CA NetMaster® Network Automation

Administration Guide

r12

CA Product References

This document references the following CA products:

- CA NetMaster® Network Automation (CA NetMaster NA)
- CA NetMaster® Network Management for SNA (CA NetMaster NM for SNA)
- CA NetSpy™ Network Performance (CA NetSpy)
- CA Common Services™ for z/OS (CA Common Services for z/OS)
- CA OPS/MVS® Event Management and Automation (CA OPS/MVS)
- CA Network and Systems Management (CA NSM)
- CA Service Desk for z/OS (CA Service Desk)
- CA SOLVE:Central™ Service Desk for z/OS (CA SOLVE:Central), which includes CA SOLVE:Problem
- CA TCPaccess™ Communications Server for z/OS (CA TCPaccess CS for z/OS)

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Contents

Chapter 1: Introduction

This section contains the following topics:

Intended Audience

This guide is intended for technical personnel responsible for the planning, setup, and maintenance of your product's functions and services.

Typographic Conventions

This section explains the conventions used when referring to various types of commands and when indicating field attributes.

Convention	Description
Commands	Commands such as SYSPARM and SHUTDOWN are shown in upper case.
User Entries	Information to enter onto panels is displayed in **bold** text.
Cross-References	Cross-reference links to other sections of the book are displayed as underlined blue text.
Shortcuts	Shortcuts to menus or options are displayed in **bold**, for example, **/PARMS**.

Chapter 2: Starting and Stopping a Region

This section contains the following topics:

Start SOLVE SSI

To start the SOLVE SSI, issue the following command:

```
S ssiname
```

For a region to connect to SOLVE SSI, it must first know the SSID to connect to. To do this, specify the SSID JCL parameter or use Customizer parameter groups. When this connection is complete, authorized region users can issue SOLVE SSI commands.

The region can use the SSID JCL parameter to establish an early connection to SOLVE SSI during initialization.

This parameter has the following format:

```
SSID={ NO | * | name }
```

NO

No connection to SOLVE SSI is attempted. The connection is only started (or attempted) after a SYSPARMS SSID command is issued. This is the default.

*****

Starts or attempts a connection to an SSID with the first four characters of the region's job name

name

Starts or attempts a connection to the specified SSID

If asterisk (*) or *name* is specified, an attempt to connect to the SSI is immediately made. If it fails, it retries every *n* seconds, depending on the default value of the SSI retry interval.

Note: To change the value of the SSID to connect at any time, update the SSI parameter group (enter **/PARMS**). You can use this parameter group to change the SSID value or to specify an SSI retry interval.

Stop SOLVE SSI

You can terminate SOLVE SSI in *one* of the following ways:

- By using the SSI STOP command.
- By using the operating system MODIFY (F) command, in the format:

  ```
  F ssiname,FSTOP
  ```

Note: If you are using cross-memory services, the address space running SOLVE SSI is terminated and is not available until after the next IPL.

Start a Region

To start a region, you need to run it as a job or a started task. A started task should have been set up during the installation process.

To start a region, issue the following command:

```
S rname
```

Users log on to a region by using the user IDs and passwords specified in their UAMS (or external security package) records.

Respond to WTOR Confirmation Message

If you have implemented region startup confirmation, the RMIWTO06 WTOR message is displayed and startup pauses.

The WTOR message enables you to change the startup parameters. If a reply to the message is not made in 120 seconds, startup continues.

For information about startup confirmation, see the help for the AUTOIDS parameter groups.

Continue Startup with No Change

To continue startup with no change to the parameters, reply as follows:

```
R n,U
```

n is the identification number of the WTOR message.

Continue Startup with Changes

To continue startup with changes to the parameters, reply as follows:

```
R n,parameter-1=value-1[,parameter-2=value-2[,…[,parameter-n=value-n]]]
```

The following table lists the RMIWTO06 WTOR Message—Reply Parameters that you can use in your reply. It matches the parameters with the fields in the corresponding parameter group specification panels.

Parameter Name	Field Label
System image load (AUTOIDS parameter group)	
SYSTEM	System Image Name
VERSION	Version
MODE	Automation Mode
COLD	Cold Start on Next Restart?

If you reply to change parameters, you are asked to confirm your changes. You can then make additional changes or accept the displayed values.

Example

The following reply changes the system image to load to PROD version 2:

```
R n,SYSTEM=PROD,VERSION=2
```

Stop a Region

If you have the necessary authority, you can shut down the region by issuing the SHUTDOWN or FSTOP command.

SHUTDOWN Command

The SHUTDOWN command stops the region when the last user logs off. When you issue the SHUTDOWN command, a broadcast is issued to all users. No further logons are accepted until the region is restarted, or the SHUTDOWN CANCEL command is issued.

You can issue the SHUTDOWN command from OCS or Command Entry. Alternatively, you can issue it as a z/OS MODIFY command.

For more information about the SHUTDOWN command, see the online help.

FSTOP Command

The FSTOP command immediately disconnects user sessions and shuts down the region.

Use of the FSTOP command should be restricted.

You can issue the FSTOP command from OCS or Command Entry. Alternatively, you can issue it as a z/OS MODIFY command.

Important! If you are running another product in the same region, it also stops if the FSTOP command is issued.

For more information about the FSTOP command, see the online help.

Preserve Data When Region Stops and Restarts

You may want to preserve some data when a region stops so that this data is available when the region restarts. You can use global variables to preserve data. You can save global variables that the region reloads when it restarts. Saved global variables are known as persistent global variables.

To preserve data, create global variables with data you want to preserve and save them, for example:

- Use the Persistent Variables Administration option (access shortcut is /PVARS).
- Call the $CAGLBL procedure using the SAVE option.

  Note: For information about the $CAGLBL procedure, see the *Network Control Language Reference Guide*.

Create Persistent Global Variables Using the User Interface

You can create persistent global variables from the Persistent Variables List panel. The panel also lets you maintain those variables, for example, update, purge, or reload them.

To create a persistent global variable using the user interface

1. Enter the **/PVARS** panel shortcut.

   The Persistent Variables List panel appears.

2. Press F4 (Add).

   The Persistent Variable - Add panel appears.

3. Specify the name of the variable (without its global prefix) and its value. Press F3 (File).

The variable is saved so that it can be loaded the next time the region starts up.

Prevent the Reloading of Preserved Data

If problems occur during region startup because of invalid data being loaded, you can disable the reloading of the preserved data.

To prevent the reloading of preserved data, enter the following command when you start the region:

```
S rname, PARM='XOPT=NOPVLOAD'
```

The region starts without reloading the preserved data.

Chapter 3: Configuring a Region

This section contains the following topics:

How to Configure a Region

After you have completed installation and startup, your region is operational at a basic level; however, you must configure it to suit your requirements.

Use JCL Parameters to Configure a Region

JCL parameters enable you to configure a region. You use JCL parameters to set information such as the names of your INIT and READY procedures, and the types of security exit to use in your region.

This information is supplied by the PPREF statements in the RUNSYSIN member.

You can also pass this information in the START command using the JCL PARM field. If you specify multiple parameters, separate each with a comma.

Note: For more information, see the *Reference Guide*.

Display and Change JCL Parameter Settings

You can display the current settings of all the JCL parameters with the SHOW PARMS command from OCS or Command Entry. To change any of these parameters, specify their new values in the RUNSYSIN member and then restart the region.

For more information about JCL parameters, see the *Reference Guide*.

Identify the Region to Users

If you have multiple regions or communicate with other regions, you can set the domain ID and put titles on the panels.

Identify Domains and Panels

The NMDID JCL parameter identifies the domain ID for each region. If you have multiple regions, ensure that you have a different domain ID for each one. For more information about the NMDID parameter, see the *Reference Guide*.

You can use the SYSTEMID (System Identifications) parameter group in Customizer to help identify your regions. This parameter group specifies a system identifier that is used when you link to other regions. Ensure that each of your regions has a different system identifier.

This parameter group also specifies the titles to display on the logon panel and the OCS console panel. This helps users to identify the region that they have logged on to.

Note: The system ID parameter takes effect when the region is initialized.

Customize a Region Using Customizer

Customizer lets you review and update parameter groups.

You use Customizer to initialize and customize your region. Customizer is an initialization facility that lets you implement a region rapidly and easily. Also, Customizer enables you to customize parameters easily at a later stage.

When you first install a product, you need to set various parameters to get the product up and running. Customizer helps you set up these parameters. An initial dialog is supplied for the first time user, to walk you through the customization process. You are prompted to supply required parameter values and given the opportunity to supply optional parameter values.

To access the parameter groups, enter **/PARMS**.

What Are Parameter Groups?

System parameters are grouped by category (such as Security) in logical parameter groups, to simplify the process of initializing and customizing a region.

Groups of individual parameters translate into one or more of the following:

- SYSPARMS that determine how your region functions
- Global variables that are used by various NCL applications to control their functions
- Local parameters that define how to implement actions associated with parameter groups

Update System Parameters

Most customization of your region is performed by using Customizer.

You can also use the SYSPARMS command to customize your region. Each operand of the SYSPARMS command lets you specify options to change and customize the way your region works. For ease of maintenance, you can use the Display/Update SYSPARMS panel, which is accessible by using the /SYSPARM panel shortcut.

Notes:

- SYSPARMS set by Customizer parameter groups can only be updated using Customizer.
- For SYSPARMS without a corresponding parameter group, set the SYSPARMS in the INIT and READY procedures so that they are applied when the region starts, and then update them dynamically using the SYSPARMS command.
- For more information about SYSPARMS operands, see the *Reference Guide*.

Use the SYSPARMS Command

To change a SYSPARMS operand with the SYSPARMS command, enter the command at the OCS command line.

This command has the following format:

```
SYSPARMS operand=value operand=value ...
```

Example: Use the SYSPARMS Command

To display the time at the beginning of the OCS title line, enter the following command:

```
SYSPARMS OCSTIME=YES
```

Initialization Operands

There are some SYSPARMS command operands that cannot be changed while the region is operational. These operands must be included in your INIT procedure so that they are executed during initialization. For a complete list of SYSPARMS commands, see the *Reference Guide*.

If you specify new values for these initialization operands, the new values do not take effect until the region is initialized. All other SYSPARMS can be changed during region operation by authorized users.

Capture Messages Not Handled by Rules

If you want to capture certain messages missed by your resource definitions and message rules, use the Unmatched Message Alerting (UMA) feature. By capturing these messages, you can review them later to create rules for them.

To capture messages not being handled by your resource definitions and message rules

1. Enter the **/PARMS** panel shortcut.

   The Parameter Groups panel appears.

2. Enter **F MSGAWARENESS**.

   The cursor locates the MSGAWARENESS parameter group.

3. Enter **U** next to the group.

   The group opens for updating.

4. Specify **ACTIVE** in the Unmatched Message Alerting field, and customize the parameters to capture the type of messages you require.

   Unmatched Message Alerting Filter

   Specifies the type of messages you want to capture.

   Unmatched Message Alerting Options

   Specifies how you want to be notified of the captured messages. The notification can be by one or all of the following methods:

   - Raise alerts.
   - Log the occurrences of the messages.
   - Issue EDS events.

   Press F6 (Action).

   The region starts to capture the specified messages.

5. (Optional) Press F3 (File) if you want to make the changes permanent.

   The group is updated with the changes.

Transient Log Tuning

A *transient log* is a log of activities associated with a resource that is monitored. One transient log exists for each resource definition loaded in a region and exists as long as the definition remains loaded in the region. You can specify the age over which logged activities are deleted to keep their number down. When the default size parameters do not suit your requirements, you can customize them. You can also change the size of the transient logs for selected resources.

Customize Tuning Parameters

The AUTOTABLES parameter group contains the tuning parameters for transient logs. The parameters control the default and maximum sizes, and the deletion of logged activities that are over a specified age. For example, when overflows occur in the logs, you can lower the maximum size while you investigate the cause of the problem.

To customize the tuning parameters for transient logs

1. Enter the **/PARMS** panel shortcut.

   The Parameter Groups panel appears.

2. Enter **F AUTOTABLES**.

   The cursor locates the AUTOTABLES parameter group.

3. Enter **U** beside the group.

   The group opens for updating.

4. Customize the parameters for transient logs to suit your requirements. Press F6 (Action).

   The changes are applied in the region.

5. (Optional) Press F3 (File) if you want to make the changes permanent.

   The group is updated with the changes.

Resize Selected Transient Logs

After your region operates for a while, you may find that you need to tune the size of some transient logs. You may also find that you need to change the resource definition templates to suit your requirements.

Important! Resizing a transient log updates the resource definition. It is recommended that if a resource needs a large transient log size, it should be updated individually. If you have a large system image and you set all resource transient logs to the maximum size, there could be system performance degradation and storage issues.

To resize selected transient logs

1. Access the list of system images that contain the resources for which you want to resize logs. For example, enter /RADMIN.I.L to access the list of local system images.

   A System Image List panel appears.

2. Enter **STL** beside the required image.

   A Set TLog Size Specification panel appears.

3. Select the required resources using the Resource Class and Resource Name fields, specify the required size for their logs, and then press F6 (Action).

   A message appears, indicating the number of resource definitions affected.

4. Press F6 (Action).

   The resource definitions are updated with the specified size. If the image is active, the affected logs are also resized.

Note: For active system images, you can also resize the transient logs from the monitors using the SETTLOG command.

Resize Multiple Transient Logs in an Image

If the transient logs for certain resources become full, you can resize them from a resource monitor.

Important! Resizing a transient log updates the resource definition. It is recommended that if a resource needs a large transient log size, it should be updated individually. If you have a large system image and you set all resource transient logs to the maximum size, there could be system performance degradation and storage issues.

To resize multiple transient logs in an image from a resource monitor

1. Enter **SETTLOG** at the Command prompt.

   You are prompted to select the image that contains the resources whose logs you want to resize.

2. Enter **S** beside the required image.

   A Set TLog Size Specification panel appears.

3. Select the required resources using the Resource Class and Resource Name fields, specify the required size for their logs, and then press F6 (Action).

   A message appears, indicating the number of resource definitions affected.

4. Press F6 (Action).

   The resource definitions are updated with the specified size, and the affected logs are resized.

Chapter 4: Performing Optional Customization

This section contains the following topics:

Customize Activity Log Settings

The activity logs record system messages and messages that occur in the region. You can customize the LOGFILES parameter group to do the following:

- Disable the logging of system messages
- Allocate additional activity log files

Customize the LOGFILES Parameter Group

You can customize the LOGFILES parameter group to your site's needs.

To customize the LOGFILES parameter group

1. Enter **/PARMS** at the prompt.

   The Customizer : Parameter Groups panel appears.
2. Enter **U** beside the LOGFILES parameter group.

   Fields appear that let you customize the parameter group.
3. Complete the fields, as required, and press F6 (Action).

   The new settings are activated.
4. Press F3 (File).

   The information is saved.

Disable System Message

By default, system messages are delivered to the activity log.

To disable system message logging, set the value in the Log Operating System Messages? field to **NO**.

Disable Command Logging

By default, system commands received by the region are delivered to the activity log.

To disable system command logging, set the value in the Log Commands? field to **NO**.

Allocate Activity Log Files

During initialization, the region is allocated three activity log files. However, you can allocate up to seven files.

Note: As supplied, the log file IDs and data set names are, respectively, NMLOG*nn* and *dsnpref.*NMLOG*nn* (*dsnpref* is the data set prefix used during the setup of the region).

To make more than three files available to the region

1. Define additional logging data sets.
2. After the first Parameter Group panel opens, press F8 (Forward).

   The next panel appears.
3. Complete the fields for each file you want to make available. The following is an example:

```
PROD------------------- Customizer : Parameter Group ---------------Page 2 of 3
Command ===>                                                  Function=Browse

|- LOGFILES - Log File Specifications ----------------------------------------|
| Log File ID 2 ................ NMLOG02                                      |
|   Log File Dataset Name 2 .... AUDE0.DENM1.NMLOG02                          |
|   File Disposition 2 ........+ SHR                                          |
|   Log File VSAM Options 2 ...+ LSR SIS DEFER                                |
|                                                                             |
| Log File ID 3 ................ NMLOG03                                      |
|   Log File Dataset Name 3 .... AUDE0.DENM1.NMLOG03                          |
|   File Disposition 3 ........+ SHR                                          |
|   Log File VSAM Options 3 ...+ LSR SIS DEFER                                |
|                                                                             |
| Log File ID 4 ................                                              |
|   Log File Dataset Name 4 ....                                              |
|   File Disposition 4 ........+ SHR                                          |
|   Log File VSAM Options 4 ...+                                              |
|                                                                             |
```

To allocate more files

1. Press F8 (Forward).
2. Press F6 (Action)

   The new settings are applied.
3. Press F3 (File).

   The information is saved.

How to Customize SNA Resource Discovery

When you start the region, it automatically discovers the SNA resources controlled by the local VTAM domain. You can customize the discovery process as follows:

- Specify whether a warm or a cold start should be performed for the process.
- Specify how to handle transient resources.
- Specify whether discovery should be performed again when the PPO message flow restarts.
- Specify the resources to discover.
- Specify the information to include when the resource record is built.
- Tune the discovery process.

Warm and Cold Starts of SNA Resource Discovery

The SNA resource discovery component discovers SNA resources in the local VTAM domain and monitors their status. By customizing the AUTOSNACNTL parameter group, you can start the discovery process in *one* of the following ways:

Warm Start

Remembers the previous states of all previously discovered resources, compares these to the current conditions, and updates them accordingly. Newly discovered resources are also added.

If the filter criteria ignore resources that were previously discovered, then they are placed into an UNKNOWN state.

Cold Start

Discovers the network afresh. It clears all discovered resources and discovers them according to the filter (see page 38) criteria. The default value is NO.

Control Dynamic and Transient SNA Resources

During normal VTAM execution, dynamic network resources can be added and deleted. The region receives events when these resources are added by VTAM, and they are automatically discovered and added to the network database.

When resources are deleted by VTAM, you can specify that the resources be also deleted from the region network database. This can be specified to occur during the following:

- Warm starts
- Normal execution

You can also specify response and processing time limits for VTAM events.

These parameters are specified on the second panel of the AUTOSNACNTL parameter group.

Delete Unknown SNA Resources During a Warm Start

If you want to delete nonexistent SNA resources during a warm start, specify **YES** in the Delete Unknown Resources: During Warm Start Discovery? field. During the next warm start of your region, any resources that are unknown at that time are deleted. You can also specify **NEXT** which deletes unknown resources during the next warm start and the field is then set back to NO for subsequent warm starts.

Note: If you specify YES or NEXT, all resources are affected by the deletion regardless of their type.

If you anticipate that there are many network changes to discover, it may be more efficient to specify a cold start for the next discovery rather than specifying NEXT.

Delete Unknown SNA Resources During Normal Execution

If you want the resources that VTAM dynamically deletes to also be dynamically deleted from the network database, specify **YES** in the Delete Unknown Resource: During Normal Execution? field. When an event arrives specifying that a resource has been deleted, the resource and any child resources are deleted. This parameter is only effective on the following types of SNA resource:

- Switched LU
- Switched PU
- PU
- LU
- Local 3270
- Local SNA
- All APPN resource types, including ADJCP, DLURPU, APPNLU, RTP, TGPU, and TRLE

Specify Response and Processing Time Limits for VTAM Events

The following wait intervals can be specified to control the response from and processing of VTAM events:

Display Response Wait Limit

Specifies how long the system waits for VTAM to respond to a display command. If exceeded, the command is timed out.

Delayed Event Processing Wait

Specifies how long the system waits before it processes IST590I events. This allows time for VTAM to update information before the region accesses it.

Control Discovery Based on the Status of PPO Message Flow

If PPO message flow stops, the region cannot detect changes in the status of currently discovered SNA resources. When the flow starts again, you can rediscover the resources. Use the Schedule Discovery on PPO Start field to control the rediscovery process.

Select Which SNA Resources Are Discovered

Through the AUTOSNACNTL parameter group, you can limit the discovered SNA resources.

By default, the region does not discover Rapid Transit Protocol (RTP) PUs used by LU-LU sessions. You can enable the discovery through the Discover LU-LU RTPs? field.

You can define an SNA filter to determine which SNA resources are discovered during startup. A supplied sample filter discovers all SNA resources to the PU level. However, by defining your own filter, you can specify which resources are included or excluded during discovery.

Note: The default filter does not discover resources of type LU, SWLU, CDRSC, or any resources in the VTAM state RESET and RELSD.

You can monitor the status of the discovery process by accessing the Network Discovery panel **(/SNADMIN.D**). This panel shows a discovery log and a discovery status bar.

Define a Filter

You can define a filter by specifying filter criteria on the third page of the AUTOSNACNTL parameter group.

Note: By default, the sample filter appears.

To specify your own SNA network resource discovery filter

1. Press F4 (Update) and move the cursor to the text editor.

2. Specify your criteria using the following syntax:

```
EXCLUDE [ TYPE={ type | 'type1 type2 ...' }
          STATE={ state | 'state1 state2 ...' }
          NAME={ mask | 'mask1 mask2 ...' } ]
INCLUDE [ TYPE={ type | 'type1 type2 ...' }
          STATE={ state | 'state1 state2 ...' }
          NAME={ mask | 'mask1 mask2 ...' } ]
WILDCHAR char
```

EXCLUDE

Excluded resources are not included in the network model. All identified resources are compared against the EXCLUDE specifications to find which resources are excluded.

INCLUDE

Included resources are included in the network model. All identified resources are compared against the INCLUDE specifications to find which resources are included.

If used with EXCLUDE, INCLUDE only affects resources that are tagged for exclusion. An excluded resource is tested against the INCLUDE specifications. If any of its attributes match the criteria, then the resource's EXCLUDE tag is removed and it is included in the network model.

TYPE={ *type* | *'type1 type2 ...'* }

Specifies the resource types to exclude or include.

STATE={ *state* | *'state1 state2 ...'* }

Specifies the VTAM states of the resources to exclude or include.

Note: A list of VTAM states and their corresponding actual states can be accessed by entering the **/SNADMIN.V** path.

NAME={ *mask* | *'mask1 mask2 ...'* }

Specifies the names of the resources to exclude or include. The name can be a full name or a name mask using the wildcard character defined in the WILDCHAR statement.

Note: At least one of the TYPE, STATE, and NAME keywords must be specified. If a NAME is specified, then an associated TYPE must also be specified.

WILDCHAR *char*

If no WILDCHAR statement is specified, then * is assumed as the wildcard character.

The same keyword cannot be used more than once for each statement. If more than one keyword is specified on a statement then the condition specified is a logical AND of all the keywords specified.

Multiple values for a keyword indicate that any resource that satisfies one of the values is acceptable. For example, there are three names specified for the inclusion of a resource: A, B, and C. A resource with the name A is discovered because it satisfies one of the values. In other words, all resources of the name A, B, **or** C are discovered.

Example: Exclude

The following example specifies the exclusion of all LU or PU type SNA resources, and any SNA resources in the NEVAC state:

```
EXCLUDE STATE=NEVAC
EXCLUDE TYPE='LU PU'
```

Example: Include

The following example specifies the inclusion of all SNA resources with the name IBMCDRSC and of type CDRSC, or with a name that satisfies ASYD11* and of type PU:

```
INCLUDE NAME=IBMCDRSC TYPE=CDRSC
INCLUDE NAME=ASYD11* TYPE=PU
```

Example: Exclude with Include

The following example specifies that all APPLs whose name starts with A, are excluded, but any that are in a VTAM state beginning with ACT are re-included. APPLS that are NOT in a state beginning with ACT, and have a name starting with A, are excluded. All other, non-APPL resource types and states are also included.

```
EXCLUDE TYPE='APPL' NAME='A*'
INCLUDE STATE='ACT'
```

Note: Always code EXCLUDE before INCLUDE.

Customize the Information About SNA Resources

You can customize the information about the SNA resources discovered in the local domain by using the network discovery exit, *dsnpref*.NMC0.CC18EXEC($RSUSRAX). *dsnpref* is the data set prefix specified during product installation. In this exit, you can specify the associated SNA resource model, another name or description for the resource to make it more identifiable, and user tags.

A sample of the exit is provided. To use this exit, you need an understanding of NCL. The code is commented; however, for more information, see the *Network Control Language Programmer Guide* and the *Network Control Language Reference Guide*.

Important! If modifications are required, we recommend that you create an SMP/E ++USERMOD to record and control the changes. Alternatively, you can copy the distributed member to the region's TESTEXEC data set for modification.

The following variables are available to the network discovery exit and let you identify the SNA resources.

ZRSNETID

Specifies the network identifier for resource.

ZRSDOMAIN

Specifies the network domain for resource.

ZRSRSNAME

Specifies the SNA resource name.

ZRSRSTYPE

Specifies the SNA resource type. Valid types are as follows:

- ADJCP
- APPL
- APPNLU
- CDRM
- CDRSC
- DLURPU
- LCLSNA
- LCL3270
- LINE
- LINK
- LINKSTA
- LU
- MAJNODE
- NCP
- PU
- RTP
- SSCP
- SWLU
- SWPU
- TGPU
- TRLE

ZRSRSNAMEC1...8

Specifies the first to eighth characters of resource name.

ZRSRSNAMEN1...8

Specifies the first to eighth characters of the network qualifier portion of the resource name.

Note: These variables only apply when the resource is an ADJCP because ADJCPs are stored in the format *network-qualifier*.*resource-name*, for example, NETQUAL.ADJCPNME.

ZRSPRNAME

Specifies the parent resource name.

ZRSPRNAMEC1...8

Specifies the first to eighth characters of the parent resource name.

ZRSPRNAMEN1...8

Specifies the first to eighth characters of the network qualifier portion of the parent resource name.

Note: These variables only apply when the parent resource is an ADJCP because ADJCPs are stored in the format *network-qualifier*.*resource-name*, for example, NETQUAL.ADJCPNME.

ZRSDESC

Specifies the resource description.

ZRSMAJNODE

Specifies the name of the major node that owns the resource.

ZRSSTATUS

Specifies the current actual state.

ZRSDSTATUS

Specifies the current desired state.

ZRSVSTATUS

Specifies the last known VTAM status.

You can use the following variables to customize the information about SNA resources:

SYSMSG

Specifies the error message.

ZRSCOLDST

Specifies Cold start?—NO or YES.

ZRSDESC

Specifies the resource description.

Limits: 38 characters

ZRSMODEL

Specifies the model template name.

Limits: 12 characters

ZRSUSRTAG1...5

Specifies user-defined resource tags. You can use these tags to make the identification of a resource easier.

Limits: 52 characters

The following return codes must be returned to the caller:

0

Indicates that the request was successful.

1

Indicates that the resource is excluded or deleted.

8

Indicates that an error occurred (the exit is disabled from further calls during the current network discovery).

This exit is invoked only if *one* of the following conditions is satisfied:

- A cold start is being done.
- A warm start is being done and a new resource is discovered.
- A warm start is being done and an existing resource has a different type, parent, parent type, or major node.
- A major node is activated and a resource is discovered as a result.

Tune the Discovery Process

The Network Discovery Command Thresholds parameters of the AUTOSNACNTL parameter group let you throttle the CPU utilization of the discovery process.

In a large VTAM domain, the discovery process might issue a large number of commands in rapid succession and stress the system such that other functions cannot be performed. You can use these parameters to tune the number of commands that can be issued in a certain time.

Discover SNA Resources

The region automatically discovers the SNA resources on the system when the region starts.

To rediscover the resources at any other time

1. Enter **/PARMS** at the prompt.

   The Customizer : Parameter Groups panel appears.

2. Enter **U** beside the AUTOSNACNTL parameter group

   The AUTOSNACNTL - SNA Automation Specifications panel appears.

3. (Optional) Update the discovery criteria.

4. Press F6 (Action).

   The resources are rediscovered.

SNA Groups

If you want to manage and monitor the SNA resources in logical groups, set up a system image and define the groups.

For more information, see the *User Guide*.

Chapter 5: Controlling the System Image

This section contains the following topics:

Set the Default System Image

The region loads a system image during initialization. The system image loaded when the region is initialized is controlled by the AUTOIDS parameter group.

To set up the system image to load on restart

1. Enter **/PARMS** at the prompt.

   The Customizer : Parameter Groups panel appears.

2. Enter **U** beside the $RM AUTOIDS parameter group.

   The AUTOIDS - Automation Identifiers panel appears.

3. Enter **?** in the System Image Name field.

   The ResourceView : System Image List panel appears.

4. Select the System Image that you want to load at restart and press F6 (Action).

   Important! F6 (Action) replaces the currently-loaded system image. If you do not want to load the system image now, skip this step.

5. Press F3 (File).

   The system image loads each time the region starts.

Load a System Image

You define the operations requirements of the resources to be managed on a system in a system image. You must create a system image definition before you can define the resources you want to manage.

The region loads a system image during region initialization. During operation, you may need to change the system image by loading another image.

Note: When you request to load a system image, the $RMEXSTR exit NCL procedure is executed before the starting process. This procedure may be customized at your site to perform any required tasks before any automated resources are started. The starting process cannot proceed if the exit sets a non-zero return code.

For products that use desired state automation, resources are started according to any relationships defined in the system image, and subject to resource availability.

To load a system image

1. Enter **/RADMIN.I** at the prompt.

   The ResourceView : System Image List appears.

2. Enter **L** beside the system image that you want to load.

   The LOAD Command Parameter Specification panel appears.

3. Complete the following fields:

   SysName to be Loaded

   Enter **?** and select a system image from the displayed prompt list.

   Global Automation Mode

   Specify the global operation mode for your system image.

   Perform COLD Start?

   If the Checkpoint Restart Status field is set to ACTIVE, you can enter NO in the Perform COLD Start? field to specify a warm load.

4. Press F6 (Action) to load the system image.

   The Command Confirmation panel appears.

5. Enter **CONFIRM** in the Response field.

   The system image is loaded.

Important! Resources that are monitored by the region are defined to the system image. Loading a system image affects all users of this region and may influence the resources in the system image.

Checkpoint Restart Function

The checkpoint restart function lets you preserve manual overrides across system restarts.

Manual overrides are retained as follows:

Checkpoint Restart Active with a Warm Start

Previously-preserved overrides are applied; new overrides are preserved.

Checkpoint Restart Active with a Cold Start

Previously-preserved overrides are deleted; new overrides are preserved.

Checkpoint Restart Inactive with a Warm Start

Previously-preserved overrides are not applied; new overrides are not preserved.

Checkpoint Restart Inactive with a Cold Start

Previously-preserved overrides are deleted; new overrides are not preserved.

Global Operation Mode

The global operation mode determines the mode of operation for a loaded (active) system image. Your region can run in a global operation mode of AUTOMATED or MANUAL.

As the name global suggests, the control of all resources defined to a system image is limited by the setting of the global operation mode. For example, if the global operation mode is MANUAL and the operation mode of a resource is AUTOMATED, the resource can run in the MANUAL operation mode only. If the global mode is changed to AUTOMATED, then that resource runs in its assigned mode.

You can issue a GLOBAL command from the resource monitor to set the global operation mode. For example, when you have finished testing a system image in a development system in the MANUAL operation mode, you might want to change the global operation mode to AUTOMATED. If you are experiencing severe problems in a production system, you might want to change the global operation mode from AUTOMATED to MANUAL.

Important! Changing the global operation mode affects all resources that are defined in the loaded system image. If you are changing the mode from MANUAL to AUTOMATED, you should ensure that all resources are defined correctly before making the change.

Set Global Operation Mode

To set the global operation mode

1. From the status monitor, enter **GLOBAL** at the prompt.

   A Global Command Parameter Specification panel appears.

2. Enter **AUTOMATED** or **MANUAL** in the Global Automation Mode field and press F6 (Action).

   A confirmation panel appears.

3. Enter **CONFIRM** in the Response field.

   The region changes the operation mode of all resources.

Example: Set Global Operation Mode

If the region is running in the MANUAL operation mode and you want to test the effects of automation on the resources in the system, set the global operation mode to AUTOMATED.

Enter the following command at the prompt of the monitor:

```
GLOBAL MODE=AUTOMATED
```

The Execute GLOBAL Command panel is displayed. Enter **S** beside the required system image. The region sets all of the resource operation modes to their normal value, that is, the mode defined in the resource or set by an override.

Shut Down Resources in a Loaded System Image

You can use the following commands to shut down the resources defined to a loaded system image:

SHUTSYS

Shuts down all resources with an operation mode of AUTOMATED.

SHUTFORCE

Shuts down all resources.

Shut Down Automated Resources

Note: This procedure is valid only if the global operation mode is set to AUTOMATED.

To shut down resources that are in an operation mode of AUTOMATED

1. Enter **SHUTSYS** at the prompt on the status monitor.

   If the region is linked to other regions, the Execute SHUTSYS Command panel appears listing the loaded system images in all linked regions. Go to Step 2.

   If the region is a standalone region, the Command Confirmation panel appears. Go to Step 3.

2. Enter **S** beside the system image you want to shut down.

   The Command Confirmation panel appears.

   Important! Issuing the SHUTSYS command shuts down all resources that are in the AUTOMATED mode.

3. Enter **CONFIRM** in the Response field.

   All automated resources defined to the system image are shut down.

Shut Down a Manual Resource

To shut down resources that are in the MANUAL operation mode, do *one* of the following:

- Enter **MA** beside the resource to change its operation mode from MANUAL to AUTOMATED before issuing the SHUTSYS command.
- Enter **T** beside the resource to stop it manually.

Shut Down All Resources

Note: This command is valid only if the global operation mode is set to AUTOMATED.

To shut down all resources in a system image

1. Enter **SHUTFORCE** at the prompt on the status monitor.

   If the region is linked to other regions, the Execute SHUTFORCE Command panel appears listing the loaded system images in all linked regions. Go to Step 2.

   If the region is standalone region, the Command Confirmation panel appears. Go to Step 3.

2. Enter **S** beside the system image you want to shut down.

   The Command Confirmation panel appears.

3. Enter **CONFIRM** in the Response field.

   The resources defined to the system image are shut down.

Restart Resources in a Loaded System Image

You can restart resources defined to a loaded system image that were shut down using the SHUTSYS or SHUTFORCE commands:

To restart the resources in a loaded system image:

1. Enter **STARTSYS** at the prompt on the status monitor.

   If the region is linked to other regions, the Execute STARTSYS Command panel appears listing the loaded system images in all linked regions. Go to Step 2.

   If the region is standalone, the Command Confirmation panel appears. Go to Step 3.

2. Enter **S** beside the system image that you want to restart.

   The Command Confirmation panel appears.

3. Enter **CONFIRM** in the Response field.

   The resources in the loaded system image start.

Chapter 6: Defining and Maintaining SNA Resource Filters

This section contains the following topics:

SNA Resource Filters

An SNA resource filter determines which SNA resources appear on the Network Resources panel.

An SNA resource filter enables you to select resources that:

- Satisfy the specified name and type criteria
- Are downstream to a specified resource
- Have a certain status
- Satisfy the specified user-defined resource tag criterion
- Are associated with the specified SNA resource model

Implement the SNA Resource Filters

You can predefine a set of filters. Operators can also define temporary filters.

After you define a filter, that filter can be used to select what information is retrieved for display on the Network Resources panel. For example, you can define a filter that causes only information about resources belonging to a particular branch of your organization to appear.

When you save a filter definition in the knowledge base, the definition propagates automatically to all the connected regions. That is, the definition is global.

Access SNA Resource Filter Definitions

To access the list of SNA resource filter definitions

1. Enter **/SNADMIN.RF**.

   The SNA Resource Filter List appears.

Actions Available on the SNA Resource Filter List

You can perform the following actions from the SNA Resource Filter List panel:

F4 (Add)

Creates a new SNA resource filter.

S, /, or B (Browse)

Displays the SNA Resource Filter panel in the BROWSE (read-only) mode. If you are authorized to update the definitions, you can press F4 (Edit) to switch to the UPDATE mode.

U (Update)

Displays the SNA Resource Filter panel in the UPDATE mode.

C (Copy)

Displays the SNA Resource Filter panel in the COPY mode. You must change the filter name.

D (Delete)

Deletes an SNA resource filter definition.

Define an SNA Resource Filter

To add an SNA resource filter

1. Press F4 (Add) from the SNA Resource Filter List panel.

   The SNA Resource Filter panel appears.

2. Complete the following fields:

   Name

   Defines the SNA resource filter.

   Limits: 0-12 characters, alphanumeric, @, #, or $. Must not start with a digit.

   Description

   Describes the filter.

   Filter Expression

   Specifies the Boolean expression that defines the filter (see page 56).

   Press F3 (File).

   The new definition is saved.

Define the SNA Resource Filter Expression

The Filter Expression window on the SNA Resource Filter panel specifies the Boolean expression that defines the filter. The expression uses SNA resource attributes as criteria to determine which SNA resources are selected.

Use the following action codes to help you enter the expression:

Delete (D)

Deletes the selected line.

Insert (I)

Inserts a blank line after the selected line.

Repeat (R)

Repeats a selected line.

Example: Select Switched Major Nodes

The following example shows a filter that selects all switched major nodes.

```
. Filter Expression ------------------------------------------------------.
|                                                                         |
|                                                                         |
|      "(" Field   Opr Value                                 Gen ")" Bool |
|          MAJNODE EQ  "SWSNA"                                            |
|     **END**                                                             |
```

Example: Select SNA Resources That Are Downstream to a Specified SNA Resource

The following example shows a filter that selects all LUs downstream to the ASYD22 SNA resource in the NET001 network.

```
. Filter Expression ------------------------------------------------------.
|                                                                         |
|                                                                         |
|      "(" Field   Opr Value                                 Gen ")" Bool |
|          NETID   EQ  "NET001"                                      AND  |
|          PRNAME  EQ  "ASYD22"                                      AND  |
|          RSTYPE  EQ  "LU"                                               |
|     **END**                                                             |
```

Chapter 7: Grouping SNA Resources

This section contains the following topics:

SNA Groups

An SNA group is an encapsulation of one or more SNA resources that you want the region to manage. You can define multiple groups in a system image with each group representing a number of related SNA resources.

The defined group is a ResourceView definition belonging to the SNAGRP class and you can include it in parent-child relationships with other definitions. You can include it in a service to provide a service-driven operations perspective of your SNA networks.

While monitoring a group, you can zoom to the contained resources and issue commands to act on them.

When to Define SNA Groups

The region can perform basic initial status management of SNA resources in the VTAM domain. However, you need to include those resources in SNA groups if you want to do the following:

- Provide more detailed management of the desired state of the resources by scheduling resource availability
- Provide a service-driven operations perspective of your networks

SNA groups belong to system images. To create SNA groups, you should define at least one image.

Note: For information about how to define system images, see the *Reference Guide*.

What to Define for an SNA Group

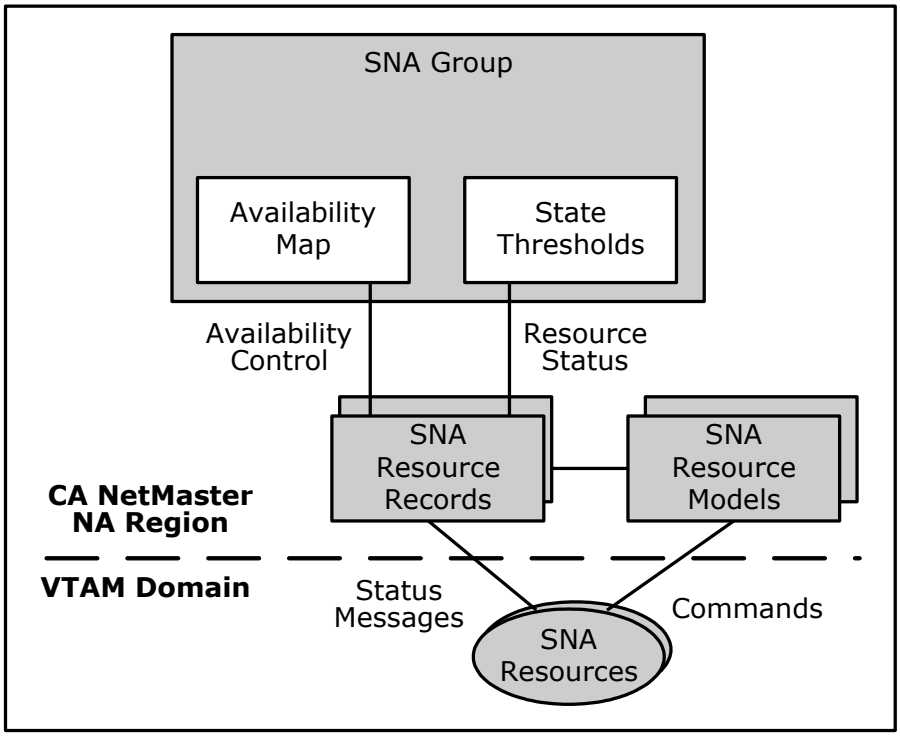
You can define the following information for an SNA group:

- Name, operation mode, and description
- Availability map
- SNA resources that are members of the group and the importance of a member to the group
- State thresholds to indicate how the status of the members affect the actual state and, optionally, logical state of the group
- Exits to invoke before the activation of the group or when the resource goes through specified state changes
- Logging requirements
- Up to two people who can be contacted if the group has operational problems
- Extended function exit to extend the functions that can be performed on the group in the region

How the Region Maintains the Desired State of an SNA Group

The SNA group definition does not contain any operations methods. Instead, these methods are contained in a set of supplied SNA resource models. Each model defines the methods for a particular type of SNA resource (for example, logical units or physical units); therefore, the methods are generic for an SNA resource type. You can modify these methods.

The following illustration shows the relationship between group, resources, and models.



When the actual state of a group member deviates from the desired state, the automation engine executes the appropriate operations method to return the member to the desired state.

Activate an SNA Group

Activating an SNA group activates all its members.

Inactivate an SNA Group

Inactivating an SNA group inactivates only those members that are not required to be active by other defined resources.

Access SNA Group Definitions

To access SNA group definitions

1. Enter **/RADMIN.R**.

   The Resource Definition panel appears.

2. Complete the following fields:

   System Name

   Specifies the name of the system image.

   Version

   Specifies the version number of the system image.

   Enter **S** beside the SNAGRP class.

   The SNA Group List appears.

Actions on an SNA Group Definition

You can perform the following actions from the SNA Group List:

F4 (Add)

Displays the SNA Group General Description panel for you to define a new SNA group.

S, /, or B (Browse)

Displays the Panel Display List, which lists the definition panels. When you select a panel, the panel displays the information in the BROWSE (read-only) mode. If you are authorized to update the definitions, you can press F4 (Edit) from a definition panel to switch to the UPDATE mode.

U (Update)

Displays the Panel Display List, which lists the definition panels. When you select a panel, the panel displays the information in the UPDATE mode.

C (Copy)

Displays the General Description panel in the COPY mode. Change at least the system image name, system image version, or group name. If you copy the definition to another image, any availability map and processes specified in the definition are also copied if they do not exist already in that image. (Global processes are already visible to the image and are not copied to that image.) If you copy the definition to another image and a definition of the same name exists, you are prompted to either replace the existing definition or cancel the operation. Replacing the definition does not remove any existing parent-child relationships.

D (Delete)

Displays a deletion confirmation message.

R (Relate)

Displays the list of immediate parents and children of the definition and enables you to update those relationships.

RG (Icon Resource Group)

Enables you to create a resource group so that the SNA group can be attached to an icon for display on the graphical monitor.

How to Define an SNA Group

You define an SNA group by entering data on the following panels:

- SNA Group General Description
- SNA Group Filters
- State Thresholds
- State Change Exits
- Automation Log Details
- Owner Details
- Extended Function Exit

Define an SNA Group

To define an SNA group

1. Press F4 (Add) from the SNA Group List panel.

   The SNA Group General Description panel appears.

2. Complete the fields on this panel and then press F8 (Forward) to access the other panels.

   Press F1 (Help) for more information about the fields.

3. When you have completed the fields on all of the panels, press F3 (Exit).

   The SNA group is saved.

SNA Group General Description

Use the SNA Group General Description panel to specify the name, the operation mode, and the description of the group.

Identify the SNA Group

Use a meaningful name to identify the SNA group, for example, DUBBOBRANCH. A meaningful name helps you identify the groups when you monitor the groups from the status monitor. The name must contain alphanumeric, @, #, and $ characters only, but must not start with a digit. The name can be up to twelve characters long.

You can categorize the SNA groups by type. The SNA Group Type field defines a pseudo class name that is displayed on the status monitor instead of the actual SNA group class name. The default is SNAGROUP.

Specify the Operation Mode

Specify an operation mode of AUTOMATED, IGNORED, MANUAL, or OFF in the Operation Mode field. During operation, the specified mode can be restricted by the global operation mode, which is specified in the AUTOIDS parameter group.

Attach Availability Map

You can attach an availability map (see page 95) using the Availability Map field, which defines the changes to the normal availability of the SNA group.

Leave the Map Name field blank if you want to use the default desired state, which can be either ACTIVE or INACTIVE (as set in the AUTOIDS parameter group during region initialization).

Note: You can create a new map from the group definition. You can name a new map and define it, or access an existing map, change the name, and update the copy. The map is created in the knowledge base when you save the definition.

SNA Group Filters

Use the SNA Group Filters panel to define the criteria that select the members of the SNA group.

Use the Resource Name, the Resource Type, and the Filter Name fields in any combination to define the selection criteria. You can specify up to 97 independent lines of criteria. For each line, you also specify a weighting to indicate how important the selected resources are to the group.

SNA Resource Name Criterion

Specify the SNA resource name selection criterion in the Resource Name field. The following two types of generic indicators are available:

- Wildcard characters
- Downstream and upstream indicators

You cannot mix the two types of indicators.

Wildcard Characters

The wildcard characters that you can use in the Resource Name field are as follows:

- The underline character (_) represents a single character. For example, NM_D matches NM1D, NM2D, …
- The percent character (%) represents zero or more characters. For example, NM%D matches NMD, NM1D, NM11D, …

The asterisk (*) is also a valid wildcard character. It behaves the same way as the _ character when embedded and as the % character at other positions. For example, * and NM* are valid values.

Downstream and Upstream Indicators

Downstream and upstream indicators denote whether resources below and above a named resource are to be selected as members. The indicators are as follows:

>

Selects the next level of downstream resources only.

>>

Selects all downstream resources.

<

Selects the next level of upstream resources only.

<<

Selects all upstream resources.

The following criteria are valid examples: <PU1, <PU1>, and <<PU1>.

Important! When you monitor an SNA group, the group discovers all its members and monitors them. If you are using a >> downstream indicator and a resource becomes available downstream at a later time, the group will not discover it and the resource will not affect the status of the group. To restore such a resource, you can use the BLD or BLDALL command.

SNA Resource Type

Specify the SNA resource type selection criterion in the Resource Type field. The default value is an asterisk (*), indicating all types.

If you use a downstream or an upstream indicator in the Resource Name field, you can only use the default value in the Resource Type field. You can, however, use a filter to set the type criterion.

SNA Group Filter

You can use a predefined SNA group filter to incorporate more advanced selection criteria. Name the filter in the Filter Name field.

An SNA group filter enables you to select resources that:

- Satisfy the specified name and type criteria
- Are downstream to specified resources
- Satisfy the specified user-defined resource tag criteria

SNA group filters are similar to the SNA resource filters that you use to customize your view of SNA resources.

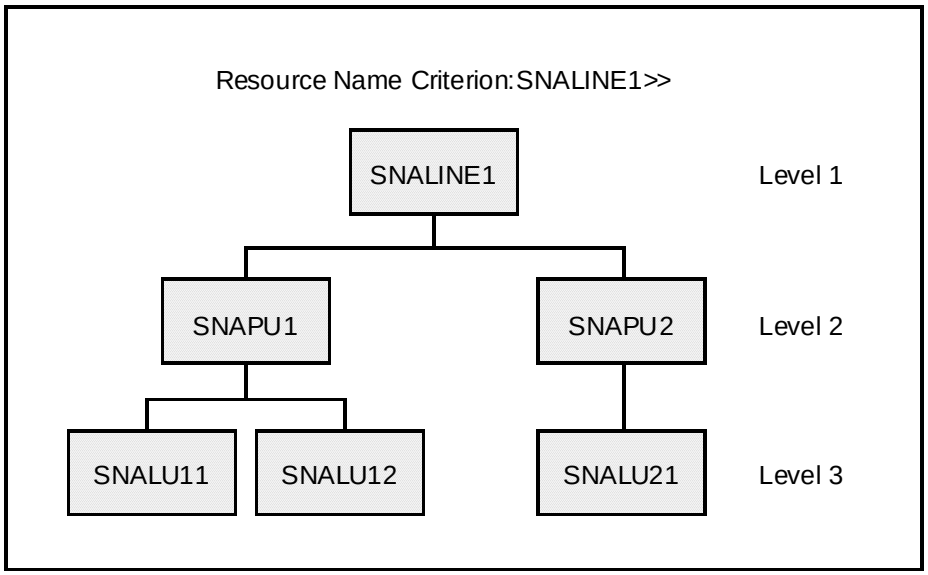
You can use the U (Update Filter) action code to modify a specified filter. You can use the L (List Filters) action code to access the list of defined filters. From the list panel, you can create new filters. The filters use Boolean operators to specify the selection criteria.

Filter Processing

Usually, a filter applies to all SNA resources selected by the criteria in the Resource Name and Resource Type fields. However, if a >> downstream indicator is used, filtering occurs level by level instead. That is, if no resources that satisfy the filter criteria are found at the next lower level of a branch, filter processing stops.

Example: >> Downstream Indicator

You use the >> downstream indicator to display resources downstream to SNALINE1.



Depending on other criteria, the filter gives the following results:

If the filter looks for resources of the ...	Then ...
LU type (RSTYPE="LU")	No resources are selected because no LUs are found on level 2.
PU type (RSTYPE="PU")	SNAPU1 and SNAPU2 are selected.

Weight of SNA Group Members

The weight indicates how important a member is to the SNA group. The valid values are 0% through 100%.

- If the weight is 100%, the actual state of the member affects the actual state of the group directly. For example, if the member becomes inactive, the group assumes the INACTIVE state.
- If the weight is 0%, the member has no effect on the actual state of the group.
- If the weight is between 0% and 100%, the effect of the member on the group depends on the state thresholds.

You can apply the following two types of weights to the members: fixed and proportional.

Fixed Weight

With a fixed weight, every member included in a line entry has the weight specified in the Weight field.

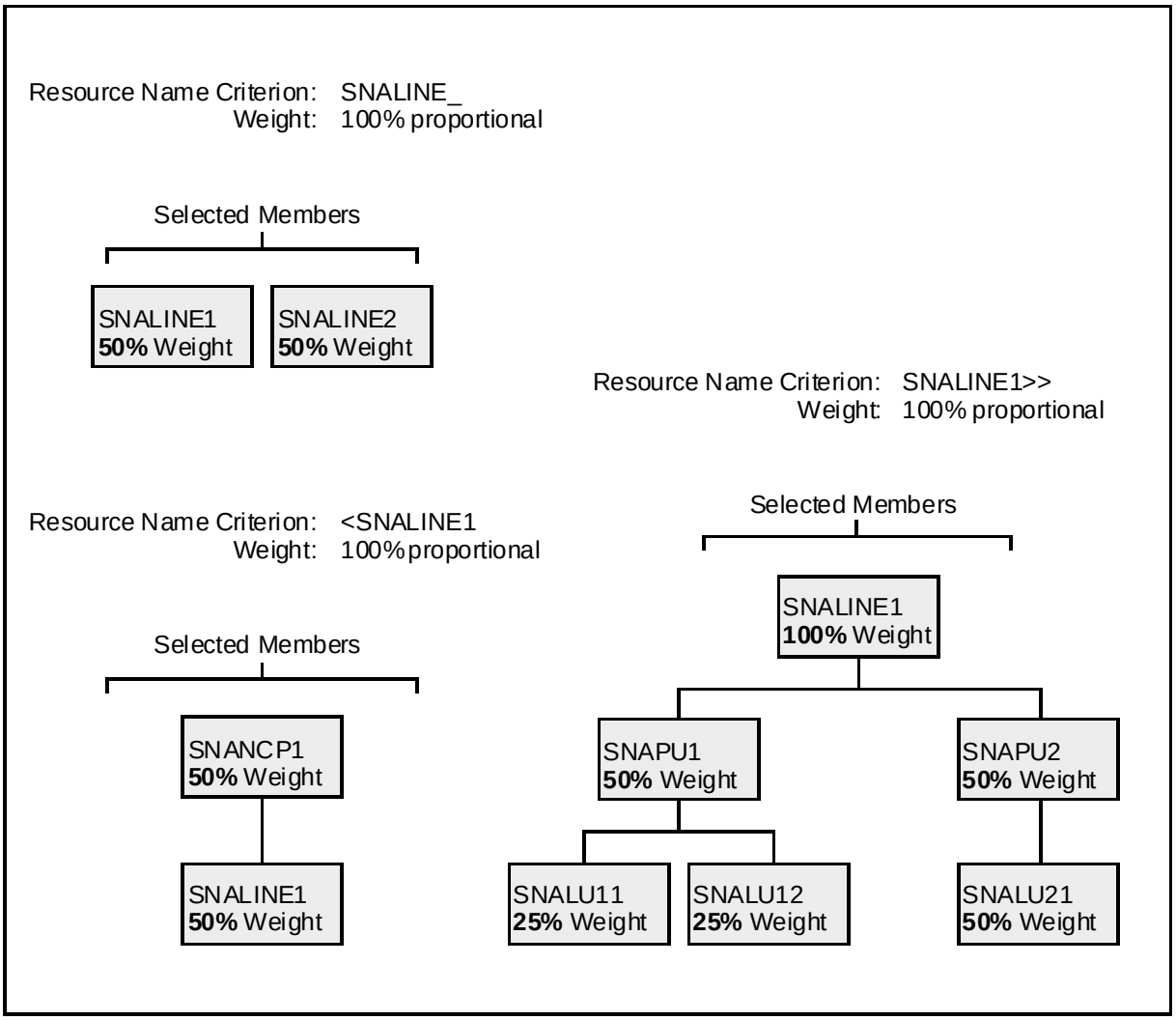
You cannot use a fixed weight if downstream or upstream indicators are used in the selection criteria on that line.

In the following two examples, the weight is 100% fixed:

- If the line entry includes only one member (for example, PU1), the member has 100% weighting in the group.
- If the line entry includes more than one member (for example, PU1 through PU9), each of the members has 100% weighting in the group.

Proportional Weight

You can use the proportional type of weight when the line entry includes more than one member. With a proportional weight, the apportionment of weight to the selected members depends on whether downstream or upstream indicators are used in the selection criteria. The following diagram provides examples of apportionment of a proportional weight.



Display the Members of an SNA Group

The selection criteria select the members for the SNA group. Only members included in the SNA network model are selected. Therefore, the members can change if the filter used by the network model changes. The network model filter is set in the AUTOSNACNTL region customization parameter group.

Note: For more information about the parameter group, see the *Installation Guide*.

You can use the V (View) action to display the members selected by the criteria specified on a line. When a downstream indicator is used, only SNA resources one level down from the selected member are displayed. You can, however, explore further by selectively displaying the resources downstream to a member.

State Thresholds

The State Thresholds panel defines how the states of the members affect the actual state and, optionally, logical state of the SNA group.

The actual state of the group can be one of the following: UNKNOWN, FAILED, DEGRADED, STOPPING, INACTIVE, STARTING, and ACTIVE.

The state threshold is set by the specified combined weight of the members that have particular states. The region checks the states in the sequence UNKNOWN to ACTIVE until a threshold is found to be equaled or exceeded. That is, if the UNKNOWN state threshold requirement is satisfied, the group takes on the UNKNOWN state irrespective of whether the other threshold requirements are satisfied. If none of the threshold requirements are satisfied, the group takes on the DEGRADED state.

If an SNA resource selection line on the SNA Group Filters panel finds no members, its weight is added to the combined weight for the UNKNOWN state.

The combined weight of the members also affects the logical state of the SNA group. When a logical state threshold percentage is specified, the region compares the desired state with the actual state of each SNA resource in the SNA group to determine their logical states. The combination of these logical states determines whether the SNA group logical state is OK or not OK. The logical state of the SNA group is then derived.

Note: When a logical state threshold is specified and there is a resource whose desired state is different from the group desired state, automation is not performed on this resource if it is in a logical state of OK.

The mapping of these special logical states is in the SNA Resource Logical State Normalization table (one of the display attribute tables). To access the list of tables, enter **/ASADMIN.A**.

How the Weight Contributions to an SNA Group State Are Determined

The weight contributions to an SNA group state depend on whether any downstream or upstream indicators are used in the SNA resource name criterion.

No Indicators

If downstream or upstream indicators are not used, the weight applied to selected members can be either fixed or proportional. In the following example:

- The specified weight is 30%.
- The selected members are SNALINE1 through SNALINE3.
- The states of SNALINE1 and SNALINE2 are ACTIVE.
- The state of SNALINE3 is INACTIVE.

The weight contributions are as follows:

If the weight is ...	Then the contribution to the group state is ...
Fixed	60% ACTIVE and 30% INACTIVE
Proportional	20% ACTIVE and 10% INACTIVE

Upstream Indicators

If upstream indicators are used, the weight applied to selected members must be proportional. The weight is equally distributed between the members. In the following example:

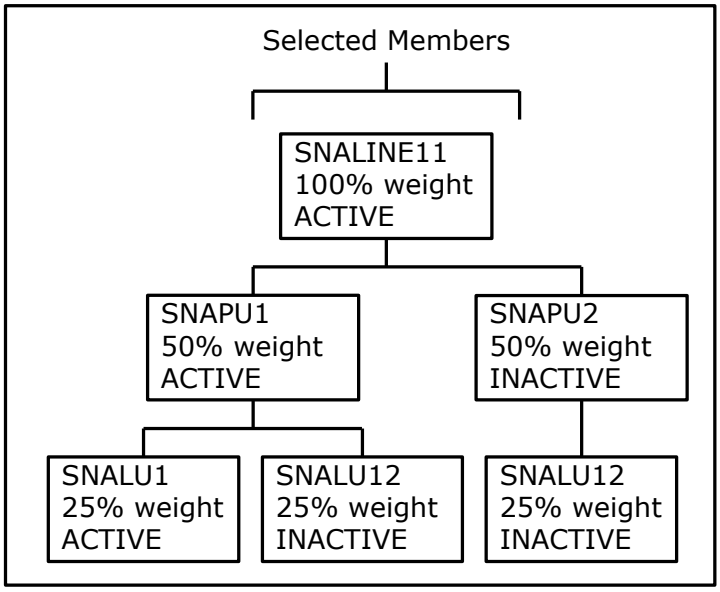
- The specified weight is 100%.
- The selected members are SNANCP1 and SNALINE1.
- The state of SNANCP1 is ACTIVE.
- The state of SNALINE1 is INACTIVE.

The weight contributions are 50% ACTIVE and 50% INACTIVE.

Downstream Indicators

If downstream indicators are used, the weight applied to selected members must be proportional. The following illustration shows how member states contribute to the status of the SNA group. It shows an example of members selected by using a downstream indicator.

In the following illustration, the resource name criterion is SNALINE1>>, and the weight is 100% proportional.



In this illustration, the contributions to the group state are as follows:

- 25% ACTIVE (from SNALU11)
- 75% INACTIVE (from SNALU12 and SNALU21)

The lowest level of SNA resources only contributes to the determination of the state of the SNA group at any single branch.

Example: Indicators

An SNA group contains 10 SNA lines. You want the state of the group to indicate the conditions in the following table:

State	Description
UNKNOWN	The region does not know the state of one or more lines.
FAILED	One or more lines failed.
DEGRADED	One or more lines degraded.
STOPPING	One or more lines are stopping.
INACTIVE	All lines are INACTIVE.
STARTING	One or more lines are starting.
ACTIVE	All lines are active.
DEGRADED	The member states do not satisfy any of the above conditions. For example, five lines are active and five lines are inactive.

You define a 100% proportional weighting distributed across the lines. That is, each line has a weight of 10%.

Note: If you use downstream indicators in the selection criteria, the downstream SNA resources affect the group state. Therefore, one line means 10% of the lines, where the contributions to a group state might come from part of a line.

The following table shows the state thresholds that satisfy your requirements:

Actual State	Threshold
UNKNOWN	10%
FAILED	10%
DEGRADED	10%
STOPPING	10%
INACTIVE	100%
STARTING	10%
ACTIVE	100%

State Change Exits

The State Change Exits panel lets you specify the following types of exit processes:

- A process that executes before the SNA group is activated. By using this feature, you can add your own tasks that need to be performed before the region attempts to activate the group members.
- A process that executes on specified state changes. For example, if the SNA group degrades, you might want to invoke a procedure that writes a problem report. You can specify a process to execute on changes to the actual state, the desired state, or the logical state of the group.

How the SNA Group Logical State is Determined

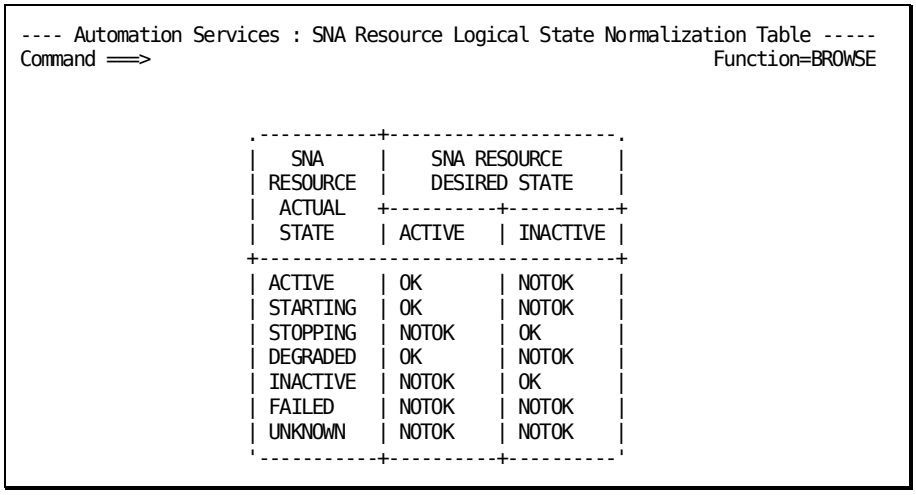
The logical state of an SNA group is normally determined using the Automated or Manual Mode Attributes Table (/ASADMIN.A). You can more accurately determine the logical state of an SNA group by specifying a Logical State Threshold on the State Thresholds panel. This threshold determines, from the combined logical state of each resource, whether the SNA group is OK or not OK. If the group is OK, then conceptually the actual state of the SNA group is said to match its desired state. If the group is not OK, then conceptually the actual state of the SNA group is said to be in a state (ACTIVE or INACTIVE) that is different from its desired state. These states are compared to the Automated or Manual Mode Attributes Table to determine the SNA group's logical state.

Example: SNA Group Logical State

Assume you have specified 10% as the logical state threshold for the SNA group as specified in the previous example.

The actual state of one SNA line is FAILED, desired ACTIVE. Using the specified actual state thresholds, the actual state of the SNA group is FAILED. Because a logical state threshold is specified, the logical state of the SNA group is determined using the following method:

1. The logical state of the failed line is determined using the SNA Resource Logical State Normalization Table as displayed here.



```
---- Automation Services : SNA Resource Logical State Normalization Table -----
Command ===>                                                    Function=BROWSE

.-----------+---------------------.
|   SNA     |    SNA RESOURCE     |
| RESOURCE  |    DESIRED STATE    |
|  ACTUAL   +----------+----------+
|  STATE    | ACTIVE   | INACTIVE |
+-----------+----------+----------+
| ACTIVE    | OK       | NOTOK    |
| STARTING  | OK       | NOTOK    |
| STOPPING  | NOTOK    | OK       |
| DEGRADED  | OK       | NOTOK    |
| INACTIVE  | NOTOK    | OK       |
| FAILED    | NOTOK    | NOTOK    |
| UNKNOWN   | NOTOK    | NOTOK    |
'-----------+----------+----------'
```

   The Actual state of the resource (FAILED) is compared to the desired state of the resource (ACTIVE) to determine the logical state of the resource (NOTOK). In this case, the logical state is not OK.

2. Because one NOTOK SNA resource is equal to ten percent, the logical state threshold has been reached and the logical state of the SNA group is not OK.

3. Because the SNA group is not OK, it is conceptually known as INACTIVE by the region.

   Note: If the SNA group is OK, then conceptually it is known as ACTIVE by the region.

4. The region is in MANUAL mode so the logical state of the SNA group is determined from the Manual Mode Attributes Table. Using this table, if the actual state is INACTIVE and the desired state is ACTIVE, the logical state of the SNA group is ATTENTION.

Logging Details

The Automation Log Details panel contains information about the size of the temporary log for the SNA group (called a *transient log*), the destination of the logged information, and the type of information logged.

Owner Details

The Owner Details panel lets you identify up to two people who can be contacted if this SNA group has operational problems.

Extended Function Exit

The Extended Function Exit panel lets you provide additional operator functions. Specify the exit NCL procedure that provides these functions. The procedure is invoked when an operator issues the XF command against the SNA group.

The extended function exit NCL procedure has access to variables with the prefix ZRM or ZRS.

Display an SNA Group on the Graphical Monitor

After you defined an SNA group, it is immediately visible on the status monitor if the system image that owns it is active. To enable the SNA group to display as an icon in the graphical monitor (see page 108), use the RG action to create a resource group for it. You can then attach the resource group to an icon for display on the graphical monitor.

Display the Status of Included SNA Resources on Icons

To display the status of included SNA resources on an icon, ensure that the attached resource group contains one and only one member, the SNA group.

If you include more than one member in the resource group, the icon displays normally. That is, it displays the status of its members. For example, if the resource group contains two SNA groups, the icon displays the status of the SNA groups and not the status of the included resources.

Chapter 8: Managing SNA Resources from a Service Perspective

This section contains the following topics:

Resource Management by Services

Basic SNA resource management does not provide a business view of the services you are providing. To carry network management further, you need to group resources into the services they provide.

When you start your region for the first time, you can immediately monitor the SNA resources using the SNA network summary display. By using the supplied default SNA resource models, the region also maintains the desired state of the resources. This desired state is determined by the initial status of a resource in the VTAM domain.

However, you need to define those resources to the knowledge base if you want to provide the following:

- More detailed management of the desired state of the resources
- Management of non-SNA resources
- A service-driven operations perspective of your networks

Manage the Desired State of Resources

Instead of using the initial status of SNA resources in the VTAM domain as the desired state, you may want to manage their desired state in more detail. For example, you may want a resource to be active over certain periods of time and to be inactive over other periods of time. You may also want to include the resource in a service.

If you want to do the above, you must define the affected resources to the knowledge base. To define the resources, define a system image and then define the resources to that image.

You define SNA resources in SNA groups (see page 57), each of which can contain one or more resources. You specify the availability requirements of those groups, and the contained resources inherit that availability.

If you want to include the management of non-SNA resources as part of network operations, you can define them as USRCLS class resources.

Note: For information about how to define USRCLS class resources, see the *Reference Guide*.

Provide a Service-driven Operations Perspective of Your Networks

An SNA group lets you group SNA resources in the local VTAM domain. Where your business function uses resources from multiple VTAM domains, you can include the required SNA groups in the different domains in a single service.

A typical service includes different classes of resources. It may require SNA resources, but it may also require other classes of resources such as system resources, CICS resources, or IMS resources. You can define these other classes of resources if you have the products that support them.

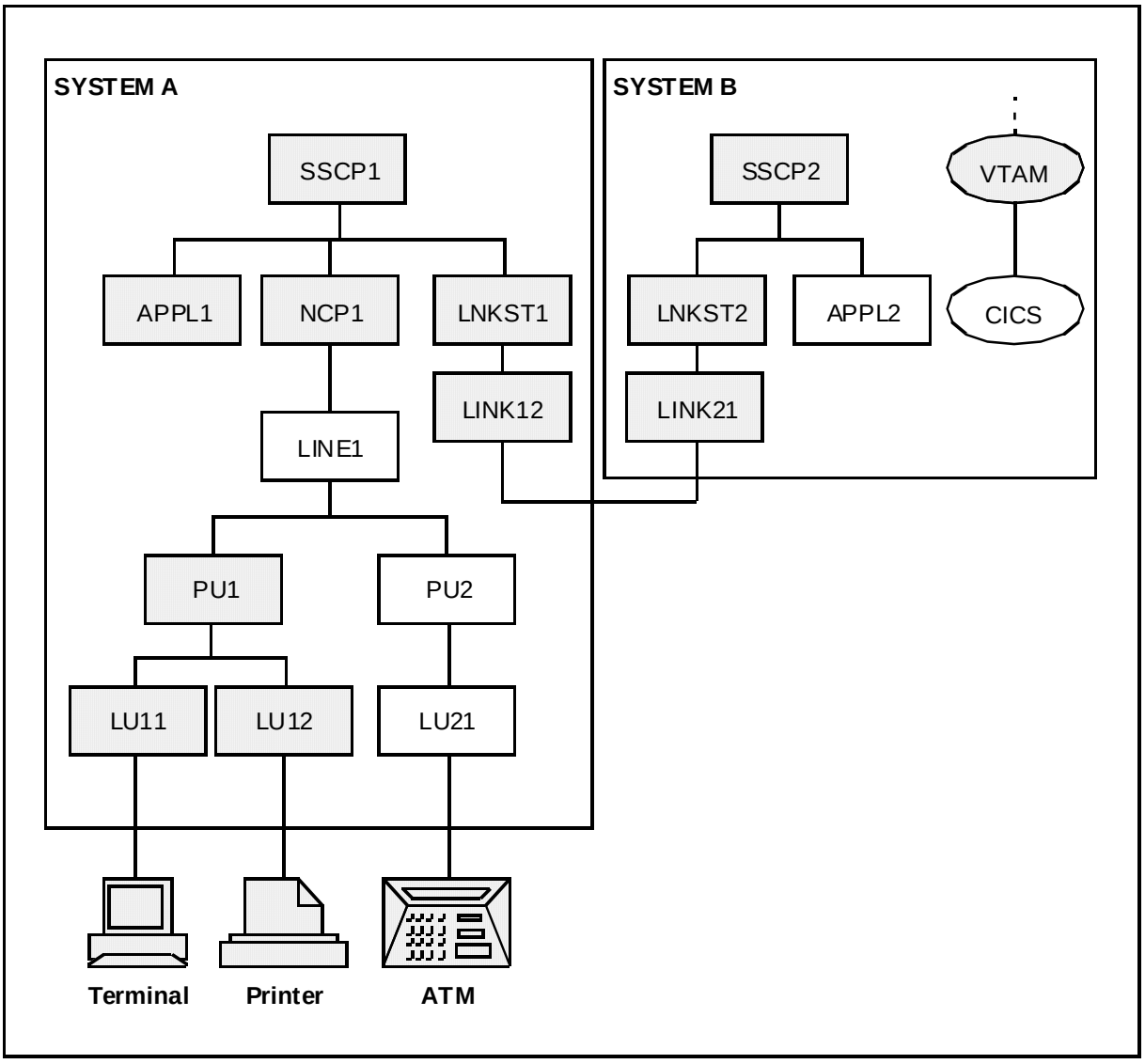
To run your network operations from a service-driven perspective, group related SNA groups and resources in services and specify the availability requirements of those services. The services then ensure the availability of its members.

Defined services (see page 84) can be monitored. You can tell whether a service is healthy at a glance. If an operational problem occurs, you can display the status of the resources to determine which resources are causing the problem.

Important! You can define and manage services from focal point regions only. Services are not visible in subordinate regions, but you can include resources managed by a subordinate region in a service.

Example: SNA Network with Groups

The following diagram shows an example of an SNA network with SNA groups.



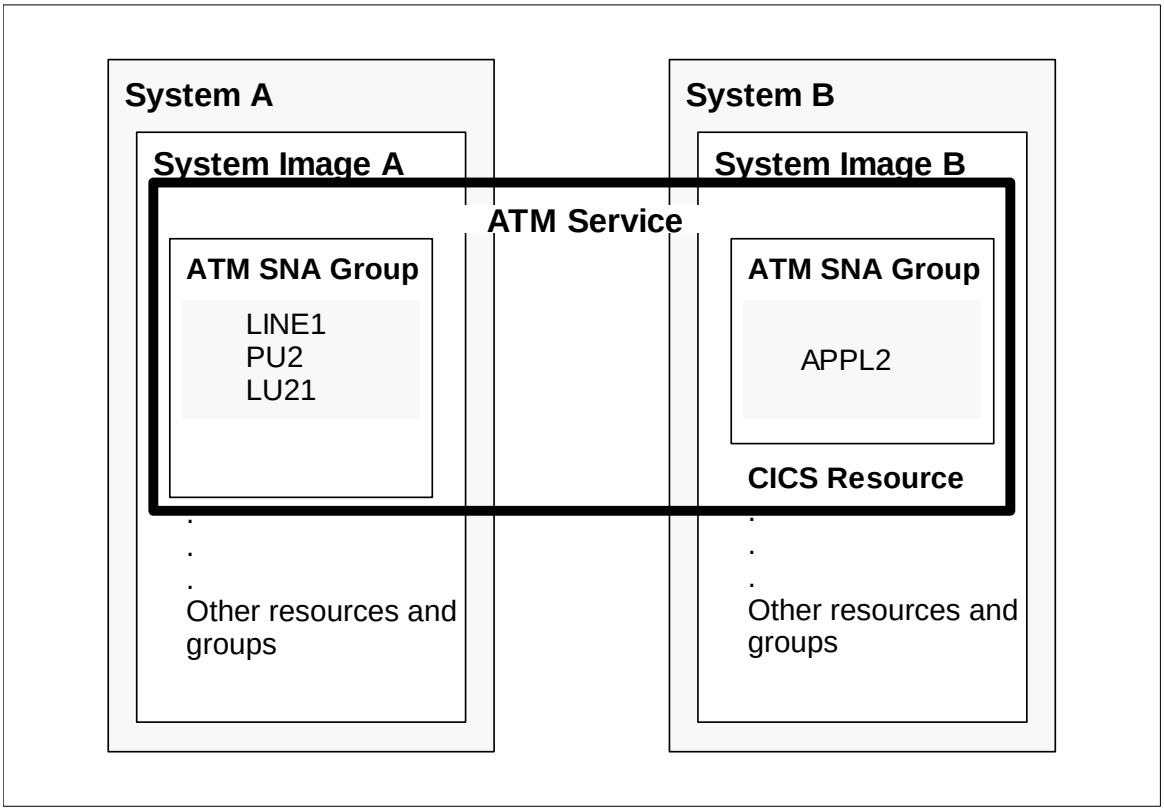
In the network, the CICS application associated with the APPL2 node and the automatic teller machine (ATM) provide a branch service. You want to monitor the health of this service without monitoring the individual resources that make up that service. To provide this function, you need to define a ServiceView service.

Note: To define a ServiceView service, you must have both CA NetMaster NA and CA SOLVE:Operations Automation.

Using this example, a typical service definition task might proceed as follows:

1. You decide that the service should include the following resources:
   - LINE1, PU2, and LU21 on System A
   - APPL2 and CICS on System B
2. To include the identified resources in a service, you must add them to the appropriate system images. Create the image definitions for the two systems if the images are not already defined.
3. Define the identified resources to the images. In image A, define an SNA group that includes the LINE1, PU2, and LU21 resources. In image B, define an SNA group that includes the APPL2 resource and a definition for the CICS started task.
4. Define a service to include both SNA groups and the CICS resource definition. After you define the service, you have immediate visibility of that service on the status monitor.

The following diagram shows an example of the defined service.



Implement the SNA Operations Environment

To provide a service-driven operations perspective of your networks, you need to implement the automation component of this product and then group resources into the services they provide by creating SNA group and service definitions. You may also want to manage messages by creating EventView rules.

After you have reviewed and decided on your operations requirements, you can start implementing the requirements into your SNA operations environment. This includes defining your automation requirements and monitor views.

Note: If you are planning a multisystem environment, you should create the definitions in a master region. When you connect two regions, you also synchronize their knowledge bases. The knowledge base in the source region overwrites the knowledge base in the target region (which is the region from which you attempt the connection). *Use the master region as the source*. Do not independently create definitions in regions that will later be connected.

How to Define Automation Requirements

To define your automation requirements, you create the system image, services, and EventView rules.

To define automation requirements

1. Create the system image and the SNA group definitions.
2. Load the system image in the region.
3. (Optional) Link the regions if you are managing more than one system by using multiple regions and then repeat steps 1 and 2 in those regions.
4. (Optional) Create an EventView rule set and associate it with the system image if you want to manage the messages on a system.
5. Create services to provide a business view of the managed resources.

Define Monitor Views

You can customize your monitors to provide different views of the managed systems. You can create the following:

- Filters for the status monitor
- Icon panels for the graphical monitor
- Message profiles for the consolidated console

Note: For more information, see the *Administration Guide*.

Chapter 9: Implementing Services

This section contains the following topics:

Services

A service is a collection of resources that support a business or operations function. After you have defined the resources, you group relevant resources in service definitions. You use service definitions to specify the service availability requirements of your organization.

Note: You can define and manage services from focal point regions only. Services are not visible in subordinate regions, but you can include resources managed by a subordinate region in a service.

Access Service Definitions

Service definitions are stored in the knowledge base in a structure similar to that of resource definitions. Service definitions belong to the service system image, $SERVICE. Version 0001 of this image is always active. The definitions have a class of SVC.

To access service definitions

1. Enter **/SADMIN.S** at the prompt.

   The ServiceView : Service List panel appears. The panel lists the services in the knowledge base.

Note: To assist with maintenance of your service definitions you can create backup versions of the $SERVICE 0001 service image.

Define a Service

You can use variables as data in a service definition.

To add a service definition, press F4 (Add) from the Service List panel. A Service General Description panel appears. You define the service by entering data on the following panels:

Service General Description

You must complete this panel. The panel enables you to identify the service, specify the service operation mode, and define the availability requirements for the service.

Service Filters

You should complete this panel. The panel enables you to select members for the service and specify how important a member is to the service.

State Thresholds

The panel enables you to define how the statuses of the service members affect the status of the service.

State Change Exits

The panel enables you to specify state change exit processes that are invoked if the service changes to a given state.

Automation Log Details

The panel enables you to change the logging requirements.

Owner Details

The panel enables you to identify up to two people who can be contacted if the service has operational problems.

Extended Function Exit

The panel enables you to specify an exit NCL procedure that can be used to extend the service functions provided in the region.

Describe the Service

Use the Service General Description panel to specify the service name, the operation mode, a description of the purpose of the service, and the availability map to apply.

Specify the Operation Mode

Specify an operation mode of AUTOMATED, OFF, MANUAL, or IGNORED. During operation, the mode specified in the Operation Mode field can be restricted by the global operation mode.

The following table describes the effect of the operation mode on a service.

Operation Mode	Effect
AUTOMATED	The region monitors and automates the control of the service. When the desired state of the service is set to ACTIVE, the service places an ACTIVE desired state override on its members. The region then determines the actual state of the service from the actual states of the members. When the desired state of the service is set to INACTIVE, the service removes the ACTIVE desired state overrides from its members and acquires an INACTIVE actual state immediately.
OFF	The region neither monitors nor controls the service. The definition remains in the knowledge base, but the service does not appear on your monitors.
MANUAL or IGNORED	The region monitors but relinquishes control of the service to the operators. A service in the IGNORED mode always appears green on your monitors. When the desired state of the service is set to ACTIVE, the service does not place the ACTIVE desired state overrides on its members. The overrides occur only when an operator starts the service manually by using the A(ctivate) command. Similarly, setting the desired state of the service to INACTIVE does not affect the members until an operator stops the service manually by using the T(erminate) command.

Define the Availability of the Service

You can use an availability map to define the changes to the normal availability of the service.

In a multisystem environment, you specify a system as the service automation focal point system and the scheduled times refer to the local times on that system. If the map schedules the starting of processes, the processes are started in the region on that system only.

To attach an existing map, enter the name of the map in the Availability Map field. Press F10 (Edit Map) to update the timer details.

Leave the Availability Map field blank if you want to use the default desired state, which can be either ACTIVE or INACTIVE (as set in the AUTOIDS parameter group during region initialization).

The availability of a service overrides the availability of its members. If the service is always a member of another service, let the other service handle the availability of this service. Define the desired state of the service to be always inactive.

Note: You can create a new map from the service definition. You can name a new map and define it, or access an existing map, change the name, and update the copy. The map is created in the knowledge base when you save the definition.

Select Service Members

From the General Description panel, press F8 (Forward) to scroll forward to the Service Filters panel. Use this panel to define the filters that select the members of the service.

Define the filters by specifying the following criteria:

- The service class (SVC, if the member is another service) or resource class in the Class field.
- The name of the member in the Name field. You can use the following wildcard characters:
  - The underline character (_) represents a single character. For example, PROD_X3A matches PROD1X3A, PROD2X3A, …
  - The percent character (%) represents zero or more characters. For example, PROD%X3A matches PRODX3A, PROD1X3A, PROD2X3A, …
  - You can also use the asterisk (*) as a wildcard character. It behaves the same way as the % character except that you cannot have the * at the beginning of or embedded in the specified value. For example, * and PROD* are valid values.
- The SMF ID of the system that owns the member in the SMF ID field. The default is the SMF ID of the local system.

  When you have resources with the same identification defined on different systems and you want to include all those resources as members, specify ***** in the SMF ID field to indicate all systems.
- The type of resource (as specified in the resource definition) in the Type field. You can use the asterisk (*) wildcard character by itself or at the end of the specified value.

  Note: The Type field is irrelevant for a service. Leave the value to the default.
- A weight that indicates how important the member is to the service in the Weight field.
- The type of weight in the Weight Type field.

You can define up to 97 lines of members.

Define the Weight of a Service Member

The weight indicates how important a member is to the service. The valid values are 0% through 100%.

If the weight is 100%, the actual state of the member affects the actual state of the service directly. For example, if the member fails, the service fails.

If the weight is 0%, the member has no effect on the service.

If the weight is between 0% and 100%, the effect of the member on the service depends on the state thresholds (see page 89).

You can apply the following types of weights to service members:

Fixed Weight

With a fixed weight, every member included in a line entry has the weight specified in the Weight field.

In the following examples, the weight is 100% fixed:

- If the line entry includes only one member (for example, the PRODA started task in the EASTTEST 0001 system), the member has 100% weighting in the service.
- If the line entry includes more than one member (for example, the PRODA started tasks in all the connected systems (SMF ID=*)), each of the members has 100% weighting in the service.

Proportional Weight

You can use the proportional type of weight when the line entry includes more than one member. With a proportional weight, every member included in the line entry has an equal proportion of the weight specified in the Weight field. For example, if the weight is 100% proportionally applied to two members, each member has 50% weighting in the service.

View the Service as Defined by the Service Filters

The service filters select the members for a service. Only members defined in active system images are selected; therefore, the members can change if the active system images change (for example, when a connected region has a different system image loaded).

You can use the F5 (Model) function key to view the members in the service.

Merge Two Service Images

You can merge two service images and replace the active image with a backup version.

To merge service images $SERVICE 0002 and $SERVICE 0001

1. Enter **C** beside the $SERVICE 0002 on the ServiceView : Service Image List panel.

   The ServiceView : Service Image Definition panel appears.

2. Change the Database Version number to 0001and press F3 (File).

   The Confirm System Image Merge panel appears.

3. Enter **YES** in the input field if you want to overlay like-named components.

4. Press F6 (Confirm).

   The service images are merged.

Define the State Thresholds

From the Service Filters panel, press F8 (Forward) to go to the State Thresholds panel. Use this panel to define how the actual states of the members affect the actual state of the service.

The actual state of a service can be *one* of the following:

- UNKNOWN
- FAILED
- ACTIVE
- STARTING
- DEGRADED

You must assign a threshold to the first four states.

Thresholds are evaluated in the order shown. The service takes on the state of the first threshold equalled or exceeded, irrespective of whether other thresholds are equalled or exceeded. For each actual state, you specify a percentage threshold value that, if equalled or exceeded, causes the service to take on that state (unless a state of higher severity has also satisfied its threshold requirement). This threshold is expressed as a combined weight of the members required to deliver the service.

Each member of the service has a weight associated with it that expresses the level of impact the individual resource has on the threshold calculation for the actual state of the service.

If members are not ACTIVE, you can use their logical state rather than their actual state to calculate the threshold for the actual state of the service. In this case, if a member has a logical state of OK, its weight is added to the combined weight for the ACTIVE state. If a member has a logical state of UNKNOWN or STARTING, their weight is added to the combined weight for the corresponding actual state. If a member has any other logical state, their weight is added to the combined weight for the FAILED actual state.

Note: If a service filter finds no members, the weight specified in the Weight column on the Service Filters panel is added to the combined weight for the UNKNOWN state.

There are advantages in using the logical state rather than the actual state to calculate the threshold. For example, you can shut down a resource that is part of a service without affecting the service. The service sees a logical state of OK, even though the resource is INACTIVE, and treats it as though it is ACTIVE. Alternatively, when a resource fails and you set it to IGNORED, the service sees the resource as ACTIVE (OK), and the service continues unaffected.

Implement the State Change Exits

From the State Thresholds panel, press F8 (Forward) to scroll forward to the State Change Exits panel. This panel lets you specify the following types of exit processes:

- A process that executes before the service is started. By using this feature, you can add your own pre-activation tasks to the internal service starting method.
- Processes that execute on specified state changes. For example, if a service fails, you may want to invoke a procedure that writes a problem report. You can specify a process to execute on changes to the actual state, the desired state, or the logical state of the service.

In a multisystem environment, you can specify whether the processes are executed in a specific region only or in all connected regions.

Define the Logging Details

From the State Change Exits panel, press F8 (Forward) to scroll forward to the Automation Log Details Panel. This panel contains information about the size of the temporary log for the service (called a *transient log*), the destination of the logged information, and the type of information logged.

Specify the Owner Details

From the Automation Log Details panel, press F8 (Forward) to scroll forward to the Owner Details panel. This panel lets you identify up to two people who can be contacted if this service has operational problems.

Implement the Extended Function Exit

From the Owner Details panel, press F8 (Forward) to scroll forward to the Extended Function Exit panel. The panel lets you provide additional operator functions. Specify the exit NCL procedure that provides these functions. The procedure is invoked when an operator issues the XF command against the service.

The extended function exit NCL procedure has access to variables that contain all of the service details with the prefix ZRM.

Maintain Service Definitions

You can browse, update, copy, and delete service definitions from the Service List panel.

Note: If you only want to hide a service definition from the region, set the operation mode to OFF. The definition remains in the knowledge base but is not used.

Back Up Service Definitions

To assist you with the maintenance of your service definitions, you can create backup versions of your service image. By creating a backup version of your service image or definitions, you can perform the following:

- Update service definitions in any version of a service image
- Restore a service definition from a backup service image
- Merge two versions of a service image

To create a backup version of a service image

1. Enter **/SADMIN.SI** at the prompt.

   The service image list appears.

   Note: If you have not created a backup before, there is only one service image listed: $SERVICE 0001.The active service image can be $SERVICE 0001 only. $SERVICE 0001 cannot be deleted.

2. Enter **C** next to the service image you want to copy.

   The ServiceView : Service Image Definition panel appears.

3. Enter a new Database Version, Short Description, and (optionally) a Long Description.

4. Press F3 (File).

   A copy in progress panel opens while the copy occurs. The Service Image List appears with the backup version displayed in the list.

Update Service Definitions in a Backup Service Image

You can access a list of all the service definitions in any version of a service image. From this list you can update any service definitions contained in the service image.

To update a service definition in the $SERVICE 0002 backup image

1. Enter **L** (List Services) beside the $SERVICE 0002 service image in the Service Image List.

   The ServiceView : Service List panel appears showing the service definitions in that service image.

   Note: You can access the list of service definitions for another version of the service image by changing the version number on the Service Image List panel and pressing Enter.

2. Enter **U** beside the service definition that you want to update.

   The ServiceView : Panel Display List appears for that service definition.

3. Update the service definition, as required.

4. Press F3 (File) to save the changes.

   The ServiceView : Service List panel appears.

Restore a Service Definition from a Backup Service Image

If you have made changes to a service definition and you are having trouble with its implementation, you can restore it from a previous version of the definition.

To restore service definition SERV01 from $SERVICE 0002 service image to $SERVICE 0001

1. Enter **C** beside SERV01 in the ServiceView : Service List.

   The ServiceView : Service Image Definition panel appears.

2. Change the Database Version from 0002 to 0001 and press F3 (File).

   Because there is already a copy of the service in the target service image, the Confirm Copy Replace panel appears.

3. Press Enter to confirm the replace or F12 (Cancel) to cancel the request.

   The ServiceView : Service List panel appears.

Chapter 10: Implementing Availability Maps

This section contains the following topics:

Availability Maps

An availability map enables you to define the availability requirements for a service or resource. An availability map also enables you to schedule the execution of processes. You can add an availability map at any time. The map becomes effective as soon as you attach services or resources to it.

Implement Availability Maps

The status of a service or a resource is determined by the desired state information specified in its definition. The definition can include an availability map that schedules changes to the default availability. These changes are activated by timers.

Note: The default availability of a service or resource is determined by the default desired state, which is set in the AUTOIDS parameter group during region initialization. The Customizer : Parameter Groups panel lists the region parameter groups. Enter the **/PARMS** shortcut to access the panel.

Availability maps enable you to schedule changes to the default availability requirements of one or more services or resources. The service image and each system image have its own set of availability maps. You define an availability map (for example, MAP1) and attach as many services or resources to the map as required. Because availability maps are not limited to a seven-day cycle, you can define changes to the availability requirements that apply daily, on the same day every week, on the same date every month, for a specific date and time, and so on. You can also suppress changes temporarily and update timer information at any time.

An availability map has two parts: a map definition and a timer definition. The map definition contains information about the map itself. The timer definition contains information about when to change the desired state of the services or resources that use this map. The timer definition can also contain information about when to change the operation mode and when to start processes to perform special tasks.

Creating an availability map has the following two stages:

1. Creating an availability map.
2. Attaching services or resources to a map.

Note: For information about how availability and resource relationships affect operations, see the *Reference Guide*.

Rules for Availability Map Definitions

The following rules apply to availability maps:

- If the timer definition is blank, it means that default availability requirements apply to all the services or resources attached to that map.
- A map only applies to the service image or the system image for which it is defined.
- Map names must be unique in the image to which the map applies.

Access Availability Map Definitions

You can define as many maps for a system image as you want. After the map is defined, you can define timer information and attach services or resources to the map. Use the Availability Maps option to create and maintain availability map definitions.

The service image and each system image have its own set of availability maps.

To access service availability map definitions

1. Enter **/SADMIN.A** at the prompt.

   The Availability Map List appears.

To access resource availability map definitions

1. Enter **/RADMIN** at the prompt.

   The Resource Administration menu appears.

2. Enter **A** at the prompt and the name and version of the system image that owns the maps you want to create or access, and then press Enter.

   The Availability Map List panel appears. This panel lists the availability maps for the specified service or system image.

Note: To display the maps owned by another system image or resource, you can enter another name (resources only) or version number at the top of this panel.

Temporary Availability Maps

A temporary availability map is an availability map created from the status monitor to override the current map attached to a service or resource. A temporary map has an expiry time when the map is deleted automatically. You can use a temporary map as any other map, remembering that it has a defined life time.

Create an Availability Map

To create an availability map

1. Press F4 (Add) from the Availability Map List panel.

   The Availability Map panel appears.

2. Specify the timer information that sets the availability requirements. For information about the fields, press F1 (Help).

Define Timers

You can define two types of timer information:

- For all services or resources—define the timer, leaving the SVC/Resource Name field blank. This timer information applies to any services or resources attached to the map.
- For a specific service or resource—define the timer with the name of the service or resource in the SVC/Resource Name field. This timer information applies to the named service or resource if the service or resource is attached to the map.

You can use the action codes to repeat or delete rows of information, or to insert blank lines.

Use the following values in the Day field to simplify data entry:

Value	Function
*	Repeats the timer for all days (that is, Monday through Sunday).
W/D	Repeats the timer for weekdays (that is, Monday through Friday).
W/E	Repeats the timer for weekends (that is, Saturday and Sunday).

Leave the Day field blank if you fill in the Date field. If the Mode field is left blank, you do not override the operation mode.

Schedule Processes

If you want the map to start processes at defined times, press F11 (Right) to display the fields for specifying processes.

Reset Manual Overrides

You can use a timer to reset manual desired state and operation mode overrides. Specify RESET in the Des.State and in the Mode fields.

When a manual override exists, the scheduled change to the overridden parameter cannot be made. If you want to ensure that the scheduled changes are made, reset the overrides first.

For more information about how to perform manual overrides, see the *User Guide*.

Example: Define an Availability Map

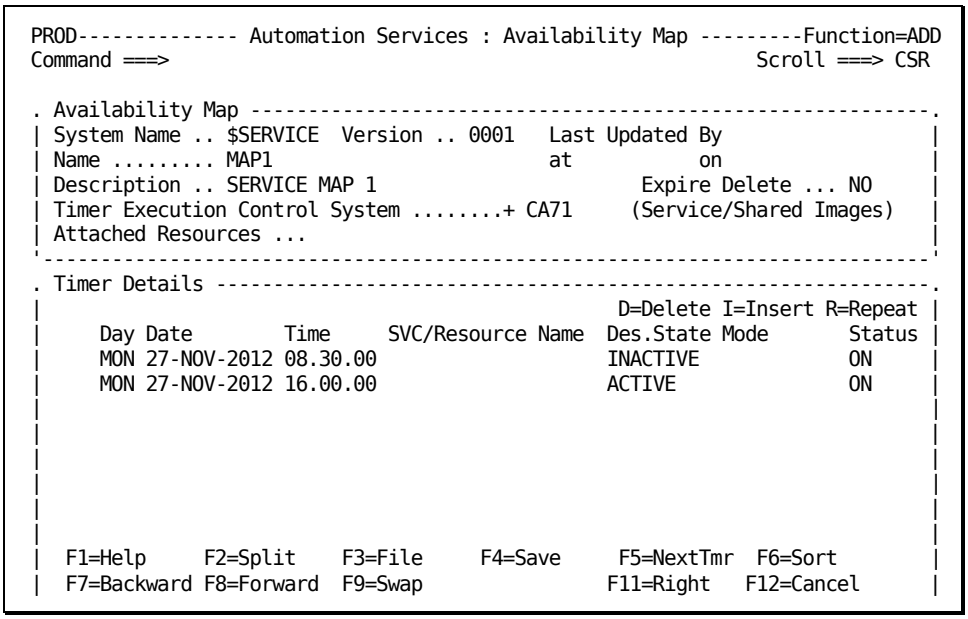
This example describes how to define an availability map for services.

In this example, you define a map for the defined services to schedule such things as availability during holidays and when system maintenance is required. The map is called MAP1.

Use the **/SADMIN.A** path and the F4 (Add) function key to access the Availability Map panel. On the panel, you type **MAP1** in the Name field, a description in the Description field, and **N** in the Expire Delete field to retain expired timer events. (These events occur on specific dates.) You can now specify timer details.

You want to stop all services on 27 November 2012 at 0830 hours for system maintenance. All services are to be reactivated at 1600 hours on the same day. (Resources that belong to the services should have a scheduled INACTIVE desired state for all times. That is, the services control the availability of those resources by using the ACTIVE desired state overrides.

In the Timer Details box, type the information about the date, the time, the change to the status, and whether this change is to be processed. In order to have a change processed, specify **ON** in the Status column. The following shows the completed Availability Map panel.



View Timer Information

The Next Timers Execution Time panel lists information about upcoming changes to availability. You can obtain different views of this timer information by:

- Viewing the timer information in all availability maps for the services or in a system image
- Viewing the timer information in one availability map

The views list the next invocation of the defined timers. For example, a timer that executes every Monday is listed once only.

View All Timer Information

You can view a list of the upcoming changes scheduled in all maps defined in the service image or in a system image. The changes are listed in chronological order.

Access this information from the Availability Maps List panel by pressing F12 (NextTmr). This displays a Next Execution Time panel, which lists the upcoming changes for all the maps.

View the Timer Information in One Availability Map

You can view a list of the upcoming changes scheduled in an individual map. The changes are listed in chronological order.

You can view the timer information in a map from the following panels:

- From the Availability Map List panel, enter **N** next to an availability map to select the NextTimers action.
- From an Availability Map panel (while you are working on an availability map definition, a resource definition, or a service definition), press F5 (NextTmr).

A Next Execution Time panel is displayed, listing the upcoming changes for the selected map.

Attach a Service or Resource Definition to an Availability Map

After a map is defined, you can attach service or resource definitions by using:

- The Availability Map List
- The service or resource definition panels

Attach a Service or Resource Using the Availability Map List

To attach a service or resource definition to an availability map from the Availability Map List

1. Enter **AR** next to the availability map to which you want to add a resource or service.

   The Attach Resources panel appears.

2. Enter **S** next to the resource or service that you want to add to the availability map.

   The Attach Resources Results panel appears, which tells you if the operation was successful.

3. Press F3 (File).

   The Availability Map List appears.

   Note: To display the resources or services that are attached to an availability map, enter **LR** next to the availability map in the Availability Map List.

Attach a Service or Resource While You Are Working on Its Definition

To attach a service or resource to a map while you are working on the definition

1. Select the General Description panel.
2. Enter the name of the availability map to which you want to attach the resource or service in the Availability Map field and press F3 (File).

   The details are saved.

Detach Service or Resource Definitions from an Availability Map

You can detach service or resource definitions from an availability map (for example, if you want to make changes to a resource and test it separately).

You can detach a service or a resource from an availability map by using:

- The Availability Map List
- The service or resource definition panels

Detach Services or Resources Using the Availability Map List

To detach a service or resource from an availability map from the Availability Map List

1. Enter **/SADMIN.A** (for services) or the **/RADMIN.A** (for resources) at the prompt.

   The Availability Map List panel appears.

2. Enter **LR** next to the map from which you want to detach services or resources.

   A list of the attached services or resources appears.

3. Enter **DT** next to the services or resources that you want to detach from the map and press Enter.

   The services or resources are detached from the map.

Detach a Service or Resource While You Are Working on Its Definition

To detach a service or a resource from a map while you are working on the definition

1. Select the General Description panel.
2. Remove the name of the availability map from the Availability Map field and press F3 (File).

   The service or resource is detached from the map.

Maintain Availability Map Definitions

You can browse, update, copy, and delete timer information and availability map definitions from the Availability Map List panel.

Chapter 11: Implementing the Graphical Monitor

This section contains the following topics:

Graphical Monitor

The graphical monitor presents the status of resources in icons on an icon panel.

You customize the graphical monitor by using icon panels. You can change the icon panel to obtain a different view of the monitored systems and networks. By zooming (Z) in on an icon, you can selectively view the group of resources that it contains.

The graphical monitor monitors groups of resources as a single entity.

How to Customize the Graphical Monitor

To customize the graphical monitor, you define resource groups, icons, and icon panels. You arrange icons on icon panels and attach resource groups to the icons so that each icon on the panel represents a group of resources. After you generate an icon panel, an operator can use that panel to customize the graphical monitor.

You generate an icon panel as follows:

1. Define the required resource groups.
2. Define the icons to use on an icon panel.
3. Define the icon panel.
4. Place the defined icons on the panel and attach resource groups to them.

When you save a resource group, icon, or icon panel definition in the knowledge base, or generate an icon panel description file, it propagates automatically to all the connected regions. That is, the definition of the generated icon panel is global.

Define and Maintain Resource Groups for Icons

A resource group represents a group of resources that you have defined in the knowledge base. To define a resource group, use *one* of the following methods:

- **Specify an Icon Panel**

  The panel displays icons representing other resource groups. Use the Zoom Icon Panel Definition panel to specify the icon panel.

- **Specify a Group of Resources**

  You can identify up to 16 resources by class and name. Thus, the identified resources are independent of system images. In a multisystem environment, the specified class and name points to all resources of the class and name in all the system images that are loaded in the linked regions. You can, however, specifically exclude remote resources. Use the Resource Filter Definition panel to specify the resources to group.

- **Specify a Resource Group Filter**

  A resource group filter uses a Boolean expression to define a group of resources. You group the resources by their static attributes such as names and parent system images. Use the Resource Group Filter Definition panel to define the Boolean expression.

Access Resource Group Definitions

The Resource Groups List displays the list of resource group definitions in the knowledge base. You can add a new definition or browse, update, copy or delete an existing definition.

To access resource group definitions

1. Enter **/GADMIN.G** at the command prompt.

   The Resource Group List appears.

Add a Resource Group Definition

To add a resource group definition

1. Enter **/GADMIN.G** at the prompt.

   The Resource Group List appears.

2. Press F4 (Add) to add a group definition.

   The Resource Group Definition panel appears.

   Note: If you change your mind and do not want to add the group, press F12 (Cancel) to cancel the operation any time before Step 6.

3. Complete the Name and Description fields to identify the new group.

4. Select *one* of the following options to define the group:

   - Select option A to specify an icon panel.

     The Zoom Icon Panel Definition panel appears. Proceed to Step 5a.

   - Select option B to specify a group of resources by class and name.

     The Resource Filter Definition panel appears. Proceed to Step 5b.

   - Select option C to specify a resource group filter.

     The Resource Group Filter Definition panel (see page 107) appears. Proceed to Step 5c.

   Note: Options B and C are related. You can use option B to specify the services and resources in the group directly. If you then select option C, the specification defined by using option B is expanded into a Boolean expression.

5. Depending on the option you select, proceed as follows:

   a. Specify the name of a generated icon panel in the Zoom Icon Panel Name field. You can enter a question mark (?) in the field to access the icon panel prompt list from which you can select the required panel.

      After you specify the name, proceed to Step 6.

   b. Identify the resources by class and name in the ClassDsc and Resource Name fields. You can enter a question mark (?) in the fields to access the resource class and resource name prompt lists from which you can select the required class and name.

      If you want to exclude the resources from remote systems, specify **Y** (yes) in the Exclude Remote System Resource field. The default is NO.

      After you identify the resources, proceed to Step 6.

   c. Press F10 (EditFltr) to edit the filter. See the online help for a description of the fields.

      Specify the Boolean expression (see page 107) in the Filter Expression window to define the filter.

      Press F3 (OK) to exit the edit mode, then proceed to Step 6.

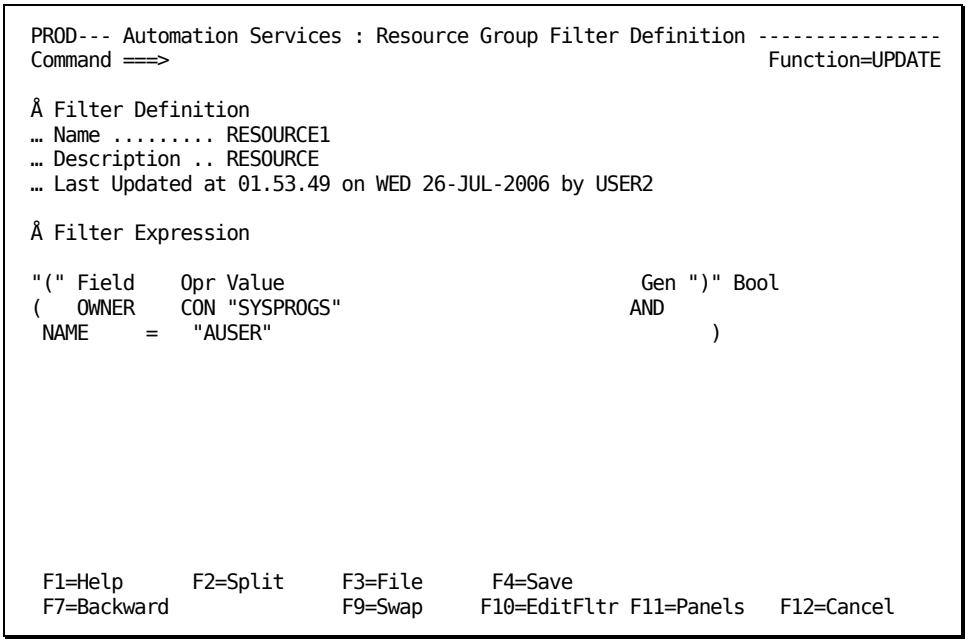
6. Press F3 (File) to file the new definition when you finish defining the group.

Resource Group Filter Definition Panel

The Resource Group Filter Definition panel specifies the details of a resource group.

The panel displays two windows. The Filter Definition window identifies the filter, and the Filter Expression window specifies the Boolean expression of the filter.

Example: Resource Group Filter Definition Panel



Define the Resource Group Filter Expression

Use the Filter Expression window on the Resource Group Filter Definition panel to specify the Boolean expression that defines the filter. The expression uses resource attributes to determine what belongs to the group.

Use the following action codes to help you enter the expression:

D (Delete)

Deletes the selected line.

I (Insert)

Inserts a blank line after the selected line.

R (Repeat)

Repeats a selected line.

Maintain Resource Group Definitions

You can browse, update, copy, and delete group definitions from the Resource Group List panel.

Note: During an update, if the resources in the resource group are specified by using option C, you have no access to option B.

Except as noted above, you can change the method of definition during an update. Saving a definition by a new method automatically overrides the definition by the current method.

Define and Maintain Icons

An icon is a graphic that you can use to represent resource groups on the graphical monitor. You use icons to build icon panels. You position one or more icons on a panel and attach resource groups to the icons, one group for each icon. When used, an icon displays a status determined by the status of the underlying group members. An operator can zoom in on an icon using the Z (Zoom) command. This displays another icon panel or a group of resources in the Status Monitor, as determined by the attached resource groups. Use the Icon Editor to define an icon.

Access Icon Definitions

To access icon definitions

1. Enter **/GADMIN.I** at the prompt.

   The Icon List panel appears.

   The panel displays the list of icon definitions in the knowledge base. You can add a new definition, or browse, update, copy or delete an existing definition. You can also edit a definition from the Icon Panel Generator panel.

Define an Icon

You use icons to build the panel for your graphical monitor.

To define an icon

1. Enter **/GADMIN.I** at the prompt.

   The Icon List panel appears.

2. Press F4 (Add).

   The Icon Editor panel appears.

3. Complete the following fields:

   Name

   Specifies the name of the icon.

   Description

   Describes the icon.

   Icon Height

   Specifies the height of the icon in lines.

   Icon Width

   Specifies the width of the icon in characters.

   Note: If you change the default size, press Enter to update the shape of the icon in the Edit Area window.

   Specify the values you want to display (see page 111) on the icon.

4. Press F3 (File).

   The new definition is saved.

Use the Icon Editor Panel

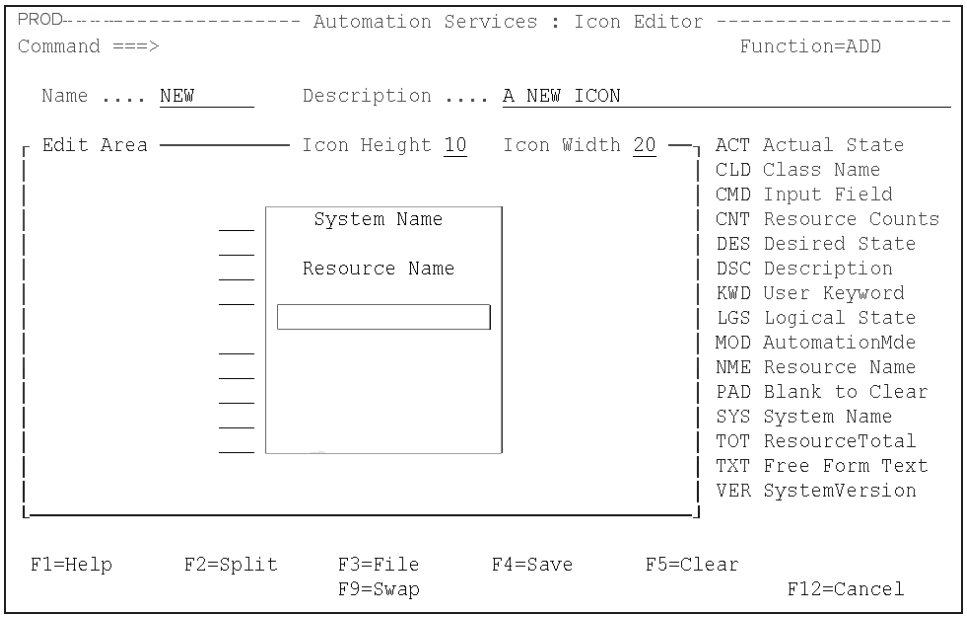
The Icon Editor panel specifies the details of an icon. The operation you are performing is displayed at the top right of the panel, for example, Function=UPDATE.

The panel specifies the following information:

- Name and description of the icon
- Size of the icon (height and width)
- Actual icon representation

The Edit Area window specifies the values you want to display on the icon.

Example: Icon Editor Panel



Edit the Icon

Use the Edit Area window on the Icon Editor panel to specify what you want to display on the icon.

The icon contains the number of lines specified in the Icon Height field. Use the three-character codes listed to the right of the Edit Area window to specify the values you want displayed on the icon. To use a code, enter the code in a line field. You can use the code on any line, irrespective of whether the line is blank or not. Except for the TXT code, executing a code on a line overrides what is already there.

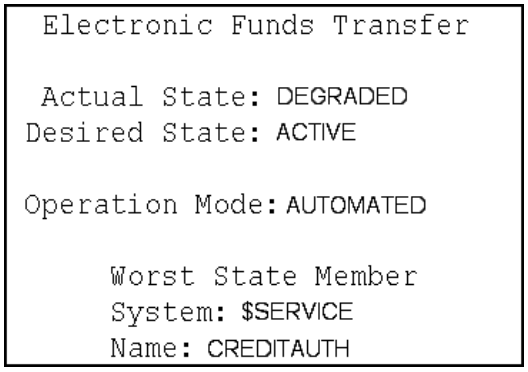
You can type codes in more than one line field, then press Enter to execute the codes.

Pressing F5 (Clear) clears the icon. Use the PAD code to clear a line.

Note: For information about the codes, see the online help.

Example: Define an Icon

In this example, an icon, EFTPOS, is defined for the group of services and resources that support electronic funds transfer. The finished icon as it appears to an operator is shown in the following figure:



To define the icon

1. Enter **/GADMIN.I** at the prompt.

   The Icon List panel appears.

2. Press F4 (Add).

   The Icon Editor panel appears.

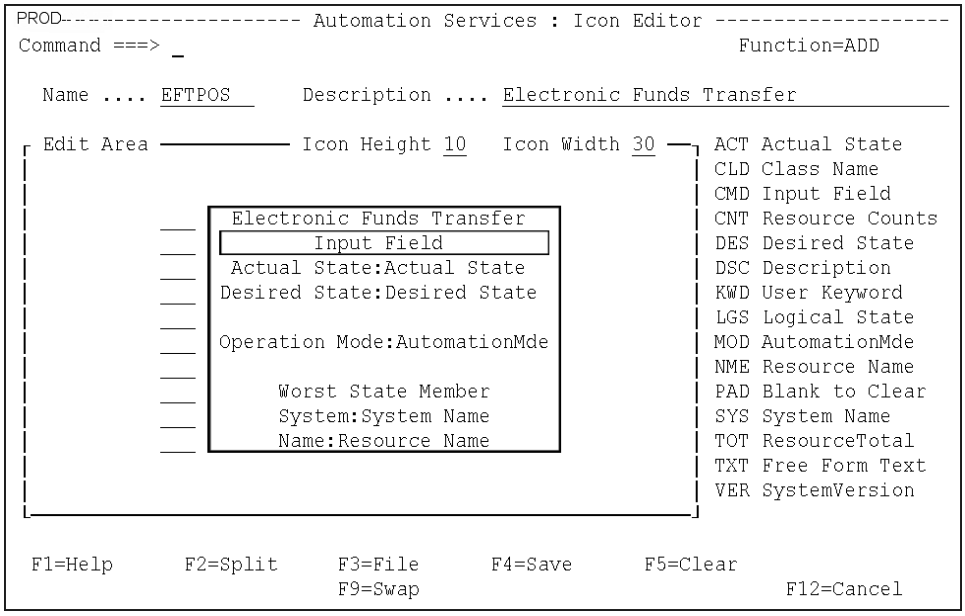
3. Enter **EFTPOS** in the Name field and a description in the Description field, for example, Electronic funds transfer.

4. You want the icon size to be 10 lines by 30 characters. Change the icon width to 30, and press Enter to update the shape of the icon.

5. Enter **TXT** in the first line field. A text field appears in the icon.
6. Enter **ELECTRONIC FUNDS TRANSFER** in the text field.
7. Enter **CMD** in the second line field to create the command entry field.
8. Enter **ACT** in the third line field.
9. To add the description to the field, enter **TXT** in the line field. Enter **Actual State** in the displayed text field. A colon is inserted automatically after the entered text.
10. Repeat steps 8 and 9, using the appropriate codes, for the desired state (line 4), the operation mode (line 6), and the identity of the group member that has the worst logical state (lines 9 and 10).

    Use steps 5 and 6 to enter the Worst State Member label (line 8).
11. Press F3 (File) to file the definition when you finish with the panel.

The following shows the completed Icon Editor panel.



Maintain Icon Definitions

You can browse, update, copy, and delete icon definitions from the Icon List panel.

Define and Maintain Icon Panels

An icon panel defines what is displayed on the graphical monitor. You arrange icons on the panel and attach resource groups to the icons.

You can define your own icon panel or select one of the pre-defined panels provided with your product.

When you create an icon panel, you create an icon panel definition and the icon panel description file. An operator uses the panel to customize the graphical monitor. You can generate an icon panel (that is, the description file) only if all the icons on the corresponding icon panel definition have attached resource groups. Use the Icon Panel Generator to define and generate the icon panel.

Important! Icon panels defined on a 3270 model 4 or equivalent terminal cannot be used on model 3 and model 2 terminals; icon panels defined on a model 3 terminal cannot be used on model 2 terminals.

Access Icon Panel Definitions

To access icon panel definitions

1. Enter **/GADMIN.P** at the prompt.

   The Icon Panel Definition List panel appears. The panel displays the list of icon panel definitions in the knowledge base. You can add a new definition, or browse, update, copy, or delete an existing definition.

Define an Icon Panel

When you define an icon panel, you can create a new panel or select a pre-defined panel. A default panel is distributed for your product; however, if you have installed more than one product in your environment, $RMDYNAMIC is your default icon panel.

Note: $RMDYNAMIC is the default icon panel when more than one product is present in a region. It dynamically displays one icon per product found on the region. As such, it is different to other icon panels and should not be edited or regenerated by users. If it is regenerated in error, panel $RMDYNAMICBU is available in the ICOPANL data set to use to recover $RMDYNAMIC.

To define an icon panel

1. Enter **/GADMIN.P** at the prompt.

   The Icon Panel Definition List panel appears.

2. Do *one* of the following:

   - Press F4 (Add) to add a new icon panel definition.

     The Icon Panel Generator Initial Help panel appears.

   - Select one of the pre-defined defaults for your product.

     The Icon Panel Generator Initial Help panel appears.

   Note: Pressing F4 (Remove Help Screen) exits and removes permanently the help panel. That is, the help panel does not appear the next time you work on an icon panel definition.

3. When you finish reading the help text, press Enter.

   The Icon Panel Generator panel appears.

   If you selected one of the pre-defined defaults, go to Step 5.

   If you are defining a new icon panel, go to Step 4.

4. Complete the following fields:

   Name

   Specifies the name of the icon panel.

   Description

   Describes the icon panel.

5. Use the function keys to create or edit your panel. The left limit of the icon placement area is column 2, and the top limit of the icon placement area is row 5. The right and bottom limits are dependent on the size of your screen and the width and height of the icon.

6. Press F3 (File).

   The new icon panel is generated.

   Note: If an icon in the panel definition does not have an attached resource group, you cannot generate the new panel. A message is displayed on your screen to this effect. You can either attach any missing resource groups so that you can generate the panel or press F3 (File) again to file the definition without generating the panel.

Use the Icon Panel Generator Panel

The Icon Panel Generator panel specifies the details of an icon panel. The operation you are performing is displayed at the top right of the panel.

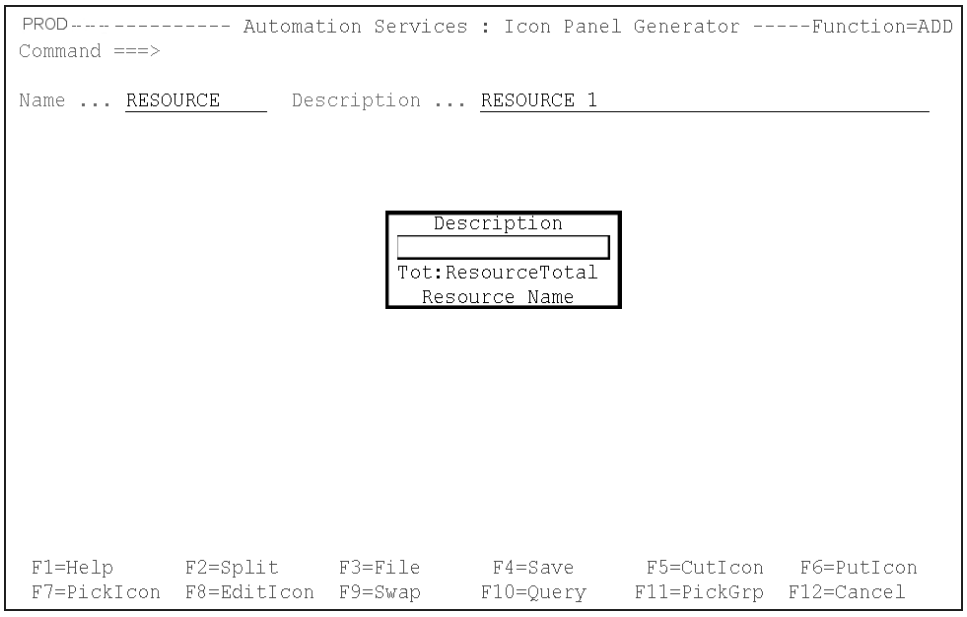
The panel specifies the following information:

- Name and description of the icon panel
- Actual icon panel representation

The area from column 2 to the right and from row 5 down contains the icons you want to display on the graphical monitor.

Use the function keys on the Icon Panel Generator panel to specify what you want to display on the graphical monitor.

Example: Icon Panel Generator Panel



Add an Icon to the Icon Panel

To build an icon panel for your graphical monitor, you add icons to the panel.

To add an icon to the icon panel

1. Move the cursor to fix the position of the top left corner of your icon. You must place the cursor in an area not already occupied by another icon.
2. Press F7 (PickIcon) to display the list of defined icons.

   The Icon List panel appears.
3. Enter **S** beside the icon you want to add to the icon panel.

   The Icon Panel Generator panel appears. The selected icon is positioned with its top left corner at the cursor.

   Note: After you pick an icon, you can move the cursor to another position and press F6 (PutIcon) to duplicate the icon on the icon panel. You can thus quickly position multiple icons with the same attributes on the panel.
4. Press F11 (PickGrp) to attach a resource group to the icon.

   The Resource Groups List panel appears.
5. Enter **S** beside the group you want to attach to the icon.

   The Icon Panel Generator panel appears. You have added an icon with an attached resource group to the icon panel.

Attach a Resource Group to an Icon on the Icon Panel

You can attach resource groups to icons on the Icon Panel Generator panel. You can change a resource group attachment by attaching another group to the icon.

To attach a resource group to an icon on the icon panel

1. Move the cursor in the icon to which you want to attach a resource group.
2. Press F11 (PickGrp).

   The Resource Groups List panel appears.
3. Enter **S** beside the group you want to attach to the icon.

   The Icon Panel Generator panel appears.

Duplicate an Icon on the Icon Panel

Note: Duplicating an icon on the icon panel copies only the icon, not the attached resource group.

To duplicate an icon on the icon panel

1. Move the cursor inside the icon you want to duplicate.
2. Press F7 (PickIcon).

   The icon is highlighted
3. Position the cursor to where you want to place a copy of the icon and press F6 (PutIcon).

   The icon is placed at the cursor.

   Note: The cursor position fixes the top left corner of the duplicate icon.

Move an Icon on the Icon Panel

To move an icon to another position on the icon panel

1. Move the cursor in the icon you want to move.
2. Press F5 (CutIcon).

   The selected icon is no longer displayed.
3. Move the cursor to fix the position of the top left corner of the icon being moved and press F6 (PutIcon).

   The icon appears at the position of the cursor.

Edit an Icon on the Icon Panel

You can edit an icon from the Icon Panel Generator panel. Editing enables you to update the original icon or create a new copy of the icon.

Updating an icon from the Icon Panel Generator panel updates the icon definition in the knowledge base and the selected icon only. If there are other icons in the panel definition that use the same icon definition, these other icons are not updated as long as you remain in the panel definition. You can, therefore, have several versions of the same icon in the panel definition. When you generate the icon panel, the panel reflects these different versions of the icon (even though there is only one version of the icon definition).

Note: Although a generated icon panel can retain different versions of the same icon, the icon panel definition cannot. The next time you access the panel definition, the definition reflects the latest version of the icon.

To edit an icon on the icon panel

1. Position the cursor in the icon you want to edit.
2. Press F8 (EditIcon).

   The Icon Editor panel appears.
3. Edit the icon, as required.

   Note: If you want to create a new copy of the icon, change the value in the Name field.
4. Press F3 (File).

   The updated definition is saved and the Icon Panel Generator panel appears.

Display Information About an Icon on the Icon Panel

You can display the name of and the resource group attached to an icon on the icon panel. Press F10 (Query), and a message displays the required information. The following example identifies the icon as CVNEW with an attached resource group named ACREC:

```
RM810017 ICON=CVNEW RESOURCE GROUP=ACREC
```

Delete an Icon from the Icon Panel

To delete an icon from the icon panel

1. Position the cursor in the icon you want to delete.
2. Press F5 (CutIcon).

   The selected icon is deleted.

   Note: The CutIcon action temporarily stores the icon that is removed from the icon panel; however, the icon is lost if you use the F7 (PickIcon) or F5 (CutIcon) function key on another icon.

Maintain Icon Panel Definitions

You can browse, update, copy, and delete icon panel definitions from the Icon Panel Definition List panel.

Note: You cannot update an icon panel definition if the associated icon panel is being used by a graphical monitor.

At the end of an update or copy operation, if an icon in the panel definition does not have an attached resource group, you cannot generate the panel. A message is displayed on your screen to advise you of the fact. You can either attach any missing groups so that you can generate the panel or press F3 (File) again to file the definition without generating the panel.

Edit a Generated Icon Panel

To update an icon panel, you can regenerate the panel by using an updated definition or you can edit the panel description file directly.

Enter the **/GADMIN.E** path to access the list of icon panels. The Panel List panel appears.

The panel displays the list of icon panels in the knowledge base. Some of these panels might be generated by using icon panel definitions; some of these panels might be created by users (for example, by using the Copy or Rename action). If an icon panel definition generates the panel, the Name and Description columns reflect the name and description of the definition.

You should consider the following when you edit an icon panel description file:

- If you regenerate an icon panel by using the P - Define Icon Panels option, you lose whatever editing you did in the description file. Use the R action to rename the panel before editing.
- The first line in a description file is the panel description, as displayed on the panel list.
- The #NOTE #ICON statement in a description file associates the specified resource groups with the icon panel.

Note: For information about panels and panel statements, see the *Network Control Language Programmer Guide*.

Set Up Default Icon Panel for Your Users

You can add an icon panel to a user profile so that it is displayed automatically each time that user accesses the graphical monitor.

To add an icon panel to a user profile

1. Enter **/ASADMIN.UP** at the prompt.

   The User Profile List appears.

2. Select the user profile.

   The Panel Display List appears.

3. Select Graphical Monitor Profile.

   The Graphical Monitor Profile panel appears.

4. Complete the following field:

   Panel Name

   Specifies the name of the icon panel that you want to appear.

   Note: You can enter ? to display a selection list of icon panels.

5. Press F3 (File).

   The details are saved.

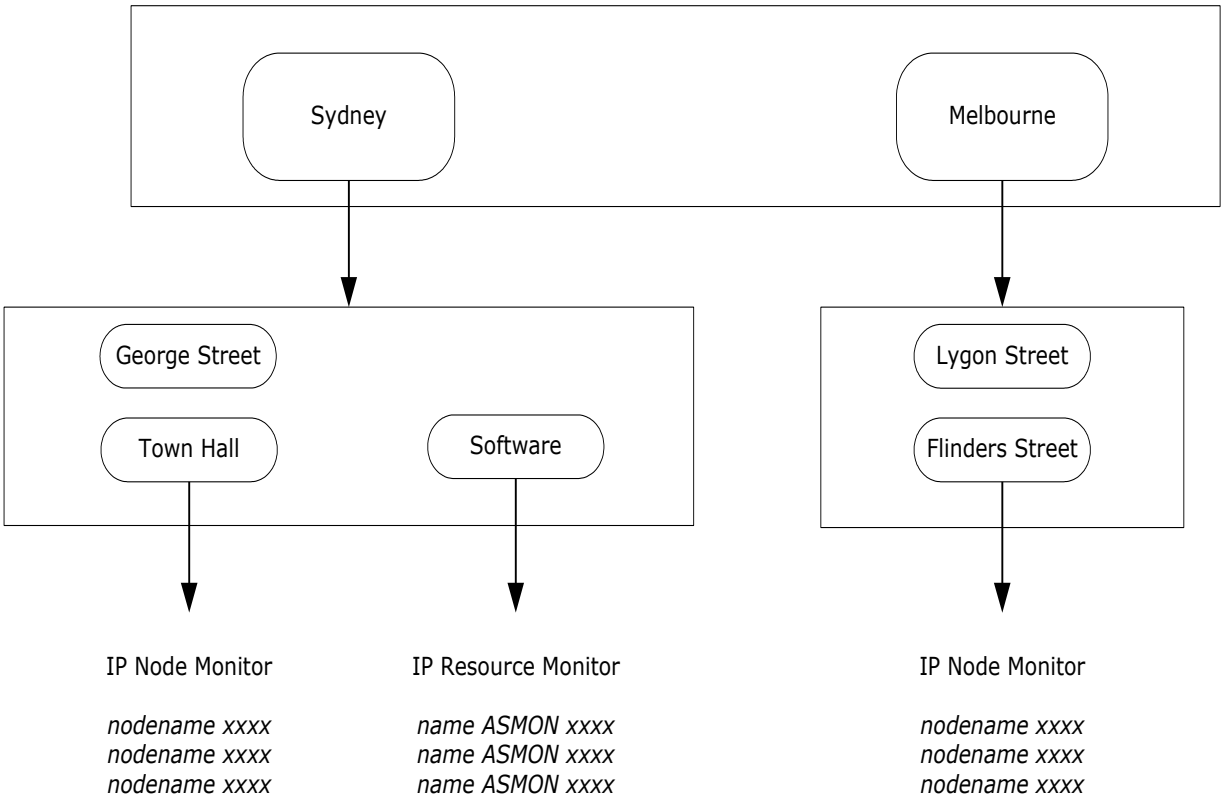
Example: Graphical Monitor Configuration

The Rich Finance Company provides financial services in Australia. In Sydney it has branches at George Street and Town Hall, and in Melbourne it has branches at Lygon Street and Flinders Street. The company also has a department in Sydney that performs back-office processing in a small data center.

You want to monitor the key IP nodes in the Sydney and Melbourne offices, and the following address spaces on the Sydney LPAR:

- Individual CICS applications
- Subsystem
- Mainframe printing application

The following diagram illustrates this structure:



To create this structure, you need the following:

- Two icon templates (which can be used for the seven icons)
- Seven resource groups - one each for Sydney, Melbourne, and all of the branches
- Seven icons - one each for Sydney, Melbourne, and all of the branches
- Three icon panels

Chapter 12: Implementing EventView Rule Sets

This section contains the following topics:

EventView Rule Sets

EventView rule sets consist of various members that define how an event is processed and what actions are taken in response to the event. An EventView rule set may include the following:

- Initial actions
- Message rules
- Message group rules
- Timer rules
- Other rule sets

You may want to create an EventView rule set for each area of responsibility. For example, you may create a CICS rule set, a VTAM rule set, and so on, to organize your rules in logical and manageable groups.

Note: Automation that deals with the status of resources should be specified in the resource definition, *not* in a message rule.

To activate an EventView rule set, it must be associated with an active system image. For information about system images, see the *Reference Guide.*

Only one EventView rule set, known as the primary rule set, is associated with a system image. Therefore, if you want to activate more than one EventView rule set, you need to include all the other required EventView rule sets in the EventView rule set that is associated with the active image. For example, you could create a master EventView rule set into which all other EventView rule sets are included.

Add an EventView Rule Set

You must add an EventView rule set before you can add the associated members.

To add an EventView rule set

1. Enter **/EADMIN.R.R** at the prompt.

   The Ruleset List panel appears.

2. Press F4 (Add).

   The Ruleset Description panel appears.

3. Complete the panel, adding comments on the Comments panel if required. See the online help for field descriptions.

   Note: An EventView rule set can be activated only if it has an ACTIVE status.

Specify Control Options

The control options for the primary EventView rule set override those specified for included EventView rule sets.

When setting up an EventView rule set, you may want to test it without actually triggering any rules. To do this, you must set the Perform Message Modification? and Perform Action? flags to NO, and the Log Ruleset Activity? flag to YES. You can then see from the entries in the general activity log (marked as TEST) what activity would take place if the EventView rule set was, in reality, working as intended.

Example: Specify Control Options

```
09.04.49 RE0113 RULESET ACTIVITY LOGGING STARTED
09.04.58 RE0130 (TEST) RULE FOR TESTMSG SET ATTRIBUTES: DELIVER=NO
09.05.12 RE0114 RULESET ACTIVITY LOGGING STOPPED
```

Monitor EventView Rule Set Status

To view the status of the active EventView rule set and all its included rule sets on the current system

1. Enter **/EADMIN.S.R** at the prompt.

   The EventView : Ruleset Status panel appears. This panel displays the same information as the Ruleset Description panel, plus it lists loaded EventView rule sets. The primary EventView rule set is the first EventView rule set listed, followed by its included EventView rule sets. Each level of further inclusion is indicated by indentation.

   Note: If an EventView rule set has a status of inactive, its included EventView rule sets are not processed.

Gather Statistics

If you specify YES in the Collect Statistics? field on the Ruleset Description panel, then EventView collects statistics relating to messages received and timer schedule items executed. You can use these statistics to measure the effectiveness of your EventView rules.

If the SMFDATA region parameters are configured, the statistics are output to SMF at a user-defined interval.

For information about the SMF record format, see the *Reference Guide*.

Change the EventView Rule Set Associated with a System Image

You can change the EventView rule set associated with a system image by updating the EventView Ruleset to Activate field on the System Image Definition panel.

To change the EventView rule set associated with a system image

1. Enter **/RADMIN.I** at the prompt.

   The System Image Definition Menu appears.

2. Select the option that applies to the type of system image you want to update.

   The Image List appears.

3. Enter **U** (Update) beside the system image that you want to update.

   The Image Definition panel appears.

4. Enter the new EventView rule set name in the EventView Ruleset to Activate field, or select an EventView rule set from the prompted field value list.

5. Press F3 (File).

   The updated record is saved.

   Note: By default, EventView rule actions are not executed if the system image is operating in the MANUAL global operation mode. The actions, however, can be enabled by using the Perform Action in Manual Mode? field of the AUTOIDS region parameter group.

Add Associated Rules

After you have created an EventView rule set, you can add associated message, message group, or timer rules.

To add a rule

1. From the Ruleset List, apply the appropriate action, such as **M** (Message List), to the EventView rule set with which you want to associate the new rule.

2. Press F4 (Add).

3. Complete the fields on the initial panel displayed, and on any subsequent panels as required. Press F1 (Help) for help about the fields.

Add Message Rules

Message rules contain some or all of the following information:

- Message text and filtering criteria
- Message delivery and suppression details
- Required message modification details
- Which actions are triggered by a message
- Which message groups the current message rule is related to
- User-defined EventView variables

Message rules are added (see page 126) in the same way as other EventView rule set members. You apply the **M** (Message List) action to the EventView rule set with which you want to associate the new message rule.

Important! Message Text is a mandatory field. If you enter the wildcard character in this field, *all* messages are tested against this rule, which can degrade performance.

Message Execution Conditions

You can specify execution conditions (see page 161) in this panel. The rule executes only if all of the given conditions apply.

Group Messages

If a message on its own is not significant, but the occurrence of another message increases its significance, then you need to create a message group to associate these messages.

Note: The order in which the grouped messages occur is not important, as long as all arrive in the specified time interval.

Add Message Group Rules

Message group rules are added in the same way as message rules, except that you apply the **G** (Group) action to the item on the Ruleset List with which you want to associate the new group.

Message group rules contain the following information:

- The maximum time interval in which all messages in the group must be received, to trigger the rule
- Message text for up to ten messages, on the Message Group Details panel (displayed automatically when a message is associated with a message group (see page 129))
- The text of a message to issue if the group rule is triggered, and where and how to display this message
- The action or actions to perform when a group rule is triggered
- User-defined EventView variables, which you can set to the specified values before or after other rule actions

Associate Message Rules with Message Group Rules

To establish a relationship between a message rule and a message group rule, you must add an entry on the Related Message Group panel (the fifth panel in the sequence of Message Rule panel). You also need to add the message rule on the Message Group Details panel of the message group rule definition. The same message rule can be associated with up to five message group rules.

```
PROD------------------ EventView : Message Filter ----------------------TAPEMON
Command ===> 5                                                 Function=UPDATE

Ruleset Name ........ TAPEMON                        Rule Status ...+ ACTIVE__
Short Description ... Mount request processing______

. Expected Message ------------------------------------------------------------.
|                                    S=ListPanels EV=ExtFilter TV=TestVars |
|      Message Text  ( WildChar = * )                                ExtFlt |
| ___  IEC501A                                                       NO     |
'-------------------------------------------------------------------------------'
```

```
PROD---------------- EventView : IEC501A Related Message Group ---------TAPEMON
Command ===>                                                   Function=UPDATE

. Message Group Table ---------------------------------------------------------.
|                                                                             |
| MsgGroupID   CorrelationKey                                                 |
| GROUP1______ &ZMSGJOBNM_____________________________________________________ |
```

```
PROD---------------- EventView : Message Group Details -----------------TAPEMON
Command ===>                                                   Function=UPDATE

Ruleset Name ......... TAPEMON
Message Group Name ... GROUP1                        Rule Status ...+ ACTIVE__
Short Description .... Tape mount group_______________
Interval ............. 00.10.00

. Expected Message ------------------------------------------------------------.
|                                                      S/B=Browse U=Update |
|      Message Rule Text                                                      |
| ___ IEC501A                                                                 |
| ___ IEC509A                                                                 |
| ___                                                                         |
```

On the Related Message Group panel, you need to identify the message group rule and can optionally specify a correlation key for precise recognition purposes. The correlation key enables one message group rule to cover numerous different situations, saving you from having to create numerous different rules. The rule is not triggered unless the values of the correlation keys in each of the grouped messages match.

For example, the correlation key as shown in the example, is the name of the variable that contains the job name. The group rule is triggered only if the messages associated with the group:

- All arrived in the specified interval (10 minutes)
- Were all generated by the same job

Add Timers

If you want a rule triggered on a particular day of the week (or year) and at a particular time, you need to add a timer rule. Timer rules contain the following information:

- Whether the timer rule applies to a specific system
- Up to 99 detailed schedule items
- Which actions are triggered by a timer
- User-defined EventView variables

Timer rules are added (see page 126) in the same way as other EventView rule set members. You apply the **T** (Timer) action to the EventView rule set with which you want to associate the new timer.

Add Initial Actions

Initial actions are actions performed when an EventView rule set is activated (that is, when the associated system image becomes active), and before message processing commences.

You add initial actions from the Ruleset List by applying the **IA** (Initial Actions) action to the nominated EventView rule set.

Variables that are essential to the functioning of an EventView rule set should be set in the initial action rules.

In the following example, you want to log a message to indicate that an EventView rule set is activated.

```
 PROD------------------- EventView : Initial Action ----------------------BACKUP
Command ===> forward                                          Function=UPDATE

 Ruleset Name ........ BACKUP
 Initial Action Name   NOTIFY                          Rule Status ...+ ACTIVE
 Short Description ... Log a startup message

 System Command ... ____________________________________________________________
                    ____________________________________________________________
 MS Command .......... LOG RULESET BACKUP IS NOW ACTIVE
```

Note: If an EventView rule set has associated included EventView rule sets, the initial actions specified for those EventView rule sets are also performed when the primary EventView rule set becomes active.

If you need to set any EventView variables before or after any of the initial actions are performed (to pass parameter values, for example), press F8 (Forward) to go to the Set Variables panel.

On the Set Variables panel, you supply a name for each EventView variable that you want to set, plus the required variable value. Note that, when you use the variable subsequently, you prefix the name with &ZREV, which is the EventView variable identifier.

Execute Initial Actions

When an EventView rule set is activated, the associated initial actions are executed. When you load a system image that contains an EventView rule set that is already active, the region does not reactivate that EventView rule set and the associated initial actions are not executed (for example, when you switch images that use the same EventView rule set).

If you have several system images that use the same EventView rule set and you want the initial actions associated with the EventView rule set executed every time you load one of those images, you can create a primary EventView rule set for each of the images. Each primary EventView rule set includes the actual EventView rule set you want. Because the primary EventView rule sets are different, it is activated every time you switch between the images, thus executing the initial actions.

Include EventView Rule Sets in Other Rule Sets

To include an EventView rule set in another rule set

1. From the Ruleset List, apply the **IR** (Include) action to the EventView rule set in which you want to include another EventView rule set.

   The Include Ruleset List appears. This list is blank if there is no EventView rule sets included in the current EventView rule set.

2. Press F4 (Add).

   The Eligible Ruleset List appears.

3. Select the EventView rule set to include in the current EventView rule set.

   The selected EventView rule set is added to the Included Ruleset List for the current EventView rule set. This means that the included EventView rule set is active when the parent EventView rule set is active.

Note: Only the control options of the EventView rule set associated to the system image are used. The control options of included rule sets are ignored.

Maintain EventView Rule Sets

You can browse, update, copy, and delete EventView rule set definitions from the Ruleset List panel.

The C and the D action codes enable you to copy and to delete an *entire* EventView rule set. To copy or delete the EventView rule set definition only, use the CO or DO action codes. You can use the DO action code to delete an EventView rule set only if it is empty—that is, it contains no rules.

Use EventView Variables

The ability to set and use EventView variables in rules lets you create dynamic rules that depend on conditions identified by other rules and EventView rule sets. That is, you use EventView variables to control rule execution.

EventView variables can be used for the following:

- To pass information and data between rules
- To obtain more information about the environment in which the rule is executing
- To record system states

EventView variables can be set on the Set Variables panel of a message rule, a timer rule, or a group rule. Here, you can set values for up to six variables. These values can be literal or you can specify a substitution variable as the source of the variable value for a message rule.

EventView variables can be used by:

- *Rules*, to do the following:
  - Provide a correlation key value to match on the Message Delivery panel and the Related Message Group panel.
  - Provide a value for insertion in replacement text. Replacement text specified on the Message Modification, Set Variables and Test Variables panels can include EventView variable names.
- *Processes*, where the macros EVVARGET and EVVARSET can be used to get and set the values of EventView variables. Variable names can be specified in the Parameters field on the Rule Action panel, as well as on other panels where processes are invoked (see page 265).
- *NCL procedures*, where the $RECALL application program interface (API) can be used to get and set the values of EventView variables. For more information about $RECALL API, see the *Reference Guide*.

You must remember to add the EventView variable indicator prefix, &ZREV, to a variable name when it is specified for evaluation.

View EventView Variables

To view all EventView variables that have been set

1. Enter **/EADMIN.S.V** at the prompt.

   The EventView : Active Variables panel appears.

Chapter 13: Implementing EventView

This section contains the following topics:

EventView

EventView performs automation at the event level. It provides event level automation and control, and can handle timed events.

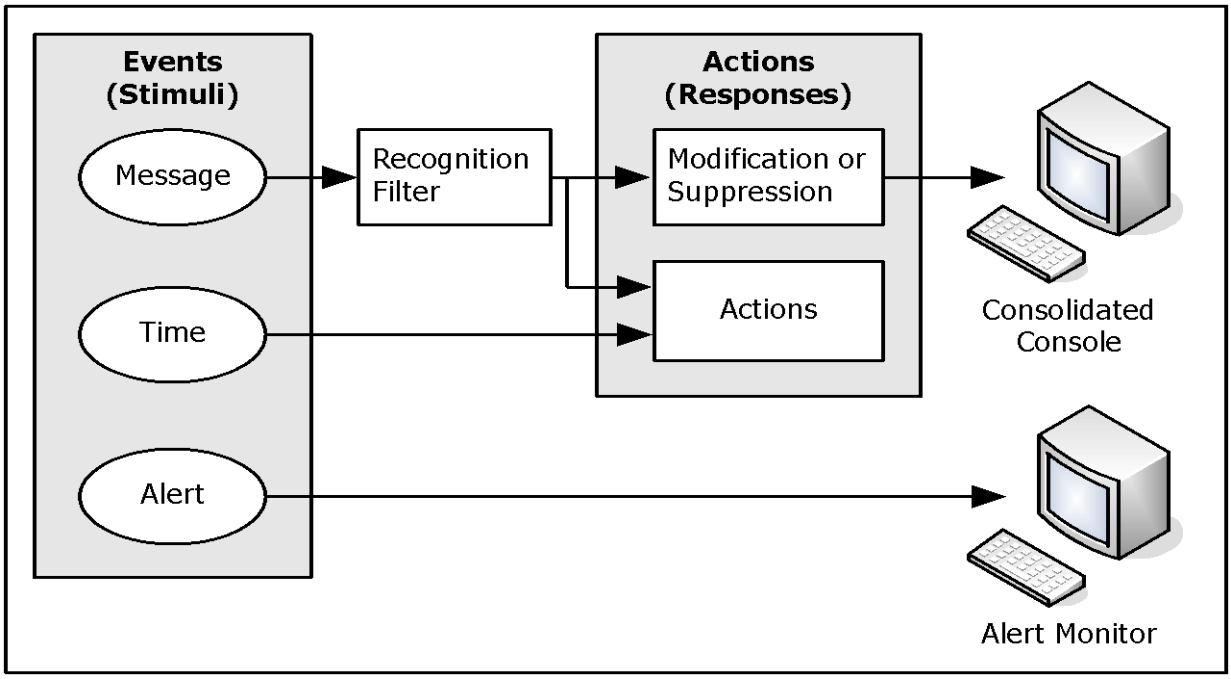
Successful event management relies on the recognition of significant events from the mass of messages generated by a system and the appropriate responses to these events.

EventView Functions

EventView provides the following functions:

- Event-based automation, which relies on the following:
  - The creation of appropriate rules and rule sets
  - The processing of messages
  - The processing of EventView timers
  - Message generation
- Console message consolidation
- Alert generation

The following illustration shows how EventView works.



Event-based Automation

You can define event rules to do the following:

- Suppress messages
- Change message text
- Enhance message presentation (for example, highlighting)
- Set route and descriptor codes
- Perform actions

Rules are grouped logically into rule sets, which define how an event is processed and what actions are taken in response to an event that is *not* related to a resource. (Resource-based events are handled by ResourceView.) An event can be a message or a specified time.

Sample Message Suppression Rule Sets

EventView provides the following samples of message suppression rule sets:

- AGRSUPP, which is based on the aggressive list of suppressible messages recommended by IBM
- CONSUPP, which is based on the conservative list of suppressible messages recommended by IBM

See IBM's *MVS Initialization and Tuning Reference* guide for those lists.

Console Message Consolidation

You can monitor message flows from multiple systems on a single screen—the consolidated console. Console consolidation controls the way you see messages on the console. In addition, messages displayed on the consolidated console are affected by EventView processing.

For example, message text and message presentation can be modified by EventView, and the consolidated console user sees the modified message. If EventView suppresses a message, that message is not displayed on the consolidated console.

You can define message profiles that customize the view of the message flow. Different users can have different sets of message profiles to suit the functions they perform.

Message profiles enable the meaningful grouping of messages based on criteria such as system, message ID, job name, and system codes.

Benefits of Using EventView

EventView benefits your organization in the following ways:

- Reduces system console message rates; you can filter messages received and suppress unwanted messages
- Produces a standardized response to events or problems
- Enables you to schedule actions to occur at specific times or at regular intervals
- Gathers useful statistics for messages and timers
- Able to learn messages
- Enables you to monitor message flows to multiple consoles on a single screen
- Enables you to generate alerts to remind operators of significant events

Select the Messages to Monitor

Besides responding to resource status, you need to respond to events that are not handled by resource automation.

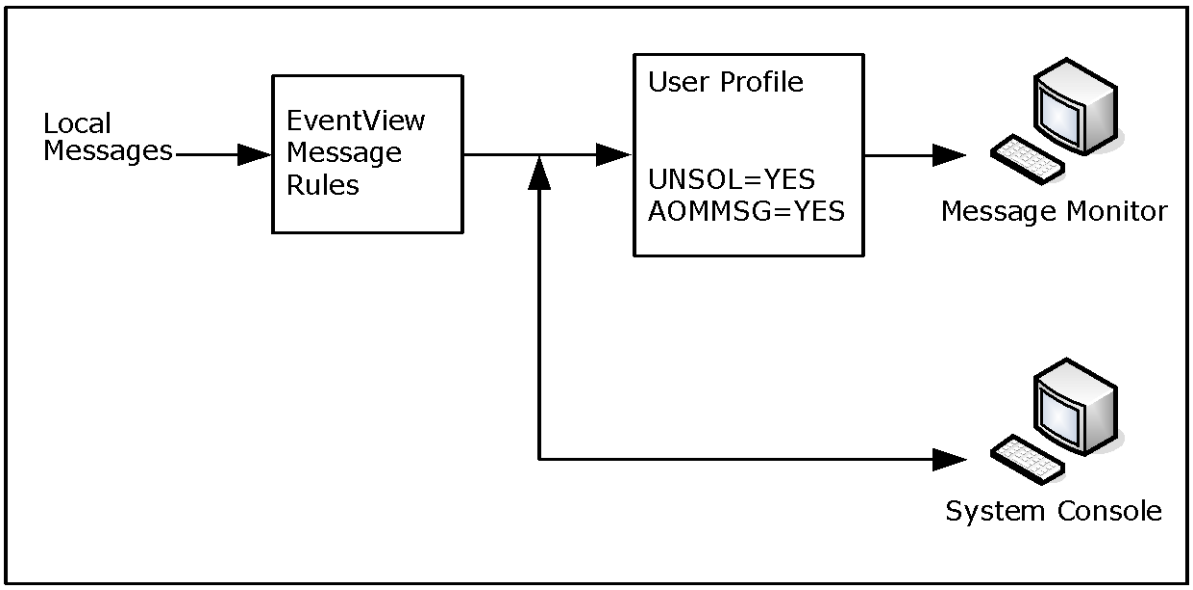
Normally, you use both components and you can monitor messages from multiple systems. However, if you do not want to define message profiles, you can disable the message consolidation facility and only messages from the local system can be monitored. You control the availability of the facility by using the CCONSOLIDATN parameter group.

For more information about parameter groups, see the *Reference Guide*.

Console Consolidation Disabled

Without the console consolidation facility, you are able to monitor local messages only. Remote messages are not routed to this region, and messages from this system are not routed to remote regions.

The following illustration shows how messages arrive at the message monitor.

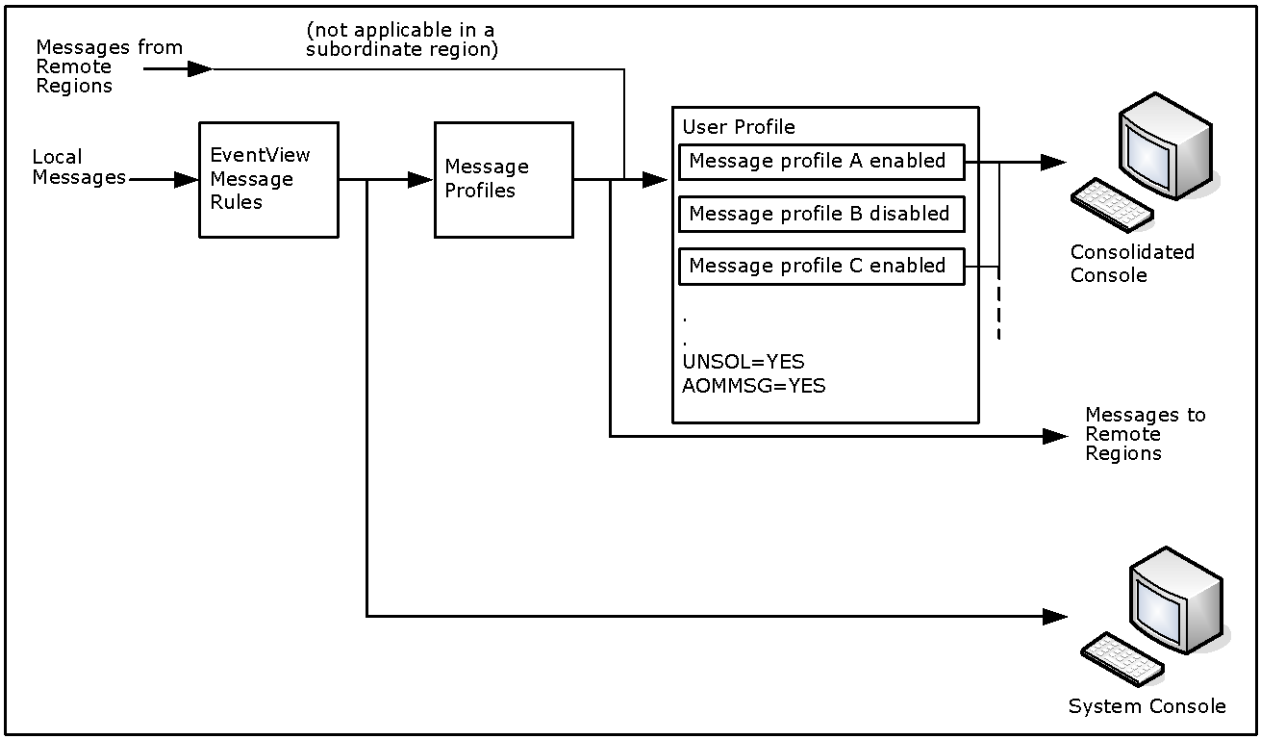


Console Consolidation Enabled

With message consolidation enabled, the message monitor becomes a consolidated console. Using the console consolidation facility, an operator is able to monitor messages from one or more systems on the consolidated console.

You use EventView message rules to preprocess the messages, for example, suppressing or highlighting the messages. You can then use message profiles to select the type of processed information to display on the consolidated console. For example, you can define a message profile that selects messages from a particular system. You can selectively enable profiles to customize the view of monitored events, for example, VTAM messages only.

The following illustration shows how messages arrive at the consolidated console.



Typical stages in implementing message profiles are as follows:

1. Analyze the message flow and the operations tasks to determine the different message views that are required.
2. Create EventView rules to suppress unwanted messages.
3. Create the message profiles, and ensure that each operator is assigned the appropriate message profile IDs in the user definition and user profile.
4. Activate the message profiles.

Generate Alerts

Alerts are displayed on the alert monitor. Alerts can be generated from EventView rules. Generate alerts through user-defined processes by using the following macros:

- GENALERT enables a process to generate an alert of a specified severity.
- DELALERT enables a process to remove an alert from the alert monitor.

Use alerts to warn operators of significant events (for example, reminding the operator to perform tasks that cannot be automated).

Chapter 14: Configuring Timers

This section contains the following topics:

Timer Rules

A timer rule enables you to schedule an action or actions to perform at a specific time or times of the day, week, month, or year.

A timer rule contains the following information:

- The action or actions to perform
- A schedule that defines when the action or actions are performed
- Whether catchup is required, if the system running the timer is unavailable when the timer is due to be activated

A timer schedule is similar to the availability map used by resources controlled by the region. You can specify up to 99 schedule items per timer rule, each containing the following information:

- The day of the week, date, and time when the action or actions are performed
- Whether the action or actions are performed once only, or at regular intervals during a given time period

Add and Maintain Timers

If you want to add a timer rule that is very similar to an existing one, you can save yourself having to retype details by copying the existing timer and updating the copy as appropriate.

To add a timer rule

1. Enter **/EADMIN.R**.

   The Define Event Rules panel appears.

2. Type **T** at the prompt and complete the following fields:

   Ruleset

   Specifies the name of the rule set with which you want to associate the timer rule.

   Rule ID

   Identifies the rules that you want to maintain. The value is generic, that is, all rules with IDs that begin with the specified value are retrieved.

   Press Enter.

   The Timer Rule List for the specified rule set appears.

3. Press F4 (Add).

   The Timer Description panel appears.

4. Complete the fields on this and subsequent timer rule panels, as required. Press F1 (Help) for information about the fields.

   Note: If you enter YES in the Delete on Expiry? field, schedule items that have a full date specified are deleted when they pass their expiry date and time.

Perform Catchup

When you define a timer, you specify whether catchup is required if a system running the timer is unavailable when the timer is due to be activated.

Note that if you enter YES in the Catchup Required? field on the Timer Schedule panel, catchup applies to all schedule items entered for this timer.

- If you specify YES, then the scheduled action or actions are performed when the system becomes available, provided that the time specified in the Window field has not elapsed, with the exception of the situation noted below.
- If you specify NO, no belated processing occurs for that timer.

Note: In the case of timers that define actions that are repeated, catchup can be requested. If the specified end time has passed by the time the system running the timer becomes available, the specified action or actions are still performed once. If the system running the timer becomes available part way through the specified time period, the specified action or actions continue at the specified intervals until the specified end time.

Specify a Catchup Window

If you specify that catchup is required, you can identify the window in which catchup is performed. You can specify a value between one minute and 24 hours. If the system running the timer becomes available before the catchup window ends, catchup is performed.

Specify Timer Schedule Items

You can enter up to 99 schedule items for a timer. Enter schedule details according to the following definitions:

Day

As well as the abbreviated versions of the days of the week, you can enter shorthand values asterisk (*), W/D, or W/E in this field. If an asterisk is entered, an individual schedule item is created for each of the seven days of the week, with all other values duplicated. If you enter W/D, an individual schedule item is created for each of the five working days of the week. Entering W/E results in the creation of individual schedule items for Saturday and Sunday.

Note: The validation procedure does not accept a value in both the Day and the Date fields; enter a value in one of these fields only.

Date

If you specify a numeric value between 1 and 31 in this field, the timer is activated on that day of the month each month. For example, if you specify 1, it is activated on the first day of each month. If, in addition to specifying a day, you also specify the first three characters of a month in the format *dd-mmm*, the timer is activated on that day of that month each year. If, in addition to specifying a day and a month, you also specify a four-character year value in the format *dd-mmm-yyyy*, the timer is activated on that day of that month and that year. If you entered YES in the Delete on Expiry? field, schedule items that have a full date specified are purged after execution.

Time

The Time field specifies the time when the action or actions associated with the timer are performed or, if the Every field also contains a value, the time when the action or actions associated with the timer are first performed.

Every

You enter a value in this field if you want the action or actions associated with the timer performed at regular intervals. If you enter a value in this field, you must also enter a value in either the Num or the End Time field. When you complete one of these fields, the other is calculated automatically when validation occurs.

The first time the action or actions associated with the timer are performed is specified in the Time field—see the preceding field description. To calculate the time when the second occurrence of the action or actions associated with the timer are performed, the value in the Every field is added to the value in the Time field, and so on.

Num

This field specifies the number of times that the action or actions associated with the timer will be performed. When you enter a value in this field, the value in the End Time field is automatically calculated.

End Time

This field specifies the last permissible time when the regular action or actions associated with the timer are performed. When you enter a value in this field, the value in the Num field is automatically calculated.

Status

You can disable an individual timer schedule item by changing the status of that item from active to inactive.

Add Further Schedule Items

When you have completed the first seven entry lines on the static list displayed initially, you can add further schedule items.

To add further schedule items

1. Press F10 (Scrllst).

   Note: If you are using a 24-line screen, you can type MAX at the prompt to maximize screen use and to display the schedule list only.

2. To add a line to the schedule, apply the **R** (Repeat) action to a listed item.
3. Overtype the repeated line with the new schedule item details.

View the Next Execution Display for Timer Schedule Items

You can use the F5 (NextTmr) function key on the Timer Schedule panel to display the Next Execution Display panel.

This panel displays the next scheduled execution time and date of each timer schedule item in the order that they fall due, as well as all the schedule item details specified in the schedule map.

```
PROD--------------- EventView : Next Execution Display ------------------------
Command ===>                                                  Scroll ===> PAGE

    Item NextDate     NextTime  Day  Date        Time      Every  Num  EndTime
      2  08-AUG-1995  16.00.00  TUE              16.00.00  00.10  12   18.00.00
      3  09-AUG-1995  16.00.00  WED              16.00.00  00.10  12   18.00.00
      4  10-AUG-1995  16.00.00  THU              16.00.00  00.10  12   18.00.00
      5  11-AUG-1995  16.00.00  FRI              16.00.00  00.10  12   18.00.00
      6  12-AUG-1995  16.00.00  SAT              16.00.00  00.30  4    18.00.00
      7  13-AUG-1995  16.00.00  SUN              16.00.00  00.30  4    18.00.00
      1  14-AUG-1995  16.00.00  MON              16.00.00  00.10  12   18.00.00
    **END**

  F1=Help      F2=Split     F3=Exit                  F5=Find      F6=Refresh
  F7=Backward  F8=Forward   F9=Swap
```

Update Timer Schedule Items

Timer schedule items are updated by typing over the existing values with new values, then pressing F4 (Save). If the item you want to update is not amongst the first seven items displayed on the Timer Schedule panel, use the F10 (Scrllst) function key to scroll down the list until you find it.

Timer schedule items can also be updated from the Active Timer Display List (**/EADMIN.S.T**).

Delete Timer Schedule Items

Timer schedule items can be deleted by using the same procedure as for adding schedule entry lines, but applying the **D** (Delete) action to the item to delete, instead of the **R** (Repeat) action.

Specify Actions to Take When a Timer Item Is Triggered

On the Timer Actions panel, you can specify what response is made when a scheduled timer item is triggered. You can specify the following:

- System command text, such as: START STC1
- Command text, such as:

  ```
  LOG TEST TIMER RULE EXECUTED
  ```

- A process selected from the list of valid processes—enter a question mark in the field to display a list of valid processes
- An Automation Services command selected from the list of valid commands—enter a question mark in the field to display a list of valid commands

Example: Actions to Take When a Timer Item Is Triggered

The TSO resource is defined to stop automatically at 1900 on weekdays. To warn users of the impending shutdown, you can define a timer that sends a warning message to the users at 1845 on the weekdays.

```
PROD------------------ EventView : GRTIMER1 Rule Actions -------------FOGRULE1
Command ===>                                                    Function=COPY

System Command ... SEND 'TSO WILL BE STOPPED IN 15 MINUTES - PLEASE LOG OFF'
                   ____________________________________________________________
OCS Command ...... ____________________________________________________________
                   ____________________________________________________________
```

Display Active Timer Rules

On the Event Administration Menu (**/EADMIN**), enter **S.T** to display the Active Timer Display.

This list displays the date and time of the next scheduled execution of all timer rules that have a status of active and are associated with the active rule set. If you scroll to the right, the schedule item details, as specified on the schedule map, appear.

You can browse, update, copy, or delete listed timers.

Chapter 15: Processing Messages

This section contains the following topics:

Message Rules

You use EventView message rules to process messages.

Specify Message Filtering Criteria

When a message is received, the message text is compared with the scan text specified on the Message Filter panel, which is a primary key to message recognition. For example, if you specify TESTMSG1 as the scan text, any message starting with those eight characters is considered a match, including TESTMSG12, and TESTMSG1 TESTING.

Note: If you want to capture a message that has leading blanks, you do not need to specify the leading blanks on the message filter panel. However, on the Extended Message Filter panel, absolute position is important so leading blanks must be counted when using start position of text.

This message text can include wildcard characters. The default is the asterisk (*). You can specify the message text that triggers the rule if the execution conditions are met. You can also specify additional filters on further panels, by typing **E** beside the message text (as shown in the following illustration), to check for a variety of different conditions.

```
PROD------------------ EventView : Message Filter ----------------------TAPEMON
Command ===>                                                  Function=UPDATE

Ruleset Name ........ TAPEMON                        Rule Status ...+ ACTIVE
Short Description ... Mount request processing

. Expected Message ------------------------------------------------------------.
|                                      S=ListPanels E=ExtFilter T=TestVars |
|      Message Text  ( WildChar = * )                                 ExtFlt |
| e    IEC501A                                                        NO     |
'-------------------------------------------------------------------------------'
```

```
PROD----------------- EventView : Extended Message Filter ---------------------
Command ===>                                                  Function=UPDATE

Message Text ......... IEC501A
Wildcard Character ... _
Descriptor Code .....+ ____________
Route Code ..........+ ____________
Message ID ........... ____________ (of major line)
System Name .......... ________

. Message Text Analysis -------------------------------------------------------.
|   Strt Word      Scan                                                       |
|   Pos  Num  Opr  Text                                                       |
| 1 ___  ___  ___  ___________________________________________________________ |
| 2 ___  ___  ___  ___________________________________________________________ |
| 3 ___  ___  ___  ___________________________________________________________ |
| 4 ___  ___  ___  ___________________________________________________________ |
| 5 ___  ___  ___  ___________________________________________________________ |
|                                                                             |
| Expression ..... ____________________________________ e.g. (1 and (2 or 3)) |
'-------------------------------------------------------------------------------'

 F1=Help      F2=Split     F3=OK
              F8=Forward   F9=Swap                 F11=Panels   F12=Cancel
```

Use Wildcards in Message Text

Normally, you can just specify enough message text to identify the messages you want the message rule to process.

Use wildcard characters to insert character patterns in the message text; however, if you use a wildcard character, you must also add a wildcard character to the end of the message text if required.

The following examples show the correct use of wildcard characters:

EC501A
IEC50*A*
IEC5**A*

The number of characters represented by a wildcard character is dependent on its position in the message text as follows:

- If the wildcard character is at the beginning of, or embedded in the message text, it represents one character.
- If the wildcard character is at the end of the message text, it represents any number of characters.

Specify Extended Filtering Criteria

The Extended Message Filter panel lets you specify precise criteria to match, as described in the following subsections:

Wildcard Character

You can specify a value other than the default value of an asterisk (*) in the Wildcard Character field. This change is reflected in the Wildcard Character field on the Message Filter panel when you save the extended filtering criteria. This feature is useful if the message actually contains an asterisk.

Descriptor Code

This code determines the color that the operating system uses to display the message on a color console, and whether the message is a non-roll delete message. If one or more values are specified in this field, the descriptor codes assigned to a message are tested against the specified values. A message matches if it contains any of the listed descriptor codes.

Route Code

This code is used by the operating system to control message delivery. If one or more values are specified in this field, the routing codes assigned to a message are tested against the specified values. A message matches if it contains any of the listed routing codes.

Message ID

The message ID is the first word of the message text (disregarding any flag characters, such as an asterisk, in position 1 or 2). When a secondary line of a multiline WTO message is being filtered, the message ID for the line is the same as the ID for the primary line of the WTO message.

System Name

Specifies the name of the system from which the message originated. This field is useful if the local system reissues messages received from other systems. Messages are reissued if the system is part of a sysplex environment.

Specify Message Text Analysis Criteria

You can analyze the text of the current message by word, phrase, or string, by specifying any combination of start position, word number, and permitted operator (such as equals, is greater than, and so on). You can specify up to five tests to perform on the message text and link these tests in an expression.

Note: EventView comparisons are *text-based*, that is, they are performed character by character, starting from the leftmost character of the extracted text. Text checking is done using the EBCDIC codes. Numbers are regarded as text. For example, the character string 100 is less than 99.

Message Text Analysis

You specify the message text analysis criteria on the Define Extended Filter Definitions panel (for a resource definition), or the Extended Message Filter panel (for a message action rule). The panels enable you to analyze the text of the received message on a word, phrase, or string basis by specifying a combination of values in the Strt Pos, Word Num, and Opr fields. You can specify up to five tests, which are then linked in a defined, logical relationship that you specify in the Expression field.

For example, the entry 1 AND (2 OR 3) in the Expression field means that test 1 must be true and either test 2 *or* test 3 must be true for the rule to be valid.

A message consists of words. A word is a string of characters delimited by either a space or a comma. You have the option of specifying a word or part of a word in a message for testing, or of extracting a substring of the message text for testing.

Important! ResourceView handles numeric comparisons; EventView always performs character comparisons.

Strt Pos

Specifies a position in the message where the text comparison is to start. Valid values are 1 through 999. The actual starting position is determined by the presence or absence of a value in the Word Num field.

If the start position is 2 and the Word Num field is blank, the text used for the comparison is the partial message starting at the second character in the message.

If the Strt Pos field is blank, but there is a value specified in the Word Num field, then only that word is compared to the scan text. If the Strt Pos *and* the Word Num field are blank, the entire message is compared to the scan text.

If entries are made in the Strt Pos and Word Num fields, the comparison is narrowed to a start position in a single word of the message text. The text used for comparison is the partial word. For example, if the word number is 8 and the start position is 2, the text for the comparison starts from the second character of the eighth word.

For example, the following message arrives:

```
AAA100A THIS IS A MESSAGE NUMBERED MESSAGE 100
```

- If the Strt Pos field has a value of 2, the string tested is as follows:

  ```
  AA100A THIS IS A MESSAGE NUMBERED MESSAGE 100
  ```

- If the Word Num field has a value of 5, the string tested is as follows:

  ```
  MESSAGE
  ```

- If the Strt Pos field has a value of 2 and the Word Num field has a value of 5, the string tested is as follows:

  ```
  ESSAGE
  ```

Default: 1

Lne Num

Specifies a particular line in a multiline WTO or WTOR. Valid values are blank and 1 through 999. If this line is left blank, any value in the Word Num field is treated as if all lines in the multiline message have been joined as one string.

Note: Lne Num is not supported in EventView message rules; it is supported in ResourceView only.

Word Num

Specifies a particular word in a specific position in the message text string. Valid values are blank and 1 through 999. If this field is blank, the entire message text that occurs after the specified start position is compared to the scan text. If this field contains a value but the Strt Pos field is blank, only the specified word is compared to the scan text. Words are delimited by spaces or commas.

Opr

Specifies a valid operator to control the type of comparison to perform if you enter a value in the Strt Pos or the Word Num field. The following operators are valid: CT (ConTain), EQ (EQual to), GE (Greater than or Equal to), GT (Greater Than), LE (Less than or Equal to), LT (Less Than), and NE (Not Equal to). If you enter a question mark (?) in this field, the list of valid operators is displayed.

Scan Text

Specifies the actual text (scan text) you want to test against the message text. You must have a match in the specified position or word for the comparison to be true. If you have specified either CT or EQ as the operator, you can use the wildcard character in or at the end of the Scan Text field. (You cannot use the wildcard character with the other operators.)

Example: Use of the CT Operator

The ConTain operator tests whether the extracted message text string (after the Strt Pos and Word Num fields have been applied) contains the specified scan text string anywhere in it. If the Strt Pos and Word Num fields are blank, then the comparison is true if the scan text string appears anywhere in the message text.

```
AAA100A THIS IS A MESSAGE NUMBERED MESSAGE 100
```

Strt Pos	Word Num	Scan Text	Extracted Text	Result
3	5	AGE	SSAGE	TRUE
1	2	THIS	THIS	TRUE

Example: Use of the EQ Operator

The EQual to operator tests for an exact match. That is, the (extracted) message text string must match the scan text exactly for the test to succeed.

The designated wildcard character can occur either in the scan text, where it represents a single variable character, or at the end of the scan text, where it represents any number of variable characters.

If, for example, the message text is FREDERICK and the scan text is FRED, the test fails. If, however, the scan text is FRED*, the test succeeds.

```
AAA100A THIS IS A MESSAGE NUMBERED MESSAGE 100
```

Strt Pos	Word Num	Scan Text	Extracted Text	Result
4	5	SAG	SAGE	FALSE
4	5	SAGE	SAGE	TRUE
1	8	10	100	FALSE
1	8	100	100	TRUE

Example: Use of the GE Operator

The Greater than or Equal to operator tests whether the value of the (extracted) message text string is greater than or equal to that of the text string in the Scan Text field. For ResourceView, if the characters to test are numeric, a numeric comparison is executed.

```
AAA100A THIS IS A MESSAGE NUMBERED MESSAGE 100
```

Strt Pos	Word Num	Scan Text	Extracted Text	Result
1	8	99	100	TRUE (ResourceView)
1	8	99	100	FALSE (EventView)
1	8	100	100	TRUE
4		99	100A THIS …	FALSE
4	5	LAGE	SAGE	TRUE
4	5	TAGE	SAGE	FALSE

Example: Use of the GT Operator

The Greater Than operator tests whether the value of the (extracted) message text string is greater than that of the text string in the Scan Text field. For ResourceView, if the characters to test are numeric, a numeric comparison is executed.

```
AAA100A THIS IS A MESSAGE NUMBERED MESSAGE 100
```

Strt Pos	Word Num	Scan Text	Extracted Text	Result
1	8	99	100	TRUE (ResourceView)
1	8	99	100	FALSE (EventView)
1	8	100	100	FALSE
4		99	100A THIS …	FALSE
4	5	LAGE	SAGE	TRUE
4	5	TAGE	SAGE	FALSE

Example: Use of the LE Operator

The Less than or Equal to operator tests whether the value of the (extracted) message text string is less than or equal to that of the text string in the Scan Text field. For ResourceView, if the characters to test are numeric, a numeric comparison is executed.

```
AAA100A THIS IS A MESSAGE NUMBERED MESSAGE 100
```

Strt Pos	Word Num	Scan Text	Extracted Text	Result
1	8	99	100	FALSE (ResourceView)
1	8	99	100	TRUE (EventView)
1	8	100	100	TRUE
4		99	100A THIS …	TRUE
4	5	LAGE	SAGE	FALSE
4	5	TAGE	SAGE	TRUE

Example: Use of the LT Operator

The Less Than operator tests whether the value of the (extracted) message text string is less than that of the text string in the Scan Text field. For ResourceView, if the characters to test are numeric, a numeric comparison is executed.

```
AAA100A THIS IS A MESSAGE NUMBERED MESSAGE 100
```

Strt Pos	Word Num	Scan Text	Extracted Text	Result
1	8	99	100	FALSE (ResourceView)
1	8	99	100	TRUE (EventView)
1	8	100	100	FALSE
4		99	100A THIS …	TRUE
4	5	LAGE	SAGE	FALSE
4	5	TAGE	SAGE	TRUE

Example: Use of the NE Operator

The Not Equal to operator tests for a mismatch between the (extracted) message text string and the text string in the Scan Text field.

```
AAA100A THIS IS A MESSAGE NUMBERED MESSAGE 100
```

Strt Pos	Word Num	Scan Text	Extracted Text	Result
1	8	99	100	TRUE
1	8	100	100	FALSE
4		99	100A THIS …	TRUE
4	5	LAGE	SAGE	TRUE
4	5	TAGE	SAGE	TRUE

Link Tests in an Expression

The tests you specify in the Text Analysis box can be linked in a defined relationship in the Expression field, using the Boolean operators AND, OR, and NOT.

For example, if you specify 1 and (2 or 3) in the Expression field, this indicates that test one must always be true, and either test two or test three must be true, before the rule can be triggered.

Note: If you leave the Expression field blank, all specified conditions must be true.

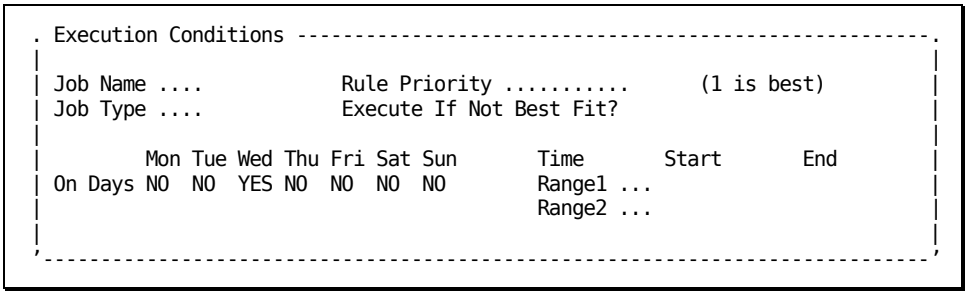
Test EventView Variables

If there are any EventView variables specified on the Test EventView Variables panel (the second panel in the extended filter sequence), these values are compared with the value of the predefined EventView variable when the rule is validated. To trigger the rule, they must match.

Specify Execution Conditions

If the message text passes the filtering process, further validation is performed to see whether the message received meets the specified execution conditions.

All the execution conditions specified on the Message Filter panel must be met before the message rule can be triggered. The following shows an example.



Important! If you want to detect a message from a started task that runs under the master scheduler (that is, by using the SUB=MSTR operand), do not use the Job Name and Job Type fields.

Overlapping Rules

You need to take into consideration that there may be more than one rule that applies to the same message.

EventView selects and executes the rule considered to be the best fit. This decision is based on how specific the filtering and execution conditions are; the more specific the rule (for example, the more message text specified), the better the fit.

You can override this determination of the best fit by entering a value (in the range 1 to 99) in the Rule Priority field, to indicate the order of importance. Top priority rules are given a ranking of 1, while the least important rule can be ranked 99.

You may want to trigger multiple rules for one message. The Execute if Not Best Fit? field, which can be set to Yes or to No, functions as follows:

- If set to NO (the default), the rule is not executed unless it is the best fit.
- If set to YES, the rule actions are executed whenever validation is successful.

Suppress Messages

You can reduce message traffic to the system and the consolidated console by suppressing messages that are not required by operators to perform their tasks. Message suppression does not affect the automated resource monitoring and control functions performed by ResourceView and ServiceView.

Use the following methods to suppress messages:

- Set the Deliver flag from the Message Delivery panel of a message rule. For example, you can specify LOG to suppress messages that trigger the rule from the consoles but enables them to be logged.
- Use the threshold criteria on the Message Delivery panel of a message rule to suppress redundant messages when multiple messages trigger the rule in a specified time.
- When you have implemented rules for all relevant messages, you can suppress all other messages that are not processed by a rule. To suppress these messages, specify NO or Z in the Default Message Delivery field on the Ruleset Description panel.

  Use the message-learning facility to identify any new messages that have been suppressed. You can then decide whether to create rules for them.

Specify Message Delivery

When a message satisfies the filtering criteria of a message rule and provided that the rule is the best fit, the rule controls how the message is delivered. Specify the delivery criteria on the Message Delivery panel.

Set the Deliver Flag

You set the Deliver flag to the following:

- YES (the default), if you want to deliver the message to the operating system and the consolidated console, and to log to the system log (SYSLOG) and the activity log
- IGN, if you want the region to ignore the message, but deliver it to the operating system and log it to the system log (SYSLOG)
- LOG, if you want the message logged to SYSLOG and the activity log, but not displayed on the console
- NO, if you want the message suppressed everywhere with the exception of SYSLOG
- Z, if you want the message suppressed everywhere, including SYSLOG

Note: Delivery of system messages to the activity log can be suppressed by the LOGFILES parameter group.

Set Delivery Thresholds

Thresholds determine what actions are taken when multiple messages trigger the rule in a given time period.

You set thresholds on the Message Delivery panel. You can request that the action associated with the rule be performed before these thresholds are reached, after they are reached, or whenever the rule is triggered, by entering a valid value in the Do Action field.

By setting the Deliver flag to YES:

You can specify that you do not want to see the same message more than a given number of times (such as 10) within a certain time interval (such as one minute). You do this by entering 10 in the Maximum Number field and 00.01.00 in the Time Interval field.

By setting the Deliver flag to NO:

You can specify that you only want a message displayed if it starts occurring more frequently than usual. You do this by entering a value in the Time Interval field. If more messages of the same kind than the number specified in the Maximum Number field are received in the specified time interval, the messages are displayed—otherwise not.

If you want to see, for example, every fifth occurrence of a message, set the Maximum Number field to four and leave the Time Interval field blank (or set to 0). This indicates that, no matter how long the interval between occurrences of this message, every fifth occurrence of the message is displayed. All other occurrences of the message are suppressed.

Specify a Correlation Key

To avoid creating separate rules for different versions of the same message, you can specify a correlation key on the Message Delivery panel. This enables the rule to keep separate threshold counts for each instance of the correlation key and avoids the possible suppression of important but uncommon versions of a message.

The correlation key can include the following:

- A user-defined EventView variable
- A reference to a ZMSG system variable, such as &ZMSGWORD3

Note: For more information about the system variables, see the *Network Control Language Reference Guide*.

Example: Specify a Correlation Key

To limit the number of messages (from a given job) that trigger this rule to ten for every hour, you can set the thresholds shown in the following panel:

```
PROD------------------ EventView : Message Delivery --------------------TAPEMON
Command ===>                                                    Function=UPDATE

Deliver ..........+ YES

. Threshold ------------------------------------------------------------------.
|                                                                              |
| Maximum Number .. 10                                                         |
| Time Interval ... 01.00.00                                                   |
| Do Action ......+ ______                                                     |
| Correlation Key   &ZMSGJOBNM                                                 |
|                                                                              |
'------------------------------------------------------------------------------'









 F1=Help      F2=Split     F3=File      F4=Save
 F7=Backward  F8=Forward   F9=Swap                 F11=Panels    F12=Cancel
```

Modify Messages

Message presentation and message text can be modified by specifying the requirements on the Message Modification panel.

Specify Replacement Text

By entering replacement text in the Replacement Text field on the Message Modification panel, you can replace the entire message text with an alternative text string. The text can include system variables.

Note: For more information about the system variables, see the *Network Control Language Reference Guide*.

Specify System Message Presentation Parameters

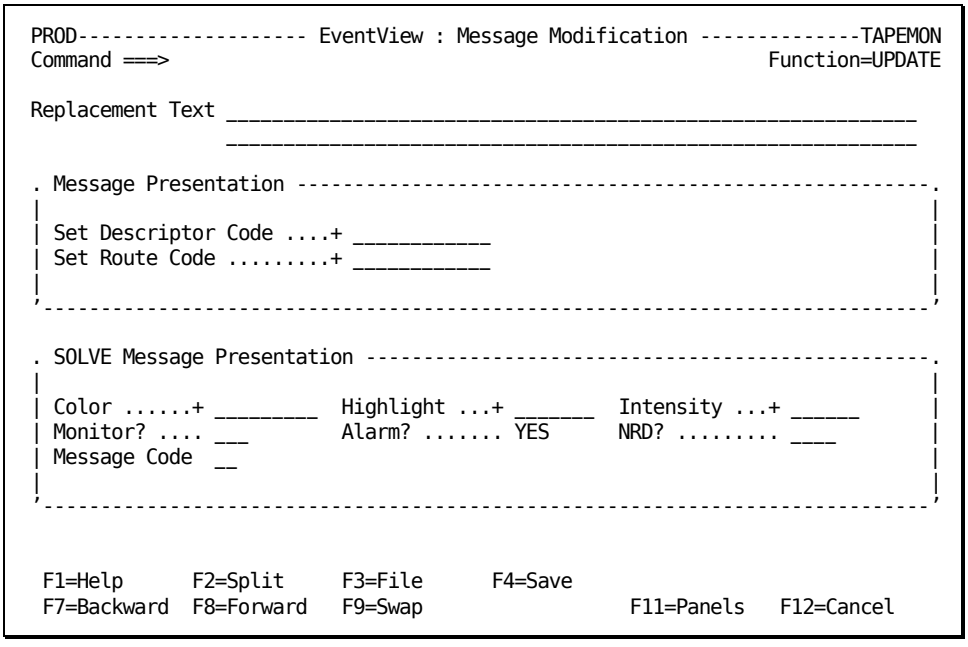
If you want to alter how a message is displayed to a system console user, specify the message descriptor code in the Set Descriptor Code field. This code determines the color that the system uses to display the message on a color console, and whether the message is non-roll deletable. You can also change the message routing code by specifying a value in the Set Route Code field, which is used by the system to control message delivery.

Specify OCS Message Presentation Parameters

By completing the appropriate fields in the lower box on the Message Modification panel, you can alter how a message is displayed to a user. You can also specify whether a console alarm is sounded when the message is delivered, and whether the message is delivered to monitor class users. The monitor status of a user is set in the user definition and profile.

Example: Specify OCS Message Presentation Parameters

The following example shows that the console alarm is sounded when the messages that trigger this rule are delivered.



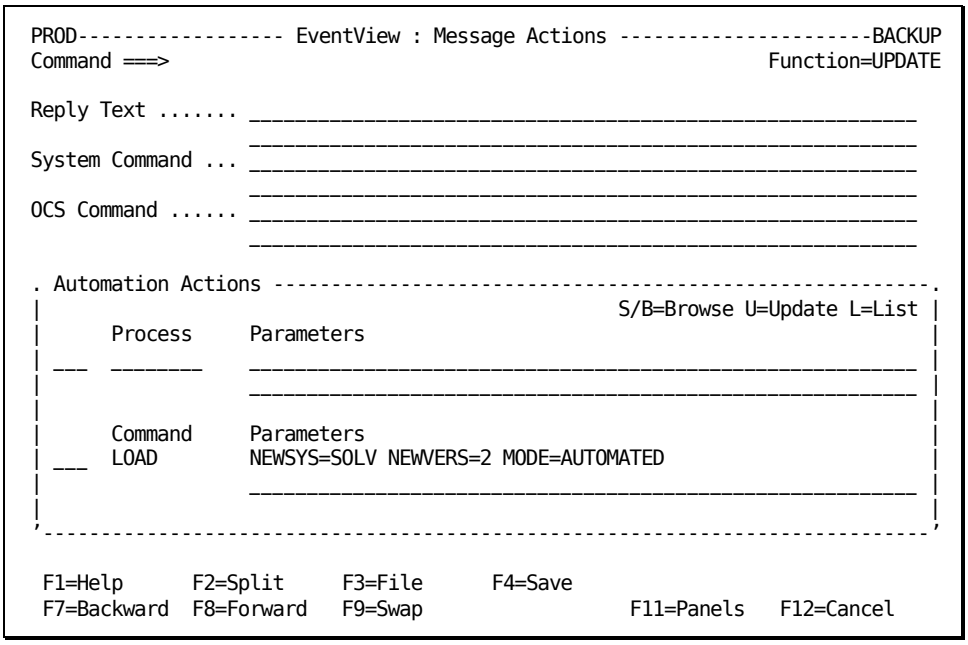
Specify Actions to Take in Response to Messages

On the Message Actions panel, you can specify what response is made to a message; whether a reply is sent, a command issued, or other action taken. Apart from reply text, you can specify the following:

- System command text, such as: START STC1.
- OCS Command text, such as:

  LOG TEST MSG1 ENCOUNTERED-WORD5=&ZMSGWORD5
- A process selected from the list of valid processes—enter a question mark in the field to display a list of valid processes.
- An Automation Services command selected from the list of valid commands—enter a question mark in the field to display a list of valid commands.

The following example loads a new system image in the local region when the rule is triggered.



Chapter 16: Message Learning

This section contains the following topics:

About Message Learning

The message-learning facility records messages seen by EventView. The facility provides you with a list of all messages encountered during system operation. After you review the initial set of messages, you can reset the new message indicator. Then, when new software is installed, you can easily learn about the new messages.

The facility allows you to do the following:

- List all learnt messages, or all *new* learnt messages
- Display formatted information about listed messages
- Create a message rule from a learnt message
- Use the learnt message list as a prompt list when specifying messages for resource definitions. For more information, see the *Reference Guide*.

Normally, only the first message that starts with a particular word is learnt. However, since some programs issue diverse messages with the same first word, EventView allows for this possibility. EventView also allows you to learn the minor lines of a multiline message. You can enable these features by entering YES in the Learn Multiple Messages? field on the Message Details panel of a learnt message.

Control Message Learning

Message learning can be enabled only if an EventView rule set is loaded with your system image. You control the facility by using the Learn New Messages? field on the Ruleset Description panel of the rule set definition.

To access rule sets, enter **/EADMIN.R.R** at the prompt.

Browse and Update Learnt Messages

You can browse and update learnt messages by applying the appropriate action to a listed message.

To display learnt messages

1. Enter **/EADMIN** at the prompt.

   The Event Administration panel appears.

2. Select **L** - Message Learning.

3. Select either **L** - Learnt Messages (to list all learnt messages) or **N** - New Learnt Messages.

4. Apply the **B** (Browse) action to a message you want to browse, or the **U** (Update) action to a message you want to update.

   For example, you may want to update the Learn Multiple Messages? field on the Message Details panel, to indicate that you want EventView to learn multiple messages with the same ID.

5. Select the panel you want to browse or update. Press F1 (Help) for definitions of the fields on the panels.

Generate a Rule for a Learnt Message

If you want to suppress further instances of a message, or to automate the response to the message, you can generate an associated message rule.

To generate a rule for a learnt message

1. From the Learnt Message List, apply the **GR** (Generate Rule) action to a listed item.

   The Ruleset List panel appears.

2. Select the rule set to which you want to add the message rule.

   The initial panel of the generated message rule appears in Add mode. All details stored in the learnt message record that are relevant to message rules have been copied to the message rule record and are displayed in the appropriate fields.

3. Complete the mandatory Short Description field, and complete or update other fields as required.

4. Save the new message rule.

Reset New Message Indicators

If you want to differentiate between messages learnt before and after a certain date, you can reset the new message indicators for the entire Message Learning database on that date. You may also want to reset the new message indicators after you review and create rules for the current learnt messages.

Later you can select the **N** - New Learnt Messages option from the Event Message Learning menu to list only those messages that have been learnt since you reset the new message indicators (for example, since the last review).

If you list all learnt messages, the messages that are flagged as new messages are identified by the presence of an asterisk (*) in the New column on the Learnt Message List panel.

Delete All Learnt Messages

To avoid accumulating too many messages, you may want to purge all messages after you have viewed those messages that interest you and generated appropriate rules. By selecting option **D** - Delete All Learnt Messages from the Event Message Learning menu, you can purge all learnt messages from the Message Learning database.

Important! Purged messages cannot be recovered.

The AUTOTABLES parameter group controls the size of the table that stores the learnt messages.

Chapter 17: Implementing Message Profiles

This section contains the following topics:

Consolidated Console

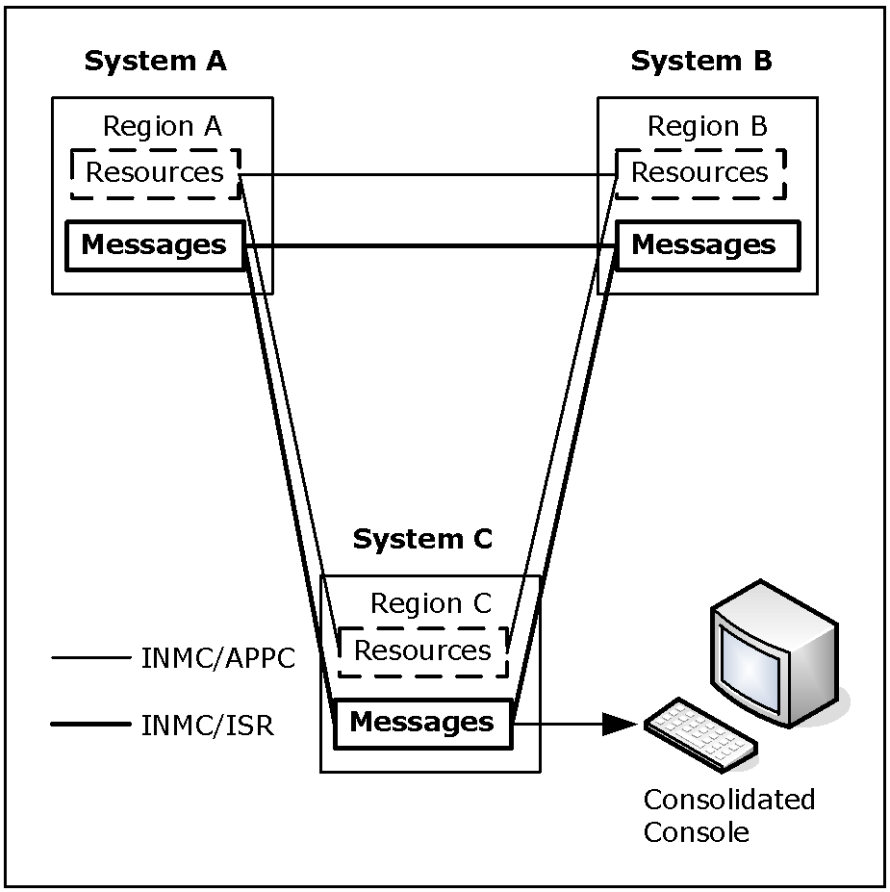
The console consolidation facility consolidates console message traffic from multiple systems onto a single panel (known as a *consolidated console*). Operators can thus view those messages from a single console. You create *message profiles* that contain criteria to identify and classify messages. If a user requests messages for a given message profile, all messages that match the criteria of that profile are displayed on that user's consolidated console.

Note: Multisystem message visibility is available only at consolidated consoles in focal point regions. In subordinate regions, only local messages are visible.

How Console Consolidation Works in a Multisystem Environment

Multisystem support at the message level provides for the distribution of messages to consolidated consoles in focal point regions in the multisystem environment.

The following illustration shows how each region communicates with other connected regions by using Inter-Network Management Connection (INMC)/Inter-System Routing (ISR) links.



Each region has an ISR link manager. The ISR link manager is started up as part of region initialization. The ISR link is active but disabled until a user starts console consolidation. The ISR link manager enables message flow across the link based on requests from users for messages that match specific message profiles.

The user profile determines the messages seen on a consolidated console. The ISR link manager suppresses those messages that are not required, thus reducing the amount of message flow. A user who has not been assigned message profiles or has all the assigned message profiles disabled sees no messages on the consolidated console.

Implement Message Profiles

You can define profiles that capture different types of messages. When you create or make changes to a message profile, the data is automatically distributed to the knowledge bases in connected regions.

Note: You can define message profiles in focal point regions only; however, the defined profiles are available to subordinate regions through knowledge base synchronization.

A message profile contains the following criteria types that determine which messages are received by a consolidated console:

- The system from which the message comes
- The ID (or the first word) of the message
- The job for which the message is generated
- The message routing and descriptor codes
- The message types and levels, and the types and classes of job for which the message is generated

A message profile must use at least one criterion from the last four criteria types.

Each profile has a status that determines whether it can be activated for use. Profiles must be activated, either by you or automatically during region startup, before they can be used. After you define the profiles, you need to activate them for use by the operators.

Rules for Defining and Using Message Profiles

This section contains rules about entering data on panels and about how to get the best results when defining message profiles.

Create New Message Profiles in a Single System First

Create a new message profile to select messages from one system only, using selection criteria that are unique to that system. For example, if each system uses different message classes, specify a message class that is unique to your system. When this profile is working successfully in one system, you can copy it into a new profile for other systems whose messages you want to monitor.

Use Unique Message Profile Names and IDs

Message profiles are identified by unique profile names and IDs. When messages are captured, they are associated with a specific profile ID. The profiles replace the message routing codes corresponding to the IDs as the means for the region to direct relevant messages to operators. An operator who wants to receive specific messages on a consolidated console enables the relevant profiles. Alternatively, if the operator always wants to see consolidated messages for certain profiles, the operator can specify this information in the user profile (see page 175).

Important! A profile acts on messages after they are processed by EventView message rules. For example, if a rule changes the routing code and you want to capture the message, ensure that the profile ID corresponds to the changed routing code.

You cannot include special characters (for example, _, -, (,), and ~) or spaces in a profile name.

Use Wildcards

Use wildcard characters to represent character patterns at particular positions in a character string. The supported wildcard characters are as follows:

- *, representing any character as follows:
  - If the * is at the beginning of or embedded in a character string, it represents one character.
  - If the * is at the end of a character string, it represents any number of characters.

  You *cannot* use an * by itself. In the following example, messages are selected for any system that starts with the letters EAST:

  Systems to Include
  EAST*
- #, representing one numeric character. In the following example, messages are selected for systems EAST0 through EAST9:

  Systems to Include
  EAST#
- @, representing one alpha character. In the following example, messages are selected for systems EAST0A through EAST9Z:

  Systems to Include
  EAST#@

Type as many characters as necessary to select the required information.

If you want to use a wildcard character in the literal sense, precede the character by a backslash (\), for example:

- ABC### matches any value that starts with ABC followed by three numeric characters
- ABC##\# enables you to match a value that starts with ABC followed by two numeric characters and ending in a # character.

Use Ranges

Use a colon (:) to specify ranges.

The character strings on each side of the colon must be of equal length.

Note: The backslash (\) is regarded as one character when the length of the string is calculated.

The asterisk (*) wildcard character can only be used at the end of a string.

Example: Use Ranges

In the following example, messages are selected for systems EAST0, EAST1, and EAST2.

```
Systems to be Included
EAST0:EAST2
```

Include and Exclude Information

In each profile, you must specify the criteria that determine the messages to display on the consolidated console. Most panels have *inclusion fields* and *exclusion fields*, or allow you to specify N(o) or Y(es), according to whether you want to include or exclude messages with certain attributes. The rules for including and excluding messages are as follows:

- If you leave all the fields on a panel blank, the criteria specified on the other panels determine what messages are displayed on the consolidated console. For example, if you leave the System Specification panel blank, messages from all connected regions are potentially available for display.

  However, if you do *not* specify any criteria in a message profile (that is, if you leave the criteria fields on all the panels blank), the profile receives *no* messages.

- If you specify inclusion and exclusion values for a particular criterion, the inclusion values take priority. The exclusion values are then applied to the resulting set of included messages.

  For example, using message ID as a criterion, if you want to include all message IDs except the IDs starting with AAA111, you can use the following inclusion and exclusion values:

  Inclusion values A*:9*

  Exclusion values AAA111*

- Messages are selected for display only if they meet the criteria specified on all panels. For example, if you specify YES in the Sess field on the Message Job Specification panel, only SESS type messages are displayed, even if messages of other types meet the criteria specified on the other panels.

- Items selected with N or Y have an OR relationship. For example, if you include routing codes 1, 2, and 11, messages that have a routing code of 1 *or* 2 *or* 11, *or* a combination of these codes, are displayed if they satisfy the other criteria specified in the profile.

- If you complete an exclusion field or specify N, a message that meets this criterion is not displayed, even if it satisfies all the inclusion criteria specified in the profile.

Note: The consolidated console does not receive messages suppressed by EventView rules.

Access the Message Profile Definitions

To access the message profile definitions

1. Enter **/EADMIN.C.M** at the prompt.

   The Message Profiles panel appears.

   This panel lists all the message profiles in the knowledge base. You can enter action codes to perform actions on existing message profiles, or press F4 (Add) to add a new profile.

Define a Message Profile

To add a message profile, press F4 (Add) from the Message Profiles panel. You define the profile by using the following panels:

Profile Details

You must complete this panel. The panel enables you to identify the profile.

System Specification

This panel enables you to use the system associated with a message as a selection criterion.

Message Specification

This panel enables you to use the message ID as a selection criterion.

Job Name Specification

This panel enables you to use the job associated with a message as a selection criterion.

OS Codes Specification

This panel enables you to use the routing and descriptor codes associated with a message as selection criteria.

Message Job Specification

This panel enables you to use the message type and level, and the job type and class associated with a message as selection criteria.

You can create a profile to capture particular messages (for example, all tape mount messages) or to capture messages for particular jobs (for example, all production CICS jobs). You do not need to complete every panel for most profile definitions. However, you must complete one of the criteria panels. If you leave all the criteria panels blank, the profile blocks all messages.

Specify the System Criteria

From the Profile Details panel, press F8 (Forward) to display the System Specification panel. You can specify the systems for which messages are captured.

The values you use in the Systems to be Included or Excluded fields are the system management facilities (SMF) ID or the region domain ID. The value type is indicated at the bottom of the panel as SMFID or NMDID respectively, and is set in the CCONSOLIDATN parameter group.

The criteria can be specific, generic, or in a range.

Leave the fields blank to allow messages for all the connected systems to be captured. These messages are captured only if other criteria are specified in the profile and the messages satisfy those criteria.

Define the Profile Details

Use the Profile Details panel to identify the message profile. You must specify the profile name, ID, and description. All profile panels contain this information.

Note: You cannot use the value 2 as the profile ID.

Only profiles that have IDs corresponding to those set for a parameter in the CCONSOLIDATN parameter group are available for use in the local region. The parameter might exclude certain IDs. To display the value of the parameter, enter the **/PARMS** shortcut to access the list of parameter groups and browse the CCONSOLIDATN parameter group.

The Profile Details panel also contains information about the profile status, whether to profile for solicited messages, and a system-supplied history of when the profile was created and last updated. Only profiles with an ACTIVE status can be activated for use.

Specify the Message ID Criteria

From the System Specification panel, press F8 (Forward) to display the Message Specification panel. You can specify the IDs (or generic IDs, for example, $HASP*) of the messages you want to capture. The message ID is the first word of a message.

The values can be specific, generic, or in a range.

Leave the fields blank to capture messages with any ID. These messages are captured only if other criteria are specified in the profile and the messages satisfy those criteria.

Specify the Job Criteria

From the Message Specification panel, press F8 (Forward) to display the Job Name Specification panel. You can name the jobs (and started tasks) for which messages are captured.

The values can be specific, generic, or in a range.

Leave the fields blank to capture messages for all jobs. These messages are captured only if other criteria are specified in the profile and the messages satisfy those criteria.

Specify the System Codes Criteria

From the Job Name Specification panel, press F8 (Forward) to display the OS Codes Specification panel. You can specify the routing and descriptor codes assigned to messages that are captured. Messages may contain one or a combination of the codes you specify. Messages are not selected if they contain codes that you exclude specifically.

You can exclude certain codes by typing **N** under the codes, include certain codes by typing **Y** under the codes, and leave the other code fields blank. A message containing any of the included codes is selected unless the message also contains an excluded code.

Leave the fields blank to capture messages that contain any routing and descriptor codes. These messages are displayed on the consolidated console if other criteria are specified in the profile and the messages satisfy those criteria.

Specify the Message Type, Level, and Job Criteria

From the OS Codes Specification panel, press F8 (Forward) to display the Message Job Specification panel. You can specify the message types, and message levels, job types, and job classes assigned to messages that are captured.

You can include or exclude certain items in each criteria type, but not both (except for the Broadcast field under Message Levels). For example, if you want to accept immediate action messages but not broadcast messages, specify Y in the Immediate Action field and N in the Broadcast field.

Leave the fields blank to allow messages of any type, level, job type, or job class. These messages are displayed on the consolidated console if other criteria are specified in the profile and the messages satisfy those criteria.

Message Types

Message types correspond to the operands of the MONITOR or STOPMN system commands. For example, messages generated because of the MONITOR SESS command have the SESS type.

Message Levels

Message levels indicate the relative importance of a message.

Note: The broadcast level has precedence over all other message criteria. If broadcast messages are allowed, the message profile passes all broadcast messages irrespective of the other criteria.

Job Types

Job types are as follows:

Job

Indicates a batch job.

STC

Indicates a started task.

In a JES3 environment, a started task has a job type of Job.

TSU

Indicates a TSO user.

Unknown

Indicates a job type that is not one of the above.

Job Classes

The job class is assigned by the CLASS parameter of the JOB JCL statement.

Example: Profile Specific Messages

In this example, the organization has two branches: an eastern branch and a western branch. You want to create a profile to capture all tape mount messages for all the production systems running in the eastern data center, but do not want to capture messages for development jobs. The job classes assigned to tape mount requests are 1, 2, and 3.

From the Message Profiles panel, press F4 (Add) to add a profile. A Profile Details panel appears. You can press F8 (Forward) to scroll forward through the panels or enter the panel index number at the Command prompt to select a specific panel. (Pressing F11 (Panels) displays of a list of panels and panel index numbers.)

Use the following panels in this example:

- Profile Details
- System Specification
- Message Specification
- Job Name Specification
- Message Job Specification

On the Profile Details panel, type a unique profile name (TAPEMOUNTS), a unique ID (127), a description of the profile (Tape Mounts for Eastern Production Jobs), and assign a status. Assign a status of ACTIVE so that the profile can be activated.

The following panel shows the completed Profile Details.

```
PROD------------------- EventView : Profile Details -------------MCPROFIL-0000
Command ===>                                                  Function=UPDATE

+---------------------- Message Classification Profile ----------------------+
| Name ... TAPEMOUNTS       ID ..... 127 (1 - 128)                           |
| Description .... Tape Mounts for Eastern Production Jobs_________________ |
+-------------------------------------------------------------------------+
+ Profile Status ---------------------------------------------------------+
| Profile Status ... ACTIVE__ (Active/Inactive)                           |
+-------------------------------------------------------------------------+
+ Include Solicited Messages? --------------------------------------------+
| Solicited Type ... NO___    (No, Other, Nothr, Yes, All)                |
+-------------------------------------------------------------------------+

+ History ----------------------------------------------------------------+
|                                                                         |
| Profile Created           Profile Last Updated      Profile Status Updated  |
| Userid  USER01            Userid                    Userid                  |
| Date .. THU 25-MAY-2006   Date ..                   Date ..                 |
| Time .. 14.48.27          Time ..                   Time ..                 |
+-------------------------------------------------------------------------+

 F1=Help      F2=Split     F3=File      F4=Save
              F8=Forward   F9=Swap                 F11=Panels   F12=Cancel
```

Press F8 (Forward) to scroll forward to the System Specification panel. You do not want to capture messages for any western branch systems, so you complete the exclusion fields. All western branch systems start with the letters WST, so WST* is typed to exclude all western branch systems.

The following panel shows the completed System Specification.

```
PROD---------------- EventView : System Specification ----------MCPROFIL-0000
Command ===>                                                   Function=UPDATE

+---------------------- Message Classification Profile ----------------------+
| Name ... TAPEMOUNTS       ID ..... 127 (1 - 128)                           |
| Description .... Tape Mounts for Eastern Production Jobs                   |
+----------------------------------------------------------------------------+
+-----------------------------------+ +-----------------------------------+
| Systems to be Included            | | Systems to be Excluded            |
+-----------------------------------+ +-----------------------------------+
| _______________ _______________ | | WST*____________ _______________ |
| _______________ _______________ | | _______________ _______________ |
| _______________ _______________ | | _______________ _______________ |
| _______________ _______________ | | _______________ _______________ |
| _______________ _______________ | | _______________ _______________ |
| _______________ _______________ | | _______________ _______________ |
| _______________ _______________ | | _______________ _______________ |
+-----------------------------------+ +-----------------------------------+

Note : Identify the systems by using SMFID


 F1=Help      F2=Split     F3=File      F4=Save
 F7=Backward  F8=Forward   F9=Swap                F11=Panels    F12=Cancel
```

Press F8 (Forward) to scroll forward to the Message Specification panel. You only want to display IEF233A messages, which are requests for tape mounts, so you complete the inclusion fields.

The following panel shows the completed Message Specification.

```
PROD---------------- EventView : Message Specification ----------MCPROFIL-0000
Command ===>                                                   Function=UPDATE

+---------------------- Message Classification Profile ----------------------+
| Name ... TAPEMOUNTS       ID ..... 127 (1 - 128)                           |
| Description .... Tape Mounts for Eastern Production Jobs                   |
+----------------------------------------------------------------------------+
+-----------------------------------+ +-----------------------------------+
| Message IDs to be Included        | | Message IDs to be Excluded        |
+-----------------------------------+ +-----------------------------------+
| IEF233A_________ _______________ | | _______________ _______________ |
| _______________ _______________ | | _______________ _______________ |
| _______________ _______________ | | _______________ _______________ |
| _______________ _______________ | | _______________ _______________ |
| _______________ _______________ | | _______________ _______________ |
| _______________ _______________ | | _______________ _______________ |
| _______________ _______________ | | _______________ _______________ |
+-----------------------------------+ +-----------------------------------+




 F1=Help      F2=Split     F3=File      F4=Save
 F7=Backward  F8=Forward   F9=Swap     F10=Scrllst  F11=Panels    F12=Cancel
```

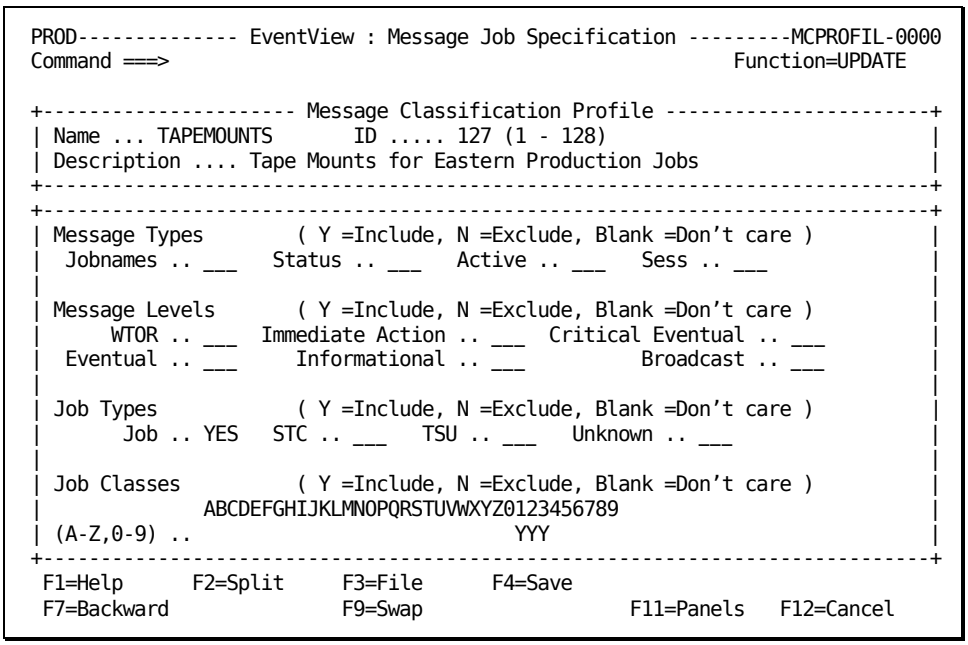
Press F8 (Forward) to scroll forward to the Job Name Specification panel. You do not want to capture messages for development jobs. All development jobs in the eastern branch start with the letters DEV, so DEV* is typed in an exclusion field.

The following panel shows the completed Job Name Specification.

```
PROD---------------- EventView : Job Name Specification ----------MCPROFIL-0000
Command ===>                                                  Function=UPDATE

+---------------------- Message Classification Profile -----------------------+
| Name ... TAPEMOUNTS       ID ..... 127 (1 - 128)                            |
| Description .... Tape Mounts for Eastern Production Jobs                    |
+-----------------------------------------------------------------------------+
+-----------------------------------+ +-----------------------------------+
| Job Names to be Included          | | Job Names to be Excluded          |
+-----------------------------------+ +-----------------------------------+
| ________________ ________________ | | DEV*_____________ ________________ |
| ________________ ________________ | | ________________ ________________ |
| ________________ ________________ | | ________________ ________________ |
| ________________ ________________ | | ________________ ________________ |
| ________________ ________________ | | ________________ ________________ |
| ________________ ________________ | | ________________ ________________ |
| ________________ ________________ | | ________________ ________________ |
+-----------------------------------+ +-----------------------------------+



 F1=Help      F2=Split     F3=File      F4=Save
 F7=Backward  F8=Forward   F9=Swap     F10=Scrllst  F11=Panels   F12=Cancel
```

Enter **6** at the prompt to display the Message Job Specification panel. Here you want to capture messages for jobs only, in job classes 1 (for jobs that need one tape mounted), 2 (for jobs that need two tapes mounted), and 3 (for jobs that need three tapes mounted).

The following panel shows the completed Message Job Specification.



Example: Profile Messages for Specific Jobs

In this example, you want to create a profile to capture messages for certain CICS jobs on the production systems in the eastern and the western branches. The branches use only one test system, ETST. You assign a status of INACTIVE, as you do not want the profile to be used immediately. You only want to capture messages that have routing codes of 1, 2, or 11.

From the Message Profiles panel, you press F4 (Add) to add a profile. A Profile Details panel appears. You can press F8 (Forward) to scroll forward through the panels or enter the panel index number at the Command prompt to select a specific panel. (Pressing F11 (Panels) displays a list of panels and panel index numbers.)

Use the following panels in this example:

- Profile Details
- System Specification
- Job Name Specification
- OS Codes Specification

The following panels show the completed message profile:

```
PROD------------------- EventView : Profile Details -------------MCPROFIL-0000

Command ===>                                                  Function=UPDATE

+---------------------- Message Classification Profile ----------------------+
| Name ... CICSMESSAGES     ID ..... 126 (1 - 128)                           |
| Description .... Messages for all production CICS Jobs_____________________ |
+------------------------------------------------------------------------------+

+ Profile Status -------------------------------------------------------------+
| Profile Status ... INACTIVE (Active/Inactive)                              |
```

```
PROD----------------- EventView : System Specification -----------MCPROFIL-0000
Command ===>                                                  Function=UPDATE

+---------------------- Message Classification Profile ----------------------+
| Name ... CICSMESSAGES     ID ..... 126 (1 - 128)                           |
| Description .... Messages for all production CICS Jobs                     |
+------------------------------------------------------------------------------+
+-----------------------------------+ +-----------------------------------+
| Systems to be Included            | | Systems to be Excluded            |
+-----------------------------------+ +-----------------------------------+
| ________________ ________________ | | ETST____________ ________________ |
```

```
PROD---------------- EventView : Job Name Specification ----------MCPROFIL-0000
 Command ===>                                                 Function=UPDATE

+---------------------- Message Classification Profile ----------------------+
| Name ... CICSMESSAGES     ID ..... 126 (1 - 128)                           |
| Description .... Messages for all production CICS Jobs                     |
+------------------------------------------------------------------------------+
+-----------------------------------+ +-----------------------------------+
| Job Names to be Included          | | Job Names to be Excluded          |
+-----------------------------------+ +-----------------------------------+
| CICSPRD1:CICSPRD9 CICSTST*_______ | | CICSPRD4_________ _______________ |
```

```
PROD--------------- EventView : OS Codes Specification -----------MCPROFIL-0000
Command ===>                                                  Function=UPDATE

+---------------------- Message Classification Profile ----------------------+
| Name ... TAPEMOUNTS       ID ..... 127 (1 - 128)                           |
| Description .... Messages for all production CICS Jobs                     |
+------------------------------------------------------------------------------+
+------------------------------------------------------------------------------+
| Routing Codes    ( Y =Include, N =Exclude, Blank =Don't care )               |
|                    1         2         3         4         5         6     |
|           12345678901234567890123456789012345678901234567890123456789012345  |
|   1-64 => YY        Y                                                      |
```

Example: Profile All Messages

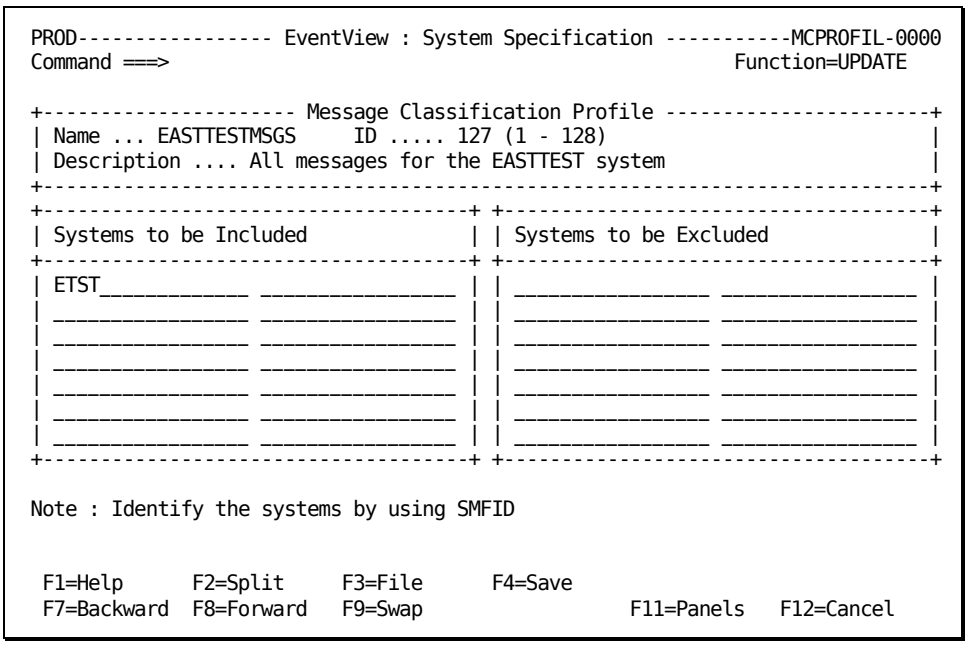
Note: This example is for illustration only. In a multisystem environment, if you have not implemented EventView message rules to provide a high level of message suppression, using this message profile can result in a very high volume of message flow to the consolidated console.

In this example, you want to create a profile to capture the messages for all connected systems. You allow all messages by excluding a system that is not part of the network. The following shows an example where DMMY is the excluded system.

```
PROD----------------- EventView : System Specification -----------MCPROFIL-0000
Command ===>                                                    Function=UPDATE

+---------------------- Message Classification Profile -----------------------+
| Name ... ALLMESSAGES      ID ..... 127 (1 - 128)                            |
| Description .... All messages                                               |
+-----------------------------------------------------------------------------+
+-----------------------------------+ +-----------------------------------+
| Systems to be Included            | | Systems to be Excluded            |
+-----------------------------------+ +-----------------------------------+
| ________________ ________________ | | DMMY____________ ________________ |
| ________________ ________________ | | ________________ ________________ |
| ________________ ________________ | | ________________ ________________ |
| ________________ ________________ | | ________________ ________________ |
| ________________ ________________ | | ________________ ________________ |
| ________________ ________________ | | ________________ ________________ |
| ________________ ________________ | | ________________ ________________ |
+-----------------------------------+ +-----------------------------------+

Note : Identify the systems by using SMFID


 F1=Help      F2=Split     F3=File      F4=Save
 F7=Backward  F8=Forward   F9=Swap                F11=Panels   F12=Cancel
```

Example: Profile Messages for a Particular System

In this example, you want to create a profile to capture the messages for a particular system. The following shows an example where ETST is the system whose messages you want to monitor.



Change the Activation Status of a Message Profile

A message profile must have an ACTIVE status before it can be activated for use. If you only want to change the Profile Status Field for a profile, change the value directly from the Message Profiles panel.

To change the value to ACTIVE, type **A** beside all the profiles you want to update and press Enter. The value in the Status column for the profiles changes to ACTIVE.

To change the value to INACTIVE, type **I** beside all the profiles you want to update and press Enter. The value in the Status column for the profiles changes to INACTIVE.

Activate Message Profiles

Note: The message profile activation process can halt the region for a short period of time. After this period, the region continues from where it left off, without loss of control or data. However, delays might occur in responses to system activities. Unless the activation of the message profiles is of a high priority, perform this task when the system is not busy.

After you have created or updated message profiles, you must activate (load) them in one of the following ways in each of the linked regions before they can be used:

- Select the **A** option on the System Console Consolidation panel, or enter the **/EADMIN.C.A** path (available to focal point regions only).
- Enter **ACTIVATE** at the prompt on the Message Profiles panel (available to focal point regions only). To display the panel, enter the **/EADMIN.C.M** path.
- Action the CCONSOLIDATN parameter group (available to focal point and subordinate regions). To display the list of parameter groups, enter the **/PARMS** shortcut.

A region only activates profiles with a status of ACTIVE.

Profiles with a status of ACTIVE also become active automatically whenever the region is started. Profiles with a status of INACTIVE are not activated when the region is started.

Message Profile Size Considerations

Activation of message profiles can fail if the total size of the profiles loaded is too large. If the problem occurs, a message is generated to indicate by how much the size should be reduced. The ID of the message is either RMCCST11 or RMINWI36. For information about how to correct the problem, see the message online help .

Maintain Message Profile Definitions

In a focal point region, you can browse, update, copy, and delete message profile definitions from the Message Profiles panel.

For information about how to assign message profiles to individual users, see the *Security Guide*.

Monitor Messages Using Consolidated Console

The console message consolidation facility enables authorized users to view console message traffic from multiple systems on a single console (referred to as a *consolidated console*). An authorized user can create *message profiles* that contain criteria to identify and classify messages. When you use a consolidated console, you use message profiles to select the messages for viewing. All messages that match the criteria of the profiles are displayed on your consolidated console.

Note: The facility is fully functional in focal point regions only. In subordinate regions, only local console message traffic is visible.

Message Monitor

The message monitor is based on Operator Console Services (OCS).

Prefix Messages with the System Name

Use the following command to specify whether you want your messages prefixed with the originating system name:

```
PROFILE AOMPRFSN={NO | YES}
```

For example, to prefix the displayed messages with the system name, enter PROFILE AOMPRFSN=YES.

The changed value is valid for the current session only. If you want to specify a value to use whenever you access the message monitor as a consolidated console, specify the value at the Message Monitor Message Formatting panel of your user profile.

Consolidated Console Setup Requirements

To use the consolidated console, you must be authorized to use OCS and AOM, and authorized to receive AOM messages. This information is specified in your user ID definition.

In addition, your user profile must be set up to receive the relevant messages.

Authorization Requirements

Your authority for using the consolidated console should be set up by the administrator.

If the User Access Maintenance Subsystem (UAMS) is used to manage authorization, enter the **/UAMS.B** path to browse your user ID definition.

The authorization requirements are as follows:

UAMS Panel (Page Number)	Field	Value
Access Authorities (3)	Operations Management	Y
	Operator Console Services	Y
OCS Details (5)	Initial OCS Command	-$RMCCOCS
AOM General Details (10)	AOM Message Receipt	Y
	Console Routing Codes	ALL
	Message Level Screening	ALL

Profile Requirements

To enable you to receive messages on a consolidated console, ensure that the following fields on the Message Monitor Message Receipt panel of your user profile have the values Y:

- Receive Unsolicited Messages
- Receive System Messages

To access your user profile, enter the **=U.UP** path.

Access the Consolidated Console

From the primary menu, enter **O** to access OCS. If the lower right of your screen is not displaying CC ON or CC PND, enter **CCON** to change the monitor to a consolidated console. If an RMCCOC07 message is displayed or if the status is CC PND, your console is unable to receive system messages because your profile is not suitable for the consolidated console.

The console starts displaying the messages that match the message profiles available to you. You must have at least one message profile enabled to view any message.

Notes:

- If console consolidation is disabled, you can monitor local messages only. (Message consolidation is enabled or disabled in the CCONSOLIDATN parameter group. For information about parameter groups, see the *Reference Guide*.
- You can also use the Command Entry facility as a consolidated console. To access the Command Entry panel, type **CMD** at a prompt, or press F5 from OCS. Enter **CCON** to turn on console message consolidation. The Command Entry facility keeps the messages that scroll off the panel, that is, you can bring those messages back onto the panel by pressing the F7 or F8 scroll function keys.

If the Console Does Not Display System Messages

If the console does not display system messages, use the following procedure to investigate the cause and correct the problem. You may not need to complete all of the steps if the problem is corrected before the end of the procedure.

1. Enter **PROFILE CC** and ensure that at least one of your message profiles is enabled.

   If a defined message profile is not accessible, check its status. When you load the profiles, only those with an ACTIVE status are loaded.

2. Enter **PROFILE** to display your console profile. Ensure that the values of the following profile parameters are as indicated:

   UNSOL

   Set to YES.

   AOMMSG

   Set to YES.

   AOMMSGLV

   Set to other than NONE.

   You can correct the value by issuing the following command for each relevant parameter:

   PROFILE *profile-parameter=parameter-value*

   The changed value is valid for the current session only. If you want to change a value permanently, change it in your user profile.

   If the AOMMSG and AOMMSGLV parameters are not displayed or if the AOMMSGLV parameters cannot be changed, you need to update your user ID definition according to the guidelines in the next step; otherwise, proceed to Step 4.

   Note: If you are not authorized to correct errors found in the following steps, report the errors to the administrator.

3. Enter the **/UAMS.B** path to browse your user ID definition. Ensure that your AOM General Details panel displays the following values:

   AOM Message Receipt

   Set to Y.

   Console Routing Codes

   Set to ALL.

   Message Level Screening

   Set to ALL.

   When these values are correct, you can then update the corresponding profile parameters as indicated in the previous step.

   You should also ensure that the Initial OCS Command field on your OCS Details panel has the value $RMCCOCS. This command ensures that the message monitor is always presented to you as a consolidated console.

   Ensure that console consolidation is activated by the CCONSOLIDATN region parameter group.

Use Message Profiles to Select the Messages to Monitor

In a consolidated console, you can use predefined message profiles to select the messages you want to monitor.

To access your list of message profiles, issue the **PROFILE CC** command. The Private Message Profile Control panel displays the list of message profiles that you can use to profile your consolidated console.

The initial status of the message profiles are as follows:

- If you disabled the message profile in your user profiles, the profile appears with a status of DISABLED.
- If you enabled the message profile in your user profiles, the profile appears with a status of ENABLED or PENDING.

Use the **D** or **E** action codes to disable or enable selected profiles for this session with your consolidated console. Enabled profiles have a status of PENDING if your monitoring environment cannot receive the requested messages (for example, if the UNSOL profile parameter has a value of NO indicating that you cannot receive unsolicited messages).

You can use the F10 (MsgFlow) function key to switch the value of the AOMMSG profile parameter between NO and YES. This parameter indicates whether you can receive AOM messages. The value must be YES for you to receive messages at your consolidated console.

Use the F11 (LstSort) function key to sort the list of message profiles by name or by ID. The initial sort is by name.

Reply to a WTOR Message From the Consolidated Console

Note: You can reply to resource or service related WTOR messages from the status or graphical monitor by using the W command.

Use the following command to reply to a local WTOR message:

```
SYSCMD REPLY wtor-id,reply-text
```

Use the following command to reply to a remote WTOR message:

```
ROUTE DOMAIN=domain-id SYSCMD REPLY wtor-id,reply-text
```

The value of *domain-id* is the domain ID of the region that sends the remote WTOR message. The ID appears as a prefix to the message if the value of your PREFSYS profile parameter is YES.

For information about the SYSCMD and ROUTE commands, see the online help.

Note: You can use the EQUATE command to reduce the typing required when issuing a command. For example, you can equate text as follows:

```
EQUATE / SYSCMD REPLY+
EQUATE domain-id ROUTE DOMAIN=domain-id SYSCMD REPLY+
```

You can then use the following commands to reply respectively to a local or a remote WTOR message:

```
/ wtor-id,reply-text
domain-id wtor-id,reply-text
```

For information about the EQUATE command, see the online help.

To ensure that the required text strings are always equated in the region, specify the EQUATE commands in the EQUATES parameter group.

Exit the Consolidated Console

Exit your consolidated console in one of the following ways:

- To exit the consolidated console and remain in OCS or your Command Entry panel, issue the **CCOFF** command. You can use the CCON command to return to the consolidated console.
- To exit the consolidated console and return to the previous panel, press F3.

Chapter 18: Configuring the Event Simulator

This section contains the following topics:

Event Simulator

The event simulator enables you to correctly assess the impact of a loaded system image on the operations of the local system. The MSGAWARENESS parameter group controls the availability of the simulator.

By using the simulator, you can generate simulated events and review the returned results. A simulated event returns the expected results. It does not invoke the actual actions. The results of the simulation identify the following affected active definitions:

- Resource definitions
- EventView rules
- Consolidated console message profiles
- Other product-specific definitions and records

Generate Simulated Events

To generate simulated events

1. Enter **/EADMIN.E** at the prompt.

   The Simulated Events List appears.

2. Do *one* of the following:
   - If the required event definition is not on the list, press F4 (Add) to define and generate the event.
   - If the required event definition is on the list, do one of the following:
     - Use the SV or SI action code to simulate one or more defined events.
     - Enter **ALL SI** at the prompt to simulate all defined events.

Define a Simulated Event

To define a simulated event

1. From the Simulated Event List, enter **/EADMIN.E** at the prompt.
2. The simulated event definitions appear.
3. Press F4 (Add). You can also use the C action code to open a copy of an existing definition that you can modify.

   The Simulate Message panel appears.
4. Specify the message you want to simulate and the type of information you want returned.

   You can enter a question mark (?) in the Message Text field to display the list of messages learnt by the region. If you select a message from the list, the panel is automatically updated for any associated job name, route codes, and descriptor codes.
5. Do *one* of the following:

   - If you want to generate the simulated event, press F6 (Simulate). To save the results, you must press F3 (File) or F4 (Save).
   - If you do not want to generate the simulated event now, press F3 (File) to save the definition for later use.

   Note: Filed message definitions are *not* retained across region restarts.

Interpret the Results of Event Simulation

The results of event simulation are returned on the Simulation Results List panel.

```
PROD-------- Automation Services : Simulation Results List --------------------
Command ===>                                                  Scroll ===> CSR

                S/B=Browse Definition U=Update Definition C=Collapse E=Expand
    Simulated Message Details:
     Message Text ... $HASP170 PRT1     INTERRUPTED
     Jobname ........ JES2           Jobtype ....... JOB  Message Type ... WTO
     Route Codes .... 7              Desc. Codes ... 4

    ************************** Simulation Results ****************************
    Dflt EventView Ruleset ..... $$$$$URS
         Default ruleset processing performed as per:
            Message Delivery ... YES           Perform Mods.? .. YES
            Perform Actions? ... YES           Log Activity? ... NO
            Collect Statistics?  YES           Learn New Msgs?   NO

    Miss No Consolidated Console profiles hit for the following reason:
            No Consolidated Console Profiles Hit

    Hit  PRT Resource Name ..... PRT1         JES Printer PRT1
         Monitor Message ....... $HASP170 PRT1*
         Extended Actions:
```

For the previous example, the results indicate that the:

- Messages are passed on by the $$$$$URS rule set but no rules are triggered
- PRT1 resource becomes degraded but no actions are invoked

If the results are not satisfactory for a displayed definition, you can use the U action code to update it. For example, if you enter U beside the PRT resource line, the Status Monitor Message Details panel displays. You can then update the appropriate resource message rule.

Summarize the Results

When a simulated event affects many definitions, the results are displayed over several panels; however, you can summarize the results.

To summarize the results

1. Enter **ALL C** at the prompt.

   The results appear as a list of affected definitions.

   Note: You can use the ALL E command to display all details of all the results. You can use the C and E action codes to change the view of selected results.

Maintain Simulated Event Definitions

You can browse, update, copy, and delete simulated event definitions. To delete all definitions, enter **ALL D** at the prompt.

Note: If you update the message attributes, you are creating a new message. Previously stored simulation results are not retained.

Chapter 19: Implementing Activity Logs

This section contains the following topics:

Activity Logs

The activity logging facility records all the activity in your region. You can use the activity logs to help determine the cause of problems.

Two separate activity log formats exist:

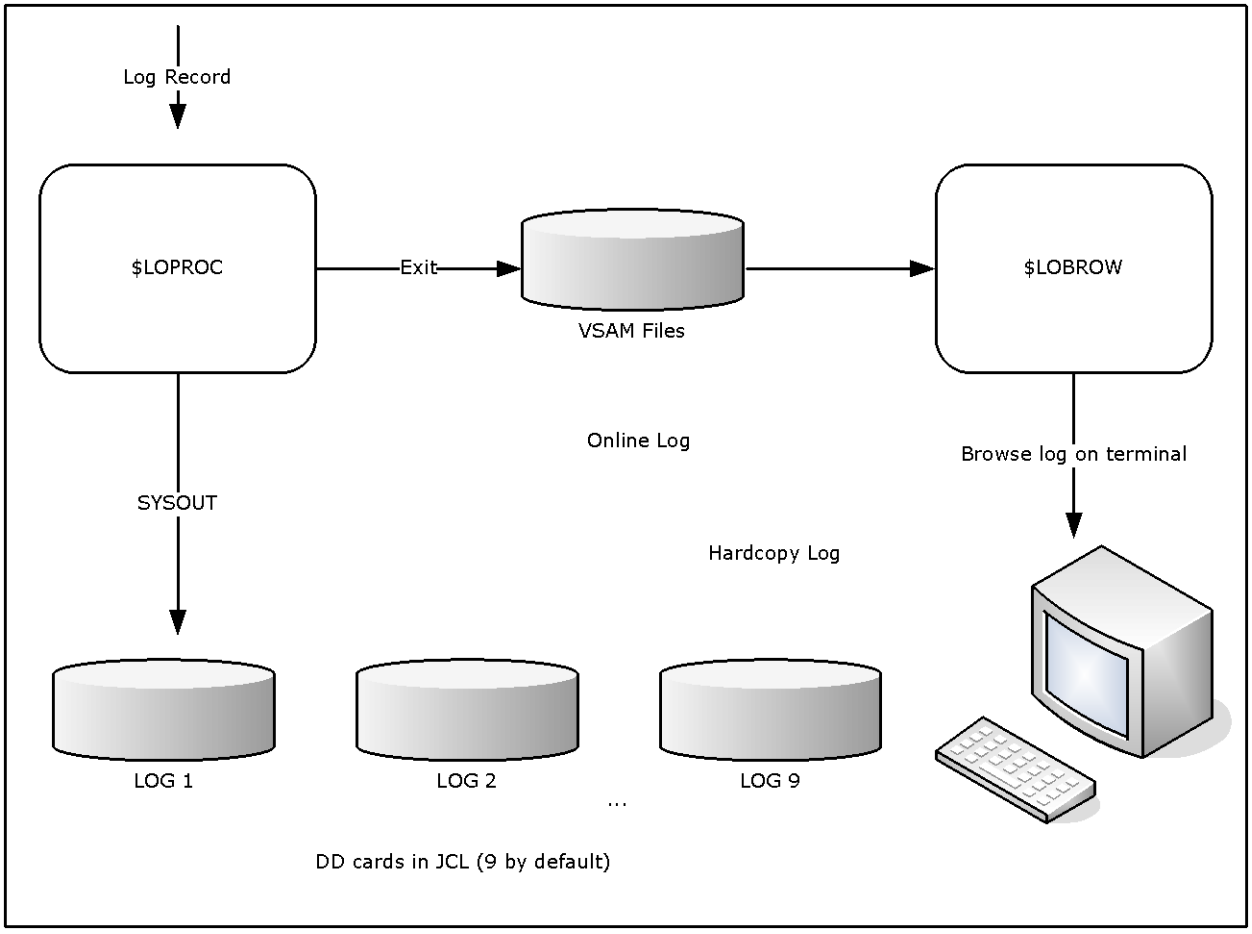
- Online
- Hardcopy

Log records are written to both formats.

By default, activity logs contain the following information:

- All commands entered
- All responses to commands entered
- Any unsolicited messages received from VTAM or the operating system, provided the related interfaces are available
- All messages explicitly written to the log by NCL procedures

The following illustration shows the path that the log record takes in the system.



The online activity log is supplied by the distributed procedure $LOPROC. The $LOPROC procedure writes log data to VSAM files (three by default). The VSAM files are accessed by a second procedure, $LOBROW, which allows online browsing of the log.

Note: $LOPROC and $LOBROW are the default procedure names. You can change these names by using the LOGFILES parameter group in Customizer (**/PARMS**).

Implement Online Activity Logging

During initialization, the region allocates, by default, three VSAM log files for online logging. However, you can allocate up to seven files.

Note: The log file IDs are of the form NMLOG*nn* and the data set names are of the form *dsnpref.rname*.NMLOG*nn*. (*dsnpref* is the data set prefix used during product installation and *rname* is the name of the region.)

Use Additional Log Files

If you want to make more than three files available to the region, define the new VSAM files and then customize the LOGFILES parameter group by defining additional logging data sets.

To customize the LOGFILES parameter group

1. Enter **/PARMS** at the prompt.

   The Customizer : Parameter Groups list appears.

2. Enter **U** beside the LOGFILES parameter group.

   The Customizer : Parameter Group panel for the LOGFILES parameter group appears.

3. Press F8 (Forward) to display the next page.

4. Complete the fields for each file you want to make available. To allocate more files, press F8 (Forward) again.

5. When you have specified the required number of log files, press F6 (Action) to allocate and open the files.

6. Press F6 (Action).

   The changes are applied.

7. Press F3 (File).

   The changes are saved.

Note: For more information about using this panel, press F1 (Help).

Administer Online Activity Log Files

From the Activity Log : Administration menu, you can do the following:

- Swap active activity logs
- List all days contained in log files and browse logs for a particular date
- List all log files and browse a particular file

To administer online activity log files

1. Enter **/LOADMIN** at the prompt.

   The Activity Log : Administration menu appears.

Note: For information about the options available on this menu, press F1 (Help).

Swap the Online Log

The online activity log automatically swaps to a fresh VSAM file when each file fills up.

You can manually swap your currently active VSAM file if you want to free a particular log file (for example, for backups).

Important! Swapping the current VSAM log causes the $LOPROC procedure to write all subsequent activity log records to the next VSAM log. If this log was previously used, it is reset. Therefore, you can no longer browse the old records that it contained.

To swap the online activity log

1. Enter **/LOGSWAP** at the prompt.

   The Activity Log Services : Confirm Swap Log panel appears.

2. Press F6 to request the log swap, or F12 to cancel your request.

   Note: If the $LOPROC procedure encounters a VSAM error when it is logging activity to an online log file, it automatically swaps to the next log file.

Use a Log Exit for the Online Log

You can create an NCL procedure to intercept, analyze, and react to the messages that are sent to the activity log.

Use the LOGFILES parameter group in Customizer to specify the name of your exit.

The exit is executed every time a message is sent to the log. Using the exit to perform complex functions can degrade the performance of the region.

Note: Ensure that your log exit procedure is well-tested before you put it into production.

Variables Available to the Activity Log Exit

The following variables are available to the activity log exit:

&#LO$RECORD

Contains records of the following formats:

time_generated user_id terminal_id message_text

The text of the message starts at the fourth word of the record.

arrival_time origin region* $$AOMTIME$$ *aom_time message_text

The text of the message starts at the sixth word of the record. This format lets you identify AOM-sourced messages.

You can change the contents of this variable. To suppress the message from the log, set the variable to NOLOG.

Note: For more information, see the &LOGREAD verb in the *Network Control Language Reference Guide*.

$LOG

Specifies a Mapped Data Object (MDO) that contains the message attributes. The MDO is mapped by the $MSG map.

You can use the &ASSIGN verb to query the MDO.

Note: For information about querying MDO components and additional variables, see the *Network Control Language Programmer Guide*.

Example: Remove Messages from the NCL Log

The following shows an example procedure:

```
&CONTROL
-*-----------------------------------------------*
-* TO REMOVE IKJ56247I MESSAGES FROM THE NCL LOG. *
-*-----------------------------------------------*
&PARSE DELIM=' ' VARS=#LO$WORD* DATA=&#LO$RECORD
&IF .&#LO$WORD4 EQ .IKJ56247I &THEN +
        &#LO$RECORD = NOLOG
```

Enable the Log Exit

To enable the log exit

1. Enter **/PARMS** at the prompt.

   The Customizer : Parameter Groups list appears.

2. Enter **U** beside the LOGFILES parameter group.

   The Customizer : Parameter Group panel for the LOGFILES parameter group appears.

3. Enter the name of your activity log exit in the Log Exit Name field.

4. Press F6 (Action).

   The changes are applied.

5. Press F3 (File).

   The changes are saved.

Replace Your Online Logging Procedure

The default online logging procedure is $LOPROC. This procedure is designed to work in conjunction with the online browsing procedure $LOBROW.

You can replace the $LOPROC and $LOBROW procedures with your own customized NCL procedures. Alternatively, you can write a customized log browsing procedure to present the supplied data files (from $LOPROC) in your own format.

Write a Log Browsing Procedure

To write your own customized NCL procedure to replace $LOBROW, use the &FILE OPEN statement with FORMAT=DELIMITED.

The physical file structure of the supplied log files (NMLOG01, NMLOG02, and NMLOG03) is as follows:

Key Format

YYYYMMDDHHMMSSHS*nnnn*

nnnn=1000 + (reset every 100th of a second) and key length=20 bytes

Record Contents

ORIGIN

Terminal name

REGION

User ID

TEXT

Message text to display in the activity log

MSGATTR

2-byte color/highlight indicator. Colors are R=red, Y=yellow, W=white, B=blue, G=green, T=turquoise, or P=pink. Highlight values are R=reverse, B=blink, U=uscore, or N=none.

ORIGTIM

Remote domain time

ORIGDMN

Originating domain name

ORIGSRC

Remote terminal ID

For more information, see the following:

- The description of the &FILE OPEN verb in the *Network Control Language Reference Guide*.
- The *Network Control Language Programmer Guide*.

Write Logging and Browsing Procedures

You can store your log records in whatever file format you want. If you do this, your log browsing procedure must match this file format.

For more information, see the descriptions of the following verbs in the *Network Control Language Reference Guide*:

- &LOGREAD
- &LOGCONT
- &LOGDEL

Implement Logging and Browsing Procedures

If you write your own browsing procedure or your own logging and browsing procedures, you need to implement them.

To implement your procedures, update the LOGFILES parameter group in Customizer with your parameter names and then action the group.

Hardcopy Activity Log

A region can have more than one hardcopy activity log, of which only one is open for logging.

Your region can be configured to perform logging to disk, tape, or hard copy. From one to nine logs can be specified by including the required number of DD statements in the execution JCL. Logging can be specified to wrap when the last log is full or is swapped.

To obtain the status of these logs, use the SHOW LOGS command.

Note: When logging to disk the following DCB attributes should be used:

```
DSORG=PS,RECFM=VBA,LRECL=137,BLKSIZE=15476
```

Format of Logged Information

Each entry recorded on the log is in the following format:

```
12.04.23.12   SMITH     TERM54    +V NET,ACT,ID=NCP001
```

This entry consists of the following information:

- A time stamp in the format *hh*.*mm*.*ss*.*hs* (where *hh* is the hour, *mm* is the minute, *ss* is the second, and *hs* is the hundredth of a second)
- The user ID that entered the command or logged the message
- The terminal from which the command was entered or to which a message is sent
- The text of the message or command

Commands are highlighted with a plus sign (+) prefixed to the text to make it easier to distinguish commands from messages when browsing the log. If the command entered is an unsolicited VTAM command, it is highlighted and prefixed with an equals sign (=).

Format of Logged Timer-initiated Commands

Commands that are executed as the result of a timer-initiated command are prefixed by a plus sign, followed by the identity number of the timer command responsible. This is in the format *#nnnn*.

Example: Logged Timer-initiated Command

```
15.00.00.01   NETOPER   CNTL01    +#0005 D BFRUSE
```

Format of Logged Commands Executed in Background Environments

Commands executed under the control of background environments are identified by the following keywords in the user ID field for the command text and any resulting messages:

BG-SYS

Background System Processor

BG-MON

Background Monitor

BG-LOG

Background Logger

Format of Logged Commands from NCL Procedure-dependent Environment

If a command is executed from an NCL procedure-dependent environment (&INTCMD), the node field on the log contains the NCL ID of the process issuing the command.

Format of the Hardcopy Log

The hardcopy log data set has the following format:

- A heading on each page—contains the day and date on which the log was created and the system identifier (NMID) of the originating region.
- A log identifier on the right side of the page. The log identifier is the DD name under which the log was created. This log identifier assists log collation after printing.
- 60 lines on each page—this can be altered to suit your requirements using the SYSPARMS LOGPAGE operand. For information about LOGPAGE, see the *Reference Guide*.

Swap the Hardcopy Log

Swapping the current log frees the log for immediate printing. To swap the log, use the LOGSWAP command. Swapping the log is possible only when another unused log remains to which logging can continue. You can specify up to nine logs. Logs do not need to be consecutive.

When a log is swapped, the log status, the requesting user ID, and the reason for the swap are recorded. You can display these details with the SHOW LOGS command.

Each of the logs is identified in the JCL by the LOG DD name followed by a single digit in the range one to nine.

Example: Log Name

```
//LOG4    DD   SYSOUT=A,FREE=CLOSE
```

Mixing of device types is also valid. Inclusion of FREE=CLOSE prints the log when it is released by the LOGSWAP command.

Wrap the Hardcopy Log Data Sets

Wrapping lets you reuse a LOG data set when all of the available LOG data sets have been used.

The LOGWRAP SYSPARM determines whether log data set wrapping is allowed. You set the value of this SYSPARM in the Are Activity Logs to Wrap? field when you customize the LOGFILES parameter group in Customizer (**/PARMS**).

If you specify NO (the default) in the Are Activity Logs to Wrap? field, then wrapping is not permitted. When all the LOG data sets have been used due to successive LOGSWAP commands, the previous LOG data sets cannot be reused. After the last LOG data set is used, any further LOGSWAP commands are rejected.

If you specify YES in the Are Activity Logs to Wrap? field, log wrapping is allowed according to the following rules:

- If you are directing your LOG data sets to SYSOUT, then, as each LOG*n* DD card is used, the data set is dynamically unallocated as a result of the FREE=CLOSE option. In this case, you can reissue an ALLOC command to reallocate another SYSOUT file under the same DD name. For example:

  ```
  ALLOC DD=LOG3 SYSOUT=A FREE=CLOSE
  ```

  This DD name is now available for use as another LOG data set. Subsequent LOGSWAP operations can now reuse this LOG data set rather than rejecting the command when the last LOG data set is used.
- If YES is specified but the LOG DD cards point to sequential data sets, log wrapping overwrites the earlier LOG data held in these data sets. You should take precautions to archive the existing data before allowing the wrap to occur.

Cross-Reference Hardcopy Logs

To make it easier for operations staff to piece the full log together, certain information is recorded on the last and first lines of LOG data sets that have been swapped.

The first line of a new log that is used in place of a swapped log contains the reason for the swap, or the initiating user ID.

The last message printed on a swapped log is the DD name of the new log. Also printed at the start of the new log is the DD name or logical ID for the previous log.

I/O Errors on the Hardcopy Log

If an I/O error occurs on a log, the log is closed and the next available log is automatically swapped to, if one is available, and logging continues. This also applies to data set full conditions when logging to disk.

If the I/O error occurs on the last available log, a warning message is sent to all monitor terminals informing them that logging has ceased. The STATUS command also includes a warning message if logging is stopped. All log messages are passed to LOGPROC for analysis even if no log output is possible.

Write to the System Log

The SYSPARMS SYSLOG operand can be used to direct your region to write all logged output to the system log and to its own log, or to write all VTAM PPO messages received to the system log.

For information about the SYSPARMS SYSLOG operand, see the *Reference Guide*.

Chapter 20: Setting Up the Alert Monitor

This section contains the following topics:

Access Alert Administration

Alert Monitor administration lets you define Alert Monitor interfaces, filters, and formats that apply to all users.

You perform Alert Monitor administration functions from the Alert Monitor : Administration Menu.

To access Alert Monitor administration functions

1. Enter **/ALADMIN** at the prompt.

   The Alert Monitor : Administration Menu appears.

```
PROD---------------- Alert Monitor : Administration Menu -------------/ALADMIN
 Select Option ===>

    I   - Define Trouble Ticket Interface                    ALTTI
    D   - Define Trouble Ticket Data Entry                   -
    F   - Define Filters                                     ALFILT
    L   - Define List Formats                                -
    MIF - Invoke Alert Filter Migration Utility              -
    ST  - Alert Monitor Self Test                            ALTEST
    X   - Exit
```

Alert Monitor Trouble Ticket Interface

The Alert Monitor provides an interface that lets you send alert information in the form of a *trouble ticket* to another interface automatically or manually.

The Alert Monitor supports the following interfaces for raising trouble tickets:

Electronic Mail

Sends an email describing the problem to a problem management application or a particular person. This method can be used to send tickets to multiple problem management applications.

Custom

Lets you write your own NCL procedure to deliver the trouble ticket to an application by whatever means you choose. For example, you can do the following:

- Invoke a REXX procedure, and pass alert variables.
- Send to any external interface, for example, problem-management product.
- Send to MVS system facilities, for example, system console, data sets, SMF user records, or batch jobs.
- Invoke applications, for example, FTP.

Service Desk

Creates a new CA Service Desk request from the alert details.

Note: If your CA Service Desk installation is configured with the optional ITIL application, incidents are created instead of requests.

Note: You can choose one interface only.

If you want the operator to supply information when requesting the creation of a ticket, you also need to set up the trouble ticket data entry definition.

Define a Trouble Ticket Interface

If you want to enable operators to raise trouble tickets on alerts, you must define the trouble ticket interface.

To define a trouble ticket interface between the Alert Monitor and another application

1. From the Alert Monitor Administration Menu, select option **I** - Define Trouble Ticket Interface.

   The Alert Monitor : Interface Definition panel appears.

2. Enter the type of interface that you want to define in the Interface Type field.

   Note: To obtain a selection list of valid values, enter **?** in this field.

3. Press F6 (Action).

   A panel appears where you can define an email (see page 217), custom (see page 219), or CA Service Desk (see page 220) interface. The type of panel displayed varies, depending on the interface type that you specified.

Define an Email Trouble Ticket Interface

This option enables alert details to be sent using email.

Note: To enable this option, you must ensure that your Systems Programmer enables SMTP support on this region's TCP/IP stack.

To define an email trouble ticket interface

1. Enter **/ALADMIN** at the prompt.

   The Alert Monitor : Administration Menu appears.

2. Select option **I** - Define Trouble Ticket Interface.

   The Alert Monitor : Trouble Ticket Interface Definition panel appears.

3. Enter **EMAIL** in the Interface Type field, and press F6 (Action).

   The Email a Trouble Ticket panel appears.

4. Leave the &$USRNAME variable in the Mail Address field. The variable works with the default trouble ticket data entry definition (see page 222) to specify the email address of the trouble ticket system to which you want to send the message. The data entry definition lets operators specify the address.

   If you do not want operators to be able to change the address, specify the address in the Mail Address field and delete the fields in the data entry definition.

   Complete the other fields:

   Host Name

   (IBM's Communications server only) Specifies the host name of this system. This is usually the NJE node name.

   SMTP Node Name

   (IBM's Communications Server only) Specifies the NJE node name on which the SMTP server runs. This is usually the same value as the Host Name.

   SMTP Job Name

   (IBM's Communications server only) Specifies the name of the address space in which SMTP runs. This is usually SMTP.

   SMTP DEST Id

   (CA TCPaccess CS for z/OS only) Specifies the destination ID in the REMOTE parameter of the SMTP statement in member APPCFG*xx* of the PARM data set.

   Exit Procedure Name

   Specifies the name of an NCL exit routine, in which you can customize the email message sent by this trouble ticket.

   Subject

   Specifies the heading to display as the subject of the email message.

   Enter Mail Text Below

   Specifies the mail message text. Press F1 (Help) for information about variables.

   Press F3 (File).

   The definition is saved.

Define a Custom Trouble Ticket Interface

You use the custom interface if you want to use your own procedure to send trouble tickets.

To define a custom trouble ticket interface

1. Enter **/ALADMIN** at the prompt.

   The Alert Monitor : Administration Menu appears.

2. Select option **I** - Define Trouble Ticket Interface.

   The Alert Monitor : Trouble Ticket Interface Definition panel appears.

3. Enter **CUSTOM** in the Interface Type field, and press F6 (Action).

   The Custom Trouble Ticket panel appears.

4. Complete the following fields:

   Procedure Name

   Specifies the name of your NCL procedure for delivering tickets.

   Important! The NCL procedure must be in your region's COMMANDS concatenation. To list the concatenation, enter **/ALLOC**.

   Enter Parameters Below

   Specifies any parameters that you want the NCL procedure to receive. Press F1 (Help) for information about variables.

Example 1: Define a Custom Trouble Ticket Interface

The following example shows an interface that uses the distributed CA SOLVE:Central exit, $RMPB06S, to send tickets to a CA SOLVE:Central region with the ACB name SOLVPROB and other required values.

```
PROD---------------- Alert Monitor : Custom Trouble Ticket ----Columns 001 074
Command ===>                                    Function=Update Scroll ===> CSR

Procedure Name  $RMPB06S

                              Enter Parameters Below

**** ****************************** TOP OF DATA ******************************
0001 ACBNAME=solvprob
         parm1=value1
         parm2=value2
**** ***************************** BOTTOM OF DATA *****************************
```

Example 2: Define a Custom Trouble Ticket Interface

You can use the NCL procedure to execute a REXX procedure.

The following example shows the format of an NCL statement that executes a REXX procedure in your environment:

```
REXX rexx_procedure parm_1 … parm_n
```

Define a CA Service Desk Trouble Ticket Interface

The CA Service Desk integration (see page 234) feature must be implemented before you can send alert trouble tickets to it; otherwise, all alert forwarding requests fail.

Note: For more information, see the *CA Common Services for z/OS Service Desk Integration Guide*.

To define a CA Service Desk trouble ticket interface

1. Enter **/ALADMIN** at the prompt.

   The Alert Monitor : Administration Menu appears.

2. Select option **I** - Define Trouble Ticket Interface.

   The Alert Monitor : Trouble Ticket Interface Definition panel appears.

3. Enter **SERVICEDESK** in the Interface Type field, and press F6 (Action).

   The Service Desk Trouble Ticket Setup panel appears.

4. Complete the following fields:

   CA Service Desk Server Web Services HTTP URL

   Specifies the HTTP URL of the web services definitions on the target CA Service Desk server.

   Default: If left blank, the CA Common Services CAISDI/soap component chooses the default server.

   Note: This URL points to the web services definitions that CAISDI/soap invokes to create the requests. This is not the same as the URL that is used to log on to CA Service Desk. Contact your CA Service Desk administrator for the URL.

   CCI Sysid

   Specifies the CCI system ID of the LPAR where the CAISDI/soap task is active. This is the SYSID name specified in the CAICCI startup JCL.

   Default: If left blank, the local CAICCI on this LPAR locates a suitable CAISDI/soap task.

   Request Description Format

   Specifies whether the USD Request Description field is produced with HTML formatting or in plain text (TEXT).

   Default: HTML

   Note: In most cases, leaving the CA Service Desk Server Web Services HTTP URL and CCI Sysid fields blank will suffice. This lets the CAISDI/soap component use its default values.

   Press F3 (File)

   The definition is saved.

Set Up the Trouble Ticket Data Entry Definition

If you want the operator to supply information when creating a trouble ticket, you need to set up the ticket data entry definition.

To set up the trouble ticket data entry definition

1. Enter **/ALADMIN** at the prompt.

   The Alert Monitor : Administration Menu appears.

2. Select option **D** - Define Trouble Ticket Data Entry.

   The Trouble Ticket Data Entry Definition panel appears.

3. In the free-format data entry section of the panel, enter the data entry definition for the panel that the operator will use when creating a ticket.

   You can create multiple field names by replicating the key variables linked by default.

   Note: For more information about completing this section, press F1 (Help).

Example: Data Entry Definition to Prompt Operators for Email Address

The following example shows a definition that prompts the operator to identify the receiver of the ticket.

```
PROD--------- Alert Monitor : Trouble Ticket Data Entry Definition ------------
Command ===>                                    Function=Update Scroll ===> PAGE

**** ****************************** TOP OF DATA ******************************
0001 FIELD NAME=$USRNAME
0002  VALUE="Problem@sydney.enterprise.com"
0003  DESC="Send Email to:"
0004  COMMENT="(name for email)"
0005  REQUIRED=YES
0006  LENGTH=40
**** ***************************** BOTTOM OF DATA ****************************
```

Considerations

To make the panel more user-friendly, you can change this panel by creating a trouble ticket data entry definition.

Example: Data Entry Definition

Here is an example of the data entry definition.

```
PROD--------- Alert Monitor : Trouble Ticket Data Entry Definition ------------
Command ===>                                          Function=Update Scroll ===> CSR
AMTTDED08 TROUBLE TICKET DATA ENTRY DEFINITION SAVED
**** ****************************** TOP OF DATA *******************************
0001 FIELD NAME=$USRX
0002  VALUE=
0003  DESC="Press F6 to send the ticket"
0004  COMMENT=
0005  REQUIRED=NO
0006  LENGTH=0
**** ***************************** BOTTOM OF DATA ******************************
```

```
PROD---------------- Alert Monitor : Trouble Ticket Details -------------------
Command ===>

Press F6 to send the ticket ..
```

Implement Trouble Ticket Interface for Multiple Email Addressees

You can use an exit procedure, together with the trouble ticket interface and data entry definitions, to implement an interface that prompts operators for more than one email address.

To implement a trouble ticket interface for multiple email addressees

1. Create an NCL procedure with the following statements, and save it to your TESTEXEC:

   ```
   &IF .&$USRNAME1 NE . &THEN +
   &$AMTADDRESS1 = &$USRNAME1
   &IF .&$USRNAME2 NE . &THEN +
   &$AMTADDRESS2 = &$USRNAME2
   ...
   ```

   Note: The number of &IF statements sets up the number of addresses you want to provide.

2. Update the trouble ticket data entry definition (see page 222) with the following fields:

   ```
   FIELD NAME=$USRNAME1
   VALUE="&$AMTADDRESS1"
   DESC="EMAIL ADDRESS #1"
   COMMENT=""
   REQUIRED=NO
   LENGTH=40
   FIELD NAME=$USRNAME2
   VALUE=""
   DESC="EMAIL ADDRESS #2"
   COMMENT=""
   REQUIRED=NO
   LENGTH=40
   ...
   ```

   Notes:

   - The number of fields corresponds to the number of email addresses in the procedure you created.
   - The value &$AMTADDRES1 must be specified.

3. Define the email trouble ticket interface (see page 217) specifying a default address in the Mail Address field and the name of the procedure in the Exit Procedure Name field.

   The trouble ticket interface prompts operators for email addresses when they enter TT next to an alert.

Example: Implement a Trouble Ticket Interface for Two Email Addresses

To create an NCL procedure named EXAMPLE that sends emails to two addresses

1. Create an NCL procedure named EXAMPLE with the following statements, and save it to the TESTEXEC:

```
&IF .&$USRNAME1 NE . &THEN +
&$AMTADDRESS1 = &$USRNAME1
&IF .&$USRNAME2 NE . &THEN +
&$AMTADDRESS2 = &$USRNAME2
...
```

2. Enter **/ALADMIN** at the prompt.
3. Select option **D** - Define Trouble Ticket Data Entry.
4. Complete the panel as follows:

```
PROD-------- Alert Monitor : Trouble Ticket Data Entry Definition -------------
Command ===>                                    Function=Update Scroll ===> CSR

****** ***************************** TOP OF DATA ******************************
000001 FIELD NAME=$USRNAME1
000002  VALUE="&$AMTADDRESS1"
000003  DESC="EMAIL ADDRESS#1"
000004  COMMENT=""
000005  REQUIRED=NO
000006  LENGTH=40
000007 FIELD NAME=$USRNAME2
000008  VALUE=""
000009  DESC="EMAIL ADDRESS #2"
000010  COMMENT=""
000011  REQUIRED=NO
000012  LENGTH=40
****** **************************** BOTTOM OF DATA ****************************
```

5. Enter **/ALTTI** at the prompt.
6. Enter **EMAIL** in the Interface Type field and press F6 (Action).

7. Complete the panel as follows:

```
PROD--------------- Alert Monitor : Email A Trouble Ticket -Columns 00001 00072
Command ===>                                      Function=Update Scroll ===> CSR

Mail Address              defaultaddress@tt.com_____________________________
Host Name      (IBM)      HOSTNAME
SMTP Node Name (IBM)      NODENAME
SMTP Job Name  (IBM)      SMTP____
SMTP DEST Id (TCPaccess)  ________
Exit Procedure Name       EXAMPLE_
Subject                   &$AMDESC_____________________________________

                             Enter Mail Text Below

****** ***************************** TOP OF DATA ******************************
```

Result

When an operator enters **TT** next to an alert, they are prompted for an email address as follows:

```
PROD--------------- Alert Monitor : Trouble Ticket Details --------------------
Command ===>

Email Address #1 ... defaultaddress@tt.com
Email Address #2 ...
```

Define Alert Monitor Filters

You can filter the alerts displayed on the Alert Monitor by applying a set of criteria to each of the fields in the alert. The filters that you create can be named and stored for later use, using the FILTER command.

To define an Alert Monitor filter

1. Enter **/ALFILT** at the prompt.

   The Alert Monitor : Filter Definition List panel appears.

2. Press F4 (Add).

   The Alert Filter panel appears.

3. Complete the following fields:

   Name

   Specifies the name of the filter.

   Description

   Describes the filter.

   Filter Expression

   Specifies the Boolean expression that determines what alerts are passed by the filter. For more information about creating Boolean expressions, press F1 (Help).

   Press F3 (File)

   The Alert Monitor filter is saved.

Alert Monitor Display Format

The Alert Monitor display format determines the information displayed for the alerts on the Alert Monitor, for example, the columns and the order in which they appear.

You specify the Alert Monitor display format on the List Format panel.

For each type of information you want to display on the Alert Monitor, you need to specify two items: a static heading and a variable that contains the required information.

You can create a multiscreen Alert Monitor display with up to 10 screens, enabling you to display more information on the monitor. The screens can be accessed by pressing the F11 (Right) or F10 (Left) function keys from the monitor.

The variable contains the information you want to display. The name of a variable can sometimes be longer than the data to display. You can enter a shorter name and then make that shorter name an alias of the actual name.

Create the Alert Monitor Display Format

You can create format definitions that can be used to customize the information displayed on the Alert Monitor.

To create the Alert Monitor display format

1. Enter **/ALADMIN.L** at the prompt.

   The List Definition List appears.

2. Enter **C** beside the DEFAULT display format definition.

   A copy of the List Description panel appears.

3. Enter a new value in the List Name field to identify the new definition, and update the Description and Title fields.

   Press F8 (Forward) three times.

   The List Format panel appears.

4. Enter column headings and variables using the text editor to specify the information to display on the Alert Monitor.

   Note: For more information about the text editor, press F1 (Help).

5. (Optional) Press F5 (Fields) to create aliases.

6. Press F3 (File).

   The details are saved.

Enable Alerts from External Applications

You can generate alerts (to view on the Alert Monitor) from external applications such as CA OPS/MVS EMA.

Note: To utilize this feature, the SOLVE SSI must be active.

To enable alerts from external applications

1. Enter **/PARMS** at the prompt.

   The Customizer : Parameter Groups list appears.

2. Enter **U** beside the $NM ALERTS parameter group in the Interfaces category.

   The ALERTS - Alert Monitor Interface panel appears.

3. Enter **YES** in the Enable External Alerts? field.

4. Press F6 (Action).

   The changes are activated immediately.

5. Press F3 (File).

   The settings are saved.

Forward Alerts

Alerts are displayed on the Alert Monitor; however, you can also forward them to the following platforms:

- EM Console in CA NSM
- UNIX platforms as SNMP traps
- CA NetMaster NM for SNA or Tivoli NetView (TME10) systems, as generic alert NMVTs
- CA Service Desk servers (see page 234), as CA Service Desk requests or incidents

You can apply filter criteria to forward different types of alerts to different platforms.

Alert forwarding does not require manual intervention; it occurs automatically when the alert is created.

Implement Alert Forwarding

You implement alert forwarding by using Customizer parameter groups.

Note: TNGTRAP and SERVICEDESK do not have clear alert events. Only alert open and considerations are forwarded.

To implement alert forwarding

1. Enter **/PARMS** at the prompt.

   The Customizer : Parameter Groups list appears.
2. Enter **U** in front of the ALERTS parameter group in the Interfaces category.

   The parameter group opens for update.
3. Complete the following field:

   Dest Type

   Specifies the type of alert forwarding to use.

   Press Enter.

   The fields dynamically change to match the specified destination type.
4. Review the fields, and update as required.

   (Optional) Press F8 (Forward), and repeat Step 3 for each Definition ID.

   Note: Press F1 (Help) for information about the fields.
5. Press F6 (Action).

   The changes are applied.
6. Press F3 (File).

   The settings are saved.

SNMP Trap Definition

The MIB definition for alerts forwarded as SNMP traps is provided in member $AMTRAP, supplied in the CC2DSAMP data set. You can download this member to your UNIX system and compile it.

Note: When copying this member to your UNIX system, you can rename it to avoid problems on some UNIX systems where the $ sign has special meaning.

The supplied MIB defines two traps with the following object identifiers:

- $AMTRAP = 1.3.6.1.4.1.1126.1.2.1.2 (for an alert)
- $AMTRAPC = 1.3.6.1.4.1.1126.1.2.1.3 (when an alert is cleared)

Forward to Tivoli NetView

To receive alerts in a Tivoli NetView region, the CNMCALRT task must be defined and active. The alerts are formatted as Operator Notification generic alerts.

To forward alerts to Tivoli NetView

1. Check the DSIDMN (or DSIDMNB) member in the DSIPARM PDS. DSIPARM.PDS is allocated by the Tivoli NetView started task.
2. Ensure that the CNMCALRT task is included and is initialized (INIT=Y). For example:

   ```
   TASK MOD=CNMCALRT,TSKID=CNMCALRT,PRI=6,INIT=Y
   ```

   Note: This statement is necessary for the z/OS software alert forwarding function.

Forward to CA NSM

To format the traps sent to a CA NSM management platform, you must load the rules to reformat the alert messages for display on the EM Console.

To forward alerts to the EM Console in CA NSM

1. Use FTP to download the message definition rules in binary mode from the UNIEMMSG member of your CC2DSAMP data set created at installation. For example, using the Windows FTP client from the prompt:

```
>ftp myhost
Connected to myhost.mycompany.com.
User (myhost.mycompany.com:(none)): user01
331 Send password please.
Password: xxxxxxxx
230 USER01 is logged on. Working directory is "/u/users/user01".
ftp>cd "prefix.ppvv.CC2DSAMP"
250 The working directory "prefix.ppvv.CC2DSAMP" is a partitioned data set
ftp>binary
200 Representation type is Image
ftp> get uniemmsg uniemmsg.txt
200 Port request OK.
125 Sending data set prefix.ppvv.CC2DSAMP(UNIEMMSG) FIXrecfm 80
250 Transfer completed successfully.
ftp: 3200 bytes received in 0.67Seconds 4.77Kbytes/sec.
ftp>quit
```

2. From a Windows prompt on the destination CA NSM EM Server, load the message definition rules from the downloaded file. Enter the following command at the prompt to define the rules to event management:

```
cautil -f "uniemmsg.txt"
```

3. Enter the following command to load the rules:

```
oprcmd opreload
```

4. In your region, set the alert forwarding destination to TNGTRAP.

Forward to CA Service Desk

Before you can forward alert details to CA Service Desk to create requests, you must implement CA Service Desk Integration.

Note: For more information, see the *CA Common Services for z/OS Service Desk Integration Guide.*

Do not forward any alerts to CA Service Desk until integration is completely and correctly implemented; otherwise, all alert forwarding requests to CA Service Desk fail.

Suppress State Change Alerts

The region automatically generates an alert for a resource that changes state. You can suppress the alerts for selected state changes. You can also specify the severity levels of the generated state change alerts.

To suppress automatically generated state change alerts

1. Enter the **/PARMS** panel shortcut.

   The Parameter Groups panel appears.

2. Enter **F STATECHANGE**.

   The cursor locates the STATECHANGE parameter group.

3. Enter **U** beside the group.

   The group opens for updating.

4. Blank out the fields for the states you want to suppress alerting. For example, if you want to suppress alerting for state changes to UNKNOWN, blank out the Unknown field.

   Press F6 (Action).

   The region stops generating alerts for those state changes.

5. Press F3 (File).

   The group is updated with the changes.

State Change Alerts

State change alerts are based on RMAM001*xx* messages. These messages are defined in CAS, and you can customize them.

You can maintain messages from the Message Definition List panel. The shortcut to the panel is /CASMSG.

Note: For information about how to maintain messages, see the *Managed Object Development Services Programmer and Administrator Guide*.

Implement CA Service Desk Integration

The CA Service Desk Integration feature creates CA Service Desk requests from forwarded alerts and alert trouble tickets, or both.

You can define multiple forwarding destinations to CA Service Desk, with each one pointing to a different CA Service Desk server.

Note: If your CA Service Desk installation is configured with the optional ITIL application, incidents are created instead of requests.

This feature is used by many CA mainframe products to consolidate their problem notification on a specified CA Service Desk server. It uses W3C SOAP (Simple Object Access Protocol) to invoke web services provided by CA Service Desk.

Software Requirements

CA Service Desk Integration has the following software requirements:

- CA Service Desk r11 or r11.1
- CA Common Services for z/OS r11, specifically the CAICCI and CAISDI/soap components

How Requests Are Created

To create a CA Service Desk request from an alert, the following internal steps are performed:

1. The CA Common Services for z/OS CAICCI component is used to pass the request to the CA Common Services for z/OSCAISDI soap component. CAISDI/soap is a z/OS-hosted SOAP client.
2. CAISDI/soap sets up an IP connection with the CA Service Desk server, then uses HTTP/HTTPS requests to invoke the necessary web services on the CA Service Desk server to create the new request or incident.
3. The request or incident number is returned and annotated in the alert.

Request Assignment

By default, CA Service Desk requests created by your region appear as *assigned* requests, with an assignee and an end user of System_NetMaster_User.

Your CA Service Desk administrator can customize the product templates to change these assignments to suit your organization.

Request Updating

A CA Service Desk request created from an alert is static. It reflects the alert details that were current at the time it was created.

Note: A CA Service Desk request is not subsequently updated with any changes to the alert, nor closed when the corresponding alert is closed.

Requests are intended for initial problem notification to a wider and more general data center audience. CA Service Desk Integration complements the functions of the Alert Monitor; it does not replace the Alert Monitor.

Every request (if HTML format is used) contains hyperlinks to various WebCenter pages, including the Alert Monitor. You should use the Alert Monitor for real-time dynamic alerting functions.

For recurring alerts, a request is created for the first occurrence only.

Other Ways to Create Requests or Incidents

In addition to Alert Monitor forwarding and trouble tickets, CA Service Desk requests or incidents can also be created from the following functions:

- Operator Console Services (OCS)
- MVS console

Operator Console Services

The OCS command SDCREATE can be used to create a CA Service Desk request from the OCS command line, for example:

```
SDCREATE Problem xxx has occurred
```

This attempts to open a request on the default CA Service Desk server. The request will have a severity of 4, and a summary and description of *Problem xxx has occurred*. Like other requests raised, it is assigned to System_NetMaster_User.

Use the SDTEST command to check if a default server is implemented.

MVS Console

As with any product command, you can also issue SDCREATE from the MVS system console, for example:

```
F rname,SDCREATE Problem xxx has occurred
```

Request Description Format

By default, your region generates CA Service Desk request description content in HTML format.

By default, CA Service Desk does not render embedded HTML directives in the request description field. To support this, you must customize your CA Service Desk server. This task involves customizing the detail_cr.htmpl form to add keeptags and keeplinks support.

Note: For more information, see the *Service Desk Modification Guide*.

Implement the Alert History Function

The Alert Monitor retains data in an alert history file. You can define the time period that alerts are retained.

To specify the time period that alerts are retained

1. Enter **/PARMS** at the prompt.

   The Customizer : Parameter Groups list appears.

2. Enter **U** in front of the $NM ALERTHIST parameter group in the Files category.

   The ALERTHIST - Alert History File Specification panel appears.

3. Complete the following fields:

   Days to Retain Alerts

   Specifies the number of days that you want to retain alerts in the history file.

   Limits: 999 days

   Default: 7 days

   Time of Day for Alert Purge

   Specifies the time of day (in the format hh.mm) at which alerts older than the value in the Days to Retain Alerts field are deleted from the history file.

   Press F6 (Action).

   The changes are applied.

4. Press F3 (File).

   The settings are saved.

Reorganize Files and Monitor Space Usage

Over time, the alert history file can become fragmented. You can reorganize the file to improve its efficiency.

To reorganize the Alert History database for optimum space usage

1. Copy (REPRO) the alert history file to a backup file.
2. Delete and redefine the original file.

Use the same attributes that were used when the file was defined at region setup. See the generated S01LCALC member in your INSTALL.JCL data set; this has the original VSAM definition JCL for the file.

You should also monitor the amount of disk space used by the data set, to estimate the optimal file size and optimal frequency of reorganization.

Example

```
//BKALERTH EXEC  PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//IN   DD  DSN=?prefix.ALERTH,DISP=SHR
//OUT  DD  DSN=?prefix.ALERTH.BACKUP.SEQ,DISP=OLD
//SYSIN    DD  *
 REPRO  INFILE(IN)   OUTFILE(OUT)
/*
```

An example format for sequential backup files is:

```
DSORG=PS,RECFM=VB,LRECL=32756,BLKSIZE=32760
```

Extract Alert Data for Reporting

You can extract alert data from the Alert History database in a character separated values (CSV) format for processing by external reporting and analysis tools. The default field separator character is comma (,). You can change it in the ALERTHIST parameter group.

To extract alert data for reporting and analysis

1. Allocate a sequential data set with the following attributes:

Attribute	Value
RECFM	VB
LRECL	Greater than or equal to 300 bytes

2. Enter **/ALHIST**.

   The History Menu appears.

3. Type **EX** at the prompt, and specify the data set name that you have allocated in the Extract DSN field.

   (Optional) If you want to limit the data to be extracted, select an Alert Monitor filter (see page 227) through the Filter Name field.

   Press Enter.

   The data is extracted to the specified data set.

4. Transfer the data set to your personal computer (PC) in ASCII format, and save it with an appropriate extension. (For example, if you plan to use Microsoft Excel to process the data, use the .csv extension.)

   The extracted data is saved in a text file.

5. Open the text file by using your preferred PC application.

   The extracted data is presented in your preferred format for analysis.

6. Analyze your data by applying facilities such as graphs and charts, tables, and macros.

Chapter 21: Implementing Status Monitor Filters

This section contains the following topics:

Access Status Monitor Filter Definitions

Status Monitor filters let you configure your view of monitored resources to suit your requirements. You can selectively view different groups of resources by swapping filters.

To access Status Monitor filter definitions

1. Enter **/ASADMIN.F** at the prompt.

   The Status Monitor Filter List appears.

   The panel displays the list of filter definitions in the knowledge base. You can add a new definition, or browse, update, copy or delete an existing definition.

Implement the Status Monitor Filters

After you define a filter, that filter can be used to customize a Status Monitor panel. For example, you can define a filter that, when used, causes the Status Monitor to display only those resources that are applicable to a subset of your network.

A Status Monitor filter uses a Boolean expression, which you define on the Status Monitor Filter panel, to determine what to display on the monitor. You restrict the display by using the resource attributes such as names and status.

When you save a filter definition in the knowledge base, the definition propagates automatically to all the connected regions—that is, the definition is global.

Add a Status Monitor Filter

To add a Status Monitor filter definition

1. Access the Status Monitor Filter List.
2. Press F4 (Add).

   The Status Monitor Filter panel appears.

   Note: If you change your mind and do not want to add the filter, press F12 (Cancel) to cancel the operation any time before Step 5.
3. Complete the Name and Description fields in the Filter Definition window to identify the new filter.

   Note: Press F1 (Help) for a description of the fields.
4. Specify a Boolean expression (see page 241) in the Filter Expression window to define the filter.
5. Press F3 (File).

   The new definition is saved.

Status Monitor Filter Panel

The Status Monitor Filter panel specifies the details of a Status Monitor filter. The operation you are performing is displayed at the top right of the panel, for example, Function=UPDATE.

The panel displays two windows. The Filter Definition window identifies the filter by name and description, and the Filter Expression window specifies the Boolean expression that defines the filter.

Example: Status Monitor Filter Panel

```
PROD-------- Automation Services : Status Monitor Filter -------Function=UPDATE
Command ===>                                                    Scroll ===> 10

+ Filter Definition ------------------------------------------------------------+
| Name ......... ATTENTION                                                     |
| Views ........                                                               |
| Description .. RESOURCES THAT ARE IN ATTENTION STATE                         |
| Last Updated at 22.09.04 on WED 24-MAY-2006 by USER01                        |
+------------------------------------------------------------------------------+
+ Filter Expression ------------------------------------------------------------+
|                                                                              |
|                                                D=Delete I=Insert R=Repeat    |
|      "(" Field   Opr Value                                    Gen ")" Bool   |
|          LOGSTAT =   "ATTENTION"                                             |
|     **END**                                                                  |
|                                                                              |
|                                                                              |
|                                                                              |
|                                                                              |
|                                                                              |
|                                                                              |
|  F1=Help     F2=Split    F3=File     F4=Save                                 |
|  F7=Bkwd     F8=Forward  F9=Swap                              F12=Cancel     |
+------------------------------------------------------------------------------+
```

Status Monitor Views

A view customizes your Status Monitor for the specific purpose of monitoring certain classes of objects. Each view has associated with it a selected set of filters and display formats.

To see the supported views, enter **?** in a View field.

Define the Status Monitor Filter Expression

Use the Filter Expression window on the Status Monitor Filter panel to specify the Boolean expression that defines the filter. The expression uses resource attributes as criteria to determine what to display on the Status Monitor.

To display the list of valid values for a field, enter a question mark (?) in the field.

Use the following action codes to help you enter the expression:

D

Deletes the selected line.

I

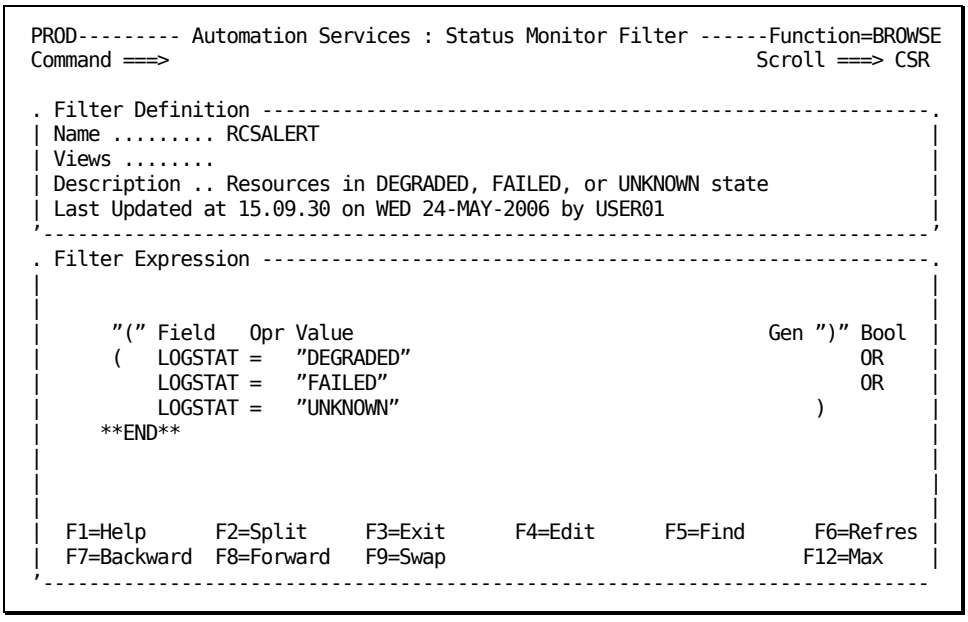
Inserts a blank line after the selected line.

R

Repeats a selected line.

Example: Define a Status Monitor Filter

In this example, you define a filter called RSCALERT that enables an operator to monitor resources that have a DEGRADED, FAILED, or UNKNOWN logical state. The following diagram shows the completed Status Monitor Filter panel.



The filter expression causes a Status Monitor to display only services that have the DEGRADED, FAILED, or UNKNOWN logical state.

Maintain Status Monitor Filter Definitions

You can browse, update, copy, and delete filter definitions from the Status Monitor Filter List panel.

If the Filter Expression window does not fully display the Boolean expression while you are browsing a filter definition, press F12 (Max) to expand the window.

Note: After you update a filter definition, an operator who is already using that filter does not see the update. To use the updated filter, the operator must enter the REFILTER command.

Chapter 22: Implementing Resource Templates

This section contains the following topics:

Resource Templates

Your product includes sample resource templates, which you can use to define commonly-used resources. You can modify the sample templates or create your own templates. You can create templates for the different resource types in each class of resource.

You can maintain several versions of templates as different $TEMPLAT system images. Each version can contain, besides the resource templates, the availability maps and processes used by resource templates.

USRCLS Class Template

No sample USRCLS class templates are supplied. However, you can create your own templates to facilitate the definition of similar resources. The templates provide the methods for operating USRCLS class resources (if supported by your product).

Set Up Your Template System

Templates are defined in a $TEMPLAT system image. Your template system may contain different versions of templates. Group each version in a different $TEMPLAT system image.

Before you work on templates, copy the supplied templates to a different $TEMPLAT version. Start with version 0010; versions 0001 through 0009 are reserved for software updates.

To copy a $TEMPLAT system image

1. Enter **/RADMIN.T.I** at the prompt.

   The Template System Image List panel appears.

2. Enter **C** beside the system image you want to copy.

   The System Image Definition panel opens.

3. Change the value in the Database Version field to uniquely identify the new copy (for example, 0010), and update the description fields as required.

4. Press F3 (File).

   The System Image Copy panel appears advising you of the status of the copying process. When the copying process is complete, the System Image List panel appears.

5. Set up one $TEMPLAT system image version for general use. Review the templates to ensure that they are suitable for the resources on your system. The version to use is set in the OPSYSIDS parameter group under the NAMES category during region initialization. Enter the **/PARMS** shortcut to access the Customizer : Parameter Groups panel that enables you to access the parameter for update.

Merge $TEMPLAT System Images

Each product supplies its own templates for the supported resource classes. If you want to run different products in the same region, you must merge the $TEMPLAT system images that contain those templates.

For information about how to merge system images, see the *Reference Guide*.

Define and Maintain Resource Templates

Important! The supplied INTNL class resource templates are required for the region to function properly. Do not modify these templates.

After you have defined a system image, you can define resources in it. Predefined templates are supplied for supported resource types. The templates supply values for certain resource definition fields, and simplify the task of creating your own specific resource definitions.

If the supplied templates satisfy your requirements, you can use these templates to define commonly used resources. You can also modify the values supplied by a template or create new templates.

Associate a Template to a Resource Class

To associate a template to a resource class

1. Enter **/RADMIN.T.R** at the prompt.

   The Resource Template Definition List appears.

2. Enter **S** next to the resource class to which you want to associate the template.

   A list of templates associated with the resource class appears.

3. Enter **AP** in front of the template.

   The Automation Services : Apply Template panel appears.

4. Define how you want to apply the template and press F6 (Action).

   The ResourceView : System Image List appears.

5. Select the system image to which you want to apply the template.

   The Automation Services : Messages List panel appears with details of the process.

6. Press F3 (File).

   All resources on the selected images that are associated with the template are updated.

Define a Resource Template

Note: The name of a template must contain alphanumeric, @, #, $, ., :, -, (, and) characters only. It must not be a number.

The panels used to add a resource template definition for a particular resource class are the same as the panels that you use when you add a resource definition for that class. You can define any information that will be used generically by a specific resource.

Use Variables

You can use a variable to supply the value for a field in the resource template definition.

Define Variables

Variables in a template are substituted by their values when you apply the template to a resource definition. You can disable variable substitution—that is, you want the variable to appear in the resource definition, *not* the value of the variable. To disable variable substitution during application, replace the ampersand (&) in front of the variable name by the underline character (_). For example, if you specify _ZMSGTEXT in a template and apply the template to a resource definition, _ZMSGTEXT becomes &ZMSGTEXT in the resource definition.

Use Less-Than Signs to Represent a Left-justified Fixed-length Variable Field Value

Some messages contain left-justified fixed-length fields for resource names. If the name is not of the maximum length, the name is left justified. To handle left-justified fixed-length fields, use less-than signs (<). Each < represents one character. You cannot use normal variables as they do not provide padding. For example, <<<<< represents a five-character field with left justification.

Use Greater-Than Signs to Represent a Right-justified Fixed-length Variable Field Value

Some messages contain right-justified fixed-length fields for resource names. If the name is not of the maximum length, the name is right justified. To handle right-justified fixed-length fields, use greater-than signs (>). Each > represents one character. You cannot use normal variables as they do not provide padding. For example, >>>>> represents a five-character field with right justification.

Maintain Resource Template Definitions

You can browse, update, copy, and delete resource template definitions. You can copy a resource template definition between or in $TEMPLAT system images.

Apply Updated Templates

You may have defined a number of resources by using a template and that template has since been updated. You can use the AP action code to reapply the template to update those resource definitions.

To apply updated templates

1. From the templates list, enter **AP** beside a template.

   The Apply Template panel appears.

2. Specify how the updates are performed.
3. Press F6 (Action).

   A list of system images appears.

4. Enter **S** beside the system images that contain the resource definitions that you want to update and then press Enter to apply the template to the included definitions.

Define and Maintain Maps in a Template System Image

You can define availability maps in a $TEMPLAT system image. You can then use these maps with resources built from the templates.

The procedures for creating and maintaining maps for resource templates are similar to the procedures for creating and maintaining maps for resource definitions.

Access Map Definitions in a Template System Image

To access the map definitions in a $TEMPLAT system image

1. Enter **/RADMIN.T** at the prompt.

   The Template Definition Menu appears.

2. Enter **A** at the prompt.
3. (Optional) If you want to use a different version of the $TEMPLAT system image, change the value in the Template Version field and then press Enter.

   The relevant map list panel appears. The panel lists all the maps in the selected $TEMPLAT system image.

Maintain the Map Definitions in a Template System Image

You can browse, update, copy, and delete the map definitions in a template system.

Define a Map in a Template System Image

The panel used to add a map for resource templates is the same as the panel that you use to add a map for resource definitions, and the procedure is similar.

Define and Maintain Processes in a Template System Image

You can use the processes in a $TEMPLAT system image in a resource template belonging to the same image. You can create new processes or change existing processes.

The procedures for creating and maintaining processes for resource templates are similar to the procedures for creating and maintaining processes for resource definitions (see page 265).

Access the Process Definitions in a Template System Image

To access the processes in a $TEMPLAT system image

1. Enter **/RADMIN.T** at the prompt.

   The Template Definition Menu appears.

2. Enter **P** at the prompt and, if you want to use a different version of the $TEMPLAT system image, change the value in the Version field.

   The Process List panel appears. The panel lists the processes in the selected $TEMPLAT system image.

Define a Process in a Template System Image

The panel used to add a process for resource templates is the same as the panel that you use to add a process for resource definitions, and the procedure is similar.

Maintain the Processes in a Template System Image

You can browse, update, copy, and delete the processes for resource templates. You can test and work with the processes interactively.

Convert a Resource Definition into a Resource Template

You can convert a resource definition into a resource template to facilitate future definition of similar resources. After you are satisfied that a resource definition is working correctly, you can convert the definition into a template.

To convert a resource definition into a resource template

1. Use the Copy action to create another copy of the definition.
2. Change the system name on the General Description panel to $TEMPLAT, and specify the version of the $TEMPLAT image into which you want to copy the definition in the Database Version field.
3. Name the template on the General Description panel.
4. Replace the resource names on the other definition panels by *one* of the following:
   - &ZRMDBNAME if the name field is not of fixed length
   - Less-than signs (<) if the name field is of fixed length with left justification—this typically occurs in the message text
   - Greater-than signs (>) if the name field is of fixed length with right justification—this typically occurs in the message text

   Note: Keeping the name length to less than the maximum number of characters enables you to easily recognize the fixed length name fields in a message. For example, a seven-character name is displayed with an extra space in an eight-character fixed length field.
5. Replace the ampersand (&) in front of a variable by the underline character (_).
6. File the definition. Any associated availability map and processes are also copied if they do not exist already in the specified $TEMPLAT system image.

Chapter 23: Implementing Print Services

This section contains the following topics:

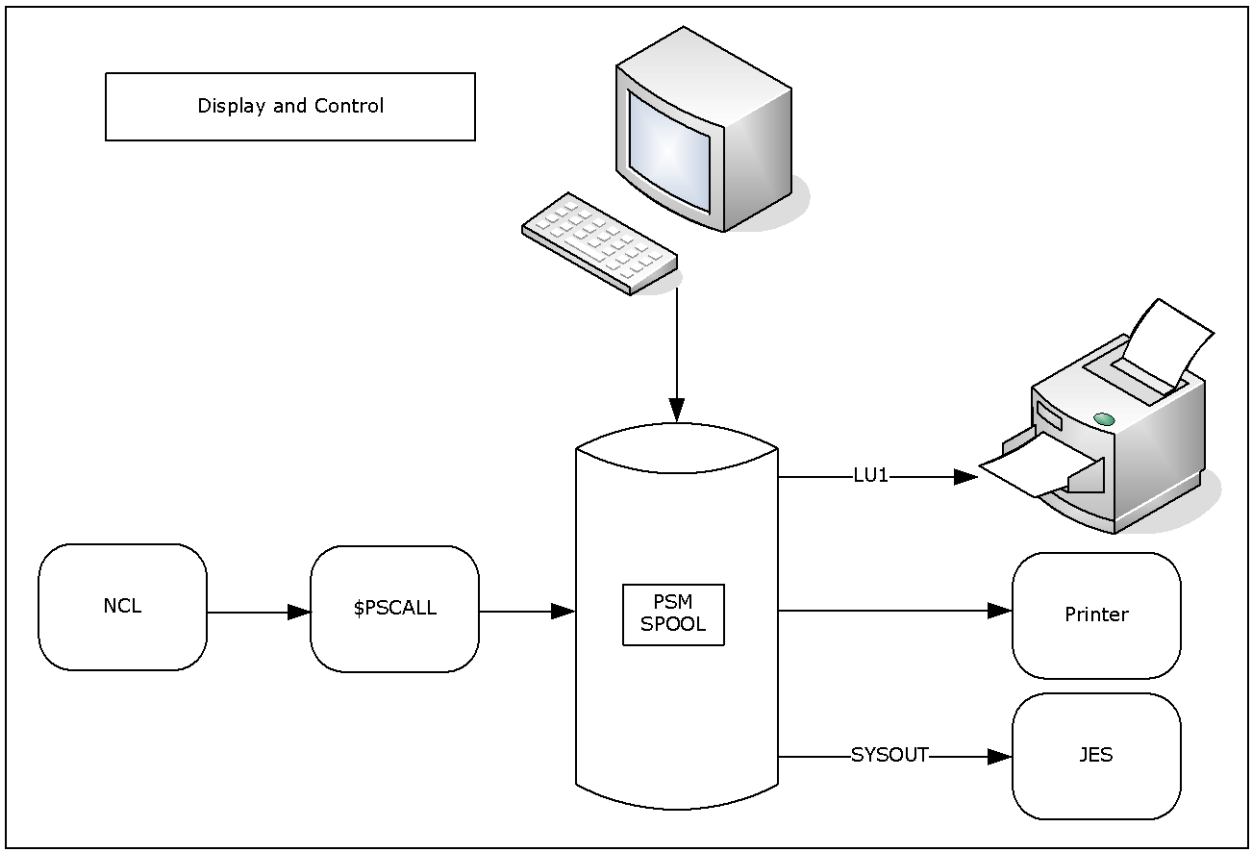
Print Services Manager

Print Services Manager (PSM) allows you to specify the format of a print request and on which printer it is printed. Print requests can be viewed online before or after printing and can be redirected to files rather than printers.

PSM provides the following features, which can be customized to suit your requirements:

- Printer definition facilities
- Form definition maintenance
- Setup definition maintenance
- Default printer assignment maintenance
- Alias printer name definitions
- Banner page customization on output
- Spooled print request browsing, retention, and redirection to a different printer
- Integration with NCL-based components

The following illustration shows the different ways that PSM can be used to control printing requirements.



Access PSM

The customizable functions of PSM are accessed from the PSM : Primary Menu.

To access PSM, enter **/PSM** at the prompt.

Note: You can also access PSM directly by invoking the $PSCALL NCL procedure from OCS or an installation written NCL procedure. The PSM NCL interface is described in the *Network Control Language Reference Guide*.

Add a Printer Definition

A printer definition defines where, how, and on what paper output is printed. A printer definition is required for each printer at which output is printed.

To add a printer definition

1. Enter **/PSMPRTR** at the prompt.

   The PSM : Printer Definition List appears.

2. Press F4 (Add).

   The PSM : Printer Definition panel appears.

3. Complete the fields, as required.

   Note: For information about the fields, press F1 (Help).

4. Press F3 (File).

   The definition is saved.

List Printer Definitions

You can display a list of all the printer definitions defined for your region. This lets you browse and perform maintenance on the listed definitions.

To list all printer definitions, enter **/PSMPRTR** at the prompt.

Add a Form Definition

A form definition is required for each type of paper on which output is printed. The Form Definition Menu is used to set up and administer these form definitions.

To add a form definition

1. Enter **/PSMFORM** at the prompt.

   The PSM : Form Definition List appears.

2. Press F4 (Add).

   The PSM : Form Definition panel appears.

3. Complete the fields and press F3 (File).

   The form definition is saved.

   Note: For information about the fields, press F1 (Help).

List Form Definitions

You can list all of the form definitions defined for your region and then browse and perform maintenance on them.

To list all form definitions, enter **/PSMFORM** at the prompt.

Add Control Characters

Control characters are sent to a printer before or after (or both) the output is printed. They are defined in setup definitions.

To add control characters

1. Enter **/PSMSET** at the prompt.

   The PSM : Setup Definition List appears.

2. Press F4 (Add).

   The PSM : Setup Definition panel appears. To access the second panel of the setup definition, press F8 (Forward).

   Complete the fields, as required.

   Note: For information about the fields, press F1 (Help).

3. Press F3 (File).

   The setup definition is saved.

List Control Characters

You can display a list of all the setup definitions defined for your region. This list lets you browse and perform maintenance on the listed definitions.

To list control characters, enter **/PSMSET** at the prompt.

Add a Default Printer for a User ID

Each user ID in your region can be assigned a default printer. Default printer assignments let you define the printer to which output is sent whenever a user ID does not specify a printer.

To add a default printer for a user ID

1. Enter **/PSMDFTP** at the prompt.

   The PSM : Default Printer Assignment List appears.

2. Press F4 (Add).

   The PSM : Default Printer Assignment panel appears.

3. Complete the following fields:

   User ID

   Specifies the User ID of the user to whom the printer is assigned a default.

   Printer Name

   Specifies the name of the printer to which this user's printing is sent.

   Press F3 (File).

   The default printer assignment is saved.

List Default Printers

You can display a list of all the default printer assignments defined for each user ID. This list lets you browse and perform maintenance on the listed definitions.

To list default printers, enter **/PSMDFTP** at the prompt.

Clear the Printer Spool

Print requests are retained on the print spool if an error occurs during printing or if HELD is specified on the PSM : Print Request panel. The PSM clear spool panel is used to clear print requests from the print queue.

Note: This function is available to authorized users only.

To clear the print spool

1. Enter **/PSMADMN** at the prompt.

   The PSM : Administration Menu appears.

2. Enter **CS** at the prompt.

   The PSM : Clear Spool panel appears.

3. Complete the following field:

   Date

   Specifies that all print requests added to the spool before or on this date are deleted.

   Press F6 (Action).

   The print requests are deleted.

Send Print Requests to a Data Set

Two printer exit procedures are distributed with your product. Each writes the output for a print request to a data set. The procedure $PSDS81X can be customized to specific site requirements. The procedure $PSDS81Z offers the same functionality with improved performance, but cannot be customized. The target data sets for both procedures can be sequential or partitioned.

Parameters that control the operation of the exit are defined in the Exit Data portion of the printer definition. Procedures that pass data to PSM for printing have the ability to override the exit data specified in the PSM printer definition.

The procedures use the parameters contained in the exit data to do the following:

- Determine the target data set
- Determine how to process a data line with a skip amount of zero
- Set the length of the lines print

How the Procedures Process a Print Request

The procedures read each line of print data and write it directly to the nominated data set. Each print line is analyzed according to skip control before processing. This continues until all lines of data for the print request have been received from PSM and written to the nominated data set.

$PSDS81X and $PSDS81Z Parameters

The $PSDS81X and $PSDS81Z parameters, which are coded as keyword parameters, are as follows:

```
  DSN=datasetname
[ DISP={ SHR | OLD | NEW | MOD } ]
[ LRECL={ n | 80 } ]
[ SKIP0={ NEWLINE | DISCARD | DESTRUCTIVE |
          NONDESTRUCTIVE } ]
[ CYL= pri [,sec] [,dir] ]
[ TRK= { pri [,sec ] [,dir] | 15,5 } ]
[ BLKSZ = n ]
[ STORC= storclas ]
[ MGMTC= mgmtclas ]
[ DATAC= dataclas ]
[ VOL= volser ]
[ UNIT= { unit | SYSALLDA} ]
[ RECFM= { F | FB | V | VB } ]
```

DSN=*datasetname*

Specifies the target data set name. If the data set is partitioned, the member name must be included or the data set is corrupted.

You can use the following symbolics in the *datasetname* parameter:

- &USERID—Requesting user ID
- &DAY—Day of week (such as MON)
- &YYYY—Year
- &YY—Year
- &MM—Month
- &MON—Month (such as JAN,FEB)
- &DD—Day
- &HHMMSS—Time
- &HH—Hour
- &MIN—Minute
- &SYSID—System ID
- &SYSNAME—System name
- &JOBNAME—Job name
- &JOBID—Job ID
- &NMID—Region ID
- &NMDID—Region domain ID (DID)
- &GRPNAME—Sysplex name

Symbolics are delimited by a period (.) or another symbolic (that is, &YY&MM. is the same as &YY.&MM.). Symbolics are also allowed in a member name.

For example,

```
DSN=NM.&SYSID..&USERID..D&YY&MM&DD..T&HHMMSS..DATA
```

is converted to

```
DSN=NM.SYSA.MYUSER.D040915.T144505.DATA
```

DISP={ SHR | OLD | NEW | MOD }

Specifies the disposition of the output data set.

- SHR specifies shared use of the data set.
- OLD specifies exclusive use of the data set.
- NEW allocates a new data set.
- MOD appends the output in the file.

Default: SHR.

LRECL={ *n* | 80 }

Specifies the output record length.

Limits: 1 to 250

Default: 80.

SKIP0={ NEWLINE | DISCARD | DESTRUCTIVE | NONDESTRUCTIVE }

Specifies how to process a data line with a skip amount of zero.

- NEWLINE creates a new line of data.
- DISCARD discards the line of data.
- DESTRUCTIVE causes the data to replace the existing data line.
- NONDESTRUCTIVE overlays the data on the existing data line, but only where blanks were present on the existing data line. No existing non-blank characters are modified.

Note: The PSM print options NEWPAGE and USCORE are ignored by the procedures

Default: NEWLINE.

The following additional parameters are applicable when DISP=NEW is specified:

CYL=*pri,sec,dir*

Primary and secondary space allocation values are in cylinders. If a partitioned data set is used, specifies the number of directory blocks.

TRK=*pri,sec,dir*

Primary and secondary space allocation values are in tracks. Number of directory blocks if partitioned data set.

Default: TRK=15,5.

BLKSZ=*blocksize*

Specifies the block size.

STORC=*storclas*

Specifies the storage class.

MGMTC=*mgmtclas*

Specifies the management class.

DATAC=*dataclas*

Specifies the data class.

VOL=*volser*

Specifies the volume serial number.

UNIT= { *unit* | SYSALLDA }

Specifies the unit.

Default: SYSALLDA if volser is specified.

RECFM= { F | *FB* | V | VB }

Record format.

Default: FB.

Example: Printer Exit Definition

This example directs the output for a PSM print request, assigned to the printer named DSEXIT, to the member TEST1 in the data set PROD.PSM.DATA. The record length of this data set is 80. Overlay lines in the data are removed.

Printer Name:	DSEXIT
Type:	EXIT
Description:	Print to a data set
Lower Case:	YES
Line Limit:	0
Form Name:	FORM0
Exit Name:	$PSDS81Z
Exit Data:	DSN=PROD.PSM.DATA(TEST1) LRECL=80 SKIP0=DISCARD

Note: Previous references to parameters WKVOL, CYL, and LIST in the Exit data are no longer required. You must remove them from the printer definition prior to using $PSDS81Z or $PSDS81X, or the print request fails.

Print-to-Email

The $PSEMAIL printer definition lets you email the output of a printing request, which can be either as an attachment or in the body of the email. When the output is sent as an attachment, the email uses the PS8803 message as its body and the PS8804 message as its salutation:

```
Data attached for email_subject

Yours,
user_name
```

user_name

Displays the sender name defined in UAMS.

You can maintain these messages from the Message Definition List panel. The shortcut to the panel is /CASMSG.

Note: For information about how to maintain messages, see the *Managed Object Development Services Programmer and Administrator Guide*.

Chapter 24: Implementing Processes

This section contains the following topics:

How to Implement Processes

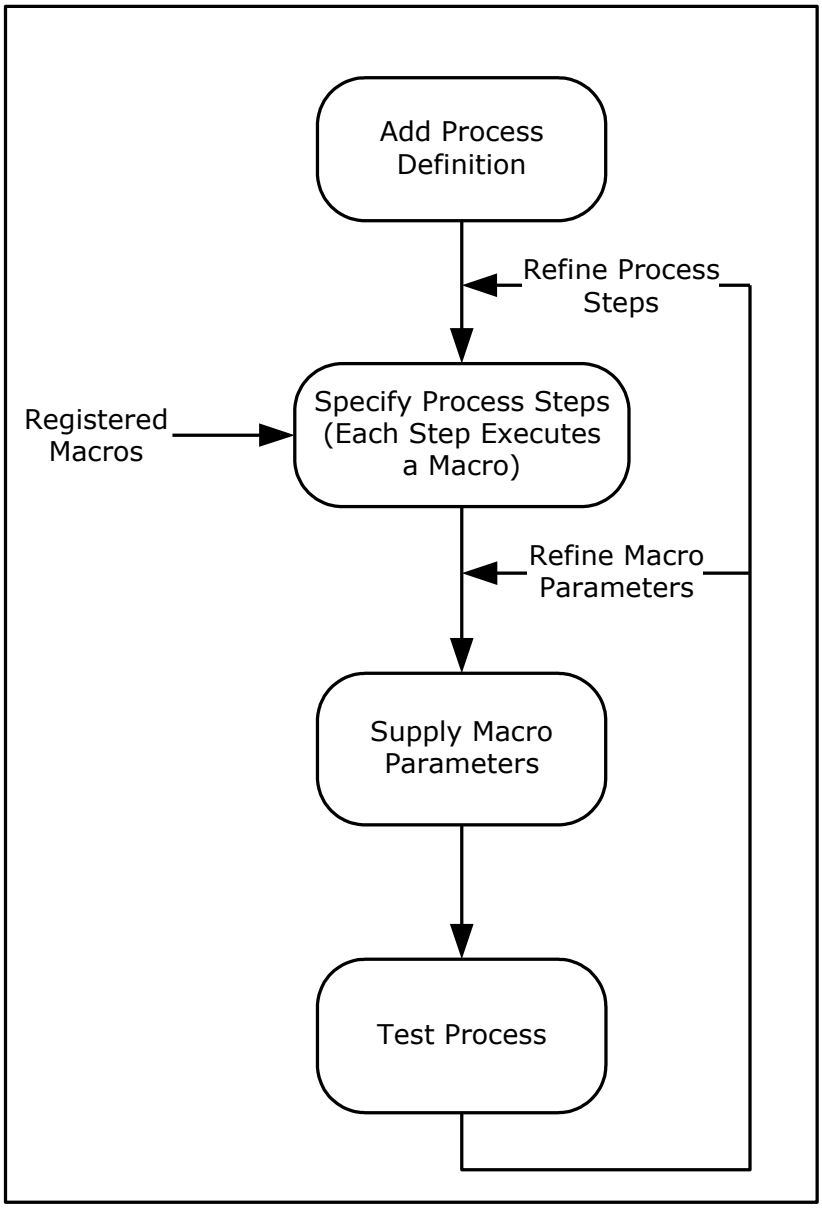
A process is a series of steps that can be executed in sequence to perform complex processing.

You define processes to automate complex operations tasks.

Processes can be executed as follows:

- From a resource definition—you can specify a process in a resource definition. The process is invoked when required for that resource.
- From an availability map—you can specify a process in an availability map (for example, to perform tasks at particular times).
- From an event rule—you can specify a process in an event rule. The process is invoked when an event triggers the rule.
- As a single task—you can run a process as a single, independent task. Use this feature to debug processes or as a quick way of executing a process manually.
- Interactively—you can run a process in the INTERACTIVE mode. Use this feature to check the results of processing single steps, or of processing a sequence of steps one at a time. You can display individual step logs and, if required, change the step parameters.

The following illustration shows the typical stages in defining a process.



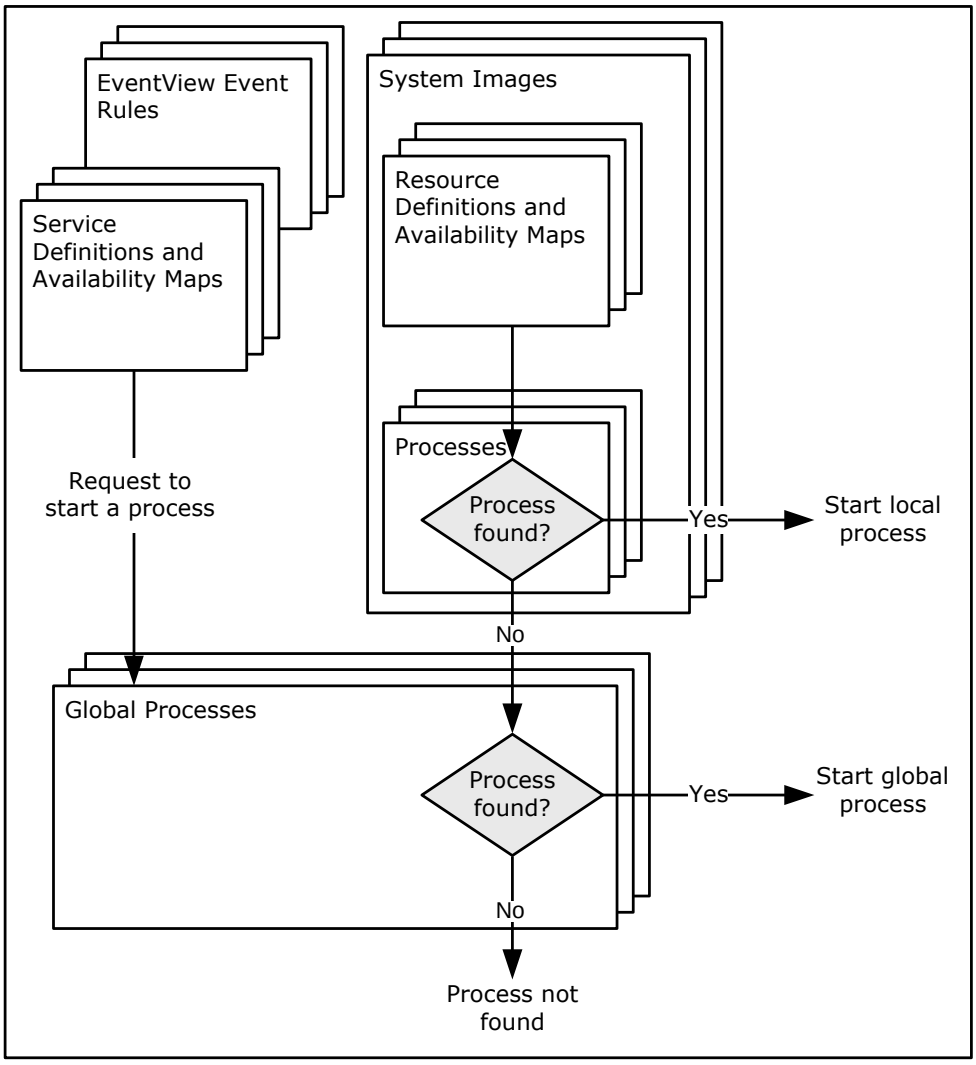
Process Types

A process can be global (available to all components) or local (available to a specific system image only). A global process is available to all components; however, a local process is available only if it belongs to the local active image.

ServiceView and EventView components can use global processes only. ResourceView components can use both types of processes, according to the following rules:

- If a process is required and one exists in the local active system image, that process is used.
- If the required process does not exist in the active system image, the global process of the same name is used.

The following illustration shows how processes are searched for execution.



Access Process Definitions

Each system image has its own set of processes.

To access the process definitions, do *one* of the following:

- Enter **/RADMIN** to access the Resource Administration menu. Type the option code **P**, and the name and version of the system image that owns the processes you want to create or access, and press Enter.

  The Process List panel appears. This panel lists the processes in the system image and the global processes (displayed in blue on a color terminal).

- Enter **/RADMIN.GP** to access the list of global processes. Global processes belong to the $PROCESS 0001 system image.

  The Process List panel appears. This panel lists the global processes.

How to Define a Process

From the Process List panel, press F4 (Add) to add a process definition. A Process Definition panel is displayed.

To define a process, first decide what you want the process to do, then break it down into steps, each step representing an action. Specify a macro for each step. A macro is an NCL procedure that performs the processing for that step. Authorized users can use the Register Macros option to register new macros.

Step processing may be conditional on the processing result of an earlier step. In the example below, STEP2 runs if STEP1 processing returns a code of 0. STEP3 runs if STEP1 processing returns a code greater than 0.

StepName	Step/RC	Opr	R/C
STEP1	-	-	-
STEP2	STEP1	=	0
STEP3	STEP1	>	0

When you define a process on the Process Definition panel, you must complete the Name and Description fields to identify the process, and the StepName and Macro fields to define each step. If you want to find out what macros are available, enter **?** in a Macro field to display the list of available macros.

Important! $NCL is the name of a special process definition. Do not use this name when you add process definitions.

Conditions are optional. Use relational operators in the Opr fields to set the conditions. Enter **?** in an Opr field to identify the valid relational operators.

You can repeat and delete steps, and insert blank lines.

Press F11 (Right) to display the parameters for each step.

The return code from a process is the return code from the last executed process step.

Example: Issue Multiple System Commands

The following shows an example of a process that issues multiple system commands.

```
PROD---------- Automation Services : Process Definition ----------Function=Add
Command ===>                                                  Scroll ===> PAGE

+ Process Definition ------------------------------------------------------------+
| System Name .. PROD      Version .. 0001   Last Updated By                    |
| Name ......... TEST PROC                   at           on                   |
| Description .. ISSUE SYSTEM COMMANDS                                         |
+------------------------------------------------------------------------------+
+ Process Steps ------------------------------------------------------------------+
|                                                                                |
|                                        D=Delete I=Insert P=Parms R=Repeat      |
|                     Condition                                                  |
|      StepName   Step/RC  Opr R/C   Macro    Description                       |
|      STEP1                         SYSCMD   EXECUTE A COMMAND                 |
|      STEP2      STEP1    =   0     SYSCMD   EXECUTE A COMMAND                 |
|      STEP3      STEP2    =   0     SYSCMD   EXECUTE A COMMAND                 |
|      STEP4      STEP1    =   99    SYSCMD   EXECUTE A COMMAND                 |
|                                                                                |
|                                                                                |
|                                                                                |
|                                                                                |
|  F1=Help     F2=Split    F3=File     F4=Save                                   |
|  F7=Bkwd     F8=Forward  F9=Swap               F11=Right   F12=Cancel        |
+------------------------------------------------------------------------------+
```

If STEP1 completes successfully, STEP2 executes the next shutdown command. If STEP2 completes successfully, STEP3 issues the final shutdown command.

If STEP1 fails, STEP4 executes and issues a CANCEL command.

Set Macro Parameters

When you select a macro, it contains either no parameters or default parameters.

To set the parameters for a macro

1. Enter **P** beside the process step.

   A Macro Parameter Definition panel appears.

2. Change the parameters as required and press F3 (OK). The parameters required by each macro depend on the purpose of the macro.

Example: Set Macro Parameters

The following shows the parameters set for Step 1 in the previous example.

```
PROD----- Automation Services : SYSCMD Macro Parameter Definition -------------
Command ===>                                                  Function=UPDATE

+- System Command ------------------------------------------------------------+
|                                                                             |
| Command ..... F CA7T,/LOGON MASTER_____________________________________     |
|                                                                             |
| Jobname ..... ________                                                      |
|                                                                             |
| Wait Time ... 30__  Wait Time Expiry Return Code ... 99_                    |
+-----------------------------------------------------------------------------+
+- Response Message Analysis ------------------------------------------------+
|                              D=Delete Extended Filter  S=Extended Filter    |
|           Message Text                                   Return Extended    |
|                                                          Code   Filter?     |
|   ___     CA-7.023 - V3.0 (9106) OPERATOR IS LOGGED ON_  0__    NO          |
|   ___     ____________________________________________   ___                |
|   ___     ____________________________________________   ___                |
|   ___     ____________________________________________   ___                |
|   ___     ____________________________________________   ___                |
|                                                                             |
+-----------------------------------------------------------------------------+
 F1=Help      F2=Split     F3=OK
                           F9=Swap                          F12=Cancel
```

The parameters include:

- The system command issued
- The text of the expected response
- A processing return code of 0
- A wait time of 30 seconds
- A timeout return code of 99

You can also choose to specify an extended filter for the analysis of the response message text. For example, a response may contain variable information and you may want to accept the message only if it contains specific values.

Use a Variable as a Macro Parameter

You can use a variable to hold the value of a macro parameter. You pass the value of any variables required by a process as parameters when you specify the process, for example, in a resource definition.

Important! Do *not* specify variable names that start with #, $, or Z.

Example: Use a Variable as a Macro Parameter

You have defined a process that contains the SYSCMD macro which issues the $DU,&PRT command. When you use the process, you supply the value of the &PRT variable by specifying the following parameter: PRT=*printer-name*. Specify the name of the variable only (without the &).

Generic Processes Using Resource Variables

You can define generic processes that perform functions that are dependent on how they are initiated by using resource variables. These variables contain information about a resource that is defined to the knowledge base and are useful for building automated paging, standardized startup for CICS regions, and many other tasks where a uniform solution is required. Using a generic process reduces any overhead associated with building individual processes for individual resources.

Note: For information about knowledge base variables, see the *Reference Guide*.

Example: Use Process to Page Support

Service level agreements require that appropriate support personnel are paged should any production CICS region be under stress. CA Automation Point is available at your site to monitor the condition and provide the paging function. Different CICS regions have different support personnel assigned.

You accomplish this by implementing the following method in the CICS resource definitions:

1. Specify details of the support personnel.
2. Identify and specify the message to trigger automated paging.
3. Specify an event related action for this message using the following generic process:

	Condition					
	StepName	Step/RC	Opr	R/C	Macro	Description
	S1				WTOR	WTOR TO L1 SUPPORT
	S2	S1	EQ	32	WTOR	TIMED OUT - CALL L2
	S1OK	S1	EQ	0	SETSTATE	L1 RESPONDED - SET EXT. DISPLAY
	S2OK	S2	EQ	0	SETSTATE	L2 RESPONDED - SET EXT. DISPLAY
	S3	S2	NE	0	GENALERT	NO SUPPORT - RAISE ALERT
	S4	S2	NE	0	SETSTATE	NO SUPPORT - SET EXT. DISPLAY

   a. At Step S1, the resource sends a WTOR message, using knowledge base variables (for example, &ZRMDBREOPAG1 that contains the pager number) to provide details of the support personnel responsible for the failing resource.

      The WTOR message is intercepted by CA Automation Point or by an operator, and the indicated first-level support person is paged. Response to the message indicates the success or failure of paging.

   b. If paging of the first-level person is successful, Step S1OK sets the extended display of the resource to indicate that the support person has acknowledged the paging.

      If no reply is received within a specified period, Step S2 sends another WTOR message to invoke paging of the second-level support person.

   c. If paging of the second-level person is successful, Step S2OK sets the extended display of the resource to indicate that the support person has acknowledged the paging.

      If paging fails, Step S3 raises an alert and Step S4 sets the extended display of the resource to indicate that no support personnel have responded.

Processes to Generate Alerts

You can use a process in a ResourceView resource definition or an EventView message rule to generate alerts in response to problems occurring in a resource.

The GENALERT macro enables you to generate an alert from a process.

Example: Generate Alert on Security Violation

The DFHAC2003 message indicates that a CICS security violation has occurred. You may want to be warned of these violations. The following panels show the message rule definition that generates an alert under this condition by using the SECALERT process definition:

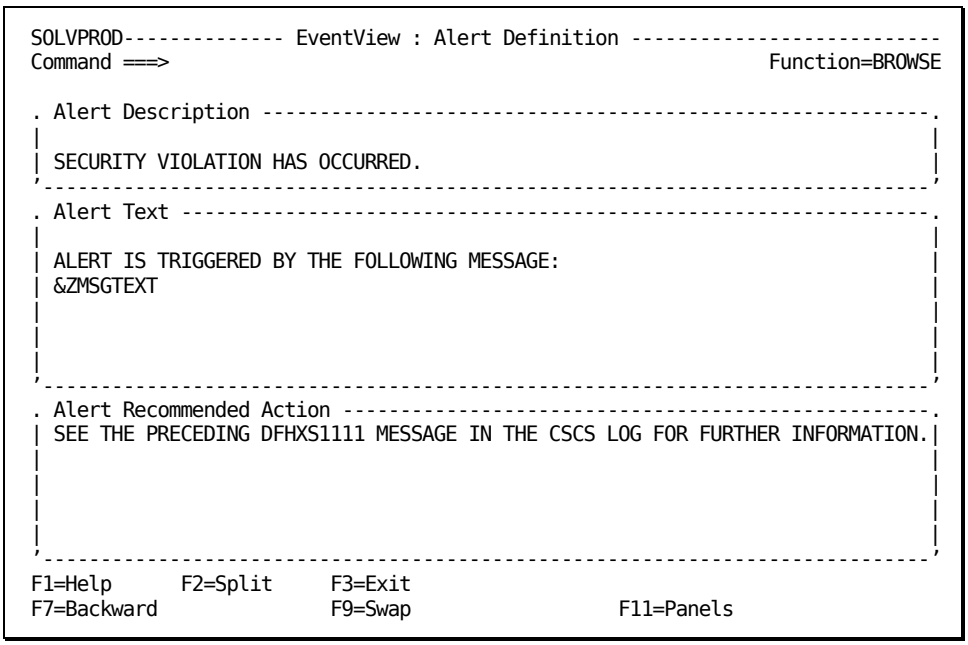
```
SOLVPROD--------------- EventView : Message Filter -------------------CICSSEC--
Command ===>                                                  Function=BROWSE

Ruleset Name ........ CICSSEC                       Rule Status .... ACTIVE
Short Description ... CICS security alerts

. Expected Message ------------------------------------------------------------.
|                                        S=ListPanels E=ExtFilter T=TestVars |
|      Message Text  ( WildChar = * )                                 ExtFlt |
| ___  DHFAC2003                                                      NO     |
```

```
SOLVPROD---------- EventView : DHFAC2003 Message Actions -------------CICSSEC--
Command ===>                                                  Function=BROWSE

Reply Text .......

System Command ...

MS Command .......


. Automation Actions ----------------------------------------------------------.
|                                                  S/B=Browse U=Update L=List |
|      Process     Parameters                                                 |
| ___  SECALERT                                                               |
```

The following panels show the SECALERT process definition and the parameters used by the GENALERT macro:

```
SOLVPROD------- Automation Services : Process Definition -------Function=Browse
Command ===>                                                  Scroll ===> CSR

. Process Definition ------------------------------------------------------------.
| System Name .. $PROCESS  Version .. 0001   Last Updated By USER01           |
| Name ......... SECALERT                    At 16.21.13  On WED 24-JUL-1996  |
| Description .. CICS security violation alert generator                      |
'-----------------------------------------------------------------------------'
. Process Steps -----------------------------------------------------------------.
|                                                                               |
|                                                                      P=Parms  |
|                    Condition                                                  |
|      StepName   Step/RC  Opr R/C   Macro    Description                      |
| P    A                             GENALERT GENERATE AN EVENTVIEW ALERT     |
|     **END**                                                                   |
```

```
SOLVPROD-------------- EventView : Alert Attributes ---------------------------
Command ===>                                                  Function=BROWSE

. Alert Reference Key -----------------------------------------------------------.
|                                                                               |
| Reference ... CICS_SECURITY_ALERT_&ZMSGWORD20                                 |
|                                                                               |
'-------------------------------------------------------------------------------'
. Alert Attributes --------------------------------------------------------------.
|                                                                               |
| Severity .... 2                                                               |
| Type ........ DEFAULT                                                         |
| Origin ...... ALERTMACRO                                                      |
```



Test a Process

After you have defined a process, you can test it by executing it as a single task or by executing it in the interactive mode.

Test a Process Interactively

From the Process List panel, enter **I** beside a process to execute it in the interactive mode. The Process Definition panel for that process appears. You can:

- Enter **E** beside a step to execute only that step irrespective of the condition.
- Use F12 (Step) to execute a number of steps in sequence. Pressing F12 (Step) executes the next step in the sequence. The execution of each step depends on the condition specified for the step.
- Enter **L** beside an executed step to see the processing log. The log display is positioned at the latest entries relating to the selected step.
- Enter **P** beside a step to view the macro parameters.

To interactively edit and test the process steps

1. Press F4 (Edit) to access the Interactive Edit function to edit the process steps.
2. Modify the steps, as required.
3. When you complete the modifications, press F4 (OK) to return to the INTERACTIVE mode. You can also press F3 (File) to return to that mode. Pressing F3 (File) saves the modifications.
4. Test the modified process.
5. Press F3 (Exit) and F3 (File) again to save the modified steps.

   If the test is not satisfactory, restart from Step 1.

Test a Process by Execution as a Single Task

To test a process by execution as a single task

1. From the Process List panel, enter **E** beside a process.

   The task is executed as a single, independent task. The Optional Process Parameter Specification panel appears.

   Note: When you use the E action code to execute a process, the process is executed under the BSYS background user ID.
2. Supply any parameters required by the process in the Parameters field, then press F6 (Action).

   When the process has executed, a processing log appears. This log contains the processing results.

Log Process Activities

Process activities are written to the activity log while you are testing a process. However, you can control the logging when a process is executed, for example, from a resource definition. Use the $LOG process parameter to control the logging as follows:

$LOG=BOTH

Logs activities in full and summary form.

$LOG=FULL

Logs activities in full.

$LOG=NO

(Default) Does not log activities.

$LOG=SUMM

Logs activities in summary form only.

Maintain Process Definitions

You can browse, update, copy, and delete process definitions from the Process List panel.

Back Up Global Processes

To assist you with the maintenance of your global processes, you can create backup versions of your global process image. By creating a backup version of your global process image, you can perform the following:

- Update global process definitions in any version of a global process image.
- Restore a global process definition from a backup global process image.
- Merge two versions of a global process image.

To create a backup version of a global process image

1. Enter **/ASADMIN.GPI** at the prompt.

   The Global Process Image List appears.

   Note: If you have not created a backup before, there is only one global process image listed: $PROCESS 0001. The active global process image can only be $PROCESS 0001. $PROCESS 0001 cannot be deleted.

2. Enter **C** beside the global process image you want to copy.

   The Global Process Image Definition panel appears.

3. Enter a new Database Version, Short Description, and Long Description.

4. Press F3 (File).

   The backup version of the global process image is saved. A copy in progress panel appears while the copy occurs. The Global Process Image List appears with the backup version displayed in the list.

   If the global process image you have specified already exists, the Confirm System Image Merge panel appears.

Update Global Process Definitions in a Backup Global Process Image

You can access a list of all the global process definitions in any version of a global process image. From this list you can update any global process definition contained in the global process image.

To update a global process definition in the $PROCESS 0002 backup image created above

1. Enter **L** (List Processes) beside the $PROCESS 0002 global process image in the Global Process Image List.

   The Global Process List panel appears showing all of the global process definitions in that global process image.

   Note: You can access the list of global processes for another version of the global process image by changing the version number on the Global Process List panel and pressing Enter.

2. Enter **U** beside the global process definition that you want to update.

   The Process Definition panel appears for that global process definition.

3. Update the global process definition, as required.

4. Press F3 (File).

   The changes are saved and the Global Process List appears.

Restore a Global Process Definition from a Backup Global Process Image

If you have made changes to a global process definition and you are having trouble with its implementation, you can restore it from a previous version of the definition.

To restore global process definition $PROC01 from $PROCESS 0002 to $PROCESS 0001

1. Enter **C** beside $PROC01 in the global process list.

   The Process Definition panel appears.

2. Change the Database Version from 0002 to 0001 and press F3 (File).

   The changes are saved. Because there is already a copy of the global process in the target global process image, the Confirm Copy Replace panel appears.

3. Press Enter to confirm the replace or F12 (Cancel) to cancel the request.

   The Global Process List appears.

Change a Global Process to a Local Process

You can change a global process to a local process while performing a copy on any global process in the global process selection list.

To change global process PROC01 to a local process in the SYS01 system image

1. Enter **C** beside PROC01 in the Global Process List.

   The Process Definition panel appears.

2. Change the System Name to SYS01 and press F3 (File).

   The Global Process List appears.

   To view the new local process, access the list of processes for the system image that you copied it to.

Merge Two Global Process Images

You can merge two global process images and replace the active global process image with a backup version.

To merge global process images $PROCESS 0002 and $PROCESS 0001

1. Enter **C** beside the $PROCESS 0002 on the Global Process Image List.

   The Global Process Image Definition panel appears.

2. Change the Database Version number to 0001 and press F3 (File).

   The Confirm System Image Merge panel appears.

3. Enter **YES** in the input field if you want to overlay like-named components.
4. Press F6 (Confirm).

   The global process images are merged.

Chapter 25: Setting Up the Initialization File

This section contains the following topics:

Generate an Initialization File

If you are deploying multiple regions, each region must be configured for its local environment. When you have configured your first region, you can build an initialization file from that region and then configure it for use with your other regions. This removes the need to customize each region with Customizer.

The tasks outlined below show how to configure a region from an initialization file. The initialization file is produced from a running region for your product.

To generate an initialization file

1. From the Primary Menu, enter **/CUSTOM**.

   The Customizer panel appears.

2. Select option G - Generate INI Procedure.

   The Customizer : Generate INI Procedure panel appears.

3. Enter the data set name and the member name of the file in the Generate INI File Details section.

   Note: The data set must be in the commands concatenation of the RUNSYSIN member for the region in which it is used.

4. Ensure that the member name and data set name are correct. Enter **YES** in the Replace Member? field if you are replacing an existing member.

5. Press F6 (Action).

   The initialization file is generated.

6. Make a note of the data set and member names and press F6 (Confirm).

   The details are saved.

Configure the Initialization File

The initialization file must be configured before it can be used on other systems. You can do this as follows:

- Configure an individual initialization file for each region.
- Configure a common initialization file for multiple regions.

You can use system variables and static system variables with both of these methods. The variables substitute for the initialization parameters in the INI file.

Configure a Common Initialization File

You can customize an initialization file using variables so that it can be used for multiple regions.

To configure a common initialization file

1. Create a data set that is available to every region to be initialized from the common initialization file, for example, PROD.INIFILES.
2. Add the newly created data set to the COMMANDS concatenation of the RUNSYSIN member to every region to be initialized from the common initialization file.

   Note: RUNSYSIN is located in TESTEXEC.
3. Copy the initialization file generated into the new INIFILES data set.
4. Use your TSO editing tool to open the initialization file in edit mode.

5. Replace the relevant generated variables in the initialization file with the following system variables:

   &ZDSNQLCL

   The local VSAM data set qualifier.

   &ZDSNQSHR

   The shared VSAM data set qualifier.

   &ZACBNAME

   The primary VTAM ACB name used by the region.

   &ZDSNQLNV

   The local non-VSAM data set qualifier.

   &ZDSNQSNV

   The shared non-VSAM data set qualifier.

   &ZNMDID

   The domain identifier.

   &ZNMSUP

   The system user prefix.

6. Replace the relevant generated variables in the initialization file with the z/OS static system symbols as follows:

   &SYSCLONE

   The short name for the system.

   &SYSNAME

   The name of the system.

   &SYSPLEX

   The name of the sysplex.

   &SYSR1

   The IPL VOLSER.

7. Save the changes to the initialization file.

Configure Individual Initialization Files

You can customize an initialization file generated from one region so that it can be used for another region.

To configure an individual initialization file for each region

1. Use your TSO editing tool to open the initialization file in edit mode.
2. Substitute the parameters in the initialization file with *one* of the following:
   - Hard-coded data set names for the region in which the file is used
   - System variables

   This enables the initialization file to work in regions with different data sets than the region in which it was generated.
3. Save the changes to the initialization file.
4. Copy the initialization file to the region's TESTEXEC or one of the other libraries in the COMMANDS concatenation.
5. Repeat steps 1 to 4 for each initialization file needed.

Note: The region from which the original initialization file was generated should have the same product sets as the destination regions that will use that initialization file.

Start Your Region from an Initialization File

The name of the initialization file must be specified by the INIFILE parameter in the RUNSYSIN member.

Updating your RUNSYSIN member causes your region to set its initialization parameters from the initialization file. All Customizer parameter settings are overwritten.

To update your RUNSYSIN member

1. Use a text editor to open your RUNSYSIN member.
2. Insert the line PPREF='INIFILE=*membername*' into your RUNSYSIN member.
3. Save the member.

Chapter 26: Administering a Multisystem Environment

This section contains the following topics:

Multisystem Operation

Your product provides focal point management to support multisystem operation, that is, management at a focal point with subordinates and other focal points feeding information to it, as follows:

Focal

Supports full connectivity between multiple regions. Regions linked in this way are known as focal point regions.

When regions are communicating with each other, authorized users can monitor and control all managed resources from any terminal connected to any region.

All focal point regions have the knowledge base synchronized.

Subordinate

Enables you to reduce the amount of traffic in your multisystem environment. You link subordinates to focal point regions that provide central monitoring and control. A subordinate has visibility and control of the resources that belong to the local system image only.

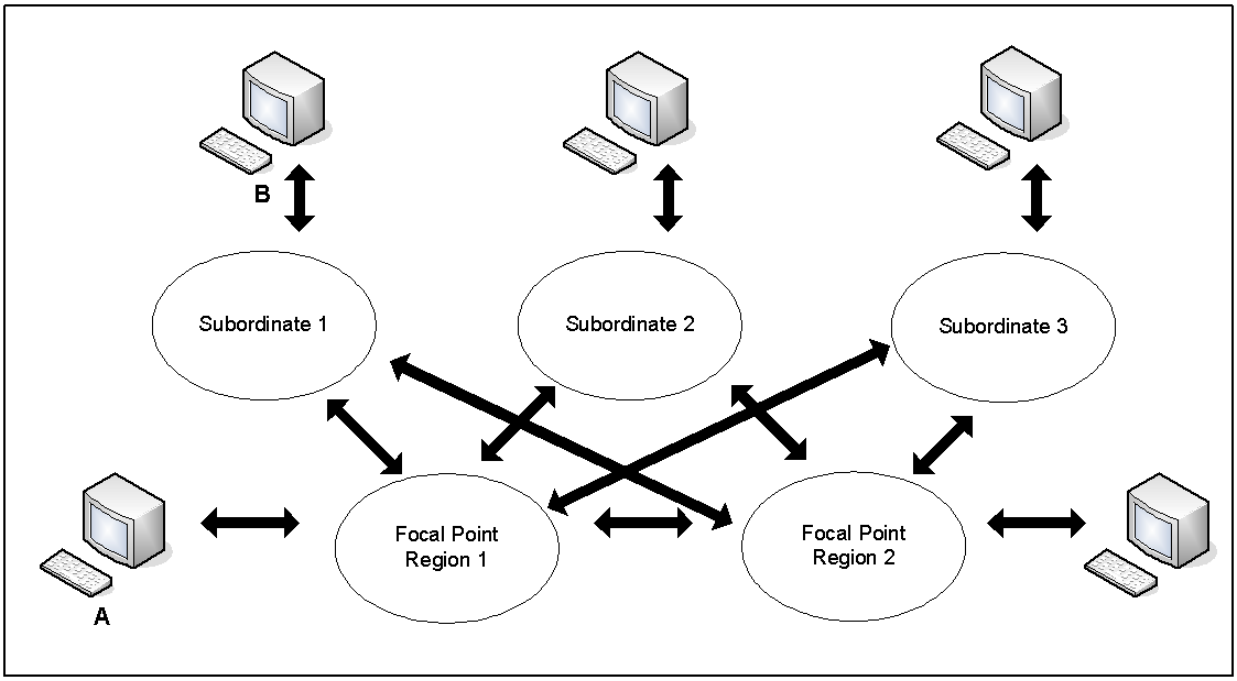
In a multisystem environment, each region runs independently of the other regions. If no communication links are available, each region still provides full monitoring, control, and automation of its own managed resources.

To link a focal point region to another focal point region, or to link a subordinate to a focal point region, you need to link and synchronize the regions.

Notes:

- You can link as focal points only those regions that are configured for the same products. For a subordinate-focal point link, the products configured in the subordinate region can be a subset of the products configured in the focal point region.
- Subordinate regions assume a system image name that cannot be used for any other region in the multisystem environment. We recommend that you use a unique system image name for subordinate regions running on the same LPAR. If you use express setup, the system image name defaults to the SMF ID.

The following diagram shows an example of a multisystem environment. Logging on to Console A allows visibility to all resources. Logging on to Console B allows visibility to the subordinate system image only.



Notes:

- A focal point region links to all other focal point regions and subordinates.
- A subordinate links to focal point regions but does not link to other subordinates.

Links in a Multisystem Environment

The link established between two regions in a multisystem environment is an INMC link. The link is used to pass knowledge base updates, status change notification, and other information between the two regions. The link can use any combination of the following communications protocols: VTAM, TCP/IP, and EPS. VTAM is the default.

For each region, the communication access methods available to it are specified by the MULTISYS Customizer parameter group. If TCP/IP is used, you must also ensure that the SOCKETS parameter group is activated.

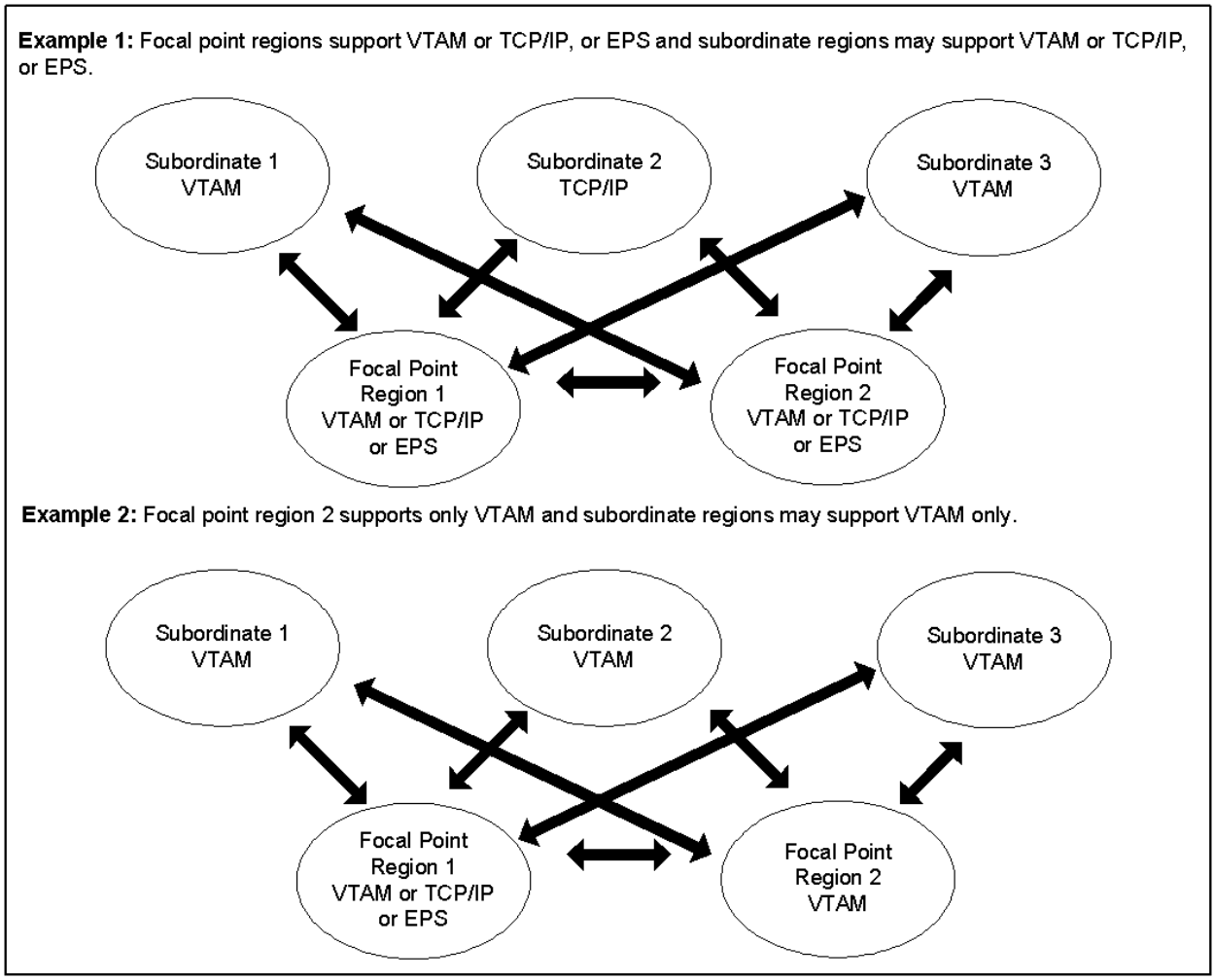
Note: When a region is linked in a multisystem environment, you cannot change the access methods in its MULTISYS parameter group without first unlinking the region.

The INMC link between any two regions uses the access methods enabled by *both* regions (that is, the intersection of the two MULTISYS parameter groups). When multiple access methods are enabled, the link can use all these methods. This improves reliability because the link functions when one of the enabled methods is available.

When you plan your multisystem environment, you must ensure the following:

- All focal point regions must support at least one common type of access method.
- A subordinate region must support an access method that is also supported in all the focal point regions.

This following diagram shows some examples of multisystem link configurations.



Multisystem Support in a Sysplex

With the EPS access method, you can use the sysplex cross-system coupling facility (XCF) to implement your multisystem environment.

Notes:

- To support the EPS access method, a SOLVE SSI region must be active in each of the co-operating systems and must be registered to XCF.
- To register the SSI region to XCF, ensure that XCF=YES is set in the SSI parameters member of the SSIPARM data set. This is the default setting at installation.

Multisystem Implementation Considerations

When you implement your multisystem environment, consider the following:

- Ensure that the link requirements (see page 287) are satisfied for the planned multisystem environment.
- When you link two regions, the knowledge base in one region overwrites the knowledge base in the other region. *You must transmit all system images used by the local region to the target focal point region prior to synchronization.*
- You can only link a region to a focal point region. The focal point region can be a stand-alone region or part of a multisystem environment.
- You can only link a stand-alone region into a multisystem environment.

Establish a Multisystem Environment

When you install your product, two databases are downloaded. These databases, which can be customized to suit your requirements, are:

- An icon panel database, where icon panel definitions are stored for the graphical monitor
- The RAMDB, where system image, resource, availability map, process, macro, command, and other definitions are stored

Together, these databases form the knowledge base.

Populate these databases with definitions specific to your environment. These definitions may include the system image definitions for any other regions that you want to install in your environment in the future.

As you establish regions, link the new regions to the first region by using the Link Region and Synchronize Database (see page 290) option. When databases are linked, future synchronization is automatic. You can make changes to the database in one region and the changes are sent to the databases in the linked regions that have visibility to those resources and system images.

Note: Synchronization does not apply to the NCL procedures represented by the registered commands and macros. Changes to these NCL procedures are not automatically reflected in the linked regions.

In a multisystem environment, you can monitor and control the resources in all linked regions from a single focal point.

Link Regions and Synchronize Databases

When the first region is created in your environment, two databases are downloaded and can be customized for your environment. Together, these two databases (the Automation Services database and the icon panel library) form the knowledge base.

To build a multisystem environment, you start by linking two regions, and then continue to link in any other regions. The linking process also synchronizes the knowledge bases of these regions.

Notes

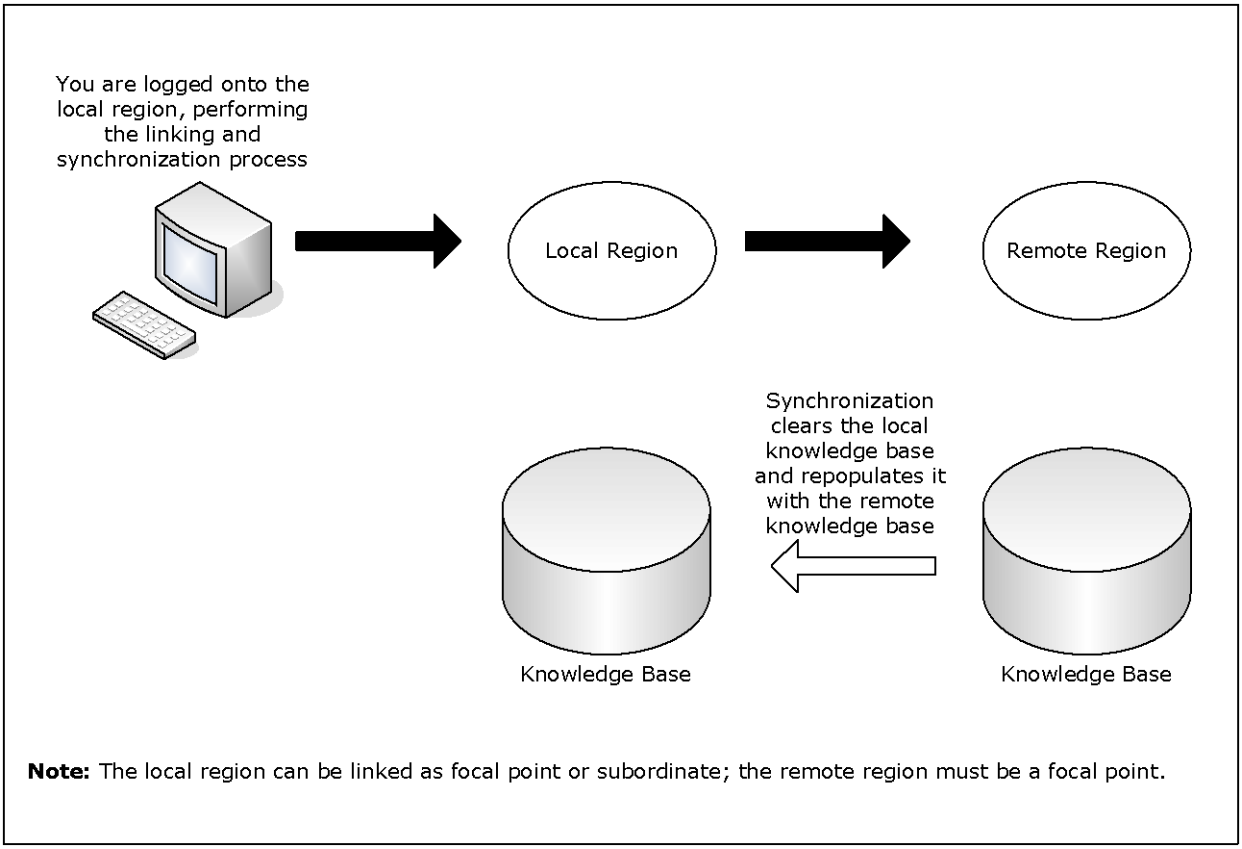
- For linked focal point regions, synchronization is complete and the focal point knowledge bases are identical.
- For linked subordinates, synchronization is complete only to the extent of the relevant definitions in the knowledge base. For example, a subordinate knowledge base does not contain all system images. A subordinate knowledge base contains only those images that represent the environment the subordinate is managing.

When you link two regions, the local region in which you perform the link operation receives the knowledge base from the remote region you want to link to, which must be a focal point region. When you link a region into an existing multisystem environment, that region must be a stand-alone region.

Important! During the linking and synchronization process, the knowledge base in the local region is overwritten by the knowledge base from the remote focal region. If the local knowledge base has been customized and contains definitions that you want to retain in the synchronized knowledge bases, you must transmit these definitions to the remote knowledge base before you link the regions; otherwise, the local knowledge base definitions are overwritten and lost.

Note: If the local region terminates during the linking and synchronization process, the local knowledge base can become corrupted and you may not be able to restart the region. Replace the corrupted knowledge base with your backup, restart the region, and resynchronize the knowledge base. For more information about backups, see the *Reference Guide*.

The following illustration shows the link and synchronization operation.



Note: The local region can be linked as focal point or subordinate; the remote region must be a focal point.

After you link the regions, the knowledge bases are synchronized and remain synchronized. If you change the knowledge base in one region, the changes are propagated to the other regions.

Background User Considerations

When you establish a region, a UAMS background system (BSYS) user ID for that region is automatically defined. The background user ID comprises the four-byte region domain ID, followed by the characters BSYS. To establish fully-functioning communication links between regions, the BSYS user ID of each region must be duplicated in each linked region.

During a link and synchronize procedure, any required BSYS user IDs are defined automatically to UAMS, provided that the following conditions apply:

- You have UAMS maintenance authority on *all* the linked regions.
- The existing multisystem linked regions are active when the request is made.

If either of these conditions does not apply, then any required BSYS user IDs must be defined manually to UAMS. The simplest way to do this is to copy the BSYS user ID for the current region from the UAMS User Definition List and update the user ID. To access the UAMS maintenance functions, enter the **/UAMS** shortcut.

The link and synchronize request is rejected if *both* of the following apply:

- You do not have UAMS maintenance authority in the local or the remote region. (The user ID of the person who requests the link and synchronize procedure must be defined in the local and remote regions.)
- The required BSYS user IDs are not defined in the local or the remote region.

Important! If you use an external security system, you must manually define the BSYS user IDs of the remote systems to your external security system.

Link and Synchronize Regions

Important! Do not add, update, or delete knowledge base records in any linked regions while synchronization is in progress. These changes may not be propagated to the new region. Before you perform synchronization, ensure that you back up the knowledge base.

To link and synchronize regions

1. Log on to the region to synchronize with the source (remote) region.

   The source region contains the knowledge base you want.

2. Enter **/MADMIN** at the prompt.

   The Multi-System Support Menu appears.

3. Select option **SD**.

   This establishes a link between the local region and another region, and updates the knowledge base of the current region.

   The Remote System Identification panel appears.

4. Complete the following fields:

   Primary Name

   Specifies the ACB name of the remote focal point region to which you want to link this region.

   Role in Multi-System Operation

   Specifies whether this region is a focal point region or a subordinate region. A focal point region must satisfy the following conditions:

   - The product sets in all focal point regions match.
   - At least one access method must be available.

   Subordinate System Image Name

   (Optional) If you specified subordinate, specify the name of the system image that is to be used by it.

   Important! Each subordinate is assigned a unique system image name, and it can use an image by that system image name only. When you build your environment for a subordinate, you must build the environment under the system image name specified during the linking operation.

   Subordinate regions are restricted to loading only system images with the name specified here. Different system image versions can be maintained under the system image name.

   Work Dataset

   (Optional) Specifies the VSAM data set to use to reduce the time for synchronization.

   The following fields specify the communication access methods to be used during synchronization. You can select any combination of the access methods; however, you can only select an access method if it is enabled in the MULTISYS parameter group.

   Use VTAM?

   (Optional) Specifies whether to use VTAM for communication.

   Use EPS?

   (Optional) Specifies whether to use EPS for communication.

   TCP/IP Host Name/Addr

   (Optional) Specifies the TCP/IP host name and address of the remote region.

Port Number

(Optional) Specifies the TCP/IP port number of the remote region.

5. Press F6 (Action) to initiate the linking process.

   A confirmation panel appears.

6. Press F6 (Confirm) to initiate region linking and knowledge base synchronization.

   A status panel appears.

   Note: Press F3 (Exit) to exit the status panel at any time without affecting the link and synchronize procedure. If you exit early, note the task number for later reference.

Monitor the Synchronization Procedure

While the synchronization procedure is in progress, the Synchronize Database Status panel is refreshed automatically every 10 seconds. This panel can be refreshed manually at any time by pressing the Enter key.

To check the status of the synchronization

1. From the Multi-System Support Menu, select option L to view the administration task log.
2. Enter S beside the appropriate entry from the log to view the status of the task.

The administration task log may contain up to 50 entries at any given time. Each task is allocated a sequential task number (between 1 and 50) as it commences. When the maximum task number is reached, allocation restarts from one and the oldest status records are overwritten. To delete a completed or failed task from the log, apply the D (Delete) action.

Knowledge Base Synchronization Maintenance

Automation Services maintains synchronization between linked knowledge bases by using a staging file.

When a knowledge base update occurs, information about the update is stored in the staging file as follows:

- For an update in a focal point region, a separate update record is written for each affected linked region.
- For an update in a subordinate region, a single update record is written for a linked focal point region.

A record stays in the staging file until the update is performed successfully in the destined region. If the region is inactive, the record stays in the staging file until the region is started.

Important! If the staging file becomes full, knowledge base synchronization cannot be maintained and the local region is unlinked automatically. A staging file can become full if a remote linked region remains inactive for an extended period of time. If an extended downtime is planned for a linked region, unlink the remote region before inactivation.

Display Linked Regions

To list the linked regions in your multisystem environment

1. Enter **/LISTREG** at the prompt.

   The Linked Regions panel displays the ACB names, the mode these regions are linked in, and a brief description of the linked regions. It also displays the status of the data flow traffic managers.

   Press F11 (Right) to scroll right to display more information.

Unlink Regions

You may want to unlink a region from the other regions in a multisystem environment (for example, for maintenance purposes). If a region is no longer of use and you want to remove it, ensure that you unlink it first. An unlinked region is a stand-alone region.

To unlink a region

1. Log on to the region you want to unlink and enter **/MADMIN.U** at the prompt.

   The Confirm Unlink Panel appears.

   Note: To cancel the unlinking procedure, press F12 (Cancel) now.

2. Press Enter to proceed with the unlinking procedure.

To relink a region, link that region with one of the regions in the multisystem environment.

Transmit Records

You can transmit, that is, copy knowledge base records from the local region to a remote region that is not linked to it.

You cannot transmit a system image to a region in which the image is currently loaded or transmit and replace a rule set when the rule set is currently loaded in the remote (target) region.

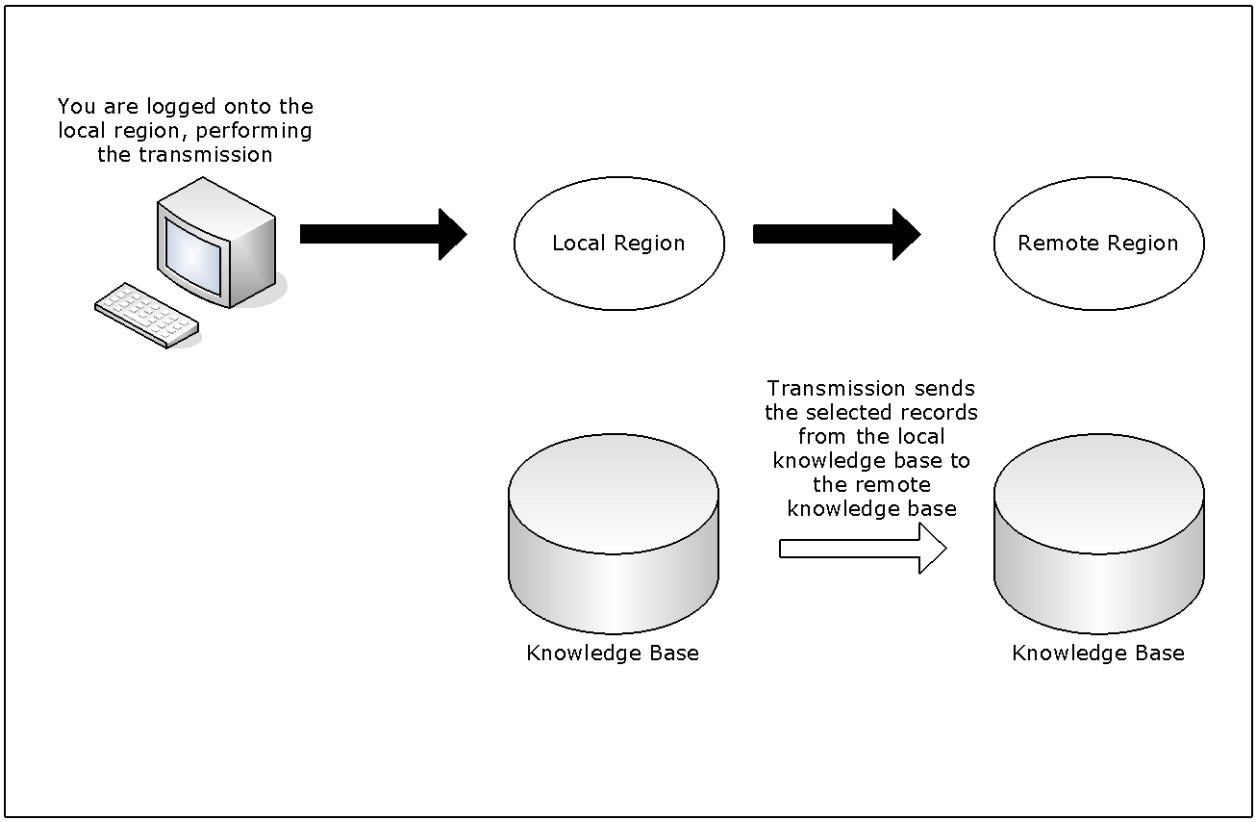
By specifying the appropriate transmission mode on the Remote System Identification panel, you can specify how to update the records in the remote region.

The following transmission modes are available:

- Replace (R) deletes any existing remote records, and then transmits the local records.
- Overlay (O) replaces existing remote records with the same name, adds records that do not already exist, but does not delete any records in the remote knowledge base.
- Merge (M) adds records that do not already exist, but does not have any affect on existing records in the remote knowledge base.

Transmission Procedure

The following illustration shows the transmit operation.



To transmit knowledge base records

1. Log on to the region from which you want to transmit the records.
2. Enter **/MADMIN** at the prompt.

   The Multi-System Support Menu appears.
3. Specify the option you want at the prompt and press Enter.

   A Remote System Identification panel appears.
4. Specify the ACB name (primary name) of the region to which you want to transmit records.

   If you specified the TI, TS, or TR option, go to Step 5. If you specified any other transmission options, go to Step 6.

5. Complete the following fields:

   System Name

   Specifies the name of the system to transmit. Applies to option TI only.

   Version

   Specifies the version of the system to transmit. Applies to options TI and TS only.

   Ruleset Name

   Specifies the name of the rule set to transmit. Applies to option TR only.

6. Do *one* of the following:

   - If you want to replace a set of records or all elements of a component, enter REPLACE in the Transmission Mode field.
   - If you want to update a region by adding new records without updating existing records, enter MERGE in the Transmission Mode field.
   - If you want to update a region by adding new records and updating existing records, enter OVERLAY in the Transmission Mode field.

7. Specify the communication access methods to use for transmitting the selected records. You can enable any combination of the access methods.

8. Press F6 (Action) to select the specified option.

   If a selection list appears, go to Step 9. If the Confirm Transmit panel appears, go to Step 11.

9. Do *one* of the following:

   - If you selected option TC with a transmission mode of REPLACE, enter **S** beside the categories that you want to transmit.
   - If you selected option TC with a transmission mode of MERGE or OVERLAY, enter **S** beside the categories that you want to transmit. To select specific definitions in a category for transmission, enter **L** (List) beside the category to list the definitions, then enter **S** beside the definitions to transmit.
   - If you selected other transmission options with a transmission mode of MERGE or OVERLAY, press F4 (All) to transmit all definitions or enter **S** beside the definitions that you want to transmit.

10. Press F6 (Transmit).

    A Confirm Transmit panel appears.

11. Press Enter to confirm transmission.

    A status panel appears, showing the progress of the transmission.

    Note: If you choose to exit the status panel, you can check the status of the task by viewing the administration task log. Before you exit, note the task number for future reference.

Chapter 27: Implementing the NetMaster-to-NetSpy Interface

This section contains the following topics:

Customize the NetMaster-to-NetSpy Interface

If you use CA NetSpy, you can define an interface to it to perform some CA NetSpy functions from your CA NetMaster region.

To customize the interface, update the NETSPYLINKS parameter group in Customizer.

To update the NETSPYLINKS parameter group

1. Enter **/PARMS** at the prompt.

   The Customizer : Parameter Groups list appears.

2. Enter **U** beside the NETSPYLINKS parameter group.

   The NETSPYLINKS - Links to NetSpy Applications panel appears.

3. In the Connections fields, specify the values of the NSYXNAME parameter in the INITPRM member of the CA NetSpy that you want to link to your region.

4. Enter a value in each field that you require.

   For more information about completing this panel, press F1 (Help).

5. Press F6 (Action).

   The changes are actioned.

6. Press F3 (File).

   The changes are saved.

   Note: The Enable NetSpy Alert Processing field in the NETSPYLINKS parameter group lets you switch off the receipt of all alerts from CA NetSpy. Normally, you should leave the field to its default value of YES; however, you may want to enter **NO** to switch the alerts off under abnormal conditions (for example, when the region is flooded by these alerts).

Manage NetMaster-to-NetSpy Connections

Your region provides a control for the NetMaster-to-NetSpy interface. From this interface you can do the following:

- Activate and inactivate connections to CA NetSpy.

  Note: These connections are defined in the NETSPYLINKS parameter group.

- Use the console command interface to modify control parameters for CA NetSpy.
- Stop the interface to CA NetSpy.

To control connections to CA NetSpy

1. Enter **/NASCON** at the prompt.

   The NetSpy Connections panel appears. This panel displays the status of defined links to CA NetSpy.

```
PROD  ---------------------- NetSpy Connections -------------------------------
 Command ===>                                                 Scroll ===> CSR

                                        A=Activate I=Inactivate P=Stop F=Modify
    Link Name    ACB Name Status     System   Ver  STC      ITVL
    $ESLA31IVS40 -        FAILED     -        -    N/A         0
    $ESLCSNM21NX -        FAILED     -        -    N/A         0
    $ESLCSNM22NX CSNM22NS RUNNING    XE61     11.0 N/A        60
    $ESLQANM1NX  -        FAILED     -        -    N/A         0
    **END**
```

   Note: For more information about the information displayed and actions available on this panel, press F1 (Help).

Manage CA NetSpy Alerts and Monitors

Your region can receive alerts from CA NetSpy. CA NetMaster alerts are generated for each alert generated by CA NetSpy that is received. The following types of alerts are generated:

Alerts from EPS Services

For general Alert Monitors defined through CA NetSpy.

Alerts from the NetMaster-to-NetSpy interface

For user Alert Monitors defined through CA NetMaster.

Manage NetSpy User Alert Monitors in CA NetMaster

To manage CA NetSpy user Alert Monitors

1. Enter **/NASMON** at the prompt.

   The NetSpy Monitors List appears. This panel lists the CA NetSpy user Alert Monitors defined for a resource.

   Note: For more information about the information displayed and actions available on this panel, press F1 (Help).

Define CA NetSpy User Alert Monitors

Authorized users can define, delete, and update CA NetSpy user Alert Monitors for a particular resource.

To define a CA NetSpy user Alert Monitor

1. Enter **/NASMON** at the prompt.

   The NetSpy Monitors List appears.

   Note: For more information about these monitors, press F1 (Help)

2. Press F4 (Add).

   The NetSpy : Monitor Definition panel appears.

3. Complete the fields on this panel and press F3 (File).

   The definition is saved.

Issue CA NetSpy Commands

Your region supports a CA NetSpy command interface. This interface allows a subset of display commands to return information to your region.

To issue a command

1. Enter **/NASCMD** at the prompt.

   The NetSpy Commands panel appears. This panel lists the CA NetSpy commands that you can issue.

2. Enter **S** next to the command.

   The NetSpy : Command Arguments panel appears.

3. Enter values in the fields for any operands that you want to use.

4. Press F6 (Action).

   The command output appears.

   Note: You can also issue a command, together with any operands, by entering it directly at the command prompt on the NetSpy Commands panel. If you enter a command without any operands, it is issued with its default operands.

Appendix A: Variables

This section contains the following topics:

SNA Resource Variables

Variables let you obtain information about an SNA resource, access knowledge base data, find out about the status of services, SNA groups and non-SNA resources, and extract information about messages.

You can use the following variables to retrieve data about an SNA resource and to pass values to the processes and NCL procedures invoked from SNA resource models.

&ZRSDESC

Contains the description of the resource.

&ZRSDOMAIN

Contains the name of the VTAM SSCP that owns the resource.

&ZRSDSTATUS

Contains the desired state of the resource.

&ZRSINREC

Contains the recovery status of the resource: NO or YES.

&ZRSMAJNODE

Contains the name of the major node that owns the resource. However, if the resource itself is a major node (as indicated by the &ZRSRSTYPE variable), this variable contains the type of the major node.

&ZRSMODEL

Contains the name of the SNA resource model associated with the resource.

&ZRSNETID

Contains the ID of the network to which the VTAM domain belongs.

&ZRSPRNAME

Contains the name of the upstream (superior) resource.

&ZRSPRTYPE

Contains the type of the upstream (superior) resource.

&ZRSREASON

Contains the reason for the resource state. The state may be set when the resource is discovered or may be set as a result of a state change caused by the receipt of a message.

&ZRSRSNAME

Contains the name of the resource.

&ZRSSTAMP

Contains the time when the resource was last updated, in the format *yyyymmddhhmmss*:

yyyy

Identifies the year (for example, 2001).

mm

Identifies the month (for example, 01).

dd

Identifies the day of the month.

hhmmss

Identifies the time of the day.

&ZRSSTATUS

Contains the actual state of the resource.

&ZRSRSTYPE

Contains the type of the resource.

&ZRSUSRTAG1 through &ZRSUSRTAG5

Contains the user-defined resource tags.

&ZRSVSTATUS

Contains the VTAM state of the resource.

Appendix B: SNA Resource Message Routing Codes

This section contains the following topics:

Message Routing Codes

The region intercepts PPO and CNM messages and resends them with specific MVS routing codes.

A resent PPO or CNM message may have the following routing codes:

17

Indicates an SNA resource message.

18

Indicates that the job name associated with the message is the SNA resource name.

19

Indicates that the message is the response to an operator command.

Note: If a message is not assigned a routing code of 18, it indicates that the SNA resource name has not been determined. The region will process the message word by word to find a match with an SNA resource name.

Appendix C: Health Checks

This section contains the following topics:

CA Health Checker

The CA Health Checker provides a simple and consistent method for CA products to create health checks to run under the IBM Health Checker for z/OS. The IBM Health Checker for z/OS helps you identify potential problems in your z/OS environment by checking system or product parameters and system status against recommended settings. CA NetMaster NA health checks are automatically activated on the target system when the product is started on a system with IBM Health Checker for z/OS installed and configured.

The CHECK_OWNER for all CA NetMaster NA health checks is CA_NM.

Use either CA SYSVIEW or SDSF Health Checker displays to list and view the checks. View messages generated by CA health checks in the MVS System Log.

NM_ACB

Description

Checks that the region's primary ACB is open. This check runs every 5 minutes.

Best Practice

VTAM is required to access the 3270 interface. If you primarily use the WebCenter interface to access you region, you can lower the priority of this health check.

Parameters accepted

None.

Debug Support

No.

Verbose Support

No.

Reference

None.

Non-exception Messages

The following messages can appear in health checker:

- This region's primary ACB, *acbname*, is open.
- The region is shutting down. Check is not relevant at this time.

Exception Messages

If an exception occurs, the following messages are issued as WTOs and written to the SYSLOG:

- CAH0001E The check timed out while waiting for a response to a command.
- NMH0106E This region's primary ACB, *acbname*, is not open.

NM_INITIALIZATION

Description

Checks region initialization. The check runs once at region startup. If an exception occurs, the check repeats every 5 minutes until initialization is successful.

Best Practice

Follow the Install Utility procedures in the *Installation Guide* to set up your region, and ensure that the parameters are specified correctly.

Parameters Accepted

None.

Debug Support

No.

Verbose Support

No.

Reference

See the online help for region parameter groups.

Non-exception Messages

The following messages can appear in health checker:

- The region has initialized successfully.
- The region is initializing. Check is not relevant at this time.
- The region is shutting down. Check is not relevant at this time

Exception Messages

If an exception occurs, the following messages are issued as WTOs and written to the SYSLOG:

- CAH0001E The check timed out while waiting for a response to a command.
- NMH0104E Initialization errors have occurred in region *regionname*.

NM_SOCKETS

Description

Checks that the sockets are available to support the web interface. The check runs every 15 minutes.

Best Practice

To help ensure IP connections, the connection's port number must be specified and not in use by another task.

Parameters Accepted

None.

Debug Support

No.

Verbose Support

No.

Reference

None.

Non-exception Messages

The following messages can appear in health checker:

- Sockets are configured and active. HTTP port is *nnnn* URL is http://*nnn.nnn.nnn.nnn:nnnn*
- The region is initializing. Check is not relevant at this time.
- The region is shutting down. Check is not relevant at this time

Exception Messages

If an exception occurs, the following messages are issued as WTOs and written to the SYSLOG:

- CAH0001E The check timed out while waiting for a response to a command.
- NMH0110E TCP/IP interface is not active, status is *cccccccc*.
- NMH0111E No port number has been specified for this region.

NM_SSI

Description

Checks that the SOLVE SSI SSID is defined and connected. The check runs every 15 minutes.

Best Practice

Ensure that the following conditions are met:

- The SOLVE SSI started task is active.
- The region's SOLVE SSI SSID the value matches the SSID= parameter for the SOLVE SSI started task.
- The SOLVE SSI SSID and the AOM SSID are different.

Parameters Accepted

None.

Debug Support

No.

Verbose Support

No.

Reference

None.

Non-exception Messages

The following messages can appear in health checker:

- SOLVE SSI SSID correctly defined and connected. SSID is *ssidname*.
- The region is initializing. Check is not relevant at this time.
- The region is shutting down. Check is not relevant at this time.

Exception Messages

If an exception occurs, the following messages are issued as WTOs and written to the SYSLOG:

- CAH0001E The check timed out while waiting for a response to a command.
- NMH0108E SSID error, no SSID specified.
- NMH0108E SSID error, *ssidname* is not connected.
- NMH0108E SSID error, SSID matches AOM SSID(*ssidname*).

NM_WEB

Description

Checks that the WebCenter interface is available. This check runs every 15 minutes.

Best Practice

Use the Install Utility to set up the region. During the process, specify the web interface port.

Parameters Accepted

None.

Debug Support

No.

Verbose Support

No.

Reference

None.

Non-exception Messages

The following messages can appear in health checker:

- The region is initializing. Check is not relevant at this time.
- The region is shutting down. Check is not relevant at this time.
- The WebCenter interface is active. HTTP port is *nnnn* URL is http://*nnn.nnn.nnn.nnn:nnnn*

Exception Messages

If an exception occurs, the following messages are issued as WTOs and written to the SYSLOG:

- CAH0001E The check timed out while waiting for a response to a command.
- NMH0113E The WebCenter interface is not [active | configured].

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