

CA NetMaster® Network Management for SNA

User Guide

r11.7



Second Edition

This documentation and any related computer software help programs (hereinafter referred to as the "Documentation") are for your informational purposes only and are subject to change or withdrawal by CA at any time.

This Documentation may not be copied, transferred, reproduced, disclosed, modified or duplicated, in whole or in part, without the prior written consent of CA. This Documentation is confidential and proprietary information of CA and may not be used or disclosed by you except as may be permitted in a separate confidentiality agreement between you and CA.

Notwithstanding the foregoing, if you are a licensed user of the software product(s) addressed in the Documentation, you may print a reasonable number of copies of the Documentation for internal use by you and your employees in connection with that software, provided that all CA copyright notices and legends are affixed to each reproduced copy.

The right to print copies of the Documentation is limited to the period during which the applicable license for such software remains in full force and effect. Should the license terminate for any reason, it is your responsibility to certify in writing to CA that all copies and partial copies of the Documentation have been returned to CA or destroyed.

TO THE EXTENT PERMITTED BY APPLICABLE LAW, CA PROVIDES THIS DOCUMENTATION "AS IS" WITHOUT WARRANTY OF ANY KIND, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. IN NO EVENT WILL CA BE LIABLE TO THE END USER OR ANY THIRD PARTY FOR ANY LOSS OR DAMAGE, DIRECT OR INDIRECT, FROM THE USE OF THIS DOCUMENTATION, INCLUDING WITHOUT LIMITATION, LOST PROFITS, LOST INVESTMENT, BUSINESS INTERRUPTION, GOODWILL, OR LOST DATA, EVEN IF CA IS EXPRESSLY ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH LOSS OR DAMAGE.

The use of any software product referenced in the Documentation is governed by the applicable license agreement and is not modified in any way by the terms of this notice.

The manufacturer of this Documentation is CA.

Provided with "Restricted Rights." Use, duplication or disclosure by the United States Government is subject to the restrictions set forth in FAR Sections 12.212, 52.227-14, and 52.227-19(c)(1) - (2) and DFARS Section 252.227-7014(b)(3), as applicable, or their successors.

Copyright © 2010 CA. All rights reserved. All trademarks, trade names, service marks, and logos referenced herein belong to their respective companies.

CA Product References

This document references the following CA products:

- CA ACF2™ for z/OS (CA ACF2)
- CA NetMaster® Network Management for SNA (CA NetMaster NM for SNA)
- CA NetSpy™ Network Performance (CA NetSpy)
- CA Network and Systems Management (CA NSM)
- CA SOLVE:Access™ Session Management (CA SOLVE:Access)
- CA Top Secret® for z/OS (CA Top Secret)

Contact CA

Contact Technical Support

For your convenience, CA provides one site where you can access the information you need for your Home Office, Small Business, and Enterprise CA products. At <http://ca.com/support>, you can access the following:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

Provide Feedback

If you have comments or questions about CA product documentation, you can send a message to techpubs@ca.com.

If you would like to provide feedback about CA product documentation, complete our short [customer survey](#), which is also available on the CA Support website, found at <http://ca.com/docs>.

Contents

Chapter 1: Introduction	13
Overview	13
Network Error Warning System	14
Network Tracking System	15
Network Control System	16
NCPView	17
SYSCMD Facility	18
Remote Operator Facility	19
Network Management Facility	19
NetView Operator Command Emulation Facility	19
Information Database	20
 Chapter 2: Getting Started	 21
Log On	21
If Region Initialization Is Still in Progress	22
If the System Image Is Still Being Loaded	22
Log Off	22
Your Password	23
Change Your Password	23
Authority Levels	24
Access Functions	24
Select an Option	24
Specify a Path	24
Specify a Shortcut	25
Lists	27
Scrolling	27
Search for an Item	28
Data Entry Panels	29
UPDATE Mode	29
Enter Data	29
Validate and File Data	30
Move Between Panels	30
Commands	32
System Commands	33
Operating System Commands	33
VTAM Commands	34
Online Help	34

Tip of the Day	35
Help About a Panel	35
Help About Fields on a Panel	35
Help for a Message	36
Work in Two Windows	36
Split Screens	37
Swap Screens	37

Chapter 3: Managing NCPs 39

NCPView	39
NCPView Features	40
NCP Resources That Can Be Monitored	41
Monitor NCPs	42
Actions on the NCP Monitor	42
Organize the Information on the Monitor	43
Change Filter	44
Change Your Default NCP Monitor Profile	45
Display NCP Summary Information	45
Monitor NCP Performance History	46
Update NCP Resource Definition	46
Override Monitoring Mode	48
Override Alerting Mode	48
Monitor NCP Utilization	49
Monitor Buffer and Pool/Table Usage	49
List Pool/Table Usage	49
Browse Buffer Usage	50
Print NCP Information	50
Print a Single-view Panel	51
Print a Multi-view (Left/Right) Panel	51
Access Adapter Diagnostics Menu	51
Adapter Diagnostics Menu	52
List Adapters	53
Display Adapter Details	53
List Channel Adapters	53
Display Channel Adapter Details	53
List Line Adapters	54
Display Line Adapter Details	54
Display Token-ring Adapters and Links	55
Token-ring Diagnostics Menu	56
List Token-ring Adapters	57
List Token-ring Physical Links	57
List Token-ring Logical Links	58

Display Frame Relay Physical Lines and Their Subports	58
Frame Relay Diagnostics Menu	59
List Frame Relay Physical Lines	60
Display Details About Physical Lines	60
List Subports for a Physical Line	60
Display Terminating Equipment or Switching Equipment Details	61
Display 3746-900 CSS Adapters	62
Browse CSS Adapter Details	62
Monitor SNA Network Interconnection Information	62
Display Network and HSCB Count Attribute Information	63
List Gateway Network Addressable Units	64
Monitor Transmission Groups	64
List Transmission Group Information	64
Monitor Virtual Route Information	65
List Virtual Route Information	65
Monitor NCP Internet Protocol Router Statistics	66
Acknowledge a Link Failure	67
Respond to the Initialization Status Panel	67
Respond to the Database Synchronization Panel	68

Chapter 4: Managing SNA Resources 69

Display Resources	69
Access SNA : Diagnosis Menu	69
Display a Node	70
Resource Selection	71
Display APPN and Session-oriented Resources	71
Host CP Example	72
RTP Pipe Example	73
Display a Directory Entry from the Resource List	74
Display Non-APPN Resources	74
Display Resources by Name	75
Display APPN Resources by Type	75
Access NCS: APPN Menu	75
NCS : APPN Menu	76
Display Rapid Transport Protocol Pipes	77
Display Transport Resource List Entries	78
Display Dependent LU Requestor Resources	78
Display CP-CP Sessions	79
Test APPN Connectivity	80
Display APPN Directory Information	81
Display APPN Subnetwork Topology Information	81
Access NCS : Subarea Menu	83

NCS : Subarea Menu	83
Select the Domains You Want to Monitor	84
Display Options	85
Display Options for all Node Types	85
Display Options for Clusters	85
Display Options for Lines	86
Display Options for Link Stations	86
Display Options for Terminals	86
Display Option for Cross-Domain Resources	87
Display Option for SNA Status Code Details	87
Display VTAM Commands	88
Display Alerts	88
Display CNM Events	89
Display NTS Active Session Data	89
Control Nodes	90

Chapter 5: Managing Alerts 91

Alert Monitor	92
Access the Alert Monitor	92
Activate Alerting	93
Sort Alerts	93
Filter Alerts	93
Change the Display Format	93
Change the Alert Monitor Profile Using the User Profile Menu	94
How to Work with Alerts	94
Display Alert Details	95
Print Alert Details	95
Display CNM Alert Details	95
Access the Transient Log from the Alert Monitor	96
Raise a Trouble Ticket for an Alert	96
Add Operator Notes to an Alert	97
Close Alerts	97
Display Alert History	98

Chapter 6: Managing and Soliciting Information from Network Devices 99

Device Support	99
Access Device Support	99
Get Information from Generic Devices	99
Access NEWS : Generic Device Support Menu	100
NEWS : Generic Device Support Menu	100
Get Information from Specific Devices	101

Chapter 7: Investigating Network Errors and Trends **103**

Access the Database Review Menu	103
Database Review Menu	103
Display Device Information	105
Display Events	105
Display Attentions	106
Display Statistics	106
Display Statistics for a Particular Node	106
Display Error and Traffic Statistics	107
Display Response Time Monitor (RTM) Data	108
Display RTM Data for a Particular Node	108
Display RTM Response Distribution	108

Chapter 8: Monitoring Network Activity **109**

Network Tracking System	109
NTS Features	109
How NTS Provides Information	110
Access NTS	110
Monitor Resources	111
Resource Selection List Options	111
Monitor Sessions	111
List Primary Sessions	111
List Secondary Sessions	112
Locate a Session Partner	112
Filter Session List Information	112
Monitor Subareas	114
List Subordinate Resources	114
Monitor Routes	115
Monitor Virtual Routes	115
Monitor Explicit Routes	115

Chapter 9: Analyzing Performance and Determining Problems **117**

Analyze Performance Using RTM Data	117
Display RTM Data for a Session	117
Display RTM Data for a Logical Unit	118
Analyze Performance Using Resource Statistics	118
Determine Problems Using Error, Accounting, and Configuration Data	119
Display Error Data	119
Display Configuration Data	120
Display Session Route Data	121
Display Session Data	122

Display a Link Station	122
Display Accounting Data	122
Determine Problems by Tracing Sessions	123
Display Trace Data for a Session	123
Analyze a Trace	124
Display a PIU Dump	124
Control NTS Session Tracing	125
Access NTS : Control Functions Menu	125
NTS : Control Functions Menu	125
List Resource Traces	126
Modify Session Processing	127
Determine Problems by Testing Routes	127
Access NTS : Route Test Menu	127
Test Virtual Routes	128
Display Virtual Route Status	128
Monitor Virtual Route Status	129
Test Explicit Routes	129
Display Explicit Route Configuration	130

Chapter 10: Managing LAN Resources 131

IBM LAN Manager Support	131
Access LAN Manager Support	131
IBM LAN Manager Support Menu	132
Display Network Information	133
Display Adapter Information	133
Display Bridge Information	133
Change Bridge Configuration	134

Chapter 11: Using the Information Database 135

Information Database	135
Access the Information Database	135

Chapter 12: Using Logs 137

Log Types	137
Display an Activity Log	138
Display a Transient Log	139
Change Logging Options	141

Chapter 13: Using Operator Console Services 143

Operator Console Services	143
---------------------------------	-----

Access OCS	144
OCS Panel	144
Command Line	144
Operating Mode Indicators	144
Roll Delete Area	145
Non-roll Delete Area	145
Roll-delimiter Line	145
Title Line	145
Time Display	145
Run Multiple OCS Panels	146
Set Window IDs	146
Function Keys	147
Conversational Function Keys	147
Prefix and Suffix Function Keys	148
Assign Your Own Values to Function Keys	148
Specify Commands to Function Keys	149
Specify Function Keys Using NCL Procedures	150
Use Commands in OCS	151
Command Authority Levels	151
Abbreviate Commands	151
Reuse Commands	152
Rename Commands	154
Monitor and Control in OCS	154
Control Message Presentation Speed	154
Unwrap Messages	156
Clear the OCS Window	156
Receive Unsolicited Messages in OCS	157
Receive Network Warning Messages	157
Reply to PPO Messages	158
Receive Non-roll Delete Messages	158
Hide NRD Messages	159
Restore Hidden NRD Messages	159
Delete NRD Messages	159
Use NRD Messages with ROF Sessions	160
Use the Activity Log to Help Monitor Your Regions	160
Interpret Messages and Codes to Help Monitor Your Region	160
Issue Commands	160
Issue Commands in Background Environments	161
Issue Commands at Specified Times	162
Execute or Start NCL Processes from OCS	166
Execute NCL Processes Serially	166
Execute NCL Processes Concurrently	167
Start REXX Programs from OCS	167

Monitor and Control in a Restricted Environment	168
Display Network Partition Tables	168
Enter Commands in a Restricted Environment	168
Receive Messages in a Restricted Environment	169
Detect Errors in Your Restricted OCS Environment	169
Use a Restricted Monitoring Environment with the Remote Operator Facility	170
Issue System Commands from Your Console	170
Use the SYSCMD Facility	171

Chapter 14: Using Print Services 173

Print Services Manager	173
Access PSM	173
List Entries in the Print Queue	174
Display the Output of a Print Request	175
Confirm Printing	176
Select the Printer	176

Appendix A: NCPView Buffers, Pools, and Control Blocks 177

Buffers and Pools	177
Control Blocks	177
Defined Control Blocks	178
Dynamic Control Blocks	178
Control Block Pools	178

Appendix B: NetView Operator Commands 183

Getting Help	183
Execute NetView Operator Commands	184
Command Not in Library Message	186

Index 187

Chapter 1: Introduction

This section contains the following topics:

[Overview](#) (see page 13)

Overview

CA NetMaster NM for SNA is a network management product that simplifies the processes involved in managing complex computer networks.

It can manage many thousands of network addressable units, resulting in better network performance and availability, and faster recovery from network errors.

It provides functions that let you to do the following tasks:

- Monitor and react to network errors
- Command and control network resources
- Track session information from a single console
- Monitor Network Control Programs (NCPs) across the network

It provides tools that collect network information and monitor network devices so that network operators can take action before problems occur. You also get information on network status changes and network sessions so you get a complete picture of network activity.

It handles commands, messages, responses, and alarm information from multiple systems simultaneously. It can process information from a wide range of SNA and non-SNA devices and applications.

It provides a single-image facility that lets you monitor any domain from any terminal in your network, without switching between domains and without terminating and re-establishing sessions. You need to look in only one place for the information you need.

It provides real-time session-level information as well as detailed session diagnostics. This access to session start times, stop times, number of bytes passed, session trace records, and response time statistics lets you track actual network usage and performance. For longer-term analysis, it maintains a database of session histories. This information is available to help you plan and configure your network, to ensure you have adequate resources where they are needed.

It comprises a menu-driven system of full-screen panels with context-sensitive online help.

Its components and functions are:

- Network Error Warning System (NEWS)
- Network Tracking System (NTS)
- Network Control System (NCS)
- NCPView
- The SYSCMD facility
- The Remote Operator Facility (ROF)
- The Network Management facility
- The NetView Operator Command Emulation facility
- The Information Database
- Session Replay

Network Error Warning System

NEWS is a network error warning system. It lets you monitor network errors by using the following functions:

Alert Monitor

Displays operator alerts generated by your region

Device Support

Solicits and displays information from your connected devices and configures them

Database Review Menu

Displays the five types of Communications Network Management (CNM) records stored in the NEWS database

LAN Management

Manages the local area network.

NEWS Features and Benefits

To help you monitor your network, NEWS provides these facilities:

- Masks that you tailor to filter event records received, and respond to the events as you require.
- In event of a failure, diagnostics that help pinpoint the cause of the failure and speed up its reversal.
- Amalgamation of various types of unsolicited data from SNA and non-SNA resources in the network, and issue of requests for specific information from VTAM and certain hardware components.
- The alias name translation facility to translate resource names, to avoid any confusion should a duplicate resource name be encountered in another network. This applies, for certain releases of VTAM and Network Control Program (NCP), when SNA Network Interconnection (SNI) is used.
- Enhanced session hierarchy displays and session partner information.
- Issue of operating system commands and return of the results.
- The ability to forward real-time alerts to CA NSM, where they can be monitored from the Event Management Console.
- Execution of LAN Manager network, adapter, and bridge functions (including bridge configuration) from the host, if you are running the IBM LAN Manager and it supports these functions.

Network Tracking System

Network Tracking System (NTS) provides improved session visibility to help you determine problems and analyze your network's performance. NTS obtains information about logical network connections from VTAM's Session Awareness interface (SAW).

NTS Features and Benefits

To help you manage your network and locate problems, NTS does the following:

- Provides an integrated view of activity across multiple SNA domains and networks
- Accumulates traffic statistics for sessions and resources to allow monitoring of network performance
- Uses the data available to it to build a model of the networking environment in which it is executing
- Provides session tracing for problem diagnosis

Other NTS benefits are:

- It writes selected session details to a database, to provide a historical record of network activity that you can analyze to determine patterns, and to locate previous occurrences of a particular problem
- It interfaces with the Multiple Application Interface (MAI) component of CA SOLVE:Access, to provide you with end-to-end visibility of MAI virtual sessions
- It can be tailored to enable the most efficient use of computer resources and to meet the specific needs of your installation

Network Control System

Network Control System (NCS) is an effective and easy-to-use system for displaying and controlling network resources.

NCS Features and Benefits

NCS enables you to display:

- Lists by resource name or type, in summary form
- Detailed, graphical representations of individual resources and their subordinate nodes
- APING APPN control points
- Communications and Network Management (CNM) and CA NetSpy events and alerts for a selected resource
- NTS active sessions for a selected resource
- SNA resource session status codes

NCS also enables you to:

- Activate and deactivate resources from selection lists
- Enter NCS options to issue VTAM display, modify, and vary commands
- Display and control resources in other VTAM domains, enabling central control of all network resources

NCPView

NCPView supports IBM 3745 and 3746-900 communications processors that run an NCP. This support provides an increased level of visibility of the configuration, and of problems occurring with these communication processors.

NCPView enables you to monitor the following:

- Token-ring resources
- Buffer and Central Control Unit (CCU) utilization
- Virtual routes (VRs) and transmission groups (TGs)
- Internet Protocol (IP) resource statistics
- SNI connections
- Frame relay resources

It also enables you to do the following:

- Generate alerts for monitored attributes exceeding thresholds
- View the performance history of monitored attributes

NCPView Features and Benefits

NCPView enables network operators to be proactive in monitoring, troubleshooting, and balancing loads among the communications controllers that are running an NCP.

It does this by enabling operators to display these types of information:

- Particular aspects of an NCP, such as associated virtual routes, transmission groups, and control block pools
- NCPs in other domains
- Information derived from an unformatted NCP dump

You can analyze information contained in these NCPView displays and use it to aid problem diagnosis.

SYSCMD Facility

The SYSCMD facility lets you issue operating system commands and receive responses.

The SYSCMD facility provides you with the following support:

- JES consoles or Extended Multiple Console Support (EXTMCS) consoles that facilitate the issuing of MVS and subsystem commands. The support includes enabling you to delete WTO and WTOR messages.
- Access to a comprehensive set of user authorization facilities, through a command authority profile in which you specify:
 - Whether a user has the authority to issue the SYSCMD command
 - The specific authority levels for operating system commands
- The AOM Message Delivery Service feature that queues messages to authorized Operator Console Services (OCS) receivers
- The ability for any NCL procedure to issue associated WTO, WTOR, and DOM functions

Remote Operator Facility

CA NetMaster NM for SNA is designed for an integrated network of interconnected systems. The Remote Operator Facility (ROF) allows a central operator to display and control resources in any linked NetMaster region.

To realize the full capabilities of CA NetMaster NM for SNA on a remote system, the following criteria must be met:

- CA NetMaster NM for SNA must be licensed on the remote system.
- Operators must be defined to the security system on the remote system with adequate authority. Their command authority should allow them to issue VTAM commands.

Network Management Facility

The standard Network Management facility provides the use of the SPO and the PPO interfaces. The SPO interface is used to issue commands to VTAM. The PPO interface is used by the distributed NCL procedure PPOPROC to receive all important network messages, particularly to intercept unsolicited VTAM PPO messages.

This facility provides an additional source of information. It supports VTAM operator commands and implements others as OCS commands (such as TRACE and ACT).

NetView Operator Command Emulation Facility

The NetView operator command emulation facility assists users familiar with Tivoli NetView. It lets you operate CA NetMaster NM for SNA by using the same commands and procedures you are accustomed to using with Tivoli NetView.

Information Database

The Information Database contains network and product information, organized by categories such as:

- 3174 error codes
- Messages
- SNA sense codes
- SNA resource status codes

Some categories of information are distributed with your product. However, you can add your own installation-specific categories.

Chapter 2: Getting Started

This chapter explains how to access and navigate the product's 3270 interface, and the major components of that interface.

This section contains the following topics:

[Log On](#) (see page 21)

[Log Off](#) (see page 22)

[Your Password](#) (see page 23)

[Access Functions](#) (see page 24)

[Lists](#) (see page 27)

[Data Entry Panels](#) (see page 29)

[Commands](#) (see page 32)

[Online Help](#) (see page 34)

[Work in Two Windows](#) (see page 36)

Log On

To access your product, you must log on to it through a region. The logon procedure is the same whether you are logging on in a single system or a multisystem environment. Before you can log on to a region, you need a user ID and password. Ensure that your system administrator has defined your user ID to the region and has allocated the relevant level of authority.

Note: You may have access to one or more regions. This depends on whether your organization has set up a single system or a multisystem environment.

To log on to your product

1. Use your installation defined method for establishing SNA sessions to connect to the ACB name of the region.

For example, enter **LOGON APPLID(acb-name)**, using the ACB name of the region.

2. Enter your user ID and password on the displayed logon panel.

The Primary Menu appears.

Note: When you first log on to a region, the region uses a default profile for your primary menu. You can update the profile to change the format of the menu. To update the profile, enter **PROFILE** at the command prompt.

If Region Initialization Is Still in Progress

If the Initialization in Progress panel appears on your screen instead of the primary menu, the initialization of the region is still in progress. Press F3 (Exit) to exit to the primary menu.

Note: For information about the initialization process, see the *Installation Guide*.

If the System Image Is Still Being Loaded

If the local system image is still being loaded, the primary menu contains the **LS** option. You can select this option to monitor the loading process. You can also perform functions that do not depend on an active local image.

Note: For information about system image loading, see the *Administration Guide*.

Log Off

To log off from the region, enter **=X** at the prompt. This terminates your current window.

If you are at the primary menu, enter **X** at the prompt to terminate your current window.

Note: You can have two windows for each logon to a region. If you have two windows, repeat the procedure to terminate the remaining window to log off from the region.

More information:

[Work in Two Windows](#) (see page 36)

Your Password

Your password is verified by the User Access Maintenance Subsystem (UAMS).

The subsystem lets you change your password, or prompts you to change your password when it has expired after a period of time. You can change your password at any time after you log on to a region. The change becomes effective the next time you log on to the region.

Note: Your installation might have linked UAMS with an external security system, such as CA ACF2, CA Top Secret, and Resource Access Control Facility (RACF). If this is the case, your system administrator will tell you of any special considerations that apply when changing your password.

In a multisystem environment, the administrator might have set up the environment for the synchronization of UAMS user definitions and passwords. Changed passwords are then synchronized across connected regions.

Change Your Password

To change your password

1. Enter **/CHGPWD** at the prompt.
The User Password Maintenance panel appears.
2. Complete the following fields:

Current Password

Specifies your current password.

New Password

Specifies your new password.

Retype your new password, and press F3 (File).

The system changes your password.

Note: If UAMS synchronization is enabled, a Linked Regions UAMS Update Report panel appears when you save your changed password. The panel reports the success or failure of the password change in the connected regions.

Authority Levels

Your user ID in UAMS determines your level of access to your product, the functions you can perform, and the commands you can issue.

If you attempt to perform an unauthorized function or issue an unauthorized command, an error message appears, telling you that you are not authorized to perform that function or issue that command.

Access Functions

To access functions through the user interface menus, do *one* of the following:

- Select an option from each menu that leads to the function.
- Specify a path.
- Specify a shortcut.

Select an Option

You select an option by entering the option code at the prompt. For example, entering **M** at the prompt on the primary menu takes you to the Monitors primary menu.

If you specify a collapsed or expanded menu format in your profile, you can expand or collapse the displayed menu hierarchy. In these formats, you can also place your cursor beside a required option and press Enter to select it.

Note: For more information, press F1 (help) from the primary menu.

Specify a Path

You can jump to the panel of a function directly by specifying the exact path to that panel. Construct the path by linking the options you need with periods. Depending on which panel you start from, you can display a panel that:

- Is lower in the panel hierarchy
- Is higher in the panel hierarchy
- Requires input data

Lower in the Panel Hierarchy

If you start from a menu and want to access a panel lower in the panel hierarchy, specify the path as it is. For example, if you are at the primary menu and want to change your password, type **U.P** at the prompt and press Enter.

Higher in the Panel Hierarchy

If you want to access a panel that requires you to pass through a panel higher up in the panel hierarchy, you must precede the path specification with the equals sign (=). The = character brings you back to the primary menu and then to the required panel. You can specify such a path at any prompt. For example, if you are at the Alert Monitor and want to change your password, enter **=U.P** at the prompt and press Enter.

To return to the primary menu, enter **==**.

Input Data

If you want to access a panel that requires you to enter data, you can enter the data by separating them from the path by a semicolon (;).

For example, if you are at the primary menu and want to access the alert history for the linked region PROD2, type **H.A;PROD2** at the prompt and press Enter.

Some panels have more than one input field for entering data. You should use the correct number of semicolons to identify the field.

For example, you must use two semicolons if you want to enter *data_2* in the second field:

```
option_1.option_2;;data_2
```

Specify a Shortcut

You can jump to the panel of a function directly by using shortcuts. You can specify the shortcut at a prompt in one of the following ways:

- Specify */shortcut-name* to retain the current panel on return.
- Specify *=/shortcut-name* to close the current panel and return to the primary menu on exit.

Each entry on a menu may have an associated shortcut, displayed in turquoise.

Note: If you do not remember a shortcut, enter / or =/ to list the shortcuts and then select one.

/shortcut-name

Important! If the current panel provides automatic updates and you no longer need this information, use **=/shortcut-name** rather than a nested shortcut. This saves storage and resources because the region does not need to maintain a display that you no longer need.

To select the function you want, enter its corresponding shortcut, preceded by the slash (/) character, at a prompt.

When you access a function by using its shortcut, your current panel is retained. When you press F3 to exit out of the function, this panel, with any updates, is restored. By using shortcuts, panels can be nested to a maximum of 64 levels.

For example, to access SNA : Diagnosis Menu, enter **/SNADIAG** at the prompt on your current panel. When you are finished with the menu, press F3 to redisplay your previous panel.

=/shortcut-name

When you have finished with your current panel, you can access the next function by prefixing the shortcut call with the equals (=) sign. This goes directly to the function without retaining the current panel and closes all other nested panels in this window.

For example, to access SNA : Diagnosis Menu without retaining the current panel, enter **=/SNADIAG** at the prompt on your current panel. When you are finished with the menu, press F3 to display the primary menu.

Access a Function That Does Not Have a Shortcut

You can combine a shortcut with option codes to form a path to access a function that does not have a shortcut itself.

For example, to create a CNM alert, you can enter the **/SNADIAG.CA.1** path.

Lists

Lists comprise a series of items that you can select or against which you can perform actions. The panel shows the actions that you can perform on the listed items.

There are four types of list:

Action Lists

Let you apply *actions* to one or more listed items. Enter the required action code beside the appropriate records.

Single Selection Lists

Let you select one item from a list (for example, the list of valid values for a data entry field) by doing *one* of the following:

- Entering the **S** (Select) action code beside the item
- Moving the cursor to a position anywhere in the line containing the item you want to select and pressing Enter

Multiple Selections Lists

Let you select one or more items in a list (for example, the list of panels used to customize your user profile).

Numbered Lists

Let you select a single item from the list by entering the appropriate number at the prompt (for example, the list of valid values for a data entry field).

Scrolling

If the listed information cannot fit onto the screen, use scrolling to access the off-screen information. You can scroll vertically and horizontally.

Scroll Vertically

Use the F8 (Forward) or F7 (Backward) function key to scroll the displayed information by the amount displayed at the Scroll prompt.

The following table shows valid scroll amounts.

Scroll Amount	Action
C (or CSR)	If scrolling forward, the line on which the cursor is currently positioned is moved to the top of the screen. If scrolling backward, the line on which the cursor is currently positioned is moved to the bottom of the screen.
D (or DATA)	The display is scrolled one full page, less one row, in the specified direction. If scrolling forward, the last line of the current page appears as the first line on the next page. If scrolling backward, the first line on the current page appears as the last line on the next page.
H (or HALF)	The display is moved half a page in the specified direction.
M (or MAX)	The display is moved to the beginning or the end of the displayed information, depending on the function key (Forward or Backward) used.
P (or PAGE)	The display is moved one full page in the specified direction.
<i>n</i>	The display is moved <i>n</i> lines in the specified direction. If you enter a temporary scroll amount at the command prompt (for example, Command ==> 5), then when you press the F7 (Backward) or F8 (Forward) function key, the displayed information is scrolled by the specified value once only.

Scroll Horizontally

Use the F11 (Right) or F10 (Left) function key to scroll the displayed information to the right or to the left.

Search for an Item

You can search for specific items in the retrieved information by using the F5 (Find) function key or the LOCATE command.

F5 (Find) Function Key

The F5 (Find) function key lets you find text in the retrieved information. Enter the text you want to find, and press F5. If the text contains more than one word, enclose the text in quotation marks.

You can press F5 again to find the next instance of the text.

For some lists, you can enhance the Find function in the following ways:

- Expand the search beyond the columns currently displayed by using the FMODE command
- Change the number of records searched between prompts by using the FPROPT command

Note: For information about the FMODE and FPROPT commands, see the online help.

LOCATE Command

The LOCATE command enables you to locate a particular record in a list. Enter **LOCATE** or **L** followed by a text string mask. The command locates the first record name that matches the mask.

Data Entry Panels

Resource definitions are displayed and maintained through a sequence of panels on which you enter the data for that resource.

UPDATE Mode

Many definition panels enable authorized users to switch from the BROWSE mode to the UPDATE mode by pressing F4 (Edit). You can then edit the displayed information.

Enter Data

On a color screen, mandatory fields that you must complete are colored white. Optional fields, which you can complete as and when required, are colored turquoise. Both types of fields can be prompted fields that provide you with a list of valid values, from which you can choose one item.

Prompted Fields with a List of Valid Values

Many fields on the data entry panels are linked to lists containing the values that you can choose for the field. These fields are called prompted fields. Most, but *not* all, prompted fields are identified by a plus sign (+).

Enter **?** in a prompted field to display the value list, which can be a numbered list or a single select list.

You can prefix the question mark (?) with one or more characters. The displayed list is then restricted to values that start with those characters. For example, enter **S?** to display a list of values that start with S.

Validate and File Data

During data entry, you can press Enter to validate your data. Validation also occurs when you:

- Access another panel (for example, when you press F8 (Forward) to access the next panel)
- Save your entered data (for example, when you press F3 (File) to save a definition)

When you finish entering data, you can do *one* of following:

- Press F3 (File) to save the data and exit the panel.
- Press F4 (Save) to save the data and remain on the panel. When adding definitions, this enables you to quickly create other similar definitions, minimizing the typing required.
- If you do *not* want to save the data, press F12 (Cancel) to exit the panel.

Move Between Panels

Some functions lead to a series of data entry panels (for example, when you update a resource definition).

You can use *one* of the following methods to move through these panels, depending on what you need to do:

- Select all panels.
- Select specific panels from the Panel Display List.
- Select a panel from another panel.
- Select a panel from the Index Menu.
- Save a sequence of definition panels for repeated access.

Select All Panels

You may want to access every panel. All panels are listed on a Panel Display List (for example, the panel that lists the resource definition panels). Enter **S** next to the name of the panel you want to access first, or enter the number that identifies that panel in the panel sequence at the command prompt (for example, 1 for the first panel). The selected panel appears.

Press F8 (Forward) to scroll forward to the next panel; press F7 (Backward) to scroll backward to the previous panel.

When you finish entering data, press F3 (File) to save the data. Press F12 (Cancel) if you decide not to save the data.

Select Specific Panels from the Panel Display List

You may want to access certain panels only (for example, when you want to update only certain parts of a resource definition). All the panels required for a definition are listed on a Panel Display List. Type **S** next to the names of the panels you want to access. After you complete your selections, press Enter to display the first panel you selected. Then press F8 (Forward) to scroll forward through the panels you selected. Press F7 (Backward) to scroll backward through the panels you selected.

When you finish entering the data, press F3 (File) to save the data. Press F12 (Cancel) if you decide not to save the data.

Select a Panel from Another Panel

If you want to skip to a panel that is not next in the sequence, and you know the sequence number of the panel you want, enter that number at the command prompt. The required panel appears.

Select a Panel from the Index Menu

From some data entry panels, you can press F11 (Panels) to display the Index Menu panel. This menu lists all the panels available for that function. Use the Index Menu if you want to jump to a panel but do not know its place in the panel sequence.

Note: If you have selected two or more panels previously, pressing F11 (Panels) displays a list of the selected panels only. You can press F6 (AllPanel or SelPanel) to switch between the full list and the partial list.

Save a Sequence of Definition Panels for Repeated Access

On a definition list panel, you can select more than one definition. You can then work on the selected definitions in sequence. Each definition can contain a number of definition panels. Normally, the list of panels appears on your screen for you to select each time you access a new definition. However, if you want to browse or update the same panels for each selected definition, you can save the list of panels you want, as shown in the following procedure.

As you move through the sequence of selected definitions, the panels appear on your screen according to the saved list. You do not have to select the panels again when you move on to the next definition.

To save the resource definition panels for repeated access

1. Enter the **/RADMIN.R.NCPMON** path.

The Address Space Monitor List panel appears.

2. Type **B** (Browse) or **U** (Update) next to the definitions you want to access and press Enter.

Note: You can use the F7 (Backward) or F8 (Forward) function keys to scroll through the list.

The Panel Display List window appears.

3. Type **S** next to the panels you want, and press F4 (SaveSeq).

The system saves the list of selected panels.

4. Press Enter.

The first selected panel appears.

Note: When you finish with one group definition, the panels for the next definition are displayed in the same sequence.

Commands

CA NetMaster supports the following commands:

- Region-specific commands (for example, OCS commands)
- Operating system commands
- VTAM commands

More information:

[Execute NetView Operator Commands](#) (see page 184)

System Commands

You can enter system commands by using the Operator Console Services (OCS) or the Command Entry panel.

To access the OCS panel, enter **O** on the Primary Menu. To obtain a list of all system commands, operands, and brief descriptions, press F1 (Help).

To access the Command Entry panel, enter **CMD**.

Messages are displayed as a result of the commands. To scroll through the messages, use the appropriate function keys. The following table provides examples of system commands.

Command	Function
PROFILE	Displays or modifies a user profile
SHOW USERS	Displays the current signed on users

Operating System Commands

You can enter operating system commands in CA NetMaster.

To enter these commands, prefix them with SYSCMD. Responses are returned to the issuing environment, for example, the OCS window.

Example: Operating System Command

For the operating system command D J,NM1, enter SYSCMD D J,NM1.

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

VTAM Commands

You can simplify the entering of VTAM commands for tasks associated with managing your network environment. For example, you can enter D NM1 to issue the D NET,ID=NM1 VTAM command.

The following simplified commands are available:

ACT

Activates a VTAM node.

D

Displays a specific VTAM resource.

F

Issues a VTAM modify (F) command.

FORCE

Inactivates a VTAM network node forcibly.

INACT

Inactivates a VTAM network node.

NOTRACE

Terminates a VTAM network trace.

REPLY

Issues a VTAM REPLY command.

TRACE

Initiates a VTAM network trace.

V

Issues a VTAM VARY command.

Online Help

Online help is provided for panels and messages.

Context-sensitive help is available at different levels. When you are viewing a help panel, pressing F1 (Help) takes you to the next level of help available. Pressing F3 (Exit) takes you back to the previous level, or exits from help and returns you to the application. Pressing F4 (Return) exits help and returns you to the application immediately.

Tip of the Day

The region displays a tip about using the product at the bottom of the primary menu.

To display the detailed tip, place the cursor on the tip and press F1 (Help).

Help About a Panel

Panel-based online help includes information about what each panel is used for, how to complete the fields, the actions you can perform, and the use of available function keys. Use this online help to supplement the information in this guide while you are working in the region.

Press F1 (Help) to retrieve the online help for a given panel. When you are viewing a help panel, you can press F6 (HelpHelp) to find out how to use the help facility.

If the block of help text you require splits across two panels, use the arrow keys to move the cursor to the top or the bottom of the block and press F8 (Forward) or F7 (Backward) to bring the block into view.

Help About Fields on a Panel

Many panels provide field-level online help.

To retrieve the online help for an input field, move your cursor to the field and press F1 (Help).

Help for a Message

While you are working in the region, you receive messages that advise you of various events. These messages might be providing information only (for example, informing you that an update was successful). They might also alert you to errors (for example, if you try to enter an action that is not valid for a resource).

Each message has detailed online help text associated with it. Access the help text for a particular message in *one* of the following ways:

- If you are at a panel and a message appears in red on the third line of that panel, move the cursor to that line and press F1 (Help).
- If you receive a message referring you to the activity log for more detail, enter **/LOG** at the prompt to display the activity log.
- If you are using the activity log, a Command Entry panel, or Operator Console Services (OCS), you can do *one* of the following:
 - Move the cursor to the line displaying the message, and press F1 (Help).
 - Type the message ID at the prompt, and press F1 (Help).
- If you are viewing a transient log, enter **H** beside the message.
- You can also enter **/CODES** to display the Messages and Codes Menu that enables you to obtain help on messages and on miscellaneous error codes.

Work in Two Windows

You can divide your physical screen into two logical windows. Each window operates independently of the other, enabling you to perform multiple functions concurrently.

To open a second window in the region, press the F2 (Split) or F9 (Swap) function key.

When one window takes up the entire screen, the other window is considered *closed*.

Split Screens

Using the SPLIT command, you can perform the following actions:

- Split your screen horizontally and have one window above the other. Move the cursor to a row where you want to split screens, and press F2 (Split).
- Split your screen vertically and have two windows side by side. Move the cursor to any column on the bottom row, and press F2 (Split).
- Return a split screen to single window display in one of the following ways:
 - Move the cursor to the first line on your screen, and press F2 (Split) to minimize the window. The window containing the cursor disappears, and the other window expands to full size.
 - Enter **=X** to exit one of the windows. Your session with that window ends.

Swap Screens

Using the SWAP command, you can perform the following actions:

- Reverse the dimensions of the active window if you have two windows open and both are visible on the screen, and switch between them.
- Open a second full-screen window if you are currently operating with a single window open, and then switch between them.

To swap two full-screen windows

1. Display one of the panels.
2. Press F9 (Swap).

The primary menu appears.
3. Proceed to the second panel you require and press F9 (Swap).

The first of your swap-panels appears.
4. Press F9 (Swap) to switch between the two swap-panels.

Chapter 3: Managing NCPs

This section contains the following topics:

- [NCPView](#) (see page 39)
- [Monitor NCPs](#) (see page 42)
- [Actions on the NCP Monitor](#) (see page 42)
- [Organize the Information on the Monitor](#) (see page 43)
- [Change Filter](#) (see page 44)
- [Change Your Default NCP Monitor Profile](#) (see page 45)
- [Display NCP Summary Information](#) (see page 45)
- [Monitor NCP Performance History](#) (see page 46)
- [Update NCP Resource Definition](#) (see page 46)
- [Override Monitoring Mode](#) (see page 48)
- [Override Alerting Mode](#) (see page 48)
- [Monitor NCP Utilization](#) (see page 49)
- [Monitor Buffer and Pool/Table Usage](#) (see page 49)
- [Print NCP Information](#) (see page 50)
- [Access Adapter Diagnostics Menu](#) (see page 51)
- [Adapter Diagnostics Menu](#) (see page 52)
- [List Adapters](#) (see page 53)
- [List Channel Adapters](#) (see page 53)
- [List Line Adapters](#) (see page 54)
- [Display Token-ring Adapters and Links](#) (see page 55)
- [Display Frame Relay Physical Lines and Their Subports](#) (see page 58)
- [Display 3746-900 CSS Adapters](#) (see page 62)
- [Monitor SNA Network Interconnection Information](#) (see page 62)
- [Monitor Transmission Groups](#) (see page 64)
- [Monitor Virtual Route Information](#) (see page 65)
- [Monitor NCP Internet Protocol Router Statistics](#) (see page 66)
- [Acknowledge a Link Failure](#) (see page 67)
- [Respond to the Initialization Status Panel](#) (see page 67)
- [Respond to the Database Synchronization Panel](#) (see page 68)

NCPView

NCPView enables you to view the configuration of IBM 3745 and 3746-900 communications controllers that are running Network Control Programs (NCPs), and any problems with them. NCPView gives you greater network and NCP availability by allowing you to monitor NCP versions 4, 5, 6, and 7.

NCPView is of value to you as a network operator as it provides increased visibility of your NCPs, including supported non-SNA protocols and physical interfaces. By using the data provided by NCPView, you have the potential to both solve problems and prevent problems from occurring in your network (for example, slow response times and inability to access the system).

NCPView Features

NCPView provides the following features to assist you in monitoring your NCPs:

- Lists and summary information of NCPs
- Formatted dumps of NCP control blocks and storage displays
- View of an NCP unformatted dump as a real NCP
- Display of adapter and token-ring information
- Display of frame relay physical links and subports
- Display of buffer and pool information
- Display of networks attached using SNI
- Display of IP router statistics
- Display of transmission group information
- Display of NCP utilization
- Display of virtual route information
- History of monitored attributes (utilization, buffer use, and pool usage)

NCP Resources That Can Be Monitored

By using the data provided through NCPView's interactive panels and diagnostic aids, you can solve problems and prevent them from occurring (for example, slow response times and inability to access the system).

The NCP resources that can be monitored by NCPView and the information provided for each are as follows:

NCP Configuration

Provides the NCP release, generation date and time, subarea address, and usage tier.

Communication Controller Configuration

Provides the controller model, storage size, operating mode, and maintenance and operator subsystem (MOSS) engineering change (EC) and FIX levels.

Processing and Storage

Provides the use of central control unit (CCU) cycles and NCP buffers, and the display of NCP storage in dump format.

NCP Control Blocks

Provides the size and use of NCP control block pools.

Virtual Routes

Provides window sizes, traffic rates, and congestion.

Transmission Groups

Provides the type, status, and queue sizes.

SNA Network Interconnection (SNI) Resources

Provides the network names table, Half-session Control Blocks (HSCBs), and Gateway Network Addressable Units (GWNAUs).

IBM 3745 Channel and Line Adapters

Provides the type, address, and status.

Token-ring Resources

Provides Token-ring Interface Couplers (TICs), physical and logical lines, stations, and routes.

Internet Protocol (IP) Resources

Provides IP router statistics.

3746-900 CSS (Connectivity SubSystem) Adapters

Provides adapters that are on the 3746-900 expansion frame.

Monitor NCPs

Monitoring your NCPs lets you view information about all active NCPs and any NCP dumps allocated to NCPView. You can do this from the NCP Monitor. The information in the list is obtained from a table of NCPs built by NCPView at initialization time.

To monitor all NCPs

1. Enter **/NCPMON** at the command prompt.

The Status Monitor : NCP Monitor panel appears.

Note: To view more pages of this panel, press F11 (Right). For information about the fields displayed and actions available, press F1 (Help).

Actions on the NCP Monitor

There are many actions that you can use on the NCP monitor to manage your NCPs. To view the actions available for an NCP, enter **?** beside its name.

A panel is displayed, listing the available actions in alphanumeric order by name in two groups. Actions that are specific to NCPs come first (displayed in turquoise), followed by other generic actions. To apply an action, enter **S** beside it.

In a multisystem environment, you can see NCPs defined in all linked regions. The system name shown for each NCP identifies the region. You can apply actions to remote NCPs in the same way as to local NCPs.

Organize the Information on the Monitor

You can enter the following commands at the prompt to organize the information on the monitor.

FORMAT {**?**|*format-name*}

Use this command to change the way information is displayed for a particular columns setting. If you do not know the name of a format, enter **FORMAT** and select it from the displayed list of format definitions.

Notes:

- Your product supplies a number of predefined formats. If authorized, you can define your own formats from the List Definition List panel. To access the list, enter **/ASADMIN.L** at the prompt. For information about how to define monitor formats, see the *Reference Guide*.
- If you updated the current format, you need to enter the **REFORMAT** command to make the updates effective in the current session.

SORT *operand*

Use this command to sort the resources displayed on your screen in a particular order.

To list the column fields that can be sorted, enter **SORT**.

Note: Resources that rank the same by *operand* are further sorted by the object IDs.

Change Filter

Authorized users can create filters to define which resources are displayed on the NCP monitor. Filters are sets of rules stored in the knowledge base that enable you to display a subset of the monitored resources.

The resources you see the first time you access the NCP monitor depend on the filter specified in your user profile. If no filter is specified, you see all of the resources for the selected monitor.

You can change your view of displayed resources by using a temporary filter. The filter that you select remains valid for the current monitor session only.

To select a filter and change the view of displayed resources

1. Enter one of the following commands at the command prompt of the status monitor:

FILTER

Enter this command to display a list of the available filters. Enter the number that identifies the filter you want to use. Only the resources that match the filter are displayed on the NCP monitor.

FILTER *filter-name*

Enter the name of the filter that you want to use. Only the resources that match the filter are displayed on the NCP monitor.

FILTER NONE

This command removes any filtering.

The resources, as specified in the filter, appear.

Notes:

- If authorized, you can enter **F** on the Automation Services Administration Menu panel to select the Status Monitor Filters option to create and maintain filters. You can also use the **/ASADMIN.F** path to select the Status Monitor Filters option.
- If you updated the current filter, you need to enter the REFILTER command to make the updates effective in the current session.

Change Your Default NCP Monitor Profile

When you access the NCP monitor, the type of information available is determined by your default profile. The profile specifies the following:

- Filter to use when you first enter the NCP monitor.
- Number of monitored entities to display across the screen and the corresponding display format (if applicable).
- Criteria that determine how the monitored entities are sorted for display.
- Flag that indicates whether to see extended displays.

To change the defaults

1. Enter **PROFILE** at the prompt.

A Profile panel for your monitor type appears.

This panel contains fields that enable you to change your default profile for this type of monitor.

2. To select a new default, enter **?** in the appropriate field.

A list of available values appears.

3. Select a value, and press Enter.

4. Do *one* of the following:

- Press F3 (File) to save the new defaults and return to the NCP monitor.
- Press F4 (Save) to save the new defaults and remain on the panel.

Display NCP Summary Information

NCP summary information provides detailed information about a specified NCP. This display provides additional information about an NCP to that provided by the NCP Selection List.

To display NCP summary information

1. Enter **SM** next to an NCP entry on the Status Monitor : NCP Monitor.

The NCPView : NCP Details panel for the selected NCP appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Monitor NCP Performance History

To monitor NCP performance history

1. Enter **H** (NCP Monitor History) next to an NCP on the NCP monitor.

The NCPView : NCP Performance History panel appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Update NCP Resource Definition

An NCP resource definition comprises the following information:

- General Description
- Monitoring Definition
- Automation Log Details
- Owner Details

Each type of information is entered on a separate panel. You can either scroll through all of the panels by pressing F8 (Forward), or select a particular panel to update from the list.

To update an NCP resource definition

1. Enter **U** (Update Resource Definition) next to an NCP on the NCP monitor.
The ResourceView : Panel Display List appears.
2. Enter **S** in front of NCP Monitor General Description.
The NCP Monitor General Description panel appears.
3. Complete the details, as required.

Note: For information about the fields displayed on each panel, press F1 (Help).

4. Press F8 (Forward).
The NCPMON Monitoring Definition panel appears.
5. Complete the following field:

Monitor Interval

Sets the frequency for monitor samples to be taken. This can be from 5 to 60 minutes.

6. Press F10 (EditLst) to select the attributes to monitor.

Note: By default, two attributes are dynamically defined. If you want to add more to the list, press F4 (Add) to display a full list of attributes that can be monitored by NCPView.

7. Press F8 (Forward).

The NCPMON Automation Log Details panel appears. This panel defines the resource transient log.

It is recommended that you accept the default settings for this feature. For more information, press F1 (Help).

8. Press F8 (Forward).

The Owner Details panel appears. The fields on this panel are for documentation purposes only.

9. (Optional) Complete the fields on the panel and press F3 (Save).

The NCP monitor appears, with a message that the update was successful.

Override Monitoring Mode

You can override the default setting for monitoring through the NCP monitor.

To override monitoring

1. Enter **/NCPMON** at the prompt.
The NCP Monitor appears.
2. Enter **UMA** beside the NCP for which you want to override monitoring.
The Monitoring Activity panel appears.
3. Complete the following field:

Monitoring Activity

Specifies whether an override is in place for monitoring. Valid values are:

Active - Monitoring active.

Inactive - Monitoring inactive.

None - Resets the monitoring activity override.

Press F4 (Save).

The override is set. The Ovr column on the NCP monitor displays M.

Override Alerting Mode

You can override the default setting for alerting through the NCP monitor.

To override monitoring

1. Enter **/NCPMON** at the prompt.
The NCP Monitor appears.
2. Enter **UMA** beside the NCP for which you want to override alerting.
The Monitoring Activity panel appears.
3. Complete the following field:

Alerting Status

Specifies whether an override is in place for alerting. Valid values are:

No - Alerting inactive.

Yes - Alerting active.

None - Resets the alerting status override.

Press F4 (Save).

The override is set. The Ovr column on the NCP monitor displays A.

Monitor NCP Utilization

When monitoring your NCPs, it is important to know how much storage each NCP is using and how the central control unit (CCU) is being utilized by that NCP. NCPView provides the utilization menu to monitor NCP utilization.

Monitoring the amount of storage being utilized in the buffers of an NCP lets you prevent problems with storage before they affect the performance of your system.

To access utilization information

1. Enter **UZ** (NCP Utilization) next to an NCP entry on the Status Monitor : NCP Monitor.

The NCPView : Utilization panel appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Monitor Buffer and Pool/Table Usage

Your NCPs have pools of storage that contain buffers, the size of which is specified when the NCP is generated. These buffers are used to hold data temporarily while it is in transit to a destination.

List Pool/Table Usage

When defining pools in the generation definition of an NCP, space can be reserved for control blocks. The pool can be defined to contain a particular number of control blocks. Control blocks can also be dynamically allocated when there are no more defined control blocks in the appropriate pools.

Listing NCP pool/table usage lets you monitor the use of defined or dynamically allocated control blocks. If a pool is being used almost to capacity, it may mean that the NCP generation definition should be changed to increase the size of the pool.

To access buffer and pool/table usage

1. Enter **PL** (List NCP Buffer Pools) next to an NCP entry on the Status Monitor : NCP Monitor.

A selection list of control blocks for the nominated NCP appears, showing basic pool usage information. The list is sorted so that the pools with the highest maximum use percentage are placed at the top of the list.

Display a Formatted Dump of GPA Control Block

Displaying a formatted dump of a control block lets you view the length of a control block, the fields in the control block, the length of these fields, and the type of data that a control block contains.

To display a formatted dump of the GPA control block

1. Enter **G** next to an entry in the selection list.

The View Control Block panel appears.

Note: To view all information associated with the list, press F11 (Right). For information about the fields displayed on this panel, press F1 (Help).

Browse Buffer Usage

Buffers are taken from pools when they are needed to store data. Buffers can be set aside specifically to receive incoming data; these are known as committed buffers. NCPView lets you monitor the number, use, and status of the buffers on your NCP.

To display buffer usage for an NCP

1. Enter **BB** (Display NCP Buffer Statistics) next to an NCP entry on the Status Monitor : NCP Monitor.

The NCPView : NCP Buffer Counts panel appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Print NCP Information

The PRINT command prints the data displayed on certain NCP panels. This lets you archive critical NCP information.

The PRINT command is available on the following NCP panels:

- NCPView : Control Block Pool/Table Usage List (left/right views)
- NCPView : NCP Buffer Counts (single view)
- NCPView : NCP Utilization (single view)
- NCPView : NCP Details (single view)

Print a Single-view Panel

To print a single-view NCP panel

1. Do *one* of the following:
 - Press F10 (Print).
 - Enter **PRINT** at the command prompt.The NCP is printed.

Print a Multi-view (Left/Right) Panel

To print a multi-view NCP panel

1. Enter the **PRINT** command at the command prompt in *one* of the following formats:

PRINT

Produces a combined print (110 characters wide) of data from both left and right views of the panel.

PRINT LEFT

Prints data from the left view of the panel only.

PRINT RIGHT

Prints data from the right view of the panel only.

The NCP is printed.

Access Adapter Diagnostics Menu

To access the Adapter Diagnostics Menu

1. Enter **AD** (NCP Adapter Menu) next to an NCP entry on the Status Monitor : NCP Monitor.

The NCP : Adapter Diagnostics menu appears for the selected NCP.

Note: For information about the options available on this panel, press F1 (Help).

Adapter Diagnostics Menu

The correct functioning of an NCP adapter is necessary for communication with the connected devices on your network. It is important to be able to monitor your adapters to prevent communication problems, or to locate the source of such a problem if it occurs.

NCPView provides you with an adapter menu to perform this monitoring function for channel adapters, line adapters, token-ring adapters, and CSS adapters.

```
PROD----- NCP : NCP001 Adapter Diagnostics -----ZNC020
Select Option ==>

  LA - List all Types of Adapters
  LC - List Channel Adapters
  LL - List Line Adapters
  TR - Token-ring Diagnostics
  FR - Frame Relay Diagnostics
  CSS - List 3746-900 CSS Adapters
  X   - Exit

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap
```

This menu contains the following options:

LA - List all Types of Adapters

Displays a list of all adapters on the specified NCP.

LC - List Channel Adapters

Displays a list of channel adapters on the specified NCP.

LL - List Line Adapters

Displays a list of line adapters on the specified NCP.

TR - Token-ring Diagnostics

Displays a menu of token-ring support options.

FR - Frame Relay Diagnostics

Displays a menu of frame relay support options.

CSS - List 3746-900 CSS Adapters

Displays a list of all line adapters for the specified NCP, showing basic adapter information.

List Adapters

Listing adapters lets you see all the adapters attached to a 3745/3746-900 communications controller, their type, and whether they are functioning.

To list all types of adapters for an NCP

1. Enter **LA** at the command prompt on the NCP : Adapter Diagnostics menu for that NCP.

The NCPView : Adapter Selection List for the specified NCP appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Display Adapter Details

To display detailed information about any of the listed adapters

1. Enter **S** or **B** next to the required adapter in the selection list.

The information displayed depends on the type of adapter it is.

List Channel Adapters

You may have a problem with channel adapters on a specific NCP. The Adapter Diagnostics menu lets you list these channel adapters and access detailed information about each one to investigate the problem.

To list channel adapters for an NCP

1. Enter **LC** at the command prompt on the NCP : Adapter Diagnostics menu for that NCP.

A channel adapter selection list for the specified NCP appears.

Display Channel Adapter Details

To access detailed information about a channel adapter

1. Enter **S** or **B** next to the required channel adapter in the selection list.

The NCPView : Channel Adapter Details for the selected channel adapter displays.

Note: For details about the information displayed on this panel, press F1 (Help).

List Line Adapters

You may have a problem with line adapters on a specific NCP. The Adapter Diagnostics menu lets you list these line adapters and access detailed information about each one to investigate the problem.

To list line adapters for an NCP

1. Enter **LL** at the command prompt on the NCP : Adapter Diagnostics menu for that NCP.

A line adapter selection list for the specified NCP appears.

Display Line Adapter Details

To access more information about a line adapter

1. Enter **S** or **B** next to the required channel adapter in the selection list.

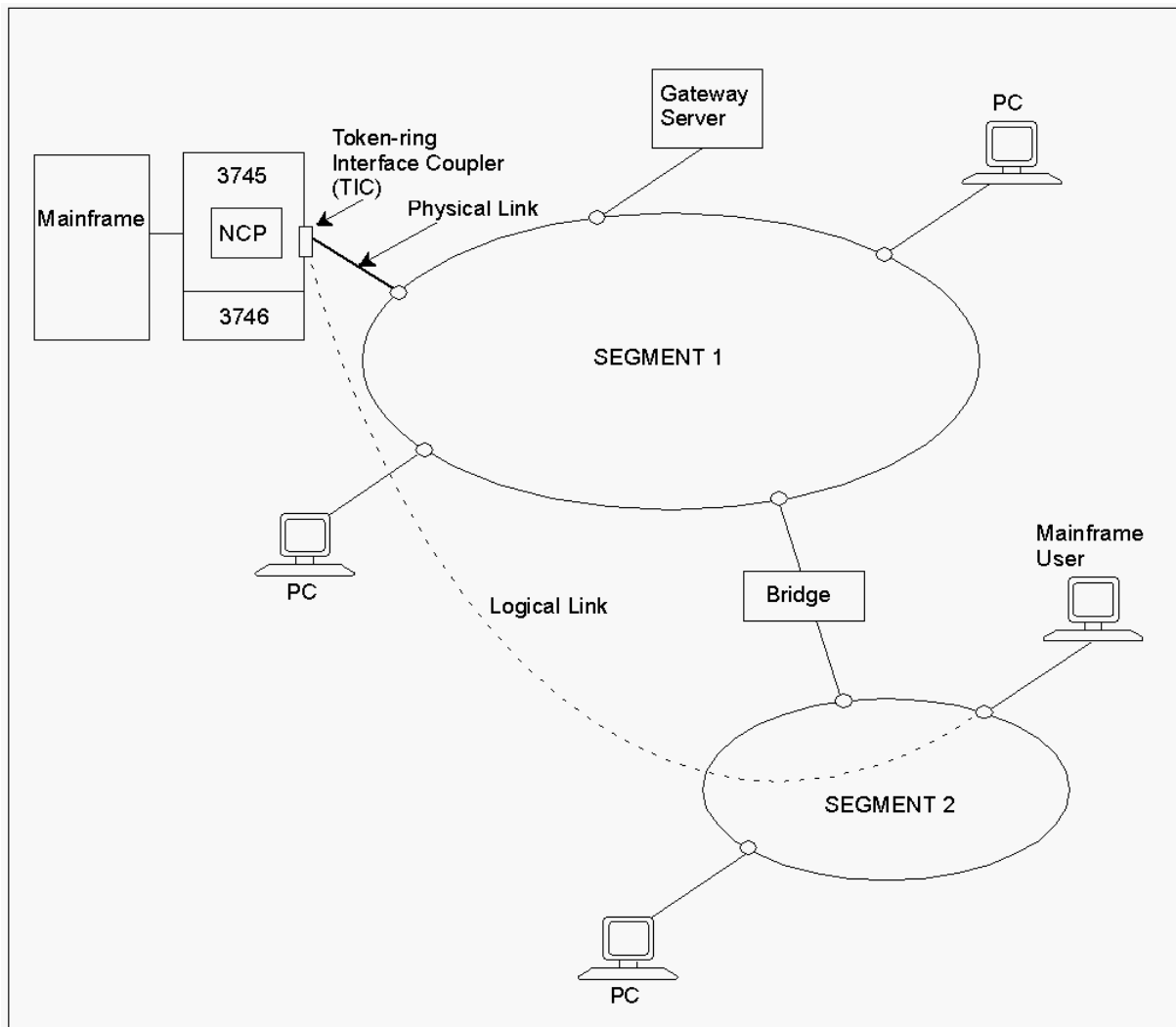
The NCPView : Line Adapter Details for the selected line adapter appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Display Token-ring Adapters and Links

NCPView lets you monitor adapters used to connect your communication controller to a token-ring network.

The following diagram illustrates the token-ring physical and logical links between a user and the mainframe.



Token-ring Diagnostics Menu

If you are having problems communicating with your token-ring network, you can use the Token-ring Diagnostics menu to investigate token-ring adapters, logical links, and physical links.

```
PROD----- NCPView : NCP001 Token-ring Diagnostics -----ZNC021
Select Option ==>

  LA - List Token-ring Adapters
  BA - Browse Token-ring Adapter Details
  LP - List Token-ring Physical Links (TICs)
  BP - Browse Token-ring Physical Link (TIC) Details
  LL - List Token-ring Logical Links
  BL - Browse Token-ring Logical Link Details
  X  - Exit

Adapter ID ..... _____ ( Required BA Optional LA )
Link Name ..... _____ ( Required BP BL Optional LL LP )
```

This menu contains the following options:

LA - List Token-ring Adapters

Displays all token-ring adapters on the specified NCP.

BA - Browse Token-ring Adapter Details

Displays details for the specified adapter.

LP - List Token-ring Physical Links (TICs)

Displays all token-ring physical links (TICs) on the specified NCP.

BP - Browse Token-ring Physical Link (TIC) Details

Displays TIC details for the specified NCP.

LL - List Token-ring Logical Links

Displays all token-ring logical links on the specified NCP.

BL - Browse Token-ring Logical Link Details

Displays token-ring logical link details for the specified link.

Access Token-ring Diagnostics Menu

To access the token-ring diagnostics menu for an NCP

1. Enter **TR** at the command prompt on the NCPView : Adapter Diagnostics menu for that NCP.

The NCPView : Token-ring Diagnostics menu appears.

List Token-ring Adapters

You can list all the token-ring adapters on a specific NCP to find out if they are functioning.

To list token-ring adapters for an NCP

1. Enter **TR** next to an NCP entry on the NCP monitor.

The Token-ring Adapter List for the specified NCP appears.

Note: You can enter **LA** at the command prompt on the NCPView : Token-Ring Diagnostics menu for that NCP.

Display Physical Links

To list the physical links associated with the token-ring adapters

1. Enter **LP** next to the required adapter in the Token-ring Adapter List.

The Token-ring Physical Link List appears.

Browse Token-ring Adapter Details

To view more information about a specific adapter

1. Enter **S** or **B** next to the required adapter on the Token-ring Adapter List.

The NCPView : Token-ring Adapter Details panel for that adapter appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

List Token-ring Physical Links

You can list the token-ring physical links for a Token-ring Interface Coupler (TIC) on a specific NCP. This lets you monitor the status of the links to prevent or locate communication problems.

To list all token-ring physical links for an NCP

1. Enter **TIC** next to an NCP entry on the NCP monitor.

The Token-ring Physical Link (TIC) List for the specified NCP appears.

Notes:

- You can also enter **LP** at the command prompt on the NCPView : Token-ring Diagnostics menu for that NCP.
- For information about the fields displayed and actions available on this panel, press F1 (Help).

Browse Physical Link Details

To view more information about a specific token-ring physical link

1. Enter **S** or **B** next to the required link on the Token-ring Physical Link (TIC) List.

The NCPView : Token-ring Physical Link (TIC) Details panel for that link appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

List Token-ring Logical Links

You can list the token-ring logical links on a specific NCP. This lets you monitor the status of the links to prevent or locate communication problems.

To list all token-ring logical links

1. Enter **LL** at the command prompt on the NCPView : Token-Ring Diagnostics menu.

The Token-ring Logical Link List for the specified NCP appears.

Browse Logical Link Details

To view more information about a specific logical link

1. Enter **S** or **B** next to the required link in the Token-ring Logical Link List.

The NCPView : Token-ring Logical Link Details panel for that link appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Display Frame Relay Physical Lines and Their Subports

NCPView lets you monitor frame relay physical lines on a 3745/3746-900 communications controller and the subports for each physical line. The Frame Relay Diagnostics Menu provides functions that list physical lines, display physical line details, and list the subports for a physical line.

Frame Relay Diagnostics Menu

```
PROD----- NCP : NCP001 Frame Relay Diagnostics -----ZNC023
Select Option ==>

  LP - List Frame Relay Physical Lines
  BP - Browse Frame Relay Physical Line Details
  LS - List Subports for a Frame Relay Physical Line
  X  - Exit

Line Name ..... _____ ( Required BP LS Optional LP )

F1=Help      F2=Split      F3=Exit      F4=Return
              F9=Swap
```

This menu contains the following options:

LP - List Frame Relay Physical Relay Diagnostics

Displays the frame-relay physical lines on the specified 3745/3746-900 communications controller.

BP - Browse Frame Relay Physical Line Details

Displays information about the specified frame relay physical line on the NCP.

LS - List Subports for a Frame Relay Physical Line

Displays a list of subports and their basic details for the specified physical line on the NCP.

Access Frame Relay Diagnostics Menu

To access the Frame Relay Diagnostics Menu

1. Enter **FR** at the command prompt on the NCP : Adapter Diagnostics menu for that NCP.

The NCPView : Frame Relay Diagnostics menu appears for the specified NCP.

List Frame Relay Physical Lines

You can list frame relay physical lines and obtain basic information about all the frame relay physical lines on a 3745/3746-900 communications controller.

To list frame relay physical lines

1. Enter **LP** at the command prompt on the Frame Relay Diagnostics menu.

Note: To filter the display, you can enter the line name for the physical line details that you want.

The NCPView : Frame Relay Physical Line List displays.

Note: For information about the fields displayed and actions available on this panel, press F1 (Help).

Display Details About Physical Lines

You can display detailed information about a frame relay physical line.

To display details about physical lines

1. Type **BP** at the command prompt on the Frame Relay Diagnostics menu and enter the Line Name for the physical line details that you want.

The first of three pages of detailed information appears.

2. Press F8 (Forward) to scroll through the information.

Note: For information about the fields displayed on this panel, press F1 (Help).

List Subports for a Physical Line

To list basic details about subports (DLCIs) currently attached to a frame relay physical line

1. Type **LS** at the command prompt on the Frame Relay Diagnostics menu and enter the Line Name for the physical line details that you want.

The NCPView : Frame Relay Subport List appears.

Note: For information about the fields displayed and actions available on this panel, press F1 (Help).

Display Terminating Equipment or Switching Equipment Details

You can display details about logical lines associated with DLCIs attached to a frame relay physical line.

The details vary depending on whether the DLCI is for a terminating equipment subport or a switching equipment subport.

Display Frame Relay Terminating Equipment Details

To display frame relay terminating equipment details

1. Enter **S** or **B** (Browse) on the Frame Relay Subport List next to *one* of the following DLCIs:
 - A terminating equipment subport (TESP)
 - A peripheral node TESP (PNTESP)
 - A subarea subport (SATESP)

The first of three NCPView : Frame Relay Terminating Equipment Details panels display. The panels provide information about the logical line associated with a particular TESP DLCI (including PNTESP and SATESP).

Note: For information about the fields displayed on this panel, press F1 (Help).

Display Frame Relay Switching Equipment Details

To display frame relay switching equipment details

1. Enter **S** or **B** (Browse) on the Frame Relay Subport List next to a DLCI that is a switching equipment subport.

The first of three NCPView : Frame Relay Switching Equipment Details panels display. The panels provide information about the logical line associated with a particular FHSP DLCI.

Note: For information about the fields displayed on this panel, press F1 (Help).

Display 3746-900 CSS Adapters

NCPView lets you monitor adapters used to connect your communication controller to a 3746-900 Connectivity Subsystem (CSS). You can use the 3746-900 CSS support menu to monitor your CSS adapters.

You can obtain a list of all the CSS adapters on your NCPs to investigate problems and monitor communication.

To list all CSS adapters for a specified NCP

1. Enter **CSS** at the command prompt on the NCPView : Adapter Diagnostics menu for that NCP.

The NCPView : 3746-900 Adapter List appears for the specified NCP.

Browse CSS Adapter Details

To access detailed information about a specific CSS adapter

1. Enter **S** or **B** (Browse) next to the required adapter on the NCPView : 3746-900 Adapter List.

The NCPView : 3746-900 CSS Adapter Details panel for that adapter appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Monitor SNA Network Interconnection Information

SNA Network Interconnection (SNI) uses gateways to connect independent networks. If you are using SNI to connect networks, you need to monitor the half-session control blocks (HSCBs) and gateway network addressable units (GWNAUs) for each connection. NCPView lets you perform this monitoring task using the SNI information menu.

Display Network and HSCB Count Attribute Information

When you establish a session with another network connected using SNI, two HSCBs are used, one HSCB in each network. The number of HSCBs is defined when an NCP is generated. NCPView lets you monitor the number of HSCBs being used for cross-network session to ensure that there are enough for future sessions to be established.

To display HSCB information for an NCP

1. Enter **/NCPMON** at a command prompt.

The NCP monitor appears.

2. Enter **IN** next to an NCP entry.

The NCPView : Network List appears.

3. This is a selection list of networks and their associated HSCB usage.

Note: For information about the fields displayed and actions available on this panel, press F1 (Help).

Browse HSCB Usage

To access detailed information about the HSCB usage for a specific network

1. Enter **S** or **B** next to the required network on the NCPView : Network List.

The NCPView : Network Details panel for the selected network appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

List Gateway Network Addressable Units

When you establish a session with a resource in another network connected using SNI, each resource has an address allocated to it in a Gateway Network Addressable Unit (GWNAU). The number of GWNAs is defined when an NCP is generated. NCPView lets you monitor the number of GWNAs being used for cross-network sessions to ensure that there are enough for future sessions to be established.

Important! The LN option requires a large amount of storage from the NCP. The request may take minutes to complete.

To list GWNAs for an NCP

1. Enter **LN** next to the required network on the NCPView : Network List.

The NCPView : GWNAU Usage List for the specified NCP appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Monitor Transmission Groups

Transmission groups link adjacent subarea nodes so that information can be routed. There can be up to 255 transmission groups between two subarea nodes. NCPView lets you monitor the transmission groups to ensure that congestion does not occur.

List Transmission Group Information

The list and browse function is used to monitor the type of link, status, and queue information of each transmission group in your NCPs. This lets you pinpoint areas of congestion.

To access transmission group information for an NCP

1. Enter **TG** next to an NCP entry on the NCP monitor.

The NCPView : Transmission Group List for the specified NCP appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Browse Transmission Group Information

To access detailed information about the transmission groups for a specific network

1. Enter **S** or **B** next to the required network on the NCPView : Transmission Group List.

The NCPView : Transmission Group Details panel for the selected network appears.

Note: For details about the information displayed on this panel, press F1 (Help).

Monitor Virtual Route Information

Virtual routes are used to connect two subarea nodes. By monitoring these routes, you can detect failures and congestion on the connection.

In SNA terms, a virtual route can be a logical connection between two subarea nodes or a logical connection in a particular subarea node for the purpose of intranode sessions.

The virtual route between subarea nodes does the following:

- Places a transmission priority on the explicit route between nodes
- Applies sequential numbering to path information units (PIUs) to ensure data integrity
- Uses virtual route pacing to ensure a controlled flow of PIUs along the virtual route

NCPView lets you list all of the virtual routes and view virtual routing and flow control information for each route on the list.

List Virtual Route Information

By listing and browsing virtual route information, you can monitor the state of the route and whether or not there is congestion on the route.

To display a list of networks and their virtual routes

1. Enter **VR** next to an NCP entry on the NCP monitor.

The NCPView : Virtual Route List for the selected NCP appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Browse Virtual Route Information

To access detailed information about the virtual routes for a specific network

1. Enter **S** or **B** next to the required network on the NCPView : Virtual Route List.

The NCPView : Virtual Route Details panel for the selected network appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Monitor NCP Internet Protocol Router Statistics

If your NCP is acting as an Internet Protocol (IP) router to connect to an internet environment, you need to monitor the movement of information, as datagrams, to that network. NCPView lets you view statistics for the transmission of datagrams through the NCP IP router using the IP Router Statistics panel.

To access IP router statistics for a specified NCP

1. Enter **/NCPMON** at a command prompt.

The NCP monitor appears.

2. Enter **IP** next to an NCP entry.

The NCPView : NCP IP Router Statistics panel appears.

Note: For information about the fields displayed on this panel, press F1 (Help).

Acknowledge a Link Failure

When a link between connected regions fails, the resources being monitored through the failed link appear in the UNKNOWN state. A failed link can affect a large number of resources and fill your monitor with link failure error states. Use the **ACKLNKFAIL** command to acknowledge that you note the failure and to clear your monitor of the affected resources so that you can better monitor the other resources. The affected resources reappear when the link recovers.

To acknowledge a link failure

1. On your Monitor panel, type **ACKLNKFAIL** at the prompt and press Enter.

The Execute ACKLNKFAIL Command panel appears.

The panel displays the list of regions connected to your region. The panel identifies the access method control block (ACB) name of each region and the system image that is active in that region.

2. Type **S** beside the regions affected by the failed link, and press Enter.

A confirmation panel appears.

3. Enter **CONFIRM** in the Response field to execute the command.

The Monitor panel appears with the resources under the control of the selected regions removed from the list of monitored resources.

Respond to the Initialization Status Panel

If the loading of a system image starts in your region while you are using the monitor, your monitor session ends and the Initialization Status panel is displayed. Similarly, if you attempt to access the monitor while the system image is being loaded, the Initialization Status panel is displayed. You can take *one* of the following actions:

- Press F6 (Action) to monitor the loading process.
- Press Enter to refresh the information in the status window.
- Press F3 (Exit) to exit the panel.

You can return to the monitor when the loading process completes.

Respond to the Database Synchronization Panel

If knowledge base synchronization is started for your region while you are using the monitor, your monitor session ends and the Database Synchronization panel is displayed. Similarly, if you attempt to access the monitor while the knowledge base is being synchronized, the Database Synchronization panel is displayed. You can take *one* of the following actions:

- Press F6 (Action) to monitor the synchronization process.
- Press Enter to refresh the information in the status window.
- Press F3 (Exit) to exit the panel.

You can return to the monitor when the synchronization process completes.

Chapter 4: Managing SNA Resources

This section contains the following topics:

[Display Resources](#) (see page 69)

[Display a Node](#) (see page 70)

[Display Resources by Name](#) (see page 75)

[Display APPN Resources by Type](#) (see page 75)

[Access NCS : Subarea Menu](#) (see page 83)

[NCS : Subarea Menu](#) (see page 83)

[Display Options](#) (see page 85)

[Display Alerts](#) (see page 88)

[Display CNM Events](#) (see page 89)

[Display NTS Active Session Data](#) (see page 89)

[Control Nodes](#) (see page 90)

Display Resources

Network Control System (NCS) lets you monitor and control SNA network resources. You can access the display of a particular node (resource) or, in the case of multiple resource types, display a resource selection list to choose a resource to display. This can be done through the SNA : Diagnosis Menu.

Access SNA : Diagnosis Menu

To access SNA : Diagnosis Menu

1. Enter **/SNADIAG** at the command prompt on any panel.

The SNA : Diagnosis Menu appears.

Display a Node

You can access the display of a particular node (resource) or, in the case of multiple resource types, display a resource selection list to choose a resource to display.

To display a node

1. Type **N** at the command prompt on SNA : Diagnosis Menu, and complete the following fields:

Node Name

Specifies the name of the node.

Limits: Up to 17 characters long and can include the network qualifier (for example, *netid.nodename* or **.nodename*).

Link Name

(Optional) Specifies the INMC link name of the region that the data is sourced from.

Press Enter.

Note: If the resource selection list appears, enter **S** next to the resource that you want to display.

The resulting display depends on the number and type of resources in the network:

APPN resource or a session-oriented resource

For example, an application (APPL) or a cross-domain resource (CDRSC), the NCS : Resource Display appears. The format of the NCS : Resource Display varies, depending on the resource type.

Directory Entry

The NCS : APPN Directory Entry Display appears.

Neither of the above

The NCS : Node Display appears. This is a graphical representation that varies, depending on the resource type. This display shows a maximum of five levels of hierarchy.

Resource Selection

The NCS : Resource Selection list appears when there are multiple resource types, as in the case of an interchange node, for example XYZ1VTM1.

Note: For information about the fields displayed on the NCS : Resource Selection List, press F1 (Help).

Note: The information displayed can vary, depending on the VTAM level your system is running on, and on the types of resources available in your network.

To display a particular resource, enter **S** beside the resource name on the selection list. The NCS : Node Display or NCS : Resource Display panel for the selected resource displays.

Display APPN and Session-oriented Resources

The format of the NCS : Resource Display varies, depending on the resource type, which can be any of the following:

- Control points (adjacent or host)
- Adjacent control point major nodes
- RTP major nodes
- TRL major nodes
- Applications and CDRSCs
- PU T2.1 for an RTP pipe
- PU T2.1 for a TG PU

Host CP Example

The following is an example for a host CP.

```

PROD----- NCS : Resource Display -----
Command ==>                                Scroll ==> PAGE

Information for NET.XYZ1VTM1      Node Type ..... HOST CP
Status ..... ACT/S              Desired ..... ACTIV
Major Node ..... VTAMSEG        Type ..... APPL
Registration Type .... NONE
Job Name ..... VTAM            Step Name ..... VTAM

Sessions (6)
  S/=Select Q=Status DS=Display Session D=VTAM Display ?=More Actions
Name      Status      SID      Send Recv VR TP ALS
NET.TSYD11CP  ACTIV/CP-S CD2F3C0010063953 0756 0001 0 1
NET.TSYD11CP  ACTIV/CP-P E4DF0997D31EB12F 0001 0756 0 1
X390.USS3270  ACTIV/CP-S CD2F3C00100632FF 0EC5 0001 0 1
X390.USS3270  ACTIV/CP-P D18BB71D1212DC58 0001 0ED2 0 1
XDINET1.TSYD13CP  ACTIV/CP-S CD2F3C00100602C2 0001 0001 0 1
XDINET1.TSYD13CP  ACTIV/CP-P CF5F82F8650C1E09 0002 0002 0 1
**END**

F1=Help      F2=Split      F3=Exit      F5=Find      F6=Refresh
F7=Backward  F8=Forward      F9=Swap      F11=VTAMDisp F12=MajNode

```

Note: For information about the fields displayed and the actions and commands available on the NCS : Resource Display for a host CP, press F1 (Help).

RTP Pipe Example

The display for an RTP pipe lets you determine how busy it is and what applications are driving the network for this resource. Network problems such as queueing and path switching are highlighted. Flow control problems are shown by the ARB mode and back pressure reasons. The following panel is an example:

```

PROD44----- NCS : RTP CNR00005 -----
Command ==>                                     Scroll ==> CSR

Endpoint Nodes .... COMPUSILDA01.A11X99 - COMPDA01.A01X99
Class of Service ... #INTER          Priority ..... HIGH
ARB Mode ..... GREEN                State ..... CONNECTED,NORMAL
Remote LUs ..... 4                  Sessions ..... 5
Path Switches ..... 2              Activated ..... 21:06:25 12-JAN-2008

Path TG PU      CP Name      TG Type  HPR
    22 ISTP11D1 COMPDA01.A01X99 APPN    RTP
Traffic NLPs/s Bytes/s      NLPs Bytes Largest  Max
Inbound   -      -      -  215K 140M   3855   -
Outbound  -      -      -  330K 1027M 3855 57370
ARB Information
Actual Flow Rate ... 250B/s      Maximum ..... 3MB/s
Allowed Flow Rate .. 4MB/s      Initial ..... 156KB/s
Receiver Threshold  37000ms     Receiver Min/Max ... 17000ms / 37000ms
Smoothed RTT ..... 10ms        Liveness Timer .... 180s
Short Request Timer 250ms
Back Pressure ..... PathSwitch(1)
Queue      Current  Max  Occurred
Outbound Work      1    6  09:35:40 16-JAN-2008
Acknowledgement    1   27  00:36:24 16-JAN-2008
Inbound Work       0    9  -
Path Switch Details
1 switches by remote end
1 local switches, 1 due to failure, 0 due to retry
Last occurred: 15:06:05 16-JAN-2008, SHORT REQUEST RETRY LIMIT EXHAUSTED

Appl      Status
A01IOPSP ACT/S----Y
A01NAB53 ACT/S----Y
A01SJES2 ACT/S----Y
A09IOPSP ACT/S----Y
**End**

```

```

F1=Help      F2=Split    F3=Exit      F4=Display   F5=Remote    F6=Refresh
F7=Backward  F8=Forward   F9=Swap      F10=Sessions F12=TG

```

Note: For information about the fields displayed, and the actions and commands available on the RTP panel, press F1 (Help).

Display Related Resources

If a panel lists additional resources, you can find out more about them.

To display a related resource

1. Enter **S** on the selection list beside the resource.

One of the following panels appears:

- The NCS : Resource Display for the selected resource component
- A selection list of resource types

Display Native VTAM Information

The VTAMDisp command provides an extended native VTAM display of the resource.

To display this additional information, press the VTAMDisp function key.

Display a Directory Entry from the Resource List

If the NCS : Resource Selection List contains a directory entry, and you select this resource type from the list, the NCS : APPN Directory Entry Display panel appears.

This panel also appears if you select option **AD** - Display APPN Directory Information from the NCS : APPN Menu.

Display Non-APPN Resources

The NCS : Node Display is presented for subarea network resources. This display appears when the specified network resource is a part of the subarea hierarchy.

Display Resources by Name

To display a list of SNA resources whose name starts with a specified prefix

1. Type **L** at the command prompt on the SNA : Diagnosis Menu and complete the following field:

Node Name

Specifies the name of the node.

Note: The prefix must not be a network-qualified name.

2. Press Enter.

The NCS : SNA Resource List panel appears.

Note: For information about the fields provided and actions available on the NCS : SNA Resource List, press F1 (Help).

Display APPN Resources by Type

You can display APPN resources by type from the NCS : APPN Menu. This menu enables you to view the status, topology, and session information for resources pertaining to APPN-connected devices.

Access NCS: APPN Menu

To display APPN resources by type

1. Enter **/SNAAPPN** at the command prompt.

The NCS : APPN Menu appears.

NCS : APPN Menu

```
PROD----- NCS : APPN Menu -----/SNAAPPN
Select Option ==>

    RTP - List RTP Pipes                      APPNRTP
    TRL - List Transport Resource List Entries APPNTRL
    D   - List Dependent LU Requestors        APPNDLU
    CP  - List CP-CP Sessions                 APPNCP
    P   - APING a Control Point               APING
    AD  - Display APPN Directory Information  APPNDIR
    AT  - Display APPN Subnetwork Topology Information APPNTOP
    X   - Exit

Node/CP Name                      (Required P AD Optional RTP AT )
Resource Type                     (Optional TRL )
Link Name ...                     (Optional All )
```

This menu contains the following options:

RTP - List RTP Pipes

Displays a list of Rapid Transport Protocol pipes and their status.

TRL - List Transport Resource List Entries

Displays a list of transport resources and their status.

D - List Dependent LU Requestors

Displays a list of all DLURs and their status.

CP - List CP-CP Sessions

Displays a summary of adjacent CP connections.

P - APING a Control Point

Tests the route to a selected control point.

AD - Display APPN Directory Information

Displays APPN directory information for the specified resource.

AT - Display APPN Subnetwork Topology Information

Displays APPN subnetwork topology information for the specified resource.

Display Rapid Transport Protocol Pipes

The NCS : RTP Pipe List displays a list of Rapid Transport Protocol (RTP) Pipes, which are PU Type 2.1 nodes used by APPN High Performance Routing (HPR).

Note: If you want to display a summary of CP connections, use the CP option.

To display a list of RTP pipes

1. Enter **/APPNRTP** at the command prompt or enter **RTP** at the NCS : APPN Menu.

The NCS : RTP Pipe List appears.

The display has multiple pages, which you can access by scrolling right. The lines on this panel are color-coded, depending on the values of connection state, congestion, and queue for each pipe.

Note: For information about the fields provided and actions available on the NCS : RTP Pipe List, press F1 (Help).

2. Perform any of the following actions to help you diagnose the pipes:
 - Use the SORT command to sort the list, for example:
 - SORT ACTUAL D sorts pipes by activity starting with the busiest.
 - SORT STALL D sorts pipes with those in a stalled condition first.
 - SORT CONGEST D sorts pipes with those with congestion first.
 - Press F10 (Left) and F11 (Right) to scroll through the pages.
 - Apply actions to find out more about the pipes, for example:
 - You can use the S action for a formatted display of the RTP pipe.
 - If the RTP pipe is using a suboptimal path, you can use the PSW action to force a pathswitch.

Display Transport Resource List Entries

Transport Resource List entries (TRLEs) define the characteristics of host-to-host channel connections.

To display a list of Transport Resource List Entries (TRLEs)

1. Enter **/APPNTRL** at the command prompt, or enter **TRL** at the NCS : APPN Menu.

The NCS : Transport Resource List appears. The Status field is highlighted if the desired state does not match the actual state. The display has multiple pages, which you can access by scrolling right. For example, when you scroll right, you can identify any OSA priorities that have become congested because of excessive queueing.

Note: For information about the fields provided and actions available on the NCS : Transport Resource List, press F1 (Help).

Display Dependent LU Requestor Resources

This option displays a list of dependent LU requestors for which this host acts as dependent LU server (DLUS). The DLUS sends data on a contention-winner session and receives data on a contention-loser session.

To display a list of Dependent LU Requestor Resources (DLUR) resources

1. Enter **/APPNDLU** at the command prompt or enter **D** at the NCS : APPN Menu.

The NCS : DLUR Resource List appears. This panel displays information about the current state of both these sessions for each DLUR.

Note: For information about the fields provided and actions available on the NCS : DLUR Resource List, press F1 (Help).

Display CP-CP Sessions

The CP-CP Session List displays a summary of CP connections.

From the CP-CP Session List, you can do the following:

- View the RTP Pipes for an adjacent CP
- Display connections for an adjacent CP
- Display the native VTAM display using Command Entry

To display the CP-CP Session List

1. Enter **/APPNCP** at the command prompt.

The NCS : CP-CP Session List Appears.

Note: For more information about the fields and options provided on this panel, press F1 (Help).

Test APPN Connectivity

The APPN APING function tests the route to another APPN node and displays performance information for the route. The results are displayed in the following sections:

Parameters (top)

Lets you change these parameters to perform a fresh APING for a node.

Results (middle)

Contains a series of lines, each showing the result of one APING operation. The latest result is shown at the top of the list.

Messages (bottom)

Displays messages relating to the latest APING operation.

Note: The APPN node must support the APING transaction.

To perform an APING on a node

1. Enter **/SNAAPPN** at the command prompt.

The NCS : APPN Menu appears.

2. Type **P** at the command prompt and enter the following field:

Node/CP Name

Specifies the name of the resource on which you want to perform the action.

3. Press Enter.

The NCS : APING Results List panel appears. For more information about the NCS : APING Results List panel, press F1 (Help).

Note: To perform further APING actions, you can change any of the input parameters on this panel and press F6 (Action).

Display APPN Directory Information

The NCS : APPN Directory Entry panel displays information from the directory database about a particular resource and also about the resources that it serves and owns. For example, you can display a network node along with the end nodes that it serves and the LUs that it owns.

To display APPN directory information for a node

1. Enter **/SNAAPPN** at the command prompt.

The NCS : APPN Menu appears.

2. Type **AD** at the command prompt and complete the following field:

Node/CP Name

Specifies the name of the resource on which you want to perform the action.

3. Press Enter.

The NCS : APPN Directory Display appears.

Note: For information about the fields provided on this panel, press F1 (Help).

Display APPN Subnetwork Topology Information

The NCS : Subnetwork Topology display shows the currently selected node (the origin control point) and any operative or quiescent adjacent destination control points.

To access this information

1. Enter **/APPNTOP** at the command prompt.

The NCS : Subnetwork Topology panel appears.

The first line of the selection list on this panel shows the selected node, and the following lines list its adjacent nodes. The information displayed can vary, depending on the VTAM level of your system, and on the types of resources available in your network.

You can select any node to display node attributes. You can select an adjacent node to display transmission group attributes or to display its adjacent nodes.

Note: For information about the fields provided and actions available on this panel, press F1 (Help).

Display Topology Attributes for a Node

The APPN : Node Topology Attributes panel displays routing characteristics for a node.

To access this display

1. Enter **T** beside the required node on the NCS : Subnetwork Topology panel.

The APPN : Node Topology Attributes panel appears.

Note: For information about the fields provided on this panel, press F1 (Help).

Display Topology Attributes for a Transmission Group

The Transmission Group panel provides topology attributes for the transmission group associated with a selected adjacent node.

To access this display

1. Enter **TG** beside the required node (the destination control point of a connection) on the NCS : Subnetwork Topology panel.

The Transmission Group panel appears.

Note: For information about the fields provided on this panel, press F1 (Help).

Display Adjacent Nodes for a Network Node

The NCS : Subnetwork Topology panel provides information about the adjacent nodes for the selected network node.

To access this display

1. Enter **AT** beside the required node on the NCS : Subnetwork Topology panel.

A panel appears showing the view of adjacent nodes from the currently selected node displays.

Note: For information about the fields provided on the panel, press F1 (Help).

Access NCS : Subarea Menu

You can list applications, clusters, cross domain managers, lines, major nodes, pending nodes, cross domain resources, link stations, or terminals from the NCS : Subarea Menu.

To access the NCS : Subarea Menu

1. Enter **/SNASUBA** at the command prompt.
The NCS : Subarea Menu appears.

NCS : Subarea Menu

You can access subarea resources using the NCS : Subarea Menu. When you select one of the options, NCS presents a summary list for that type of resource.

```

PROD----- NCS : Subarea Menu -----/SNASUBA
Select Option ==>

  A - List Applications          SNAAPPL
  C - List Clusters             SNACLST
  D - List Cross Domain Managers SNACDRM
  L - List Lines                SNALINE
  M - List Major Nodes          SNAMAJN
  P - List Pending Nodes        SNAPEND
  R - List Cross Domain Resources SNACDRS
  S - List Link Stations        SNALINK
  T - List Terminals            SNATERM
  I - Select INMC Links
  X - Exit

F1=Help    F2=Split    F3=Exit    F4=Return
              F9=Swap

```

This menu contains the following options:

A - List Applications

Displays a list of application major nodes.

C - List Clusters

Displays a summary of clusters by major node.

D - List Cross Domain Managers

Displays a summary of cross domain managers by major node.

L - List Lines

Displays a summary of lines by major node.

M - List Major Nodes

Displays a list of major nodes.

P - List Pending Nodes

Displays a list of pending nodes (not available for Fujitsu VTAM-G).

R - List Cross Domain Resources

Displays a summary of cross domain resources by major node.

S - List Link Stations

Displays a summary of link stations by major node.

T - List Terminals

Displays a summary of terminals by major node.

I - Select INMC Links

Displays a list of INMC links to other regions.

Select the Domains You Want to Monitor

NCS monitors the nodes in the domain in which it is running, or any domain connected using an INMC link.

To select which domains to include on the summary displays

1. Enter **I** at the command prompt on the NCS : Subarea Menu.

The NCS : INMC Link Selection panel appears, showing the current domain in which NCS is running and any links to other domains.

2. Type **S** next to the domains that contain the nodes that you want to appear on the summary displays and type **D** next to the domains that you do not want to appear on the summary displays.

Note: At least one domain must be selected. The local domain is always displayed at the head of the list, with the other domains in link-name order.

Press Enter.

**** SELECTED **** displays next to the domains that you have selected.

3. Press F3 (Exit).

Your selections are saved and the NCS : Subarea Menu appears.

Note: If you are monitoring resources in multiple domains, your user ID must be defined in the remote region for those domains.

Display Options

Display options are used to display information about nodes. The actions can be entered as follows:

- Beside any box in a graphical display
- Beside any subordinate nodes listed in a graphical display

Note: To display all available actions on a node, enter **?** next to the node.

Display Options for all Node Types

You can use the following actions to display all node types:

S

Displays the selected node and a list of its subordinate nodes.

SA

Displays the selected node and a list of its active subordinate nodes.

SI

Displays the selected node and a list of its inactive subordinate nodes.

SN

Displays the selected node only, without subordinate nodes.

Display Options for Clusters

You can use the following actions to display clusters:

SC

Displays the selected node and a list of its subordinate clusters.

SAC

Displays the selected node and a list of its active subordinate clusters.

SIC

Displays the selected node and a list of its inactive subordinate clusters.

Display Options for Lines

You can use the following actions to display lines:

SL

Displays the selected node and a list of its subordinate lines.

SAL

Displays the selected node and a list of its active subordinate lines.

SIL

Displays the selected node and a list of its inactive subordinate lines.

Display Options for Link Stations

You can use the following actions to display link stations:

SS

Displays the selected node and a list of its subordinate link stations.

SAS

Displays the selected node and a list of its active subordinate link stations.

SIS

Displays the selected node and a list of its inactive subordinate link stations.

Display Options for Terminals

You can use the following actions to display terminals:

ST

Displays the selected node and a list of its subordinate terminals.

SAT

Displays the selected node and a list of its active subordinate terminals.

SIT

Displays the selected node and a list of its inactive subordinate terminals.

Display Option for Cross-Domain Resources

You can use the following action to display a cross-domain resource:

X

Displays a cross-domain resource (CDRSC) in the domain it is defined in.

Note: This command applies to nodes of type CDRSC only.

Display Option for SNA Status Code Details

You can use the following action to display SNA status code details:

Q

Displays SNA status codes for a node.

Note: This option is not available from summary displays.

Display VTAM Commands

You can also use actions that result in VTAM commands to display nodes. These are entered as actions in the same places as display options.

The actions in the following table are the list of valid system actions and the VTAM commands generated for displaying nodes.

Action	VTAM Command Generated	Result
D	D NET,ID= <i>nodename</i> ,E	Displays the node and the name and status of all its subordinate nodes.
DA	D NET,ID= <i>nodename</i> ,A	Displays the node and the name and status of all its active subordinate nodes.
DEN	D NET,ID= <i>nodename</i> ,EN	Displays the node in a Fujitsu VTAM-G environment.
DES	D NET,ID= <i>nodename</i> ,ES	Displays the node set in a Fujitsu VTAM-G environment.
DI	D NET,ID= <i>nodename</i> ,I	Displays the node and the name and status of all its inactive subordinate nodes
DN	D NET,ID= <i>nodename</i>	Displays the node only. Does not display any subordinate nodes.

Note: The DEN and DES actions are valid only in a Fujitsu VTAM-G environment.

Display Alerts

The Alert Monitor notifies you of problems occurring in your network. You can display the alerts for a node.

To display alerts for a node, enter **AL** next to it.

The Alert Monitor : Alerts panel appears, listing any alerts for the selected resource.

Display CNM Events

When a monitored condition has occurred for a node, NEWS creates a CNM event to describe the condition. You can display CNM events for a node accessed from the Subarea Menu.

To display CNM events for a node, enter **N** next to it.

The NEWS : Events Review list appears if there are any recorded CNM events for the node.

Note: You can access CNM events for a node only if you have NEWS access privilege.

Display NTS Active Session Data

Session data is captured by NTS. You can display the active session data for a node accessed from the Subarea Menu.

To display NTS active session data, enter *one* of the following actions against the resource name for which you want to display NTS active session data:

LP

Searches for the node as the primary session partner.

LS

Searches for the node as the secondary session partner.

L

Searches for the node as the secondary session partner first, and, if there are no sessions, as the primary partner.

Note: You can access NTS active session data for a node only if you have NTS access privilege.

Control Nodes

Controlling nodes involves activating or deactivating a resource, or changing its status.

To control a node, enter actions against any node.

The following table contains the valid actions and the VTAM commands generated that are used to control nodes:

Action	VTAM Command Generated	Result
A	V NET,ACT,ID= <i>nodename</i>	Activates a node name.
I	V NET,INACT,ID= <i>nodename</i>	Deactivates a node name.
II	V NET,INACT,ID= <i>nodename</i> ,I	Deactivates a node name immediately when sessions have formally ended.
IF	V NET,INACTID= <i>nodename</i> ,F	Forces a node name to be deactivated.
V	V NET,ID= <i>nodename</i>	Varies a node name as entered by the user.
F	F NET,ID= <i>nodename</i>	Modifies a node name.

When these actions are entered, they appear at the command prompt so they can be modified before being executed.

Chapter 5: Managing Alerts

This section contains the following topics:

[Alert Monitor](#) (see page 92)

[Access the Alert Monitor](#) (see page 92)

[Activate Alerting](#) (see page 93)

[Sort Alerts](#) (see page 93)

[Filter Alerts](#) (see page 93)

[Change the Display Format](#) (see page 93)

[Change the Alert Monitor Profile Using the User Profile Menu](#) (see page 94)

[How to Work with Alerts](#) (see page 94)

[Display Alert Details](#) (see page 95)

[Display CNM Alert Details](#) (see page 95)

[Access the Transient Log from the Alert Monitor](#) (see page 96)

[Raise a Trouble Ticket for an Alert](#) (see page 96)

[Add Operator Notes to an Alert](#) (see page 97)

[Close Alerts](#) (see page 97)

[Display Alert History](#) (see page 98)

Alert Monitor

The Alert Monitor provides an integrated, correlated event notification system that indicates to operators that a problem has occurred and that some action needs to be taken. Such alerts, known as active alerts, are displayed on the Alert Monitor.

The Alert Monitor refreshes your screen each time an alert arrives. The clock in the title line indicates when the screen was refreshed last.

The title line of the Alert Monitor includes a total indicator, which shows the total number of alerts and the total number of alerts of each severity level. For example, (43: 5 23 8 7) means that there are a total of 43 alerts, comprising 5 severity one, 23 severity two, 8 severity three, and 7 severity four. Each severity level appears in a different color. The following illustration shows an example:

```
PROD1 (23.53.32)----- Alert Monitor (43: 5 23 8 7 ) -----Link: *MULTIPLE*
Command ==>                                     scroll ==> PAGE

s/B=Browse T=Track N=Notes A=Analyze TT=TroubleTicket C=Close ?=More
Time      Description                               Resource      Track
23.51.27  TRNDRPT: RINGRTT 261 ms 49% below HOURLY VAL CL 02
```

The Alert Monitor can initiate actions such as starting recovery procedures and creating trouble tickets, either automatically or manually.

In a multisystem environment, you can monitor active alerts from all linked regions in a focal point region. You can monitor only local active alerts in a subordinate region.

Alerts that were raised before the region was shut down are not displayed on the Alert Monitor when the region restarts, but are displayed on the Alert History panel. The alert history contains information about all alerts.

Access the Alert Monitor

The Alert Monitor lets you know of problems that have occurred in your environment. You can then take appropriate action based on the alert information.

To access the Alert Monitor

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

The monitor appears displaying any alerts.

You can also access the Alert Monitor by issuing the AL command against a resource from a resource monitor. The monitor displays the alerts for that resource.

Activate Alerting

You can activate and inactivate alerting for a resource by entering the **UMA** command against the resource from the status monitor.

Sort Alerts

Alerts are color coded by severity. They are sorted in order of severity, then time—the most severe alerts are listed first, then, in each category of severity, the most recent of the alerts are listed first.

To change the sort order, use the **SORT** command.

To list the column fields by which you can sort, enter **SORT ?**.

Filter Alerts

You can restrict the alerts displayed by using filters. When you apply a filter, the filter name appears on the right of the Alert Monitor and the totals in the title line reflect the number of alerts displayed under the filter.

To filter alerts, enter the following command at the command prompt:

```
FILTER filter_name
```

To remove the applied filter, enter **FILTER NONE**.

Note: To display a selection list of filters, enter **FILTER**.

Change the Display Format

Display format determines what and in what order information columns are displayed.

To change the alert monitor format, enter the following command at the command prompt:

```
FORMAT format_name
```

To return to the default format, enter **FORMAT DEFAULT**.

Note: To display a selection list of formats, enter **FORMAT**.

Change the Alert Monitor Profile Using the User Profile Menu

To change your alert monitor profile using the User Profile Menu

1. Enter **=U.UP** from any panel.
The Panel Display List appears.
2. Enter **S** beside Alert Monitor Profile.
The Alert Monitor Profile panel appears.
3. Complete the following fields:

Monitor List Filter

Specifies the name of the default filter.

Monitor List Format

Specifies how and what is displayed.

Alert Sort Criteria

Specifies the order in which the alerts are displayed.

Press F3 (File).

The changes to your user profile are saved.

How to Work with Alerts

The Alert Monitor displays the alert when it arrives. An alert can be closed automatically by the region (when it recognizes that the problem that caused the alert no longer exists) or manually by the operator. When an alert is closed, it is removed from the active alert monitor. However, it is still accessible from the Alert History panel.

Typically, when an alert arrives, do this:

1. Enter **B** (Browse) beside the alert to find out whether any suggested recommended actions are provided.
2. Enter **A** (Analyze) beside the alert to diagnose it. Diagnosis displays additional information for some alerts.
3. Enter **T** (Track) beside the alert to indicate to other users that you will be working on it. Your user ID is displayed in the Track column.
4. Perform any necessary actions to remove the alert condition. For information about actions, press F1 (Help).
5. Enter **N** (Notes) beside the alert to view or record notes that provide future reference information about this alert in the alert definition.
6. Enter **C** (Close) beside the alert after the alert condition is resolved.

Display Alert Details

The Alert Display describes an active alert and provides information about its generation time and its identity. An alert comes with the following information:

- General information such as severity level, the source of the alert, update history, and number of occurrences
- Possible causes of the alert and any recommended actions

To display the Alert Display

1. Enter **B** or **S** beside an alert on the Alert Monitor panel.

The Alert Display appears.

Note: For information about the fields, press F1 (Help).

Print Alert Details

To print details about the displayed alert

1. Enter **PRINT** at the command prompt.

The Confirm Printer panel appears.

2. Specify your printing requirements, and then press F6 (Confirm).

The details are sent to the printer.

Display CNM Alert Details

The Generic Alert Display for a CNM alert contains a formatted presentation of an NMVT x'0000' generic alert. This information is obtained by analyzing the codes found in one or more subvectors present in the alert record. Not all of these fields are present in all displays.

To display CNM alert details

1. Enter **D** beside a CNM alert on the Alert Monitor.

The Generic Alert Display appears.

Note: For information about the fields displayed, press F1 (Help).

Access the Transient Log from the Alert Monitor

If a monitored resource generates an alert, you can access the corresponding transient log for the affected resource from the Alert Monitor.

To access the transient log

1. Enter **TL** beside the alert.
The transient log appears.

Raise a Trouble Ticket for an Alert

If your system administrator has implemented the interface for raising a trouble ticket, you can request a trouble ticket as defined to your region.

Note: For information about how to implement the trouble ticket interface, see the *Administration Guide*.

To raise a trouble ticket

1. Enter **TT** next to the alert.
The Alert Monitor : Trouble Ticket Details panel appears.
2. Enter the details of the trouble ticket and press F6 (Confirm).
The trouble ticket is raised.

Add Operator Notes to an Alert

You can add notes to an alert for future reference. For example, you may want to leave the next operator some notes about an alert that has not been closed. Notes are also added automatically to provide a history of the actions performed on the alerts.

When an alert is closed, the severity and description of the alert are added to the notes so that you can easily identify which alert has been closed. When an alert severity changes, the description is added to the alert notes.

To add notes to an alert

1. Enter **N** beside the alert.
The Alert Notes panel appears.
2. Press F4 (Add).
The panel becomes editable.
3. Enter your notes about the alert, and press F3 (File) when you have finished.
The notes are saved with the alert.

Note: For information about how to use the editor, see the online help.

Close Alerts

Alerts can be closed automatically by the region or manually.

For example, an alert might be generated because a monitoring threshold is exceeded. When the condition is corrected, the alert is closed automatically. Another alert might be a reminder alert and needs to be closed manually.

To close an alert

1. Enter **C** beside the alert.
The alert is closed.

To close multiple alerts

1. Enter **CLOSE** at the Command prompt.
The Valid Value List panel appears.
2. Select ALL to close all displayed alerts or a severity level to close alerts with that level.
The Command Confirm panel appears.
3. Press F6 (Confirm).
The targeted alerts are closed and removed from the monitor.

Display Alert History

The alert history lists all alerts, both active and closed, that occurred during a predefined period.

To view the alert history

1. Press F4 (History) from the alert monitor.

The alerts for the current date appear. If you want to display the alerts for the other dates, use the DATE command (for example, DATE *yymmdd*).

Note: For more information about the command, see the online help.

2. (Optional) Enter **N** beside an alert to view the history of actions performed on it.

The Alert Notes panel appears.

Note: The length of time an alert is kept in the alert history log is set by your administrator.

Chapter 6: Managing and Soliciting Information from Network Devices

This section contains the following topics:

[Device Support](#) (see page 99)

[Get Information from Generic Devices](#) (see page 99)

[Get Information from Specific Devices](#) (see page 101)

Device Support

Device support solicits information from a device in your network to assist in determining the cause of a network error. Device support can also be used to test or reconfigure devices.

Device support performs the following functions:

- Sends a CNM request to a specified network device
- Examines the reply
- Presents a formatted display of the data returned

Device support is available from the SNA : Device Support Diagnosis Menu. From the SNA : Device Support Diagnosis Menu, you can obtain information on both generic and specific devices.

Access Device Support

To access the SNA : Device Support Diagnosis Menu

1. Enter **/DEVSUPP** at the command prompt.

The SNA : Device Support Diagnosis Menu appears.

Note: The devices that are displayed on the device support menu depend on the settings in the DEVICESUPP parameter group. For more information, see the *Administration Guide*.

Get Information from Generic Devices

The NEWS : Generic Device Support menu lets you view link test statistics, summary error data, communication adapter error statistics, and EC level information.

Access NEWS : Generic Device Support Menu

To access the NEWS : Generic Device Support Menu

1. Enter **/DEVSUPP** at the command prompt.
The SNA : Device Support Diagnosis Menu appears.
2. Enter **G** at the command prompt.
The NEWS : Generic Device Support menu appears.

NEWS : Generic Device Support Menu

```
PROD----- NEWS : Generic Device Support -----NET001
Select Option ==>

  1 - Link Test Statistics
  2 - Summary Error Data
  3 - Communication Adapter Error Statistics
  4 - EC Level Information
  5 - All of the Above
  6 - 386X Link Status Test
  7 - 386X DTE Test
  X - Exit

Node Name      ==>
NCP Name       ==>          (Options 6,7)

Reset Counters? ==> N (Enter Y to reset counters in controller)

Results        ==> D ( B : both displayed & recorded on the database,
                      D : displayed, not recorded on the database,
                      R : recorded on the database, not displayed)

Link Name      ==>          (Link name to solicit from remote system)
SSCP Name      ==>          (SSCP name to solicit from remote system)
```

This menu contains the following options:

1 - Link Test Statistics

Counts associated with the processing of Link-Level-2 (LL2) tests.

2- Summary Error Data

Counts which detail various hardware and communications problems.

3 - Communication Adapter Error Statistics

Counts which detail the number and types of errors associated with a PU's communication adapter.

4 - EC Level Information

Information about a PU's engineering change level, such as its microcode level or installed patches and RPQs.

Note: If the PU to be solicited is a 3174 or equivalent, then use option 4 twice to receive all EC and RPQ information.

5 - All of the Above

Solicits all the information described in options 1 to 4. Press F3 to scroll through the panels.

6 - 386X Link Status Test

Issues a request for IBM 386X modem equipment to perform a link status test to provide its view of line quality.

7 - 386X DTE Test

Requests IBM 386X modems to report on the remote DTE interface.

This menu contains the following fields:

Node Name

Specifies the name of the PU from which you want to solicit the information. The PU must be active and owned by this VTAM.

NCP Name

Specifies the name of the NCP that controls the resource name above. For installations using ACF/VTAM, if this field is omitted the procedure attempts to determine the NCP name using VTAM displays and then proceeds with the request.

Note: Applies to Options 6 and 7 only.

Reset Counters?

Enter **Y** if you want to reset the counters in the PU; otherwise enter **N**. Entering **Y** causes the PU to reset its counters for the category or categories selected after successful transmission.

Results

Specifies where the results are displayed and recorded.

Link Name or SSCP Name

Specify to route the request to a remote host. If both these fields are omitted, the request is sent to the local host.

Get Information from Specific Devices

You can also solicit information about specific devices from the NEWS : Generic Device Support menu.

The following devices are supported:

RTM - (3x74)

Used to review, solicit, or change RTM status of 3174 and 3274 cluster controllers or equivalents.

CSCF (Central Site Control Facility)

Used to invoke online tests against remote controllers. These tests allow a user to IML, configure and display, or update data.

LPDA-2

Used for Link Problem Determination Aid 2. This is available with the 586x and 586x compatible, and 5822 and 5822 compatible type devices.

Service Point Support

Used to send commands to OEM devices through a service point.

Product Set ID Support

Used to solicit product set ID information. This information provides a description of the hardware and software present in the device.

FCS (3600/4700)

Used to solicit status, error, and RTM data or change the alert generation intervals for finance communication system devices.

GATEWAY (3703)

Used to solicit various information from 3703 SNA GATE devices owned by this VTAM and to reset 3703 SNA GATE counter values.

SNA_HUB (3723 Downstream Devices)

Used to solicit and display link test statistics, summary error data, CA error statistics, EC level information, or validate a CNM path from a SNA_HUB device.

3710

Used to solicit configuration data, change the line status, password, or thresholds, or run diagnostics for a 3710 network controller device.

Note: The devices displayed depend on which devices are supported by your installation.

Each option has its own panel. These panels let you enter options and field input to solicit information from the chosen device.

Note: For more information, press F1 (Help) for each device.

Chapter 7: Investigating Network Errors and Trends

This section contains the following topics:

[Access the Database Review Menu](#) (see page 103)

[Database Review Menu](#) (see page 103)

[Display Device Information](#) (see page 105)

[Display Events](#) (see page 105)

[Display Attentions](#) (see page 106)

[Display Statistics](#) (see page 106)

[Display Response Time Monitor \(RTM\) Data](#) (see page 108)

Access the Database Review Menu

To access the database review menu

1. Enter **/SNAHIST** at the command prompt.

The NEWS : Database Review Menu appears.

Database Review Menu

The Database Review Menu lets you display details about all CNM records that have been logged to the NEWS database. For example, if you specified either B or R in the Results field of a NEWS : Generic Device Support menu option, records are logged to the NEWS database.

```
PROD----- NEWS : Database Review Menu -----NET001
Select Option ==>

  1 - Device Information
  2 - Events
  3 - Attentions
  4 - Statistics
  5 - RTM Data
  X - Exit

Node Name ==>          (full or partial name, blank for selection list,
                        ignored for Option 3)

LU Locaddr ==>         (2...255, if specific LU, else null, option 5 only)
```

This menu contains the following options:

1 Device Information

Certain devices accumulate error information. It is possible to retrieve this information. Some devices can forward this information on an unsolicited basis. Each time this information is received, NEWS records it on the database.

2 Events

Reviews the events that have been recorded.

The term events is applied to various conditions detected in the network. An event can arise in two ways after a record is received by NEWS. Either the condition causing the record to be sent is interpreted as an event itself, or, alternatively, the data content of the record is examined and, depending on the current system threshold values for that record type, NEWS may generate an event. Some examples of NEWS events are:

- A PU failing, or a link (line) failing.
- An alert generated by a device in response to a detected condition.
- A hardware error in a communications controller.
- A statistics RU yields an error/traffic ratio above a threshold value.

As events occur NEWS invokes event filtering to determine the processing option for the event from installation defined values (see option C). It may be ignored, simply recorded, or perhaps produce an attention message.

3 Attention Messages

Displays a list of the most recent events producing attention messages.

When NEWS event filtering decides an event should produce an attention message it is logged in chronological order in the attention message category. It also appears on the Alert Monitor.

4 Statistics

Lets you review the statistical information that NEWS has recorded about the nodes owned by this VTAM. A statistics summary appears that also acts as a node selection list. A subsequent selection of one of these nodes displays details about the current statistics records in the database.

5 RTM Data

(For 3174s and 3274s with the Response Time Monitor feature) Lets you review the RTM data recorded by NEWS. RTM data can be solicited and reviewed by using **/DEVSUPP.R.2**.

This menu contains the following fields:

Node Name

Specifies the node name you want to review.

If you are interested in a group of nodes or are unsure of the exact node name, you need only enter any number of leading characters of the node name, or no node name at all. NEWS displays a selection list of the nodes that match your criteria. In the first case, NEWS displays only the events for the selected node. This field is ignored for option 3 (Attentions) because they are not stored by node name but in chronological order across all nodes.

LU Locaddr

Specifies the local address number. Restricts the RTM data displayed to a particular LU.

Limits: Applies to Option 5 only.

Display Device Information

To access CNM records for devices

1. Enter **1** at the command prompt on the NEWS : Database Review Menu.

A selection list of resources or the device information for the specified node name appears, depending on the value of the Node Name field.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Display Events

To access CNM records for events

1. Enter **2** at the command prompt on the NEWS : Database Review Menu.

A selection list of resources or a selection list of events for a resource appears, depending on the value you entered in the Node Name field.

2. (Optional) Enter **S** against any item in a selection list to get more information about events or resources.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Display Attentions

To access CNM records for attentions

1. Enter **3** at the command prompt on the NEWS : Database Review Menu.
The NEWS : Attentions Review panel appears.

Note: When NEWS produces an attention, it is logged in chronological order in the attention category. It appears on the Attentions Review panel in *reverse* chronological order.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Display Statistics

To access CNM records for statistics

1. Enter **4** at the command prompt on the NEWS : Database Review Menu.

A statistics summary of all the nodes appears. If you specified a resource in the Node Name field on the NEWS : Database Review Menu, the summary line for that resource appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Display Statistics for a Particular Node

To display information about the statistics for a resource

1. Enter **S** next to that resource in a statistics review selection list.
The statistics appear.

Example: Display Statistics for a Particular Node

If the value of the Cnt field for the node you want to select is 25, entering **S** next to this node shows details about each of the 25 statistics. The following figure shows details about the statistics for NODE01, which had a value of 11 in the Cnt field.

PROD----- NEWS : Statistics Review -----				-----NET001			
Command ==>				Scroll ==> PAGE			
				S/G=Graph D=Delete			
Node: NODE01		Total Records: 11					
--Arrival Date and Time--		Sent Data	Sent-Err	Rcvd-Data	Rcvd-Err	LU	
TUE 20-JUN-2006 13:01:49		32768	0	24748	0		
TUE 20-JUN-2006 09:01:26		32768	0	24136	0		
MON 19-JUN-2006 16:48:59		32768	0	25828	0		
MON 19-JUN-2006 12:43:07		32768	0	24491	0		
MON 19-JUN-2006 08:55:31		32768	0	21509	0		
FRI 16-JUN-2006 15:37:11		32768	0	23149	0		
MON 08-MAY-2006 20:26:26		71	0	27	0		
MON 08-MAY-2006 20:12:34		82	0	34	0		
MON 08-MAY-2006 19:58:40		65	0	26	0		
MON 08-MAY-2006 19:44:48		56	0	25	0		
MON 08-MAY-2006 19:30:57		65	0	24	0		
END							
F1=Help	F2=Split	F3=Exit	F4=Return	F5=Find	F6=Refresh		
F7=Backward	F8=Forward	F9=Swap					

Display Error and Traffic Statistics

The Error/Traffic Statistics panel provides information about the presently held error/traffic ratios and accumulated error/traffic ratios. Comparing the presently held statistics against those accumulated allows any trends for the particular resource to emerge.

To access a graphical display of the error/traffic ratios

1. Enter **G** next to a statistics entry in a selection list.

The Error/Traffic Statistics panel appears.

2. Press Enter.

The statistics distribution for the statistics entry appears.

Display Response Time Monitor (RTM) Data

Note: This feature applies to 3174 and 3274 controllers only.

RTM data provides information about the performance of your network.

To access CNM records for RTM data

1. Enter **5** at the command prompt on the NEWS : Database Review Menu.
A selection list of nodes appears.

Display RTM Data for a Particular Node

To display RTM data for the required node

1. Enter **S** next to the node that you want to view in the selection list.

The NEWS : RTM Data Review Panel appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Display RTM Response Distribution

The NEWS : RTM Data Review panel provides a bar graph showing the distribution of responses across the various boundaries. In addition to the actual count (shown in the bar of the graph), the percentage of responses in each boundary is indicated by the scale displayed. This shows at a glance where the majority of responses are falling and thus whether the boundary settings can be more appropriately adjusted to improve the 3174 or 3274 RTM statistical information.

To access a graphical display of the RTM response distribution for a resource

1. Enter **G** next to the required resource on the NEWS : RTM Data Review Panel.

The NEWS : RTM Response Distribution panel appears.

Note: To access more detailed information for this record, press F3 to return to the selection list of RTM data, and enter **S** next to the line for this entry.

Chapter 8: Monitoring Network Activity

This section contains the following topics:

[Network Tracking System](#) (see page 109)

[NTS Features](#) (see page 109)

[How NTS Provides Information](#) (see page 110)

[Access NTS](#) (see page 110)

[Monitor Resources](#) (see page 111)

[Monitor Sessions](#) (see page 111)

[Monitor Subareas](#) (see page 114)

[Monitor Routes](#) (see page 115)

Network Tracking System

Network Tracking System (NTS) is an integrated network management and problem determination system that operates in multi-domain networks. It accumulates traffic statistics on a session and resource basis to allow network performance monitoring. It uses the data available to build a model of the network environment in which it is executing. This model reflects the relationship between SNA resources, sessions, and routes.

NTS Features

NTS provides the following features for network navigation, problem determination, and problem analysis:

- Selection lists of resources, subareas, sessions, and routes, both active and logged in the database
- Display of accounting, error, trace, response time, and configuration data
- Graphical displays of resource statistics, route configuration, and session configuration
- Dynamic route testing
- Control of session tracing
- Presentation of MAI sessions as end user to application sessions
- Centralized monitoring of all network activity in multiple domains through the use of NTS-SI

How NTS Provides Information

NTS provides information through the collection of the following types of data:

Session Awareness (SAW) Data

Contains information about session starts, session ends, session failures, and bind failures. SAW data is also used by NTS to build the network model to provide the display and monitoring of system activity.

Session Trace Data

Contains information about the protocols, and data sent and received on a session. It assists problem determination.

Response Time Monitor (RTM) Data

Contains information about how long it takes for an operation to be transmitted between two resources connected in a session. It assists performance analysis.

Route Configuration Data

Contains information about the source, destination, status, adjacent subarea numbers, and transmission priority of explicit and virtual routes. It assists problem determination.

NetSpy Data

Contains SNA RTM information collected by CA NetSpy. It is available if the NetMaster-to-NetSpy (NTN) interface is active in your product region.

Access NTS

To access NTS

1. Enter **/SNASESS** at a command prompt.

The NTS : Primary Menu appears.

Monitor Resources

Monitoring your resources lets you keep track of the status of these resources. NTS provides a selection list of resources from which you can obtain information about your resources and their connected sessions. You can use this list to help locate inactive resources that may be the cause of session failure.

To access a selection list of resources

1. Enter **1** at the command prompt on the NTS : Primary Menu.

The NTS : Resource List appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Resource Selection List Options

You can display a list of sessions, in which a resource is one of the partners, by entering one of the available options next to an entry in the list. Some of these options change the scope from the value initially entered on the NTS : Primary Menu. For information about the options available on this panel, press F1 (Help).

Monitor Sessions

Monitoring the sessions in your network lets you keep track of session starts and failures. NTS lets you monitor any session that has an end point in, or traverses, the local system. A selection list of sessions is provided, from which you can obtain information about the type and status of your sessions, as well as associated data that can be used to determine problems.

From the NTS : Primary menu, you can display selection lists of sessions ordered as follows:

- By primary LU
- By secondary LU

List Primary Sessions

To list primary sessions

1. Enter **2** at the command prompt on the NTS : Primary Menu.

The NTS : Session List appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

List Secondary Sessions

To list secondary sessions

1. Enter **3** at the command prompt on the NTS : Primary Menu.

The NTS : Session List appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Locate a Session Partner

In the session list for a specific resource, you can reposition the list to bring a session partner into view by using the LOCATE command..

To locate a particular session partner in a session list

1. Enter **L** *resource_name* at the command prompt. *resource_name* can be either a full or a partial name of the resource.

The session list is repositioned.

Filter Session List Information

You can change the information displayed on a session list by using the filtering option. After filters have been set, they are retained for the duration of the operator's NTS session.

You can modify the following fields:

SCOPE

Can be set to include or exclude either active or database session data.

SEQUENCE

Allows session lists to be reordered by primary name or secondary name sequence, as specified.

SESSION TYPE

Filters the session list by the following type of sessions:

CC

Includes CP to CP sessions.

LL

Includes LU to LU sessions.

MAI

Includes CA SOLVE:Access logical sessions.

SL

Includes SSCP to LU sessions.

SP

Includes SSCP to PU sessions.

SS

Includes SSCP to SSCP sessions.

SESSION USERID

(MAI sessions only) Filters the session list by user ID.

SESSION DATA

Filters the session list by session data flag presence:

A

Includes accounting data.

E

Includes error data.

R

Includes RTM data.

T

Includes trace data.

Session Start Date/Time

Specifies a high date and time, and a low date and time to restrict the session list to sessions with start times in the range specified. If the high or low date and time is blank, no high or low restriction is enforced.

Session End Date/Time

Specifies a high date and time, and a low date and time to restrict the session list to sessions with end times in the range specified. If the high or low date and time is blank, no high or low restriction is enforced.

Action Session List Filter Options

To action session list filter options

1. Enter **F** or **FILTER** at the command prompt on the NTS : Session List.
The NTS : Modify Session List panel appears.
2. Do *one* of the following:
 - To turn filters on, enter **F(ILTER) ON**
 - To turn filters off, enter **F(ILTER) OFF**

Monitor Subareas

Listing subareas lets you view resources that are peers in the network hierarchy. The display varies depending upon the hierarchical level displayed.

A resource is visible to NTS if the following conditions apply:

- It is an SSCP that has an active CDRM session.
- It is an active same-domain LU or PU.
- It is a cross-domain or cross-network LU in session with a local LU.
- It is a PU for a visible X-DOM LU, and an NTS-NTS ISR link is enabled between the local region and the region of the owning SSCP.

To list subareas

1. Enter **4** at the command prompt on the NTS : Primary Menu.
The NTS : Resource Hierarchy panel appears.
Note: For information about the fields and options displayed on this panel, press F1 (Help).

List Subordinate Resources

To list subordinate resources for a subarea

1. Enter **H** next to a subarea on the NTS : Resource Hierarchy panel.
The resource hierarchy for that subarea appears. A graphical representation of the upper hierarchy is shown on the right.
Note: For information about the fields displayed and options available on this panel, press F1 (Help).

Monitor Routes

Monitoring routes lets you keep track of the routes that data is taking in your network. NTS lets you monitor virtual and explicit routes, and the number of session that are using these routes.

Monitor Virtual Routes

To list virtual routes

1. Enter **5** at the command prompt on the NTS : Primary Menu.

The NTS : Virtual Route List appears.

Note: For information about the fields displayed and options available on this panel, press F1 (Help).

Monitor Explicit Routes

To list explicit routes

1. Enter **6** at the command prompt on the NTS : Primary Menu.

The NTS : Explicit Route List appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Chapter 9: Analyzing Performance and Determining Problems

This section contains the following topics:

[Analyze Performance Using RTM Data](#) (see page 117)

[Analyze Performance Using Resource Statistics](#) (see page 118)

[Determine Problems Using Error, Accounting, and Configuration Data](#) (see page 119)

[Determine Problems by Tracing Sessions](#) (see page 123)

[Display Trace Data for a Session](#) (see page 123)

[Control NTS Session Tracing](#) (see page 125)

[Determine Problems by Testing Routes](#) (see page 127)

Analyze Performance Using RTM Data

RTM data provides you with vital data for analyzing the performance of your network. You can access RTM data about a particular session to find out how long it takes for data to pass between resources in a session. If the response time exceeds expected objectives, an alert is raised and sent to NEWS.

Display RTM Data for a Session

While [monitoring sessions](#) (see page 111), you can display the RTM data for a session.

To display RTM data for a session

1. Enter **R** beside a session in the NTS : Session List.

The NTS : Session RTM Data panel appears. If there is RTM data from CA NetSpy available for the selected session, this data is included.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Display RTM Data for a Logical Unit

While [monitoring resources](#) (see page 111), you can display the RTM data for an LU.

To display RTM data for an LU

1. Enter **S** next to an LU entry on the NTS : Resource List.

If there is any RTM data available for that session for the LU, it appears on the NTS : Session Summary panel.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

2. (Optional) If a list of sessions for the LU appears, enter **S** next to a session entry.

Note: If RTM data from both NTS and CA NetSpy is available, the data from CA NetSpy appears.

Analyze Performance Using Resource Statistics

Resource statistics are useful for analyzing performance. The NTS : Resource Statistics Menu lets you display statistics collected for selected resources over specified intervals. These statistics include the number, size, and rate of data being received and sent for a particular resource.

To access resource statistics

1. Enter **8** at the command prompt on the NTS : Primary Menu.

The NTS : Resource Statistics Menu appears.

Note: For information about the fields and options on this panel, press F1 (Help).

Determine Problems Using Error, Accounting, and Configuration Data

When investigating problems, you should investigate summary information about the session in question for clues as to the nature and cause of a problem, and where to look for more information.

To display summary information for a session

1. Enter **S** beside a session in the NTS : Session List.

The NTS : Session Summary appears. This panel is a graphical display of all the information available about the selected session.

Display Error Data

Error data provides the error code and description for an error that occurs in a session.

To display error data for a session

1. Enter **E** beside a session in the NTS : Session List.

The NTS : Session Error Data panel appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Display Configuration Data

Configuration data provides you with a graphical display of the network components that comprise the end points of a session connection. The display provides details about the network path between session partners.

To display configuration data for a session

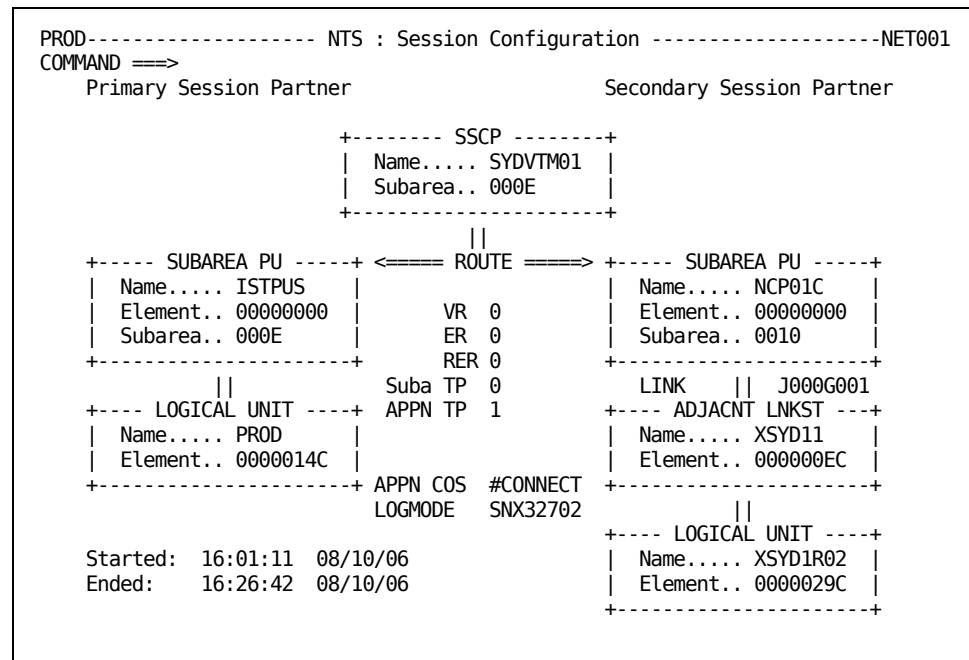
1. Enter **C** next to a session in the NTS : Session List.

The NTS : Session Configuration panel appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Example: Display Configuration Data

The following example shows sessions where the primary logical unit is an application residing on the host and the secondary logical unit is a terminal connected through an APPN network.



The primary session partner's hierarchy is shown on the left of the panel and the secondary session partner's hierarchy is shown on the right of the panel. The right side shows the resource connectivity of an LU in an APPN network.

Display Session Route Data

Session route data provides a graphical display of the route that an APPN session takes through the network using the Route Selection Control Vector (RSCV) supplied by VTAM.

To display the network route for a session

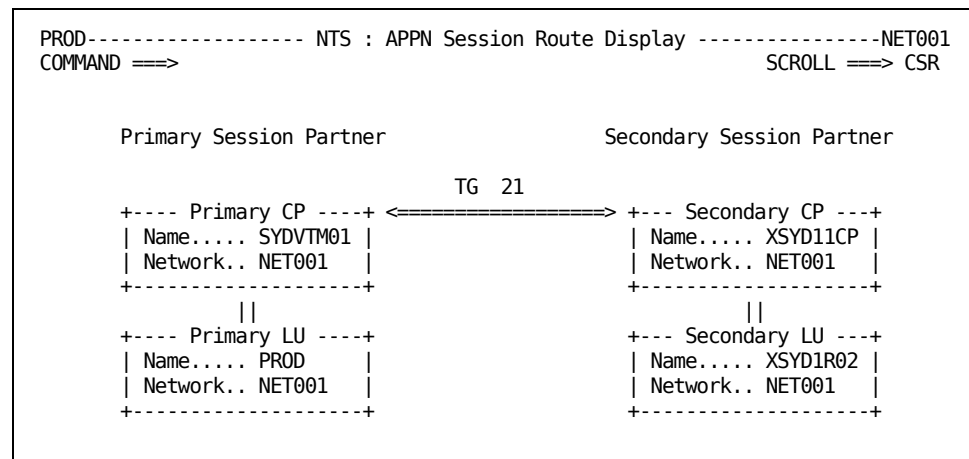
1. Enter **AR** beside the session you want on the NTS : Session List.

The NTS : APPN Session Route Display panel appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Note: VTAM does not remember the RSCV. If NTS is started after the session, VTAM cannot supply this information and the display may not contain the full session route information. The TSAR09 message appears.

Example: Display Session Route Data



The route from the primary session partner to the local host is shown on the left of the panel. The route from the local host to the secondary session partner is shown on the right of the panel. The primary and secondary session partners can be logical units or control points. If the session partner is an LU, then its owning control point is shown.

Also shown are the logical links in the session route and the transmission group number assigned to the transmission group by the primary-side node.

Display Session Data

To display session data

1. Enter **DS** beside the session you want on the NTS : Session List.

The VTAM Display Sessions output appears.

Note: You can display session data only if a session ID is provided by VTAM.

Display a Link Station

To view a VTAM display of a link station

1. Enter **DLS** beside the session you want on the NTS : Session List.

The VTAM display appears.

Note: You can view a VTAM display of a link station only if a link station is provided by VTAM.

Display Accounting Data

Accounting data provides traffic information about each partner in a session connection. It provides the number and size of data sent in each direction and the number of negative and position responses to data transmission.

To display accounting data for a session

1. Enter **A** beside a session in the NTS : Session List.

The NTS : Session Accounting panel appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Determine Problems by Tracing Sessions

Trace data consists of copies of Path Information Units (PIUs) flowing on the session. You can examine this information to determine the cause of unsuccessful session activation.

When a trace is performed, information is placed in the following queues:

Initial Trace Queue

Useful for searching for session start parameters, such as BIND, ACTPU, ACTLU, or ACTCDRM.

Final Trace Queue

Displays subsequent PIUs after the initial queue is full or session establishment is complete.

Display Trace Data for a Session

The NTS : Session Trace panel displays the following categories of trace information:

- Session Control (SC)
- Network Control (NC)
- Data Flow Control (DFC)
- Function Management Data (FMD)

To display trace data for a session

1. Enter **T** beside a session in the NTS : Session List.

The NTS : Session Trace panel appears.

2. (Optional) To display a trace record in more detail, enter **S** next to an entry in the list.
3. (Optional) To display a trace record in dump format, enter **D** next to an entry in the list.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Analyze a Trace

Analyzing a trace lets you view the following:

- A breakdown of the transmission headers (THs) and response headers (RHs)
- A hexadecimal display of all the RHs, THs, and RU data
- Sense data for negative response PIUs

The NTS : Trace Analysis panel displays a detailed explanation of the trace record selected. The display has the following sections:

- Transmission header
- Request/response header
- Request/response unit

Each section of the trace record is shown in hexadecimal format. The RU is also shown in character format. The meaning of significant fields is displayed. If the selected trace record is for a negative response, then the sense code, category, and description are displayed.

To perform an analysis of a trace

1. Enter **S** against a record in the NTS : Session Trace selection list.

The NTS : Trace Analysis panel appears.

2. (Optional) To display specific trace record types, for example, BIND, ACTLU, and negative responses, in more detail, press F8 (Forward). If more information is available, a message appears at the bottom of the panel. You can scroll through the trace records by pressing F10 (Prev) to display the details of the previous record and F11 (Next) to display the details of the next record.

Display a PIU Dump

You can also display a PIU dump for a selected record. A PIU dump displays the full TH, RH, and RU in both hexadecimal and character formats.

To display a dump of the record

1. Enter **D** against a record in the NTS : Session Trace selection list.

The NTS : Trace PIU Dump panel appears. You can scroll through the trace records by pressing F10 (Prev) to display the dump of the previous record and F11 (Next) to display the dump of the next record.

Control NTS Session Tracing

Tracing can be requested by resource name so that with a single request all sessions with a particular resource, such as an application program, can be traced. NTS provides the NTS : Control Functions menu to start and stop traces, list current traces, and modify a trace.

Access NTS : Control Functions Menu

To control session tracing

1. Enter the **/SNASESS** panel path shortcut.
The NTS : Primary Menu appears.
2. Enter **C** at the prompt.
The NTS : Control Functions menu appears.

NTS : Control Functions Menu

```
PROD----- NTS : Control Functions -----NET001
Select Option ==>

  1 - List Resource Traces
  2 - Start Trace for Resource
  3 - Start Trace for Resource Type
  4 - Stop Trace for Resource
  5 - Stop Trace for Resource Type
  6 - Modify Sessions for Resource
  X - Exit

Resource Name ==>          Entire Name          ( Opts 2 4 )
Resource Type ==>          Valid types: LU PU CDRM or ALL ( Opts 3 5 )
```

This menu contains the following options:

1 - List Resource Traces

Displays a list of traced resource names/status.

2 - Start Trace for Resource

Starts tracing for a specified resource.

3 - Start Trace for Resource Type

Starts global tracing for resources of a specified type.

4 - Stop Trace for Resource

Stops tracing for a specified resource.

5 - Stop Trace for Resource Type

Stops global tracing for resources of a specified type.

6 - Modify Sessions for a Resource

Provides a full-screen options panel to modify the processing of all active sessions with the resource specified.

This menu contains the following fields:

Resource Name

Specifies the entire name of the resource for which tracing is to start or stop.

Resource Type

Specifies the type of resource:

LU

Global tracing of all logical units.

PU

Global tracing of all physical units.

CDRM

Global tracing of all cross-domain resource managers.

List Resource Traces

To list resources and their trace status

1. Enter **1** at the command prompt on the NTS : Control Functions panel.

The NTS : Resource Trace List appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Modify Session Processing

This NTS : Session Modify panel is used to modify session logging and tracing options. These correspond to the NTSMOD command options.

To modify processing for a session

1. Enter **M** beside a session in the NTS : Session List.

The NTS : Session Modify panel appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Determine Problems by Testing Routes

By testing routes, you can help to determine problems with network congestion associated with excess traffic. NTS lets you test both explicit and virtual routes. When you perform a test, NTS navigates a route between two specified subareas to obtain the status, transmission priority, and any routes mapped to the specified route.

Access NTS : Route Test Menu

The NTS : Route Test Menu provides options to test routes.

To access the NTS : Route Test Menu

1. Enter **7** at the command prompt on the NTS : Primary Menu.

The NTS : Route Test Menu appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Test Virtual Routes

To test a virtual route

1. Type **2** at the command prompt on the NTS : Route Test Menu and complete the following fields:

Origin

Defines the resource name of the subarea at which any route navigation begins. This field defaults to the local subarea PU resource name.

Destination

Resource name at which any route navigation completes.

Enter **VR** in the Route Type field.

Press Enter.

The NTS : Route Tested panel appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Display Virtual Route Status

The NTS : Virtual Route Status panel lets you view the status of a virtual route at a particular stage. The status display provides information about route congestion. If the route is congested, you may need to change the VR and TP of a session or the pacing window size.

The panel provides the following information:

- Sent and received PIU counts
- Pacing window sizes
- Underlying ER and reverse ER
- Any VR congestion information
- Inbound VR PIU pools, if available
- NCP buffer statistics, if the subarea is an NCP

If a subarea PU cannot provide virtual route status information, then it is highlighted and the reason is displayed on the panel.

To display the status of a virtual route

1. Enter **VST** next to a virtual route stage on the NTS : Route Tested panel.
The NTS : Virtual Route Status panel appears.

Monitor Virtual Route Status

To monitor the status of virtual routes

1. Enter **VST** next to an entry on the Virtual Route List.

The NTS : Virtual Route Status panel appears, showing summary data for the selected virtual route. This data is flagged as TP (Transmission Priority) 0.

Note: If the region has an active link to CA NetSpy, RTM data for the virtual route appears.

2. (Optional) Press Enter to view RTM data for each TP value.
3. (Optional) Press F6 to return to the display for TP 0.

Test Explicit Routes

To test an explicit route

1. Type **2** at the command prompt on the NTS : Route Test Menu and complete the following fields:

Origin

Defines the resource name of the subarea at which any route navigation begins. This field defaults to the local subarea PU resource name.

Destination

Resource name at which any route navigation completes.

Specify ER in the Route Type field.

Press Enter.

The NTS : Route Tested panel appears.

Note: For information about the fields and options displayed on this panel, press F1 (Help).

Display Explicit Route Configuration

Explicit route configuration provides a graphical representation of the status of a particular stage of an explicit route. The explicit route display provides the following information:

- The resource type, SSCP name, PU name, and subarea number for each subarea in the route.
- The status and transmission group of each ER stage. An ER stage with no labeling status indicates that the ER is active over this stage.

If an ER cannot be navigated to the destination subarea, then the blocking subarea is highlighted and the reason is displayed at the top of the panel.

To display the configuration of an explicit route

1. Enter **C** next to an explicit route on the NTS : Route Tested panel.

The NTS : ER Configuration panel appears.

Chapter 10: Managing LAN Resources

This section contains the following topics:

[IBM LAN Manager Support](#) (see page 131)

[Access LAN Manager Support](#) (see page 131)

[IBM LAN Manager Support Menu](#) (see page 132)

IBM LAN Manager Support

The LAN manager support facility provides access to product-specific functions for the supported non-SNA network management products. You can use these functions to do the following:

- Display the status of a ring
- Display the status of an adapter
- Control the configuration of a bridge

Access LAN Manager Support

To access the LAN manager support facility

1. Enter **/LAN** at the command prompt.

The NEWS : IBM LAN Manager Support menu appears.

IBM LAN Manager Support Menu

```
PROD----- NEWS : IBM LAN Manager Support -----NET001
Select Option ==>

  1 - Network Functions
  2 - Adapter Functions
  3 - Bridge Functions
  4 - Bridge Configuration
  X - Exit

Node Name      ==>      (Network name for Service Point)
Link Name      ==>      (Link name to solicit from remote system)
SSCP Name      ==>      (SSCP name to solicit from remote system)
```

This menu contains the following options:

1 Network Functions

Displays the network status of all managed segments on the LAN, resets the LAN Manager, performs a LAN segment test, or performs a LAN Path test.

2 Adapter Functions

Displays a list of active adapters, profiles the status of an adapter, or removes an adapter from the LAN segment.

3 Bridge Functions

Links or unlinks a bridge, or displays the profile of a bridge.

4 Bridge Configuration

Changes the configuration parameters of a bridge.

This menu contains the following fields:

Node Name

Specifies the network name for the service point.

Link Name or SSCP Name

Specifies the link name or SSCP name to route the request to a remote host.

Note: If both these fields are omitted, the request is sent to the local host.

Display Network Information

IBM LAN Manager lets you view and control the network as a whole by using the network functions option. You can display the status of the LAN, reset the LAN, and test segments and paths on the LAN.

To access network functions

1. Enter **1** at the command prompt on the NEWS : IBM LAN Manager Support menu.

The NEWS : IBM LAN Manager Network Functions menu appears.

Note: For information about the options and input fields available on this panel, press F1 (Help).

Display Adapter Information

IBM LAN Manager lets you display and control the adapters that connect the different parts of your network. Through the adapter functions option, you can list the adapters in your network, obtain their status, and remove any inactive adapters.

To access adapter functions

1. Enter **2** at the command prompt on the NEWS : IBM LAN Manager Support menu.

The NEWS : IBM LAN Manager Adapter Support menu appears.

Note: For information about the options and input fields available on this panel, press F1 (Help).

Display Bridge Information

If you have multiple LANs connected by bridges, IBM LAN Manager lets you display and control those bridges. The bridge functions option lets you display the configuration of the bridge, and connect or disconnect the bridge.

To access bridge functions

1. Enter **3** at the command prompt on the NEWS : IBM LAN Manager Support menu.

The NEWS : IBM LAN Manager Bridge Support menu appears.

Note: For information about the options and input fields available on this panel, press F1 (Help).

Change Bridge Configuration

IBM LAN Manager lets you control configuration of the bridges in your network.

To change the bridge configuration

1. Enter **4** at the command prompt on the NEWS : IBM LAN Manager Support menu.

The NEWS : IBM LAN Manager Alter Bridge Configuration menu appears.

Note: For information about the options and input fields available on this panel, press F1 (Help).

Chapter 11: Using the Information Database

This section contains the following topics:

[Information Database](#) (see page 135)

Information Database

The network information utility provides access to a network information file. This file is structured into categories containing useful network information such as codes and their descriptions.

The information in this database can be altered, as required. For information about how to alter the information database, see the online help.

Access the Information Database

To access the information database

1. Enter **/CODES** at the command prompt.

The System Support : Messages and Codes Menu appears, showing a list of available categories.

Note: For information about the options available on the Messages and Codes Menu, press F1 (Help).

Example: Access the Information Database**To find the meaning of the SNA sense code, 800A**

1. Enter **SE** at the command prompt on the Messages and Codes Menu.
The NETINFO : Browse SNA Sense Codes panel appears.

```
----- NETINFO : Browse SNA Sense Codes -----
SNA Sense ==>      User sense ==>      Qualifier ==>

Short description:

Meaning:

Additional qualification (if any):

ENTER=Next Record
```

2. Enter **800A** in the SNA Sense field.
The information about SNA sense code 800A appears.

```
----- NETINFO : Browse SNA Sense Codes -----
SNA Sense ==> 800A User sense ==> 0000 Qualifier ==>

Short description:
Too-Long PIU.

Meaning:
A received PIU exceeded a maximum length or sufficient
buffering space was not available. It has been truncated by
the receiving node.
```


Chapter 12: Using Logs

This section contains the following topics:

[Log Types](#) (see page 137)

Log Types

Typically, a region keeps two types of logs: transient logs and activity logs.

Each resource has its own transient log. The transient log provides a real-time view of the activity associated with a particular resource. Transient logs are not kept between region restarts. However, depending on the log details defined for a resource, the transient log information may be written to the permanent activity log.

The activity log provides a historical view of the system activities associated with all resources monitored by the region. A region can have more than one activity log, of which only one is open for logging. The activity log is stored on DASD, so that you can [access the activity log](#) (see page 138) if necessary. You can also [access the activity log from the transient log](#) (see page 139).

The information that is logged is determined by the log parameters specified in the resource definition. The region logs the information to the transient log, as well as to any other destinations specified in the definition.

Display an Activity Log

The activity log provides a historical view of the system activities associated with all resources monitored by the region. It records all commands, responses to commands, and messages that occur in your regions. You can display an activity log from the Historical Data : Primary Menu or OCS. By accessing the activity log, you can browse through recent activity to assist you in locating information and analyzing problems.

To display the activity log in the current region

1. Enter **H** at the command prompt on the primary menu.

The Historical Data : Primary Menu appears.

2. Enter **L**.

The activity log appears with the last logged activities. A message also displays the day, date, and time when the region was last initialized.

3. Press the F8 (Forward) and F7 (Backward) function keys to scroll through the log for the current day and for previous days.

Note: You can also enter the **/LOG** shortcut at the command prompt to display the current activity log

If you want to access the log in a linked region, identify the region in the Link Name field on the Historical Data : Primary Menu.

Browse the Activity Log Online

The following aids are available to help you use the activity log:

- Forward and backward scroll
- Various display formats
- Highlighting log records
- Log filter to restrict the records displayed
- Positioning by date or time, either absolute or relative
- Positioning by labels set in the log
- Searching forward or backward for text
- Selective printing of log records

Note: For detailed information about these aids, see the online help.

Display a Transient Log

The transient log provides a real-time view of the activity associated with a particular resource. You can display the transient log from your monitor. This log and the activity log contain messages and other information associated with a resource. The logs help you diagnose problems (for example, resource failure).

To display the transient log

1. Enter **L** beside a resource on the monitor.

The Transient Log Browse panel appears for the selected resource. The panel displays messages in chronological order.

2. (Optional) Enter **L** beside a message in the transient log to access the activity log to see what was happening in the system at that time.

Set Criteria to Display Logged Messages Selectively

When you access the transient log of a resource, you are profiled to view all messages logged for that resource. You can limit the number of messages you see in the current session by profiling for certain criteria.

To set profile values

1. Enter the **PROFILE** command at the prompt.
A panel appears displaying the current profile setting.
2. Change the settings, as required.

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

You can also supply the profile values directly by using the command operands. The syntax of the PROFILE command is:

```
PROFILE [[SEV={1|2|3|4|5|6}]
        [NCLID=ncl-process-identifier]
        [PROC=ncl-procedure-name]] |
        [RESET=YES]
```

You can profile messages according to the following:

SEV

Determines how critical the messages are. For example, specify **SEV=1** to see only the most critical messages or **SEV=4** to see the messages of severity levels 1 through 4.

NCLID

Specifies the ID of the NCL process that issued the messages you want to see. The NCL processes are created when NCL procedures are executed. The region creates NCL processes when performing automation tasks.

Each NCL process has a unique ID, so you can use the NCLID operand to differentiate between executing copies of the same NCL procedure if, for example, the same NCL procedure was run more than once in a given period.

The region processes resources asynchronously, and a number of NCL processes for the resource may be active at the same time. Messages raised by these NCL processes intermingle in the transient log. You can use the NCLID operand to view the messages raised by a particular NCL process (that is, to view the messages for a particular task).

PROC

Specifies the name of the executing NCL procedure that issued the messages you want to see.

You can use the asterisk (*) wildcard character to include more than one NCL procedure. The wild card represents any single character except at the end of a string when the wild card represents one or more characters.

RESET

Specify **RESET=YES** to reset the profile to view all available messages.

Obtain Help on a Logged Message

You can obtain more information about product messages in a transient log through help.

To display the detailed help text associated with a message in the transient log

1. Enter **H** beside the message.

The help text appears.

Print a Transient Log

To print a transient log

1. Enter **P** beside a resource to print its transient log.

The Generate a Report panel appears, which lets you print a default report or an extended report of the resource's transient log.

2. Specify your printing requirements.
 - To print the default report (TRANSIENTLOG), ensure that the displayed information is satisfactory.
 - The extended report contains additional fields that display the S (severity), Nclid (NCL ID), and Proc (procedure) for each item in the transient log. To print the extended report, enter **?** in the Report Name field, and then select TRANSX.

Press F6 (Action).

The log report is printed.

Reset a Transient Log

When you do not need the messages in the transient log anymore, you can clear the messages by resetting the log.

To reset the transient log of a resource

1. Enter **LR** beside the resource.

Its transient log is cleared of all messages.

Change Logging Options

Logging options for a resource are specified on the Automation Log Details panel when the resource is defined. These options determine how and what information is logged.

Note: For more information about resource logging, see the *Administration Guide* and the *Reference Guide*.

Chapter 13: Using Operator Console Services

This section contains the following topics:

- [Operator Console Services](#) (see page 143)
- [Access OCS](#) (see page 144)
- [OCS Panel](#) (see page 144)
- [Run Multiple OCS Panels](#) (see page 146)
- [Function Keys](#) (see page 147)
- [Assign Your Own Values to Function Keys](#) (see page 148)
- [Use Commands in OCS](#) (see page 151)
- [Monitor and Control in OCS](#) (see page 154)
- [Receive Unsolicited Messages in OCS](#) (see page 157)
- [Receive Non-roll Delete Messages](#) (see page 158)
- [Use the Activity Log to Help Monitor Your Regions](#) (see page 160)
- [Interpret Messages and Codes to Help Monitor Your Region](#) (see page 160)
- [Issue Commands](#) (see page 160)
- [Execute or Start NCL Processes from OCS](#) (see page 166)
- [Start REXX Programs from OCS](#) (see page 167)
- [Monitor and Control in a Restricted Environment](#) (see page 168)
- [Issue System Commands from Your Console](#) (see page 170)

Operator Console Services

Operator Console Services (OCS) lets you enter commands to control and monitor your resources.

OCS uses a formatted display panel called an OCS window to provide an environment for executing commands or NCL procedures. Your command results are returned to the window, along with other system information, to provide a console function.

The actions you can perform in OCS are limited by the level of authority granted in your user ID definition. You control the way your OCS window looks and the way you use it. This set of attributes, privileges, and options is called your *operator profile*.

Certain attributes of your operator profile are controlled by UAMS. Other attributes can be changed using the PROFILE command.

Access OCS

To access OCS

1. Enter **O** at the prompt at the main Primary Menu.
The OCS window appears.

OCS Panel

The OCS panel has two distinct activity areas: a one-line command input area at the bottom of the window, and an output message display area called the roll delete area, which occupies the remaining space above the command line.

Command Line

The command line is the bottom line of the OCS window. The command line is the only display field where input is permitted. The cursor is automatically positioned to the right of the command line prompt when the panel is first displayed. To enter a command, position the cursor in the command line and press Enter.

Operating Mode Indicators

A mode indicator may appear to the left of your command entry area to indicate how the OCS window is currently operating. Values of the operating mode indicators and their meanings are as follows:

M (Monitor)

Terminal has monitor status and receives monitor messages.

P (Paused)

An NCL procedure has paused awaiting the entry of a GO, END, or FLUSH command. The SHOW NCL command gives you further details.

W (Waiting)

An NCL procedure is waiting for specific text to arrive. The SHOW NCL command gives you further details.

Roll Delete Area

When you receive messages as the result of commands entered on the command line, they are reported in the roll delete area with any unsolicited information you are profiled to receive.

Output to the roll delete area is written line-by-line from top to bottom of the screen. When the display area is full, new output messages wrap back to the top of the screen, overwriting the oldest displayed messages first.

Non-roll Delete Area

Any messages requiring a reply are delivered as non-roll delete messages. This means that the messages stay on your screen until you respond. These messages are displayed at the top of an OCS window above the roll delete area. The non-roll delete area is created only when a non-roll delete message is delivered to your OCS window.

Roll-delimiter Line

Messages are written from top to bottom of the screen. The next line for use is filled by a line of underscore (`_`) characters. This line is called the roll-delimiter line. It separates the oldest and newest output displayed. Output below this line is the oldest display information; output above the line is the most recent.

Note: The underscore characters used for this line can be changed using the `PROFILE DELCHAR` command.

Title Line

The top of the roll delete display area is reserved for a title that can be set or reset by using the `TITLE` command.

Time Display

The top left of the title line includes the present time in *hh.mm* format and is automatically updated each time anything is written to the OCS window.

Run Multiple OCS Panels

You can use the screen-splitting function to run two OCS windows in parallel on the same screen.

You can have one screen window operating in OCS with the other part-screen or window in full-screen mode (for example, as a menu).

Set Window IDs

When two OCS windows are running simultaneously, it helps if you can distinguish each window while executing NCL procedures.

To set a name for each OCS window, enter the OCSID command followed by a 1- to 8-character name at the command prompt on an OCS window and press Enter. The name for each window appears to the right of the line, immediately above the command line.

Example: Set Window ID

To set a window ID of NET01, enter the following command:

```
OCSID NET01
```

After pressing Enter, NET01 appears to the right of the line immediately above the command line.

Note: You can set profile attributes for each OCS window, so that two OCS windows on the same terminal can have different profiles and appearances.

Function Keys

OCS windows have full support for 24 function keys. You can set function keys for each OCS window to suit your requirements. If you are running two OCS windows, each window can have a separate set of function key definitions.

A variety of function keys are available:

- Default (system-wide) function keys
- Immediate function keys
- Conversational function keys
- Prefix function keys
- Suffix function keys
- NCL controlled function keys

The OCS function keys are set to system default values when you enter OCS.

When you redefine a function key, its defined value applies only to the function key settings for your current window, and remains in effect only while your current window is active.

When you press an immediate function key, its assigned value is immediately entered into the system, without the need for further action by you.

Note: To discover the assignment of each function key, use the PF LIST command.

Conversational Function Keys

A conversational function key lets you modify its action before you release it for processing. When you press a conversational function key, its assigned value is displayed in the command line, so you can add to or modify the text. Press Enter to run the command after you modify it.

Prefix and Suffix Function Keys

A prefix function key assigns a set value as a prefix to the line of text where the cursor is located when that function key is pressed (that is, the command line or any other line in the OCS window display area).

Example: Prefix and Suffix Function Keys

The F6 function key is defined using the following command:

```
PF6 PREF,MSG USER1+
```

When you enter a message in the command line saying: SYSTEM DOWN AT 17.00, and press F6, the following command is generated and entered:

```
MSG USER1 SYSTEM DOWN AT 17.00
```

Note: The plus sign (+) leaves a blank after the text before concatenating it with the entered string.

A suffix function key acts like a prefix key, but adds its value to the end of the line of text where your cursor is positioned (that is, the command line or any other line in the OCS window display area).

Assign Your Own Values to Function Keys

You can assign your own values to function keys so that they invoke an NCL procedure or act as the Enter key. If a function key is being used as the Enter key, you can redefine the Enter key to perform an OCS function.

Specify Commands to Function Keys

To redefine function keys, use the PF command. You can specify the new function key value as *one* of the following:

Conversational

The value of the function key appears in the command line so that it can be edited before being issued.

Immediate

The function key performs an immediate function such as Enter.

Suffix

The function key value is placed at the end of an entry in the command line.

Prefix

The function key value is placed at the beginning of an entry in the command line.

Example: Assign a Conversational Function Key

To assign the SHOW NCL command as a conversational function key to the F4 key, enter the following command:

```
PF4 CONV,SHOW NCL=
```

When you press F4 from now on, SHOW NCL= is displayed at the command prompt so that you can add to it before executing it.

Example: Define Multiple Commands

You can use a semicolon as a command separator in the function key value to define multiple commands. When entering the PF command, specify two semicolons.

To define F20 to clear the screen and display users, enter the following:

```
PF20 CLEAR;;SHOW USERS
```

Set Function Keys as Enter Keys

The PF command can set a function key to act as the Enter key. The Enter key is defined as an immediate function key with no associated value.

Example: Define Enter Key

To define PF12 as the Enter key, enter the following:

```
PF12 IMM
```

PF12 acts as the Enter key because there is no entry after IMM. When you press F12, text is executed from the command line as if the Enter key is pressed.

Redefine the Enter Key

You can use the ENTER command to redefine the action of the Enter key.

Important! You must define at least one function key to act as Enter *before* you redefine the Enter key.

Example: Redefine Enter Key to Act as CLEAR Command

To redefine the value of the Enter key to act as the CLEAR command, type the following:

```
ENTER CLEAR
```

The Enter key no longer acts in its standard manner.

Example: Reset Enter Key

To reset the Enter key, type the following text and then press the function key that is defined as Enter:

```
ENTER IMM
```

Specify Function Keys Using NCL Procedures

You can also assign values to a function key from an NCL procedure. By setting the appropriate function keys in an NCL procedure and setting your initial command to execute the NCL procedure on entry to OCS, you can set the function keys for your OCS window.

Use Commands in OCS

OCS windows can be used to enter product commands and monitor the results. Commands are entered on the command line and take effect when you press the Enter key.

You can access a list of all product commands from online help.

To access the list of commands from any OCS window

1. Press F1 (Help).

The OCS Overview panel appears.

2. Enter **S** beside the List of Commands topic.

The commands are listed. You can select any of the commands displayed to get more information about its use and syntax.

Command Authority Levels

All commands are assigned an authority level within the range 0 to 255, zero being the lowest and 255 the highest authority level. The operands on some commands might require a higher authority than the base command itself.

You are allocated a command authority level in your user ID definition, corresponding to the scope of system control you require. Whenever you enter a command, your user ID authority level must be equal to or higher than the authority level of the command entered, otherwise the command is rejected.

This authority level checking also applies to commands executed from NCL processes invoked under your user ID.

Abbreviate Commands

All commands consist of a single command, which can be followed by one or more operands. Most commands can be abbreviated to the smallest number of characters consistent with their being distinguishable from any other product command. For example, the SHOW command can be abbreviated to SH.

Concatenate Commands

Several commands can be entered simultaneously by concatenating them into the same OCS command line and separating each command with a semicolon (;). The concatenated commands are processed from left to right in the order they are entered.

Example: Concatenate Commands

The command string `D LU10;D LU11` is treated by the system as two independent commands:

```
D LU10
D LU11
```

You can use the `CLEAR` command in this manner to clear the display area before the results of the next command are displayed. For example:

```
CLEAR;D BFRUSE
```

If you need to enter a semicolon as part of a command (that is, to use it as part of the command text), you must enter two semicolons instead of one.

To enter the command `a;b`, you must enter `a;;b`. The second semicolon is stripped from the text and the `a;b` string passed to the system as a single command. The remaining semicolon is not regarded as a command separator character.

Command separators are specified by using the `PROFILE CMDSEP` command.

Prevent Command Concatenation

You can prevent command concatenation by using the `CMDSEP` operand of the `PROFILE` command. When `CMDSEP` is set to `NO`, semicolons are not regarded as command separators and are always treated as part of the command string.

You can assign concatenated commands to function keys because the value of the `CMDSEP` operand is overridden by the value that the operand contained when the function key was defined.

Reuse Commands

If you enter a command regularly, you do not need to retype it every time you want to issue the command. There are facilities provided with OCS that let you reuse commands you have previously entered.

More information:

[Use the Command Stack](#) (see page 153)

[Retain Commands on the Command Line](#) (see page 153)

[Copy Display Lines into the Command Line](#) (see page 153)

Use the Command Stack

Each OCS window keeps a stack of the commands most recently entered from its command line. The stack does not include immediate function key entries. The number of entries kept in this stack can be changed by using the PROFILE CMDSTACK command.

You can use the command stack to retrieve previous commands entered and redisplay them on the command line so that they can be modified for re-entry.

Commands are retrieved from the stack using the CS+ or CS- commands. The default system function key series includes settings for the CS+ and CS- commands. These are F10 and F11 respectively. We recommend that you retain these.

Retain Commands on the Command Line

When you execute a command, the command can be retained on the command line so that you can execute it again, or edit the command before executing it again. This facility lets you increment and enter command sequences with minimal effort.

This feature can be turned on or off using the PROFILE CMDKEEP command. When turned off, the command line is cleared as soon as the Enter key is pressed and a command must be retrieved from the command stack if it is required again. When turned on, the command you enter is retained on the command line so that you can enter it again.

Copy Display Lines into the Command Line

To copy a command (or some other message) from an OCS window display area to the command line, put the cursor on the line you want to copy, and enter CS+ or CS- (or press F10 or F11).

The command or message appears in the command line.

Rename Commands

EQUATE commands can be included in initialization procedures to do the following:

- Override or rename standard commands
- Define a series of 1- to 8-character strings for use in place of lengthy command strings

Monitor and Control in OCS

OCS allows you to monitor and control your regions by receiving messages and allowing you to issue commands. Events from your network are sent to your OCS window. You can issue commands to take control of any problems that might occur.

As you receive messages and output from commands, you can control, reorder, or clear output on the screen so that it can be read more easily.

Control Message Presentation Speed

When the bottom line of the display area is filled, the system pauses before wrapping back to the top of the display area to write the next message.

Sometimes, a large number of messages might be sent to the screen within a very short period of time. This causes the display to roll messages faster than you can read them. There are two options you can use to temporarily suspend message delivery or change the way the messages display:

- The HOLD option
- The AUTOHOLD option

Stop Message Flow Manually

To stop the flow of output to the screen at any time, press the Enter key while nothing is in the command line. This freezes the display and no further messages appear until you enter data.

While the screen is frozen, the word HOLDING appears immediately above the command line.

Stop Message Flow Automatically

The default value for automatic hold supplied with your system automatically freezes an OCS window when a message fills the last line and there are messages queued to wrap back to the top of the screen. This is specified by the AUTOHOLD command.

When AUTOHOLD freezes your screen, the caption AUTOHOLD is displayed above the command line. No further messages appear until you input something.

The AUTOHOLD command option is part of your operator profile.

Note: If more unsolicited messages arrive while the screen is in HOLDING or AUTOHOLD mode, the caption above the command line changes to MSG QUED, and the terminal alarm sounds.

Message Queue Holding Limit

Your system queues a limited number of messages for an OCS window while in the HOLDING or AUTOHOLD mode. The queue limit default before any OCS window messages are discarded is 200 messages.

The HOLDING or AUTOHOLD caption above the command line changes to 75% LIMIT, HOLD LIMIT, and then MSGS LOST, as this limit is approached, reached, and then exceeded. Each caption change also sounds the terminal alarm. These conditions vary and update while you actively monitor and release system messages in the OCS window.

You can define the queue limit for each OCS user window by using the PROFILE command.

Contention Delay Interval

One of the characteristics of an OCS window is that your system can send messages to your window at the same time as you are entering a command. These messages are displayed differently depending on the type of terminal you are using:

A Non-SNA Terminal

Any data you have just entered is immediately frozen and any new data entered is ignored while the message writes to the screen. You can then continue to type in your command text when message delivery has finished.

An SNA 3270 Terminal

A contention condition arises. The terminal is seen as being in a send state (because you have started typing on the keyboard), and refuses to accept any output from your system until your input has been sent. However, rather than defer your system, the system interrupts you after a set period and forces the output of a message.

The default contention delay interval is 15 seconds. This is usually long enough to let you complete a standard command input operation.

Unwrap Messages

To resequence or unwrap messages displayed in your OCS window, enter the **ORDER** command.

The OCS messages are redisplayed in the window in chronological order, with the oldest messages at the top of the window.

The ORDER command is assigned to F12 by default.

Note: This command does not affect the HOLDING or AUTOHOLD condition.

Clear the OCS Window

After many messages have appeared in your OCS window, you may want to clear the window before any new messages arrive.

To clear your OCS window, enter the **CLEAR** or **K** command.

Receive Unsolicited Messages in OCS

Events occur in a network or within your system, which do not result directly from any operator action you have taken, yet need to be reported. The various kinds of messages resulting from these events are termed unsolicited messages.

Receive Network Warning Messages

VTAM generates messages for events taking place within the network, called Primary Program Operator (PPO) messages. VTAM can route these messages to the system console (to notify the system operator), and to any suitably authorized programs.

When your system receives any PPO messages from VTAM, it filters out messages, by message number, through the DEFMSG table, and passes them to PPOPROC, if active. It then checks to see if any OCS operators logged on have the authority to receive such messages.

By default, a PPO message for a particular resource is sent out to ALL operators authorized to receive it. If a message cannot be delivered to any operator, it is sent to the system console.

A PPO message which does not concern a particular resource and cannot be delivered to an appropriate operator is tagged as undeliverable. These messages are sent to all operators that are profiled to receive undeliverable messages. These messages are prefixed by U when displayed on your terminal. If there are no such operators, it is sent to the system console.

If you are authorized to receive VTAM PPO messages, they appear in your OCS window. All VTAM messages are displayed in high-intensity, and are time-stamped. Your terminal alarm sounds to notify you whenever an unsolicited event has been reported.

In addition, your VTAM message access can be prescribed for receiving only those messages above a given severity level.

Reply to PPO Messages

Some VTAM messages sent to you through the PPO interface require a reply. These messages are delivered to appropriate operators in the same way as standard non-reply PPO messages.

PPO messages that require a reply are delivered as non-roll delete messages that remain on your screen unchanged, until answered. Replying to a VTAM message automatically changes the NRD status of the message and places it on the roll delete area list.

To reply to these messages, use the **REPLY** command.

Receive Non-roll Delete Messages

Most messages displayed on an OCS window are classified as roll delete messages. This means they are displayed once and eventually roll off the top of the screen as subsequent messages arrive and overwrite them.

When a non-roll delete (NRD) message is delivered to an OCS window, it remains in your OCS window until deleted. The NRD messages are in two categories:

- Those that are remembered by the system and are retained until explicitly deleted by the issuing process
- Those that are only displayed at individual OCS windows until deleted and are not remembered by the system

The non-roll delete area is separated from the roll delete area by a delimiter line. This line is usually a series of dash (-) characters. To change the character, use the PROFILE NRDELCH command.

NRD messages are managed centrally and held in a queue. Your system administrator determines the size of this queue. If there are more NRD messages than this limit, the oldest outstanding NRD message is deleted to remove copies of the message from all affected OCS windows.

However, NRD messages from &WRITE NCL statements are never deleted automatically. It is therefore only possible to exceed the NRDLIM queue depth if large numbers of &WRITE-generated NRD messages exist at the same time.

A warning message is sent to all OCS users with monitor status to notify them when the NRD message queue reaches 75 percent full.

You can hide these messages to allow other message flows to continue in your OCS window, and then reveal them again when you are able to deal with them.

Hide NRD Messages

To remove an NRD message from the OCS display, move your cursor to the line on the screen with the NRD message you want to remove and then press Enter.

The NRD message disappears and the screen is reformatted. Removing NRD messages in this way provides more room for pending NRD messages or a larger roll delete area.

Note: System NRD messages are not deleted from the NRD message queue, only from your OCS window. NRD messages specific to your OCS window are deleted, and cannot be recalled.

Restore Hidden NRD Messages

Hidden NRD messages can be restored by entering the NRDRET command. The oldest hidden NRD messages are returned to the non-roll delete area first, until the area has expanded to its maximum size.

The NRDRET command displays all hidden NRD messages that you are entitled to view, including those that occurred before you entered OCS and any that are still outstanding.

NRDRET can be issued from any environment capable of receiving NRD messages, including NCL &INTCMD environments.

Delete NRD Messages

An NRD message is automatically deleted when *one* of the following conditions is satisfied:

- The condition to which an NRD message refers is satisfied
- An NCL process issues an &NRDDEL NCL statement to delete a specific NRD message
- The NCL process that generated the NRD is terminated

You can only delete NRD messages that are remembered by the system by using the PURGE command.

Use NRD Messages with ROF Sessions

Messages that originate from a remote system carry the NRD message attribute and appear as NRD messages, in the same way as locally-produced messages.

When an INMC link fails and breaks any ROF sessions traveling across it, all NRD messages from that remote system are automatically deleted.

When you close a ROF session to a particular remote system by using the SIGNOFF command, any NRD messages you have received across the ROF session are deleted from your window. Other users displaying the same NRD messages are not affected.

Use the Activity Log to Help Monitor Your Regions

The activity log records all commands, responses to commands, and messages that occur in your regions. By accessing the activity log when you are in OCS you can browse through recent activity on the system to assist you in locating information and analyzing problems.

To access the activity log browse function from OCS, enter **/LOG** at the prompt.

On initial entry to the activity log, you are positioned at the end of the log for the current day. You can use the F8 (Forward) and F7 (Backward) function keys to scroll through the log for the current day as well as for previous days.

Note: For more information about locating information in the activity log, press F1 (Help) from the activity log panel.

Interpret Messages and Codes to Help Monitor Your Region

The information database provides categories of information about commonly used codes and errors. By accessing the information database from OCS, you can get information about error messages that appear in your OCS window.

To access the information database from OCS, enter **/CODES** at the prompt.

Issue Commands

Being able to issue commands from OCS is an important part of controlling your regions. From OCS you can issue commands to the background processes of your product, and you can set commands to issue automatically, based on a specified time.

Issue Commands in Background Environments

Background environments are internal to your system and services. They process commands submitted to them by users and support system level procedures such as LOGPROC. Each background process has a user ID, but is not associated with any physical terminal.

The following background environments are available:

BSYS

Background system environment

BMON

Background monitor environment

BSVR

Background server environment

BLOG

Background logger environment

You can send commands to these environments for them to execute, as if they were real OCS users by using the SUBMIT command. You can submit commands or NCL procedures. For example, if you want the background system environment to start the procedure MONPROC, enter the following command:

```
SUBMIT BSYS START MONPROC
```

After a command is submitted, its processing is managed by that environment. It is not affected if you log off or leave OCS, and its command authority remains the same as the user ID of the submitter.

Background environment processing is ideal for monitoring an NCL procedure that regularly checks the status of network components. Commands directed to the Background Monitor route the command and its results to all monitor status terminals logged on to the system, and to the activity log. Commands directed to the Background Logger for execution log the command and its results only.

[Timer commands](#) (see page 162) can also be routed to background environments by the SUBMIT command or by the ROUTE operand for the timer command being issued.

Issue Commands at Specified Times

You can issue commands at specified times and at specified intervals. These commands are known as timer-initiated commands. The following timer-initiated commands are available:

AT

Executes commands at a specified time of day. Timer commands use a 24-hour clock with the format *hh.mm.ss*.

Limits: 24.00.00 (midnight)

EVERY

Repeats commands at a given time frequency.

Default: 10 seconds

Timer commands can be entered in OCS, or included in NCL procedures.

A maximum of 9999 concurrent timer commands is supported, and this maximum is the default.

If you log off after issuing a timer command, that command is not executed. However, you can use the ROUTE or KEEP operand when you enter an AT command to specify another user to issue the command in your place. This feature allows you to sign off and have the results of the command returned to you when you sign on again.

The ROUTE and KEEP options are ideal if you are including timer commands for specific operators in the system initialization procedures that are executed automatically during startup.

Timer commands can also be specified with a limit to the number of times they can execute before being automatically purged.

Example: Monitor Users at a Specified Interval

To monitor the users that are logged on to the system every half hour, enter the following command:

```
EVERY .30 CMD=SHOW USERS
```

Also, if you want to remind users of a three o'clock meeting one hour before it starts, enter the following command:

```
AT 14.00 MSG ALL DON'T FORGET MEETING AT 15.00
```

When a timer command executes, the command text is echoed on all applicable terminals as if the command had been entered from those terminals. A unique timer ID prefixes the command text echo and has the following format:

```
#nnnn command_text
```

Display Active Timer Commands

You can display pending timer commands by using the SHOW TIMER command. By default, this command lets you display any timer commands initiated by your user ID. However, by specifying the ALL operand you can display all outstanding timer commands on your system.

Example: Display Active Timer Commands

To find out what timer commands you have initiated, enter the following command:

```
SHOW TIMER
```

Using the example given above, the following is displayed:

```
ID BY INTERVAL -USERID-R LIM CNT K/P ENV P/M TID  NEXT
 4 EV 00:30:00 USER01      0   0 NO PRI YES -   12:29:48
    CMD=SHOW USERS
 5 AT 14:00:00 USER01      0   0 NO PRI YES -   14:00:00
    CMD=MSG ALL DON'T FORGET MEETING AT 15.00
NUMBER OF TIMER COMMANDS DISPLAYED WAS 2.
```

Delete Timer Commands Manually

When you initiate a timer command, the system allocates a unique four-digit number known as the timer ID, or purge ID. This number prefixes all displays resulting from that command, and must be used when manually deleting a timer command.

To delete a timer command manually, use the **PURGE** command.

To delete a timer command created by another user, you require a command authority level of 2 or higher.

Example: Delete Command

To delete an AT timer command, enter the following command:

```
PURGE TIMER=5
```

The value 5 is the purge ID assigned to the AT command.

Delete Timer Commands Automatically

By default, your timer commands remain active only while you are logged onto the system. Before each attempt to execute the command, the system checks that you are still logged on.

If you are no longer logged on to your system, the timer command is automatically deleted, without further execution.

Redirect Timer Commands

If you want your timer-initiated commands to continue to execute after you log off, you can redirect the command results to the background logger, background monitor, or the system background environment.

To redirect the timer command, specify an AT or EVERY command with the KEEP operand.

By default, the KEEP operand requires a command authority level of 2 or higher.

Example: Redirect Timer Commands

To redirect the SHOW USERS command for execution by the background system environment, enter the following command:

```
EVERY .30 KEEP=SYS CMD=SHOW USERS
```

If the KEEP operand is in use, the execution of timer commands continues irrespective of whether you are logged on to the region.

Limit Timer Command Executions

When defining a timer command, you can use the LIMIT operand to specify a limit on the number of times the command is executed. When this limit is reached, the command is automatically purged.

The limit you assign and the number of times a command has already executed are displayed by the SHOW TIMER command.

Example: Limit Timer Command Execution

To limit the number of times the SHOW USERS command is executed to 5, enter the following command:

```
EVERY .30 LIMIT=5 CMD=SHOW USERS
```

When the SHOW USERS command has been executed five times, the timer command is deleted.

Execute a Timer Command Under Another User ID

The ROUTE operand lets you direct a command for execution under another user ID—the target user ID. The operand requires a command authority level of at least 2.

With this option, the timer command is retained even if the target user ID is not logged on. Command execution is bypassed and the time interval reset. The command is attempted again only after the time interval has again elapsed.

Example: Execute Timer Command Under Another User ID

If you want USER02 to execute the SHOW USERS command, enter the following command:

```
EVERY .30 ROUTE=USER02 CMD=SHOW USERS
```

Specify Concatenated Commands in Timer Commands

Concatenated commands can be specified in the command text for a timer command. Separate each command in the concatenation with a colon (:). These are internally translated into normal concatenation characters, that is, semicolons (;), before execution.

Execute or Start NCL Processes from OCS

There is an NCL processing environment for each window of your terminal that allows commands and NCL processes to execute on behalf of that window.

When you use an EXEC or START command to invoke an NCL process, the NCL process executes in the NCL processing environment for the OCS window.

Note: If you enter the EXEC or START command incorrectly, the system attempts to execute the command as if it were an NCL process.

Any NCL process can have a dependent processing environment that lets it issue commands or execute other NCL processes independently using the &INTCMD statement. NCL procedures can also use ROF sessions to collect information from other systems.

Execute NCL Processes Serially

An OCS window can execute a serial stream of NCL processes so that they are invoked one after the other. Serial execution is suitable for processes with a short duration.

To execute NCL processes serially, use the **EXEC** command.

Processes invoked by the EXEC command can issue the &PAUSE statement to wait for further input from the OCS window. The GO, END, FLUSH, and INTQ commands, together with the process's unique identifier, let you communicate with the process.

Example: Execute Processes in Sequence

To execute PROC1 and PROC2 in sequence, enter the following commands:

```
EXEC PROC1  
EXEC PROC2
```

Your OCS window places the two processes in an EXEC queue, which are executed on a first-come, first-served basis. Process PROC1 is scheduled for immediate execution and process PROC2 is queued to execute after PROC1 ends.

Execute NCL Processes Concurrently

An OCS window can execute NCL processes in parallel at the same time.

Any started procedure can issue an &PAUSE statement to wait for further input from GO, END, and FLUSH commands from the OCS window. These commands, together with the process's unique identifier, let you communicate with the process explicitly.

Example: Execute NCL Processes Concurrently

To execute PROC1 and PROC2 at the same time, enter the following commands:

```
START PROC1  
START PROC2
```

Advantages of Started Procedures

Using the START command to invoke NCL processes has the following advantages:

- You can perform relatively complex, long-term tasks from your OCS window. This does not prevent other operations from performing concurrently.
- You can perform periodic checking of the network status without operator involvement.
- You can operate a large number of independent, slave procedures on behalf of one OCS window. This lets you monitor many different aspects of the same operation, and various procedures need only communicate with you if errors are detected.

Start REXX Programs from OCS

Your region supports the REXX language. A processing environment for each OCS window lets REXX processes execute on behalf of that window.

To start a REXX program from OCS, enter the following command:

```
REXX program_name
```

Note: For information about how your product supports REXX, see the *NetMaster REXX Guide*.

Monitor and Control in a Restricted Environment

The Network Partitioning Facility (NPF) is used to limit the range of resources that you receive messages from and can control.

Your user ID can be defined so that commands and messages can be accepted for some network resources, but you are not authorized to issue commands for others.

If you are restricted in your ability to control only particular resources, your user ID is said to be *command partitioned*. If you are restricted to receiving messages from only specific resources, your user ID is said to be *message partitioned*.

The resources available to you are defined within a series of NPF resource tables that reside on the system NPF data set. The set of resources you can influence is set by your systems administrator and cannot be changed from the OCS window. However, you can list the NPF tables for your user ID or list the resources within each table to see which network resources are available to you.

Display Network Partition Tables

Two commands allow you to display the command and message table details that apply to your user ID. They are the SHOW NP and SHOW NPTAB commands.

The SHOW NP command first displays your current NPF environment, including the status of any message tables. Tables that apply to commands only cannot have their status changed and are always classified as ACTIVE. Message tables can have a status of ACTIVE or INACTIVE.

The SHOW NP command returns a list of table names (showing any that are in error) which you then use in the SHOW NPTAB command to display the resources defined within those tables.

Note: Resources named in a table can be specified using a generic form containing wildcard characters. The wildcard character, usually an asterisk (*), lets your system accept any character for that position in the name for the item. For example, L5*8, targets any resource name that is four characters long and starts with the characters L5, and ends with an 8. Any character in the third position is accepted (for example L5B8 or L598).

Enter Commands in a Restricted Environment

If your user ID has a command table specified, any attempt you make to issue a VTAM command for a resource not defined in this table is rejected. As an option, your organization might let you see any resource in the network, but restrict the issuing of commands.

Receive Messages in a Restricted Environment

Where message partitioning has been specified for your user ID, you only receive unsolicited VTAM messages for those resources defined within your message resource tables.

Message tables are allocated an initial status of ACTIVE or INACTIVE when they are defined. An INACTIVE message table is not used when determining whether you should receive messages about a particular resource. This lets operators have overlapping spheres of control and allows for time zones or geographical boundary requirements in a network.

Change the Status of Message Tables

You can change the status of your message resource tables so that you can control the sections of the network about which you want to be kept informed.

Changes to the status of message tables apply immediately to all OCS windows where you are operating, and continue to apply if you exit from OCS. Once you log off, they reset to their previous status for when you log on again.

To change the status of message resource tables, use the **NPTAB** command.

Example: Change the Status of Message Tables

To inactivate the message table ZONE1 and activate the message table ZONE2, enter the following command:

```
NPTAB ACT=ZONE1 INACT=ZONE2
```

Change the Severity Level of Messages You Receive

NPF allows you to change the severity level of the unsolicited messages you receive, so that you see only SEVERE messages, for example. A severity selection is first set when your user ID is defined and can be changed for the duration of an OCS session, by using the PROFILE PPO command.

As an option, you can be profiled to receive undeliverable messages, which are displayed on your terminal prefixed by U.

Detect Errors in Your Restricted OCS Environment

Your NPF environment can contain syntax errors, or errors can occur when the environment is created during logon.

This situation causes one or more error messages to be displayed identifying the types of error that have occurred when you enter OCS. You must then determine if these errors significantly affect your use of the region.

Use a Restricted Monitoring Environment with the Remote Operator Facility

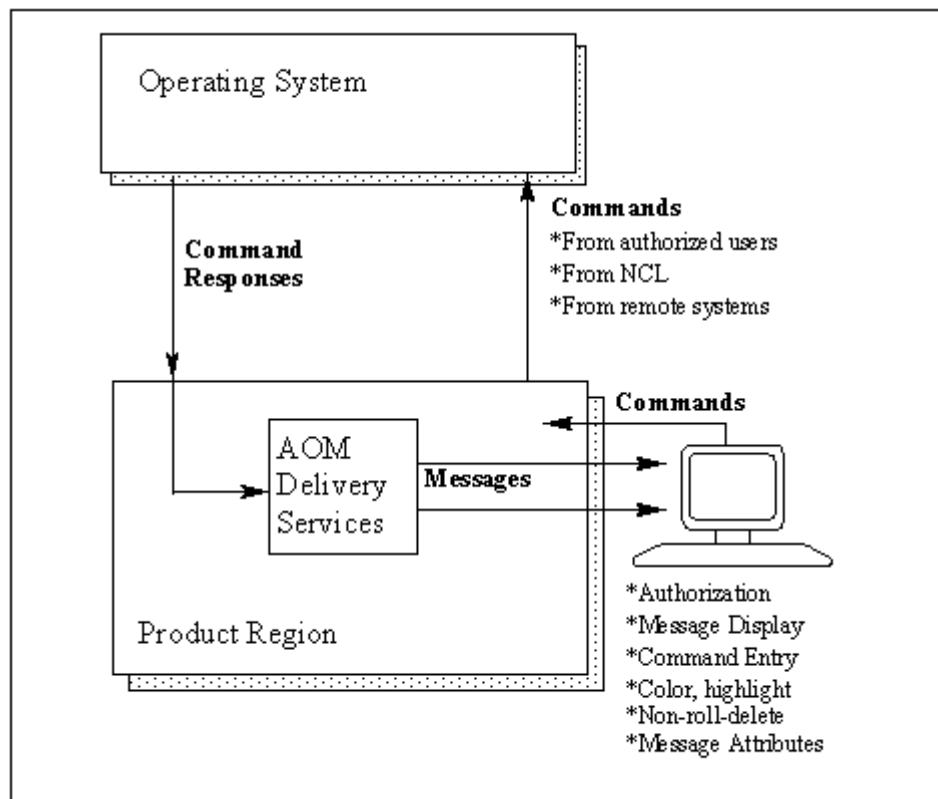
If you use Remote Operator Facility (ROF) to connect to a remote region, then the authority and privileges assigned to your user ID for the remote region apply, including any network partitioning defined for your user ID in the remote region.

To display your NPF environment in the remote region, use the **ROUTE** command to direct the SHOW NP command to the remote region for execution.

The results are returned to your terminal.

Issue System Commands from Your Console

The SYSCMD facility gives you the ability to issue operating system commands and receive responses without having to use a *real* operating system console; for example, to display the channel path or unit status of a local non-SNA terminal.



Use the SYSCMD Facility

The SYSCMD command has several operands that you can use to enter master console commands, lock a console, or issue a command as if it came from a specific console.

In its most basic form, the SYSCMD command is:

`SYSCMD command-text`

command-text

The command to be entered.

Note: You are restricted in your use of the SYSCMD facility by both your command authority and your user security profile. These are set by your systems administrator.

Enter Master Console Commands

If the command to be entered is usually restricted to the master console, the CON=MASTER operand must be used with the SYSCMD command.

Example

`SYSCMD CON=MASTER DATA=VARY CPU(0) OFFLINE`

You must have MASTER authority for this.

Note: This is not necessary if you are using Extended Multiple Console Support (EXTMCS) consoles.

Lock a Console

To ensure that you can issue commands when you need to, you can lock a console to a specific environment using the following operand:

`OPT=LOCK`

When you no longer require the console, you should release it, using the following operand, so that it is made available to other SYSCMD users:

`OPT=REL`

Simulate Command Issue from a Specific Console

If you want to simulate issuing a command from a specific console that you are not using, enter the following form of the SYSCMD command (where *n* is the console number):

```
SYSCMD CON=n DATA=command-text
```

This can be done from anywhere in the system.

As no console authority checks are made by the SYSCMD facility, the existing authority for the specified console is used.

Note: The form of the SYSCMD command described in the example above is not supported if you are using EXTMCS consoles.

Chapter 14: Using Print Services

This section contains the following topics:

[Print Services Manager](#) (see page 173)

[Access PSM](#) (see page 173)

[List Entries in the Print Queue](#) (see page 174)

[Confirm Printing](#) (see page 176)

Print Services Manager

Print Services Manager (PSM) lets you control the physical printing of the reports your organization generates on JES or network printers. Output can be viewed online before or after printing and can be redirected to another destination.

PSM provides the following facilities:

Print-spooling

Writes output to a print spool providing more control over output. This lets you redirect output to another printer if one is not available.

Centralized Printer Definition Facilities

Supports VTAM (LU1) and JES (SYSOUT) devices and lets you assign printer aliases. It also allows the output destination to be a printer exit.

Print Request Control

Lets you hold, release, browse and delete print requests, redirect print requests to another printer, change priorities and numbers of copies, and display the status of requests.

Notes:

- This chapter describes how to use PSM. For information about defining and maintaining printers, see the *Administration Guide*.
- References to JES in this chapter also apply to VOS3's JES3 and JES4 subsystems.

Access PSM

To access PSM

1. Enter **/PSM** at the prompt.
The PSM : Primary Menu appears.

List Entries in the Print Queue

You can list all of the entries that are queued to print, and on which printer they are to print.

To display the entries in the print queue

1. Enter **Q** at the prompt on the PSM : Primary Menu.

The PSM : Output Queue appears.

Note: You can limit the display to the print queue for a specific printer by specifying a printer in the Printer field on the PSM : Primary Menu before entering the Q option.

Display the Output of a Print Request

The information provided lets you discover exactly how the print request looks when printed.

Note: Only data lines, not heading lines, are displayed.

To browse the output of a print request

1. Enter **B**, **/**, or **S** next to the required print request in the PSM : Output Queue.

The details appear.

Example: Browse Output

```

PROD----- PSM : Browse Output -----REQ# 0265
Command ==>                               Scroll ==> PAGE

S A B U Data
  +-----10-----20-----30-----40-----50-----60-----70
N N =====
1 N  COMMAND ENTRY CAPTURE PRINT
1 N =====
2 N  USERID : USER01             NAME : USER NUMBER 1             L0
2 N  DATE   : MON 18-SEP-2006
2 N  TIME   : 11.16.39
2 N =====
2 N  pr
1 N  N10601 USERID: USER01 TERMINAL-ID: TERM02
1 N  N10602 NCL PROCEDURE LIBRARY ID: COMMANDS
1 N  N13450 PANEL SERVICES PATH NAME: PANELS
1 N  N10603 AUTHORITY LEVEL IS 82
1 N  N13451 NO EDS PROFILES ACTIVE IN ENVIRONMENT.
1 N  N13433 USER SERVICES PROCEDURE: $USERSER
1 N  N10624 NO NPF COMMAND RESTRICTIONS.
1 N  N10627 PPO MESSAGE DELIVERY DETAILS:
1 N  N10628 ..NO NPF MESSAGE RESTRICTIONS.
F1=Help    F2=Split    F3=Exit    F4=Return    F5=Find    F6=Refresh
F7=Backward F8=Forward  F9=Swap    F11=Right

```

Modify a Printer Entry

You can modify a print request to change where and how it is to be printed.

To modify a print request

1. Enter **M** next to the required print request in the PSM: Output Queue.

The PSM : Print Request panel appears.

The PSM : Print Request Panel provides all details about the print request. You can alter some of the fields on the panel.

Confirm Printing

When you send a print request to a printer, the PSM : Confirm Printer panel appears. This panel is used to confirm the printer name, the number of copies, and the hold and keep settings that you require for your print request. The fields displayed on the panel are set to the values you used last.

To change any of these fields, overwrite them with the required information, and press F6 (Confirm).

The new information is used to print your request.

Note: For more information about the fields displayed on this panel, press F1 (Help).

Select the Printer

If you do not know what printers are available to send your print request to, you can display a list of active printers.

To select the printer

1. Enter a question mark (?) in the Printer Name field on the PSM: Print Request panel.

The list of active printers appears.

Note: If the list is longer than a full page, use F8 (Forward) and F7 (Backward) to scroll through the list.

2. Enter the selection code at the prompt.

The printer is selected.

Appendix A: NCPView Buffers, Pools, and Control Blocks

This section contains the following topics:

[Buffers and Pools](#) (see page 177)

[Control Blocks](#) (see page 177)

Buffers and Pools

Immediately after the NCP has been loaded into the communications controller, NCP formats all remaining controller storage space into buffers, the size of which is specified when the NCP is generated. Buffers form chains, with each one except the last containing a pointer to another buffer. The buffer chain is also known as the system free buffer pool, a dynamic collection of buffers that can be taken (leased) as needed to contain data. When the data in buffers is no longer needed, the buffers are reattached (released) to the free buffer pool.

Buffers can be set aside to receive incoming data—these buffers are known as committed buffers. Committed buffers are not counted as available when the slowdown status is calculated.

Buffers contain path information unit (PIU) messages from access methods in channel-attached host processors, other NCPs, and from link-attached devices and control blocks.

Buffers can contain dynamically allocated control blocks when there are no more available reserved control blocks in the appropriate pools, as defined in the generation definition.

When defining pools in the generation definition, space can be reserved for control blocks. The pool can be defined to contain a particular number of control blocks. NCPView may indicate that a pool is being used to almost its capacity—if this occurs it is recommended that the NCP generation definition be changed accordingly and the size of the pool increased.

Control Blocks

Control blocks are either defined in the NCP generation definition or dynamically allocated.

Defined Control Blocks

Control blocks are initially defined in the NCP generation definition. They are defined within pools that contain particular types of control blocks; for example, you may have a pool of control blocks for physical units (PUs).

When a pool is defined in the NCP generation definition it can contain a number of control blocks that are reserved for later use. As they are eventually used and there is no more room left in the pool, additional control blocks can be dynamically defined and placed in buffers.

NCPView provides you with a view of the current pool usage so that it is possible to change the pool size definition in the NCP generation definition and allocate more control blocks.

Dynamic Control Blocks

If dynamic control block allocation is enabled by coding DYNPOOL in the BUILD definition statement of the NCP generation definition, NCP is able to allocate more control blocks than the generation definition allows. This is useful when there are not enough resources defined in the generation definition to meet a sudden demand. It should be noted that because dynamic control blocks use up buffers from the buffer pool, NCP performance can be degraded during periods of high demand. It is therefore recommended that your NCP generation definition has all of the resources you expect to be required, already defined.

Control Block Pools

The following pool names are available:

BSB-D-LU-LU

Dependent LU-LU Boundary Session

BSB-D-SSCP-LU

Dependent SSCP-LU Boundary Session

BSB-I

Independent Boundary Session Block

BXI-D

Dependent Boundary Session Block Extension

BXI-I

Independent Boundary Session Block Extension

CBB

Committed Buffers Block

CRX

Communications Rate

CUB

Common PU Block

CXB

Common PU Block Extension

CXI

Common PU Block Extension for Embedded Blocks

CX2

Common Physical Unit Block Extension 2

ENI

IP/DLC Interface Control Block

FCT

Flow Control Parameter Table

FRTE

ODLC Frame-relay Logical Resources

GPB

Buffer pool (GPB)

HRE

Host Route Entry

LAE

Local Address Entry

LDA

LU Block Extension Data Area

LKE

ODLC Link Control Block Extension

LLB-FR

Frame Relay Logical Links

LLB-TR

Token-ring Logical Links pool

LNB

Independent LU Network Address

LND/LNB

Dependent LU

LTX-TERM

LU Terminal Node Extension

LUB

LU Dynamic Reconfiguration

LUX

LU Block Extension

NIX

Network Interconnect Extension

NLX

Programmed Resource LU Block Extension

NNT

Network Names Table

NQE

NPA Counter Queue Element

NQX

NPA Counter Queue Element Extension

NQ2

NPA Counter Queue Element Extension 2

NRE

Network Route Entry

NSB

Frame Relay Physical Station NPM

NSC

NPA Session Counters

NSX

NPA Session Counter Extension

NVT

Network Vector Table

OLANR

ODLC LAN Logical Resources

RIB

Route Interface Control Block

RVT

Resource Vector Table

SCE

ODLC Stations

SRE

Subnetwork Route Entry

SSB

SOCA Station Information

VAT

Virtual Route Access Table

VTs

Vector Table of SNPs (SSCP - NCP session control blocks)

VVT

Virtual Route Vector Table

Appendix B: NetView Operator Commands

This section contains the following topics:

[Getting Help](#) (see page 183)

[Execute NetView Operator Commands](#) (see page 184)

Getting Help

For detailed help about each NetView operator command, enter the command followed by a space and a question mark, for example:

BFRUSE ?

Some operator commands have associated parameters. If you enter one of these commands without the mandatory parameter, the help is automatically displayed.

Help for each operator command shows the correct syntax for the command, a description of any associated parameters, and examples to illustrate its use.

The INDEX command provides a list of all the supported operator commands. You can access the detailed help for any operator command by entering **S** next to the command in the INDEX list.

Execute NetView Operator Commands

NetView operator commands can be executed by using OCS.

Note: As an alternative of entering operator commands directly in OCS, you can also enter them through an NCCF-like facility in OCS. For more information about the facility, see *NetMaster REXX Guide*.

To execute a NetView operator command from OCS:

1. Enter **O** at the command prompt on the Primary Menu.
An OCS window appears.
2. Enter the NetView operator command at the command prompt, type a space, and then type any required parameters, separated by a comma or space.
Press Enter.

Example: NACT NODE1,ACT FINAL

Example: Execute NetView Operator Commands

The first of the following diagrams shows the entry of a LISTVAR NetView operator command and the second one shows the output.

```
(12.57)----- Operator Console Services (PROD1) -----

----- NetMaster -----
=> listvar
```

```
PROD1----- NetMaster : System Variables -----Columns 00001 00074
Command ==>                                     Scroll ==> CSR

Operating System and Version ..... z/OS 01.04.00
System ID (CURSYS) ..... C071
VTAM Level ..... 6.1.4
VTAM Network ID (NETID) ..... USILDA01
VTAM SSCP Name ..... A71X99
VTAM Subarea Number ..... 00000047
VTAM Host PU Name ..... ISTEPUS
System Services Level ..... 6.0
Domain ID (NMDID) ..... PRD1
System ID (SYSPARM ID) ..... PROD1
Application ID (ACB NAME) ..... PROD1
Operator ID ..... USER01
LU Name ..... NMMAT017
OCS ID ..... Not Set
Job Name ..... PROD1
Current Console ID ..... Not Set
Current Date ..... THU 26-AUG-2004 (04.239)
Current Time ..... 03.15.29
F1=Help      F2=Split    F3=Exit      F4=Return    F5=Find
F7=Backward  F8=Forward  F9=Swap
```

Command Not in Library Message

If you receive the following message when you enter a NetView operator command, see your systems administrator:

```
START commandname  
N04005 NCL PROCEDURE commandname DOES NOT EXIST IN LIBRARY COMMANDS.
```

It means that the NetView operator command facility has not been enabled.

Note: For information about enabling the NetView operator command facility, see the *Administration Guide*.

Index

3

- 3710 devices • 101
- 3746-900 CSS support • 62

A

- accessing
 - alert monitor • 92
- accounting data • 122
- action lists • 27
- activity logs
 - browsing online • 138
 - displaying • 138
- adapters • 41, 133
 - channel • 53
 - CSS • 62
 - diagnostics • 51
 - error statistics for SNA controllers • 100
 - in IBM LAN Manager • 133
 - in NCPView • 53
 - line • 54
 - listing • 133
 - menu • 51
 - removing • 133
 - status • 133
 - token-ring • 55, 57
- logical links • 58
- physical links • 57, 58
 - types supported by NCPView • 52
- alert history • 98
- alert monitor
 - accessing • 92
- alerts
 - closure • 97
 - displaying for resources • 88
 - monitoring • 92
 - operator notes • 97
 - problem tickets • 96
 - to Unicenter TNG • 15
 - transient log, and • 96
- APPN
 - control point nodes • 72, 73
 - directory entries • 74
 - DLURs • 78
 - resource components • 74
 - resources • 75

- RTP pipes • 77
- subnetwork topology • 81
- TRLEs • 78
- attentions • 106

B

- bridges
 - configuration • 133, 134
 - connecting • 133
 - disconnecting • 133
- buffers, NCPView
 - and CCU utilization • 49
 - and pool usage • 49, 50, 177

C

- CA NSM, and alerts • 15
- canceling changes to a record • 30
- CLOSE command • 97
- CNM records
 - attentions • 106
 - device information • 105
 - events • 105
 - logged to NEWS database • 103
 - RTM data • 108
 - statistics • 106
- command control options, VTAM • 90
- commands, general
 - authority • 19
 - MVS/MSP operating system • 18
 - NetView emulation • 19
 - VTAM • 19, 88
- commands, specific
 - FILTER • 114
 - LOCATE • 29
 - NTSMOD • 127
 - PROFILE • 139
 - SPLIT • 36, 37
 - SWAP • 36, 37
 - VTAMDisp • 74
- components • 13
- configuration
 - communication controller • 41
 - data • 120
 - of bridges • 133
 - of resources • 105

- connecting bridges • 133
- contacting technical support • iii
- control blocks
 - defined • 178
 - dynamic • 178
 - formatted dumps • 50
- controlling
 - adapters and networks • 133
 - resources • 90
 - session tracing • 125
- cross-domain resources • 87
- CSCF devices • 101
- customer support, contacting • iii

D

- data
 - entry panels • 29
 - validation • 30
- data types
 - accounting • 122
 - configuration • 120
 - error • 119
 - route configuration • 110
 - RTM • 110
 - SAW • 110
 - session trace • 110, 123
- database review menu • 103
- defined control blocks • 178
- device information • 105
- device support
 - functions • 99
 - generic devices • 99
 - getting help • 101
 - SNA controllers
- error information • 101
- statistical information • 101
 - specific devices • 101
- devices
 - 3710 • 101
 - configuring • 99
 - CSCF • 101
 - FCS • 101
 - information • 105
- generic • 99
- specific • 101
 - LAPD-2 • 101
 - OEM NetView/PC • 101
 - product set ID • 101
 - resource configuration • 105

- RTM • 101
- SNA controllers
- error information • 101
- statistical information • 101
 - SNA_HUB • 101
- support • 99
- testing • 99
- disconnecting bridges • 133
- displaying
 - activity log from the transient log • 139
 - activity logs • 138
 - alert history • 98
 - transient logs • 139
- DLURs • 78
- dumps, formatted • 50
- dynamic control blocks • 178

E

- EC level, SNA controllers • 100
- entering data • 29
- error and traffic ratios • 107
- error data • 119, 122
- events
 - NEWS • 105

F

- FCS devices • 101
- fields
 - mandatory • 29
 - optional • 29
 - prompted • 30
- filing data • 30
- FILTER command • 114
- filtering session information • 112
- Find function • 29
- frame relays
 - diagnosis • 58
 - physical links
- details • 60
- in NCPView • 60
- subports • 60

G

- GWNAUs for SNI connections • 64

H

- help, online
 - facilities for messages • 140
 - overview • 34

horizontal scrolling • 28

HSCBs

counts • 63

detailed information • 63

I

IBM LAN Manager

bridge

configuration • 134

information • 133

controlling networks • 133

displaying network information • 133

functions • 131

initializing • 133

monitoring adapters • 133

testing paths and segments • 133

Index Menu • 31

information database • 20, 135

Initialization in Progress panel • 22

initializing IBM LAN Manager • 133

Internet Protocol resources • 41

IP routers

datagram information • 66

monitoring • 66

statistics • 66

statistics for NCPs • 66

K

knowledge base definitions, customizing panel

access • 32

L

LAN

IBM LAN Manager

overview • 15

support • 131

LAPD-2 devices • 101

link station, VTAM display • 122

links

test statistics for SNA controllers • 100

list types • 27

LOCATE command • 29

locating records • 29

logging off • 22

logging on • 21

logs

activity • 138

transient • 139

M

MAI and NTS • 16

mandatory fields • 29

messages

help for • 36, 140

monitoring

active alerts • 92

adapters and bridges • 133

NCPs • 42

buffer and pool usage • 49

IP router statistics • 66

storage • 49

transmission groups • 64

utilization • 49

virtual routes • 65

performance • 108

resources • 111

routes • 115

sessions

primary • 111

secondary • 111

subareas • 114

multiple select lists • 27

N

navigation

menus • 24

splitting screens • 37

swapping screens • 37

toggling between windows • 37

working in two windows • 36

NCPs

active • 42

adapters • 53

channel • 53

supported types • 52

token-ring • 57

buffer usage • 49, 50

configuration • 41

control blocks • 41

dumps • 42

GWNAUs for SNI connections • 64

HSCB counts • 63

IP router statistics • 66

monitoring • 42

NCP Monitor • 42

networks connected by SNI • 63

storage • 49

summary information • 45

-
- transmission groups • 64
 - utilization • 49
 - versions supported by NCPView • 39
 - virtual routes • 65, 66
 - NCPView
 - control blocks as formatted dumps • 50
 - features • 40
 - IP resources • 41
 - monitored resources • 41
 - NCP versions supported • 39
 - overview • 17
 - processing and storage • 41
 - see also NCPs • 40
 - SNI resources • 41
 - token-ring resources • 41
 - NCS
 - domains to monitor • 84
 - overview • 16
 - summary display • 83
 - NetView operator commands
 - command not in library message • 186
 - emulation • 19
 - executing operator commands • 184
 - help • 183
 - how to execute • 184
 - list of supported commands • 183
 - online help • 183
 - network
 - analyzing performance
 - using resource statistics • 118
 - using RTM data • 117
 - IBM LAN manager • 133
 - management • 13
 - NTS model • 109
 - troubleshooting • 99
 - Network Control System, see NCS • 90
 - Network Management Facility • 19
 - Network Tracking System, see NTS • 110
 - networks connected by SNI • 63
 - NEWS
 - database, CNM records • 103
 - events • 89
 - nodes • 70
 - NTS
 - accessing • 110
 - accounting data • 122
 - active session data in NCS • 89
 - and NEWS • 15
 - configuration data • 120
 - data types • 110
 - error data • 119
 - features • 109
 - NetSpy data • 110
 - network model • 109
 - overview • 15
 - route configuration data • 110
 - RTM data • 110
 - SAW data • 110
 - session summary • 119
 - session trace data • 110
 - NTSMOD command • 127
 - numbered lists • 27
- ## O
- online help
 - messages • 36
 - overview • 34
 - optional fields • 29
 - overview • 13
- ## P
- panels
 - customizing access • 32
 - data entry • 29
 - panels, specific
 - Initialization In Progress • 22
 - User Password Change • 23
 - passwords
 - changing • 23
 - performance, monitoring • 108
 - PIU dump • 124
 - pool/table usage, NCPs • 49, 50
 - primary menu, profile • 21
 - problem ticket, raising for an alert • 96
 - Product Set ID support • 101
 - PROFILE commands
 - menu format • 21
 - transient log • 139
 - prompted fields • 30
- ## R
- records, canceling changes • 30
 - region, logging on • 21
 - Remote Operator Facility (ROF) • 19
 - removing adapters • 133
 - request/response
 - header • 124
 - unit • 124
 - resources
-

- clusters • 85
- configuration • 105
- controlling • 90
- cross domain resource • 87
- detail records • 105
- lines • 86
- link stations • 86
- listing • 111
- monitoring status • 111
- selecting • 111
- statistics • 118
- accessing • 118
- analyzing network performance • 118
 - subareas • 114
 - subordinate • 114
 - summary display • 83
 - terminals • 86
 - traces • 126
 - types • 70, 85
- Response Time Data • 108
- REXX
 - programs, starting from OCS • 167
- ROF, overview • 19
- routes
 - configuration
- data • 110
- explicit • 115
- virtual • 115
 - explicit • 115
- configuration • 130
- listing • 115
- testing • 129
 - monitoring • 115
 - testing to determine problems • 127
 - virtual • 41, 115
- listing • 115
- status • 128
- testing • 128
- RTM data • 110, 117
 - from CA NetSpy • 117
 - from database review menu • 108
 - response distribution • 108
 - using to analyze performance • 117
- RTM devices • 101
- RTP pipes • 77

S

- saving
 - data • 30
- SAW data • 110
- screens
 - splitting • 37
 - swapping • 37
- scrolling • 27
- security
 - ROF • 19
- selecting
 - domains to monitor in NCS • 84
 - resources • 111
- selecting panels
 - all panels • 31
 - by Index Menu • 31
 - by Panel Display List • 31
 - by sequence number • 31
- service point, NetView/PC • 101
- session awareness data • 110
- session trace data • 110, 123
 - analyzing • 124
 - trace records
- dump format • 123
- PIU dump • 124
 - using to determine problems • 123
- sessions
 - configuration • 120
 - determining problems
- using accounting data • 122
- using configuration data • 120
- using error data • 119
- using trace data • 123
 - error data • 119
 - filtering information • 112
 - for sub-resources • 122
 - hierarchy • 120
 - lists • 112
 - logging options • 127
 - modifying
- lists • 112
- logging options • 127
- processing • 127
- tracing options • 127
 - NTS summary display • 119
 - primary • 111
 - RTM data • 117
 - secondary • 111
 - tracing • 123
- analyzing • 124
- controlling • 125
- options • 127
- PIU dump • 124

- single select lists • 27
- SNA
 - controllers • 101
 - resource session status codes • 17
 - resources • 75
 - sense codes • 87, 88, 122
 - status codes, in NCS • 87
- SNA_HUB devices • 101
- SNI
 - GWNAUs • 64
 - HSCB counts • 63
 - networks • 63
 - resources • 41
- SPLIT command • 36, 37
- statistics
 - distribution • 107
 - error and traffic ratios • 107
 - for a node • 106
 - for IP routers • 66
 - from database review menu • 106
- status of adapters • 133
- subareas • 114
- support, contacting • iii
- SWAP command • 36, 37
- SYSCMD overview • 18

T

- technical support, contacting • iii
- testing
 - paths and segments • 133
 - routes
 - explicit • 129, 130
 - to determine problems • 127
 - virtual • 128
 - tip of the day • 35
 - toggling between windows • 37
- token-ring
 - interface coupler • 57
 - resources • 41
 - support • 55
- tracing
 - resources • 126
 - sessions • 123, 124, 125, 127
- traffic ratios • 107
- transient logs • 139
 - displaying an activity log • 139
 - message help • 140
 - printing • 141
 - resetting • 141

- specifying what to display • 139
- transmission groups • 64
 - detailed information • 65
 - for NCPs • 64
 - monitoring • 64
 - NCPView • 41
- transmission header • 124
- TRLEs (transport resource list entries) • 78

U

- UPDATE mode, switching to • 29
- utilization, buffers and CCU • 49

V

- validating data • 30
- vertical scrolling • 28
- virtual routes
 - detailed information • 66
 - for NCPs • 65
 - NCPView • 65
 - status • 128, 130
- VTAM
 - command control options • 90
 - commands • 19, 88
 - domains • 17
 - native information • 74
- VTAM display, link station • 122

W

- working in two windows • 36