Tivoli Global Enterprise Manager
CICSPlex SM Instrumentation User's Guide

Tivoli Global Enterprise Manager CICSPlex SM Instrumentation (Feb. 1999)

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Contents

Using CICSPlex SM Instrumentation

Appendix A. Troubleshooting

Appendix B. Product Files

Appendix C. Handling Error Messages

Appendix D. Understanding CICSPlex SM Concepts

Appendix E. Creating REXX Function Package Aliases

Glossary

Index

Contents

Preface

This book provides information about planning for, installing, and using Tivoli Global Enterprise Manager CICSPlex SM Instrumentation (CICSPlex SM Instrumentation), which is a feature of Tivoli Global Enterprise Manager (Tivoli GEM). It describes using monitors and tasks that CICSPlex SM Instrumentation provides to manage Customer Information Control System (CICS) and CICSPlex SM resources on OS/390 systems and other operating systems.

What's New in This Guide

The following items have been updated or are new with this release:

- Updated information and illustrations for the new middleware branch (see "Installing and Starting CICSPlex SM Instrumentation" on page 3-1 and "Installing and Starting CICSPlex SM Instrumentation" on page 3-1)

- Updated information about the CICS and CMAS monitoring views (see "Introducing CICSPlex SM Instrumentation" on page 1-1)

- Updated list of description files (see Appendix B, "Product Files" on page B-1)

Who Should Read This Guide

This guide is for system administrators and help-desk personnel who are responsible for CICS systems.

Before using this book, you should be familiar with the following:

- OS/390 operating system and TME 10 NetView for OS/390 (NetView for OS/390)
- CICS and CICSPlex SM management systems
- Intel or UNIX
- Tivoli desktop
- Tivoli GEM

Prerequisite and Related Documents

For CICSPlex SM Instrumentation hardware and software requirements, and other release information, refer to the *Tivoli Global Enterprise Manager CICSPlex SM Instrumentation Release Notes*.

In addition to this guide, you should also be familiar with the following prerequisite documents. The Tivoli GEM library is shipped with the product.

- *Tivoli Global Enterprise Manager Command Customization Guide*

- *Tivoli Global Enterprise Manager Installation and User's Guide*

- *Tivoli Global Enterprise Manager Instrumentation Guide*

- *Tivoli Global Enterprise Manager Release Notes*

- *Tivoli Global Enterprise Manager Troubleshooting*, located at the following Web site:

  http://www.support.tivoli.com/tme10gem

- *Tivoli Module Builder User's Guide*

- *Tivoli Module Builder Release Notes*

- *TME 10 Framework Planning and Installation Guide*

- *TME 10 NetView for OS/390 Automation Guide*

- *TME 10 NetView for OS/390 Command Reference*

- *TME 10 NetView for OS/390 Customization Guide*

- *TME 10 NetView for OS/390 Graphic Monitor Facility User's Guide*

- *IBM CICSPlex System Manager for MVS/ESA Application Programming Interface, Release 2*

- *IBM CICSPlex System Manager for MVS/ESA Concepts and Planning, Release 2*

- *IBM CICSPlex System Manager for MVS/ESA Messages and Codes, Release 2*

- *IBM CICSPlex System Manager for MVS/ESA Operations Reference, Release 2*

- *IBM CICSPlex System Manager for MVS/ESA Problem Determination, Release 2*

- *IBM CICSPlex System Manager for MVS/ESA Setup and Administration, Release 2, Volume 1*

- *IBM CICSPlex System Manager for MVS/ESA Setup and Administration, Release 2, Volume 2*

- *IBM CICSPlex System Manager for MVS/ESA User Interface Guide, Release 2*

- *IBM TCP/IP User's Guide*

For instrumentation, familiarity with the *Application Management Specification* (AMS), an industry-endorsed specification for creating management-ready applications, is required. A copy of the AMS can be found on the World Wide Web (WWW) at the following Web site:

http://www.tivoli.com/o_products/html/body_ams_spec.html

You can find the current version of the AMS associated with this version of Tivoli GEM, as well as the hardware and software prerequisites for specific operating systems, in the *Tivoli Global Enterprise Manager Release Notes*.

Online Help

Detailed information on how to use the topology console is provided in the Tivoli GEM online help and is not duplicated in this book.

Accessing Online Documentation

The Tivoli GEM library is available in Portable Document Format (**.pdf**) and Hypertext Markup Language (**.html**) format on the Tivoli GEM CD-ROM. Although these document files are not automatically installed with the product, you can access these printable and browsable document files in the following subdirectories:

Product Name and Subdirectory	File Name	Document Title
Tivoli GEM **\DOCS**	**gem22cmd.pdf**	*Tivoli Global Enterprise Manager Command Customization Guide*
	gem22inr.pdf	*Tivoli Global Enterprise Manager Instrumentation Guide*
	gem22ug.pdf	*Tivoli Global Enterprise Manager Installation and User's Guide*
Tivoli GEM CICSPlex SM Instrumentation **\DOCS\CICS**	**gem22cug.pdf**	*Tivoli Global Enterprise Manager CICSPlex SM Instrumentation User's Guide*
Tivoli GEM DB2 for OS/390 Instrumentation **\DOCS\DB2**	**gem22dug.pdf**	*Tivoli Global Enterprise Manager DB2 for OS/390 Instrumentation User's Guide*

PDF Files

Be sure that you have Adobe Acrobat Reader installed.

Use Adobe Acrobat Reader to view or print **.pdf** files after you have changed to the appropriate subdirectory. If you do not already have this tool, you can obtain it free by clicking the **Get Acrobat Reader** icon on **http://www.adobe.com** and following the steps that are provided.

HTML Files

You can access the Tivoli GEM library, including release notes, and the Tivoli GEM product information, such as software prerequisites, code examples, and patches, from the following Web site:

http://www.support.tivoli.com/tme10gem

You must be a registered user to access this Web site. When the **Username and Password Required** prompt is displayed, click **Cancel** and follow the registration directions.

What This Guide Contains

This book covers the following topics:

- "Introducing CICSPlex SM Instrumentation" on page 1-1

  Describes the basic features of CICSPlex SM Instrumentation, including the requirements for Tivoli and CICS before installing CICSPlex SM Instrumentation.

- "Preparing for CICSPlex SM Instrumentation" on page 2-1

  Provides information you need before instllaing and configuring CICSPlex SM Instrumentation.

- "Installing and Starting CICSPlex SM Instrumentation" on page 3-1

  Describes tasks that you must complete before you can use CICSPlex SM Instrumentation.

- "Using CICSPlex SM Instrumentation" on page 4-1

Describes using CICSPlex SM Instrumentation tasks and monitors.

- Appendix A, "Troubleshooting" on page A-1

  Explains how to handle specific problems you might encounter when using CICSPlex SM Instrumentation.

- Appendix B, "Product Files" on page B-1

  Provides helpful information about the CICSPlex SM Instrumentation description files.

- Appendix C, "Handling Error Messages" on page C-1

  Covers possible error messages and how to handle them.

- Appendix D, "Understanding CICSPlex SM Concepts" on page D-1

  Explains basic CICSPlex SM concepts.

- Appendix E, "Creating REXX Function Package Aliases" on page E-1

  Provides an example of how to modify your REXX parameter modules to create aliases for the REXX function package.

Typeface Conventions

This guide uses several typeface conventions for special terms and actions. These conventions have the following meanings:

Bold   Commands, keywords, file names, authorization roles, flags, universal resource locators (URLs), or other information that you must use literally appear in **bold**. The names or titles of screen objects also appear in **bold**.

Italics   Variables and values that you must provide appear in *italics*. Words and phrases that are emphasized also appear in *italics*.

Bold Italics	New terms appear in **bold italics** when they are defined in text.
Monospace	Code examples, output, and system messages appear in a monospace font.
ALL CAPS	NetView for OS/390 commands appear in ALL CAPS.

Terminology

After the terms topology console and topology server are introduced in text, they are generally referred to as the console and server, respectively

The following table defines the Intel and UNIX terms as they are used with the topology console (console) and topology server (server). For example, on the topology server the term Intel refers to Windows NT and OS/2 platforms.

Term	Console	Server
Intel	■ Windows NT ■ Windows 95 ■ Window 98 ■ OS/2	■ Windows NT ■ OS/2
UNIX	■ AIX ■ Solaris ■ HP/UX	■ AIX ■ Solaris

For a complete glossary of Tivoli and related terms, refer to the glossary located at the following Web site:

http://www.tivoli.com/glossary/glossary_index.html

Tivoli is in the process of changing product names. Products referenced in this manual might still be available under their old names; for example, TME 10 Enterprise Console instead of Tivoli Enterprise Console.

Contacting Customer Support

If you encounter difficulties with any Tivoli products, you can enter **http://www.support.tivoli.com** to view the Tivoli Support home page. After you link to and submit the customer registration form, you will be able to access many customer support services on the Web.

Use the following phone numbers to contact customer support in the United States: the Tivoli number is 1-800-848–6548 (1-800-TIVOLI8) and the IBM number is 1-800-237-5511 (press or say 8 after you reach this number). Both of these numbers direct your call to the Tivoli Customer Support Call Center.

We are very interested in hearing from you about your experience with Tivoli products and documentation. We welcome your suggestions for improvements. If you have comments or suggestions about this documentation, please send e-mail to pubs@tivoli.com.

1

Introducing CICSPlex SM Instrumentation

CICSPlex SM Instrumentation is a feature of Tivoli Global Enterprise Manager (Tivoli GEM) Version 2.2. It works with the Tivoli GEM instrumentation.

If you are not already familiar with Tivoli GEM, refer to the *Tivoli Global Enterprise Manager Installation and User's Guide* and the *Tivoli Global Enterprise Manager Instrumentation Guide*. If you are not already familiar with Customer Information Control System (CICS) or CICSPlex System Manager (SM), refer to the CICS and CICSPlex System Manager (SM) books listed in "Prerequisite and Related Documents" on page x.

You can use Tivoli GEM instrumentation to create a business system model and instrument application components to display business system views of related distributed and host applications. You can also monitor and manage the following:

- Your applications
- Relationships between applications
- Data flows between applications

CICSPlex SM Instrumentation provides a centralized system management interface for the CICSPlex SM management system. CICSPlex SM manages CICS regions running on OS/390 systems Parallel Sysplex and other operating systems, such as Virtual Storage Extended (VSE) and Operating System/2 (OS/2). This interface is part of Tivoli GEM's middleware branch.

The middleware branch provides a view of the middleware components at the application level in both host and distributed environments. The middleware branch model covers CICS and the other middleware environments. CICSPlex SM Instrumentation is an implementation of this model.

CICSPlex SM Instrumentation displays those CICS regions monitored by system availability monitoring (SAM) monitors, managed application system (MAS) resource monitoring (MRM) monitors, or both. For MRM monitors, the provided instrumentation also displays the specific MRM monitor and its relationship to one or more CICS systems.

Using CICSPlex SM Instrumentation, you can monitor CICS regions and CICSPlex SM resources, as well as perform certain tasks against CICS regions. A CICS region is a functionally similar group of CICS resources. For example, a CICS region can be an application-owning region (AOR), a terminal-owning region (TOR), or a file-owning region (FOR).

If you are not already familiar with CICS, CICSplexes, or related concepts, see Appendix D, "Understanding CICSPlex SM Concepts" on page D-1. For even more detailed information, refer to *IBM CICSPlex System Manager for MVS/ESA Concepts and Planning, Release 2*.

Overview of Command and Event Flow

Installation of CICSPlex SM Instrumentation components on both distributed environment and OS/390 systems enables CICSPlex SM commands and requests for information to be sent from the graphic user interface (GUI) in a topology console to the topology server. The topology server forwards commands over either a TCP/IP or logical unity (LU) 6.2 connection using NETCONV to NetView for OS/390 for execution.

The following figure shows the environment in which CICSPlex SM Instrumentation runs.

Using NetView for OS/390 automation, you can monitor and retrieve CICSPlex SM Instrumentation events from CICSPlex SM resources. These events can be converted to Tivoli Enterprise Console (TEC) event format and forwarded to a centralized topology server and topology console for display and processing, or they can flow directly to the topology server.

Command Flow

NetView for OS/390 passes CICSPlex SM Instrumentation commands to the CICSPlex SM application programming interface (API) through CLISTs for execution.You can initiate Tivoli GEM-specific tasks, such as setting the Tivoli GEM threshold, as well as CICSPlex SM tasks from the topology console. The topology console communicates tasks to the topology server, which is connected to NetView for OS/390 by a NETCONV session. This session can be either a TCP/IP or an LU6.2 session between the topology server and NetView for OS/390.

For more information on the CICSPlex SM tasks that are instrumented by CICSPlex SM Instrumentation, see "Using CICSPlex SM Instrumentation" on page 4-1. For more information on OS/390 communication, refer to the *TME 10 NetView for OS/390 Graphic Monitor Facility User's Guide*.

Event Flow

CICSPlex SM issues Systems Network Architecture (SNA) generic alerts to NetView for OS/390. NetView for OS/390 processes them through CICSPlex SM Instrumentation. Events are trapped in the NetView for OS/390 message automation table and forwarded to CLISTs for further processing.

With the Event Integration Facility (EIF) alert adapter, you can specify events that you do not want forwarded to the topology server. With event filtering, you can prevent the topology console from being populated with harmless events, and focus on events of interest to your administrators. Refer to the *Tivoli Global Enterprise Manager Installation and User's Guide* for information about the CNMEALUS API.

The EIF alert adapter formats the SNA alerts into TEC events and forwards them to the TEC event server. TEC events received by the topology server are processed and status changes are forwarded to the topology console. The topology console displays status based on event notifications.

The following figure shows the conversion path for a NetView for OS/390 alert that is converted to a TEC event.
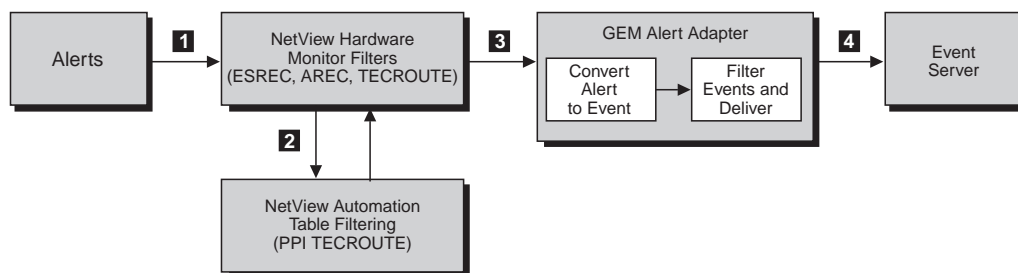
Alerts received by NetView for OS/390 are processed against the hardware monitor filters. When an alert passes the event statistical recording filter (ESREC), alert recording filter (AREC), and TECROUTE recording filter, it is forwarded to the event/automation service alert adapter and converted to a TEC event. When the event passes the alert adapter filters, it is forwarded to the event server. For more information about recording filter settings, refer to the network problem determination aid (NPDA) set recording filter (SRF) command in the *TME 10 NetView for OS/390 Command Reference*.

The following figure shows the conversion path for a NetView for OS/390 message that is converted to a TEC event.
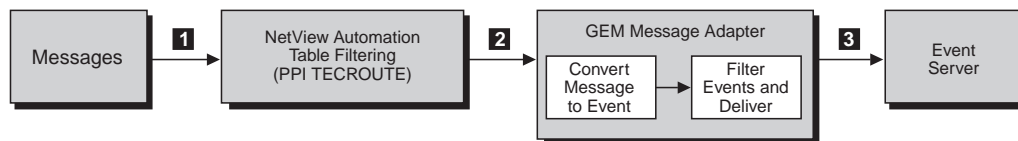
NetView for OS/390 messages are forwarded to the NetView for OS/390 message automation table for processing. One possible message automation table action is to forward a message to the event/automation service message adapter, where it is converted to a TEC event. When the event passes through the message adapter filters, it is forwarded to the event server.

For information on how you can customize the events that are built by the event/automation service, see NetView for OS/390 samples CNMEALUS and CNMEMSUS, as well as the *TME 10 NetView for*

OS/390 Customization Guide and the *TME 10 NetView for OS/390 Automation Guide*.

CICSPlex SM Instrumentation Views

The CICSPlex SM Instrumentation feature consists of two views: the CICS monitoring view under the middleware branch and the CMAS monitoring view under the system management business system, shown in "Confirming Resource Discovery" on page 3-17.

CICS Monitoring View

Available from the middleware branch of Tivoli GEM, the CICS monitoring view displays and monitors the status of the components defined for CICS resources: the CICS component and the real-time analysis (RTA) component.

The CICS component represents the CICS region and its environment. Databases, processes, and connections pertaining to this region are all monitored through this component. This component has an associated set of monitors (see "CICSPlex SM Instrumentation Monitors" on page 4-3) and tasks (see "CICSPlex SM Instrumentation Tasks" on page 4-1).

The RTA component represents the set of user-defined rules contained in an RTADEF or a STATDEF definition. This component exists only if you choose to define an RTADEF or a STATDEF. You can define these rules so that you can monitor the status of particular CICS regions and related resources. This component also has a set of resources associated with it (see "Using CICSPlex SM Instrumentation" on page 4-1).

See "Monitoring CICS Systems and Resources" on page D-5 for more information on why and how you would set up rules for the RTA component and the benefits it provides in your instrumentation.

A relationship or connection exists between the two components, which you can see through the CICS monitoring view. An RTA component has connections to each CICS component that its definition monitors–either the region itself or a resource of the region, such as a database. The connection between the component and a

CICS component has a defined monitor (see "CICSPlex SM Instrumentation Monitors" on page 4-3). Using Tivoli GEM in the CICS monitoring view, you can graphically monitor the status of critical CICS regions and resources, and you can execute a subset of tasks pertaining to these regions.

CMAS Monitoring View

Available from the system management business system of Tivoli GEM, the CMAS monitoring view displays and monitors CICSPlex SM address spaces (CMASs). This view has a set of tasks (see "CICSPlex SM Instrumentation Tasks" on page 4-1), but no monitors or connections. Its monitoring application is how CICSPlex SM receives information about CICS regions and resources.

With this view, you can monitor those CMASs that are critical to the instrumentation of the system.

2

Preparing for CICSPlex SM Instrumentation

This section provides planning information you will need before you can install and configure CICSPlex SM Instrumentation.

The following figure identifies host system prerequisites for CICSPlex SM Instrumentation.

GEM 2.1
- TEC event server is required when using NetView V1R1

NetView Focal Point with optional CICS End Point
• TME 10 NetView for OS/390 V1R1+ w/ PTFs, APARs
• Tivoli GEM 2.1 CICSPlex SM Instrumentation
• Event Automation Services Adapter PTF for NV V1R1
• MVS 5.2.2 or later with OpenEdition
• LE/370 R5
• TCP/IP V3R2 or later
• CICSPlex SM for MVS/ESA V1R2 or V1R3 plus PTFs
• NetView includes GEM Host Instrumentation Library

CICS Alert Forwarding

CICS End Point
• CICSPlex SM for MVS/ESA V1R2 or V1R3 plus PTFs

(optional CICS end points)

CICS End Point
• CICSPlex SM for MVS/ESA V1R2 or V1R3 plus PTFs

(optional configuration for event forwarding to NetView V1R1+)

SNA

(optional)

CICS Alert Forwarding

CICS End Point
• NetView 2.4, with APAR OW30165 - or -
• NetView 3.1 with APAR OW31603
• TME 10 GEM 2.1 CICSPlex SM Instrumentation
• CICSPlex SM for MVS/ESA V1R2 or V1R3 plus PTFs
• NetView includes GEM Host Instrumentation Library

Supported Hardware and Operating Systems

Refer to the *Tivoli Global Enterprise Manager CICSPlex SM Instrumentation Release Notes* for descriptions of supported hardware and operating systems for CICSPlex SM Instrumentation, as well as disk space requirements.

Prerequisite Applications

For OS/390 prerequisites, refer to the *Tivoli Global Enterprise Manager Release Notes*.

Before installing the CICSPlex SM Instrumentation feature, you must install the following products, as well as any prerequisite products.

Installed Component	Distributed Server	Distributed Client	OS/390 System
Tivoli GEM components, including the topology server and topology console. Refer to the installation section in the *Tivoli Global Enterprise Manager Installation and User's Guide*, and to the *Tivoli Global Enterprise Manager CICSPlex SM Instrumentation Release Notes* for release-specific information about NetView for OS/390.	√	√	
TME 10 NetView for OS/390			√
CICSPlex SM			√
Note: If you are using NetView for OS/390 Version 1 Release 2 (V1R2), you can bypass the TEC event server and send events directly to the topology server. For more information, refer to the *TME 10 NetView for OS/390 Customization Guide*.			

Enabling Command Communication

Between the topology server and NetView for OS/390, you must enable either an LU6.2 conversation or a TCP/IP connection using NETCONV. If you use TCP/IP V2.4, you must also install program temporary fix (PTF) UQ16060. For more information on enabling command communication, refer to the installation section of the *Tivoli Global Enterprise Manager Installation and User's Guide*.

Enabling Event Flow

The information in the following sections explains how to enable your event flow in NetView for OS/390 and CICSPlex SM.

In NetView for OS/390

You must enable an event flow between the Tivoli Event Integration Facility (EIF) and the topology server or TEC event server (if you are using it). To do this, verify that Systems Network Architecture (SNA) generic alerts for CICSPlex SM are not being blocked in NetView for OS/390 NPDA by means of any site-defined SRFs.

For more information, refer to the *TME 10 NetView for OS/390 Command Reference* and the *TME 10 NetView for OS/390 Automation Guide*. For more information on event enablement, refer to the *TME 10 Enterprise Console User's Guide*.

In CICSPlex SM

Default actions for the CICSPlex SM system availability monitoring (SAM) monitors do not forward SNA generic alerts to NetView for OS/390. Complete the following steps to enable discovery of SAM events by CICSPlex SM Instrumentation.

1. Verify that the CMAS view for the CMAS that will be reporting SNA generic alerts to NetView for OS/390 specifies `NetView PPI=YES`.

2. Verify that any MAS to be discovered by CICSPlex SM Instrumentation has `SAM`, `MRM`, or `YES` specified in the CICSSYS view for RTA.

Preparing CPSM Instrumentation

3. For those MASs participating in RTA, verify that each requested SAM has ACTNDEF views created for each SAM monitor to be sent to NetView for OS/390. By default SAM actions are not sent to NetView for OS/390. You can specify that the ACTNDEF overrides in one or both of the following:

   ■ The RTASPEC associated with the MASs, where it can be inherited

   ■ The individual CICSSYS view, if different MASs are to report with different SAM actions or severities

4. For those MASs participating in RTA that use the MRM function, verify that those MRM RTADEFs or STATDEFs to be reported in CICSPlex SM Instrumentation for Tivoli GEM have ACTNDEFs that specify the `NetView CMAS` and `ALERT=YES`.

5. Verify that the correct version of the NetView for OS/390 message automation table is being used that includes the Tivoli GEM and CICSPlex SM message traps. You can find these message traps in the IHSCTB01 sample member.

For more information, refer to *IBM CICSPlex System Manager for MVS/ESA Setup and Administration, Release 2, Volume 2*.

3

Installing and Starting CICSPlex SM Instrumentation

This chapter describes steps to install and start CICSPlex SM Instrumentation components on both the topology server and OS/390 system. It also describes activities to establish command and event flow between components.

The following table shows the installation targets.

Installed Component	Topology Server	OS/390 System
Instrumentation description files, dialogs, helps, icons, and other files	√	
NetView for OS/390 CLISTs, samples, messages, database request modules (DBRMs), and job control language (JCL)		√

Both distributed and OS/390 components are installed from the Tivoli GEM CD-ROM. Installation includes the following:

- On the topology server, installing description files, user dialogs, helps, and icons into one of the following target directories:

    UNIX: $BINDIR/TDS/server/db/current

    Intel: %BINDIR%\TDS\server\db\current

- On an OS/390 system, installing data sets that contain CICSPlex SM Instrumentation CLISTs, samples, messages, DBRMs, and

JCL that enable command and event processing for CICSPlex SM. These data sets are installed through System Modification Program Extended (SMP/E). For OS/390 SMP/E installation steps, refer to the *Tivoli Global Enterprise Manager CICSPlex SM Instrumentation Program Directory*.

Installing Distributed Components

You install CICSPlex SM Instrumentation description files on the topology server.

The following table lists the context and authorization role required to perform this task.

Activity	Context	Required Role
Install CICSPlex SM Instrumentation	Tivoli desktop	**install**

Use the following steps to install CICSPlex SM Instrumentation from the Tivoli desktop. These steps are similar to the process for installing the Tivoli GEM product component. If you have not already installed the Tivoli GEM product component or are unfamiliar with the installation dialogs, refer to the installation section in the *Tivoli Global Enterprise Manager Installation and User's Guide*.

1. From the desktop, select **Install→ Install Product** from the **Desktop** menu to display the **Install Product** dialog.

2. Click the **Select Media** button to display the **Set Path to Install Media** dialog. You can use this dialog to identify or specify the path to the installation media.

    If you already know the path to the CD-ROM image, follow these steps:

    a. Enter the full path in the **Path Name** text box.

    b. Click on the **Set Path** button to change to the specified directory.

    c.   Click the **Set Media & Close** button to save the new path and return to the **Install Product** dialog to see a list of Tivoli GEM product components that are available for installation.

If you do not know the exact path to the CD-ROM image, follow these steps:

    a.   Select the host on which the installation media is mounted from the **Hosts** list. When you select a host, the **Directories** list is updated to show the directories for the host you selected.

    b.   Select the directory containing the installation media from the **Directories** list. The machine where the installation media is mounted should be in the same Tivoli Management Region (TMR) as the machine where you plan to install the product.

    c.   Click on the **Set Media & Close** button to save the new media path and to return to the **Install Product** dialog. The dialog now contains a list of products that are available for installation.

3.   Select the **Tivoli GEM CICSPlex SM Instrumentation** 2.2 product component from the **Select Product to Install** list. You can install only one component from this list at a time.

If the CICSPlex SM Instrumentation product component is not listed in the **Select Product to Install** list, refer to the installation section in the *Tivoli Global Enterprise Manager Installation and User's Guide* for instructions on how to proceed.

4.   To specify the clients on which the service is to be installed, use the arrow keys to move machine names between the **Clients to Install On** and the **Available Clients** lists.

By default, all machines in the current TMR are listed in the **Clients to Install On** list. If you do not want the CICSPlex SM Instrumentation product component installed on the machines in

the **Clients to Install On** list, move the machine names from that list to the **Available Clients** list.

The CICSPlex SM Instrumentation product component will be installed on all machines in the **Clients to Install On** list.

5. Click the **Install & Close** button to install the CICSPlex SM Instrumentation product component and close the **Install Product** dialog. To install the CICSPlex SM Instrumentation product component and keep the **Install Product** dialog open, click the **Install** button instead. You can then install the selected Tivoli GEM product component on another set of clients or you can install another Tivoli GEM product component.

The installation process displays a **Product Install** dialog. This dialog lists the operations that take place while the software is being installed and also informs you of problems that you might want to correct before you install the CICSPlex SM Instrumentation product component.

6. To begin installing the feature, click the **Continue Install** button. Otherwise, click the **Cancel** button to stop installation. When installation is complete, the **Product Install** dialog displays a completion message.

7. Click on the **Close** button when the **Product Install** status dialog indicates that installation is complete.

Stop and restart the topology server to incorporate the changes.

To install from a command line, refer to the *Tivoli Global Enterprise Manager Installation and User's Guide*.

Customizing Distributed Components

No customization of the distributed components is actually required at this point. However, if you have your own start and stop tasks, you can add them to customize your distributed components.

Adding Start and Stop Tasks

If you have start or stop tasks or both to add to the instrumentation for your enterprise, you need to define these for your CICS regions in the instrumentation description files on the workstation. You can customize statements in these files, which are shipped with the product, by inserting the name of your user-defined start and stop tasks. For example, if you have start and stop CLISTs for either the CICS feature of the System Automation for OS/390 or Automated Operations Control (AOC), you can specify and include these.

Follow these steps to add start and stop tasks.

1. Create or add a NetView for OS/390 REXX CLIST on the host that includes the start and stop functions for the specified CICS region. This CLIST can receive one parameter: a component ID for the specified CICS region. For details on the format of the component ID, refer to the *TME 10 NetView for OS/390 Customization Guide*.

    You can use the component ID to issue a Tivoli GEM instrumentation call to retrieve the name of the component (a CICS region name). For more information, refer to the *TME 10 NetView for OS/390 Customization Guide* for APMQRYCN(ComponentId), which is a NetView for OS/390 instrumentation API call. The CICS region name is returned in the `SO=` suborigin in the following format:

    `0=MAS_NAME=cicsregionname`

2. Edit the **CICS1_0_0Tivoli.cdf** and **CICS1_0Tivoli.bmdf** members on the workstation, which are located in one of the following subdirectories:

    UNIX: $BINDIR/TDS/server/db/current

    Intel: %BINDIR%\TDS\server\db\current

    Follow these steps to edit **CICS1_0_0Tivoli.cdf**.

    a. In the following lines in the member, replace `YOUR_START_CLIST` with the name of your NetView for OS/390 CLIST for starting a CICS region. If you want,

you can also replace `YOUR_HELP_FILE_FOR_START` with a help file in Hypertext Markup Language (HTML) format.

```
// Uncomment the task(s)you want to implement
// Replace with CLIST name and help file name
// START/STOP TASK
// { "Start CICS Region","start a CICS Region",
//   "YOUR_START_CLIST",0,"",
// "YOUR_HELP_FILE_FOR_START.HTML",0,1,"",4}
// { "Stop CICS Region","stop a CICS Region",
//   "YOUR_STOP_CLIST",0,"",
// "YOUR_HELP_FILE_FOR_STOP.HTML",0,1,"",4}
```

b.   Do the same for the stop task.

c.   In the same member, uncomment either one or both of the following lines based on what you want to enable. The component ID is passed to your CLIST when it is started.

```
// Uncomment for task you want to implement
// START/STOP TASK
// { "Start CICS Region",1,"","","%HB_DATA3%",
//   "Tivoli,GEM/APM,1.0" }
// { "Stop CICS Region",1,"","","%HB_DATA3%",
//   "Tivoli,GEM/APM,1.0" }
```

Edit **CICS1_0Tivoli.bmdf** by uncommenting either one or both of the following lines based on what you want to enable. These lines define the generic component tasks for the specified CICS region.

```
// Uncomment either or both of these tasks
// if you wish to implement them
// STOP/START TASKS
// { "Start CICS Region" }
// { "Stop CICS Region" }
```

You can now run your NetView for OS/390 CLIST by selecting the start task from the task list on the pop-up menu for a CICS component.

Installing OS/390 Components

Install CICSPlex SM Instrumentation using the directions in the *Tivoli Global Enterprise Manager CICSPlex SM Instrumentation Program Directory*, which is located in the **\DOCS\CICS** subdirectory on the Tivoli GEM CD-ROM. Return to this book after installation for additional configuration steps.

The OS/390 component of this product is also included on the CICS Transaction Server for OS/390 V1.3 product tape. For details on how to install from that product, refer to the *CICS Transaction Server for OS/390 Program Directory* rather than the *Tivoli Global Enterprise Manager CICSPlex SM Instrumentation Program Directory*.

Configuring OS/390 Components

After SMP/E installation completes, the target libraries will contain two data sets that have the following low-level identifiers:

- SIHSSMPC, which contains SMP/E job control language (JCL) samples, the IHSCAMI Tivoli GEM configuration file,the NetView for OS/390 message automation table, and a command model file

- SIHSCLSC, which contains NetView for OS/390 REXXCLISTs and message files

Adding CICSPlex SM Instrumentation Information to NetView for OS/390

Follow these steps to add or customize the NetView for OS/390 samples to your application.

1. Customize the DSIAMII member (or DSIAPMI, if you have NetView for OS/390 V1R1), which contains all statements needed for Tivoli GEM OS/390 instrumentation.

   The IHSCAMI member contains statements for CICSPlex SM Instrumentation. Append this member at the end of the DSIAMII (or NetView for OS/390 V1.1 DISAPMI) member. Then see "Customizing DSIAMII" on page 3-9.

2. Add or customize the CICSPlex SM Instrumentation message automation tables. The IHSCTB01 member contains the procedure statements needed for the message automation table, which include CICSPlex SM messages, and CICSPlex SM alerts.

   If you have a message automation table currently in use in NetView for OS/390, add the following statement to add that message automation table:

   ```
   %INCLUDE IHSCTB01
   ```

   If you are using NetView for OS/390 Version 1 Release 2 (V1R2), the default in the DSIAMIAT automation table member has an include statement for DSIAMIN. This routes messages directly to the topology server, bypassing the TEC. If you want to route to the TEC, you must uncomment the include statement for DSIAMIT.

   If you do not currently use a message automation table, refer to the *TME 10 NetView for OS/390 Automation Guide* for information about installing message automation tables.

3. Include the IHSCCMD member in DSICMD. This member defines necessary parameters for CICSPlex SM Instrumentation CLISTs. In the NetView for OS/390 DSICMD member, add the following statement:

   ```
   %INCLUDE IHSCCMD
   ```

   Concatenate SIHSSMPC to the data definition (DD) statement for DSIPARM in the NetView for OS/390 start procedure.

4. The SIHSCLSC data set contains NetView for OS/390 CLISTs and message files, all of which are new members for CICSPlex SM Instrumentation. To include the CICSPlex SM Instrumentation message files DSIIHS00 and DSIIHS01, copy the files from SIHSCLSC to the data set in the DD statement for DSIMSG in the NetView for OS/390 start procedure.

5. To add the NetView for OS/390 CLISTs, concatenate SIHSCLSC to the data set in the DD statement for DSICLD in your NetView for OS/390 start procedure statement.

Customizing DSIAMII

The DSIAMII member is processed when you run the INITAMI command in NetView for OS/390 and starts all installed Tivoli GEM instrumentation. Refer to the *TME 10 NetView for OS/390 Customization Guide* to learn more about using INITAMI.

DSIAMII contains the following, which are explained in the following sections:

- Default thresholds for CICSPlex SM Instrumentation monitors
- Initialization routines for CICSPlex SM Instrumentation
- Termination routines

You must customize these statements in your existing DSIAMII member.

Setting Default Thresholds

The following provides member information for setting the default thresholds for CICS component monitors.

```
* Set default monitor thresholds for CICS Component
BEGIN_THRESHOLD
  SS=sub_source
  <CL=connection_class>
  <DIR=connection_direction>
  MONITOR=('name' triplets MVR=monitor_value_routine interval)
  MONITOR=('name' triplets MVR=monitor_value_routine interval)
END_THRESHOLD
```

Keywords are defined as follows.

SS The subsource triplet that identifies the component type for which the default monitors are being defined.

CL The connection class that identifies the connection type for which the default monitors are being defined. This item is optional.

DIR

The connection direction that further qualifies the connection type for which the default monitors are being defined. If not specified, any direction matches. This item is optional. Here are the valid values:

1   Origin
2   Destination
3   Conversational

MONITOR

The default monitors that you want to define. This keyword requires the following parameters, which are separated by blanks.

'name'   The name of the monitor.

triplets   The triplets that specify the following conditions under which threshold events are to be issued:

- Threshold value
- Operator
- Severity values

For a complete description of triplets, refer to the description of the OS/390 API call, APMSETTHm in the *Tivoli Global Enterprise Manager Instrumentation Guide*.

MVR_monitor_value_routine

The name of the routine to call to retrieve the current value of the monitor.

interval   The initial polling interval for the default monitor that you are defining.

These definitions register the initial value of the monitors. You can choose to customize thresholds with values that are appropriate for your enterprise.

The following sample sets the default threshold for CICSPlex SM Instrumentation.

```
* Set default monitor thresholds for CICS Component
 BEGIN_THRESHOLD
   SS=Tivoli;CICS;1.0.0
  MONITOR=('RTA GENERIC'
    VHS,6,4,VLS,6,4,HS,6,3,LS,6,3,HW,6,2,LW,6,2,0,6,0)
  MONITOR=('SAMMXT'
    VHS,6,4,VLS,6,4,HS,6,3,LS,6,3,HW,6,2,LW,6,2,0,6,0)
  MONITOR=('SAMSDM'
    VHS,6,4,VLS,6,4,HS,6,3,LS,6,3,HW,6,2,LW,6,2,0,6,0)
  MONITOR=('SAMSOS'
    VHS,6,4,VLS,6,4,HS,6,3,LS,6,3,HW,6,2,LW,6,2,0,6,0)
  MONITOR=('SAMTDM'
    VHS,6,4,VLS,6,4,HS,6,3,LS,6,3,HW,6,2,LW,6,2,0,6,0)
  MONITOR=('SAMSTL'
    VHS,6,4,VLS,6,4,HS,6,3,LS,6,3,HW,6,2,LW,6,2,0,6,0)
 END_THRESHOLD
```

For a complete description of triplets, refer to the description of the
OS/390 API call, APMSETTHm in the *Tivoli Global Enterprise
Manager Instrumentation Guide*.

Threshold values defined for CICSPlex SM, such as VHS for *very
high severity*, equate to Tivoli GEM-defined severity levels, as shown
in the following table.

Tivoli GEM Severity		CICSPlex SM Equivalent
4	Critical	VHS, VLS
3	Severe	HS, LS
2	Warning	HW, LW

For information about CICSPlex SM monitor severity levels, refer to
*IBM CICSPlex System Manager for MVS/ESA Setup and
Administration, Release 2, Volume 2*. To learn how to set default
thresholds, refer to the *Tivoli Global Enterprise Manager
Instrumentation Guide* or the *TME 10 NetView for OS/390
Customization Guide*.

You can change the threshold for these monitors by altering them in
DSIAMII or by selecting the **Set Monitor Threshold Values** task

from the pop-up menu from the topology console window. This is true for all monitor threshold values.

The following sample sets the default threshold for the monitor on the connection between the CICS and RTA components.

```
* Set default monitor thresholds for
* RTA MONITORING Connection Monitor
 BEGIN_THRESHOLD
   SS=Tivoli;RTADEF;1.0.0
   CL=RTA MONITORING
   DIR=1
   MONITOR=('RTA STATE' ACTIVE,4,0,PENDING,4,1)
 END_THRESHOLD
```

These values are set as shown in the following table.

Tivoli GEM Value		CICSPlex SM Equivalent
0	Normal	ACTIVE
1	Informational	PENDING

Customizing Initialization Routines

Following are the initialization routines for CMAS monitoring and CICS monitoring. These routines must be started so CICSPlex SM Instrumentation can monitor CICS and CICSPlex SM resources.

```
* Initialization routines for CICS and CMAS monitoring
INIT=IHSCCMIN(cicsplexnme cmasnme
     signparm userid pulsevl cicsplexrls)
INIT=IHSCCIIN(cicsplexnme cmasnme
     signparm userid pulsevl cicsplexrls)
```

Here is an example of a completed initialization routine.

```
 * Initialization routines for CICS and CMAS monitoring
 INIT=IHSCCMIN(TIVOLI NTA7C01 SIGNPARM USER 60 0120)
 INIT=IHSCCIIN(TIVOLI NTA7C01 SIGNPARM USER 60 0120)
```

The IHSCCMIN routine starts CMAS monitoring, and the IHSCCIIN routine starts CICS monitoring.

As shown in the following table, the parameters should be customized for your enterprise by replacing the default values with the new values.

Parameter	Required or Optional	New Value
cicsplexnme	Required	Name of the CICSplex you want to monitor from the CPLEXDEF view.
cmasnme	Required	Name of the CMAS that is connected to the NetView for OS/390 where you have installed the CICSPlex SM Instrumentation feature.
signonparm	Optional	Security routine that your enterprise requires for CICSPlex SM API calls. Use of security is optional and so might not be in place at your enterprise. The initial default is SIGNPARM. Reset the value to the SIGNONPARM data to be passed on the CICSPlex SM API CONNECT call from the NetView for OS/390 address space. This parameter is ignored if a security environment is in place for the NetView for OS/390 address space or if no security is activated in the NetView for OS/390 CMAS. Refer to *IBM CICSPlex System Manager for MVS/ESA Setup and Administration, Release 2, Volume 1*.
userid	Optional	Name of the user ID for use by API calls if your enterprise uses security.
pulsevl	Required	The pulse value on IHSCCMIN regulates the heartbeat on the CMAS component. The pulse value on IHSCCIIN regulates the heartbeat on the CICS and CMAS components. This value is in minutes. You can raise or lower it depending on the amount of traffic in your environment and the number of nodes you monitor. The suggested default is 60.

Parameter	Required or Optional	New Value
cicsplexrls	Required	This should match the CICSPlex SM release that is running on your NetView-attached CMAS. For example, 0120 refers to CICSPlex SM V1R2 and 0130 refers to V1.3. Specifying the release is optional. The default is 120.

If you are using CICS Transaction Server for OS/390 V1.3, specify 0130 for this parameter. |

Termination Routines

These routines are run when the TERMAMI command is issued from NetView for OS/390. *This command stops all installed Tivoli GEM OS/390 instances and deregisters all applicable components.* They clean up global variables and other storage on NetView for OS/390 that CICSPlex SM Instrumentation uses.

```
* Terminate CMAS Monitoring Components
 TERM=IHSCCMTR()
 * Terminate CICS Monitoring Components
 TERM=IHSCCITR()
```

Completing Installation and Configuration

After initial installation on an OS/390 system, complete the following steps. To find out how to enable the DSIRXFLP API, refer to *IBM CICSPlex System Manager for MVS/ESA Setup and Administration, Release 2, Volume 1*. For real-time analysis (RTA) samples, refer to *IBM CICSPlex System Manager for MVS/ESA Setup and Administration, Release 2, Volume 2*.

CICSPlex SM Instrumentation uses the CICSPlex SM application programming interface (API) REXX function package within the NetView for OS/390 address space. The REXX runtime interface to the API is shipped as a function package and host command environment. This interface consists of a single load module that contains the following entry points:

EYU9AR00   The function package, which is shipped in the SYS1.CPSM*nnn*.SEYUAUTH library with an alias of IRXFLOC, where *nnn* is your current release.

EYU9AR01   The host command.

For a REXX program to access the function package, the module EYU9AR00, along with its alternate entry point, EYU9AR01, and its alias, IRXFLOC, must reside in an authorized library in one of these places:

- The OS/390 linklist.

- The STEPLIB concatenation of the application that calls the API. For a REXX program to access the function package from NetView for OS/390, the EYU9AR00 module must also be aliased to DSIRXLFP and placed in an authorized library in either the OS/390 linklist or the STEPLIB concatenation for the NetView for OS/390 system.

As the REXX runtime interface is itself a CICSPlex SM API application, it must also have appropriate access to the EYU9AB00 module.

The following members contain SMP/E user modification control statements that you can use to move the necessary API load modules to the SYS1.CPSM*nnn*.SEYULINK library, where *nnn* is your current release. These members are supplied in CPSM*nnn*.SEYUINST.

Member	Load Module
EYU$UM11	EYU9AR00
EYU$UM12	EYU9AB00
EYU$UM13	EYU9XESV

If you use the IRXFLOC or DSIRXLFP aliases to provide access to the REXX function package to avoid conflicts with other NetView for OS/390 function packages installed for your enterprise, you must place them ahead of any other IRXFLOC or DSIRXLFP modules in the STEPLIB (or OS/390 linklist) concatenation. See Appendix E, "Creating REXX Function Package Aliases" on page E-1 for details.

If you do not want to use the aliases for the REXX function package, you must modify your REXX parameter modules (IRXPARMS, IRXTSPRM, and IRXISPRM). If you do this, it is recommended that you add the function package shipped with CICSPlex SM as a system function package rather than a local or user function package.

You should also add a new host command entry, such as the following:

- An 8-byte command environment name of CICSPlex SM
- An 8-byte command routine name of EYU9AR01
- A 16-byte command token of blanks

As the last step to complete installation of the REXX function package you must increase the number of entries in the appropriate function package table and add an entry to that table for EYU9AR00.

Verifying CICSPlex SM Instrumentation

Follow these steps to start CICSPlex SM Instrumentation.

1. Verify that the Tivoli GEM topology server, Tivoli GEM topology console, and NetView for OS/390 event/automation services are active. If you plan to use the TEC server, verify that it is also active.

2. Verify that you have signed on to NetView for OS/390 and have started a NETCONV connection between the topology server and the host.

3. Run the NetView for OS/390 INITAMI command. This provides the initial heartbeat, and your resources should now show up on your topology console. Refer to the *TME 10 NetView for OS/390 Customization Guide* for details about the DSIAMII and INITAMI commands.
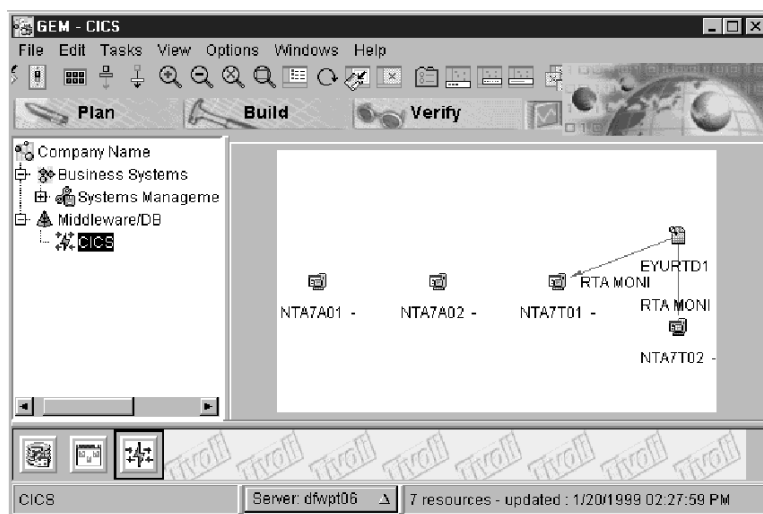
Confirming Resource Discovery

Discovery of CICSPlex SM Instrumentation resources is confirmed when CICS regions display on the topology console.

At least one CMAS icon should appear under CMAS monitoring. At least one of the CMAS icons should be a NetView for OS/390 CMAS icon so that threshold events can be sent to CICS monitoring. The CICS system should contain an icon for those MASs which are connected to an instrumented CMAS that have SAM, MRM, or both active for RTA.
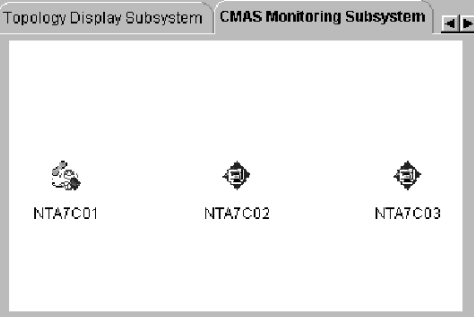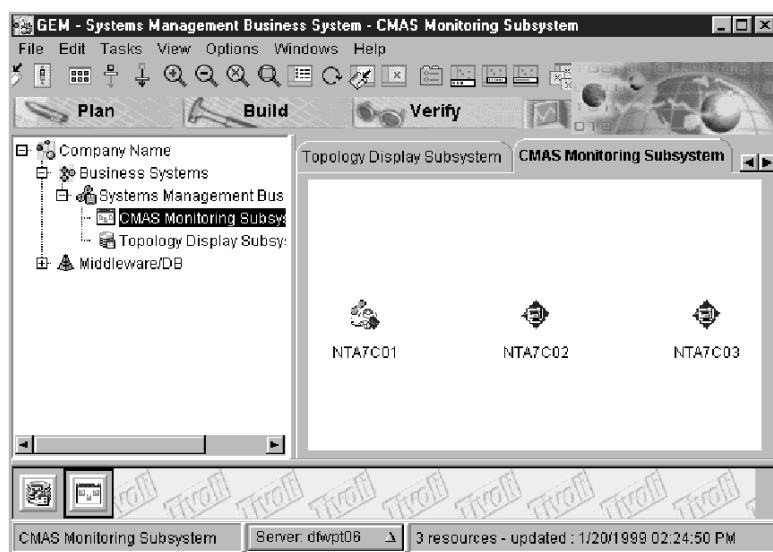
If you can see windows similar to the following, installation and configuration was successful. Otherwise, see Appendix A, "Troubleshooting" on page A-1.

The following shows the CICS monitoring view.

The following shows the CMAS monitoring view.

Confirming Resource Discovery

4

Using CICSPlex SM Instrumentation

After you have successfully installed CICSPlex SM Instrumentation, you can use tasks and monitors to manage your CICS regions. This chapter describes CICSPlex SM Instrumentation tasks and monitors, as well as how to start the tasks.

For information about the tasks that Tivoli GEM provides, refer to the *Tivoli Global Enterprise Manager Installation and User's Guide*.

CICSPlex SM Instrumentation Tasks

Tasks available for both CMAS systems and CICS regions include the following:

Task	Description
Query Pulse	Returns the polling interval associated with the heartbeat interval for the component.
Query State	Queries the current state of the component. This can be a CMAS, MAS, or RTA component.
Set Pulse	Modifies the polling interval associated with the heartbeat interval for the component.

The following table lists additional tasks for CICS regions.

Task	Description
Display last event	Displays the details of the last RTA component event affecting this CICS component.
Display locks	Displays the locks associated with the data space.
Display users	Displays the users associated with the data space.
Show ACB	Displays the current value of the CICS component's VTAM/ACB open and close status.
Show IRC	Displays the current value of the CICS component's InterRegion Communicaiton (IRC) logon status.

Starting a Sample Task

Before running tasks on CICSPlex SMDB2 resources, go to the CICSPlex SMDB2 topology view in the topology console. This view displays an icon for each discovered CICSPlex SMDB2 resource.

On CICS region and CMAS system windows provided by the topology console, you can select and right-click over any CICSPlex SM resource icon to display a pop-up menu of tasks and RTA.

Follow these steps to test whether you can successfully run tasks.

1. Select **Show Log** from the **Options** menu.

2. From the topology console, select an icon, right-click over it, and select the **CICS Query Pulse** task. You should see a window similar to the following.
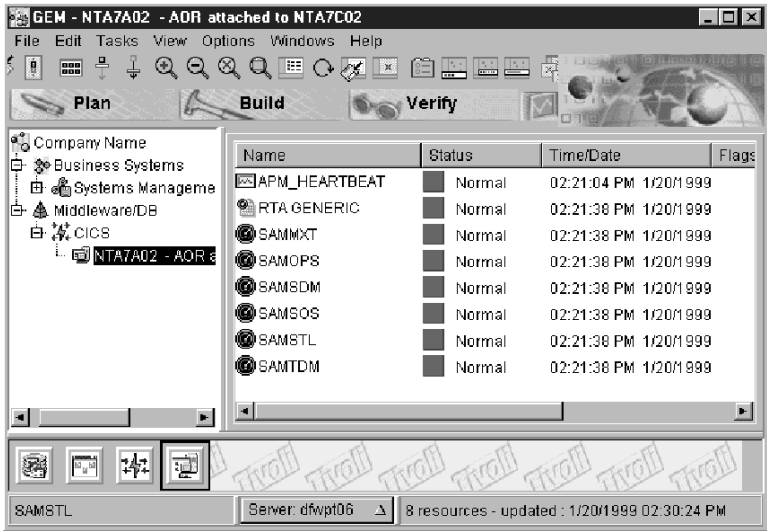
If the task does not run, a connection error displays on the tear-away workspace and NetView for OS/390 times out. If this happens, see Appendix A, "Troubleshooting" on page A-1.

CICSPlex SM Instrumentation Monitors

CICSPlex SM Instrumentation installs the following monitors for the CICS component.

Monitor	Description
RTA Generic Monitor	Indicates that one or more real-time analysis (RTA) component thresholds have affected this CICS component.
SAMMXT	Indicates whether the CICS component has currently reached the maximum number of tasks.
SAMSDM	Indicates whether the CICS component is currently processing a supervisor (SVC) dump.
SAMSOS	Indicates whether the CICS component is short on storage in one or more dynamic storage areas (DSAs).

Monitor	Description
SAMTDM	Indicates whether the CICS component is currently processing a transaction dump.
SAMSTL	Indicates whether the CICS component has detected one or more tasks in a stalled or suspended condition.
SAMOPS	Indicates whether the CICS component is available.

A

Appendix A. Troubleshooting

Problems encountered while using CICSPlex SM Instrumentation to manage a CICSPlex SM installation can have many different causes, such as machine or server availability or targeting miscues. Errors and malfunctions can also be caused by operating system environment, CICSPlex SM installation, or CICSPlex SM configuration problems.

The following system checklist provides a quick reference of topic areas and where to find additional information.

√	Verify that...	Documentation
	CICSPlex SMDB2 and any necessary authorization is operational.	*IBM CICSPlex System Manager for MVS/ESA User Interface Guide, Release 2DB2 for OS/390: Administration Guide.* See also "Additional Considerations" on page A-3.
	NetView for OS/390 is running and you have signed on.	*TME 10 NetView for OS/390 Customization Guide*
	You have started the NetView for OS/390 event/automation service (IHSAEVNT) on your OS/390 system.	

Reference

√	Verify that...	Documentation
	TEC server is up (if you are using it). Check the Tivoli desktop where the TEC is installed.	*Tivoli Global Enterprise Manager Installation and User's Guide*
	The topology server is up. Check your (topology) communications server and your topology server.	
	The topology console is up.	
	You have signed on to the topology console with an authorized user ID and password that is valid on NetView for OS/390.	*TME 10 NetView for OS/390 Customization Guide*
	TCP/IP has been started and you can ping the following: ■ From the workstation where the TEC server is located to your OS/390 system. ■ From the topology server to your OS/390 system. ■ From the topology server to the TEC server, if it is on a different workstation. ■ From the TEC server, if it is on a different workstation, to the topology server. You should also verify that a user ID has been defined to the workstation and that the workstation is connected to the TSADMIN or TSUSER group.	*IBM TCP/IP User's Guide*
	A TCP/IP connection exists between the TEC server and your OS/390 system.	
	A TCP/IP connection exists between the topology server and the TEC server. Or, if you are not using the TEC server, a TCP/IP connection exists between the TEC server and your OS/390 system.	
	A NETCONV connection exists between NetView for OS/390 and the topology server. Use the following command: **NETCONV ACTION=LIST** **OPID=***operator ID* A message returns that confirms the connection.	*TME 10 NetView for OS/390 Customization Guide*
	The INITAMI command has been issued from NetView for OS/390.	Check the NetView for OS/390 log.

√	Verify that...	Documentation
	Event flow exists among the topology server, NetView for OS/390, and NETCONV (TCP/IP and LU6.2 session/connection).	"Verifying CICSPlex SM Instrumentation" on page 3-16 and "Starting a Sample Task" on page 4-2

Additional Considerations

The following are additional considerations for troubleshooting potential problems:

- Failure of task commands (NETCONV problem)
- Icon or event flow
- Missing connections
- RTA groupings

Resolving Task Command Failures

If commands from the **Task** menu fail to respond or execute properly, do the following:

- Verify that a NETCONV connection exists between NetView for OS/390 and the topology server.

- Check the NetView for OS/390 log for errors.

- Verify that all CNMTAMEL, DSITCPIP, and DSICRTR tasks are active on NetView for OS/390.

For more detailed information, refer to the *TME 10 NetView for OS/390 Customization Guide*.

If the problem persists, contact Tivoli technical support.

Resolving Problems with Connections, Icons, or Event Flow

The following problems can be caused by problems among the topology server, NetView for OS/390, and NETCONV (TCP/IP and LU6.2 session or connection):

- Event flow problems

- Missing connections or icons for your active components

- Icons in the console that do not reflect proper status or threshold

- Icons that appear in the console as unknown, even though the NetView for OS/390 log indicates `BNH351I Successful heartbeat event`

These problems could be caused by a communications problem. Perform the following checks to validate that communications are working properly.

- In the CMAS monitoring view, verify that the NetView for OS/390 CMAS is active.

- Each CMAS that displays on the console as unknown cannot provide heartbeat or threshold information for the MAS, RTA, or connection components.

- Verify in the NetView for OS/390 CMAS EYULOG that the last NetView for OS/390 connection message is `EYUCS0006I CMASJ80 NetView endpoint connection cmasname assigned to link set.`

- Examine NetView for OS/390 logs for any CICSPlex SM-related API responses or reasons.

- Examine NetView for OS/390 logs during the time period when the problem occurred to check the following:

  - The BNH351I heartbeat occurred for the affected component.

  - CNM493I has been issued to TECROUTE the event to the EIF message adapter.

  - BNH352I threshold occurred for the affected component.

  - CNM493I has been issued to TECROUTE the event to the EIF message adapter.

- Examine the EIF address space logs for possible errors, such as the following:

- IHS0309E
- IHS0311I
- IHS0312W
- IHS0313W
- IHS0314W
- IHS0315E
- IHS0317I

These messages indicate a communication problem between the EIF and the TEC. They indicate that there is no communication at all or that the user filtered out or had to discard events.

For more details about these types of problems, see "Verifying CICSPlex SM Instrumentation" on page 3-16 and "Starting a Sample Task" on page 4-2.

Defining RTA Groupings

Check the following if you defined an RTADEF or a STATDEF but it is missing from the transaction business subsystem view or if one of the SAM monitors does not appear to be receiving events:

- Verify that each MAS to be discovered by CICSPlex SM Instrumentation has **SAM**, **MRM**, or **YES** specified in the CICSSYS view for RTA.

- Verify that the CMAS view for the CMAS that will be reporting SNA generic alerts to NetView for OS/390 specifies **NetView PPI=YES**.

- For those MASs participating in RTA, verify that any that have requested SAM have ACTNDEF views created for each SAM monitor to be sent to NetView for OS/390. By default SAM actions are not sent to NetView for OS/390. You can specify the ACTNDEF overrides in the RTASPEC associated with the MASs where it can be inherited, or you can specify it in the individual CICSSYS view if different MASs are to report with different SAM actions or severities.

- For those MASs participating in RTA that use the MRM function, verify that those MRM RTADEFs or STATDEFs to be

Reference

reported in CICSPlex SM Instrumentation for Tivoli GEM have ACTNDEFs specifying the **NetView CMAS** and **ALERT=YES**.

- Each CMAS that displays on the console as unknown cannot provide heartbeat or threshold information for the MAS, RTA, or connection components.

- Verify that SNA generic alerts for CICSPlex SM are not being blocked in NetView for OS/390 network problem determination aid (NPDA) by means of any site-defined set recording filters (SRFs).

- Verify that the correct version of the NetView for OS/390 message automation table is being used that includes the Tivoli GEM and CICSPlex SM message traps.

For more information about RTA groupings, see "Completing Installation and Configuration" on page 3-14.

B

Appendix B. Product Files

The following files are installed with the product:

- Help files
- Icon files
- Pop-up files
- Business description files

Description Files

The following is a breakdown of all description files that are installed with the product. For additional information, refer to the *Tivoli Global Enterprise Manager Instrumentation Guide*.

Bus_Appl_compone1_0_0Tiv.bscdf
  Description of the business application generic component

cics.bsdf
  Description of the transaction business system

CICS1_0_0Tivoli.cdf
  Description of the CICS-specific component

CICS_Tivoli.bmdf
  Mapping file for the CICS-specific component

CMASMonitorTiv.bssdf
  CMAS monitoring view file

CMAS1_0_0Tivoli.cdf
  CMAS-specific component file

Reference

CMAS_Tivoli.bmdf
  Mapping file for the CMAS-specific component

GenCMAS_compone1_0_0Tiv.bscdf
  CMAS generic component file

NVCMAS_Tivoli.bmdf
  Mapping file for the NVCMAS-specific component

NVCMAS1_0_0Tivoli.cdf
  NVCMAS-specific component file
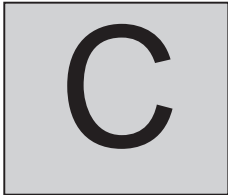
RTADEF_Tivoli.bmdf
  Mapping file for the RTA-specific component

RTADEF1_0_0Tivoli.cdf
  RTA-specific component file

Trans_Env_compone1_0_0Tiv.bcdf
  Transaction environment generic component

C

Appendix C. Handling Error Messages

This section explains what you need to know about error messages that you might receive while working with CICSPlex SM Instrumentation.

Format

Messages are in the following format:

`IHSnnnA`

IHS   Prefix for all CICSPlex SM Instrumentation messages

nnn   Message number

A   Type of error

      E   General error
      I   Informational

Reference

Messages

The following table provides detailed information about specific error messages. Only the message number and type are shown in this table.

Message Number and Type	Message Text	Explanation	User Response
001I	Heartbeat interval for CMAS components is set to &1 minutes.	The heartbeat for the CMAS components is currently set at the specified time interval, as returned by the Query Pulse task.	None.
002E	CMAS monitoring not started. Start parameter not valid.	CICSPlex SM Instrumentation could not start CMAS monitoring because one or more parameters in the IHSCCMIN call in DSIAMII were missing or not valid.	Specify the correct parameters in DSIAMII (see "Customizing DSIAMII" on page 3-9). Then try again.
003E	CICS monitoring not started. Start parameter not valid.	CICSPlex SM Instrumentation could not start CICS monitoring because one or more parameters in the IHSCCIIN call in DSIAMII were missing or not valid.	Specify the correct parameters in DSIAMII (see "Customizing DSIAMII" on page 3-9). Then try again.
004E	CICSPlex SM Instrumentation release not valid.	The start parameter in the IHSCCIIN call in DSIAMII for the product release was missing or not valid.	Specify the correct parameters in DSIAMII (see "Customizing DSIAMII" on page 3-9). Then try again.

Message Number and Type	Message Text	Explanation	User Response
005E	Event identifier not found.	The Display Last Event task ran, but no events exist for component.	None.
007E	CPSMAPI failed &1, response &2, reason &3, result &4.	CICSPlex SM Instrumentation could not establish a connection due a CICSPlex SM API problem.	Refer to the *IBM CICSPlex System Manager for MVS/ESA User Interface Guide, Release 2*.
008E	&1 failed for &2 &3, return &3.	The specified NetView for OS/390 Instrumentation Facility API call failed for the specified component.	Refer to the *TME 10 NetView for OS/390 Customization Guide* for details about return codes for the specified API.
009I	&1 IRC state is &2.	The IRC state for the specified component is currently set at the specified value, as returned by the Query IRC State task.	None.
010I	IRC state is &1.	The IRC state is currently set at the specified value, as returned by the Query IRC State task.	None.
011I	&1 VTAM state is &2.	The VTAM state for the specified components is currently set at the specified value, as returned by the Query VTAM State task.	None.

Reference

Message Number and Type	Message Text	Explanation	User Response
012I	VTAM state is &1.	The VTAM state is currently set at the specified value, as returned by the Query VTAM State task.	None.
013I	Input parameter &1 not valid.	CICSPlex SM Instrumentation ran an internal task using a parameter that was not valid.	Contact Tivoli Support Services.
014I	Heartbeat interval for CICS components is set to &1 minutes.	The heartbeat for the CICS components is currently set at the specified time interval, as returned by the Query Pulse task.	None.

D

Appendix D. Understanding CICSPlex SM Concepts

You should read this section if you are not already familiar with CICSPlex SM basic concepts. For additional information about CICSPlex SM resources, refer to *IBM CICSPlex System Manager for MVS/ESA Concepts and Planning, Release 2*.

Each CICS system to be managed by CICSPlex SM is called a managed application system (MAS). MASs are defined and managed as part of a CICSplex. Each MAS in a CICSplex is managed by a CICSPlex SM address space (CMAS), which is a CICS/ESA 3.3 (or later) system running on an Multiple Virtual Storage (MVS) Version 4.3 image. MASs in a CICSplex can be managed by several CMASs, but only one is defined as the maintenance point CMAS responsible for keeping the data used by each CMAS synchronized. A MAS can be either local or remote, depending on its communication link with its CMAS. Typically, but not necessarily, a remote MAS runs on a different OS/390 image to its CMAS or on a VSE or OS/2 machine.

CMASs communicate across CMAS-to-CMAS links, which are typically used for routing management commands and data between CMASs. A coordinating address space (CAS) is used to set up the CICSPlex SM component topology and to support the OS/390 and TSO ISPF end-user interface (EUI) to CICSPlex SM.

Reference

CICSplex Concepts

For the purposes of CICSPlex SM, a CICSplex is any grouping of CICS systems that you want to manage and manipulate as if they were a single entity–namely, a management domain comprised of those CICS systems for which you want to establish a single system image (SSI). A CICSplex managed by CICSPlex SM could include every CICS system in your enterprise. Or you could define multiple CICSplexes, each of which would include a logical grouping of CICS systems

For example, a CICSplex could comprise all CICS systems on a particular OS/390 image, all CICS systems accessible by a subset of your users, or all CICS systems serving a particular geographical area. Furthermore, the composition of a CICSplex can be altered without affecting the functions of the underlying CICS systems. The CICS systems in a single CICSplex managed by CICSPlex SM do not have to be explicitly connected to each other for management purposes.

CICSplex Managed by CICSPlex SM Concepts

Here are the most important things to keep in mind about a CICSplex that CICSPlex SM manages.

- The CICSplex is the largest unit you can work with: You cannot group CICSplexes and manipulate such a group as a single entity.

- You cannot copy CICSPlex SM data from one CICSplex to another. For system management purposes, the CICSplex is sealed against other CICSplexes.

- CICSplexes are mutually exclusive, so no CICS system can belong to more than one CICSplex.

CICS System Group Concepts

CICSPlex SM lets you define subsets of a CICSplex, known as CICS system groups. CICS system groups are not mutually exclusive and can reference the same CICSPlex SM definitions. So, if you decide to include every CICS system in your enterprise in a single CICSplex, there are mechanisms for managing groups of CICS systems within the CICSplex as if each group were a single system.

You can assign an unlimited number of CICS systems and CICS system groups to an existing CICSplex.

Although you can define a CICS system to only one CICSplex, you can assign a CICS system to multiple CICS system groups within the CICSplex. You can also assign the CICS system group to any number of other CICS system groups.

CMAS Concepts

The CMAS is the hub of any CICSPlex SM configuration, because it is responsible for most of the work involved in managing and reporting on CICS systems and their resources. Every CICSplex is managed by at least one CMAS. The CMAS is responsible for the single system image (SSI) that enables the operator to manage a CICSplex if it were a single CICS system, regardless of the number of CICS systems defined as belonging to the CICSplex and regardless of their physical location.

The CMAS implements the workload manager (WLM), real-time analysis (RTA), and monitoring functions of CICSPlex SM, and maintains configuration information about the CICSplexes it is managing. It also holds information about its own links with other CMASs.

A CMAS is a fully functional, CICS/ESA 3.3 (or later) system. Most CMAS components run as CICS/ESA tasks, and CMAS connections to other components are implemented using CICS intercommunication methods. However, the CMAS does not support user applications or terminals, and its resources should not be considered available for non-CMAS tasks.

Reference

A CMAS is not part of any CICSplex: A single CMAS can participate in the management of multiple CICSplexes but belongs to none of them.

CICSplex Managed by CMAS Concepts

The following are true if a CICSplex is managed by multiple CMASs:

- The CMASs are connected to each other by CMAS-to-CMAS links defined to CICSPlex SM. These links ensure that each CMAS can access data held by other CMASs and a single-system image (SSI) can be presented to the operators.

- One of the CMASs is designated the maintenance point CMAS. That CMAS is responsible for maintaining all the CICSPlex SM definitions relating to a CICSplex and keeping all the data repositories in synchronization.

CICSPlex SM Alerts and Messages Issued to NetView for OS/390

CICSPlex SM can issue SNA generic alerts to NetView for OS/390 or populate the NetView for OS/390 Resource Object Data Manager (RODM) data cache with status information for CICS resources, provided that a CMAS is installed on the same OS/390 image as the NetView for OS/390 instance with which CICSPlex SM is working.

The RTA function of CICSPlex SM provides automatic, external notification of conditions in which you have expressed an interest. The notification can take the form of a console message, a generic alert to NetView for OS/390, or both. RTA does not pertain solely to commonly recognized error conditions: You can ask to be notified about any aspect of a resource's status.

For example, if you tell CICSPlex SM that all files used by CICS systems AORPAY1 must be in ENABLED status, CICSPlex SM sends out warning messages when the status of any of those files is other than ENABLED.

However, CICSPlex SM is not restricted to telling you about a problem only after it has occurred. CICSPlex SM can detect and warn of potential problems with CICS resources, no matter how slight the change to one or more resources.

For example, CICSPlex SM can tell you that resource contention is growing, the dynamic storage area (DSA) free space is falling, or the number of users of a particular transaction is high. These can all be indicators of future problems that you could avoid by taking preventive action.

Managing Business Applications

A CICSplex can consist of hundreds or even thousands of CICSs. It is quite common that a subset or grouping of CICSs manage a particular business application. If the CICSPlex SM RTA facilities have been enabled for any or all CICSs in the CICSplex, the instrumentation that CICSPlex SM provides will discover those CICS resources and populate them within Tivoli GEM.

Monitoring CICS Systems and Resources

The real-time analysis (RTA) component of CICSPlex SM performs the types of monitoring and analysis shown in the following table.

Monitor	You can be notified when...
System availability monitoring (SAM)	A CICS system is not active during its expected hours of operation. While a CICS system is active, you can also be notified if any of a variety of predefined conditions occur that could affect system performance.
MAS resource monitoring (MRM)	CICS resources being monitored at the CICS system level meet the criteria that you establish. You can also be notified when the status of a user-defined program meets your criteria.
Analysis point monitoring (APM)	CICS resources being monitored at the CICSplex level meet your criteria.

Reference

Monitor	You can be notified when...
Note: CICSPlex SM Instrumentation does not use the APM monitors within CICSPlex SM RTA.	

Analyzing CICS Systems and Resources

Before CICSPlex SM can analyze information about CICS systems and the CICS resources being used by those systems, you must create analysis specifications, groups, and definitions.

■ An analysis specification associates groups of analysis definitions with a CICS system or CICS system group. Analysis specifications are used for MAS resource monitoring. They can also be used to alter the default system availability monitoring values.

■ An analysis 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.

System Availability Monitoring

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

■ One or more CICS/ESA dynamic storage areas become short on storage (SOS).

- A CICS/ESA system dump (SYSDUMP) occurs. For CICS/ESA 3.3 or later, this condition indicates that an OS/390 supervisor (SVC) dump has been requested.

- A CICS/ESA transaction dump (TRANDUMP) occurs.

- The CICS system has reached the maximum number of tasks (MAXTASK) it is allowed at any one time.

- One or more resources have impacted the processing of a CICS/ESA application (STALL).

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

Resolution of a STALL condition can 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 start a STALL condition.

MAS Resource Monitoring

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

Resources

You can use CICSPlex SM to sample and evaluate specific resource occurrences against criteria that you define. You can also control the action taken when the criteria is met. When analyzing a resource occurrence, CICSPlex SM resource monitoring does not have to be active. CICSPlex SM internally generates any needed monitor definitions based on the sample interval specified in the associated evaluation definitions.

One or more user-defined programs

You can also use MAS resource monitoring to identify one or more programs in use within your enterprise that are to be

Reference

called on a regular basis to evaluate specific conditions. These programs must be written to respond to a CICSPlex SM status reporting call, where the programs return a value indicating their current status.

To use MRM, you must establish analysis definitions, analysis groups, and analysis specifications.

E

Appendix E. Creating REXX Function Package Aliases

Use the following sample as a guideline if you choose to create
IRXFLOC and DSIRXLFP REXX function package aliases. The data
set used in the SYSLMOD data definition (DD) statement must be
authorized for authorized program facility (APF) and concatenated to
the STEPLIB DD statement in the procedure used in starting
NetView for OS/390. It is recommended that this data set be the first
in the concatenation stream.

Reference

```
//LKED     JOB MSGLEVEL=(1,1),REGION=4M
//***********************************************************
//*     LINKEDIT OF EYU9AR00 TO ADD ALIAS OF DSIRXLFP      *
//***********************************************************
//         EXEC PGM=IEWL,REGION=4096K,
//         PARM='RENT,REUS,NCAL,LIST,MAP,LET,
//          AMODE=31,RMODE=ANY
//SYSLIB   DD DISP=SHR,DSN=CPSM130.SEYUAUTH
//SYSLMOD  DD DISP=SHR,DSN=CPSM.USERLINK
//SYSUT1   DD UNIT=SYSDA,SPACE=(TRK,(30,30))
//SYSPRINT DD SYSOUT=*
//SYSLIN   DD *
         INCLUDE SYSLIB(EYU9AR00)
         ORDER   EYU9AR00
         ENTRY   EYU9AR00
         MODE    AMODE(31)
         MODE    RMODE(ANY)
         ALIAS   EYU9AR01
         ALIAS   IRXFLOC
         ALIAS   DSIRXLFP
         SETCODE AC(1)
         NAME EYU9AR00(R)
```

Glossary

A

action definition.   In real-time analysis, a definition of the type of external notification that is to be issued when the conditions identified in an analysis definition are true.

adjacent CMAS.   A CICSPlex SM address space (CMAS) that is connected to the local CMAS by means of a direct CMAS-to-CMAS link. Contrast with *indirect CMAS*. See *local CMAS*.

analysis definition.   In real-time analysis, a definition of the evaluations to be performed of specified CICS resources, the intervals at which those evaluations are to be performed, and the actions to be taken when a notifiable condition occurs.

analysis group.   In real-time analysis, a group of one or more analysis definitions, status definitions, or both. Analysis definitions and status definitions must belong to an analysis group if they are to be installed automatically in a CICS system when that system starts.

analysis point monitoring (APM).   In real-time analysis, resource monitoring across multiple CICS systems within a CICSplex that results in a single notification of a condition, rather than one notification for each system. Contrast with MAS resource monitoring.

analysis point specification.   In real-time analysis, a specification that identifies the CMASs that are to be responsible for analysis point monitoring.

analysis specification.   In real-time analysis, a specification that establishes system availability monitoring or MAS resource monitoring within a group of CICS systems.

AOR.   See *application-owning region*.

application-owning region.   In a CICSplex configuration, a CICS region dedicated to running applications.

C

CICS.   See *Customer Information Control System*.

CICS monitoring view.   The graphical interface that displays and monitors the statuses of the CICS component and the real-time analysis (RTA) component that are defined for CICS resources. The CICS component provides monitors and tasks that monitor the databases, processes, and connections in the CICS region and its environment. The RTA component uses defined rules to monitor the statuses of CICS regions and resources.

CICS system.   (1) The entire collection of hardware and software required by CICS. (2) In CICSPlex SM topology, a definition of a CICS system that is to be managed by CICSPlex SM.

CICS system group.   (1) A set of CICS systems within a CICSplex that can be managed as a single entity. (2) In CICSPlex SM topology, a user-defined name, description, and content information for a CICS system group. A CICS system group can be made up of CICS systems or of other CICS system groups.

CICSplex.   (1) A CICS complex. A CICSplex consists of two or more regions that are linked using CICS intercommunication facilities. The links can be either intersystem communication (ISC) or interregion communication (IRC) links, but within a CICSplex are more usually IRC. Typically, a CICSplex has at least one terminal-owning region (TOR), more than one application-owning region (AOR), and may have one or more regions that own the resources that are accessed by the AORs. (2) In CICSPlex SM, a management domain. The largest set of CICS regions or CICS systems to be manipulated by CICSPlex SM as a single entity. CICS systems in a CICSplex being managed by CICSPlex SM do not need to be connected to each other.

CICSPlex SM address space (CMAS).   (1) The hub of a CICSPlex SM configuration that manages and reports on CICS systems and their resources in a single system image (SSI). (2) A CICSPlex SM component that is responsible for managing a CICSplex. A CMAS provides the single-system image for a CICSplex by serving as the interface to other CICSplexes and external programs. There must be at least one CMAS for each MVS image

on which you are running CICSPlex SM. A single CMAS can manage CICS systems within one or more CICSplexes. See *indirect CMAS*, *local CMAS*, and *remote CMAS*.

CICSPlex SM. IBM CICSPlex System Manager for MVS/ESA.

CMAS. See *CICSPlex SM address space*.

CMAS monitoring application. The agent by which the CICSPlex SM receives its information on CICS regions and resources.

CMAS monitoring view. The graphical interface that displays and monitors CICSPlex SM address spaces (CMASs).

CMAS system. Provides basic CICSPlex SM infrastructure services such as message, trace, and program call.

Customer Information Control System (CICS). An IBM licensed program that enables transactions entered at remote terminals to be processed concurrently by user-written application programs. It includes facilities for building, using, and maintaining databases.

E

Environment Services System Services (ESSS). A component of CICSPlex SM that implements the formal MVS/ESA functions required by the product. ESSS provides cross-memory services, data-space management, connection services, and lock management. An ESSS system address space is created at CMAS initialization.

ESSS. See *Environment Services System Services (ESSS)*.

F

file-owning region (FOR). In a CICSplex configuration, a CICS region devoted to managing CICS file access.

FOR. See *file-owning region (FOR)*.

G

generic alert. A Systems Network Architecture (SNA) Network Management Vector that enables a product to signal a problem to the network. CICSPlex SM uses generic alerts as part of its interface to NetView.

I

IBM CICSPlex System Manager for MVS/ESA (CICSPlex SM). An IBM CICS system-management product that provides a single-system image and a single point of control for one or more CICSplexes that can be installed on heterogeneous operating systems.

indirect CMAS. A CICSPlex SM address space (CMAS) that the local CMAS can communicate with via an adjacent CMAS. There is no direct CMAS-to-CMAS link between the local CMAS and an indirect CMAS. Contrast with adjacent CMAS. See *local CMAS*.

interregion communication (IRC). Synonym for *multiregion operation*.

IRC. Interregion communication. Synonym for *multiregion operation*.

L

local CMAS. The CICSPlex SM address space (CMAS) that a user identifies as the current context when performing CMAS configuration tasks.

local MAS. A managed application system (MAS) that resides in the same MVS image as the CICSPlex SM address space (CMAS) that controls it and that uses Environment Services System Services (ESSS) to communicate with the CMAS.

M

managed application system (MAS). A CICS system that is being managed by CICSPlex SM. See *local MAS*, *remote MAS*.

MAS. See *managed application system (MAS)*.

monitor definition. A user-defined statement of the specific resource occurrences to be monitored by CICSPlex SM. A monitor definition can

either be linked to a monitor specification as part of a monitor group or be installed directly into an active CICS system.

monitor group.   A user-defined set of CICSPlex SM monitor definitions that can either be linked to a monitor specification for automatic installation or be installed directly into an active CICS system.

monitor interval.   The number of minutes that are to elapse before the statistics counters containing accumulated resource monitoring data are automatically reset. This value is part of a CICSplex definition and affects all of the CICS systems and CICS system groups associated with that CICSplex.

monitor specification.   A user-defined statement of the types of resources to be monitored by CICSPlex SM and of how often data should be collected. A monitor specification is associated with a CICS system and is automatically installed each time the CICS system starts up.

MRO.   See *multiregion operation*.

multiregion operation (MRO).   Communication between CICS systems without the use of SNA network facilities. Synonymous with *interregion communication (IRC)*.

R

Real-Time Analysis (RTA).   (1) A component of CICSPlex SM that is responsible for monitoring the status of a CICS system or resource against its desired status, and issuing one or more external notifications when deviations occur. (2) Automatic notification of requested error conditions and any aspect of a resource's status. The notifications appear in console messages, or generic NetView for OS/390 alerts, or both.

region, CICSPlex SM.   A functionally-similar group of CICS resources. For example, a CICSPlex SM region can be an application-owning region, a terminal-owning region, or a file-owning region.

remote managed application system (RMAS).   A managed application system (MAS) connected to the CMAS by which it is managed by means of a CICS MRO or ISC links. A remote MAS is usually one that is running on a different MVS image from the CMAS that is managing it.

RTA.   See *Real-Time Analysis*.

S

single system image (SSI).   The view that enables an operator to manage a CICSplex as though it was a single system.

sysplex.   A set of MVS systems communicating and cooperating with each other through specific multisystem hardware components and software services to process customer workloads.

T

terminal-owning region (TOR).   In a CICSplex configuration, a CICS region devoted to managing the terminal network.

topology definition.   A named subset of CICS and CICSPlex SM resources. Topology definitions are user-created and can include CICS system groups, CICS system definitions, and time-period definitions.

TOR.   See *terminal-owning region (TOR)*.

W

WLM.   Workload manager.

Index

configuring *(continued)*
   OS/390 components *(continued)*
      stop tasks   3-14
confirming resource discovery   3-17
console, topology
   graphic user interface   1-2
creating aliases   E-1
customizing
   distributed components   3-4
   initialization routines   3-12

D

default thresholds, setting   3-9
defining RTA groupings   A-5
description files   B-1
discovery, confirming resource   3-17
distributed components
   customizing   3-5
      adding start and stop tasks   3-5
   installing   3-2
DSIAMII, customizing   3-9
DSIPARM   3-7

E

EIF alert adapter   1-4
enabling
   command communication   2-3
   event flow   2-3
error messages   1-5, 4-3, A-4, D-4
event flow
   enabling   2-3
   overview   1-4
   problems   A-3
event/automation service   1-5

F

files, description   B-1
flow problems, event   A-3

G

groupings, defining RTA   A-5

H

hardware, supported   2-2

I

INITAMI   3-9, 3-14, A-2
installation and configuration,
  completing   3-14
installing
   distributed components   3-2
   OS/390 components   3-7
Instrumentation, CICSPlex SM
   command flow   1-4
   event flow   1-4
   overview   1-1
   starting   3-16
   systems
      CICS monitoring   1-6
   using   4-1

L

LU 6.2   1-2, 1-4, 2-3, A-3

M

messages
   error   1-5, 4-3, A-4, C-1, D-4
   event/automation service   1-5
monitors   4-3

GC31-5156-01