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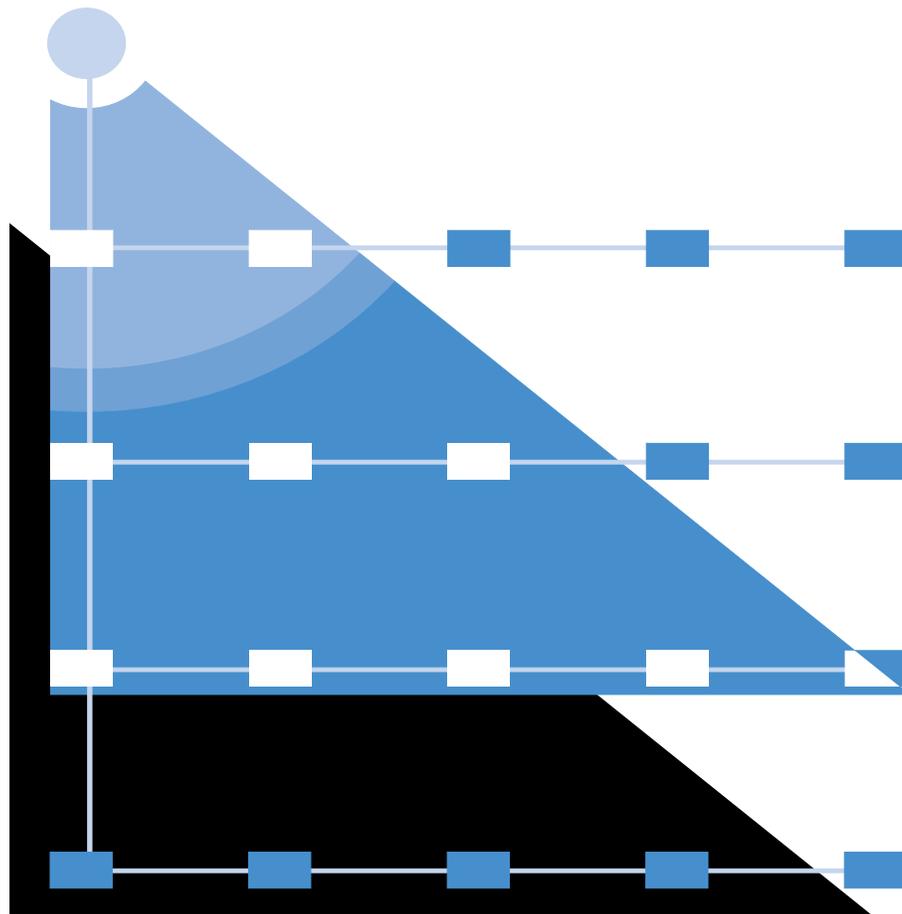
323-4001-056

SONET Transmission Products

S/DMS Network Manager

Performance Management

Standard Rel 6 November 1996



NORTEL
NORTHERN TELECOM

SONET Transmission Products

S/DMS Network Manager

Performance Management

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November 1996

Standard for S/DMS Network Manager Release 6. Release 6 includes connection management enhancements (support for Virtual Tributary Bandwidth Manager (VTBM) and linear systems), revised network display for groups, and network element support for Tellab Titan 5500 Digital Cross-Connect System (DCS), DV45 Video Codec, and OC-192 network elements.

January 1996

Standard for S/DMS Network Manager Release 5. Release 5 adds STS connection management (provisioning) and service assurance functions to S/DMS Network Manager. Release 5 also introduces extensive changes to the user interface in the area of menu structure, node information, and display selection capabilities.

April 1995

Standard for S/DMS Network Manager Release 4. Release 4 includes updates for performance monitoring consolidation, remote inventory query and display, shelf-level graphics, provisionable span information, and support for additional users on certain S/DMS Network Manager hardware platforms.

September 1994

Standard for S/DMS Network Manager Release 3. Release 3 includes updates for centralized software management, enhanced alarm collection control, asynchronous alarm display, alarm filtering, alarm banner, TA-1230 ring configuration and traffic display, access to graphical OPC user interface, external device access, and enhancements to the S/DMS Network Manager software installation and upgrade process. This is also the first issue of the S/DMS Network Manager User Guide produced in full color.

January 1994

Standard for S/DMS Network Manager Release 2. Release 2 includes updates for user-defined network element groupings, transparent network element login access, detailed alarm information display, user-selectable link types, unrestricted network element node placement, and interwindow linking of network element nodes.

April 1993

Standard for S/DMS Network Manager Release 1. This user guide introduces the S/DMS Network Manager and describes the S/DMS Network Manager Release 1 network configuration and alarm monitoring capabilities.

Contents

About this document	vii
Who should read this book	vii
Technical support and information	xi
<hr/>	
Understanding performance monitoring	1-1
Performance threshold crossings	1-2
Performance statistics	1-3
Performance monitoring parameters	1-4
Protection switching parameters	1-5
Performance Statistics Query dialog	1-6
Category selection box	1-6
Units selection box	1-7
Performance Parameters selection box	1-8
Performance Statistics Retrieval dialog	1-8
Performance Statistics dialog	1-9
Time interval buttons	1-10
Display control buttons	1-11
Performance statistics list	1-11
Performance statistics data	1-12
Performance statistics list menu	1-12
List Options box	1-13
Done button	1-13
Save button	1-13
Save Performance Statistics dialog	1-14
Export format	1-14
Report format	1-16

Monitoring performance	2-1
Requirements	2-1
Chapter task list	2-2
List of procedures	
2-1 Retrieving performance statistics	2-3
2-2 Locating performance statistics	2-9
2-3 Updating the Performance Statistics dialog	2-12
2-4 Saving performance statistics to a file	2-14
<hr/>	
List of terms	3-1
<hr/>	
Index	4-1

About this document

This book describes performance management for the network elements monitored by S/DMS Network Manager Release 6 software.

Who should read this book

This book is intended for people who must retrieve and display performance data for the network elements monitored by S/DMS Network Manager.

S/DMS Network Manager documentation packaging

The documentation for S/DMS Network Manager is composed of one volume. The volume contains nine individual books:

- *Introduction* (323-4001-102) introduces the features and user interface of S/DMS Network Manager.
- *Installation and Administration* (323-4001-202) provides installation and administration information for S/DMS Network Manager. Also, this book provides information on configuring and bootstrapping an operations controller (OPC), setting up serial ports for external device access, and customizing the S/DMS Network Manager user environment.
- *Connectivity* (323-4001-053) provides information on logging in and out of S/DMS Network Manager, controllers (OPC and TL1 MOA), network element user interfaces, and external devices.
- *Configuration* (323-4001-054) describes the Graphical Network Editor (GNE) tool of S/DMS Network Manager. The GNE is used to configure a network.
- *Fault Management* (323-4001-055) describes the Graphical Network Browser (GNB) tool of S/DMS Network Manager. The GNB is used for network surveillance.
- *Performance Management* (323-4001-056) describes centralized performance monitoring for the network elements monitored by S/DMS Network Manager.
- *Connection Management* (323-4001-057) describes viewing, provisioning, and editing connections on ring and linear systems.
- *Inventory Management* (323-4001-058) describes taking an inventory of remote network elements monitored by S/DMS Network Manager.

- *Software Management* (323-4001-059) describes controller and network element centralized software management.

Systems supported in this book

This book describes the operation of S/DMS Network Manager with S/DMS TransportNode, S/DMS AccessNode, Cornerstone Voice, SONET Radio 4/40, and TL1 MOA systems. The basic operation of S/DMS Network Manager is the same for each system. However, the availability of some features depends on the system S/DMS Network Manager is monitoring, and the software release installed on the system. For more information, see “Software release compatibility” in *S/DMS Network Manager Introduction*, 323-4001-102.

How commands, parameters, and responses are represented

Commands, parameters, and responses in this book are shown as follows.

System prompts and responses

System prompts and responses are printed as follows:

```
system-prompts and RESPONSES looks like this
```

Command strings

Command strings typed at the keyboard are printed in bold type, followed by a Return or Enter symbol (↵), as follows:

```
this is what you type ↵
```

Type the command string exactly as shown, including spaces, and end by pressing the Return key.

Variable parameters are enclosed in angle brackets, as follows:

```
Install the software in directory <directory name>
```

An explanation of the variable follows the command string, as follows:

```
where
```

```
<directory name> is the name of the directory used to...
```

On-screen buttons and menu commands

Buttons and menu command items are printed in bold type as follows:

```
select the Controller Status command
```

Hardkeys

Hardkey (keyboard keys) names are printed in plain type as follows:

```
press Return
```

Results of an action and comments

Results of an action and comments are printed in italic type, as follows:

The Controller Status dialog appears.

Screen illustrations

The screen illustrations in this book are black and white approximations of the images displayed by S/DMS Network Manager.

References in this book

S/DMS Network Manager can monitor various types of Northern Telecom SONET transmission systems, each of which has its own version of Northern Telecom Publication (NTP). Throughout this book, references to NTPs include an “nnnn” notation in place of the NTP version number. Substitute the appropriate NTP version number for the “nnnn” according to the type of system that S/DMS Network Manager is monitoring, as shown in the following table.

System type	NTP version number
OC-3/OC-12	1111
OC-48	1201
OC-192	1301
S/DMS AccessNode	3001

For example, if this book refers you to *User Interfaces Description*, 323-nnnn-301, and S/DMS Network Manager is monitoring a Northern Telecom OC-48 system, use NTP 323-1201-301 to obtain the appropriate information.

The following NTPs and other documentation are referred to, but not included as an integral part of the *S/DMS Network Manager User Guide*.

- *System Description*, 323-nnnn-100
- *Signal Flow and Protection Switching Descriptions*, 323-nnnn-103
- *Performance Monitoring Description*, 323-nnnn-105
- *User Interfaces Description*, 323-nnnn-301
- *System Administration Procedures*, 323-nnnn-302
- *Software Administration Procedures*, 323-nnnn-303
- *Protection Switching Procedures*, 323-nnnn-311
- *Performance Monitoring Procedures*, 323-nnnn-520
- *Alarm and Trouble Clearing*, 323-nnnn-543
- *S/DMS Network Manager, Release 6.00 Planning Guide*, PG 96-04

- *MOA, Release 2.00 Planning Guide, PG 95-11*
- *HP Visual User Environment User's Guide, Hewlett Packard Part No B1171-90042*
- *HP Remote Access User's Guide, Hewlett Packard Part No B1862-90011*
- *HP-UX Installing Peripherals, Hewlett Packard Part No B1864-90011*
- *HP-UX System Administration Tasks manual*
- *Bellcore SONET BLSR Equipment Criteria TA-NWT-001230 (issue 2)*

Technical support and information

Additional technical support and information can be obtained by contacting the nearest service center. The service centers for the United States and Canada are listed in the following sections.

United States regional service centers

In the United States, contact the nearest regional service center for technical support and information.

For 24 hour emergency technical support

For assistance restoring service on equipment which has been carrying traffic and is out-of-service, call the following toll-free number:

800-275-3827 (800-ASK-ETAS)

For technical support from 8 a.m. to 10 p.m.

Call the following toll-free number:

800-275-8726 (800-ASK-TRAN)

Southern Region

Northern Telecom Inc.
5555 Winward Parkway, Suite B,
Alpharetta, Georgia 30201-3895
(404) 661-4000

Central Region

Northern Telecom Inc.
475 Martingale Road
Schaumburg, Illinois 60173
(708) 706-8000 or 8389

Pacific Region (North)

Northern Telecom Inc.
2305 Camino Ramon
San Ramon, California 94583
(510) 867-2000

Pacific Region (South)

Northern Telecom Inc.
300 North Lake Avenue
Pasadena, California 91101
(818) 584-2000

Northeast Region

Northern Telecom Inc.
200 Summit Lake Drive
Valhalla, New York 10595
(914) 773-2559

Western Region

Northern Telecom Inc.
5575 DTC Parkway, Suite 150
Englewood, Colorado 80111
(303) 850-5600

Southwest Region

Northern Telecom Inc.
2221 Lakeside Blvd., FL 9
Richardson, Texas 75082-4399
(214) 684-4195 or 1000

Eastern Region

Northern Telecom Inc.
2010 Corporate Ridge
McLean, Virginia 22102
(703) 712-8487

Canada technical assistance service centers

In Canada, contact the nearest technical assistance service center for technical support and information.

For 24-hour emergency technical support

For assistance with problems that can lead to payload-affecting failures or issues that prevent payload protection switching, call the following numbers:

(800) 361-2465 or (514) 956-3500

For 24-hour emergency recovery

For assistance restoring service on equipment which has been carrying payload and is out of service, call ETAS at the following number:

613-226-5456

For non emergency support from 8:00 a.m. to 4:00 p.m.

Call the regional Field Service Engineering (FSE) group in your Technical Assistance Service Center.

FSE West (Alberta)

Northern Telecom Canada Limited
10235, 101 Street
Edmonton, Alberta T5J 3G1
(403) 441-3193

FSE West (Manitoba, North-Western Ontario)

Northern Telecom Canada Limited
180, 117 King Edward Street E.
Winnipeg, Manitoba R3H 0Y3
(204) 788-7531

Ontario

Northern Telecom Canada Limited
PO Box 3000
Brampton, Ontario L6V 2M6
(905) 452-2104

FSE East (Newfoundland)

Northern Telecom Canada Limited
63 Thorburn Rd.
St. John's, Newfoundland A1B 3M2
(709) 722-2500 or 1-800-661-4827

FSE East (Nova Scotia, Prince Edward Island)

Northern Telecom Canada Limited
1701 Hollis St., Suite 900
Halifax, Nova Scotia B3J 3M8
(902) 421-2301

FSE West

(British Columbia, Yukon, and Northwest Territories)

Northern Telecom Canada Limited
#410, 13251 Delf Place
Richmond, British Columbia V6V 2A2
(604) 279-2258

FSE West (Saskatchewan)

Northern Telecom Canada Limited
PO Box 770
Regina, Saskatchewan S4P 3A8
(1867 Hamilton Street, 8th floor)
(306) 791-7100 or (306) 791-7110

Quebec

Northern Telecom Canada Limited
PO Box 2110
St. Laurent, Quebec H4L 4Y7
(514) 744-8750

FSE East (New Brunswick)

Northern Telecom Canada Limited
1 Brunswick Square, 4th Floor
Saint John, New Brunswick E2L 4K2
(506) 632-8271 or (506) 632-8203

Understanding performance monitoring

This chapter describes centralized performance monitoring using S/DMS Network Manager. The S/DMS Network Manager Graphical Network Browser (GNB) tool enables you to retrieve and display performance data from the network elements monitored by S/DMS Network Manager. S/DMS Network Manager performance monitoring can be performed only from GNB.

For this feature to operate properly, the controllers must support the reporting of performance data to S/DMS Network Manager. For more information, see “Software release compatibility” in *S/DMS Network Manager Introduction*, 323-4001-102. Also, performance monitoring must be enabled on the controllers. For information on how to enable performance monitoring on a Northern Telecom operations controller (OPC), see “Managing performance monitoring at the OPC” in *S/DMS Network Manager Installation and Administration*, 323-4001-202. In addition, threshold crossings must be provisioned as alarms at the network element. For information on how to provision threshold crossings as alarms, see *Performance Monitoring Procedures* in the Northern Telecom Publications (NTP) for the type of system monitored by S/DMS Network Manager.

Performance and protection statistics are collected by every network element in the network. The controllers collect these statistics from the network elements in their span of control.

S/DMS Network Manager provides a centralized facility to select and retrieve performance statistics from each controller. This feature provides a consolidated end-to-end view of network performance.

Performance monitoring identifies how well the network elements perform compared to predefined thresholds, and also summarizes the protection switching activity within the network. Performance monitoring enables you to compare the performance of multiple network elements in a single display window.

Performance monitoring detects network element service degradations before a failure occurs, allowing you to take the necessary preemptive action. The data can also be used to review performance over a period of time.

S/DMS Network Manager performance monitoring consists of two inter-related parts: notification of performance threshold crossings, and reporting of performance and protection switching statistics over a period of time.

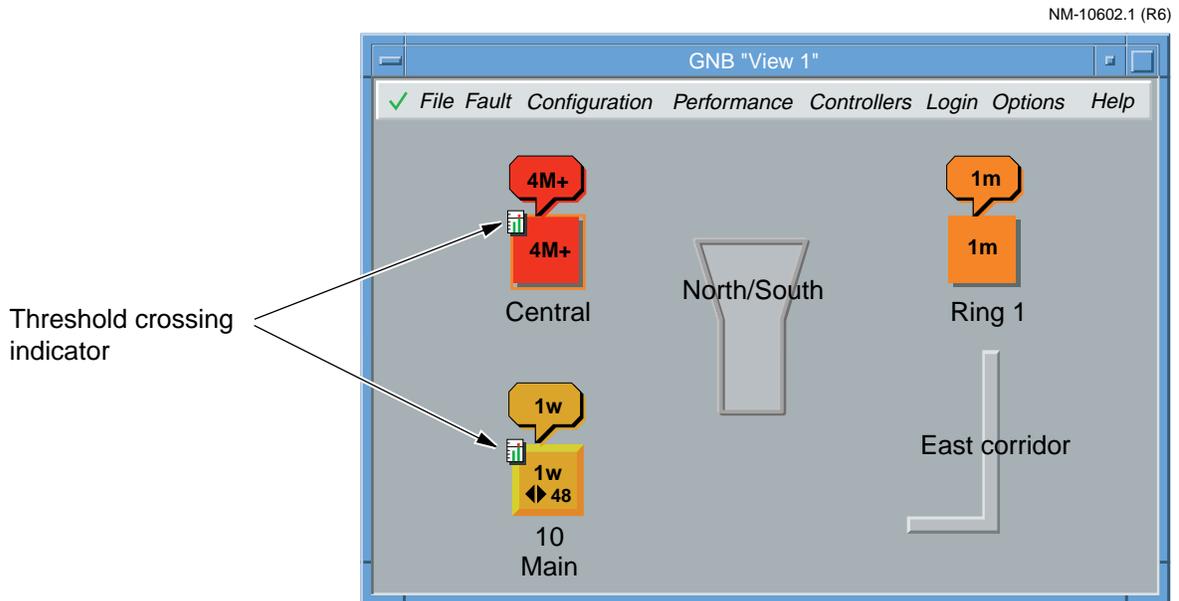
S/DMS Network Manager performance monitoring uses several specialized dialogs. This chapter describes each dialog. Procedures that describe how to use S/DMS Network Manager to monitor the performance of the network are located in “Monitoring performance” on page 2-1.

Performance threshold crossings

Performance thresholds are predefined limits, as set on a network element, against which the performance of a network element is measured. When a threshold is crossed, the network element registers a performance count against the threshold.

Performance counts are collected on a per facility basis by each network element. The controllers collect performance counts from the network elements within their span of control. S/DMS Network Manager in turn retrieves the performance counts from each controller, and provides a consolidated view of the threshold crossings.

Threshold crossings are brought to your attention on the GNB display by a threshold crossing indicator. (See the following illustration.)



Threshold crossing reporting is controlled at the individual network elements. At the network element, threshold crossings can be provisioned as alarms, alerts, or not provisioned (reported) at all. S/DMS Network Manager can display threshold crossings only if the threshold crossings are provisioned as alarms. If threshold crossings are provisioned as alerts, or not provisioned at all, they are not displayed on S/DMS Network Manager.

When threshold crossing is provisioned as an alarm, an alarm (typically a warning) is raised for each threshold crossing. As a result, when a threshold crossing occurs, an alarm balloon and a threshold crossing indicator appears on the network element.

Even though threshold crossings are classified as alarms, they are identified on GNB separately from other types of alarms. This difference allows you to easily distinguish a threshold crossing from other types of alarms.

Note: Threshold crossings provisioned as alerts are not collected by S/DMS Network Manager. This characteristic allows you to control which threshold crossings are reported on S/DMS Network Manager.

The threshold crossing indicator can appear on group and network element nodes. On groups, the threshold crossing indicator identifies that a network element in the group has raised an alarm because of a threshold crossing. On network elements, the threshold crossing indicator identifies the specific network element on which the threshold was crossed.

You can obtain detailed information about threshold crossings by selecting the Show Alarms command from a group or network element on which a threshold crossing indicator appears. This command opens the Alarms dialog. For more information, see “Alarms dialog” in *S/DMS Network Manager Fault Management*, 323-4001-055.

Performance statistics

Performance statistics provide an historical listing of network element performance. Statistics are collected by the individual network elements. Controllers collect the statistics from the network elements in their span of control. S/DMS Network Manager retrieves the statistics from individual controllers and provides a consolidated view of network performance.

Performance statistics are divided into two categories: performance monitoring and protection switching statistics. These statistics allow you to analyze the performance of the network elements over a period of time.

Performance monitoring statistics are collected by the network elements on each facility for different parts of the transmission path, such as the section, line and path. Protection switching statistics are maintained on each circuit pack group (CPG).

S/DMS Network Manager provides an historical view of the performance and protection switching statistics. You can select the exact performance statistic parameters for which you want statistics. For more information, see “Performance Statistics Query dialog” on page 1-6.

Performance monitoring parameters

The controllers collect, and S/DMS Network Manager can retrieve and display statistics for the following performance monitoring parameters.

CV	coding violation
ES	errored second
SES	severely errored second
AISS	alarm indication signal second
SEFS	severely errored frame second
UAS	unavailable seconds
BES	bipolar errored seconds
BSES	bipolar severely errored seconds
BCV	bipolar coding violations
FC	failure count
SAS	severely errored frame/alarm indication signal second

The following table identifies the facility, direction, and product to which the parameters apply.

Facility	Dir.	Location	Product	Parameter
DS-1 line	Rx	Near end	OC-12, OC-3	CV, ES, SES
DS-3 line	Rx	Near end	OC-12, OC-48	CV, ES, SES
DS-3 path	Tx	Near end	OC-12, OC-48	AISS, CV, ES, SES, SEFS, UAS
DS-3 path	Rx	Near end	OC-12, OC-48	AISS, CV, ES, SES, SEFS, UAS
STS-1 line	Rx	Near end	OC-3, OC-12, OC-48	CV, ES, SES, BES, BSES, BCV, UAS
OC-3 line	Rx	Near end	OC-3, OC-12	CV, ES, SES, UAS, FC
OC-12 line	Rx	Near end	OC-12, OC-48	CV, ES, SES, UAS, FC

Facility	Dir.	Location	Product	Parameter
OC-48 line	Rx	Near end	OC-48	CV, ES, SES
OC-3 section	Rx	Near end	OC-3, OC-12	CV, ES, SES, SEFS
OC-12 section	Rx	Near end	OC-12, OC-48	CV, ES, SES, SEFS
OC-48 section	Rx	Near end	OC-48	CV, ES, SES, SEFS
DS-1 path	Rx	Near end	OC-12, OC-3	CV, ES, SES, SAS, UAS, FC

For a complete description of the parameters for which performance monitoring statistics can be gathered from the network elements in your network, see *Performance Monitoring Description* in the NTPs for the type of system monitored by S/DMS Network Manager.

Protection switching parameters

Protection switching statistics are maintained by the controller on each circuit pack group (CPG) because the low-speed and high-speed services are protected on the basis of CPGs. Only line-terminating equipment shelves provide protection switching statistics.

S/DMS Network Manager can retrieve and display statistics for the following protection switching parameters:

Auto Req	Automatic switch request count
Auto Comp	Automatic switch complete count
Auto Sw (sec)	Automatic switch complete duration
User Req	User initiated switch request count
User Comp	User initiates witch complete count
User Sw (sec)	User initiated switch complete duration

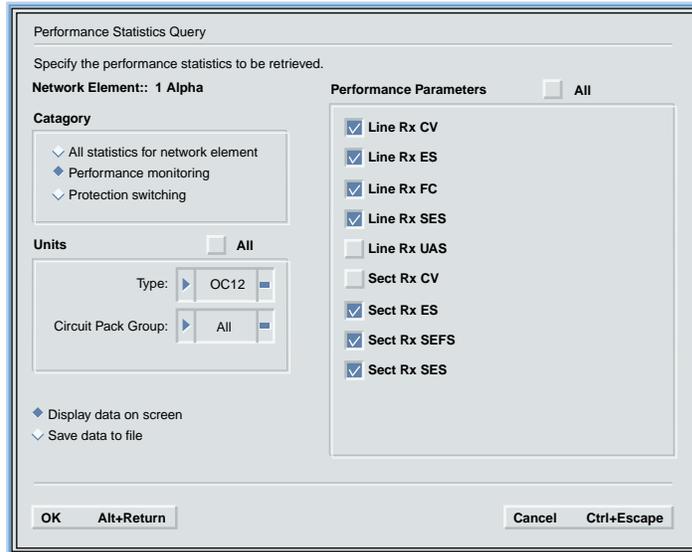
The following table identifies the circuit packs and products for which protection switching statistics are available.

Circuit Pack Group	Product
DS-3	OC-12, OC-48
OC-3	OC-3, OC-12
OC-12	OC-12, OC-48
OC-48	OC-48

Performance Statistics Query dialog

The Performance Statistics Query dialog enables you to specify the performance statistics that you want S/DMS Network Manager to retrieve. (See the following illustration.)

NM-10458.1



The selections in this dialog are context-driven. Selections that appear in this dialog change depending on the function of the network element from which you opened this dialog, the chosen performance category, and the unit type.

You can display the performance statistics on the screen in a Performance Statistics dialog, or save the statistics in a data file in an export or report format.

Category selection box

The Category selection box allows you to specify the type of performance statistics you want S/DMS Network Manager to retrieve from the specified network element. You can choose all available statistics, statistics relating only to performance monitoring, or statistics only relating to protection switching.

All statistics button

When you select this button, S/DMS Network Manager retrieves all available types of performance monitoring and protection switching statistics, for all units on the specified network element.

Performance monitoring button

Select the Performance monitoring button to view only performance monitoring statistics for the specified network element.

Protection switching button

Select the Protection switching button to view only protection switching statistics for the specified network element.

Units selection box

The Units selection box allows you to identify the specific network element facilities and equipment for which you want to retrieve performance or protection switching statistics.

All button

Select the All button to retrieve the statistics for all facilities and equipment on the specified network element. When you select the All button, the Type and Circuit Pack Group fields are also set to All.

Type field

The Type field enables you to select the type of facility on the specified network element for which you want S/DMS Network Manager to retrieve the statistics.

If you select the All entry, the parameters available for all facility types are listed in the Performance parameters box.

The data selector on this field lists all facilities available for the specified network element and category.

Circuit pack group field

The Circuit pack group field enables you to select the circuit pack group, on the specified unit, for which you want S/DMS Network Manager to retrieve the statistics.

If you select the All entry, the parameters available for all types of circuit pack groups are listed in the Performance parameters box.

The data selector on this field lists all circuit pack groups on this type of unit.

Port field

This field only appears if you select the Performance monitoring button in the Category box, and a unit type that has multiple ports.

The Port field enables you to select the port number, within the specified circuit pack group, for which you want S/DMS Network Manager to retrieve the statistics.

The data selector on this field lists all port numbers on the specified circuit pack group.

Performance Parameters selection box

The Performance parameters selection box lists the parameters available for the selected performance category and unit type. Use this box to select the exact parameters for which you want S/DMS Network Manager to retrieve statistics.

All parameters button

Select the All button to retrieve statistics for all available parameters. When you select the All button, each parameter is automatically selected.

Parameters list

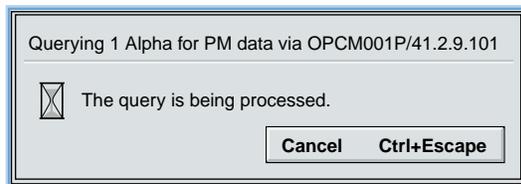
The parameters list identifies the individual parameters for which statistics can be retrieved from the specified network element. The parameters that appear in this list depend on the unit and performance category selected.

For a complete description of the parameters for network element performance statistics, see the performance monitoring description in the NTPs.

Performance Statistics Retrieval dialog

The Performance Statistics Retrieval dialog is displayed while S/DMS Network Manager is in the process of retrieving the performance statistics from a network element. (See the following illustration.)

NM-10403.1



The Performance Statistics Retrieval dialog identifies the name and number of the network element for which S/DMS Network Manager is retrieving performance statistics.

When the performance statistics retrieval is complete, the Performance Statistics Retrieval dialog is removed from the display and a Performance Statistics dialog appears.

The Cancel button enables you to halt the statistics retrieval process before it is complete. Any statistics retrieved up to that point are discarded.

Performance Statistics dialog

The Performance Statistics dialog provides a one-line summary of performance monitoring or protection switching statistics. (See the following illustration.)

NM10395.1

Network Element	Unit	Parameter	13:00-13:15	13:15-13:30	13:30-13:45	13:45-14:00	14:00-14:15	14:15-14:30	14:30-14:45	14:45-15:00
1 Alpha	DS1 012 1	Line Rx CV	.	.	.	.	.	.	.	.
1 Alpha	DS1 012 1	Line Rx ES	900	900	900	900	760	.	.	.
1 Alpha	DS1 012 1	Line Rx SES	900	900	900	900	760	.	.	.
1 Alpha	DS1 012 1	Path Rx CV	.	.	.	.	.	.	.	.
1 Alpha	DS1 012 1	Path Rx ES	.	.	.	.	.	.	.	.
1 Alpha	DS1 012 1	Path Rx FC	.	.	.	.	.	.	.	.
1 Alpha	DS1 012 1	Path Rx SAS	.	.	.	.	.	.	.	.
1 Alpha	DS1 012 1	Path Rx SES	.	.	.	.	.	.	.	.
1 Alpha	DS1 012 1	Path Rx UAS	900	900	900	900	900	900	900	900
1 Alpha	DS1 012 2	Line Rx CV	.	.	.	.	.	.	.	.
1 Alpha	DS1 012 2	Line Rx ES	900	900	900	900	837	900	900	900
1 Alpha	DS1 012 2	Line Rx SES	900	900	900	900	837	900	900	900
1 Alpha	DS1 012 2	Path Rx CV	.	.	.	.	.	.	.	.
1 Alpha	DS1 012 2	Path Rx ES	.	.	.	.	.	.	.	.
1 Alpha	DS1 012 2	Path Rx FC	.	.	.	.	.	.	.	.
1 Alpha	DS1 012 2	Path Rx SAS	.	.	.	.	.	.	.	.

List Options

Replace list with requested statistics

Add requested statistics to list

There are two ways to display the Performance Statistics dialog: from the Alarms dialog, or from the Performance Statistics Query dialog. The statistics displayed in the Performance Statistics dialog depend on which way you open the dialog.

If you open the Performance Statistics dialog by selecting a threshold crossing alarm from the Alarms dialog, the Performance Statistics dialog displays all available performance monitoring statistics for the unit affected by the selected threshold crossing.

If you open the Performance Statistics dialog using the Performance Statistics Query dialog, only the statistics specifically requested in that dialog are displayed in the Performance Statistics dialog.

If there are more than 2000 statistics for a performance statistics query, you are prompted to save the statistics to a file using the Save to File dialog. You cannot view more than 2000 performance statistics using a single Performance Statistics dialog.

The statistics are gathered by the controllers, from the network elements, at regular timed intervals.

The statistics can be displayed in the Performance Statistics dialog in daily or 15-minute intervals. If you select the daily interval, eight days of performance statistics are displayed for each parameter. A separate column is provided for each day. If you select the 15-minute interval, two hours of performance statistics, divided into 15-minute increments, are displayed for each parameter. A separate column is provided for each 15-minute increment.

A maximum of 8 hours of data can be viewed for each statistic. If there are more statistics, and therefore more time intervals, than can fit within the display area, use the control buttons to move backwards and forwards through the time intervals and locate the statistics of interest.

As you move horizontally through the list, the time interval headings at the top of the list change to reflect the new time interval displayed.

The details box at the bottom of the Performance Statistics dialog identifies the name and IP address of the controller from which the statistics were retrieved.

You can modify the list at any time using the buttons in the List Options box. These buttons enable you to add the performance statistics for another group or network element to the existing list, or replace the existing list with the performance statistics from a different network element or group. You can also remove all currently displayed performance statistics from the list.

You can obtain additional details of an individual statistic by selecting the statistic from the list. The details of the statistic appear in the details box at the lower right of the dialog.

You can save the performance statistics to a file by selecting the Save button.

Time interval buttons

The time interval buttons at the top of the Performance Statistics dialog enable you to select the granularity of the performance statistics displayed in the list. The statistics can be displayed in daily increments or 15-minute increments.

Daily button

Select the Daily button to display Performance Statistics in daily increments. Eight days of performance statistics are displayed in the performance statistics list for each parameter. The column headings show the dates for which performance statistics are displayed. The most recent statistics are shown in the date column on the far right. The Showing intervals from field identifies the oldest interval currently displayed.

15 minute interval button

Select the 15 minute button to display Performance Statistics in 15-minute increments. Two hours of performance statistics, divided into fifteen minute increments, are displayed in the performance statistics list for each parameter. The column headings show the 15-minute increments for which the performance statistics are displayed. The most recent statistics are shown in the column on the far right. The Showing intervals field identifies the oldest interval currently displayed.

A maximum of 8 hours of data can be viewed for each statistic.

Display control buttons

You can move horizontally through the performance statistics list using the control buttons above the list. The control buttons include a slider, and four directional pan buttons. As you move through the list, the column headings and the Showing interval field display the performance statistics.

The list slider enables you to navigate horizontally through the performance statistics. As you drag the slider, the Showing intervals field identifies the time interval for which performance statistics are displayed. This field changes according to the direction you move the slider. When you release the mouse button, the statistics for that interval appear. The left and right end-points of the slider bar indicate the oldest and newest available performance statistics respectively.

The pan single column button (> and <) enables you to scroll the performance statistics list one column in the direction indicated by the button.

The pan multiple columns button (>> and <<) enables you to scroll the performance statistics list seven columns in the direction indicated by the button. One of the previous columns is retained for context.

Performance statistics list

The performance statistics list provides a one-line summary for each performance statistics parameter, unit, and network element. A separate line is provided for each parameter and unit combination. For example, a unit (any facility or equipment on a network element) can have a number of different parameters for which statistics have been collected. Each unit appears on a separate line.

The time interval headings at the top of the list depend on whether the Daily or 15 minute button is selected. If the Daily button is selected, performance statistics are displayed in eight daily increments. If the 15 minute button is selected, the performance statistics are displayed in eight increments of 15 minutes each.

The list is sorted in ascending order according to network element identifier, unit identifier, and finally by parameter name.

The performance statistics list is divided into the following columns of information.

Network Element	Shows the name of the network element for which the performance statistics are displayed.
Unit	Identifies the unit (facility or equipment) for which the performance statistics are displayed.
Parameter	Identifies the parameter for which the performance statistics are displayed.
Time interval columns	Shows the number of performance counts that occurred in the time interval specified. The column headings depend on the time interval selected.

Performance statistics data

The data in the Performance statistics list shows the performance counts for each parameter during the time intervals shown at the top of the dialog. The following data can appear in the Performance statistics list for a parameter.

1-9999	A number between 1 and 9999 indicates the count for a parameter during the given time interval.
engineering notation	Engineering notation (for example, 1.1E5) is displayed if the count is greater than 9999.
?	A question mark (?) appears if the accuracy of a count is suspect because an Invalid Data Flag has been set for the parameter by the network element.
.	A dot (.) appears if there are zero counts for a particular parameter.
blank	There are no counts available for the parameter in the time interval. To see if there are counts in other time intervals, double-click on the line containing the parameter.

Performance statistics list menu

The Performance statistics list menu provides an alternate method of navigating through the performance statistics. Once you select a specific item from the list, instead of using the slider or pan buttons to move through the statistics, you select commands in the performance statistics list menu.

List Options box

The buttons in the List Options box enable you to modify the performance statistics list.

Reset List button

The Reset List button clears the contents of the list for subsequent requests. The list remains empty until performance statistics are requested from another network element.

Replace statistics button

The Replace list with requested performance statistics button causes an implicit reset of the list when the statistics of another network element are requested. Performance statistics can be shown only for one network element at a time. Selecting this button has no effect on the performance statistics list until you select the parameters from the Performance Statistics Query dialog.

Add statistics button

The Add requested performance statistics to list button merges newly requested performance statistics from a network element with those currently shown in the list. Performance statistics for multiple network elements can be shown concurrently in the list. Selecting this button has no effect on the performance statistics list until you select the parameters from the Performance Statistics Query dialog.

Done button

The Done button clears all information from the performance statistics list and closes the dialog.

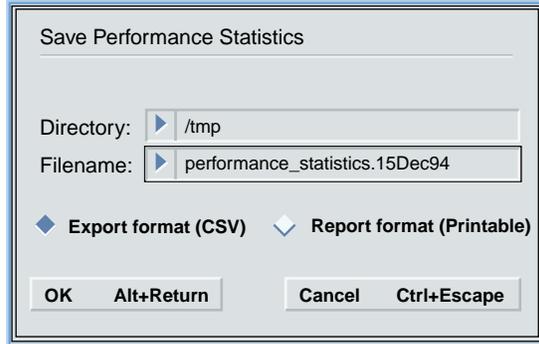
Save button

The Save button enables you to save the performance statistics to a data file. When you select this button, a Save Performance Statistics dialog appears, which enables you to specify the location, name, and format of the performance statistics file.

Save Performance Statistics dialog

The Save Performance Statistics dialog enables you to save the performance statistics to a data file on the S/DMS Network Manager hard disk. (See the following illustration.)

NM-10401.1



Only the performance statistics for the specified network elements are saved. If you initiate the save from the Query Performance statistics dialog, the statistics are not sorted when they are saved. If you initiate the save from the Performance Statistics display dialog, the statistics are sorted in the same manner as they are on the display.

You can choose the directory, file name, and desired format of the data file. The available formats are: export and report.

If a file with the same name already exists, you can overwrite the file, or append the new file to the existing file.

Export format

Select the Export format button to save statistics in a format suitable for export to another application, such as a spread-sheet or database program.

When you select the Export format button, the data is saved on S/DMS Network Manager in an ASCII file format as comma-separated values (CSV). One record is written to the export file for each performance parameter, facility, and network element requested.

Field Number	Field Name	Field Description
23-54	15 minute counts	The 32 15-minute counts - from oldest to most recent (for example, field 23 will contain the count for the 15-minute period starting at the time indicated by the "15 minute start time" field). Each count field is a positive integer.
55-62	Validity indicators for daily counts	Each field indicates the validity of the corresponding daily count (fields 15 to 22) and is one of: 0—corresponding count value is valid 1—corresponding count value is invalid 2—corresponding count value is unavailable
63-94	Validity indicators for 15 minute counts	Each field indicates the validity of the corresponding 15-minute count (fields 23 to 54) and is one of: 0—corresponding count value is valid 1—corresponding count value is invalid 2—corresponding count value is unavailable

Report format

You can save statistics in a report format by selecting the Report format button. The report format is an ASCII file format suitable for viewing, editing, or printing using the HP VUE File Manager or standard UNIX commands.

The following is an example of the performance statistic saved in report format.

```

Network element: 131 Sacramento          Parameter: Line Rx ES
Facility: DS3 G2 Port 1                Retrieval Time: 30 May 94 15:57:22

Daily Intervals
23 May 94 43      24 May 94 341      25 May 94 63      26 May 94 23
27 May 94 12      28 May 94 8       29 May 94 122     30 May 94 51

15 Minute Intervals
08:00 4          08:15 5          08:30 2?        08:45 9
09:00 .          09:15 .          09:30 1         09:45 .
10:00 .          10:15 .          10:30 1         10:45 .
11:00 .          11:15 .          11:30 .         11:45 .
12:00 .          12:15 .          12:30 .         12:45 1
13:00 .?        13:15 2          13:30 1         13:45 .
14:00 4          14:15 .          14:30 .         14:45 .
15:00 .          15:15 .          15:30 .         15:45 .
    
```

Monitoring performance

This chapter describes how to monitor a network for performance degradations using S/DMS Network Manager. The Graphical Network Browser (GNB) tool enables you to retrieve and display performance data from the network elements monitored by S/DMS Network Manager. S/DMS Network Manager performance monitoring can be performed only from GNB.

GNB provides a visible indication of the network elements affected by performance threshold crossings, allowing you to take preemptive action before a failure occurs. You can also retrieve and display performance and protection switching statistics that show the performance of the network elements over a period of time.

To view details about an alarm caused by a performance threshold crossing, see “Viewing threshold crossing details” in *S/DMS Network Manager Fault Management*, 323-4001-055.

Requirements

To perform the procedures in this chapter, you must do the following:

- read the conventions described in “About this document” on page vii
- read see “Understanding GNB” in *S/DMS Network Manager Fault Management*, 323-4001-055
- read “Understanding performance monitoring” on page 1-1
- ensure you have a userID and password that allow you access to GNB (admin or surveillance access class)
- log in to S/DMS Network Manager and open GNB. For more information, see “Logging in and opening an S/DMS Network Manager tool” in *S/DMS Network Manager Connectivity*, 323-4001-053.
- ensure that performance monitoring threshold crossings are provisioned as alarms at the network element. For Northern Telecom operations controllers (OPC), see *Performance Monitoring Procedures*, 323-nnnn-520.

- ensure that performance statistics collection is enabled on the controllers. For Northern Telecom OPCs, see “Configuring the OPC” in *S/DMS Network Manager Installation and Administration*, 323-4001-202.

Chapter task list

The following table lists the network monitoring tasks. These procedures can be performed at any time, in any order.

Tasks	Page
Retrieving performance statistics	2-3
Locating performance statistics	2-9
Updating the Performance Statistics dialog	2-12
Saving the performance statistics to a file	2-14

Procedure 2-1

Retrieving performance statistics

Use this procedure to retrieve a historical listing of performance statistics for specific network elements. Performance statistics include performance monitoring and protection switching statistics.

Performance statistics are gathered by the controllers from the network elements in their span of control. You can retrieve these statistics on command by querying the controllers. You can display the performance statistics in a Performance Statistics dialog, or save them to a data file.

You can initiate retrieval of the performance statistics two ways: by selecting a network element, or while viewing the threshold crossings in the Alarms dialog. The type of statistics retrieved by S/DMS Network Manager depends on how you initiate the retrieval.

If you use a network element to retrieve the performance statistics, you are presented with a Performance Statistics Query dialog. The Performance Statistics Query dialog enables you to select the exact statistics you want to retrieve for the network element. If you use the Alarms dialog, you can retrieve the performance statistics for a specific unit in a network element on which a threshold has been crossed.

Additional Requirements

In addition to the requirements described on page 2-1, the following condition must be satisfied to complete this procedure:

- ensure that performance statistics collection is enabled on the OPCs. For more information, see “Configuring the OPC” in *S/DMS Network Manager Installation and Administration*, 323-4001-202.

2-4 Monitoring performance

Procedure 2-1 (continued)
Retrieving performance statistics

Action

Step	Action						
1	<p>You can retrieve performance statistics for a specific unit, or you can retrieve specific types of performance statistics for all units in a particular network element.</p> <p>The Alarms dialog enables you to retrieve all performance statistics for specific units that have active threshold crossings. The Performance Statistics Query dialog enables you to select specific types of performance statistics.</p> <table border="1"><thead><tr><th>If you want to</th><th>Then</th></tr></thead><tbody><tr><td>retrieve all performance statistics for a specific unit</td><td>step 2</td></tr><tr><td>retrieve specific types of performance statistics</td><td>step 5</td></tr></tbody></table>	If you want to	Then	retrieve all performance statistics for a specific unit	step 2	retrieve specific types of performance statistics	step 5
If you want to	Then						
retrieve all performance statistics for a specific unit	step 2						
retrieve specific types of performance statistics	step 5						
2	<p>Open the Alarms dialog.</p> <p>For more information, see “Viewing threshold crossing details” in <i>S/DMS Network Manager Fault Management</i>, 323-4001-055.</p>						
3	<p>Select the threshold crossing alarm for which you want to display performance statistics for the associated unit.</p> <p><i>The unit field identifies the specific facility or equipment on the network element affected by the threshold crossing. Depending on the type of threshold crossing, the Unit field can include the hardware type, the circuit pack group name, the port number, or the channel number.</i></p>						
4	<p>Display the alarms list menu and select the Show Performance Statistics command.</p> <p>Note: This command is enabled only for alarms caused by a threshold crossing.</p> <p><i>A progress dialog appears. The progress dialog shows the network element for which the statistics are being retrieved, and the percentage of retrieval that is complete.</i></p> <p><i>Once all requested statistics are retrieved, the Performance Statistics dialog appears, and shows the performance statistics for the unit. By default, the performance statistics for the selected unit are displayed in 15-minute intervals.</i></p>						

—continued—

Procedure 2-1 (continued)
Retrieving performance statistics

Step Action

NM-10396.1 (R6)

Performance Statistics

Daily 15 minute
 Showing counts from: 13:00 12Jan96

Network Element	Unit	Parameter	13:00-13:15	13:15-13:30	13:30-13:45	13:45-14:00	14:00-14:15	14:15-14:30	14:30-14:45
1 Alpha	DS1 012 1	Line Rx CV	.	.	.	.	.	.	.
1 Alpha	DS1 012 1	Line Rx ES	900	900	900	900	760	.	.
1 Alpha	DS1 012 1	Line Rx SES	900	900	900	900	760	.	.
1 Alpha	DS1 012 1	Path Rx CV	.	.	.	.	.	.	.
1 Alpha	DS1 012 1	Path Rx ES	.	.	.	.	.	.	.
1 Alpha	DS1 012 1	Path Rx FC	.	.	.	.	.	.	.
1 Alpha	DS1 012 1	Path Rx SAS	.	.	.	.	.	.	.
1 Alpha	DS1 012 1	Path Rx SES	.	.	.	.	.	.	.
1 Alpha	DS1 012 1	Path Rx UAS	900	900	900	900	900	900	900
1 Alpha	DS1 012 2	Line Rx CV	.	.	.	.	.	.	.
1 Alpha	DS1 012 2	Line Rx ES	900	900	900	900	837	900	900
1 Alpha	DS1 012 2	Line Rx SES	900	900	900	900	837	900	900
1 Alpha	DS1 012 2	Path Rx CV	.	.	.	.	.	.	.
1 Alpha	DS1 012 2	Path Rx ES	.	.	.	.	.	.	.
1 Alpha	DS1 012 2	Path Rx FC	.	.	.	.	.	.	.
1 Alpha	DS1 012 2	Path Rx SAS	.	.	.	.	.	.	.

List Options

Replace list with requested statistics
 Add requested statistics to list

Go to step 13.

- 5 Move to the network element for which you want performance statistics and select the network element.
- 6 Display the Performance menu and select the **Query performance statistics** command.

The Performance Statistics Query dialog appears.

The Performance Statistics Query dialog enables you to specify the exact statistics you want S/DMS Network Manager to retrieve for a particular network element.

This dialog enables you to select the type of performance statistic, the units in the network element for which you want the performance statistics, and the parameters for which you want statistics.

The selections are data-driven. The units and parameters available for you to choose from depend on the function of the selected network element and the category and unit type you choose.

—continued—

2-6 Monitoring performance

Procedure 2-1 (continued)
Retrieving performance statistics

Step	Action
7	<p>Move to the Category selection box and select the button corresponding to the type of performance statistics you want to display.</p> <p><i>There are two performance statistics categories: performance monitoring and Protection switching.</i></p> <p><i>Select the Performance monitoring button to view performance statistics. Performance statistics are maintained on a per facility basis for different parts of the transmission path (the section, line and path) and identify the number of times the performance thresholds have been exceeded.</i></p> <p><i>Select the Protection switching button if you want to view protection switching statistics. Protection switching statistics are maintained on a per circuit pack group basis, and identify the number of automatic and manual protection switch requests and completions on the network element.</i></p>
8	<p>Move to the Units selection box and select the unit Type, Circuit pack group, and port for which you want to display performance statistics.</p> <p><i>The unit is the actual facility or equipment on the network element for which you want performance monitoring or protection switching statistics.</i></p> <p>Note 1: If you want performance statistics for all units in the specified network element, select the All button above the Units selection box. Otherwise, select a specific unit type, circuit pack group, and port for which you want to view performance statistics.</p> <p>Note 2: You can type the information in the Unit fields, or you can use the data selectors at the right of each field to select the desired Type, Circuit pack group and Port.</p> <p>Note 3: Depending on the category, unit type and circuit pack group you select, the Port field might not appear.</p>
9	<p>Move to the Performance Parameters selection box and select the specific parameters for which you want to view performance statistics.</p> <p><i>The performance parameters are the individual types of statistics that can be retrieved for the specified network element and unit.</i></p> <p>Note 1: To view performance statistics for all available parameters, select the All button above the Performance Parameters selection box. Otherwise, select the individual parameters for which you want to view performance statistics</p> <p>Note 2: The parameters listed in the Performance Parameters selection box depend on the Category, unit type and circuit pack group you select.</p>

—continued—

 Procedure 2-1 (continued)
Retrieving performance statistics

Step	Action						
10	<p>You can display the statistics in the Performance Statistics display dialog, or save the statistics to a data file for further processing.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">If you want to</th> <th style="text-align: left;">Then</th> </tr> </thead> <tbody> <tr> <td>display the performance statistics in the Performance Statistics dialog</td> <td>step 11</td> </tr> <tr> <td>save the performance statistics in a data file</td> <td>Procedure 2-4, "Saving performance statistics to a file"</td> </tr> </tbody> </table>	If you want to	Then	display the performance statistics in the Performance Statistics dialog	step 11	save the performance statistics in a data file	Procedure 2-4, "Saving performance statistics to a file"
If you want to	Then						
display the performance statistics in the Performance Statistics dialog	step 11						
save the performance statistics in a data file	Procedure 2-4, "Saving performance statistics to a file"						
11	Select the Display data on screen button.						
12	<p>Select the OK button to initiate the retrieval of the selected performance parameters from the specified network element.</p> <p><i>A progress dialog appears. The progress dialog shows the network element for which the statistics are being retrieved, and the percentage of the retrieval that is complete.</i></p> <p><i>Once all requested statistics are retrieved, the Performance Statistics dialog appears. By default, the performance statistics are displayed in 15 minute intervals.</i></p>						

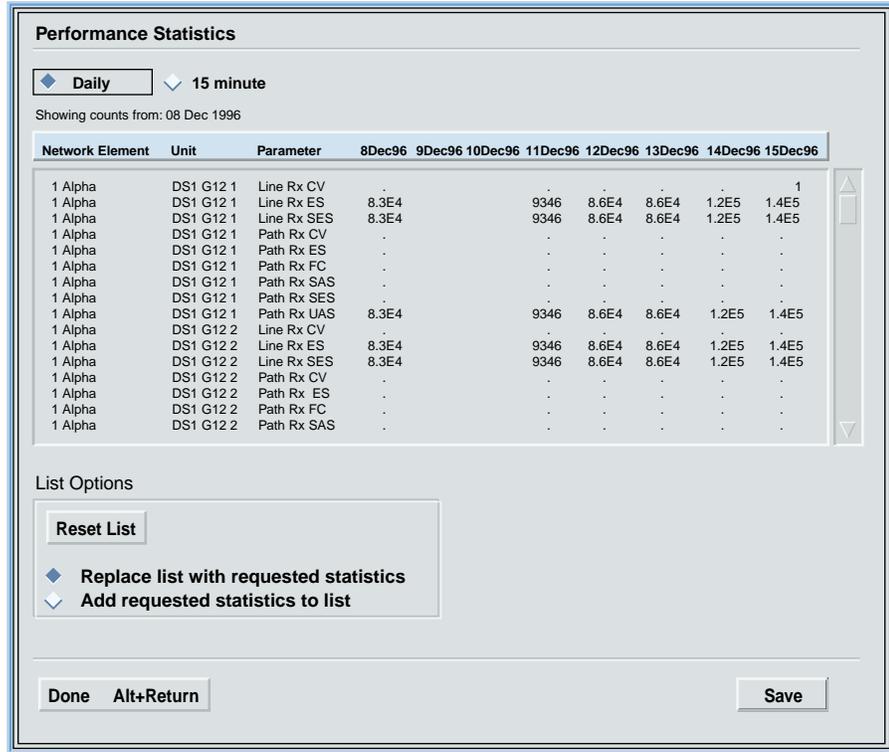
—continued—

2-8 Monitoring performance

Procedure 2-1 (continued)
Retrieving performance statistics

- | Step | Action |
|------|--|
| 13 | To display the performance statistics in daily intervals, select the Daily button.
<i>The Performance Statistics list shows the statistics in daily intervals.</i> |

NM-10396.1 (R6)



- 14 You can add the statistics of other network elements to the list, or replace the current statistics with those of another network element or unit. You can also navigate through the list for particular statistics if they are not immediately visible. If desired, you can save the statistics for further processing.

If you want to	Then
locate specific statistics	Procedure 2-2, "Locating performance statistics"
add statistics to the list or replace the statistics	Procedure 2-3, "Updating the Performance Statistics dialog"
save the performance statistics	Procedure 2-4, "Saving performance statistics to a file"
close the Performance Statistics dialog	step 15

- 15 Select the Performance Statistics dialog **Done** button.
The Performance Statistics dialog is removed from the display.

—end—

Procedure 2-2

Locating performance statistics

Use this procedure to move through the data in the Performance Statistics display dialog and locate the statistics that are of interest.

The time intervals for which performance statistics are gathered from the OPCs can vary widely. Therefore, the statistics for a particular parameter may not be immediately visible in the Performance Statistics dialog.

The Performance Statistics dialog provides control buttons and list menu commands that enable you to move through the statistics and locate the desired statistics.

Before starting this procedure, read “Requirements” on page 2-1.

Action

Step	Action														
1	If you have not already done so, open the Performance Statistics dialog. For more information, see Procedure 2-1, “Retrieving performance statistics”. <i>The Performance Statistics dialog appears.</i>														
2	You can move backwards and forwards through the time intervals and locate the statistics of interest. You can also move directly to the newest or oldest statistics for a particular unit.														
	<table border="1"> <thead> <tr> <th>If you want to</th> <th>Then</th> </tr> </thead> <tbody> <tr> <td>move the list seven time intervals in either direction</td> <td>step 3</td> </tr> <tr> <td>move the list one time interval in either direction</td> <td>step 4</td> </tr> <tr> <td>pan through the list</td> <td>step 5</td> </tr> <tr> <td>show the newest statistics for a particular unit</td> <td>step 7</td> </tr> <tr> <td>show the oldest statistics for a particular unit</td> <td>step 9</td> </tr> <tr> <td>close the Performance Statistics dialog</td> <td>step 11</td> </tr> </tbody> </table>	If you want to	Then	move the list seven time intervals in either direction	step 3	move the list one time interval in either direction	step 4	pan through the list	step 5	show the newest statistics for a particular unit	step 7	show the oldest statistics for a particular unit	step 9	close the Performance Statistics dialog	step 11
If you want to	Then														
move the list seven time intervals in either direction	step 3														
move the list one time interval in either direction	step 4														
pan through the list	step 5														
show the newest statistics for a particular unit	step 7														
show the oldest statistics for a particular unit	step 9														
close the Performance Statistics dialog	step 11														

—continued—

2-10 Monitoring performance

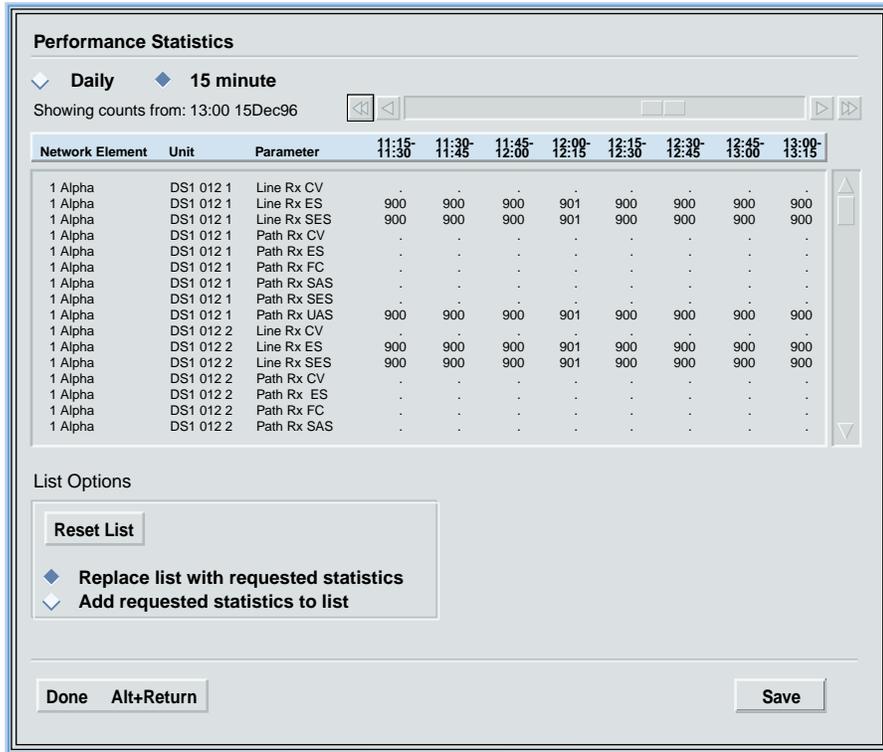
Procedure 2-2 (continued)
Locating performance statistics

Step Action

- 3 Select the pan multiple column button (>> or <<) corresponding to the direction in which you want to move.

The Showing counts from field changes to indicate the oldest time interval (time or day) for which performance statistics are displayed. The performance statistics list moves seven columns in the direction of the selected control button. One column of the previous performance statistics is retained for context.

NM-10398.1 (R6)



- Go to step 2.
- 4 Select the pan single column button (> or <) corresponding to the direction in which you want to move.

—continued—

Procedure 2-2 (continued)
Locating performance statistics

Step	Action
	<p><i>The Showing counts from field changes to indicate the oldest timer interval (time or day) for which performance statistics are displayed. The performance statistics list moves one column in the direction of the selected control button.</i></p> <p>Go to step 2.</p>
5	<p>Drag the slider button in the direction you want to move.</p> <p><i>The Showing intervals from field changes to indicate the oldest timer interval (time or day) for which performance statistics are displayed if you release the slider button.</i></p>
6	<p>Release the slider button when the desired timer interval appears in the Showing intervals from field.</p> <p><i>The list displays the eight time intervals that correspond to the new position of the slider.</i></p> <p>Go to step 2.</p>
7	<p>Select the unit for which you want to view the newest performance statistics and display the Performance Statistics list menu.</p> <p><i>The Performance Statistics list menu appears.</i></p>
8	<p>Select the Show newest statistics command.</p> <p><i>The newest eight columns of performance statistics for the selected unit appear. The Showing intervals from field changes to indicate the oldest time interval (time or day) for which performance statistics are displayed.</i></p> <p>Note: Double-clicking on a unit is equivalent to selecting the Show newest statistics command from the Performance Statistics list menu. When you double-click on a unit, the newest eight columns of performance statistics for the unit appear, and the Showing intervals from field changes to indicate the oldest timer interval (time or day) for which performance statistics are displayed.</p> <p>Go to step 2.</p>
9	<p>Select the unit for which you want to view the oldest performance statistics and display the Performance Statistics list menu.</p> <p><i>The Performance Statistics list menu appears.</i></p>
10	<p>Select the Show oldest statistics command.</p> <p><i>The oldest eight columns of performance statistics for the selected unit appear. The Showing intervals from field changes to indicate the oldest time interval (time or day) for which performance statistics are displayed.</i></p> <p>Go to step 2.</p>
11	<p>Select the Done button.</p> <p><i>The Performance Statistics dialog is removed from the display.</i></p>

—end—

Procedure 2-3 Updating the Performance Statistics dialog

Use this procedure to update the Performance Statistics dialog, or to display the performance statistics for other network elements.

This procedure describes how to add statistics to the current list, and how to replace the current statistics with those of another network element.

Additional Requirements

In addition to the requirements described on page 2-1, the following condition must be satisfied to complete this procedure:

- ensure that performance statistics collection is enabled on the controllers. For Northern Telecom operations controllers (OPC), see “Configuring the OPC” in *S/DMS Network Manager Installation and Administration*, 323-4001-202.

Action

Step	Action										
1	<p>If you have not already done so, open the Performance Statistics display dialog.</p> <p>For more information, see Procedure 2-1, “Retrieving performance statistics”. <i>The Performance Statistics dialog appears.</i></p>										
2	<p>The List Options buttons enable you to update the performance statistics list. You can add the performance statistics of another network element or unit to the list, or replace the current statistics with those of another network element or unit. You can also reset the list and remove all statistics.</p> <table><thead><tr><th>If you want to</th><th>Then</th></tr></thead><tbody><tr><td>reset the performance statistics list</td><td>step 3</td></tr><tr><td>replace the current statistics with those of another network element or unit</td><td>step 4</td></tr><tr><td>add the performance statistics of another network element or unit to the list</td><td>step 5</td></tr><tr><td>close the Performance Statistics dialog</td><td>step 7</td></tr></tbody></table>	If you want to	Then	reset the performance statistics list	step 3	replace the current statistics with those of another network element or unit	step 4	add the performance statistics of another network element or unit to the list	step 5	close the Performance Statistics dialog	step 7
If you want to	Then										
reset the performance statistics list	step 3										
replace the current statistics with those of another network element or unit	step 4										
add the performance statistics of another network element or unit to the list	step 5										
close the Performance Statistics dialog	step 7										
3	<p>Select the Reset List button.</p> <p><i>All entries in the performance statistics list are removed.</i></p> <p>Go to step 2.</p>										

—continued—

Procedure 2-3 (continued)

Updating the Performance Statistics dialog

Step	Action
4	<p>Select the Replace list with requested performance statistics radio button.</p> <p><i>The button is highlighted.</i></p> <p><i>The next time you select the Query Performance Statistics command from a network element Performance menu, or the Show Performance Statistics command from the Alarms dialog, the performance statistics currently shown in the list are replaced with the statistics for the selected network element or unit.</i></p> <p>Go to step 6.</p>
5	<p>Select the Add requested performance statistics to list radio button.</p> <p><i>The button is highlighted.</i></p> <p><i>The next time you select the Query Performance Statistics command from a network element Performance menu, or the Show Performance Statistics command from the Alarms dialog, the list shows the current performance statistics, plus the performance statistics from the selected network element or unit.</i></p>
6	<p>Select the network element from the network or subnetwork window, or the unit from the Alarms dialog, for which you want to retrieve performance statistics.</p> <p>a. If you select a network element from the network or subnetwork window, select the Query Performance Statistics command from the network element Performance menu.</p> <p><i>The Query Performance Statistics dialog appears. Use this dialog to specify the exact card type and parameters for which you want performance statistics.</i></p> <p>For more information, see Procedure 2-1, "Retrieving performance statistics".</p> <p><i>The Performance Statistics dialog appears.</i></p> <p>b. If you select a unit from the Alarms dialog, select the Show Performance Statistics command from the Alarms dialog list menu.</p> <p><i>The Performance Statistics dialog appears.</i></p> <p><i>If you select the Replace button, the new statistics replace the previous statistics in the Performance Statistics dialog.</i></p> <p><i>If you select the Add button, the new statistics are added to the previous statistics in the Performance Statistics dialog.</i></p>
7	<p>Select the Done button when you finish with the Performance Statistics dialog.</p> <p><i>The Performance Statistics dialog is removed from the display.</i></p>

—end—

Procedure 2-4

Saving performance statistics to a file

Use this procedure to save performance statistics to a data file. The statistics are saved on the S/DMS Network Manager hard disk in a format suitable for export to another application such as a spreadsheet, or for report generation.

There are two places from which you can save the performance statistics: the Performance Statistics Query dialog and the Performance Statistics display dialog.

If you use the Performance Statistics Query dialog to save the statistics:

- the performance counts for all specified parameters are saved without being displayed, and
- no sorting is performed on the statistics when they are saved.

If you use the Performance Statistics display dialog to save the statistics:

- all statistics that can be viewed in the dialog are saved, and
- the statistics are sorted in the same manner as displayed.

Before starting this procedure, read “Requirements” on page 2-1.

Action

Step	Action						
1	You can save the performance statistics sorted, or unsorted. <table><thead><tr><th>If you want the performance statistics</th><th>Then</th></tr></thead><tbody><tr><td>unsorted when saved</td><td>step 2</td></tr><tr><td>sorted when saved</td><td>step 6</td></tr></tbody></table>	If you want the performance statistics	Then	unsorted when saved	step 2	sorted when saved	step 6
If you want the performance statistics	Then						
unsorted when saved	step 2						
sorted when saved	step 6						
2	If you have not already done so, open the Performance Statistics Query dialog. For more information, see Procedure 2-1, “Retrieving performance statistics”.						
3	Select the performance parameters for which you want the statistics saved. <i>To learn more about selecting parameters in the Performance Statistics Query dialog, see Procedure 2-1, “Retrieving performance statistics”.</i>						
4	Select the Save data to file button.						

—continued—

 Procedure 2-4 (continued)

Saving performance statistics to a file

Step	Action								
5	Select the OK button. <i>The Performance Statistics Query dialog remains on the display.</i> Go to step 8.								
6	If you have not already done so, open the Performance Statistics Display dialog. For more information, see Procedure 2-1, "Retrieving performance statistics".								
7	Select the Save button.								
8	The Save Performance Statistics dialog appears. <i>The statistics are saved in the directory, file name, and format you specify in the Save Performance Statistics dialog.</i>								
9	Move to the Directory field and type the name of the directory in which you want to save the statistics. Note 1: The first time this dialog is displayed, the Directory field defaults to the directory set up on the workstation to temporarily store data (for example, a directory called /tmp). If desired, you can edit the directory name. Note 2: If you specify a directory that does not exist, S/DMS Network Manager displays a warning dialog when you select the OK button in the Save dialog.								
10	Move to the File field and type the name of the file in which you want to save the statistics. Note 1: A default file name appears in the File field. The default is the name of the file used for the previous save operation. If desired, you can edit the file name. Note 2: If there is a file in the specified directory with the same name, a confirmation dialog appears when you select the OK button.								
11	There are two file formats in which you can save the performance statistics: export format or report format. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="text-align: left;">If you want to</th> <th style="text-align: left;">Then</th> </tr> </thead> <tbody> <tr> <td>save the performance statistics in export format</td> <td>step 12</td> </tr> <tr> <td>save the performance statistics in report format</td> <td>step 13</td> </tr> <tr> <td>cancel the save operation</td> <td>step 14</td> </tr> </tbody> </table>	If you want to	Then	save the performance statistics in export format	step 12	save the performance statistics in report format	step 13	cancel the save operation	step 14
If you want to	Then								
save the performance statistics in export format	step 12								
save the performance statistics in report format	step 13								
cancel the save operation	step 14								

—continued—

Procedure 2-4 (continued)

Saving performance statistics to a file

Step	Action
12	Select the Export format radio button. <i>The performance statistics are saved in a format suitable for export to another application for further processing (for example, a spreadsheet program). One record is written to the export file for each performance parameter, facility, and network element.</i> Go to step 15.
13	Select the Report format radio button. <i>The performance statistics are saved in a format suitable for viewing, editing, or printing using the HP VUE File Manager or standard UNIX commands.</i>
14	To proceed with the save operation, continue with step 15. To cancel the save operation, select the Cancel button in the Save Performance Statistics dialog. <i>The Save Performance Statistics dialog is removed from the display.</i> Go to step 1.
15	Select the OK button. <i>A progress dialog appears while S/DMS Network Manager saves the performance statistics in the specified directory. When the save is complete, the Save Performance Statistics dialog is removed from the display.</i> Note: If there is another file in the specified directory with the same name, a confirmation dialog appears. Use the confirmation dialog to overwrite the existing file, or to append the file you are saving to the existing file.

—end—

List of terms

ABM	Access Bandwidth Manager
ADM	add-drop multiplexer
alarm	a condition, such as a fault, that sends a signal to an indicator
AN	S/DMS AccessNode
ASCII	American Standard Code for Information Interchange
balloon	a balloon-shaped object that appears on a node to indicate alarm counts
BLSR	bidirectional line switched ring
CCITT	Consultative Committee on International Telegraphy and Telephony
CLFI	Common Language Facility Identifier
CMT	character-mode terminal
CNet	control network
CPC	corporate product code

CPG	circuit pack group
CSM	centralized software management
DARPA	Defense Advanced Research Projects Agency
DDS	digital data storage (tape)
DMS	Digital Multiplex System
DMS MAP	Digital Multiplex System Maintenance Access Position
DV45	Digital Video Codec
EDA	external device access
ftp	file transfer protocol
GNB	Graphical Network Browser
GNE	Graphical Network Editor
group	a logical collection of network elements
GUI	Graphical User Interface
highlighting	the graphical application of color to a node to indicate a certain alarm severity
HP	Hewlett-Packard
HP VUE	Hewlett-Packard Visual User Environment

indicator	an audible or visible alert to an alarm or status condition
ISO	International Standards Organization
LAN	local area network
log in	the action of opening a user interface element
log out	the action of closing a user interface element
LTE	line terminating equipment
MAPCI	Maintenance and Administration Position Command Interpreter
menu	a list of action options
menu bar	the portion of the graphical user interface that contains the status indicator, and the window menus
MOA	Managed Object Agent
network element (NE)	a collection of equipment at one location that functions and is administered as a single entity
node	graphic object representing groups or single network elements
NTP	Northern Telecom Publication
NUM	Network Upgrade Manager, an OPC tool
OAM&P	operations, administration, maintenance, and provisioning

OC-3	optical signal carrier level 3 (at 155.520 Mb/s)
OC-12	optical signal carrier level 12 (at 622.080 Mb/s)
OC-48	optical signal carrier 48 (at 2488 Mb/s)
OC-192	optical signal carrier 192 (at 9953.280 Mb/s)
OPC	operations controller
OSI	Open Systems Interconnect
PEC	product engineering code
PM	performance monitoring
SAM	System Administration Manager
S/DMS	Synchronous/Digital Multiplexing System
SOC	span of control
SONET	Synchronous Optical Network is a standard for optical transport that defines optical carrier levels and their electrical equivalent for synchronous transport signals. The SONET standard allows for a multivendor environment, positioning the network to transport new services, synchronous networking, and enhanced operations, administration, maintenance and provisioning (OAM&P).
span	all network elements under the control of a single operations controller (OPC)
STS-1	Synchronous Transport Signal (at 51.84 Mb/s)

subnetwork	a graphical collection of objects organized into groups to represent the network elements monitored by S/DMS Network Manager.
system	network elements associated with the same payload
TA-1230 ring	Bellcore standard for SONET BLSR Equipment Criteria, TA-NWT-001230 (issue 2)
TCP/IP	Transmission Control Protocol/Internet Protocol
UDLC	Universal Digital Loop Carrier
UI	user interface
USM	User Session Manager
VTBM	Virtual Tributary Bandwidth Management
window	a rectangular area of a display screen used to contain a particular application
WAN	wide area network
X.25	CCITT protocol used for wide-area packet switching. OSI Data communication standard

Index

C

Conventions used in this guide viii

G

GNB

- monitoring a network 2-1
- performance monitoring 1-1, 2-1

M

Monitoring

- network 2-1

N

Network configuration

- monitoring 2-1

P

Performance monitoring

- conditions 1-1
- function 1-1
- parameters 1-4
- performance statistics 1-6
- protection switching 1-5
- threshold crossings 1-2

Performance statistics 1-6

- data 1-12

- list 1-11

- menu 1-12

- locating 2-9

- performance monitoring 1-3

- parameters 1-4

- protection switching 1-3

- parameters 1-5

- retrieving 2-3

- saving 2-14

- updating 2-12

Protection switching 1-3, 1-5

R

References ix

Regional Service Centers (United States) xi

S

Service

- degradation protection 1-1

Support, Technical

- Canada xii

- United States xi

T

Technical Assistance Service Centers

- (Canada) xii

Technical support xi

- Canada xii

- United States xi

Threshold crossings 1-2

SONET Transmission Products

S/DMS Network Manager Performance Management

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