CICS Transaction Server for z/OS



CICSPlex SM Managing Resource Usage

Version 5 Release 4

CICS Transaction Server for z/OS



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Note
Before using this information and the product it supports, read the information in "Notices" on page 121.

This edition applies to the IBM CICS Transaction Server for z/OS Version 5 Release 4 (product number 5655-Y04) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this PDF

This PDF describes how to set up and maintain CICSPlex SM definitions necessary to perform real-time analysis and resource monitoring.

For details of the terms and notation used in this book, see Conventions and terminology used in the CICS documentation in IBM Knowledge Center.

Date of this PDF

This PDF was created on June 6th 2017.

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Chapter 1. Introduction

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

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

When a CICS® system is active, a number of views are available 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.

The views are identified in Table 1, Table 2 on page 2, and Table 3 on page 3. 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 1. 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. • Add the CICS system definition to a CICS system group.
RTA specifications - RTASPEC	System availability monitoring	• Display, create, remove, or update an analysis specification. • Add an association between an analysis specification and a CICS system or CICS system group.
Action definitions	System availability monitoring	• Display, create, update, and remove an action definition.
Time periods - PERIODEF	System availability monitoring	• Display, create, remove, or update a time period definition.
RTA specifications to CICS system links	System availability monitoring	• Display, create or remove the association between an analysis specification and a CICS system.
RTA specifications to CICS system group links	System availability monitoring	• Display, create or remove the association between an analysis specification and a CICS system group.

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Table 2. Views to create and maintain RTA MAS resource monitoring

Views	Menu	Actions Supported
RTA specifications	MAS resource monitoring	• Display, create, remove, or update an analysis specification. • Add an association between an analysis specification and a CICS system or CICS system group.
RTA groups	MAS resource monitoring	• Display, create, update, remove or install an analysis group. • Change the description of an analysis group. • Add an association between an analysis group and an analysis specification. • Install an analysis group in an analysis point specification or in a CICS system or CICS system group.
RTA definitions	MAS resource monitoring	• Display, create, remove, update and install an analysis definition. • Add an association between an analysis definition and an analysis group. • Install an analysis definition in an analysis point specification or in a CICS system or CICS system group.
Evaluation definitions	MAS resource monitoring	• Display, create, update, and remove an evaluation definition.
Status probe definitions	MAS resource monitoring	• Display, create, remove, update or install a status definition. • Add an association between a status definition and an analysis group. • Install a status definition in a CICS system or CICS system group.
Action definitions	MAS resource monitoring	• Display, create, update, and remove an action definition.
Time periods - PERIODEF	MAS resource monitoring	• Display, create, remove, or update a time period definition.
RTA specifications to CICS system links	MAS resource monitoring	• Display, create or remove the association between an analysis specification and a CICS system.
RTA specifications to CICS system group links	MAS resource monitoring	• Display, create or remove the association between an analysis specification and a CICS system group.
RTA groups in RTA specifications	MAS resource monitoring	• Remove an association between an analysis specification and an analysis group.
RTA definitions in RTA groups	MAS resource monitoring	• Update or remove the association between an analysis definition and an analysis group.
Status definitions in RTA groups	MAS resource monitoring	• Update or remove the association between an status definition and an analysis group.

Table 3. Views to create and maintain RTA analysis point monitoring

Views	Menu	Actions Supported
RTA analysis point specifications	Analysis point monitoring	• Display, create, update or remove an analysis point specification. • Add an association between an analysis point specification and a primary CMAS. • Add an association between an analysis point specification and a secondary CMAS.
RTA groups	Analysis point monitoring	• Display, create, update, remove or install an analysis group. • Change the description of an analysis group. • Add an association between an analysis group and an analysis specification. • Install an analysis group in an analysis point specification or in a CICS system or CICS system group.
RTA definitions	Analysis point monitoring	• Display, create, remove, update and install an analysis definition. • Add an association between an analysis definition and an analysis group. • Install an analysis definition in an analysis point specification or in a CICS system or CICS system group.
Evaluation definitions	Analysis point monitoring	• Display, create, update, and remove an evaluation definition.
Action definitions	Analysis point monitoring	• Display, create, update, and remove an action definition.
Time periods - PERIODEF	Analysis point monitoring	• Display, create, remove, or update a time period definition.
Primary CMAS analysis point specifications	Analysis point monitoring	• Remove an analysis point specification and CMAS association.
Secondary CMAS analysis point specifications	Analysis point monitoring	• Remove an association between an analysis group and an analysis point specification.
RTA group in analysis point specifications	Analysis point monitoring	• Update or remove the association between an analysis or status definition and an analysis group.
Status definitions in RTA groups	Analysis point monitoring	• Update or remove a status definition.

Views for managing the RTA environment

When a CICS system is active, a number of views are available to display information about and control the use of real-time analysis.

The views are described in Table 4 on page 4. To access these views from the Web User Interface main menu, click **Real Time Analysis (RTA) views**.

For a detailed description of these views, see Outstanding events - EVENT.

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. The next time the CICS system starts or the appropriate time period is reached, the definition is available for use.

Table 4. Views to manage the real-time analysis environment

Views	Menu	Actions supported
Installed analysis definitions associated with an analysis point specification - APACTV	Real Time Analysis (RTA) views	• Display information about analysis definitions associated with an analysis point specification. • Deactivate or discard installed analysis definitions.
Outstanding events - EVENT	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	Real Time Analysis (RTA) views	• Display information about the analysis and status definitions associated with active CICS systems. • Deactivate or discard an analysis or status definition.

Views for managing resource monitoring administrative definitions

A number of views are available 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 5. Views to create and maintain resource monitoring administration definitions

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

Table 5. Views to create and maintain resource monitoring administration definitions (continued)

WUI view name	Menu	Actions supported
Definitions on groups (Monitor definitions in groups - MONINGRP)	Monitor administration views	• Add or remove a monitor definition to monitor group association. • Change the time period associated with a monitor definition.
Specifications (Monitor specifications - MONSPEC)	Monitor administration views	• Create, display, remove, or update a monitor specification. • 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)	Monitor administration views	• Add and remove a monitor group to monitor specification association.
Specifications to system links (Monitor specifications to CICS system links - LNKSMSCS)	Monitor administration views	• Add and remove the association between a monitor specification and a CICS system.
Monitor specifications to system group links - LNKSMSCG	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 6. 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 6. Views to manage resource monitoring administration definitions

WUI view name	Menu	Actions supported
Active monitor specifications - POLMON	Monitoring views	• Display information about monitor definitions installed in CICS systems known to the CICSplex identified as the context. • Deactivate or discard an installed monitor definition.

Chapter 2. Real-time analysis

You can use the real-time analysis (RTA) component of CICSPlex SM to analyze the status of one or more CICS regions 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 intended state.

Preparing to perform real-time analysis

You can use CICSPlex SM to analyze the status of one or more CICS systems and gather resource information about those systems. Based on its analysis, CICSPlex SM can generate external notifications when a condition occurs that you want to know about. In addition, CICSPlex SM can modify the attributes of a resource when it is not in the wanted 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 various 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 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 helps in the selection of a target region during workload management. See the example tasks in Using real-time analysis to select a target region for workload routing 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.

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- 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.
- 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 dynamic storage areas become short on storage (SOS).
- A CICS system dump (SYSDUMP) is taken. This condition indicates that an MVS™ SVC dump has been requested.
- A CICS 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 application (STALL).

  A STALL condition occurs when resource contention impacts the processing of application tasks. Parameters you specify in the 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 might 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 Installing.

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.

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 monitor system activity, monitor a CICS system for predefined conditions, or do both.

- 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 must 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 16.)
- 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 8 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.

Example of system availability monitoring

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

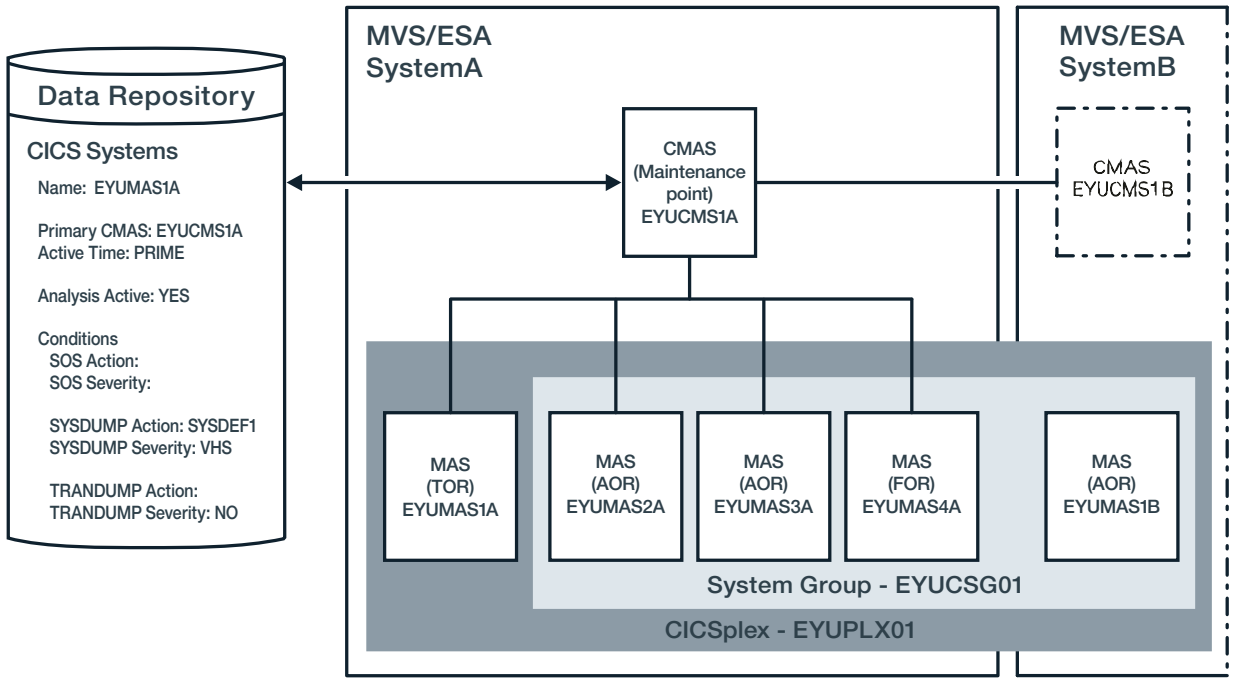


Figure 1. System availability monitoring

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 status of resources and one or more user-written programs.

- 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 need 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 status. For more information, see "Customizing programs that monitor status" on page 75.

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

Figure 2 on page 14 illustrates the type of definitions you need in order to be notified if a specific condition occurs.

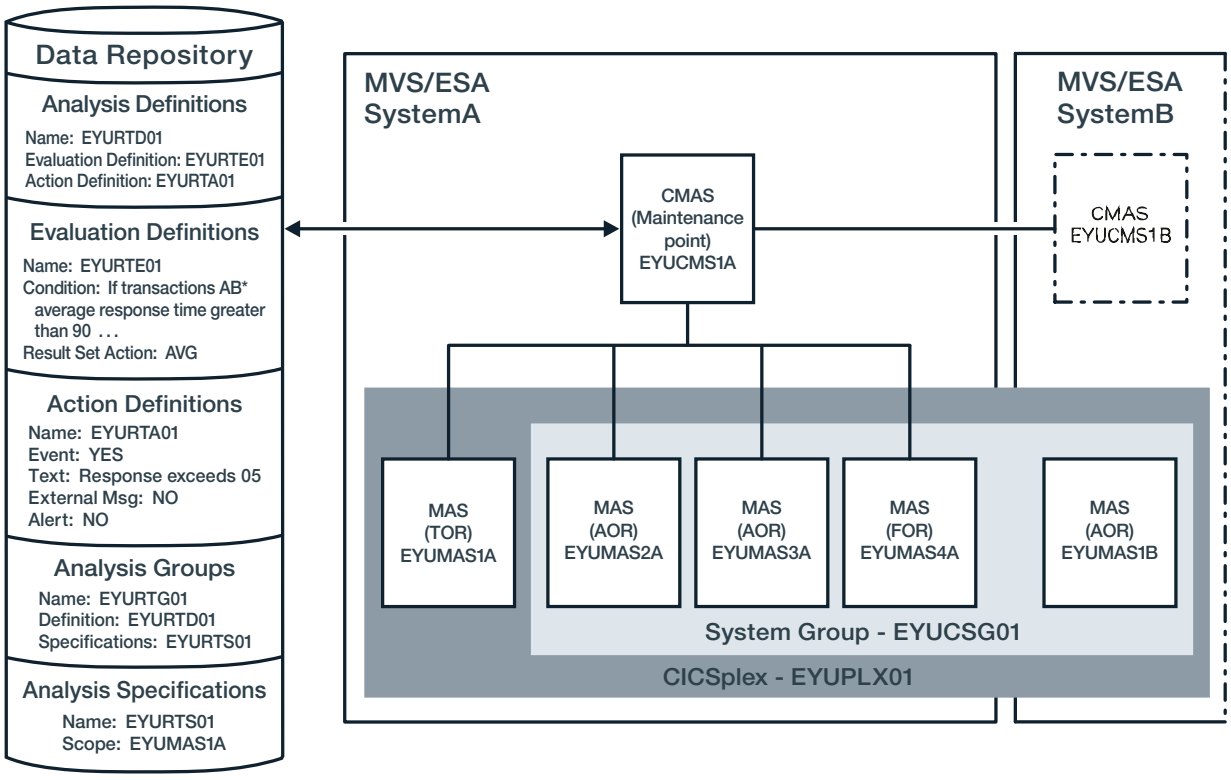


Figure 2. MAS resource monitoring (MRM)

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 15 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.

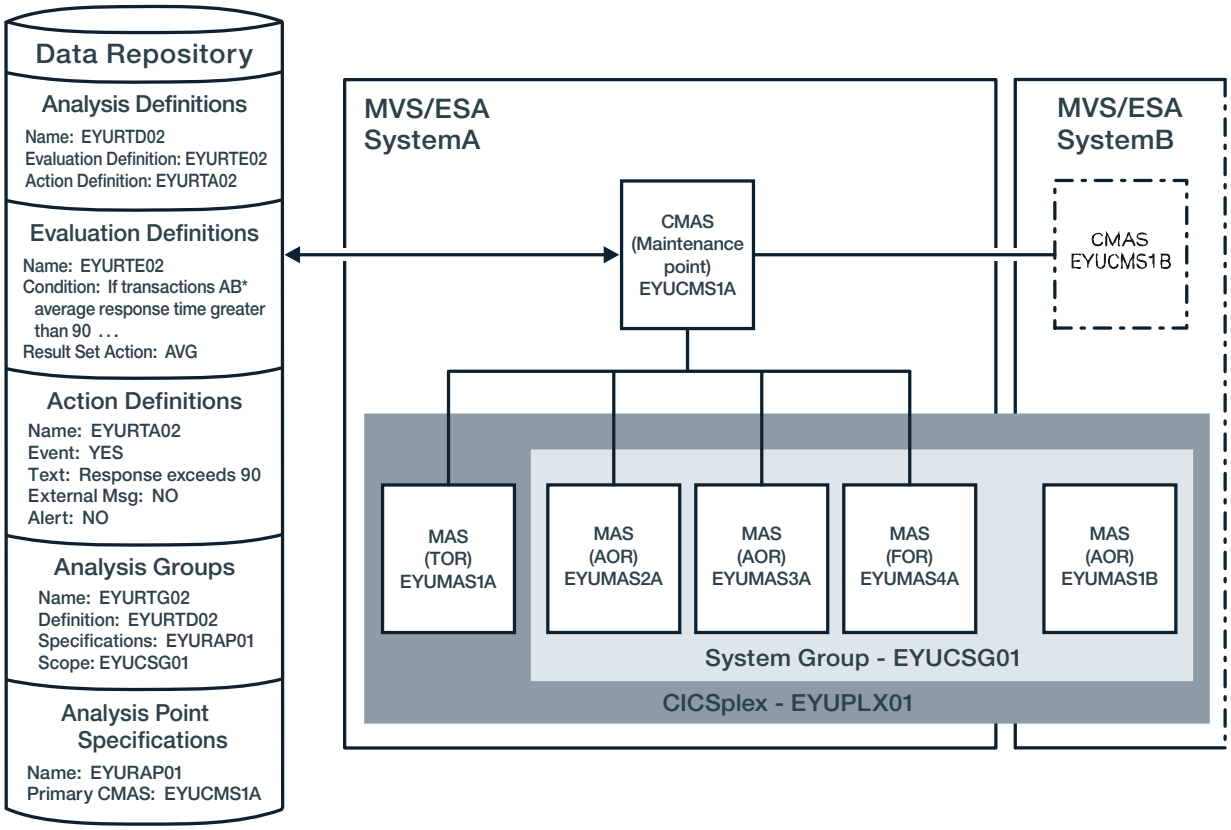


Figure 3. Analysis point monitoring (APM)

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 and analysis point monitoring.

- 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 distributing 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 distribute 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 intended state.

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

1. Define the resource attributes you want to modify and their values in an evaluation definition (EVALDEF), as described in “Evaluation definitions” on page 23.

2. Tell real-time analysis to perform the modifications when the evaluation condition becomes true in an analysis definition (RTADEF), as described in "RTA analysis point specifications" on page 22.

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 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.

In addition to the views shown here, you can use the views described in RTA views 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 18 illustrates 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.)

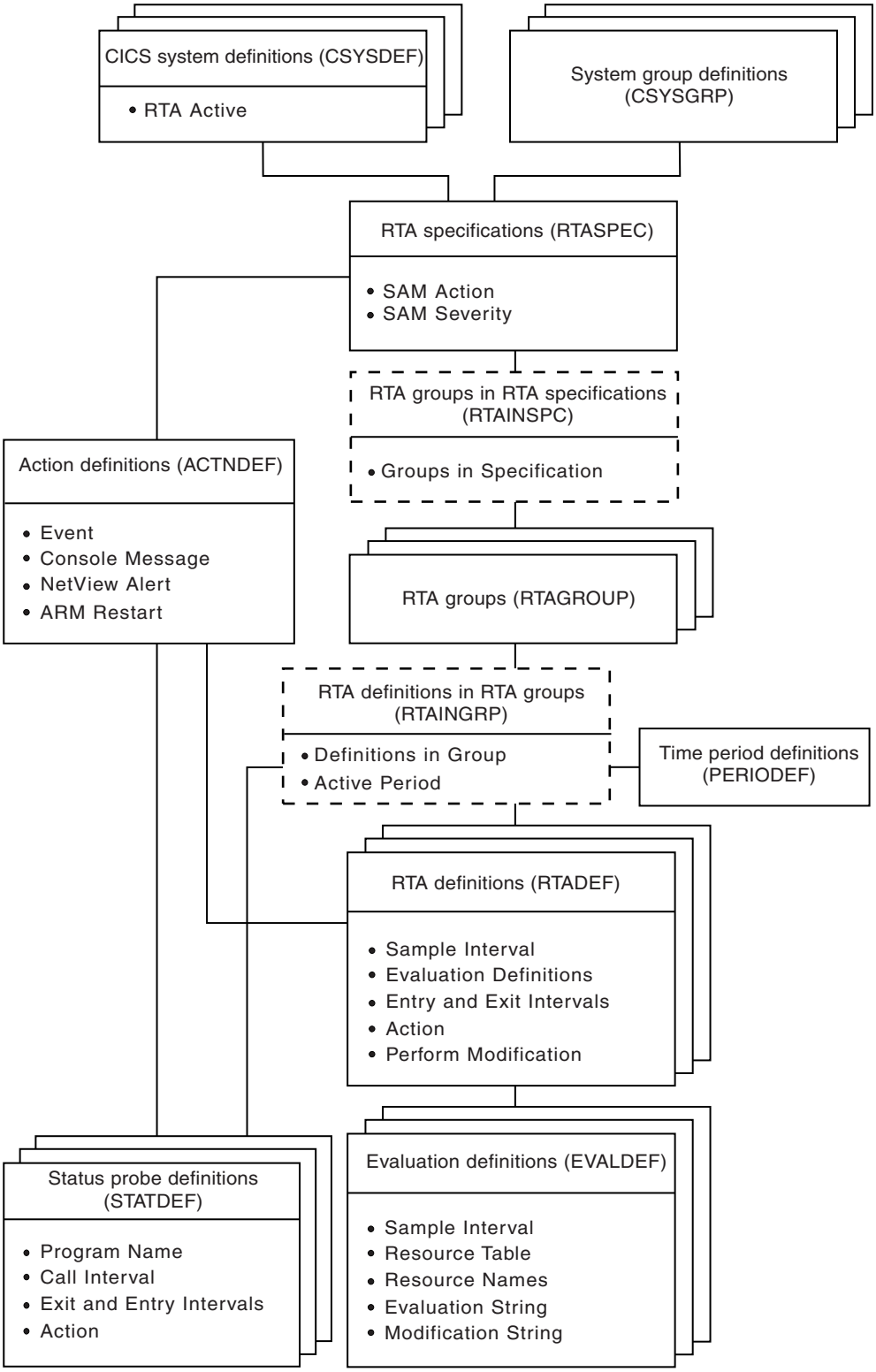


Figure 4. Views for creating real-time analysis objects and associations

Figure 5 on page 19 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.

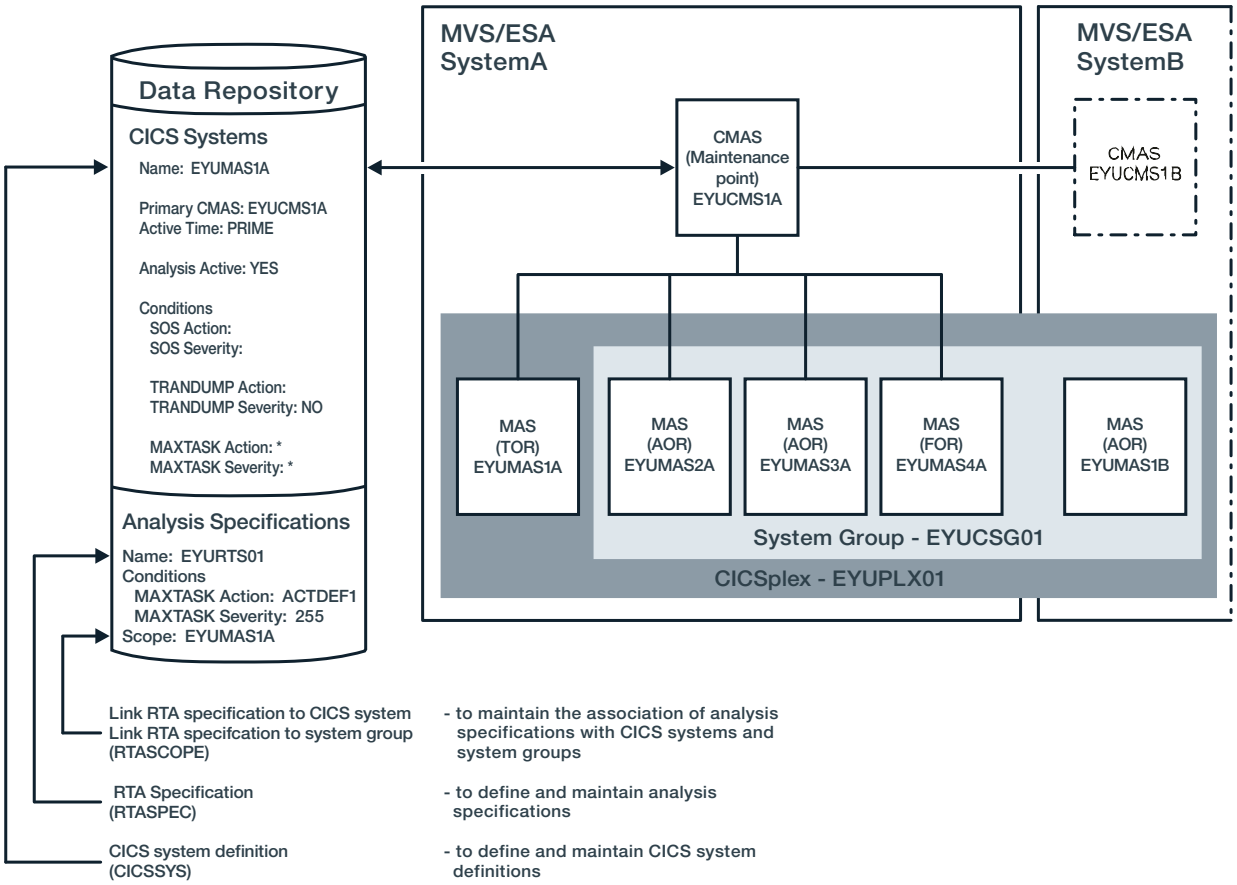


Figure 5. The relationship between SAM, the **CICS system definition** *(CICSSYS) view, and the real-time analysis views*

Figure 6 on page 20 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).

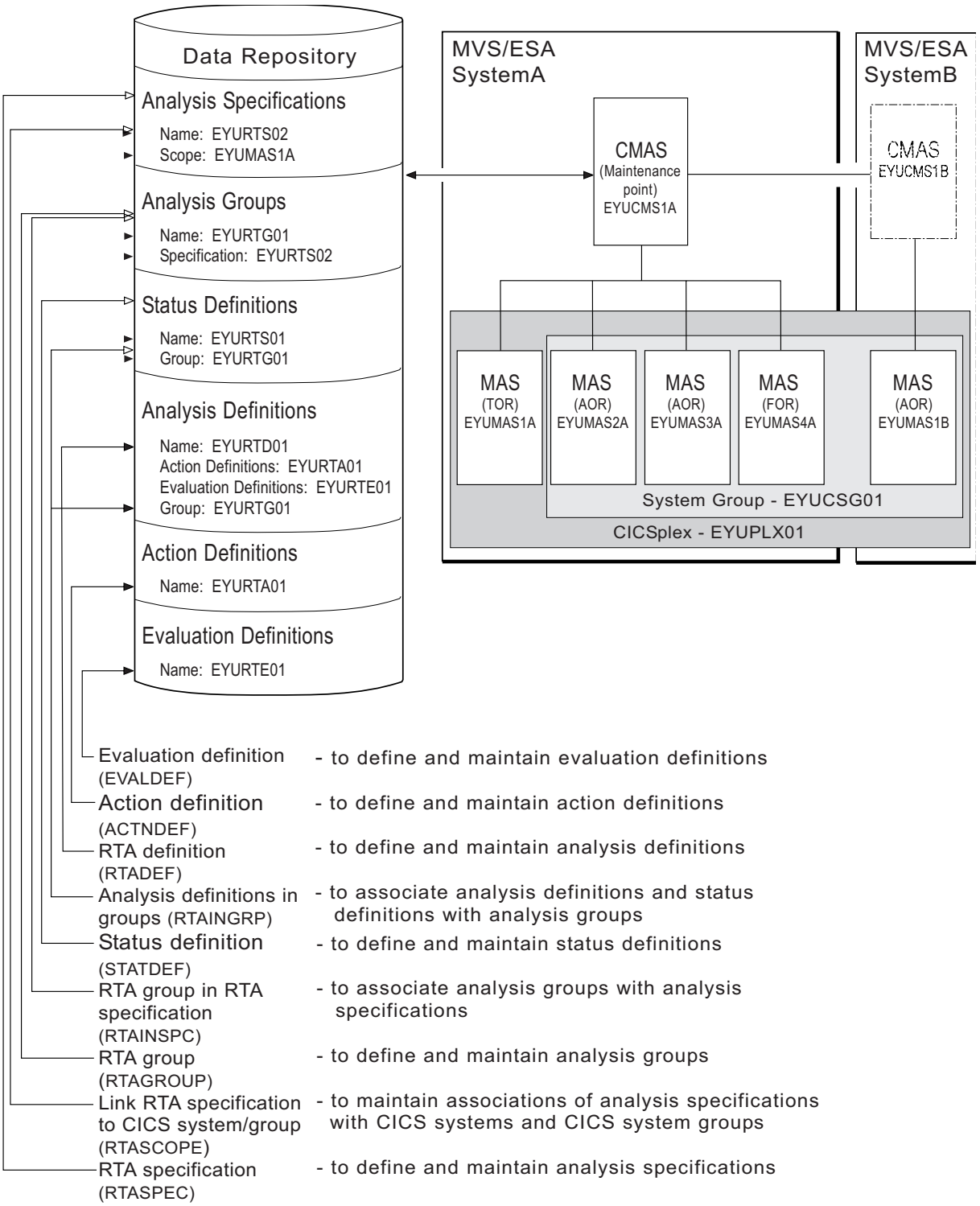


Figure 6. The relationship between MRM and the real-time analysis views

Figure 7 on page 21 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).

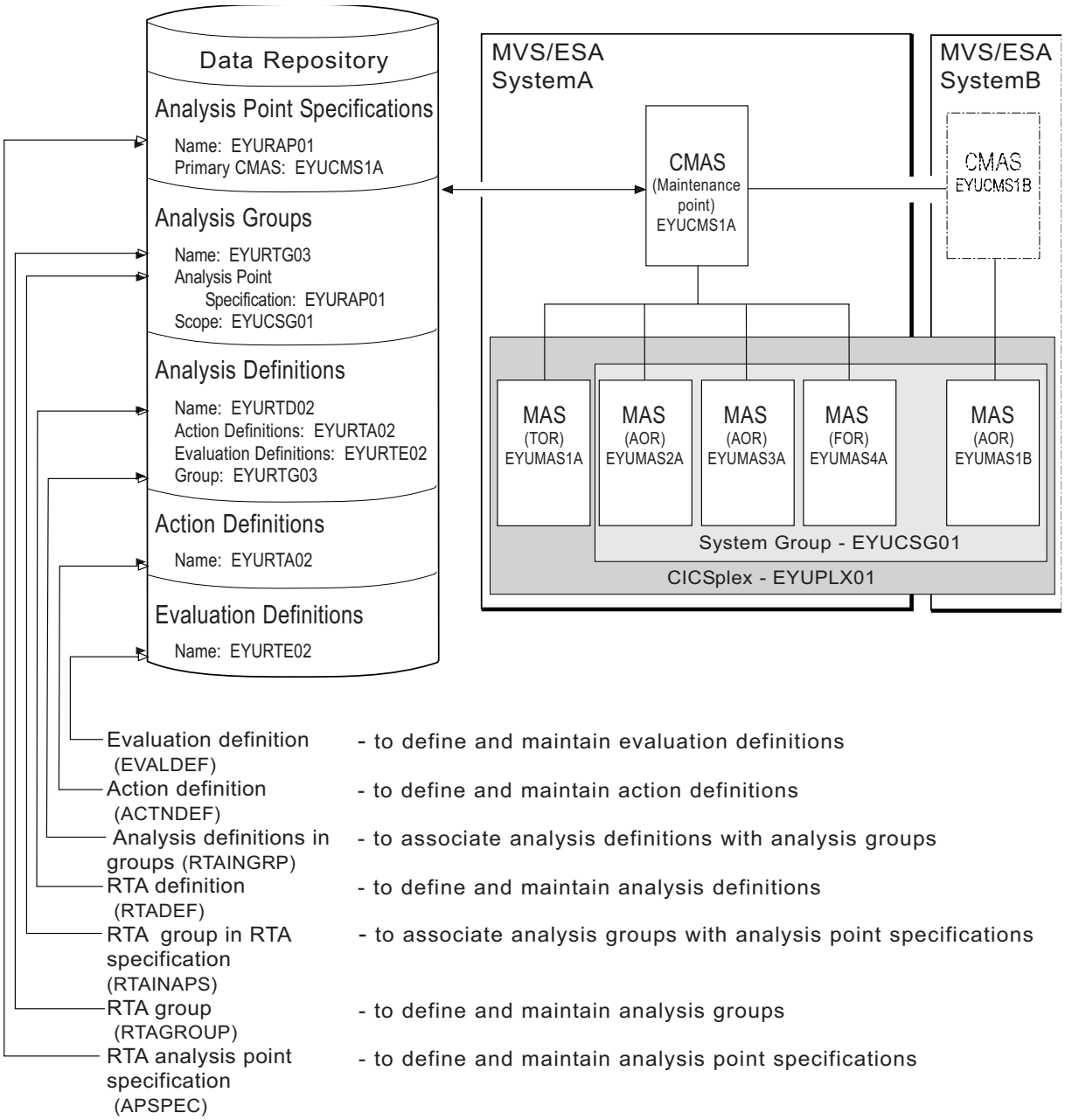


Figure 7. The relationship between APM and the real-time analysis views

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 Administering CICSPlex SM.

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 .

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 42.

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 67.

Creating an analysis point specification

Using the analysis point specification tabular view to create an evaluation definition.

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.

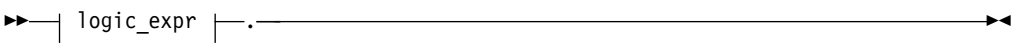
Evaluation definitions

The **Evaluation definitions** views (EVALDEF objects) display information about the resources in CICS systems that are to be sampled and evaluated.

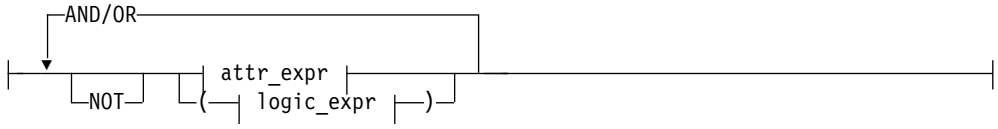
When the result of the evaluation is true, an associated analysis definition is used to determine if a notifiable condition has occurred. Examples of how to use this view can be found in "Example tasks: real-time analysis" on page 42.

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
```

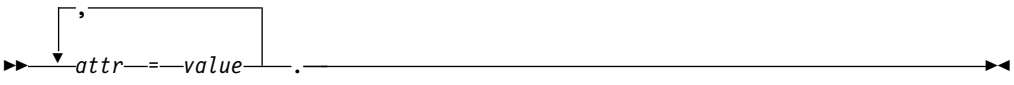
You can also negate multiple attribute expressions or even a whole filter expression, like this:

```
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 42.

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

You can add an RTA definition to an existing 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 28.

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.

To install an analysis definition, 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 RTA views.

Installing an analysis specification

You can 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 48
- "Monitoring multiple resource types in a CICS system group (2)" on page 59
- "Issuing one notification for multiple conditions(1)" on page 67

Creating an analysis group

You can create analysis groups to which real-time analysis definitions are added.

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

You can add an RTA group to an RTA analysis point specification, and create an association between the two.

To do this:

- 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 34.

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.

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 .

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

You can create an RTA specification to CICS system link.

To create a link:

- 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 Procedure

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

You can remove an analysis group in analysis specification association.

To remove an analysis group:

- 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 All current members of the CICS system group should have implicit links established to the named specification. When a link exists, it is replaced with the newly CREATEd link.

  Null Current members of the CICS system group should have implicit links established to the named specification only if no link already exists.

  None No implicit links should be established.
- 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

Procedure

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 group.
   - 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 48
- "Monitoring multiple resource types in a CICS system group (2)" on page 59

Creating an RTA specification

You can create a real-time analysis specification based on an existing record, or create a new 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 8.

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 8.

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 38.

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

You can create a status probe definition by basing it on an existing definition, or by creating a new 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

You can 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.

Before you begin

The RTA status probe program must be available for execution before installation of a status probe definition.

About this task

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, complete the following procedure.

Procedure

1. Display the **Status probe definitions** tabular view (STATDEF object).
2. Select a status probe definition by clicking the Record check box and click **Install**. The **Install** view is displayed.
3. 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.

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

Results

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.

What to do next

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).

Working with real-time analysis environment views

You can use the real-time analysis (RTA) views to analyze the activity in a CICSplex.

For a description of the RTA views, see RTA views.

Deactivating or discarding an analysis definition

When an analysis definition is installed in an analysis point, its status is either ACTIVE or PENDING.

The status is available in the **Status** field in the view for the APACTV object. For more information, see APACTV Resource Table. The status can have the following values:

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.

Deactivating or discarding a status definition

When an analysis definition is installed in an analysis point, its status is either ACTIVE or PENDING. You can change the status of an installed status definition.

About this task

The status is available in the **Status** field in the view for the RTAACTV object. For more information, see RTAACTV Resource Table. The status can have the following values:

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.)

Procedure

- To deactivate a definition with an ACTIVE status for which a time period is defined:
  1. Access the Status definitions tabular view (STATDEF object).
  2. Click the Record check box beside the status definition to be deactivated.
  3. Click **Deactivate**. The Confirm view is displayed.
  4. 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:
  1. Access the Status definitions tabular view (STATDEF object).

2. Click the Record check box beside the status definition to be discarded.
3. Click **Discard**. The Confirm view is displayed.
4. 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

System availability monitoring issues warnings when problems occur in monitored CICS systems.

CICSPlex SM's system availability monitoring is easy to set up and is extremely useful. When system availability monitoring is active for a particular CICS system, CICSPlex SM warns you if the system becomes unavailable, or if any of the following conditions occur:

Condition	SAM event	
SOS	!!SAMSOS	Short on storage
SYSDUMP	!!SAMSDM	System dump
TRANDUMP	!!SAMTDM	Transaction dump
MAXTASK	!!SAMMAX	Maximum number of tasks
NON Responsive MAS	!!SAMNRM	Nonresponsive MAS detected by CMAS
STALL	!!SAMSTL	System busy

You activate monitoring of system availability (!!SAMOPS) by telling CICSPlex SM the hours of the day that you expect the CICS system to be available. To do this, specify 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 conditions by switching on real-time analysis for the CICS system.

The following example tells CICSPlex SM that CICS system CICSPA01, in CICSplex PLXPROD1, should run problem-free between 09:00 and 17:30 and, if it doesn't, to issue a warning. The example switches system availability monitoring on permanently for CICSPA01, and takes effect immediately. The time-period definition PDFSHFTA, which specifies 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 **Update**. A **CICS system definitions** detail view is displayed.
   d. In the **Primary CMAS name** field, type in the name of the CMAS to which CICS normally connects. For this example, 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 want to monitor only system availability (and not the SOS, SYSDUMP, TRANDUMP, MAXTASK, LOSTMAS, and STALL conditions), specify SAM rather than YES for this field.

g. Click **Yes**.

   The **CICS system definitions** tabular view is displayed again. 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, during the period defined in time-period definition PDFSHFTA, there will be a corresponding entry 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 42), and specify NO in the **Real time analysis status** field.

Changing the default actions for system availability monitoring (SAM)

If you turn 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. You can customize the external message and the event notification to suit local requirements.

The default values for these messages are shown in “Default notification values” on page 8. 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 42) 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 43 (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 temporarily monitor 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
Evaluation type
Threshold
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
Evaluation expression
RTEPAY02

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 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

In this example, you will use the WUI to create the real-time analysis definitions required to make this monitoring regular and permanent.

This example is a development of the previous example (“Monitoring resources temporarily” on page 44) in which you saw how to monitor the number of DB2 thread aborts in a CICS system group on a temporary basis.

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 25.

   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 48), 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 25.

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 48. 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 23.

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 22.

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 25.

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 23.

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 22.

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 25.

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 23.
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 22.

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 25.

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)

The first example showed you how to monitor two types of resource (CDSA and UDSA) in a group of CICS systems. This example shows you how to monitor those same resources (CDSA and UDSA), but with differences in the number of action definitions required and the activation period.

In the first example ("Monitoring multiple resource types in a CICS system group (1)" on page 57), 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. This example shows you how to monitor those same resources (CDSA and UDSA), but with these differences:

- The message text of the external message and the event notification identifies whether UDSA or CDSA is having problems. To do this, two action definitions are required, rather than one.
- The monitoring must 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 57), 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 28.

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 34.

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 35.

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 23.
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 25.

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 48) 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 101.) 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 23.
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 25.

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 22.

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 23.

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 22.

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 25.

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 28.
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 22.

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 shows you 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 is issued if any ETR* transaction is unavailable in one or more AORs.

This example is a variation on the previous example ("Issuing one notification for multiple conditions(1)" on page 67), in which you saw how to obtain a single set of notifications when the average number of current tasks in a CICSplex is high.

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 69 through step 9 on page 70 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 does not 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

You can use an evaluation definition and an analysis definition to modify a CICS resource when it is not in the intended state.

This example is an extension of the example in "Reusing analysis specifications and analysis groups" on page 50, which described how to monitor files in the CICS system group called CGSAORS1. This task uses 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 25.

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

Customizing programs that monitor status

User-written programs can be invoked by real-time analysis (RTA) to determine the status of CICS user applications.

You create status definitions using the **Status definition** view. To get to this view from the main menu, click **Administration views** > **MAS resource monitoring administration views** > **User status probe definitions**. Status probe definitions 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 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;

/* - - 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 want 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

Procedure

1. Assemble and link edit the status program. Ensure that the program resides in a DFHRPL or dynamic LIBRARY concatenation.
2. Define (using either BAS PROGDEF or CEDA DEFINE PROGRAM) a PROGRAM resource definition for your program in each MAS that will contain installed status definitions.

   Note: Ensure that 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 CORT or blanks is specified in the Transaction ID field of the RTA status definition, define (using either BAS TRANDEF or CEDA DEFINE TRANSACTION) a TRANSACTION resource definition for the

transaction in each MAS that will have this status definition installed. The program name in the TRANSACTION definition must be EYU9XLOP.

4. Ensure that the TASKDATALOC field in the TRANSACTION definition specifies the correct addressing mode for the task. The TASKDATAKEY field must be set to 'CICS'.
5. Install the following into the active MASs, using either BAS or the CEDA transaction:
   - Your program
   - The transaction specified in the Transaction ID field of the status definition (only if specified)

Defining a status definition to CICSPlex SM

Follow this procedure to define a status definition to CICSPlex SM.

Procedure

1. From CICSPlex SM, access the **Status definitions** tabular view.
2. Click **Create** to define an RTA status definition. Specify the following information:
   - 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 runs as part of the CICSPlex SM CORT transaction.

   b. For CICS TS for z/OS®, Version 4.2, the **User ID** field is optional; in earlier releases of CICS TS, the **User ID** field is not processed by RTA.
3. Use the **Install** button to install the appropriate status definitions into their respective MASs.
4. Use the **Add status definition to RTA group** button to add the status definition to an RTA group that is associated with a MAS by an RTA specification. This allows the status definition to be installed automatically during MAS initialization.

Chapter 3. Resource monitoring

CICSPlex SM provides facilities and views that 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

You can use CICSPlex SM 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:

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- 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.
- 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 before 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 81 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.

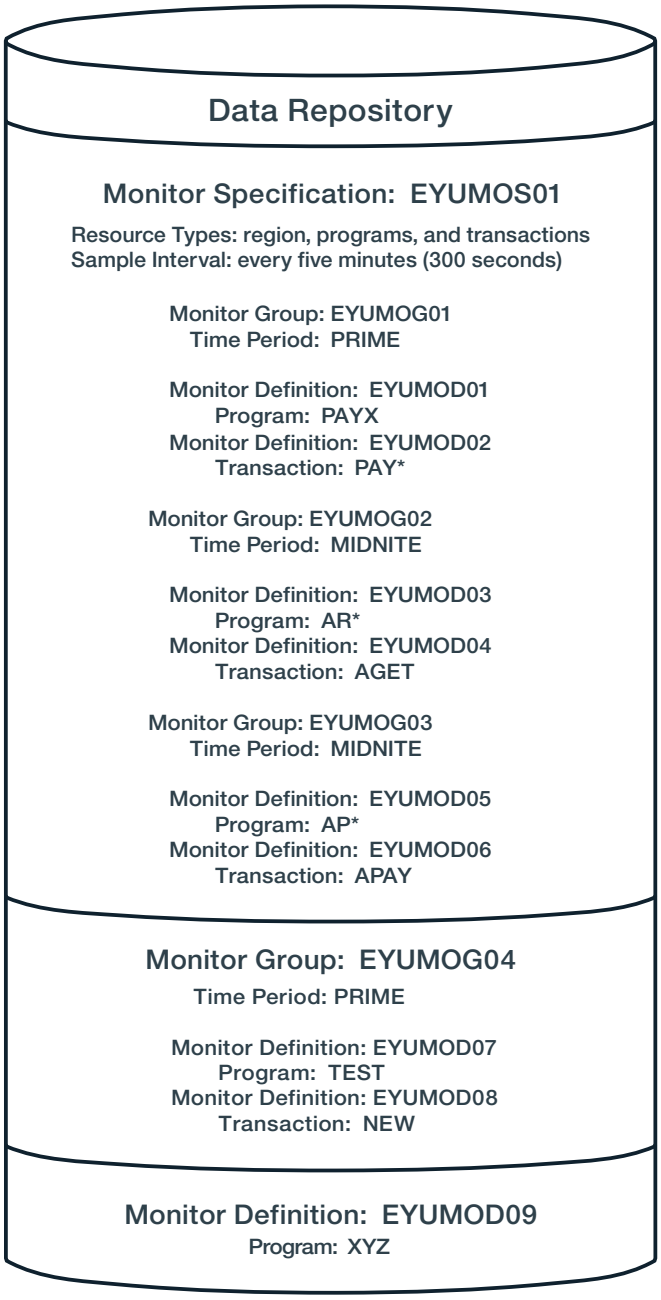


Figure 8. An example of resource monitoring attributes

Activating resource monitoring

For resource monitoring to occur for a particular CICS system, you must associate a monitor specification, activate resource monitoring, and set the resource sample interval. When resource monitoring is active, monitor definition changes are noted in the data repository.

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**.

When 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, provided CICS performance class data monitoring is active see, , 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 26 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 want 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 .

For those users who want 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 CICSPlex SM 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.

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 specifications 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, and 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 using this view are stored in the data repository and used every time the CICS system starts. .

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 Working with MAS topology definitions.

Understanding resource monitoring times

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

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.

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 81. 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.

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 81.

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 87 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.

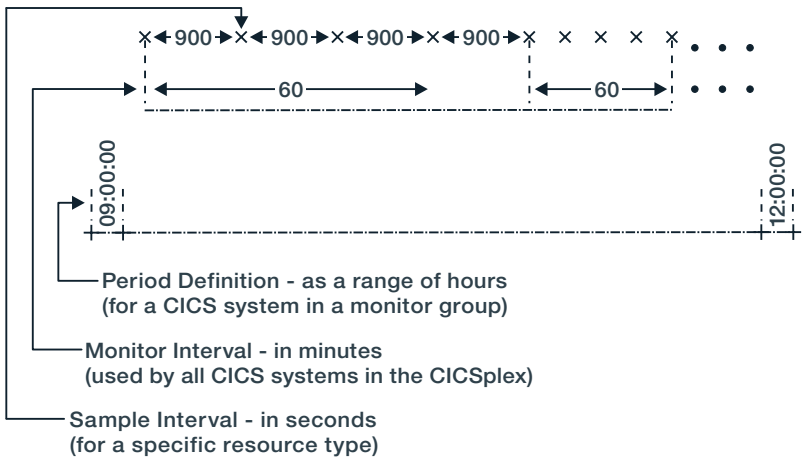


Figure 9. Resource monitoring time periods

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 by using the monitoring views.

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 CICSPlex SM system parameters in Installing .

Data retention

When resource monitoring of a particular resource type is active, data is collected and accumulated. Collection and accumulation stops when:

- 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 .

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 89 provides an overview of the resource monitoring views based on the CICSPlex SM object model.

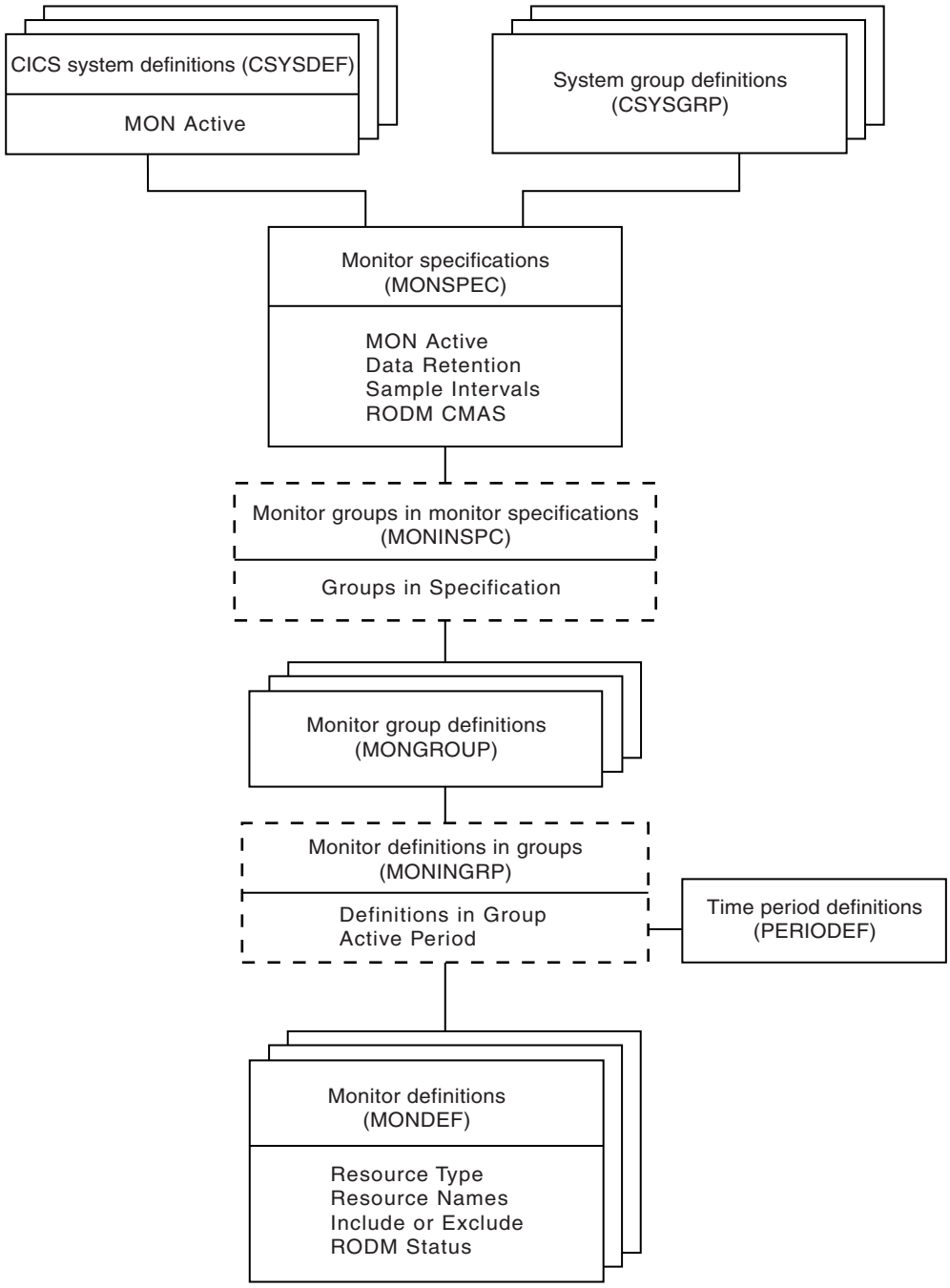


Figure 10. Views for creating resource monitoring objects and associations

In addition to the views shown here, you can use the **Active monitor specifications** view 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.

Figure 11 on page 90 illustrates the relationship between resource monitoring in a CICSplex and the views used to define resource monitoring attributes.

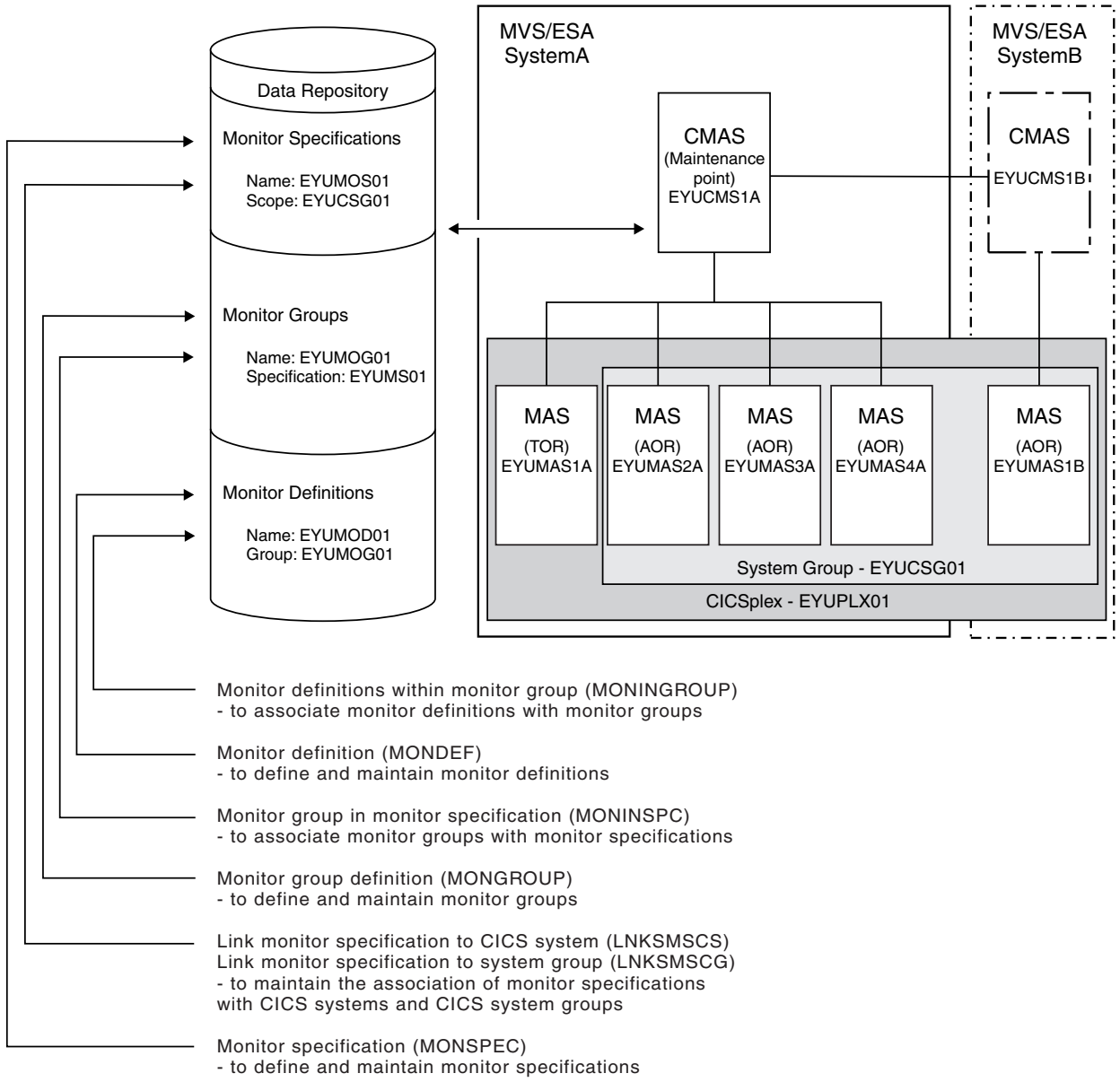


Figure 11. The relationship between resource monitoring definitions and their views

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.

It is important to note 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 for the resource type Region, MGBL for the resource type Global, or MDBX for the resource type DB2/DBCTl.
- 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 101
- "Monitoring programs in multiple CICS systems" on page 103

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 103.

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 92.

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, review the requirements described in "Activating resource monitoring" on page 81.

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 RTA views, 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 101
- "Monitoring programs in multiple CICS systems" on page 103

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. 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 100, 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 94.

Installing a monitor definition

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.

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 81.

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. 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 91, 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

Procedure

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. For more information about the LNKSxSCG parameters, see Special attribute and resource table considerations: LNKSxSCG Records (LNKSMSCG, LNKSRSCG, LNKSWSCG).
- 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

Procedure

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.

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 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 **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 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 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 103).
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 101). 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 102).

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.

Appendix A. Real Time Analysis (RTA) views

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 7. 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 EYUSTARTAPACTV.DEACTIVATE	Deactivate an active analysis definition for which a time period is defined. The status of the definition changes to pending.
Installed analysis definitions associated with an analysis point specification 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 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 EYUSTARTAPACTV.REACTIVATE	Reactivate a pending analysis definition for which a time period is defined. The status of the definition changes to active.
Installed analysis definitions associated with an analysis point specification EYUSTARTAPACTV.TABULAR	Tabular information about RTA definitions associated with an analysis point specification for the CICSplex identified as the context.

Actions

Table 8. Actions available for APACTV views

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

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Fields

Table 9. Fields in APACTV views

Field	Attribute name	Description
Associated action	ACTION	The name of an action definition that is associated with the analysis definition.
Period definition	ACTIVETIME	The time period for which the analysis definition will be active. 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.
Analysis point specification	APSPEC	The name of the analysis point specification with which the analysis definition is associated.
CMAS	CMAS	The name of the CMAS that is currently responsible for processing the analysis point specification.
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.
Analysis definition	DEFNAME	The name of an installed analysis definition.
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.
Definition status	STATUS	The status of the analysis definition as one of the following: • Active - The definition is active and the specified analysis is being done. • Pending - The definition will become active at the time specified in its period definition.

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

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

Actions

None.

Fields

Table 11. Fields in EVENT views

Field	Attribute name	Description
Action name	ACTION	The name of the action definition associated with the analysis or status definition that generated the event.
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: • APM - The CMAS associated with the analysis point specification. • MRM - The CMAS to which the target CICS system is connected. • SAM - The primary CMAS for the target CICS system.
Name of context to which event applies	CONTEXT	The CICSplex identified as the context to which the event applies.
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 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.
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.
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.

Table 11. Fields in EVENT views (continued)

Field	Attribute name	Description
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.
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.
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 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.
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.
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.
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.

Table 11. Fields in EVENT views (continued)

Field	Attribute name	Description
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.
Date and time when event was created	DATETIME	The local date and time when the event was created.
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.
Detailed information availability	DETAIL	For events generated by analysis definitions, indicates whether detailed information about the event is available. The detailed information includes information from the evaluation definition that caused the event to be raised. A value of NO means the event was generated automatically by CICSPlex SM, rather than by an analysis definition.
Event type	EVALTYPE	The type of analysis that generated the event: • APM - Analysis point monitoring • MRM - MAS resource monitoring • SAM - System availability monitoring
SNA generic alert generation	GENALERT	Indicates whether a SNA generic alert was sent to NetView for the event.
External message generation	GENEXTMSG	Indicates whether external messages were generated for the event.
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 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.
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.
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.
Name of specific resource that caused event	KEY	The specific resource (such as a program or file) that caused the event to be 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.
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.
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.

Table 11. Fields in EVENT views (continued)

Field	Attribute name	Description
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.
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: • !!SAMOPS - System unavailable • !!SAMSDM - System dump • !!SAMTDM - Transaction dump • !!SAMSOS - Short-on-storage • !!SAMMAX - Maximum tasks • !!SAMNRM - Non-responsive-MAS • !!SAMSTL - System stall
CMAS to which Netview attached	NETVIEW	Indicates whether an interface to NetView is available from the CMAS in which the event was generated.
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.
Interval between evaluations	RATE	The interval, in seconds, between evaluations of the the analysis or status definition that generated the event.
Resource type	RESTYPE	The type of resource for which the event was generated.
Event sequence number	SEQUENCE	The event sequence number.
Event severity	SEVERITY	The severity associated with the event: • VHS - Very high severe • HS - High severe • HW - High warning • LW - Low warning • LS - Low severe • VLS - Very low severe 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.
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.
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.
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.
Associated user data	VIEW	A string of up to 8 characters that allows you to provide additional site-specific data about 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 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.

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 12. 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 EYUSTARTRTAACTV.DEACTIVATE	Deactivate an active analysis or status definition for which a time period is defined. The status of the definition changes to pending.
Real Time Analysis (RTA) installed analysis and status definitions EYUSTARTRTAACTV.DETAILED	Detailed information about analysis and status definitions installed in a selected CICS system.
Real Time Analysis (RTA) installed analysis and status definitions EYUSTARTRTAACTV.DISCARD	Discard an active or pending analysis or status definition from the CICS in which it is installed.
Real Time Analysis (RTA) installed analysis and status definitions EYUSTARTRTAACTV.REACTIVATE	Reactivate a pending analysis or status definition for which a time period is defined. The status of the definition changes to active.
Real Time Analysis (RTA) installed analysis and status definitions EYUSTARTRTAACTV.TABULAR	Tabular information about analysis and status definitions installed in CICS systems

Actions

Table 13. Actions available for RTAACTV views

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

Fields

Table 14. Fields in RTAACTV views

Field	Attribute name	Description
Associated action name	ACTION	The name of an action definition that is associated with the analysis or status definition.

Table 14. Fields in RTAACTV views (continued)

Field	Attribute name	Description
Period definition name	ACTIVETIME	The time period for which the analysis or status definition will be active. 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.
CICS system name	CICSSYS	The name of the CICS system that is associated with the analysis or status definition.
Definition name	NAME	The name of an installed analysis or status definition.
Interval between evaluations (seconds)	RATE	The interval, in seconds, between evaluations of the analysis or status definition.
Definition status	STATUS	The status of the analysis or status definition as one of the following: • ACTIVE - The definition is active and the specified analysis is being done. • PENDING - The definition will become active at the time specified in its period definition.
Analysis definition type (analysis or status)	TYPE	The type of definition (analysis or status)

Appendix B. History Views

The history views allow you to work with CICS historical data.

Task 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. It requires monitor definitions to be installed with a monitoring resource class of MTRAN to specify the IDs of the transactions for which you wish 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.

Supplied views

To access from the main menu, click:

History views > History Views > Task history collection

Table 15. Views in the supplied **MAS history** *(MASHIST) view set*

View	Notes
MAS history EYUSTARTMASHIST.DETAILED	Detailed information about the current status of history recording for CICS regions.
MAS history EYUSTARTMASHIST.RESUME	Resume CICSPlex SM history recording for the CICS region. If history recording for the CICS region is currently suspended, it will now resume and become active again.
MAS history EYUSTARTMASHIST.SUSPEND	Suspend CICSPlex SM history recording for the CICS region. No further historical task records will be collected until an action is taken to resume history recording for the region.
MAS history EYUSTARTMASHIST.TABULAR	Tabular information about the current status of history recording for CICS regions.

Actions

Table 16. Actions available for MASHIST views

Action	Description
RESUME	Resume CICSPlex SM history recording for the CICS region. If history recording for the CICS region is currently suspended, it will now resume and become active again.
SUSPEND	Suspend CICSPlex SM history recording for the CICS region. No further historical task records will be collected until an action is taken to resume history recording for the region.

Fields

Table 17. Fields in MASHIST views

Field	Attribute name	Description
Current data set suffix	CDSSUF	The suffix of the current VSAM KSDS data set containing historical data for the CICS region

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Table 17. Fields in MASHIST views (continued)

Field	Attribute name	Description
Number of records on current data set	CRECCNT	The number of records in the current history data set.
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 History data sets	HDSCOUNT	The number of history data sets available.
History reason code	REASON	Reason code from the historical data recorder task. Values are: • 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. • INVALIDFILE - One or more attributes for the EYUHISTx datasets are unacceptable for the MAS history recorder function. • OK - The MAS history recorder is operational. • NOTAVAILABLE - The MAS history recorder requires at least two EYUHISTx history datasets before becoming available for history recording.
History recorder status	STATUS	Identifies whether or not the historical data recorder task is in any of the following states: • ACTIVE - The MAS history recorder is available to record task records. • INACTIVE - The MAS history recorder is not available to record task records. • SUSPEND - The MAS history recorder has been temporarily prevented from recording task records. • 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. • 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 .

Appendix C. 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 generic alert information in a number of subvectors.

The CICSPlex SM Alert MS major vector contains the following subvectors.

"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 | LW | HW | HS | VHS)

     6-13 RTA Event name (RTADEF name |STATDEF name | !!SAM*xxx*)
  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 |EQ |NE |LE |LT)

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– 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
– 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 5655S97.
- 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" is set as follows:

  !!SAMMAX, !!SAMOPS or !!SAMNRM
  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 for two "Detailed Data" common subfields of the “Cause Undetermined” MS subvector:

- the first "Detailed Data" common subfield of the “Cause Undetermined” MS subvector always contains 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.

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Programming interface information

CICS supplies some documentation that can be considered to be Programming Interfaces, and some documentation that cannot be considered to be a Programming Interface.

Programming Interfaces that allow the customer to write programs to obtain the services of CICS Transaction Server for z/OS, Version 5 Release 4 are included in the following sections of the online product documentation:

- Developing applications
- Developing system programs
- RACF security overview
- Developing for external interfaces
- Reference: application developmenth
- Reference: system programming
- Reference: connectivity

Information that is NOT intended to be used as a Programming Interface of CICS Transaction Server for z/OS, Version 5 Release 4 , but that might be misconstrued as Programming Interfaces, is included in the following sections of the online product documentation:

- Troubleshooting and support
- Reference: diagnostics

If you access the CICS documentation in manuals in PDF format, Programming Interfaces that allow the customer to write programs to obtain the services of CICS Transaction Server for z/OS, Version 5 Release 4 are included in the following manuals:

- Application Programming Guide and Application Programming Reference
- Business Transaction Services
- Customization Guide
- C++ OO Class Libraries
- Debugging Tools Interfaces Reference
- Distributed Transaction Programming Guide
- External Interfaces Guide
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