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# Unicenter

## NetMaster Network Automation Implementation Guide

Version 5.0



**Computer Associates**  
The Software That Manages eBusiness



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# Introduction

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The Unicenter NetMaster Network Automation product (also known as NetMaster Automation) allows for the maximizing of service availability for end users. As networks become increasingly diverse and complex, the challenge for an enterprise is to ensure the availability of critical services and SNA resources when required. The product helps you operate and maintain the availability of large networks by enabling desired state management of SNA resources, allowing for the initiation of automated recovery routines and exception-based reporting on SNA network health. The product is supported by Management Services and Automation Services.

## What the Product Offers

The product is a network operations automation and management application. It uses a central core of functions and services referred to as Automation Services. It can be implemented on one or more computers in an organization, depending on the operations requirements of the organization.

The product enables you to automate the operation of the SNA network resources in your organization. The product establishes a *region* that uses the information in a knowledge base to automate your organization's operations processes.

The product enables you to implement a service-driven operations perspective of the SNA resources you want to manage. You can group resources into SNA groups and services, and automate the operation of those groups and services.

From the region, you can monitor the status of services, SNA groups, and resources, and act on them when problems occur.

The product provides focal point management to support multisystem operation (that is, management at a focal point with subordinates feeding information to it). Multisystem support enables you to monitor and control the resources from a single terminal.

## Initialization and Customization Services

You use the Initialization and Customization Services (ICS) to implement your region. The ICS is a computer-assisted initialization facility that enables you to implement a region rapidly and easily. Also, the ICS enables you to customize both region and automation parameters at a later stage easily.

When you first log on to a region, you need to set various parameters to get the product up and running. The ICS helps you set up these parameters. An initial dialog is supplied for the first time user, to walk you through the customization process. No coding is required, but you are prompted to supply required parameter values and given the opportunity to supply optional parameter values.

## About this Guide

This guide provides information about how to implement the product to manage your SNA resources and events. See the *User Guide* to find out how to use the product; see the *Automation Services Common User Guide* for detailed information about the Automation Services functions that support this product.

## What You Should Know Already

The product is for enterprises that are running the VTAM application. You should be familiar with your SNA network operations environment already.

# Initializing, Implementing, and Customizing a Region

---

This chapter provides information about how to implement the region.

Before you can perform the implementation tasks, the region should have been established already. For information about how to start and establish the region, see the *Unicenter Mainframe Installation and Setup Instructions*.

For customization that is required to enable your product to work with Unicenter NetMaster Network Management for SNA (also known as NetMaster for SNA) and NetView products, see the chapter “Working with the NetMaster for SNA and NetView Products”.

**Note:** If you have set up your region using a pre-existing UAMS file in which the background users are already defined for your region, you might not be able to action your changes during customization. If this is the case, you must update the background user definitions first. Proceed as follows:

1. Enter **EXEC \$UAMS000** at the Command ===> prompt.
2. Update the background user definitions by using the \$RMBUSER group ID.
3. Exit back to the customization dialog, and continue the customization process.

## Prerequisite Information

When you perform the tasks in this chapter, you will require the following information. Gather this information before you perform the tasks.

- Initial user ID and password that was defined during region setup
- AOM subsystem ID that was defined during region setup

## Initializing a Region for the First Time

As part of the installation and setup tasks, you should have defined an initial user in the region.

To perform first time customization, log on to the region as that user as follows:

1. Enter **LOGON APPLID**(*acb-name*), using the ACB name of the region.  
The logon panel is displayed.
2. Enter the user ID and password. You are prompted to change your password.
3. Change your password.  
After your password is changed, the initial System Parameters Customization dialog is presented.
4. Select the Fast Setup Customization Parameters option to review and customize the region parameters (see [Customizing Region Parameters](#) in this chapter).
5. Before you log off, change the initial user to an administrator by using the \$RMADMIN group definition as a model:
  - a. Enter the **/ASADMIN.UP** path at the ==> prompt to display the User Profile List panel.
  - b. Press F4 (Add) to add a new user profile. The action presents you with the first panel in the user profile definition, the User Description panel.
  - c. Enter the ID of the initial user. The panel is refreshed with the existing information about the user.
  - d. Enter \$RMADMIN in the Group ID field to give the user administrative authority.
  - e. Press F3 (File) to save the record.

6. If you intend to customize the supplied knowledge base templates, copy the distributed templates to a different \$TEMPLAT version. Start with version 0010.
  - a. Enter the **/RADMIN.T.I** path to access the list of \$TEMPLAT system images.
  - b. Enter **C** beside the image you want to copy. The System Image Definition panel is displayed.
  - c. Change the value in the Database Version field to uniquely identify the new copy, and update the description fields as required.
  - d. Press F3 (File) to start the copying process. The System Image Copy panel is displayed on your screen to advise you of the status of the copying process. When the copying process is complete, the System Image List panel is redisplayed.
  - e. To make this new copy of template system image available for use, specify it in the OPSYSIDS parameter group. To access the list of parameter groups, enter the **/ICS** shortcut.
7. If you want to receive alerts from your Unicenter NetSpy Network Performance agents (also known as NetSpy SNA agents), see [Integrating with NetSpy SNA Agents](#) in this chapter.
8. If you want to enable printing from the region, define forms and printers by using the Print Services Manager (PSM).  
  
To access the manager, enter **=/PSM** from any panel. See the online help and the *Management Services Administrator Guide* for information about how to define your forms and printers.
9. If you use the SOLVE:Problem product, you can implement the automatic problem ticket interface to it (see the *Automation Services Administrator Guide*).
10. If you want to be able to raise problem tickets from alerts, implement the problem ticket interface for the alert monitor.  
  
To access the alert monitor administration menu, enter the **/ALADMIN** shortcut. See the online help and the *Automation Services Administrator Guide* for information about how to implement the interface.
11. To integrate the region with the NetMaster for SNA and NetView products, see the chapter "Working the NetMaster for SNA and NetView Products."

## Customizing Region Parameters

Various installation-specific parameters must be set using Initialization and Customization Services (ICS).

**Note:** Customization can only be performed by a user with UAMS maintenance authority. That user's UAMS definition should have an APPC Access Key value of ALL, if a value is not already specified.

From the initialization dialog panel, you can select one of the following options:

- **Fast Setup**—enables you to review and customize only required parameter groups.

To implement your region as quickly as possible, select this option. This provides default values wherever possible, but enables you to review all the required parameter groups to ensure that they match your installation standards. You can customize other parameters later by selecting the Maintain Customization Parameters option from the Initialization and Customization Services menu.

- **Custom Setup**—enables you to review and customize the required parameter groups and additional file and data set names, to bring the system operation closer to your installation standards.

To implement your region quickly, while still performing some initial customization, select the Custom Setup option. This option provides some default values, enables you to specify names for certain files and data sets, and enables you to review the required parameter groups (these are flagged).

- **Complete Setup**—enables you to review and customize all initialization and customization parameters.

If you have already customized the region, and the initialization dialog is displayed again when you log on, it means one of the following:

- Customization might not have been completed.
- The original Virtual File Services (VFS) file (used to store the customized records) has been cleared.
- The VFS file name specified in your RUNSYSIN or UTIL0028 SYSIN member points to an empty file, or one that does not contain the customized records.

**Note:** On VM systems, the name is specified in the SOLVE GCS file.

You must restart the system with the correct VFS file specified, or repeat the initialization process.

## Performing Initial Customization

All parameters have default values. The procedure for customizing parameter values is as follows:

1. Select the Fast Setup Customization Parameters option.
2. Review the required parameter groups (see [Reviewing Required Parameter Groups](#) in this chapter).  
If you need assistance, press F1 to get online help.
3. To review a parameter group, enter **U** beside it.
4. Enter suitable parameter values, if required, and do the following:
  - Press F6 (Action) to set the changed values immediately.
  - Press F3 (File) to save your changes and indicate that you have reviewed the group.

**Note:** The value you assign to a parameter is associated with the performance of one or more actions, such as setting SYSPARMS or allocating data sets. Some parameter groups can be set as soon as you enter appropriate values on the parameter panel. However, when you change the value of parameters such as the system ID or MODS file names, you can set these values only by restarting the region.

5. When you finish reviewing the parameters, exit the list to return to the System Parameters Customization panel.
6. Review other parameter groups. You can review them either now or later:

---

If you want to review these parameter groups ...	Proceed as follows:
Now	Select the Complete Setup Customization Parameters option to list all parameter groups, and review the relevant groups. When you complete the review, exit the list and the System Parameters Customization panel.
At a later time	Exit the System Parameters Customization panel. (When you are ready to review these parameter groups, enter the <b>/ICS</b> shortcut to list the groups.)

---

### Exiting Before Completing Customization

If you attempt to exit before reviewing all required parameter groups, you are presented with a confirmation screen. You can choose to log off and continue with the customization later. Alternatively, another user can log on later and complete the customization process. Users cannot access the region until all the required parameter groups have been reviewed.

### Reviewing Required Parameter Groups

The parameter groups that require review consist of the following:

- OPSYSIDS
- SYSTEMID
- AUTOSNACNTL
- PPO
- SOCKETS

Review the required parameter groups as follows:

- OPSYSIDS—ensure that the AOM subsystem ID is the same as that assigned in the SYS1.PARMLIB(IEFSSNxx) data set member during setup. AOM is a subsystem interface that enables system message flow to the region.

If ...	Ensure that the ...
You use command characters for other tasks	Command characters in this parameter group are not in conflict with them.
The system uses the JES3 job entry subsystem	Information about the job entry subsystem is updated.

**Note:** On VM systems, OPSYSIDS contains different parameters. Review the VM programmable operator IDs. If you do not want to implement the programmable operator interface, specify NO. If you implement the interface, you should provide the correct authorization for the interface users by using the User Access Maintenance Subsystem (UAMS). For more information about the interface, see the *NetworkIT and SOLVE Installation and Setup Instructions (VM/GCS)*.

- SYSTEMID—you might want to change the title of the logon panel.
- AUTOSNACNTL—see [Customizing SNA Resource Discovery](#) in this chapter. You must action it to start the discovery of SNA resources controlled by the local VTAM domain, even if you make no changes.
- PPO—see Receiving Unsolicited PPO Messages in Unicenter NetMaster Network Automation in the chapter “Working with the NetMaster for SNA and NetView Products.”
- SOCKETS—if you want to enable TCP/IP support, identify the TCP/IP software being used in your environment.

If the operating system is ...	See ...
OS/390 or z/OS	<a href="#">Implementing the TCP/IP Interface on an OS/390 System</a> in this chapter.
VM	<a href="#">Implementing the TCP/IP Interface on a VM System</a> in this chapter.

## Implementing the TCP/IP Interface on an OS/390 System

Implement the TCP/IP interface as follows:

1. Enter the **/ICS** shortcut to display the list of parameter groups. (This step might not be required when performing initial customization.)
2. Enter **U** beside the SOCKETS parameter group.

The panel that specifies the type of TCP/IP software being used in your environment is displayed. It also allows you to change the IP port number that this region uses to listen for connection requests. The region needs a port number if you want to link the region with other regions by using TCP/IP.

```

- SOCKETS - TCP/IP Sockets Interface -----
| TCP/IP Software Type ..... IBM_____ (IBM or TCPaccess)
| Inbound Connections Port ..... 2636_ (NONE, 257 to 65535)
| Web Interface Port ..... NONE_
| Web Access URL .....
| Web User Timeout ..... 01.00 (hh.mm)
    
```

3. Tab to the TCP/IP Software Type input field, and enter the required value. A region can choose only one type of TCP/IP software to work with.
4. The Inbound Connections Port field contains a default port number. If another region on this system is already using that number, tab to the field and change it. **The port number must be unique on a system.**

**Note:** The default port number is 2636. This number is registered with the Internet Assigned Numbers Authority (IANA). For further information, see <ftp://ftp.isi.edu/in-notes/iana/assignments/port-numbers>.

5. Press F8 (Forward) to review additional details. Specify the details of the TCP/IP software as follows:

<b>If you are using ...</b>	<b>Tab to the ...</b>
Communications Server	TCPIP.DATA DSN field and enter your TCPIP.DATA data set name.
TCPaccess	TCPaccess SSID field and enter the required SSID. If you are unsure of the TCPaccess subsystem ID, access the TCPaccess startup procedure and check the value of the SSN parameter.

6. When you have completed all the fields, press F6 (Action) to set the specified values and start the interface.
7. When the parameter group has completed its actions, press F3 (File) to save the specified values.

IBM TCP/IP Client  
Program  
Configuration Data  
Set and Name  
Resolution

The TCPIP.DATA data set is what IBM TCP/IP calls the client configuration data set. It contains information about how the sockets interface works with the region (for example, how name lookup works).

Name lookup allows translation between IP addresses and host names. Name lookup reads the TCPIP.DATA data set and looks for NSINTERADDR statements that contain the IP addresses of name servers.

TCP/IP tries to resolve the host name through a name server, if one is present. If the name cannot be resolved, the system uses the *prefix*.HOSTS.LOCAL data set. The data set prefix value, *prefix*, is determined from the DATASETPREFIX statement in the TCPIP.DATA data set that you specify. For more information about the data set, see IBM's *eNetwork Communications Server IP Configuration* or *SecureWay Communications Server IP Configuration* manual.

To ensure that name resolution is enabled, check that the TCPIP.DATA and *prefix*.HOSTS.LOCAL data sets are configured to suit your requirements. The region must have read access to these data sets.

TCPaccess Domain  
Name Resolver  
Members

Ensure that your TCPaccess Domain Name Resolver (DNR) members can translate the TCPaccess subsystem name into an IP address and a fully qualified host name. To do this:

1. Enable translation from subsystem name to fully qualified domain name.

For example, if your TCPaccess subsystem name is ACSS and its fully qualified domain name is MVS.SITE1.COM., enter a line like the following into your DNRALCxx member:

```
ACSS MVS.SITE1.COM.
```

**Note:** Specify the domain name (rather than an IP address), and end it with a period (.).

2. Enable local translation of the fully qualified host name to an IP address.

For example, if the IP address of MVS.SITE1.COM. is 172.16.140.117, enter a line like the following into your DNRHSTxx member:

```
MVS.SITE1.COM. 172.16.140.117
```

**Note:** This DNR configuration is recommended in the *TCPaccess Customization Guide*, which contains further details about the DNR members of the TCPaccess PARM data set. You need to ensure that the HOSTTABLE statement in the DNRCFGxx member points to the correct DNRHSTxx member. You do not need to restart TCPaccess to introduce changes to the DNR tables. You can restart DNR, for example:

```
F TCPICS,STOP DNR
F TCPICS,START DNR
```

## Implementing the TCP/IP Interface on a VM System

Implement the TCP/IP interface as follows:

1. Enter the **/ICS** shortcut to display the list of parameter groups. (This step might not be required when performing initial customization.)
2. Enter **U** beside the SOCKETS parameter group.

The panel that specifies the type of TCP/IP software being used in your environment is displayed. It also allows you to change the IP port number that this region uses to listen for connection requests. The region needs a port number if you want to link the region with other regions by using TCP/IP.

```

- SOCKETS - TCP/IP Sockets Interface -----
| TCP/IP Software Type .....+ VM_____
| Inbound Connections Port ..... 2636_ (NONE or 257 to 65535)
| Web Interface Port ..... _____ (NONE or 257 to 65535)
| Web User Timeout ..... _____ (hh.mm)
| Retry Interval ..... _____ (Blank or time as hh.mm.ss)
    
```

3. Tab to the TCP/IP Software Type input field, and enter the required value. A region can choose only one type of TCP/IP software to work with. One of the following values can be specified:

Value	Software
VM	IBM's TCP/IP for VM
NONE	None (initial default)

4. The Inbound Connections Port field contains a default port number. If another region on this system is already using that number, tab to the field and change it. **The port number must be unique on a system.**

**Note:** The default port number is 2636. This number is registered with the Internet Assigned Numbers Authority (IANA). For further information, see <ftp://ftp.isi.edu/in-notes/iana/assignments/port-numbers>.
5. When you have completed all the fields, press F6 (Action) to set the specified values and start the interface.
6. When the parameter group has completed its actions, press F3 (File) to save the specified values.

### Customizing Activity Log Settings

The activity logs record system events. By customizing the LOGFILES parameter group, you can:

- Disable the logging of system events.
- Allocate additional activity log files.

If you want to customize the LOGFILES parameter group, proceed as follows:

1. Enter the /ICS shortcut to display the list of parameter groups.
2. Enter U beside the LOGFILES parameter group.
3. Complete the required fields.
4. When you have specified the required values, press F6 (Action) to activate the new settings.
5. When the parameter group has completed its actions, press F3 (File) to save the changed information.

Disabling System  
Message or  
Command Logging

By default, system messages and commands received by the region are delivered to the activity log:

<b>If you want to disable system ...</b>	<b>Set the value in the ...</b>
Message logging	Log Operating System Messages? field to <b>NO</b> .
Command logging (not applicable on VM systems)	Log Commands? field to <b>NO</b> .

Allocating 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 $n$  and  $dsnpref.rname.NMLOGn$ . ( $dsnpref$  is the data set prefix used during the installation of the product and  $rname$  is the name of the region.

If you want to make more than three files available to the region, proceed as follows:

1. Define additional logging data sets.
2. After the first Initialization Parameters panel is displayed, press F8 (Forward) to display the next panel.
3. Complete the fields for each file you want to make available. An example follows.

```

SOLVEPROD----- ICS : Initialization Parameters -----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 ...+                |
|-----|
  
```

4. To allocate more files, press F8 (Forward) again.

**Note:** File specification is different on VM systems. The file specification includes the file mode and the catalog DD name.

## Customizing SNA Resource Discovery

When you start the region, it automatically discovers the SNA resources controlled by the local VTAM domain. You can influence 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 is restarted.
- Specify the resources to discover.
- Specify the information to be included 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 ICS parameter group, you can start the discovery process in one of two 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 will be placed into an UNKNOWN state.
- Cold start – discovers the network afresh. It clears all discovered resources and discovers them according to the filter criteria. See [Selecting Which SNA Resources Are Discovered](#) in this chapter for details about the filter. The default value is NO.

To access the list of parameter groups, enter the `/ICS` shortcut.

## Controlling Dynamic and Transient SNA Resources

During normal VTAM execution, dynamic network resources can be added and deleted. Events are received by the region 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 ICS parameter group.

```

SOLVPROD----- ICS : Initialization Parameters -----Page 2 of 3
Command ==>                                         Function=Browse

.- AUTOSNACNTL - SNA Automation Specifications -----
|
| Bypass Term. if Undesired Active ..... NO   (Yes or No)
|
| Delete Unknown Resources:
|   During Warm Start Discovery? ..... NO   (Yes, No or Next)
|   During Normal Execution? ..... NO   (Yes or No)
|
| Display Response Wait Limit ..... 30   (Seconds)
| Delayed Event Processing Wait ..... 10   (Seconds)
| Schedule Discovery on PPO Start ..... YES (Yes or No)
|-----
|
| - Notes -----
| Unknown resources are those for which a negative response is returned from
| a VTAM display. Changes in the network or inactive major nodes are the
| most common causes for resources to be unknown to VTAM.
|-----
F1=Help      F2=Split    F3=Exit     F4=Update   F5=ILog
F7=Backward  F8=Forward   F9=Swap     F10=Page 1  F11=Page 3
    
```

### Deleting 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 will be many network changes to be discovered, it might be more efficient to specify a cold start for the next discovery rather than specifying NEXT.

### Deleting 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

### Specifying 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 – how long the system waits for VTAM to respond to a display command. If exceeded, the command is timed out.
- Delay Event Processing Wait – how long the system waits before it processes IST590I events. This allows time for VTAM to update information before it is accessed by the region.

## Controlling 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 might want to rediscover the resources. You can control the rediscovery process by using the Schedule Discovery on PPO Start field.

## Selecting Which SNA Resources Are Discovered

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.

## Defining a Filter

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

```

SOLVPROD----- ics : Initialization Parameters -----Page 3 of 3
Command ==>                                     Function=Browse Scroll ==> PAGE

Network Discovery Filter: These statements control the scope of
the network discovery process and limit the number of resources
being monitored. The general syntax of the filter statements is:

{ INCLUDE | EXCLUDE } { < TYPE= { type | 'type1 type2 ...' } >
                        < STATE= { state | 'state1 state2 ...' } >
                        < NAME= { mask | 'mask1 mask2 ...' } > }

LINE  ----+----10---+----20---+----30---+----40---+----50---+----60---+----70---
**** ***** TOP OF DATA *****
0001 EXCLUDE TYPE='LU SWLU CDRSC'
0002 EXCLUDE STATE='RESET RELSD'
**** ***** BOTTOM OF DATA *****

F1=Help      F2=Split      F3=Exit      F4=Update      F5=ILog
F7=Backward  F8=Forward    F9=Swap     F10=Page 2
    
```

By default, the sample filter is displayed. To specify your own SNA network resource discovery filter, press F4 (Update) and tab down to the text editor.

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 and 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 be excluded or included.

**STATE**={ *state* | '*state1 state2 ...*' }—specifies the VTAM states of the resources to be excluded or included.

**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 be excluded or included. 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 will be discovered as it satisfies one of the values. In other words, all resources of the name A, B, or C will be discovered.

## Examples

The following example specifies the exclusion of all LU or PU type SNA resources that are in the NEVAC state:

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

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
```

## Customizing 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, \$RSUSRAX. 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 which requires you to have some understanding of NCL. The code is commented, but you should see the *Network Control Language User's Guide* and the *Network Control Language Reference* for further information.

To create a customized exit, copy it from *dsnpref.AUvvv.AUTEXEC* to *dsnpref.rname.TESTEXEC*, then modify the copy. *dsnpref* is the data set prefix specified during product installation, *vvv* is the version identifier, and *rname* is the name of the region.

**Note:** On VM systems, copy the exit from the SLVMAINT 293 G-disk to the 292 F-disk.

The following variables are available to the network discovery exit. These variables enable you to identify the SNA resources.

<b>Parameter</b>	<b>Description</b>
ZRSNETID	Network identifier for resource
ZRSDOMAIN	Network domain for resource
ZRSRSNAME	SNA resource name
ZRSRSTYPE	SNA resource type – valid types are: APPL, CDRM, CDRSC, LINE, LINK, LINKSTA, LU, PU, SWLU, SWPU, SWLINKSTA, NCP, SSCP, MAJNODE, LCL3270, and LCLSNA
ZRSRSNAMEC1..8	First to eighth character of resource name
ZRSPRNAME	Parent resource name
ZRSPRNAMEC1..8	First to eighth character of parent resource name
ZRSDESC	Resource description
ZRSMAJNODE	Name of the major node that owns the resource
ZRSSTATUS	Current actual state
ZRSDSTATUS	Current desired state
ZRSVSTATUS	Last known VTAM status

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

<b>Parameter</b>	<b>Description</b>
SYMSG	Error message.
ZRSDESC	Resource description up to 38 characters long.
ZRSMODEL	Model template name up to 12 characters long.
ZRSUSRTAG1..5	User-defined resource tags – you can use these tags to make the identification of a resource easier. A tag can be up to 52 characters long.

The following return codes must be returned to the caller:

<b>Return Code</b>	<b>Meaning</b>
0	Request successful
1	Resource is to be excluded/deleted
8	Error occurred (exit will be disabled from further calls during the current network discovery)

This exit will only be invoked 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.

## Tuning the Discovery Process

The Network Discovery Command Thresholds parameters of the AUTOSNACNTL parameter group enable you to 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 within a certain time.

## Discovering SNA Resources

The region automatically discovers the SNA resources on the system at region startup. However, you can rediscover the resources at any other time as follows:

1. Enter the **/ICS** shortcut to list the parameter groups.
2. Display the AUTOSNACNTL parameter group, and, if required, update the discovery criteria.
3. Press F6 (Action) to rediscover the resources.

## Integrating with NetSpy SNA Agents

Integration with NetSpy SNA agents enables the following features in the region:

- The region receives alerts from the agents. These alerts are used to update the status of discovered SNA resources.
- You can solicit statistics data about a resource from the agents; you can define resource specific NetSpy user alert monitors.

To integrate the region with your agents, do the following:

1. Ensure that the SOLVE Subsystem Interface specified in the SSI parameter group is set up with the following parameter:

**XEVNT=YES**

The parameter enables the region to receive NetSpy general alerts.

2. Identify specific NetSpy links in the NETSPYLINKS parameter group. The links enable you to define NetSpy user alert monitors for specific SNA resources.

## SNA Group and Multisystem Support

If you want to manage and monitor the SNA resources in logical groups, set up a system image and define the groups. (See the *User Guide*).

If you are implementing multiple regions, you can link them to form a multisystem environment. (See the *Automation Services Administrator Guide*).

# Working with the NetMaster for SNA and NetView Products

---

This product is designed to add value to your NetMaster for SNA and NetView products. This chapter discusses the customization steps that must be performed before using NetMaster for SNA and NetView in conjunction with this product.

## Customizing NetMaster for SNA

This product is designed to add value to your existing NetMaster for SNA product. The two products can be located on the same system and run in the same or separate regions. It is, however, recommended that both NetMaster for SNA and this product run in the same region.

**Important!** *If the products run in separate regions, you need to implement the links between the regions (see [Receiving Unsolicited PPO Messages](#) in this chapter).*

**Note:** For CNM data flow, there must be a copy of NEWS running in the same region as this product. Without CNM alerts, SNA resources can still be properly managed, but a subset of the error and performance conditions will not be detected. Your primary NetMaster for SNA can, however, still exist in a separate region.

## Running NetMaster for SNA in the Same Region

If you are running NetMaster for SNA in the same region, you should review the NetMaster for SNA initialization details in the SNAINIT parameter group. An example follows:

```
SOLVPROD----- ICS : Initialization Parameters -----Page 1 of 1
Command ==>>>                                     Function=Browse

- SNAINIT - NetMaster for SNA Init Process -----
|
| NetMaster for SNA Initialization Details:
|
|   Initialization process .... $NSINIT
|
|-----
```

The initialization process is intended to execute all initialization requirements for products associated with NetMaster for SNA. By default, the standard procedure \$NSINIT is specified. If a copy of this procedure is made for customization, then that procedure name should be specified.

You should also specify the CNM ACB Name in the CNM ICS parameter group. See [Sending and Receiving CNM Data](#) in this chapter for details of this field.

## Customizing NetView

This product is designed to add value to your existing NetView product. The two products can exist on the same system.

If you are running NetView on the same system and you want to continue to receive PPO messages and unsolicited CNM alerts in NetView, you must complete the steps that are described in detail in the following sections:

**Note:** For CNM data flow, there must be a copy of NetMaster for SNA licensed in the same region as this product. Without CNM alerts, SNA resources can still be properly managed, but a subset of the error and performance conditions will not be detected.

See the *Tivoli NetView for OS/390 Customization: Using Assembler* manual for an explanation of the parameters and for further information.

### Step 1—Copy the Load Modules Into the NetView Load Library

Copy the supplied NM012002, NM012003, and NM012006 load modules into the NetView load library.

## Step 2—Customize the NetView User Exits

The following modules are NetView user exits that need to be customized:

XITCI	DSIEX06	DSIEX11	DSIEX14	DSIEX16
-------	---------	---------	---------	---------

User exit samples are provided to demonstrate the necessary changes. After the changes have been made, assemble and link the user exits into the NetView load library. The source for the \$NMNVC macro is provided to allow the assembly of the modules.

**Note:** The source code for the above exits can be found in the supplied BASE.INSTALL library. The exit names are prefixed with NM. The \$NMNVC macro can be found in the supplied MACROS library. On VM systems, the source code is on the SLVMAINT 193 C-disk.

## Step 3—Modify the DSICRTTD Member of the NetView DSIPARM Library

Add the following statement to the DSICRTTD member of the NetView DSIPARM library:

```
DSTINIT FUNC=CNMI,XITCI=xitcimod
```

*xitcimod* is the name of the XITCI user exit module that was produced in [Step 2—Customize the NetView User Exits](#).

The DSICRTTD member is the initialization module for the Communications Network Management (CNM) router. The statement allows a copy of CNM data to be sent to the NVCV subtask and then to NetMaster Automation.

## Step 4—Modify the BNJMBDST Member of the NetView DSIPARM Library

Add the following statement to the BNJMBDST member of the NetView DSIPARM library:

```
DSTINIT FUNC=BOTH,XITCI=xitcimod
```

*xitcimod* is the name of the XITCI user exit module that was produced in [Step 2—Customize the NetView User Exits](#).

This member is the CNM hardware monitor initialization module. The statement allows a copy of the NMVT, generated by a GENALERT or received from a remote NetView region, to be delivered to the NVCV subtask and then to NetMaster Automation.

## Step 5—Define the NVCV Subtask to NetView

The NVCV subtask must be defined in the DSIDMN member of the NetView DSIPARM library. The MEM parameter should specify the initialization member for the NVCV subtask. This can be done with the following statement:

```
TASK MOD=NM012003, MEM=NVCVINIT, TSKID=NVCV, PRI=4, INIT=Y
```

See the *Tivoli NetView for OS/390 Customization: Using Assembler* manual for an explanation of the above parameters.

## Step 6—Create an Initialization Member for the NVCV Subtask

The initialization member is created in the NetView DSIPARM library. This member must have the same name as that specified in the definition statement for the NVCV subtask. See the MEM parameter described in [Step 5—Define the NVCV Subtask to NetView](#).

The following mandatory parameter must be coded in the initialization member:

**NVCMID=NMDID**—Specifies the domain ID of the NetMaster Automation region with which the NVCV subtask can communicate through the PPI. See the *Tivoli NetView for OS/390 Customization: Using Assembler* manual for further information.

The following parameters can be specified in the initialization member in any order and are optional:

**DSIEX11=modname**—if this parameter is coded, then the NVCV subtask calls the specified module before PPO messages are sent to NetView by the NVCV subtask. The parameter list that is provided to the called module conforms to NetView conventions for calling user exits. This parameter is optional and can be the same as the module specified in [Step 2—Customize the NetView User Exits](#).

**ESTAE={YES | NO}**—specifies whether the NVCV subtask is to set up its ownabend exit, ESTAE. This parameter is optional.

If YES is specified and if the NVCV subtask ends abnormally, the exit is invoked. The exit tries to write a formatted dump to the NVCVDUMP dataset, and to log off the operator autotasks that were created when operators logged on to NetView from NetMaster Automation.

**MSGS=msgsn0**—specifies the number of messages that the NVCV subtask can receive within any control time interval (see the SECS parameter) from NetMaster Automation. The range is 1 through 32767, with a default of 500.

**OQLIM=***oqlimno* – specifies the limit to the number of messages that can be on the private queue of the NVCV task in NetView at any one time.

NetView keeps track of the message count on the NVCV public queue. If the limit specified in the NetView constants module is reached, NetView issues a DSI374A message. To prevent a DSI374A message from being issued, the OQLIM parameter set for the NVCV task must have a value well below the limit set in the NetView constants module.

**Note:** For a detailed explanation of the DSI374A THRESHOLD REACHED message, see the *Tivoli NetView for OS/390 Messages* manual.

If the buffer count exceeds the number specified by this parameter, the NVCV subtask deactivates itself by turning the TVBSTOP bit on and the TVBACTV bit off in the task vector block.

When the message count drops to 75% of the limit, the NVCV task reactivates itself by turning the TVBSTOP bit off and the TVBACTV bit on. The default *oqlimno* is 1000.

If the TVBSTOP bit is on, NetView tasks cannot queue messages to the NVCV task.

**Note:** For a detailed explanation of the task vector block, see the *Tivoli NetView for OS/390 Customization: Using Assembler* manual.

**SECS=***secsno* – specifies the control time interval. (See also the MSGS parameter above.) The range is 1 through 359, with a default of 5. This parameter is optional.

**XITCI=***modname* – if this parameter is coded, the NVCV subtask calls the specified module before CNM data is sent to NetView by the NVCV subtask. The parameter list that is provided to the called module conforms to NetView conventions for calling user exits. This parameter is optional and can be the same as the module specified in [Step 2 – Customize the NetView User Exits](#).

## Step 7—Place the DSIEX11 and XITCI Modules Into the NetView Load Library

If the DSIEX11 or XITCI parameters were specified in [Step 6 – Create an Initialization Member for the NVCV Subtask](#), then the corresponding modules must be placed in the NetView load library.

## Step 8—Add the NVCVDUMP DD Name to the NetView JCL Procedure

The NVCVDUMP DD name is required for formatted dump outputs from the NVCV subtask in the event of an abend.

## Step 9—Start the NetView Job and the NetView SSI Job

See the IBM NetView documentation for information on starting NetView and the NetView SSI job.

## Establishing a Link Between NetView and NetMaster Automation

A link between NetView and NetMaster Automation is needed if you want either of the following to be available to NetMaster Automation:

- The CNM data you send and receive in NetView
- The unsolicited PPO messages you receive in NetView

NetMaster Automation issues a link to NetView when particular ICS parameters are set for CNM or PPO data flow (see the following sections on customizing the ICS parameters). NetView is able to connect to NetMaster Automation when the NVCV subtask is started. When the NVCV task is started, it tries to establish connections to the NetMaster Automation region identified in the initialization member as specified in [Step 6—Create an Initialization Member for the NVCV Subtask](#) in this chapter.

## Sending and Receiving CNM Data

To send and receive CNM data in NetMaster Automation, you need to set fields on the first page of the CNM and the ISRIN ICS parameter groups. An example follows:

```

SOLVPROD----- ICS : Initialization Parameters -----Page 1 of 2
Command ==>                                         Function=Browse

.- CNM - CNM Interface Details -----
|
|  CNM ACB Name ..... NMCNM (default NMCNM)          |
|  Current status/Name ... ACTIVE NMCNM              |
|  CNM Procedure Name ..... $NWCNMPR (default $NWCNMPR) |
|  Current status/NCL ID   Active 000470              |
|  Initially Active? ..... YES (Yes, No, default YES) |
|  Currently Active? ..... YES (Yes to Activate, No to Suspend) |
|

```

```

SOLVPROD----- ICS : Initialization Parameters -----Page 1 of 1
Command ==>                                         Function=Browse

.- ISRIN - ISR (Inbound) -----
|
| PPO Messages:
|  ISR Link Name .....
|  Is the ISR Link to NetView?          (No if NetMaster, Yes if NetView)
|
| CNM Data:
|  ISR Link Name .....
|  Is the ISR Link to NetView?          (No if NetMaster, Yes if NetView)
|

```

In the CNM parameter group, specify the required CNM ACB name. The CNM ACB Name is the name of the ACB used to send and receive CNM requests and responses, and optionally, used to receive unsolicited CNM data.

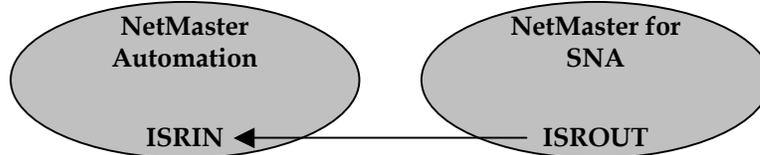
**Note:** If the ACB specified is unable to receive unsolicited CNM data, then the name of the NetMaster for SNA or NetView region where it resides, must be specified in the ISR Link Name field on the ISRIN Initialization Parameters panel.

In the ISRIN parameter group, complete the CNM data fields. The ISR Link Name is the name of the NetMaster for SNA or NetView region in which the CNM ACB that is able to receive unsolicited CNM data is located. This automatically initiates a link from NetMaster Automation to that other region.

If the region specified in the ISRIN CNM data ISR Link Name field is NetMaster for SNA, you still need to specify an outbound ISR link from that region to NetMaster Automation. In the NetMaster for SNA region, specify the link in the ISROUT parameter group. The group issues the following commands to start a link:

```
LINK START=link-name
ISR ENABLE=NEWS LINK=link-name SOL=YES UNSOL=OUT
```

*link-name* is the CNM data ISR link name in the ISROUT parameter group.



If the region specified in the ISRIN CNM data ISR Link Name field is NetView, enter **YES** in the Is the ISR Link to NetView? field. If not, specify **NO**.

For more information about the parameter groups, press F1 (Help) to display the help.

## Receiving Unsolicited PPO Messages

To enable NetMaster Automation to receive PPO messages, you must set the ICS parameter groups PPO and ISRIN:

```

SOLVPROD----- ICS : Initialization Parameters -----Page 1 of 1
Command ==>                                         Function=Browse

.- PPO - PPO Message Interface Details -----
|
| PPO ACB Name ..... _____ (default NMPP0)
| 1 PPO Procedure Name ..... _____ (default $RSPP0PR)
|
-----

.- Notes -----
| Specifies the name of the ACB used to receive unsolicited PPO data, and
| the PPO procedure name.
| 1 For NetMaster Automation, the PPO procedure name must be $RSPP0PR and
| cannot be changed.
|
-----
    
```

```

SOLVPROD----- ICS : Initialization Parameters -----Page 1 of 1
Command ==>                                         Function=Browse

.- ISRIN - ISR (Inbound) -----
|
| PPO Messages:
|   ISR Link Name .....
|   Is the ISR Link to NetView?          (No if NetMaster, Yes if NetView)
|
-----
    
```

In the PPO parameter group, specify the required PPO ACB name. The PPO ACB Name is the name of the ACB used to receive unsolicited PPO messages. If the ACB used to receive the PPO messages is not resident in this region, you must specify the name of the region where it resides, in the PPO Messages ISR Link Name field on the ISRIN Initialization Parameters panel.

The ISR Link Name is the name of the region in which the PPO ACB is located. This automatically initiates a link from NetMaster Automation to the other region.

If the region specified in the ISRIN ISR Link Name field is NetMaster for SNA, you need to specify an outbound ISR link from that region to the NetMaster Automation region. In the NetMaster for SNA region, specify the link in the ISROUT parameter group. The group issues the following commands to start a link:

```

LINK START=link-name
ISR ENABLE=PPO LINK=link-name SOL=YES UNSOL=OUT
DEFMSG DELIVER=(PPO,REMOTE) ALL
    
```

*link-name* is the PPO messages ISR link name in the ISROUT parameter group.

If the region specified in the ISRIN ISR Link Name field is NetView, specify **YES** in the Is the ISR Link to NetView? field. If not, specify **NO**.

***Important!** If NetMaster Automation is to obtain PPO messages from another region, ensure that any &PPODEL verbs in the PPOPROC NCL procedure in that region use the LOCAL operand to allow remote delivery of the affected messages.*



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