

A grayscale background image showing four people in an office environment. On the left, a man is seated at a desk, looking at a laptop. In the center, a man is seated, looking towards the camera. On the right, a woman and another man are standing and looking at a large document or screen. The image is semi-transparent, allowing the text to be overlaid.

CiscoWorks Blue Internetwork Status Monitor User Guide

Version 2, Release 2

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Document Objectives

This guide describes the tasks and commands necessary to enable and operate the Cisco Works Blue Internetwork Status Monitor (ISM) for System/390 products.

Audience

This guide is intended for IBM NetView operators who are responsible for monitoring Cisco routers in a Systems Network Architecture (SNA) environment. This guide assumes that you are familiar with the basic concepts and terminology used in internetworking and that you understand the network topology and protocols.

Document Organization

This guide is divided into the following chapters and appendixes:

- Chapter 1, “Overview of CiscoWorks Blue ISM,” provides information about how ISM works and the features and benefits of the ISM product.
- Chapter 2, “Using ISM,” provides an introduction to ISM and its architecture, including starting ISM and navigating in the product.
- Chapter 3, “Enabling the ISM Environment,” describes how to enable global functions, management applications, and monitoring options.
- Chapter 4, “Monitoring ISM Resources,” describes how to enable ISM to monitor routers.
- Chapter 5, “Monitoring Interfaces,” describes how to enable ISM to monitor the interfaces that are installed in your network routers.
- Chapter 6, “Monitoring CMCCs,” describes how to enable ISM to monitor the Cisco Mainframe Channel Connections (CMCCs) between the mainframe and the router.
- Chapter 7, “Monitoring DSPU Resources,” describes how to enable ISM to monitor routers that are defined as downstream physical unit (DSPU) resources.
- Chapter 8, “Monitoring TN3270 Servers,” describes how to enable ISM to monitor the availability of Cisco TN3270 servers, which reside on the Channel Interface Processors (CIPs) and channel port adapters of Cisco routers.
- Monitoring SNA Switch Resources, page 1 describes how to enable ISM to monitor SNA Switching (SNASw) resources configured on routers.
- Appendix A, “ISM Commands,” provides a list of available ISM commands, procedures for issuing the commands, and detailed syntax descriptions, notes, and examples.
- Appendix B, “ISM Messages,” lists each message that the ISM program can generate and provides an explanation and recommended action for each message.
- Appendix C, “Servicing and Troubleshooting,” describes the ISM service aid utilities that you can use to trace internal ISM data to troubleshoot a problem. This appendix also includes information about how to restore the ISM base administrator profile.

- Appendix D, “Network Management Vector Transport Alerts,” lists and describes the NMVT alerts generated by Cisco routers.

Document Conventions

The terms *resource* and *router* are used throughout this documentation. To avoid confusion, be aware that all routers are resources, therefore the term *resource* encompasses *router*—whereas the term *router* is specific.

This guide uses basic conventions to represent text and table information.

Command descriptions in this guide use the following conventions:

- Commands and keywords are in **boldface** font.
- Arguments for which you supply values are in *italic* font.
- Elements in square brackets ([]) are optional.
- Alternative, but required, keywords are grouped in braces ({ }) and separated by a vertical bar (|).

Examples use the following conventions:

- Terminal sessions and information that the system displays are printed in a *screen* font.
- Information that you enter is in **boldface screen** font.
- Variables that you enter are printed in *italic screen* font.
- In examples, an exclamation point (!) at the beginning of a line in a router configuration indicates a comment line.

In addition, this guide uses the following conventions:



Note

Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this manual.



Caution

Means *reader be careful*. You are capable of doing something that might result in equipment damage or loss of data.

**Timesaver**

Means *the described action saves time*. You can save time by performing the action described in the paragraph.

**Tip**

Means *the following are useful tips*.

Related Documentation

For more information about CiscoWorks Blue Internetwork Status Monitor, refer to the following publications:

- *CiscoWorks Blue Internetwork Status Monitor Installation Guide*
- *CiscoWorks Blue Internetwork Status Monitor Data Areas*
- CiscoWorks Blue Internetwork Status Monitor Online Help

For additional information, refer to the following Cisco Systems publications:

- Configuration guides and command references for Cisco router products used at your site
- *Cisco IOS Bridging and IBM Networking Configuration Guide*
- *Cisco IOS Bridging and IBM Networking Command Reference, Volume I and Volume II*
- *Cisco IOS Command Summary*
- *Cisco IOS System Error Messages*
- *Internetworking Terms and Acronyms*

For more information about using IBM's NetView, you can refer to the following IBM NetView publications:

- *NetView Operation*
- *Learning About NetView Operation*
- *NetView Command Summary*

Obtaining Documentation

The following sections explain how to obtain documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following URL:

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Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools by using the Cisco Technical Assistance Center (TAC) Web Site. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC Web Site.

Cisco.com

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<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two types of support are available through the Cisco TAC: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Inquiries to Cisco TAC are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

Which Cisco TAC resource you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

Cisco TAC Web Site

The Cisco TAC Web Site allows you to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to the following URL:

<http://www.cisco.com/tac>

All customers, partners, and resellers who have a valid Cisco services contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to the following URL to register:

<http://www.cisco.com/register/>

If you cannot resolve your technical issues by using the Cisco TAC Web Site, and you are a Cisco.com registered user, you can open a case online by using the TAC Case Open tool at the following URL:

<http://www.cisco.com/tac/caseopen>

If you have Internet access, it is recommended that you open P3 and P4 cases through the Cisco TAC Web Site.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses issues that are classified as priority level 1 or priority level 2; these classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer will automatically open a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to the following URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled; for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). In addition, please have available your service agreement number and your product serial number.



Overview of CiscoWorks Blue ISM

CiscoWorks Blue Internetwork Status Monitor (ISM) Version 2 is an application that runs on an MVS mainframe and is integrated with NetView, IBM's network management platform. Now you can manage Cisco routers and other related resources from the NetView console. ISM combines the world of mainframe network management with distributed-router management in LAN and WAN topologies.

This chapter provides an overview of how ISM Version 2 works and describes its features and benefits, including the following sections:

- How Does ISM Work?, page 1-1
- New Features in ISM V2R2, page 1-3
- ISM Features Available from a NetView Console, page 1-3
- ISM Functions, page 1-6

How Does ISM Work?

Designed for large SNA and IP networks, CiscoWorks Blue ISM provides NetView operators with full visibility into a Cisco router network from NetView domain, regardless of whether the network is routing SNA traffic. With ISM, a NetView operator can monitor and manage Cisco resources and their interfaces, DSPU resources, Cisco TN3270 servers, Cisco Mainframe Channel Connections (CMCCs), and SNASw resources. ISM operates like a standard NetView application, and works in conjunction with many of NetView's components.

ISM offers you presentation methods:

- Standard NetView 3270 presentation services, for those accustomed to operation using 3270-like screens
- A Web browser interface, available with NetView 1.2 or later

ISM provides visibility of the router network through the Virtual Telecommunications Access Method (VTAM), and enables management of routers through a NetView console. To manage routers from NetView, a VTAM connection must be established for each router, and the appropriate service point must be defined in the configuration file of each router using Cisco IOS SNA interface commands. The ISM management environment is established via the service point interface integrated into Cisco routers.

ISM enables you to use SNMP to monitor resources, such as Cisco routers that do not have a service point interface. ISM accesses SNMP via TCP/IP installed on the MVS system.

You can use a remote NetView console to issue Cisco IOS router commands, which are usually entered at a local router console. ISM converts these commands to RUNCMDs for communication with the router. The router's service point interface accepts the RUNCMDs issued from a NetView console and transports responses and alerts from the router to the mainframe.

The router responds to the RUNCMDs in the form of network management vector transports (NMVTs), and ISM displays these responses to the mainframe operator in its full-screen panel interface. In addition to responses to RUNCMDs, NMVT alerts are also transported from the router to the mainframe, where ISM provides a connection to the NetView Problem Determination Application (NPDA), NetView's hardware monitor.

For more information on configuring a VTAM connection and verifying the SNA service point of a router, see Chapter 2, “Configuring the Mainframe-to-Router Link,” in the *CiscoWorks Blue Internetwork Status Monitor Installation Guide*.

New Features in ISM V2R2

This release of ISM includes the following new features and enhancements:

SNASw Monitoring

- Router CPU and memory utilization by SNASw
- SNASw link status monitoring
- SNASw port status monitoring

Interface Monitoring Enhancements

- Option to bypass monitoring of subinterfaces
- Interface reliability logging
- Enhanced Frame-Relay support

ISM Features Available from a NetView Console

ISM V2 provides the following features from a NetView console:

- Cisco router management and performance monitoring.
- ISM Status Summary panel and Resource Status panel showing the status of all network resources being monitored. These status panels provide the following features:
 - Color-coded status, where the color of the service point name of the resource indicates the status of the resource
 - Similar to the NetView STATMON display panel
 - Drill-down interface to other related ISM panels
 - An options menu that provides easy access to the most commonly used router diagnostic commands
- An extended summary view that flags routers with performance problems. This flag indicates the source of the problem and allows you to quickly diagnose the problem.

- Security management through operator profile management. Operators are authorized on an individual basis to use both the display and configuration functions of ISM, or limited to using the display-only functions.
- Event correlation. Events sent by routers through ISM are correlated with the routers being managed by ISM so you can view the alerts that apply to a specific router.
- DSPU, TN3270, CMCC, and SNASw management assistance. Cisco IOS commands typically used to diagnose DSPU, TN3270, and CMCC problems are available via a full-screen interface, simplifying management of these devices.
- Command-line interface. NetView operators can connect to a router and issue commands they would normally issue in a Telnet session. This command-line interface does not require TCP/IP at the mainframe.
- Filters that allow exception viewing. The routers displayed on the Resource Status panels can be grouped by status or logical group criteria.
- Interface performance monitoring. Performance data is collected for routers and interfaces at user-defined monitoring intervals. This data is accessible from a variety of ISM panels.
- Router and interface statistics archiving. ISM logs router and interface statistics in virtual storage access method (VSAM) for performance analysis. Performance statistics are logged to VSAM data sets and to SMF. These statistics are available for operator viewing, and are used to analyze performance.
- SNA session and RIF data archiving. ISM collects and archives session data for routers connected to VTAM via switched SNA sessions.
- Control of all ISM rules and variables, including:
 - Poll interval settings by router or router group
 - Management of CPU usage, necessary for monitoring routers, by changing poll intervals by individual router (such as critical network routers)

- Terminal Access Controller Access Control System Plus (TACACS+) support, including:
 - Maintaining a secure router environment when you issue commands from ISM
 - Requiring a user ID and password to send privileged-mode commands to the router when implementing TACACS+ on a router
- Enhanced CMCC management, including:
 - Automatic discovery of CMCCs and their status
 - Performance monitoring
 - Channel monitoring
 - CMCC and channel connectivity diagram
- Support for the following monitor interface types:
 - ASYNC
 - ATM
 - Channel
 - Ethernet
 - Fast Ethernet
 - FDDI
 - Gigabit Ethernet
 - HSSI
 - IBM CLAW
 - ISDN
 - Loopback
 - Multiprotocol (MPC) Point-to-Point
 - Serial
 - Token Ring
 - TUNNEL
- Ability to configure CPU and memory thresholds for an individual router (or all routers) and CMCCs.

- Monitoring of generic ISM alerts and alarms using NetView's NPDA. ISM alerts you about any of the following events:
 - Router CPU threshold exceeded
 - Router memory usage exceeded a threshold
 - Resource unavailable
 - Interface unavailable
 - CMCC CPU threshold exceeded
 - CMCC memory usage exceeded a threshold
 - TN3270 free LU threshold exceeded
- Usability enhancements. From the NetView console you can perform the following tasks:
 - Highlight changed values in statistical displays
 - Filter routers by status, group name, or wildcard referencing in the router name
 - Control summary and status displays with a user profile setting
- Event logging. You can monitor events tracked internally by ISM, including router status changes and operator audit trails, that record changes to ISM management definitions. Event logging provides the following capabilities:
 - Search variables
 - Events recorded to SMF
 - Two data sets for the active and inactive log
- Router memory dump. ISM captures the usage of router memory to a VSAM data set, which you can browse using NetView.

ISM Functions

This section describes the following major ISM functions:

- Router Management, page 1-7
- Interface Monitoring, page 1-7
- Security Management, page 1-8

- Performance Monitoring, page 1-10

Router Management

The router's management function provides dynamic status information for routers that have been defined to, or discovered by, ISM. Discovery can be either by SNMP traps, or by NMVT alerts sent to MVS.

You can use ISM to perform the following tasks:

- Display a list of all the routers in your network that are being monitored by ISM
- Display a list of the interfaces by router
- Access details about the status of a Cisco router
- Access details about interfaces enabled in a router
- Set CPU and memory performance thresholds for routers
- Set monitoring intervals for routers and interfaces
- Discover routers automatically through detection of generated alerts
- Display a list of alerts generated by a router and forwarded to NetView
- Issue commands to a router
- Collect the current configuration of a router, and access a list of archived configuration files that can be used for disaster recovery
- View performance history

Interface Monitoring

ISM's interface monitoring function allows you to monitor the interfaces enabled in the routers in your network. You can configure the ISM management environment to specify the types of interface you want to monitor and the interval at which you want them monitored. Additionally, you can monitor interfaces on a per-router basis, display the details about a specific interface, and obtain interface history and performance data.

**Note**

When ISM is monitoring interfaces, it automatically begins monitoring any new supported interfaces that it discovers.

You can monitor the following types of interfaces:

- Asynchronous
- Asynchronous Transfer Mode (ATM)
- Channel
- Ethernet
- Fast Ethernet
- Fiber Distributed Data Interface (FDDI)
- Gigabit Ethernet
- High-Speed Serial Interface (HSSI)
- Integrated Services Digital Network (ISDN)
- IP over Claw
- Loopback
- Multiprotocol (MPC) Point-to-Point
- Serial
- Token Ring
- Tunnel

See Chapter 5, “Monitoring Interfaces,” for more information on monitoring interfaces, and see Chapter 3, “Enabling the ISM Environment,” for more information on configuring the ISM management environment.

Security Management

In addition to the standard security features offered by NetView and the Cisco IOS software, ISM provides the following security features:

- Operator management—ISM can define authority levels that dictate the ISM actions an operator can perform.

- Transparent support of router security—ISM passes all security required by the router to the ISM operator. If TACACS security is implemented in the router, ISM also requires a user ID and password to communicate with the router.
- Password suppression—ISM suppresses all passwords entered by operators who issue commands that require passwords.
- Command logging—ISM logs each command issued from ISM. ISM also logs the name of the operator who issued the command. The ISM event log records operator actions that result in router state changes.
- Under SNMP, ISM supports only the **GET** and **GETNEXT** commands.

Do not bypass ISM by issuing RUNCMDs directly to a router. Bypassing ISM creates the following security issues:

- If an authorized user logs in to a router in enabled mode, *all* operators can issue authority-level commands to the router.
- Without the ISM interface, there is no queue scheduling. This could allow *any* operator to receive data that is being sent in response to a command issued by another operator.

**Caution**

ISM does not prevent you from using security features provided by your system, or by NetView. If you are concerned about operators issuing RUNCMDs directly, you can alter NetView to prevent specific operators from issuing specific RUNCMDs and ISM commands.

**Note**

For more information on NetView security features, refer to the appropriate NetView manual.

Cisco IOS software security features used by ISM include the enable password feature and TACACS+.

Performance Monitoring

You can use ISM to define router CPU and memory performance thresholds that, when exceeded, alter the status of the router on the ISM status panels. ISM provides data that you can use to evaluate the performance of the routers, interfaces, DSPU and CMCC resources in your network.

You can use the following methods to monitor the performance of these resources:

- Define CPU and memory performance thresholds for routers and CMCCs, and view the exceptions.
- View real-time collected performance data for routers, interfaces, and CMCCs.
- Log the performance of an interface or router (at user-defined intervals), and measure the results using the archived performance data.
- View the details of archived performance data.
- Log data to SMF.



Using ISM

This chapter describes how to use ISM. It provides specific information on the following topics:

- Starting the ISM User Interface, page 2-1
- Navigating in ISM, page 2-3
- Viewing ISM Event Log Messages, page 2-7
- Using ISM Status Panels, page 2-10
- Accessing NetView, page 2-14
- Using the ISM Web Interface, page 2-15

Starting the ISM User Interface



Note

Before starting the ISM user interface, you must define the NetView ISM autotask and initialize ISM. For more information on defining the autotask, see Chapter 3, “Installing ISM,” in the *CiscoWorks Blue Internetwork Status Monitor Installation Guide*. For more information on initializing ISM, see Chapter 5, “Configuring ISM,” in the *CiscoWorks Blue Internetwork Status Monitor Installation Guide*.

To start the ISM standard NetView 3270 program interface, hereafter called the standard interface, log into NetView, type **ism** on the command line of the NetView main menu panel, and press **Enter**.



Note

You can also run the **ism** command from NetView's STATMON menu panel, if you added ISM commands to the STATMON menu as described in the "Integrating ISM with STATMON" section of Chapter 3, "Installing ISM," in the *CiscoWorks Blue Internetwork Status Monitor Installation Guide*.

The Internetwork Status Monitor (ISM) main menu panel (Figure 2-1) is displayed.

Figure 2-1 ISM Main Menu Panel

```

NSPYMAI4          Internetwork Status Monitor (ISM) V2          CNM56  05/27/04
                                     12:04
Options  Description
+ SUM    ISM Status Summary
+ ISMR    Resource Manager: _____
Applications
+ MGR    Resource Status Display
+ INT    Interface Status Display. A=Async B=ISDN C=Channel Type _____
          D=FastEthernet E=Ethernet F=FDDI G=GigaBit H=HSSI I=CLAW
          L=Loopback M=ATM N=MPC S=Serial T=Tokenring U=Tunnel
+ DSPU   DSPU Monitor
+ CMCC   Cisco Mainframe Channel Connection (CMCC) Monitor
+ TN32   Cisco TN3270 Monitoring Operations
+ SNASW  Cisco SNA Switch Monitoring Operations

+ SNA    Session Monitor  PU: _____  MAC/XID: _____
+ LOG    Activity Log
+ HELP   Command Descriptions.
ISM Last Initialized: 05/27/04 08:30 ISMMGR

Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL          8=ADMIN
TCD10617  00:00.1 004/004
  
```

This panel shows the date and time ISM was last initialized and the name of the ISM autotask (ISMMGR).



Note

ISM V2 does not coexist with ISM V1R3.0. If your site uses ISM V1R3.0, you can migrate existing mainframe definitions and user profiles to ISM V2. For more information about migrating ISM V1R3.0 data, see the "Migrating from ISM V1R3.0" chapter in the *CiscoWorks Blue Internetwork Status Monitor Installation Guide*.

Navigating in ISM

This section describes how to navigate ISM's menus, panels, function keys and command lines. It provides specific information on the following topics:

- Using the ISM Main Menu, page 2-3
- Using ISM Application Menus, page 2-3
- Using the ISM Command-Line Interface, page 2-4
- Using ISM PF Keys, Command Keys, and Entry Fields, page 2-6

Using the ISM Main Menu

The ISM main menu panel (Figure 2-1) displays enabled ISM options and applications. To run an option or application, position the cursor on the option or application and press **Enter**. The selected application panel is displayed.

Using ISM Application Menus

Use ISM application menus to perform the following functions:

- Monitor resources
- Monitor downstream physical units
- Monitor Cisco TN3270 servers
- Monitor SNASw resources

Table 2-1 describes functions in the ISM application menu panels.

Table 2-1 *ISM Application Menu Panels*

Panel	Function
Resource Status with Options	Monitors resources
DSPU Monitoring Operations	(Standard interface only) Monitors routers defined as downstream DSPUs
TN3270 Status Monitoring Operations	Monitors Cisco TN3270 Servers

Using the ISM Command-Line Interface

Use the ISM or NetView command line to access ISM applications, both those that appear on the ISM main menu panel, and those that do not appear on ISM menus.

To use the comman- line interface, position the cursor on the ISM command-line prompt, enter an ISM function command, and press **Enter**. ISM displays the application panel.

For example, you can enter the **ism mgr** command at the Session Connection History panel (Figure 2-2) command prompt.

Figure 2-2 Session Connection History Panel

NSPVSHFA		Session Connection History				CNM56	08/24/00
PU Name: ISM72008		Domain: CNM56		MAJNOD: SGXC4D02		Target: 14:27	
Date	Time	Network ID	IDBLK_ IDNUM	Local MAC Addr	Local SAP	MAJNOD	Miss-Match
20000824	09:39	NETA.MVSE	05DFF001	40017200C0E1	04	SGXC4D02	
20000811	13:19	NETA.MVSE	05DFF001	40017200C0E1	04	SGXC4D02	
20000802	15:26	NETA.MVSE	05DFF001	40017200C0E1	04	SGXC4D02	
20000731	11:15	NETA.MVSE	05DFF001	40017200C0E1	04		
20000731	11:02	NETA.MVSE	05DFF001	40017200C0E1	04		
==>							More=>
1=HELP 2=MAIN 3=RTN 4=DELETE				6=ROLL		11=RIGHT	

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The Resource Status panel (Figure 2-3) is displayed:

Figure 2-3 Resource Status Panel

NSPVMGRX		Resource Status		CNM56		08/24/00
Group/Resource/Alias: SNMP		Routers: 40				16:37
CNTL/SPname	Status	Xtended	Operator	Hostname	Operation Group(s)	
CWBC01	PERF	C		cwb-c1	SNMP1	SNMP
CWBC02	ACTIV			cwb-c2	SNMP2	SNMP
CWBC03	ACTIV			cwb-c3	SNMP3	SNMP
CWBC04	ACTIV			cwb-c4	SNMP4	SNMP
CWBC05	ACTIV			cwb-c5	SNMP5	SNMP
CWBC06	ACTIV			cwb-c6	SNMP5	SNMP
CWBC07	ACTIV			cwb-c7	SNMP7	SNMP
CWBC08	ACTIV			cwb-c8	SNMP8	SNMP
CWBC09	ACTIV			cwb-c9	SNMP9	SNMP
CWBC11	ACTIV			cwb-c11	SNMP11	SNMP
CWBC13	ACTIV			cwb-c13	SNMP	SNMP13
NSP1186I Position cursor on resource and press PF5 to diagnose status.						
==>						
1=HELP 2=MAIN 3=RTN 5=DIAG 6=ROLL			9=RESETOP 10=MENU 12=RESET			

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Using ISM PF Keys, Command Keys, and Entry Fields

Use ISM PF keys to navigate panels or run applications. Table 2-2 describes standard ISM PF key functions. (If a panel uses a non-standard PF key function, the function is called out on the panel.)

Table 2-2 *ISM PF Key Descriptions*

Key	Function
PF1	Get help on ISM panels and options. <ul style="list-style-type: none"> For message help, position the cursor on the message and press PF1, or enter the ismhmsg command from any ISM command line. For PF key help, position the cursor in the PF key field and press PF1. For online help from any ISM panel, press PF1. ISM displays help on using the current panel.
PF2	Go to the ISM main menu panel.
PF3	Return to the previous panel.
PF4	Update a record with the selected options.
PF6	Toggle between the NetView command prompt and the ISM panel.
PF7	Go to the top of the display when data exceeds the length of a single panel.
PF8	Go to the bottom of the display when the data exceeds the length of a single panel.
PF10	Scroll to the left when the data exceeds the width of a single panel.
PF11	Scroll to the right when the data exceeds the width of a single panel.
PF12	Refresh the panel data or recall the last command entered on a panel.

Use the following standard keys to navigate or update ISM panel options:

- Tab**—Moves the cursor to a panel option field.
- Arrow**—Moves the cursor to a field.
- Enter**—Updates or validates a panel selection.

You can easily locate options and enter data in ISM input fields. There are two types of fields displayed on ISM panels:

- Data entry fields—Display green underlined text.
- Informational fields—Typically display white or turquoise text.

Viewing ISM Event Log Messages

This section describes how to access and view ISM event log messages. It provides information on the following topics:

- ISM Event Log Functions, page 2-7
- Viewing the Activity Log Browse Panel, page 2-7
- Searching the ISM Event Log, page 2-8
- Viewing the Event Log Panel, page 2-9

ISM Event Log Functions

The ISM Event Log performs the following functions:

- Records system event messages and conditions. During system operation, ISM records events and creates unique messages that describe status changes in system resources.
- Records an audit trail of operator updates to ISM resource definitions.
- Provides an active and standby event log. When the active event log becomes full or unusable, ISM automatically activates the standby log.

Viewing the Activity Log Browse Panel

To view the Activity Log Browse panel, position the cursor on the LOG line and press **Enter**. The Activity Log Browse panel (Figure 2-4) is displayed.

Figure 2-4 Activity Log Browse Panel

```

NSPV01S1      ISM V2      Activity Log Browse      CNM56      08/24/00
                                                    11:38

Display activity log for ISM V2

Last log key for Active log M      is 2000082411:34:58:451663
Last log key for Inactive log N    is

Log      ==> ACTIV      ( Active/Inact Default = Active log)

Selection Criteria:

From: Time ==> _____ (Default= Current time, Format=18:00 )
From: Date ==> _____ (Default= Current Date, Format=19990429
                           or 1999/12/24 )
Search Count==> _____ ( Default = 150 records per search)

Keyword one ==> _____ ( Examples: SPname Operator_id Interface)
Keyword two ==> _____ ( change new already )
Message id ==> _____ ( NSPnnnn )

Action==>
1=HELP 2=MAIN 3=RTN      6=ROLL Enter(Search)

```

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Searching the ISM Event Log

To search for ISM events, on the Activity Log Browse panel (Figure 2-4), in the Log field, enter the name of the event log to search:

- **ACTIV**—Active Event Log
- **INACTIV**—Inactive Event Log

You can also enter one or more of the following search parameters:

- **Time**—Enter a starting time in the range to search. The default time setting is 18:00. Enter a different starting time in a 24-hour clock format. For example, 6:00AM is *06:00*, and 8:00PM becomes *20:00*.
- **Date**—Enter a starting date in the range to search. The default date setting is today's date. If desired, enter a different starting date. You can express the date in a numeric format such as, *19990429* to represent April 29, 1999, or use delimiters, such as *1999/04/29*.

- **Search Count**—Enter the number of records to be searched. The default search count is 150. If desired, enter a different number of records in the search count field.
- **Keyword One**—If desired, enter keywords, such as a starting operator ID number or name.
- **Keyword Two**—Enter additional keyword search criteria.
- **Message ID**—If desired, enter the starting number in a range of event message IDs to consider in your search criteria. The starting message ID number is a seven-character alphanumeric expression, such as *NSP1234*.

Press **Enter** to display event records in the Event Log panel that match your search criteria.

Viewing the Event Log Panel

The ISM Event Log panel (Figure 2-5) displays current and past event log messages.

Figure 2-5 ISM Event Log Panel

```

NSPVDIS3      ISM V2      EVENT LOG - M      CNM56      08/24/00
ACTIV START= 2000082410:59:34:36628 END= 2000082410:59:35:34629      15:08
Message Id      Message String
NSP1022I      INTERFACE G MANAGEMENT INITIALIZATION COMPLETED. ENTRIES =4 08/24 1
NSP1300I      TN3270 MANAGEMENT INITIALIZED AT TN3270 INITIALIZED 08/24/00 10:5 2
NSP1178I      RESOURCE STATE CHANGE      #10#10#1 WAS INITIAL, NOW NOMON. NSPRMON 3
NSP1178I      RESOURCE STATE CHANGE      ANDY WAS INITIAL, NOW NOMON. NSPRMON4 4
NSP1177I      INTERFACE STATE CHANGE      CWBC01 TOKENRING0/2 WAS UNKNOWN, NOW IN 5
NSP1177I      INTERFACE STATE CHANGE      CWBC01 TOKENRING0/3 WAS UNKNOWN, NOW IN 6
NSP1126E      INVALID RESOURCE NAME CWBND72B GIVEN. NSPRVDI3 7
NSP1177I      INTERFACE STATE CHANGE      CWBC02 TOKENRING0/1 WAS UNKNOWN, NOW IN 8
NSP1178I      RESOURCE STATE CHANGE      ROUTER=CWBND72B DOMAIN=CNM56 OLD STATUS= 9
NSP1177I      INTERFACE STATE CHANGE      CWBC02 TOKENRING0/2 WAS UNKNOWN, NOW IN 10
NSP1178I      RESOURCE STATE CHANGE      CWBND72B WAS INITIAL, NOW INVALID. NSPRM 11
NSP1177I      INTERFACE STATE CHANGE      CWBC02 TOKENRING0/3 WAS UNKNOWN, NOW IN 12
NSP1178I      RESOURCE STATE CHANGE      ROUTER=ISM2500A DOMAIN=CNM56 OLD STATUS= 13
NSP1177I      INTERFACE STATE CHANGE      CWBC03 TOKENRING1 WAS UNKNOWN, NOW INVA 14
NSP1177I      INTERFACE STATE CHANGE      CWBC04 TOKENRING1 WAS UNKNOWN, NOW INVA 15
NSP1178I      RESOURCE STATE CHANGE      ISM2500A WAS INITIAL, NOW ACTIV NSPRMON4 16
NSP1177I      INTERFACE STATE CHANGE      CWBC05 TOKENRING1/0 WAS UNKNOWN, NOW IN 17
NSP1177I      INTERFACE STATE CHANGE      CWBC07 TOKENRING1/0 WAS UNKNOWN, NOW IN 18

==>
1=HELP 2=MAIN 3=RTN      6=ROLL 7=UP 8=DOWN      10=LEFT 11=RIGHT 12=TOP

```

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To view help for a message, position the cursor on a message and press **PF1**.

To return to the Activity Log Browse panel (Figure 2-4) and change the Search Rules, press **PF3**.

To view earlier event records, press **PF7**.

To view later (more current) event records, press **PF8**.

Using ISM Status Panels

The following subsections describe how to monitor network resources using the following ISM panels:

- Using the ISM Status Summary Panel, page 2-10
- Using the Resource Status Panel, page 2-12
- Using the Resource Status with Options Panel, page 2-13

Using the ISM Status Summary Panel

The ISM Status Summary panel monitors the status of ISM managed resources. You can view the status by resource type and the number of resources in the selected status condition.

This section describes how to use the ISM Status Summary panel to perform the following tasks:

- Viewing the ISM Status Summary Panel, page 2-10
- Viewing Detailed Resource Information, page 2-11
- Viewing the Total Number of ISM Resources, page 2-11
- Viewing Resources by Group, page 2-11

Viewing the ISM Status Summary Panel

To view the ISM Status Summary panel, on the ISM main menu panel, position the cursor on the SUM line and press **Enter**. The first panel of the ISM Status Summary (Figure 2-6) is displayed.

Figure 2-6 ISM Status Summary—First Panel

NSPVSUM3		ISM Status Summary			Group= ALL		CNM56		05/27/04		
Last Refresh: 15:31		05/27/04							15:37		
		<-----Active----->			<-----UNKNOWN----->						
Total		ACTIV	PERF	ALERT	INOP	INVALID	CONCT	INACT	NOMON		
7	Resources	5	2								
10	CMCC	10									
9	TN3270	6				3					
4	SNASw	4									
		Desired Status=UP					Desired Status=Down				
Total		Interfaces	UP	DOWN	INVALID	UNKNOWN		DOWN	UNKNOWN		
12	Tokenring							12			
24	Ethernet	10			1			13			
0	FDDI										
7	Loopback	7									
0	ASYNC										
22	Channel	17						5			
0	HSSI										
0	ISDN										
4	Serial							4			
Frame-Relay: 0		HDLC: 0		X.25: 0		BSTUN: 0		SDLC: 0			
Press PF8 for important status on next page.											
==>											
1=HELP		2=MAIN		3=RTN		6=ROLL		8=FWD		12=REFRESH	
00		TCD10617 0:00.4 013/040									

Viewing Detailed Resource Information

To display detailed resource information, position the cursor on a resource type condition and press **Enter**.

Viewing the Total Number of ISM Resources

To use the ISM Status Summary panel to display the total number of ISM managed resources, position the cursor on the Total field for resources, then press **Enter**. ISM lists all ISM managed resources.

If there is a performance (PERF) or alert condition for your selected resource field, only resources in that condition are displayed.

Viewing Resources by Group

To use the ISM Status Summary panel to view resources categorized by group, enter the group name in the Group field, then press **Enter**. ISM displays resources for that group. Figure 2-7 shows a sample summary screen for group **ALL**.

Figure 2-7 ISM Status Summary Panel—Second Panel

NSPVSUM4		ISM Status Summary		Group= ALL		CNM56	05/27/04
Last Refresh: 15:31 05/27/04							15:39
		<-----Active-----> <-----UNKNOWN----->					
Total		ACTIV	PERF	ALERT	INOP	INVALID	CONCT
7	Resources	5	2				
10	CMCC	10					
9	TN3270	6				3	
4	SNASw	4					
		Desired Status=UP		Desired Status=Down			
Total	Interfaces	UP	DOWN	INVALID	UNKNOWN	DOWN	UNKNOWN
1	Tunnel	1					
47	ATM	46		1			
8	FastEthernet	5				3	
0	IPoverclaw						
0	MPC						
1	GigabitEthern						
4	Serial					4	
Frame-Relay: 0		HOLC: 0		X.25: 0		BSTUN: 0	
						SDLC: 0	
==>							
1=HELP 2=MAIN 3=RTN		6=ROLL 7=BACK				12=REFRESH	
				TCD10617		00:00.1 013/040	

If your operator's profile is authorized for resource group filters, you can view only the group names within that profile. See the "Enabling Monitoring Options for Multiple Routers" section on page 4-9 for more information.

Using the Resource Status Panel

To monitor resources, in the ISM main menu panel (Figure 2-1) position the cursor on the MGR line and press **Enter**. The Resource Status panel (Figure 2-3) is displayed, showing the status of all resources managed by ISM.

The Resource Status panel provides the following features:

- Color-coded status by resource type.
- Filtering by group name or resource control name. Wildcard characters can be entered at the end of the resource control name, to view all resources beginning with a common set of characters.
- Diagnosis of resource conditions. ISM automatically displays the appropriate diagnostic panel for a resource condition, such as NetView's NPDA for troubleshooting hardware problems.

To diagnose a resource condition from the Resource Status panel, position the cursor on a resource to diagnose and press **PF5**. ISM automatically displays the appropriate diagnostic panel for resource condition, such as NetView's NPDA for troubleshooting hardware problems.

- Detailed listing of resource information, including:
 - Operators currently managing resources
 - Resource group assignments
- Access to the menu-driven panel to perform other ISM resource operations.

For details about monitoring resources, see Chapter 4, "Monitoring ISM Resources."

Using the Resource Status with Options Panel

The Resource Status with Options panel offers the following features:

- Color-coded status for selected resources and management information, such as the hardware associated with a resource or the Cisco IOS software used for a resource
- View and run ISM programs for a selected resource

To view the Resource Status with Options panel, select a resource on the Resource Status panel (Figure 2-3), then press **Enter**. The Resource Status with Options panel (Figure 2-8) is displayed.

Figure 2-8 Resource Status with Options Panel

```

NSPVRCM4          Resource Status with Options          CNM56  08/24/00
Resource-Service Point/Control Name: ISM7200B          16:24
Resource-IP Address:                                INDEX: 33
Management Mode (SNA/SNMP/BOTH): SNA
Current Status: ACTIV      Enter Option: 3 Only HIGHLIGHTED options available
Extended Status:
Host Name: cwb-ism-7200b
Status Change: 16:24 08/24/00
Description: Dynamically Added

Last Alert:

1.Command Interface
2.Show Protocols
3.ISM Resource Administration
4.Total Events (NPDA)
5.VTAM Display
6.Router Config. History
7.Collect Router Config.
8.Last Alert (NPDA)
9.Refresh/Reset Status
A.Resource Performance History
B.Show Commands Menu
C.Resource Interfaces Status
D.Router Memory Dump
E.List CMCCs

==>
1=HELP 2=MAIN 3=RTN      5=DIAG 6=ROLL      9=DETAILS

```

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To diagnose a resource condition from the Resource Status with Options panel, press **PF5**. ISM displays the appropriate diagnostic panel for the resource condition, such as NetView's NPDA for troubleshooting hardware problems.

To run one or more resource menu options, type a menu option number or letter in the Enter Option field (or position the cursor on the desired option), then press **Enter**.

The options displayed depend on the resource type and how it is managed. Available options are displayed in black-on-white. Unavailable options are displayed in blue.

Accessing NetView

You can switch between ISM and the NetView console from any panel in ISM. From NetView, you can browse the NetView log and run NetView commands and then return to ISM. To go to the NetView console from ISM, press **PF6**.

To return to ISM from NetView, press **PF6** again.

Using the ISM Web Interface

This section describes how to use the ISM Web interface, and provides specific information on the following topics:

- Starting the ISM Web Interface, page 2-15
- Navigating the Web Interface, page 2-17
- Using the ISM Web Command Page, page 2-18
- Using the ISM Activity Log, page 2-18

**Note**

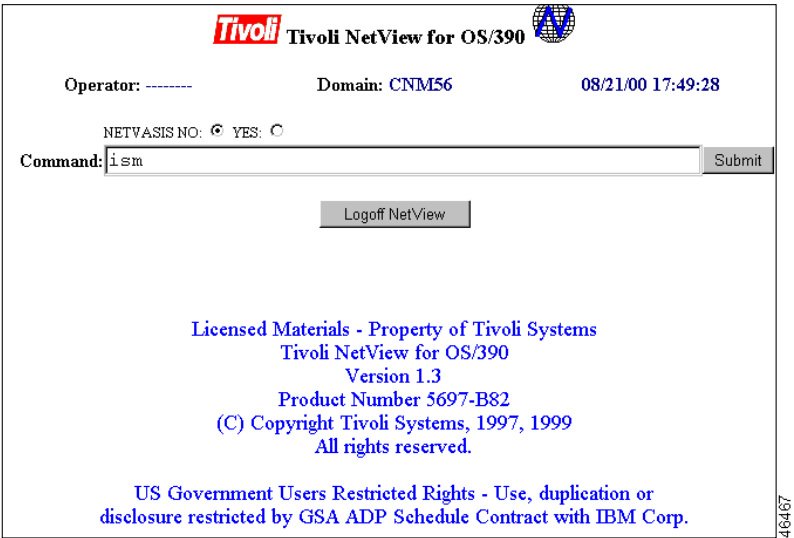
The ISM Web interface offers many of the same features as the standard interface. However, the Web panels do not support the administrative functions of the standard interface.

Starting the ISM Web Interface

To start ISM in a Web browser, complete the following steps:

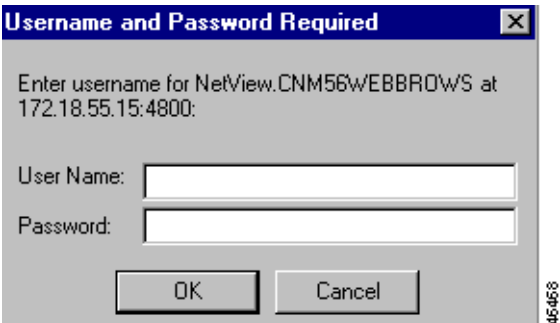
- Step 1** You must obtain a NetView IP address, port number, user name, and password from support personnel or your NetView administrator before you log into the ISM Web interface.
- Step 2** From your Web browser's location line, enter the IP address and port number where NetView is running (for example, *http://10.12.23.10:4800*). The Tivoli NetView for OS/390 page (Figure 2-9) is displayed.

Figure 2-9 Tivoli NetView for OS/390 Page



Step 3 Enter **ism** in the Command field and and click **Submit**. The Username and Password Required dialog box (Figure 2-10) is displayed.

Figure 2-10 Username and Password Required Dialog Box



- Step 4** Enter your user name and password and click **OK**. The ISM main menu page (Figure 2-11) is displayed.

Figure 2-11 ISM Main Menu Page

Operator	Current Domain	Date / Time
DAVE1	CNM56	09/12/00 23:47:43

☒ ISM Status Summary
☐ Resource Manager
☐ Interface Status
☐ TN3270 Monitor
☐ Cisco Mainframe Channel Connection Monitor (CMCC)
☐ Session Monitoring
☐ Activity Log

ServicePointName or IP Address:

PU or MAC:

ISM Last initialized: 09/11/00 07:51 ISMMGR

Select an option and press Submit

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- Step 5** On the left side of the main menu page, select an ISM option, then click **Submit**.

Navigating the Web Interface

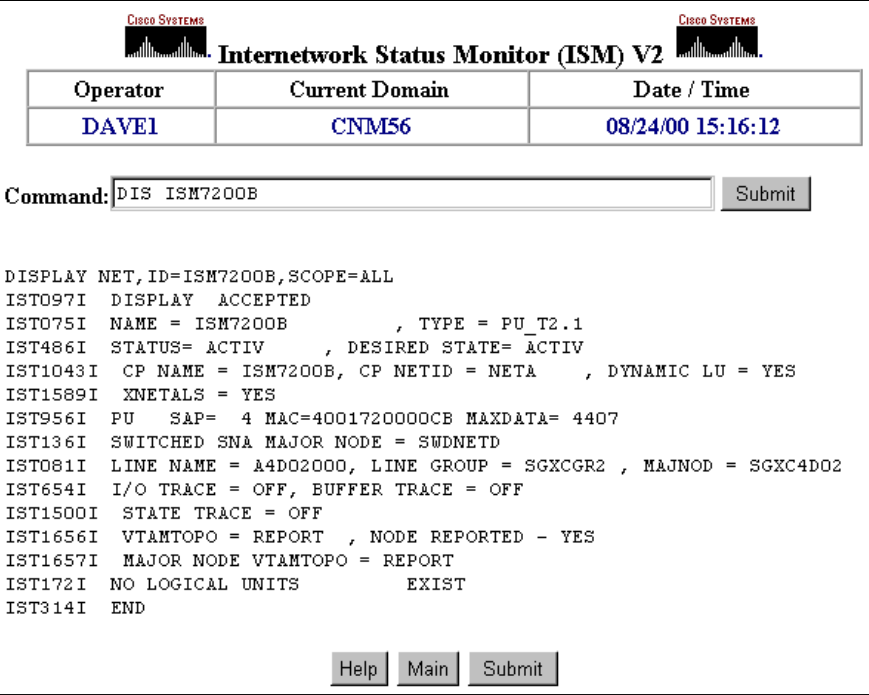
The NetView system administrator has the following options:

- Return to the ISM Main Menu Page by clicking the **Main** button.
- Issue non-ISM commands from a command page.
- Use bookmarks to access ISM functions.

Using the ISM Web Command Page

Figure 2-12 shows the output of the NetView **dis** command.

Figure 2-12 NetView Web Command Output Panel



Using the ISM Activity Log

The ISM Activity Log records ISM events. When ISM resources change status, or you update their definitions, the ISM activity log records the event. It maintains both primary and secondary logs. When the active log is full, a secondary log automatically becomes active.

You can view the contents of the active or inactive logs, and indicate a date and time range to view events. Once you open the log, you can change the review date and time range.

Viewing the ISM Activity Log

To view the ISM Activity Log, select the Activity Log option on the ISM main menu, then click **Submit** to display the browse menu for the active ISM log (Figure 2-13).

Figure 2-13 Browse Menu for ISM Activity Log

Operator

DAVE1

Current Domain

CNM56

Date / Time

08/24/00 15:20:00

Current Log Information

	Active	Inactive
Database	M	N
Last Key	2000082415:16:33:495544	

Log

Active

Records

15

Start:

2000082414:45:57:882

End:

2000082415:16:33:495544

Keyword 1:

(Resource Operator_ID Interface)

Keyword 2:

(change new already)

Message ID:

(NSPnnnn)

Help

Main

Command

Forward

Back

Submit

2000082414:45:57:882798 NSP1126E INVALID RESOURCE NAME CWEND72B GIVEN. NSPRVDI3

2000082414:46:32:237774 NSP1330I NO TN3270 FEATURE AVAILABLE FOR 18#7#173 NSPTNMSN

2000082414:47:32:983965 NSP1178I RESOURCE STATE CHANGE >> ROUTER=CWBCO2 DOMAIN=CNM56 OLD STATUS=,



2000082414:49:24:968678 NSP1178I RESOURCE STATE CHANGE >> ROUTER=CWBCO2 DOMAIN=CNM56 OLD STATUS=,

2000082414:50:04:928227 NSP1126E INVALID RESOURCE NAME CWEND72B GIVEN. NSPRVDI3

Viewing the ISM Inactive Log

To view events in the inactive log, click the Log field, select **Inactive**, and click **Submit**. The browse menu for the inactive ISM log (Figure 2-14) is displayed.

Figure 2-14 Browse Menu for ISM Inactive Log



Internetwork Status Monitor (ISM) V2

Operator	Current Domain	Date / Time
DAVE1	CNM56	08/24/00 15:25:39

Current Log Information

	Active	Inactive
Database	M	N
Last Key	2000082415:25:06:283527	

Log:

Records:

Start:

End:

Keyword 1:

(Resource Operator_ID Interface)

Keyword 2:

(change new already)

Message ID:

(NSPnnnn)

Help

Main

Command

Forward

Back

Submit

2000082309:07:57:088269 [NSP1126E](#) INVALID RESOURCE NAME CWBND72B GIVEN. NSPRVDI3

2000082309:09:46:711733 [NSP1407I](#) SNMP ADDRESS=172.18.7.33 TEXT= SYSLOG DUAL 4 SIA ROUTE 172.18.9.

2000082309:11:49:248837 [NSP1126E](#) INVALID RESOURCE NAME CWBND72B GIVEN. NSPRVDI3

2000082309:12:22:456846 [NSP1330I](#) NO TN3270 FEATURE AVAILABLE FOR 18#7#173 NSPTNMSN

2000082309:13:39:863802 [NSP1126E](#) INVALID RESOURCE NAME CWBND72B GIVEN. NSPRVDI3

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Viewing Events

To display events for a selected date or time range, perform one of the following tasks on the active ISM log (Figure 2-13) or inactive ISM log (Figure 2-14) and click **Submit**:

- Specify a date and time in the Start field.
- To limit the search, change the value in the Records field.
- To show only messages that contain a specific field, enter keywords in the Keyword 1 or Keyword 2 field.
- To display specific messages, enter the message ID in the **Message ID** field.



Enabling the ISM Environment

This chapter describes how to establish global resource monitoring options for the ISM environment. Appropriate procedures are included in the following sections:

- Enabling ISM Resource Management, page 3-2
- Enabling SNMP Management, page 3-15
- Enabling Resource Monitor Scheduling, page 3-16
- Viewing and Modifying ISM Users, page 3-18



Note

If you are configuring ISM for the first time, follow the procedures in Chapter 5, “Configuring ISM,” in the *CiscoWorks Blue Internetwork Status Monitor Installation Guide*.

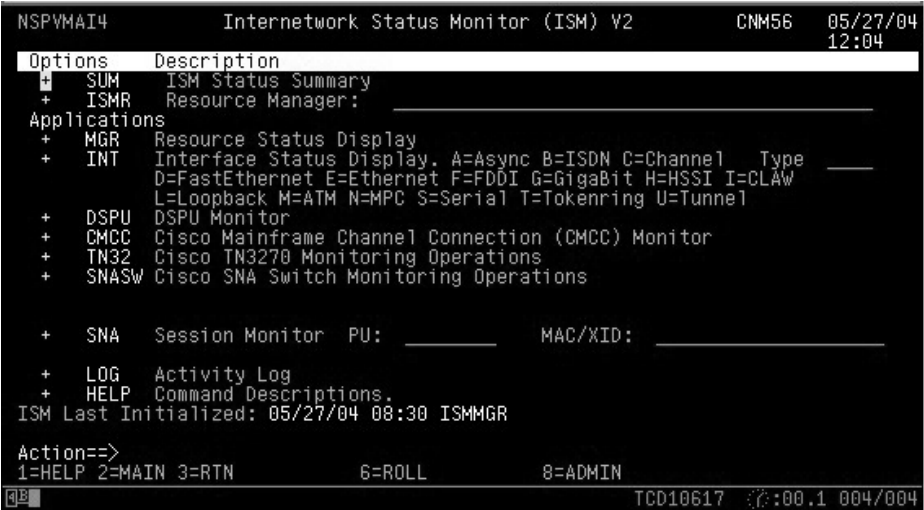
Enabling ISM Resource Management

To enable ISM resource management and interface monitoring, complete the following steps:

- Step 1

On the ISM main menu panel (Figure 3-1) press **PF8** (ADMIN).

Figure 3-1 ISM Main Menu Panel



The ISM Administration menu panel (Figure 3-2) is displayed.

Figure 3-2 ISM Administration Menu Panel

```

NSPVADM                      ISM Administration                      CNM56      06/02/04
                                TARGET:                      13:15
Options  Description
+ SETUP  ISM Setup Menu
+ ISMR   Resource Manager: _____
+ USER  User Profile Management   ID: _____
+ SNMP   SNMP Management Setup
+ SVAR   SNMP Control Variables
+ TN32   TN3270 Server Monitoring
+ SNASw  SNA Switch Monitoring Setup
+ TMGR   Display ISM Scheduler Settings
+ MGRM   Display ISM Resource Management Settings
+ VARS   Display ISM Control Variables
ISM Last Initialized: 06/01/04 15:26 ISMMGR
Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL 7=BACK
TCE10154  00:00.0 004/004

```

- Step 2** Select **Setup** and press **Enter**. The ISM Resource Management Setup—First Panel (Figure 3-3) is displayed.

Figure 3-3 *ISM Resource Management Setup—First Panel*

```

NSPWSE25          ISM Resource Management Setup - V2 1 of 5  CNM56          05/27/04          11:58
Last Initialized: 05/27/04 08:30 ISMMGR
Applications:      Default      Initial Update
Interface Monitoring ( Y :Yes | N :No): YES      YES
SNA Session Monitoring ( N :No | Y :Yes): YES      YES
CMCC Management ( N :No | Y :Yes): YES      YES
DSPU Management ( N :No | Y :Yes): YES      YES
TN3270 Server Monitor ( N :No | Y :Yes): YES      YES      Setup: ____
SNA Switch Monitor ( N :No | Y :Yes): YES      YES      Setup: ____
** future ** ( N :No | Y :Yes): NO      NO      Setup: ____
SNMP Management ( N :No | Y :Yes): YES      YES      Setup: ____
ISM Scheduler ( N :No | Y :Yes): NO      NO      Setup: ____
Resource Monitor Setup Enter YES to update: ____
Update ISM Autotasks Enter YES to update: ____
ISMSETUPCNM56R3  APPL(YES YES YES YES NO YES NO YES ) MI(00:1
5) TH(95 10) IM(YES YES YES YES YES YES YES YES YES YES YES YES YES YES) MI2(00:3
0) DB(H I R C H) CM(48 48 5 99 16) CIP(90 10) 03/02/04 15:12 JIM2
Change Type ( 1: New, 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3
Press PF8 to review/set rules.

Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL 8=FWD

05/27/04 11:58 TCD10617 00:01 019/046

```

The ISM Resource Management Setup—First Panel contains the following fields:

Field	Description
Last Initialized	Indicates the date and time the ISM Resource Manager was last initialized.
Resource Management	Indicates that resource management is enabled in the ISM interface. This field is always set to Y .
Interface Monitoring	Indicates whether interface monitoring is enabled. The display columns show the default, initial, and current values. The default setting is Y .
SNA Session Monitoring	Indicates whether SNA Session Monitoring is enabled in the ISM interface. The display columns show the default, initial, and current values. The default setting is N (not enabled). To fully enable SNA Session Monitoring, you must create SNA Resource Management definitions.

Field	Description
CMCC Management	<p>Indicates whether CMCC Management is enabled in the ISM interface. The display columns show the default, initial, and current values. The default setting is N (not enabled).</p> <p>See Chapter 6, “Monitoring CMCCs,” for more details.</p>
DSPU Management	<p>Indicates whether DSPU Monitoring is enabled in the ISM interface. The display columns show the default, initial, and current values. The default setting is N (not enabled).</p> <p>To fully enable DSPU Session Monitoring, you must create DSPU Resource Management definitions.</p>
TN3270 Server Monitor	<p>Indicates whether the TN3270 Server Monitor is enabled in the ISM interface. The display columns show the default, initial, and current values. The default setting is N (not enabled).</p> <p>To enable global TN3270 server monitoring, enter YES in the Setup field. See Chapter 8, “Monitoring TN3270 Servers,” for more details.</p>
SNA Switch Monitor	<p>Indicates whether the SNA Switch Monitor is enabled in the ISM interface. The display columns show the default, initial, and current values. The default setting is N (not enabled).</p> <p>To enable SNA Switch monitoring, enter YES in the Setup field. See Chapter 9, “Monitoring SNA Switch Resources” for more details.</p>
Reserved	
SNMP Management	<p>Indicates whether SNMP Management is enabled in the ISM interface. The display columns show the default, initial, and current values associated with SNMP Session options. The default setting is N (not enabled).</p> <p>To enable global SNMP management, enter YES in the Setup field. See the “Enabling SNMP Management” section on page 3-15 for more details.</p>
ISM Scheduler	<p>Indicates whether the ISM Scheduler is enabled in the ISM interface. The display columns show the default, initial, and current values associated with scheduling options. The default setting is N (not enabled).</p> <p>To enable global scheduling, enter YES in the Setup field. See the “Enabling Resource Monitor Scheduling” section on page 3-16 for more details.</p>

Step 3 Press **PF8** to display the ISM Resource Management Setup—Second Panel (Figure 3-4).



Note Press **PF4** to save your changes, exit this procedure, and return to the ISM Administration menu panel.

Figure 3-4 ISM Resource Management Setup—Second Panel

```

NSPVRUL4      ISM Resource Management Setup - V2  2 of 5  CNM56  08/24/00
                                           Target: 15:37
Function      Default      VSAM      Current      Variable
ISM Resource MGR Autotask  ( ISMMGR ): ISMMGR      ISMMGR      ISMMGR
ISM Interface MGR Autotask ( ISMMGRI ): ISMMGRI     ISMMGRI     ISMMGRI
ISM Refresh Operator      ( ISMMGRS ): ISMMGRS     ISMMGRS     ISMREFOPER
ISM Message Autotask      ( ISMMGRM ): ISMMGRM     ISMMGRM     ISMMAUTO
ISM Refresh Delay         ( 20 ): 20              20          ISMRDELAY
Generic Alert Generation  ( YES YES YES NO )      )             ISMALRTCTL
  Resource Status         ( No Yes ): YES         YES          RSTAT
  Resource Perf/Memory    ( No Yes ): YES         YES          RPERF
  CMCC Perf/Memory       ( No Yes ): YES         YES          CMCC
  Interface Status        ( No Yes ): NO          NO           ISTAT
ISM CMCC Recovery         ( NO YES ): YES         YES          ISMCMCCRCV
ISM Base Timer (Scheduler) ( 15 ): 15             15          ISMTBASE
ISM SMF Recording         ( NO YES ): YES         YES          ISMSMFR
ISM SMF Recording RECID   ( 128-255 ): 220        220         ISMRECID
ISM Enable Override       ( 15 Min ): 15          15          ISMENLIMIT
ISMSETUPCNM56R4          ISMMGR ISMMGRS ISMMGRM 20 ALRT( YES YES YES NO )
YES T(15) APPL4(YES NO YES) ISMMGRI SM(YES 220) EN(15) IN( YES YES NO YE
S ) 08/23/00 13:31 HAL2
NSP1038I Press Enter for prompted input.
Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK 8=FWD
  
```

The ISM Resource Management Setup—Second Panel contains the following fields:

Field	Default Value
ISM Autotasks	
ISM Resource MGR Autotask	Defines the default autotask, ISMMGR for the ISM Resource manager. Do not change this value.
ISM Interface MGR Autotask	ISMMGRI
ISM Refresh Operator	ISMMGRS
ISM Message Autotask	ISMMGRM
ISM Refresh Delay	20

Field	Default Value
Generic Alert Generation	
To send generic alerts to NetView's NPDA hardware monitor, enable the alert generation rule for resource status.	
Resource Status	No
Resource Perf/Memory	No
CMCC Perf/Memory	No
Interface Status	No
ISM Functions	
ISM CMCC Recovery	No
ISM Base Timer (Scheduler)	15
ISM SMF Recording	No If you change the ISM Recording setting to Yes , the ISM SMF Recording RECID field automatically defaults to 220.
ISM SMF Recording RECID	220
ISM Enable Override	15 ISM Enable Override setting limits the amount of time (in minutes) that an operator remains in enable mode. If the operator enters enable mode for a router, ISM cannot monitor the router. If the operator remains in enable mode for two monitoring periods, ISM Enable Override removes the operator from enable mode.

Step 4 Press **PF8** to display the ISM Resource Management Setup—Third Panel (Figure 3-5).



Note Press **PF4** to save your changes, exit this procedure, and return to the ISM Administration menu panel.

Figure 3-5 ISM Resource Management Setup—Third Panel

```

NSPVSET2      ISM Resource Management Setup - V2  3 of 5  CNM56  08/24/00
                                           Target:    15:39

Application Resource Management  ( Y :Yes) | N :No): YES  YES

Current Interval: 00:15  Stored Interval: 00:15
Monitoring Interval(Hours) ( 0 | Max 24 ): 00  (Minutes) ( 0 | max 59 ): 15

Resource Threshold Levels for Processor (Percent)


Resource:                                     Current / VSAM
CPU Utilization (default= 95% ): 95  Current Values 95  / 95
Free Memory (default= 10% ): 10  Current Values 10  / 10

CMCC:                                         Current / VSAM
CPU Utilization (default= 90% ): 90  Current Values 90  / 90
Free Memory (default= 10% ): 10  Current Values 10  / 10
ISMSETUPCNM56R3      APPL(YES YES YES YES NO YES YES NO YES ) MI(00:1
5) TH(95 10) IM(YES YES YES YES YES YES YES YES YES YES YES YES) MI2(02:0
0) DB(H I R C H) CM(48 48 5 99 16) CIP(90 10) 08/23/00 13:31 HAL2
Press PF8 to review interface parameters constants.

Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK 8=FWD

```

The ISM Resource Management Setup—Third Panel contains the following fields:

Field	Default Value
Resource Management	Indicates that resource management is enabled in the ISM interface. This field is always set to Y .
Monitoring Intervals	
Current Interval	Current resource monitoring interval in hours and minutes.
Stored Interval	Stored resource monitoring interval in hours and minutes.
Monitoring Interval (Hours) and (Minutes)	Specify a new resource monitoring interval in hours and minutes.
	 Note Reducing ISM monitoring intervals (thereby increasing the frequency with which ISM monitors resources) can impact system performance.

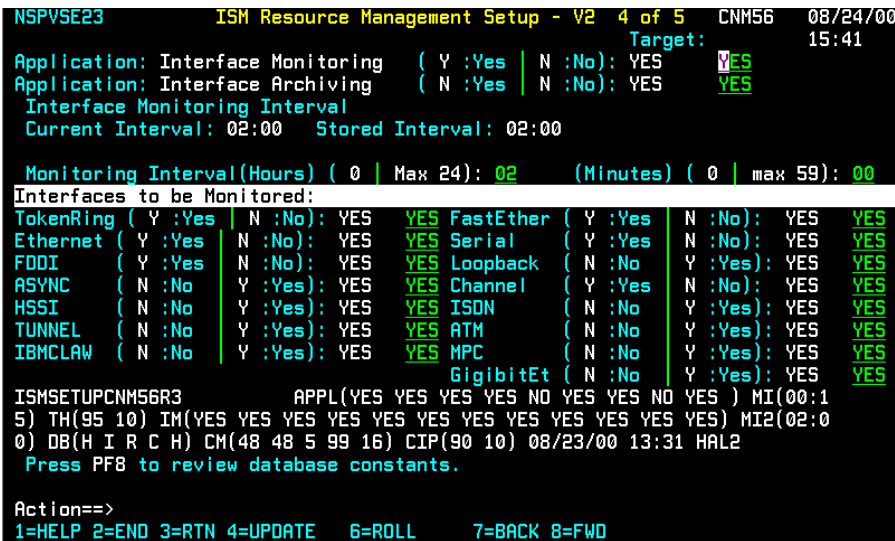
Field	Default Value
Resource Thresholds	
CPU Utilization	<p>Specify a new CPU utilization threshold for a resource, as a two-digit percentage. For example, enter 80 to enter a new threshold of 80%.</p> <p>Enter 00 to suspend CPU utilization threshold monitoring for a resource.</p>
Free Memory	<p>Specify a new free memory threshold for a resource, as a two-digit percentage. For example, enter 20 to enter a new threshold of 20%.</p> <p>Enter 00 to suspend free memory monitoring for a resource.</p>
CMCC Thresholds	
CPU Utilization	<p>Specify a new CPU utilization threshold for a CMCC resource, as a two-digit percentage. For example, enter 80 to enter a new threshold of 80%.</p> <p>Enter 00 to suspend CPU utilization threshold monitoring for a CMCC resource.</p>
Free Memory	<p>Specify a new free memory threshold for a CMCC resource, as a two-digit percentage. For example, enter 20 to enter a new threshold of 20%.</p> <p>Enter 00 to suspend free memory threshold monitoring for a CMCC resource.</p>

Step 5 Press **PF8** to display the ISM Resource Management Setup—Fourth Panel (Figure 3-6).

**Note**

Press **PF4** to save your changes, exit this procedure, and return to the ISM Administration menu panel.

Figure 3-6 ISM Resource Management Setup—Fourth Panel



The ISM Resource Management Setup—Fourth Panel contains the following fields:

Field	Default Value
Interface Monitoring	Enables or disables interface monitoring for all resources.
Interface Archiving	Enables or disables interface archiving for all resources.
Monitoring Intervals	
Current Interval	Current interface monitoring interval in hours and minutes.
Stored Interval	Stored interface monitoring interval in hours and minutes.
Monitoring Interval (Hours) and (Minutes)	Specify a new interface monitoring interval in hours and minutes.
	<div> <div></div> <div> Note </div> </div> <div>Reducing ISM monitoring intervals (thereby increasing the frequency with which ISM monitors interfaces) can impact system performance.</div>

Field	Default Value
Interfaces	
TokenRing	Indicates whether Token Ring interfaces are to be monitored. The default setting is YES (monitor Token Ring interfaces).
Ethernet	Indicates whether Ethernet interfaces are to be monitored. The default setting is YES (monitor Ethernet interfaces).
FDDI	Indicates whether FDDI interfaces are to be monitored. The default setting is YES (monitor FDDI interfaces).
ASYNC	Indicates whether Asynchronous interfaces are to be monitored. The default setting is NO (do not monitor Asynchronous interfaces).
HSSI	Indicates whether HSSI interfaces are to be monitored. The default setting is NO (do not monitor HSSI interfaces).
Tunnel	Indicates whether Tunnel interfaces are to be monitored. The default setting is NO (do not monitor Tunnel interfaces).
IBMCLAW	Indicates whether IBM CLAW interfaces are to be monitored. The default setting is NO (do not monitor IBM CLAW interfaces).
FastEther	Indicates whether Fast Ethernet interfaces are to be monitored. The default setting is YES (monitor Fast Ethernet interfaces).
Serial	Indicates whether Serial interfaces are to be monitored. The default setting is YES (monitor Serial interfaces).
Loopback	Indicates whether Loopback interfaces are to be monitored. The default setting is NO (do not monitor Loopback interfaces).
Channel	Indicates whether Channel interfaces are to be monitored. The default setting is YES (monitor Channel interfaces).
ISDN	Indicates whether ISDN interfaces are to be monitored. The default setting is NO (do not monitor ISDN interfaces).
ATM	Indicates whether ATM interfaces are to be monitored. The default setting is NO (do not monitor ATM interfaces).
MPC	Indicates whether Multiprotocol (MPC) Point-to-Point interfaces are to be monitored. The default setting is NO (do not monitor MPC interfaces).
GigaEther	Indicates whether Gigabit Ethernet interfaces are to be monitored. The default setting is NO (do not monitor Gigabit Ethernet interfaces).

Field	Default Value
Thresh	Indicates the interface reliability threshold for each type of interface. If the reliability as reported by the IOS "show interface" command is less than or equal to the specified value, a message is written to the NetView log. A value of "0" disables reliability monitoring. This only applied to router interfaces. The value specified for Ethernet also applies to FastEthernet and GigabitEthernet.
Sub	Indicates whether subinterfaces should be monitored for each type of interface.

Step 6 Press **PF8** to display the Resource Management Constants Setup panel (Figure 3-7).



Note Press **PF4** to save your changes, exit this procedure, and return to the ISM Administration menu panel.

Figure 3-7 ISM Resource Management Constants Setup—Fifth Panel

```

NSPVSET4      Resource Management Constants Setup 5 of 5  CNM56  08/24/00
                                     Target:      15:43
NSPSETUP -This panel can be used by an operator to define or update the Cisco
          constants used to manage the history databases.

Data Base IDs   Use                               Default      Variable
Resource Performance History ( H ): H             NSPRTRHOB
Interface Statistics ( I ): I                       NSPINTHOB
SNA Session History ( R ): R                        NSPRIFHOB
RTR Configuration History ( C ): C                   NSPCONHOB
CMCC Statistics ( H ): H                             NSPCIPHOB
Data Base IDs can not be changed after the first initialization.
MAX Record Count  Use                               Value        Variable
Resource Performance History ( 48 ): 48             NSPRTRMAX
Interface Statistics ( 48 ): 48                      NSPINTHMAX
SNA Session History ( 5 ): 5                        NSPRIFMAX
RTR Configuration History ( 5 ): 99                  NSPCONMAX
CMCC Statistics ( 48 ): 51                           NSPCIPMAX
Changing wrap counts applies to new resources unless the resource is
deleted and re-defined.
Press enter to set defaults in empty fields.

Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK
  
```

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The Resource Management Constants Setup panel contains the following fields:

Field	Default Value
-------	---------------

Data Base IDs



Note

You can change the VSAM database IDs that ISM uses for global resource management data only after ISM has been installed, and before ISM has been initialized for the first time.

Resource Performance History	VSAM database ID used by ISM for global resource performance history data.
Interface Statistics	VSAM database ID used by ISM for global interface statistics.
SNA Session History	VSAM database ID used by ISM for global SNA session history data.
AIX Configuration History	VSAM database ID used by ISM for global AIX Configuration history data.
CMCC Statistics	VSAM database ID used by ISM for global CMCC statistics data.

MAX Record Count



Note

Wrap counts are set for all resources and interfaces. If you change these values after initializing ISM, the new values apply to new resources and interfaces defined to ISM. To apply the new values to existing resources, reset the history for an individual resource or interface.

Resource Performance History	Maximum number of records the database can contain before overwriting router performance history data.
Interface Statistics	Maximum number of records the database can contain before overwriting interface statistics.
SNA Session History	Maximum number of records the database can contain before overwriting SNA session history data.
RTR Configuration History	Maximum number of records the database can contain before overwriting router configuration history data.
CMCC Statistics	Maximum number of records the database can contain before overwriting CMCC statistics.

- Step 7** Press **PF4** to save your changes, exit this procedure, and return to the ISM Administration menu panel.
-

Enabling SNMP Management

To enable SNMP Management, use one of the following procedures:

- To access the SNMP Management Setup for ISM from the ISM Resource Management Setup panel, on the update option beside the SNMP Management field, type **YES** and press **Enter**. The SNMP Management Setup for ISM panel (Figure 3-8) is displayed.
- To access the SNMP Management Setup for ISM Panel from the ISM Administration panel, select **SNMP** and press **Enter**. The SNMP Management Setup for ISM panel is displayed.

Figure 3-8 *SNMP Management Setup for ISM Panel*

```

NSPVSNSE          SNMP Management Setup for ISM          CNM56  09/07/00
Last Initialized:  SNMP Initialized 09/05/00 08:01  SNMPMGRI
Function          Default          VSAM          Current          Variable
SNMP Monitoring Operator  ( SNMPMGR ) : SNMPMGRI  SNMPMGRI  SNMPMGR
SNMP Message Autotask    ( SNMPOPER ) : SNMPOPER  SNMPOPER  SNMPOPER
SNMP TRAP Monitoring     ( YES | NO ) : YES      YES       SNMPTAPS
SNMP PING Monitoring     ( NO | YES ) : NO       NO        SNMPINGS
Generic Alert Generation ( NO | YES ) : YES      YES       SNMPALRT
Community Name:  public  SNMPCNAME  Default Mask:  255.255.255.0  SNMPMASK
PING Monitoring Interval Current Interval: 00:00  Stored Interval: 00:00
Monitoring Interval(Hours) ( 0 | Max 24): 00      (Minutes) ( 0 | max 59): 00
Timer not used by ISM.
Recovery Interval- Current Interval(Minutes): 00 (Minutes) ( 0 | max 59): 00
Timer not used by ISM.
TCP/IP OS/390 Task Name: TCPMVSE1
Local IP Address: 172.18.55.15
SNMPSETUP          MGR(SNMPMGRI) MON(SNMPOPER) TR(YES) PI(NO) AL(YE
S) MI(00:00) TS(TCPMVSE1) LO(172.18.55.15) RT(00) MA(255.255.255.0) CN(public)
07/26/00 12:35 HAL3
Change Type ( 1: New, 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3
NSP1037I Make changes and press Enter to validate.
Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL          10=SHOWVARS

```

The SNMP Management Setup for ISM panel contains the following fields:

Function	Default	Description
SNMP Monitoring Operator	SNMPMGR	Main SNMP autotask. It initializes and monitors SNMP.
SNMP Message autotask	SNMPOPER	Monitors SNMP related messages, processes SNMP traps, and performs recovery for the SNMP interface.
SNMP TRAP Monitoring	YES	Not Required.

Function	Default	Description
SNMP PING Monitoring	NO	Not Required.
Generic Alert Generation	NO	Not Required.
Community Name	public	Default community name used by the SNMP manager when adding a new resource to ISM.
Default Mask	255.255.255.0	Default mask used by the SNMP manager when adding a new resource to ISM.
PING Monitoring Interval	00:00	Reserved.
Recovery Interval	00:00	Reserved.
TCP/IP OS/390 Task Name		Enter the TCP/IP task name with which to interface with NetView. This name is used to verify that TCP/IP is running.
Local IP Address		Enter the IP address of the TCP/IP with which to interface with NetView. The SNMP manager autotask uses this IP address to verify a working SNMP connection between TCP/IP and NetView.

Enabling Resource Monitor Scheduling

Consider the following guidelines when using the ISM Scheduler to enable resource monitoring intervals:

- If you use the ISM Scheduler to enable resource monitoring intervals, enter every resource group you monitor on the ISM Schedule Setup panel (Figure 3-9). ISM does not monitor resource groups that are not entered in the ISM Schedule Setup panel.
- If you have not assigned some resources to a group, you can specify **None** as a default group ID, with a monitoring interval. Any resource not assigned to a group will be monitored according to the interval that you specified for the **None** group ID.
- If a resource is assigned to more than one group, the monitoring interval is used according to the interval specified for the first group to which the resource is assigned.

To enable the ISM Scheduler, complete the following steps:

- Step 1** On the ISM Resource Management Setup—First Panel (Figure 3-3), beside the ISM Scheduler Setup option, enter **Y**, and press **Enter**. The ISM Schedule Setup panel (Figure 3-9) is displayed.

Figure 3-9 *ISM Schedule Setup Panel*

```

NSPVTMGR                      ISM Schedule Setup                      CNM56      08/24/00
                                Target: CNM56      16:06

Base Timer Increment=
1=15      2=30      3=45      4=60      5=75      6=90      7=105      8=120
9=135     10=150     11=165     12=180     13=195     14=210     15=225     16=240
17=255     18=270     19=285     20=300     21=315     22=330     23=345     24=360

Example: To collect resource statistics every 30 minutes and interface stats
every 4 hours, enter LAB1 in the Group Id field, 2 in the resource mon field,
16 in the interface mon field and the autotask ID in the AUTOTASK field.

Delete  Group ID      Resource Mon.  Interface Mon.  AUTOTASK      Event Id.
-----  -
         none         2             24            ismmgr        NSPSTMR1
         lab1         1             24            ismmgr        NSPSTMR2
         prod1        2             24            ismmgra       NSPSTMR3
         _____   _____   _____   _____   _____   NSPSTMR4
         _____   _____   _____   _____   _____   NSPSTMR5
         _____   _____   _____   _____   _____   NSPSTMR6
         _____   _____   _____   _____   _____   NSPSTMR7
         _____   _____   _____   _____   _____   NSPSTMR8
         _____   _____   _____   _____   _____   NSPSTMR9
         _____   _____   _____   _____   _____   NSPSTMR10
         _____   _____   _____   _____   _____   NSPSTMR11

Action==>
1=HELP  2=END  3=RTN  4=UPDATE  6=ROLL  8=FWD  10=SHOW TIMERS

```

- | | |
|---------------|---|
| Step 2 | On the ISM Schedule Setup panel, under the Group ID column, type the name of a resource group. |
| Step 3 | <p>A monitoring interval is the time that an assigned autotask waits before collecting resource and interface statistics for a selected resource group.</p> <p>To specify monitoring intervals, enter the number of 15-minute increments in the Resource Mon. and Interface Mon. fields. For example, to specify an interval of 60 minutes, enter 4.</p> |
| Step 4 | To assign an autotask to a resource group in the AUTOTASK field, enter the name of the ISM autotask member that you want to use to manage the corresponding group of resources. |

To remove an autotask monitoring schedule, enter **D** in the Delete field beside the resource group ID.

Step 5 Press **PF4** to save your changes.

Viewing and Modifying ISM Users

The ISM User List utility enables you to view and modify the profiles of all the users defined to ISM. The ISM user list includes the name of each user (if specified in the profile), the user ID, and the ISM user authority level.

To view a list of all the users defined to ISM, issue the **ismusers** command. The ISM Authorized Users panel is displayed (Figure 3-10). To modify a users profile, change the profile options and press **PF4** to update.

Figure 3-10 ISM Authorized Users Panel

NSPVULIS ISM Authorized Users						CNM56	08/24/00
						Users: 108	Target: 16:13
UserID	UPD/ DEL	Admin. Cur Chg	Enable Cur Chg	Name			
ANDYCRA	—	Y	E	Andy Crawford			
ANDYCRA1	—	Y	E	andy Crawford			
ANDYCRA2	—	Y	E	Andy Crawford			
CBROWN1	—	Y	E	CRAIG BROWN			
CE1	—	Y	E	test1 Spraggs 3			
CE10	—	Y	E	PHIL SMITH			
CE11	—	N	E	CE 11			
CE12	—	Y	E	ADMINISTRATOR			
CE13	—	Y	E	CE 13			
CE14	—	N	E	CE14			
CE15	—	Y	E	BOHDAN			
CE18	—	N	D	operator			
CE19	—	N	E	operator 19			
CE2	—	N	E	test oper			
CE20	—	Y	D	operator 20			
CE3	—	Y	E	CE3			
CE4	—	N	E	CE4			
==>						Filters-->	
1=HELP 2=MAIN 3=RTN 4=UPDATE						6=ROLL 8=FWD 11=RIGHT	

For more information on defining ISM user profiles, see Chapter 5, “Configuring ISM,” in the *CiscoWorks Blue Internetwork Status Monitor Installation Guide*.



Monitoring ISM Resources

With ISM, you can quickly diagnose network problems, enable performance thresholds and monitoring intervals, and assign resources to management groups.

As you enable ISM monitoring resources, keep the following considerations in mind:

- The options on the ISM Resource Management Setup panels apply to *all* resources managed by ISM.
- If you want to change history database IDs, you must do so *after* you install ISM, but *before* you initialize ISM for the first time. You can access ISM setup even when the ISMMGR autotask is not running.
- ISM does not actively monitor DSPU resources.
- ISM V1R3.0 customers using CLIST NSPCONVR to convert resource definitions may use them in ISM V2.
- When ISM detects a new router, it recognizes and establishes the VTAM definition member and major node for the resource record in ISM.

To monitor ISM network resource status, complete the tasks in the following sections:

- Enabling Global Monitoring Options for All Resources, page 4-2
- Enabling Monitoring Options for Multiple Routers, page 4-9
- Enabling Monitoring Options for Individual Resources, page 4-12
- Managing Resource Data, page 4-14
- Creating SNA Resource Management Definitions, page 4-16
- Creating SNMP Resource Management Definitions, page 4-22

- Monitoring Resources Using the Standard Interface, page 4-29
- Using the Web Interface to Monitor Resources, page 4-56

Enabling Global Monitoring Options for All Resources

Use the following procedures to perform global resource management:

- Enabling Resource Monitoring Intervals, page 4-2
- Modifying CPU and Memory Thresholds, page 4-6
- Enabling Resource Interface Archiving, page 4-7
- Enabling Resource Alert Generation, page 4-8

Enabling Resource Monitoring Intervals

The Monitoring Interval field on the ISM Resource Management Setup—Third Panel (Figure 4-5) controls the time that an ISM monitoring autotask waits before contacting resources, collecting statistics, or updating status. The default monitoring interval is 15 minutes.

Use the following procedure to enable resource monitoring intervals:

- Step 1** On the ISM main menu panel (Figure 4-1), press **PF8**.

Figure 4-1 ISM Main Menu Panel

```

NSPVMAI4          Internetwork Status Monitor (ISM) V2          CNM56  05/27/04
                                     12:04
Options  Description
+ SUM    ISM Status Summary
+ ISMR    Resource Manager:
Applications
+ MGR    Resource Status Display
+ INT    Interface Status Display. A=Async B=ISDN C=Channel Type
          D=FastEthernet E=Ethernet F=FDDI G=GigaBit H=HSSI I=CLAW
          L=Loopback M=ATM N=MPC S=Serial T=Tokenring U=Tunnel
+ DSPU    DSPU Monitor
+ CMCC    Cisco Mainframe Channel Connection (CMCC) Monitor
+ TN32    Cisco TN3270 Monitoring Operations
+ SNASW   Cisco SNA Switch Monitoring Operations

+ SNA     Session Monitor  PU:          MAC/XID:
+ LOG     Activity Log
+ HELP    Command Descriptions.
ISM Last Initialized: 05/27/04 08:30 ISMMGR
Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL          8=ADMIN
TC010617  00:00.1 004/004

```

The ISM Administration menu panel (Figure 4-2) is displayed.

Figure 4-2 ISM Administration Menu Panel

```

NSPVADM          ISM Administration          CNM56      06/02/04
                                           TARGET:      13:15
Options  Description
+ SETUP  ISM Setup Menu
+ ISMR   Resource Manager: _____
+ USER  User Profile Management   ID: _____
+ SNMP   SNMP Management Setup
+ SVAR   SNMP Control Variables
+ TN3270 TN3270 Server Monitoring
+ SNASw  SNA Switch Monitoring Setup
+ TMGR   Display ISM Scheduler Settings
+ MGRM   Display ISM Resource Management Settings
+ VARS   Display ISM Control Variables

ISM Last Initialized: 06/01/04 15:26 ISMMGR

Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL 7=BACK

TCE10154  00:00.0 004/004

```

Step 2 Select **SETUP** and press **Enter**. The ISM Resource Management Setup—First Panel (Figure 4-3) is displayed.

Figure 4-3 ISM Resource Management Setup—First Panel

```

NSPVSE25          ISM Resource Management Setup - V2 1 of 5  CNM56      05/27/04
                                           Last Initialized: 05/27/04 08:30 ISMMGR
                                           11:58
Applications:      Default      Initial Update
Interface Monitoring ( Y :Yes | N :No): YES      YES
SNA Session Monitoring ( N :No | Y :Yes): YES      YES
CMCC Management ( N :No | Y :Yes): YES      YES
DSPU Management ( N :No | Y :Yes): YES      YES
TN3270 Server Monitor ( N :No | Y :Yes): YES      YES      Setup: ____
SNA Switch Monitor ( N :No | Y :Yes): YES      YES      Setup: ____
** future ** ( N :No | Y :Yes): NO      NO      Setup: ____
SNMP Management ( N :No | Y :Yes): YES      YES      Setup: ____
ISM Scheduler ( N :No | Y :Yes): NO      NO      Setup: ____
Resource Monitor Setup Enter YES to update: ____
Update ISM Autotasks Enter YES to update: ____
ISMSETUPCNM56R3      APPL(YES YES YES YES NO YES YES NO YES ) MI(00:1
5) TH(95 10) IM(YES YES YES YES YES YES YES YES YES YES YES YES YES YES) MI2(00:3
0) DB(H I R C H) CM(48 48 5 99 16) CIP(90 10) 03/02/04 15:12 JIM2
Change Type ( 1: New, 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3
Press PF8 to review/set rules.

Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE      6=ROLL      8=FWO

TCD10617  00:00.1 019/048

```


Step 3 Press **PF8**. The ISM Resource Management Setup—Second Panel (Figure 4-4) is displayed.

Figure 4-4 ISM Resource Management Setup—Second Panel

```

NSPVRUL4      ISM Resource Management Setup - V2  2 of 5  CNM56  06/02/04
Target:      13:10
Function      Default      VSAM      Current      Variable
ISM Resource MGR Autotask  ( ISMMGR ) : ISMMGR  ISMMGR  ISMMGR
ISM Interface MGR Autotask ( ISMMGRI ) : ISMMGRI  ISMMGRI  ISMMGRI
ISM Refresh Operator      ( ISMMGRS ) : ISMMGRS  ISMMGRS  ISMREFOPER
ISM Message Autotask      ( ISMMGRM ) : ISMMGRM  ISMMGRM  ISMMAUTO
ISM Refresh Delay         ( 20 ) : 20  20  ISMRDELAY
Generic Alert Generation  ( NO NO NO NO ) ISMALRTCTL
Resource Status           ( No Yes ) : NO  NO  RSTAT
Resource Perf/Memory      ( No Yes ) : NO  NO  RPERF
CMCC Perf/Memory          ( No Yes ) : NO  NO  CMCC
Interface Status          ( No Yes ) : NO  NO  ISTAT
ISM CMCC Recovery         ( NO YES ) : YES  Y  ISMCMCCRCV
ISM Base Timer (Scheduler) ( 15 ) : 15  15  ISMTBASE
ISM SMF Recording         ( NO YES ) : NO  NO  ISMSMFR
ISM SMF Recording RECID   ( 128-255 ) : ISMRECID
ISM Enable Override       ( 15 Min ) : 15  15  ISMENLIMIT
ISMSETUPCNM56R4          ISMMGR ISMMGRS ISMMGRM 20 ALRT( NO NO NO NO )
YES T(15) APPL4(YES NO YES YES) ISMMGRI SM(NO ) EN(15) IN( YES YES NO
YES ) TH(254 256 254 254 254 254 254 254 254 254 ) B(Y Y Y Y Y Y) 03/02/04
NSP1037I Make changes and press Enter to validate.
Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK 8=FWD
TCE10154 00:00.0 004/055 45954

```

Step 4 Press **PF8**. The ISM Resource Management Setup—Third Panel (Figure 4-5) is displayed.

[illegible]

Use the ISM Scheduler to balance the monitoring load among a large number of resources. You can assign resources and monitoring intervals to resource groups. For more information about using the ISM Scheduler, see the “Enabling Resource Monitor Scheduling” section on page 3-16.

You can modify CPU and memory thresholds that ISM uses for monitoring resources to issue alerts for CPU and memory performance conditions on a global or individual resource basis. The default threshold settings are 95 percent for CPU utilization and 10 percent free memory.

Use the following procedure to modify CPU and memory thresholds:

-
- Step 1** On the ISM Resource Management Setup—Third Panel, you can change the following settings:
- Resource CPU and memory thresholds
 - CMCC CPU and memory thresholds
- Step 2** On the Resource option, type new CPU utilization and free memory values, then press **Enter**.
- Step 3** (Optional) Remove resource and threshold settings by typing **Off** and pressing **Enter**.

If threshold settings are specified, it means that ISM indicates a performance alert (status is PERF) for the resource when the following conditions occur:

- CPU utilization—Resource CPU utilization exceeds the specified threshold
- Free memory—Resource free memory percentage is below the specified threshold



Note ISM issues a generic alert in NetView's NPDA hardware monitor application if you have enabled the Resource Perf/Memory alert option on the ISM Resource Management Setup—Second Panel. For more information about enabling alerts to NPDA, see the “Enabling Resource Alert Generation” section on page 4-8.

To override the CPU and memory thresholds that are enabled for an individual resource, use the ISM Resource Administration panel (Figure 4-11).

Enabling Resource Interface Archiving

If the Interface Monitoring application has been enabled in ISM, you can enable or disable interface archiving for *individual* resources in ISM. By default, the Interface Monitoring application is enabled by ISM and interface archiving is enabled for all resources.

To enable or disable interface archiving for all resources, use the ISM Resource Management Setup—Fourth Panel (Figure 4-6). Enter **Y** or **N** in the Interface Archiving option.

Figure 4-6 ISM Resource Management Setup—Fourth Panel

```

NSPVSE23          ISM Resource Management Setup - V2  4 of 5  CNM55  05/27/04
                                     Target: 11:43
Application: Interface Monitoring ( Y :Yes | N :No): YES  YES
Application: Interface Archiving ( Y :Yes | N :No): YES  YES
Interface Monitoring Interval
Current Interval: 02:01  Stored Interval: 02:01

Monitoring Interval(Hours) ( 0 | Max 24): 02  (Minutes) ( 0 | max 59): 01

Interfaces Monitor Thresh Interfaces Monitor Thresh Sub
TokenRing ( Y | N ): YES YES 0 Ethernet ( Y | N ): YES YES 0 Y
FDDI ( Y | N ): YES YES 0 FastEther ( Y | N ): YES YES 0 Y
ASYNC ( N | Y ): YES YES 0 GigaEther ( N | Y ): YES YES 0 Y
ISDN ( Y | N ): YES YES 0 Serial ( Y | N ): YES YES 0 Y
Channel ( Y | N ): YES YES 0 HSSI ( N | Y ): YES YES 0 Y
IBMCLAW ( N | Y ): YES YES 0 ATM ( N | Y ): YES YES 0 Y
MPC ( N | Y ): YES YES 0 Loopback ( N | Y ): YES YES 0 Y
TUNNEL ( N | Y ): YES YES 0

ISMSETUPCNM55R3 APPL(YES YES YES YES YES YES YES NO NO YES ) MI(00:1
5) TH(95 10) IM(YES YES YES YES YES YES YES YES YES YES) MI2(02:0
1) DB(H I R C H) CM(51 40 5 99 51) CIP(90 10) 01/22/04 13:29 JIM1
Press PF8 to review database constants.

Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK 8=FWD

```

To override the CPU and memory thresholds that are enabled for an individual resource, use the ISM Resource Administration panel (Figure 4-11).

Enabling Resource Alert Generation

Use the following procedure to enable resource alert generation:

- Step 1** On the ISM main menu panel (Figure 4-1), press **PF8**. The ISM Administration menu panel (Figure 4-2) is displayed.
- Step 2** Select **SETUP** and press **Enter**. The ISM Resource Management Setup—First Panel (Figure 4-3) is displayed.
- Step 3** Press **PF8**. The ISM Resource Management Setup—Second Panel (Figure 4-4) is displayed.

- Step 4** To enable alerts for resource hardware status conditions, enter **Yes** in the Resource Status option under Generic Alert Generation.
 - Step 5** To enable alerts for resource performance and memory conditions, enter **Yes** in the Resource Perf/Memory option under Generic Alert Generation.
 - Step 6** To return to the ISM Resource Management Setup—First Panel, press **PF7**.
 - Step 7** In the Change Type field, enter **2** (Update).
 - Step 8** In the Action Type field, enter **3**.
 - Step 9** Press **PF4** to save your changes.
-

Enabling Monitoring Options for Multiple Routers

To manage large numbers of resources or to sort resources into meaningful groups, such as by location, you can assign group names to be associated with each resource. These groups can be used to filter views when monitoring resource status and to manage ISM's monitoring load by scheduling different monitoring intervals for resource groups in the ISM Scheduler application.

If you assign a resource to more than one group and also enable the ISM Scheduler application, ISM monitors the resource according to the monitoring interval associated with the first group to which the resource is assigned. The order in which you specify a group ID for a resource affects the implementation of group scheduling.

To assign a single resource to a group, on the ISM Resource Administration panel (Figure 4-11), enter up to three group names in the Group(s) fields.

To remove a resource from *any* of its assigned groups, you must first remove the resource from *all* groups by specifying **None** in the first Group(s) field. You can reassign a resource to a group after it is removed from all groups.

Use the following procedure to enable monitoring options for multiple routers:

- Step 1** On the ISM main menu panel (Figure 4-1), press **PF8** to display the ISM Administration menu panel (Figure 4-2).
- Step 2** Select **MGRM** and press **Enter** to display the ISM Router Management Settings panels (Figure 4-7 and Figure 4-8).

Figure 4-7 Router Management Settings Panel—1 of 2

NSPVMMGRM Router Management Settings				CNM56	09/26/00
Last Initialized: 09/26/00 08:54 ISMMGR				Resources: 160	15:16
Rname	Autotask	Archive	Interface	GROUP IDs	
#10#10#1				SNMPU	
#18#11#1	ISMMLB2				
#18#11#2	ISMMLB3			NONE	
#18#11#4	ISMMLB1			HAL2	
#18#11#5	ISMMLB2				
#18#11#9	ISMMLB3				
#18#7#11	ISMMLB2			SNMPX	
#18#7#12	ISMMLB2			SNMPX	
#18#7#13	ISMMLB2			SNMPX	
#18#7#22	ISMMLB2			SNMPX	
#18#7#23	ISMMLB2			SNMPX	
#18#7#26	ISMMLB2			SNMPX	
#18#7#28	ISMMLB2			SNMPX	
#18#7#57	ISMMLB2			SNMPX	
#18#7#71	ISMMLB2			SNMPX	
#18#7#73	ISMMLB2			SNMPX	
#18#7#74	ISMMLB2			SNMPX	
#18#7#76	ISMMLB2			SNMPX	
==>					
1=HELP 2=END 3=RTN 4=UPDATE 5=ADMIN 6=ROLL 8=FWD 11=RIGHT					

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Figure 4-8 Router Management Settings Panel—2 of 2

NSPVMGRN		Router Management Settings		CNM56	09/22/00
Last Initialized: 09/21/00 10:09		ISMMGR		Resources: 161	11:09
Rname	Archive	PERF	Monitor	CPU Thresh	MEM Thresh
#10#10#1	---	---	NO	---	---
#18#11#1	---	---	---	---	---
#18#11#2	---	---	---	---	---
#18#11#4	---	---	---	---	---
#18#11#5	---	---	---	---	---
#18#11#9	---	---	---	---	---
#18#7#11	---	---	---	---	---
#18#7#12	---	---	---	---	---
#18#7#13	---	---	---	---	---
#18#7#22	---	---	---	---	---
#18#7#23	---	---	---	---	---
#18#7#26	---	---	---	---	---
#18#7#28	---	---	---	---	---
#18#7#57	---	---	---	---	---
#18#7#71	---	---	---	---	---
#18#7#73	---	---	---	---	---
#18#7#74	---	---	---	---	---
#18#7#76	---	---	---	---	---
==> █					
1=HELP 2=MAIN 3=RTN 4=UPDATE 5=DETAILS 6=ROLL 8=FWD 10=LEFT					

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Step 3 Change settings as desired and press **PF4** to save your changes.

Enabling Monitoring Options for Individual Resources

Use the following procedure to enable monitoring for an individual resource:

- Step 1** On the ISM main menu panel (Figure 4-1), position the cursor on the **MGR line** and press **Enter**. The Resource Status panel (Figure 4-9) is displayed.

Figure 4-9 Resource Status Panel

NSPVMGRX		Resource Status		CNM56		08/24/00
Group/Resource/Alias: SNMP		Routers: 40				16:37
CNTL/SPname	Status	Xtended	Operator	Hostname	Operation	Group(s)
CWBC01	PERF	C		cwb-c1	SNMP1	SNMP
CWBC02	ACTIV			cwb-c2	SNMP2	SNMP
CWBC03	ACTIV			cwb-c3	SNMP3	SNMP
CWBC04	ACTIV			cwb-c4	SNMP4	SNMP
CWBC05	ACTIV			cwb-c5	SNMP5	SNMP
CWBC06	ACTIV			cwb-c6	SNMP5	SNMP
CWBC07	ACTIV			cwb-c7	SNMP7	SNMP
CWBC08	ACTIV			cwb-c8	SNMP8	SNMP
CWBC09	ACTIV			cwb-c9	SNMP9	SNMP
CWBC11	ACTIV			cwb-c11	SNMP11	SNMP
CWBC13	ACTIV			cwb-c13	SNMP	SNMP13
NSP1186I Position cursor on resource and press PF5 to diagnose status.						
==>						
1=HELP 2=MAIN 3=RTN 5=DIAG 6=ROLL			9=RESETOP 10=MENU 12=RESET			

- Step 2** On the Resource Status panel, position the cursor on the CNTL/SPname of a resource that you want to change, and press **PF10**. The Resource Status with Options panel (Figure 4-10) is displayed.

Figure 4-10 Resource Status with Options Panel

```

NSPVRM4          Resource Status with Options          CNM56  08/24/00
Resource-Service Point/Control Name: ISM7200B          16:24
Resource-IP Address:                                INDEX: 33
Management Mode (SNA/SNMP/BOTH): SNA
Current Status: ACTIV      Enter Option: 3 Only HIGHLIGHTED options available
Extended Status:
Host Name: cwb-ism-7200b
Status Change: 16:24 08/24/00
Description: Dynamically Added

Last Alert:

1.Command Interface
2.Show Protocols
3.ISM Resource Administration
4.Total Events (NPDA)
5.VTAM Display
6.Router Config. History
7.Collect Router Config.
8.Last Alert (NPDA)
9.Refresh/Reset Status
A.Resource Performance History
B.Show Commands Menu
C.Resource Interfaces Status
D.Router Memory Dump
E.List CMCCs

==>
1=HELP 2=MAIN 3=RTN      5=DIAG 6=ROLL      9=DETAILS

```

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Step 3 In the Enter Option field, type **3** and press **Enter**. The ISM Resource Administration panel (Figure 4-11) is displayed.

Figure 4-11 ISM Resource Administration—SNA Router

```

NSPVRDE4          ISM Resource Administration          CNM56  08/24/00
                                                    TARGET:CNM56  16:25
                                                    INDEX= 33
Control/Service PT. Name ISM7200B          Resource Type:
Router IP Address:          Features: CIP DSPU CASA
Host Name: cwb-ism-7200b          Chassis Type:
Management Mode (SNA/SNMP/BOTH): SNA
Trap Mask: 255.255.255.0          Community Name: public
Description: Dynamically Added
Group(s): NONE
Current Control Values: Y A Y Y N Y          New Control Values: Y A Y Y N Y
Monitor resource          (Y/N): Y
Availability Monitor      (A/Y/N): A  A=Available Y=SysUpTime N=No
Collect Statistics        (Y/N): Y
Archive Statistics        (Y/N): Y          Reset (No/Yes): NO
Create Alerts             (N/Y): N
Interface Archiving       (Y/N): Y
Overrides: NONE
CPU Threshold:              Memory Threshold:    

Change Type ( 1: New, 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3
NSP1038I Press Enter for prompted input.
Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL          9=DEBUG 10=DISCOVER

```

- Step 4** Change the fields as desired.
- Step 5** In the Change Type field, enter **2** (Update).
- Step 6** In the Action Type field, enter **3**.
- Step 7** Press **PF4** to save your changes.

Managing Resource Data

This section includes information on the following topics:

- Disabling Archiving of Resource History and Performance Data, page 4-15
- Deleting History and Performance Records, page 4-15
- Changing the Database IDs and Maximum Record Counts, page 4-15

Disabling Archiving of Resource History and Performance Data

By default, ISM enables resource monitoring and archiving of history and performance data, such as CPU and memory utilization statistics. To disable archiving for a single resource, on the ISM Resource Administration panel (Figure 4-11), enter **No** in the Archive Statistics field.

Deleting History and Performance Records

You can remove the history and performance records for an individual resource from the history database using the Reset option on the ISM Resource Administration panel (Figure 4-11). When you enable the Reset option, the history records are removed from the database when you press **PF4** to update.

To delete history and performance records for an individual resource, on the ISM Resource Administration panel (Figure 4-11), enter **Yes** in the Reset field and press **PF4**.

Changing the Database IDs and Maximum Record Counts

You can change the VSAM database IDs that ISM uses for global resource management data only after ISM has been installed, and before ISM has been initialized for the first time. Change the database IDs using the Resource Management Constants Setup panel (Figure 4-12).

Figure 4-12 Resource Management Constants Setup Panel

```

NSPVSET4      Resource Management Constants Setup 5 of 5  CNM56  08/24/00
Target:      15:43
NSPVSETUP -This panel can be used by an operator to define or update the Cisco
           constants used to manage the history databases.

Data Base IDs  Use                Default      Variable
Resource Performance History ( H ): H      NSPRTRHOB
Interface Statistics ( I ): I      NSPRITHOB
SNA Session History ( R ): R      NSPRIFHOB
RTR Configuration History ( C ): C      NSPCONHOB
CMCC Statistics ( H ): H      NSPCIPHOB
Data Base IDs can not be changed after the first initialization.

MAX Record Count  Use                Value      Variable
Resource Performance History ( 48 ): 48      NSPRTRMAX
Interface Statistics ( 48 ): 48      NSPRITHMAX
SNA Session History ( 5 ): 5      NSPRIFMAX
RTR Configuration History ( 5 ): 99      NSPCONMAX
CMCC Statistics ( 48 ): 51      NSPCIPMAX
Changing wrap counts applies to new resources unless the resource is
deleted and re-defined.
Press enter to set defaults in empty fields.

Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK

```

You can also change the maximum number of records that the database contains before overwriting the data contents. The wrap counts are set for all resources and interfaces. When these values are changed after initializing ISM, the new values apply to new resources and interfaces defined to ISM. You can apply the new values to existing resources if you reset the history for an individual resource or interface. After you reset the history records, the next time the file is initialized the new values are used.

Another method of applying changed wrap counts to previously defined resources and interfaces is to delete the resource definition and redefine the resource to ISM.

Creating SNA Resource Management Definitions

To create SNA resource management definitions, complete the tasks in the following sections:

- Adding an SNA Resource Management Definition, page 4-17
- Updating SNA Control Data, page 4-19
- Displaying SNA Interface Status, page 4-20

- Displaying SNA Interface Details, page 4-21
- Enabling SNA Session Monitoring, page 4-21



Note

ISM uses VTAM RUNCMD to manage SNA resources.

Adding an SNA Resource Management Definition

To add SNA resource management definitions, complete the following steps:

- Step 1** On the ISM Administration menu panel (Figure 4-2), select **ISMR** and press **Enter**. The Resource Status With Options panel (Figure 4-13) is displayed.

Figure 4-13 Resource Status with Options Panel

```

NSPVRCM4      Resource Status with Options      CNM56  08/24/00
Resource-Service Point/Control Name: ISM7200B  16:24
Resource-IP Address:                               INDEX: 33
Management Mode (SNA/SNMP/BOTH): SNA
Current Status: ACTIV      Enter Option: 3 Only HIGHLIGHTED options available
Extended Status:
Host Name: cwb-ism-7200b
Status Change: 16:24 08/24/00
Description: Dynamically Added

Last Alert:

1.Command Interface
2.Show Protocols
3.ISM Resource Administration
4.Total Events (NPDA)
5.VTAM Display
6.Router Config. History
7.Collect Router Config.
8.Last Alert (NPDA)
9.Refresh/Reset Status
A.Resource Performance History
B.Show Commands Menu
C.Resource Interfaces Status
D.Router Memory Dump
E.List CMCCs

==>
1=HELP 2=MAIN 3=RTN      5=DIAG 6=ROLL      9=DETAILS
  
```

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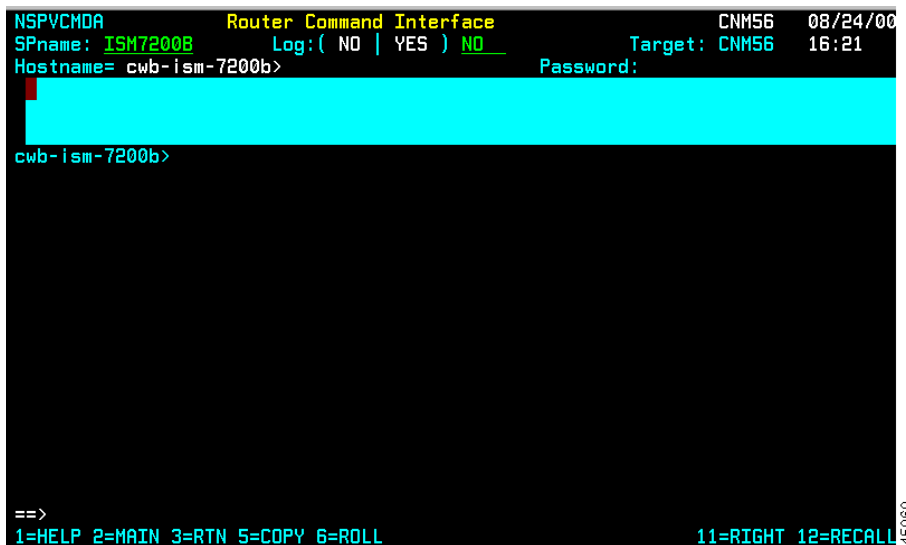
- Step 2** Type the Service Point Name of an SNA router and press **Enter**. ISM automatically recognizes the resource as an SNA type and the Resource Status with Options panel displays the following new field data:

```

Resource Service Point/Control Name
Management Mode
  
```

- Step 3** In the Enter Option field, type **1** (Command Interface) and press **Enter**. The Router Command Interface panel (Figure 4-14) is displayed.

Figure 4-14 Router Command Interface Panel



ISM sends a RUNCMD to the router.

- If the RUNCMD is successful, ISM responds by performing the following tasks:
 - Fills in the Hostname field and enables the user to enter **show** commands for the router
 - Creates a resource control file
 - Obtains and displays details about the router, including interface information
- If the RUNCMD accesses an unknown resource, ISM creates a control block for the router.

- Step 4** Press **PF3** to display the Resource Status With Options panel, updated with the RUNCMD results.

Updating SNA Control Data

To update or change SNA control data, complete the following steps:

- Step 1** On the Resource Status with Options panel (Figure 4-10), in the Enter Option field, enter **3** and press **Enter**.
- If you have enable authority, the ISM Resource Administration—SNA Router panel (Figure 4-15) is displayed.
 - If you do not have enable authority, ISM displays control block fields.

Figure 4-15 ISM Resource Administration—SNA Router

```

NSPVRDE4          ISM Resource Administration          CNM56  08/24/00
                                                         TARGET:CNM56  16:25
                                                         INDEX= 33
Control/Service PT. Name ISM7200B          Resource Type:
Router IP Address:          Features: CIP DSPU CASA
Host Name: cwb-ism-7200b          Chassis Type:
Management Mode (SNA/SNMP/BOTH): SNA
Trap Mask: 255.255.255.0 Community Name: public
Description: Dynamically Added
Group(s): NONE
Current Control Values: Y A Y Y N Y          New Control Values: Y A Y Y N Y
Monitor resource           (Y/N): Y
Availability Monitor       (A/Y/N): A  A=Available Y=SysUpTime N=No
Collect Statistics         (Y/N): Y
Archive Statistics         (Y/N): Y  Reset (No/Yes): NO
Create Alerts              (N/Y): N
Interface Archiving        (Y/N): Y
Overrides: NONE
CPU Threshold:          Memory Threshold:

Change Type ( 1: New, 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3
NSP1038I Press Enter for prompted input.
Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL          9=DEBUG 10=DISCOVER

```

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- Step 2** On the ISM Resource Administration panel, correct any missing or inaccurate information. Additionally, if a resource is also available to SNMP, enter the Router IP address and change the management mode to **Both**.
- Step 3** Press **PF4** to return to the Resource Status With Options panel.

Displaying SNA Interface Status

Use the following procedure to display the current SNA interface status:

- Step 1** On the Resource Status with Options panel (Figure 4-10), in the Enter Option field, type **9** (Refresh/Reset Status) and press **Enter**.
- Step 2** In the Enter Option field, type **C** (Resource Interface Status) and press **Enter** to display the Interface Type panel (Figure 4-16).

Figure 4-16 Interface Type Panel

NSPVIDI3		Interfaces Type= ALL				CNM56	08/30/00
Number of Interfaces: 13		Filter:					17:26
Resource	Interface	Status	Encaps	Mon	Last Change	Previous	
ISM7200B	CHANNEL2/0	UP	CHANNEL		08:10 08/28/00	INVALID	
ISM7200B	FASTETHERNET0/0	UP	ARPA		08:10 08/28/00	INVALID	
ISM7200B	FASTETHERNET1/0	UP	ARPA		08:10 08/28/00	INVALID	
ISM7200B	FASTETHERNET1/1	UP	ARPA		08:10 08/28/00	INVALID	
ISM7200B	LOOPBACK0	UP	LOOPBACK		08:10 08/28/00	INVALID	
ISM7200B	SERIAL3/0	DOWN	FRAME-RE		17:25 08/29/00	UP	
ISM7200B	SERIAL3/1	DOWN	FRAME-RE		17:25 08/29/00	UP	
ISM7200B	SERIAL3/2	DOWN	FRAME-RE		17:25 08/29/00	UP	
ISM7200B	SERIAL3/3	DOWN	FRAME-RE		17:25 08/29/00	UP	
ISM7200B	SERIAL4/0	UP	FRAME-RE		17:25 08/29/00	DOWN	
ISM7200B	SERIAL4/1	DOWN	HOLC		08:10 08/28/00	UNKNOWN	
ISM7200B	SERIAL4/2	DOWN	HOLC		08:10 08/28/00	UNKNOWN	
ISM7200B	SERIAL4/3	DOWN	HOLC		08:10 08/28/00	UNKNOWN	

Position cursor on resource and press enter for operations.

==>

1=HELP 2=MAIN 3=RTN 6=ROLL

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Displaying SNA Interface Details

To display details about a selected SNA interface, select an interface name on the Interface Status Panel and press **Enter**. The ISM Interface Operation Options panel (Figure 4-17) is displayed.

Figure 4-17 ISM Interface Operation Options Panel

```

NSPWISEL          ISM Interface Operation Options          CNM56  09/07/00
                                     18:08

      Router: #18#7#12                                INDEX: 2
      Interface: L00
      Status: UP
      Desired Status: UP
      Encapsulation: LOOPBACK
      Last Change: 07:55 09/07/00
      Monitoring Active: YES
      Previous: INVALID

      + Show Interface
      + Display Interface Variables
      + History
      + Performance
      + Administration
      + Reset

Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL
  
```

Enabling SNA Session Monitoring

To enable SNA session monitoring, complete the following steps:

- Step 1** On the Resource Management Setup—First Panel (Figure 4-3), beside the SNA Session Monitoring options, type **Y** in the Update column. **Yes** appears beside the option.
- Step 2** In the Change Type field, enter **2** (Update).

- Step 3** In the Action Type field, enter **3**.
- Step 4** Press **PF4** to save your changes. The ISM main menu displays the new SNA Session Monitoring option.
-

Creating SNMP Resource Management Definitions

To create SNMP resource management definitions, complete the tasks in the following sections:

- Adding SNMP Resource Definitions, page 4-22
- Collecting SNMP Resource Data, page 4-24
- Creating an SNMP Resource Control Block, page 4-25
- Adding SNMP Interfaces, page 4-25
- Updating the Status in the Control Block, page 4-26
- Renaming an SNMP Resource Definition, page 4-27
- Enabling SNMP Session Monitoring, page 4-28

Adding SNMP Resource Definitions

Use the following procedure to add SNMP resource definitions:

- Step 1** On the ISM main menu, select **ISMR** for Resource Manager, then press **Enter**.
- Step 2** Add an SNMP resource definition from the ISM main menu or NetView command line by performing one of the following tasks:
- On the ISM main menu, type an SNMP resource IP address, and press **Enter**.



Note Only IPv4 addresses are supported.

- On the NetView command line, enter the following command

NSPSADD IP_address control_name

Where *ip_address* is the numeric form and *control_name* is a six- to eight-character name that manages ISM resources.

- This example shows how to add SNMP resource 172.18.7.37.

```
nspstadd 172.18.7.37 cwbc05
```

ISM adds the resource with a CNTL name #18#7#37.

The Resource Status with Options panel for SNMP (Figure 4-18) is displayed.

Figure 4-18 Resource Status With Options Panel—SNMP

```

NSPVRCM4      Resource Status with Options      CNM56  09/05/00
Resource-Service Point/Control Name: #18#11#5      23:45
Resource-IP Address: 172.18.11.5      INDEX: 5
Management Mode (SNA/SNMP/BOTH): SNMP
Current Status: ACTIV      Enter Option: _ Only HIGHLIGHTED options available
Extended Status:
Host Name: cwbc-ipm-2600e
Status Change: 23:45 09/05/00
Description: Cisco Internetwork Operati
ing System Software **IOS (tm)
Last Failure:

1.Show System
2.Show Protocols
3.ISM Resource Administration
4.Total Events (NPDA)
5.VTAM Display
6.Router Config. History
7.Collect Router Config.
8.Last Alert (NPDA)
9.Refresh/Reset Status
A.Resource Performance History
B.Show Commands Menu
C.Resource Interfaces Status
D.Router Memory Dump

NSP1052I Record #18#11#5 added/updated.
==>
1=HELP 2=MAIN 3=RTN      5=DIAG 6=ROLL      9=DETAILS

```

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- Step 3** In the Enter Option field, enter **3** and press **Enter**. The ISM Resource Administration panel for SNMP (Figure 4-19) is displayed.

Figure 4-19 ISM Resource Administration Panel—SNMP

```

NSPVRDE4          ISM Resource Administration          CNM56    09/05/00
                                     TARGET:CNM56    23:15
Control/Service PT. Name  Resource Type: INDEX=
Router IP Address: 172.18.11.8 Features:
Host Name:                      Chassis Type:
Management Mode (SNA/SNMP/BOTH): SNMP
Trap Mask: 255.255.255.0 Community Name: public
Description:                                             
Group(s):                                             
Current Control Values:                      New Control Values: Y A Y Y N Y
Monitor resource (Y/N): Y
Availability Monitor (A/Y/N): A A=Available Y=SysUpTime N=No
Collect Statistics (Y/N): Y
Archive Statistics (Y/N): Y Reset (No/Yes): NO
Create Alerts (N/Y): N
Interface Archiving (Y/N): Y
Overrides: NONE
CPU Threshold:      Memory Threshold:     

Change Type ( 1: New, 2: Update, 3: Delete ):     
Action Type ( 1: Next Initialization, 2: Current, 3: or Both):     
NSP1076I Resource service point name is required.
Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL          9=DEBUG 10=DISCOVER

```

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Collecting SNMP Resource Data

To contact and collect system data from an SNMP resource, complete the following steps:

- Step 1** On the ISM Resource Administration panel for SNMP (Figure 4-19), press **PF10**. The Chassis Type and Description fields appear with data, indicating contact with the resource.
- Step 2** On the Control/Service Point Name field, type a control name for the resource, and press **Enter**. The ISM Resource Administration panel for SNMP is updated (Figure 4-20) to reflect the control name.

Figure 4-20 ISM Resource Administration Panel — SNMP, After Update

```

NSPVRDE4          ISM Resource Administration          CNM56  09/05/00
                                     TARGET:CNM56      23:15
Control/Service PT. Name  Resource Type: INDEX=
Router IP Address: 172.18.11.8 Features:
Host Name:                      Chassis Type:
Management Mode (SNA/SNMP/BOTH): SNMP
Trap Mask: 255.255.255.0 Community Name: public
Description:                                             
Group(s):                                             
Current Control Values:                                      New Control Values: Y A Y Y N Y
Monitor resource (Y/N): Y
Availability Monitor (A/Y/N): A A=Available Y=SysUpTime N=No
Collect Statistics (Y/N): Y
Archive Statistics (Y/N): Y Reset (No/Yes): NO
Create Alerts (N/Y): N
Interface Archiving (Y/N): Y
Overrides: NONE
CPU Threshold:      Memory Threshold:     

Change Type ( 1: New, 2: Update, 3: Delete ):     
Action Type ( 1: Next Initialization, 2: Current, 3: or Both):     
NSP1076I Resource service point name is required.
Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL          9=DEBUG 10=DISCOVER

```

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In Figure 4-20, the control name shown is created from a host name. When the resource is added dynamically, the control name is created from the IP address. (For example, 172.18.7.42 becomes #18#7#42.)

Creating an SNMP Resource Control Block

To create a control block and control file for an SNMP resource, press **PF4** on the ISM Resource Administration panel for SNMP (Figure 4-19) to display the Resource Status with Options panel for SNMP (Figure 4-18). Data appears automatically in the required fields.

Adding SNMP Interfaces

To add SNMP interfaces, on the Resource Status with Options panel for SNMP (Figure 4-18), in the Enter Options field, type **2** (Show Protocols) and press **Enter**. The Interface Status Table panel (Figure 4-21) is displayed.

Figure 4-21 Interface Status Table Panel

```

NSPVS NPR          Interface Status Table  #18#11#5      Page 1  of 1
IP_Address: 172.18.11.5      Host_name: cwb-ipm-2500e
Ethernet0/0                is up, line protocol is up
Null0                       is up, line protocol is up

Action==>
1=HELP 2=END 3=RETURN      6=ROLL
  
```

When ISM detects an SNMP resource, this panel displays the resource protocols.

When ISM does not detect an SNMP resource, the system creates a control block and control file for each resource.

Updating the Status in the Control Block

To update the status in the control block, complete the following steps:

-
- Step 1** On the Interface Status Table panel (Figure 4-21), press **PF3** to return to the Resource Status with Options panel (Figure 4-10).
 - Step 2** Position the cursor on an interface and display the MIB variables for the interface.
 - Step 3** Press **PF3** to return to the ISM Interface Operation Options panel (Figure 4-17).
 - Step 4** In the Enter Option field, type **C** (Resource Interface Status) and press **Enter** to display the Interface Type panel (Figure 4-16).
-

Renaming an SNMP Resource Definition

To rename an SNMP device control (CNTL), complete the following steps:

- Step 1** On the ISM main menu panel (Figure 4-1), position the cursor on the MGR line and press **Enter**. The Resource Status panel (Figure 4-22) is displayed.

Figure 4-22 Resource Status Panel

NSPVMGRX		Resource Status		CNM56		08/24/00
Group/Resource/Alias: SNMP		Routers: 40				16:37
CNTL/SPname	Status	Xtended	Operator	Hostname	Operation	Group(s)
CWBC01	PERF	C		cwb-c1	SNMP1	SNMP
CWBC02	ACTIV			cwb-c2	SNMP2	SNMP
CWBC03	ACTIV			cwb-c3	SNMP3	SNMP
CWBC04	ACTIV			cwb-c4	SNMP4	SNMP
CWBC05	ACTIV			cwb-c5	SNMP5	SNMP
CWBC06	ACTIV			cwb-c6	SNMP5	SNMP
CWBC07	ACTIV			cwb-c7	SNMP7	SNMP
CWBC08	ACTIV			cwb-c8	SNMP8	SNMP
CWBC09	ACTIV			cwb-c9	SNMP9	SNMP
CWBC11	ACTIV			cwb-c11	SNMP11	SNMP
CWBC13	ACTIV			cwb-c13	SNMP	SNMP13

NSP1186I Position cursor on resource and press PF5 to diagnose status.
 ==>
 1=HELP 2=MAIN 3=RTN 5=DIAG 6=ROLL 9=RESETOP 10=MENU 12=RESET

- Step 2** Position the cursor on the SNMP resource to be renamed, then press **Enter**. The Resource Status with Options panel (Figure 4-10) is displayed.
- Step 3** In the Enter Option field, enter **3** and press **Enter**. The ISM Resource Administration panel (Figure 4-11) is displayed.
- Step 4** Enter the new control name in the Control/Service Point Name field.
- Step 5** In the Change Type field, enter **1** and press **PF4**. ISM creates a new SNMP control record with a duplicate IP address.
- Step 6** Repeat Step 4.
- Step 7** In the Change Type field, enter **3** and press **PF4**. ISM deletes the old CNTL resource.

- Step 8** Press **PF3** to return to the Resource Status panel.
 - Step 9** Position the cursor on the newly added resource and press **Enter**.
 - Step 10** Select option **2** to have ISM discover and build control files and control blocks for each SNMP interface.
 - Step 11** When ISM displays the Interface Type panel (Figure 4-16), press **PF3** to return to the Resource Status panel.
 - Step 12** Select option **2** to update the status of the SNMP interfaces.
 - Step 13** When ISM displays the Interface Type panel with updated status, press **PF3** to return again to the Resource Status panel.
 - Step 14** Press **PF2** to return to the ISM main menu.
-

Enabling SNMP Session Monitoring

Use the following procedure to enable SNMP session monitoring:

-
- Step 1** On the Resource Management Setup—First Panel (Figure 4-3), beside the SNMP Session Monitoring option, type **Y** in the Update column. **Yes** appears beside the option.
 - Step 2** In the Change Type field, enter **2** (Update).
 - Step 3** In the Action Type field, enter **3**.
 - Step 4** Press **PF4** to save your changes. The ISM main menu displays the new SNMP Session Monitoring option.
-

Monitoring Resources Using the Standard Interface

You can monitor your resources using either the standard interface or by the NetView Web interface. This section describes how to use the standard interface to perform the following tasks:

- Displaying Resource Status Using the Standard Interface, page 4-29
- Diagnosing Problems Using the Standard Interface, page 4-32
- Filtering Resources Using the Standard Interface, page 4-32
- Refreshing and Resetting Resources Using the Standard Interface, page 4-37
- Viewing Resource Management Information Using the Standard Interface, page 4-37
- Monitoring Resource Performance Using the Standard Interface, page 4-42
- Viewing Hardware Alerts and Events Using the Standard Interface, page 4-44
- Using the Standard Interface for Logging In to Routers and Issuing Commands, page 4-47

For details on using the Web interface, see the “Displaying Resource Status Using the Web Interface” section on page 4-56.

Displaying Resource Status Using the Standard Interface

This section describes how to perform the following tasks:

- Using the ISM Status Summary Panel from the Standard Interface, page 4-30.
The ISM Status Summary panel (Figure 4-23) displays the overall status of your resource in color-coded categories that reflect the number of resources (by type) with a particular status condition.
- Using the ISM Resource Status Panel from the Standard Interface, page 4-31.
The Resource Status panel (Figure 4-9) displays a list of all resource control names that are known to ISM in color-coded format to indicate status conditions and to diagnose problems.
- Description of Status Types Using the Standard Interface, page 4-31

Using the ISM Status Summary Panel from the Standard Interface

Use the ISM Status Summary panel (Figure 4-23) to monitor the overall status of all your resources by type of condition.

Figure 4-23 ISM Status Summary—First Panel

NSPVSUM3		ISM Status Summary			Group= ALL		CNM56		05/27/04	
Last Refresh: 15:31		05/27/04							15:37	
		<-----Active----->			<-----UNKNOWN----->					
Total		ACTIV	PERF	ALERT	INOP	INVALID	CONCT	INACT	NOMON	
7	Resources	5	2							
10	CMCC	10								
9	TN3270	6				3				
4	SNASw	4								
		Desired Status=UP					Desired Status=Down			
Total		Interfaces	UP	DOWN	INVALID	UNKNOWN		DOWN	UNKNOWN	
12	Tokenring							12		
24	Ethernet	10		1				13		
0	FDDI									
7	Loopback	7								
0	ASYNC									
22	Channel	17						5		
0	HSSI									
0	ISDN									
4	Serial							4		
Frame-Relay: 0		HDLC: 0		X.25: 0		BSTUN: 0		SDLC: 0		
Press PF8 for important status on next page.										
=>										
1=HELP		2=MAIN		3=RTN		6=ROLL		8=FWD		
								12=REFRESH		
TC010617 00:00.4 013/040										

Using the ISM Resource Status Panel from the Standard Interface

To view resource status and diagnose problems, use the Resource Status panel (Figure 4-9). To access the Resource Status panel, select **MGR** on the ISM main menu panel, or select a resource on the ISM Status Summary panel, then press **Enter**.

You can perform the following tasks on the Resource Status panel:

- Filter resources by assigned group or by name—Type the group name or the characters in the beginning of the resource name in the Group/Resource/Alias field and press **Enter**.
- Refresh or reset a resource—Press **PF12** to initiate ISM to contact the resource and reset its status.
- Diagnose a resource condition—Press **PF5** to display a problem-specific panel that provides the best information about the particular condition.
- Access a menu of options to obtain additional information about the resource, or perform other resource operations—Press **PF10** to display the Resource Status with Options panel (Figure 4-10).

Description of Status Types Using the Standard Interface

The color of the control name of a resource on the ISM Status Summary panel (Figure 4-23) or ISM Resource Status panel (Figure 4-9) indicates the condition of that resource. Table 4-1 lists the color and definition of each status.

Table 4-1 ISM Resource Status and Color Definitions

Color	Status	Definition
Green	ACTIV	ISM can communicate with the resource.
Red	CONCT	Resource is not connected to VTAM.
Red	INOP	Resource failed to respond when a RUNCMD was issued, perhaps because the resource was made inactive by an operator. If a resource is in an inactive state, a System Services Control Point (SSCP)-to-PU session cannot be established. You must first activate the resource by issuing the NetView ACT command.
Yellow	PERF	The resource is active, but ISM has detected a performance-related problem for the CPU or memory utilization thresholds, or an interface configured in the resource is down.

Table 4-1 *ISM Resource Status and Color Definitions (continued)*

Color	Status	Definition
Pink	ALERT	The resource is active, but an alert was detected through the NetView automation table for a resource managed by the resource control point.
Turquoise	INVALID	Service point is unknown to VTAM. VTAM definition does not exist.
Turquoise	INACT	An operator has de-activated the resource in VTAM.
Reverse	nnnnn	An operator is enabled to the resource.
Blue	NOMON	Resource monitoring is disabled.

Diagnosing Problems Using the Standard Interface

ISM provides a powerful diagnostic function that you can use to obtain information about the most critical problem affecting the resource. On the Resource Status panel (Figure 4-9) or the Resource Status with Options panel (Figure 4-10), press **PF5** to display the diagnostic panel that ISM determines is best-suited to solve the resource's most critical problem.

For example, if an alert has been received from a resource (resource is displayed in pink and has an ALERT status), select the resource and press **PF5** to display the appropriate panel to view the received alerts for that resource. If the problem is a hardware-related problem, ISM might open NPDA to show hardware status information from NetView.

Filtering Resources Using the Standard Interface

The Resource Status panel (Figure 4-9) can display status information for up to 18 resources in a single view. If you have more than 18 resources, you can scroll forward or backward, or apply filters to display a subset of resources.

This section provides information on the following topics:

- Filtering by Logical Groups Using the Standard Interface, page 4-33
- Filtering by Status Using the Standard Interface, page 4-35
- Filtering by Control Name Using the Standard Interface, page 4-36

Filtering by Logical Groups Using the Standard Interface

Group filtering allows you to view the status for logically grouped resources. For example, a group may include all the resources located in a region or department, or those of a particular device type. The group to which a resource belongs is assigned by an ISM administrator when the resource is defined to ISM, and only an ISM administrator can filter resources by groups. For more information about assigning resources to groups, see the “Enabling Monitoring Options for Multiple Routers” section on page 4-9.

This section includes information on the following topics:

- Filtering by Logical Groups in the ISM User Administration Panel Using the Standard Interface, page 4-34
- Filtering by Logical Groups From the Resource Status Panel Using the Standard Interface, page 4-35

Filtering by Logical Groups in the ISM User Administration Panel Using the Standard Interface

To include filters for up to two resource groups on the ISM status panels, complete the following steps:

- Step 1** From the ISM Administration menu panel (Figure 4-2), position the cursor on the USER line and press **Enter**. The ISM User Administration panel (Figure 4-24) is displayed.

Figure 4-24 ISM User Administration Panel

```

NSPVUSEF          ISM User Administration          CNM56  08/24/00
                                                    Target= CNM56  16:12

Operator ID: DAVE1
Operator Name: dave smith
ISM Administrator Authority:( N :No | Y :Yes): Y
Resource Enable Authority ( D :Display Only | E :Enable): E

Resource Group Filters:( N :No | Y :Yes): N
Include
Group 1:          Group 2:

Resource Status Filters:( N :No | Y :Yes): N
Exclude/Include ( X :Exclude, I :Include): X
Filter 1:          Filter 2:          Filter 3:

VSAM Record:
*NSPOODAVE1          (( A(E N N) U(Y) GF( ) SF(X) ) NAME(dave smith
) )) 08/24/00 16:12 DAVE1

Change Type ( 1 :New, 2 :Update, 3 :Delete): 2
Action Type ( 2 :Temporary, 3 :Permanent): 3

Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL
  
```

- Step 2** In the Resource Group Filters option, type **Y**.
- Step 3** In the Group 1 and Group 2 options, specify the resource group names that you want to include when viewing the ISM resource status displays.
- Step 4** In the Change Type field, enter **2** (Update).
- Step 5** In the Action Type field, enter **3**.
- Step 6** Press **PF4** to save your changes.
- Step 7** View the ISM status panels to see only the resources defined to the groups that you selected.

Filtering by Logical Groups From the Resource Status Panel Using the Standard Interface

To view a logical group of resources from the Resource Status panel (Figure 4-9), in the Group/Resource/Alias option at the top of the panel, type the name of the resource groups that you want to view and press **Enter**. The resources are displayed that belong to the filter groups that you specified, and that you are authorized to see. Figure 4-25 shows sample filtering for resources assigned to the group MVS.

Figure 4-25 Resource Status Panel with Group Filter

```

NSPVMGRX      Resource Status      CNM56  09/07/00
Group/Resource/Alias: MVS          Routers: 162      00:31
CNTL/SPname Status Xtended Operator Hostname Operation Group(s)
RTPMVSD      ACTIV          CS for OS/390 V2R7  MVSD  MVS
RTPMVSE      ACTIV          eNetwork Communicat MVSE  MVS

NSP1186I Position cursor on resource and press PF5 to diagnose status.
==>
1=HELP 2=MAIN 3=RTN 5=DIAG 6=ROLL          9=RESETOP 10=MENU 12=RESET

```

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Filtering by Status Using the Standard Interface

Status filtering allows you to view status for resources that match, or do not match, a specified status. You can specify filtering of resources that match up to three different status types, and then display a Resource Status panel view that includes or excludes those resources.

To include or exclude resources that match the filter criteria (up to three status types) for viewing on the ISM status panels, complete the following steps:

-
- Step 1** From the ISM Administration Menu panel (Figure 4-2), select the the **USER** option and press **Enter**. The ISM User Administration panel (Figure 4-24) is displayed.
 - Step 2** In the Status Filters option, type **Y**.
 - Step 3** In the Exclude/Include option, do one of the following:
 - To exclude the specified resource status from the display, type **X**.
 - To include the specified resource status in the display, type **I**.
 - Step 4** In the Filter 1, Filter 2, and Filter 3 fields, specify the resource status types that you want to include or exclude when viewing the ISM resource status displays.
 - Step 5** In the Change Type field, enter **2** (Update).
 - Step 6** In the Action Type field, enter **3**.
 - Step 7** Press **PF4** to save your changes.
-

Filtering by Control Name Using the Standard Interface

You can filter the resources that you want to view on the Resource Status panel (Figure 4-9).

In the Group/Resource/Alias field, enter the beginning characters of the control name you want to view, followed by an asterisk (*), and press **Enter**. (The asterisk acts as a wildcard, matching any remaining characters in the name.) Only the resources with control names that begin with the characters you specified are displayed. For example, to filter the display of all resources beginning with the characters *cwb*, type **cwb*** in the Group/Resource/Alias field.

Refreshing and Resetting Resources Using the Standard Interface

Although ISM automatically updates the status of the resources at the intervals specified by an ISM administrator in the ISM setup, you can manually refresh resource status information at any time between those intervals.

If you are an enabled ISM user, you can release and reset a resource from an operator who is logged in to a resource in enabled mode, or who is in a busy state with a resource.

You can refresh or check the status of a resource from the Resource Status panel (Figure 4-9). Resources can be reset from the Resource Status panel depending upon where the cursor is positioned when you perform the reset operation.

- If you position the cursor at the top of the panel when you reset, then all of the resources in the current display are reset.

If the Resource Status panel is currently showing a filtered view of resources, then only the resources shown in the filtered view are reset.

- If you position the cursor on a particular resource when you perform the reset operation, then only that resource is reset.

To refresh outdated resource status information, press **PF12**. You can also reset and check the status of a resource by selecting the resource and pressing **Enter** to display the Resource Status with Options panel (Figure 4-10). Then, in the Enter Option field, type **9** and press **Enter**.

Viewing Resource Management Information Using the Standard Interface

There are several perspectives from which you can view the management information for a resource. The following sections describe the ways that you can collect and view the configuration of a resource:

- Viewing SNA Resource Administration Definitions Using the Standard Interface, page 4-38
- Viewing SNA Resource Status from VTAM Using the Standard Interface, page 4-38

- Collecting and Archiving a Router Configuration Using the Standard Interface, page 4-39
- Viewing Archived Configurations Using the Standard Interface, page 4-40

Viewing SNA Resource Administration Definitions Using the Standard Interface

To view an ISM resource, complete the following steps:

-
- Step 1** On the Resource Status panel (Figure 4-9), position the cursor over the appropriate resource name and press **Enter**. The Resource Status with Options panel (Figure 4-10) is displayed.
- Step 2** In the Enter Option field, type **3** and press **Enter**. The ISM Resource Administration panel is (Figure 4-11) displayed.
-

Viewing SNA Resource Status from VTAM Using the Standard Interface

Complete the following tasks to view a resource as it is defined in VTAM:

-
- Step 1** On the Resource Status panel (Figure 4-9), position the cursor over the resource name and press **Enter**. The Resource Status with Options panel (Figure 4-10) is displayed.
- Step 2** In the Enter Option field, type **5** and press **Enter**. The resource configuration as it is defined in VTAM is displayed in an Output panel (Figure 4-26).

Figure 4-26 Output Panel Showing Resource Configuration in VTAM

```

CNMKWIND OUTPUT FROM DIS ISM7200B,E LINE 0 OF 15
*----- Top of Data -----*
DISPLAY NET,ID=ISM7200B,SCOPE=ALL
IST097I DISPLAY ACCEPTED
IST075I NAME = ISM7200B , TYPE = PU_T2.1
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST1043I CP NAME = ISM7200B, CP NETID = NETA , DYNAMIC LU = YES
IST1589I XNETALS = YES
IST956I PU SAP= 4 MAC=4001720000CB MAXDATA= 4407
IST136I SWITCHED SNA MAJOR NODE = SWONETO
IST081I LINE NAME = A4D0200F, LINE GROUP = SGXCGR2 , MAJNOD = SGXC4D02
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT , NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST172I NO LOGICAL UNITS EXIST
IST314I END
*----- Bottom of Data -----*

TO SEE YOUR KEY SETTINGS, ENTER 'DISPFK'
CMD==>

```

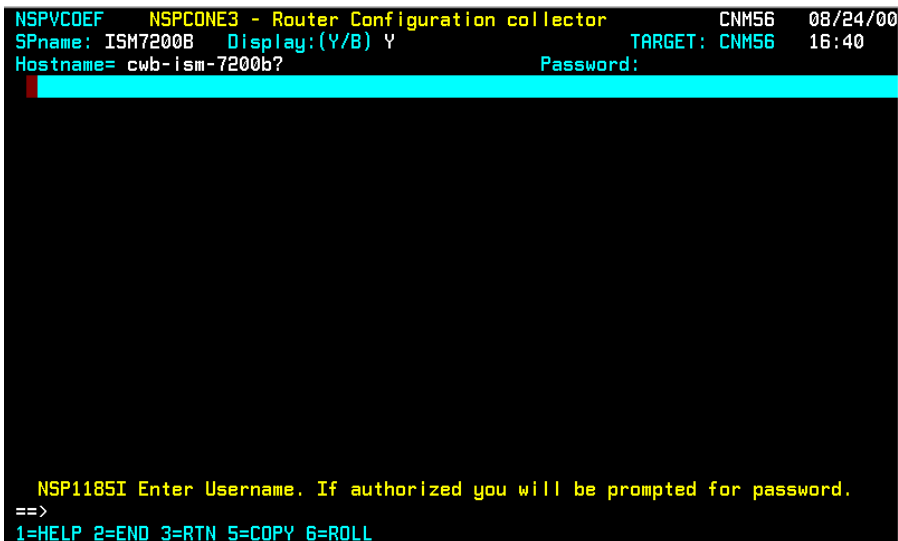
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Collecting and Archiving a Router Configuration Using the Standard Interface

If you are an enabled ISM user, you can collect the current configuration of a router and archive it. To collect a current configuration, you must first log in to the router in enable mode. You must know the router password, and if the router is using TACACS, you must have a user ID defined to TACACS to collect a router configuration.

Complete the following tasks to collect the current configuration of a resource:

- Step 1** On the Resource Status panel (Figure 4-9), position the cursor on the router name and press **PF10**. The Resource Status with Options panel (Figure 4-10) is displayed.
- Step 2** In the Enter Option field, type **7** and press **Enter**. The Router Configuration Collector panel (Figure 4-27) is displayed.

Figure 4-27 Router Configuration Collector Panel


```

NSPVCDEF   NSPCONE3 - Router Configuration collector   CNM56   08/24/00
SPname: ISM7200B   Display:(Y/B) Y   TARGET: CNM56   16:40
Hostname= cwb-ism-7200b?   Password:

```

```

NSP1185I Enter Username. If authorized you will be prompted for password.
==>
1=HELP 2=END 3=RTN 5=COPY 6=ROLL

```

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- Step 3** In the Username field, type the user ID for the router.
- Step 4** In the Password field, type the enable password and press **Enter**.
- Step 5** Press **PF10**. Status messages are displayed as ISM requests and collects the router configuration.
- Step 6** When you are notified that the configuration for the router has been saved, press **Enter**. The configuration you collected is archived.
- Step 7** Press **PF3** to terminate your enabled session.

Viewing Archived Configurations Using the Standard Interface

You can display a list of archived configuration files for an SNA router, view the details of a specific configuration file, and use an archived configuration file for disaster recovery.

To display a list of archived configuration files, complete the following steps:

- Step 1** On the Resource Status panel (Figure 4-9), position the cursor on the router name for which you want to view ISM management information and press **Enter**. The Resource Status with Options panel (Figure 4-10) is displayed.
- Step 2** In the Enter Option field, type **6** and press **Enter**. The Archived Router Configurations panel (Figure 4-28) is displayed.

Figure 4-28 Archived Router Configurations Panel

NSPVLCON		Archived Router Configurations		CNM56	08/24/00
SPNAME: ISM7200B		Target:			16:41
KEY	NLINE	DATE	TIME	TYPE	
ISM7200BH200004141437	179	04/14/00	14:37	write term	
ISM7200BH200006161011	177	06/16/00	10:11	write term	
ISM7200BH200006161457	177	06/16/00	14:57	write term	
ISM7200BH200007071120	181	07/07/00	11:20	write term	
ISM7200BH200007251718	172	07/25/00	17:18	write term	
==>					
1=HELP 2=MAIN 3=RTN 4=DELETE 6=ROLL				10=DETAILS	

- Step 3** To view the details of a configuration file, position the cursor on the record that you want to view and press **Enter**. The Archived Configuration Details panel (Figure 4-29) is displayed.

Figure 4-29 Archived Configuration Details Panel

```

NSPVCNRA Archived Configuration Details CNM56 08/24/00
SPNAME: ISM7200B DETAILS: H200004141437 TARGET: 16:42
BUILDING CONFIGURATION...
CURRENT CONFIGURATION:
!
VERSION 12.0
NO SERVICE PAD
SERVICE TIMESTAMPS DEBUG UPTIME
SERVICE TIMESTAMPS LOG UPTIME
NO SERVICE PASSWORD-ENCRYPTION
!
HOSTNAME CWB-ISM-7200B
!
BOOT SYSTEM FLASH C7200-003S-M2.120-6.3.T
NO LOGGING CONSOLE
enable password -- suppressed --
!
!
!
!
!
==>
1=HELP 2=MAIN 3=RTN 6=ROLL 8=FWD 11=RIGHT

```

As an ISM security feature, if the command issued requires a password, the password is suppressed and not logged.

Monitoring Resource Performance Using the Standard Interface

This section describes the resource performance data that is available from ISM. It explains how to obtain the performance data that is useful in monitoring the performance of a resource.

You can use the following methods to monitor resource performance:

- Specify CPU and memory thresholds in ISM setup that, when exceeded, cause the CNTL/SPname on the Resource Status panel (Figure 4-9) to be displayed in yellow, indicating the resource's degraded performance.
- Start a periodic measurement of a specific resource's performance and have the results logged and archived.

The following sections describe the ways that you can monitor resource performance:

- Setting Resource Monitoring and Threshold Values Using the Standard Interface, page 4-43
- Viewing Router Performance History Using the Standard Interface, page 4-43

Setting Resource Monitoring and Threshold Values Using the Standard Interface

If you are an ISM administrator, you can set the monitoring intervals and CPU and memory thresholds when you enable ISM Resource Management. Specifying a monitoring interval determines the time (in hours and minutes) when ISM queries and collects performance data from the resources in your network.

Specifying CPU and memory thresholds determines the level (expressed as a percentage of the CPU utilization and availability of free memory) that when exceeded will cause ISM to generate an alert. When a performance alert is generated, ISM displays PERF for the resource status.

Viewing Router Performance History Using the Standard Interface

Once you have set the monitoring interval and CPU and memory threshold levels, ISM will measure the performance of the resources in your network using those values. The results are archived in the Router Performance History data set. Any ISM user can view the records archived for a specific resource on the Router Performance History panel. If you are an ISM administrator, you can set the record wrap counts for the data set in the ISM Resource Management setup. For more information about setting the record wrap counts, see the “Changing the Database IDs and Maximum Record Counts” section on page 4-15.

To view performance history records for a specific resource, complete the following steps:

-
- Step 1** On the Resource Status panel (Figure 4-9), position the cursor over the appropriate resource name and press **Enter**. The Resource Status with Options panel (Figure 4-10) is displayed.
- Step 2** In the Enter Option field, type **A** and press **Enter**. The Router Performance History panel (Figure 4-30) is displayed.

Figure 4-30 Router Performance History Panel

Router Performance History									
NSPVRPH4		Resource: #18#11#4						CNM56	09/07/00
		INDEX: 18						01:02	
Date	Time	CPU Utilization (95%)			Memory Usage (10%)			(*)=Thresholds	
		5 Sec	1 Min	5 Min	TOTAL:	USED:	FREE:	%	
20000907	01:00	4%	2%	2%	8.00M	4.98M	3170584	37.7	
20000907	00:00	2%	2%	2%	8.00M	4.98M	3169532	37.7	
20000906	23:00	3%	2%	2%	8.00M	5.00M	3152676	37.5	
20000906	22:00	2%	2%	2%	8.00M	5.00M	3152356	37.5	
20000906	21:00	4%	2%	2%	8.00M	4.99M	3153732	37.5	
20000906	20:00	5%	3%	2%	8.00M	5.00M	3152692	37.5	
20000906	19:00	3%	2%	2%	8.00M	4.99M	3153772	37.5	
20000906	18:00	2%	2%	2%	8.00M	5.00M	3152640	37.5	
20000906	17:00	4%	3%	3%	8.00M	4.99M	3154940	37.6	
20000906	16:00	1%	2%	3%	8.00M	5.00M	3152052	37.5	
20000906	15:00	2%	3%	3%	8.00M	4.99M	3155036	37.6	
20000906	14:00	1%	3%	3%	8.00M	4.99M	3153016	37.5	
20000906	13:00	2%	3%	3%	8.00M	4.99M	3159308	37.6	
20000906	12:00	0%	3%	3%	8.00M	4.99M	3158728	37.6	
20000906	11:00	1%	2%	3%	8.00M	4.99M	3154184	37.5	
20000906	10:00	1%	3%	3%	8.00M	4.99M	3153016	37.5	
20000906	09:00	1%	3%	3%	8.00M	4.99M	3154528	37.5	

==>

1=HELP 2=MAIN 3=RTN 6=ROLL 8=FWD 9=CURRENT

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This panel shows CPU utilization and memory usage statistics. Threshold values are shown at the top of the display columns. If a threshold is exceeded, the threshold is shown in yellow.

Viewing Hardware Alerts and Events Using the Standard Interface

Alerts generated by a resource that is being monitored by ISM are forwarded to the host by the service point configured in the resource. You can enable ISM to generate alerts for resources, interfaces, and CMCCs when thresholds are exceeded. For information about enabling alert generation in ISM, see the “Enabling Resource Alert Generation” section on page 4-8.

You can access NetView’s Hardware Monitor Facility from within ISM to obtain a list of alerts generated by a specific resource and sent to NetView. For more information on using the NetView Hardware Monitor Facility, refer to the appropriate NetView operations manual.

You can perform the following tasks to view hardware alerts and events:

- Displaying the Total Count of Events Using the Standard Interface, page 4-45
- Displaying the Most Recent Alerts Using the Standard Interface, page 4-46

Displaying the Total Count of Events Using the Standard Interface

Complete the following tasks to display the total count of events in NetView's hardware monitor:

- Step 1** On the Resource Status panel (Figure 4-9), position the cursor on the appropriate resource name and press **Enter**. The Resource Status with Options panel (Figure 4-10) is displayed.
- Step 2** In the Enter Option field, type **4** and press **Enter**. A NetView Hardware Monitor panel is displayed (Figure 4-31), listing the most recent count of total events (in reverse chronological order) generated by the resource.

Figure 4-31 NetView Hardware Monitor Events Panel

```

NETVIEW          SESSION DOMAIN: CNM56   DAVE1   09/07/00 01:07:02
NPDA-40A          * TOTAL EVENTS *          PAGE 1 OF 1

CNM56      ISMV2R0
DOMAIN      | AMGR | -- |          |
+-----+   +-----+
***** RESOURCE EVENTS *****
SEL# TYPE RESNAME TOTAL FROM TO ATTACHED RESOURCES EV
( 1) SP  #18#11#4    0
                                TOTAL TO
                                1 08/30 08:12

ENTER ST (STAT), OR SEL# (ATTACHED)

???
CMD==>
  
```

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Displaying the Most Recent Alerts Using the Standard Interface

To display a list of the most recent alerts in NetView's hardware monitor, complete the following steps:

- Step 1** On the Resource Status panel (Figure 4-9), position the cursor on the appropriate resource name and press **Enter**. The Resource Status with Options panel (Figure 4-10) is displayed.
- Step 2** In the Enter Option field, type **8** and press **Enter**. A NetView Hardware Monitor panel is displayed (Figure 4-32), listing the alert records generated by the resource.

Figure 4-32 NetView Hardware Monitor Alerts Panel

```

NETVIEW          SESSION DOMAIN: CNM56   DAVE1   09/07/00 20:34:46
NPDA-70A          * MULTIPLE ENTRIES *      PAGE 1 OF 1
                  * FOR SELECTED RESOURCE NAME(S) *

COMMAND ENTERED:
MR EV N ISM7200B

SEL# TYPE RESNAME  TYPE RESNAME  TYPE RESNAME  TYPE RESNAME  TYPE RESNAME
( 1) AMGR ISMV1R3  SP   ISM7200B
( 2) AMGR ISMV2R0  SP   ISM7200B

ENTER SEL# (FULLY QUALIFIED RESOURCE) OR ALL (FOR SPECIFIED RESOURCE ISM7200B )
???
```

CMD==>

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Using the Standard Interface for Logging In to Routers and Issuing Commands

You can use the ISM Router Command Interface panel (Figure 4-33) to connect to a router and issue commands that you would normally have to issue in a Telnet session. However, ISM does not accept some commands, such as **telnet**.

Additionally, the commands you can issue from the Resource Command Interface panel are based on your authority level, as defined in your operator profile and on the security implemented in the router.

Commands issued from the Router Command Interface panel are written to the NetView log. The name of the operator who issues a command is also recorded. However, as an ISM security feature, if the command issued requires a password, the password is suppressed and not logged. Also, if the command issued requests router configuration information, all security-sensitive data is suppressed and not logged.

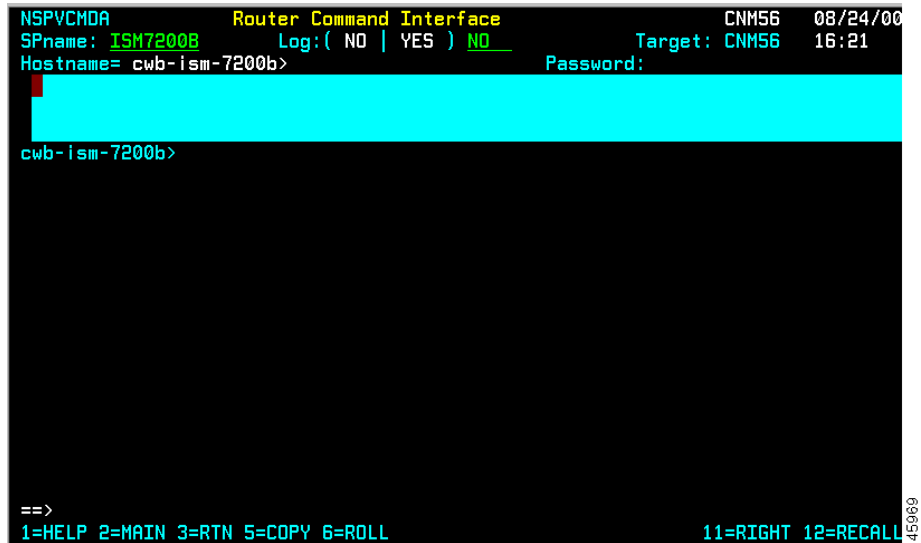
This section contains information on the following topics:

- Issuing Commands From the ISM Main Menu Panel Using the Standard Interface, page 4-47
- Issuing Commands From the Resource Status Panel Using the Standard Interface, page 4-49
- Issuing Router Show Commands Using the Standard Interface, page 4-49
- Using the Standard Interface for Adding Commands to the Router Show Commands Panel, page 4-50
- Using the Standard Interface to Display Router Memory, page 4-52

Issuing Commands From the ISM Main Menu Panel Using the Standard Interface

To issue commands to a router from the ISM main menu panel (Figure 4-1), complete the following steps:

-
- | | |
|---------------|--|
| Step 1 | Position the cursor in the Resource Manager Name field on the ISMR line. |
| Step 2 | Type in the control name of the router and press Enter . The Router Command Interface panel (Figure 4-33) is displayed. |

Figure 4-33 Router Command Interface Panel

The Router Command Interface panel contains the following functional areas:

- **Log**—Indicates whether the destination of the output of a command entered from the Command Interface panel is logged in addition to being displayed. To display and log the output, type **Y**. To display the output only, type **N**.
- **Command Field**—Where you type ISM commands to the router. You can type up to three lines of text.
- **Output Display**—Displays the output from the router.
- **Command Input**—Enables you to enter NetView or ISM commands.
- **Error Message Display**—Displays an error message if you enter a command or press a function key incorrectly.

Step 3 To specify how to handle the output from the router command, specify one of the following options:

- To display the output on the panel and log the output to NetView, type **Y** in the Log option.
- To just display the output for the command on the panel, type **N** in the Log option.

Step 4 In the Command Field, type the router command and press **Enter**.

- Step 5** If a user ID or password is required, type the appropriate response at the corresponding prompt.
- Step 6** To recall the last command that you issued, press **PF12**.
-

Issuing Commands From the Resource Status Panel Using the Standard Interface

To issue router commands from the Resource Status panel (Figure 4-9), complete the following steps:

-
- Step 1** Position the cursor on the appropriate router name and press **PF10**. The Resource Status with Options panel (Figure 4-10) is displayed.
- Step 2** In the Enter Option field, type **1** and press **Enter**. The Router Command Interface panel (Figure 4-33) is displayed.
- Step 3** To specify how to handle the output from the router command, specify one of the following options:
- To display the output on the panel and log the output to NetView, type **Y** in the Log option.
 - To just display the output for the command on the panel, type **N** in the Log option.
- Step 4** In the Command Field, type the router command and press **Enter**.
- Step 5** If a user ID or password is required, type the appropriate response at the corresponding prompt.
- Step 6** To recall the last command you issued, press **PF12**.
-

Issuing Router Show Commands Using the Standard Interface

ISM supports a set of Cisco IOS software **show** commands you can use to obtain additional information about a router. These commands are useful for monitoring and problem determination purposes.

To issue router **show** commands, complete the following steps:

- Step 1** On the Resource Status panel (Figure 4-9), position the cursor on the appropriate router and press **Enter**. The Resource Status with Options panel (Figure 4-10) is displayed.
- Step 2** On the Enter Option field, type **B** and press **Enter**. The Router Show Commands panel is displayed (Figure 4-34).

Figure 4-34 Router Show Commands Panel

```

NSPVSCM3          Router Show Commands          CNM56  09/07/00
Target: CNM56      20:49
The following show commands are useful when monitoring the router.
Service Point Name: ISM7200B

  Show Command                                Show Commands
1: show version                               13: show clock
2: show processes cpu                         14: show flash
3: show processes memory                     15: show hosts
4: show users                                16: show snmp
5: show protocols                            17: show sessions
6: show environment (7000 series) (?)        18: show users
7: show boot                                 19: show ip casa
8: show lnm                                  20: show dspu
9: show tech                                 21: show rtr
10:                                           22: show rmon
11:                                           23: show tacacs
12:                                           24: show vpdn

To issue a command, enter the option number and press Enter.
Commands with options can be added to the list.
(?)=Options allowed.

Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL
  
```

- Step 3** To issue a command, type the number corresponding to the command and press **Enter**.

Using the Standard Interface for Adding Commands to the Router Show Commands Panel

If you are an ISM administrator, you can add Cisco IOS software **show** commands to the Router Show Commands panel (Figure 4-34). (The **show** commands you add must be supported by Cisco IOS Release 11.0 and later.)

Complete the following tasks to add a Cisco IOS software **show** command to the Router Show Commands panel:

- Step 1** On the Router Show Commands panel, press **PF4**. The Resource Show Commands—Update Mode panel (Figure 4-35) is displayed with data entry fields shown in green and underlined.

Figure 4-35 Router Show Commands—Update Mode Panel

```

NSPVSCM3          Router Show Commands          CNM56  09/07/00
                                           Target: CNM56  20:53
The following show commands are useful when monitoring the router.
Service Point Name: ISM7200B

```

1	Show Command	13	Show Commands
1:	show version	13:	show <u>clock</u>
2:	show processes cpu	14:	show <u>flash</u>
3:	show processes memory	15:	show <u>hosts</u>
4:	show users	16:	show <u>snmp</u>
5:	show protocols	17:	show <u>sessions</u>
6:	show environment (7000 series) (?)	18:	show <u>users</u>
7:	show boot	19:	show <u>ip casa</u>
8:	show <u>lrm</u>	20:	show <u>dspu</u>
9:	show <u>tech</u>	21:	show <u>rtr</u>
10:		22:	show <u>rmon</u>
11:		23:	show <u>tacacs</u>
12:		24:	show <u>vpdn</u>

```

Update commands as desired, press PF4 to save.
To issue a command, enter the option number and press Enter.
Commands with options can be added to the list.
(?)=Options allowed.

Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL

```

- Step 2** Position the cursor on the line on which you want to add a **show** command.
- Step 3** In the data-entry field on the line, type the parameter or parameters that correspond to the command you are adding (without the **show** keyword) and press **F4**. The next time you display the Router Show Commands panel, it includes the command you added.

Using the Standard Interface to Display Router Memory

To execute router **show** commands that display information about the router's memory configuration, use the Router Memory Dump Options panel.

To issue router memory commands, complete the following steps:

- Step 1** On the Resource Status panel (Figure 4-9), position the cursor on the appropriate router name and press **Enter**. The Resource Status with Options panel (Figure 4-10) is displayed.
- Step 2** Type **D** in the Enter Option field and press **Enter**. The Router Memory Dump Options panel (Figure 4-36) is displayed.

Figure 4-36 Router Memory Dump Options Panel

```

NSPVMCMD          ROUTER Memory Dump Options          CNM56  09/07/00
                                                           Target: CNM56  21:01
Use the following menu to dump router memory to a ISM data set.
Service Point Name: ISM7200B
  Show Command
show processes memory      : _
show memory allocating-process: _
show memory dead          : _
show memory fast          : _
show memory free          : _
show memory io            : _
show memory multibus      : _
show memory pci           : _
show memory processor     : _
show memory summary       : _
show version              : _

Enter x next to the desired functions and press enter to execute.
Enter ? next to the desired function for help.
To view the output, press PF10 and select the appropriate dump.

Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL 10=DISPLAY
  
```

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The following commands are displayed on the Router Memory Dump Options panel:

- **show processes memory**—Displays information about the processes and memory used by all of the processes running on the router, including the following statistics:
 - Total—Total amount of memory in the router, subdivided by memory currently used and free.
 - PID—Process ID.
 - TTY—Terminal that controls the process.
 - Allocated—Total amount of memory that the process has requested from the router.
 - Freed—Amount of memory that a process has returned to the router.
 - Holding—Allocated memory minus the freed memory. A value can be negative when the process has freed more than it was allocated.
 - Process—Name of the process in the router.
 - Init—System initialization.
 - Sched—Scheduler.
 - Dead—Total number of processes that are now dead, or no longer running.
- **show memory allocating-process**—Displays the memory being used by the allocating process.
- **show memory dead**—Displays the amount of memory being used by processes that are no longer running in the router.
- **show memory fast**—Displays the statistics for the fast memory.
- **show memory free**—Displays the amount of available memory in the router.
- **show memory io**—Displays the free memory input/output (IO) blocks. This command shows how much unused IO memory is available.
- **show memory multibus**—Displays statistics for multibus memory.
- **show memory pci**—Displays statistics for program-controlled interruption (PCI) memory.
- **show memory processor**—Displays statistics for the router's processor memory.

- **show memory summary**—Displays the amount of memory being used by each allocated process.
- **show tech**—Displays support data.
- **show version**—Displays the hardware and software versions in the router.

Step 3 To issue the command, type an **X** in the field corresponding to the memory command and press **Enter**.

Step 4 To view the output from the command, press **PF10**. The Archived Router Memory Dumps panel (Figure 4-37) is displayed.

Figure 4-37 Archived Router Memory Dumps Panel

NSPVLCON Archived Router Memory Dumps CNN56 09/13/00
SPNAME: ISM7200B Target: CNN56 00:09

KEY	NLINE	DATE	TIME	TYPE
ISM7200BHPM200009072128	140	09/07/00	21:28	show processes memory
ISM7200BHPR200009072129	11211	09/07/00	21:29	show memory processor
ISM7200BHTE200009072148	1256	09/07/00	21:48	show tech
ISM7200BHVE200009072127	27	09/07/00	21:27	show version
ISM7200BHVE200009072128	27	09/07/00	21:28	show version
ISM7200BHVE200009112318	27	09/11/00	23:18	show version
ISM7200BHVE200009130008	27	09/13/00	00:08	show version

==>
1=HELP 2=MAIN 3=RTN 4=DELETE 6=ROLL 10=DETAILS

Each time you issue a command, a new record is created that contains the actual command output.

- To delete the record, press **PF4**.
- To view the contents of the record, position the cursor on the record and press **PF10**. The Archived Memory Dump Details panel (Figure 4-38) is displayed.

Figure 4-38 Archived Memory Dump Details Panel

```

NSPVCONA      Archived Memory Dump Details      CNM56  09/13/00
SPNAME: ISM72008 DETAILS: HPM200009072128      TARGET: CNM56  00:14
Total: 93685024, Used: 11638440, Free: 82046584

PID TTY  Allocated    Freed    Holding    Getbufs    Retbufs Process
0  0      92280        1808    9496964        0        0 *Init*
0  0         832    22475576        832        0        0 *Sched*
0  0    47239912    28377888    142304    228932        0 *Dead*
1  0         276        276        3804        0        0 Load Meter
2  2    1683160    1103536    14660        0        0 SNA-NM Exec
3  0         0         0        6804        0        0 Check heaps
4  0    633040         0    639844        0        0 Chunk Manager
5  0     37428         0        6900    18900        0 Pool Manager
6  0         276        276        6804        0        0 Timers
7  0         276        276        6804        0        0 Serial Backgroun
8  0         0         0        6804        0        0 ALARM_TRIGGER_SC
9  0         0         0        6804        0        0 EnvMon
10 0     285288    285228    53884        0        0 DIR Handler
11 0         96         0        6900        0        0 IPC Zone Manage
12 0         0         0        6804        0        0 IPC Periodic Ti
13 0    15951924    1164    10120        0        0 IPC Seat Manage
14 0         2240    64864    7692        0        0 ARP Input

==> 
1=HELP 2=MAIN 3=RTN 6=ROLL 8=FWD 11=RIGHT

```

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Using the Web Interface to Monitor Resources

You can monitor your resources using either the standard interface or by the NetView Web interface. This section describes how to use the Web interface to perform the following tasks:

- Displaying Resource Status Using the Web Interface, page 4-56
- Issuing Router Commands Using the Web Interface (SNA Only), page 4-63
- Showing the System (SNMP Only), page 4-64
- Displaying Protocol Status Using the Web Interface (SNA and SNMP), page 4-65
- Displaying Resource Variables Using the Web Interface (SNA and SNMP), page 4-66
- Viewing SNA Resource Status from VTAM Using the Web Interface (SNA Only), page 4-67
- Viewing Archived Configurations Using the Web Interface (SNA Only), page 4-68
- Viewing Router Performance History Using the Web Interface (SNA and SNMP), page 4-69
- Issuing Router Show Commands Using the Web Interface (SNA Only), page 4-71
- Displaying Interfaces Status (SNA and SNMP), page 4-72
- Displaying CMCC Status (SNA Only), page 4-73

For details on using the standard interface, see the “Displaying Resource Status Using the Standard Interface” section on page 4-29.

Displaying Resource Status Using the Web Interface

This section describes the following tasks:

- Using the ISM Status Summary Page from the Web Interface, page 4-57.
- Using the ISM Resource Status with Options Page from the Web Interface, page 4-60.
- Description of Status Types Using the Web Interface, page 4-62

Using the ISM Status Summary Page from the Web Interface

Use the ISM Status Summary page to monitor the overall status of all your resources by type of condition. To access this page, select **ISM Status Summary** on the ISM main menu page (Figure 4-39), then click **Submit**.

Figure 4-39 ISM Main Menu Page

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/20/00 22:09:41

NSP2097E YOUR ISM LICENSE WILL EXPIRE. DAYS LEFT: 10

☒ ISM Status Summary
☐ Resource Manager
☐ Interface Status
☐ TN3270 Monitor
☐ Cisco Mainframe Channel Connection Monitor (CMCC)
☐ Session Monitoring
☐ Activity Log

ServicePointName or IP Address:

Async

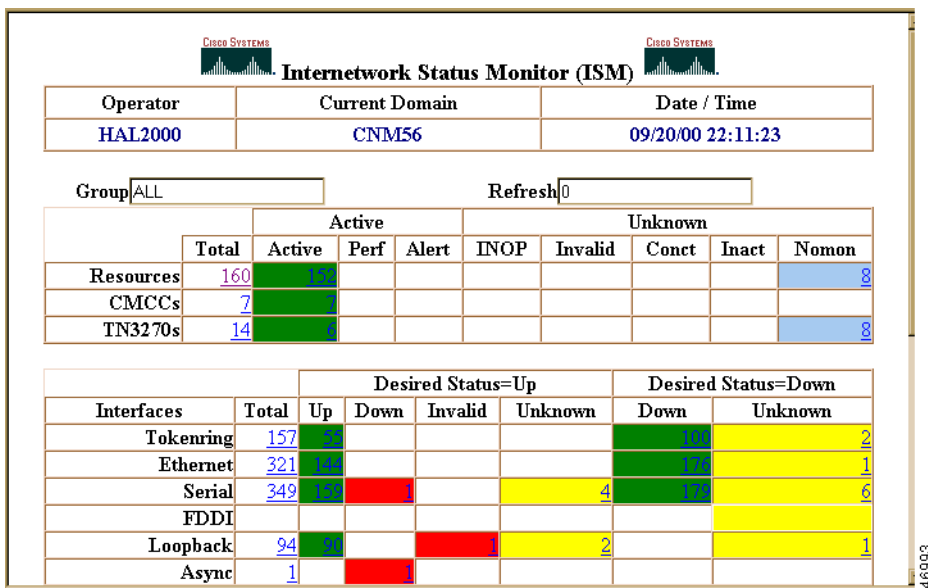
PU or MAC:

ISM Last initialized: 09/19/00 07:54 ISMMGR

Select an option and press Submit

The ISM Status Summary page (Figure 4-40) is displayed.

Figure 4-40 ISM Status Summary Page



The ISM Status Summary page uses a color-coded display to indicate different types of status conditions. You can access other information when monitoring resources using the ISM Status Summary page, as follows:

- To filter resources by assigned group, enter the group name in the Group field and click **Submit**.
- To dynamically refresh the page, enter a number of seconds, *x*, in the Refresh field and click **Submit**. The page is refreshed automatically every *x* seconds.
- To open the Resource Status page (Figure 4-41) and view all resources, click on a value in the Total column beside Resources.
- To open the Resource Status page and view all resources with a particular status, click on a value in the appropriate Status column.

Figure 4-41 Resource Status Page

Internetwork Status Monitor (ISM)

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/20/00 22:12:15

Resource*

Groups*

Current Status*

Resources: 160 Filtered: 160

Resource	Status	Xtended	Operator	Hostname	Operation Groups
#10#10#1	NOMON			UNKNOWN	SNMPU
#18#11#1	ACTIV			cwb-ipm-4700a	
#18#11#2	ACTIV			cwb-ipm-7200a	NONE
#18#11#4	ACTIV			cwb-ipm-2600a	HAL2
#18#11#5	ACTIV			cwb-ipm-2600e	
#18#11#9	ACTIV			cwb-ipm-7200b	
#18#7#11	ACTIV			falls	SNMPX
#18#7#12	ACTIV			tatra	SNMPX
#18#7#13	ACTIV			rs390	SNMPX
#18#7#22	ACTIV			NOTFOUND	SNMPX
#18#7#23	ACTIV			heritage	SNMPX
#18#7#26	ACTIV			goodguy	SNMPX
#18#7#28	ACTIV			cdburn	SNMPX
#18#7#57	ACTIV			CWB_NT4	SNMPX
#18#7#71	ACTIV			cwb-sun5	SNMPX

You can perform the following tasks on the Resource Status page:

- To filter resources by resource name, enter the name in the Resource field and click **Submit**. To specify a wildcard, use an asterisk (*).
- To filter resources by assigned group, enter the group name in the Groups field and click **Submit**. To specify a wildcard, use an asterisk (*).
- To filter resources by current status, enter or select the status in the Current Status field and click **Submit**. To specify a wildcard, use an asterisk (*).
- To access a menu of options to obtain additional information about the resource, or to perform other resource operations, click on a specific resource to display the Resource Status with Options page (Figure 4-42).

Using the ISM Resource Status with Options Page from the Web Interface

To view resource status and perform other resource-related functions, use the Resource Status with Options page. To access this page, use one of the following procedures:

- Select **Resource Manager** on the ISM main menu page (Figure 4-39), then click **Submit**.
- Click on a resource on the Resource Status page (Figure 4-41).

The Resource Status with Options page is displayed. Figure 4-42 shows the Resource Status with Options page for an SNA resource; Figure 4-43 shows the Resource Status with Options page for an SNMP resource.

Figure 4-42 Resource Status with Options Page—SNA

Internetwork Status Monitor (ISM)

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/20/00 22:17:09

Resource:ISM7200B
 IP Address:NONE
 Management Mode:SNA
 Current Status:PERF
 Extended Status:S
 Host Name:CWB-ISM-7200B
 Description:DYNAMICALLY ADDED
 Status Change:18:17 09/20/00
 Last alert:

[Command Interface](#)
[Show Protocols](#)
[Display Resource Variables](#)
[Vtam Display](#)
[Configuration History](#)
[Performance History](#)
[Show Commands Menu](#)
[Interfaces Status](#)
[List CMCC's](#)

Help Main Command Submit

Figure 4-43 Resource Status with Options Page—SNMP

Internetwork Status Monitor (ISM)

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/20/00 22:15:50

Resource: #18#11#1
 IP Address: 172.18.11.1
 Management Mode: SNMP
 Current Status: ACTIVE
 Extended Status: [REDACTED]
 Host Name: CWB-IPM-4700A
 Description: CISCO INTERNETWORK OPERATING SYSTEM SOFTWARE IOS (TM)
 Status Change: 17:28 09/20/00
 Last alert:

[Show System](#)
[Show Protocols](#)
[Display Resource Variables](#)
[Performance History](#)
[Interfaces Status](#)

You can perform the following commands from the Resource Status with Options page:

- Issuing Router Commands Using the Web Interface (SNA Only), page 4-63
- Showing the System (SNMP Only), page 4-64
- Displaying Protocol Status Using the Web Interface (SNA and SNMP), page 4-65
- Displaying Resource Variables Using the Web Interface (SNA and SNMP), page 4-66
- Viewing SNA Resource Status from VTAM Using the Web Interface (SNA Only), page 4-67

- Viewing Archived Configurations Using the Web Interface (SNA Only), page 4-68
- Viewing Router Performance History Using the Web Interface (SNA and SNMP), page 4-69
- Issuing Router Show Commands Using the Web Interface (SNA Only), page 4-71
- Displaying Interfaces Status (SNA and SNMP), page 4-72
- Displaying CMCC Status (SNA Only), page 4-73

Description of Status Types Using the Web Interface

The color of the service point name of a resource on the ISM Status Summary page (Figure 4-40) or ISM Resource Status page (Figure 4-41) indicates the condition of that resource. Table 4-2 lists the color and definition of each status:

Table 4-2 ISM Resource Status and Color Definitions

Color	Status	Definition
Green	ACTIV	ISM can communicate with the resource.
Red	CONCT	Resource is not connected to VTAM.
Red	INOP	Resource failed to respond when a RUNCMD was issued, perhaps because the resource was made inactive by an operator. If a resource is in an inactive state, a System Services Control Point (SSCP)-to-PU session cannot be established. You must first activate the resource by issuing the NetView ACT command.
Yellow	PERF	The resource is active, but ISM has detected a performance-related problem for the CPU or memory utilization thresholds, or an interface configured in the resource is down.
Pink	ALERT	The resource is active, but an alert was detected through the NetView automation table for a resource managed by the resource control point.
Turquoise	INVALID	Service point is unknown to VTAM. VTAM definition does not exist.
Turquoise	INACT	An operator has de-activated the resource in VTAM.
Blue	NOMON	Resource monitoring is disabled.

Issuing Router Commands Using the Web Interface (SNA Only)

You can use the Command Interface page to connect to a router and issue commands that you would normally have to issue in a Telnet session. However, ISM does not accept some commands, such as **telnet**. Additionally, the commands you can issue from the Resource Command Interface page are based on your authority level, as defined in your operator profile and on the security implemented in the resource.

Commands issued from the Resource Command Interface page are written to the NetView log. The name of the operator who issues a command is also recorded. However, if the command issued requests router configuration information, all security-sensitive data is suppressed and not logged.

To issue commands to a router, complete the following steps:

-
- Step 1** On the ISM main menu page (Figure 4-39), select **Resource Manager** and click **Submit**. The Resource Status with Options page (Figure 4-42) is displayed.
 - Step 2** Click on Command Interface. The Router Command Interface page (Figure 4-44) is displayed.

Figure 4-44 Router Command Interface Page

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/20/00 22:18:37

Resource: ISM7200B	Hostname: CWB-ISM-7200B
--------------------	-------------------------


```

Cisco Internetwork Operating System Software
IOS (tm) 7200 Software (C7200-JS-M), Version 12.1(2)T,  RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2000 by cisco Systems, Inc.
Compiled Tue 16-May-00 15:00 by ccai
Image text-base: 0x60008900, data-base: 0x61B76000
ROM: System Bootstrap, Version 12.0(19990210:195103) (12.0XE 105), DEVELOPMENT SOFTWARE
BOOTFLASH: 7200 Software (C7200-BOOT-M), Version 12.0(2)XE2, EARLY DEPLOYMENT RELEASE SOFTWARE
cwb-ism-7200b uptime is 5 days 10 hours 52 minutes
  
```

For a detailed description of the fields on this page, see the online help.

Step 3 In the Command Field, type the router command and click **Submit**.

Showing the System (SNMP Only)

To display the Management Information Base (MIB) variables, select **Show System** on the Resource Status with Options page (Figure 4-43) and click **Submit**. The System Status page (Figure 4-45) is displayed.

Figure 4-45 System Status Page

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/21/00 08:44:55

Resource - Service Point/Control Name:	#18#11#2
sysName	CWB-IPM-7200A.CISCO.COM
sysLocation	
sysServices	6
sysDescr	CISCO INTERNETWORK OPERATING SYSTEM SOFTWARE IOS (TM)7200 SOFTWARE (C7200-IS-M), VERSION 12.1(2)T, RELEASE SOFTWARE (FC1) COPYRIGHT (C) 1986-2000 BY CISCO SYSTEMS,INC. COMPILED TUE 16-MAY-00 14:14 BY CCAI
SysUpTime	21 DAYS/14 HOURS/45 MINUTES/8 SECONDS
sysContact	
chassyType	58 C7206
cCasaState	1 CASA NOT ENABLED
tn3270sCpuCard	NO TN3270

Help Main Command Submit

For a detailed description of the fields on this page, see the online help.

Displaying Protocol Status Using the Web Interface (SNA and SNMP)

To display the global and interface-specific status of any configured protocols, select **Show Protocols** on the Resource Status with Options page (Figure 4-42) and click **Submit**. The Protocols Status page (Figure 4-46) is displayed.

Figure 4-46 Protocols Status Page

Internetwork Status Monitor (ISM) V2

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/21/00 08:47:58

Resource:

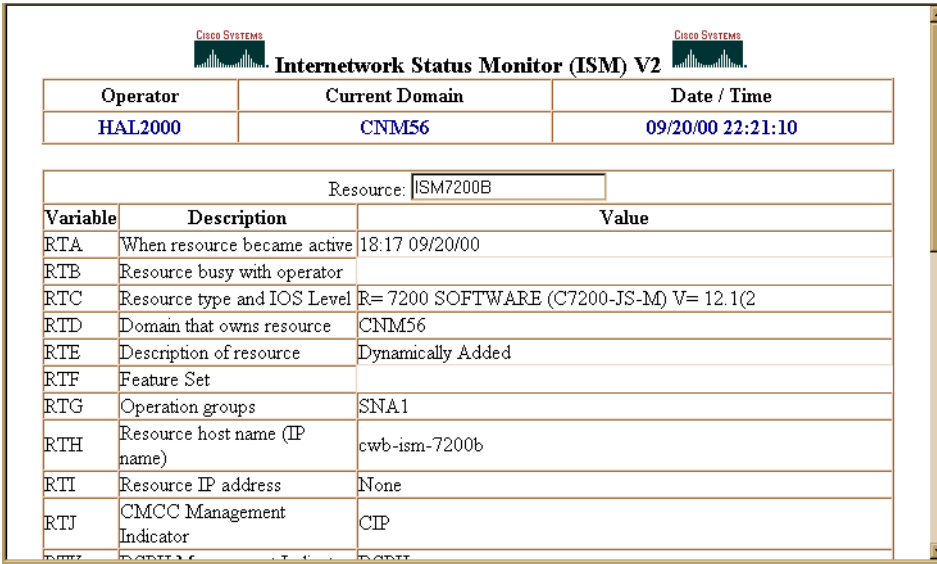
Description	Name	Status
FastEthernet0/0	Fa0/0	is administratively up, line protocol is up
FastEthernet2/0	Fa2/0	is administratively up, line protocol is up
FastEthernet2/1	Fa2/1	is administratively down, line protocol is down
FastEthernet6/0	Fa6/0	is administratively up, line protocol is up
FastEthernet6/1	Fa6/1	is administratively up, line protocol is up
Null0	Nu0	is administratively up, line protocol is up

For a detailed description of the fields on this page, see the online help.

Displaying Resource Variables Using the Web Interface (SNA and SNMP)

To display detailed information about a resource's variables, including current values, select **Display Resource Variables** on the Resource Status with Options page (Figure 4-42) and click **Submit**. The Resource Variables page (Figure 4-47) is displayed.

Figure 4-47 Resource Variables Page



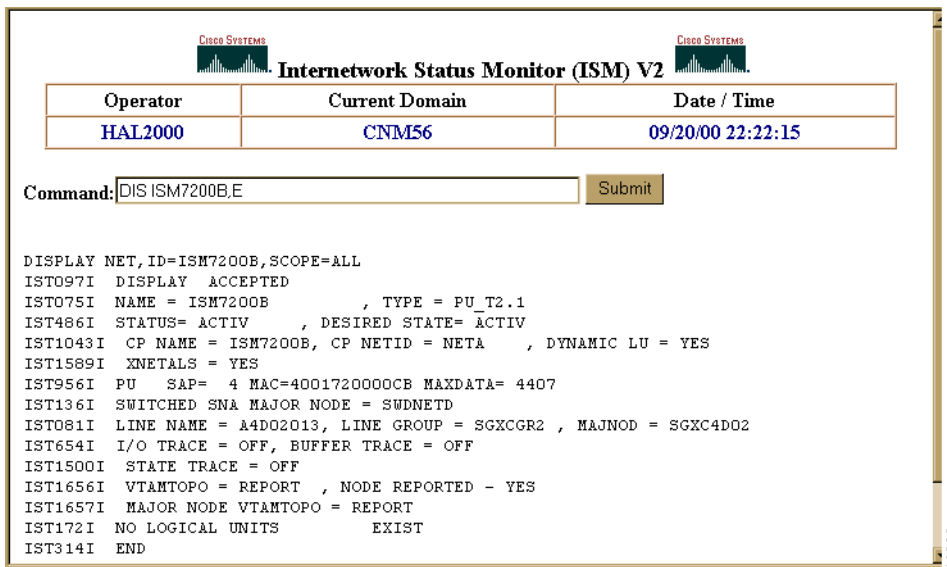
For a detailed description of the fields on this page, see the online help.

Viewing SNA Resource Status from VTAM Using the Web Interface (SNA Only)

Complete the following tasks to view a resource as it is defined in VTAM:

- Step 1** On the Resource Status page (Figure 4-41), click on the appropriate resource name. The Resource Status with Options page (Figure 4-42) is displayed.
- Step 2** Click on VTAM Display. The VTAM Resource Configuration page (Figure 4-48) is displayed.

Figure 4-48 VTAM Resource Configuration Page



Operator	Current Domain	Date / Time
HAL2000	CNM56	09/20/00 22:22:15

Command:

```

DISPLAY NET, ID=ISM7200B, SCOPE=ALL
IST097I  DISPLAY  ACCEPTED
IST075I  NAME = ISM7200B          , TYPE = PU_T2.1
IST486I  STATUS= ACTIV          , DESIRED STATE= ACTIV
IST1043I  CP NAME = ISM7200B, CP NETID = NETA          , DYNAMIC LU = YES
IST1589I  XNETALS = YES
IST956I  PU   SAP= 4 MAC=4001720000CB MAXDATA= 4407
IST136I  SWITCHED SNA MAJOR NODE = SUDNETD
IST081I  LINE NAME = A4D02013, LINE GROUP = SGXCGR2 , MAJNOD = SGXC4D02
IST654I  I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I  STATE TRACE = OFF
IST1656I  VTAMTOPO = REPORT , NODE REPORTED - YES
IST1657I  MAJOR NODE VTAMTOPO = REPORT
IST172I  NO LOGICAL UNITS          EXIST
IST314I  END
  
```

For a detailed description of the fields on this page, see the online help.

Viewing Archived Configurations Using the Web Interface (SNA Only)

To display a list of archived configuration files for an SNA resource, complete the following steps:

- Step 1** On the Resource Status page (Figure 4-41), click on the appropriate resource name. The Resource Status with Options page (Figure 4-42) is displayed.
- Step 2** Click on Configuration History. The Archived Router Configurations page (Figure 4-49) is displayed.

Figure 4-49 Archived Router Configurations Page

Internetnetwork Status Monitor (ISM)

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/20/00 22:23:18

Resource: ISM7200B

Key	Lines	Date	Time	Type
ISM7200BH200009071559	180	09/07/00	15:59	write term
ISM7200BH200007251718	172	07/25/00	17:18	write term
ISM7200BH200007071120	181	07/07/00	11:20	write term
ISM7200BH200006161457	177	06/16/00	14:57	write term
ISM7200BH200006161011	177	06/16/00	10:11	write term
ISM7200BH200004141437	179	04/14/00	14:37	write term

Help Main Command Submit

For a detailed description of the fields on this page, see the online help.

Step 3 To display a specific configuration, click on a value in the Key field.

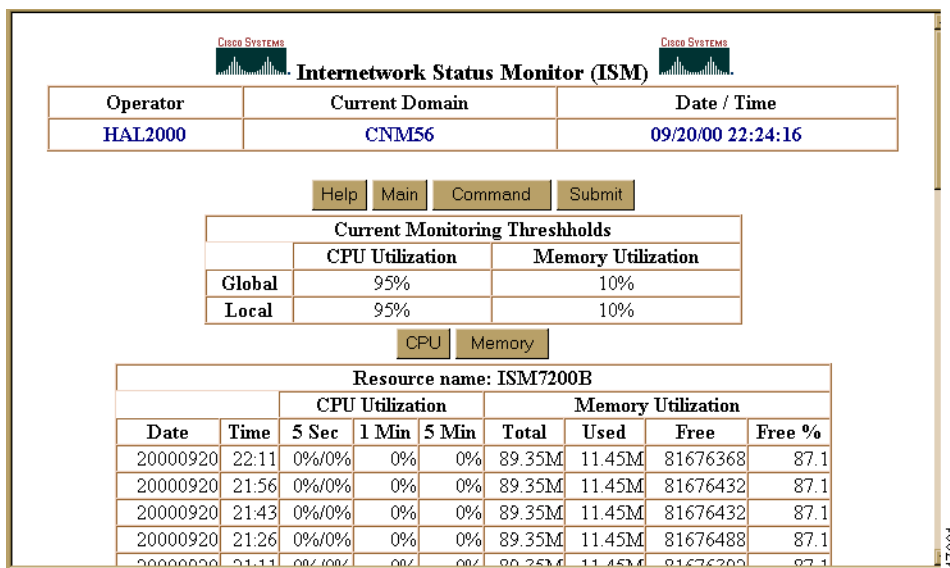
Viewing Router Performance History Using the Web Interface (SNA and SNMP)

ISM measures the performance of the routers in your network using the monitoring interval and CPU and memory threshold values you set. The results are archived in the Router Performance History data set. Any ISM user can view the records archived for a specific router on the Router Performance History page. If you are an ISM administrator, you can set the record wrap counts for the data set in the ISM Resource Management setup. For more information about setting the record wrap counts, see the “Changing the Database IDs and Maximum Record Counts” section on page 4-15.

To view performance history records for a specific router, complete the following steps:

- Step 1** On the Resource Status page (Figure 4-41), click on the appropriate router name. The Resource Status with Options page (Figure 4-42) is displayed.
- Step 2** Click on Performance History. The Router Performance History page (Figure 4-50) is displayed.

Figure 4-50 Router Performance History Page



This page shows CPU utilization and memory usage statistics. Threshold values are shown at the top of the display columns. If a threshold is exceeded, the threshold is shown in yellow.

For a detailed description of the fields on this page, see the online help.

Issuing Router Show Commands Using the Web Interface (SNA Only)

ISM supports a set of Cisco IOS software **show** commands you can use to obtain additional information about a router. These commands are useful for monitoring and problem determination purposes.

To issue router show commands, complete the following steps:

- Step 1** On the Resource Status page (Figure 4-41), click on the appropriate router name. The Resource Status with Options page (Figure 4-42) is displayed.
- Step 2** Click on Show Commands Menu. The Router Show Commands page is displayed (Figure 4-51).

Figure 4-51 Router Show Commands Page

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/20/00 22:25:19

Service point name	ISM7200B
Show Commands	
Show version	
Show processes cpu	
Show processes memory	
Show users	
Show protocols	
Show tech	
Show boot	
Show lnm	
Show clock	
Show flash	
Show hosts	
Show snmp	

For a detailed description of the fields on this page, see the online help.

- Step 3** To issue a command, click on its name. The following commands are displayed on the Router Show Commands page:
- **show version**—Displays the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images.
 - **show processes cpu**—Displays detailed CPU utilization statistics.
 - **show processes memory**—Displays memory utilization.
 - **show users**—Displays the users currently logged in to the router and their status and locations.
 - **show protocols**—Displays the global and interface-specific status of any configured protocols. (Run the router **show protocols** command using Option 2 on the Resource Status with Options page.)
 - **show tech**—Displays support data.
 - **show boot**—Displays the boot Flash memory.
-

Displaying Interfaces Status (SNA and SNMP)

To display the status of any configured interfaces, select **Interfaces Status** on the Resource Status with Options page (Figure 4-43) and click **Submit**. The Interfaces Type page (Figure 4-52) is displayed.

Figure 4-52 Interfaces Type Page

Internetwork Status Monitor (ISM)

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/21/00 08:32:23

Interface type: *
 Encapsulation type: *
 Resource: ISM7200B
 Groups: *
 Current Status: *
 Desired Status: *

Help Main Command Submit

Total Interfaces: 1340 Filtered: 13						
Resource	Interface	Current Status	Desired Status	Previous Status	Last Change	Encapsulation
ISM7200B	CHANNEL2/0	UP	UP	INVALID	08:00 09/19/00	CHANNEL
ISM7200B	FASTETHERNET0/0	UP	UP	INVALID	08:00 09/19/00	ARPA
ISM7200B	FASTETHERNET1/0	UP	UP	INVALID	08:00 09/19/00	ARPA
ISM7200B	FASTETHERNET1/1	UP	UP	INVALID	08:00 09/19/00	ARPA
ISM7200B	LOOPBACK0	UP	UP	INVALID	08:00 09/19/00	LOOPBACK
ISM7200B	SERIAL3/0	DOWN	UP	UNKNOWN	08:00 09/19/00	
ISM7200B	SERIAL3/1	DOWN	DOWN	UNKNOWN	08:00 09/19/00	
ISM7200B	SERIAL3/2	DOWN	DOWN	UNKNOWN	08:00 09/19/00	
ISM7200B	SERIAL3/3	DOWN	DOWN	UNKNOWN	08:00 09/19/00	
ISM7200B	SERIAL4/0	UP	UP	INVALID	08:00 09/19/00	FRAME-RELAY
ISM7200B	SERIAL4/1	DOWN	DOWN	UNKNOWN	08:00 09/19/00	
ISM7200B	SERIAL4/2	DOWN	DOWN	UNKNOWN	08:00 09/19/00	
ISM7200B	SERIAL4/3	DOWN	DOWN	UNKNOWN	08:00 09/19/00	

Help Main Command Submit

For a detailed description of the fields on this page, see the online help.

Displaying CMCC Status (SNA Only)

To display the status of any configured CMCCs, select **List CMCCs** on the Resource Status with Options page (Figure 4-43) and click **Submit**. The CMCCs Status page (Figure 4-53) is displayed.

Figure 4-53 CMCCs Status Page

Internetwork Status Monitor (ISM)

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/21/00 08:33:59

Resource:

Groups:

Current Status:

CMCCs: 7 Filtered: 1						
Resource	Slot	Version	Overrides	Status	Previous Status	Last Change
ISM7200B	2	ECPA 1.0 27.10		ACTIV	ACTIV	09/19/00 08:02

Help Main Command Submit

For a detailed description of the fields on this page, see the online help.



Monitoring Interfaces

Every Cisco resource includes at least two network interfaces, such as loopback and Ethernet. If you enable ISM's Interface Monitoring application, you can see a list of all interfaces defined to ISM, monitor their status, and access additional configuration and performance data for those interfaces.

This chapter describes the following interface monitoring tasks:

- Enabling Interface Monitoring, page 5-2
- Deleting History and Performance Records, page 5-14
- Monitoring Interface Status Using the Standard Interface, page 5-14
- Using the Interface Operation Options from the Standard Interface, page 5-20
- Viewing Interface History Statistics Using the Standard Interface, page 5-20
- Viewing Interface Performance Data Using the Standard Interface, page 5-21
- Viewing Interface Management Variables Using the Standard Interface, page 5-22
- Monitoring Interface Status Using the Web Interface, page 5-23
- Using the Interface Operation Options from the Web Interface, page 5-31
- Viewing Interface Management Variables Using the Web Interface, page 5-32
- Viewing Interface History Statistics Using the Web Interface, page 5-33
- Viewing Interface Performance Data Using the Web Interface, page 5-34

Enabling Interface Monitoring

ISM's architecture provides two layers of interface control options—global and individual.

- Global interface control options are available on the ISM Resource Management Setup panels, accessed from the SETUP option on the ISM Administration menu panel. These options control settings that apply to all resources known to ISM.
- Individual interface control options are available on each interface's ISM Interface Administration panel (Figure 5-9). These options control settings, such as whether monitoring is to be disabled, for individual interfaces.

This section describes how to enable interface monitoring, and how to set global interface control options. For details on how to set individual interface control options, including how to disable monitoring for specific interfaces, see the “Enabling Management Options for Individual Interfaces” section on page 5-9.

To enable ISM to monitor interfaces for all resources in ISM, use the following procedure:

- Step 1** On the ISM main menu panel (Figure 5-1), press **PF8**.

Figure 5-1 *Internetwork Status Monitor (ISM) Main Menu Panel*

```

NSPVMAI4          Internetwork Status Monitor (ISM) V2          CNM56  05/27/04
                                     12:04
Options  Description
+ SUM    ISM Status Summary
+ ISMR   Resource Manager:
Applications
+ MGR    Resource Status Display
+ INT    Interface Status Display. A=Async B=ISDN C=Channel Type
          D=FastEthernet E=Ethernet F=FDDI G=GigaBit H=HSSI I=CLAW
          L=Loopback M=ATM N=MPC S=Serial T=Tokenring U=Tunnel
+ DSPU   DSPU Monitor
+ CMCC   Cisco Mainframe Channel Connection (CMCC) Monitor
+ TN32   Cisco TN3270 Monitoring Operations
+ SNASW  Cisco SNA Switch Monitoring Operations

+ SNA    Session Monitor  PU:      MAC/XID:
+ LOG    Activity Log
+ HELP   Command Descriptions.
ISM Last Initialized: 05/27/04 08:30 ISMMGR
Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL          8=ADMIN
TC010617  00:00.1 004/004

```

The ISM Administration menu panel (Figure 5-2) is displayed.

Figure 5-2 ISM Administration Menu Panel

```

NSPVADM          ISM Administration          CNM56      06/02/04
TARGET:          13:15

Options  Description
+ SETUP  ISM Setup Menu

+ ISMR   Resource Manager: _____
+ USER  User Profile Management   ID: _____
+ SNMP   SNMP Management Setup
+ SVAR   SNMP Control Variables
+ TN32   TN3270 Server Monitoring
+ SNASw  SNA Switch Monitoring Setup

+ TMGR   Display ISM Scheduler Settings
+ MGRM   Display ISM Resource Management Settings
+ VARS   Display ISM Control Variables

ISM Last Initialized: 06/01/04 15:26 ISMMGR

Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL 7=BACK

TCE10154 00:00.0 004/004

```

- Step 2** Position the cursor on the SETUP line and press **Enter**. The ISM Resource Management Setup—First Panel (Figure 5-3) is displayed.

Figure 5-3 ISM Resource Management Setup—First Panel

```

NSPVSE21      ISM Resource Management Setup - V2 1 of 5  CNM56  08/24/00
                                           15:28
Last Initialized: 08/24/00 10:59 ISMMGR

```

Applications:	Default	Initial	Update	
Resource Management	(Y :Yes)	N :No): YES	<u>YES</u>	
Interface Monitoring	(Y :Yes)	N :No): YES	<u>YES</u>	
SNA Session Monitoring	(N :No	Y :Yes): YES	<u>YES</u>	
CMCC Management	(N :No	Y :Yes): YES	<u>YES</u>	
DSPU Management	(N :No	Y :Yes): YES	<u>YES</u>	
TN3270 Server Monitor	(N :No	Y :Yes): YES	<u>YES</u>	Setup: _____
Reserved	(N :No	Y :Yes): NO	<u>NO</u>	Setup: _____
SNMP Management	(N :No	Y :Yes): YES	<u>YES</u>	Setup: _____
ISM Scheduler	(N :No	Y :Yes): NO	<u>NO</u>	Setup: _____
Resource Monitor Setup	Enter YES to update			Setup: _____
Update ISM Autotasks	Enter YES to update:			

```

ISMSETUPCNM56R3      APPL(YES YES YES YES NO YES YES NO YES ) MI(00:1
5) TH(95 10) IM(YES YES YES YES YES YES YES YES YES YES YES YES) MI2(02:0
0) DB(H I R C H) CM(48 48 5 99 16) CIP(90 10) 08/23/00 13:31 HAL2
Change Type ( 2: Update, 3: Delete ):      2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both):      3
Press PF8 to review/set rules.
      NSP1037I Make changes and press Enter to validate.
Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL      8=FWD

```

- Step 3** In the Interface Monitoring Update field, type **Y** and press **Enter**.
- Step 4** To enable additional global interface control options, press **PF8**. The ISM Resource Management Setup—Second Panel (Figure 5-4) is displayed.

Figure 5-4 ISM Resource Management Setup—Second Panel

```

NSPVRUL4          ISM Resource Management Setup - V2  2 of 5  CNM56  08/24/00
                                     Target: 15:37

```

Function	Default	VSAM	Current	Variable
ISM Resource MGR Autotask	(ISMMGR)	: ISMMGR	<u>ISMMGR</u>	ISMMGR
ISM Interface MGR Autotask	(ISMMGRI)	: ISMMGRI	<u>ISMMGRI</u>	ISMMGRI
ISM Refresh Operator	(ISMMGRS)	: ISMMGRS	<u>ISMMGRS</u>	ISMREFOPER
ISM Message Autotask	(ISMMGRM)	: ISMMGRM	<u>ISMMGRM</u>	ISMMAUTO
ISM Refresh Delay	(20)	: 20	<u>20</u>	ISMDELAY
Generic Alert Generation	(YES YES YES NO)			ISMALRTCTL
Resource Status	(No Yes)	: YES	<u>YES</u>	RSTAT
Resource Perf/Memory	(No Yes)	: YES	<u>YES</u>	RPERF
CMCC Perf/Memory	(No Yes)	: YES	<u>YES</u>	CMCC
Interface Status	(No Yes)	: NO	<u>NO</u>	ISTAT
ISM CMCC Recovery	(NO YES)	: YES	<u>YES</u>	ISMCMCCRCV
ISM Base Timer (Scheduler)	(15)	: 15	<u>15</u>	ISMTBASE
ISM SMF Recording	(NO YES)	: YES	<u>YES</u>	ISMCMFR
ISM SMF Recording RECID	(128-255)	: 220	<u>220</u>	ISMRECID
ISM Enable Override	(15 Min)	: 15	<u>15</u>	ISMENLIMIT

```

ISMSETUPCNM56R4          ISMMGR ISMMGRS ISMMGRM 20 ALRT( YES YES YES NO )
YES T(15) APPL4(YES NO YES) ISMMGRI SM(YES 220) EN(15) IN( YES YES NO YE
S ) 08/23/00 13:31 HAL2
NSP1038I Press Enter for prompted input.
Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK 8=FWD

```

Step 5 Press **PF8**. The ISM Resource Management Setup—Third Panel (Figure 5-5) is displayed.

Figure 5-5 ISM Resource Management Setup—Third Panel

```

NSPVSET2      ISM Resource Management Setup - V2 3 of 5  CNM56  08/24/00
Target:      15:39

Application Resource Management  ( Y :Yes) | N :No): YES  YES

Current Interval: 00:15  Stored Interval: 00:15
Monitoring Interval(Hours) ( 0 | Max 24 ): 00 (Minutes) ( 0 | max 59 ): 15

Resource Threshold Levels for Processor (Percent)

Resource:                                     Current / VSAM
CPU Utilization (default= 95% ): 95 Current Values 95 / 95
Free Memory (default= 10% ): 10 Current Values 10 / 10

CMCC:                                         Current / VSAM
CPU Utilization (default= 90% ): 90 Current Values 90 / 90
Free Memory (default= 10% ): 10 Current Values 10 / 10
ISMSETUPCNM56R3      APPL(YES YES YES YES NO YES YES NO YES ) MI(00:1
5) TH(95 10) IM(YES YES YES YES YES YES YES YES YES YES YES YES YES YES) MI2(02:0
0) DB(H I R C H) CM(48 48 5 99 16) CIP(90 10) 08/23/00 13:31 HAL2
Press PF8 to review interface parameters constants.

Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK 8=FWD
    
```

Step 6 Press **PF8**. The ISM Resource Management Setup—Fourth Panel (Figure 5-6) is displayed.

Figure 5-6 ISM Resource Management Setup—Fourth Panel

```

NSPVSE23          ISM Resource Management Setup - V2  4 of 5  CNM56  08/24/00
                                                    Target: 15:41
Application: Interface Monitoring  ( Y :Yes | N :No): YES  YES
Application: Interface Archiving  ( N :Yes | N :No): YES  YES
Interface Monitoring Interval
Current Interval: 02:00  Stored Interval: 02:00

Monitoring Interval(Hours) ( 0 | Max 24): 02  (Minutes) ( 0 | max 59): 00
Interfaces to be Monitored:
TokenRing ( Y :Yes | N :No): YES  YES FastEther ( Y :Yes | N :No): YES  YES
Ethernet ( Y :Yes | N :No): YES  YES Serial ( Y :Yes | N :No): YES  YES
FDDI ( Y :Yes | N :No): YES  YES Loopback ( N :No | Y :Yes): YES  YES
ASYNC ( N :No | Y :Yes): YES  YES Channel ( Y :Yes | N :No): YES  YES
HSSI ( N :No | Y :Yes): YES  YES ISDN ( N :No | Y :Yes): YES  YES
TUNNEL ( N :No | Y :Yes): YES  YES ATM ( N :No | Y :Yes): YES  YES
IBMCLAW ( N :No | Y :Yes): YES  YES MPC ( N :No | Y :Yes): YES  YES
GigabitEt ( N :No | Y :Yes): YES  YES

ISMSETUPCNM56R3          APPL(YES YES YES YES NO YES YES NO YES ) MI(00:1
5) TH(95 10) IM(YES YES YES YES YES YES YES YES YES YES YES YES) MI2(02:0
0) DB(H I R C H) CM(48 48 5 99 16) CIP(90 10) 08/23/00 13:31 HAL2
Press PF8 to review database constants.

Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK 8=FWD

```

- Step 7** To specify an interface monitoring interval for all interfaces, enter the number of hours and minutes in the Monitoring Interval (Hours) and (Minutes) option. The default interval is 12 hours and 0 minutes.
- Step 8** To enable types of interfaces to be monitored, type **Y** in the corresponding field.
- Step 9** To enable interface reliability threshold monitoring, enter a number between 0 and 255 in the "thresh" column of the corresponding interface type. A value of "0" disables reliability monitoring.
- Step 10** To disable the monitoring of subinterfaces, type **N** in the "sub" column for the interface type.
- Step 11** Press **PF7** three times to return to the ISM Resource Management Setup—First Panel.
- Step 12** In the Change Type field, enter **2** (Update).
- Step 13** In the Action Type field, enter **3**.
- Step 14** Press **PF4** to save your changes and update the ISM resource management setup definition.

Enabling Management Options for Individual Interfaces

This section describes how to override global management options for individual interfaces, as well as how to manage other aspects of individual interfaces. You can access the interface management options for an individual resource from the ISM main menu panel or the ISM Status Summary panel.

Using the ISM Main Menu Panel

To enable interface monitoring options for an individual interface from the ISM main menu panel, follow these steps:

- Step 1** From the ISM main menu panel, position the cursor in the Type field beside the INT option, enter the letter that corresponds to the interface type that you want to modify, and press **Enter**. The Interfaces Type panel is displayed, showing resources with the selected interface type. Figure 5-7 shows a sample panel for Ethernet interfaces.

Figure 5-7 Interfaces Type Panel for Ethernet Interfaces

NSPVIDI3				Interfaces Type= FastEthernet		CNM56		09/08/00	
Number of Interfaces: 172				Filter:		14:03			
Resource	Interface	Status	Encaps	Mon	Last Change	Previous			
#18#11#1	FASTETHERNET0	UP	ARPA		07:55 09/07/00	INVALID			
#18#11#1	FASTETHERNET1	UP	ARPA		07:55 09/07/00	INVALID			
#18#11#2	FASTETHERNET0/0	UP	ARPA		07:55 09/07/00	INVALID			
#18#11#2	FASTETHERNET2/0	UP	ARPA		07:55 09/07/00	INVALID			
#18#11#2	FASTETHERNET2/1	DOWN	ARPA		07:55 09/07/00	UNKNOWN			
#18#11#2	FASTETHERNET6/0	UP	ARPA		07:55 09/07/00	INVALID			
#18#11#2	FASTETHERNET6/1	UP	ARPA		07:55 09/07/00	INVALID			
#18#11#4	FASTETHERNET0/0	UP	ARPA		07:55 09/07/00	INVALID			
#18#11#4	FASTETHERNET0/1	UP	ARPA		07:55 09/07/00	INVALID			
#18#11#9	FASTETHERNET0/0	UP	ARPA		07:55 09/07/00	INVALID			
#18#11#9	FASTETHERNET2/0	UP	ARPA		07:55 09/07/00	INVALID			
#18#11#9	FASTETHERNET6/0	UP	ARPA		07:55 09/07/00	INVALID			
#18#11#9	FASTETHERNET6/1	UP	ARPA		07:55 09/07/00	INVALID			
#18#8#36	FASTETHERNET0/1	DOWN	ARPA		07:55 09/07/00	UNKNOWN			
#18#8#36	FASTETHERNET0/10	DOWN	ARPA		07:55 09/07/00	UNKNOWN			
#18#8#36	FASTETHERNET0/11	DOWN	ARPA		07:55 09/07/00	UNKNOWN			
#18#8#36	FASTETHERNET0/12	DOWN	ARPA		07:55 09/07/00	UNKNOWN			
#18#8#36	FASTETHERNET0/13	DOWN	ARPA		07:55 09/07/00	UNKNOWN			
==>									
1=HELP		2=MAIN		3=RTN		6=ROLL		8=FWD	

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- Step 2** Position the cursor on the name of the resource whose interface you want to modify and press **Enter**. The ISM Interface Operation Options panel is displayed (Figure 5-8).

Figure 5-8 ISM Interface Operation Options Panel

```

NSPVISEL          ISM Interface Operation Options          CNM56  09/07/00
                                                           18:08

      Router: #18#7#12                                INDEX: 2
      Interface: L00
      Status: UP
      Desired Status: UP
      Encapsulation: LOOPBACK
      Last Change: 07:55 09/07/00
      Monitoring Active: YES
      Previous: INVALID

      + Show Interface
      + Display Interface Variables
      + History
      + Performance
      + Administration
      + Reset

Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL
  
```

- Step 3** Position the cursor on the Administration option and press **Enter**. The ISM Interface Administration panel (Figure 5-9) is displayed.

Figure 5-9 ISM Interface Administration Panel

```

NSPVIDE4          ISM Interface Administration          CNM56  09/20/00
Router Name: BERIMA  Interface Type: CHANNEL2/2          21:23
Encapsulation: CHANNEL  SNMP INDEX: 17                INDEX: 3
Current Status: UP      Status Chg: 07:57 09/19/00 INVALID
TN3270 Status: ACTIV  TN3270 Status Change:
Intensive Mode Recording: OFF

Desired Status( UP | DOWN ): UP
Monitor Mode( YES | NO ): YES
Delete history and performance records ( NO | YES ): NO
Change Type ( 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3

NSP1038I Press Enter for prompted input.
Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 5=IMR 6=ROLL          9=DEBUG
  
```

- Step 4** To specify a status for the interface, enter **Up** or **Down** beside the **Desired Status** option.
- Step 5** To disable monitoring for the selected interface, enter **No** beside the **Monitor Mode** option.
- Step 6** In the Change Type field, enter **2** (Update).
- Step 7** In the Action Type field, enter **3**.
- Step 8** Press **PF4** to save your changes and update the ISM interface management setup definition.

Using the ISM Status Summary Panel

To enable interface monitoring options for an individual interface from the ISM Status Summary panel, follow these steps:

- Step 1** On the ISM Status Summary panel (Figure 5-10), position the cursor in the Total column beside the Interfaces type you want to update and press **Enter**.

Figure 5-10 ISM Status Summary Panel

NSPVSUM3		ISM Status Summary			Group= ALL		CNM56	05/27/04	
Last Refresh: 15:31		05/27/04						15:37	
		<-----Active----->			<-----UNKNOWN----->				
Total		ACTIV	PERF	ALERT	INOP	INVALID	CONCT	INACT	NOMON
7	Resources	5	2						
10	CMCC	10							
9	TN3270	6				3			
4	SNASw	4							
		Desired Status=UP				Desired Status=Down			
Total	Interfaces	UP	DOWN	INVALID	UNKNOWN		DOWN	UNKNOWN	
12	Tokenring						12		
24	Ethernet	10		1			13		
0	FDDI								
7	Loopback	7							
0	ASYNC								
22	Channel	17					5		
0	HSSI								
0	ISDN								
4	Serial						4		
Frame-Relay: 0		HDLC: 0		X.25: 0		BSTUN: 0		SDLC: 0	
Press PF8 for important status on next page.									
==>									
1=HELP		2=MAIN		3=RTN		6=ROLL		8=FWD	
								12=REFRESH	
00		TCD10617 00:00.4 013/040							

The Interfaces Type panel is displayed, showing resources with the selected interface type. Figure 5-7 shows a sample panel for Ethernet interfaces.

- Step 2** Position the cursor on the name of the resource whose interface you want to modify and press **Enter**. The ISM Interface Administration panel (Figure 5-9) is displayed.
- Step 3** Position the cursor on the Administration option and press **Enter**.
- Step 4** To specify a status for the interface, enter **Up** or **Down** beside the Desired Status option.

- Step 5** To disable monitoring for the selected interface, enter **No** beside the Monitor Mode option.
- Step 6** In the Change Type field, enter **2** (Update).
- Step 7** In the Action Type field, enter **3**.
- Step 8** Press **PF4** to save your changes and update the ISM interface management setup definition.

Enabling Intensive Mode Recording

To enable options for collecting interface statistics at high rates, complete the following tasks:

- Step 1** On the ISM Interface Administration panel (Figure 5-9), press **PF5**. The Intensive Mode Recording panel (Figure 5-11) is displayed for the selected interface.

Figure 5-11 Intensive Mode Recording Panel

```

NSPVIMR          Intensive Mode Recording                      CNM56  09/13/00
                                                    Target: CNM56  02:52

  This option can be used by an operator to collect interface statistics
                        at a high rate for a specific router interface.
Event Id: NONE
Terminate now:      Enter yes here and press PF4 to terminate
                   or delete event.
Router Name:  ISM7200B

Interface:  CHANNEL2/0                      Interface Id:  ISMICD12

Collection interval:  █ Minimum interval= 15 Seconds
Examples: 15 seconds= :15, 1 minute = 1, 1 minute 30seconds = 1:30

Number of records:  █ Should not exceed keep count for resource.

Current keep count: 48
Collection start time:  █ Default is now.
Operator or Autotask to execute command:  █ Default = Your id.
Example: 1/25 10:21 or 14:23
Press PF4 to start or stop.
      NSP1038I Press Enter for prompted input.
Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL
  
```

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- Step 2** When you have completed specifying the options, press **Enter** to confirm the options.
- Step 3** To update the ISM interface management setup definition, press **PF4** to return to the ISM Interface Administration panel.
-

Deleting History and Performance Records

If you enable monitoring of interfaces, resource interface history and performance data is stored in its own VSAM database.

You can disable the archiving of interface history and performance data for all resources, or for individual resources. See the “Enabling Resource Interface Archiving” section on page 4-7.

You can also remove history and performance records from the VSAM database for a specific interface using the Delete History and Performance Records option on the ISM Interface Administration panel. When you enable the Reset Performance History option, the history records are removed from the database when you press **PF4** to update.

To delete history and performance records for a specific resource, on the ISM Interface Administration panel (Figure 5-9), enter **Yes** beside the **Delete history and performance records** option, enter **2** in the Change Type field, and press **PF4**.

Monitoring Interface Status Using the Standard Interface

When you configure the ISM management environment, you specify the types of interfaces you want monitored and the interval (in hours and minutes) at which you want them monitored. For more information on selecting the interfaces that are enabled for monitoring by ISM, see the “Enabling Interface Monitoring” section on page 5-2.

After ISM is enabled to monitor interfaces, you can perform the following monitoring operations for interfaces and view status descriptions:

- Monitoring Interfaces on a Specific Resource Using the Standard Interface, page 5-15
- Monitoring Interfaces in Your Network by Type Using the Standard Interface, page 5-18

Monitoring Interfaces on a Specific Resource Using the Standard Interface

To monitor all interfaces for a specific resource (as long as those interface types are enabled for monitoring in ISM), complete the following tasks:

- Step 1** On the Resource Status panel (Figure 5-12), position the cursor on the resource for which you want to view ISM management information and press **Enter**.

Figure 5-12 Resource Status Panel

NSPVMGRX		Resource Status		CNM56		08/24/00
Group/Resource/Alias: SNMP		Routers: 40				16:37
CNTL/SPname	Status	Xtended	Operator	Hostname	Operation Group(s)	
CWBC01	PERF	C		cwb-c1	SNMP1	SNMP
CWBC02	ACTIV			cwb-c2	SNMP2	SNMP
CWBC03	ACTIV			cwb-c3	SNMP3	SNMP
CWBC04	ACTIV			cwb-c4	SNMP4	SNMP
CWBC05	ACTIV			cwb-c5	SNMP5	SNMP
CWBC06	ACTIV			cwb-c6	SNMP5	SNMP
CWBC07	ACTIV			cwb-c7	SNMP7	SNMP
CWBC08	ACTIV			cwb-c8	SNMP8	SNMP
CWBC09	ACTIV			cwb-c9	SNMP9	SNMP
CWBC11	ACTIV			cwb-c11	SNMP11	SNMP
CWBC13	ACTIV			cwb-c13	SNMP	SNMP13

NSP1186I Position cursor on resource and press PF5 to diagnose status.

==>

1=HELP 2=MAIN 3=RTN 5=DIAG 6=ROLL 9=RESETOP 10=MENU 12=RESET

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The Resource Status with Options panel is displayed (Figure 5-13).

Figure 5-13 Resource Status with Options Panel

```

NSPVRCM4      Resource Status with Options      CNM56  08/24/00
Resource-Service Point/Control Name: ISM7200B      16:24
Resource-IP Address:                               INDEX: 33
Management Mode (SNA/SNMP/BOTH): SNA
Current Status: ACTIV      Enter Option: 3 Only HIGHLIGHTED options available
Extended Status:
Host Name: cwb-ism-7200b
Status Change: 16:24 08/24/00
Description: Dynamically Added

Last Alert:

1.Command Interface
2.Show Protocols
3.ISM Resource Administration
4.Total Events (NPDA)
5.VTAM Display
6.Router Config. History
7.Collect Router Config.
8.Last Alert (NPDA)
9.Refresh/Reset Status
A.Resource Performance History
B.Show Commands Menu
C.Resource Interfaces Status
D.Router Memory Dump
E.List CMCCs

==>
1=HELP 2=MAIN 3=RTN      5=DIAG 6=ROLL      9=DETAILS

```

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Step 2 Enter **C** beside the **Enter Option** field and press **Enter**. The Interfaces Type panel (Figure 5-14) is displayed for all interfaces ISM can monitor.

Figure 5-14 Interfaces Type Panel

NSPVIDI3 Interfaces Type= ALL CNM56 08/30/00
Number of Interfaces: 13 Filter: 17:26

Resource	Interface	Status	Encaps	Mon	Last Change	Previous
ISM7200B	CHANNEL2/0	UP	CHANNEL		08:10 08/28/00	INVALID
ISM7200B	FASTETHERNET0/0	UP	ARPA		08:10 08/28/00	INVALID
ISM7200B	FASTETHERNET1/0	UP	ARPA		08:10 08/28/00	INVALID
ISM7200B	FASTETHERNET1/1	UP	ARPA		08:10 08/28/00	INVALID
ISM7200B	LOOPBACK0	UP	LOOPBACK		08:10 08/28/00	INVALID
ISM7200B	SERIAL3/0	DOWN	FRAME-RE		17:25 08/29/00	UP
ISM7200B	SERIAL3/1	DOWN	FRAME-RE		17:25 08/29/00	UP
ISM7200B	SERIAL3/2	DOWN	FRAME-RE		17:25 08/29/00	UP
ISM7200B	SERIAL3/3	DOWN	FRAME-RE		17:25 08/29/00	UP
ISM7200B	SERIAL4/0	UP	FRAME-RE		17:25 08/29/00	DOWN
ISM7200B	SERIAL4/1	DOWN	HOLC		08:10 08/28/00	UNKNOWN
ISM7200B	SERIAL4/2	DOWN	HOLC		08:10 08/28/00	UNKNOWN
ISM7200B	SERIAL4/3	DOWN	HOLC		08:10 08/28/00	UNKNOWN

Position cursor on resource and press enter for operations.
==>
1=HELP 2=MAIN 3=RTN 6=ROLL

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- Step 3** To access the ISM Interface Administration panel (Figure 5-9) for a particular interface, position the cursor on the interface and press **Enter**. The ISM Interface Operation Options panel is displayed (Figure 5-8). Then position the cursor on the Administration option and press **Enter** to display the ISM Interface Administration panel.

**Note**

Pressing **PF2** on this panel returns you to the Resource Status with Options panel, not to the ISM main menu panel.

Monitoring Interfaces in Your Network by Type Using the Standard Interface

ISM provides a couple of ways for you to monitor interfaces of a particular type and status:

- Use the ISM Status Summary panel to monitor interface types and their status for all resources being globally monitored by ISM.
- Use the ISM main menu panel to access the Interfaces Type panel for a selected interface type.

Complete the following tasks to monitor interface types and status from the ISM Status Summary panel:

-
- Step 1** From the ISM main menu panel, position the cursor on the SUM line and press **Enter**. The ISM Status Summary panel (Figure 5-10) is displayed, showing:
- The total number of interfaces being monitored, categorized by type
 - The subtotals of those interfaces, categorized by status
- Step 2** To view a list of all interfaces of a particular type, position the cursor in the Total field beside the interface type that you want to view and press **Enter**. The Interfaces Type panel is displayed, showing all resources with interfaces of the selected type being monitored by ISM.
- Step 3** To view a list of all interfaces of a particular type categorized by status, position the cursor in the status field that you want to view and press **Enter**. The Interfaces Type panel (Figure 5-14) is displayed, showing only the interfaces with the selected status. The status filter is displayed at the top of the panel in the Filter field.

Table 5-1 lists the color and definition of each status.

Table 5-1 *ISM Interface and Color Definitions*

Color	Status	Definition
White	Not applicable	Total number of interfaces of a particular type that are being monitored by ISM on the ISM Status Summary panel.
Green	UP	Interfaces that are up with a desired status of up.
Green	DOWN	Interfaces that are down with a desired status of down.
Red	DOWN	Interfaces that are down with a desired status of up.
Red	INVALID	Interfaces that are no longer defined to the resource.
Yellow	UNKNOWN	Interface status is unknown because the resource is down.

- Step 4** To monitor interface types and status from the ISM main menu panel, position the cursor in the Type field beside the **INT** option, enter the letter that corresponds to the interface type you want to modify, and press **Enter**. The Interfaces Type panel is displayed, showing the interfaces of the selected type for all resources being monitored by ISM.

Using the Interface Operation Options from the Standard Interface

There are many ways to access the Interface Operation Options panel (Figure 5-8) in ISM. Some of the ISM applications provide direct access to the command interface and list the commands that are specific to the resource currently being managed. When you are using the Interface Monitoring application panels in ISM, you can access panels that provide resource commands that are specific to managing interfaces.

You can also run the **show interface** command for a selected interface on the Interfaces Type panel by pressing **Enter**, then selecting commands.

Viewing Interface History Statistics Using the Standard Interface

To view history statistics for a particular interface in a resource:

-
- Step 1** On the Interfaces Type panel, position the cursor on the desired interface and press **Enter**.
 - Step 2** Select **History**. The history statistics records logged for the selected interface are displayed on a statistics panel. Figure 5-15 shows a sample Statistics for FastEthernet Interface panel.

Figure 5-15 Statistics for FastEthernet Interface Panel

Statistics For FastEthernet Interface									
NSPVIHIA		SPName: #18#11#1 Interface: FASTETHERNET0						CNM56	09/13/00
Date		Time	Output		Input		Input		Output
			Queue	Drops	Queue	Drops	Packets	Bytes	Packets Bytes
20000913	01:49	0/40	0	0/75	4669	940.16M	1.32G	943.64M	208.08M
20000912	23:49	0/40	0	0/75	4618	938.92M	940.59	942.38M	3.96G
20000912	21:48	0/40	0	0/75	4618	937.67M	522.02	941.11M	3.72G
20000912	20:03	0/40	0	0/75	4552	936.59M	161.10	940.01M	3.50G
20000912	18:03	0/40	0	0/75	4552	935.36M	3.75G	938.75M	3.26G
20000912	16:03	0/40	0	0/75	4429	934.12M	3.35G	937.49M	3.02G
20000912	14:03	0/40	0	0/75	4353	932.89M	2.94G	936.24M	2.78G
20000912	12:03	0/40	0	0/75	4331	931.67M	2.54G	935.00M	2.53G
20000912	10:03	0/40	0	0/75	4331	930.44M	2.13G	933.74M	2.29G
20000912	08:04	0/40	0	0/75	4331	929.22M	1.73G	932.50M	2.05G
20000912	06:04	0/40	0	0/75	4331	927.99M	1.33G	931.24M	1.81G
20000912	04:04	0/40	0	0/75	4331	926.76M	944.51	929.99M	1.57G
20000912	02:04	0/40	0	0/75	4331	925.53M	530.97	928.74M	1.33G
20000912	00:04	0/40	0	0/75	4331	924.29M	116.02	927.48M	1.08G
20000911	22:04	0/40	0	0/75	4271	923.06M	3.71G	926.23M	861.38M
20000911	20:04	0/40	0	0/75	4271	921.83M	3.30G	924.97M	611.71M
20000911	18:03	0/40	0	0/75	4271	920.58M	2.89G	923.71M	361.03M
==>								MORE=>	
1=HELP 2=MAIN 3=RTN 5=showint 6=ROLL								8=FWD 11=RIGHT	

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There can be up to four additional panels of statistics, depending on the interface type. To display additional panels of statistics, press **PF11**. For information about the statistics on these panels, press **PF1** for Help.

Viewing Interface Performance Data Using the Standard Interface

To view performance statistics for a particular interface in a resource:

- Step 1** On the Interfaces Type panel (Figure 5-14), position the cursor on the desired interface and press **Enter**. The Interface Operation Options panel (Figure 5-8) is displayed.
- Step 2** Select **Performance**. The performance statistic records logged for the selected interface are displayed on the Performance Statistics for Resource Interface panel (Figure 5-16).

Figure 5-16 Performance Statistics for Resource Interface Panel

NSPVIPIA Performance Statistics For Interface						CNM56	09/13/00
SPName: #18#11#1			Interface: FASTETHERNET0			Target:	03:55
Date	Time	MTU Bytes	Band Width Kbit	Delay usec	Relia- bility	Load	
20000913	03:49	1500	100000	100	255/255	1/255	
20000913	01:49	1500	100000	100	255/255	1/255	
20000912	23:49	1500	100000	100	255/255	1/255	
20000912	21:48	1500	100000	100	255/255	1/255	
20000912	20:03	1500	100000	100	255/255	1/255	
20000912	18:03	1500	100000	100	255/255	1/255	
20000912	16:03	1500	100000	100	255/255	1/255	
20000912	14:03	1500	100000	100	255/255	1/255	
20000912	12:03	1500	100000	100	255/255	1/255	
20000912	10:03	1500	100000	100	255/255	1/255	
20000912	08:04	1500	100000	100	255/255	1/255	
20000912	06:04	1500	100000	100	255/255	1/255	
20000912	04:04	1500	100000	100	255/255	1/255	
20000912	02:04	1500	100000	100	255/255	1/255	
20000912	00:04	1500	100000	100	255/255	1/255	
20000911	22:04	1500	100000	100	255/255	1/255	
20000911	20:04	1500	100000	100	255/255	1/255	
==> █							
1=HELP			2=MAIN		3=RTN		6=ROLL
			8=FWD				

46745

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Viewing Interface Management Variables Using the Standard Interface

To view the internal variables used by ISM to perform interface management, on the ISM Interface Operation Options panel (Figure 5-8), position the cursor on Display Interface Variables and press **Enter**. The ISM Interface Variables panel (Figure 5-17) is displayed. The information on this panel is useful when you troubleshoot ISM operational problems.

Figure 5-17 ISM Interface Variables Panel

```

NSPVIVA1                                Interface Control Block      CNM56    08/28/00
                                         20:17
A control block is maintained for each interface. This page and the
next page show the contents of the control block for the selected interface.
Interface Control Block Index: 10
Type: Channel      Encapsulation: CHANNEL
Variable    Use      Value
ISMICB10    Status Change: 08:10 08/28/00 INVALID
ISMICB10    Owning Domain:  CNM56
ISMICC10    Desired Status : UP
ISMICD10    Control Data:
RTZ62.C2S0 ICISM7200BC2S0          ISM7200B CHANNEL2/0  2/0  DS(UP) M(YES) G
(2S0) E(CHANNEL) T(ACTIV) I( ) 08/23/00 16:46 HAL3 NSPIBCV4
ISMICE10    Encapsulation: CHANNEL
ISMICH10    History pointer (VSAM key)
HISM7200BC2S0 101 48 08/28/00 19:38 ISMMGRI
Action==>
1=HELP 2=MAIN 3=RTN 5=COPY 6=ROLL 8=FWD
  
```

Monitoring Interface Status Using the Web Interface

After ISM is enabled to monitor interfaces, you can perform the following monitoring operations for interfaces and view status descriptions:

- Monitoring Interfaces on a Specific Resource Using the Web Interface, page 5-23
- Monitoring Interfaces in Your Network by Type Using the Web Interface, page 5-27



Monitoring Interfaces on a Specific Resource Using the Web Interface

You can monitor all interfaces for a specific resource (as long as those interface types are enabled for monitoring in ISM) from the Resource Status page.

Complete the following tasks to display a list of interfaces configured in a specific resource:

-
- Step 1** On the Resource Status page (Figure 5-18), click on the appropriate resource.

Figure 5-18 Resource Status Page

Internetwork Status Monitor (ISM)

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/20/00 22:12:15

Resource*
 Groups*
 Current Status*

Resources: 160 Filtered: 160

Resource	Status	Xtended	Operator	Hostname	Operation Groups
#10#10#1	NOMON			UNKNOWN	SNMPU
#18#11#1	ACTIV			cwb-ipm-4700a	
#18#11#2	ACTIV			cwb-ipm-7200a	NONE
#18#11#4	ACTIV			cwb-ipm-2600a	HAL2
#18#11#5	ACTIV			cwb-ipm-2600e	
#18#11#9	ACTIV			cwb-ipm-7200b	
#18#7#11	ACTIV			falls	SNMPX
#18#7#12	ACTIV			tatra	SNMPX
#18#7#13	ACTIV			rs390	SNMPX
#18#7#22	ACTIV			NOTFOUND	SNMPX
#18#7#23	ACTIV			heritage	SNMPX
#18#7#26	ACTIV			goodguy	SNMPX
#18#7#28	ACTIV			cdburn	SNMPX
#18#7#57	ACTIV			CWB_NT4	SNMPX
#18#7#71	ACTIV			cwb-sun5	SNMPX

The Resource Status with Options page (Figure 5-19) is displayed.

Figure 5-19 Resource Status with Options Page

Internetwork Status Monitor (ISM)

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/20/00 22:17:09

Resource:ISM7200B
 IP Address:NONE
 Management Mode:SNA
 Current Status:PERF
 Extended Status:S
 Host Name:CWB-ISM-7200B
 Description:DYNAMICALLY ADDED
 Status Change:18:17 09/20/00
 Last alert:

[Command Interface](#)
[Show Protocols](#)
[Display Resource Variables](#)
[Vtam Display](#)
[Configuration History](#)
[Performance History](#)
[Show Commands Menu](#)
[Interfaces Status](#)
[List CMCC's](#)

- Step 2** Click on Interfaces Status. The Interfaces Type page (Figure 5-20) is displayed for all interfaces ISM can monitor on the resource.

Figure 5-20 Interfaces Type Page

Internetwork Status Monitor (ISM)

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/21/00 08:32:23

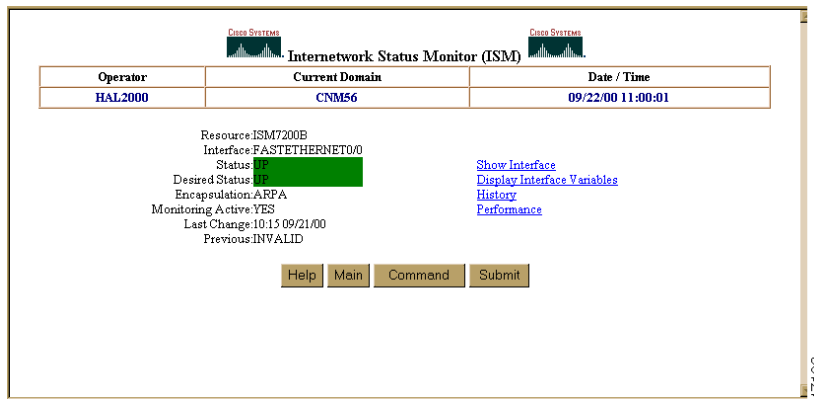
Interface type: *
 Encapsulation type: *
 Resource: ISM7200B
 Groups: *
 Current Status: *
 Desired Status: *

Help Main Command Submit

Total Interfaces: 1340 Filtered: 13						
Resource	Interface	Current Status	Desired Status	Previous Status	Last Change	Encapsulation
ISM7200B	CHANNEL2/0	UP	UP	INVALID	08:00 09/19/00	CHANNEL
ISM7200B	FASTETHERNET0/0	UP	UP	INVALID	08:00 09/19/00	ARPA
ISM7200B	FASTETHERNET1/0	UP	UP	INVALID	08:00 09/19/00	ARPA
ISM7200B	FASTETHERNET1/1	UP	UP	INVALID	08:00 09/19/00	ARPA
ISM7200B	LOOPBACK0	UP	UP	INVALID	08:00 09/19/00	LOOPBACK
ISM7200B	SERIAL3/0	DOWN	UP	UNKNOWN	08:00 09/19/00	FRAME-RELAY
ISM7200B	SERIAL3/1	DOWN	DOWN	UNKNOWN	08:00 09/19/00	
ISM7200B	SERIAL3/2	DOWN	DOWN	UNKNOWN	08:00 09/19/00	
ISM7200B	SERIAL3/3	DOWN	DOWN	UNKNOWN	08:00 09/19/00	
ISM7200B	SERIAL4/0	UP	UP	INVALID	08:00 09/19/00	
ISM7200B	SERIAL4/1	DOWN	DOWN	UNKNOWN	08:00 09/19/00	
ISM7200B	SERIAL4/2	DOWN	DOWN	UNKNOWN	08:00 09/19/00	
ISM7200B	SERIAL4/3	DOWN	DOWN	UNKNOWN	08:00 09/19/00	

Help Main Command Submit

Step 3 To access the ISM Interface Operation Options page (Figure 5-21) for a particular interface, click on the interface.

Figure 5-21 Interface Operation Options Page

Monitoring Interfaces in Your Network by Type Using the Web Interface

ISM provides a couple of ways for you to monitor interfaces of a particular type and status:

- Use the ISM Status Summary page to monitor interface types and their status for all resources being globally monitored by ISM.
- Use the ISM main menu page to access the Interfaces Type page for a selected interface type.

Complete the following tasks to monitor interface types and status from the ISM Status Summary page:

- Step 1** From the ISM main menu page (Figure 5-22), select **ISM Status Summary** and click **Submit**.

Figure 5-22 ISM Main Menu Page

Internetnetwork Status Monitor (ISM)

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/20/00 22:09:41

NSP2097E YOUR ISM LICENSE WILL EXPIRE. DAYS LEFT: 10

☒ ISM Status Summary
☐ Resource Manager ServicePointName or IP Address:
☐ Interface Status Async
☐ TN3270 Monitor
☐ Cisco Mainframe Channel Connection Monitor (CMCC)
☐ Session Monitoring PU or MAC:
☐ Activity Log

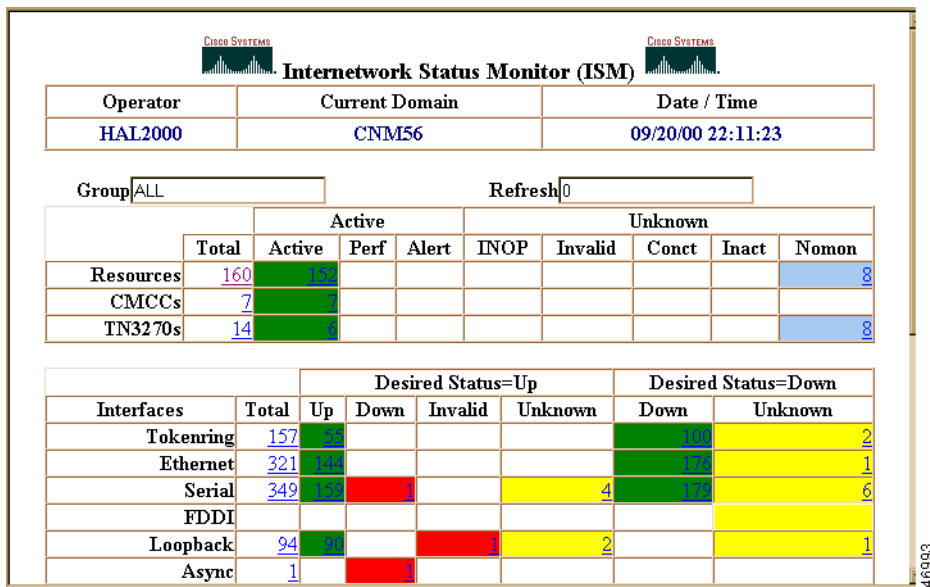
ISM Last initialized: 09/19/00 07:54 ISMMGR

Select an option and press Submit

The ISM Status Summary page (Figure 5-23) is displayed, showing:

- The total number of interfaces being monitored, categorized by type
- The subtotals of those interfaces, categorized by status

Figure 5-23 ISM Status Summary Page



- Step 2** To view a list of all interfaces of a particular type, click on the value in the Total column beside the interface type that you want to view. The Interfaces Type page (Figure 5-20) is displayed, showing all resources with interfaces of the selected type being monitored by ISM.
- Step 3** To view a list of all interfaces of a particular type categorized by status, click on the value in the Status column. The Interfaces Type page (Figure 5-20) is displayed, showing only the interfaces with the selected status. The status filter is displayed at the top of the page in the Filter field.

Table 5-1 lists the color and definition of each status.

Table 5-2 *ISM Interface and Color Definitions*

Color	Status	Definition
White	Not applicable	Total number of interfaces of a particular type that are being monitored by ISM on the ISM Status Summary page.
Green	UP	Interfaces that are up with a desired status of up.
Green	DOWN	Interfaces that are down with a desired status of down.
Red	DOWN	Interfaces that are down with a desired status of up.
Red	INVALID	Interfaces that are no longer defined to the resource.
Yellow	UNKNOWN	Interface status is unknown because the resource is down.

- Step 4** To monitor interface types and status from the ISM main menu page, select **Interface Status**, select an interface type from the drop-down list box, and click **Submit**. The Interfaces Type page (Figure 5-20) is displayed. Select an interface type from the Interface type drop-down list box, and click **Submit**. The Interfaces Type page is displayed, showing the interfaces of the selected type for all resources being monitored by ISM.
-

Using the Interface Operation Options from the Web Interface

There are many ways to access the Interface Operation Options page (Figure 5-21) in ISM.

Some of the ISM applications provide direct access to the command interface and list the commands that are specific to the resource currently being managed. When you are using the Interface Monitoring application pages in ISM, you can access pages that provide resource commands that are specific to managing interfaces.

You can also run the **show interface** command for a selected interface on the Interfaces Type page (Figure 5-20) by clicking on a resource, clicking on Show Interface, and selecting a command. Figure 5-24 shows sample output for the **show interface fastethernet 0/0** command:

Figure 5-24 Sample Output Page for Show Interface Fastethernet 0/0

The screenshot displays the Internetwork Status Monitor (ISM) V2 web interface. At the top, there are two Cisco Systems logos. Below them is a table with three columns: Operator, Current Domain, and Date / Time. The Operator is HAL2000, the Current Domain is CNM56, and the Date / Time is 09/22/00 11:01:39. Below this table is a form with two input fields: Resource (ISM7200B) and Hostname (CWB-ISM-7200B). Below the form is a text area containing the command 'SHOW INTERFACE FASTETHERNET0/0'. Below the text area are four buttons: Help, Main, Command, and Submit. Below the buttons is the output of the command, which shows the status of FastEthernet0/0, including hardware address, internet address, MTU, reliability, encapsulation, and keepalive settings.

Operator	Current Domain	Date / Time
HAL2000	CNM56	09/22/00 11:01:39

Resource: ISM7200B Hostname: CWB-ISM-7200B

SHOW INTERFACE FASTETHERNET0/0

Help Main Command Submit

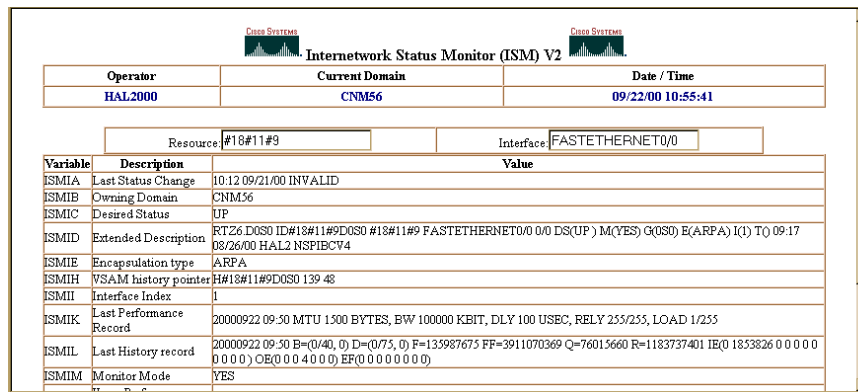
FastEthernet0/0 is up, line protocol is up
 Hardware is DEC21140, address is 00d0.63f7.4400 (bia 00d0.63f7.4400)
 Internet address is 172.18.11.154/29
 MTU 1500 bytes, BW 1000000 Kbit, DLY 100 usec,
 reliability 255/255, txload 1/255, rxload 1/255
 Encapsulation ARPA, loopback not set
 Keepalive set (10 sec)

Viewing Interface Management Variables Using the Web Interface

To view the internal variables used by ISM to perform interface management, complete the following tasks:

- Step 1** On the Interfaces Type page (Figure 5-20), click on the desired interface.
- Step 2** Click on Display Interface Variables. The internal variables used by ISM to perform interface management are displayed on the ISM Interface Variables page (Figure 5-25). The information on this page is useful when you troubleshoot ISM operational problems.

Figure 5-25 ISM Interface Variables Page



The screenshot shows the 'Internetwork Status Monitor (ISM) V2' web interface. At the top, there are two Cisco Systems logos. Below them is a header section with three fields: 'Operator' (HAL2000), 'Current Domain' (CNM56), and 'Date / Time' (09/22/00 10:55:41). Below the header is a section for 'Resource' (#18#11#9) and 'Interface' (FASTETHERNET0/0). The main part of the page is a table with three columns: 'Variable', 'Description', and 'Value'.

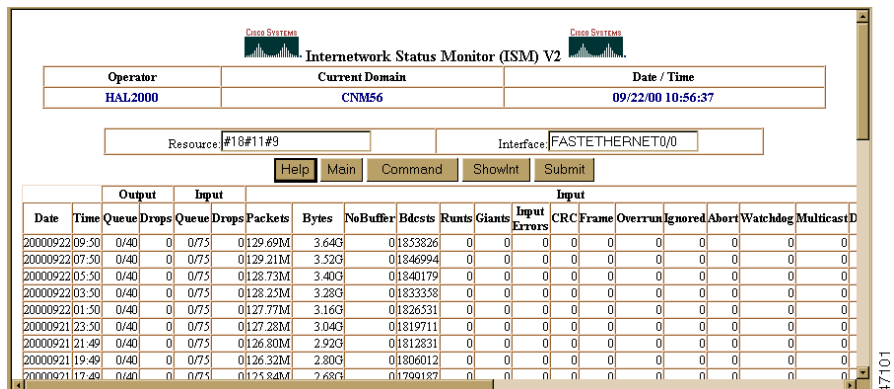
Variable	Description	Value
ISMIA	Last Status Change	10:12 09/21/00 INVALID
ISMIB	Owning Domain	CNM56
ISMIC	Desired Status	UP
ISMID	Extended Description	RTZ6.D0S0 ID#18#11#9D0S0 #18#11#9 FASTETHERNET0/0 0/0 DS(UP) M(YES) G(OS0) E(ARPA) I(1) T(0) 09:17 08/26/00 HAL2 NSPIBCV4
SMIE	Encapsulation type	ARPA
SMIH	VSAM history pointer	H#18#11#9D0S0 139 48
SMII	Interface Index	1
SMIK	Last Performance Record	20000922 09:50 MTU 1500 BYTES, BW 100000 KBIT, DLY 100 USEC, RELY 255/255, LOAD 1/255
SMIL	Last History record	20000922 09:50 B=(0/40, 0) D=(0/75, 0) F=135987675 FF=3911070369 Q=76015660 R=1183737401 IE(0 1833826 0 0 0 0 0 0 0 0) OE(0 0 0 4 0 0 0) EF(0 0 0 0 0 0 0)
SMIM	Monitor Mode	YES

Viewing Interface History Statistics Using the Web Interface

To view history statistics for a particular interface in a resource:

- Step 1** On the Interfaces Type page (Figure 5-20), click on the desired interface.
- Step 2** Click on History. The history statistics records logged for the selected interface are displayed on the Statistics for Resource Interface page (Figure 5-26).

Figure 5-26 Statistics for Resource Interface Page

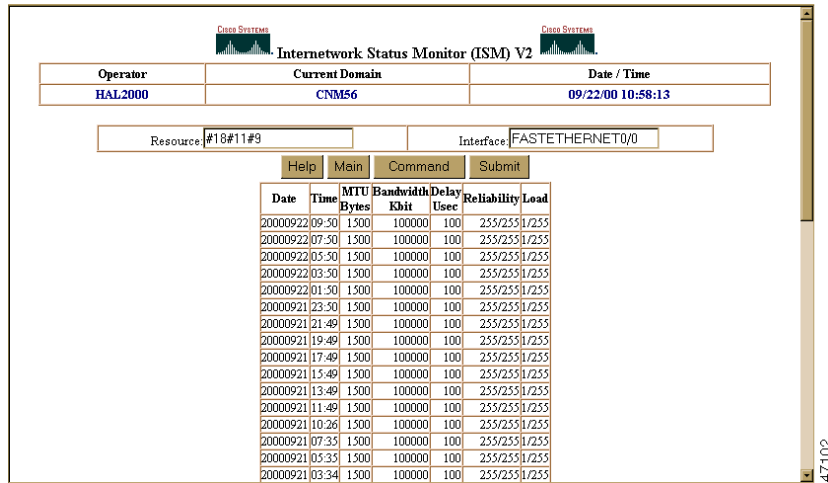


Viewing Interface Performance Data Using the Web Interface

To view performance statistics for a particular interface in a resource:

- Step 1** On the Interfaces Type page (Figure 5-20), click on the desired interface.
- Step 2** Click on **Performance**. The performance statistic records logged for the selected interface are displayed on the Performance Statistics for Resource Interface page (Figure 5-27).

Figure 5-27 Performance Statistics for Resource Interface Page





Monitoring CMCCs

This chapter explains how to use the ISM Resource Management Setup panels to specify the global CMCC management options for the ISM program. Pertinent information is in the following sections:

- ISM Resource Management Setup—First Panel, page 6-4
- Enabling CMCC Alert Generation and Recovery, page 6-5
- Enabling Default CMCC Monitoring Thresholds, page 6-6
- Enabling Channel Monitoring, page 6-7
- Changing Data Base IDs and Wrap Counts, page 6-8
- Monitoring CMCC Operations Using the Standard Interface, page 6-9
- Viewing CMCC Management Variables Using the Standard Interface, page 6-14
- Viewing CMCC Memory and Utilization Statistics Using the Standard Interface, page 6-16
- Displaying the Channels on a Specific Router Using the Standard Interface, page 6-20
- Specifying Administration Options for a CMCC Using the Standard Interface, page 6-21
- Monitoring CMCC Status Using the Standard Interface, page 6-22
- Monitoring Channel Interfaces Using the Standard Interface, page 6-22
- Issuing CMCC and Channel Show Commands Using the Standard Interface (SNA Only), page 6-24

- Monitoring CMCC Operations Using the Web Interface, page 6-25
- Viewing CMCC Management Variables Using the Web Interface, page 6-32
- Issuing CMCC and Channel Show Commands Using the Web Interface (SNA Only), page 6-33
- Viewing CMCC Memory and Utilization Statistics Using the Web Interface, page 6-35
- Displaying the Channels on a Router Using the Web Interface, page 6-40
- Monitoring CMCC Status Using the Web Interface, page 6-41
- Monitoring Channel Interfaces Using the Web Interface, page 6-42

The options on the ISM Resource Management Setup panels apply to all routers that ISM manages. You can override the global setup options by defining router-specific CMCC options. For more information, see the “Specifying Administration Options for a CMCC Using the Standard Interface” section on page 6-21.

Enabling CMCC Monitoring

To enable ISM to monitor status and performance statistics for the CMCCs it discovers, use the ISM Resource Management Setup panel (Figure 6-3). CMCC management is disabled by default in ISM setup when ISM is first initialized.



Note

You must have ISM enable authority to enable CMCC monitoring or to modify other ISM rules.

To enable ISM to monitor CMCCs, complete the following steps:

- Step 1** On the ISM Main menu (Figure 6-1), press **PF8**.

Figure 6-1 ISM Main Menu Panel

```

NSPYMAI4      Internetwork Status Monitor (ISM) V2      CNM56      05/27/04
                                           12:04
Options      Description
+ SUM      ISM Status Summary
+ ISMR      Resource Manager: _____
Applications
+ MGR      Resource Status Display
+ INT      Interface Status Display. A=Async B=ISDN C=Channel Type _____
           D=FastEthernet E=Ethernet F=FDDI G=GigaBit H=HSSI I=CLAW
           L=Loopback M=ATM N=MPC S=Serial T=Tokenring U=Tunnel
+ DSPU     DSPU Monitor
+ CMCC     Cisco Mainframe Channel Connection (CMCC) Monitor
+ TN32     Cisco TN3270 Monitoring Operations
+ SNASW    Cisco SNA Switch Monitoring Operations

+ SNA      Session Monitor  PU: _____  MAC/XID: _____

+ LOG      Activity Log
+ HELP     Command Descriptions.
ISM Last Initialized: 05/27/04 08:30 ISMMGR

Action==>
1=HELP 2=MAIN 3=RTN      6=ROLL      8=ADMIN

TC010617  00:00.1 004/004

```

The ISM Administration menu panel (Figure 6-2) is displayed.

Figure 6-2 ISM Administration Menu Panel

```

NSPVADM                      ISM Administration                      CNM56    06/02/04
                                TARGET: 13:15
Options  Description
+ SETUP  ISM Setup Menu
+ ISMR   Resource Manager: _____
+ USER  User Profile Management   ID: _____
+ SNMP   SNMP Management Setup
+ SWAR   SNMP Control Variables
+ TN3270 TN3270 Server Monitoring
+ SNASw  SNA Switch Monitoring Setup
+ TMGR   Display ISM Scheduler Settings
+ MGRM   Display ISM Resource Management Settings
+ VARS   Display ISM Control Variables

ISM Last Initialized: 06/01/04 15:26 ISMMGR

Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL 7=BACK

TCE10154  000.0 004/004

```

- Step 2** Press **Enter**. The ISM Resource Management Setup—First Panel (Figure 6-3) is displayed.

Figure 6-3 ISM Resource Management Setup—First Panel

```

NSPVSE21                      ISM Resource Management Setup - V2 1 of 5  CNM56    08/27/00
                                Last Initialized: 08/27/00 11:27 ISMMGR
                                17:11
Applications:  Default  Initial Update
Resource Management ( Y :Yes) | N :No): YES  YES
Interface Monitoring ( Y :Yes) | N :No): YES  YES
SNA Session Monitoring ( N :No) | Y :Yes): YES  YES
CMCC Management ( N :No) | Y :Yes): NO  NO
DSPU Management ( N :No) | Y :Yes): NO  NO
TN3270 Server Monitor ( N :No) | Y :Yes): NO  NO
Reserved ( N :No) | Y :Yes): NO  NO
SNMP Management ( N :No) | Y :Yes): YES  YES
ISM Scheduler ( N :No) | Y :Yes): YES  YES
Resource Monitor Setup Enter YES to update:
Update ISM Autotasks Enter YES to update:
ISMSETUPCNM56R3 APPL(YES YES YES YES YES NO NO YES ) MI(00:16
) TH(95 10) IM(YES YES YES YES YES YES NO YES YES YES YES YES) MI2(02:01)
DB(H I R C H) CM(48 48 5 99 16) CIP(90 10) 08/27/00 17:07 HAL1
Change Type ( 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3
Press PF8 to review/set rules.
NSP1040I Press PF4 to implement changes or PF3 to exit.
Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL 8=FWD

```

- Step 3** In the CMCC Management option, type **Y** in the Update column. **YES** appears in the Update column beside the CMCC Management option.

Enabling CMCC Alert Generation and Recovery

ISM uses the CPU Utilization and Free Memory thresholds that you enable on the ISM Resource Management Setup—Third Panel to determine the acceptable performance levels for discovered CMCCs on all routers. When these thresholds are exceeded, ISM issues a PERF alert if alert generation is enabled.

To enable CMCC alert generation for performance and memory thresholds and CMCC recovery, complete the following steps:

- Step 1** Press **PF8** (FWD) to display the ISM Resource Management Setup—Second Panel (Figure 6-4).

Figure 6-4 ISM Resource Management Setup—Second Panel

NSPVRUL4 ISM Resource Management Setup - V2 2 of 5 CNM56 08/27/00 17:12				
Function	Default	VSAM	Current	Variable
ISM Resource MGR Autotask	(ISMMGR)	: ISMMGR	ISMMGR	ISMMGR
ISM Interface MGR Autotask	(ISMMGRI)	: ISMMGRI	ISMMGRI	ISMMGRI
ISM Refresh Operator	(ISMMGRS)	: ISMMGRS	ISMMGRS	ISMREFOPER
ISM Message Autotask	(ISMMGRM)	: ISMMGRM	ISMMGRM	ISMAUTO
ISM Refresh Delay	(20)	: 20	20	ISMDELAY
Generic Alert Generation	(YES YES no NO)			ISMALRTCTL
Resource Status	(No Yes)	: YES	YES	RSTAT
Resource Perf/Memory	(No Yes)	: YES	YES	RPERF
CMCC Perf/Memory	(No Yes)	: no	no	CMCC
Interface Status	(No Yes)	: NO	NO	ISTAT
ISM CMCC Recovery	(NO YES)	: no	no	ISMCMCCRCV
ISM Base Timer (Scheduler)	(15)	: 15	15	ISMTBASE
ISM SMF Recording	(NO YES)	: YES	YES	ISM SMFR
ISM SMF Recording RECID	(128-255)	: 220	220	ISMRECID
ISM Enable Override	(15 Min)	: 15	15	ISMENLIMIT
ISMSETUPCNM56R4 ISMMGR ISMMGRS ISMMGRM 20 ALRT(YES YES no NO)				
) no T(15) APPL4(NO NO YES) ISMMGRI SM(YES 220) EN(15) IN(YES YES NO				
YES) 08/27/00 17:07 HAL1				
NSP1038I Press Enter for prompted input.				
Action==>				
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK 8=FWD				

- Step 2** In the CMCC Perf/Memory option, under Generic Alert Generation, type **Yes**.
- Step 3** In the ISM CMCC Recovery option, type **Yes**.

Enabling Default CMCC Monitoring Thresholds

To enable default CMCC monitoring thresholds for all routers, complete the following steps:

- Step 1
- Press **PF8** (FWD), to display the ISM Resource Management Setup—Third Panel (Figure 6-5).

Figure 6-5 ISM Resource Management Setup—Third Panel

```
NSP56T2      ISM Resource Management Setup - V2 3 of 5  CNM56  08/24/00
Target:      15:39

Application Resource Management  ( Y :Yes) | N :No): YES  YES

Current Interval: 00:15  Stored Interval: 00:15
Monitoring Interval(Hours) ( 0 | Max 24 ): 00  (Minutes) ( 0 | max 59 ): 15

Resource Threshold Levels for Processor (Percent)

Resource:      Current / VSAM
CPU Utilization (default= 95% ): 95  Current Values 95  / 95
Free Memory    (default= 10% ): 10  Current Values 10  / 10

CMCC:      Current / VSAM
CPU Utilization (default= 90% ): 90  Current Values 90  / 90
Free Memory    (default= 10% ): 10  Current Values 10  / 10
ISMSETUPCNM56R3  APPL(YES YES YES YES NO YES YES NO YES ) MI(00:1
5) TH(95 10) IM(YES YES YES YES YES YES YES YES YES YES YES YES YES YES) MI2(02:0
0) DB(H I R C H) CM(48 48 5 99 16) CIP(90 10) 08/23/00 13:31 HAL2
Press PF8 to review interface parameters constants.

Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK 8=FWD
```

- Step 2
- To specify the maximum allowable CPU utilization percentage, type a value in the CPU Utilization option.
- ISM issues a PERF alert for the CMCC when the CPU utilization exceeds the specified percentage.
- ISM issues a generic alert in NetView's NPDA hardware monitor application if the CMCC Perf/Memory alert option on the ISM Management Rules Setup panel is enabled.

- Step 3** To specify the minimum allowable percentage of free memory, type a value in the Free Memory option.

ISM issues a PERF alert for the CMCC when the free memory percentage is below the specified percentage.

ISM issues a generic alert in NetView's NPDA hardware monitor application if the CMCC Perf/Memory alert option on the ISM Management Rules Setup panel is enabled.

Enabling Channel Monitoring

To enable channel interface monitoring, complete the following steps:

- Step 1** Press **PF8** to display the ISM Resource Management Setup—Fourth Panel (Figure 6-6).

Figure 6-6 ISM Resource Management Setup—Fourth Panel

```

NSPVSE23      ISM Resource Management Setup - V2  4 of 5  CNM55  05/27/04
                                           Target: 11:43
Application: Interface Monitoring ( Y :Yes | N :No): YES  YES
Application: Interface Archiving ( Y :Yes | N :No): YES  YES
Interface Monitoring Interval
Current Interval: 02:01  Stored Interval: 02:01

Monitoring Interval(Hours) ( 0 | Max 24): 02  (Minutes) ( 0 | max 59): 01

Interfaces      Monitor Thresh Interfaces      Monitor Thresh Sub
TokenRing ( Y | N ): YES  YES  0  Ethernet ( Y | N ): YES  YES  0  Y
FDDI ( Y | N ): YES  YES  0  FastEther ( Y | N ): YES  YES  Y
ASYNC ( N | Y ): YES  YES  0  GigaEther ( N | Y ): YES  YES  Y
ISDN ( N | Y ): YES  YES  0  Serial ( Y | N ): YES  YES  0  Y
Channel ( Y | N ): YES  YES  0  HSSI ( N | Y ): YES  YES  0  Y
IBMCLAW ( N | Y ): YES  YES  0  ATM ( N | Y ): YES  YES  0  Y
MPC ( N | Y ): YES  YES  0  Loopback ( N | Y ): YES  YES  0  Y
TUNNEL ( N | Y ): YES  YES  0

ISMSETUPCNM55R3      APPL(YES YES YES YES YES YES YES NO NO YES ) MI(00:1
5) TH(95 10) IM(YES YES YES YES YES YES YES YES YES YES YES YES) MI2(02:0
1) DB(H I R C H) CM(51 40 5 99 51) CIP(90 10) 01/22/04 13:29 JIM1
Press PF8 to review database constants.

Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK 8=FWD
TCD10619  00:00.2 003/065

```

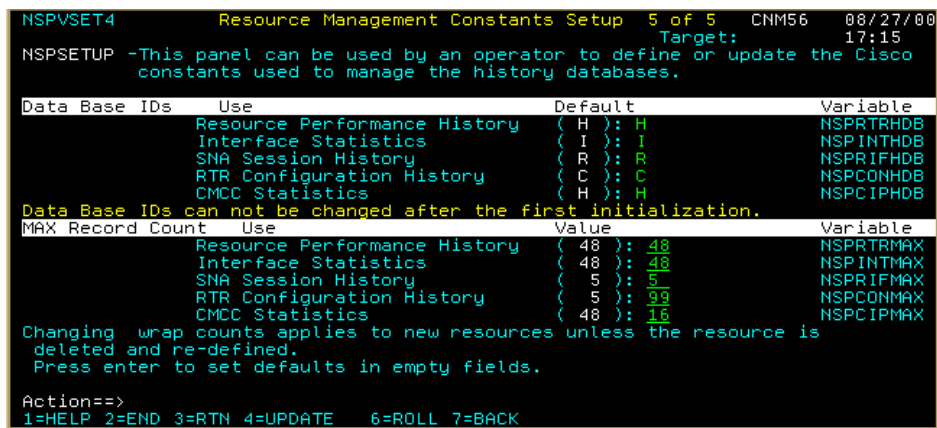
- Step 2** In the Channel option, type **Y**.

Changing Data Base IDs and Wrap Counts

If you have not initialized ISM for the first time and want to change the CMCC history database ID, or if you want to change the number of records in the database for new resources, complete the following steps:

- Step 1** Press **PF8** (FWD) to display the Resource Management Constants Setup panel (Figure 6-7).

Figure 6-7 Resource Management Constants Setup Panel



```

NSPVSET4      Resource Management Constants Setup  5 of 5  CNM56  08/27/00
Target:
17:15
NSPSETUP -This panel can be used by an operator to define or update the Cisco
          constants used to manage the history databases.

Data Base IDs  Use      Default      Variable
Resource Performance History ( H ): H  NSPRTRHDB
Interface Statistics ( I ): I  NSPINTHDB
SNA Session History ( R ): R  NSPRIFHDB
RTR Configuration History ( C ): C  NSPCONHDB
CMCC Statistics ( H ): H  NSPCIPHDB
Data Base IDs can not be changed after the first initialization.
MAX Record Count  Use      Value      Variable
Resource Performance History ( 48 ): 48  NSPRTRMAX
Interface Statistics ( 48 ): 48  NSPINTMAX
SNA Session History ( 5 ): 5  NSPRIFMAX
RTR Configuration History ( 5 ): 99  NSPCONMAX
CMCC Statistics ( 48 ): 16  NSPCIPMAX
Changing wrap counts applies to new resources unless the resource is
deleted and re-defined.
Press enter to set defaults in empty fields.

Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK
  
```

The default record counts allow for approximately 24 hours before the database record will wrap for a resource.

- Step 2** When you have completed specifying the options, press **PF4** (UPDATE).

Monitoring CMCC Operations Using the Standard Interface

To access the Cisco Mainframe Channel Connections panel, complete the following steps:

- Step 1** You can begin from the ISM main menu or from the ISM Status Summary panel.
- To begin from the ISM main menu (Figure 6-1), position the cursor on the CMCC line and press **Enter**.
 - To begin from the ISM Status Summary Panel (Figure 6-8), position the cursor on the Total CMCC column and press **Enter**.

Figure 6-8 ISM Status Summary Panel

NSPVSUM3		ISM Status Summary			Group= ALL		CNM56		05/27/04	
Last Refresh: 15:31		05/27/04							15:37	
		<-----Active----->			<-----UNKNOWN----->					
Total		ACTIV	PERF	ALERT	INOP	INVALID	CONCT	INACT	NOMON	
7	Resources	5	2							
10	CMCC	10								
9	TN3270	6				3				
4	SNASw	4								
		Desired Status=UP				Desired Status=Down				
Total	Interfaces	UP	DOWN	INVALID	UNKNOWN		DOWN	UNKNOWN		
12	Tokenring						12			
24	Ethernet	10		1			13			
0	FDDI									
7	Loopback	7								
0	ASYNC									
22	Channel	17					5			
0	HSSI									
0	ISDN									
4	Serial						4			
Frame-Relay: 0		HDLC: 0		X.25: 0		BSTUN: 0		SDLC: 0		
Press PF8 for important status on next page.										
==>										
1=HELP		2=MAIN		3=RTN		6=ROLL		8=FWD		12=REFRESH
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The Cisco Mainframe Channel Connections panel (Figure 6-9) is displayed.

Figure 6-9 Cisco Mainframe Channel Connections Panel

```
NSPVCLIS  Cisco Mainframe Channel Connections  CNM56  09/20/00
Total Number of CMCCs: 7  Filter:  21:26
Resource Slot Version Status Overrides Last Change-Previous
BERIMA 2 CIP 5.0 22.35 ACTIV
CWBC01 3 CIP 4.132 26.9 ACTIV
CWBC01 4 CIP 4.4 26.9 ACTIV
CWBC07 3 ECPA 0.1 27.7 ACTIV
ISM7200B 2 ECPA 1.0 27.10 ACTIV 08:02 09/19/00 ACTIV
18#11#53 3 ECPA 1.0 26.8 ACTIV
8#11#140 2 ECPA 1.0 27.2 ACTIV

Position cursor on router and press Enter for additional operations.
==>
1=HELP 2=MAIN 3=RTN 6=ROLL
```

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The Cisco Mainframe Channel Connections panel displays the following fields:

Field	Description
Resource	Router/control name with which this CMCC is associated.
Slot	Slot position in the router used by this CMCC.
Version	Hardware and software level of the CMCC.
Status	Current CMCC status.
Overrides	Indicates if overrides have been set.
Last Change	Date and time of the last status change for this CMCC.
Previous Status	Previous CMCC status.

Step 2 Position the cursor on the router whose CMCC details you want to display and press **Enter**. The CMCC Detail Display panel (Figure 6-10) is displayed.

Figure 6-10 CMCC Detail Display Panel

```

NSPVCSEL          CMCC DETAIL DISPLAY          CNM56    08/27/00
                                           17:21

Resource: ISM7200B                      INDEX: 5
Slot: 2
Version: ECPA 1.0 27.2
Overrides: NONE
Status: ACTIV
Previous Status:
Last Change:

+ Extended Display
+ Display CMCC Variables
+ History
+ Channel
+ Administration
+ Reset

Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL

```

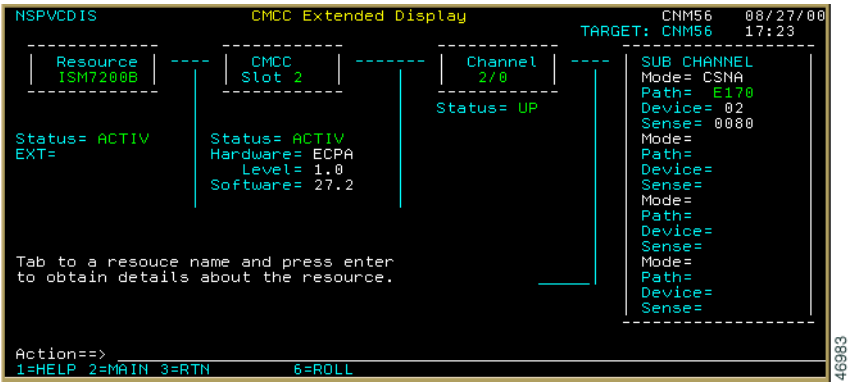
The CMCC Detail Display panel displays the following fields:

Field	Description
Resource	Router/control name with which this CMCC is associated.
Index	Control block pointer for this CMCC.
Slot	Slot position in the resource used by this CMCC.
Version	Hardware and software level of the CMCC.
Overrides	Indicates if overrides have been set.
Status	Current CMCC status.
Previous Status	Previous CMCC status.
Last Change	Date and time of the last status change for this CMCC.
Extended Display	Displays more information about this CMCC.
Display CMCC Variables	Display the ISM control block used to monitor this CMCC.
Show Commands	(SNA only) Lists show commands for this CMCC.
History	Displays archived statistics for this CMCC.
Channel	Lists channel interfaces associated with this CMCC.

Field	Description
Administration	Presents the Administration panel for this CMCC.
Reset	Sets status to ACTIVE and checks status.

Step 3 Position the cursor on the Extended Display row and press **Enter**. The CMCC Extended Display panel (Figure 6-11) is displayed.

Figure 6-11 CMCC Extended Display Panel



The CMCC Extended Display panel displays the following fields:

Field	Description
Resource	Router/control name.
Status	Current router status.
Ext	Current router extended status. 'P' indicates either a router memory or CPU usage problem. 'Q' indicates either a CMCC memory or CPU usage problem. Any other letter indicates the type of interface that has an error.
Status	Current CMCC status.
Hardware	Hardware type of the CIP card for this CMCC.
Level	Hardware release level of the CIP card for this CMCC.
Software	Software release level of the CIP card for this CMCC.
Status	Current channel interface status for the selected interface.

Field	Description
Mode	Mode of this subchannel.
Path	Path of this subchannel.
Device	Device of this subchannel.
Sense	Last sense of this subchannel as extracted from the show extended channel router command.

Step 4 (Optional) To access additional information about the Resource, Slot, Channel, or Subchannel, position the cursor in the box of the router that you want to view and press **Enter**. The corresponding ISM panel is displayed.

For example, if you press **Enter** while the cursor is in the Channel 2/0 box, the Interfaces Type panel (Figure 6-12) for channels is displayed.

Figure 6-12 Interfaces Type=Channel Panel

```

NSPVIDI3  Interfaces Type= Channel          CNM56  08/27/00
Number of Interfaces: 11  Filter:             17:24
Resource Interface      Status  Encaps  Mon   Last Change  Previous
ISM7200B CHANNEL2/0    UP      CHANNEL Mon   17:22 08/27/00 UNKNOWN

==>
1=HELP 2=MAIN 3=RTN 5=STAT 6=ROLL          10=CMDS          12=CIP
  
```

The Interfaces Type panel for channels displays the following fields:

Field	Description
Interface type	Type of interface being displayed.
Number of Interfaces	Number of interfaces being displayed.
Filter	Filter used for viewing.
Resource	Router with which this interface is associated.

Field	Description
Interface	Interface name.
Status	Current interface status.
Encaps	Encapsulation type for this interface.
Mon	Monitor mode.
Last Change	Date and time of the last status change for this interface.
Previous	Previous status of this interface.

Step 5 (Optional) To view additional information about a router, select its name and press **Enter**.

Viewing CMCC Management Variables Using the Standard Interface

ISM uses internal management variables to perform CMCC management on a CMCC. You can view these internal variables, using the information to troubleshoot ISM problems.

To view CMCC management variables, on the CMCC Detail Display panel (Figure 6-10), position the cursor on Display CMCC Variables and press **Enter**. Two CMCC Control Block Variables panels (Figure 6-13 and Figure 6-14) are displayed.

Figure 6-13 CMCC Control Block Variables Panel—1 of 2

```

ISMVCVAR      CMCC Control Block Variables      CNM56  08/27/00
This panel displays the values for the common    Target: CNM56  17:25
globals used to manage a CMCC.

CMCC Control Block Index: 5                      TARGET: CNM56

Variable:      Use:                               Value:
ISMCIPL5      When Status Changed plus          Value:
               previous status.
ISMCIPL5      Owing Domain                      CNM56
ISMCIPL5      VSAM Key, router, slot
               Value: CIPISM7200BS2 ISM7200B 2 M(YES) T( ) V(ECPA 1.0 27.2) I( )
               Continued:  ACTIV
ISMCIPL5      History pointer (VSAM key)
               Value: HCIPISM7200BS2 142 51 08/27/00 17:17 ISMMGR
ISMCIPL5      Related Channel Interfaces        2/0

NSP1037I Make changes and press Enter to validate.
Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 8=FORWARD

```

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Figure 6-14 CMCC Control Block Variables Panel—2 of 2

```

NSPVCVAS      CMCC DETAIL DISPLAY / UPDATE      CNM56  17:25
This panel displays the values for the common    Target: CNM56  17:25
globals used to manage a CMCC.
CMCC variables can be displayed by pressing PF11 on the NSPCDEF4 panel.
CMCC Control Block Index: 5                      TARGET: CNM56

Variable:      Use:                               Value:
ISMCIPL5      Copy of last history record
               Value: 20000827 17:17 MEM 23143544/36M CPU 1 1 0 DMA 1 0 0 ECA0 1 0 0
               Continued:
ISMCIPL5      Monitor mode (YES/NO)            YES
ISMCIPL5      Current Status                   ACTIV
ISMCIPL5      Override values
ISMCIPL5      Hardware and Software Versions   ECPA 1.0 27.2

VSAM Key Contents:
CIPISM7200BS2      ISM7200B 2 M(YES) T( ) V(ECPA 1.0 27.2) I( ) 17
:17 08/27/00 ISMMGR

Action==>
1=HELP 2=END 3=RTN 4=UPDATE 6=ROLL 7=BACK

```

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Viewing CMCC Memory and Utilization Statistics Using the Standard Interface

To view the history of a CMCC, on the CMCC Detail Display panel (Figure 6-10), position the cursor on the History line and press **Enter**. The CMCC History panels (Figure 6-15 and Figure 6-16) are displayed.

Figure 6-15 CMCC History Panel—1 of 2

NSPVCHIA		CMCC History				CNM56		08/27/00	
RTR Name: ISM7200B		Slot: 2				TARGET: CNM56		17:27	
Date	Time	Memory (10%)	CPU Utilization (90%)			DMA Utilization			
		Free/Total	1 Min	5 Min	60 Min	1 Min	5 Min	60 Min	
20000827	17:17	23143544/36M	1%	1%	0%	1%	0%	0%	
20000827	11:46	23143736/36M	1%	1%	0%	1%	0%	0%	
20000827	10:36	23143736/36M	1%	1%	0%	1%	0%	0%	
20000825	16:38	23247976/36M	1%	1%	0%	1%	0%	0%	
20000824	11:00	23402848/36M	1%	1%	1%	1%	0%	0%	
20000824	02:57	23402848/36M	1%	1%	1%	1%	0%	0%	
20000824	02:42	23402848/36M	1%	1%	1%	1%	0%	0%	
20000824	02:27	23402904/36M	1%	1%	1%	1%	0%	0%	
20000824	02:12	23402848/36M	1%	1%	1%	1%	0%	0%	
20000824	01:57	23402848/36M	1%	1%	1%	1%	0%	0%	
20000824	01:43	23402848/36M	1%	1%	1%	1%	0%	0%	
20000824	01:27	23402848/36M	1%	1%	1%	1%	0%	0%	
20000824	01:12	23402848/36M	1%	1%	1%	1%	0%	0%	
20000824	00:57	23402904/36M	1%	1%	1%	1%	0%	0%	
20000824	00:42	23402848/36M	1%	1%	1%	1%	0%	0%	
20000824	00:27	23402848/36M	1%	1%	1%	1%	0%	0%	
20000824	00:12	23402848/36M	1%	1%	1%	1%	0%	0%	
==>									MORE=>
1=HELP 2=MAIN 3=RTN 5=CURRENT 6=ROLL			8=FWD			11=RIGHT			

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Figure 6-16 CMCC History Panel—2 of 2

NSPVCHIB		CMCC History		CNM56 08/27/00	
RTR Name: ISM7200B		Slot: 2		TARGET: CNM56 17:28	
Date	Time	ECA0	Utilization (90%)		
			1 Min	5 Min	60 Min
20000827	17:17	1%	0%	0%	0%
20000827	11:46	1%	1%	0%	0%
20000827	10:36	1%	0%	0%	0%
20000825	16:38	1%	0%	0%	0%
20000824	11:00	1%	0%	0%	0%
20000824	02:57	1%	0%	0%	0%
20000824	02:42	1%	0%	0%	0%
20000824	02:27	1%	0%	0%	0%
20000824	02:12	1%	0%	0%	0%
20000824	01:57	1%	0%	0%	0%
20000824	01:43	1%	0%	0%	0%
20000824	01:27	1%	0%	0%	0%
20000824	01:12	1%	0%	0%	0%
20000824	00:57	1%	0%	0%	0%
20000824	00:42	1%	0%	0%	0%
20000824	00:27	1%	0%	0%	0%
20000824	00:12	1%	0%	0%	0%

==>
 1=HELP 2=MAIN 3=RTN 5=CURRENT 6=ROLL 8=FWD 10=LEFT

The CMCC History panels display the following fields:

Field	Description
Date	Date the statistics were archived.
Time	Time the statistics were archived.
Memory Free/Total	Free and total memory associated with the CMCC. The value in parentheses is the user-defined threshold.
CPU—1 Min	CPU utilization for the CMCC for the last minute. The value in parentheses is the user-defined threshold.
CPU—5 Min	CPU utilization for the CMCC for the last 5 minutes. The value in parentheses is the user-defined threshold.
CPU—60 Min	CPU utilization for the CMCC for the last hour. The value in parentheses is the user-defined threshold.
DMA—1 Min	DMA utilization for the CMCC for the last minute. The value in parentheses is the user-defined threshold.
DMA—5 Min	DMA utilization for the CMCC for the last 5 minutes. The value in parentheses is the user-defined threshold.
DMA—60 Min	DMA utilization for the CMCC for the last hour. The value in parentheses is the user-defined threshold.

Field	Description
PCA0—1 Min	PCA0 utilization for the CMCC for the last minute, if PCA0 is installed. The value in parentheses is the user-defined threshold.
PCA0—5 Min	PCA0 utilization for the CMCC for the last 5 minutes, if PCA0 is installed. The value in parentheses is the user-defined threshold.
PCA0—60 Min	PCA0 utilization for the CMCC for the last hour, if PCA0 is installed. The value in parentheses is the user-defined threshold.
ECA0—1 Min	ECA0 utilization for the CMCC for the last minute, if ECA0 is installed. The value in parentheses is the user-defined threshold.
ECA0—5 Min	ECA0 utilization for the CMCC for the last 5 minutes, if ECA0 is installed. The value in parentheses is the user-defined threshold.
ECA0—60 Min	ECA0 utilization for the CMCC for the last hour, if ECA0 is installed. The value in parentheses is the user-defined threshold.
ECA1—1 Min	ECA1 utilization for the CMCC for the last minute, if ECA1 is installed. The value in parentheses is the user-defined threshold.
ECA1—5 Min	ECA1 utilization for the CMCC for the last 5 minutes, if ECA1 is installed. The value in parentheses is the user-defined threshold.
ECA1—60 Min	ECA1 utilization for the CMCC for the last hour, if ECA1 is installed. The value in parentheses is the user-defined threshold.

You can use the above information to troubleshoot ISM problems.

Press **PF5** to display information about the controller card in the router. Figure 6-17 shows sample output for an SNMP-connected router.

Figure 6-17 Current CMCC Statistics – SNMP

NSPVCIPD		CMCC Performance Data		CNTLNAME: CWBC01		Page 1 of 1	
Variable		Value					
Memory Total/Free:		18361K/32M					
CPU Utilization	1 Min	1					
	5 Min	1					
	60 Min	1					
DMA Utilization	1 Min	1					
	5 Min	1					
	60 Min	0					
PCA0 Utilization	1 Min	0					
	5 Min	0					
	60 Min	0					
ECA1 Utilization	1 Min	1					
	5 Min	0					
	60 Min	0					
CIP Details		slot(CIP.4)					
		hardwareversion(4.4)					
		softwareversion(26.9)					
Action==>							
1=HELP 2=END 3=RETURN		6=ROLL					

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If a history record contains an item that has exceeded a threshold, the record is highlighted in yellow and offset by one column.

Displaying the Channels on a Specific Router Using the Standard Interface

To view the channels that are on a specific router, position the cursor on the Channel option and press **Enter**. The channels that are known are displayed. Figure 6-18 shows sample output for router CWBCO1, a router with multiple CMCCs.

Figure 6-18 Channels on a Specific Resource

```

NSPVID13      Interfaces Type= Channel                      CNM56 08/27/00
Number of Interfaces: 11      Filter:                      18:30

Resource Interface      Status      Encaps      Mon      Last Change      Previous
CWBC01 CHANNEL3/0          UP          CHANNEL      17:18 08/27/00      UNKNOWN
CWBC01 CHANNEL3/1          DOWN        CHANNEL      17:18 08/27/00      UNKNOWN
CWBC01 CHANNEL3/2          UP          CHANNEL      18:29 08/27/00
CWBC01 CHANNEL4/0          DOWN        CHANNEL      17:18 08/27/00      UNKNOWN
CWBC01 CHANNEL4/1          UP          CHANNEL      17:18 08/27/00      UNKNOWN
CWBC01 CHANNEL4/2          UP          CHANNEL      18:30 08/27/00

==>
1=HELP 2=MAIN 3=RTN 5=STAT 6=ROLL                      10=CMDS                      12=CIP

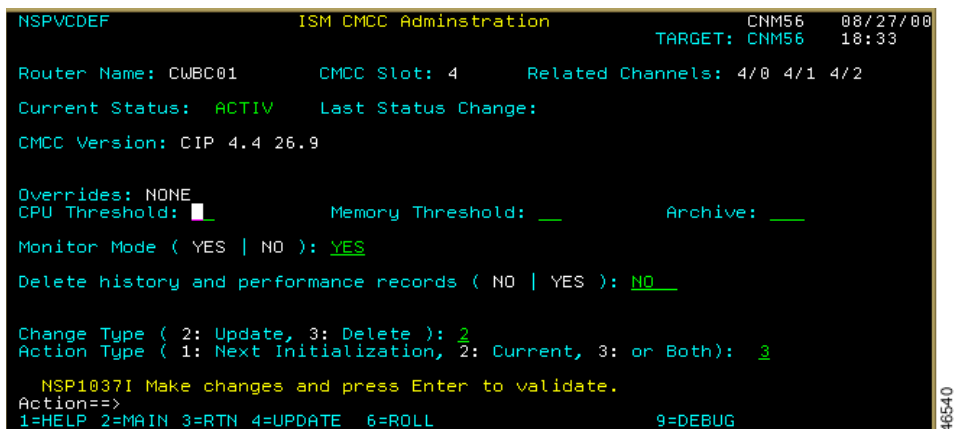
```

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Specifying Administration Options for a CMCC Using the Standard Interface

The Administration option appears on the CMCC Detail Display panel (Figure 6-10) if the operator is authorized to make changes. Position the cursor on the Administration option and press **Enter**. The ISM CMCC Administration panel (Figure 6-19) is displayed.

Figure 6-19 ISM CMCC Administration Panel



```

NSPVCDEF                      ISM CMCC Administration                      CNM56    08/27/00
                                TARGET: CNM56    18:33

Router Name: CWBC01           CMCC Slot: 4           Related Channels: 4/0 4/1 4/2
Current Status: ACTIV        Last Status Change:
CMCC Version: CIP 4.4 26.9

Overrides: NONE
CPU Threshold:            Memory Threshold:            Archive: 

Monitor Mode ( YES | NO ): YES
Delete history and performance records ( NO | YES ): NO

Change Type ( 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3

  NSP1037I Make changes and press Enter to validate.
Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL 9=DEBUG
  
```

To override the established global thresholds for a particular router's CMCCs, specify individual thresholds on a per-router basis using the ISM CMCC Administration panel. To enable or disable CMCC monitoring and data archiving for a specific router, complete the following steps:

- Step 1** To specify the maximum allowable CPU utilization percentage for the CMCCs on the selected router, enter a value (1% to 99%) in the CPU Threshold option.
- The notation C= with the specified percentage is displayed in the Overrides field. ISM will issue a PERF alert for the CMCCs on the selected router when the CPU utilization exceeds the specified percentage.

- Step 2** To specify the minimum allowable percentage of free memory for the CMCCs on the selected router, enter a value (1% to 99%) in the Memory Threshold option. The notation M= with the percentage that you specified is displayed in the Overrides field. ISM will issue a PERF alert for the CMCCs on the selected router when the free memory percentage is below the specified percentage.
- Step 3** To enable or disable archiving of CMCC data, enter **Yes** or **No** in the Archive option.
- Step 4** To enable or disable CMCC monitoring for the selected router, enter **Yes** or **No** in the Monitor Mode option.
- Step 5** To remove history and performance records from the VSAM database for a specific router, enter **Yes** in the Delete history and performance records field.
- Step 6** Press **PF4** to save your changes.
-

Monitoring CMCC Status Using the Standard Interface

After you have enabled CMCC management for the routers, you can use one of the following procedures to monitor the status for discovered CMCCs on all routers:

- To monitor CMCC status from the ISM main menu (Figure 6-1), position the cursor on the CMCC line and press **Enter**. The resulting Cisco Mainframe Channel Connections panel (Figure 6-9) displays discovered CMCCs for all routers being monitored by ISM.
- The ISM Status Summary panel (Figure 6-8) displays the total number of CMCCs, categorized by status. To view a list of all CMCCs in a given status, position the cursor in the desired status field and press **Enter**. The resulting Cisco Mainframe Channel Connections panel displays all discovered CMCCs with the selected status.

Monitoring Channel Interfaces Using the Standard Interface

There are several ways to monitor the status of channel interfaces for routers. You can monitor the channel interface status either for all routers from the ISM main menu panel using the INT option (for a specific type of interface), or summarized

with all other resources (for all interface types) from the ISM Status Summary panel. You can also monitor channels for a specific router by listing the CMCCs, selecting a router, and displaying that router's channel interfaces.

To monitor channel interfaces, on the ISM main menu (Figure 6-1), position the cursor on the Type field on the INT line, enter **C**, and press **Enter**. The Interfaces Type panel for channels (Figure 6-20) is displayed for all resources.

Figure 6-20 Interfaces Type Panel for Channels

Resource	Interface	Status	Encaps	Mon	Last Change	Previous
CWBC01	CHANNEL3/0	UP	CHANNEL		17:18 08/27/00	UNKNOWN
CWBC01	CHANNEL3/1	DOWN	CHANNEL		17:18 08/27/00	UNKNOWN
CWBC01	CHANNEL3/2	UP	CHANNEL		18:29 08/27/00	UNKNOWN
CWBC01	CHANNEL4/0	DOWN	CHANNEL		17:18 08/27/00	UNKNOWN
CWBC01	CHANNEL4/1	UP	CHANNEL		17:18 08/27/00	UNKNOWN
CWBC01	CHANNEL4/2	UP	CHANNEL		18:30 08/27/00	UNKNOWN
CWBC07	CHANNEL3/0	UP	CHANNEL		17:20 08/27/00	UNKNOWN
CWBC07	CHANNEL5/0	DOWN	CHANNEL		17:20 08/27/00	UNKNOWN
CWBND 72A	CHANNEL2/0	UP	CHANNEL		17:22 08/27/00	UNKNOWN
ISM7200B	CHANNEL2/0	UP	CHANNEL		17:22 08/27/00	UNKNOWN
18#11#53	CHANNEL3/0	UP	CHANNEL		17:24 08/27/00	UNKNOWN

==>
1=HELP 2=MAIN 3=RTN 5=STAT 6=ROLL 12=CIP

To display CMCC status for a specific router, tab to the resource and press **PF12**. The Cisco Mainframe Channel Connections panel (Figure 6-9) is displayed.

Locating CMCC Hardware and Software Versions Using the Standard Interface

The CMCC hardware and software versions are displayed on several ISM panels:

- Cisco Mainframe Channel Connections panel (Figure 6-9)
- ISM CMCC Administration panel (Figure 6-19)
- CMCC Extended Display panel (Figure 6-26)

The first dotted-decimal number is the hardware version, and the second-dotted decimal number is the software version. In the following example, **4.3** is the hardware version and **22.19** is the software version:

```
CIP 4.3 22.19
```

Issuing CMCC and Channel Show Commands Using the Standard Interface (SNA Only)

While there are many ways to access ISM's Router Command Interface, some ISM applications provide direct access to the command interface, and list the commands specific to the router currently being managed. When you use the CMCC Management application panels in ISM, you can access panels that provide router commands specific to managing CMCCs.

If a router supports the RUNCMD, you can use the CMCC and Channel Show Commands panel to run router **show** commands. To do so, complete the following steps:

-
- Step 1** On the Interfaces Type=Channel panel (Figure 6-20), position the cursor on the router to be monitored and press **Enter**. The CMCC Detail Display panel (Figure 6-10) is displayed.
 - Step 2** Position the cursor on Show Commands and press **Enter**. The CMCC and Channel Show Commands panel (Figure 6-21) is displayed, including the router control name and channel.

Figure 6-21 CMCC and Channel Show Commands Panel

```

NSPVCCMF                                CMCC and Channel Show Commands                                CNM56    08/27/00
                                           TARGET: CNM56    18:35
The following show commands are useful when monitoring CMCC interfaces.
Service Point Name: ISM7200B CHANNEL: 2/0
Show Command
1: show extended channel 2/0      icmp-stack
2: show extended channel 2/0      ip-stack
3: show extended channel 2/0      llc2
4: show extended channel 2/0      statistics
5: show extended channel 2/0      subchannel
6: show extended channel 2/0      top-stack
7: show extended channel 2/0      udp-listeners
8: show extended channel 2/0      udp-stack
9: show interfaces channel 2/0
10: Show controller CBUS
11: Show controller channel 2/0
Press PF1 for more command details or enter option number and press PF1.

To issue a command, ensure the required arguments have been specified,
type the command number, and press Enter.
Enter the command number followed with a ? to get help from the router.

Action==>
1=HELP 2=MAIN 3=RTN                6=ROLL

```

- Step 3** To run a command, type the number that corresponds to the show command that you want to execute at the ISM command prompt, and press **Enter**.

To get command help from the router, type the number that corresponds to the show command followed by a **?**, and press **Enter**.

Monitoring CMCC Operations Using the Web Interface

You can access the Cisco Mainframe Channel Connections page from the ISM main menu or the ISM Status Summary page. To access the Cisco Mainframe Channel Connections page, complete the following steps:

- Step 1** From the ISM Internetwork Status Monitor (ISM) main menu page (Figure 6-22), select the CMCC radio button and click **Submit**.

Figure 6-22 Internetwork Status Monitor (ISM) Main Menu Page

Operator	Current Domain	Date / Time
HAL2000	CNM56	08/27/00 18:38:08

☐ ISM Status Summary
☐ Resource Manager
☐ Interface Status
☐ TN3270 Monitor
☒ Cisco Mainframe Channel Connection Monitor (CMCC)
☐ Session Monitoring
☐ Activity Log

ServicePointName or IP Address:

Async

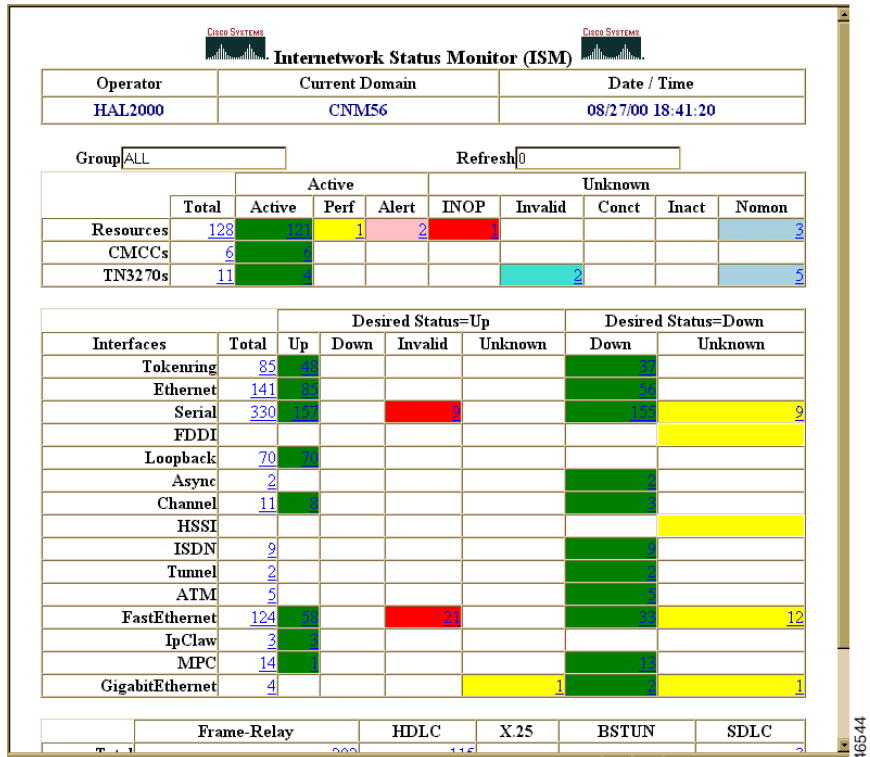
PU or MAC:

ISM Last initialized: 08/27/00 11:27 ISMMGR

Select an option and press Submit

Or, from the ISM Status Summary page (Figure 6-23), select **Total CMCC**.

Figure 6-23 ISM Status Summary Page



The Cisco Mainframe Channel Connections page (Figure 6-24) is displayed.

Figure 6-24 Cisco Mainframe Channel Connections Page

Internetwork Status Monitor (ISM)

Operator	Current Domain	Date / Time
HAL2000	CNMS6	08/27/00 18:39:27

Resource*
Groups*
Current Status*

CMCCs: 6 Filtered: 6

Resource	Slot	Version	Overrides	Status	Previous Status	Last Change
CWBC01	3	CIP 4.132 26.9		ACTIV		
CWBC01	CIP.2.3	CIP 4.4 26.9		ACTIV		
CWBC07	3	ECPA 0.1 27.7		ACTIV		
CWBND72A	CIP.4.3	ECPA 1.0 27.2		ACTIV		
ISM7200E	CIP.5.3	ECPA 1.0 27.2		ACTIV		
18#11#53	3	ECPA 1.0 26.8		ACTIV		

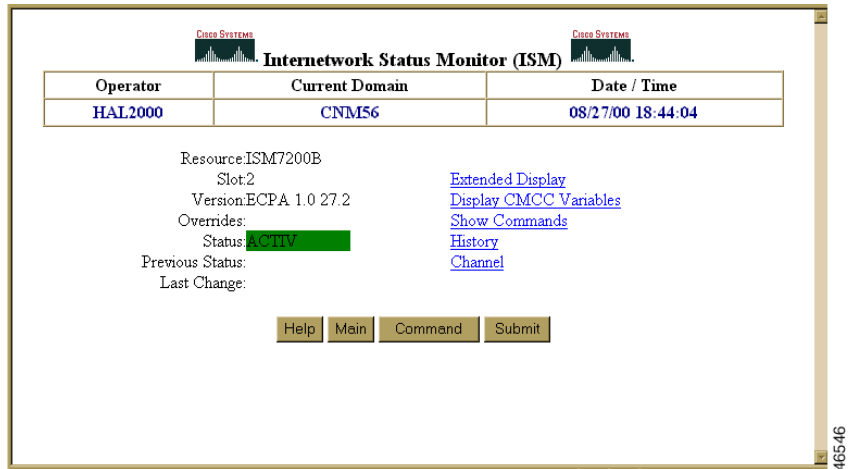
Help Main Command Submit

The Cisco Mainframe Channel Connections page displays the following fields:

Field	Description
Resource	Router/control name with which this CMCC is associated.
Slot	Slot position in the router used by this CMCC.
Version	Hardware and software level of the CMCC.
Overrides	Indicates whether overrides have been set.
Status	Current CMCC status.
Previous Status	Previous CMCC status.
Last Change	Date and time of the last status change for this CMCC.

- Step 2** Click on the router you want to display. The CMCC Status with Options page (Figure 6-25) is displayed.

Figure 6-25 CMCC Status with Options Page



The CMCC Status with Options page displays the following fields:

Field	Description
Resource	Router/control name with which this CMCC is associated.
Index	Control block pointer for this CMCC.
Slot	Slot position in the resource used by this CMCC.
Version	Hardware and software level of the CMCC.
Overrides	Indicates whether overrides have been set.
Status	Current CMCC status.
Previous Status	Previous CMCC status.
Last Change	Date and time of the last status change for this CMCC.
Extended Display	Displays more information about this CMCC.
Display CMCC Variables	Displays the ISM control block used to monitor this CMCC.
Show Commands	Lists show commands for this CMCC.
History	Displays archived statistics for this CMCC.
Channel	Lists channel interfaces associated with this CMCC.

Step 3 Click on Extended Display to display the CMCC Extended Display page (Figure 6-26).

Figure 6-26 CMCC Extended Display Page

Operator	Current Domain	Date / Time
HAL2000	CNM56	08/27/00 18:45:43

Resource	CMCC	Channel	SubChannel
Name= ISM7200B Status= ACTIV EXT=	Slot 2 Status= ACTIV Hardware= ECPA Level= 1.0 Software= 27.2	2/0 Status= UP	Mode= CSNA Path= E170 Device= 02 Sense= 0080

[Display Resource](#) [Display Channel](#) [Display SubChannel](#)
[Connections](#)

[Help](#) [Main](#) [Command](#) [Submit](#)

The CMCC Extended Display page displays the following fields:

Field	Description
Resource	Router name.
Status	Current router status.
Ext	Current router extended status. P indicates either a router memory or CPU usage problem. Q indicates either a CMCC memory or CPU usage problem. Any other letter indicates the type of interface that has an error.
Slot	Slot position in the router.
Status	Current CMCC status.
Hardware	Hardware type of the CIP card for this CMCC.
Level	Hardware release level of the CIP card for this CMCC.
Software	Software release level of the CIP card for this CMCC.
Status	Current channel interface status for the selected interface.
Mode	Mode of this subchannel.

Field	Description
Path	Path of this subchannel.
Device	Device of this subchannel.
Sense	Last sense of this subchannel as extracted from the show extended channel resource command.

Step 4 (Optional) To access additional information about the Resource, Slot, Channel, or Subchannel, click on the component to be viewed. The corresponding ISM page is displayed.

For example, if you click on Display Interfaces, the Interfaces Type=Channel page (Figure 6-27) is displayed.

Figure 6-27 Interface Type=Channel Page

The Interfaces Type=Channel page displays the following fields:

Field	Description
Interface type	Identifies a type of interface to display.
Encapsulation type	Identifies a type of encapsulation to display.
Resource	Identifies one or more resources to display.
Groups	Identifies one or more groups of resources to display.

Field	Description
Current Status	Identifies the current status of resources to display.
Desired Status	Identifies the desired status of resources to display.
Resource	Resource with which this interface is associated.
Interface	Interface name.
Current Status	Current interface status.
Desired Status	Desired interface status.
Previous Status	Previous status of this interface.
Last Change	Date and time of the last status change for this interface.
Encapsulation	Encapsulation type for this interface.

Step 5 To view additional information from the CMCC Extended Display page (Figure 6-26), perform one of the following steps:

- Click on Display Resource to view the resource details.
- Click on Display Channel Connections to view the CMCC details.
- Click on Display SubChannel to view the subchannel details.

Viewing CMCC Management Variables Using the Web Interface

ISM uses internal management variables to perform CMCC management on a CMCC. You can view these internal variables, using the information to troubleshoot ISM problems.

To view CMCC management variables, on the CMCC Status with Options (Figure 6-25) page, click on Display CMCC Variables to display the CMCC Variables page (Figure 6-28).

Figure 6-28 CMCC Variables Page

Operator	Current Domain	Date / Time
HAL2000	CNM56	08/27/00 18:47:46

Resource:	ISM7200B	Slot:	2
-----------	----------	-------	---

Variable	Description	Value
ISMCIPIA	Last Status Change	
ISMCIPIB	Owning Domain	CNM56
ISMCIPID	Extended Description	CIPISM7200BS2 ISM7200B 2 M(YES) T() V(ECPA 1.0 27.2) I()
ISMCIPIH	VSAM history pointer	HCIPIISM7200BS2 142 51 08/27/00 17:17 ISMMGR
ISMCIPII	Related Channel Interfaces	2/0
ISMCIPL	Last History record	20000827 17:17 MEM 23143544/36M CPU 1 1 0 DMA 1 0 0 ECA0 1 0 0
ISMCIPLM	Monitor Mode	YES
ISMCIPIPS	Current Status	ACTIV
ISMCIPIPT	Override Values	
ISMCIPIPV	Hardware/Software Versions	ECPA 1.0 27.2

Help Main Command Submit

For a detailed description of the fields on this page, see the online help.

Issuing CMCC and Channel Show Commands Using the Web Interface (SNA Only)

If a router supports the RUNCMD, you can issue router **show** commands when monitoring CMCC interfaces. To do so, complete the following steps:

- Step 1** From the CMCC Status with Options page (Figure 6-25), click on Show Commands. The CMCC Channel Show Commands page (Figure 6-29) is displayed.

Figure 6-29 CMCC Channel Show Commands Page

Operator	Current Domain	Date / Time
HAL2000	CNM56	08/27/00 18:49:02

Service point name

Channel

Show Commands

[Show extended channel 2/0 icmp-stack](#)
[Show extended channel 2/0 ip-stack](#)
[Show extended channel 2/0 ilc2](#)
[Show extended channel 2/0 statistics](#)
[Show extended channel 2/0 subchannel](#)
[Show extended channel 2/0 tcp-stack](#)
[Show extended channel 2/0 udp-listeners](#)
[Show extended channel 2/0 udp-stack](#)
[Show interfaces channel 2/0](#)
[Show controller cbus](#)
[Show controller channel 2/0](#)

Step 2 To run a command, click on the command.



Note To get command help from the router, click on the command and insert ? between the channel numbers (2/0) and the last operand.

Figure 6-30 shows sample output for the **show controller channel** command.

Figure 6-30 Output from Show Controller Channel 2/0 Page

The screenshot shows the Internetwork Status Monitor (ISM) V2 web interface. At the top, there are two Cisco Systems logos. Below them is a table with three columns: Operator, Current Domain, and Date / Time. The values are HAL2000, CNMS6, and 08/27/00 18:51:32 respectively. Below the table is a form with a Resource field containing 'ISM7200B' and a Hostname field containing 'CWB-ISM-7200B'. Below the form is a text area containing the command 'SHOW CONTROLLER CHANNEL 2/0'. Below the text area are four buttons: Help, Main, Command, and Submit. Below the buttons is the output of the command, which includes information about the ECPA 2 hardware, mailbox commands, microcode, and various loaded segments (seg_802, seg_csna, seg_eca, seg_tcpip, seg_tn3270) with their revision numbers and compilation dates. The output also includes EPROM version, VPLD version, ECAO hardware version, microcode version, and load metrics.

Operator	Current Domain	Date / Time
HAL2000	CNMS6	08/27/00 18:51:32

Resource: ISM7200B Hostname: CWB-ISM-7200B

SHOW CONTROLLER CHANNEL 2/0

Help Main Command Submit

```

ECPA 2, hardware version 1.0, microcode version 27.2
Mailbox commands: 2 forevers, 59 max elapsed usecs
Microcode loaded from flash flash0:xcpa27-2_kernel_xcpa
Loaded:seg_802      Rev. 0    Compiled by cip-release on 11-Jun-1999
Loaded:seg_csna     Rev. 0    Compiled by cip-release on 11-Jun-1999
Loaded:seg_eca      Rev. 0    Compiled by cip-release on 11-Jun-1999
Loaded:seg_tcpip    Rev. 0    Compiled by cip-release on 11-Jun-1999
Loaded:seg_tn3270   Rev. 0    Compiled by cip-release on 11-Jun-1999
EPROM version 1.0, VPLD version 1.5
ECAO: hw version 80, microcode version C50602D4
Load metrics:
Memory: dram 2107696/4096K dram 21035848/32M

```

The **show controller channel** command displays all information about the CBUS controller card or controller channel on a Cisco router. This command lists the card's capabilities and reports any controller-related failures.

Viewing CMCC Memory and Utilization Statistics Using the Web Interface

You can view the internal variables used by ISM to perform CMCC management on the CMCC shown in the CMCC Status with Options. This information is useful if you must troubleshoot an ISM operational problem.

To view CMCC management variables from the CMCC Status with Options page (Figure 6-25), click on History. The CMCC History page (Figure 6-31) is displayed.

Figure 6-31 CMCC History Page

Cisco Systems Internetwork Status Monitor (ISM) V2 Cisco Systems

Operator	Current Domain	Date / Time
HAL2000	CNMS6	08/27/00 18:52:22

Resource: ISM7200B Slot: 2

Help Main Command Current Submit

Current Monitoring Thresholds		
	CPU Utilization	Memory Utilization
Global	90%	10%
Local	90%	10%

Utilization History												
		Memory	CPU			DMA			ECA0			
Date	Time	Dram	1 Min	5 Min	60 Min	1 Min	5 Min	60 Min	1 Min	5 Min	60 Min	
20000827	17:17	23143544/36M	1	1	0	1	0	0	1	0	0	
20000827	11:46	23143736/36M	1	1	0	1	0	0	1	1	0	
20000827	10:36	23143736/36M	1	1	0	1	0	0	1	0	0	
20000825	16:38	23247976/36M	1	1	0	1	0	0	1	0	0	
20000824	11:00	23402848/36M	1	1	1	1	0	0	1	0	0	
20000824	02:57	23402848/36M	1	1	1	1	0	0	1	0	0	
20000824	02:42	23402848/36M	1	1	1	1	0	0	1	0	0	

The CMCC History page displays the following fields:

Field	Description
Date	Date the statistics were archived.
Time	Time the statistics were archived.
Memory/DRAM	Free and total memory associated with the CMCC.
CPU—1 Min	CPU utilization for the CMCC for the last minute.
CPU—5 Min	CPU utilization for the CMCC for the last 5 minutes.
CPU—60 Min	CPU utilization for the CMCC for the last hour.
DMA—1 Min	DMA utilization for the CMCC for the last minute.
DMA—5 Min	DMA utilization for the CMCC for the last 5 minutes.
DMA—60 Min	DMA utilization for the CMCC for the last hour.
PCA0—1 Min	PCA0 utilization for the CMCC for the last minute, if PCA0 is installed.
PCA0—5 Min	PCA0 utilization for the CMCC for the last 5 minutes, if PCA0 is installed.

Field	Description
PCA0—60 Min	PCA0 utilization for the CMCC for the last hour, if PCA0 is installed.
ECA0—1 Min	ECA0 utilization for the CMCC for the last minute, if ECA0 is installed.
ECA0—5 Min	ECA0 utilization for the CMCC for the last 5 minutes, if ECA0 is installed.
ECA0—60 Min	ECA0 utilization for the CMCC for the last hour, if ECA0 is installed.
ECA1—1 Min	ECA1 utilization for the CMCC for the last minute, if ECA1 is installed.
ECA1—5 Min	ECA1 utilization for the CMCC for the last 5 minutes, if ECA1 is installed.
ECA1—60 Min	ECA1 utilization for the CMCC for the last hour, if ECA1 is installed.

Click on **Current** to display information about the controller card in the router. Figure 6-32 shows sample output.

Figure 6-32 Current CMCC Statistics —RUNCMD Page

Operator	Current Domain	Date / Time
HAL2000	CNMS6	08/27/00 19:00:44



Resource: Hostname:

```

ECPA 2, hardware version 1.0, microcode version 27.2
Mailbox commands: 2 forever, 59 max elapsed usecs
Microcode loaded from flash flash0:xcpa27-2_kernel_xcpa
Loaded:seg_802      Rev. 0    Compiled by cip-release on 11-Jun-1999
Loaded:seg_csna     Rev. 0    Compiled by cip-release on 11-Jun-1999
Loaded:seg_eca      Rev. 0    Compiled by cip-release on 11-Jun-1999
Loaded:seg_tcpip    Rev. 0    Compiled by cip-release on 11-Jun-1999
Loaded:seg_tn3270   Rev. 0    Compiled by cip-release on 11-Jun-1999
EPROM version 1.0, VPLD version 1.5
ECAO: hw version 80, microcode version C50602D4
Load metrics:
Memory      ram 2107696/4096K  dmem 21035848/32M
  
```

If the router is an SNMP-connected device, the data is collected using SNMP, as shown in Figure 6-33.

Figure 6-33 Current CMCC Statistics Page—SNMP


Internetwork Status Monitor (ISM) V2


Operator	Current Domain	Date / Time
HAL2000	CNM56	08/27/00 20:07:03

Resource: Slot:

[Help](#) [Main](#) [Command](#) [Current](#) [Submit](#)

Current Monitoring Thresholds			
	CPU Utilization	Memory Utilization	
Global	90%	10%	
Local	90%	10%	

Utilization History															
Memory		CPU			DMA			PCA0			ECA1				
Date	Time	Dram	1 Min	5 Min	60 Min	1 Min	5 Min	60 Min	1 Min	5 Min	60 Min	1 Min	5 Min	60 Min	
20000827	20:07	18361K/32M	1	1	1	1	1	1	0	0	0	0	1	0	0

[Help](#) [Main](#) [Command](#) [Current](#) [Submit](#)

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Displaying the Channels on a Router Using the Web Interface

To view the router channels from the CMCC Status with Options page (Figure 6-25), select **Channel**. Figure 6-34 shows sample output for router CWB01, a router with multiple CMCCs.

Figure 6-34 Channels on a Specific Resource Page

The screenshot shows the Internetwork Status Monitor (ISM) web interface. At the top, there are two Cisco Systems logos. Below them is a header section with three fields: Operator (HAL2000), Current Domain (CNM56), and Date / Time (08/27/00 20:05:27). Below the header is a form with several fields: Interface type (Channel), Resource (CWB01), Groups (*), Current Status (*), and Encapsulation type (*). There are also buttons for Help, Main, Command, and Submit. Below the form is a table titled "Total Interfaces: 815 Filtered: 6". The table has seven columns: Resource, Interface, Current Status, Desired Status, Previous Status, Last Change, and Encapsulation. The table lists six channels for CWB01, with their current and desired status, previous status, last change time, and encapsulation type.

Resource	Interface	Current Status	Desired Status	Previous Status	Last Change	Encapsulation
CWB01	CHANNEL3/0	UP	UP	UNKNOWN	17:18 08/27/00	CHANNEL
CWB01	CHANNEL3/1	DOWN	DOWN	UNKNOWN	17:18 08/27/00	CHANNEL
CWB01	CHANNEL3/2	UP	UP	UNKNOWN	18:29 08/27/00	CHANNEL
CWB01	CHANNEL4/0	DOWN	DOWN	UNKNOWN	17:18 08/27/00	CHANNEL
CWB01	CHANNEL4/1	UP	UP	UNKNOWN	17:18 08/27/00	CHANNEL
CWB01	CHANNEL4/2	UP	UP	UNKNOWN	18:30 08/27/00	CHANNEL

Monitoring CMCC Status Using the Web Interface

After you have enabled CMCC management for the routers, you can use one of the following procedures to monitor the status for discovered CMCCs on all routers:

- To monitor CMCC status from the ISM main menu (Figure 6-22), select **Cisco Mainframe Channel Connection Monitor (CMCC)** and click **Submit**. The Cisco Mainframe Channel Connections page (Figure 6-35) is displayed, showing all discovered CMCCs for all routers being monitored by ISM.

Figure 6-35 List of all CMCCs Page

Operator	Current Domain	Date / Time
HAL2000	CNM56	08/27/00 20:05:07

Resource*
 Groups*
 Current Status*

CMCCs: 6 Filtered: 6						
Resource	Slot	Version	Overrides	Status	Previous Status	Last Change
CWBC01	3	CIP 4.132 26.9		ACTIV		
CWBC01	CIP.2.3	CIP 4.4 26.9		ACTIV		
CWBC07	3	ECPA 0.1 27.7		ACTIV		
CWBND72A	CIP.4.3	ECPA 1.0 27.2		ACTIV		
ISM7200B	CIP.5.3	ECPA 1.0 27.2		ACTIV		
18#11#53	3	ECPA 1.0 26.8		ACTIV		

Help Main Command Submit

- The ISM Status Summary page (Figure 6-23) displays the total number of CMCCs, categorized by status. To view a list of all CMCCs in a given status, click on a value in the status column that you wish to display. The resulting Cisco Mainframe Channel Connections page displays all discovered CMCCs with the selected status.

Monitoring Channel Interfaces Using the Web Interface

To monitor the channel interface status for all routers from the ISM main menu (Figure 6-22), select **Interface Status**, select a Channel from the drop-down list box, and click **Submit**. A list of all the channels is displayed, as shown in Figure 6-36.

Figure 6-36 *Interfaces Type Page for Channels Page*

Operator	Current Domain	Date / Time
HAL2000	CNM56	08/27/00 20:12:26

Interface type: Encapsulation type:

Resource: Groups:

Current Status: Desired Status:

Total Interfaces: 815 Filtered: 11						
Resource	Interface	Current Status	Desired Status	Previous Status	Last Change	Encapsulation
CWBC01	CHANNEL3/0	UP	UP	UNKNOWN	17:18 08/27/00	CHANNEL
CWBC01	CHANNEL3/1	DOWN	DOWN	UNKNOWN	17:18 08/27/00	CHANNEL
CWBC01	CHANNEL3/2	UP	UP	UNKNOWN	18:29 08/27/00	CHANNEL
CWBC01	CHANNEL4/0	DOWN	DOWN	UNKNOWN	17:18 08/27/00	CHANNEL
CWBC01	CHANNEL4/1	UP	UP	UNKNOWN	17:18 08/27/00	CHANNEL
CWBC01	CHANNEL4/2	UP	UP	UNKNOWN	18:30 08/27/00	CHANNEL
CWBC07	CHANNEL3/0	UP	UP	UNKNOWN	17:20 08/27/00	CHANNEL
CWBC07	CHANNEL5/0	DOWN	DOWN	UNKNOWN	17:20 08/27/00	CHANNEL
CWBND72A	CHANNEL2/0	UP	UP	UNKNOWN	17:22 08/27/00	CHANNEL
ISM7200B	CHANNEL2/0	UP	UP	UNKNOWN	17:22 08/27/00	CHANNEL
18#11#53	CHANNEL3/0	UP	UP	UNKNOWN	17:24 08/27/00	CHANNEL

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Monitoring DSPU Resources

DSPU is a Cisco IOS software feature that enables a Cisco resource to act as a DSPU concentrator in SNA networks. This feature eliminates the need for an SNA gateway to provide PU concentration. Also, this feature reduces the number of PU definitions required in the mainframe, thus conserving mainframe resources, simplifies administration, and reduces polling overhead.

You can define resources as DSPU resources and monitor them from a NetView console in ISM. ISM administrators can change and delete DSPU resources. You can also access a list of Cisco IOS software **show** commands that you can issue to a specific DSPU resource from ISM.

This chapter describes the following tasks to help you find information about DSPU resources:

- Adding, Changing, or Deleting a DSPU Resource Definition, page 7-2
- Displaying DSPU Resources, page 7-4
- Obtaining Additional Information About DSPUs, page 7-6



Note

You cannot monitor DSPU resources using the Web interface.

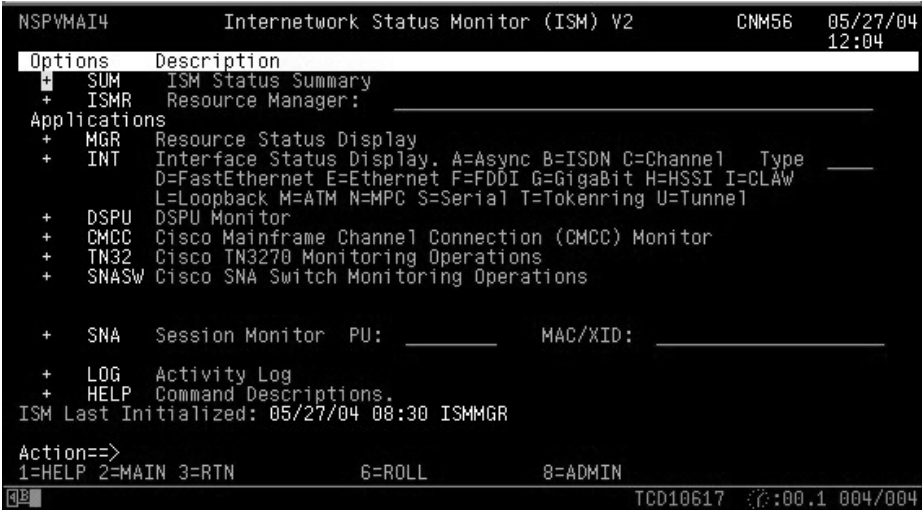
Adding, Changing, or Deleting a DSPU Resource Definition

If you are an ISM operator with enable authority, you can define a resource as a DSPU resource that you want to monitor in ISM.

To define a DSPU resource, complete the following tasks:

- Step 1** On the ISM Main menu (Figure 7-1), position the cursor on the DSPU line and press **Enter**.

Figure 7-1 ISM Main Menu Panel



The DSPU Monitoring Operations panel (Figure 7-2) is displayed.

Figure 7-2 DSPU Monitoring Operations Panel

```

NSPYDNOF          DSPU Monitoring Operations          CNM55  09/05/00
                  Target: CNM55  14:26
This command is used to present the primary functions available to an
operator for monitoring DSPU functions.

Option  Description
-----  -
* LIST   Lists the DSPU resources that have been
         identified.
* ADD/DEL Add or delete a DSPU definition.
* CMDS   Display router show commands useful for
         monitoring DSPU resources.

Press Enter to list all monitored DSPU definitions.

NSP11401 Tab to desired selection and press enter.
Action=>
1=HELP 2=MAIN 3=RTN          6=ROLL
  
```

- Step 2** Position the cursor on the ADD/DEL line and press **Enter**. The ISM DSPU Manager panel is displayed (Figure 7-3).

Figure 7-3 ISM DSPU Manager Panel

```

NSPYDSPM          ISM DSPU Manager          CNM55  09/05/00
                  Target: CNM55  14:28
This command is used to build the primary key for managing a
downstream physical unit (DSPU). If a DSPU name is passed with the
command, a check is made to see if there is management data.

The following three parameters are required:
DSPU Name (VTAM PU Name): CWBC01          Example: DSPUA
Service Point Name: CWBC01                Example: DSPUA
DSPU Host Name: DSPUPC0                    Example: HOST-A
In storage key:                            Example: DSPUXXX000

YSAM Key:
NSPDCWBC01          CWBC01 CWBC01 DSPUPC0 04/01/99 23:22 CE1
Change Type ( 1: New, 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3
NSP10371 Make changes and press Enter to validate.
Action=>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL
  
```

- Step 3** Specify information in the following fields:
- DSPU Name (VTAM PU Name)—PU defined to VTAM for the DSPU resource.
 - Service Point Name—Service point name of the resource.
 - DSPU host name—Host name of the DSPU. This is a required field.
- Step 4** In the Change Type field, enter **2** (Update).
- Step 5** In the Action Type field, enter **3**.
- Step 6** Press **PF4** to save your changes.

Displaying DSPU Resources

From the DSPU resources list, you can obtain the following information:

- Management data used by ISM to monitor a specific DSPU resource.
- List of logical units (LUs) associated with a specific DSPU resource and the status of each LU.
- Peer PUs and peer LUs associated with a specific DSPU resource.

Complete the following tasks to display a list of DSPU resources being monitored:

- Step 1

On the ISM Main menu (Figure 7-1), position the cursor on the DSPU line and press **Enter**. The DSPU Monitoring Operations panel (Figure 7-2) is displayed.
- Step 2

Position the cursor on the LIST option and press **Enter**. The Monitored DSPU Definitions panel is displayed (Figure 7-4).

Figure 7-4 Monitored DSPU Definitions Panel

NSPYDLST		Monitored DSPU Status			CNM55	09/05/00
Last Initialized:		09/05/00 14:31	DSPU Num: 33	Target:	CNM55	14:45
VTAM	Service Point	Status	DSPU			
DSPU	Name	Status	Hostname			
COLOMA	COLOMA	INVALID	NONE			
CORGW1	CORGW1	INVALID	NONE			
CWBC01	CWBC01	ACTIV	DSPUPC8			
CWBC02	CWBC02	ACTIV	NONE			
CWBC06	CWBC06	ACTIV	NONE			
CWBC07	CWBC07	ACTIV	NONE			
CWBC09	CWBC09	ALERT	NONE			
CWBC14	CWBC14	ACTIV	NONE			
CWBND72A	CWBND72A	ACTIV	NONE			
CWBND72B	CWBND72B	INVALID	NONE			
CWBR11	CWBR11	ACTIV	NONE			
CWBR12	CWBR12	INOP	NONE			
CWBR13	CWBR13	INOP	NONE			
CWBR14	CWBR14	INOP	NONE			
CWBR18	CWBR18	INOP	NONE			
CWBR19	CWBR19	ACTIV	NONE			
DIALPU	DIALPU	INVALID	NONE			
==>						
1=HELP 2=MAIN 3=RTN 6=ROLL 8=FWD 9=ADMIN 10=CMDS 11=STATUS						

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The following information is displayed on the Monitored DSPU Definitions panel:

- VTAM DSPU—PU defined to VTAM for a DSPU resource.
- Service Point Name—Service point name of the resource.
- Status—Current status of the DSPU resource.
- DSPU Hostname—Host name of the DSPU.

Step 3 To obtain additional information about a DSPU resource, select the interface and press one of the following function keys:

Press	To
PF9	Displays the management data used by ISM to monitor a DSPU resource.
PF10	Displays the DSPU show command interface from which you can issue Cisco IOS software show commands to a specific DSPU. See the “Obtaining Additional Information About DSPUs” section on page 7-6 for more information.
PF11	Displays a list of LUs associated with a DSPU resource. See the “Displaying a List of DSPU LUs and Peer PUs and LUs” section on page 7-5 for information.

Displaying a List of DSPU LUs and Peer PUs and LUs

To display the LUs, peer PUs, and peer LUs associated with a specific DSPU resource on the Monitor DSPU Definitions panel, position the cursor on the VTAM DSPU name of the resource and press **PF11**. The VTAM DSPU panel is displayed (Figure 7-5).

Figure 7-5 VTAM DSPU Panel

```

NSPYDSTA          VTAM DSPU Name= CWBC01          CNW55  09/05/00
CWBC01 DSPUPC8 15          TARGET: CNW55  14:46
LU Name      Status      Peer PU      Peer LU
LUZ002      ACTIY---X-
LUZ003      ACTIY---X-
LUZ004      ACTIY---X-
LUZ005      ACTIY---X-
LUZ006      ACTIY---X-
LUZ007      ACTIY---X-
LUZ008      ACTIY---X-
LUZ009      ACTIY---X-
LUZ010      ACTIY---X-
LUZ011      ACTIY---X-
LUZ012      ACTIY---X-
LUZ013      ACTIY---X-
LUZ014      ACTIY---X-
LUZ015      ACTIY---X-
LUZ016      ACTIY---X-

==>
1=HELP 2=MAIN 3=RTN 6=ROLL          10=DISPLAY 11=SHOW
  
```

Press	To
PF10	Display the LU as defined in VTAM.
PF11	Display the status of a DSPU resource.

The ISM DSPU Monitoring function provides a list of standard Cisco IOS software **show** commands that you can use to obtain additional information about a DSPU resource. Use this information for problem determination.

Step 1 From the Monitored DSPU Definitions panel, position the cursor on the DSPU resource you want to view and press **PF10**. The DSPU Show Commands panel (Figure 7-6) is displayed.

```

NSPYDCMD                ROUTER DSPU Show Commands                CNM55    09/05/00
                                           TARGET:  CNM55    14:42

The following show commands are useful when working with DSPU routers.
Service Point Name: CVC001

Show Command
1: show dspu                (Shows all DSPU PUs)
2: show dspu pool           (Shows all pools)
   Pool List
   1= _____ 2= _____ 3= _____ 4= _____ 5= _____
3: show dspu pool           _____
4: show dspu pool           _____ ALL
   PU list
   1= _____ 2= _____ 3= _____ 4= _____ 5= _____
   6= _____ 7= _____ 8= _____ 9= _____ 10= _____
5: show dspu pu             _____
6: show dspu pu             _____ ALL

For options 3 & 4, also enter the Pool number.
For options 5 & 6, also enter the PU number.
To issue a command, type the command option number and press Enter.

Action==>
1=HELP 2=MAIN 3=FIN 6=ROLL

```

- **show dspu**—Displays the status of the DSPU feature.
- **show dspu pool xxxx**—Displays the status of a specific pool of LUs. Specify the pool name in the provided field before selecting this command.

- **show dspu pool *xxxx* all**—Displays a detailed status of a specific pool of LUs. Specify the name of the pool in the field to the right of the command before selecting this action.
- **show dspu pu *xxxx***—Displays the status of a specific PU. Specify the PU name or DSPU host name in the field to the right of the command before selecting this action.
- **show dspu pu *xxxx* all**—Displays a detailed status of a specific PU. Specify the PU name or DSPU host name in the field to the right of this command before selecting this action.

Step 2 Following the instructions at the bottom of the panel, type the appropriate information for the command you are issuing.

Step 3 To issue a command, type the number representing the command in the Action field and press **Enter**.



Monitoring TN3270 Servers

You can use ISM to monitor the availability of Cisco TN3270 servers, which reside on the Channel Interface Processors (CIPs) and channel port adapters of Cisco Routers. ISM monitors a TN3270 server using either SNMP or the service point in the router.

When you monitor TN3270 servers, keep the following considerations in mind:

- TN3270 server monitoring is disabled by default in ISM setup when you first initialize ISM.
- You must enable the ISM Resource Management application before you can monitor TN3270 routers.
- The options on the ISM Resource Management Setup panels apply to *all* routers managed by ISM.
- If you want to change history database IDs, you must do so *after* you install ISM, but *before* you initialize ISM for the first time. You can access ISM setup even when the ISMMGR task is not running.

Use the following procedures to monitor Cisco TN3270 servers:

- Enabling ISM to Monitor TN3270 Servers, page 8-2
- Monitoring TN3270 Servers Using the Standard Interface, page 8-5
- Monitoring TN3270 Servers Using the Web Interface, page 8-18

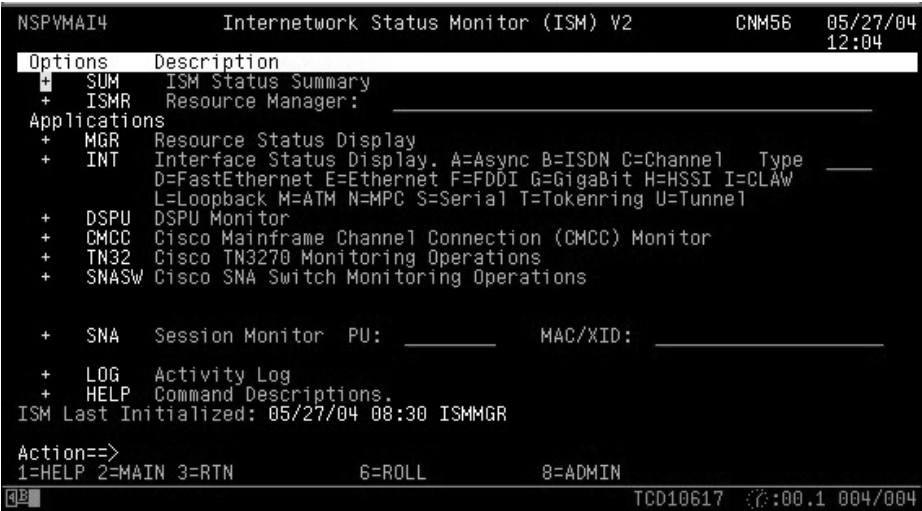
Enabling ISM to Monitor TN3270 Servers

Use the following procedure to enable ISM to monitor TN3270 servers:

- Step 1

On the ISM main menu panel (Figure 8-1), press **PF8** (ADMIN).

Figure 8-1 Internetwork Status Monitor (ISM) Main Menu Panel



The ISM Administration menu panel (Figure 8-2) is displayed.

Figure 8-2 ISM Administration Menu Panel

```

NSPVADM                      ISM Administration                      CNM56    06/02/04
                                TARGET:    13:15
Options  Description
+ SETUP  ISM Setup Menu
+ ISMR   Resource Manager: _____
+ USER  User Profile Management   ID: _____
+ SNMP   SNMP Management Setup
+ SYAR   SNMP Control Variables
+ TN32   TN3270 Server Monitoring
+ SNASw  SNA Switch Monitoring Setup
+ TMGR   Display ISM Scheduler Settings
+ MGRM   Display ISM Resource Management Settings
+ VARS   Display ISM Control Variables
ISM Last Initialized: 06/01/04 15:26 ISMMGR
Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL 7=BACK
TCE10154 00:00.0 004/004

```

Step 2 Press **Enter** to display the ISM Resource Management Setup panel (Figure 8-3).

Figure 8-3 ISM Resource Management Setup Panel

```

NSPVSE21                      ISM Resource Management Setup - V2 1 of 5  CNM56    08/28/00
                                19:55
Last Initialized: 08/28/00 08:05 ISMMGR
Applications:      Default      Initial Update
Resource Management ( Y :Yes) | N :No): YES   YES
Interface Monitoring ( Y :Yes) | N :No): YES   YES
SNA Session Monitoring ( N :No  Y :Yes): YES   YES
CMDC Management    ( N :No  Y :Yes): YES   YES
DSPU Management    ( N :No  Y :Yes): NO    NO
TN3270 Server Monitor ( N :No  Y :Yes): NO    YES   Setup: yes
Reserved           ( N :No  Y :Yes): NO    NO    Setup: 
SNMP Management    ( N :No  Y :Yes): YES   YES   Setup: 
ISM Scheduler      ( N :No  Y :Yes): YES   YES   Setup: 
Resource Monitor Setup Enter YES to update: YES   Setup: 
Update ISM Autotasks Enter YES to update: 
ISMSETUPCNM56R3      APPL(YES YES YES YES YES YES NO NO YES ) MI(00:1
6) TH(00 15) IM(YES YES YES YES YES YES YES YES YES YES YES YES) MI2(02:0
1) 0B(H 1 R C H) CM(40 40 5 99 15) CIP(90 10) 08/28/00 19:51 HRL2
Change Type ( 1: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3
Press PF8 to review/set rules.
NSP11711 No changes have been made to NSPTNSET.
Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL 8=FWD

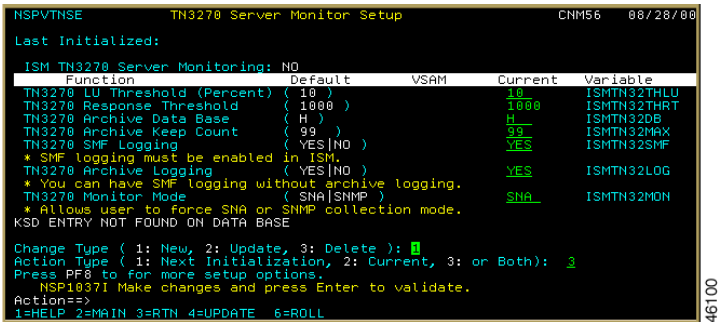
```

Step 3 Beside the TN3270 Server Monitor option, type **Y** in the Update column. **Yes** appears beside the TN3270 Server Monitor option. When you save the setup, the following line is added to the ISM main menu:

```
+ TN32 Cisco TN3270 Monitoring Operations
```

Step 4 To enable global TN3270 variables, type **Y** in the setup field of the TN3270 Server Monitor line and press **Enter**. The TN3270 Server Monitor Setup panel (Figure 8-4) is displayed.

Figure 8-4 TN3270 Server Monitor Setup Panel



The TN3270 Server Monitor Setup panel contains the following fields:

Field	Description
ISM TN3270 Server Monitoring	Indicates whether you have saved the ISM setup parameters. The default value is NO . This field is set to YES when you save the ISM setup parameters.
TN3270 LU Threshold	Indicates a percentage of available LUs. ISM generates an alarm when the available LUs in a TN320 server drops below this percentage. The default value is 10 percent.
TN3270 Response Threshold	This field is not supported.
TN3270 Archive Data Base	Accept the default value of H unless you want to allocate another database and start a new NSPDS task.
TN3270 Archive Keep Count	Indicates the archive keep count used by the TN3270 history record key. The default value is 99 . If you do not use the default value, you must delete the existing history records before ISM uses the new value.
TN3270 SMF Logging	Indicates whether SMF recording is enabled. The default value is YES .
TN3270 Archive Logging	Indicates whether ISM is to archive the data it collects. The default value is YES .
TN3270 Monitor Mode	If both SNA and SNMP can access the router, this field indicates whether ISM uses SNA or SNMP to monitor TN3270 servers. The default value is SNA .

- Step 5** Press **PF4** to save your changes. If you have already initialized ISM, the changes are effective immediately.
-

Monitoring TN3270 Servers Using the Standard Interface

You can monitor the status of TN3270 servers using either the standard interface or by the NetView Web interface. This section describes how to use the standard interface to perform the following tasks:

- Monitoring TN3270 Server Status Using the Standard Interface, page 8-5
- Monitoring TN3270 Server Operations Using the Standard Interface, page 8-15

For details on using the Web interface, see the “Monitoring TN3270 Servers Using the Web Interface” section on page 8-18.

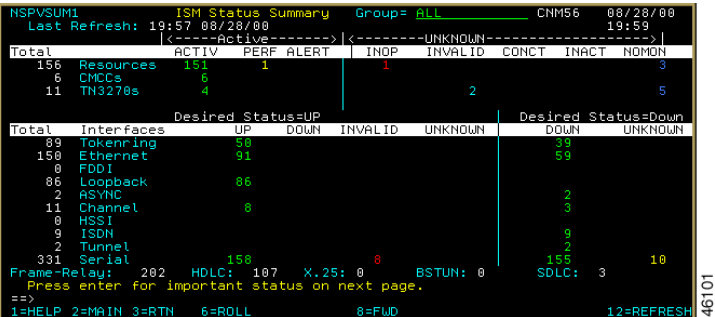
Monitoring TN3270 Server Status Using the Standard Interface

This section describes how to monitor the status of TN3270 servers using the standard interface.

You can monitor the status of TN3270 servers from the ISM Status Summary panel or from the ISM main menu panel. The following steps show you how to access TN3270 Server Status from the ISM Status Summary panel:

- Step 1** On the ISM Status Summary panel (Figure 8-5), position the cursor in the Total column beside the TN3270s option and press **Enter**.

Figure 8-5 ISM Status Summary Panel



The Cisco TN3270 Servers panel (Figure 8-6) is displayed.

Figure 8-6 Cisco TN3270 Servers Panel



The Cisco TN3270 Servers panel displays the following fields:

Field	Description
Router	Router name with which this TN3270 server is associated.
Channel	Channel interface on the router used by this TN3270 server.
TN3270 Status	Current TN3270 server status.
Last Change	Date and time of the last status change for this TN3270 server.
Previous	Previous TN3270 server status.

- Step 2** To select options for TN3270 server operations, position the cursor on the selected router and press **Enter**. The ISM TN3270 Operation Options panel (Figure 8-7) is displayed, showing the TN3270 status and management options available for the TN3270.

Figure 8-7 ISM TN3270 Operation Options Panel

```

NSPVTSEL      ISM TN3270 Operation Options      CNM56  08/23/00
                                                    20:04

      Router: ISM7200B
      Interface: CHANNEL2/0
      TN3270 Status: ACTIV
      Desired Status: ACTIV
      Encapsulation: CHANNEL
      Last Status:
      Monitoring Active: YES
      Previous:

      INDEX: 10

      + Show Interface
      + Display Interface Variables
      + History
      + TN3270 Commands
      + Administration
      + Reset

Actions==>
1=HELP 2=MAIN 3=RTN      6=ROLL
  
```

- Step 3** To show detailed information for the channel used by the TN3270 server, select the Show Interface option. The interface information displays differently depending on whether the router has an SNA interface or an SNMP interface. If the router has an SNA interface, the Router Command Interface panel (Figure 8-8) is displayed.

Figure 8-8 Router Command Interface Panel—SNA

```

NSPVCMDA      Router Command Interface      CNM56  08/28/00
                                                    20:07

SName: ISM7200B  Log: ( NO | YES ) NO      Target: CNM56
Hostname= cwb-ism-7200b      Password:

Show extended channel 2/0 tn3270-server

server-ip:tcp      <current stats> <connection stats> <response time(ms)>
172.18.12.75:23    255 1      16 15 0      host tcp
total             255 1
configured max_lu 2100
idle-time 0      keepalive 1800      unbind-action disconnect
ip-prec-ed-screen 0 ip-prec-ed-printer 0 ip-tos-screen 0 ip-tos-printer 0
tcp-port 23      generic-pool permit no timing-mark
lu-termination unbind lu-deletion never
name(index) ip:tcp      .xid state      link destination r-lsep
ISM3270a(1) 172.18.12.75:23 05D0FF01 ACTIVE tok 16 4801.7200.c0e1 04 08
cwb-ism-7200b>

==>
1=HELP 2=MAIN 3=RTN 5=COPY 6=ROLL      11=RIGHT 12=RECALL
  
```

If the router has an SNMP interface, the Interface Table panel (Figure 8-9) is displayed.

Figure 8-9 Interface Table Panel—SNMP

```
NSPVSNSP                      Interface Table for 172.18.7.33          Page 1 of 2
Index:      17                  In Collisions:    0
Descr:      Channel4/2          In Queue Drops: 0
Type:       PropVirtual         Carrier Trans:  3
MTU:        4472 BYTES          In errors:      0
Speed:      38384 Band Width Kbi Reliability:    255/255
Received Bcasts 0              Delay:          100
AdminStatus: UP                Load:          17/255
OperStatus: UP                 Out Queue Drops: 0
In packets: 7686452            OutUcastPkts:  7785186
In Bytes:    341884550          Out TotalPkts: 7785186
In Giants:   0                 Out errors:     0
In CRC:      0                 In Runt:        0
In Frame:    0                 Out Queue:      0
In Overrun:  0
In Ignored:  0
In Abort:    0
OutInterfaceRes: 0
In Restarts: 0

Action==>
1=HELP 2=END 3=RETURN          6=ROLL      8=FWD
```

Step 4 To display the internal variables used by ISM to monitor the TN3270 server, select the Display Interface Variables option. Figure 8-10 and Figure 8-11 show the resulting output.

Figure 8-10 Interface Control Block Panel— 1 of 2

```
NSPVIWA1                      Interface Control Block          CNM56  08/28/00
                                20:17
A control block is maintained for each interface. This page and the
next page show the contents of the control block for the selected interface.
Interface Control Block Index: 10
Type: Channel      Encapsulation: CHANNEL
Variable  Use      Value
ISMICA10  Status Change: 08:10 08/28/00 INVALID
ISMICB10  Owning Domain: CNM56
ISMICC10  Desired Status : UP
ISMICD10  Control Data:
RTZ62.C2S0 ICISM7200BC2S0 ISM7200B CHANNEL2/0 2/0 DS(UP) M(YES) G
(2S0) E(CHANNEL) T(ACTIV) I() 08/23/00 16:46 HAL3 NSPIBCV4
ISMICE10  Encapsulation: CHANNEL
ISMICH10  History pointer (VSAM key)
HISM7200BC2S0 101 48 08/28/00 19:38 ISMMGRI

Action==>
1=HELP 2=MAIN 3=RTN 5=COPY    6=ROLL      8=FWD
```

Figure 8-11 Interface Control Block Panel—2 of 2

```

NSPVIVA2                                Interface Control Block    CNM56    08/28/00
Variable    Use                        Value
ISMIC110    Interface Index (SNMR):
ISMICK10    Copy of last Performance record

ISMICL10    Copy of last statistics record (history)

ISMICM10    Monitor mode: YES
ISMICD10    TN3270 Overrides:
ISMICP10    Performance pointer (VSAM key)
            PISM7200BC2S0 100 48
ISMICS10    Current Status: UP
ISMICT10    TN3270 Status: ACTIV
ISMICU10    TN3270 Status Change:
VSAM KSD C0:27nts:
ICISM7200BC2S0      ISM7200B CHANNEL2/0  2/0  DS(UP) M(YES) G(2S0)
E(CHANNEL) T(ACTIV) I() 08/23/00 16:46 HAL3

Action==>
1=HELP 2=MAIN 3=RTN      5=COPY 6=ROLL 7=BACK

```

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Step 5 To display the statistics that ISM has archived for a specific TN3270 server, select the History option. Figure 8-12 shows sample TN3270 history statistics.

Figure 8-12 TN3270 History Statistics

```

NSPVTHM1                                History Statistics For TN3270 ISM7200B    CNM56    08/28/00
Channel: 2/0                            <Current Stats><Connection Stats> > Response Time
Date    Time    % Free LUs    LU in-use    connect    disconn    fail    host    top
20000823 17:42    99.6    255    1    27    26    0    363    305
20000823 16:57    99.6    255    1    27    26    0    366    305
20000823 16:42    99.6    255    1    27    26    0    375    305
20000823 16:27    99.6    255    1    27    26    0    375    305
20000824 02:57    100    255    0    27    27    0    363    305
20000824 02:42    100    255    0    27    27    0    363    305
20000824 02:27    100    255    0    27    27    0    363    305
20000824 02:12    100    255    0    27    27    0    363    305
20000824 01:57    100    255    0    27    27    0    363    305
20000824 01:45    100    255    0    27    27    0    363    305
20000824 01:43    100    255    0    27    27    0    363    305
20000824 01:27    100    255    0    27    27    0    363    305
20000824 01:12    100    255    0    27    27    0    363    305
20000824 00:57    100    255    0    27    27    0    363    305
20000824 00:42    100    255    0    27    27    0    363    305
20000824 00:27    100    255    0    27    27    0    363    305
20000823 23:57    100    255    0    27    27    0    363    305

==>
1=HELP 2=MAIN 3=RTN      6=ROLL 7=BACK 8=FWD      10=CHDS

```

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The TN3270 History Statistics panel displays the following fields:

Field	Description
Date	Date the statistics were archived.
Time	Time the statistics were archived.
% Free LUs	Percentage of LUs that are free.
LU	Number of LUs defined for all PUs.
In-Use	Number of of LUs in use.
Connect	Number of connections made to this TN3270 server.
Disconn	Number of disconnects from this TN3270 server.

Field	Description
Fail	Number of connect failures for this TN3270 server.
Host	Host response time (in milliseconds).
TCP	TCP response time (in milliseconds).

Step 6 If the router has an SNA interface, you can select the TN3270 Commands option, which enables you to issue show commands for TN3270 functions. Figure 8-13 shows the TN3270 Show Commands panel.

Figure 8-13 TN3270 Show Commands Panel

```
NSPVTCNM      TN3270 Show Commands      TARGET: CNM56 08/28/00
The following show commands are useful when monitoring TN3270.
Resource Name: ISM7200B CHANNEL: 2/0
Show Command
1: show extended channel 2/0 tn3270-server
2: show extended channel 2/0 tn3270-server pu
3: show extended channel 2/0 tn3270-server dlur
4: show extended channel 2/0 tn3270-server dlur
5: show extended channel 2/0 tn3270-server
   client-ip-address
6: show extended channel 2/0 tn3270-server
   nailed-ip
7: D NET,E,ID=
Press PF1 for more command details or enter option number and press PF1.
To issue a command, ensure the required arguments have been specified,
type the command number, and press Enter.
Enter the command number followed with a ? to get help from the resource.
Action==>
1=HELP 2=MAIN 3=RTN 6=ROLL
```

Step 7 Enter a number in the Action field and press **Enter**. Figure 8-14 shows an example of the panel that is displayed after **1** is entered in the Action field.

Figure 8-14 TN3270 Show Commands Output

```
NSPVTCMDA      Router Command Interface      CNM56 08/28/00
SPName: ISM7200B Log: ( NO | YES ) NO Target: CNM56 20:28
Hostname= cwb-ism-7200b Password:
Show extended channel 2/0 tn3270-server
server-ip:tcp lu in-use connect disconn fail host tcp
172.18.12.75:23 255 1 16 15 0 237 40
total 255 1
configured max_lu 2100
idle-time 0 keepalive 1800 unbind-action disconnect
ip-prec-ed-screen 0 ip-prec-ed-printer 0 ip-tos-screen 0 ip-tos-printer 0
tcp-port 23 generic-pool permit no timing-mark
lu-termination unbind lu-deletion never
name(index) ip:tcp xid state link destination r-lsap
ISM3270A(1) 172.18.12.75:23 05D0FF01 ACTIVE tok 16 4801.7200.c0e1 04 08
cwb-ism-7200b
==>
1=HELP 2=MAIN 3=RTN 5=COPY 6=ROLL 11=RIGHT 12=RECALL
```

- Step 8** To perform administrative tasks, select the Administration option. (This option is displayed only if you have the authority to change the management rules for monitoring routers.) The ISM Interface Administration panel (Figure 8-15) is displayed.

Figure 8-15 ISM Interface Administration Panel

```

NSPVIDE4      ISM Interface Administration      CNM56  09/20/00
Router Name: BERIMA      Interface Type: CHANNEL2/2      INDEX: 3
Encapsulation: CHANNEL      SNMP INDEX: 17
Current Status: UP      Status Chg: 07:57 09/19/00 INVALID
TN3270 Status: ACTIV      TN3270 Status Change:
Intensive Mode Recording: OFF

Desired Status( UP | DOWN ): UP
Monitor Mode( YES | NO ): YES
Delete history and performance records ( NO | YES ): NO
Change Type ( 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3
NSP1038I Press Enter for prompted input.
Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 5=IMR 6=ROLL      9=DEBUG
  
```

From the ISM Interface Administration panel, you can perform the following tasks:

- By default, ISM queries every channel for TN3270 server status (because every channel can potentially support TN3270 servers). To prevent ISM from collecting TN3270 server statistics from a selected channel, enter **NOMON** in the TN3270 Status field.

The TN3270 Status field can take one of the following values:

- **ACTIV**—All functions are working.
- **ALERT**—LU free threshold has been exceeded. ISM monitors LU availability on a TN3270 server and creates an alert when the available LUs drop below the threshold.
- **NOMON**—Do not monitor this TN3270 server.
- **UNKNOWN**—TN3270 server not found on this channel.
- If TN3270 data archiving is enabled, you can remove history records from the VSAM database for a specific router. To do so, enter **YES** in the Delete History and Performance Records field and press **PF4**.

- Step 9** To reset TN3270 status from **ALERT** to **ACTIV** state, select the Reset option. (This option is displayed only if you have the authority to change the management rules for monitoring routers.) If the TN3270 server is available, ISM changes the status to **ACTIV** and issues status collection commands.
- Step 10** To display TN3270 status via SNMP, select the Show Via SNMP option. (This option is displayed only if the router can be contacted using SNMP.) Selecting this option generates two panels of information. To see the second panel, press **PF11**. Figure 8-16 and Figure 8-17 show sample output from this option.

Figure 8-16 TN3270 Server PU Status Panel—1 of 2

PU Name	IP address	XID	State	Link	MAC address	rsap	lsap
CUBDLUR1	172.18.9.178:23	05DF00	reset	dlur	n/a	n/a	n/a
CUB3270A	172.18.9.147:23	05D0F0	reset	direct	400170000390	04	12
CUB3270E	172.18.9.149:23	05D0F0	reset	direct	40017000C140	04	22
PU3270A	172.18.9.146:23	05D0F0	active	direct	40017000C142	04	18

==>
1=HELP 2=MAIN 3=RTN 6=ROLL 11=RIGHT

Figure 8-17 TN3270 Server PU Status Panel—2 of 2

PU	IP address	<Current Stats>		<Connection Stats>		Response Time	
		in-use	connect	disconn	fail	host	top
CUBDLUR1	172.18.9.178:23	0	0	0	0	0	0
CUB3270A	172.18.9.147:23	0	0	0	0	0	0
CUB3270E	172.18.9.149:23	0	0	0	0	0	0
PU3270A	172.18.9.146:23	255	0	29	29	172	10

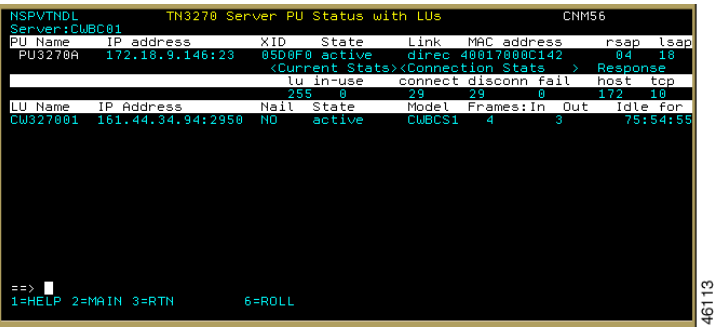
==>
1=HELP 2=MAIN 3=RTN 6=ROLL 10=LEFT

The TN3270 History Statistics panels display the following variables:

Variable	Description
PU Name	Name of this PU.
IP Address	IP address and TCP port of this TN3270 server PU.
XID	XID or ID block/ID number for this PU.
State	Current state of this PU.
Link	Indicates whether the connection to the host is via DLUR or via direct link. If via DLUR, the MAC, RSAP, and LSAP variables are undefined.
MAC Address	(Direct link only) MAC address of the remote node.
RSAP	(Direct link only) SAP address of the remote node.
LSAP	(Direct link only) SAP address of the local direct node.
TN3270 PU	Name of this PU.
IP Address	IP address and TCP port of this TN3270 server PU.
LU	Number of TN3270 sessions configured that are available for use by TN3270 clients.
In-Use	Number of sessions in use.
Connects	Total number of TN3270 sessions connected.
Disconn	Total number of TN3270 sessions disconnected.
Fail	Total number of attempted sessions that failed to negotiate TN3270/E, or that were rejected by the control point.
Host	Response time for all sampled inbound transactions for which response time is computed. Response time is the interval between the time the EOR was received from the client and the time the reply was received from the host.
TCP	If the timing mark is configured, response time is computed for all sampled timing marks on which response time is computed. Response time is the interval between the time the timing mark was sent to the client and the time the reply was received from the client.

Step 11 To display the status of the LUs associated with this PU, position the cursor on a TN3270 PU name and press **Enter**. Figure 8-18 shows sample output for this selection.

Figure 8-18 TN3270 Server PU Status with LUs Panel



The TN3270 Server PU Status with LUs panel contains the following LU output fields:

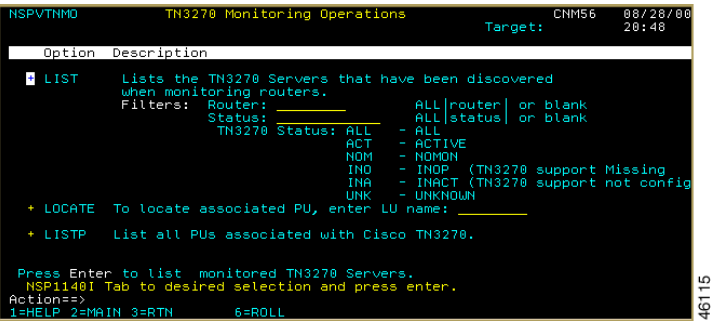
Field	Description
LU Name	Name of this LU.
IP Address	IP address and TCP port of the TN3270 client connected to this LU.
Nail	Indicates whether this LU has been configured for a specific TN3270 client (nailed).
State	Current state of the LU.
Model	Terminal type or model number of the incoming TN3270 client.
Frames In	Number of RUs sent by the local LU.
Frames Out	Number of RUs received by the local LU.
Idle For	Time since last activity was recorded on this LU.

Monitoring TN3270 Server Operations Using the Standard Interface

You can monitor TN3270 server operations from the ISM main menu (Figure 8-1). To do so, use the following procedure:

- Step 1** Position the cursor on the TN32 line and press **Enter**. The TN3270 Monitoring Operations panel (Figure 8-19) is displayed.

Figure 8-19 TN3270 Monitoring Operations Panel



The TN3270 Monitoring Operations panel provides the following options:

Option	Description
LIST:Filter:Router	Select this option and enter a router name to list TN3270 servers by router name. If you do not enter a router name, all TN3270 routers are displayed.
LIST:Filter:Status	Select this option and select a status to list TN3270 servers by their current status. By default, this option lists all channels that are TN3270 server-capable, except those that are in NOMON state. If you do not enter a status, all TN3270 routers are displayed.
LOCATE	(Local VTAM-managed LUs only) Enter an LU name to list the associated TN3270 PUs.
LISTP	List all TN3270 PUs.

Figure 8-20 shows sample output for the **List by Status** option.

Figure 8-20 Cisco TN3270 Servers

```

NSPVTLLS          Cisco TN3270 Servers          CNM56  09/20/00
Total Number of TN3270 Servers: 14          Filter:
21:20
Router      Channel      TN3270 Status      Last Change-Previous
-----
CBR1A      CHANNEL2/2      ACTIV
CUBC01     CHANNEL3/2      ACTIV
CUBC01     CHANNEL4/2      ACTIV
CUBC07     CHANNEL3/0      ACTIV
ISM7200B   CHANNEL2/0      ACTIV          09/19/00 08:05 ACTIV
8#11#140   CHANNEL2/0      ACTIV          21:19 09/20/00

==>
1=HELP 2=MAIN 3=RTN          6=ROLL
  
```

Step 2 To find the TN3270 server PU that an LU is using, enter the LU’s name in the TN3270 Monitoring Operations menu (Figure 8-19) and press **Enter**. The TN3270 Show Commands panel (Figure 8-21) is displayed, showing any associated TN3270 PUs.

Figure 8-21 TN3270 Show Commands Panel

```

NSPVTNCH          TN3270 Show Commands          TARGET:  CNM56  08/28/00
Resource Name: ISM7200B CHANNEL: 2/0          21:28
The following show commands are useful when monitoring TN3270.
Show Command
1: show extended channel 2/0      tn3270-server
2: show extended channel 2/0      tn3270-server pu ISM3270A
3: show extended channel 2/0      tn3270-server dtur
4: show extended channel 2/0      tn3270-server dlur
5: show extended channel 2/0      tn3270-server
   client-ip-address
6: show extended channel 2/0      tn3270-server
   nalled-ip
7: D NET,E,ID= ISM3270A

Press PF1 for more command details or enter option number and press PF1.
To issue a command, ensure the required arguments have been specified,
type the command number, and press Enter.
Enter the command number followed with a ? to get help from the resource.
PU not found, ISM0AL04 not in session. NSPTNLU
Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL
  
```

Step 3 To help with problem determination, enter option **1**, **2**, or **7**.

Figure 8-22 shows sample output if you enter a **2** in the **Action** field, thereby issuing the **show extended channel 2/0 tn3270-server pu ISM3270A** command.

Figure 8-22 TN3270 Show Commands Option 2 Output

```

NSPVCMDA Router Command Interface CNM56 08/28/00
SPname: ISM7200B Log: ( NO | YES ) NO Target: CNM56 21:34
Hostname: cub-ism-7200b Password:
show extended channel 2/0 tn3270-server pu ISM3270A

name(index) ip:tcp xid state link destination r-lsap
ISM3270A(1) 172.18.12.75:23 0500FF01 ACTIVE tok 16 4001.7200.c0e1 04 08
luseed ISM0AL4
idle-time 0 keepalive 1800 unbind-act discon generic-pool perm
ip-precid-screen 0 ip-precid-printer 0 ip-tos-screen 0 ip-tos-printer 0
lu-termination unbind lu-deletion never
bytes 86302 in, 4913806 out; frames 7461 in, 5787 out; NegRsp 0 in, 0 out
actlus 4, dactlus 3, binds 22
Note: If state is ACT/NA then the client is disconnected
lu_name client-ip:tcp nail state model frames in out idle for
4 ISM0AL04 161.44.96.156:1041 N ACT/SESS 3278S2E 3045 2674 0:0:0
cub-ism-7200b>

==>
1=HELP 2=MAIN 3=RTN 5=COPY 6=ROLL 11=RIGHT 12=RECALL

```

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Figure 8-23 shows sample output if you enter a **7** in the **Action** field.

Figure 8-23 TN3270 Show Commands Option 7 Output

```

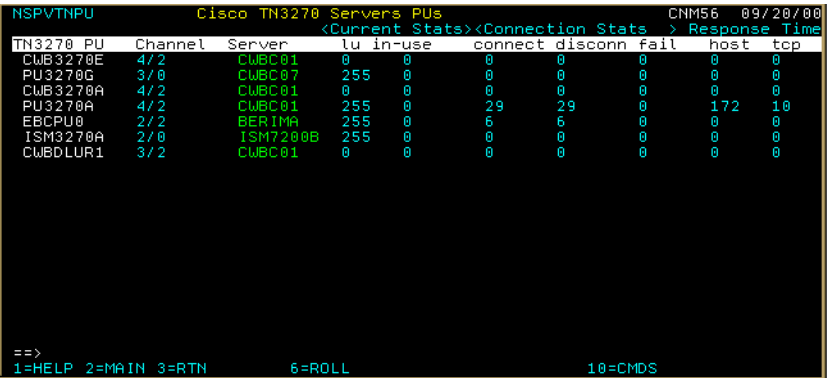
CNMKWIND OUTPUT FROM 0 NET, ID=ISM3270A,E LINE 0 OF 19
----- Top of Data -----
IST0971 DISPLAY ACCEPTED
IST0751 NAME = ISM3270A , TYPE = PU_T2.1
IST4861 STATUS= ACTIV , DESIRED STATE= ACTIV
IST10581 MODEL LU GROUP = DDDLUSP , LUSEED = ISM0AL##
IST10431 CP NAME = ISM3270A, CP NETID = NETA , DYNAMIC LU = YES
IST15891 XNETALS = YES
IST11051 RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST11061 ISM3270A AC/R 21 YES 0075000000000000000014C000000000
IST14821 HPR = RTP - OVERRIDE = N/A - CONNECTION = NO
IST9561 PU SAP= 0 MAC=40017200C0E1 MAXDATA= 4407
IST1361 SWITCHED SNA MAJOR NODE = SWIS3270
IST0811 LINE NAME = A4002000, LINE GROUP = SGXCGR2 , MAJNOD = SGXC4002
IST6541 I/O TRACE = OFF, BUFFER TRACE = OFF
IST15001 STATE TRACE = OFF
IST16561 VTAMTOPO = REPORT , NODE REPORTED = YES
IST16571 MAJOR NODE VTAMTOPO = REPORT
IST3951 LOGICAL UNITS:
IST0801 ISM0AL04 ACT/S---X-
IST3141 END
----- Bottom of Data -----
TO SEE YOUR KEY SETTINGS, ENTER "DISPFK"
CMD=>

```

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- Step 4** To display all PUs associated with Cisco TN3270 servers, select option LISTP. A list of all TN3270 PUs (Figure 8-24) is displayed.

Figure 8-24 List of TN3270 Server PUs



NSPVTNPU	Cisco TN3270 Servers PUs	CNM56	09/20/00
TN3270 PU	Channel	Server	<Current Stats><Connection Stats> Response Time
			tu in-use connect disconnect fail host ttp
CUB3270E	4/2	CWBC01	0 0 0 0 0 0 0
PU3270G	3/0	CWBC07	255 0 0 0 0 0 0
CUB3270A	4/2	CWBC01	0 0 0 0 0 0 0
PU3270A	4/2	CWBC01	255 0 29 29 0 172 10
EBCPU0	2/2	BERIMA	255 0 6 6 0 0 0
ISM3270A	2/0	ISM7200B	255 0 0 0 0 0 0
CUBDLUR1	3/2	CWBC01	0 0 0 0 0 0 0

==>
1=HELP 2=MAIN 3=RTN 6=ROLL 10=CMDS

Monitoring TN3270 Servers Using the Web Interface

You can monitor the status of TN3270 servers using either the standard interface or by the NetView Web interface. This section describes how to use the Web interface to perform the following tasks:

- Monitoring TN3270 Server Status Using the Web Interface, page 8-19
- Monitoring TN3270 Server Operations Using the Web Interface, page 8-29

Monitoring TN3270 Server Status Using the Web Interface

To monitor the status of TN3270 servers using the NetView Web interface, complete the following steps:

- Step 1** On the ISM main menu page (Figure 8-25), select **ISM Status Summary** and click **Submit**.

Figure 8-25 ISM Main Menu Page

Operator	Current Domain	Date / Time
HAL2000	CNM56	08/30/00 08:43:18

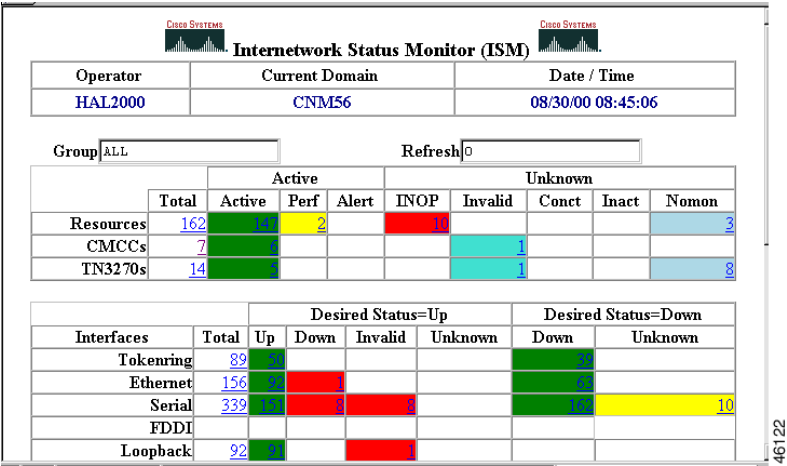
☒ ISM Status Summary
☐ Resource Manager
☐ Interface Status
☐ TN3270 Monitor
☐ Cisco Mainframe Channel Connection Monitor (CMCC)
☐ Session Monitoring
☐ Activity Log

ServicePointName or IP Address: Async
PU or MAC:

ISM Last initialized: 08/28/00 08:05 ISMMGR
Select an option and press Submit

The ISM Status Summary page (Figure 8-26) is displayed.



Figure 8-26 ISM Status Summary Page



Step 2 Select a field in the CMCCs row. The Cisco TN3270 Servers page (Figure 8-27) is displayed.

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Figure 8-27 Cisco TN3270 Servers Page

Internetwork Status Monitor (ISM)

Operator	Current Domain	Date / Time
HAL2000	CNM56	08/30/00 08:48:00

Resource*
Groups*
Current Status* ▼

Help Main Command Submit

Total TN3270 Servers: 17 Filtered: 14

Resource	Channel	Status	Previous Status	Last Change
CWBC01	CHANNEL3/0	NOMON		
CWBC01	CHANNEL3/1	NOMON		
CWBC01	CHANNEL3/2	ACTIV		
CWBC01	CHANNEL4/0	NOMON		
CWBC01	CHANNEL4/1	NOMON		
CWBC01	CHANNEL4/2	ACTIV		
CWBC07	CHANNEL3/0	ACTIV		
CWBC07	CHANNEL5/0	UNKNOWN		
CWEND72A	CHANNEL2/0	NOMON		
ISM7200B	CHANNEL2/0	ACTIV	ACTIV	08/28/00 21:15
18#11#53	CHANNEL3/0	NOMON		
BERIMA	CHANNEL2/0	NOMON		
BERIMA	CHANNEL2/1	NOMON		
BERIMA	CHANNEL2/2	ACTIV		12:02 08/29/00

Help Main Command Submit

46123

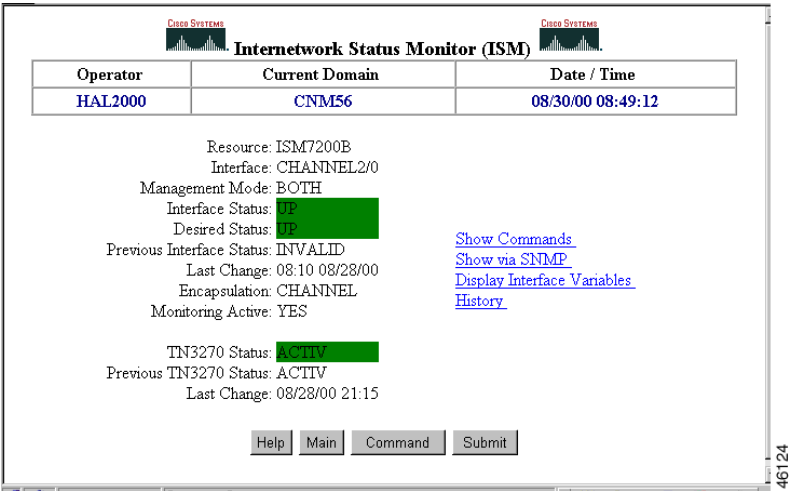
The Cisco TN3270 Servers page contains the following fields:

Field	Description
Resource	Router name with which this TN3270 server is associated.
Channel	Channel interface on the router used by this TN3270 server.
Status	Current TN3270 server status.
Previous Status	Previous TN3270 server status.
Last Change	Date and time of the last status change for this TN3270 server.

- Step 3

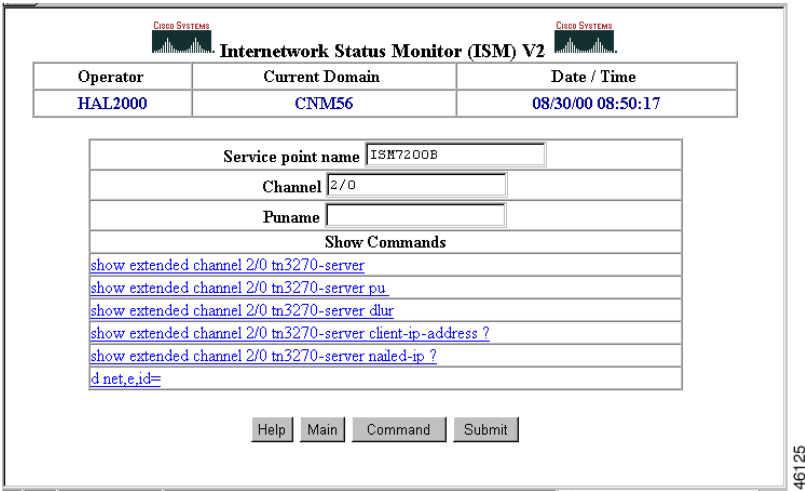
Select a router to display its TN3270 options. The ISM TN3270 Operation Options page (Figure 8-28) is displayed, which shows the TN3270 status and management options available for the TN3270 server.

Figure 8-28 ISM TN3270 Operation Options Page



Step 4 To issue show commands for TN3270 functions, select **Show Commands**. (This option is displayed only if the router has an SNA interface.) The TN3270 Show Commands page (Figure 8-29) is displayed.

Figure 8-29 TN3270 Show Commands Page



- Step 5** To show the available commands for a given PU name, enter the PU name and click **Submit**. You can then select a command for that PU name. ISM prompts you if other input is required.

Figure 8-30 shows sample output for the first command in the list.

Figure 8-30 Show Extended Channel x/x TN3270-Server


The screenshot displays the Internetwork Status Monitor (ISM) V2 web interface. At the top, there are two Cisco Systems logos. Below them is a table with three columns: Operator, Current Domain, and Date / Time. The values are HAL2000, CNM56, and 08/30/00 08:51:08 respectively. Below the table is a form with two input fields: Resource (ISM7200B) and Hostname (CWB-ISM-7200B). Below the form is a dropdown menu showing 'SHOW EXTENDED CHANNEL 2/0 TN3270-SERVER'. Below the dropdown are four buttons: Help, Main, Command, and Submit. Below the buttons is a table showing the current status and connection statistics for the selected command. The table has three main sections: <current stats>, <connection stats>, and <response time(ms)>. The <current stats> section shows the number of LU in-use (255) and total (255). The <connection stats> section shows the number of connect (3), disconnect (2), and fail (0) events. The <response time(ms)> section shows the host (364) and tcp (10) response times. Below the table are several configuration options: configured max_lu 2100, idle-time 0, keepalive 1800, unbind-action disconnect, ip-precid-screen 0, ip-precid-printer 0, ip-tos-screen 0, ip-tos-printer 0, tcp-port 23, generic-pool permit no timing-mark, and a note that the command is not supported by the selected server.


<current stats>		<connection stats>				<response time(ms)>	
lu	in-use	connect	disconn	fail	host	tcp	
172.18.11.170:23	255	1	3	2	0	364	
total	255	1				10	

configured max_lu 2100
 idle-time 0 keepalive 1800 unbind-action disconnect
 ip-precid-screen 0 ip-precid-printer 0 ip-tos-screen 0 ip-tos-printer 0
 tcp-port 23 generic-pool permit no timing-mark
 The command is not supported by the selected server.

- Step 6** To show the internal variables used by ISM to monitor the TN3270 server, on the ISM TN3270 Operation Options page (Figure 8-28), click **Display Interface Variables**. Figure 8-31 shows sample output for this option.

Figure 8-31 TN3270 Server Variables Page





Internetwork Status Monitor (ISM) V2

Operator	Current Domain	Date / Time
HAL2000	CNM56	08/30/00 08:52:15

Resource: ISM7200B

Interface: CHANNEL2/0

Variable	Description	Value
ISMIA	Last Status Change	08:10 08/28/00 INVALID
ISMIB	Owning Domain	CNM56
ISMIC	Desired Status	UP
ISMID	Extended Description	RTZ62 C2S0 ICISM7200BC2S0 ISM7200B CHANNEL2/0 2/0 DS(UP) M(YES) G(2S0) E(CHANNEL) T(ACTIV) IQ 08/23/00 16:46 HAL3 NSPIBCV4
ISMIE	Encapsulation type	CHANNEL
ISMIH	VSAM history pointer	HISM7200BC2S0 109 48 08/30/00 08:25 ISMMGRI
ISMII	Interface Index	
ISMIR	Last Performance Record	20000830 08:45 99.6 ISM7200B 2/0 255 1 3 2 0 364 10
ISMIL	Last History record	
ISMIM	Monitor Mode	YES
ISMIP	Vsam Performance pointer	PISM7200BC2S0 120 48 08/30/00 08:45 ISMMLB2
ISMIS	Current Status	UP
ISMIT	TN3270 Current Status	ACTIV
SMIU	TN3270 Last Status	08/28/00 21:15 ACTIV

Help

Main

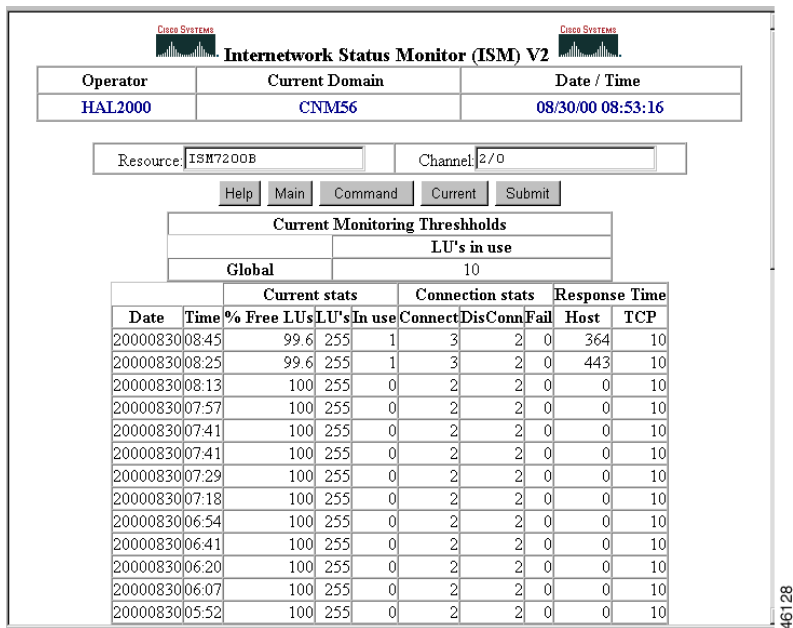
Command

Submit

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Step 7 To display the statistics that ISM has archived for the selected TN3270 server, on the ISM TN3270 Operation Options page (Figure 8-28), click **History**. The TN3270 History page (Figure 8-32) is displayed.

Figure 8-32 TN3270 History Page

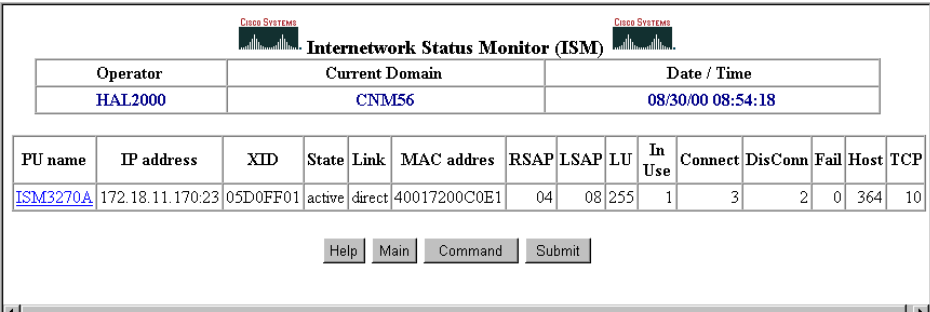


The TN3270 History page displays the following fields:

Field	Description
Date	Date the statistics were archived.
Time	Time the statistics were archived.
% Free LUs	Percentage of LUs that are free.
LU's	Number of LUs defined for all PUs.
In Use	Number of of LUs in use.
Connect	Number of connections made to this TN3270 server.
DisConn	Number of disconnects from this TN3270 server.
Fail	Number of connect failures for this TN3270 server.
Host	Host response time (in milliseconds).
TCP	TCP response time (in milliseconds).

Step 8 To display TN3270 status via SNMP, on the ISM TN3270 Operation Options page (Figure 8-28), click **Show Via SNMP**. (This option is displayed only if the router can be contacted using SNMP.) The ISM TN3270 Server PU Status page (Figure 8-33) is displayed.

Figure 8-33 ISM TN3270 Server PU Status Page



The TN3270 Server PU Status page contains the following variables:

Variable	Description
PU Name	Name of this PU. If the PU name is a hyperlink, select it to display LU statistics associated with this PU.
IP Address	IP address and TCP port of this TN3270 server PU.
XID	XID or ID block/ID number for this PU.
State	Current state of this PU.
Link	Indicates whether the connection to the host is via DLUR or via direct link. If via DLUR, the MAC, RSAP, and LSAP variables are undefined.
MAC Address	(Direct link only) MAC address of the remote node.
RSAP	(Direct link only) SAP address of the remote node.
LSAP	(Direct link only) SAP address of the local direct node.
LU	Number of TN3270 sessions configured that are available for use by TN3270 clients.
In Use	Number of sessions in use.
Connect	Total number of TN3270 sessions connected.

Variable	Description
DisConn	Total number of TN3270 sessions disconnected.
Fail	Total number of attempted sessions that failed to negotiate, or that were rejected by the control point.
Host	Response time (in milliseconds) for all sampled inbound transactions for which response time is computed. Response time is the interval between the time the EOR was received from the client and the time the reply was received from the host.
TCP	If the timing mark is configured, response time (in milliseconds) for all sampled timing marks on which response time is computed. Response time is the interval between the time the timing mark was sent to the client and the time the reply was received from the client.

Select a TN3270 PU name to display the status of the LUs associated with this PU, as shown in Figure 8-34.

Figure 8-34 ISM TN3270 Server PU Status with LUs Page

The screenshot displays the Internetnetwork Status Monitor (ISM) web interface. At the top, there are two Cisco Systems logos. Below them is a header section with three columns: Operator (HAL2000), Current Domain (CNM56), and Date / Time (08/30/00 08:55:40). The main content area features a table with 13 columns: PU name, IP address, XID, State, Link, MAC address, RSAP, LSAP, LU, In Use, Connect, DisConn, Fail, Host, and TCP. The first row of data shows PU name ISM3270A, IP address 172.18.11.170:23, XID 05D0FF01, State active, Link direct, MAC address 40017200C0E1, RSAP 04, LSAP 08, LU 255, In Use 1, Connect 3, DisConn 2, Fail 0, Host 364, and TCP 10. Below this table is another table with 5 columns: LU name, IP address, Nail, State, Model, Frames In, Frames Out, and Idle for. The first row shows LU name ISM0AL01, IP address 161.44.34.115:2300, Nail NO, State active, Model 3278S2E, Frames In 5, Frames Out 4, and Idle for 13:41:50. The second row shows LU name ISM0AL02, IP address 161.44.34.37:1044, Nail NO, State actSession, Model 3278S2E, Frames In 119, Frames Out 70, and Idle for 00:23:26. At the bottom of the interface are four buttons: Help, Main, Command, and Submit.

Operator	Current Domain	Date / Time
HAL2000	CNM56	08/30/00 08:55:40

PU name	IP address	XID	State	Link	MAC address	RSAP	LSAP	LU	In Use	Connect	DisConn	Fail	Host	TCP
ISM3270A	172.18.11.170:23	05D0FF01	active	direct	40017200C0E1	04	08	255	1	3	2	0	364	10

LU name	IP address	Nail	State	Model	Frames In	Frames Out	Idle for
ISM0AL01	161.44.34.115:2300	NO	active	3278S2E	5	4	13:41:50
ISM0AL02	161.44.34.37:1044	NO	actSession	3278S2E	119	70	00:23:26

Help Main Command Submit

46130

The ISM TN3270 Server PU Status with LUs page contains the following LU output fields:

Field	Description
LU Name	Name of this LU.
IP Address	IP address and TCP port of the TN3270 client connected to this LU.
Nail	Indicates whether this LU has been configured for a specific TN3270 client (nailed).
State	Current state of the LU.
Model	Terminal type or model number of the incoming TN3270 client.
Frames In	Number of RUs sent by the local LU.
Frames Out	Number of RUs received by the local LU.
Idle For	Time since last activity was recorded on this LU.

Monitoring TN3270 Server Operations Using the Web Interface

To monitor TN3270 server operations, use the following procedure:

- Step 1
- On the ISM main menu page (Figure 8-25), select **TN3270 Monitor** and click **Submit**. The TN3270 Monitor Operations page (Figure 8-35) is displayed.

Figure 8-35 TN3270 Monitor Operations Page

CISCO SYSTEMS

Internetwork Status Monitor (ISM) V2

CISCO SYSTEMS

Operator	Current Domain	Date / Time
HAL2000	CNM56	08/30/00 08:58:13

TN3270 Monitor Operations

☒ List by Resource

☐ List by Status

☐ Locate PU by given LUname

☐ List all PU's

*

Help

Main

Command

Submit

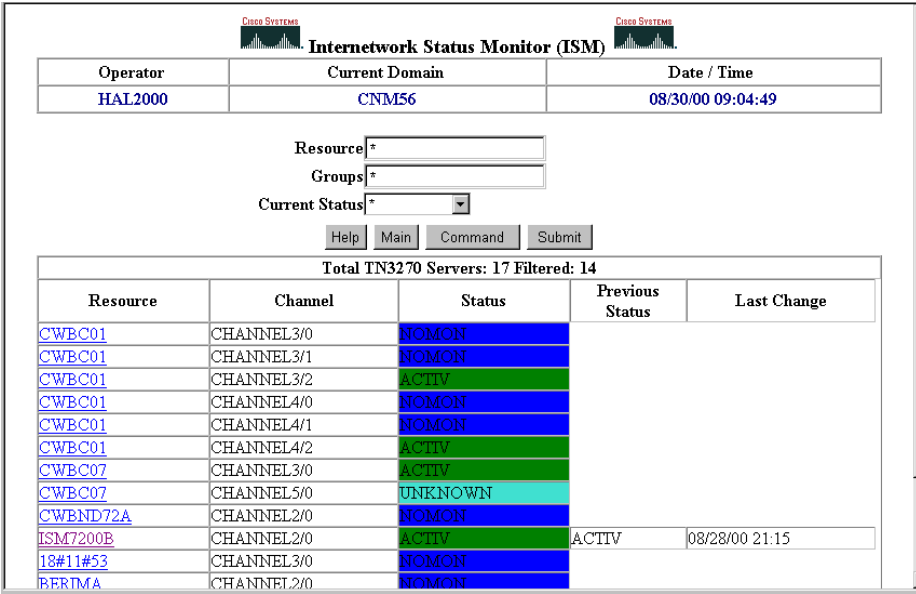
46132

The TN3270 Monitor Operations page provides the following options:

Option	Description
List by Resource	Select this option, enter a router name, and click Submit to list TN3270 servers by router name. If you do not enter a router name, all TN3270 routers are displayed.
List by Status	Select this option, select a status, and click Submit to list TN3270 servers by their current status. By default, this option lists all channels that are TN3270 server-capable, except those that are in NOMON state. If you do not enter a status, all TN3270 routers are displayed.
Locate PU by Given LU Name	(Local VTAM-managed LUs only) Select this option, enter an LU name, and click Submit to list the associated TN3270 PUs.
List All PUs	Select this option, and click Submit to list all TN3270 PUs.

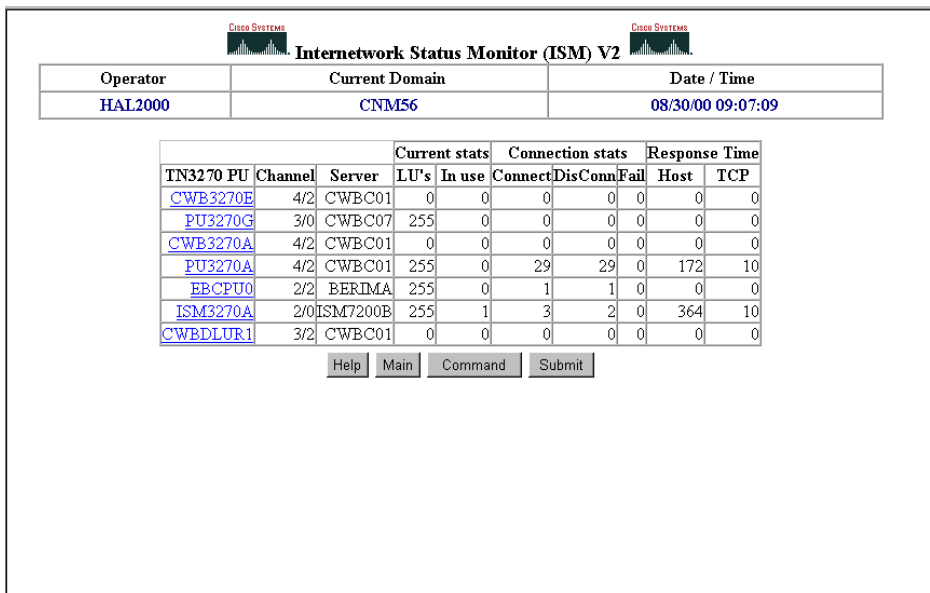
Figure 8-36 shows sample output for the List by Status option.

Figure 8-36 Cisco TN3270 Servers Page



Step 2 To display all PUs associated with Cisco TN3270 servers, on the TN3270 Monitor Operations page (Figure 8-35), select **List All PUs** and click **Submit**. A list of all TN3270 PUs (Figure 8-37) is displayed.

Figure 8-37 List of TN3270 Server PUs



- Step 3** To find the TN3270 server PU that is associated with an LU, on the TN3270 Monitor Operations page (Figure 8-35), select **Locate PU by Given LU Name**, enter the LU's name, and click **Submit**. Figure 8-38 shows sample output for locating an LU.

Figure 8-38 Locating a PU—Output

Cisco Systems

Internetwork Status Monitor (ISM) V2

Cisco Systems

Operator	Current Domain	Date / Time
HAL2000	CNM56	08/30/00 09:29:00

Service point name

ISM7200B

Channel

2/0

Puname

ISM3270A

Show Commands

[show extended channel 2/0 tn3270-server](#)

[show extended channel 2/0 tn3270-server pu ISM3270A](#)

[show extended channel 2/0 tn3270-server dlur](#)

[show extended channel 2/0 tn3270-server client-ip-address ?](#)

[show extended channel 2/0 tn3270-server nailed-ip ?](#)

[id net,e.id=ISM3270A](#)

Help

Main

Command

Submit

46137

Step 4 To help with problem determination, click on a command.

Figure 8-39 shows sample output for the **show extended channel 2/0 tn3270-server pu ISM3270A** command.

Figure 8-39 TN3270 Show Commands Output for Second Command

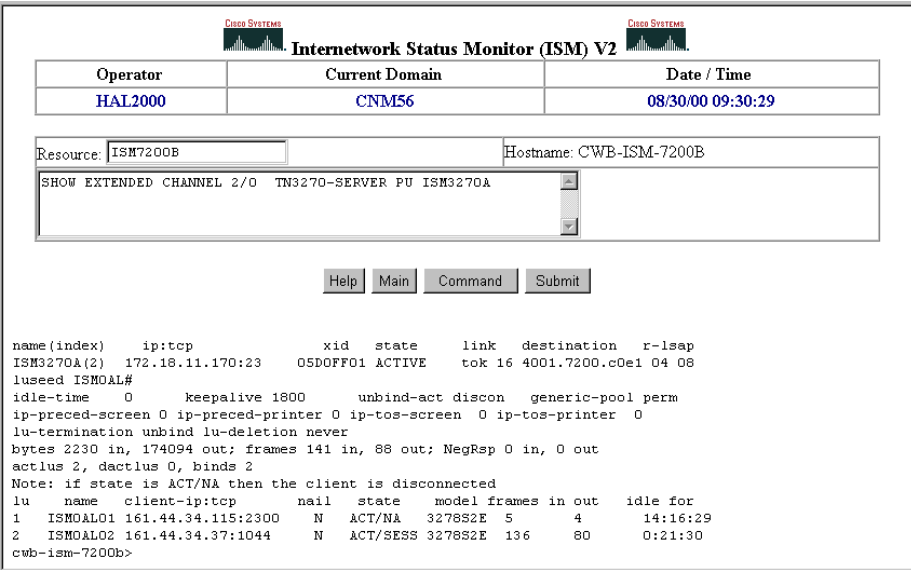
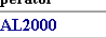
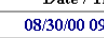


Figure 8-40 shows sample output for the **d net,e,id=ISM3270A** command, which displays VTAM information about the specified PU.



Internetwork Status Monitor (ISM) V2



Operator	Current Domain	Date / Time
HAL2000	CNM56	08/30/00 09:32:08

Command: D NET,E, ID=ISM3270A

Submit

```

ISTO97I  DISPLAY  ACCEPTED
ISTO75I  NAME = ISM3270A          , TYPE = PU T2.1
IST486I  STATUS=  ACTIV          , DESIRED STATE=  ACTIV
IST1058I  MODEL LU GROUP = DDDLUSP , LUSEED = ISMOAL##
IST1043I  CP NAME = ISM3270A, CP NETID = NETA      , DYNAMIC LU = YES
IST1589I  XNETALS = YES
IST1105I  RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I  ISM3270A AC/R      21 YES  907500000000000000000014C00808080
IST1482I  HPR = RTP - OVERRIDE = N/A - CONNECTION = NO
IST956I  PU   SAP=  8 MAC=40017200C0E1 MAXDATA= 4407
IST136I  SWITCHED SNA MAJOR NODE = SWIS3270
IST081I  LINE NAME = A4D02000, LINE GROUP = SGXCGR2 , MAJNOD = SGXC4D02
IST654I  I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I  STATE TRACE = OFF
IST1656I  VTAMTOPO = REPORT      , NODE REPORTED - YES
IST1657I  MAJOR NODE VTAMTOPO = REPORT
IST355I  LOGICAL UNITS:
IST080I  ISMOAL02 ACT/S---X- ISMOALO1 ACTIV---X-
IST314I  END
        
```

Help

Main

Submit



Monitoring SNA Switch Resources

When you monitor SNA Switch (SNASw), keep the following considerations in mind:

- SNASw monitoring is disabled by default in ISM setup when you first initialize ISM.
- You must enable the ISM Resource Management application before you can monitor SNASw.
- The options on the ISM Resource Management Setup panel apply to *all* routers managed by ISM.
- If you want to change history database IDs, you must do so *after* you install ISM, but *before* you initialize ISM for the first time. You can access ISM setup even when the ISMMGR task is not running.

To enable ISM to monitor SNA Switching, perform the steps described in the following sections:

- Enabling ISM to Monitor SNA Switch, page 9-2
- Monitoring SNA Switching Using the Standard Interface, page 9-6
- Monitoring SNA Switching Operations Using the Standard Interface, page 9-36

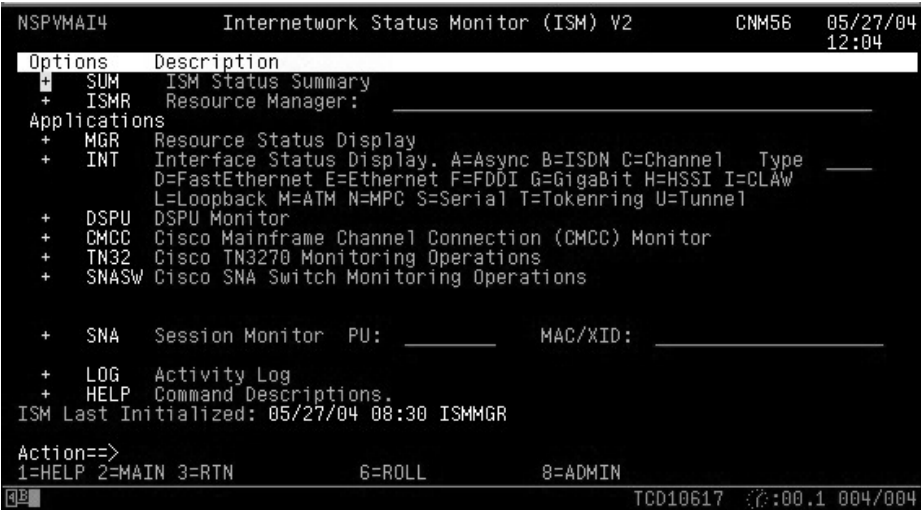
Enabling ISM to Monitor SNA Switch

Use the following procedures to monitor Cisco SNA Switching:

- Step 1
- On the ISM main menu panel (Internetwork Status Monitor (ISM) Main Menu Panel), press **PF8** (ADMIN).

The ISM Administration panel (Figure 9-1) is displayed.

Figure 9-1 Internetwork Status Monitor (ISM) Main Menu Panel



45961

Figure 9-2 ISM Administration Menu Panel

```

NSPVADM          ISM Administration          CNM56      06/02/04
                                     TARGET:    13:15
Options  Description
+ SETUP  ISM Setup Menu
+ ISMR   Resource Manager: _____
+ USER  User Profile Management   ID: _____
+ SNMP   SNMP Management Setup
+ SVAR   SNMP Control Variables
+ TN3270 TN3270 Server Monitoring
+ SNASw  SNA Switch Monitoring Setup
+ TMGR   Display ISM Scheduler Settings
+ MGRM   Display ISM Resource Management Settings
+ VARS   Display ISM Control Variables
ISM Last Initialized: 06/01/04 15:26 ISMMGR
Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL 7=BACK
TCE10154  00:00.0 004/004

```

Step 2 Press Enter to display the ISM Resource Management Setup panel (Figure 9-3).

Figure 9-3 ISM Resource Management Setup Panel

```

NSPVSE25          ISM Resource Management Setup - V2  1 of 5  CNM56      05/27/04
                                     11:58
Last Initialized: 05/27/04 08:30 ISMMGR
Applications:      Default      Initial Update
Interface Monitoring ( Y :Yes | N :No): YES  YES
SNA Session Monitoring ( N :No | Y :Yes): YES  YES
CMCC Management ( N :No | Y :Yes): YES  YES
DSPU Management ( N :No | Y :Yes): YES  YES
TN3270 Server Monitor ( N :No | Y :Yes): YES  YES
SNA Switch Monitor ( N :No | Y :Yes): YES  YES
** future ** ( N :No | Y :Yes): NO  NO
SNMP Management ( N :No | Y :Yes): YES  YES
ISM Scheduler ( N :No | Y :Yes): NO  NO
Resource Monitor Setup Enter YES to update:
Update ISM Autotasks Enter YES to update:
ISMSETUPCNM56R3 APPL(YES YES YES YES NO YES YES NO YES ) MI(00:1
5) TH(95 10) IM(YES YES YES YES YES YES YES YES YES YES) MI2(00:3
0) DB(H I R C H) CM(48 48 5 99 16) CIP(90 10) 03/02/04 15:12 JIM2
Change Type ( 1: New, 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3
Press PF8 to review/set rules.
Action==>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL 8=FWD
TCD10617  00:00.1 019/048

```

Enabling ISM to Monitor SNA Switch

Step 3 Beside the SNA Switch Monitor option, type **Y** in the Update column. **Yes** appears beside the SNA Switch Monitor option. When you save the setup, the following line is added to the ISM main menu:

+ SNASW Cisco SNA Switch Monitoring Operations

Step 4 To enable global SNA Switch configuration, type **Y** in the setup field of the SNA Switch Monitor line and press **Enter**. The SNA Switch Monitor Setup/Status panel (Figure 9-4) is displayed.

Figure 9-4 SNA Switch Monitor Setup/Status Panel

```
NSPVSWSE          SNA Switch Monitor Setup/Status          CNM56   06/14/04
Last Initialized: 06/03/04 13:41 SNASWMON
ISM SNASw Server Monitoring: YES      Nodes: 4
  Function          Default      VSAM      Current      Variable
  SNASw Autotask    ( SNASWMON )  SNASWMON  SNASWMON    ISMSWSNOPR
  SNASw Archive Data Base ( W )        W          W          ISMSWSNDB
  SNASw Archive Data Set
  SNASw Archive Keep Count ( 99 )      99         99          ISMSWSNMAX
  SNASw SMF Logging   ( YES|NO )  YES        YES        ISMSWSNSMF
  * SMF logging must be enabled in ISM.
  SNASw Archive Logging ( YES|NO )  YES        YES        ISMSWSNLOG
  * You can have SMF logging without archive logging.
  SNASw Monitor Mode  ( SNA|SNMP ) SNA        SNA         ISMSWSNMON
  * Allows user to force SNA or SNMP collection mode.
  SNASw Link Monitoring ( YES|NO )  YES        YES        ISMSWSNLMN
Initialize/ Re-Initialize ( NO|YES ): NO
ISMSWSNSETUP          D=(SNASWMON) D=(W) W=(99) S=(YES) H=(YES) M=(SNA
) L=(YES) F=( ) 13:17 06/14/04 JIM2
Change Type ( 1: New, 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3
NSP1037I Make changes and press Enter to validate.
Action=>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL
TCE10166 00:00.1 020/048
```

121455

The following table describes the fields contained in the SNA Switch Monitor Setup/Status panel:

Field	Description
SNASw Autotask	The name of the NetView autotask that is used to monitor SNA Switch. The default name is SNASWMON. It is recommended that this name not be changed.
SNASw Archive Data Base	Accept the default value of W unless you want to use a different VSAM data base.
SNASw Archive Data Set	The data set name of the VSAM data base to use for SNA Switch archiving. The data set can also be allocated to the NetView procedure JCL.
SNASw Archive Keep Count	Indicates the archive keep count used by the SNASw history key. The default value is 99 . If you do not use the default value, you must delete the existing history records before ISM uses the new value.
SNASw SMF Logging	Indicates whether SMF recording is enabled. The default value is YES .
SNASw Archive Logging	Indicates whether ISM is to archive the data that is collects. The default value is YES .
SNASw Monitor Mode	SNA indicates that the service point on the router will be used to monitor SNA Switch. This is the only valid value.
SNASw Link Monitoring	Indicates whether ISM should monitor the status of SNA Switch defined links. The default value is YES .

Step 5 Press **PF4** to save your changes. If you have already initialized ISM, the changes are effective immediately.

Monitoring SNA Switching Using the Standard Interface

This section describes how to monitor the status of SNA Switch using the standard interface. It describes the following tasks:

- Monitoring Status of the SNA Switch, page 9-6
- Selecting Options for the SNASw Server, page 9-8
- Displaying Internal Variables for Monitoring SNASw, page 9-11
- Displaying SNASw Historical Performance Data, page 9-13
- Performing Management Operations, page 9-15
- Displaying VTAM Status, page 9-15
- ISM SNA Switch Node Administration, page 9-17
- Managing the SNA Switch Links on the Router, page 9-19
- Displaying the Physical Units, page 9-27

Monitoring Status of the SNA Switch

You can monitor the status of SNA Switch from the ISM Status Summary panel or from the ISM main menu panel. The following steps show you how to access SNA Switch Node Status from the ISM Status Summary panel:

-
- Step 1** On the ISM Status Summary panel (Figure 9-5), position the cursor in the Total column beside the SNASw option and press **Enter**.

Figure 9-5 ISM Status Summary Panel

NSPVSUM3 ISM Status Summary Group= ALL CNM56 05/27/04 15:37
 Last Refresh: 15:31 05/27/04

		<-----Active----->			<-----UNKNOWN----->				
Total		ACTIV	PERF	ALERT	INOP	INVALID	CONCT	INACT	NOMON
7	Resources	5	2						
10	CMCC	10							
9	TN3270	6					3		
4	SNASw	4							

		Desired Status=UP				Desired Status=Down	
Total	Interfaces	UP	DOWN	INVALID	UNKNOWN	DOWN	UNKNOWN
12	Tokenring					12	
24	Ethernet	10		1		13	
0	FDDI						
7	Loopback	7					
0	ASYNC						
22	Channel	17				5	
0	HSSI						
0	ISDN						
4	Serial					4	

Frame-Relay: 0 HDLC: 0 X.25: 0 BSTUN: 0 SDLC: 0
 Press PF8 for important status on next page.
 ==>
 1=HELP 2=MAIN 3=RTN 6=ROLL 8=FWD 12=REFRESH

TCD10617 00:00.4 013/040 46476

The SNASw Node Status panel (Figure 9-6) is displayed.

Figure 9-6 SNASw Node Status Panel

NSPVSUWI SNASw Node Status GROUP= CNM56 06/14/04 16:15
 Nodes: 4 Status: █ Group:

Node	Status	Router	Status	Hostname	Node Problem
CATDOG	PERF	ISM CATDG	ACTIV	CATDOG	LINK
CLARENCE	ACTIV	ISM CLAR	PERF	CLARENCE	
GALWAY	ACTIV	ISM GALWY	ACTIV	GALWAY	
RILEY2	INVALID	ISM RILEY	ACTIV	RILEY	

Position cursor on Node, or LINK/PORT/PU under problem for details.
 ==>
 1=HELP 2=MAIN 3=RTN 6=ROLL 12=REFRESH

TCE10166 00:00.2 002/032 121456

The SNASw Node status panel displays the following fields:

Field	Description
Node	The SNASw control point name configured.
Status	Current SNASw status.
Router	The router name with which the SNASw server is associated.
Status	Current router status
Hostname	The hostname configured on the router.
Node Problems	Displays the issues that cause the SNASw status to be PERF . The possible values are LINK , PORT , and PU .

Selecting Options for the SNASw Server

- Step 1

To select options for a SNASw server, position the cursor on the row with the selected SNASw and press **Enter**. The ISM SNASW Operation Options panel (Figure 9-7) is displayed, showing the SNASw status and management options available.

Figure 9-7 ISM SNASW Operation Options Panel

```

NSPVSWSL          ISM SNASW Operation Options          CNM56  06/15/04
                  11:14

Node Name: RILEY2                      INDEX: 4
Router: ISMRILEY
SNASw Status: ACTIV
Desired Status: ACTIV
SNASw Uptime: 5 days, 2 hrs, 49 mins, 21 secs
Last Status Chg:
Monitoring Active: YES
Node Problems:
Node Resources:
Total Activ Other
Links:
Ports:
PUs:

+ Show SNASW Command Menu
+ Display SNASW Variables
+ Performance
+ Router Options Menu
+ VTAM Display of Node
+ Administration
+ Reset/Collect Statistics
+ List Links
+ List PUs

Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL

TCE10169  00:00.0 008/044
121457

```

- Step 2** To issue router show commands for SNASw, place the cursor on **Show SNASW Command Menu** and press **Enter**. The SNASW Show Commands panel (Figure 9-8) is displayed.

Figure 9-8 SNASW Show Commands Panel

```

NSPVSWCH          SNASW Show Commands          CNM56  06/15/04
                                                11:22

The following show commands are useful when monitoring SNA switch.
Router Name: ISMRILEY      SNASW Node Name: RILEY2
Show Command
x1: show snasw class-of-service      10: show snasw node
x2: show snasw connection-network    x11: show snasw pdlog
x3: show snasw directory             x12: show snasw port
x4: show snasw dlctrace              x13: show snasw pu
x5: show snasw dlus                 x14: show snasw rtp
x6: show snasw ipstrace             x15: show snasw session
x7: show snasw link                 16: show snasw statistics
x8: show snasw lu                   x17: show snasw summary-ipstrace
9: show snasw mode                  x18: show snasw topology

Press PF1 for more command details, or enter option number and press PF1.
For commands that are preceded with a x, enter the command number and
press PF5 to show an expanded command menu.
To execute a command, type the command number, and press Enter.
Enter the command number followed with a ? to get help from the resource.

Action==> █
1=HELP 2=MAIN 3=RTN 5=EXPAND 6=ROLL
TCE10169 00:00.0 023/012

```

- Step 3** Enter a number in the Action field and press **Enter**. Figure 9-9 shows an example of the panel that is displayed after 1 is entered in the Action field.

Figure 9-9 SNASw Show Commands Output Panel

```

NSPVCMDB          Router Command Interface          CNM56  06/15/04
SPName: ISMRILEY   Log:( NO | YES ) NO            Target: CNM56  11:28
Hostname= RILEY> Password:
show snasw class-of-service
Number of class of service definitions 7
SNA Classes of Service
  Name      Trans. Pri.   Node Rows   TG Rows
  -----
1> #BATCH   Low           8           8
2> #INTER   High          8           8
3> CPSVCMG Network        8           8
4> #BATCHSC Low           8           8
5> #CONNECT Medium        8           8
6> #INTERSC High          8           8
7> SNASVCMG Network        8           8
RILEY>

==>
1=HELP 2=MAIN 3=RTN 5=COPY 6=ROLL          11=RIGHT 12=RECALL
TCE10169 00:00.2 004/003

```

Displaying Internal Variables for Monitoring SNASw

To display the internal variables used by ISM to monitor SNASw, select the Display SNASW Variables option on the ISM SNASW Operation Options Panel (Figure 9-7) by placing the cursor on it and pressing **Enter**. Figure 9-10 and Figure 9-11 show the resulting output.

Figure 9-10 SNASw Control Block Panel – 1 of 2

```

NSPVSWV1                                     CNM56  06/15/04
                                           11:13
This panel displays the values of common globals used to manage a SNASw node.
Node Name: RILEY2      Index= 4      ISM4 = 4      SP
Variable: Function      Value:
SWA4    Last Status Change:
SWB4    SNASw Uptime:      5 days, 3 hrs, 4 mins, 19 secs
SWC4    CP Alias:          CISCO
SWD4    Desired Status:    ACTIV
SWE4    Control Mode:      Y Y Y
SWF4    Port Summary:
SWG4    Link Summary:
SWH4    Router Name:       RILEY
SWJ4    PU Summary:
SWI4    Node ID:           X'FFF00000'
SWK4    Last Performance Record:

Action==>
1=HELP 2=END 3=RTN      6=ROLL      8=FWD
TCE10169 00:00.1 023/012
121428

```

Figure 9-11 SNASw Control Block Panel – 2 of 2

```

NSPVSWV2                                CNM56  06/15/04
                                           11:13
This panel displays the values of common globals used to manage a SNASw node.
Node Name: RILEY2      Index= 4      ISM4 = 4

Variable: Function      Value:
SWM4      Monitor Mode:      YES
SWN4      Node Type:        Branch
SWP4      Performance Pointer:
SWQ4      History Pointer:
SWR4      ISM Router Name:    ISMRILEY
SWS4      SNASw Node Status:  INVALID
SWT4      Router Group(s):    NONE
SWV4      VTAM Net Name:      NETA.RILEY2
SWX4      Node Name:         RILEY2
SWY4      Node Problems:

VSAM Contents:
VSAM KSD contents:
SNASWRILEY2      RILEY2 ISMRILEY DS(ACTIV) E(Y Y Y ) N(Branch) C(
CISCO) H(RILEY) I(X'FFF00000') V(ETA.RILEY2) 14:51 04/30/04 ISMMGR

Action==> █
1=HELP 2=END 3=RTN      6=ROLL 7=BACK

TCE10169  00:00.0 023/012

```

121429

Displaying SNASw Historical Performance Data

To display SNASw historical performance data, select Performance option on the ISM SNASW Operation Options Panel (Figure 9-7) by placing the cursor on it and pressing **Enter**. Figure 9-12 shows sample SNASw performance statistics.

Figure 9-12 SNASW Node Performance History Panel

The screenshot shows a terminal window titled "SNASW Node Performance History". At the top right, it displays "INDEX: 18", "CNM56", and the date/time "06/15/04 11:45". The table below lists performance data for various dates and times. The columns are: Date, Time, SNASw CPU Utilization 5 Sec, 1 Min, 5 Min, SNASw Memory Holding, and Total Router % Free. The data shows consistent performance metrics across the listed time period.

Date	Time	SNASw CPU Utilization 5 Sec	1 Min	5 Min	SNASw Memory Holding	Total Router % Free
20040615	11:41	1.03%	0.10%	0.05%	1.50M	77.3
20040615	11:26	1.35%	0.13%	0.06%	1.46M	77.4
20040615	11:11	0.71%	0.09%	0.06%	1.50M	77.3
20040615	10:56	1.19%	0.14%	0.06%	1.46M	77.4
20040615	10:41	1.27%	0.13%	0.06%	1.50M	77.3
20040615	10:26	1.11%	0.12%	0.05%	1.46M	77.4
20040615	10:11	0.95%	0.09%	0.04%	1.46M	77.4
20040615	09:56	1.03%	0.13%	0.05%	1.46M	77.4
20040615	09:41	0.95%	0.10%	0.05%	1.46M	77.4
20040615	09:26	1.27%	0.14%	0.06%	1.46M	77.4
20040615	09:11	0.87%	0.11%	0.06%	1.46M	77.4
20040615	08:56	1.11%	0.13%	0.05%	1.46M	77.4
20040615	08:41	1.03%	0.10%	0.04%	1.46M	77.4
20040615	08:26	1.19%	0.12%	0.05%	1.46M	77.4
20040615	08:11	0.87%	0.09%	0.05%	1.46M	77.4
20040615	07:56	1.27%	0.13%	0.05%	1.46M	77.4
20040615	07:41	1.03%	0.12%	0.05%	1.46M	77.4

At the bottom, there are navigation instructions: "1=HELP 2=MAIN 3=RTN 6=ROLL 8=FWD 10=CPU 11=MEM". The bottom right corner shows "TCE10169 00:00.3 023/006" and a vertical label "121430".

The SNASW Node Performance History panel displays the following fields:

Field	Description
Date	Date the statistics were archived.
Time	Time the statistics were archived.
SNASw CPU Utilization 5 Sec	The percentage of the router CPU capacity used by SNASw over the last 5 seconds.
SNASw CPU Utilization 1 Min	The percentage of the router CPU capacity used by SNASw over the last 1 minute.

Field	Description
SNASw CPU Utilization 5 Min	The percentage of the router CPU capacity used by SNASw over the last 5 minutes.
SNASw Memory Holding	The amount of router memory in use by the SNASw processes on the router.
Total Router % Free	The percentage of memory on the router that is not in use.

To display the output from a **show process cpu** command on the router, press **PF10**. To display the output from a **show process mem** command on the router, press **PF11**. The output from these commands is displayed on the Router Command Interface panel.

Performing Management Operations

To perform management operations on the router, select the Router Options Menu by placing the cursor on it on the ISM SNASW Operation Options Panel (Figure 9-7) and pressing **Enter**. Figure 9-13 shows the Router Options Menu.

Figure 9-13 Router Options Menu Panel

```

NSPVRCM4      Resource Status with Options      CNM56   06/15/04
Resource-Service Point/Control Name: ISMCATDG      12:07
Resource-IP Address: None
Management Mode (SNA/SNMP/BOTH): SNA      INDEX: 3
Current Status: ACTIY      Enter Option: █ Only HIGHLIGHTED options available
Extended Status: Q
Host Name: catdog
Status Change: 06/10/04 06:48 CONCT
Description: None

Last Failure:

1.Command Interface
2.Show Protocols
3.ISM Resource Administration
4.Total Events (NPDA)
5.VTAM Display
6.Router Config. History
7.Collect Router Config.
8.Last Alert (NPDA)
9.Refresh/Reset Status
A.Resource Performance History
B.Show Commands Menu
C.Resource Interfaces Status
D.Router Memory Dump
E.List CMCCs

==>
1=HELP 2=MAIN 3=RTN      5=DIAG 6=ROLL      9=DETAILS
TCE10169 00:00.0 005/045
121431
  
```

The Resource Status with Options panel is described in Chapter 4, “Monitoring ISM Resources.”.

Displaying VTAM Status

To display the VTAM status for the SNASw Control Point Name, select VTAM Display of Node on the ISM SNASW Operation Options Panel (Figure 9-7) by placing the cursor on it and pressing **Enter**. Figure 9-14 shows a sample display of a SNASw CPNAME.

Figure 9-14 SNASw Control Point VTAM Status

```

CNMKWIND OUTPUT FROM DIS CATDOG,E LINE 0 OF 30
*----- Top of Data -----*
DISPLAY NET,ID=CATDOG,SCOPE=ALL
IST097I DISPLAY ACCEPTED
IST075I NAME = META.CATDOG , TYPE = ADJACENT CP
IST486I STATUS= ACT/S---Y, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=CPSVCMG USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST1184I CPNAME = META.CATDOG - NETSRVR = ***NA***
IST1044I ALSLIST = ISTAPNPU
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE , TYPE = DES
IST1563I CKEYNAME = CATDOG CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
TO SEE YOUR KEY SETTINGS, ENTER 'DISPFK'
CMD=>
TCE10169 :00.1 024/009
121432

```

To perform administrative tasks, select the Administration option on the ISM SNASW Operation Options Panel (Figure 9-7). (This option is displayed only if you have the authority to change the management rules for monitoring routers.) The ISM SNA Switch Node Administration panel (Figure 9-15) is displayed.

Figure 9-15 ISM SNA Switch Node Administration Panel

```

NSPVSWDE          ISM SNA Switch Node Administration          CNM56  06/15/04
                                                            11:13
Node name: CATDOG          INDEX= 1
ISM Router Name: ISMCATDG
ISM Resource Status: 68 days,
CP Alias: CISCO
Desired Status: ACTIV          Current Status: ACTIV
Host Name: CATDOG
Node ID: X'FFF00000'
Node Type: Branch
VTAM Net Name: NETA.CATDOG

Current Control Values:  Y Y Y          New Control Values:
Monitor resource          (Y/N): Y
Collect Statistics        (Y/N): Y
Archive Statistics        (Y/N): Y          Reset (No/Yes): NO
Write SMF Records         (Y/N): Y

Change Type ( 1: New, 2: Update, 3: Delete ): 2
Action Type ( 1: Next Initialization, 2: Current, 3: or Both): 3
NSP1037I Make changes and press Enter to validate.
Action=>
1=HELP 2=MAIN 3=RTN 4=UPDATE 6=ROLL          9=DEBUG 10=DISCOVER
TCE10169 00:00.1 003/013

```

ISM SNA Switch Node Administration

This section describes some ISM default behaviors and tasks you can perform using the ISM SNA Switch Node Administration panel to override those defaults and to perform other ISM administration tasks.

ISM Default Behaviors

By default, ISM performs the following tasks:

- ISM monitors every SNA Switch server that it discovers on a router.
- By default, ISM collects statistics for SNA Switch servers.
- By default, ISM writes the statistics that it collects for SNA Switch to a VSAM data base. By default, ISM uses data base **W**.
- By default, ISM will write the statistics that it collects to SMF.

ISM SNA Switch Administration Tasks

From the ISM SNA Switch Node Administration panel, you can perform the following tasks to modify or override ISM default behaviors described in ISM Default Behaviors, page 9-17:

SNA Switch Monitoring

To prevent ISM from monitoring the status of a SNA Switch server and collecting statistics, enter **N** in the Monitor Resource field.

ISM Statistics Collection for SNA Switch Servers

To prevent ISM from collecting statistics for this SNA Switch server, enter **N** in the Collect Statistics field.

ISM Statistics Written to the VSAM Database

To suppress the writing of statistics to VSAM for this SNA Switch server, enter an **N** in the Archive Statistics field.

ISM Statistics Written to SMF

To suppress the writing of statistics to SMF for this SNA Switch server, enter an **N** in the Write SMF Records field.

SNA Switch Data Archiving

If SNA Switch data archiving is enabled, you can remove history records from the VSAM database for a specific router. To do so, enter **YES** in the Reset field and press **PF4**.

Saving Your Administrative Changes

Once you have completed any changes, press **Enter** to allow ISM to validate your updates. Then enter a **1**, **2**, or **3** for the Change Type to add, update, or delete a SNASw server respectively. Also enter a **1**, **2**, or **3** for the Action Type to indicate when the update should be effective.

To display the internal SNASw variables for this SNA Switch server, press **PF9**. SNASW Node Performance History Panel, page 9-13 shows an example of the ISM SNA Switch Node Administration panel that is displayed.

To have ISM check the router in the ISM Router Name field for a SNASw server, press **PF10**.

Refreshing Status and Collecting Statistics

To refresh the status of SNA Switch and to collect statistics, place the cursor on Reset/Collect Statistics on the ISM SNASW Operation Options Panel (Figure 9-7) and press **Enter**.

Managing the SNA Switch Links on the Router

To display the SNA Switch links on the router and their status, position the cursor on List Links on the ISM SNASW Operation Options Panel (Figure 9-8) and press **Enter**. Figure 9-16 shows an example of the Link / CPnode Status panel that is displayed.

Figure 9-16 Link / CPnode Status Panel

Link	Status	Router	Adjacent CP	Available Since
MYSD	Inactive	ISMRILEY	NONE.NONE	6 days, 3 hrs, 19 mins, 39 sec
MYSE	Active	ISMRILEY	NETA.MYSE	30 mins, 13 secs

NSPVSWCL Link / CPnode Status CNM56 06/16/04
 Link Index: 37 Count= 37 Filter: ISMRILEY 11:42
 ==>
 1=HELP 2=MAIN 3=RTN 4=DEL 6=ROLL
 TCE10169 00:00.1 004/003

The Link / CPnode Status panel displays the following fields:

Field	Description
Link	The name of the SNASw link.
Status	The status of the link.
Router	The router control point name of the router that the SNA Switch server is on.
Adjacent CP	The SNA Control Point Name of the server at the remote side of the SNASw link.
Available Since	The amount of time since this link was last activated. For an INACTIVE link, it displays how long the link was up.

Removing and SNA Switch Link

To remove an SNA Switch link from ISM, for example, if a link is no longer configured on the router, place the cursor on the line with the link and press **PF4**. The definition of the link and its archived statistics will be removed from ISM and the VSAM database.

Display the Status of a Link

To display details of a SNA Switch link, place the cursor on the link and press **Enter**. ISM SNASW Link Options Menu Panel, page 9-21 shows an example of the ISM SNASW Link Options Menu panel that is displayed.

Figure 9-17 ISM SNASW Link Options Menu Panel

```

NSPVSWLE          ISM SNASW Link Options Menu          CNM56  06/16/04
                                                           16:59

Link Name: MYSE2

  Adjacent Node: NETA.MYSE          INDEX: 30
    Router: ISMCLAR
    Link Status: Active             + Show Link
                                   + Display Link Variables
Current State Time: 6 days, 9 hrs, 16 mins, 47 secs

                                   + History
                                   + Collect Statistics

Action==>
1=HELP 2=MAIN 3=RTN          6=ROLL

TCE10169  00:00.0 008/044

```

Displaying Details about the Link

To display details about the link, place the cursor on Show Link field and press **Enter**. The Router Command Interface panel is displayed with the results of a **show snasw link detail name** router command. Router Command Interface Panel with Show SNASW Link Detail Name Output, page 9-22 shows an example of the information displayed.

Figure 9-18 Router Command Interface Panel with Show SNASW Link Detail Name Output



```

NSPVCMDA Router Command Interface CNM56 06/16/04
SPname: ISMCLAR Log: ( NO | YES ) NO Target: CNM56 17:03
Hostname: clarence> Password:
show snasw link detail name MYSE2

Number of links 2
2>
Link name MYSE2
Port name VTOK0
DLC type IEEE 802.2 LLC
Destination Address 4000.CCCC.5E5E.04
Link state Active
Link substate Active
Time since last activation 6 days, 9 hrs, 38 mins, 5
Time since last deactivation N/A
Total time active since startup 6 days, 9 hrs, 38 mins, 5
Time in current state 6 days, 9 hrs, 38 mins, 5
Number of active sessions traversing link 2
Adjacent Node Id X'FFF38B00'
Max send frame data (BTU) size 4400

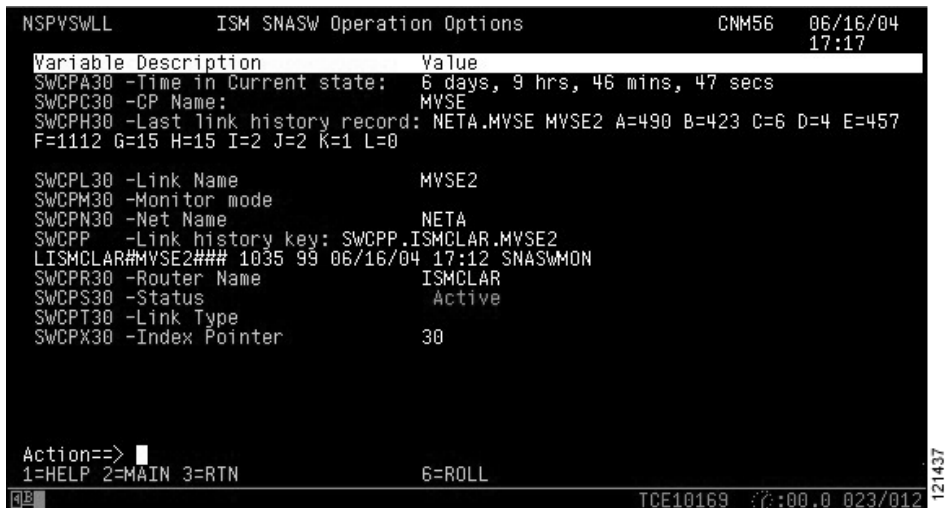
==>
1=HELP 2=MAIN 3=RTN 5=COPY 6=ROLL 8=FWD 11=RIGHT 12=RECALL
TCE10169 00:00.5 004/003

```

Displaying ISM Internal Variables for the Link

To display the ISM internal variables for the link, place the cursor on the Display Link Variables field on the ISM SNASW Link Options Menu Panel (Figure 9-19) and press **Enter**. Figure 9-20 shows an example of the ISM SNASW Operation Options panel that is displayed.

Figure 9-19 ISM SNASW Operation Options Panel



```

NSPVSWLL          ISM SNASW Operation Options          CNM56   06/16/04
                                                         17:17
Variable Description          Value
SWCPA30 -Time in Current state: 6 days, 9 hrs, 46 mins, 47 secs
SWCPC30 -CP Name:             MYSE
SWCPH30 -Last link history record: NETA.MYSE MYSE2 A=490 B=423 C=6 D=4 E=457
F=1112 G=15 H=15 I=2 J=2 K=1 L=0

SWCPL30 -Link Name            MYSE2
SWCPM30 -Monitor mode
SWCPN30 -Net Name              NETA
SWCPP   -Link history key: SWCPP.ISMCLAR.MYSE2
LISMCLAR#MYSE2### 1035 99 06/16/04 17:12 SNASWMON
SWCPR30 -Router Name          ISMCLAR
SWCPS30 -Status                Active
SWCPT30 -Link Type
SWCPX30 -Index Pointer         30

Action==> 
1=HELP 2=MAIN 3=RTN          6=ROLL

TCE10169 00:00.0 023/012
  
```

Displaying History Data for the Link

To display history data for this SNASw link, place the cursor on the History field on the ISM SNASW Link Options Menu Panel (Figure 9-17) and press **Enter**. Figure 9-20 shows an example of the Statistics For Router.linkname panel that is displayed.

Figure 9-20 Statistics For Router.linkname Panel (1 of 3)

NSPVSWL1		Statistics For ISMCLAR.MVSE2 Router.linkname				CNM56	06/16/04
		NETA.MVSE					
Date	Time	Link	Data bytes		Data frames		
			Sent	Received	Sent	Received	
20040616	17:12	MVSE2	457	1112	15	15	
20040616	16:42	MVSE2	457	1112	15	15	
20040616	16:12	MVSE2	457	1112	15	15	
20040616	15:42	MVSE2	457	1112	15	15	
20040616	15:12	MVSE2	457	1112	15	15	
20040616	14:42	MVSE2	457	1112	15	15	
20040616	14:12	MVSE2	457	1112	15	15	
20040616	13:42	MVSE2	457	1112	15	15	
20040616	13:12	MVSE2	457	1112	15	15	
20040616	12:42	MVSE2	457	1112	15	15	
20040616	12:12	MVSE2	457	1112	15	15	
20040616	11:42	MVSE2	457	1112	15	15	
20040616	11:12	MVSE2	457	1112	15	15	
20040616	10:42	MVSE2	457	1112	15	15	
20040616	10:12	MVSE2	457	1112	15	15	
20040616	09:42	MVSE2	457	1112	15	15	
20040616	09:12	MVSE2	457	1112	15	15	
==>		MORE=>					
		TCE10169 00:00.2 001/001					

There are more fields available than will fit on one display panel. You can press **PF11** to display the fields to the right. Figure 9-21 and Figure 9-22 show the other 2 panels that are available. To display the columns to the left, press **PF10**. Use **PF8** and **PF7** to scroll the display down and up.

Figure 9-21 Statistics For Router.linkname Panel (2 of 3)

NSPVSWL2 Statistics For ISMCLAR.MVSE2 Router.linkname CNM56 06/16/04						
NETA.MVSE						
Date	Time	Link	XID Bytes		XID Frames	
			Sent	Received	Sent	Received
20040616	17:12	MVSE2	490	423	6	4
20040616	16:42	MVSE2	490	423	6	4
20040616	16:12	MVSE2	490	423	6	4
20040616	15:42	MVSE2	490	423	6	4
20040616	15:12	MVSE2	490	423	6	4
20040616	14:42	MVSE2	490	423	6	4
20040616	14:12	MVSE2	490	423	6	4
20040616	13:42	MVSE2	490	423	6	4
20040616	13:12	MVSE2	490	423	6	4
20040616	12:42	MVSE2	490	423	6	4
20040616	12:12	MVSE2	490	423	6	4
20040616	11:42	MVSE2	490	423	6	4
20040616	11:12	MVSE2	490	423	6	4
20040616	10:42	MVSE2	490	423	6	4
20040616	10:12	MVSE2	490	423	6	4
20040616	09:42	MVSE2	490	423	6	4
20040616	09:12	MVSE2	490	423	6	4
==> █ MORE=>						
1=HELP 2=MAIN 3=RTN 6=ROLL 8=FWD 10=LEFT 11=RIGHT						
TCE10169 0:00.0 023/006						

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Figure 9-22 Statistics For Router.linkname Panel (3 of 3)

NSPVSWL3 Statistics For ISMCLAR.MVSE2 Router.linkname CNM56 06/16/04						
NETA.MVSE						
Date	Time	Link	Session Control Frames		Number of XID Exchanges	
			Sent	Received	Successful	Unsuccessful
20040616	17:12	MVSE2	2	2	1	0
20040616	16:42	MVSE2	2	2	1	0
20040616	16:12	MVSE2	2	2	1	0
20040616	15:42	MVSE2	2	2	1	0
20040616	15:12	MVSE2	2	2	1	0
20040616	14:42	MVSE2	2	2	1	0
20040616	14:12	MVSE2	2	2	1	0
20040616	13:42	MVSE2	2	2	1	0
20040616	13:12	MVSE2	2	2	1	0
20040616	12:42	MVSE2	2	2	1	0
20040616	12:12	MVSE2	2	2	1	0
20040616	11:42	MVSE2	2	2	1	0
20040616	11:12	MVSE2	2	2	1	0
20040616	10:42	MVSE2	2	2	1	0
20040616	10:12	MVSE2	2	2	1	0
20040616	09:42	MVSE2	2	2	1	0
20040616	09:12	MVSE2	2	2	1	0
==> █						
1=HELP 2=MAIN 3=RTN 6=ROLL 8=FWD 10=LEFT						
TCE10169 0:00.0 023/006						

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The Statistics for Router.linkname panels display the following fields:

Field	Description
Date	Date that the statistics were archived.
Time	Time that the statistics were archived.
Link	The name of the SNASw link.
Data Bytes Sent	Data bytes sent from the SNA Switch server.
Data Bytes Received	Data bytes received by the SNA Switch server.
Data Frames Sent	Data frames sent from SNA Switch server.
Data Frames Received	Data frames received by the SNA Switch server.
XID Bytes Sent	Bytes sent from the SNA Switch server while sending XIDs.
XID Bytes Received	Bytes received by the SNA Switch server while receiving XIDs.
XID Frames Sent	Number of XID frames sent by the SNA Switch server.
XID Frames Received	Number of XID frames received by the SNA Switch server.
Session Control Frames Sent	Number of session control frames sent by the SNA Switch server.
Session Control Frames Received	Number of session control frames received by the SNA Switch server.
Number of XID Exchanges Successful	Number of XID negotiation exchanges that were successful in bringing up the link.
Number of XID Exchanges Unsuccessful	Number of XID negotiation exchanges that were not successful in bringing up the link.

Displaying the Physical Units

To display the Physical Units, PUs, connected though the DLUR function of SNA Switch, place the cursor on the List PUs selection on the ISM SNASW Operation Options Panel (Figure 9-7) and press **Enter**. Figure 9-23 shows an example of the SNA Switch Downstream PU Status panel.

Figure 9-23 SNA Switch Downstream PU Status Panel

```

NSPVSWPU  SNA Switch Downstream PU Status          CNM56  06/16/04
PU Index: 1      Count= 1      Filter:              11:57:57
+-----+-----+-----+-----+-----+
| PU Name | IDNUM | IDBLK | Status | DLUS Name |
+-----+-----+-----+-----+-----+
| JMPU32F3 | F03   | 47517 | Active | NETA.MYSE |
+-----+-----+-----+-----+-----+

Place the cursor on a PU and press Enter for details.
==>
1=HELP 2=MAIN 3=RTN 6=ROLL          11=FILTER 12=REFRESH
TCE10169  :00.2 023/006
  
```

The SNA Switch Downstream PU Status panel displays the following fields:

Field	Description
PU Name	The name of the Physical Unit
IDNUM IDBLK	The station identification (IDBLK/IDNUM) for the PU.
Status	The status of the PU.
DLUS Name	The name of the CP providing DLUS services for this PU.

Displaying Details for a PU

To display details for a PU, place the cursor on the line containing the PU and press **Enter**. Figure 9-24 shows an example of the SNA Switch PU Details for PUname panel that is displayed.

Figure 9-24 SNA Switch PU Details for PUname Panel

```
NSPVSWPD          SNA Switch PU Details for JMPU32F3          CNM56  06/16/04
                                                           18:16:41

      PU Name:  JMPU32F3
      CP Name:  NETA.JMPU32F3
      DLUS Name: NETA.MYSE
      Link Name: @I000001      Active
      Port Name: VTOK0        Active
      Interface: Virtual-TokenRing0
      DLC Type:  IEEE 802.2 LLC
      PU MAC:SAP: 4003.0303.0000:A0
      Port MAC:SAP: 4033.3333.0000:04
                   RIF: 08B0.D053.BB83.BD90
      Maximum Send BTU: 4105
      Uptime:    7 hrs, 19 mins, 18 secs

      Statistics

      Sent      Received
Frames:      90      170
Bytes:      82442    1951

Place the cursor on a field and press Enter for details.
Action==>
1=HELP  2=MAIN  3=RTN  6=ROLL 12=REFRESH
TCE10169  00:00.3 023/012
```

The SNA Switch PU Details for PUname panel displays the following fields:

Field	Description
PU Name	The name of the Physical Unit.
CP Name	The Control Point name associated with the PU.
DLUS Name	The name of the Network Node providing DLUS services for this PU.
Link Name	The name of the SNASw downstream link associated with this PU and the status of the link.
Port Name	The name of the SNASw port associated with this PU and the status of the port.

Field	Description
Interface	The router interface associated with the SNASw port.
DLC Type	The Data Link Control type associated with the port.
PU MAC:SAP	The Media Access Control address and Service Access Point number associated with the PU.
Port MAC:SAP	The Media Access Control address and Service Access Point number associated with the SNASw port.
RIF	The Routing Information Field.
Maximum Send BTU	The largest Basic Transmission Unit that may be sent.
Uptime	Time period since the PU became active.
Frames Sent	Frames sent from SNASw to the PU.
Frames Received	Frames received by SNASw from the PU.
Bytes Sent	Bytes sent from SNASw to the PU.
Bytes Received	Bytes received by SNASw from the PU.

Collecting Statistics for a PU

To collect the latest status and statistics for the PU, press **PF12**.

To display details about the PU, place the cursor on the PU Name line on the SNA Switch PU Details for PUname Panel (Figure 9-24) and press **Enter**. The Router Command Interface Panel is displayed with the results of the *show snasw link detail* command. Figure 9-25 Shows an example of the panel.

Figure 9-25 Router Command Interface Panel with *show snasw link detail*

```

NSPVCMDA      Router Command Interface      CNM56  06/16/04
SPname: ISMGALWY  Log:( NO | YES ) NO      Target: CNM56  20:44
Hostname= Galway> Password:
show snasw link detail xid F0347517

Number of links 3
1>
Link name                @I0000001
Port name                VTOK0
DLC type                 IEEE 802.2 LLC
Destination Address      4003.0303.0000.A0
Link state               Active
Link substate            Active
Time since last activation 9 hrs, 47 mins, 26 secs
Time since last deactivation N/A
Total time active since startup 9 hrs, 47 mins, 26 secs
Time in current state    9 hrs, 47 mins, 26 secs
Number of active sessions traversing link 2
Adjacent Node Id         X'F0347517'
Max send frame data (BTU) size 4105

==>
1=HELP 2=MAIN 3=RTN 5=COPY 6=ROLL      8=FWD      11=RIGHT 12=RECALL
TCE10169 00:00.5 004/003

```

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Displaying VTAM Status for a PU

To display the VTAM status of the CPNAME, place the cursor on the CP Name field on the SNA Switch PU Details for PUName Panel (Figure 9-24) and press **Enter**. Figure 9-26 shows an example of the panel that is displayed.

Figure 9-26 VTAM Display of CP Name

```

CNMKWIND OUTPUT FROM DIS NETA.JMPU32F3,E LINE 0 OF 16
*----- Top of Data -----*
DISPLAY NET,ID=NETA.JMPU32F3,SCOPE=ALL
IST097I DISPLAY ACCEPTED
IST075I NAME = JMPU32F3 , TYPE = PU.T2.1
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST1058I MODEL LU GROUP = JMLUGRP3, LUSEED = JMLUF3##
IST1043I CP NAME = JMPU32F3, CP NETID = NETA , DYNAMIC LU = YES
IST1589I XNETALS = YES
IST1354I DLUR NAME = GALWAY MAJNODE = JMTN3270
IST136I SWITCHED SNA MAJOR NODE = JMTN3270
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT , NODE REPORTED = YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST355I LOGICAL UNITS:
IST080I JMLUF301 ACTIV---X-
IST314I END
*----- Bottom of Data -----*

TO SEE YOUR KEY SETTINGS, ENTER 'DISPFK'
CMD==>
TCE10169 00:00.1 024/009 12144

```

To display the VTAM status of the DLUS, place the cursor on the DLUS Name field on the SNA Switch PU Details for PUName Panel (Figure 9-24) and press **Enter**. Figure 9-27 shows an example of the panel that is displayed.

Figure 9-27 VTAM Display of DLUS Status

```

CNMKWIND OUTPUT FROM DIS NETA.MVSE,E LINE 0 OF 61
*----- Top of Data -----*
DISPLAY NET,ID=NETA.MVSE,SCOPE=ALL
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.MVSE , TYPE = CDRM
IST1046I CP NETA.MVSE ALSO EXISTS
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST476I CDRM TYPE = HOST GATEWAY CAPABLE
IST637I SUBAREA = 56 ELEMENT = 1 SSCPID = 56
IST388I DYNAMIC CDRSC DEFINITION SUPPORT = YES
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST924I -----
IST075I NAME = NETA.MVSE , TYPE = HOST CP
IST1046I SSCP NETA.MVSE ALSO EXISTS
IST486I STATUS= ACT/S , DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST1501I XCF TOKEN = 0400000000130006
TO SEE YOUR KEY SETTINGS, ENTER 'DISPFK'
CMD==>
TCE10169 00:00.1 024/009
121445

```

Displaying Details about the SNASw Link

To display details about the SNASw link, place the cursor on the Link Name line on the SNA Switch PU Details for PUname Panel (Figure 9-24) and press **Enter**. The Router Command Interface Panel is displayed with the results of the *show snasw link detail* command. Figure 9-28 shows an example of the panel.

Figure 9-28 Router Command Interface Panel with show snasw link detail

```

NSPVCMDA      Router Command Interface      CNM56  06/16/04
SPname: ISMGALWY  Log:( NO | YES ) NO      Target: CNM56  20:58
Hostname= Galway> Password:
show snasw link detail name @I0000001

Number of links 3
1>
Link name                @I0000001
Port name                VTOKO
DLC type                 IEEE 802.2 LLC
Destination Address      4003.0303.0000.A0
Link state               Active
Link substate            Active
Time since last activation 10 hrs, 1 mins, 22 secs
Time since last deactivation N/A
Total time active since startup 10 hrs, 1 mins, 22 secs
Time in current state    10 hrs, 1 mins, 22 secs
Number of active sessions traversing link 2
Adjacent Node Id         X'F0347517'
Max send frame data (BTU) size 4105

==>
1=HELP 2=MAIN 3=RTN 5=COPY 6=ROLL      8=FWD      11=RIGHT 12=RECALL
TCE10169 00:00.4 004/003

```

Displaying Details about the SNASw Port

To display details about the SNASw port, place the cursor on the Port Name line on the SNA Switch PU Details for PUname Panel (Figure 9-24) and press Enter. The Router Command Interface Panel is displayed with the results of the *show snasw port detail* command. Figure 9-29 shows an example of the panel.

Figure 9-29 Router Command Interface Panel with show snasw port detail

```

NSPVCMDA      Router Command Interface      CNM56      06/16/04
SPname: ISMGALWY      Log:( NO | YES ) NO      Target: CNM56      21:05
Hostname= Galway>      Password:
show snasw port detail name VTOK0

Number of ports 2
2>
Port name                      VTOK0
Interface name                  Virtual-TokenRing0
Address                         4033.3333.0000
SAP                             X'04'
HPR SAP                         X'C8'
DLC name                        VTOK0
Port state                      Active
Time since last activation      10 hrs, 9 mins, 6 secs
Port type                       SATF
Port attributes                  Allow invalid ABM support
Port number                     0
Link station role                Negotiable
Limited resource                 No

==>
1=HELP 2=MAIN 3=RTN 5=COPY 6=ROLL      8=FWD      11=RIGHT 12=RECALL
TCE10169 00:00.3 004/003

```

Displaying Details about the Router Interface

To display details about the router interface that supports the SNASw port, place the cursor on the Interface line on the SNA Switch PU Details for PUName Panel (Figure 9-24) and press **Enter**. The Router Command Interface Panel is displayed with the results of the *show interface* command. Figure 9-30 shows an example of the panel.

Figure 9-30 Router Command Interface Panel with show interface

```

NSPVCMDA      Router Command Interface      CNM56  06/16/04
SPName: ISMGALWY  Log:( NO | YES ) NO      Target: CNM56  21:08
Hostname= Galaxy> Password:
show interface Virtual-TokenRing0

Virtual-TokenRing0 is up, line protocol is up
Hardware is Virtual-TokenRing, address is 4033.3333.0000 (bia 4000.0000.0013)
MTU 8136 bytes, BW 16000 Kbit, DLY 5000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation SNAP, loopback not set
ARP type: SNAP, ARP Timeout 04:00:00
Last input 00:00:07, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
 5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
 3835 packets input, 101914 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

==>
1=HELP 2=MAIN 3=RTN 5=COPY 6=ROLL      8=FWD      11=RIGHT 12=RECALL
TCE10169 00:00.2 004/003

```

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Monitoring SNA Switching Operations Using the Standard Interface

You can monitor SNA Switch server operations from the ISM main menu (Figure 9-1). This section describes the following tasks:

- [Displaying Information about a Node](#), page 9-38
- [Displaying Information about SNA Switch Links](#), page 9-39
- [Displaying Physical Units Served by SNA Switch](#), page 9-41

To begin a monitoring session, use the following procedure:

Step 1 **Step 1** Position the cursor on the SNASW line and press **Enter**. The SNA Switch Monitoring Operations panel (Figure 9-31) is displayed.

Figure 9-31 SNA Switch Monitoring Operations Panel

```

NSPVSWM0          SNA Switch Monitoring Operations          CNM56      06/17/04
+-----+-----+
Option  Description
+-----+-----+
+ LIST          Lists the SNA SW Nodes that have been discovered
                  when monitoring routers.
                  Filters:  NODE:_____ ALL|node| or blank
                           Status:_____ ALL|status| or blank
                           SNA SW Status: ALL - ALL
                           Active - Active Nodes
                           Perf - Nodes with not-active resources
+-----+-----+
+ LINKS         To list links (Default=ALL), By Router
                  By adjacent CP name _____
                  And (Opt.) by Network Name _____
+-----+-----+
+ PUS          To list links By Router
                  By adjacent CP name _____
+-----+-----+

Press Enter to list all SNA SW Routers.
NSP1140I Tab to desired selection and press enter.
Action==>
1=HELP 2=MAIN 3=RTN      6=ROLL
+-----+-----+

```

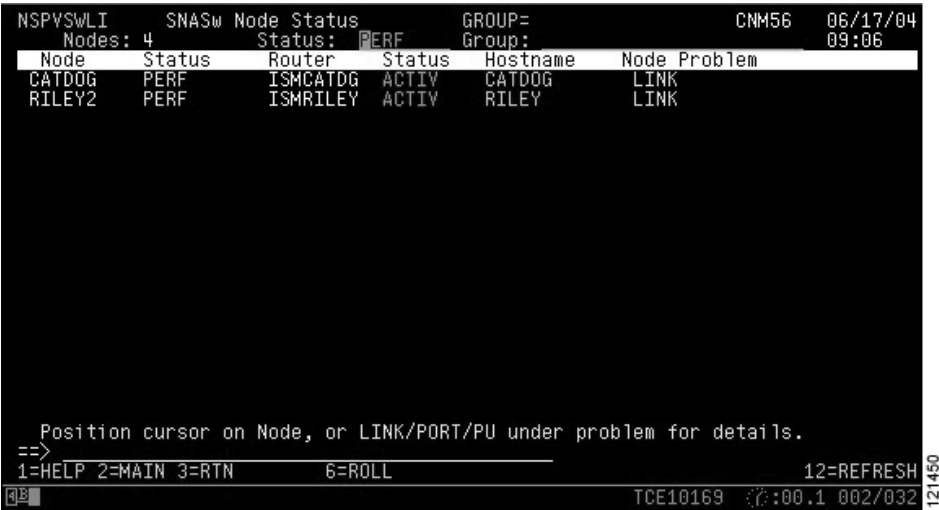

The SNA Switch Monitoring Operations panel provides the following options:

Option	Description
LIST:Filters:NODE	Select this option and enter a SNA Switch Control Point name to list SNA Switch servers by CP name. If you do not enter a CP name, all SNASw servers are listed.
LIST:Filters:Status	Select this option and select a status to list SNA Switch servers by their current status. If you do not enter a status, all SNASw servers are listed.
Links:By Router	Select this option and enter a router name to list SNA Switch links by router name. If you do not enter a router name, all SNASw links are listed.
Links:By adjacent CP name	Select this option and enter an adjacent Control Point name to list SNA Switch links by adjacent CP name. If you do not enter a CP name, all SNASw links are displayed.
Links:By Network Name	Select this option and enter an adjacent Control Point name and a Network Name to list SNA Switch links by adjacent CP name and Network Name.
PUS:By Router	Select this option and enter a router name to list SNA Switch Physical Units by router name. You must enter a router name.
PUS:By adjacent CP name	Select this option and enter a SNA Switch Control Point name to list the SNASw Physical Units by CP name. You must enter a CP name.

Displaying Information about a Node

Figure 9-32 shows sample output for the **List by Status** option.

Figure 9-32 SNASw Node Status



NSPVSWLI SNASw Node Status GROUP= CNM56 06/17/04
Nodes: 4 Status: PERF Group: 09:06

Node	Status	Router	Status	Hostname	Node Problem
CATDOG	PERF	ISM CATDG	ACTIV	CATDOG	LINK
RILEY2	PERF	ISM RILEY	ACTIV	RILEY	LINK

Position cursor on Node, or LINK/PORT/PU under problem for details.
=>
1=HELP 2=MAIN 3=RTN 6=ROLL 12=REFRESH

TCE10169 00:00.1 002/032 121450

Position the cursor on the Node or Router to display the ISM SNASW Operation Options panel (Figure 9-7) to display details about the SNA Switch server.

Position the cursor on one of the fields under Node Problem and press **Enter** to display the Router Command Interface panel with details about the problem (Figure 9-28 or Figure 9-29).

Displaying Information about SNA Switch Links

To display SNA Switch links, use the Links By Router, Links By adjacent CP name, or Links By Network Name options on the SNA Switch Monitoring Operations Panel (Figure 9-31). Figure 9-33 shows an example of the Link / CPnode Status panel that is displayed.

Figure 9-33 Link / CPnode Status Panel

Link	Status	Router	Adjacent CP	Available Since
R	Retrying	ISMCAIDG	NONE.NONE	21 secs
S	Retrying	ISMCAIDG	NONE.NONE	21 secs
T	Retrying	ISMCAIDG	NONE.NONE	22 secs
U	Retrying	ISMCAIDG	NONE.NONE	22 secs
V	Retrying	ISMCAIDG	NONE.NONE	22 secs
W	Retrying	ISMCAIDG	NONE.NONE	22 secs
X	Retrying	ISMCAIDG	NONE.NONE	22 secs
Y	Retrying	ISMCAIDG	NONE.NONE	22 secs
Z	Retrying	ISMCAIDG	NONE.NONE	22 secs
MVSE2	Active	ISMCLAR	NETA.MVSE	7 days, 1 hrs, 46 mins, 48 sec
MVSE	Active	ISMALWY	NETA.MVSE	22 hrs, 14 mins, 32 secs
MVSC	Active	ISMCAIDG	NETA.MVSC	2 days, 16 hrs, 58 mins, 44 sec
MVSC	Active	ISMCLAR	NETA.MVSC	2 days, 16 hrs, 59 mins, 5 sec
MVSC	Active	ISMALWY	NETA.MVSC	22 hrs, 6 mins, 20 secs
MVSD	Inactive	ISMRILEY	NONE.NONE	7 days, 49 mins, 37 secs
MVSE	Active	ISMRILEY	NETA.MVSE	22 hrs, 11 secs

NSPYSWCL Link / CPnode Status CNM56 06/17/04
 Link Index: 37 Count: 37 Filter: 09:31
 ==>
 1=HELP 2=MAIN 3=RTN 4=DEL 6=ROLL 7=BACK
 TCE10169 00:00.1 004/003

The Link / CPnode Status panel contains the following fields:

Field	Description
Link	The name of the SNA Switch Link.
Status	The status of the link as reported by SNASw.

Field	Description
Router	The router control point name for the SNA Switch server.
Adjacent CP	The Control Point name that the SNASw link connects to. NONE.NONE is displayed if the CP name is not known, for example if the link is not active.
Available Since	Time that the link has been in the current state.

To display details about a link, place the cursor on the line and press **Enter**. The ISM SNASW Link Options Menu Panel (Figure 9-17) is displayed.

Displaying Physical Units Served by SNA Switch

To display Physical Units, PUs, served by SNA Switch, use the PUS By Router or PUS by adjacent CP name options on the SNA Switch Monitoring Operations Panel (Figure 9-32). Either the SNA Switch PU List Filtering panel (Figure 9-35) or the SNA Switch Downstream PU Status panel () is displayed. The SNA Switch PU List Filtering panel is displayed if there are more PUs than will display on one panel, (Figure 9-17).

Figure 9-34 SNA Switch PU List Filtering Panel

```
NSPVSXPF          SNA Switch PU List Filtering          CNM56  06/17/04  07:19

  There are 32 SNA Switch PUs on ISMGALWY.
  Please enter a character string below to restrict
  the PUs displayed.

  Filter: 

  Then press Enter to display SNASw PUs on ISMGALWY
  contain the characters.

Action==>
1=HELP 2=MAIN 3=RTN      6=ROLL

TCE10169 00:00.1 008/019 121452
```

If you specify a filter, only those PUs whose names contain the character string are displayed. For example, if you enter **ABC**, PUs name **ABC**, **QABC**, and **ZABC9** would be displayed. If you do not enter a filter, all PUs are displayed. Figure 9-35 shows an example of the SNA Switch Downstream PU Status panel that is displayed.

Figure 9-35 SNA Switch Downstream PU Status Panel

NSPVSWPU	SNA Switch	Downstream PU Status	CNM56	06/17/04
PU Index: 1	Count= 32	Filter:		10:02:20
PU Name	IDNUM	IDBLK	Status	DLUS Name
JMPU32B1	B01	47517	Active	NETA.MVSE
JMPU32B2	B02	47517	Active	NETA.MVSE
JMPU32B3	B03	47517	Active	NETA.MVSE
JMPU32B4	B04	47517	Active	NETA.MVSE
JMPU32B5	B05	47517	Active	NETA.MVSE
JMPU32B6	B06	47517	Active	NETA.MVSE
JMPU32B7	B07	47517	Active	NETA.MVSE
JMPU32B8	B08	47517	Active	NETA.MVSE
JMPU32B9	B09	47517	Active	NETA.MVSE
JMPU32BA	B0A	47517	Active	NETA.MVSE
JMPU32BB	B0B	47517	Active	NETA.MVSE
JMPU32BC	B0C	47517	Active	NETA.MVSE
JMPU32BD	B0D	47517	Active	NETA.MVSE
JMPU32BE	B0E	47517	Active	NETA.MVSE
JMPU32BF	B0F	47517	Active	NETA.MVSE
JMPU32C0	C00	47517	Active	NETA.MVSE
JMPU32C1	C01	47517	Active	NETA.MVSE
JMPU32C2	C02	47517	Active	NETA.MVSE
Place the cursor on a PU and press Enter for details.				
==>				
1=HELP 2=MAIN 3=RTN 6=ROLL 8=FWD 11=FILTER 12=REFRESH				
TCE10169 00:00.2 023/006				

To display details about a PU, place the cursor on the line containing the PU and press **Enter**. The SNA Switch PU Details for PUname Panel (Figure 9-24) is displayed. To filter the list of PUs, press **PF11** and the SNA Switch PU List Filtering Panel (Figure 9-34) is displayed. To update the list of PUs and their status, press **PF12**



ISM Commands

In addition to using the ISM panel interface, you can perform many of the ISM functions using ISM commands. This appendix lists the ISM commands that you can issue. This appendix also provides a syntax description (if applicable) and notes on using each command.

To access help for an ISM command, enter the command followed by a space and question mark from the action prompt. For example, entering **ismaid ?** displays help for the **ismaid** command.

This chapter describes the following commands:

- ism, page A-2
- ismaid, page A-4
- ismhelp, page A-6
- ismhmsg, page A-7
- ismidis, page A-8
- ismiinit, page A-10
- ismmgr, page A-12
- ismr, page A-13
- ismsetup, page A-15
- ismuser, page A-16
- ismusers, page A-17
- ismvars, page A-18

ism

Use the **ism** command to display the ISM main menu. You can also select and execute the ISM operations from the ISM main menu.

```
ism [ cmcc | dspu | help | int | ismr | log | mgr | mgrm | setup | sna | snmp  
      | tn32 | user | var ]
```

Syntax Description

cmcc	Cisco Mainframe Channel Connections Monitoring Operation application. Corresponds to the CMCC main menu option.
dspu	DSPU Monitoring Operation application. Corresponds to the DSPU main menu option.
help	ISM Command Help. Corresponds to the HELP main menu option to obtain a description of the ISM commands that you can issue to Cisco resources.
int	Cisco Router Interface Status List application from which you can display the status of a type of interface enabled in the routers on your network. Corresponds to the INT main menu option.
ismr	ISM Resource Manager application. Corresponds to the ISMR main menu option.
log	ISM Event Log. Corresponds to the LOG main menu option.
mgr	Primary Resource Management application. Corresponds to the MGR main menu option, which displays the status of the resources being managed by ISM.
mgrm	ISM Message Autotask application. Corresponds to the MGRM main menu option.

setup	ISM Resource Management Setup application. Corresponds to the SETUP main menu option to define or modify the ISM management environment.
sna	SNA Session Monitoring application. Corresponds to the SNA main menu option.
snmp	SNMP Session Monitoring application. Corresponds to the SNMP main menu option.
tn32	Cisco TN3270 Monitoring Operations application. Corresponds to the TN32 main menu option.
user	User Profile application. Corresponds to the USER main menu option to create or modify an operator profile.
var	Common globals of the ISM management environment. Corresponds to the VAR main menu option.

Security Level

Any ISM user can issue this command.

Usage Guidelines

Once you have configured the ISM management environment and have initialized ISM, issue the **ism** command from a NetView command line to display the ISM main menu.

Example

The following command displays the ISM main menu panel:

```
ism
```

ismaid

Use the **ismaid** command to enable or disable the trace facilities provided by ISM. The three trace facilities and their functions provided by ISM are Debug, Ctrace, and Trflow.

```
ismaid {debug {on | off} | ctrace {all | all name | err | cmd} | trflow {on | off} | off}
```

Syntax Description

debug {on off}	Traces internal data flow.
ctrace {all all <i>name</i> err cmd}	Traces internal commands. The following traces can be performed: all —Traces all executions for all CLISTs. all <i>name</i> —Traces only the executions for CLIST <i>name</i> , where <i>name</i> is the name of the CLIST you want to trace. err —Traces only CLIST errors. cmd —Traces all commands issued from a CLIST.
trflow {on off}	Traces routine entries and exits issued by an operator.
off	Turns off all tracing that has been turned on.

Security Level

Any ISM user can issue this command.

Usage Guidelines

The traces initiated by this command affect only the operator under which the **ismaid** command is issued. With the **ismaid** command you can enable or disable an internal trace function. Use the **ismaid debug on** command to trace the data flow in routines that process data from RUNCMDs. Use the **ismaid trflow on** command to trace the entry and exit of the routines that you are issuing.

Issuing **ismaid** displays the help panel for the NSPAID facility.

Example

Issuing the **ismaid debug on** command yields the following message:

NSP1129I NSPAID DEBUG set to >YES < NSPAID



Caution

This command is intended to be used at the direction of support personnel to troubleshoot ISM.

ismhelp

Use the **ismhelp** command to view the contents of the Cisco ISM Commands for NetView panel and the list of other help panels you can access by entering the number associated with that panel.

ismhelp

Syntax Description

This command has no keywords or arguments.

Security Level

All ISM users can issue this command.

Usage Guidelines

The Cisco ISM Commands for NetView panel lists the help panels that are available for ISM. To access a specific help panel, type the number representing the panel at the Action prompt and press **Enter**.

You can also get help for a command by typing the command, a space, and then a question mark and pressing **Enter**.

Example

The following command lists the help panels that are available for ISM:

```
ismhelp
```

ismhmsg

Use the **ismhmsg** command to display detailed message text and to find information about recommended actions.

ismhmsg *msg_id*

Syntax Description

msg_id Message identification number.

Security Level

All ISM users can issue this command.

Usage Guidelines

You can specify the full message identification number, or just the numeric portion of the message with the **ismhmsg** command to obtain help about a particular ISM message.

Example

The following command requests help for the NSP1001I message:

ismhmsg 1001

ismidis

Use the **ismidis** command to display a list of interfaces, by type, for the entire network or for a specific resource.

ismidis *interface_type* [*SPname*]

Syntax Description

<i>interface_type</i>	Type of interface for which you want to display a list. Valid types are: <ul style="list-style-type: none">• A (Async)• B (ISDN)• C (Channel)• D (FastEthernet)• E (Ethernet)• F (FDDI)• G (GigabitEthernet)• H (HSSI)• I (IBM CLAW)• L (Loopback)• M (ATM)• N (MPC)• S (Serial)• T (Token Ring)• U (Tunnel)
<i>SPname</i>	(Optional) Service point name (1 to 8 characters) of the resource for which you want to view a list of configured interfaces by type.

Security Level

All ISM users can issue this command.

Usage Guidelines

If you issue the **ismidis** command without specifying a service point name, all interfaces configured in the resources on your network that match the interface type you specify are displayed.

Issuing the **ismidis** command and specifying a service point name displays all the interfaces configured in a resource that match the type you specify.

Example

The following command displays a list of Token Ring interfaces configured in a resource with the service point name *atlanta*:

```
ismidis t atlanta
```

ismiinit

Use the **ismiinit** command to initialize a specific group of interfaces.

ismiinit *interface_type* [**init** | **reset**]

Syntax Description

<i>interface_type</i>	<p>Type of interface you want to re-initialize. Valid types are:</p> <ul style="list-style-type: none"> • A (Async) • B (ISDN) • C (Channel) • D (FastEthernet) • E (Ethernet) • F (FDDI) • G (GigabitEthernet) • H (HSSI) • I (IBM CLAW) • L (Loopback) • M (ATM) • N (MPC) • S (Serial) • T (Token Ring) • U (Tunnel)
init	Clears all ISM interface data from storage for that interface and re-initializes that interface type.
reset	Clears all ISM interface data from storage and terminates the interface monitoring of that interface type.

Security Level

All ISM users can issue this command.

Usage Guidelines

Normally, ISM automatically executes the **ismiinit** command upon startup. However, you can manually issue the command at anytime to re-initialize a group of interfaces. When you issue the **ismiinit** command, ISM reads the VSAM records for the specific group type and builds a table in storage that contains all of the interfaces.

If you have already issued the **ismiinit** command, and issue the **ismiinit** command again without specifying **init** or **reset**, an error message is displayed requesting that you specify an interface type.

Example

The following command clears all ISM Ethernet interface data and restarts ISM:

```
ismiinit e init
```

ismmgr

Use the **ismmgr** command to display the Resource Status panel from which you can view a list of resources that are being monitored by ISM and their status.

ismmgr

Syntax Description

This command has no keywords or arguments.

Security Level

All ISM users can issue this command.

Usage Guidelines

The **ismmgr** command displays the current status of resources if at least one of the following conditions is true:

- You used the **ismr** command to access a specific resource
- Message automation was enabled for the IST590I message

The color in which the service point name of a resource displays on the Resource Status panel indicates the status of that resource. You can clear all the ISM variables displayed on the Resource Status panel by issuing the **ismmgr** command and specifying **reset**.

Example

The following command displays the Resource Status panel:

ismmgr

ismr

Use the **ismr** command to learn about a resource and its related resources.

ismr [*control_name* | *ip_address*]

Syntax Description

control_name Control name of the resource (1 to 8 characters).

ip_address IP address of the resource (1 to 15 characters).

Security Level

Any ISM user can issue this command.

Usage Guidelines

This command displays a panel that provides status information a resource as well as a number of control options for the resource. The status information shows the current and extended status. If the resource is not known, it can be added from the panel by selecting option 3.

Depending on the type of resource you select, some or all of the following options are displayed on the panel:

- 1.Command Interface / Show System
- 2.Show Protocols
- 3.ISM Router Administration
- 4.Total Events (NPDA)
- 5.VTAM Display
- 6.Router Config. History
- 7.Collect Router Config.
- 8.Last Alert (NPDA)
- 9.Refresh/Reset Status
- A.Router Performance History

- B.Show Commands Menu
- C.Router Interfaces Status
- D.Router Memory Dump
- E.List CMCCs

Example

The following commands display the Resource Status with Options panel:

```
ismr ism7200b
```

```
ismr 172.18.7.23
```

ismsetup

Use the **ismsetup** command to define or change the setup parameters for ISM.

ismsetup

Syntax Description

This command has no keywords or arguments.

Security Level

All ISM users can issue this command, but only ISM users defined as administrators can change the setup options.

Usage Guidelines

This command corresponds to selecting the SETUP option on the ISM main menu panel.

Only ISM users defined as ISM administrators can modify the ISM setup parameters.

Example

To display the ISM Resource Management Setup panel, type the following command:

ismsetup

ismuser

Use the **ismuser** command to create an operator profile, define viewing filters, or to define the security level for an ISM operator.

ismuser [*op_id* | **all**]

Syntax Description

<i>op_id</i>	Operator ID of the operator whose profile you want to access. Omit if you are creating or modifying your own profile.
all	Shows all of the operator profiles defined to ISM, and allows you to modify the profile settings in an interactive full-screen mode.

Security Level

All ISM users can issue this command, but only ISM users defined as administrators can define authority levels or delete a profile.

Usage Guidelines

This command corresponds to selecting the USER option on the ISM main menu.

Only ISM administrators can perform the following tasks:

- Update other operator's profiles
- Define an operator as an administrator or enabled user

You can issue the **ismusers** command to show all of the operator profiles in the same full-screen panel that is displayed using the **ismuser all** command.

Example

The following command creates and displays an ISM profile for an operator whose ID is CE6:

ismuser ce6

ismusers

Use the **ismusers** command to show all operator profiles defined to ISM, and to define viewing filters, or to define the security level for an ISM operator in an interactive full-screen mode.

ismusers

Syntax Description

This command has no keywords or arguments.

Security Level

All ISM users can issue this command, but only ISM users defined as administrators can define authority levels or delete a profile.

Usage Guidelines

Only ISM administrators can perform the following tasks:

- Update other operators' profiles
- Define an operator as an administrator or enabled user

Example

To display all of the operator profiles that are defined to ISM and update profile options on the ISM Authorized Users panel, type the following command:

ismusers

ismvars

Use the **ismvars** command to display the values of the common globals of the ISM management environment.

ismvars

Syntax Description

This command has no keywords or arguments.

Security Level

All ISM users can issue this command.

Usage Guidelines

The **ismvars** command displays values of common globals used by ISM. It does not show the common globals used for each resource or interface.

The **ismvars** command also displays a description of each variable.

Example

The following example displays the common globals of the ISM management environment:

ismvars



ISM Messages

This appendix describes messages for ISM and recommends actions you can take to resolve the conditions indicated by the message. The messages are listed in alphanumeric order.

To get specific information about an error message from within the ISM program, position the cursor on a message and press **PF1**. You can also use the **ismhmsg** command from any ISM command line to get ISM message help.



Note

ISM uses the prefix NSP for all messages.

Some messages contain site-specific data, represented in this appendix by values such as parm.2 and parm.3.

Error Message NSP1001I PF Key not supported.

Explanation You pressed a function key that is not supported from this panel. Only those function keys displayed at the bottom of the panel are supported.

Recommended Action Verify the action you are attempting to perform and select the appropriate function key from those displayed at the bottom of the panel.

Error Message NSP1002I Operator parm.2, is not the authorized ISM Manager. parm.3 is the correct manager.

Explanation This message is created when an operator other than the designated operator issues the **isminit** command.

Recommended Action Issue the **isminit reset** command to reset ISM. At a NetView command prompt, issue the **autotask opid=ismmgr** command, where *ismmgr* is the designated installation autotask for ISM manager.

Error Message NSP1003I ISM Initialization was done at parm.2.

Explanation This message occurs when an operator issues the **isminit** command without a correct option.

Recommended Action Issue the **isminit reset** command to reset ISM. At a NetView command prompt, issue the **autotask opid=ismmgr** command, where *ismmgr* is the designated installation autotask for ISM manager.

Error Message NSP1005E Build for parm.2 failed, parameter = parm1ist.

Explanation This message is generated when incorrect data is passed to either the NSPIBCV4 or NSPIBCF3 routines.

Recommended Action Enable the TRFLOW service aid in ISM to find out what data is being passed internally as the routines are executed.

Error Message NSP1006I ISM storage resident routines loaded by parm.2

Explanation This message is generated when routine NSPILD4 is executed.

Recommended Action None.

Error Message NSP1007I There is no previous panel.

Explanation You requested to view a previous panel of information when none exists. Previous panels exist only if **PF7** is displayed at the bottom of the panel.

Recommended Action None.

Error Message NSP1008I There is no continuation panel.

Explanation You requested to view a continuation panel of information when none exists. Continuation panels exist only if **PF8** is displayed at the bottom of the panel.

Recommended Action None.

Error Message NSP1009I Cursor not on a valid line.

Explanation You pressed **Enter** when the cursor is not positioned in a valid location on the panel.

Recommended Action Ensure that the cursor is positioned in a valid location and press **Enter**.

Error Message NSP1010I You are at the left most panel.

Explanation You pressed **PF10** to request to view additional data on the left side of the panel when none exists.

Recommended Action None.

Error Message NSP1011I You are at the right most panel.

Explanation You pressed **PF11** to view additional data on the right side of the panel when none exists.

Recommended Action None.

Error Message NSP1012I No command to retrieve.

Explanation You requested to retrieve archived commands when all previously issued commands were already retrieved.

Recommended Action None.

Error Message NSP1013E parm.2 command canceled by operator.

Explanation An issued **runcmd** was terminated by an operator who issued a **cancmd** against the service point of the resource to which the **runcmd** was issued.

Recommended Action Check the NetView log to verify that a **cancmd** was issued.

Error Message NSP1014E VTAM reported error, parm.2 not responding. See the NetView log.

Recommended Action This message indicates that the service point you specified is not available to VTAM. This failure can be caused by one of the following:

- Service point not known to VTAM (DSI358I)
- Service point not active to VTAM (DSI264I)
- Service point rejects the RUNCMD (DWO614E)

Recommended Action View the NetView log for the reason for this failure.

Error Message NSP1015I VTAM DSPU name is required.

Explanation You requested to perform an action that requires a VTAM DSPU name and you did not specify one.

Recommended Action Specify a valid VTAM DSPU name and resubmit your request.

Error Message NSP1016I VTAM PU name required.

Explanation You are defining a DSPU resource and are being prompted to specify the DSPU name (VTAM PU name) of the resource. This is a required field.

Recommended Action Specify a valid DSPU name (VTAM PU name) and press **Enter**.

Error Message NSP1017E Error for VTAM command parm.2.

Explanation The NSPRVDIS routine experienced a VTAM command failure when attempting to determine the VTAM status of a resource.

Recommended Action Display the VTAM resource to confirm the error.

Error Message NSP1018E Timeout for VTAM command parm.2.

Explanation The NSPRVDI3 routine did not receive a response from VTAM within 20 seconds. Timeout occurs after 20 seconds.

Recommended Action Display the VTAM resource to confirm the error.

Error Message NSP1019I VTAM node definition not specified.

Explanation You attempted to create a resource definition without specifying a VTAM node definition.

Recommended Action Verify that you created a PU definition in VTAM for the resource.

Error Message NSP1020E Bad return code from RUNCMD. Return Code = parm.2.

Explanation A **runcmd** that was issued to a resource has failed. The NetView log may contain information that can help determine the cause of this failure.

Recommended Action View the NetView messages logged for that resource to determine the possible actions that should be taken. If you are unable to determine the cause of the failure, contact network support for assistance with this error.

Error Message NSP1021I Cisco resource interface parm.2 management initialization started.

Explanation The request to initialize an interface type was received and the ISMIINIT routine is building the environment to manage that interface type.

Recommended Action None.

Error Message NSP1022I parm.2 parm.3 management initialization completed.

Explanation The request to initialize an interface type was received and completed by ISM.

Recommended Action None.

Error Message NSP1023I Cisco resource management initialization started.

Explanation This message is logged when the ISM initialization is started by the ISMINIT routine.

Recommended Action None.

Error Message NSP1024I Cisco resource management initialization completed. Entries = parm.2.

Explanation This message is logged when the ISM initialization is completed by the ISMINIT routine. The number displayed in the Entries field is the number of resources being monitored by ISM.

Recommended Action None.

Error Message NSP1025E Help not available.

Explanation You requested help for a function that does not have help information.

Recommended Action None.

Error Message NSP1026E Enter ISMIINIT parm.2 INIT to re-initialize.

Explanation The ISMIINIT routine was issued to initialize a type of interface when the ISMIINIT routine was already used to initialize the interface.

Recommended Action If necessary, issue the **ismiinit init** command to re-initialize the interface type.

Error Message NSP1027E Enter ISMINIT INIT to re-initialize.

Explanation The ISMINIT routine was issued to initialize ISM, when the ISMINIT routine was already used to initialize ISM.

Recommended Action Issue the **excmd ismmgr isminit init** command. The ISMINIT routine should be executed only by the ISMMGR autotask. If an operator issues the **isminit init** command, that operator takes over the functions of ISMMGR.

Error Message NSP1029E parm.2 interface initialization failed.

Explanation The interface initialization failed for the interface *parm.2*.

Recommended Action Browse the NetView log for >NSPIIN4. The reason for the failure is explained in the text following this header in the log.

Error Message NSP1030I parm.2 interface initialization was done at parm.3.

Explanation The ISMIINIT routine was issued to initialize a specific type of interface when that interface was already initialized.

Recommended Action If necessary, issue the **ismiinit *n* init** command, where *n* is the letter that represents the interface type that you want to re-initialize. The values for the types of interfaces you can view are:

- A (Async)
- B (ISDN)
- C (Channel)
- D (FastEthernet)
- E (Ethernet)
- F (FDDI)
- G (GigabitEthernet)
- H (HSSI)
- I (IBM CLAW)
- L (Loopback)
- M (ATM)
- N (MPC)
- S (Serial)
- T (Token Ring)
- U (Tunnel)

Error Message NSP1031I No ISMDSA data set, initialization will not be done.

Explanation The VSAM support required for ISM was not available.

Recommended Action Verify that the ISMDSA task is active.

Error Message NSP1032E SETUP record not found. Do ISMSETUP before doing a ISMINIT.

Explanation An attempt was made to initialize ISM before ISMSETUP was performed.

Recommended Action From the ISM main menu panel, select **SETUP**. After you specify your setup options, log off the ISMMGR autotask and start the ISMMGR autotask.

Error Message NSP1034E ISM is not initialized.

Explanation You attempted to use an ISM routine, but ISM was not initialized. You will receive this message in the following situations:

- ISM was not enabled
- ISMMGR was not started

Recommended Action Initialize ISM and retry your request. If ISMMGR is active, look in the log for message NSP1032I (ISM not enabled). Access ISM setup from the ISM main menu panel and press **PF10** to show the active ISM variables. If the values for the variables are blank, then ISM setup was not performed. Proceed to enable the ISM management options.

Error Message NSP1035I You must exit your session with parm.2.

Explanation You attempted to toggle from the ISM Resource Configuration Collector panel without properly exiting your enabled session. When a resource is enabled to an operator, no other operator can communicate with it.

Recommended Action To properly exit the enabled session, type **EXIT** in the Command Input field beneath the Host name field and press **Enter**. Press **PF3** to exit the Resource Command Interface panel.

Error Message NSP1036E Input error, enter a valid option and press Enter.

Explanation You entered an option that is not available on the popup menu.

Recommended Action Review the Resource Management popup menu, enter a valid option, and press **Enter**.

Error Message NSP1037I Make changes and press Enter to validate.

Explanation You are authorized to make changes to the data displayed on this panel.

Recommended Action If you make changes to the data, press **Enter** to verify the changes, and press **PF4** to save the changes.

Error Message NSP1038I Press Enter for prompted input.

Explanation Instructions on specifying values for the fields on this panel are available.

Recommended Action If necessary, press **Enter** for instructions on specifying values for the fields on this panel.

Error Message NSP1039I Press PF4 to go to update mode.

Explanation You are authorized to make changes to the information displayed on this panel.

Recommended Action To make changes to a resource, press **PF4**.

Error Message NSP1040I Press PF4 to implement changes or PF3 to exit.

Explanation You made changes to the information displayed on the panel.

Recommended Action To save and implement the changes you made, press **PF4**. To exit the panel without implementing or saving the changes, press **PF3**.

Error Message NSP1041I Press PF4 to update resource management data.

Explanation You are authorized to make changes to the information you are viewing on the Resource Management Data panel.

Recommended Action To begin making changes, press **PF4** to display the Cisco Resource Definition.

Error Message NSP1043I Press PF4 to delete parm.2 setup.

Explanation You requested to delete the ISM setup by specifying the Delete option in the Change field on the ISM Resource Management Setup panel.

Recommended Action Ensure that you want to delete the ISM setup. Press **PF4** if you are sure that you want to delete the ISM setup.

Error Message NSP1044I Press PF4 to delete resource.

Explanation You requested to delete a resource. If this resource is a router, the router definition, router history, interfaces configured in the router and the interface history archived will be deleted. If you are deleting an operator profile, see the Recommended Action.

Recommended Action If you are deleting an operator profile, issue the **ismusers** command to ensure that the operator profile that you are deleting is not the only remaining ISM administrator profile. Verify that your request is accurate and press **F4** to delete the resource.

Error Message NSP1046I At least one filter is required.

Explanation You enabled status filtering by specifying **Y** in the Status Filters field on the ISM User Administration panel, and have not specified a status type in the Filter 1, 2, or 3 fields.

Recommended Action To enable status filtering, type **Y** in the Status Filters field, and specify at least one status type in the Filter 1, 2, or 3 fields. To disable status filtering, type **N** in the Status Filters field. The following status filters are valid:

- ACTIV
- INOP
- INVALID
- PERF
- ALERT
- CONCT
- NONE
- UNKNOWN

Error Message NSP1047I At least one group is required.

Explanation You enabled group filtering by specifying **Y** in the Group Filters field on the ISM User Administration panel, but you did not specify a group in the Group 1 or Group 2 fields. Enabling group filtering requires that you specify a group.

Recommended Action To enable group filtering, type **Y** in the Group Filters field and specify at least one group in the Group 1 or Group 2 fields. To disable group filtering, type **N** in the Group Filters field.

Error Message NSP1048I Description not provided.

Explanation You are defining a resource and are being prompted for a description. This field is optional and for information only.

Recommended Action None.

Error Message NSP1051I Record parm.2 deleted.

Explanation The VSAM control file of the record you requested to delete was deleted.

Recommended Action None.

Error Message NSP1052I Record parm.2 added.

Explanation The VSAM control file was added or updated with the changes you made.

Recommended Action None.

Error Message NSP1054I Collection Complete for parm.2; parm.3 records collected.

Explanation Your request to collect and archive the current configuration of the resource was successfully completed.

Recommended Action None.

Error Message NSP1055E Delete failed for record parm.2; Return Code = parm.3.

Explanation Your request to delete a record failed. This message indicates that the routine NSPVSAM4 was unsuccessful when attempting to delete a VSAM control file. A return code 1 indicates that the VSAM command timed out. A return code 2, indicates the record was not found.

Recommended Action Check the NetView log for messages 1098, 1106, 1107, and 1108. If the file was deleted already, this error message is normal.

Error Message NSP1056I Resource not known: Press Enter for prompted input.

Explanation The control name of the specified resource is unknown to ISM. However, you are authorized to define the resource to ISM.

Recommended Action Verify and re-enter the control name if this is a previously defined resource, or press **Enter** for prompts to define a new resource.

Error Message NSP1057E Updating failed for record parm.2; Return Code = parm.3.

Explanation The NSPVSAM4 routine was unable to update a record. If the return code is 1, the routine may be out of VSAM space.

Recommended Action Check NetView log for messages 1098, 1106 1107 and 1108.

Error Message NSP1059E Authorization error. parm.2 cannot do a reset.

Explanation You issued the **nspopper3** command to reset a session between an operator and a resource while you are not authorized to perform this action. To reset a session, you must be an enabled ISM user.

Recommended Action If the session between an operator and resource needs to be reset, find an authorized operator to perform the operation.

Error Message NSP1060E Unauthorized attempt to execute parm.2.

Explanation You requested to define, update, or delete a resource interface while you are not authorized to perform this action. To modify a resource interface, you must be an enabled ISM user.

Recommended Action If the resource interface needs to be modified, find an authorized operator to perform the operation.

Error Message NSP1061E You are not authorized to change the ISM DSPU environment.

Explanation You attempted to modify the ISM DSPU environment while you are not authorized to perform this action. To modify the ISM DSPU environment, you must be an enabled ISM user.

Recommended Action If the ISM DSPU environment needs to be modified, find an authorized operator to perform the operation.

Error Message NSP1062E You are not authorized to change the ISM Setup environment.

Explanation You attempted to modify the ISM setup while you are not authorized to perform this action. To modify the ISM setup, you must be an ISM administrator.

Recommended Action Contact an ISM administrator to perform the operation.

Error Message NSP1063E You are not authorized.

Explanation You attempted to perform an action for which you are not authorized.

Recommended Action Contact an ISM administrator to change your user authority settings.

Error Message NSP1064I Resource parm.2 already defined.

Explanation You attempted to define a resource that was already defined to ISM.

Recommended Action None.

Error Message NSP1065I Resource 'parm.2' not Known.

Explanation The resource is not known to ISM.

Recommended Action Before using this command, define the resource to ISM using ISMCMD.

Error Message NSP1066I Resource "&parm.2 not a managed resource.

Explanation The resource is not known to ISM.

Recommended Action Before using this command, define the resource to ISM using ISMCMD.

Error Message NSP1067I Resource parm.2 busy; enabled by operator parm.3.

Explanation You attempted to establish an enabled session with a resource enabled to another operator.

Recommended Action Ensure that the operator enabled to the resource is logged on by performing a list *parm.3*. If the operator is not logged on, use the RESETOP option on the Resource Status panel (NSPVMGRT) to reset the session between the resource and operator.

Error Message NSP1068I Resource parm.2 deleted from ISM manager.

Explanation The request to delete a resource definition was successfully completed. The message is also written to the NetView log for tracking purposes.

Recommended Action None.

Error Message NSP1069I Resource parm.2 not known.

Explanation You attempted to delete the definition of a resource not known to ISM.

Recommended Action None.

Error Message NSP1071I Resource name has bad syntax.

Explanation The syntax of the control name you specified was incorrect. Control names may be a combination of up to eight alphanumeric characters. Special characters are not valid.

Recommended Action Verify the control name you entered and re-enter the control name using valid characters.

Error Message NSP1072I Resource name required.

Explanation The command requires a resource name.

Recommended Action Verify that you have entered a resource name and retry the command.

Error Message NSP1073I Resource unavailable because it is enabled by parm.2.

Explanation The RUNCMD failed because the resource is enabled by another operator.

Recommended Action Ensure that the operator enabled to the resource is logged on by performing a list *parm.3*. If the operator is not logged on, use the RESETOP option on the Resource Status panel (NSPVMGRT) to reset the session between the resource and operator.

Error Message NSP1074I Resource host name not provided.

Explanation You are defining a resource and are being prompted to enter the Resource Host Name field. If a VTAM definition currently exists for the resource, this information is automatically obtained.

Recommended Action None.

Error Message NSP1075I Last record not found.

Explanation Your request to retrieve the history records was denied because ISM could not locate the last record.

Recommended Action None. When the next history record is recorded by ISM, this problem will be corrected.

Error Message NSP1076I Resource control name is required.

Explanation You attempted to define a resource without specifying its control name. The control name is up to eight alphanumeric characters and is a required field.

Recommended Action Specify the control name of the resource and press **Enter**.

Error Message NSP1078I parm.2 is not a monitored resource.

Explanation You bypassed ISM and issued an ISM routine to monitor a resource undefined to ISM. To monitor a resource using ISM routines, the resource must be defined to ISM.

Recommended Action None.

Error Message NSP1079I New interface discovered parm.2, parm.3, parm.4.

Explanation A new interface that was not previously defined to ISM was discovered.

Recommended Action None.

Error Message NSP1080I No data available for resource parm.2.

Explanation A request for the configuration of a resource failed because the configuration for the resource is not stored in NetView variables.

Recommended Action If you are an enabled ISM user, use Option 7 on the popup menu to collect the current resource configuration.

Error Message NSP1081I Now collecting interface data for resource parm.2.

Explanation The ISM ISMISTAT routine is collecting data from the interfaces to be monitored by ISM.

Recommended Action None.

Error Message NSP1082I Now collecting interface status for resource parm.2.

Explanation The ISM NSPISTAT routine is collecting status data for the specified interface. This message occurs only when the ISMAID DEBUG facility is set to YES.

Recommended Action None.

Error Message NSP1084I Resource configuration saved for parm.2.

Explanation The resource configuration you collected was successfully archived.

Recommended Action None.

Error Message NSP1085I Configuration management options not specified.

Explanation You are defining a resource and are being prompted to enter its IP address. This field is optional and for information only.

Recommended Action None.

Error Message NSP1086I No Response from retrieve.

Explanation You requested data from a resource and the resource did not respond.

Recommended Action Issue the **ismr** *resource-name* command. Use the options to diagnose the problem.

Error Message NSP1087I IP address not provided.

Explanation You are defining a resource and are being prompted to enter its IP address. This message is for information only.

Recommended Action None.

Error Message NSP1088I Request to delete history records issued.

Explanation Your request to delete interface history records was issued.

Recommended Action None.

Error Message NSP1091E Database not defined.

Explanation The internal routine NSPVSAM4 was called by ISM with the incorrect parameters. This error message indicates an ISM routine error, not a user error.

Recommended Action None.

Error Message NSP1092I Database now being updated for parm.2.

Explanation This message is created after every 40 records are saved in the VSAM configuration data base.

Recommended Action None.

Error Message NSP1095I No data found in NSPDB data base for parm.2.

Explanation The calling routine could not find VSAM records required by the routine. The records may have been deleted earlier or are not yet available.

Recommended Action None.

Error Message NSP1096I No NSPDSA task, start NSPDSA task and retry.

Error Message Explanation ISM attempted to retrieve configuration data from the "A" VSAM data base and failed.

Recommended Action Verify that the task NSPDSA is active and try again.

Error Message NSP1097I Timeout- the wait operation used to collect data timed out.

Explanation A command sent to a router did not return a response within the expected time.

Recommended Action Action Verify that the router is active and responding to commands.

Error Message NSP1098E NSPDS failed, message = parm2.

Explanation A VSAM request for ISM data failed.

Recommended Action The data that follows this message indicates the reason for the failure.

Error Message NSP1099E VSAM update error. Error = parm.2.

Explanation The ISM NSPSCON3 routine received a VSAM error while saving a resource configuration.

Recommended Action The data that follows this message indicates the reason for the failure.

Error Message NSP1090I No input was passed with command.

Explanation The internal routine NSPADDM or NSPADDN was called with no parameters. This indicates an ISM internal error, not a user error.

Recommended Action None

Error Message NSP1100I There is no operator monitoring parm.2.

Explanation You requested to reset a session between a resource and an operator by issuing the **nspoper3** command without specifying an operator ID, or by using the RESETOP function key on a resource not currently in a session with an operator.

Recommended Action View the Resource Status panel to verify that a session is established between the resource and an operator and, if so, reset the session by issuing the **nspoper3** command and specifying the resource name and operator ID or by using the RESETOP function key.

Error Message NSP1103I Trace Data >> parmlist.

Explanation This message is written to the log when the ISMAID service aid DEBUG is turned on.

Recommended Action None.

Error Message NSP1104I Module Entry Trace >> parmlist.

Explanation This message is displayed only when the ISMAID service aid TRFLOW is set to ON. It contains the data passed to the routine when it is called.

Recommended Action None.

Error Message NSP1105I Module Exit Trace >> parmlist.

Explanation This message is displayed only when the ISMAID service aid TRFLOW is set to ON. It contains the data and error conditions from the routine's exit.

Recommended Action None.

Error Message NSP1106E Command parm.2 failed. Operator replied GO.

Explanation This error message occurs if a **WAIT** command is terminated by the operator entering GO from a NetView command line. The **WAIT** command should have an internal timeout value and indicate a timeout when the WAIT function fails.

Recommended Action Retry the routine and see if the problem recurs.

Error Message NSP1108E Command parm.2 timed out.

Explanation The command specified in the message has timed out.

Recommended Action Re-issue the command. If the failure recurs, contact your NetView system programmer for assistance.

Error Message NSP1111E Requires session to be enabled.

Explanation You requested to collect the current configuration of a resource by issuing the **nspgetc3** command without establishing an enabled session with that resource.

Recommended Action If you are an authorized enabled ISM user, use Option 7 on the resource options menu to establish an enabled session with the resource and collect the current configuration.

Error Message NSP1112E Status Collection complete for parm.2,
Number of interface = parm.3.

Explanation Your request to collect information about the interfaces configured in a resource by issuing the **ismistat** command was successful. This message appears only if the ISMAID service aid is set to on. The number of interfaces discovered is also displayed in this message.

Recommended Action None.

Error Message NSP1113I Insufficient number of parameters passed with command.

Explanation A routine could not execute because of insufficient input parameters.

Recommended Action If the routine was called via another routine, turn on the ISMAID TRFLOW service aid and repeat the action.

Error Message NSP1116I Operator parm.2 not known.

Explanation You are not defined as an ISM user. This message is generated when you perform an ISM function and ISM verifies that your operator ID is defined to ISM (via an ISM profile). All functions performed using ISM are monitored, and this message is displayed as long as you are undefined to ISM.

Recommended Action Have an ISM administrator create an operator profile using the USER option available on the ISM main menu.

Error Message NSP1117I Operator Group ID not specified.

Explanation You are defining a resource and are being prompted to specify a group to which this resource belongs in the Operation Group ID field. Operator groups may be all resources located in a region or department, or resources of a particular device type. You can filter resources by the Operation Group. This field is optional.

Recommended Action None.

Error Message NSP1118I Operator ID required.

Explanation You attempted to create an operator profile without specifying a name in the Operator Name field.

Recommended Action Specify the name of the operator in the Operator Name field and resubmit your request.

Error Message NSP1119I Operator parm.2 is no longer router manager for parm.3.

Explanation This message is created when the **nspopper3** command is issued against the specific service point and an enabled operator was managing the resource.

Recommended Action None.

Error Message NSP1120I All values have been reset for ISM by parm.2.

Explanation This message is displayed when the **isminit** command was issued with the **reset** option specified. The **isminit reset** command clears all variables associated with managing the resources.

Recommended Action Issue the **isminit** command to rebuild the variables.

Error Message NSP1121I Entered with invalid value for parm.2.

Explanation The NSPHIST4 command was issued with an invalid value specified. NSPHIST4 is the command history recording routine.

Recommended Action Verify the values specified and resubmit your request.

Error Message NSP1122I Entered with invalid parameters: parm.2.

Explanation The NSPHIST4 command was issued with invalid parameters. NSPHIST4 is the command history recording routine.

Recommended Action Verify the specified parameters and resubmit your request.

Error Message NSP1124I Input not found at row = parm.2, column = parm.3.

Explanation The cursor is in a position on the panel that does not contain the required data for processing.

Recommended Action Verify that all required data was specified and resubmit your request.

Error Message NSP1126E Invalid resource name parm.2 given.

Explanation The resource name passed with the NSPRVDI3 routine is unknown to VTAM.

Recommended Action Ensure that the resource is properly defined to VTAM.

Error Message NSP1129I CTRACE set to >parm.2<

Explanation The current ISMAID service aid settings are those identified in this message. This message is for information only.

Recommended Action None.

Error Message NSP1131E SAFE failed, Message = parm.2.

Explanation The request to retrieve resource history data (NSPRDI4 routine) has failed.

Recommended Action Contact your system programmer.

Error Message NSP1132I Action type must be either 1, 2, or 3.

Explanation You attempted to make changes without specifying whether you want to implement your changes at the next startup of ISM, implement them in the current session only, or implement them in the current session and save the changes for future ISM sessions.

Recommended Action Enter the number representing the action you want to perform in the Action Type field:

- Option 1 means the changes take effect when the function is initialized.
- Option 2 means the changes are temporary and apply to only the active variables and are to be used immediately.
- Option 3 updates the current values and the VSAM record for the next initialization.

Error Message NSP1133I Change type must be either 1, 2, or 3.

Explanation You attempted to make changes without specifying whether you are defining a new resource, updating an existing resource, or deleting a resource.

Recommended Action Type the number representing the type of change you wish to make in the Change Type field.

Error Message NSP1134I Change type must be either 2 or 3.

Explanation You made changes to a panel without specifying the type in the Change Type field. You must specify 2 for update or 3 for delete.

Recommended Action Specify a type in the Change Type field, and resubmit your request.

Error Message NSP1135I Resource not known: Press PF3 to exit.

Explanation The service point name you entered is not a resource known or managed by ISM.

Recommended Action Verify the control name of the resource for which you attempted to display management data. If the resource is valid but not defined to ISM, contact an ISM administrator to define the resource.

Error Message NSP1136I Resource not known: Press PF4 to define router.

Explanation The control name you entered is not a resource known or managed by ISM. However, you are authorized to define a new resource.

Recommended Action Verify the service point name of the resource for which you are attempting to display management data. If the resource is not known to ISM, press **PF4** to define the resource.

Error Message NSP1139I DSPU Host name is required.

Explanation You are defining a DSPU resource and are being prompted to specify the DSPU host name of the resource. This is a required field.

Recommended Action Specify a valid DSPU host name and press **Enter**.

Error Message NSP1141E parm.1 parameter should be CTRACE, DEBUG, TRFLOW, or OFF.

Explanation You issued the **ismaid** command and specified a parameter other than CTRACE, DEBUG, TRFLOW, or OFF.

Recommended Action Re-issue the **ismaid** command with one of the above parameters or, to display help on using the ISM service aid type **ismaid**.

Error Message NSP1142I Please enter the parm.2 parm.3.

Explanation You attempted to execute an ISM routine without specifying the required parameters.

Recommended Action Re-issue the routine and ensure that you specify all required parameters.

Error Message NSP1143I Select option number and press Enter.

Explanation You are on a panel from which you can perform a function by selecting an option number.

Recommended Action Enter an option number from the list displayed on the panel. The input will be examined starting at the first character position.

Error Message NSP1144E Input parm.2 not recognized.

Explanation The routine does not recognize the input.

Recommended Action Verify the purpose of the routine and retry with different input.

Error Message NSP1145I parm.2; Press PF6 to return.

Explanation This message is displayed on NetView panels when you press **PF6** on an ISM panel. The field that follows the message ID identifies the ISM routine that is suspended until you press **PF6** again to return to an ISM screen.

Recommended Action None.

Error Message NSP1146I Router parm.2 not active to VTAM.

Explanation The ISM status of the resource indicates that the resource is not ACTIV to VTAM.

Recommended Action Display the Resource Status panel, select the resource, and press **Enter**. Select Option 5 on the popup menu to view the resource from VTAM. If the status is ACTIV, press **PF3** and select Option 9 from the popup menu to reset the status of the resource status. ISM will check the availability of the resource.

Error Message NSP1147I Service point parm.2 already managed by operation_id.

Explanation You are attempting to establish a session with, or issue commands to, a resource currently in a session with another operator. The ID of the operator busy with the resource is displayed in this message.

Recommended Action Display the Resource Status panel to view the operator ID. If the operator is not logged on and you are an enabled ISM user, you can reset the session. To do so, position the cursor on the service point name or operator ID and press **PF9**.

Error Message NSP1148I More data available, press PF8. Enter N to terminate.

Explanation You issued the **show mem** command and there are additional pages of data. The Host name field contains the word “More” when more data is pending from the resource.

Recommended Action To view the additional pages of data, press **PF8**, or to terminate the display, type **N**.

Error Message NSP1149I Router command parm.2 cannot be used with service point interface.

Explanation The command you issued cannot be executed through the resource service point at this time. The command you issued is one of a group that provides output to the operator at a later time. The service point does not support asynchronous operations at this time. There is no way for the unsolicited responses to be sent back to the operator who issued the command. For example, **telnet** is a command that should not be sent to the resource.

Recommended Action To connect directly to the resource, use a local console or Telnet via a TCP/IP session.

Error Message NSP1150I Enter password.

Explanation You are performing a function that requires you to enter a password to establish an enabled session with the resource.

Recommended Action To establish the enabled session, enter the enable password exactly as it is defined to the resource. If you do not know the enable password, or if you want to cancel the enable request, entering an invalid password three times terminates the enable request.

Error Message NSP1151I Password field empty, enter password.

Explanation You attempted to enable to a resource without specifying a password. A password must be specified when requesting an enabled session.

Recommended Action To establish the enabled session, enter the enable password exactly as it is defined to the resource. If you do not know the enable password and you want to cancel the request, enter an invalid password three times.

Error Message NSP1152I More data available. Enter Y to continue; N to terminate.

Explanation You issued the **show mem** command and you are on the last page of the first set of data returned from the resource. The Host name field contains the word “More” when more data is pending from the resource.

Recommended Action To display additional data, type **Y**. To terminate the display, type **N**.

Error Message NSP1153I You are not authorized to do an enable.

Explanation You requested to establish an enabled session with a resource. You are not authorized by an ISM administrator to establish an enabled session.

Recommended Action Ensure that your ISM user authority settings in your profile are correct. If the settings are not correct, contact an ISM administrator to change them.

Error Message NSP1154I Press PF3 to terminate enable.

Explanation You are currently in an enabled session with the resource. While you are enabled to the resource, no other operator can communicate with the resource.

Recommended Action To properly terminate the enabled session, press **PF3**. Pressing PF3 terminates your enabled session with the resource by sending an EXIT RUNCMD to the resource. This RUNCMD frees the resource for other operator use.

Error Message NSP1155I Input parameter parm.2 should be a numeric value.

Explanation A non-numeric value was detected by the NSPMCHK4 routine. The NSPMCHK4 routine calculates the free resource memory based on the values collected from the resource.

Recommended Action None.

Error Message NSP1157I parm.2 parm.3 parm.4 has been executed by parm.5.

Explanation This message indicates that the **ismiinit** command was issued with the RESET option. This message is for monitoring purposes only.

Recommended Action None.

Error Message NSP1158I Config DB save started for parm.2 parm.3.

Explanation The resource configuration you just collected is now being stored in the VSAM configuration data base.

Recommended Action None.

Error Message NSP1159E Unexpected output from VTAM parmlist.

Explanation You requested to view the resource as defined to VTAM, and the output from VTAM was not recognizable.

Recommended Action Issue the command displayed in this message and check the output. If the output is recognizable, but your request for the VTAM resource configuration fails again, consult your NetView support.

Error Message NSP1160I parm.2 is no longer enabled to or controlling parm.3, reset by parm.4.

Explanation If you requested to reset an enabled session between a resource and operator, this message indicates that your request has completed successfully. If you received this message while in a session with a resource, it indicates that the session between you and the resource was terminated.

Recommended Action None.

Error Message NSP1161I parm.2 no longer is busy with router parm.3.

Explanation Your request to reset a busy session between an operator and a resource has completed successfully.

Recommended Action None.

Error Message NSP1162I Operator has been changed, origin = parm.2, New = parm.3.

Explanation You requested to reset a session between an operator and resource, and the operator you specified is no longer the current operator. This indicates that the busy condition no longer exists for the specified resource, or that a new operator has established a session with the resource.

Recommended Action Display the Resource Status panel to verify the operator, if any, that may be enabled to, or busy with, the resource.

Error Message NSP1163I parm.2 interface records deleted for parm.3.

Explanation Your request to delete the performance or history records for an interface has completed successfully.

Recommended Action None.

Error Message NSP1164I An interface type of A, M, C, E, D, F, H, B, L, S, T, U, G, N, or I is required.

Explanation You requested to view a list of interfaces monitored in the network by type and you did not specify an interface type.

Recommended Action Specify a type in the Interface Type field and resubmit your request. Valid values are:

- A (Async)
- B (ISDN)
- C (Channel)
- D (FastEthernet)

- E (Ethernet)
- F (FDDI)
- G (GigabitEthernet)
- H (HSSI)
- I (IBM CLAW)
- L (Loopback)
- M (ATM)
- N (MPC)
- S (Serial)
- T (Token Ring)
- U (Tunnel)

Error Message NSP1165I There is no parm.2 available for parm.3 on parm.4.

Explanation You requested to view the performance or history data archived for a specific interface for which no data was archived.

Recommended Action None.

Error Message NSP1166I 15 minutes is the minimum interval.

Explanation You set the resource monitoring interval to less than 15 minutes on the ISM Resource Management Setup panel. The minimum interval for resource monitoring is 15 minutes. The interval will be set to 15 minutes.

Recommended Action Reset the resource monitoring interval to a value of 15 minutes, or longer, or accept the ISM minimum default of 15 minutes.

Error Message NSP1167I Router status refresh request sent to ISMMGR.

Explanation Your request to refresh the status of the resources on the Resource Status panels was sent to ISM.

Recommended Action Wait for the ISM to query and collect the status of the resources and then press **PF12** to view the updated status.

Error Message NSP1168I There are no parm.2 interfaces for parm.3.

Explanation You requested to view a list of a specific type of interfaces configured in a resource, and the interfaces were not configured or discovered in that resource.

Recommended Action None.

Error Message NSP1169I Interface type parm.2 not initialized.

Explanation You requested to view the status of a specific interface type that was not initialized.

Recommended Action To initialize the interface type, issue **ismiinit *n* init**, where *n* is the type of interface you want to initialize. Valid values are:

- A (Async)
- B (ISDN)
- C (Channel)
- D (FastEthernet)
- E (Ethernet)
- F (FDDI)
- G (GigabitEthernet)
- H (HSSI)
- I (IBM CLAW)
- L (Loopback)
- M (ATM)

- N (MPC)
- S (Serial)
- T (Token Ring)
- U (Tunnel)

Error Message NSP1170I Router busy with operator parm.2.

Explanation You attempted to issue a RUNCMD to a resource in an enabled or busy session with another operator. The RUNCMD you issued is attempted for 10 seconds before this message is generated.

Recommended Action If you are an enabled ISM user, you can terminate the session between a resource and an operator from the Resource Status panel. To do so, position the cursor on the operator ID and press **PF9**. If you get this message each time you attempt to issue the RUNCMD to the resource, display the Resource Status panel to view the operator in an enabled or busy session with the resource.

Error Message NSP1171I No changes have been made to parm.2.

Explanation You exited the ISM setup without making changes.

Recommended Action If you intended to make changes to the ISM setup, make the changes again and press **Enter** to verify your changes and press **PF4** to save your changes and exit the ISM setup.

Error Message NSP1172E RUNCMD Time-out, parm.2 not responding; See the NetView log.

Explanation You issued a **runcmd** command to an unresponsive resource. This error generally indicates an internal problem that prevents the resource from responding to the RUNCMD.

Recommended Action Verify that the resource service point is configured properly, and that it is defined as a PU to VTAM.

Error Message NSP1173I Screen copied to log.

Explanation Your request to copy the information on the panel to a log by pressing **PF5** was processed successfully.

Recommended Action None.

Error Message NSP1177I Interface State Change parmlist

Explanation This message is written to the event log when an interface has a state change. The last parameter identifies the routine that created the message.

Recommended Action Issue the **ismr** *resource-name* command to check the resource status.

Error Message NSP1178I Resource State Change parmlist

Explanation This message is written to the event log when a resource has a state change. The last parameter identifies the routine that created the message.

Recommended Action Issue the **ismr** *resource-name* command to check the resource status.

Error Message NSP1186I Position cursor on resource and press PF5 to diagnose status.

Explanation By pressing **PF5**, the status of the resource will be analyzed and the appropriate action will be taken to assist in diagnosing the reason for the status condition.

Recommended Action Press **PF3** and then press **PF1** to get help on the meaning of the status colors.

Error Message NSP1187I Press PF5 to diagnose the current status of the resource.

Explanation By pressing **PF5**, the status will be analyzed and the appropriate action will be taken to assist in diagnosing the reason for the status condition.

Recommended Action Press **PF3** and then press **PF1** to get help on the meaning of the status colors.

Error Message NSP1188I Position cursor on target and press enter to view target summary.

Explanation This operation should display the same ISMSUM data presented on the target system by a local operator.

Recommended Action None.

Error Message NSP1189I Operator parm.2 of domain parm.3 has changed status of parm.4 from parm.5 to parm.6.

Explanation This message is created to provide an audit trail of operator actions that affect monitored resource status.

Recommended Action None.

Error Message NSP1200I Operator xxx of domain cccc has issued a REFRESH/RESET for resource ssss.

Explanation This message is written when an operator enters option 9 from the Resource Status with Options menu. This message is part of the audit trail for ISM managed resources.

Recommended Action None.

Error Message NSP1201I Command or option is not supported by this resource.

Explanation This message indicates an operator error.

Recommended Action Use a different command or option.

Error Message NSP1202I No data available for this selection.

Explanation The called routine was unable to find any resources that matched the input status. The status could have changed, but the status panel was not yet updated.

Recommended Action Press the refresh option if available.

Error Message NSP1203I There are no resources that match your viewing filters.

Explanation The called routine was unable to find any resources that matched your viewing filters. You may have group filters that allow you to view only specific resources and related resources.

Recommended Action Issue the **ismuser** command to display your filter definitions.

Error Message NSP1204I Resource parm.2 has been changed by parm.3.

Explanation This message is used to provide an audit trail. When an operator changes a control file for a monitored resource, a message is written to the ISM event log.

Recommended Action None.

Error Message NSP1205I Place cursor on path and press enter to view path statistics.

Explanation Placing the cursor on a path and pressing enter will display the statistics that have been collected for that path in the channel.

Recommended Action None.

Error Message NSP1207I LOGON to target Netview parm.3 to make changes.

Explanation This function can only be updated at the remote NetView.

Recommended Action Logon to the remote system and select this function to make changes.

Error Message NSP1208I Press PF10 to collect configuration.

Explanation Depressing PF10 will collect the configuration from the router and save it to the VSAM data base.

Recommended Action None.

Error Message NSP1209I Changes to target ISM are not allowed.

Explanation Focal Point management changes can only be made at the local system.

Recommended Action Logon to the remote system and use ISMSETUP to update or change the FPM environment.

Error Message NSP1210I Enable time exceeded by parm.2 for router parm.3. Elapsed time = parm.4

Explanation The operator has remained in enable mode on the router for more than the maximum time allowed. The operator connection to the router has been terminated to allow ISM monitoring to continue.

Recommended Action None.

Error Message NSP1211I Unknown resource index parm.2

Explanation An internal routine has been passed a router number that is not valid. This is an internal logic error.

Recommended Action If the problem recurs, report it to support.

Error Message NSP1212I SNMP error: parmlist

Explanation An SNMP request to a device generated either an invalid number of interfaces or an error. The error text from SNMP is displayed.

Recommended Action None.

Error Message NSP1300I TN3270 Management Initialized at parm.2

Explanation The ISM TN3270 monitoring function has initialized.

Recommended Action None.

Error Message NSP1301I TN3270 Management Already Initialized.

Explanation The ISM TN3270 server monitoring initialization was invoked when the TN3270 monitoring function was already initialized. No action was taken.

Recommended Action None.

Error Message NSP1302I TN3270 Management reset by parm.2.

Explanation The ISM TN3270 server monitoring initialization was restarted by the operator whose id is displayed.

Recommended Action None.

Error Message NSP1303I TN3270 Initialization Error:parm.2

Explanation Initialization of the ISM TN3270 server monitoring failed because the configuration record was not found on the VSAM data base.

Recommended Action Use ISMSETUP to verify the TN3270 monitoring setup.

Error Message NSP1330I No TN3270 feature available for parm.2

Explanation An attempt was made to monitor the tn3270 on parm.2 but no tn3270 server(s) were found configured on the router.

Recommended Action Verify that the tn3270 on the router is active. If the tn3270 server is no longer configured on the router, use the router management screens to remove tn3270 flag.

Error Message NSP1400I SNMP Management Initialized at parm.2

Explanation The ISM SNMP monitoring function has initialized.

Recommended Action None.

Error Message NSP1401I SNMP Management Already Initialized.

Explanation ISM SNMP initialization was invoked when the SNMP function was already initialized. No action was taken.

Recommended Action None.

Error Message NSP1402I SNMP Management reset by parm.2.

Explanation The ISM SNMP management initialization was restarted by the operator whose id is displayed.

Recommended Action None.

Error Message NSP1403I SNMP Initialization Error: parm.2

Explanation Initialization of ISM SNMP management failed because the configuration record was not found on the VSAM data base.

Recommended Action Use ISMSETUP to verify the SNMP management setup.

Error Message NSP1405I SNMP Timeout Occurred: parm.2

Explanation An SNMP request timed out.

Recommended Action Verify that the device is active and responding to SNMP queries.

Error Message NSP1406I SNMP returned error code: parm.2

Explanation An SNMP request generated an unexpected error. The error message is displayed.

Recommended Action Verify that the device is active and responding to SNMP queries.

Error Message NSP1407I SNMP Address= parm.2 Text= parm.3

Explanation The SNMP resource at the address displayed generated the displayed trap.

Recommended Action None.

Error Message NSP1406I SNMP recovery: parm.2

Explanation ISM detected that all functions needed for SNMP monitoring were not available. It has attempted to recover.

Recommended Action None.

Error Message NSP1504I Resource parm.2 has been reset by parm.3

Explanation Operator parm.3 entered option 6 from the CFM/390 Resource Status with Options menu. This resets the status of parm.2 and then does a status check.parm.3 is the resource index number.

Recommended Action None, this is a audit message.

Error Message NSP1505I Connection Count unchanged for parm.2 (parm.3) .

Explanation This is a warning that there has not been a change in the number of connections since the last check.parm.2 is the resource IP_Address. parm.3 is the resource index number.

Recommended Action Select option 4 from the Options menu to view the latest statistics. This alert can be turned of from the CFM/390 Resource Administration menu.

Error Message NSP1507I CPU usage threshold exceeded for parm.2 (parm.3) .

Explanation The CPU usage on parm.2 has exceeded the threshold. The router status has been updated to PERF.

Recommended Action Press PF5 from the "Resource Status with Options" screen to diagnose the performance problem. Investigate why the CPU utilization is high.

Error Message NSP1508I MEMORY usage threshold exceeded for parm2 (parm.3) .

Explanation The memory usage on parm.2 has exceeded the threshold. The router status has been updated to PERF.

Recommended Action Press PF5 from the "Resource Status with Options" screen to diagnose the performance problem. Investigate why the memory utilization is high.

Error Message NSP1512I Sysuptime error(parm.2) .

Explanation The system uptime on the resource is less than the previous time the resource was checked. The likely cause is that the device has been restarted.

Recommended Action None.

Error Message NSP1507I CPU usage threshold exceeded for parm.2 (parm.3) Resolved.

Explanation The CPU usage on parm.2 had exceeded the threshold. The CPU utilization is now below the threshold.

Recommended Action None.

Error Message NSP1570I Free of DDNAME parm.2 failed with return code parm.3.

Explanation The attempt to dynamically free the indicated DDNAME set failed. The DDNAME is freed before being reallocated. The return code is displayed.

Recommended Action Investigate the return code in the IBM documentation.

Error Message NSP1571I Allocate of DDNAME parm.2 to dataset parm.3 failed with return code parm.4

Explanation The attempt to dynamically allocated the indicated data set failed. The return code is displayed.

Recommended Action Investigate the return code in the IBM documentation.

Error Message NSP1572I Free of DDNAME parm.2, failed. Not allocated.

Explanation The attempt to dynamically free the indicated DDNAME failed because it was not allocated. The DDNAME is freed before being reallocated. This is not an error.

Recommended Action None.

Error Message NSP1573I Stop of task parm.2 failed. Messages:

Explanation The attempt to stop the VSAM task failed. The task is stopped to allow reallocation of the VSAM data set. The messages issued by the STOP TASK= command follow with message NSP1574I

Recommended Action Investigate why the stop task failed. Consult the IBM NetView documentation for the messages.

Error Message NSP1574I -parmlist

Explanation These are the messages issued by NetView in response to the STOP TASK= command.

Recommended Action See NSP1573I.

Error Message NSP1575I Start of task parm.2 failed. Messages:

Explanation The attempt to start the VSAM task failed. The task is stopped to allow reallocation of the VSAM data set. The messages issued by the START TASK= command follow with message NSP15764I.

Recommended Action Investigate why the start task failed. Consult the IBM NetView documentation for the messages.

Error Message NSP1576I -parmlist

Explanation These are the messages issued by NetView in response to the START TASK= command.

Recommended Action See NSP1575I.

Error Message NSP1580I - parm.2 - parm.3 reliability parm.4 less than parm.5/255 parm.6 parm.7

Explanation The reliability of interface parm.2 on parm.1 was less than the threshold, parm.5. The reliability was parm.3/255. parm.6 and parm.7 are the date and time.

Recommended Action Investigate why the reliability of the interface is less the threshold.

Error Message NSP1581I - parm.2 - Command parm.3 gave an unexpected response: response

Explanation The command parm.3 was sent to the router, parm.2 The response, response, was not what was expected.

Recommended Action Investigate the response from the router. It likely indicates a problem on the router.

Error Message NSP1900I parm.2 parm.3

Explanation This message is written when the NSPDS command processor has completed an operation. The message parm.2 is the key and parm.3 is the action taken. If the command was a list, then the message contains the data record.

Recommended Action None.

Error Message NSP1901I END OF LISTING

Explanation This message is written when the NSPDS command processor completes a list operation. The message is written when all the data records are processed.

Recommended Action None.

Error Message NSP1910I REQUEST HAS BEEN QUEUED

Explanation This message is written when the NSPDS command processor receives a command.

Recommended Action None.

Error Message NSP1912E MAX NUMBER OF PARAMETERS REQUIRED

Explanation This message is written when the NSPDS command processor detects an input command error. In this case the number of input parameters is too high.

Recommended Action None.

Error Message NSP1998I Invalid service type for NSPMBLD. parms

Explanation This message indicates an error in the calling routine and that the type of service was not an L, V, B, or R.

Recommended Action Check the routine that called NSPMBLD, and contact your system programmer.

Error Message NSP1999I Message not found in the table. parms

Explanation This message is created by routine NSPMBLD when it receives a message to process not found in the message table in NSPMBLD. This message should not occur.

Recommended Action Contact your system programmer.

Error Message NSP2015I puname netid session_data

Explanation This message is created when the VTAM exit ISTEXCCS is executed. The data in the message string is parsed and archived by ISM.

Recommended Action Type the NSPSDIS3 PU name to view archived data.

Error Message NSP2091E ISM LICENSE KEY WAS NOT SPECIFIED

Explanation This message is issued when NSPSEVDT is unable to read or parse the DSIPARM(ISMLICSE) member.

Recommended Action Verify that the DSIPARM(ISMLICSE) member exists and that it contains a valid license specifier in the form:

`ISMLICENSE=LicenseKey`

Error Message NSP2092E LENGTH OF LICENSE KEY MUST BE 40 BYTES

Explanation This message is issued when NSPSEVDT has read and parsed the DSIPARM(ISMLICSE) member but found that the license key is not of the correct length.

Recommended Action Verify that the DSIPARM(ISMLICSE) member contains a valid license specifier in the form:

`ISMLICENSE=LicenseKey`

and that *LicenseKey* is 40 bytes long.

Error Message NSP2093E ISM IS RUNNING ON AN UNLICENSED CPU.

Explanation This message is issued when NSPSEVDT has read and parsed the DSIPARM(ISMLICSE) member but found that the license key does not allow ISM to execute on the current CPU.

Recommended Action Verify that the DSIPARM(ISMLICSE) member contains a valid license specifier in the form:

`ISMLICENSE=LicenseKey`

Error Message NSP2094E DSIDKS TYPE=CONN FAILED FOR DSIPARM.

Explanation This message is issued when NSPSEVDT is unable to read the DSIPARM(ISMLICSE) member.

Recommended Action Verify that the DSIPARM(ISMLICSE) member exists and that it contains a valid license specifier in the form:

`ISMLICENSE=LicenseKey`

Error Message NSP2095E UNABLE TO LOCATE DSIPARM(ISMLICSE) .

Explanation This message is issued when NSPSEVDT is unable to read the DSIPARM(ISMLICSE) member.

Recommended Action Verify that the DSIPARM(ISMLICSE) member exists and that it contains a valid license specifier in the form:

ISMLICENSE=LicenseKey

Error Message NSP2096E READ FAILED FOR DSIPARM(ISMLICSE) .

Explanation This message is issued when NSPSEVDT is unable to read the DSIPARM(ISMLICSE) member.

Recommended Action Verify that the DSIPARM(ISMLICSE) member exists and that it contains a valid license specifier in the form:

ISMLICENSE=LicenseKey

Error Message NSP2097E YOUR ISM LICENSE WILL EXPIRE. DAYS LEFT:
&days

Explanation This message is issued when the license key specified in the DSIPARM(ISMLICSE) member indicates that there are fewer than 30 days left on this license. ISM continues to operate until the license key expires.

Recommended Action Verify that the DSIPARM(ISMLICSE) member exists and that it contains a valid license specifier in the form:

ISMLICENSE=LicenseKey

Error Message NSP2099E NO LICENSE FOUND FOR ISM.

Explanation This message is issued when a module in ISM is unable to determine the current licensing environment. ISM ceases to function.

Recommended Action Verify that the DSIPARM(ISMLICSE) member exists and that it contains a valid license specifier in the form:

`ISMLICENSE=LicenseKey`

Then issue the NSPSEVDT command to reset the license.



Servicing and Troubleshooting

This appendix provides procedural and reference information that you can use to determine and resolve problems you might experience while using ISM.

This appendix includes information on the following:

- Tracing ISM Data, page C-1
- Restoring the ISM Base Administrator Profile, page C-6
- Viewing SNMP Variables, page C-15
- Viewing NetView Timers, page C-16

Tracing ISM Data

Sometimes a problem cannot be traced to a specific source. ISM provides the following trace utility commands that you can use to isolate problems:

Table C-1 *Trace Utility Descriptions*

Trace Utility	Function
ismaid debug	Traces the internal data flow of ISM.
ismaid ctrace	Traces the internal commands being processed by ISM.
ismaid trflow	Traces the entries and exits of issued commands.

The trace facilities that you enable using the **ismaid** command affect only the operator ID under which you issue the command. The following sections provide examples of the output received when using any of the trace utilities.

**Note**

The actual data you receive at your site can vary depending on the routines ISM is processing when you run the trace.

Tracing the ISM Internal Data Flow

The ISM Internal Data Flow utility traces the internal data flow of the processes occurring in ISM. You turn on the ISM Internal Data Flow utility by issuing the following command:

ismaid debug on

To turn off the utility, issue the **ismaid debug off** command.

The following example shows the data returned to your console once you turn on the ISM debug trace facility. The example provided is the internal tracing of the data flow that occurs when an operator issues the **ismistat** command.

```
C CNM01      NSP1129I NSPAID DEBUG set to >YES < NSPAID
C CNM01      NSP1103I Exception Data >> NSPISTA3 ENTRY INPUT=CWBC04 ONLY NSPISTA3
C CNM01      NSP1082I Now collecting interface status for router CWBC04 NSPISTA3
C CNM01      NSP1103I Exception Data >> NSPRGET3 -INPUT=CWBC04 SHOW PROTOCOLS NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CLEAROUT CFNAME=>HAL4XXXX< NSPDM=><
NSPSPN=>< NSP=><' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-BLDCMD RCMD=>SHOW PROTOCOLS<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 -SEND NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 -SEND2 NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 -CHKSTAT NSPD= NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CHKSTAT RUNCMD
SP=CWBC04,APPL=CONSOLE,CLISTVAR=YES RCMD=>SHOW PROTOCOLS<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CHKSTAT RETCODE=>0<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-PROCESS DSIRNCNT=>017<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CMD10 DSIRUN001=>GLOBAL VALUES:<'
NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CHKMORE MSGIDD=>GLOBAL VALUES:<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CHKOUT NSPXR1=>GLOBAL VALUES:<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CMD10 DSIRUN002=> INTERNET PROTOCOL
ROUTING IS ENABLED<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CHKMORE MSGIDD=> INTERNET PROTOCOL
ROUTING IS ENABLED<' NSPRGET3
```



```

C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CHKOUT NSPXR2=> INTERNET PROTOCOL ROUTING
IS ENABLED<' NSPRGET3

C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CMD10 DSIRUN003=>FASTETHERNET0 IS UP,
LINE PROTOCOL IS UP<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CHKMORE MSGIDD=>FASTETHERNET0 IS UP, LINE
PROTOCOL IS UP<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CHKOUT NSPXR3=>FASTETHERNET0 IS UP, LINE
PROTOCOL IS UP<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CMD10 DSIRUN004=> INTERNET ADDRESS IS
172.18.7.36/25<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CHKMORE MSGIDD=> INTERNET ADDRESS IS
172.18.7.36/25<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CHKOUT NSPXR4=> INTERNET ADDRESS IS
172.18.7.36/25<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CMD10 DSIRUN005=>LOOPBACK0 IS UP, LINE
PROTOCOL IS UP<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CHKMORE MSGIDD=>LOOPBACK0 IS UP, LINE
PROTOCOL IS UP<' NSPRGET3
C CNM01      NSP1103I Exception Data >> NSPRGET3 '-CHKOUT NSPXR5=>LOOPBACK0 IS UP, LINE
PROTOCOL IS UP<' NSPRGET3

```

Tracing CLISTs

The ISM CLIST Trace utility traces different ISM CLIST elements based on the keyword you specify when you turn on the utility. Table C-2 explains this utility's commands and options.

Table C-2 ISM CLIST Trace Utility Description

Specify	To
ismaid ctrace <i>all</i>	Trace the execution of all NSP CLISTs.
ismaid ctrace <i>i</i>	Option when tracing a REXX CLIST.
ismaid ctrace <i>all_name</i>	Trace the execution of only the CLIST <i>name</i> , where <i>name</i> is the name of the CLIST you want to trace.
ismaid ctrace <i>i_name</i>	Trace the execution of only the REXX CLIST <i>name</i> , where <i>name</i> is the name of the CLIST you want to trace.
ismaid ctrace <i>err</i>	Trace only CLIST errors.

Table C-2 ISM CLIST Trace Utility Description (continued)

Specify	To
ismaid ctrace cmd	Trace the commands issued from a CLIST.
ismaid ctrace off	Turn off CLIST tracing.

The following example shows the type of data returned to your console as ISM CLISTs are executed when the **ismaid ctrace all** command is issued. To turn off the utility, issue the **ismaid ctrace off** command.

```

C CNM01      NSP1129I NSPAID CTRACE set to >ALL NSPRGET3< NSPAID
C CNM01      &IF .CWBC04 EQ .? &THEN VIEW 4 NSPHRGET
C CNM01      &IF .CWBC04 EQ .? &THEN &EXIT
C CNM01      &IDENT = NSPRGET3
C CNM01      &IF .OFF = .ON &THEN NSPMBLD L 1104 &IDENT ENTRY &PARMSTR
C CNM01      &IF .CWBC04 EQ . &THEN &GOTO -INPUTE
C CNM01      &IF .NO = . &THEN &DEBUG = NO
C CNM01      &IF NO EQ YES &THEN NSPMBLD L 1103 &IDENT -INPUT=&PARMSTR
C CNM01      &CGLOBAL NSPMORE NSPHCOPY
C CNM01      ***** INITIALIZATION ROUTINE *****
C CNM01      -BLDOVR
C CNM01      &TGLOBAL RGETKEY
C CNM01      &IF .HAL4 = . &THEN &RGETKEY = &OPID
C CNM01      PARSEL2R PARMSTR SPNAME SHCMD
C CNM01      &PAD = 'XXXXXXX'
C CNM01      &CFNAME = &CONCAT HAL4 XXXXXXXX
C CNM01      &CFNAME = &SUBSTR HAL4XXXXXXXX 1 8
C CNM01      &NAME = &CONCAT HAL4XXXX 000
C CNM01      &TGLOBAL HAL4XXXX000
C CNM01      &HAL4XXXX000 =
C CNM01      &X = '>CWBC04<'
C CNM01      &CGLOBAL NSPCWBC04
C CNM01      &RINDEX = 7
C CNM01      &CGLOBAL NSP7 RTH7 RTD7 RTS7 RTO7
C CNM01      &CGLOBAL RTB7
C CNM01      &PC = 1
C CNM01      &PTR = 0
C CNM01      &NSPMSG =
C CNM01      &NSPTARGET = CNM01
C CNM01      &NSPNRDX = 1
C CNM01      &N = 1
C CNM01      &M = 0
C CNM01      &TYPE = T
C CNM01      &IF .show = .C &THEN &TYPE = C
C CNM01      -CHKOP

```

```
C CNM01      &IF NO EQ YES &THEN NSPMBLD L 1103 &IDENT '-CLEAROUT CFNAME=>&CFNAME<
NSPDM=>&NSPDM< NSPSPN=>&NSPSPN< NSP&NSPSPN=>&NSP&NSPSPN<'
```

Tracing Routine Entries and Exits

The ISM Flow Trace utility traces the entries and exits of all ISM routines.

The following example shows the type of data that is returned to your console as ISM routines are processed when the **ismaid trflow on** command is issued. To turn off the utility, issue the **ismaid trflow off** command.

```
NSPAID TRFLOW ON
C CNM01 NSP1129I NSPAID TRFLOW set to >ON < NSPAID NSPISTAT CWBC04
* CNM01 NSPISTAT CWBC04
C CNM01 NSP1104I Module Entry Trace >> NSPISTAT ENTRY CWBC04 NSPISTAT
C CNM01 NSP1104I Module Entry Trace >> NSPRGET ENTRY CWBC04 SHOW PROTOCOLS NSPRGET
C CNM01 NSP1105I Module Exit Trace >> NSPRGET EXIT=END CODE= NSPRGET
C CNM01 NSP1104I Module Entry Trace >> NSPIBCF ENTRY NSPILCWBC04XXL0 CWBC04 LOOPBACK0
0 DS(UP) M(YES) G(0) NSPIBCF
C CNM01 NSP1104I Module Entry Trace >> NSPVSAM ENTRY NSPVSAM
- CNM01 NSPVSAM
C CNM01 NSP1104I Module Entry Trace >> NSPVSAM ENTRY NSPVSAM
C CNM01 NSP1105I Module Exit Trace >> NSPIBCF EXIT RC 0 NSPIBCF
- CNM01 CNM421I COMMAND LIST NSPISTAT - INVALID COMMAND NSPIBCV ENCOUNTERED
C CNM01 NSPIBCV L NSPILCWBC04XXL0 CWBC04 LOOPBACK0 0 DS(UP) M(YES) G(0)
C CNM01 NSP1104I Module Entry Trace >> NSPIBCF ENTRY NSPISCWBC04XXS0 CWBC04 SERIAL0 0
DS(UP) M(YES) G(0) NSPIBCF
C CNM01 NSP1104I Module Entry Trace >> NSPVSAM ENTRY NSPVSAM
- CNM01 NSPVSAM
C CNM01 NSP1104I Module Entry Trace >> NSPVSAM ENTRY NSPVSAM
C CNM01 NSP1105I Module Exit Trace >> NSPIBCF EXIT RC 0 NSPIBCF
- CNM01 CNM421I COMMAND LIST NSPISTAT - INVALID COMMAND NSPIBCV ENCOUNTERED
C CNM01 NSPIBCV S NSPISCWBC04XXS0 CWBC04 SERIAL0 0 DS(UP) M(YES) G(0)
C CNM01 NSP1104I Module Entry Trace >> NSPIBCF ENTRY NSPISCWBC04XXS0P1 CWBC04
SERIAL0.1 0.1 DS(UP) M(YES) G(0P1) NSPIBCF
```

Turning Off Tracing

If you have enabled all of the ISM trace utilities (debug, ctrace, and trflow), you can turn off each utility individually, or you can issue a command that turns off all tracing. For information on turning off a trace utility individually, see the command provided in the appropriate section. To turn off all ISM trace utilities running, issue the **ismaid off** command.

Restoring the ISM Base Administrator Profile

ISM provides a backup ISM administrator profile that can be used by a system administrator to recreate an ISM administrator profile if all existing profiles are deleted accidentally. If all ISM administrator profiles are deleted, an ISM user does not have the authority to modify the ISM management environment or to assign user authority levels.

If the base ISM administrator profile is deleted, complete the following steps to create a new profile:

-
- Step 1** Add an ISMADMIN operator to NetView.
 - Step 2** Log on to NetView as the ISMADMIN operator.
 - Step 3** Create several ISM administrator profiles as described in Chapter 5, “Configuring ISM,” in the *CiscoWorks Blue Internetwork Status Monitor Installation Guide*. Creating these profiles ensures the availability of additional ISM administrator-level profiles for backup.
-

Displaying Variables

There are ISM commands to display each set of control variables.

ISMVARS displays all common variables used in all ISM functions. Enter this command from the NetView command line or from the ISM Administration menu panel. The ISM Common Globals panel (Figure C-1) shows sample output for the ISMVARS display.

Figure C-1 ISM Common Globals Panel

```

NSPVVARI      ISM Common Globals      CNM56  09/21/00
              Internetwork Status Monitor (ISM)      Target: CNM56  14:18
This panel shows the values of common globals used by ISM. It does not show
the common globals used for each resource or interface. They are available
from the resource and interface panels.
Variable:  Value:      Description:
ISMSINIT    09/21/00 10:09 ISMMGR      Indicates when ISM was initialized.
ISMMGR      ISMMGR      Name of autotask managing ISM.
ISMMAUTO    ISMMGRM      Autotask that monitors alerts.
ISMREFOPER  ISMMGRS      Autotask that does status updates.
ISMMGRI     ISMMGRI      Autotask that collects interface statistics
ISMOPNUM
ISMRRMONI   00:30      Monitoring interval for resources.
ISMIMONI    12:00      Monitoring interval for interfaces.
NSPMOPER    *YES      ISM security indicator.

ISMVERSION  Version 2 Release 0 - FIX=NONE

Action==>
1=HELP 3=END 3=RTN      6=ROLL      8=FORWARD
  
```

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ISM's control variables are described in Table C-3 through Table C-6.

Table C-3 ISM Control Variables, Part 1

Variable	Value	Description
ISMSINIT	09/21/00 10:09 ISMMGR	Indicates when ISM was initialized.
ISMMGR	ISMMGR	Name of autotask managing ISM.
ISMMAUTO	ISMMGRM	Autotask that monitors alerts.
ISMREFOPER	ISMMGRS	Autotask that does status updates.
ISMMGRI	ISMMGRI	Autotask that collects interface statistics.
ISMOPNUM	Reserved	-
ISMRRMONI	00:30	Monitoring interval for resources.
ISMIMONI	12:00	Monitoring interval for interfaces.
NSPMOPER	YES	ISM security indicator.

Table C-4 ISM Control Variables, Part 2

ISMSINIT: 08/04/00 15: 10 ISMMGR			
ISM Application Control (ISMAPPLS3) YES YES YES YES NO YES YES NO YES			
ISM Application Control Ext. (ISMAPPLS4) YES NO YES			
Application	Value	Variable	When Initialized
ISM	-	ISMSINIT	08/04/00 15:10 ISMMGR
Resource Monitor	YES	ISMRINIT	08/04/00 15:10 ISMMGR
Interface Monitoring	YES	-	-
Interface Archiving	YES	-	-
Operator Management	YES	-	-
SNA Session Monitoring	YES	-	-
ISM Scheduler	NO	-	-
CMCC Monitoring	YES	ISMCINIT	08/04/00 15:10 ISMMGR
TN3270 Monitoring	YES	ISMTNINIT	TN3270 initialized 08/04/00 15:10 I
SNMP Monitoring	YES	SNMPINT	SNMP initialized 07/31/00 08:18 SNMP

Table C-5 ISM Control Variables, Part 3

Interface Control Variable			
ISMINTI YES YES YES YES YES YES YES YES YES YES YES YES YES YES YES YES NO YES			
Interface Type	Initialize	Variable	When Initialized
TokenRing	YES	ISMITINT	08/04/00 15:10 ISMMGR
Ethernet	YES	ISMIENT	08/04/00 15:10 ISMMGR
Serial	YES	ISMISINT	08/04/00 15:10 ISMMGR
FDDI	YES	ISMIFINT	08/04/00 15:10 ISMMGR
Loopback	YES	ISMILINT	08/04/00 15:10 ISMMGR
ASYNC	YES	ISMIANIT	08/04/00 15:10 ISMMGR

Table C-5 ISM Control Variables, Part 3 (continued)

Interface Control Variable															
ISMINTI YES YES YES YES YES YES YES YES YES YES YES YES YES YES YES NO YES															
Interface Type	Initialize		Variable		When Initialized										
HSSI	YES		ISMIHINT		08/04/00 15:10 ISMMGR										
Channel	YES		ISMICINT		08/04/00 15:10 ISMMGR										
ISDN	YES		ISMIBINT		08/04/00 15:10 ISMMGR										
TUNNEL	YES		ISMIUINT		08/04/00 15:10 ISMMGR										
ATM	YES		ISMIMINT		08/04/00 15:10 ISMMGR										
FastEthernet	YES		ISMIDINT		08/04/00 15:10 ISMMGR										
IBM Claw	YES		ISMIHINT		08/04/00 15:10 ISMMGR										
MPC (Multiprotocol)	YES		ISMININT		08/04/00 15:10 ISMMGR										
GigabitEthernet	YES		ISMIGINT		08/04/00 15:10 ISMMGR										

Table C-6 ISM Control Variables, Part 4

Variable	Value	Description
ISMDELAY	20	Minimum refresh rate.
ISMDELAYSON	OFF	Indicates refresh in progress.
ISMUPDATE	-	Indicates that a refresh is requested.
PREFIX	??	Command suppression characters.
DOMAINID	CNM56	ID used for this domain.
ISMCIPTHPU	90	Default CMCC processor threshold.
ISMCIPTHMU	10	Default CMCC memory threshold.
ISMCMCCRCV	YES	Controls auto-recovery of CMCCs. (Default=NO)
ISMALRTCTL	YES YES YES YES	Generic alert control options. (Default=NO)
ISMTBASE	-	ISM base time for scheduler. (Default=15 Min)
ISMTINIT	-	ISM scheduler initialization.
ISMMTHPU	95	Resource CPU performance threshold.

Table C-6 *ISM Control Variables, Part 4 (continued)*

Variable	Value	Description
ISMTHMU	10	Resource memory level threshold.
ISMSMFR	YES	SMF recording status.
ISMRECID	220	SMF recording record number.
ISMTRHDB H	ISMTRMAX 48	Resource database values.
ISMINTHDB I	ISMINTMAX 48	Interface database values.
ISMRIHDB R	ISMRIFMAX 5	SNA View RIF database values.
ISMCONHDB C	ISMCONMAX 99	Router configuration db values.
ISMCIHDB H	ISMCIPMAX 51	CMCC database values.
ISMTN32DB H	ISMTN32MAX 99	TN3270 database values.
ISMTN32MON	SNA	TN3270 monitor default.
ISMTN32SMF	YES	TN3270 SMF recording control.
ISMTN32THLU	10	TN3270 LU threshold.
ISMTN32LOG	YES	TN3270 LOG recording control.
ISMTN32THRT	1000	TN3270 response time threshold.
ISMTNNUMR	10	TN3270 resource count.

**Note**

From the Resource Status with Options panel, press **PF9** to show all variables associated with a resource.

ISM uses address letters followed by an index number to build each variable. Table C-7 shows the name of each variable, its description and its contents.

Table C-7 *Service Point/Control Name: CAT19002, Index=3, ISM3=CAT19002*

Variable	Function	Value
RTA3	Last status change	11:07 08/06/00
RTB3	Router busy with operator	

Table C-7 Service Point/Control Name: CAT19002, Index=3, ISM3=CAT19002 (continued)

Variable	Function	Value
RTC3	Configuration: Resource type and Cisco IOS level	UNKNOWN
RTD3	Domain that owns resource	CNM56
RTE3	Description of resource	CISCO SYSTEMS CATALYST 1900
RTF3	Features supported by this resource	-
RTG3	Operation groups	SW1900
RTH3	Resource host name (IP name)	CWB-CAT1900-2
RTI3	Resource IP address	172.18.7.63
RTJ3	CMCC management indicator	-
RTK3	DSPU management indicator	-
RTL3	Last related alarm	-
RTM3	Managing autotask	-
RTN3	Resource control variables	Y A N N N Y
Y	A	N
Monitor	Availability	Collect
Resource	Monitor	Statistics
		Statistics
		Alarms
		Interface
		Archiving
RTO3	Enabled operator	-
RTP3	VSAM key for performance history	-
RTQ3	Override values for archiving and thresholds	NONE
RTS3	Current ISM resource status	ACTIV
RTT3	Last performance record	-
RTU3	SNA service point name	-
RTV3	VTAM major node	UNKNOWN
RTW3	XCA MAJOR node name (used for CMCC recovery)	-
RTX3	Extended status indicators	-
RXA3	Monitor mode SNMP	-
RXC3	CASA support on router	-

Table C-7 Service Point/Control Name: CAT19002, Index=3, ISM3=CAT19002 (continued)

Variable	Function	Value
RXD3	TN3270 support on router	-
RXF3	Last failure	-
RXL3	SysUpTime MIB value	216674665
RXM3	SNMP mask	255.255.255.0
RXS3	SYSUPTIME	25 day/1 hour/52 min/26 sec
RXT3	Resource type	CA

Display interface variables by selecting the Display Interfaces option in the ISM Interface Operation Options panel. Table C-8 describes sample output for this option.

Table C-8 Interface Control Block Index: 4, Type: Ethernet, Encapsulation: ARPA

Variable	Use	Value
ISMIEA4	Status change	15:15 08/04/00 INVALID
ISMIEB4	Owning domain	CNM56
ISMIEC4	Desired status	UP
ISMIED4	Control data	RTZ3.E1 IECAT19002E1 CAT19002 ETHERNET1 1 DS(UP) M(YES) G(1) E (ARPA) I(1) T() 18:07 07/18/00 HAL1 NSPIBCV4
ISMIEE4	Encapsulation	ARPA
ISMIEH4	History pointer	(VSAM key)
ISMIEI4	Interface index (SNMP)	1
ISMIEK4	Copy of last performance record	20000806 19:52 MTU 1500 bytes, BW 10000 Kbit, DLY N/A usec, rely 255/255, load 1/255
ISMIEL4	Copy of last statistics record (history)	
ISMIEM4	Monitor mode	YES
ISMIEO4	-	-

Table C-8 Interface Control Block Index: 4, Type: Ethernet, Encapsulation: ARPA (continued)

Variable	Use	Value
ISMIEP4	Performance pointer (VSAM key)	PCAT19002E1 129 48
ISMIES4	Current status	UP
ISMIET4	Reserved	-
ISMIEU4	Reserved	-

Display the CMCC variables by pressing **PF9** on the ISM CMCC Administration panel.

Table C-9 CMCC Control Block Index: 1, TARGET: CNM56

Variable	Use	Value
ISMCIPA1	When status changed plus previous status	-
ISMCIPB1	Owning domain	CNM56
ISMCIPD1	VSAM key, router, slot	CIPCWBC01S3 CWBC01 3 M(YES) T() V(CIP 4.132 26.9) I(3/0 3/1 3/2) ACTIV
ISMCIPH1	History pointer (VSAM key)	HCIPCWBC01S3 114 51 08/06/00 20:48 ISMMGR
ISMCIP11	Related channel interfaces	3/0 3/1 3/2
ISMCIPL1	Copy of last history record	20000806 20:48 MEM 52165K/64M CPU 1 0 1 DMA 1 0 0 PCA0 0 0 0 ECA1 0 0 0
ISMCIPM1	Monitor mode (YES/NO)	YES
ISMCIPS1	Current status	ACTIV
ISMCIPT1	Override values	-
ISMCIPV1	Hardware and software versions	CIP 4.132 26.9

Display the TN3270 variables by selecting the ISM Interface Administration panel and pressing **PF9**.

Table C-10 *Interface Control Block Index: 10, Type: Channel Encapsulation*

Variable	Use	Value
ISMICA10	Status change	15:17 08/04/00 INVALID
ISMICB10	Owning domain	CNM56
ISMICC10	Desired status	UP
ISMICD10	Control data	RTZ33.C2S0 ICISM7200BC2S0 ISM7200B CHANNEL2/0 2/0 DS(UP) M(YES) G(2S0) E() (T()) 08:36 07/17/00 ISMMGR NSPIBCV4
ISMICE10	Encapsulation	-
ISMICH10	History pointer (VSAM key)	HISM7200BC2S0 147 48 08/06/00 19:54 ISMMGRI
ISMICI10	Interface index (SNMP)	-
ISMICK10	Copy of last performance record	20000806 21:34 100 ISM7200B 2/0 255 0 9 9 0 293 10
ISMICL10	Copy of last statistics record (history)	-
ISMICM10	Monitor mode	YES
ISMICO10	TN3270 overrides	-
ISMICP10	Performance pointer (VSAM key)	PISM7200BC2S0 146 48 08/06/00 21:34 ISMMGR
ISMICS10	Current status	UP
SMICT10	TN3270 status	ACTIV
SMICU10	TN3270 status change	08/04/00 15:20 ACTIV

Viewing SNMP Variables

To view SNMP variables, on the SNMP for ISM Management Setup panel (Figure 3-8), press **PF10**. The ISM Common Globals for SNMP (Figure C-2) is displayed.

Figure C-2 ISM Common Globals for SNMP

```

NSPVVARI          ISM Common Globals          CNM56  09/07/00
                  Internetwork Status Monitor (ISM)  Target: CNM56  04:26
This panel shows the values of common globals used by ISM. It does not show
the common globals used for each resource or interface. They are available
from the resource and interface panels.
Variable:  Value:  Description:
ISMSINIT   09/05/00 08:00 ISMMGR  Indicates when ISM was initialized.
ISMMGR     ISMMGR   Name of autotask managing ISM.
ISMMAUTO   ISMMGRM  Autotask that monitors alerts.
ISMREFOPER ISMMGRS  Autotask that does status updates.
ISMMGRI    ISMMGRI  Autotask that collects interface statistics
ISMOPNUM   0
ISMROMONI  01:00    Monitoring interval for resources.
ISMIMONI   12:00    Monitoring interval for interfaces.
NSPMOPER   *YES     ISM security indicator.

Action==>
1=HELP 3=END 3=RTN          6=ROLL          8=FORWARD

```

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Viewing NetView Timers

To view NetView timers based on the current scheduler options, on the ISM Schedule Setup panel (Figure 3-9), press **PF10**. The List NetView Timers panel (Figure C-3) is displayed.

Figure C-3 List NetView Timers Panel

```

CNMKWIND OUTPUT FROM LIST TIMER=ALL,OP=ALL LINE 0 OF 17
*----- Top of Data -----*
DISPLAY OF OUTSTANDING TIMER REQUESTS
TYPE: AFTER TIME: 08/24/00 16:10:08 PPT
COMMAND: ISMECHO ISMMGRM NSPRCHK
OP: PPT (ISMMGRM) ID: ISMRCHK TIMEFMSG: NO GMT
TYPE: EVERY TIME: 08/24/00 16:14:27 PPT INTERVAL: 000 00:15:00 EVERYCON: NO
COMMAND: ISMECHO ISMMGR NSPRMON4 ALL
OP: PPT (ISMMGR) ID: ISMRMON4 TIMEFMSG: NO GMT
TYPE: EVERY TIME: 08/24/00 16:59:34 PPT INTERVAL: 000 02:00:00 EVERYCON: NO
COMMAND: ISMECHO ISMMGRI NSPIMON4 ALL
OP: PPT (ISMMGR) ID: ISMIMON4 TIMEFMSG: NO GMT
TYPE: CHRON TIME: 08/25/00 00:01:00 PPT INTERVAL: 001 00:00:00 EVERYCON: YES
COMMAND: CHRON AT=00.01.00 EVERY=( ) RECOVERY=AUTOLGN COMMAND=
'PURGE COSCONF' PGMAT=2000-08-24-00.01.00.000000
PGMINTVL=001-00.00.00.000000
OP: PPT (CNM56PPT) ID: SYS00001 TIMEFMSG: NO LOCAL
4 TIMER ELEMENT(S) FOUND FOR ALL
END OF DISPLAY
*----- Bottom of Data -----*

TO SEE YOUR KEY SETTINGS, ENTER 'DISPFK'
CMD==>

```

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Network Management Vector Transport Alerts

The following tables describe the Network Management Vector Transport (NMVT) alerts generated by Cisco resources, categorized by protocol type:

- Synchronous Data Link Control (SDLC), page D-2
- Token Ring Media Access Control (MAC)— IEEE 802.5, page D-3
- Logical Link Control (LLC)—IEEE 802.2, page D-3
- Carrier Sense Multiple Access Collision Detect (CSMA/CD), page D-4
- X.25 Packet Layer, page D-5
- Link Access Procedure-Balanced (LAP-B), page D-5
- Qualified Logical Link Control (QLLC), page D-6
- Transmission Control Protocol/Internet Protocol (TCP/IP), page D-7
- TN3270, page D-7

The following information is used to describe the alerts:

- Alert ID—Number that identifies the alert
- Failure cause—Two-byte hexadecimal code
- Alert description—Brief description of the alert



Note

Alert descriptions that are displayed in parentheses () indicate the Communications Manager (CM) description. Alert IDs that are displayed in parentheses indicate the CM version of the alert ID.

Synchronous Data Link Control (SDLC)

Table D-1 SDLC Alerts

Alert ID	Failure Cause	Alert Description
32A37F1B	F017	Poll retry exhausted
BD84C4C9	F01A	DM received
D635CA1E	F015	SNRM received while in NRM
B776CA94	F010	FRMR received—invalid command/response
B3B7D723	F011	FRMR received—I-field not allowed
BEF4F1FA	F012	FRMR received—invalid Nr
BA35EC4D	F013	FRMR received—max I-field exceeded
15C2CCE5	F020	Protocol error by remote—invalid command/response
1103D152	F021	Protocol error by remote—I-field not allowed
1C40F78B	F022	Protocol error by remote—invalid Nr
EABB6A14	F01B	Protocol error by remote—MAXIN exceeded
0E2DDF11	F019	Inactivity timer expired (not being polled)
0AECC2A6	F018	XID retry exhausted
A472BC48	F014	FRMR received—no reason given

Token Ring Media Access Control (MAC)—IEEE 802.5

Table D-2 Token Ring MAC Alerts

Alert ID	Failure Cause	Alert Description
55BF3E1C	3434	Open failure—Lobe fault
CAF3C58A	3703	Open failure—TR Fault Domain (Beaconing)
D615A61E	Install Cause 3704	Open failure—Duplicate Token Ring address
44D1AD86	User Cause 7101	Open failure—Removed from Token Ring
016E5F4E	N/A	Adapter Open failed
A676B230	3434	Wire fault—Lobe fault
EB61E14F	N/A	Auto-removal (adapter removed itself from ring)
59F32622	User Cause 7101	Remove cmd rcvd—Removed from Token Ring

Logical Link Control (LLC)—IEEE 802.2

Table D-3 LLC Alerts

Alert ID	Failure Cause	Alert Description
5B8F5BA7	F017	Poll retry exhausted
B1D9A4C5	F01A	DM received
E65B0B7F	F016	SABME received while in ABME
8A5B2D2C	F010	FRMR received—invalid cmd/rsp
8E9A309B	F011	FRMR received—I-field not allowed
83D91642	F012	FRMR received—invalid Nr
87180BF5	F013	FRMR received—max I-field exceeded
23EF2B5D	F020	Protocol error by remote (FRMR sent)—invalid cmd/rsp
2C2E36EA	F021	Protocol error by remote (FRMR sent)—I-field not allowed

Table D-3 LLC Alerts (*continued*)

Alert ID	Failure Cause	Alert Description
216D1033	F022	Protocol error by remote (FRMR sent)—invalid Nr
25AC0D84	F023	Protocol error by remote (FRMR sent)—max I-field exceeded

Carrier Sense Multiple Access Collision Detect (CSMA/CD)

Table D-4 CSMA/CD Alerts

Alert ID	Alert Description
8B1836C5	Open failure
EB1D6ABB	Remove cmd rcvd; User Cause 7107—removed from CSMA/CD ring
668E036D	Lost carrier
A48865FD	Congestion
91FDE97B	Bus inoperative failure

X.25 Packet Layer

Table D-5 X.25 Packet Layer Alerts

Alert ID	Failure Cause	Alert Description
B5B412E5 (D484ED27)	20C1	(DTE) Cleanup Indication Received (Clear/Reset)
CDA515B8	20C1	(DTE) Cleanup Indication Received (Restart)
D3A1B295 (6A837F72)	20C2	(DTE) Cleanup Request Sent (Reset)
056A9521	20C2	(DTE) Cleanup Request Sent (Clear/Restart)
F50A02F0	20D1	(DTE) Response timer expired
BA5D4659	20B2	(DTE) Protocol violation by remote
4C323FE5	20C3	Diagnostic Packet Received from Network
EFF5FAAD	20C4	(DCE) Cleanup Indication Sent (Restart/Reset/Clear)
FEC0F827	20C5	(DCE) Cleanup Request Received (Restart/Reset/Clear)

Link Access Procedure-Balanced (LAP-B)

Table D-6 LAP-B Alerts

Alert ID	Failure Cause	Alert Description
07B1E788	F023	Protocol error by remote (FRMR sent)—max I-field exceeded
C0E4E919	F022	Protocol error by remote (FRMR sent)—invalid Nr
A596712C (CEA222A9)	N/A	LAP-B Comms error (Poll retry exhausted)
985806E2	N/A	LAP-B Comms error (Unexpected DISC received)
00891F75	F010	FRMR received—invalid cmd/rsp

Table D-6 LAP-B Alerts (continued)

Alert ID	Failure Cause	Alert Description
CF6F806D	F011	FRMR received—I-field not allowed
F5E40347	F013	FRMR received—max I-field exceeded
C22CA6B4	F012	FRMR received—invalid Nr
1F9CF04A	F020	Protocol error by remote (FRMR sent)—invalid cmd/rsp
3FAE0180	F021	Protocol error by remote (FRMR sent)—I-field not allowed

Qualified Logical Link Control (QLLC)

Table D-7 QLLC Alerts

Alert ID	Failure Cause	Alert Description
6460D9A9	F023	—
3DA4F8CD	F010	QFRMR received—invalid cmd/rsp
C15B15E8 (9C064C98)	F011	QFRMR received—I-field not allowed
C8C9E4FF (D82E7FD3)	F013	QFRMR received—max I-field exceeded
11A865CF (21F2236D)	F020	Protocol error by remote (QFRMR sent)—invalid cmd/rsp
0283E638 (5DBB5F97)	F021	Protocol error by remote (QFRMR sent)—I-field not allowed

Transmission Control Protocol/Internet Protocol (TCP/IP)

Table D-8 TCP/IP Alerts

Alert ID	Failure Cause	Alert Description
E14A3440	3200, 2081	TCP/IP alert link lost alert
0C16CC4C	3200, 2058	HDLC keep alive failed
3F1DE404	3601, 3401, f038	HDLC alert signal lost
EDFE42AA	2055, 2060	CIP LLC connection limit exceeded
13797053	3003, 2007, 1023	CIP LLC duplicate SAP detected

TN3270

Table D-9 TN3270 Alerts

Alert ID	Failure Cause	Alert Description
9E452D9C	22a1	TN3270 server APPN-DLUR protocol error
1DA682C3	22a1	TN3270 server APPN-DLUR configuration error
05CB2789	22a1	TN3270 server APPN-DLUR configuration error
017153F1	22a1	SNA session setup failure
85FDA5F1	22a1	SNA protocol error
D9039DB7	22a1	TN3270 server capacity exceeded
A10EE2D6	22a1	TN3270 server no memory for operation



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