM and CICS monitoring

With CICS, you can collect data about the performance of all user- and CICS-supplied transactions. These records are written to an MVS System Management Facility (SMF) data set as type 110 records. These records can then be used for offline analysis. (If statistics records are also to be written to the SMF data set, you can process the statistics and monitoring records together to obtain resource and system information that complements the transaction data produced by CICS monitoring.)

With CICSPlex SM, you can collect data about all resource types. That is, you can obtain information about one or more:

- Transactions
- Terminals
- Files
- Transient data queues
- Journals
- Connections
- Programs

You can also get information about CICS systems, dynamic storage areas (DSAs), transaction classes, local shared resource (LSR), and temporary storage.

## Resource monitoring definitions and their related views

You can use the resource monitoring administration views to define a variety of resource monitoring attributes. Figure 10 on page 105 provides an overview of the resource monitoring views based on the CICSPlex SM object model.

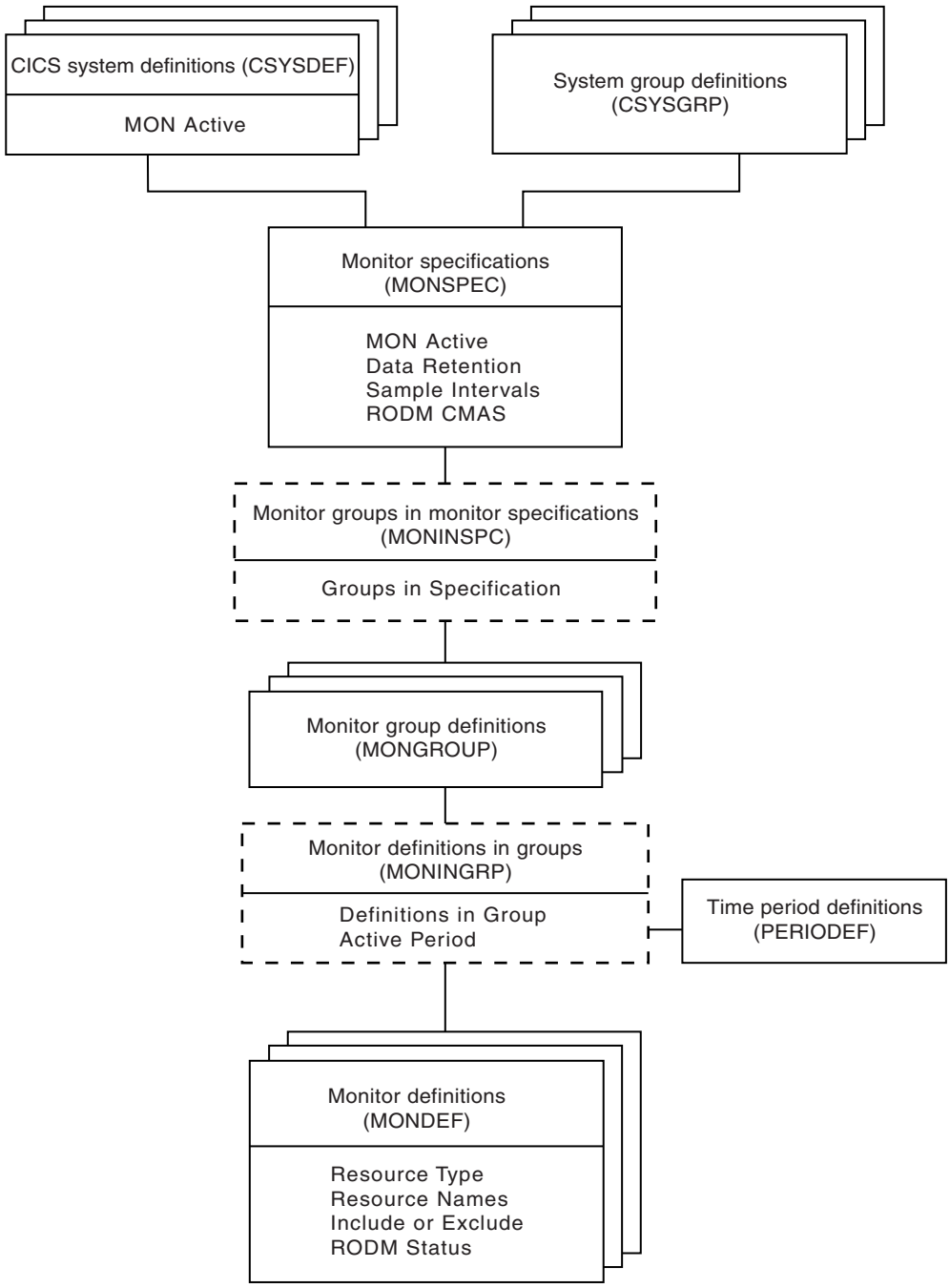


*Figure 10. Views for creating resource monitoring objects and associations*

In addition to the views shown here, you can use the **Active monitor specifications** view, as described in Table 7 on page 7), to display information about and manage the resource monitoring activity in an active CICS system. You can also display a visual map of your resource monitoring definitions by using the **Map** button. For details, see the *CICSPlex System Manager Web User Interface Guide*.

Figure 11 on page 106 illustrates the relationship between resource monitoring in a CICSplex and the views used to define resource monitoring attributes.

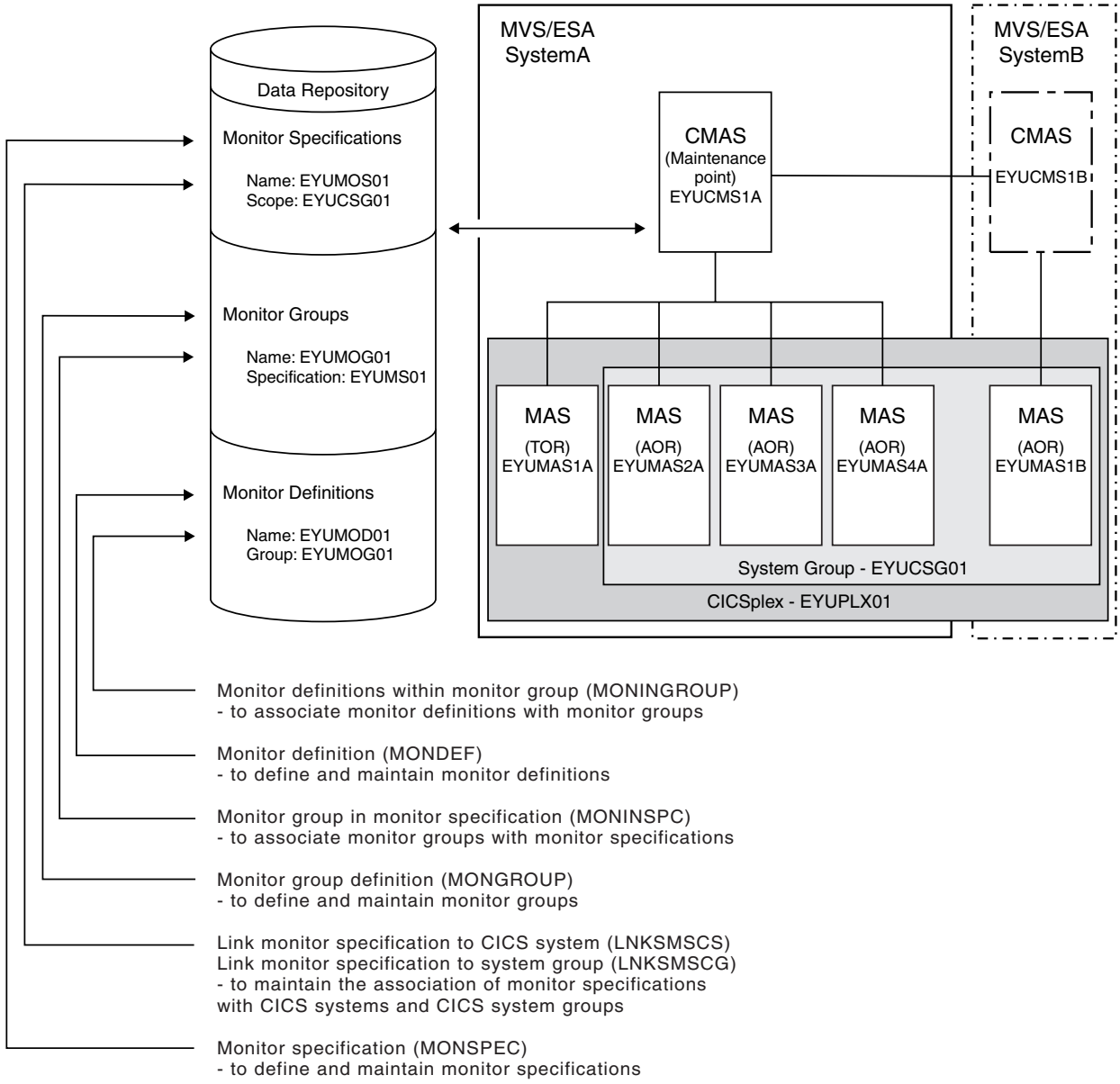


*Figure 11. The relationship between resource monitoring definitions and their views*

## Default monitor definitions

When you specify a sample rate for the Region, Global, or DB2/DBCTL resource type in a monitor specification, CICSPlex SM automatically creates a corresponding monitor definition. Notice that:

- The **Name** field contains a unique name that begins with an asterisk (*) and is followed by seven digits.
- The **Name or generic name of resource being monitored** field contains *, which means all occurrences of this resource type are to be monitored.
- The **Monitoring resource class** field contains MCICS, MGBL, or MDBX for the resource types of Region, Global and DB2/DBCTL, respectively.

- The **Inclusion in CPSM monitoring option**field contains YES, which means the specified resource occurrences are to be included in monitoring.
- For the Region and Global resource types, the **Resource status facility population**field contains YES, which means the specified resource occurrences are to be tracked for the resource status facility.

Monitor definitions created by CICSPlex SM are automatically installed when a CICS system using the associated specification is started. You cannot update or remove these monitor definitions.

# Using resource monitoring views

This section contains guidance on using the WUI views used to create and maintain resource monitoring definitions.

# Active monitor specifications - POLMON

The **Active monitor specifications** (POLMON) views display information about monitor specifications installed in CICS systems known to the CICSplex identified as the current context.

## Deactivating or discarding a monitor specification

When a monitor specification is installed, the **Definition status** field is either of the following:

**ACTIVE**
The specification is installed and active.

**PENDING**
The specification is installed and ready to become active.

The specification is active during the time period identified in the **Activation period** field. (When this field is blank, the monitor specification is to be active as long as the CICS system in which it is installed is running.)

To change the status of an installed monitor specification:

- To deactivate a monitor specification with an ACTIVE status for which a time period is defined:
  - Access the **Active monitor specifications** tabular view (POLMON object).
  - Click the Record check box beside the monitor specification to be deactivated and click the **Deactivate...** button. The **Deactivate** view is displayed.
  - Click **Yes** to deactivate the selected monitor specification. Otherwise, click **No** to abandon the process.

  The specification remains installed; its status is changed to PENDING. The next time the end of the associated time period is reached, the specification will become active again.
- To discard a specification with an ACTIVE or PENDING status and to remove the definition from the CICS system in which it is installed:
  - Access the **Active monitor specifications** tabular view (POLMON object).
  - Click the Record check box beside the monitor definition to be discarded and click the **Discard...** button. The **Discard** view is displayed.
  - Click **Yes** to discard the selected monitor definition. Otherwise, click **No** to abandon the process.

**Note:**

1. You cannot deactivate or discard a monitor definition created by CICSPlex SM. These definitions have names that consist of an asterisk (*) followed by seven digits.
2. Changes that you make to monitor definitions may be overridden by RTA. If RTA needs a definition that you are attempting to deactivate or had previously deactivated, an error message to that effect is issued and your deactivation is overridden.
3. Deactivating a monitor specification does not remove the data that has been collected and accumulated up to this point in the current monitor interval. The data continues to be displayed in the appropriate monitor views, whether or not the data is being updated. If you know that the data will not be updated by any other active monitor definitions, you can remove it from the view by using the **Remove...** button.
4. If there are multiple monitor definitions, the data for discarded definitions continues to be displayed unless and until all of the definitions are discarded.
5. While deactivating and discarding prevent monitoring of the specific resource occurrence identified in the monitor definition, other active monitor definitions may continue to cause information about that resource occurrence to be gathered. To illustrate, suppose the following monitor definitions are active:
   - EYUMOD01, which identifies all file names beginning with PAY
   - EYUMOD02, which identifies all file names beginning with P

   Discarding EYUMOD01 has no affect on monitoring since EYUMOD02 includes all file names beginning with P. However, discarding EYUMOD02 means that file names beginning with PAY continue to be monitored.
6. Issuing a DSC or DEA command for a MONDEF for the MTRAN class will result in no more history collection for those transactions.

# Monitor specifications - MONSPEC

The **Monitor specifications** (MONSPEC) views display information about CICS resource types that are to be monitored by CICSPlex SM. A monitor specification identifies the types of resources to be monitored and how frequently information about these resources is to be gathered. After you associate a monitor specification with a CICS system, that specification is automatically installed every time the CICS system starts.

Examples of how to use these views can be found in:

- “Monitoring transaction response times” on page 156
- “Monitoring programs in multiple CICS systems” on page 159

## Creating a monitor specification

To create a monitor specification:

- From the main menu, click **Administration views > Monitor administration views**.
- From the **Monitor administration views** menu, click **Monitor specifications**.
- From the **Monitor specifications** tabular view, click the **Create...** button. To create a specification based on an existing one, click the record check box beside an entry before clicking the **Create...** button.

- Complete the fields and click **Yes** to create the specification. Click **No** to abandon the process.

## Adding a scope to a monitor specification

Associating a monitor specification with a scope causes the specification to be automatically installed when a CICS system associated with the scope is started. Any monitor definitions associated with the specification through monitor groups are also automatically installed.

However, if you associate the monitor specification with a CICS system that is already active, the new specification is not immediately available. To turn resource monitoring on, you must display the **MASs known to CICSplex** view and use the **Update...** button. Specify YES in the **Monitoring Active** field and click **Yes**; resource monitoring becomes active using the new monitor specification.

To add a scope to a monitor specification:

- From the main menu, click **Administration views > Monitor administration views > Monitor specifications**.
- On the **Monitor specifications** tabular view, click the Record check box beside the specification entry and click either the **Associate CICS system...** button or the **Associate CICS group...** button.
- Provide the following information, as appropriate.

  **CICS system or CICS system group**
  Enter the specific or generic name of an existing CICS system or CICS system group that is not associated with any other monitor specification. If you specify a generic value, a list of valid CICS systems and CICS system groups is displayed.

  A CICS system or CICS system group can be associated with only one monitor specification at a time. A specification, however, can be associated with any number of CICS systems and CICS system groups.

  **Option**
  (This field is not displayed on the **Associate CICS system** view but is required when the scope is a CICS system group.) Indicate how the CICS systems comprising the CICS system group are to handle monitor specifications. Specify:

  **FORCE**
  All CICS systems in the CICS system group are to use the monitor specification. (The monitor specification attribute for each CICS system changes to INHERIT, indicating that the CICS system acquired the specification from a CICS system group.)

  **NULL** Those CICS systems within the CICS system group that are not associated with a monitor specification are to use this specification. (The monitor specification attribute for those CICS systems changes to INHERIT.)

  **NONE** Only the CICS system group is to be associated with the monitor specification. The CICS systems in the CICS system group are not affected. That is, if there is no association between a CICS system and monitor specification, none is established; if there is an association, either explicitly established or inherited from another CICS system group, it is unchanged.

When the CICS system group includes other CICS system groups, all of the CICS systems, including those in the subordinate CICS system groups, are affected by the value specified in this field.

# Monitor groups - MONGROUP

The **Monitor groups** (MONGROUP) views display information about monitor groups. A monitor group is a collection of monitor definitions that are treated as a single entity.

An example of how to use these views can be found in “Monitoring programs in multiple CICS systems” on page 159.

## Creating a monitor group

To create a monitor group:

- From the main menu, click **Administration views > Monitor administration views**.
- From the **Monitor administration views** menu, click **Monitor groups**.
- From the **Monitor groups** tabular view, click the **Create...** button. To create a group based on an existing one, click the record check box beside the entry before clicking the **Create...** button.
- Complete the fields and click **Yes** to create the group. Click **No** to abandon the process.

## Adding a monitor group to a monitor specification

To add a monitor group to a monitor specification:

- From the main menu, click **Administration views > Monitor administration views > Monitor groups**.
- On the **Monitor groups** tabular view, click the Record check box beside the required monitor group entry and click the **Add to monitor specification...** button.
- Provide the following information:

  **Specification name**
  Enter the specific or generic name of an existing monitor specification. If you specify a generic value, a list of valid monitor specifications is displayed.
- Click **Yes** to add the monitor group to the named monitor specification. Otherwise, click **No** to abandon the process.

If a monitor specification appropriate for this monitor group does not currently exist, you must first create one, as described in topicon page “Creating a monitor specification” on page 108.

## Installing a monitor group

When you install a monitor group, all of the monitor definitions associated with that group are installed in the CICS systems that are using the monitor specification to which the monitor group is associated. Before attempting to install a monitor group, you should review the requirements described in “Activating resource monitoring” on page 97.

The monitor definitions associated with a monitor group can be automatically installed in a CICS system when that system starts. For this to occur, the monitor group must be associated with a monitor specification that is defined to the CICS system.

To install a monitor group:

- Access the **Monitor groups** tabular view (MONGROUP object).
- Click the Record check box beside the entry for the group to be installed.
- Click the **Install...** button to display the **Install** view.
- On the **Install** view, in the **Scope value** field, enter the specific or generic name of a CICS system or CICS system group for which the monitor group is to be installed. The CICS system or CICS system group must be within the CICSplex identified as the current context. If you specify a generic value, a list of valid CICS systems and CICS system groups is displayed.
- Click **Yes** to install the monitor group. Otherwise, click **No** to abandon the process.

If one or more monitor definitions associated with the monitor group you install:

- Have the same names as previously installed definitions, the new definitions will take the place of the old definitions.
- Identify the same resource occurrence names and resource types as previously installed definitions, the new definitions will take the place of the old ones.
- Specify a resource type that is not supported in a target CICS system, CICSPlex SM will issue a message indicating that the definition cannot be installed because the resource is not supported.

Finally, you can use the **Active monitor specifications** view (POLMON object), as indicated in Table 5 on page 6, to deactivate an installed monitor group.

# Monitor definitions - MONDEF

The **Monitor definitions** (MONDEF object) views display information about the resource types identified in a monitor specification that are to be included in or excluded from monitoring. A monitor definition also identifies which resources are to be reported to the resource status facility.

Examples of how to use this view can be found in:

- “Monitoring transaction response times” on page 156
- “Monitoring programs in multiple CICS systems” on page 159

## Creating a monitor definition

There must be one or more monitor definitions for each resource type identified in a monitor specification. You create the appropriate monitor definitions for all resource types except Region, Global, and DB2/DBCTL. CICSPlex SM automatically generates and maintains monitor definitions for the Region, Global, and DB2/DBCTL resource types.

To create a monitor definition:

- From the main menu, click **Adminstration views > Monitor administration views**.
- From the **Monitor adminstration views** menu, click **Definitions** to display the **Monitor definitions** tabular view (MONDEF object).
- Click the **Create...** button to display the **Monitor definitions** create view.

- Complete the fields and click **Yes** to create the definition. Otherwise, click **No** to abandon the process.

## Adding an association to a monitor group

To create an association between a monitor definition and a monitor group:

- From the **Monitor definitions** tabular view, click the Record check box beside the monitor definition.
- Click the **Add to Monitor group...** button. The **Add to Monitor group** view is displayed.
- On the **Add to Monitor group** view, complete the fields as follows:

| | |
|---|---|
| Resource group name | The name of the group to which this definition is to be added. If you type a generic name, a list of possibilities is displayed from which you can choose. |
| Period Definition name | (Optional) Enter the specific or generic name of a period definition that identifies the range of hours during which the monitor definition is to be active. If you specify a generic value, a list of valid period definitions is displayed.<br><br>If the name you specify does not belong to an existing period definition, you can create that period definition later. If you leave this field blank, the monitor definition remains active for as long as the CICS system is running, or until you discard it. |

- Click **Yes** to create the association. Otherwise, click **No** to abandon the process.

You can use the **Monitor definitions in monitor groups** view (MONINGRP object), as described in topicon page “Monitor definitions in groups - MONINGRP” on page 116, to remove a monitor definition from a monitor group.

If an appropriate monitor group does not currently exist, you must first create the group, as described in topicon page “Creating a monitor group” on page 110.

## Installing a monitor definition

You can install a monitor definition into one or more active CICS systems that are within the CICSplex identified as the context. You can do this whether or not the monitor definition is associated with a monitor group that is also associated with a monitor specification. However, before attempting to install a monitor definition, you should review the requirements described in “Activating resource monitoring” on page 97.

A monitor definition can be automatically installed in a CICS system when that system starts. For this to occur, associate the definition with a monitor group. Then associate that monitor group with a monitor specification that is associated with the CICS system.

To install a monitor definition:

- Access the **Monitor definitions** tabular view (MONDEF object).
- Click the Record check box beside the entry for the definition to be installed.
- Click the **Install...** button to display the **Install** view.

- On the **Install** view, complete the fields as follows:

| | |
|---|---|
| Scope value | Enter the specific or generic name of a CICS system or CICS system group for which the monitor definition is to be installed. The CICS system or CICS system group must be within the CICSplex identified as the current context. If you specify a generic value, a list of valid CICS systems and CICS system groups is displayed. |
| Period definition name | (Optional) Enter the name of an existing period definition or a generic name that identifies the range of hours during which the monitor definition is to be active. If you specify a generic value, a list of valid period definitions is displayed.<br><br>If you leave this field blank, the monitor definition remains active for as long as the CICS system is running, or until you discard it. |

- Click **Yes** to install the monitor definition. Otherwise, click **No** to abandon the process.

If the monitor definition you install:

- Has the same name as a previously installed definition, the new definition will replace the old definition,
- Identifies the same occurrence names and resource types as a previously installed definition, the new definition will replace the old one,
- Specifies a resource type that is not supported in a target CICS system,

CICSPlex SM will issue a message indicating that the definition cannot be installed. If you install a monitor definition that specifies a 1- to 8-character journal name (for use in a system running the CICS TS) in a system that does not support such journal names, monitoring will not occur, as the specified journal will not exist.

You can use the**Active monitor specifications** view (POLMON object), as described in “Active monitor specifications - POLMON” on page 107, to deactivate an installed monitor definition.

# Monitor specifications to CICS system links - LNKSMSCS

The **Monitor specifications to CICS system links** (LNKSMSCS) views display information about the CICS systems that are associated with monitor specifications.

## Creating a link between a monitor specification and a CICS system

To create a link between a monitor specification and a CICS system:

- From the main menu, click **Administration views > Monitor administration views**.
- From the **Monitor administration views** menu, click **Monitor specifications to system links**. The **Monitor specifications to system links** view (LNKSMSCS object) is displayed.
- Click the **Create...** button. To base the new association on an existing one, click the Record check box beside an entry.

- Complete the fields and click **Yes** to create the link between a monitor specification and a CICS system. Otherwise, click **No** to abandon the process.

## Updating a link between a monitor specification and a CICS system

To update the link between a monitor specification and a CICS system:

- From the main menu, click **Administration views > Monitor administration views**.
- From the **Monitor administration views** menu, click **Monitor specifications to CICS system links**. The **Monitor specifications to CICS system links** view (LNKSMSCS object) is displayed.
- Click the **Monitor specification** field of the entry to be updated. The **Monitor specifications** detailed view is displayed.
- Click the **Associate with CICS system** button to display the **Associate CICS system** view.
- Type the new name into the **CICS system** field.
- Click **Yes** to update the link between a monitor specification and a CICS system. Otherwise, click **No** to abandon the process.

## Updating a link between a monitor specification and a CICS system and changing an association

1. From the main menu, click **Administration views** > **Monitor administration views**.
2. From the Monitor administration views menu, click **Specifications to system links**. The Monitor specifications to CICS system links view (LNKSMSCS object) is displayed.
3. Check the box for the Monitor specification to be updated. You can check more than one box.
4. Click the **Change Spec Association** button to display the Change Spec Association (EYUSTARTLNKSMSCS.CHGSPEC) view.
5. Type the new name in the **New monitor specification name** field and select an appropriate inherit option.
   - Click **Yes** to update the link between a monitor specification and a CICS system.
   - Click **No** to abandon the process.

## Removing a monitor specification to CICS system association

To remove the association between a monitor specification and a CICS system:

- From the main menu, click **Administration views > Monitor administration views**.
- From the **Monitor administration views** menu, click **Monitor specifications to CICS system links**. The **Monitor specifications to CICS system links** view (LNKSMSCS object) is displayed.
- Click the Record check box beside the required entry and click the **Remove...** button. The **Remove** view is displayed.
- Click **Yes** to remove the link between a monitor specification and a CICS system. Otherwise, click **No** to abandon the process.

# Monitor specifications to system group links - LNKSMSCG

The **Monitor specifications to CICS system links** (LNKSMSCG) views display information about the CICS system groups that are associated with monitor specifications.

## Creating a link between a monitor specification and a CICS system group

To create a link between a monitor specification and a CICS system:

- From the main menu, click **Administration views > Monitor administration views**.
- From the **Monitor administration views** menu, click **Monitor specifications to system group links**. The **Monitor specifications to system group links** view (LNKSMSCG object) is displayed.
- Click the **Create...** button. To base the new association on an existing one, click the Record check box beside an entry.
- Complete the fields and click **Yes** to create the link between a monitor specification and a CICS system group. Otherwise, click **No** to abandon the process.

## Updating a link between a monitor specification and a CICS system group

To update the link between a monitor specification and a CICS system group:

- From the main menu, click **Administration views > Monitor administration views**.
- From the **Monitor administration views** menu, click **Specifications to system group links**. The **Monitor specifications to system group links** view (LNKSMSCG object) is displayed.
- Click the **Monitor specification** field to display the **Monitor specifications** detailed view.
- Click the **Associate CICS group...** button to display the **Associate CICS group** view.
- Type in the new CICS system group name and select one of the Force, Null or None options.
- Click **Yes** to update the link between a monitor specification and a CICS system group. Otherwise, click **No** to abandon the process.

## Updating a link between a monitor specification and a CICS system group and changing an association

1. From the main menu, click **Administration views** > **Monitor administration views**.
2. From the Monitor administration views menu, click **Specifications to system group links**. The Monitor specifications to CICS system group links view (LNKSMSCG object) is displayed.
3. Check the box for the Monitor specification to be updated. You can check more than one box.
4. Click the **Change Spec Association** button to display the Change Spec Association (EYUSTARTLNKSMSCG.CHGSPEC) view.
5. Type the new name in the **New monitor specification name** field and select an appropriate inherit option.

- Click **Yes** to update the link between a monitor specification and a CICS system group.
- Click **No** to abandon the process.

### Removing a monitor specification to CICS system group association

To remove the association between a monitor specification and a CICS system group:

- From the main menu, click **Administration views > Monitor administration views**.
- From the **Monitor administration views** menu, click **Monitor specifications to CICS system group links**. The **Monitor specifications to CICS system group links** view (LNKSMSCG object) is displayed.
- Click the **Remove...** button. The **Remove** view is displayed.
- Click **Yes** to remove the link between a monitor specification and a CICS system group. Otherwise, click **No** to abandon the process.

## Monitor groups in monitor specifications - MONINSPC

The **Monitor groups in monitor specifications** (MONINSPC) views display the names of monitor specifications and the monitor groups associated with them.

### Adding a monitor group to a monitor specification

To add a monitor group to a monitor specification:

- From the main menu, click **Administration views > Monitor administration views > Groups**.
- On the **Monitor group definitions** tabular view, click the Record check box beside the required group entry and click the **Add to Monitor specification...** button.
- On the **Add to Monitor specification** view, type in the specification name.
- Click **Yes** to add the monitor group to the specification. Otherwise, click **No** to abandon the process.

## Monitor definitions in groups - MONINGRP

The **Monitor definitions in groups** (MONINGRP) views display the names of monitor groups, the monitor definitions associated with them, and the time period during which the monitor definitions are to be active.

### Updating a monitor definitions to a monitor group association

To change time-period definition that was associated with the monitor definition and monitor group:

- From the main menu, click **Administration views > Monitor administration views**.
- From the **Monitor administration views** menu, click **Definitions in groups** to display the **Monitor definitions in groups** tabular view (MONINGRP object).
- Click the record check box beside the entry to be updated and click the **Update...** button.
- Enter a new time-period definition name and click **Yes** to update the association. Otherwise, click **No** to abandon the process.

### Removing a monitor definitions to a monitor group association

To remove monitor definition to monitor group association:

- From the main menu, click **Administration views > Monitor administration views**.
- From the **Monitor administration views** menu, click **Definitions in groups** to display the **Monitor definitions in groups** tabular view (MONINGRP object).
- Click the record check box beside the entry to be updated and click the **Remove...** button. The **Remove...** view is displayed.
- Click **Yes** to remove the association. Otherwise, click **No** to abandon the process.

## History Views

The history views allow you to work with CICS historical data.

## Recent - HTASK

The **completed tasks (history)** (HTASK) views display information about completed tasks; that is tasks that previously ran in a system managed by CICSPlex SM, but have now been completed. Once a task completes, information can be obtained by the HTASK resource, provided CICSPlex SM history recording has been activated for that task.

### Supplied views

To access from the main menu, click:

**History views > History Views > Recent**

*Table 16. Views in the supplied* **Completed task (history)** *(HTASK) view set*

| View | Notes |
|---|---|
| Completed task (history)<br>EYUSTARTHTASK.TABULAR | Tabular information about tasks completed within a specified number of seconds from the present time. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL8 | CICS BTS requests information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.TABULAR1 | Tabular information about tasks completed within a time period (in seconds) from a specified start time. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL15 | Enterprise bean usage information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL4 | Request count information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL5 | Communications requests information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.TABULAR2 | Tabular information about tasks completed from a start time to an end time. |

*Table 16. Views in the supplied* **Completed task (history)** *(HTASK) view set (continued)*

| View | Notes |
|---|---|
| Completed task (history)<br>EYUSTARTHTASK.DETAIL9 | CPU and TCB information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.TABULAR3 | Tabular information about association data for completed tasks. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL11 | JVM usage information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL2 | Clocks and timings information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL16 | Resource manager interface (RMI) usage information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.DETAILED | Detailed general information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL6 | Storage usage information about a selected task. Note: For the GETMAIN requests table below, GETMAIN requests have no meaning with regard to GCDSA and will remain blank. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL12 | Shared storage information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL10 | Program storage information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL17 | Task association data |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL14 | FEPI communications information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL3 | Settings information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL13 | Web and Document request information about a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL1 | Identification details of a selected task. |
| Completed task (history)<br>EYUSTARTHTASK.DETAIL7 | TCP/IP communications information about a selected task. |

## Actions

None.

## Fields

*Table 17. Fields in HTASK views*

| Field | Attribute name | Input values |
|---|---|---|
| Number of user storage GETMAIN requests below 16MB | USTG24CNT | The number of user storage GETMAIN requests issued by this user task for storage below the 16MB line. |
| Number of program return requests with channel | TMRPCRCC | The number of program return requests with channel issued by this task. |
| Number of FEPI RECEIVE timeouts | SZRCVTO | The number of FEPI receive timeouts issued by this task. |
| Total number WebSphere MQ requests | TMRWMQRC | The total number of WebSphere MQ requests for the task. |
| Exception wait time | EXWAIT | This is a composite field displaying one of the following elements:<br>• The total elapsed time the task has waited on exception conditions.<br>• The number of times this task waited on exception conditions. |
| Facility type | FACILITYTYPE | The name of the terminal or transient data queue associated with the task. If this field is blank, it means the task is not associated with a terminal or transient data queue. Also, the hyperlink is not valid when this field is blank because there is no terminal information to display. |
| Shared storage GETMAIN request count above 16MB | SHSTGGMCABV | The number of GETMAIN requests issued by this task for shared storage above the 16MB line, in the ECDSA or ESDSA. |
| CFDT syncpoint wait time | SRVSYWTT | This is a composite field displaying one of the following elements:<br>• The elapsed time in which the task waited for CFDT syncpoints to complete.<br>• The number of times the task waited for CFDT syncpoints to complete. |
| JVM elapsed time - initializing | TMRJVMIT | This is a composite field displaying one of the following elements:<br>• The elapsed time spent initializing the JVM environment.<br>• The number of times the JVM environment was initialized. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Number of secondary TC characters sent | CHAROUTSEC | The number of secondary terminal control characters sent by this task. |
| Originating transaction sequence number | OTRANNUM | The number of the originating task (for example, the CWXN task). |
| Number of Document Delete requests | TMRDHDLC | The number of document delete requests issued by this task. |
| BTS reset requests | BARSPACT | The number of reset process/activity requests issued by this task. |
| Number of DOCUMENT RETRIEVE requests | DHRETCT | The number of document retrieve requests issued by this task. |
| Maximum hot-pooling TCB delay time | TMRHTDLY | This is a composite field displaying one of the following elements:<br>• The elapsed time in which the user task waited to obtain a CICS Hot-Pooling TCB (H8 mode), because the CICS system had reached the limit set by the system parameter, MAXHPTCBS.<br>• The number of times the task waited on the limit set by the system parameter MAXHPTCBS. |
| Total number of Web requests | WBTOTCT | The total number of WEB requests issued by this task. This does not include the number of repository write requests. |
| LU6.2 network-wide UOW instance & sequence number | TMRNETSX | The total number of LU6.2 network-wide units of work. |
| Recovery manager UOW shunted | SHUNTED | The total number of units of work that lost connection to their recovery coordinator during syncpoint processing and had to be shunted for indoubt failure. |
| Maximum program storage below 16MB | PSTG24HWM | The maximum amount of program storage in use by this user task below the 16MB line. |
| Task stop time | STOP | The time when the task stopped. |
| BTS total requests | BATOTPCT | The total number of process/activity requests issued by this task. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Other TCB mode CPU time | MSCPUT | This is a composite field displaying one of the following elements:<br>• The amount of CPU time that this task has been dispatched on TCB Modes other than QR, H8, J8, L8, and S8 TCB Modes.<br>• The number of times that this task has been dispatched on TCB Modes other than QR, H8, J8, L8, and S8 TCB Modes.<br>This figure will include for example, dispatch times on the RO, CO, SZ, and so on. |
| Number of WEB RECEIVE requests | WBRCVCT | The total number of web receive requests issued by this task. |
| DBCTL RMI elapsed time | RMIDBCTLTIME | This is a composite field displaying one of the following elements:<br>• The total elapsed time the task spent in the DBCTL Resource Manager Interface (RMI).<br>• The number of times the task invoked the DBCTL Resource Manager Interface (RMI). |
| BTS activity name | ACTVTYNM | The CICS Business Transaction Services activity name that this task represents. |
| Number of socket receive requests | TMRSORCT | The number of socket receive requests issued by this task. |
| LU62 I/O wait time | LU62WTT | This is a composite field displaying one of the following elements:<br>• The total LU6.2 I/O wait time.<br>• The number of times this task waited for LU6.2 I/O. |
| Number of FEPI characters sent | SZCHROUT | The number of FEPI characters sent by this task. |
| Maximum program storage above 16MB | PSTG31HWM | The maximum amount of program storage in use by this user task above the 16MB line. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| | TMRSTDLY | This is a composite field displaying one of the following elements:<br>• The elapsed time in which the user task waited to obtain a CICS SSL TCB (S8 mode), because the CICS system had reached the limit set by the system initialization parameter MAXSSLTCBS.<br>• The number of times the user task waited to obtain a CICS SS TCB (S8 mode), because the CICS system had reached the limit set by the system initialization parameter MAXSSLTCBS. |
| Transaction group ID | TMRTGPID | The identifier of the transaction group associated with this task. |
| Peak number of CICS dispatcher TCBs | TMRDSTHW | The peak number of CICS dispatcher TCBs in use. |
| BTS define process requests | BADPROCT | The number of define process requests issued by this task. |
| Inbound TCP/IP sockets I/O wait time | SOIOWTT | This is a composite field displaying one of the following elements:<br>• The amount of time spent by this task waiting for socket sends or receives to complete.<br>• The number of times that this task waited for socket sends or receives to complete.<br>This includes the times spent by this task on the SO, SL and S8 TCB modes. |
| Peak number of bytes used by task in ECDSA | ECDSASHWM | The peak number of bytes used by this task in the ECDSA. |
| User task L9 mode CPU time | TMRL9CPU | This is a composite field displaying one of the following elements:<br>• The amount of CPU time that this task has used when dispatched on the L9 TCB Mode.<br>• The number of times this task was dispatched on the L9 TCB Mode.<br>L9 mode TCBs are used for USERKEY OPENAPI application programs. |
| Data length of all DPL program links with channel | TMRPCDLL | The data length of all DPL program links with channel. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Transaction origin type | ORIGINTYPE | The source of the transaction. This is an interpretation of the primary transaction client type with which the transaction was attached using the CICS transaction manager. |
| Workload manager report class name | WLMRPTRCNAME | The MVS Workload Manager (WLM) report class for this transaction. |
| Total remote interval control starts with channel | TMRICSRC | The total number of remote interval control starts with channel requests issued by this task. |
| Number of program XCTL requests with channel | TMRPCXCC | The number of program XCTL requests with channel issued by this task. |
| Data length of all remote IC starts with channel | TMRICSRD | The data length of all remote IC starts with channel. |
| Number of TS PUT requests to main storage | TSPUTMCNT | The number of TS puts to main storage. |
| Number of secondary LU62 TC characters received | TCC62IN2 | The number of secondary LU6.2 characters received by this task. |
| Number of transient data PURGE requests | TDPURCNT | The number of transient data purge/delete requests issued by this task. |
| BTS activity ID | ACTVTYID | The CICS Business Transaction Services activity ID that this task represents. |
| Journal control I/O wait time | JCIOTIME | This is a composite field displaying one of the following elements:<br>• The total journal control I/O wait time.<br>• The number of times this task waited for journal control I/O. |
| BTS link requests | BALKPACT | The number of link process/activity requests issued by this task. |
| Maximum program storage in CDSA | CDSAPSHWM | The high-water-mark number of bytes used by this task for programs in the CDSA. |
| Total number of channel data container requests | TMRPGCTC | The total number of channel data container requests issued by this task. |
| BTS run synchronous requests | BARSYNCT | The number of run process/activity requests issued by this task in synchronized mode. |
| Number of file control WRITE requests | FCPUTCNT | The total number of file control write requests issued by this task. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| File control I/O wait time | FCIOTIME | This is a composite field displaying one of the following elements:<br>• The total file control I/O wait time.<br>• The number of times this task waited for file control I/O. |
| Number of Web characters received | WBCHRIN | The number of characters received via the web as a result of web receives issued by this task. |
| J9 TCB mode CPU time | TMRJ9CPU | This is a composite field displaying one of the following elements:<br>• The amount of CPU time that this task has used when dispatched on the J9 TCB Mode.<br>• The number of times this task was dispatched on the J9 TCB Mode. |
| Number of FEPI RECEIVE requests | SZRCVCT | The number of FEPI receive requests issued by this task. |
| Number of Web characters sent | WBCHROUT | The number of characters sent via the web as a result of web sends issued by this task. |
| Number of ALLOCATE requests | ALLOCATES | The total number of allocate requests by this task. |
| BTS acquire requests | BAACQPCT | The number of CICS Business Transaction Server (BTS) acquire process and acquire activity requests issued by this task. |
| Terminal connection name | TERMCONNAME | The name of the terminal session connection. |
| OTS transaction ID | TMROTSID | The object transaction service transaction identifier. |
| Remote system ID | RSYSID | The name of the remote system where the transaction defined by remotename is defined. |
| Time key | TIME | The time when the task started. |
| Originating portnumber | OPORTNUM | The port number used by the originating TCPIPSERVICE. |
| VSAM Record Level Sharing wait time | RLSWAITTIME | This is a composite field displaying one of the following elements:<br>• The elapsed time in which the task waited for RLS file I/O.<br>• The number of times the task waited for RLS file I/O. |
| Number of invoke web service requests | TMRWBIWC | The number of invoke web service requests issued by this task. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Lock manager wait time | LOCKMGRWAIT | This is a composite field displaying one of the following elements:<br>• The elapsed time in which the user task waited to acquire a lock on a resource.<br>• The number of times the user task waited to acquire a lock on a resource.<br>A user task cannot explicitly acquire a lock on a resource, but many CICS modules lock resources on behalf of user tasks using the CICS lock manager (LM) domain |
| Transaction type | TRANTYPE | Identifies whether the transaction is local or remote. |
| Number of DOCUMENT INSERT requests | DHINSCT | The number of document insert requests issued by this task. |
| IPCONN Name | TMRISCNM | The name of the IP interconnectivity entry (IPCONN) that defines an IP intercommunications connection associated with this transaction. |
| Peak number of bytes used by task in UDSA | USTG24HWM | The peak number of bytes used by this task in the UDSA. |
| Originating transaction flags | OTRANFLG | Originating transaction flags, a string of 64 bits used for signaling transaction definition and status information |
| DSECT version number | MNTDSVER | The version number of the DSECT |
| Number of DOCUMENT CREATE requests | DHCRECT | The number of document create requests issued by this task. |
| Number of BMS map in requests | BMSINCNT | The number of BMS map in requests by this task. |
| Number of bean creation requests | TMREJBCC | The number of enterprise bean creation requests issued by this task. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Program load time | PCLOADTM | This is a composite field displaying one of the following elements:<br>• The elapsed time in which the user task waited for fetches from DFHRPL or dynamic LIBRARY concatenations.<br>• The number of times this task waited for program fetches from DFHRPL or dynamic LIBRARY concatenations.<br>Only fetches for programs with installed program definitions or autoinstalled as a result of application requests are included in this figure. However, installed programs residing in the LPA are not included because they do not incur a physical fetch from a LIBRARY. |
| Number of secondary TC messages received | MSGINSEC | The number of secondary terminal control messages received by this task. |
| Correlation UOW ID | CORREUOW | The ID of the correlation unit of work. |
| Total data length of all DPL returns with channel | TMRPCDRL | The total amount of data created by this task. |
| Shared storage GETMAIN request count below 16MB | SHSTGGMCBEL | The number of GETMAIN requests issued by this task for shared storage below the 16MB line, in the CDSA or SDSA. |
| Number of file control READ requests | FCGETCNT | The total number of file control read requests issued by this task. |
| Task response time | RESPTIME | The task response time in milliseconds. |
| Number of WEB WRITE requests | TMRWBWRC | The total number of web write requests issued by this task. |
| Number of DOCUMENT SET requests | DHSETCT | The number of document set requests issued by this task. |
| Number of bytes received by web requests | TMRWBI1C | The number of bytes received by web requests issued by this task. |
| LU6.2 network-wide UOW instance & sequence number | UOWINSTSEQ | The total number of LU6.2 network-wide units of work. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Waiting for parent syncpoint delay time | SYNCDLY | This is a composite field displaying one of the following elements:<br>• The total amount of time that this transaction has spent waiting for its parent transaction to syncpoint, such that its updates will be committed.<br>• The number of times the task waited for a its parent transaction to syncpoint, such that its updates will be committed.<br>For CICS BTS this field records the times this task spent waiting for a syncpoint from its parent task that started this task by issuing Run Process or Run Activity Synchronously. |
| BTS process name | PRCSNAME | The CICS Business Transaction Services process name that this task represents. |
| Originating facility name | OFCTYNME | The facility name of the originating transaction. If the originating transaction is not associated with a facility, this field is null. The transaction facility type, if any, can be identified using byte 0 of the transaction flags, OTRANFLG (370), field. |
| Number of web receive requests | TMRWBIRC | The number of web receive requests issued by this task. |
| Number of CREATE persistent socket requests | TMRSOCPS | The number of Create persistent socket requests issued by this task. |
| User ID | USERID | The ID of the user associated with the task. |
| Number of characters received | TMRSOCIN | The number of characters received by this task. |
| Data length of all put container channel requests | TMRPGPCL | The data length of all put container channel requests. |
| TS I/O wait time | TSIOTIME | This is a composite field displaying one of the following elements:<br>• The total temporary storage I/O wait time.<br>• The number of times this task waited for temporary storage I/O. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| WebSphere MQ Getwait wait time | TMRMQGWT | The maximum elapsed time the task waited for WebSphere MQ to service the task's GETWAIT requests. |
| Number of web send requests | TMRWBOSC | The number of web send requests issued by this task. |
| Recovery manager UOW indoubt failure | INDOUBTFAIL | Indicates whether an in-doubt UOW is to wait pending recovery from a failure that occurs after the UOW has entered the in-doubt state. The valid values are WAIT and NOWAIT. |
| J8 TCB mode CPU time | J8CPUT | This is a composite field displaying one of the following elements:<br>• The amount of CPU time that this task has used when dispatched on the J8 TCB Mode.<br>• The number of times this task was dispatched on the J8 TCB Mode.<br>This mode is used by Java applications. |
| User task X9 mode CPU time | TMRX9CPU | This is a composite field displaying one of the following elements:<br>• The amount of CPU time that this task has used when dispatched on the X9 TCB Mode.<br>• The number of times this task was dispatched on the X9 TCB Mode. |
| Number of Web repository writes | WBREPWCT | The number of web repository write requests issued by this task. |
| Client IP address | CLIPADDR | The TCP/IP Client IP address that initiated this task. |
| | EXTERNWAIT | This is a composite field displaying one of the following elements:<br>• The average time spent waiting for resources external to CICS.<br>• The number of times the task waited for resources external to CICS.<br>These waits can arise as a result of issuing WAIT EXTERNAL commands or as a result of CICS waiting for external events. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| EXTRACT TCPIP & EXTRACT CERTIFICATE request count | TMRSOERC | The total number of EXTRACT TCPIP and EXTRACT CERTIFICATE requests. |
| Total RMI elapsed time | RMITOTALTIME | This is a composite field displaying one of the following elements:<br>• The total elapsed time spent in the RMI including time suspended.<br>• The total number of requests issued by this task in the RMI. |
| Average CDSA storage usage | CDSASOCC | The average storage occupancy in the CDSA. This measures the area under the curve of storage in use against elapsed time. |
| Total number of DB2 requests | DB2REQCT | The number of DB2 Database requests (SQL and IFI) issued by this task. |
| | TMRKY9DS | This is a composite field displaying one of the following elements:<br>• The total elapsed time during which the user task was dispatched by the CICS dispatcher on a CICS Key 9 mode TCB.<br>• The number of times this task was dispatched on a key 9 mode TCB.<br>L9 mode TCBs are used for USERKEY OPENAPI application programs. |
| Number of FEPI ALLOCATE requests | SZALLOCT | The number of FEPI allocate requests issued by this task. |
| First dispatch delay time caused by TCL | TCLDELAY | This is a composite field displaying one of the following elements:<br>• The elapsed time waiting for the first dispatch which was delayed because of the limits set for this transaction's transaction class.<br>• The number of delays during the first dispatch due to limits set for this transaction's transaction transaction class. |
| Terminal control I/O wait time | TCIOTIME | This is a composite field displaying one of the following elements:<br>• The total terminal I/O wait time.<br>• The number of times this task waited for terminal I/O. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Number of WEB READ requests | TMRWBRRC | The total number of web read requests issued by this task. |
| Number of CICS dispatcher change modes | CHMODECT | The number of CICS Dispatcher TCB Change Mode requests issued by this task. |
| Number of file control BROWSE requests | FCBRWCNT | The total number of file control browse requests issued by this task. |
| BTS define activity requests | BADACTCT | The number of define activity requests issued by this task. |
| Application naming - program name | APPLNAMEPROG | The name of the application program that was currently executing when the resource shortage condition occurred as identified by the exception record. |
| Number of bean state activation requests | TMREJBAC | The number of bean state activation requests issued by this task. |
| GETMAIN byte count of shared storage above 16MB | SHSTGBYTEGMA | The total number of GETMAIN bytes of shared storage above 16MB. |
| Dispatch time while running in QR TCB mode | QRDISPT | This is a composite field displaying one of the following elements:<br>• The amount of time that this task has spent dispatched on the QR TCB Mode.<br>• The number of times that this task was dispatched on the QR TCB Mode. |
| Task priority | PRIORITY | The total priority of the task. Total priority is the sum of the priority of the user associated with the task, the priority of the terminal which is the principal facility, and the priority of the transaction being executed. |
| Number of get container channel requests | TMRPGGCC | The number of get container channel requests issued by this task. |
| Recovery manager UOW resolved with indoubt action | RESOLVEACT | The total number of units of work that lost connection to their recovery coordinator during syncpoint processing that were resolved with indoubt action. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Local enqueue delay time | ENQDELAY | This is a composite field displaying one of the following elements:<br>• The elapsed time waiting for a task control enqueue.<br>• The number of times this task waited for a task control enqueue. |
| Record type | RECTYPE | The type of record data. |
| Number of WEB EXTRACT requests | TMRWBERC | The total number of web extract requests issued by this task. |
| Number of program LOAD requests | PCLOADCNT | The total number of program load requests issued by this task. |
| Maximum program storage in EUDSA | USRPS31HWM | The high-water-mark number of bytes used by this task for programs in the EUDSA. |
| Total RMI suspend time | RMISUSP | This is a composite field displaying one of the following elements:<br>• The elapsed time the task was suspended while in the CICS Resource Manager Interface (RMI).<br>• The number of times the task was suspended while in the CICS Resource Manager Interface (RMI). |
| Total local interval control starts with channel | TMRICSCC | The number of local interval control starts with channel issued by this task. |
| Number of primary TC messages sent | MSGOUT | The number of primary terminal control messages sent. |
| | TMRX8CPU | This is a composite field displaying one of the following elements:<br>• The amount of CPU time that this task has used when dispatched on the X8 TCB Mode.<br>• The number of times this task was dispatched on the X8 TCB Mode. |
| Number of journal write requests | JRNLWRITREQ | The number of journal write requests issued by this task. |
| Dispatch wait time | WAITTIME | This is a composite field displaying one of the following elements:<br>• The average time the task spent waiting for redispatch.<br>• The number of times this task waited for redispatch. |
| Number of program transfer control (XCTL) requests | PCXCTLCNT | The number of program XCTL requests issued by this task. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Number of secondary TC characters received | CHARINSEC | The number of secondary terminal control characters received by this task. |
| Number of CICS dispatcher TCB attaches | TCBATTCT | The number of CICS Dispatcher TCB Attaches issued by this task. |
| Number of secondary TC messages sent | MSGOUTSEC | The number of secondary terminal control messages sent by this task. |
| Total RMI elapsed time | RMITIME | This is a composite field displaying one of the following elements:<br>• The total elapsed time the task spent in the CICS Resource Manager Interface (RMI) including time suspended.<br>• The number of times the task invoked the CICS CICS Resource Manager Interface (RMI). |
| CPU time used by VSAM Record Level Sharing | RLSCPUT | This is a composite field displaying one of the following elements:<br>• The total amount of CPU time spent by this transaction performing RLS requests which run in SRB mode.<br>• The number of times the task performed RLS requests which run in SRB mode. |
| BTS suspend requests | BASUPACT | The number of suspend process/activity requests issued by this task. |
| Request processor wait time | TMRRQPWT | This is a composite field displaying one of the following elements:<br>• The elapsed time spent waiting for a request processor I/O operation.<br>• The number of times that this task waited for a request processor I/O operation. |
| JVM elapsed time - resetting | TMRJVMRT | This is a composite field displaying one of the following elements:<br>• The elapsed time spent resetting the JVM environment.<br>• The number of times the JVM environment was reset. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| DB2 request wait time | DB2WAIT | This is a composite field displaying one of the following elements:<br>• The amount of time that this task has spent waiting for DB2 Database Requests to complete.<br>• The number of times the task waited for DB2 Database Requests to complete. |
| Transaction type details | DETTRANTYPE | The details of the transaction type. Valid values are: BRIDGE, CICSBTS, DPL, MIRROR, NONE, ONCRPC, SYSTEM, WEB |
| User task key 8 mode dispatch time | TMRKY8DS | This is a composite field displaying one of the following elements:<br>• The key 8 mode dispatch time used by this task.<br>• The number of times that this task was dispatched in key 8 mode. |
| Number of interval control requests | ICCOUNT | The number of Interval control requests issued by this task. |
| Client IP Port | TMRCIPOR | The port number of the client. |
| CICS event wait time | CICSWAIT | This is a composite field displaying one of the following elements:<br>• The total CICS event wait time.<br>• The number of times the task waited for an event. |
| Number of repository reads | TMRWBRPR | The number of repository read requests issued by this task. |
| BTS process type | PRCSTYPE | The CICS Business Transaction Services process type that this task represents. |
| User task read-only mode dispatch time | TMRRODSP | This is a composite field displaying one of the following elements:<br>• The read only mode dispatch time, in seconds, used by this task.<br>• The number of times that this task was dispatched in read only mode. |
| Number of BMS map out requests | BMSOUTCNT | The number of BMS map out requests by this task. |
| FREEMAIN byte count of shared storage below 16MB | SHSTGBYTEFMB | The total number of FREEMAIN bytes of shared storage below 16MB. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Number of TS PUT requests to auxiliary storage | TSPUTACNT | The number of TS puts to auxiliary storage. |
| Maximum read-only program storage | ROPS31HWM | The high-water-mark number of bytes used by this task for programs in the ERDSA (read-only storage above the 16MB line). |
| Originating client portnumber | OCLIPORT | The TCP/IP port number of the originating client (or Telnet client). |
| GETMAIN byte count of shared storage below 16MB | SHSTGBYTEGMB | The total number of GETMAIN bytes of shared storage below 16MB. |
| WLM subset of execution phase complete | SUBEXECOMP | A subset of the execution phase of the work request (transaction) is complete. |
| Workload manager service class name | WLMSRVCNAME | The MVS Workload Manager (WLM) service class for this transaction. |
| Give-up-control wait time | CONTROLWAIT | This is a composite field displaying one of the following elements:<br>• The average time spent waiting after the task gave up control to other transactions.<br>• The number of times the task waited as a result of giving up control to other transactions. |
| BTS total data container requests | BATOTCCT | The total number of data container requests issued by this task. |
| Number of bytes sent by web send requests | TMRWBO1C | The number of bytes sent by web send requests issued by this task. |
| Recovery manager UOW resource owner failure | ROFAIL | The resource owner has failed. |
| Network ID | TMRNETID | The ID of the network |
| FREEMAIN byte count of shared storage above 16M | SHSTGBYTEFMA | The total number of FREEMAIN bytes of shared storage above 16MB. |
| Number of program link requests with channel | TMRPCLCC | The number of program link requests with channel issued by this task. |
| Interval control count | INTVLC | Interval control request count. The number of START, DELAY, CANCEL, RETRIEVE and DELAY requests issued by this task (excluding DELAY INTERVAL(0) requests). |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Originating networkid | ONETWKID | The network ID of the APPLID taken from the Origin Descriptor associated with this task. |
| Total number of FEPI requests | SZTOTCT | The total number of all FEPI API and SPI requests made by the user task. |
| Originating user correlation data | OUSERCOR | The originating user correlator. |
| S8 TCB mode CPU time | S8CPUT | This is a composite field displaying one of the following elements:<br>• The amount of CPU time that this task has used when dispatched on the S8 TCB Mode.<br>• The number of times this task was dispatched on the S8 TCB Mode.<br>This mode is used when making secure sockets calls. |
| | MXTOTDLY | This is a composite field displaying one of the following elements:<br>• Delay incurred by this task due to waiting on the MAXOPENTCBS Open TCB limit (including that there may be free Open TCBs but they cannot be used by this task).<br>• The number of times the task waited on the MAXOPENTCBS Open TCB limit (including that there may be free Open TCBs but they cannot be used by this task). |
| DL/I RMI elapsed time | RMIEXECDLITM | This is a composite field displaying one of the following elements:<br>• The total elapsed time the task spent in the EXEC DLI Resource Manager Interface (RMI).<br>• The number of times the task invoked the EXEC DLI Resource Manager Interface (RMI). |
| Data length of all get container channel requests | TMRPGGCL | The data length of all get container channel requests. |
| Maximum shared program storage in SDSA | PC24SHWM | Maximum amount (high-water mark) of program storage in use by the user task below the 16MB line, in the shared dynamic storage area (SDSA). |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Number of web browse requests | TMRWBBOC | The number of web browse requests issued by this task. |
| | TMRDSCWT | This is a composite field displaying one of the following elements:<br>• The elapsed time which the user task spent waiting because no TCB was available, and none could be created because of MVS storage constraints.<br>• The number of times the user task waited because no TCB was available, and none could be created because of MVS storage constraints. |
| Total JVM elapsed time | JVMTIME | This is a composite field displaying one of the following elements:<br>• The amount of elapsed time this task spent executing as a Java virtual machine (JVM), including time suspended (see JVM suspend time).<br>• The number of times that this task executed as a Java virtual machine (JVM). |
| Data isolation type | ISOLATEST | Identifies whether the user key task-lifetime storage is isolated from the user-key programs of other transactions:<br>• YES - Storage is isolated.<br>• NO - Storage is not isolated. |
| Bridge transaction ID | BRIDGE | The original transaction ID this transaction as initiated by the 3270 bridge. |
| LU6.2 network-wide UOW ID | NETUOWID | Network ID of the unit of work. |
| Number of FEPI ALLOCATE timeouts | SZALLCTO | The number of FEPI allocate timeouts issued by this task. |
| Number of secondary LU62 TC messages sent | TCM62OU2 | The number of LU6.2 terminal control messages sent by this task. |
| Task suspend time | SUSPTIME | This is a composite field displaying one of the following elements:<br>• The total elapsed time for which the task was suspended.<br>• The number of times this task was suspended. |
| Number of syncpoint requests | SYNCCOUNT | The number of syncpoint requests issued by this task. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Syncpoint wait time | SYNCPTWAITTM | This is a composite field displaying one of the following elements:<br>• The total elapsed time for which this task was dispatched or suspended while processing syncpoint requests.<br>• The number of times the task was dispatched or suspended while prcessing syncpoint requests. |
| DSECT ID mask | MNTDSID | The identifier mask of the DSECT |
| Number of primary TC characters received | CHARIN | The number of primary terminal control characters received. |
| Number of file control access method requests | FCAMCNT | The total number of file control access method requests issued by this task. |
| Number of primary TC characters sent | CHAROUT | The number of primary terminal control characters sent. |
| Number of FEPI SEND requests | SZSENDCT | The number of FEPI send requests issued by this task. |
| Maximum container storage allocated to task | PGCSTHWM | Maximum amount (high-water mark) of bytes of container storage allocated to this task. |
| Number of CREATE non-persistent socket requests | TMRSOCNS | The number of Create non-persistent socket requests issued by this task. |
| QR TCB mode delay time | QRMODDLY | This is a composite field displaying one of the following elements:<br>• The amount of time that this task has spent waiting while on the QR TCB mode plus the time spent waiting to switch back to QR TCB mode from another TCB mode.<br>• The number of times the task waited while on the QR TCB mode, including waiting to switch back to QR TCB mode from another TCB mode. |
| Number of primary TC messages received | MSGIN | The number of primary terminal control messages received. |
| Number of DPL program link requests with channel | TMRPCDCC | The number of DPL program link requests issued by this task. |
| Number of secondary LU62 TC characters sent | TCC62OU2 | The number of secondary LU6.2 characters sent by this task. |
| Number of inbound socket send requests | TMRSOOMC | The number of inbound socket send requests issued by this task. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Transaction flags | TRANFLAGS | The CICS transaction definition and status information flags for the transaction. |
| BTS total event requests | BATOTECT | The total number of event requests issued by this task. |
| Number of bean state passivation requests | TMREJBPC | The number of bean state passivation requests issued by this task. |
| Number of Enterprise bean method calls | TMREJMCT | The number of enterprise bean method calls issued by this task. |
| Number of secondary LU62 TC messages received | TCM62IN2 | The number of secondary LU6.2 TC messages received by this task. |
| Number of socket send requests | TMRSOSCT | The number of socket send requests issued by this task. |
| Dispatcher TCB mismatch wait time | TMRDSMWT | This is a composite field displaying one of the following elements:<br>• The total amount of TCB mismatch wait time, that is, TCB requests that waited because there was no TCB available matching the request, but there was at least one non-matching free TCB.<br>• The number of TCB requests that waited because there was no TCB available matching the request, but there was at least one non-matching free TCB. |
| Transaction error flags | TASK | The ID of the task. |
| Originating TCPIPSERVICE | OTCPSVCE | The name of the originating TCPIPSERVICE. |
| Peak number of non-persistent sockets | TMRSONHW | The peak number of non-persistent sockets associated with this task. |
| Actual terminal ID or session ID | TERMID | This is the actual terminal identification that the task is executing upon. In a Transaction Routing environment this is the ID of the session the task is routed across. |
| Outbound TCP/IP sockets I/O wait time | TMRSOOWT | This is a composite field displaying one of the following elements:<br>• The total outbound socket I/O wait time.<br>• The number of times that this task waited for outbound socket I/O. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Originating userid | OUSERID | The originating Userid-2 or Userid-1 (for example, from CWBA), depending on the originating task. |
| IPCONN i/o wait time | TMRISWT | The maximum elapsed time for which the task waited for control at the end of an IP intercommunications connection. |
| TCP/IP service port number | TMRPORTN | The port number used by the TCP/IP service. |
| CFDT wait time | CFDTWAIT | This is a composite field displaying one of the following elements:<br>• The elapsed time in which the task waited for CFDT file I/O.<br>• The number of times the task waited for CFDT file I/O. |
| Number of bean removal requests | TMREJBRC | The number of enterprise bean removal requests issued by this task. |
| Number of move container channel requests | TMRPGMCC | The number of move container channel requests issued by this task. |
| Data location above/below 16MB | TASKDATALOC | Indicates whether task life-time storage acquired by CICS for the duration of the transaction can be located above the 16MB line in virtual storage. These areas, which relate to specific CICS tasks, include the EXEC interface block (EIB) and the transaction work area (TWA). Values are:<br>• BELOW - Storage areas that CICS acquires for the transaction must be located below the 16MB line.<br>• ANY - Storage areas that CICS acquires for the transaction can be located above the 16MB line in virtual storage. |
| Data length of all program returns with channel | TMRPCRCL | The data length of all program returns with channel. |
| Peak number of bytes used by task in CDSA | CDSASHWM | The peak number of bytes used by this task in the CDSA. |
| Number of containers created for channel containers | TMRPGCCC | The number of containers created for channel containers by this task. |
| BTS process ID | PRCSID | The CICS-assigned identifier of the CICS BTS root activity that the user task implemented. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Maximum program storage in UDSA | USRPS24HWM | The high-water-mark number of bytes used by this task for programs in the UDSA. |
| Number of web read requests | TMRWBROC | The number of web read requests issued by this task. |
| Request receiver wait time | TMRRQRWT | This is a composite field displaying one of the following elements:<br>• The elapsed time spent waiting for a request receiver I/O operation.<br>• The number of times that this task waited for a request receiver I/O operation. |
| TCP/IP Sockets RMI elapsed time | RMITCPIPTIME | This is a composite field displaying one of the following elements:<br>• The total elapsed time the task spent in the z/OS Communications Server IP CICS Sockets Resource Manager Interface (RMI).<br>• The number of times the task invoked the z/OS Communications Server IP CICS Sockets Resource Manager Interface (RMI). |
| BTS process data container requests | BAPRDCCT | The number of process data container requests issued by this task. |
| Number of CICS logger write requests | LOGGRWRITREQ | The number of CICS Logger write requests issued by this task. |
| Number of inbound socket receive requests | TMRSOIMC | The number of inbound socket receive requests issued by this task. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Transaction indoubt option | INDOUBT | Indicates the action taken when a CICS region fails, or loses connectivity with its coordinator, during two-phase commit processing, and the UOW has entered an in-doubt state. If WAIT is specified in the Wait Option field, this field has no effect until the wait time expires. The valid values are:<br>• BACKWARD - All changes made to recoverable resources are backed out and the resources are returned to the state they were in before the start of the UOW.<br>• FORWARD - All changes made to recoverable resources are committed and the in-flight UOW is marked as completed. |
| Data length of data read from the repository | TMRWBRDL | The data length of data read from the repository. |
| Maximum JVM TCB delay time | TMRJTDLY | This is a composite field displaying one of the following elements:<br>• Delay incurred by this task due to waiting on the MAXJVMTCBS limit.<br>• The number of times the task waited on the limit set by the system parameter MAXJVMTCBS. |
| BTS run asynchronous requests | BARASYCT | The number of run process/activity requests issued by this task in asynchronous mode. |
| User task read-only mode CPU time | TMRROCPU | This is a composite field displaying one of the following elements:<br>• The read only mode CPU time used by this task.<br>• The number of times that this task was dispatched in read only mode. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Total other RMI elapsed time | RMIOTHERTIME | This is a composite field displaying one of the following elements:<br>• The total elapsed time the task spent in the CICS Resource Manager Interface (RMI) excluding the times listed separately (RMIDB2TIME, RMIDBCTLTIME, RMIEXECDLITM, RMIMQSERIEST, RMICPSMTIME and RMITCPIPTIME).<br>• The number of times the task invoked the CICS Resource Manager Interface (RMI) excluding the times listed separately (RMIDB2TIME, RMIDBCTLTIME, RMIEXECDLITM, RMIMQSERIEST, RMICPSMTIME and RMITCPIPTIME). |
| Maximum shared program storage in ESDSA | PC31SHWM | Maximum amount (high-water mark) of program storage in use by the user task above the 16MB line, in the extended shared dynamic storage area (ESDSA). |
| Originating client IP address | OCLIPADR | The IP address of the originating client (or Telnet client). |
| Total number of socket requests | TMRSOTC | The total number of socket requests issued by this task. |
| Terminal information | TERMNALINFO | Information relating to the terminal:<br>• bit 0 - Nature:<br>– X'00' - Not applicable<br>– X'01' - Terminal<br>– X'02' - Session<br>• bit 1 - Session Type:<br>– X'00' - Not applicable<br>– X'01' - IRC<br>– X'02' - IRC XM<br>– X'03' - IRC XCF<br>– X'04' - LU61<br>– X'05' - LU62 SINGLE<br>– X'06' - LU62 PARALLEL<br>• bit 2 - Access method:<br>– X'01' - VTAM<br>– X'03' - BSAM<br>– X'04' - TCAM<br>– X'06' - BGAM<br>– X'07' - CONSOLE<br>• bit 3: Device type code. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Average storage usage above 16MB | USTG31OCC | The average storage occupancy of the user task above the 16MB line. This measures the area under the curve of storage in use against elapsed time. |
| Interregion communication (MRO) I/O wait time | IRIOTIME | This is a composite field displaying one of the following elements:<br>• The total inter-region communication I/O wait time.<br>• The number of times this task waited for inter-region communication I/O. |
| FEPI suspend time | SZWAIT | This is a composite field displaying one of the following elements:<br>• Total elapsed time for which the user task waited for all FEPI services.<br>• The number of times this task waited for any FEPI service. |
| RRMS/MVS unit of recovery ID | RRMSURID | The Unit of Recovery ID/token given to CICS by RRMS/MVS. |
| Number of IPCONN allocate requests | TMRISACT | The number of allocate session requests issued by the task for sessions on IP intercommunications connections. |
| CICSPlex SM RMI elapsed time | RMICPSMTIME | This is a composite field displaying one of the following elements:<br>• The total elapsed time the task spent in the CICSPlex SM Resource Manager Interface (RMI).<br>• The number of times the task invoked the CICSPlex SM Resource Manager Interface (RMI). |
| Number of FEPI START requests | SZSTRTCT | The number of FEPI start requests issued by this task. |
| First dispatch delay time caused by MXT | MXTDELAY | This is a composite field displaying one of the following elements:<br>• The elapsed time waiting for first dispatch which was delayed because of the limits set by the system parameter, MXT, being reached.<br>• The number of delays during the first dispatch due to the limits set by the system parameter, MXT, being reached. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| DB2 RMI elapsed time | RMIDB2TIME | This is a composite field displaying one of the following elements:<br>• The total elapsed time the task spent in the DB2 Resource Manager Interface (RMI).<br>• The number of times the task invoked the DB2 Resource Manager Interface (RMI). |
| Transaction class | TRANCLASS | The 8-character transaction class name. For all other supported systems, the 2-digit transaction class identifier, in the range 01-10. |
| Number of WEB BROWSE requests | TMRWBBRC | The total number of web browse requests issued by this task. |
| Indoubt wait time | INDOUBTWAIT | Indicates whether an in-doubt UOW is to wait pending recovery from a failure that occurs after the UOW has entered the in-doubt state. The valid values are WAIT and NOWAIT. |
| Total length of documents created | DHTOTDCL | The total length of documents created by this task. |
| | DB2CONWT | This is a composite field displaying one of the following elements:<br>• The amount of time that this task has spent waiting for DB2 connections.<br>• The number of times the task waited for DB2 connections. |
| Average ECDSA storage usage | ECDSASOCC | The average storage occupancy in the ECDSA. This measures the area under the curve of storage in use against elapsed time. |
| Number of browse container channel requests | TMRPGBCC | The number of browse container channel requests issued by this task. |
| | CPUTIME | This is a composite field displaying one of the following elements:<br>• The CPU time, in seconds, used by this task. If monitoring is inactive, the value 0000:00:00.000000 is returned.<br>• The number of times this task was dispatched. |
| Number of web parse requests | TMRWBPRC | The number of web parse requests issued by this task. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Total number of file control requests | FCCOUNT | The number of file control requests issued by this user task, excluding OPEN, CLOSE, ENABLE, and DISABLE requests. |
| Real LU name | TMRRLUNM | The name of the VTAM logical unit of the terminal associated with this transaction. |
| First program name | FIRSTPRGM | The name of the first program invoked at task-attach time. |
| Principal facility | FACILITY | The name of the terminal or transient data queue associated with the task.<br><br>If this field is blank, it means the task is not associated with a terminal or transient data queue. |
| RRMS/MVS syncpoint coordination delay time | RRMSWAIT | This is a composite field displaying one of the following elements:<br>• The amount of time spent by this task waiting for syncpoint coordination with RRMS/MVS.<br>• The number of times that this task waited for syncpoint coordination with RRMS/MVS. |
| Number of GETMAIN requests in ECDSA | ECDSAGETM | The total number of ECDSA GETMAIN requests. |
| Number of FEPI characters received | SZCHRIN | The number of FEPI characters received by this task. |
| Total number of Enterprise bean requests | TMREJBTC | The number of enterprise bean requests issued by this task. |
| Peak number of bytes used by task in EUDSA | USTG31HWM | The peak number of bytes used by this task in the EUDSA. |
| CorbaServer name | TMRCBRNM | The name of the CorbaServer associated with the task. |
| Workload manager execution phase complete | EXECOMP | The entire execution phase of the work request (transaction) is complete. |
| Number of socket bytes encrypted | SOBYENCT | The number of bytes encrypted by this task that were passed over the TCP/IP Sockets Interface. |
| Number of user storage GETMAIN requests above 16MB | USTG31CNT | The number of user storage GETMAIN requests issued by this user task for storage above the 16MB line. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| | TMRKY9CP | This is a composite field displaying one of the following elements:<br>• The total CPU time during which the user task was dispatched by the CICS dispatcher on a CICS Key 9 mode TCB.<br>• The number of times this task was dispatched on a key 9 mode TCB.<br>L9 mode TCBs are used for USERKEY OPENAPI application programs. |
| Transient data I/O wait time | TDIOTIME | This is a composite field displaying one of the following elements:<br>• The total transient data I/O wait time.<br>• The number of times this task waited for transient data I/O. |
| DB2 ready queue wait time | DB2RDYQW | This is a composite field displaying one of the following elements:<br>• The amount of time that this task has spent waiting on the DB2 ready queue.<br>• The number of times the task waited on the DB2 ready queue. |
| Data length of data written to the repository | TMRWBWDL | The data length of data written to the repository. |
| Number of inbound socket characters received | TMRSOI1C | The total number of inbound socket characters received by this task. |
| Number of WEB SEND requests | WBSENDCT | The total number of web send requests issued by this task. |
| WebSphere MQ RMI elapsed time | RMIMQSERIEST | This is a composite field displaying one of the following elements:<br>• The total elapsed time the task spent in the WebSphere MQ Resource Manager Interface (RMI).<br>• The number of times the task invoked the WebSphere MQ Resource Manager Interface (RMI). |
| Application naming - transaction name | APPLNAMETRAN | The name of the transaction that was currently executing when the resource shortage condition occurred as identified by the exception record. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Total number of document requests | DHTOTCT | The total number of document handling requests issued by this task. |
| Data length of all local IC starts with channel | TMRICSCD | The data length of all local IC starts with channel. |
| L8 TCB mode CPU time | L8CPUT | This is a composite field displaying one of the following elements:<br>• The amount of CPU time that this task has used when dispatched on the L8 TCB Mode.<br>• The number of times this task was dispatched on the L8 TCB Mode.<br>This mode is used by programs that are defined to be CONCURRENCY=THREADSAFE when they issue DB2 requests. |
| Task start time | START | The time when the task started. |
| Number of file control DELETE requests | FCDELCNT | The total number of file control delete requests issued by this task. |
| Number of characters sent | TMRSOCOT | The number of characters sent by this task. |
| Global enqueue delay time | GNQDELAY | This is a composite field displaying one of the following elements:<br>• The amount of time spent by this task waiting for a Global enqueue.<br>• The number of times that this task waited for a Global enqueue. |
| First dispatch delay time | DSPDELAY | This is a composite field displaying one of the following elements:<br>• The elapsed time waiting for the first dispatch This time includes the time waiting for MAXT or TRANCLASS limits.<br>• The number of delays during the first dispatch. |
| Number of performance records | PERFRECCNT | The number of performance records written by the CICS Monitoring Facility (CMF) for this task. |
| Number of OO class library API requests | TMRCFACT | The total number of OO class library API requests |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| | TMRXTDLY | This is a composite field displaying one of the following elements:<br>• The maximum CICS XPLink TCB delay time.<br>• The number of times the user task waited to obtain a CICS XPLink TCB. |
| Peak number of persistent sockets | TMRSOPHW | The peak number of persistent sockets associated with this task. |
| Total number of transient data requests | TDCOUNT | The number of transient data requests issued by this user task, including GET, PUT, and PURGE requests. |
| Number of GETMAIN requests in CDSA | CDSAGETM | The total number of CDSA GETMAIN requests. |
| Maximum program storage in ECDSA | ECDSAPSHWM | The high-water-mark number of bytes used by this task for programs in the ECDSA. |
| Number of inbound socket characters sent | TMRSOO1C | The number of inbound socket characters sent by this task. |
| Number of temporary storage GET requests | TSGETCNT | The number of temporary storage get/read requests issued by this task. |
| Original ABEND code | ABCODEO | The name of the original abend code. |
| Number of transient data GET requests | TDGETCNT | The number of transient data get/read requests issued by this task. |
| Number of program LINK requests | PCLINKCNT | The number of program link requests issued by this task. |
| Current ABEND code | ABCODEC | The identifier of the current abend code. |
| Run synchronous transaction wait time | RUNTRWTT | This is a composite field displaying one of the following elements:<br>• The total amount of time that this transaction has spent waiting for a transaction it attached synchronously to complete.<br>• The number of times the task waited for a transaction it attached synchronously to complete.<br>For CICS BTS this field will record the times this task spent waiting for a Run Process or Run Activity to execute synchronously. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Number of put container channel requests | TMRPGPCC | The number of put container channel requests issued by this task. |
| BTS delete activity and cancel requests | BADCPACT | The number of delete activity and cancel process/activity requests issued by this task. |
| Maximum read-only program storage on RDSA | PC24RHWM | Maximum amount (high-water mark) of program storage in use by the user task below the 16MB line, in read-only dynamic storage area (RDSA). |
| Total JVM suspend time | JVMSUSP | This is a composite field displaying one of the following elements:<br>• The amount of elapsed time this task was suspended back in CICS while executing as a Java Virtual Machine (JVM).<br>• The number of times that this task was suspended back in CICS while executing as a Java virtual machine (JVM). |
| CPU time used while running in QR TCB mode | QRCPUT | This is a composite field displaying one of the following elements:<br>• The amount of CPU time that this task has used when dispatched on the QR TCB Mode.<br>• The number of times that this task was dispatched on the QR TCB Mode. |
| Originating task start time | OSTART | The time at which the originating task (for example, the CWXN task) was started. |
| Transaction ID started by bridge | BRDGTRAN | Indicates whether or not this transaction was started by the 3270 bridge facility. The field will indicate not available if CICS monitoring is not switched on. |
| BTS activity data container requests | BAACDCCT | The number of activity data container requests issued by this task. |
| Transaction error flags | TASKFLAG | The transaction error flags for this task. |
| Number of web write requests | TMRWBWOC | The number of web write requests issued by this task. |
| Total number of BMS requests | BMSCOUNT | The number of terminal control, or basic mapping support (BMS), requests issued by this user task, including MAP, IN, and OUT requests. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Recovery manager UOW unshunted | UNSHUNTED | The total number of units of work that lost connection to their recovery coordinator during syncpoint processing but were not shunted for indoubt failure. |
| Shared temporary storage I/O wait time | SHAREDTSWAIT | This is a composite field displaying one of the following elements:<br>• The total shared temporary storage wait time.<br>• The number of times the task waited for shared temporary storage. |
| Partner wait time | TMRPTPWT | This is a composite field displaying one of the following elements:<br>• The total partner wait time.<br>• The number of times that this task waited for the partner transaction to complete. |
| TCP/IP Service name | TMRTCPSV | The name of the TCP/IP service. |
| Originating applid | OAPPLID | The applid of the CICS region in which this work request (transaction) originated; (for example, the region in which the CWXN task ran) |
| Number of transient data PUT requests | TDPUTCNT | The number of transient data put/write requests issued by this task. |
| User task key 8 mode CPU time | TMRKY8CP | This is a composite field displaying one of the following elements:<br>• The key 8 mode CPU time used by this task.<br>• The number of times that this task was dispatched in key 8 mode. |
| BTS retrieve reattach event requests | BARATECT | The number of retrieve reattach event requests issued by this task. |
| BTS define input event requests | BADFIECT | The number of define input event requests issued by this task. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Other TCB mode dispatch time | MSDISPT | This is a composite field displaying one of the following elements:<br>• The amount of time that this task has been dispatched on TCB Modes other than QR, H8, J8, L8, and S8 TCB Modes.<br>• The number of times that this task has been dispatched on TCB Modes other than QR, H8, J8, L8, and S8 TCB Modes.<br>This figure will include for example, dispatch times on the RO, CO, SZ, and so on. |
| BTS timer associated event requests | BATIAECT | The number of timer associated event requests issued by this task. This field includes:<br>• DEFINE TIMER EVENT<br>• CHECK TIMER EVENT<br>• DELETE TIMER EVENT<br>• FORCE TIMER EVENT |
| OTS indoubt wait time | TMROIDWT | This is a composite field displaying one of the following elements:<br>• The object transaction service indoubt wait time.<br>• The number of times that this task waited indoubt for object transaction services. |
| Data storage key | TASKDATAKEY | The storage key of the storage CICS allocates at task initialization for the duration of the task (task-lifetime storage), and which is accessible by the application. These storage areas are the EXEC interface block (EIB) and the transaction work area (TWA). Values are:<br>• USER - CICS obtains user-key storage for this transaction. Application programs executing in any key can both read and modify these storage areas<br>• CICS - CICS obtains CICS-key storage for this transaction. Application programs executing in CICS key can both read and modify these storage areas. Application programs executing in user key can only read these storage areas. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Number of file control ADD requests | FCADDCNT | The total number of file control add/new record write requests issued by this task. |
| Local unit of work (UOW) ID | UOWID | The local identifier of the unit of work associated with this task. |
| VTAM LU name | LUNAME | The name of the VTAM logical unit of the terminal associated with this transaction |
| Interval control delay time | INTVLWAIT | This is a composite field displaying one of the following elements:<br>• The total interval control delay time.<br>• The number of times the task waited as a result of interval control services. |
| Number of BMS map requests | BMSMAPCNT | The number of BMS map requests by this task. |
| BTS resume requests | BARMPACT | The number of resume process/activity requests issued by this task. |
| Transaction ID | TRANID | The name of the transaction associated with the task. |
| User task dispatch time | DISPTIME | This is a composite field displaying one of the following elements:<br>• The elapsed time since the task was dispatched.<br>• The number of times this task was dispatched. |
| Originating transaction sequence number | OTRAN | The transaction ID (TRANSID) of the originating task (for example, the CWXN task). |
| Distributed program link (DPL) request count | PCDPLCT | The total number of times this task has issued a CICS Program Control Distributed Program Link to another CICS system. |
| LU 6.2 network-wide UOW netname | NETNAME | The network name of the originating system. |
| Number of user replaceable module link requests | PCLURMCT | The number of times that this task has issued a link to a user replaceable module. |
| Maximum program storage across all DSAs | PSTGHWM | The high-water-mark number of bytes used by this task for programs in all DSAs. |
| Number of journal output requests | JCUSRWCNT | The number of journal output requests issued by this task. |
| Number of socket bytes decrypted | SOBYDECT | The number of bytes decrypted by this task that were passed over the TCP/IP Sockets Interface. |

*Table 17. Fields in HTASK views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| Total number of IMS requests | IMSREQCT | The number of IMS database requests issued by this task. |
| Workload manager begin-to-end phase complete | BTECOMP | The total begin-to-end phase of the work request (transaction) is complete. |
| Total number of TS requests | TSCOUNT | The number of temporary storage requests issued by this user task, including GET, PUT, and PURGE requests. |
| IMS request wait time | IMSWAIT | This is a composite field displaying one of the following elements:<br>• The amount of time that this task has spent waiting for IMS Database Requests to complete.<br>• The number of times the task waited for IMS Database Requests to complete. |
| LU61 I/O wait time | LU61WTT | This is a composite field displaying one of the following elements:<br>• The total LU6.1 I/O wait time.<br>• The number of times this task waited for LU6.1 I/O. |
| | TMRCMDLY | This is a composite field displaying one of the following elements:<br>• The elapsed time in which the user task waited for redispatch after a CICS Dispatcher change-TCB mode request was issued by or on behalf of the user task.<br>• The number of times the user task waited for redispatch after a CICS Dispatcher change-TCB mode request was issued by or on behalf of the user task.<br>For example, a change-TCB mode request from a CICS L8 or S8 mode TCB back to the CICS QR mode TCB might have to wait for the QR TCB because another task is currently dispatched on the QR TCB. |
| Average storage usage below 16MB | USTG24OCC | The average storage occupancy of the user task below the 16MB line. This measures the area under the curve of storage in use against elapsed time. |

# History collection - MASHIST

The **CICS region history collection** (MASHIST) view displays information about the status of CICSPlex SM history recording for CICS regions. Support for historical task data builds upon CICSPlex SM resource monitoring.

## Supplied views

It requires monitor definitions to be installed with a monitoring resource class of MTRAN to specify the IDs of the transactions for which you want to save historical task data. Additionally VSAM data sets must be defined and allocated to the MAS region by means of DD cards, and the desired monitoring facility parameters set.

To access from the main menu, click:

**History views > History Views > History collection**

*Table 18. Views in the supplied* **MAS history** *(MASHIST) view set*

| View | Notes |
|---|---|
| MAS history<br><br>EYUSTARTMASHIST.TABULAR | Tabular information about the status of history recording for CICS regions. |
| MAS history<br><br>EYUSTARTMASHIST.DETAILED | Detailed information about the status of history recording for CICS regions. |
| MAS history<br><br>EYUSTARTMASHIST.RESUME | Resume CICSPlex SM history recording for the CICS region. |
| MAS history<br><br>EYUSTARTMASHIST.SUSPEND | Suspend CICSPlex SM history recording for the CICS region. |

## Actions

*Table 19. Actions available for MASHIST views*

| Action | Description |
|---|---|
| RESUME | Resume CICSPlex SM history recording for the CICS region. |
| SUSPEND | Suspend CICSPlex SM history recording for the CICS region. |

## Fields

*Table 20. Fields in MASHIST views*

| Field | Attribute name | Input values |
|---|---|---|
| Number of times current data set has wrapped | CWRAPCNT | The number of times the current history data set has wrapped. The data set wraps when it is full. |
| Number of records on current data set | CRECCNT | The number of records in the current history data set. |

*Table 20. Fields in MASHIST views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| History reason code | REASON | Reason code from the historical data recorder task. Values are:<br>• IOERROR - An unexpected error occurred while reading from the EYUHISTx datasets. This may be because of a problem with the file definitions, or because of a problem with a query to the CICSPlex SM EYUPARMs relating to the MAS history recorder function.<br>• INVALIDFILE - One or more attributes for the EYUHISTx datasets are unacceptable for the MAS history recorder function.<br>• OK - The MAS history recorder is operational.<br>• NOTAVAILABLE - The MAS history recorder requires at least two EYUHISTx history datasets before becoming available for history recording. |

*Table 20. Fields in MASHIST views (continued)*

| Field | Attribute name | Input values |
|---|---|---|
| History recorder status | STATUS | Identifies whether or not the historical data recorder task is in any of the following states:<br>• ACTIVE - The MAS history recorder is available to record task records.<br>• INACTIVE - The MAS history recorder is not available to record task records.<br>• SUSPEND - The MAS history recorder has been temporarily prevented from recording task records.<br>• SUSPEND - The MAS history recorder has been temporarily prevented from recording task records.<br>• SUSPENDING - The MAS history recorder is going into a SUSPEND status. Task records are no longer being recorded. The recorder STATUS field will change to SUSPEND when the recorder receives the next task record.<br>• RESUMING - The MAS history recorder is starting to record task records again. The recorder STATUS field will change to ACTIVE when the recorder receives the next task record. |
| Task ID of Current Recorder | TASKNO | The ID of the history recorder task . |
| Current data set suffix | CDSSUF | The suffix of the current VSAM KSDS data set containing historical data for the CICS region |
| Number of History data sets | HDSCOUNT | The number of history data sets available. |

# Example tasks: resource monitoring

This section provides some examples of typical tasks you perform to set up CICSPlex SM resource monitoring.

## Monitoring transaction response times

This example shows you how to use the WUI to monitor the response times of a particular transaction (PAY1), in a single CICS system (CICSPA01), which is a local MAS in CICSplex PLXPROD1. In this example, the monitoring is temporary: that is, it is started in response to a particular problem, and stopped again when enough monitor data has been gathered. The CICS system CICSPA01 is currently running.

1. Ensure that both CICS monitoring and CICS performance class monitoring are active in CICS system CICSPA01.

   CICSPlex SM can gather detailed, transaction-related monitor data only if CICS monitoring and performance class monitoring are switched on. You can check whether they are active using the **CICS region** view as follows:
   a. From the WUI main menu, click **CICS regions** to open the **CICS regions** tabular view.
   b. If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Set**.
   c. Click on CICSSPA01 to open a detailed view showing the current trace, dump, and statistics settings for of this region. Scroll down to the **Monitor status** field and ensure that it is set to ON. If it is not, change the setting using the drop down menu.
   d. Scroll to the bottom of this screen and click on **Monitoring, dump and trace details**. Scroll down to the **Performance class monitoring status** field, which you will find in the **Monitoring values** section, and ensure that it is set to PERF. If it is not, change it.
   e. If you have changed either of the values, click the **Apply changes** button at the bottom of the screen
2. Create a monitor definition.
   a. From the main menu, click **Administration views > Monitor administration view > Monitor definitions** to open the **Monitor definition** tabular view.
   b. Click the **Create** button at the bottom of the screen.

      **Note:** If you want to use an existing definition as a template, select a definition from the list first.
   c. Provide the following information:
      **Monitor definition name**
      MODPAY01
      **Description**
      Transaction PAY1
      **Name or generic name of resource being monitored**
      PAY1
      **Monitoring resource class**
      MTRAN
      **Inclusion in CPSM monitoring option**
      YES
      **Resource status facility population**
      NO
   d. Click **Yes** to confirm. The **Monitor definition** tabular view is redisplayed showing an entry for the monitor definition MODPAY01.
3. Create a monitor specification.
   a. From the main menu, click **Administration views > Monitor administration views > Monitor specifications** to open the **Monitor specification** tabular view.
   b. Click the **Create** button at the bottom of the screen.

      **Note:** If you want to use an existing definition as a template, select a definition from the list first.
   c. Provide the following information:
      **Specification name**
      MOSPAY01
      **Description**
      Payroll resources

**Monitor activation status**
ACTIVE
**Data retention period**
30
**Sample for transaction monitoring**
120

You can leave the remaining fields blank or accept the defaults.

Transactions are to be sampled every 120 seconds. The resource sample interval (that is, 120 seconds), when converted to minutes, should be evenly divisible into the monitor interval for the CICSplex.

**Note:** You can look at the monitor interval for the CICSplex by opening the **CICSplex definitions** view (**Administration views > CMAS configuration administration views > CICSplex definitions**) and clicking on the entry for PLXPROD1.

d. Click **Yes** to confirm. The **Monitor specification** tabular view is redisplayed, showing an entry for monitor specification MOSPAY01.

4. Associate the monitor specification with the CICS system.
   a. In the **Monitor specifications** view, select the entry for MOSPAY01, and click **Associate CICS system**.
   b. In the **CICS system** field, type in CICSPA01, and click **Yes** to confirm.
5. Ensure that CICSPlex SM monitoring is switched on in the CICS system.
   a. From the WUI main menu, click **CICSPlex SM operations views > MASs known to CICSplex** to open the **MASs known to CICSplex** tabular view.
   b. Check the value in the **Monitoring status** field for the entry for CICSPA01:
      - If this field is set to YES, you need to deactivate and then reactivate monitoring so that the new monitor specification takes effect. To do this, click on CICSPA01 to display the **MASs known to CICSplex** detailed view. Change the **Monitoring status** field to NO and click the **Apply changes** button. Then repeat the process, setting the field back to YES.
      - If this field is set to NO, you need activate monitoring. To do this, set the field to YES and click the **Apply changes** button.

   If you don't set the **Monitoring status** field to YES, no monitoring will occur because the CICS system's **Monitoring status** field value overrides the **Monitoring status** value in the monitor specification.
6. Look at the monitor data.

   After a short time has elapsed (for this example, at least two minutes, which is the resource sample interval), you can look at the data that CICSPlex SM is gathering. To do this, from the WUI main menu, click **Monitoring views > Transaction monitoring views > Monitor data for transactions** and click on the entry for PAY1. This opens a detailed view showing information (including response times) for transaction PAY1 in CICS system CICSPA01.

   Whenever you click **Refresh**, the view is redisplayed, though the frequency with which the data actually changes is determined by the resource sample interval. The monitor data is also written to an SMF data set (unless production of CMF records has been suppressed).
7. Deactivate monitoring of transaction PAY1.

   Monitoring of transaction PAY1 continues until CICSPA01 stops, unless you switch it off before then.

   If you want to stop monitoring at any time, click **Monitoring views > Active monitor specifications**, select the entry for MODPAY01 and click the **Remove...** button. The monitor definition MODPAY01 is removed from CICS system CICSPA01, though it still exists in the data repository, and can be

reinstalled at any time. The data gathered during monitoring of transaction PAY1 in CICSPA01 is kept for 30 minutes after you deactivate MODPAY01. (Remember that 30 minutes is the length of the retention period you specified in the monitor specification MOSPAY01.)

## Monitoring programs in multiple CICS systems

This example uses the WUI to shows how to monitor the activity of a set of programs (programs whose names begin with the letters PAY) as they are used in a group of CICS systems (AORs CICSPA01, CICSPA02, and CICSPA03) in CICSplex PLXPROD1. In this example, the monitoring is to be regular: that is, it will be activated, for each CICS system, from 0800 hours to 1700 hours. CICS systems CICSPA01 and CICSPA03 are running. For none of the three CICS systems is monitoring currently switched on.

1. Create a CICS system group.
   a. From the WUI main menu, click **Administration views > Topology administration views > System groups** to open the **System group definitions** tabular view.
   b. If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field and click **Refresh**.
   c. Click the **Create...** button and type in the following information:
      **System group name**
      CSGAORS1
      **Description**
      AORs PA01, PA02, PA03
   d. Click **Yes** to confirm. The **System group definitions** tabular view is redisplayed and includes an entry for CSGAORS1.
2. Add CICS systems to the CICS system group.
   a. Click **Administration views > Topology administration views > System definitions** to open the **CICS system definitions** tabular view.
   b. Select the entries for CICSPA01, CICSPA02 and CICSPA03 and click **Add to CICS system group**.
   c. In the **Group which member will join** field, type in CSGAORS1 and click the **Yes to 3 remaining** button to add all three systems to the group.
3. Create a time period definition.

   Create a time period definition.
   a. From the main menu, click **Administration views > Topology administration views > Time periods** to open the **Time period definitions** tabular view.
   b. Click the **Create** button and type in the following information:
      **Name** PDFPRIME
      **Description**
      Prime shift
      **Start time**
      08:00
      **End time**
      17:00
      **Time zone**
      A
      **Time zone adjustment factor**
      0
   c. Click **Yes** to confirm. The **Time period definitions** tabular view is redisplayed and includes an entry for PDFPRIME.
4. Create a monitor definition.

a. From the main menu, click **Administration views > Monitor administration views > Definitions** to open the **Monitor definitions** tabular view showing any monitor definitions already created in CICSplex PLXPROD1
b. Click the **Create** button at the bottom of the screen.

   **Note:** If you want to use an existing definition as a template, select a definition from the list first.
c. Provide the following information:
   **Name** MODPAY02
   **Description**
   Programs PAY*
   **Name or generic name of resource being monitored**
   PAY*
   **Monitoring resource class**
   MPROG
   **Inclusion in CPSM monitoring option**
   YES
   **Resource status facility population**
   NO
d. Click **Yes** to confirm. The **Monitor definitions** tabular view is redisplayed showing an entry for the monitor definition MODPAY02.

5. Create a monitor group.
   a. From the main menu, click **Administration views > Monitor administration views > Groups** to open the **Monitor group definitions** tabular view showing any monitor definitions already created in CICSplex PLXPROD1
   b. Click the **Create** button and type in the following:
      **Monitor group name**
      MOGPAY01
      **Description**
      Payroll resources
   c. Click **Yes** to confirm. The **Monitor group definitions** tabular view is redisplayed and includes an entry for MOGPAY01.
6. Add the monitor definition to a monitor group.

   Because you want the monitor definition MODPAY01 to be installed automatically whenever any of the CICS systems in group CSGAORS1 starts, you must add MODPAY01 to a monitor group.
   a. Open the **Monitor definitions** tabular view, select the entry for MODPAY02 and click the **Add to Monitor group...** button.
   b. In the **Resource group name** field, type MOGPAY01. In the **Period Definition name** field, type PDFPRIME (the name of the time-period definition you created in step 3 on page 159).
   c. Click **Yes** to confirm.
7. Add the monitor group to a monitor specification.
   a. Open the **Monitor group definitions** screen, select the entry for MOGPAY01, and click the **Add to Monitor specification...** button.
   b. In the **Specification name** field, type in MOSPAY01.
   c. Click **Yes** to confirm.

   You'll notice that the monitor specification MOSPAY01 is the one you created in the previous example (“Monitoring transaction response times” on page 156). Instead of creating a new monitor specification for this example, you can reuse an existing specification. (This is important, because a CICS system or CICS system group can be associated with only one monitor specification at a time.) However, you still need to update monitor specification MOSPAY01.

8. Update the monitor specification.
   a. From the main menu, click **Administration views > Monitor administration views > Specifications** to open the **Monitor specifications** tabular view.
   b. Select the entry for MOSPAY01 and click the **Update...** button.
   c. In the **Sample interval for program monitoring** field, type in a value of 300. Programs are to be sampled every 300 seconds. Leave the other fields unchanged. You do not have to alter the transaction sample interval, because it takes effect only when a monitor definition, identifying which transactions are to be monitored, is installed in a CICS system. If no such definition is installed, no monitoring of transactions occurs.
   d. Click **Yes** to confirm. The **Monitor specifications** tabular view is redisplayed.
9. Associate the monitor specification with the CICS system group.
   a. In the **Monitor specifications** tabular view, select the entry for MOSPAY01, and click the **Associate CICS group...** button.
   b. Type in CSGAORS1 in the **CICS system group** field and select the FORCE option. (The option value FORCE means that all CICS systems in the group CSGAORS will use this monitor specification.)
   c. Click **Yes** to confirm.
10. Switch CICSPlex SM monitoring on in the CICS systems.
    a. From the WUI main menu, click **Administration views > Topology administration views > System definitions** to open the **CICS system definitions** view showing CICS systems in CICSplex PLXPROD1.
    b. Select the entries for CICSPA01, CICSPA02 and CICSPA03 and click the **Update...** button. This opens a detailed view for system CICSPA01.
    c. Scroll down to the **Monitoring status** field and change the value to YES.
    d. Click the button **Yes to 3 remaining** button to change the monitoring status of all three systems to YES.

    Any change you make to the CICS system definitions with the **CICS system definitions** view takes effect when those CICS systems are next started. However, CICS systems CICSPA01 and CICSPA03 are currently running. To switch monitoring on for those systems immediately, you must also update their definitions with the **MASs known to CICSplex** view. (How to do this is shown in the previous example, in step 5 on page 158).

    **Note:** when you switch monitoring on using the **MASs known to CICSplex** view, it remains on until the CICS system stops or until you switch monitoring off. The time-period definition PDFPRIME has no effect.
11. Look at the monitor data.

    You can look at the data that CICSPlex SM is gathering by looking at the **Program monitoring** views. From the main menu, click **Monitoring views > Program monitoring views > Monitor data for programs** and clicking on the entry for PAY* . This opens a view showing detailed information (such as usage counts and average fetch times), about programs PAY* in CICS system group CSGAORS1. Whenever you click **Refresh**, the data in the view is redisplayed. However the frequency with which the data changes is dictated by the resource sample interval. In this example, the data changes at most every five minutes.

## Finding out which resources are being monitored in a CICS system

This example shows you how to use the WUI to find out which types of resource are being monitored in CICS system CICSPA01.

1. From the WUI main menu, click **Monitoring views > Active monitor specifications**.
2. If the current context is not PLXPROD1, specify PLXPROD1 in the **Context** field.
3. In the scope field type in CICSPA01 and click **Refresh**.

   The **Active monitor specifications** tabular view now displays the active monitor definitions in CICS system CICSPA01.

# Part 4. Appendixes

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# Appendix A. Customizing programs that monitor status

**This appendix contains Product-sensitive Programming Interface Information.**

User-written programs can be invoked by real-time analysis (RTA) to determine the status of CICS user applications. Status definitions created using the **Status definition** view (click **Administration views—>MAS resource monitoring administration views—>User status probe definitions)** (as described in “Status probe definitions” on page 42) establish the interval between calls from CICSPlex SM to a status monitoring program. When the user-written program determines that an abnormal condition exists for an application or resource, an RTA event notification can be issued. The user-written program can run in a local MAS on any supported CICS system.

## Creating a status program

Once RTA determines (by issuing an EXEC CICS INQ) that your program is available, RTA issues a status call (which uses the CICS/ESA format of DFHCOMMAREA) to the program. When RTA invokes your program, the DFHEICAP field of the DFHEISTG DSECT contains the address of the COMMAREA. The COMMAREA contains data mapped by the CICSPlex SM EYURPESC DSECT.

## Assembler EYURPESC format

The EYURPESC DSECT format is as follows:

```
RTA STATUS CALL DFHCOMMAREA
PESC_HEADER     DS   CL20    EYURPESC block header
PESC_CONTEXT    DS   CL8     CICSplex name
PESC_SCOPE      DS   CL8     CICS system name
PESC_COUNT      DS   F       Number of NAME/STATUS pairs (between
                             1 and 64)

PESC_NAME       DS   CL8     Name of status definition (STATDEF)
PESC_STATUS     DS   F       Status token of:

PESC-NORMAL     EQU  0000      Normal
PESC_VLS        EQU  0001      Very low severe
PESC_LS         EQU  0002      Low severe
PESC_LW         EQU  0003      Low warning
PESC_HW         EQU  0004      High warning
PESC_HS         EQU  0005      High severe
PESC_VHS        EQU  0006      Very high severe
```

## C language EYURPESC format

The EYURPESC format for the C language is:

```
typedef struct
{
  char    HEADER[20];    /* EYU block header (fixed length) */
  char    CONTEXT[8];    /* CICSplex name (fixed length) */
  char    SCOPE[8];      /* MAS name (fixed length) */
  int     COUNT;         /* Number of elements; 1-64 (32 bit)   */
  struct
  {
    char  NAME[8];       /* Name of STATDEF (fixed length) */
    int   STATUS;        /* RTA Status token (32 bit) */
  }       ELEMENT[64];

} EYURPESC;
```

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```
/* - - Defined values for element STATUS field - - - - - - - - - - - - - - -*/

#define EYURPESC_STATUS_NORMAL  0   /* Normal          */
#define EYURPESC_STATUS_VLS     1   /* Very low severe */
#define EYURPESC_STATUS_LS      2   /* Low severe      */
#define EYURPESC_STATUS_LW      3   /* Low warning     */
#define EYURPESC_STATUS_HW      4   /* High warning    */
#define EYURPESC_STATUS_HS      5   /* High severe     */
#define EYURPESC_STATUS_VHS     6   /* Very high severe*/
```

The character arrays within EYURPESC are fixed length strings, filled to the right with spaces. They are not terminated with a null character.

## Explanation

For each status definition for which you wish to return status, your program must enter into the appropriate fields of EYURPESC both the NAME and the associated STATUS value. The value provided in the STATUS field indicates that the condition of the application or resource is normal or, if it is abnormal, it indicates the severity of the condition. The number of status definition entries in EYURPESC can be between 1 and 64; the number must be specified in the COUNT field as a fullword binary integer value.

The name of the status definition which caused the status call is supplied by RTA in the NAME field of the first entry to be returned. Therefore, NAME need not be supplied for the first entry in the table. The associated STAT US must be provided by your program. All subsequent status definition NAMEs (and the STATUS for each) must also be specified by your program.

**Note:** The CICSPlex SM API cannot be used from within a program that is invoked through the **Status definition** or STATDEF view. Where access to the API is required, you must start another task and invoke the API from the new task.

# Installing a status program

## 390 Assembler

To install your status program:

1. Assemble and link edit the status program. Be sure the program resides in a DFHRPL or dynamic LIBRARY concatenation.
2. Define (using either BAS PROGDEF or CEDA DEFINE PROGRAM) a program definition (PPT entry) for your program in each MAS that will contain installed status definitions.

   **Note:** (For CICS 3.2 and above.) Be sure the Data location field in the program definition specifies the correct addressing mode for the program. The Execkey field in the program definition must be set to 'CICS'.
3. If a transaction ID other than 'COIE', or blanks, was specified in the Transaction ID field of the RTA status definition, you must define (using either BAS TRANDEF or CEDA DEFINE TRANSACTION) a transaction definition (PCT entry) for the transaction in each MAS that will have this status definition installed. The program name in the transaction definition must be EYU9XLOP.

   **Note:** (For CICS 3.2 and above.) Be sure the TASKDATALOC field in the transaction definition specifies the correct addressing mode for the task. The TASKDATAKEY field must be set to 'CICS'.

4. Use either BAS or the CEDA transaction to install into the active MASs:
   - Your program
   - The transaction specified in the Transaction ID field of the status definition (only if specified)

## Defining a status definition to CICSPlex SM

To define the status definition to CICSPlex SM:

1. From CICSPlex SM, access the **Status definitions** tabular view. Click the **Create...** button to define an RTA status definition. Specify:
   - The name of a status definition
   - The name of the program to be called
   - A valid transaction ID (Optional)
   - A valid user ID (Optional)
   - The interval at which the user-written program is to be called
   - Entry and exit clock values

   **Note:**

   a. If the **Transaction ID** field is left blank, the user-written program will execute as part of the CICSPlex SM COIE transaction.
   b. For CICS 3.3, the **User ID** field is not processed by RTA. For CICS 4.1, the **User ID** field is optional.
2. Use the **Install...** button to install the appropriate status definitions into their respective MASs.
3. Use the **Add status definition to RTA group button...** to add the status definition to an RTA group that is associated with a MAS via an RTA specification. This will allow the status definition to be installed automatically during MAS initialization.

# Appendix B. Generic alert and resolution structures

This appendix describes the structure of SNA generic alerts and resolutions as they are used by CICSPlex SM. The general structures of SNA alerts and resolutions are defined in the *SNA LU6.2 Reference: Peer Protocols* book, in the section describing SNA/MS Encodings.

## The generic alert structure

The CICSPlex SM Alert MS major vector contains the following:

**"Generic Alert Data" (X'92') MS subvector**
This identifies the Alert Description code as "IMPENDING PROBLEM: THRESHOLD HAS BEEN REACHED" (X'4012').

**"Probable Causes" (X'93') MS subvector**
This identifies a single code point specifying "PERFORMANCE DEGRADED" (X'4000').

**"Cause Undetermined" (X'97') MS subvector**
This contains:

- A "Recommended Actions" (X'81') common subfield. This identifies one code point specifying "REVIEW" (X'00A1').
- Two "Detailed Data" (X'82') common subfields containing:
  1. Data ID of "THRESHOLD PARAMETER" (X'7111'), with EBCDIC encoding. The contents are dependant on the ALERTVER CMAS System Parameter (EYUPARM) used by the CMAS identified in the ACTNDEF associated with the event.

     ALERTVER(0) and ALERTVER(1) records contain the following characters:

     **0-2** Creator (SAM ] MRM ] APM)

     **3-5** RTA Event Severity (VLS | VLW v LW v HW v HS v VHS)

     **6-13** RTA Event name (RTADEF name |STATDEF name v !!SAMxxx)
  2. Data ID of "PROBLEM DATA" (X'F511'), with EBCDIC encoding, containing the following characters:

     **0-29** The text of the "Enter Msg" from the action definition (ACTNDEF)

     ALERTVER(1) records also contain the following:

     **14-16** Alert Version (001)

     **17-19** Priority (001-255)

     **20-27** Sequence

     **28-29** Evaluation Logical Operator (GT | GE v EQ v NE v LE v LT)
     – Data is only available for RTADEF events. The field contains spaces for STATDEF and SAM events.

     **30-32** Evaluation Type ( VAL | THR) - VALuation or THReshold.
     – Data is only available for RTADEF events. The field contains spaces for STATDEF and SAM events.

     **33-44** Evaluation Resource Table Attribute

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– Data is only available for RTADEF events. The field contains spaces for STATDEF and SAM events.

**45-88** Evaluation Data
– Data is only available for RTADEF events which have an Evaluation Type of VAL. The field contains spaces for all other events.

**89-132**
Evaluation Last Evaluated Data
– Data is only available for RTADEF events. The field contains spaces for STATDEF and SAM events.

**"Product Set ID" (X'10') MS common subvector**
a "Product ID" (X'11') common subvector that identifies the product as IBM Software (X'04') and contains:

- A "Product Number" (X'08') Product ID subfield that identifies the product number as 5655M15.
- A "Product Common Name" (X'06') Product ID subfield that identifies the common name as CICSPLEX.SM.
- A "Product Common Level" (X'04') Product ID subfield that identifies the version, release, and modification levels.

**"Hierarchy/Resource List" (X'05') MS common subvector**
This contains:

- A "Hierarchy Name List" (X'10') Hierarchy/Resource List subfield, which contains the following list elements:

| Element | Resource Type | Resource Name |
|---|---|---|
| 1 | Service point (X'81') | RTA CONTEXT |
| 2 | Unspecified device (X'00') | RTA SCOPE |
| 3 | Unspecified device (X'00') | RTA RESOURCE TYPE or SAM EVENT NAME |

- An "Associated Resource List" (X'11') subfield, which contains a 16-character EBCDIC resource name that identifies either the event name or the instance key from the CICSPlex SM resource table associated with the event. For SAM events the "Associated Resource List" will be set as follows:

  **!!SAMMAX or !!SAMOPS**
  blank

  **!!SAMSDM**
  The 6-character system dump code

  **!!SAMSOS**
  The character DSA name or SOS location

  **!!SAMSTL**
  The character stall reason

  **!!SAMTDM**
  CCCCTTTTUUUUUUUU, where CCCC is the 4-character transaction dump code, TTTT is the 4-character transaction dump name and UUUUUUUU is the User Id associated with the dumping task.

**“Incident Identification” (X'4A') MS common subvector**

This contains an “Incident Identification” (X'01') Incident Identification subfield. This uses encoding type X'01'. The fields are as follows:

**Field Contents; Length**

**Netid:** Periods; 8 characters

**Network addressable unit:**
APPLID of the originating CMAS; 8 characters

**Application name:**
CICSplex name; 8 characters

**Unique id:**
CMAS name concatenated with GMT timestamp; 16 characters

## The resolution structure

The Resolution (X'0002') MS major vector has the same structure as the Alert MS major vector, except that:

- the first "Detailed Data" common subfield of the “Cause Undetermined” MS subvector will always contain spaces in the “Evaluation Last Evaluated Data” (89-132) field of the ALERTVER(1) version of the record.
- the second of the two “Detailed Data” common subfields of the “Cause Undetermined” MS subvector contains the text of the “Exit Msg” from the action definition rather than the “Enter Msg” text.

# Bibliography

## The CICS Transaction Server for z/OS library

The published information for CICS Transaction Server for z/OS is delivered in the following forms:

**The CICS Transaction Server for z/OS Information Center**
The CICS Transaction Server for z/OS Information Center is the primary source of user information for CICS Transaction Server. The Information Center contains:

- Information for CICS Transaction Server in HTML format.
- Licensed and unlicensed CICS Transaction Server books provided as Adobe Portable Document Format (PDF) files. You can use these files to print hardcopy of the books. For more information, see "PDF-only books."
- Information for related products in HTML format and PDF files.

One copy of the CICS Information Center, on a CD-ROM, is provided automatically with the product. Further copies can be ordered, at no additional charge, by specifying the Information Center feature number, 7014.

Licensed documentation is available only to licensees of the product. A version of the Information Center that contains only unlicensed information is available through the publications ordering system, order number SK3T-6945.

**Entitlement hardcopy books**
The following essential publications, in hardcopy form, are provided automatically with the product. For more information, see "The entitlement set."

## The entitlement set

The entitlement set comprises the following hardcopy books, which are provided automatically when you order CICS Transaction Server for z/OS, Version 3 Release 2:

*Memo to Licensees*, GI10-2559
*CICS Transaction Server for z/OS Program Directory*, GI13-0515
*CICS Transaction Server for z/OS Release Guide*, GC34-6811
*CICS Transaction Server for z/OS Installation Guide*, GC34-6812
*CICS Transaction Server for z/OS Licensed Program Specification*, GC34-6608

You can order further copies of the following books in the entitlement set, using the order number quoted above:

*CICS Transaction Server for z/OS Release Guide*
*CICS Transaction Server for z/OS Installation Guide*
*CICS Transaction Server for z/OS Licensed Program Specification*

## PDF-only books

The following books are available in the CICS Information Center as Adobe Portable Document Format (PDF) files:

### CICS books for CICS Transaction Server for z/OS

**General**

*CICS Transaction Server for z/OS Program Directory*, GI13-0515
*CICS Transaction Server for z/OS Release Guide*, GC34-6811
*CICS Transaction Server for z/OS Migration from CICS TS Version 3.1*, GC34-6858

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*CICS Transaction Server for z/OS Migration from CICS TS Version 1.3*, GC34-6855
*CICS Transaction Server for z/OS Migration from CICS TS Version 2.2*, GC34-6856
*CICS Transaction Server for z/OS Installation Guide*, GC34-6812

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*CICS Supplied Transactions*, SC34-6817

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*CICS Application Programming Reference*, SC34-6819
*CICS System Programming Reference*, SC34-6820
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*CICS Diagnosis Reference*, GC34-6862
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*CICS Supplementary Data Areas*, GC34-6864-00

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*CICS RACF Security Guide*, SC34-6835
*CICS Shared Data Tables Guide*, SC34-6836
*CICS DB2 Guide*, SC34-6837
*CICS Debugging Tools Interfaces Reference*, GC34-6865

## CICSPlex SM books for CICS Transaction Server for z/OS

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*CICSPlex SM Messages and Codes*, GC34-6851
*CICSPlex SM Problem Determination*, GC34-6852

### CICS family books

**Communication**

*CICS Family: Interproduct Communication*, SC34-6853
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*CICS Debugging Tools Interfaces Reference*, GC34-6865

## Other CICS books

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| | |
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| *Designing and Programming CICS Applications* | SR23-9692 |
| *CICS Application Migration Aid Guide* | SC33-0768 |
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# Index

## A


accessing views
  for real-time analysis 25
  for resource monitoring 107
action definition
  creating 26, 60, 63, 68
  creating and updating 26
Action definition view 26
ACTION object 26
activating real-time analysis 38
activating resource monitoring 97
active monitor specifications view 107
Active tasks detailed view requirement 103
administration views
  real-time analysis 25
  resource monitoring 107
alerts to NetView
  structure of 169
analysis definition
  installing into an analysis point 31
analysis definitions
  creating 29, 63, 69
analysis definitions in analysis groups 35
analysis group
  adding association to analysis specifications 33
  in analysis point specifications 34
  in analysis specifications 36
  installing into an analysis point 34
analysis point specification
  creating 26
analysis point specifications
  associating with a CMAS 26
  associating with a primary CMAS 26
  associating with a secondary CMAS 26
analysis specification
  adding scope 39
  associated CICS system groups 37
  associated CICS systems 36
  creating 38
analysis specifications
  associated with analysis groups 36
  associating with an RTA group 32
  creating 64, 66
APACTV view 44
APSPEC object 26
associating objects
  analysis group with analysis specification 33
  monitor definition with monitor group 112, 116
  monitor group with monitor specification 110, 116
  scope
    to monitor specification 109


## C


CICS system
  resource monitoring association
    adding 109
CICS system *(continued)*
  resource monitoring association *(continued)*
    changing 113, 114
    displaying 113
    removing 114
CICS system group
  creating 61
  resource monitoring association
    adding 109
    changing 114, 115
    creating 113, 115
    displaying 115
    removing 114, 116
CICSplex
  monitor interval
    description of 101
    when retaining data 103
  monitoring resources 95
CICSPlex SM
  comparison with CICS monitoring 104
  statistics collection 103
CMAS
  primary CMAS analysis point specifications 26
  secondary CMAS analysis point specifications 26
CMDMPAPS object 26
CMDMSAPS object 26
collect statistics (CICS command) 103
Completed task (history) views
  general (HTASK) 117
creating objects
  analysis specification 38
  monitor definition 111
  monitor definition to group link 112
  monitor group 110
  monitor group to specification link 110
  monitor specification 108
  scope association
    with monitor specification 113, 115


## D


deactivating history collection 101
deactivating history recording 101
derived value
  description of 103
discarding monitor definitions 107
displaying objects
  action definitions 26
  analysis groups 32
    associated with analysis definitions 35, 42
    associated with analysis point specifications 34
    associated with status definitions 35, 42
  analysis point specifications 26
  analysis specifications 38
    associated with analysis groups 36
  monitor definitions 111
    associated with monitor groups 116
  monitor groups 110


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displaying objects *(continued)*
associated with monitor specifications 116
monitor specifications 108
RTA definitions 29
scope
for analysis specifications 36, 37
for monitor specifications 113, 115

## E

EVALDEF object 27
evaluation definition
creating 29, 62
evaluation definitions
creating 27
filter expressions 27
modification expressions 28
EVENT view 47
example tasks
real-time analysis
change default actions for SAM 60
deactivate an analysis definition 81
issue one notification for multiple conditions 83, 87
monitor multiple resource types in CICS system group 73, 76
monitor resource temporarily 61
monitor resource type in single CICS system 70
monitor resource type throughout CICSplex 71
monitor resources permanently 65
reuse analysis specifications and analysis groups 67
switch SAM on for a MAS 59
update analysis and evaluation definitions 80
use data from resource monitoring 81
resource monitoring
monitor programs in multiple CICS systems 159
monitor transaction response times 156
which resources being monitored in a CICS system 161

## F

filter expressions 27

## G

generic alert
structure used by CICSPlex SM 169

## H

history collection 101
history recording 101
HTASK view 117

## I

inheriting specifications
when adding scope to
analysis specification 39
monitor specification 109
when changing scope for
analysis specification 41
when removing scope from
analysis specification 42
Installed analysis definitions associated with an analysis point specification views
general (APACTV) 44
installing objects
analysis definition into analysis point 31
analysis group into analysis point 34
monitor definition 112
monitor group 110

## L

LNKSMSCG object 115
LNKSMSCS view 113
LNKSRSCG object 37
LNKSRSCS object 36

## M

managing the RTA environment 5
MAS history views
general (MASHIST) 154
MASHIST view 154
modification expression 28
modifying CICS resources 20
MONACTV (see POLMON view) 107
MONGROUP object 110
MONINGRP object 116
MONINSPC object 116
Monitor data for local or dynamic transactions view requirement 103
monitor definition
associating with monitor group 112, 116
CICSPlex SM created 106, 111
creating 111
creating using Web User Interface 157, 159
description of 95
discarding 107
displaying
associated with monitor group 116
default 106
installing
directly 112
via monitor groups 110
period definition
requirement 102
Monitor definitions in groups view 116
monitor definitions view 111
monitor group
adding monitor definitions to 112, 116
associating with monitor specification 110, 116
creating 110

monitor group *(continued)*
creating using Web User Interface 160
description of 95
installing monitor definitions comprising 110
removing monitor definitions to 117
monitor groups in monitor specifications view 116
monitor groups view 110
monitor interval
description of 101
when retaining data 103
monitor specification
adding monitor group to 110, 116
associating scope with 109
creating 108
creating using Web User Interface 157
deactivating using Web User Interface 158
description of 95
displaying
monitor groups associated with 116
one or more 108
scope association 113, 115
inherited by CICS system
when adding scope association 109
when changing scope association 113, 114, 115
when removing scope association 114, 116
inherited by CICS system group
when changing scope association 115
overriding 101
removing
scope from 114, 116
updating
scope for 113, 114, 115
monitor specifications to CICS system links view 113, 115
Monitor specifications to CICS system links view 113
monitor specifications view 108
Monitor specifications view 108
monitoring
checking status in a region 157
example tasks 156
Monitoring definitions view 111
monitoring program data
using the Web User Interface 161
monitoring resources
comparison to CICS 104
defining attributes 95
description of 95
example tasks
monitor programs in multiple CICS systems 159
monitor transaction response times 156
which resources being monitored in a CICS system 161
monitor interval
description of 101
when retaining data 103
overriding monitor specification 101
retention period setting
description of 104
for collected data 103
overriding 101
when CICSplex active 103
monitoring resources *(continued)*
sample interval setting
description of 102
overriding 101
requirement 98
monitoring views
Web User Interface 6
MONSPEC (see LNKSMSCS and LNKSMSCG) 113, 115
MONSPEC object 108

# P

period definition
associating with monitor definition 112, 116
description of 102
resource monitoring requirement 102
POLMOM object 107
primary CMAS analysis point specifications view 26

# R

Real Time Analysis (RTA) installed analysis and status definitions views
general (RTAACTV) 56
real-time analysis
example tasks 59
real-time analysis (RTA)
activating
analysis point monitoring 18
MAS resource monitoring 17
system availability monitoring 15
example tasks
change default actions for SAM 60
deactivate an analysis definition 81
issue one notification for multiple conditions 83, 87
monitor multiple resource types in CICS system group 73, 76
monitor resource type in single CICS system 70
monitor resource type throughout CICSplex 71
monitor resources permanently 65
monitor resources temporarily 61
reuse analysis specifications and analysis groups 67
switch SAM on for a MAS 59
update analysis and evaluation definitions 80
use data from resource monitoring 81
status program
creating 165
identifying to CICSPlex SM 167
installing 166
real-time analysis views
accessing 25
Action definitions 26
evaluation definition 27
primary CMAS analysis point specifications 26
relationship to definitions 21
RTA analysis point specifications 26
RTA definitions 29
RTA definitions in RTA groups 35

real-time analysis views *(continued)*
RTA group in analysis point specifications 34
RTA groups 32
RTA groups in RTA specifications 36
RTA specifications 38
RTA specifications to CICS system group links 37
RTA specifications to CICS system links 36
secondary CMAS analysis point specifications 26
Status definitions in RTA groups 42
Status probe definitions 42
removing monitor definition to monitor group association 117
removing objects
association between
scope and analysis specification 42
resource monitoring
comparison to CICS 104
defining attributes 95
description of 95
example tasks 156
monitor programs in multiple CICS systems 159
monitor transaction response times 156
which resources being monitored in a CICS system 161
monitor interval
description of 101
when retaining data 103
overriding monitor specification 101
retention period setting
description of 104
for collected data 103
overriding 101
when CICSplex active 103
sample interval setting
description of 102
overriding 101
requirement 98
resource monitoring views
accessing 107
Active monitor specifications 107
MONDEF object 111
Monitor definitions in groups 116
Monitor groups 110
Monitor groups in monitor specifications 116
Monitor specifications 108
Monitor specifications to CICS system links 113
Monitor specifications to system group links 115
relationship to definitions 104
resources, CICS
modifying the state of 20
retention period
description of 104
for collected data 103
overriding 101
RTA (real-time analysis)
activating
analysis point monitoring 18
MAS resource monitoring 17
system availability monitoring 15
example tasks
change default actions for SAM 60
RTA (real-time analysis) *(continued)*
example tasks *(continued)*
deactivate an analysis definition 81
issue one notification for multiple conditions 83, 87
monitor multiple resource types in CICS system group 73, 76
monitor resource type in single CICS system 70
monitor resource type throughout CICSplex 71
monitor resources permanently 65
monitor resources temporarily 61
reuse analysis specifications and analysis groups 67
switch SAM on for a MAS 59
update analysis and evaluation definitions 80
use data from resource monitoring 81
status program
creating 165
identifying to CICSPlex SM 167
installing 166
RTA analysis point specifications view 26
RTA definitions
associated with RTA groups 35
creating 29, 63, 69
RTA definitions in RTA groups view 35
RTA definitions view 29
RTA environment, managing 5
RTA group
in analysis point specifications 34
removing an analysis point specification association 34
RTA group in analysis point specifications view 34
RTA groups
associated with RTA definitions 35
associated with status definitions 42
creating 32
RTA groups in RTA specifications view 36
RTA groups view 32
RTA outstanding events views
general (EVENT) 47
RTA specification
associated CICS system groups 37
associated CICS systems 36
RTA specifications
associated with RTA groups 36
creating 38
RTA specifications to CICS system group links view 37
RTA specifications to CICS system links view 36
RTA specifications view 38
RTA views
Web User Interface 3
RTAACTV view 56
RTADEF object 29
RTAGROUP object 32
RTAINAPS object 34
RTAINGRP object 35
RTAINSPC object 36
RTASPEC object 38

# S


sample interval
  description of 102
  overriding 101
  requirement 98
scope
  associating
    to analysis specification 39
    to monitor specification 109
  changing
    for monitor specification 114, 115
  creating
    for monitor specification 113, 115
  displaying
    for analysis specifications 36, 37
    for monitor specifications 113, 115
  removing
    from analysis specification 42
    from monitor specification 114, 116
secondary CMAS analysis point specifications view 26
SET MONITOR (CICS command) 103
STAINGRP object 42
STALL condition 12
STATDEF object 42
statistics collected 103
status definitions
  associated with RTA groups 42
status definitions in analysis groups 42
Status probe definitions
  creating 42
status program
  creating 165
  identifying to CICSPlex SM 167
  installing 166
summary of views
  for creating definitions 3, 6
  for managing the RTA environment 5
switching on monitoring
  using the Web User Interface 161


# T


tasks, example
  real-time analysis
    change default actions for SAM 60
    deactivate an analysis definition 81
    issue one notification for multiple conditions 83, 87
    monitor multiple resource types in CICS system group 73, 76
    monitor resource temporarily 61
    monitor resource type in single CICS system 70
    monitor resource type throughout CICSplex 71
    monitor resources permanently 65
    reuse analysis specifications and analysis groups 67
    switch SAM on for a MAS 59
    update analysis and evaluation definitions 80
    use data from resource monitoring 81
tasks, example *(continued)*
  resource monitoring
    monitor programs in multiple CICS systems 159
    monitor transaction response times 156
    which resources being monitored in a CICS system 161
time period definitions
  creating 65
time-period definition
  associating with monitor definition 112, 116
  description of 102
  resource monitoring requirement 102


# U


updating objects
  scope association
    with monitor specification 114, 115


# V


view
  summary of
    for creating definitions 3, 6
    for managing the RTA environment 5


# W


Web User Interface
  action definitions 60, 63, 68
  analysis definitions 63, 69
  analysis groups 66
  analysis specifications 64, 66
  checking monitoring status 157
  CICS system group definition 61
  creating a monitor definition 157, 159
  creating a monitor group 160
  creating a monitor specification 157
  creating time period definitions 65
  deactivating a monitor specification 158
  evaluation definitions 62
  installing analysis definitions 65
  monitoring program data 161
  monitoring views 6
  RTA definitions 63, 69
  RTA views 3
  scope of analysis specification 64, 66
  switching on monitoring 161
  system availability monitoring 59

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**Version 3 Release 2**

**Publication No. SC34-6846-04**

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