Lucent Technologies
Bell Labs Innovations

Navis™ Optical Element Management System (EMS)

Maintenance Guide

Release 7.0

190-224-150R7.0
Issue 1
January 2002

Notice

Every effort was made to ensure that the information in this document was complete and accurate at the time of printing. Information is subject to change; however, Lucent Technologies assumes no responsibility for any errors that may appear in this document.

Mandatory customer information

FCC Warning Statement

This equipment generates, uses, and can radiate radio frequency energy. If not installed, used, and maintained in accordance with the instruction manual, it may cause interference to radio communications. Operation of this equipment in a residential area may cause interference, in which case users will be required to take whatever measures may be required to correct the interference at their own expense.

Trademarks

WaveStar is a registered trademark of Lucent Technologies.

Navis is a trademark of Lucent Technologies.

INFORMIX is a registered trademark of Informix Software, Inc.

Lantronix is a registered trademark of Lantronix.

Microsoft is a registered trademark of Microsoft Corporation.

Windows is a trademark of Microsoft Corporation.

Hewlett-Packard is a registered trademark of Hewlett-Packard

HP is a registered trademark of Hewlett-Packard

HP-UX is a registered trademark of Hewlett-Packard

Pentium is a registered trademark of Intel Corporation

UNIX is a registered trademark of X/Open Company Limited

Limited Warranty

Lucent Technologies provides a limited warranty for this product. For more information, consult your local Account Representative.

Ordering information

The ordering number for this document is 190-224-150R7.0.

To order this document within the continental United States, call 1-888-LUCENT8 (1–888–582–3688), prompt 1.

To order this document outside the continental United States, call your Lucent customer team representative.

Support

Information product support

You may call the toll-free hotline at 1–866–LUCENT8 (1–866-582-3688) for customer assistance and troubleshooting 24 hours a day. See your Lucent Technologies account representative for further details.

Technical support

In the continental United States, when you need additional technical assistance, the Lucent Technologies Global TSS Contact Center is your first point of contact. Technical assistance is available 24 hours a day, 7 days a week. Contact the Global TSS Contact Center at 1–866–LUCENT8 (1–866-582-3688) .

Outside the continental United States, contact your Local Customer Support (LCS) or the support organization designated by your Lucent customer team representative. If you are unsure of who to call, contact the Global TSS Contact Center at 1–630–224–4672.

Lucent Technologies values your comments!

Lucent Technologies
Bell Labs Innovations

Navis™ Optical Element Management System (EMS)
Maintenance Guide
Release 7.0
190-224-150R7.0 Issue 1 January 2002

Lucent Technologies welcomes your comments on this information product. Your opinion is of great value and helps us to improve.

1. Was the information product:

	Yes	*No*	*Not applicable*
In the language of your choice?	☐	☐	☐
In the desired media (paper, CD-ROM, etc.)?	☐	☐	☐
Available when you needed it?	☐	☐	☐

Please provide any additional comments:

_____

_____

2. Please rate the effectiveness of this information product:

	Excellent	*More than satisfactory*	*Satisfactory*	*Less than satisfactory*	*Unsatisfactory*	*Not applicable*
Ease of use	☐	☐	☐	☐	☐	☐
Level of detail	☐	☐	☐	☐	☐	☐
Readability and clarity	☐	☐	☐	☐	☐	☐
Organization	☐	☐	☐	☐	☐	☐
Completeness	☐	☐	☐	☐	☐	☐
Technical accuracy	☐	☐	☐	☐	☐	☐
Quality of translation	☐	☐	☐	☐	☐	☐
Appearance	☐	☐	☐	☐	☐	☐

If your response to any of the above questions is "*Less than satisfactory*" or "*Unsatisfactory,*" please explain your rating.

_____

_____

3. If you could change one thing about this information product, what would it be?

_____

_____

4. Please write any other comments about this information product:

_____

_____

Please complete the following if we may contact you for clarification or to address your concerns:

Name: _____ Date: _____

Company/organization: _____ Telephone number: _____

Address: _____

Email address: _____ Job function: _____

If you choose to complete this form online, go to http://www.lucent-info.com/comments
Otherwise fax to 407 767 2760 (U.S.) or +1 407 767 2760 (outside the U.S.) or email comments to ctiphotline@lucent.com

Lucent Technologies values your comments!

Lucent Technologies
Bell Labs Innovations

Navis™ Optical Element Management System (EMS)
Maintenance Guide
Release 7.0
190-224-150R7.0 Issue 1 January 2002

Lucent Technologies welcomes your comments on this information product. Your opinion is of great value and helps us to improve.

1. Was the information product:

	Yes	*No*	*Not applicable*
In the language of your choice?	☐	☐	☐
In the desired media (paper, CD-ROM, etc.)?	☐	☐	☐
Available when you needed it?	☐	☐	☐

Please provide any additional comments:

_____

_____

2. Please rate the effectiveness of this information product:

	Excellent	*More than satisfactory*	*Satisfactory*	*Less than satisfactory*	*Unsatisfactory*	*Not applicable*
Ease of use	☐	☐	☐	☐	☐	☐
Level of detail	☐	☐	☐	☐	☐	☐
Readability and clarity	☐	☐	☐	☐	☐	☐
Organization	☐	☐	☐	☐	☐	☐
Completeness	☐	☐	☐	☐	☐	☐
Technical accuracy	☐	☐	☐	☐	☐	☐
Quality of translation	☐	☐	☐	☐	☐	☐
Appearance	☐	☐	☐	☐	☐	☐

If your response to any of the above questions is "*Less than satisfactory*" or "*Unsatisfactory,*" please explain your rating.

_____

_____

3. If you could change one thing about this information product, what would it be?

_____

_____

4. Please write any other comments about this information product:

_____

_____

Please complete the following if we may contact you for clarification or to address your concerns:

Name: _____ Date: _____

Company/organization: _____ Telephone number: _____

Address: _____

Email address: _____ Job function: _____

If you choose to complete this form online, go to http://www.lucent-info.com/comments
Otherwise fax to 407 767 2760 (U.S.) or +1 407 767 2760 (outside the U.S.) or email comments to ctiphotline@lucent.com

Contents

2 Alarm Management

List of Figures

List of Tables

About this information product

Purpose

This chapter is a preface that provides an overview of this information product.

The purpose of this Maintenance Guide is to instruct users how to maintain network elements managed by the Navis™ Optical EMS. It provides users with the information and procedures necessary to:

- Retrieve, report, and log alarms and events generated by the Navis™ Optical EMS and managed network elements
- Acknowledge alarms and events occurring in the managed network
- Collect and view performance monitoring (PM) data from network elements

Reason for reissue

This Maintenance Guide, Issue 1.0, is a revised document that supports the Navis™ Optical EMS, Release 7.0. This document has been reissued to provide updated information on Release 7.0 features.

Safety labels

N/A

Intended audience

This guide is written primarily for operations personnel who will be using the Navis™ Optical EMS to maintain NE subnetworks and NE equipment.

How to use this information product

This section provides information to assist users of this information product.

The following table describes the structure and content of each chapter in this Guide.

Section	Title	Description
Preface	"About this information product"	Describes this document's purpose and intended audience, how to use the document, and how to comment on it
Chapter 1	Chapter 1, "System Introduction"	Provides a general introduction to Navis™ Optical EMS and its functions/features
Chapter 2	Chapter 2, "Alarm Management"	Describes tasks performed to manage alarms and transient condition (TC) events generated by the Navis™ Optical EMS and the network elements it manages
Chapter 3	Chapter 3, "Performance Management"	Describes tasks performed to collect and view performance monitoring (PM) data for network elements managed by the Navis™ Optical EMS

Section	Title	Description
Chapter 4	Chapter 4, “Alarm Management Concepts”	Describes the monitoring alarms and conditions in a subnetwork of network elements managed by the Navis™ Optical EMS. It also provides general information about the Log Management features provided by the Navis™ Optical EMS for displaying and viewing alarm data, NE commands/responses, and other messages generated by the Navis™ Optical EMS and managed network elements.
Chapter 5	Chapter 5, “Performance Management Concepts”	Describes the Performance Management features of the Navis™ Optical EMS
Chapter 6	Chapter 6, “Data Extraction Tool”	Provides information about the Data Extraction Tool

Conventions used

Menu and submenu selections from the Navis™ Optical EMS Map window are shown in boldface type.

The terms “choose” and “select” are used interchangeably throughout this Guide. Both terms represent the following operations:

- Activating a button, such as OK, Cancel, or Help
- Activating a menu, such as a pull-down menu on the menu bar
- Selecting an item from a menu
- Selecting an NE/aggregate symbol on the Map window

- Selecting an item from a scroll list
- Moving window focus to a text field to type an entry in the field

Related documentation

This information product is part of a set of documents that supports the Navis™ Optical EMS.

List of documents

The document set that supports Navis™ Optical EMS includes:

- *Navis™ Optical EMS Maintenance Guide*—this document instructs users on how to maintain network elements managed by Navis™ Optical EMS
- *Navis™ Optical EMS Administration Guide*—this document instructs users on how to administer Navis™ Optical EMS and the managed network elements
- *Navis™ Optical EMS Provisioning Guid*e—this document instructs users how to use the Navis™ Optical EMS to provision the managed network elements
- *Navis™ Optical EMS Installation Guide*—this document instructs system administrators and other operations personnel how to install the Navis™ Optical EMS
- *Navis™ Optical EMS Applications and Planning Guide*—this document provides users with information used to understand the applications for Navis™ Optical EMS, plan their use of the Navis™ Optical EMS, and understand what components must be ordered for the Navis™ Optical EMS application
- *Navis™ Optical EMS Terminology Guide*—this document is a comprehensive glossary of terms and acronyms related to the Navis™ Optical EMS and its managed network elements

On-line documentation

Online versions of the document set listed above (except for the *Navis™ Optical EMS Terminology Guide*are available through the Help menu option on the Map window main menu in the Navis™ Optical EMS Graphical User Interface (GUI).

On-line help

The Navis™ Optical EMS software includes on-line help for each window with a Help button. Each window has an associated help screen that describes the purpose of the window, basic window navigation, field descriptions, and button functions.

How to comment

Customer satisfaction is extremely important to Lucent Technologies. All users are encouraged to provide feedback on the Navis™ Optical EMS information products.

Customer comment form

A customer comment form appears immediately after the title page of this document. Please fill out the form and fax it to the number provided on the form.

How to order

To order the Navis™ Optical EMS information products:

Contact your Lucent Technologies customer team representative

Contact Lucent Technologies:

From the United States, call 1-888-LUCENT8 (1–888–582–3688) or fax the order to 1–800–566–9568.

From Canada, North American Region, call 1-317-322-6615, or send e-mail to intlnaorders@lucent.com.

From Europe, the Middle East, and Africa (EMEA), Asia, Pacific Region, and China, the Caribbean and Latin America (CALA), call 1-317-322-6416 or send e-mail to intlorders@lucent.com.

The worldwide fax number is 1–317–322–6699.

1 System Introduction

Overview

Purpose

This chapter provides a general system overview of Navis™ Optical EMS.

Objectives

This chapter explains how to do the following:

- List the features available on the Navis™ Optical EMS and briefly describe each feature
- Identify the basic hardware components of Navis™ Optical EMS
- Identify the basic software components of the Navis™ Optical EMS
- Identify the network element types and releases supported by the Navis™ Optical EMS
- Identify the system interfaces of the Navis™ Optical EMS

Contents

System Overview

Description

The Lucent Technologies' *Navis*™ Optical Element Management System (EMS) supports the new generation of Lucent Technologies' transmission products: the Lucent Technologies' WaveStar®product family. The WaveStar®products are intelligent Network Elements (NEs) which can discover and report their configuration (including physical equipage) and connectivity within the network.

The Navis™ Optical EMS operates as an enhanced graphical tool and as a general configuration management aid. It is designed to take advantage of the capabilities of the WaveStar® NEs, and to optimize the role of the NEs in management functions to create an intelligent operations environment.

Just as the WaveStar® network elements are the solution to your transport network needs, the Navis™ Optical EMS is the answer to the corresponding operations needs to efficiently manage the network. The following details some of the ways that the Navis™ Optical EMSachieves this:

- Navis™ Optical EMS provides centralized, secure, remote administration of Synchronous Optical Networks (SONET) and Dense Wavelength Division Multiplexing (DWDM) subnetworks. From a single work center, a Navis™ Optical EMS user can remotely manage SONET and DWDM NEs. Lucent Technologies patented Dynamic Network Operations (DNO) process gathers network configuration information from the NEs, providing accurate, hands-off population of the Navis™ Optical EMSdatabase, and ensures that the Navis™ Optical EMS management functions operate using the actual network configuration.
- Navis™ Optical EMS provides fault, performance, configuration, security, and log management functions via the GUI.
- Navis™ Optical EMS supports 7-layer OSI as well as OSI over Transmission Control Protocol/Internet Protocol (TCP/IP) communication protocols over LAN physical interfaces.
- Navis™ Optical EMS supports X.25-based protocol layer for Lucent Technologies' FT-2000 Large Capacity Terminal (LCT).
- Navis™ Optical EMS supports CMISE and TL1 application protocols.

- Navis™ Optical EMS supports communication multiplexing or concentration to provide network security and to record all database changes.
- Navis™ Optical EMS provides a TL1 cut-through capability, allowing the user to access an NE through a native command set.

Graphical user interface

Navis™ Optical EMS incorporates a platform independent, Java-based Graphical User Interface (GUI) that allows for the use of PCs running Windows NT as the user's terminals. The Navis™ Optical EMS GUI is a common interface to all NEs, regardless of type, and provides a powerful, flexible, and user friendly interface to execute the most frequently used actions. The GUI also supports numerous customization options so that users may tailor the displays in accordance with their own preferences.

The GUI provides graphical features such as multilevel displays of the network, an automatically generated map of the overall managed domain, hierarchically arranged equipment displays down to the shelf level, a graphical representation of the cross connection configuration with point and click provisioning, and form and menu-based provisioning for viewing and setting provisional parameters. The GUI also provides the ability to initiate a cut-through session to directly send TL1 commands to NEs.

Year 2000 compliance

Navis™ Optical EMS and the underlying software platforms are designed to comply with the Year-2000 initiative to ensure correct date representation and date/time calculation for the year 2000 and beyond. Navis™ Optical EMS Release 4.2 and UNIX Release 11.0 are Year-2000 compliant only when the required Year-2000 patch set (Y2K-1020S800) is installed. This includes data that is received by the Navis™ Optical EMS from the supported NEs.

□

Features

Overview

Navis™ Optical EMS provides a set of standard and value-added features used to administer the WaveStar®NEs. These are grouped into the following categories:

- Fault Management
- Performance Management
- Configuration Management
- Security Management
- Log Management
- NE Event Handler
- Cut-Through Capability

Fault management

Fault Management monitors alarms and conditions in the subnetwork. Navis™ Optical EMS receives autonomous alarm messages from NEs when alarm states are set or cleared. These alarm messages are processed and made available to the user through the GUI, or to other network surveillance systems. Navis™ Optical EMS supports the following Fault Management tasks:

- Alarm status indication on the network map for equipment, facility failures, and updates
- Hierarchical alarm status indication at NE, bay, shelf, and circuit pack levels
- Textual alarm summary report
- Alarm provisioning at the NE level (via TL1 cut-through)
- Alarm provisioning at the EMS level
- Alarm synchronization
- Autonomous alarm handling
- Alarm correlation
- Alarm aging

Performance management

Navis™ Optical EMS collects Performance Monitoring (PM) data from NEs that have PM data collection activated. It stores collected PM data for a retention period set by the user (up to 30 days). Navis™ Optical EMS allows the user to view unprocessed PM data, or the data can be exported to an off-line system for more sophisticated analysis and reporting purposes.

Configuration management

Navis™ Optical EMS has a Dynamic Network Operations (DNO) feature that retrieves the internal configurations of NEs and external connectivity relationships. This feature enables the system to discover, without manual intervention, the topology of subnetworks consisting of Lucent Technologies' NEs.

The GUI supports the following configuration management tasks:

Subnetwork configuration management

- Network Element/trail discovery/update/display
- Aggregate management/display

NE configuration management

- Equipage discovery/update/display
- Equipment provisioning and pre-provisioning
- Cross-connection provisioning/display
- Tributary reservation
- Manual path provisioning
- Protection switch management
- Port provisioning

Software management

- Software download to NEs
- Software copy from one NE to another
- Software install (activate) on NE
- NE data backup and restore

Security management

Navis™ Optical EMS maintains a set of connections to the NEs that are shared by all users. Administration of individual user logins and passwords is centralized on Navis™ Optical EMS rather than distributed across the large number of managed NEs.

All users are required to have a login and password to communicate with the system. The system administrator assigns users to the NEs

they can use (Target Groups) and the actions they can perform (Command Groups). Target Groups and Command Groups can be set up according to the type of tasks users are performing, such as maintenance, provisioning, or monitoring.

Navis™ Optical EMS provides two levels of security management:

- EMS security management
  - defines EMS users (user id and password)
  - partitions the network into user-defined target groups
  - defines command groups
  - assigns EMS user to target groups and command groups
- NE security management
  - provides services to manage NE user id and password

Log management

Log Management provides services to various system modules including:

- Writing log messages to database tables
- Retrieving log messages from database tables
- Displaying information on selected activities

These log messages are helpful for keeping track of information regarding system performance and actions. The information can be filtered to suit the user's needs.

NE event handler

The NE Event Handler process is a passive distributor of non-alarm autonomous messages emitted by the NEs. It registers with the Southbound interface for database change messages from TL1 NEs and with Q3 gateway for CMISE NEs.

The main functions of the NE Event Handler (NEH) are the following:

- Receive non-alarm autonomous messages (TL1 from Southbound and CMISE from Q3 gateway)
- Distribute the received messages to the user
- Log by invoking the Log Manager

Cut-through capability

In order for the user to execute NE TL1 commands that may not be explicitly supported, a cut-through capability is available. Navis™ Optical EMS allows the user access only to the NEs and associated commands defined by the Target and Command Groups for which the user is assigned.

□

Hardware Architecture

Overview

Navis™ Optical EMS consists of a Hewlett-Packard (HP) host processor, and GUI workstations (PC/Sun) connected via an Ethernet LAN, with the option to interface via a Wide Area Network (WAN).

A WAN/PSN is recommended for large, geographically dispersed configurations to concentrate access from the Navis™ Optical EMS to the managed subnetworks. The same WAN/PSN can also be used to access other network management systems or other hosts. Every Navis™ Optical EMS installation requires data connections to each managed subnetwork.The southbound WAN from the Navis™ Optical EMS to the NEs must support an OSI/LAN interface and/or an IP/LAN interface. If FT-2000 LCT NEs are to be managed, an X.25 PSN is required.

Host platform

The system hardware architecture consists of two main components:

- HP K-class, L-class, or N-class server running HP-UX version 11.0 (Nov. 1999) with associated peripherals (console, terminals, and printers)
- PC running *Windows NT*® 4.0 (ServicePack 4) or Windows 2000
- Sun Solaris workstation Version 2.6 or 2.7.

GUI workstation

The recommended platform for the Java GUI client is a personal computer running Windows NT 4.0 with ServicePack 4 or Windows 2000. The Java GUI software is installed on the PC as a standalone application. Transaction requests are issued by the GUI software to the EMS host. The host returns responses associated with these transactions back to the PC. The interface to the PC is via an 802.3 LAN link. The GUI application messages and GUI cut-through data traffic are transported using this interface.

System redundancy options

The Navis™ Optical EMS system redundancy option provides multiple levels of application and host redundancy for backup support and disaster recovery in the event of failure. The local and geographic redundancy configurations require two similarly equipped hosts that operate in an active/standby arrangement. The two host computers are linked via a TCP/IP WAN segment and employ data replication to provide near real-time database synchronization of the standby host with the currently active host.

Under normal operating conditions, the Navis™ Optical EMS application is running on the active host, with that host actively monitoring all network elements in the management domain. The backup host is in a hot-standby state, maintaining data connections to the network, and using data replication from the active host to keep its database current. In the event of a primary host failure, an administrator can switch manually to the standby host or a switchover can be set up to be performed automatically through the cluster adminstration GUI. Upon switch-over, the standby host assumes active control of the network.

For details about the cluster administration GUI, refer to the *Navis™ Optical EMS Administration Guide.*

The Navis™ Optical EMS redundancy options include:

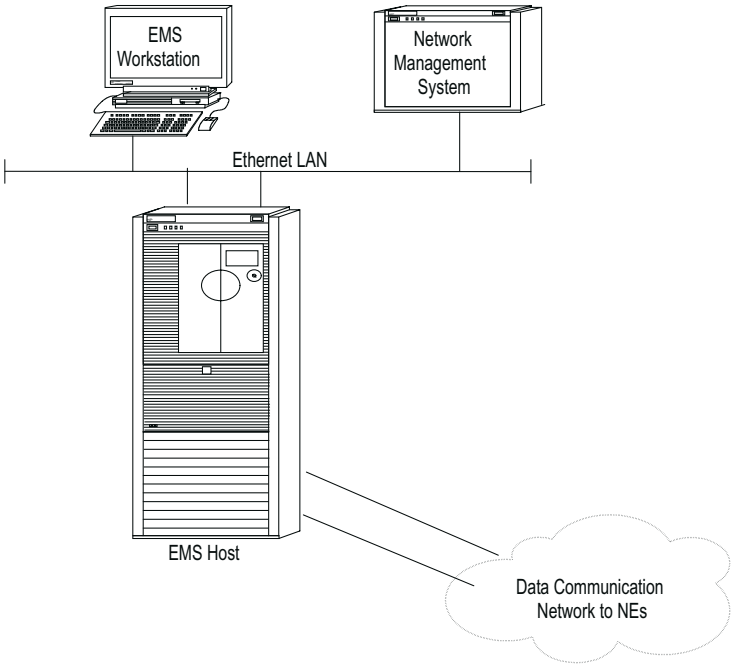
- host redundancy
- local redundancy
- geographic redundancy

Host redundancy

Host redundancy provides component redundancy within a single host where there is no backup host available (Figure 1-1, “EMS Basic Host Standalone Configuration” (1-10)). Recovery relies on switching

control to another resource on the same host such as a backup LAN card or mirrored disk.

Figure 1-1 EMS Basic Host Standalone Configuration

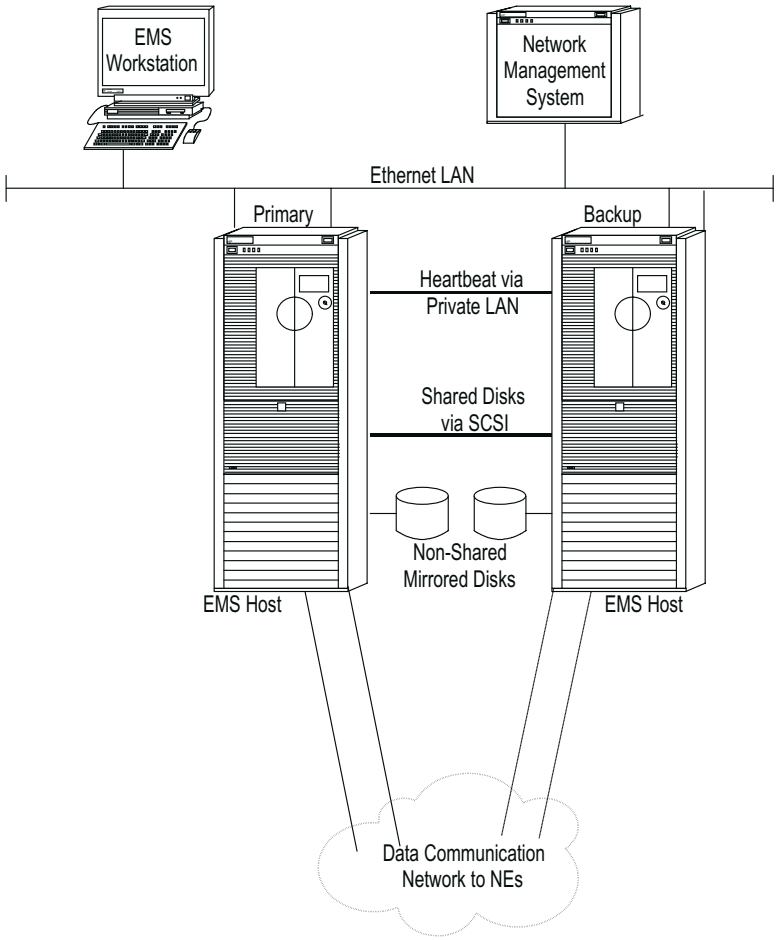


Local redundancy

Local redundancy employs two similarly equipped hosts located in the same building (Figure 1-2, “EMS Local Redundancy Configuration” (1-11)). Each host is configured with redundant hardware components.

Should the primary host fail, the backup host is activated automatically without user intervention.

Figure 1-2 EMS Local Redundancy Configuration



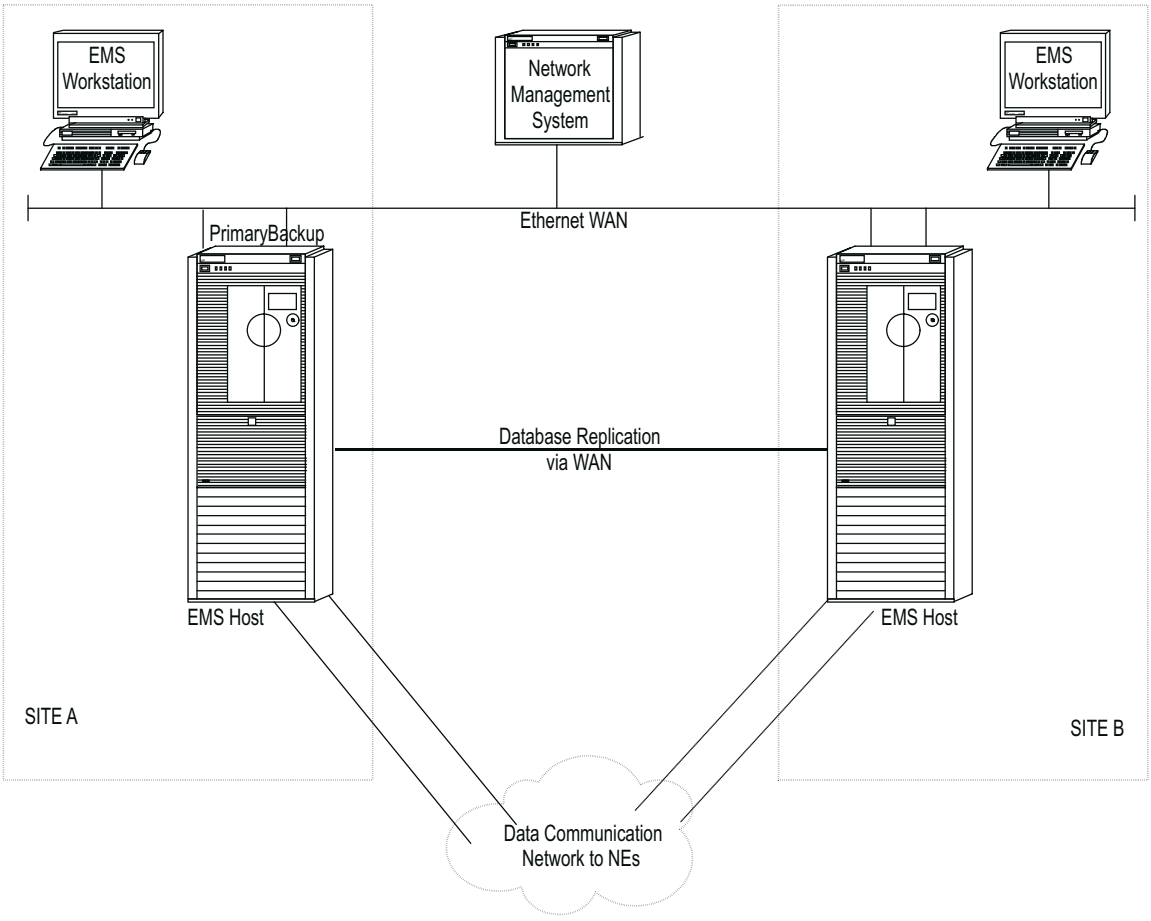
Under normal operating conditions, the Navis™ Optical EMS Host is in service (or “active”) on the primary host monitoring all network elements in the database. The backup host exists in a passive (or “standby”) mode. This configuration uses a “floating” IP address shared by both servers. Although the “standby” host is logged into all network elements, it does not initiate any event to the network or react to any notifications from the network. Database synchronization is handled using Informix Enterprise Replication, FTP file transfer, and event forwarding from the “active” host. In the event of a primary host failure, control is automatically switched from the primary to the backup host, changing the Navis™ Optical EMS application from

"standby" to "active" service without user intervention. Once the primary host failure is repaired, it can be quickly and easily configured to act as the new standby host with no interruption in service.

Geographic redundancy

Geographic redundancy employs two similarly equipped hosts located in different geographical locations (like Atlanta, GA, and Denver, CO (Figure 1-3, "EMS Geographic Redundancy Configuration" (1-12)). Each host is configured with redundant hardware components, and resides on a TCP/IP WAN segment. Data replication and event forwarding via ***ftp*** over a WAN are used to maintain EMS database and UNIX file system synchronization.

Figure 1-3 EMS Geographic Redundancy Configuration



Under normal operating conditions, the Navis™ Optical EMS application is in service (or “active”) on the primary host monitoring all network elements in the database. The backup host exists in a passive (or “standby”) mode with the Navis™ Optical EMS application running in a “read only” mode. Although the “standby” host is logged into all networks, it does not initiate any event to the network or react to any notification from the network. Database synchronization is handled using Informix Enterprise Replication, FTP file transfer, and event forwarding from the “active” host. In the event of a primary host failure, control can be manually or automatically switched from the primary to the backup host changing the Navis™ Optical EMS application from “standby” to “active” service.

In a geographic redundant server configuration, switchover from the primary to the backup server can be performed either manually or by using the automatic switchover feature which can be set up through the cluster Administration GUI. Once the primary host failure is repaired, it can be quickly and easily configured to act as the new standby host with no interruption in service.

For details about the cluster administration GUI, refer to the *Navis™ Optical EMS Administration Guide.*

□

Software Architecture

Overview

The software architecture can be divided into the following major subsystems:

- Configuration Management
- Fault Management
- NE Event Handler
- EMS Security Management
- Southbound Management Interface
  - X.25-based protocol layer
  - OSI-based protocol layer
  - OSI over TCP/IP-based protocol layer
  - TL1 Manager
  - Connection Manager
  - Gateway process
  - QA process (CMISE only)
  - SONET Directory Service (SDS)
- Log Management
- Operation, Administration, and Maintenance
  - Log and trace
  - Scheduler
- JAVA-based GUI

□

Supported Network Elements

Overview

Navis™ Optical EMS provides element management support for the following NEs and their software releases. The information is the best available at the time of publication of this document and is subject to change based on the availability of the NE releases.

Table 1-1 Network Elements Supported by Navis™ Optical EMS

Managed NEs	Supported Releases
WaveStar®Bandwidth Manager (BWM)	R1.2, R1.3, R2.0, R3.0, R3.1, R4.0, R4.1
WaveStar ®OLS 1.6T	R2.0, R3.0, R4.0, R5.0, R6.0, R6.1
WaveStar®Network Communications Controller (NCC)	R3.0, R3.1, R3.2
WaveStar TDM 2.5G (OC-48 2F)/WaveStar®TDM 10G(OC-192 2F)	R2.0, R3.0, R4.0, R5.0 (10G shelf option available beginning in R3.0), R5.0.2, R5.1.2, R5.1.5, R6.1.5
WaveStar TDM 10G (OC-192 2F)	R1.0, R1.1, R2.0, R2.1
WaveStar*WaveStar*TDM 10G (STM-64)	R1.0, R1.1, R2.0, R2.1, R2.2, R3.0, R4.0.5
FT-2000 LCT	R4.0
LambdaRouter™All Optical Switch (AOS)	R2.0
Metropolis™ DMX Access Multiplexer	R1.1, R2.0
Metropolis Enhanced Optical Networking (EON)	R7.0, R7.5, R8.0, R8.1
Metropolis DMX***press***Access Multiplexer	R1.0
LambdaUnite™ MultiService Switch (MSS)	R2.0

System Interfaces

Overview

The Navis™ Optical EMS southbound communication interface connects with NEs, and supports OSI and OSI over TCP/IP communications with the NEs.

- WaveStar™ OLS 1.6T supports both an OSI and OSI over TCP/IP interface.
- WaveStar®BWM and WaveStar® TDM 2.5G only support an OSI interface. However, since the NCC acts as a transport bridge, the Navis™ Optical EMS also supports an OSI over TCP/IP interface to WaveStar® BWM and WaveStar®TDM 2.5G NEs via a transport bridge.
- WaveStar® NCCs support both OSI and OSI over TCP/IP interfaces, much like the WaveStar™ OLS 1.6T.

Configuration management

The Configuration Management subsystem (CF) provides the following functions for the Navis™ Optical EMS:

- discovers the network and its elements that are in an EMS domain
- maintains an information model of the network and its elements concerning configuration management
- provides the cross connection service
- provides protection switching management service
- derives the provisionable subnetworks
- provides the path provisioning services on these subnetworks
- provides NE parameter provisioning
- provides NE Synchronization Management

The Configuration Management Functional Area (MFA) CF is designed as an Navis™ Optical EMS network configuration management server. It provides services to accomplish configuration management tasks. Configuration Management, in turn, uses the services of other Navis™ Optical EMS subsystems to handle user requests.

Fault management

The Fault Management subsystem (FM) serves the following functions for Navis™ Optical EMS:

- Alarm collection and storage
- Alarm processing: (Aging, Event Per Time, Alarm correlation and suppression)
- Alarm broadcast
- Alarm severity assignment profile management
- Alarm database synchronization
- Alarm log synchronization

FM does not have any direct interface to external systems. FM has interfaces to a number of other Navis™ Optical EMS application subsystems.

NE event handler

The main functions of the NE Event Handler (NEH) are:

- receiving non-alarm autonomous messages
- distributing the messages received to clients.
- Logging messages by invoking the Log manager.
- Performing Security Log resynchronization upon re-establishment of an NE communications link.

The NE Event Handler process is a passive distributor of non-alarm autonomous messages emitted by the NEs. It receives non-alarm autonomous messages regarding TL1 NEs from the southbound TL1 processes (CS_Southbound and CS_SbOsi), and receives notifications regarding CMISE NEs from southbound Q3 gateway. The messages received from southbound TL1 processes are TL1 message strings as received from the NE while the CMISE notifications are in MFA structures.

Southbound interface

The Navis™ Optical EMS Southbound interface contains the required functionality to connect to the NEs, to manage these connections, and to forward and receive the messages between the NEs and Navis™ Optical EMS, for all supported communication protocols.

Connection Manager Process

The Connection Manager (CM) process centralizes the functions of sending, receiving, routing, and processing the connections needed for responses and autonomous messages going in, and coming from, the

CMISE and TL1 Southbound subsystems. CM handles the following functions:

- At start-up, load external configurative parameters from a configuration file.
- Create and terminate associations to all NEs.
- Perform association requests in a staggered manner to minimize the impact of the connection processes on the network.
- Implement association recovery mechanisms.
- Receive connection-related indication messages from TL1 and CMISE Southbound subsystems, update association status in memory, and forward notifications to Navis™ Optical EMS.
- Create/modify/delete NEs, store and forward related information.
- Send notification to Navis™ Optical EMS for any incorrect NE types.

CMISE Southbound

The CMISE Southbound subsystem is made of two processes for the support of Lucent Technologies' WaveStar™ OLS 1.6T NEs.

- Gateway (GW) process
  - serves as a bridge process between the Management Functional Area (MFA) and the Q3 Manager
  - receives requests from MFA and the Connection Manager, and sends them down to the Q3 Manager through a socket interface
  - receives responses and autonomous notifications coming from NE via socket. Sends them to MFA or the Connection Manager as required.
  - logs Command and Responses, via the Log Server and Log library.
- Q3 Adaptor process
  The Q-Adaptor maintains a representation of the manged object instances of the managed object classes defined in the information model and converts Common Management Information Service Element (CMISE) requests into the non-TMN format of the underlying OS or NE. It also converts the non-TMN notifications received from a non-TMN OS or NE and converts them to CMISE notifications.

TL1 Southbound

TL1 Southbound is supported by the TL1-Manager process, which is responsible for command/response handling.

SONET Directory Services

The SONET Directory Services (SDS) subsystem resides in the Southbound of the system. All system applications access the shared memory contained in SDS to retrieve information. The shared memory contains the status, last update time, and various directory information. Navis™ Optical EMS employs two agents to manage this information: the Directory Services Agent (DSA) and the Directory User Agent (DUA). The DSA maintains the Directory Information Base and the DUA retrieves and gives information to and from it.

The DSA organizes network elements into a structure known as the Directory Information Base (DIB). The DUA accesses the DSA for any new NEs registered in the MIT and notifies other Navis™ Optical EMS processes of the existence of the new NE. Navis™ Optical EMS then logs into the new NE and via the Dynamic Network Operations (DNO) process gathers the internal configuration and external connectivity relationships from the NE. This ensures that the Navis™ Optical EMS management functions operate using the actual network configuration.

Northbound interface to Navis™ Optical NMS

Navis™ Optical EMS supports a northbound interface to the Navis ™ Network Management System (Navis™ Optical NMS). Navis™ Optical NMS is a part of a telecommunications management network that provides comprehensive and integrated management of an entire transport network. Navis™ Optical NMS manages network elements through an interface with Navis™ Optical NMS. The Navis™ Optical EMSexchanges NE alarm information, configuration information, and performance monitoring data with Navis™ Optical NMS, through a standard CORBA interface.

There are two Navis™ Optical NMS interfaces supported by the Navis™ Optical EMS. The first interface is a server to server interface and the other interface is a GUI to GUI interface.

The server to server interface is responsible for passing NE information from the Navis™ Optical EMS to the Navis™ Optical NMS. The northbound interface to the Navis™ Optical NMS is called the Telecommunications Management Forum (TMF) CORBA Northbound Interface.

The GUI to GUI cut-through allows the Navis™ Optical NMS to invoke the Navis™ Optical EMS GUI screens from the Navis™ Optical NMS GUI. This feature is called the F-interface in both the Navis™ Optical NMS and the Navis™ Optical EMS terminology. Both GUIs must be installed on an NT Terminal Server and be properly configured to talk to one another. The interface supports a one-to-many configuration where one Navis™ Optical NMS GUI can talk to many Navis™ Optical EMS GUIs of different versions.

□

2 Alarm Management

Overview

Purpose

This chapter describes procedures for managing alarms and transient condition (TC) events generated by the Navis™ Optical EMS and the network elements it manages.

Before you begin

Read Chapter 4, "Alarm Management Concepts" to acquire an understanding of the Fault Management and Log Management functions provided by the Navis™ Optical EMS.

Contents

Activate the Alarm Browser

Purpose Use this procedure to activate the alarm browser. This allows you to capture alarm, event, and clear messages that are forwarded to network surveillance Operations Systems (OSs) for NEs in your Target Group, and displays them in the Log Browser window on your workstation screen.

Task Complete the following steps to activate the alarm browser.

1 Select **Fault** from the main menu bar on the Map window.

Result:

This displays a pull-down menu.

2 From the pull-down menu, select **Alarm Browser**.

Result:

This displays the Log Browser window.

3 To save the output from this window to a file, do the following,

1. Click on **File** on the menu bar on the Log Browser window and then select **Save As**. A pop-up window is displayed.
2. Select the PC drive where the file folder resides in which to store the file output by clicking the down arrow next to the “Look In” field on the window. Select the drive.
3. Select and open the file folder for the saved output file by double-clicking on the folder in the scrollable list on the pop-up window.
4. Type a name for the output file in the File name field.
5. Click the Save button. The output is saved to the named file.

Important! To view the saved output file, use the Wordpad application.

4 When you are finished viewing the log information, access the **File** pull-down menu from the menu bar and select **Close**.

END OF STEPS

Access the Alarm Summary

Use this procedure to access the Alarm Summary window, which contains NE/aggregate alarm summary information, as well as Trail Alarm summary information. This summary information includes the number of critical, major, and minor alarms for each NE and trail.

Before you begin Before you begin this task, make sure that you have identified the NE or trail for which you want to obtain alarm information.

Task Complete the following steps to access the Alarm Summary.

1 Select an NE on the Map pane on the Map window to see an alarm summary for a specific NE.

OR

Select no NEs at this point to see an alarm summary for all NEs in your Target Group.

2 Select **Fault** from the main menu bar on the Map window.

Result:

This displays a sub-menu.

3 From the sub-menu, select **Alarm Summary**.

Important! For specific information about an operation (such as provisioning NE ports), look up the related task in the Task Index.

Result:

This displays the Alarm Summary window.

The Alarm Summary window contains two sections - the NE Alarm Summary/Aggregate Alarm Summary table and the Trail Alarm Summary table.

NE Alarm Summary/Aggregate Alarm Summary Table — Each line in this table provides, for the listed TID, a color code indicating the highest severity alarm for the NE/aggregate, a count of the Critical, Major, and Minor alarms for SONET (or Prompt and Deferred alarms for SDH), a count of unacknowledged Critical alarms,

unacknowledged Major alarms, and unacknowledged Minor alarms for SONET (or a count of unacknowledged Prompt and Deferred alarms for SDH), and a count of Standing Condition (SC) events (for SDH shown under the “NA” category for SONET) for the NE/aggregate.

For the NEs listed, you can initiate cut-throughs, access the Alarm List, define the level of alarms to be monitored/displayed, provision the NE system parameters and port,and display equipment. To access these tasks, point to an NE’s summary line with the mouse, click the left mouse button to select it, and then click the menu mouse button. A pop-up menu appears, from which you can select the desired operation.

Trail Alarm Summary Table — This table lists a count of critical, major, and minor alarms for the AIDs that terminate the trail between two NEs. A color code indicates the highest severity alarm for the trail.

4 When you are finished viewing the alarm summary information, access the **File** pull-down menu from the menu bar and select **Close**.

END OF STEPS

□

Access the Alarm List

Purpose

Use this procedure to access the alarm list, which contains a line of information about each active alarm or standing condition (SC) event in an NE or aggregate. An SC event requires a clear command from the NE to indicate that the condition no longer exists. You can sort the list by alarm severity and age, age alone, condition, data/time logged, or acknowledged versus unacknowledged. You can also use the list to acknowledge and unacknowledge alarms.

Alarm List window

The Alarm List window provides the following data for each alarm for the selected NE:

- Color—a color code associated with the alarm severity
- Alarm ID—an identifying code for the alarm
- TID—the TID of the NE that originated the message or target TID that receives a command.
- AID—the Access Identifier, or address, of the equipment component or facility. If this is part of an SLC NBS (Narrow Band Shelf), an asterisk (*) appears.
- Status—the current status of the alarm/event. The status values are:
  - ***Raised:*** the alarm (or SC event) was raised and has not been cleared or acknowledged
  - ***Cleared:*** the alarm has been cleared, regardless of whether it has been acknowledged or not. The alarm status of Cleared remains even if the alarm has been acknowledged after after it has cleared.
  - ***Acknowledged:*** the alarm has been acknowledged before it is cleared.

  The alarm/event status will be returned to ***Raised*** when an alarm is unacknowledged
- Severity—Critical, Major, or Minor
- SA/NSA—whether the problem is service affecting (SA) or non-service affecting (NSA)
- Date/Time of OCC—the date/time the alarm occurred
- Condition—a message that indicates the type of failure or status condition

- SLA—the Signal Level Affected (category)
- Probable Cause—the condition type (code) indicating the probable cause of failure
- Ack—the user ID of the user that acknowledged the alarm
- Date/Time of Ack—the date/time the alarm/event was acknowledged

Important! To display details about a specific alarm or event shown in the Alarm list, position the mouse button on the alarm listing for which you want additional details, and double click the select mouse button. This displays the Alarm Text window, containing specific information about the alarm or event.

Task Complete the following steps to access the alarm list.

1 Position the mouse pointer over the NE or aggregate for which you want a list of alarms and press the menu (right) mouse button. A sub-menu appears.

2 Select **Alarm List** from the sub-menu.

Result:

The Alarm List window is displayed.

You can also access the Alarm List for a selected piece of equipment on the Equipment View window by selecting the equipment in the Equipment View explorer and clicking the right mouse button to display a pop-up menu. Choose **Alarm List** from the pop-up menu. Or, position the mouse cursor on the graphical representation of the piece of equipment in the Equipment View window and click the right mouse button to display a pop-up menu and choose **Alarm List**.

The Alarm List window can also be displayed from the Alarm Summary window by positioning the mouse cursor on the NE's TID on the Alarm Summary window, single-clicking the left mouse button to select the NE/TID, right-clicking the menu mouse button to display a pop-up menu, and the choosing **Alarm List** from the pop-up menu.)

The Alarm List can also be accessed from the Alarm Notification window (which is continually displayed when the GUI is up and running and there are alarms present). To access the Alarm List from this window, click on any of the alarm severity category boxes in the

"Total Outstanding" row, to see the Alarm List containing only alarms of that severity, or click the Click Here to Retrieve Alarm List button on the window to display the Alarm List containing all alarms for all NEs in your Target Group. ***Note:*** all alarms of all severity levels will be displayed if alarm filtering is disabled.

3 On the Alarm List window, each row on the window represents an alarm in the selected NE. The default sort order is occurrence date and time.

TO...	DO THIS...
Change the sort order	Click on the column head of the desired sort item. Choose **View** from the menu bar on the Alarm List window, A sub-menu is displayed. Choose **Sort** from the sub-menu. The Sort window is displayed. Select the sort criteria for each level of sort by clicking the down arrow next to each field to display a drop-down list, and then select the field on which to sort, and then choose to sort by the selected field in either Ascending or Descending order.

TO...	DO THIS...
Filter the Alarm List	Choose **View** from the menu bar on the Alarm List. A sub-menu is displayed. Choose **Filter Alarms** from the sub-menu. A Filter Alarm window is displayed. Select the criteria for filtering (limiting) the Alarm List. The criteria is: • Check Service Affecting (SA) or Non Service Affecting (NSA) • Modifier: choose All (alarms) or a Modifier. If you choose Modifier, click the Signal Level Affected (SLA) button. A secondary window pops up. Move the SLA categories to the Chosen SLAs list and click the OK button. The Alarm List Filter window is displayed again. • Choose the Alarm Severity Level (All, Critical, Major, Minor, Not Alarmed) • Choose the status: All, Acknowledged, Unacknowleged When you have your choices, click the OK button. To ignore the selections, click the Cancel or Close button. You can also filter acknowledged alarms for the list in another way. Choose **View** from the menu toolbar. A sub-menu is displayed. Choose **Filter Acknowledged Alarms** from the sub-menu. Another sub-menu is displayed. Choose Show All, Acknowledged Only, or Unacknowledged Only.
Acknowledge an alarm/event on the Alarm List	Position the mouse cursor on the alarm in the list and click the left mouse button. **Result:** The selected alarm/event is highlighted.

TO...	DO THIS...
	Click the right mouse button. **Result:** A pop-up menu is displayed.
	Choose Acknowledge from the pop-up menu. **Result:** The selected alarm/event is acknowledged.
Unacknowledge an alarm/event on the Alarm List	Position the mouse cursor on the alarm in the list and click the left mouse button. **Result:** The selected alarm/event is hightlighted.
	Click the right mouse button. **Result:** A pop-up menu is displayed.
	Choose Unacknowledge from the pop-up menu.**Important!** If the Double Acknowledge feature is enabled in the Navis™ Optical EMS, the system will prevent you from unacknowledging an acknowledged alarm and an error message is issued. **Result:** The selected alarm/event is unacknowledged.

4 To save the output from this window to a file, do the following,

1. Choose **File** on the menu bar on the Alarm List window and then select **Save As**. A pop-up window is displayed.
2. Select the PC drive where the file folder resides in which to store the file output by clicking the down arrow next to the “Look In” field on the window. Select the drive.

3. Select and open the file folder for the saved output file by double-clicking on the folder in the scrollable list on the pop-up window.
4. Type a name for the output file in the File name field.
5. Click the Save button. The output is saved to the named file.

Important! To view the saved output file, use the Wordpad application.

5 To print a copy of the Alarm List obtained, choose **File** on the Alarm List window menu bar and use the following options:

- ***Print Setup***- choose this option from the File sub-menu to choose which field from the Alarm List to print. Click the Landscape or Portrait radio button to print the list in landscape or portrait mode. Use the arrow push buttons to move fields from the total list of fields from the left display column to the "Chosen Fields" display column on the right side of the window. Move fields back and forth between columns as necessary. When you have made your selections, click the OK button. Click the Cancel button to cancel the print setup operation and exit the window.
- ***Print Preview*** - choose this option from the File sub-menu to preview what the Alarm List will look like when printed. If there are no alarms listed, a message is displayed. After you have finished previewing the output online, choose **File** from the Print Preview window menu bar and then choose **Close** to close the window.
- ***Print*** - choose this option to print the Alarm List. When you choose this option, a pop-up Print window is displayed, allowing you to select the printer, number of copies, and other parameters for printing. When you have made your selections on the pop-up Print window, click the OK button and the copy(ies) are printed to the selected printer destination. If there are no alarms on the Alarm List, a message is displayed.

6 When you are finished viewing the alarm list information, access the **File** pull-down menu from the menu bar and select **Close**.

END OF STEPS

□

Acknowledge/Unacknowledge Alarms

Purpose

Use this procedure to acknowledge or unacknowledge single alarms, one at a time.

Before you begin

Before you begin this task, determine the alarm(s) to be acknowledged or unacknowledged.

Be aware that if the Double Acknowledgement capability has been enabled for the Navis™ Optical EMS application when it is installed, if an alarm is acknowledged before it is cleared, the alarm must be acknowledged again after it is cleared whether the Alarm Latching function is enabled or not. Otherwise, the alarm will still be shown in the alarm list as “cleared.”

Be aware that if the Double Acknowledgement capability has been enabled for the Navis™ Optical EMS application at system installation time, the Navis™ Optical EMS will not allow alarms to be unacknowledged.

If the Double Acknowledgement capability is disabled, and the Alarm Latching Readiness has been enabled system-wide at installation time and the Alarm Latching is enabled for the NE, the NE’s alarms are removed from the Alarm List once the alarm has been cleared and acknowledged (either before or after the alarm has cleared).

Related information

- “Provision Alarm Latching” (2-53) in Chapter 2, “Alarm Management” in this document.
- “Alarm indication and acknowledgement” (4-7) in Chapter 4, “Alarm Management Concepts” in this document
- The *Navis™ Optical EMS Installation Guide* for instructions on setting the Alarm Latching Readiness function and Double Acknowledgement capability for the Navis™ Optical EMS at system installation time.

Task Complete the following steps to acknowledge or unacknowledge single alarms, one at a time.

1 Position the mouse pointer over the NE or aggregate for which you want a list of alarms and press the menu (right) mouse button.

Result:

A sub-menu appears.

2 Select **Alarm List** from the sub-menu.

Result:

The Alarm List window is displayed.

You can also access the Alarm List for a selected piece of equipment on the Equipment View window by selecting the equipment in the Equipment View explorer and clicking the right mouse button to display a pop-up menu. Choose **Alarm List** from the pop-up menu. Or, position the mouse cursor on the graphical representation of the piece of equipment in the Equipment View window and click the right mouse button to display a pop-up menu and choose **Alarm List**.

The Alarm List window can also be displayed from the Alarm Summary window by positioning the mouse cursor on the NE's TID on the Alarm Summary window, single-clicking the left mouse button to select the NE/TID, right-clicking the menu mouse button to display a pop-up menu, and the choosing **Alarm List** from the pop-up menu.)

The Alarm List can also be accessed from the Alarm Notification window (which is continually displayed when the GUI is up and running and there are alarms present). To access the Alarm List from this window, click on any of the alarm severity category boxes in the "Total Outstanding" row, to see the Alarm List containing only alarms of that severity, or click the Click Here to Retrieve Alarm List button on the window to display the Alarm List containing all alarms for all NEs in your Target Group. ***Note:*** all alarms of all severity levels will be displayed if alarm filtering is disabled.

3 Select Fault from the menu bar near the top of the Alarm List window.

Result:

This displays a sub-menu.

4 Select **Acknowledge Selected** or **Unacknowledge Selected** from the displayed sub-menu, as appropriate. (If you wish to acknowledge or unacknowledge ***all*** the alarms in the list, select **Acknowledge All in List** or **Unacknowledge All in List**, as appropriate.)

Important! If an alarm is not yet acknowledged, there is no entry in the Ack field on that line. If it is already acknowledged, the Ack field contains the acknowledger's userid.

END OF STEPS

□

Acknowledge/Unacknowledge Alarm Groups

Purpose

Use this procedure to select and then acknowledge or unacknowledge a group of alarms.

Before you begin

Before you begin this task, determine the alarms to be acknowledged or unacknowledged.

Be aware that if the Double Acknowledgement capability has been enabled for the application at system installation time, the Navis™ Optical EMS will not allow alarms to be unacknowledged.

Be aware that if the Double Acknowledgement capability has been enabled for the Navis™ Optical EMS application when it is installed, if an alarm is acknowledged before it is cleared, the alarm must be acknowledged again after it is cleared whether the Alarm Latching function is enabled or not. Otherwise, the alarm will still be shown in the alarm list as “cleared.”

If the Double Acknowledgement capability is disabled, and the Alarm Latching Readiness has been enabled system-wide at installation time and the Alarm Latching is enabled for the NE, the NE’s alarms are removed from the Alarm List once the alarm has been cleared and acknowledged (either before or after the alarm has cleared).

Related information

- “Provision Alarm Latching” (2-53) in the Chapter 2, “Alarm Management” chapter of this document.
- “Alarm indication and acknowledgement” (4-7) in Chapter 4, “Alarm Management Concepts” in this document
- The *Navis™ Optical EMS Installation Guide* for instructions on setting the Alarm Latching Readiness function and Double Acknowledgement capability for the Navis™ Optical EMS application at system installation time

Task Complete the following steps to select and then acknowledge or unacknowledge a group of alarms.

1 Position the mouse pointer over the NE or aggregate for which you want a list of alarms and press the menu (right) mouse button. A sub-menu appears.

2 Select **Alarm List** from the sub-menu.

Result:

The Alarm List window is displayed.

You can also access the Alarm List for a selected piece of equipment on the Equipment View window by selecting the equipment in the Equipment View explorer and clicking the right mouse button to display a pop-up menu. Choose **Alarm List** from the pop-up menu. Or, position the mouse cursor on the graphical representation of the piece of equipment in the Equipment View window and click the right mouse button to display a pop-up menu and choose **Alarm List**.

The Alarm List window can also be displayed from the Alarm Summary window by positioning the mouse cursor on the NE's TID on the Alarm Summary window, single-clicking the left mouse button to select the NE/TID, right-clicking the menu mouse button to display a pop-up menu, and the choosing **Alarm List** from the pop-up menu.)

The Alarm List can also be accessed from the Alarm Notification window (which is continually displayed when the GUI is up and running and there are alarms present). To access the Alarm List from this window, click on any of the alarm severity category boxes in the "Total Outstanding" row, to see the Alarm List containing only alarms of that severity, or click the Click Here to Retrieve Alarm List button on the window to display the Alarm List containing all alarms for all NEs in your Target Group. ***Note:*** all alarms of all severity levels will be displayed if alarm filtering is disabled.

3 Using the mouse, select each row that contains an alarm you want to include in the group to be acknowledged or unacknowledged. To select multiple continuous rows, hold the Control key down and drag the mouse pointer over the desired lines. To select multiple non-continuous lines, hold the Shift or Control key down and right

click each line to be included. (Unacknowledged alarms contain no entry on their rows in the **Ack** column. Acknowledged alarms contain, in the **Ack** column, the login ID of the person who acknowledged the alarm.) Select as many rows of acknowledged or unacknowledged alarms as desired.

4 Select **Fault** from the menu bar at the top of the Alarm List window. This displays a sub-menu.

5 Choose **Acknowledge Selected** or **Unacknowledge Selected**, as appropriate. (Or to acknowledge or unacknowledge ***all*** alarms in the list [without having to choose individual alarms], select **Acknowledge All in List** or **Unacknowledge All in List**, as appropriate.)

END OF STEPS

□

Acknowledge/Unacknowledge All Alarms

Purpose

Use this procedure to acknowledge all unacknowledged alarms on the Alarm List window or to unacknowledge all acknowledged alarms on the Alarm List window.

Before you begin

Before you begin this task, you should make certain that you do want to acknowledge or unacknowledge these alarms.

Be aware that if the Double Acknowledgement capability has been enabled for the Navis™ Optical EMS application when it is installed, if an alarm is acknowledged before it is cleared, the alarm must be acknowledged again after it is cleared whether the Alarm Latching function is enabled or not. Otherwise, the alarm will still be shown in the alarm list as "clear."

Be aware that if the Double Acknowledgement capability has been enabled for the application at system installation time, the Navis™ Optical EMS will not allow alarms to be unacknowledged.

If the Double Acknowledgement capability is disabled, and the Alarm Latching Readiness has been enabled system-wide at installation time and the Alarm Latching is enabled for the NE, the NE's alarms are removed from the Alarm List once the alarm has been cleared and acknowledged (either before or after the alarm has cleared).

Related information

- "Provision Alarm Latching" (2-53) in the Chapter 2, "Alarm Management" chapter of this document.
- Alarm indication and acknowledgement in the Alarm Management Concepts chapter of this document
- The *Navis™ Optical EMS Installation Guide* for instructions on setting the Alarm Latching Readiness function and Double Acknowledgement capability for the Navis™ Optical EMS application at system installation time

Task Complete the following steps to acknowledge or unacknowledge all alarms.

1 Position the mouse pointer over the NE or aggregate for which you want a list of alarms and press the menu (right) mouse button.

Result:

A sub-menu appears.

2 Select **Alarm List** from the sub-menu.

Result:

The Alarm List window is displayed.

You can also access the Alarm List for a selected piece of equipment on the Equipment View window by selecting the equipment in the Equipment View explorer and clicking the right mouse button to display a pop-up menu. Choose **Alarm List** from the pop-up menu. Or, position the mouse cursor on the graphical representation of the piece of equipment in the Equipment View window and click the right mouse button to display a pop-up menu and choose **Alarm List**.

The Alarm List window can also be displayed from the Alarm Summary window by positioning the mouse cursor on the NE's TID on the Alarm Summary window, single-clicking the left mouse button to select the NE/TID, right-clicking the menu mouse button to display a pop-up menu, and the choosing **Alarm List** from the pop-up menu.)

The Alarm List can also be accessed from the Alarm Notification window (which is continually displayed when the GUI is up and running and there are alarms present). To access the Alarm List from this window, click on any of the alarm severity category boxes in the "Total Outstanding" row, to see the Alarm List containing only alarms of that severity, or click the Click Here to Retrieve Alarm List button on the window to display the Alarm List containing all alarms for all NEs in your Target Group. ***Note:*** all alarms of all severity levels will be displayed if alarm filtering is disabled.

3 Select **Fault** from the menu bar at the top of the Alarm List window.

Result:

This displays a sub-menu.

4 From the sub-menu, choose **Acknowledge All in List** (to acknowledge all unacknowledged alarms in the Alarm List window) or **Unacknowledge All in List** (to unacknowledge all acknowledged alarms in the Alarm List window), as appropriate. (Unacknowledged alarms contain no entry in the Ack field on their rows. Acknowledged alarms contain, in the Ack field, the userid of the alarm acknowledger.)

END OF STEPS

□

Acknowledge/Unacknowledge All Alarms for an NE

Purpose Use this procedure to acknowledge or unacknowledge all alarms for a selected NE or aggregate.

Before you begin Before you begin this task, you should make certain that you do want to acknowledge or unacknowledge these alarms.

Task Complete the following steps to acknowledge or unacknowledge all alarms for a selected NE or aggregate.

1 On the Map pane portion of the Map window, use the mouse to select the NE or aggregate for which you want to acknowledge all unacknowledge alarms or unacknowledge all acknowledged alarms.

OR

Select no NE at this point.

2 Select **Fault** from the main menu bar at the top of the Map window.

Result:

This displays a sub-menu.

3 Select **Alarm Acknowledgement** from the displayed sub-menu.

Result:

This displays another sub-menu containing the choices **Acknowledge** and **Unacknowledge**.

4 From the displayed sub-menu, select **Acknowledge** to acknowledge all unacknowledged alarms for an NE, or **Unacknowledge** to unacknowledge all acknowledged alarms for an NE.

If you did not choose an NE in step 1, the Choose an NE/Aggregate window is displayed. To obtain a listing of just NEs, click the Network Elements radio button. To obtain a listing of aggregates, click the Aggregates button. Double-click the on the item in the list (network element or aggregate) and click the OK button.

Result:

Alarms are acknowledged or unacknowledged for the selected NE or aggregate or NEs.

END OF STEPS

□

Monitor Alarms

Purpose Use this procedure to limit the amount of autonomous messages that should be monitored for an NE. See the Related Information below for more information about alarm monitoring.

Before you begin Before you begin this task, determine what type of alarm monitoring you want to establish for the NE.

Task Complete the following steps to monitor alarms.

1 Select an NE in the Map pane portion of the Map window

OR

Select no NE at this point.

2

IF...	THEN...
You selected an NE in step 1	Click the right (menu) mouse button. A pop-up menu is displayed. Select **Alarm Monitoring** from the pop-up menu. A sub-menu is displayed.
You did not select an NE in step 1.	Select **Fault** from the main menu bar on the Map window. The Fault menu is displayed. Select **Alarm Monitoring** from the Fault menu. A sub-menu is displayed.

3 Choose one of the following options from the displayed sub-menu:

- ***All Messages—***This option allows all autonomous messages to be accepted from the NE. If the NE's alarms are currently being throttled, choose this option to put the NE back into an unthrottled alarm state.
- ***Throttled—***This option allows only Critical messages to be accepted from the NE, even if the alarm throttle level set in the Administer NE menu has not been reached or if automatic alarm throttling is set.

If you did not select an NE in Step 1, the Choose an NE/Aggregate window is displayed. Click the Network Elements radio button to limit the list to NEs. Click the Aggregates radio button to limit the list to aggregates. Double-click on the item (NE or aggregate) in the Choose an NE/Aggegate window to select it and click the OK button.

A message is sent to the NE by the system to change the alarm status on the NE. After the change is received by the NE, the Alarm monitoring status of the NE is displayed on the Map pane portion of the Map window.

Result:

If **Throttled** is selected, the NE icon changes back and forth from grey to the color of the highest severity alarm.

If **All Messages** is selected, the NE icon displays only the color of the highest severity alarm.

END OF STEPS

□

View Alarm Statistics

Purpose Use this procedure to view throttled alarm statistics for an NE. This window indicates the time of the last alarm message received.

Before you begin Before you begin this task, determine the NE for which you want to view the throttled alarm statistics.

Task Complete the following steps to view throttled alarm statistics for NEs.

1 Select an NE on the Map pane portion of the Map window.

OR

Select no NE at this point.

2 Select **Fault** from the main menu bar on the Map window.

Result:

This displays a sub-menu.

3 Select **Alarm Monitoring** from the displayed sub-menu.

Result:

This displays another sub-menu.

4 Select **Statistics** from the displayed sub-menu.

If you did select an NE in step 1, the Choose an NE/Aggregate window is displayed. To obtain a list of NEs on this window, click the Network Elements radio button To obtain a list of aggregates on this window, click the Aggregates radio button. For this function, click the Network Elements radio button to list NEs. Double-click on the NE in this list to select it and click the OK button.

A pop-up window is displayed, showing the number of autonomous messages and alarms that have been generated for the selected NE since the time and date of the last reporting interval.

Click the OK button on the pop-up window to close it.

END OF STEPS

□

Resynchronize Alarms

Purpose

Whenever any loss of NE communications occurs, use this procedure to update the alarm list and autonomous message log from the network elements in the subnetwork. The system automatically resynchronizes alarms whenever the communications status with an NE changes from ***down*** to ***up***, but this procedure allows you to perform this function any other time, as desired.

The alarm resynchronization process does not clear the existing GUI display and alarm tally/list during the resynchronization process, but rather retains the existing alarms until the resynchronization is complete. The system can distinguish between:

- standard alarms that already exist in the GUI and alarm/tally list displays
- new alarms, and
- alarms that are cleared by the NE between resynchronizations.

This allows the system to incrementally update the GUI display and alarm tally/list to accurately indicate the subnetwork status to the user.

Important! Alarm resynchronization does not work correctly unless the NE is in an unthrottled state. Before resynchronizing alarms for an NE, the user should disable the automatic/manual alarm throttling control for the NE.

Before you begin

Before you begin this task, be aware that alarms cannot be resynchronized on non-communicating NEs.

Task

Complete the following steps to resynchronize alarms on demand.

1 Position the mouse cursor on the NE and click the right (menu) mouse button. A pop-up menu is displayed.

OR

Select no NE at this point.

2 If you selected an NE, click the right mouse button. A pop-up menu is displayed. Select **Resynchronize Alarms** from the pop-up menu.

If you did not select an NE on the Map window in step 1, choose **Fault** from the main menu bar on the Map window. The Fault sub-menu is displayed. Choose **Resynchronize Alarms** from the Fault sub-menu. The Choose an NE window is displayed. Click the Network Elements radio button on this window to list NEs. Click the Aggregates radio button on this window to list aggregates. Double-click on the item in the list (network element or aggregate) to select it and click the OK button.

Result:

The system resynchronizes the alarms for the selected NE/aggregate.

END OF STEPS

□

Enable/Disable Audible Alarms

Purpose Use this procedure to enable and disable the audible alarm feature.

Before you begin Before you begin this task, be sure that you do want to change the current status of the audible alarm feature.

Turn up the volume on your PC's audio control if you decide to enable the Audible Alarm feature to clearly hear audible alarms or standing condition (SC) events.

Task Complete the following steps to enable or disable the audible alarm feature.

1 On the Map window, select **Fault** from the main menu bar.

Result:

This displays a sub-menu.

2 Select Audible Alarms from the displayed sub-menu.

This displays another sub-menu.

- If the audible alarm feature is currently enabled, a mark appears next to the Audible menu item on the displayed sub-menu. If desired, click on Audible to disable audible alarms.
- If the audible alarm feature is currently disabled, the mark does ***not*** appear next to the Audible menu item on the displayed sub-menu. If desired, click on Audible to enable audible alarms.

Important! Another way to enable or disable the Audible Alarm feature is to click on the Audible Alarms button on the Map window toolbar. If the Audible Alarms feature is currently enabled, clicking on it until a red slash appears across this button disables the Audible Alarms feature. Clicking on it again enables the Audible Alarms feature.

END OF STEPS

□

Quiet the Audible Alarm

Purpose Use this procedure to quiet the audible alarm when it is sounding. When the audible alarm is enabled and an alarm occurs, it sounds for a short duration (about five seconds) and repeats every minute. Each time the audible alarm sounds, the sound corresponds to the highest level alarm received. Once the user quiets the alarm, it does not sound again until another alarm is received.

Before you begin Before you begin this task, be sure that you do want to quiet the audible alarm and that you have noted the latest alarms.

Task Complete the following steps to quiet the audible alarm.

1 On the Map window, select **Fault** from the main menu bar.

Result:

This displays a sub-menu.

2 Select **Audible Alarms** from the displayed sub-menu.

Result:

This displays another sub-menu.

3 Select **Quiet Current Alarms** from the displayed sub-menu.

Result:

The system quiets the current alarms and does not audibly signal alarms until a new alarm arrives. (The alarms still need to be acknowledged.)

END OF STEPS

□

Enable/Disable the Alarm Indicator

Purpose Use this procedure to enable or disable the system's alarm indicator function. Disabling the alarm indicator causes nodes and aggregates not to flash when alarms are received. Enabling alarm indicators turns this function back on.

Before you begin Before you begin this task, make sure you do want to enable or disable the alarm indicator function, as appropriate.

Be aware that disabling the alarm indicator function stops alarmed nodes and aggregates from flashing, but it does ***not*** acknowledge alarms.

Task Complete the following steps to enable or disable the alarm indicator function for all NEs.

1 On the Map window, select **View** from the main menu bar.

Result:

This displays a sub-menu.

2 Select **Alarm Visual Indications** from the displayed sub-menu.

Result:

This displays another sub-menu.

3 On the displayed sub-menu, there will be a bullet mark next to either **All Enabled** or **All Disabled**. The one with the bullet is the current state. You can change the state by clicking with your mouse pointer. For example, if the bullet is currently next to **All Enabled** and you want to disable the alarm indicator function, click **All Disabled**.

Result:

The system moves the bullet and makes the change to the feature.

END OF STEPS

□

View an ASAP

Purpose Use this procedure to view an existing Alarm Severity Assignment Profile (ASAP) for a Profile Type in an NE.

Before you begin Before you begin this task, access the Map window.

Task Complete the following steps to view an existing ASAP.

1 Select an NE from the Map window.

OR

Select no NEs at this point.

2 Select **Fault** from the main menu bar on the Map window.

Result:

The Fault menu is displayed.

3 Select **Alarm Severity Assignment Profiles** from the Fault menu.

If you did not select an NE in Step 1, the Choose an NE/Alarm Severity Profiles is displayed. Select an NE by double-clicking on the item and click the OK button.

Result:

The Alarm Severity Assignment Profile Management window is displayed. This window consists of an explorer, which allows you to view and select the Profile Type under the selected NE, and six action buttons to the right of the explorer:

- Add
- Modify
- Delete
- View
- Assignments
- Rename

4 Click on the plus (+) sign next to the NE TID in the explorer to expand and view the Profile Types for that NE.

5 Click on the plus (+) sign next to the Profile Type in the explorer to expand and view the Profile Names under that Profile Type.

6 Choose a Profile Name under a Profile Type.

Result:

The chosen Profile Name is highlighted.

7 Click on the View button.

Result:

The View an Alarm Severity Assignment Profile window is displayed, showing the probable causes (alarm states) for the selected Profile Type and the current alarm severity levels for each probable cause.

END OF STEPS

□

Add an ASAP

Purpose

Use this procedure to add a new Alarm Severity Assignment Profile (ASAP) for a Profile Type in the chosen NE. To add a new ASAP, the alarm severity settings of the default ASAP for the selected Profile Type are copied over to a new Profile Name. The newly created ASAP will have the same alarm severity settings as the default ASAP unless they are changed. Once it is created, the new ASAP, which is identified by its Profile Name, can be assigned to an entity (AID) in the NE.

Before you begin

Before you begin this task, be aware that the Navis™ Optical EMS will prevent you from adding a new ASAP for a Profile Type if the maximum number of allowable ASAPs for that Profile Type in the NE has been exceeded.

Be aware that if you want to see the ASAP alarm severity levels in SDH format, you must change the Fault settings to SDH format using the Preferences option. See the Modify User Preferences task in the *Navis™ Optical EMS Provisioning Guide* for instructions on how to modify the alarm severity level display to SDH format using the Preferences option in the GUI.

Refer to the TL1 documentation for the `ED-ASAP-PROF` command for the allowed alarm severity levels for each condition type.

Task

Complete the following steps to add a new ASAP.

1 Select an NE from the Map window.

OR

Select no NEs at this point.

2 Select **Fault** from the main menu bar on the Map window.

Result:

The Fault menu is displayed.

3 Select **Alarm Severity Assignment Profiles** from the Fault menu.

If you did not select an NE in Step 1, the Choose an NE/Alarm Severity Profiles is displayed. Select an NE by double-clicking on the item and click the OK button.

Result:

The Alarm Severity Assignment Profile Management window is displayed. This window consists of an explorer, which allows you to view and select the Profile Type under the selected NE, and six action buttons to the right of the explorer:

- Add
- Modify
- Delete
- View
- Assignments
- Rename

4 Click on the Add button.

Result:

The Add an Alarm Severity Assignment Profile window is displayed.

5 To create an ASAP for a Profile Type, click the down arrow next to the Profile Type field and select a Profile Type.

6 Enter a name for the new ASAP in the Profile Name field. The Profile Name can be 1-24 characters (A-Z, a-z, 0-9,).

Important! The Profile Name entered becomes the suffix of the complete profile name; the system adds a prefix based on the Profile Type chosen (WaveStar®OLS 1.6T only).

7 If desired, make changes to the alarm severity level settings for the new ASAP. To change a alarm severity level for a probable cause, click the appopriate radio button. For example, if the current alarm severity level is CR (for Critical), and you want to change it to MJ (Major), click the MJ radio button in the row for the probable cause.

8 Click the Apply button activate your choices, or click the OK button to activate your choices and close the window.

Result:

The new ASAP is created.

END OF STEPS

□

Modify an ASAP

Purpose Use this procedure to modify an existing Alarm Severity Assignment Profile (ASAP) for a Profile Type.

Before you begin Before you begin this task, access the Map window.

Refer to the TL1 documentation for the `ED-ASAP-PROF` command for the allowed alarm severity levels for each condition type.

Task Complete the following steps to modify an existing profile.

1 Select an NE from the Map window.

OR

Select no NEs at this point.

2 Select **Fault** from the main menu bar on the Map window.

Result:

The Fault menu is displayed.

3 Select **Alarm Severity Assignment Profiles** from the Fault menu.

If you did not select an NE in Step 1, the Choose an NE/Alarm Severity Profiles is displayed. Select an NE by double-clicking on the item and click the OK button.

Result:

The Alarm Severity Assignment Profile Management window is displayed. This window consists of an explorer, which allows you to view and select the Profile Type under the selected NE, and five action buttons to the right of the explorer:

- Add
- Modify
- Delete
- View
- Assignments
- Rename

4 Click on the plus (+) sign next to the NE TID in the explorer to expand and view the Profile Types for that NE.

5 Click on the plus (+) sign next to the Profile Type in the explorer to expand it.

6 Choose a Profile Name for the profile to be modified.

Result:

The Profile name is highlighted.

7 Click on the Modify button.

Result:

The Modify an Alarm Severity Assignment Profile window is displayed, showing the the current alarm severity levels for each probable cause in the selected Profile Type and Profile Name.

8 Make changes to the alarm severity level(s) for the probable cause(s), as needed. To change a alarm severity level for a probable cause, click the appropriate radio button. For example, if the current alarm severity level is CR (for Critical), and you want to change it to MJ (Major), click the MJ radio button in the row for the probable cause.

9 Click the OK button.

Result:

The changes are made to the selected ASAP.

END OF STEPS

□

Delete an ASAP

Purpose Use this procedure to delete an Alarm Severity Assignment Profile (ASAP) for a Profile Type in an NE.

Before you begin Before you begin this task, make sure that the ASAP to be deleted is not assigned to an AID in an NE. If it is, remove the ASAP assignment from the NE's AID. Also, you cannot delete the default ASAP for a Profile Type in an NE.

Be aware that the deletion of an ASAP is only supported for WaveStar® OLS 1.6T NEs.

Task Complete the following steps to delete an ASAP.

1 Select an NE from the Map window.

OR

Select no NEs at this point.

2 Select **Fault** from the main menu bar on the Map window.

Result:

The Fault menu is displayed.

3 Select **Alarm Severity Assignment Profiles** from the Fault menu.

If you did not select an NE in Step 1, the Choose an NE/Alarm Severity Profiles is displayed. Select an NE by double-clicking on the item and click the OK button.

Result:

The Alarm Severity Assignment Profile Management window is displayed. This window consists of an explorer, which allows you to view and select the Profile Type under the selected NE, and six action buttons to the right of the explorer:

- Add
- Modify
- Delete
- View

- Assignments
- Rename

4 Click on the plus (+) sign next to the NE TID in the explorer to expand and view the Profile Types for that NE.

5 Click on the plus (+) sign next to the Profile Type in the explorer to expand it.

Result:

The explorer shows the list of ASAPs available for that Profile Type.

6 Click on the Profile Name of the ASAP to be deleted.

Result:

The ASAP is highlighted. The five action buttons to the right of the explorer are enabled.

7 Click the Delete button.

Result:

A pop-up window is displayed, asking if you really want to delete the selected profile.

8 Choose Yes to delete the profile.

END OF STEPS

□

Rename an ASAP

Purpose Use this procedure to rename an existing inactive Alarm Severity Assignment Profile (ASAP). An inactive ASAP profile is one that is not currently assigned to one or more AIDs of an entity.

Before you begin Before you begin this task, be aware that you cannot rename a default ASAP or active ASAP. An active ASAP is one that is currently assigned to an AID in an NE.

To perform this task, access the Map window.

Task Complete the following steps to rename an existing ASAP.

1 Select an NE from the Map window.

OR

Select no NEs at this point.

2 Select **Fault** from the main menu bar on the Map window.

Result:

The Fault menu is displayed.

3 Select **Alarm Severity Assignment Profiles** from the Fault menu.

If you did not select an NE in Step 1, the Choose an NE/Alarm Severity Profiles window is displayed. Select an NE by double-clicking on the item and click the OK button.

Result:

The Alarm Severity Assignment Profile Management window is displayed. This window consists of an explorer, which allows you to view and select the Profile Type under the selected NE, and six action buttons to the right of the explorer:

- Add
- Modify
- Delete
- View

- Assignments
- Rename

4 Click on the plus (+) sign next to the NE TID in the explorer to expand and view the Profile Types for that NE.

5 Click on the plus (+) sign next to the Profile Type in the explorer to expand and view the Profile Names under that Profile Type.

6 Click on the existing profile to be renamed under the selected Profile Type.

Result:

The selected profile is highlighted.

7 Click on the Rename button.

Result:

The Rename an Alarm Severity Profile window is displayed. This window has three fields:

- Profile Type—shows the related ASAP Profile type. This field is greyed out (cannot be modified here)
- Profile Name—shows the current ASAP profile name. This field is greyed out (display-only field; the name is not modified in this field)
- New Name—field for entering a new name for the selected ASAP profile

8 Enter the new name for the ASAP profile in the New Name field.

9 Click the Apply button to initiate the change or click the OK button to initiate the change and close the Rename an Alarm Severity Profile window. A message is displayed, “Renaming...”, indicating that the system is processing the ASAP name change.

If you clicked the Apply button on the Rename an Alarm Severity Profile window, click the Close button to close this window when the renaming process is complete.

When the renaming process is complete, the Alarm Severity Profiles window shows the ASAP name change in the explorer portion of the window.

Important! The ASAP renaming process may take a long time. Do not close the Rename an Alarm Severity Profile window until the "Renaming..." message disappears from the status message bar on the window and the renaming process is complete.

END OF STEPS

Assign ASAP to AID

Purpose Use this procedure to associate an Alarm Severity Assignment Profile (ASAP) with one or more AIDs in an NE. You have the option of either assigning the default ASAP or an ASAP that you have created to an NE's AID.

Before you begin Before you begin this task, add the new ASAP (if it has not already been created) or modify the existing ASAP to be associated with the NE's AID(s). Also, use the Assignments button on the Alarm Severity Assignment Profile Management window to view the NE entity(ies) currently assigned to an ASAP (Profile Name).

Task Complete the following steps to assign an ASAP to one or more AIDs in an NE.

1 Select **Configuration** from the main menu bar on the Map window.

Result:

The Configuration menu is displayed.

2 Select **Provision** from the Configuration menu.

Result:

The Choose an NE window is displayed.

3 Double-click on the NE in the list to select it.

4 Click the OK button.

Result:

The Provisioning window is displayed.

The alternate way to access the Provisioning window is to position the mouse pointer on the NE in the Map window and click the left (select) mouse button to select it. The selected NE is highlighted. Then, click the right (menu) mouse button to display a pop-up menu, and select **Provision** from the pop-up menu.

5 In the Network Element Explorer portion of the Provisioning window, expand the NE equipment hierarchy until the desired AID is displayed.

6 Click on the AID to choose it.

Result:

The AID is highlighted.

7 Click the Provision button.

Result:

The Provisioning panel of the window is displayed.

8 Click the down arrow next to the ASAP field in the Provisioning panel to display a drop-down list of available ASAPs for the AID.

Result:

The default ASAP for the AID is highlighted and displayed, by default.

9 Select the ASAP to be assigned to the AID.

10 Click the Apply button.

Result:

A pop-up message is displayed, advising you that the parameter change may affect service and asks whether you want to proceed with the change. The ASAP is assigned to the chosen AID.

11 Choose Yes. The Status Dialog window is displayed, showing that the ASAP assignment request is being processed. Click the Close button on the Status Dialog window to close it.

12 To make additional ASAP assignments, repeat Steps 6-11.

END OF STEPS

□

View ASAP Assignments

Purpose Use this procedure to view the entities to which the chosen Alarm Severity Assignment Profile (ASAP) is assigned.

Before you begin Before you begin this task, access the Map window.

Task Complete the following steps to view the entity assignments (by AID) for the selected Profile Type and ASAP.

1 Select an NE from the Map window.

OR

Select no NEs at this point.

2 Select **Fault** from the main menu bar on the Map window.

Result:

The Fault menu is displayed.

3 Select **Alarm Severity Assignment Profiles** from the Fault menu.

If you did not select an NE in Step 1, the Choose an NE/Alarm Severity Profiles is displayed. Select an NE by double-clicking on the item and click the OK button.

Result:

The Alarm Severity Assignment Profile Management window is displayed. This window consists of an explorer, which allows you to view and select the Profile Type under the selected NE, and six action buttons to the right of the explorer:

- Add
- Modify
- Delete
- View
- Assignments
- Rename

4 Click on the plus (+) sign next to the NE TID in the explorer to expand and view the Profile Types for that NE.

5 Click on the plus (+) sign next to the Profile Type in the explorer to expand it.

6 Choose a Profile Name for the profile to be viewed.

Result:

The Profile name is highlighted.

7 Click on the Assignments button.

Result:

The Alarm Severity Assignment Profile Assignments window is displayed, showing the entity(ies), by AID, for the selected Profile Type and profile.

8 Click the Close button to close the window.

END OF STEPS

□

Provision Environmental Alarms

Purpose Use this procedure to assign alarm severity levels for environmental alarms generated by miscellaneous discretes (scan points) on the NE, by choosing an Alarm Severity Assignment Profile (ASAP) and a message to be displayed.

Before you begin Before you begin this task, create an ASAP for the environmental alarm Profile Type of the NE if you want to use an ASAP other than the NE's default ASAP.

Be aware that this function is only available for WaveStar® OLS 1.6T NEs.

Task Complete the following steps to set up severity levels for the chosen NE's environmental alarms and an alarm message to be displayed (if needed).

1 Select **Fault** from the main menu bar on the Map window.

Result:

The Fault menu is displayed.

2 Select **Alarm Provisioning** from the Fault menu.

Result:

The Fault Management Administrative Settings window is displayed.

This window is divided into four tabbed panels:

- Miscellaneous Discretes
- Alarm Delays
- Office Alarms & Messages
- Latching

3 Click on the Miscellaneous Discretes panel tab, if this panel of the window is not already displayed.

4 In the Miscellaneous Discretes Explorer portion of the window, click on the NE to select it.

Result:

The NE's TID is highlighted.

5 Click on the plus (+) sign next to the TID in the explorer to expand and display the environmental "scan points" (discretes) for the NE.

6 Click on a scan point (discrete) in the list to select it. If necessary, use the scroll bar to the right of the displayed items in the explorer to find the desired scan point (discrete).

Result:

The selected discrete is highlighted.

7 Choose an ASAP by clicking the down arrow next to the Environmental ASAP Name field to display a list of available ASAPs and clicking on an ASAP to select it.

8 If needed, enter alarm message text for the selected scan point in the Alarm Message field. The alarm message can contain 1-26 alphanumeric characters. Spaces and periods are allowed. This step is optional.

END OF STEPS

□

Provision Alarm Delays

Purpose Use this procedure to set alarm generation and clearing delays for NEs. Setting an alarm delay invokes the system to only send an alarm notification when an alarm causing event continues to be present for the specified alarm delay period. Setting a clearing delay invokes the system to only clear an alarm when the alarm causing event has been absent for the specified clearing delay period.

Before you begin Before you begin this task, be aware that the WaveStar® OLS 1.6T NE only supports alarm generation and clearing delays for facility alarms.

Task Complete the following steps to set alarm generation and clearing delays for an NE.

1 Select **Fault** from the main menu bar on the Map window.

Result:

The Fault menu is displayed.

2 Select **Alarm Provisioning** from the Fault menu.

Result:

The Fault Management Administrative Settings window is displayed.

This window is divided into four tabbed panels:

- Miscellaneous Discretes
- Alarm Delays
- Office Alarms & Messages
- Latching

3 Click on the Alarm Delays panel tab.

Result:

The Alarm Delays panel is displayed.

4 Choose an NE from the Network Elements list by clicking on the NE's TID.

Result:

The NE is highlighted.

5 Set values for the following fields, as needed:

- Alarm Delay Facility/(for AllMetro NEs only)Incoming Signal —enter an alarm delay period for facility alarms (or incoming signal alarms for AllMetro NEs). The available values are 0 (seconds) or greater than 10 seconds and less than or equal to 60 seconds. The value of this field must be less than or equal to the value of the Clear Delay Facility field. The default value is 0, if no other value is selected.
- Clear Delay Facility —enter a clear delay period for facility alarms. The available values are 0-60 (seconds). The default value is 0, if no other value is selected.
- Alarm Delay Equipment—enter an alarm delay period for equipment alarms. The available values are 0-60 (seconds). The value of this field must be less than or equal to the values of the Clear Delay Facility and the Clear Delay Equipment fields. The default value is 0, if no otther value is selected.
- Clear Delay Equipment—enter a clear delay period for equipment alarms. The available values are 0-60 (seconds). The default value is 0, if no other value is selected.

END OF STEPS

□

Provision Alarm Indicators and Autonomous Messages

Purpose Use this procedure to enable or disable audio/visual alarm indicators and allow or inhibit autonomous messages for specific NEs in your network.

Before you begin Before you begin this task, be sure that the Alarm Indicator and/or Audible Alarm feature(s) is enabled if you want to enable either alarm indicator for an NE.

Be aware that the ability to allow or inhibit autonomous messages is only for the current Navis™ Optical EMS login session, not for all login sessions for the NE. The ability to allow or inhibit autonomous messages is currently only available for WaveStar® OLS 1.6T NEs.

Task Complete the following steps to provision audio/visual indicators and receipt of autonomous messages for an NE.

1 Select **Fault** from the main menu bar on the Map window.

Result:

The Fault menu is displayed.

2 Select **Alarm Provisioning** from the Fault menu.

Result:

The Fault Management Administrative Settings window is displayed.

This window is divided into four tabbed panels:

- Miscellaneous Discretes
- Alarm Delays
- Office Alarms & Messages
- Latching

3 Click on the Office Alarms & Messages panel tab.

Result:

The Office Alarms & Messages panel is displayed.

4 Choose an NE from the Network Elements list by clicking on the NE's TID.

Result:

The NE is highlighted.

5

TO ...	CLICK ...
enable audio/visual alarm indicators for alarms on the chosen NE	the Enabled radio button in the Office A/V Alarms portion of the panel
disable audio/visual alarm indicators for alarms on the chosen NE	the Disabled radio button in the Office A/V Alarms portion of the panel
inhibit the receipt of autonomous messages from the chosen NE	the Inhibit radio button in the Autonomous Messages portion of the panel
Allow the receipt of autonomous messages from the chosen NE	the Allow radio button in the Autonomous Messages portion of the panel

END OF STEPS

□

Provision Alarm Latching

Purpose

Use this procedure to enable or disable alarm latching for a specified NE. When alarm latching is enabled for an NE, any alarm that is generated for that NE is only removed from the Alarm List when the alarm is:

1. cleared
2. acknowledged (the acknowledgement may be done before or after the alarm is cleared)

Before you begin

Before you begin this task, be aware that the Alarm Latching feature will only work for a specified NE if Alarm Latching Readiness is enabled during Navis™ Optical EMS installation.

Related information

For information about the Navis™ Optical EMS installation, see the *Navis™ Optical EMS Installation Guide*.

Task

Complete the following steps to provision the Alarm Latching feature for an NE.

1 Select **Fault** from the main menu bar on the Map window.

Result:

The Fault menu is displayed.

2 Select **Alarm Provisioning** from the Fault menu.

Result:

The Fault Management Administrative Settings window is displayed.

This window is divided into four tabbed panels:

- Miscellaneous Discretes
- Alarm Delays
- Office Alarms & Messages
- Latching

3 Click on the Latching panel tab.

Result:

The Latching panel is displayed.

4 Choose an NE from the Network Elements list by clicking on the NE's TID.

Result:

The NE is highlighted.

5

TO ...	CLICK ...
enable alarm latching for the chosen NE	the Enabled radio button in the Latching portion of the panel
disable alarm latching for the chosen NE	the Disabled radio button in the Latching portion of the panel

END OF STEPS

□

Automatically Throttle Alarms

Purpose

Use this procedure to set up automatic alarm throttling for an NE. When this feature is enabled, alarms will be automatically throttled when the number of alarms exceeds the set alarm threshold.

Before you begin

Before you begin this task, access the Map window.

The following table shows the relationship of automatically throttling alarms using this procedure to manually throttling alarms for an NE and whether alarm throttling is enabled for the NE.

Manual Throttling	Auto Alarm Throttling	Alarm Throttling for the NE is:
ON	ON	ON
ON	OFF	ON
OFF	ON	ON (if threshold exceeded)
OFF	OFF	OFF

Task

Complete the following steps to automatically throttle alarms for an NE.

1 Select **Administration** from the main menu bar on the Map window.

Result:

The Administration menu is displayed.

2 Select **Fault** from the Administration menu.

Result:

The Fault sub-menu is displayed.

3 Select **Alarm Throttling** from the Fault sub-menu.

Result:

The Automatic Alarm Throttling window is displayed.

4 Click on the NE TID in the explorer portion of the window to select it. If the NE is under an aggregate, click on the plus (+) sign next to the aggregate in the explorer to expand the aggregate and select the NE.

5

TO ...	DO THIS...
Enable automatic alarm throttling for the selected NE	Click the Enabled button under the "Set Alarm Throttling to" portion of the window and select a alarm threshold by moving the threshold arrow to the left or right until the desired threshold number is shown in the box. The maximum value is 3600 messages per hour.
Disable automatic alarm throttling for the selected NE	Click the Disabled button under the "Set Alarm Throttling to" portion of the window.

6 Click the Apply button to activate your choice(s) or click the OK button to activate your choice(s) and close the window.

END OF STEPS

□

Filter Alarms

Purpose

Use this procedure to switch between the filtered and unfiltered view of alarms on the Map window, Alarm List, and alarm tallies (the Alarm Notifcation window). When the alarm filtered state is on (the filtered view), alarms or events that are filtered out by the system's alarm filtering methods (Alarm Aging, Event-Per-Time Filtering for the transient condition (TC) Event Browser, Symptomatic Alarm Filtering) are not shown in the Map window, Alarm List, and alarm tallies. When the alarm filtered state is off (the unfiltered view), all alarms and events, including those that would normally be filtered out by the system's various filtering methods, are shown in the Map window, Alarm List, alarm tallies, and TC Event Browser (for TC events that exceed the to the EPT count parameter set). An unfiltered view of alarms is the default. If the Navis™ Optical EMS GUI becomes flooded with symptomatic alarms, you can enable this option to filter such alarms out of the Map window, Alarm List, and alarm tallies. When you change this option, you must log out and then log back to reflect the change in the filtered or unfiltered state.

Before you begin

Before you begin this task, determine whether you want a filtered or unfiltered view of alarms and events in the network.

Task

Complete the following steps to choose a filtered or unfiltered view of alarms in the Map window, Alarm List, and alarm tallies.

1 Select **Fault** from the main menu bar.

Result:

The Fault menu is displayed.

2

TO....	DO THIS...
Obtain a filtered view of alarms in the network	Select the Filter Alarms option in the Fault menu to place an "x" before the option

TO....	DO THIS...
Obtain an unfiltered view of alarms in the network	Select the Filter Alarms option to remove the “x” before the option (if there is an “x” there and the filtered view is activated). **Result:** When the Filter Alarms option is changed, a pop-up window is displayed with the message “You must first log out and log back into the EMS”. A message is also displayed in the Map window status bar “User Preferences Saved Successfully”. This indicates that the change to the Alarm Filtering state has been saved for when you log out and log back into the Navis™ Optical EMS.

3 Log out of the Navis™ Optical EMS and then log back in to obtain the new view of alarms in the network.

END OF STEPS

□

Display the Transient Condition Event Browser

Purpose Use this procedure to display a list of transient condition (TC) events. TC events (for example, a protection switch occurs) are generated by one or more NEs in the network and do not require clearing messages to be generated because they do not affect the condition of the NE over an extended period of time.

The following events are shown in the Transient Condition Browser:

- TL1-based messages—REPT-EVT with the "condeff" parameter equals "TC" [WaveStar®BWM, WaveStar®2.5G (OC–48 2F), 25G_10G, WaveStar®TDM 10G (OC-192 4F), All Metro)] Only the TC events that exceed the Event-Per-Time (EPT) alarm filtering count are displayed; in other words, the REPT-EVT with "condeff" = "TC" and passing the EPT filter ("eptexceeded" = "1"). The EPT filter does not apply to other TC events, such as REPT-SW and REPT-PROTSW.
- CMISE-based messages—Report Event message M-EVENT-REPORT with "condeff" (mapped API parameter) equals "TC" (400G).

When a new TC event arrives, it is placed at the top of the TC Browser listing. TC events that exceed the maximum number of TC events that have not been cleared are automatically removed from the list, starting with the oldest TC events.

Task Complete the following steps to display the Transient Condition browser.

Important! The Transient Condition Event Browser toolbar button is located to the right of the Global Unacknowledge toolbar button on the Map window toolbar. Another way to tell if it is the Transient Condition Toolbar button is to move the mouse cursor to each button until the tooltips help or the message in the Map window status bar identifies it as the Transient Condition Event Browser button.

1 Position the mouse cursor on the Transient Condition Event Browser toolbar button on the Map window toolbar and click the button.

OR

Choose **Fault** from the main menu bar on the Map window, which displays The Fault menu. Choose **Transient Condition Event Browser** from the Fault menu.

Result:

The Transient Condition Event Browser window is displayed.

The window provides a listing of each TC event by date and time of occurrence.

2 To save the output from this window to a file, do the following,

1. Click on **File** on the main menu bar on the Map window and then select **Save As**. A pop-up window is displayed.
2. Select the PC drive where the file folder resides in which to store the file output by clicking the down arrow next to the “Look In” field on the window. Select the drive.
3. Select and open the file folder for the saved output file by double-clicking on the folder in the scrollable list on the pop-up window.
4. Type a name for the output file in the File name field.
5. Click the Save button. The output is saved to the named file.

Important! To view the saved output file, use the Wordpad application.

3 When you are finished viewing the transient event information, access the **File** pull-down menu from the menu bar and select **Close** or, to close the window, click the “x” button in the upper-right hand corner of the window border.

END OF STEPS

□

Display and Use the Alarm/Event Log

Purpose Use this procedure to display the Alarm/Event Log, and to use this log to view and save important system-compiled alarm and event information.

Task Complete the following steps to use the Alarm/Event Log.

1 Select **Tools/Logs** from the main menu bar on the Map window.

Result:

The Tools/Log menu is displayed.

2 Select **Logs from EMS** from the Tools/Log menu.

Result:

The Logs from EMS sub-menu is displayed.

3 Select **Alarm/Event Log** from the Logs from EMS sub-menu.

Result:

The viewing parameters window for the Alarm/Event Log is displayed.

4 On the viewing parameters window, select the parameters for which you want to display Alarm/Event Log data:

- Use the up and down arrows on the **Start Date & Time** and **End Date & Time** spinner fields to adjust the entries in these fields. Alarm/Event data will be displayed only for data that falls within the selected parameter values. (If you make no adjustments, the start and end dates default to the current date, the start time defaults to 00:00, and the end time defaults to 15 minutes after the time this window was opened.) You can also type the date and time in the **Start Date & Time** and **End Date & Time** fields. The date must be input in dd-mm-yyyy format (for example, July 30, 2001 is entered as 30-07-2001). The year input must be the current year, and the date input cannot be beyond the current

date. The time must be input in 24-hour format as hh:mm, in 15 minute increments (for example, 11:15 P.M. is entered as 23:15). If the date or time entered is invalid, the color of the field changes to yellow, and you must re-enter a valid date or time in the proper format.

- To choose to view data related only to selected network elements or only to selected Aggregates or only to the EMS or to all, select the **Network Elements** or the **Aggregates** radio button (to the right of **Choose from a list of:**), respectively. If you select the **Network Element** radio button, then a list of NEs appears just below and to the left of the radio button. If you select the **Aggregate** radio button, then a list of ag-gregates appears instead of NEs. After selecting one of these two radio buttons, you can use the arrow push buttons between the left and right list areas to move selected NEs or aggregates (whichever of the two applies) into the right side "Chosen" list area. The NEs or aggregates you move into this "Chosen" list will be the NEs or aggregates for which later you will be viewing Alarm/Event Log data.
- To sort the data in a particular order, click the **Ascending** or **Descending** radio button. **Descending** is the default.
- Use the **Alarms** and **Events** checkboxes near the lower left of the viewing parameters window to request both alarm and event information or just one of the two. Clicking these checkboxes toggles between placing a check (include this data) and removing the check (do ***not*** include this data).
- Select from the **Alarm record options** and/or **Event record options** lists to further specify the type of data you want to display.

5 After you have finished specifying parameters on the viewing parameters window, click the OK button.

Result:

This closes the window and displays the Log browser window, containing the information that meets your specified parameters. You can use this window to view the log records or save them to a file to print.

END OF STEPS

□

Display and Use the NE Notifications Log

Purpose Use this procedure to display the NE Notifications Log, and to use this log to view and save important system-compiled network notifications information, including protection switching history.

Task Complete the following steps to use the Network Notifications Log.

1 Select **Tools/Logs** from the main menu bar on the Map window.

Result:

The Tools/Logs menu is displayed.

2 Select **Logs from EMS** from the Tools/Logs sub-menu.

Result:

The Logs from EMS sub-menu is displayed.

3 Select **NE Notifications Log** from the Logs from EMS sub-menu.

Result:

The viewing parameters window for the Network Notifications Log is displayed.

4 On the viewing parameters window, select the parameters for which you want to display Network Notifications Log data:

- Use the up and down arrows on the **Start Date & Time** and **End Date & Time** spinner fields to adjust the entries in these fields. Network Notifications data will be displayed only for data that falls within the selected parameter values. (If you make no adjustments, the start and end dates default to the current date, the start time defaults to 00:00, and the end time defaults to 15 minutes after the time this window was opened.) You can also type the date and time in the **Start Date & Time** and **End Date & Time** fields. The date must be input in dd-mm-yyyy format (for example, July 30, 2001 is entered as 07-30-2001). The year input must be the current year, and the date input cannot be beyond the

current date. The time must be input in 24-hour format in 15 minute increments (for example, 11:15 P.M. is entered as 23:15). If the date or time entered is invalid, the color of the field changes to yellow, and you must re-enter a valid date or time in the proper format.

- To choose to view data related only to selected network elements or only to selected Aggregates, select the **Network Elements** or all the **Aggregates** radio button (to the right of **Choose from a list of:**), respectively. If you select the **Network Element** radio button, then a list of NEs appears just below and to the left of the radio button. If you select the **Aggregate** radio button, then a list of aggregates appears instead of NEs. After selecting one of these two radio buttons, you can use the arrow push buttons between the left and right list areas to move selected NEs or aggregates (whichever of the two applies) into the right side "Chosen" list area. The NEs or aggregates you move into this "Chosen" list will be the NEs or aggregates for which later you will be viewing Network Notifications Log data.
- To sort the data in a particular order, click the **Ascending** or **Descending** radio button. **Descending** is the default.
- Use the **Show these types of log records:** radio buttons and a field near the lower part of the viewing parameters window to further specify the type of data wanted.

5 After you have finished specifying parameters on the viewing parameters window, click the OK button.

Result:

This closes the window and displays the Log browser window, containing the information that meets your specified parameters. You can use this window to view the log records or save them to a file.

END OF STEPS

□

Display and Use the NE Command/Response Log

Purpose Use this procedure to display the NE Command/Response Log, and to use this log to view and save important system-compiled network command/response information.

Task Complete the following steps to use the NE Command/Response Log.

1 Select **Tools/Logs** from the main menu bar on the Map window.

Result:

The Tools/Logs menu is displayed.

2 Select **Logs from EMS** from the Tools/Logs menu.

Result:

The Logs from EMS sub-menu is displayed.

3 Select **NE Command/Response Log** from the Logs from EMS sub-menu..

Result:

The viewing parameters window for the Network Command/Response Log is displayed.

4 On the viewing parameters window, select the parameters for which you want to display Network Command/Response Log data:

- Use the up and down arrows on the **Start Date & Time** and **End Date & Time** spinner fields to adjust the entries in these fields. Network Command/Response data will be displayed only for data that falls within the selected parameter values. (If you make no adjustments, the start and end dates default to the current date, the start time defaults to 00:00, and the end time defaults to 15 minutes after the time this window was opened.) You can also type the date and time in the **Start Date & Time** and **End Date & Time** fields. The date must be input in dd-mm-yyyy format (for example, July 30, 2001 is entered as 07-30-2001). The year input must be the current year, and the date input cannot be beyond the

current date. The time must be input in 24-hour format as hh:mm in 15 minute increments (for example, 11:15 P.M. is entered as 23:15). If the date or time entered is invalid, the color of the field changes to yellow, and you must re-enter a valid date or time in the proper format.

- To choose to view data related only to selected network elements or only to selected Aggregates, select the **Network Elements** or all the **Aggregates** radio button (to the right of **Choose from a list of:**), respectively. If you select the **Network Element** radio button, then a list of NEs appears just below and to the left of the radio button. If you select the **Aggregate** radio button, then a list of aggregates appears instead of NEs. After selecting one of these two radio buttons, you can use the arrow push buttons between the left and right list areas to move selected NEs or aggregates (whichever of the two applies) into the right side "Chosen" list area. The NEs or aggregates you move into this "Chosen" list will be the NEs or aggregates for which later you will be viewing Network Command/Response Log data.
- To sort the data in a particular order, click the **Ascending** or **Descending** radio button. **Descending** is the default.
- If you belong to a command group that allows you to view other user's command/response log records (check with your system administrator), then you can click on the More Options button to display an additional viewing parameters window. Click More Options, and then use this additional window to select the users and log record sources you want to include in your viewing parameters. In both cases, select the desired parameters by clicking on them in the left list, and using the right arrow symbol button (>) to move the selections to the "Chosen" list. (The current user's username already appears in the "Chosen" list by default.)

5 After you have finished specifying parameters on one or both of the viewing parameters windows, click the OK button.

Result:

This displays the Log browser window, containing the information that meets your specified parameters. You can use this window to view the log records or save them to a file or print.

END OF STEPS

Display and Use the EMS Activity Log

Purpose Use this procedure to display the EMS Activity Log, and to use this log to view and save important user/system-compiled activity information.

The onset and termination of system overload conditions are also logged in the Activity Log.

Task Complete the following steps to use the EMS Activity Log.

1 Select **Tools/Logs** from the main menu bar on the Map window.

Result:

The Tools/Logs menu is displayed.

2 Select **Logs from EMS** from the Tools/Logs menu.

Result:

The Logs from EMS sub-menu is displayed.

3 Select **EMS Activity Log** from the displayed sub-menu.

Result:

The viewing parameters window for the EMS Activity Log is displayed.

4 On the viewing parameters window, select the parameters for which you want to display Activity Log data:

- Use the up and down arrows on the **Start Date & Time** and **End Date & Time** spinner fields to adjust the entries in these fields. Activity data will be displayed only for data that falls within the selected parameter values. (If you make no adjustments, the start and end dates default to the current date, the start time defaults to 00:00, and the end time defaults to 15 minutes after the time this window was opened.) You can also type the date and time in the **Start Date & Time** and **End Date & Time** fields. The date must be input in dd-mm-yyyy format (for example, July 30, 2000 is entered as 07-30-2000). The year input must be the current

year, and the date input cannot be beyond the current date. The time must be input in 24-hour format as hh:mm in 15 minute increments (for example, 11:15 P.M. is entered as 23:15). If the date or time entered is invalid, the color of the field changes to yellow, and you must re-enter a valid date or time in the proper format.

- To choose to view data related only to a selected user(s), you can use the arrow push buttons between the left and right list areas to move a selected user(s) into the right side “Chosen” list area. The user(s) you move into this “Chosen” list will be the user(s) for which you will be viewing Activity data.
- You can choose the activity criteria you want to include in your viewing parameters by using the scroll down list to select **All Activities**, **Only Completed Activities**, or **Only Failed Activities**.
- Select the desired activities from the **Available Activities** list by clicking to highligh the desired activities in the left list, and using the arrow push buttons to move the selections to the “Chosen” list.

5 After you have finished specifying parameters on the parameters windows, click the OK button.

Result:

This displays the Log browser window, containing the information that meets your specified parameters. You can use this window to view the log records or save them to a file or print.

END OF STEPS

□

Display and Use the NE Logs

Purpose Use this procedure to display and view the selected data log obtained directly from a specific NE.

Task **Important!** The Navis™ Optical EMS currently only provides access to logged alarm data from an NE.

Complete the following steps to display and view the selected NE log.

1 Select an NE on the Map pane of the Map window OR select no NE at this time.

2 Select **Tools/Logs** from the main menu bar on the Map window.

Result:

The Tools/Logs menu is displayed.

3 Select **Logs from NE** from the Tools/Logs menu.

Result:

If no NE was selected in Step 1, the Choose an NE window is displayed. Choose an NE from the list by double-clicking on it and click the OK button.

4 Select **NE Command/Response Log** from the Logs from EMS sub-menu..

Result:

The viewing parameters window for the NE Logs window is displayed..

5 On the viewing parameters window, select the Log Type, the Reply Type, and the Start Date/Time for the log data to be displayed.

Use the up and down arrows on the **Start Date & Time** spinner field to adjust the entries in these fields. Data will be displayed only for data that falls within the selected parameter values. (If you make no

adjustments, the start and end dates default to the current date, the start time defaults to 00:00, and the end time defaults to 15 minutes after the time this window was opened.) You can also type the date and time in the **Start Date & Time** field. The date must be input in mm-dd-yyyy format (for example, July 30, 2001 is entered as 07-30-2001). The year input must be the current year, and the date input cannot be beyond the current date. The time must be input in 24-hour format as hh:mm in 15 minute increments (for example, 11:15 P.M. is entered as 23:15).

6 After you have finished specifying parameters on the viewing parameter window, click the OK button.

Result:

The NE log data that meets the specified criteria is displayed..

END OF STEPS

□

3 Performance Management

Overview

Purpose

This chapter describes procedures for collecting and viewing performance monitoring (PM) data for network elements managed by the Navis™ Optical EMS.

Before you begin

Read Chapter 5, "Performance Management Concepts" to acquire an understanding of the Performance Managment functions provided by the Navis™ Optical EMS.

Contents

Provision PM Data Collection for an NE

Purpose

Use this procedure to enable or disable the collection of Path, Far-end or Near-end PM data for a port or tributary by an NE. Provisioning of PM data collection by the NE should be done prior to globally enabling the PM feature in the Navis™ Optical EMS and enabling the collection of PM data from an NE by the Navis™ Optical EMS.

The basic steps for setting up PM data collection in the Navis™ Optical EMS from an NE are:

1. Set Port Mode (for the port) or Tributary Monitoring Mode (for the tributary) to MON (Monitored) mode for each port/tributary from which PM data will be collected.
2. Provision the collection of path, far-end, or near-end PM data for a port or tributary on an NE using the Provisioning window.
3. Globally enable the PM feature using the Global PM Data Administration window. As part of globally enabling the feature, you specify whether PM data will be collected and viewed per facility type or per AID.
4. Enable PM data collection for the NE using the NE PM Data Administration window. When you enable PM data collection for a specific NE, you specify the reporting interval (15-minute PM data, 1-day PM data, or both). You also specify the facility type(s) or AID(s) for which PM data will be collected from the NE.

Before you begin

Before you begin this task, access the Map window.

The Date/Time Synchronization feature should be enabled for any NE that has PM data collection enabled to ensure that the date/time of the NE is synchronized with the date/time of the Navis™ Optical EMS host.

For details about enabling Date/Time Synchronization on an NE, refer to the *Navis™ Optical EMS Provisioning Guide.*

Related tasks

See the following related tasks:

- “Globally Enable/Disable the PM Feature” (3-7)
- “Enable/Disable PM Data Collection (Per Facility Basis)” (3-12)

Task Complete the following steps to enable or disable the collection of Path, Far-end or Near-end PM data for a port or tributary by an NE.

1 Select **Configuration** from the main menu bar on the Map window.

Result:

The Configuration menu is displayed.

2 Select **Provision** from the Configuration menu.

Result:

The Choose an NE window is displayed.

3 Double-click on the NE in the list to select it.

4 Click the OK button.

Result:

The Provisioning window is displayed.

The alternate way to access the Provisioning window is to position the mouse pointer on the NE in the Map window and click the right (menu) mouse button to display a pop-up menu, and select **Provision** from the pop-up menu.

5 In the Network Element Explorer portion of the Provisioning window, expand the NE equipment hierarchy until the desired port or tributary AID is displayed.

6 Click on the AID to choose it.

Result:

The AID is highlighted.

7 Click the Provision button.

Result:

The Provisioning panel of the window is displayed.

8 Use the scroll bar located to the right of the Provisioning panel of the Provisioning window to scroll down to the "Performance Management" section of the Provisioning panel.

The "Performance Management" section of the Provisioning panel contains parameter fields for enabling/disabling collection of Near-end and Far-end PM data for the selected port.

9

TO...	DO THIS...
Enable collection of Far-end section PM data for the selected NE port/	Click the down arrow next to the Far-end PM Section Enable field to display a drop-down list. The choices are: Enable or Disable. Choose Enable.
Disable collection of Far-end section PM data for the selected NE port	Click the down arrow next to the Far-end PM Section Enable field to display a drop-down list. The choices are: Enable or Disable. Choose Disable (Disable is the default.)

10

TO...	DO THIS...
Enable collection of Near-end section PM data for the selected NE port	Click the down arrow next to the Near-end PM Section Enable field to display a drop-down list. The choices are: Enable or Disable. Choose Enable. (Enable is the default.)
Disable collection of Near-end section PM data for the selected NE port	Click the down arrow next to the Near-end PM Section Enable field to display a drop-down list. The choices are: Enable or Disable. Choose Disable.

11

TO...	DO THIS...
Enable collection of Path PM data for the selected NE tributary	Click the down arrow next to the Path PM Section Enable field to display a drop-down list. The choices are: Enable or Disable. Choose Enable. (Enable is the default.)
Disable collection of Path PM data for the selected NE tributary	Click the down arrow next to the Near-end PM Section Enable field to display a drop-down list. The choices are: Enable or Disable. Choose Disable.

12 Click the Apply button.

Result:

A pop-up message is displayed, advising you that the parameter change may affect service and asks whether you want to proceed with the change.

13 Choose Yes. The Status Dialog window is displayed, showing that the provisioning request is being processed. Click the Close button on the Status Dialog window to close it.

END OF STEPS

□

Globally Enable/Disable the PM Feature

Purpose Use this procedure to globally enable or disable the Performance Monitoring (PM) data collection feature.

The PM data collection feature is supported for the following NEs:

- WaveStar® OLS 1.6T
- WaveStar® BandWidth Manager (BWM)
- WaveStar® 2.5G_10G
- WaveStar® TDM 10G (OC-192 4F)
- WaveStar® TDM 10G (STM-64)
- FT-2000 Large Capacity Terminal (LCT) R. 4.0
- Metropolis™ DMX Access Multiplexer

When the PM data collection feature is turned on, the Navis™ Optical EMS periodically collects PM data from each NE that has PM data collection activated. When the PM feature is globally disabled, PM data is not collected from any NE.

You can globally provision the collection (and later viewing) of PM data on a per-facility type or per AID separately for 15–minute and 1–day data. In other words, you can set up the PM feature to collect 15–minute PM data on a per facility type basis and collect/view 1–day PM data on a per-AID basis, or vice versa. You can also globally provision collection and viewing of ***both*** 15–minute PM and 1–day PM data on a per facility-type or per AID basis.

You can also designate a limit on the total number of AIDs per the Navis™ Optical EMS host that can be provisioned for PM data collection before a warning message is issued by the Navis™ Optical EMS and whether the PM value is collected and displayed as a raw number, or as a raw number and a percentage of the maximum allowed value for the PM parameter. If the option to provide both a raw number and a percentage is enabled, the percentages only apply to digital PM parameters, not to analog PM parameters.

The basic steps for setting up PM data collection in the Navis™ Optical EMS from an NE are:

1. Set Port Mode (for the port) or Tributary Monitoring Mode (for the tributary) to MON (Monitored) mode for each port/tributary from which PM data will be collected.
2. Provision the collection of path, far-end, or near-end PM data for a port or tributary on an NE using the Provisioning window.
3. Globally enable the PM feature using the Global PM Data Administration window. As part of globally enabling the feature, you specify whether PM data will be collected and viewed per facility type or per AID. You have the option of collecting and viewing 15–minute PM data per facility and 1–day PM data per AID (or vice versa), or collecting and viewing both 15–minute and 1 day PM data on a per facility-type basis or per-AID basis.
4. Enable PM data collection for the NE using the NE PM Data Administration window. When you enable PM data collection for a specific NE, you specify the reporting interval (15-minute PM data, 1-day PM data, or both). You also specify the facility type(s) or AID(s) for which PM data will be collected from the NE.

Before you begin

Before you begin this task, access the Map window.

The Date/Time Synchronization feature should be enabled for any NE that has PM data collection enabled to ensure that the date/time of the NE is synchronized with the date/time of the Navis™ Optical EMS host.

For details about enabling Date/Time Synchronization on an NE, refer to the *Navis™ Optical EMS Provisioning Guide.*

Task

Complete the following steps to globally enable or disable the PM feature.

1 Select **Performance** from the main menu bar on the Map window.

Result:

The Performance menu is displayed.

2 Select **Global PM Management** from the Performance menu.

Result:

The Global PM Data Administration window is displayed.

3

IF ...	THEN ...
you want to enable the PM feature	click on the Collect PM Data box to place a check there and select the retention period for 15-minute and 1-day PM data reports. To select the retention period, move the slider bar for each report type to the left or right. You can set the retention period from 1 to 30 days for each report type. The number displayed to the right of each slider bar shows the setting selected.**Important!** Click the Retrieve button to display the current system default retention periods.
you want to disable the PM feature	click on the Collect PM Data box to remove the check or leave the box blank.

4

TO...	DO THIS...
Set a new limit for the number of AIDs provisioned for PM data collection before an advisory message is issued	In the Set AID Warning Limit portion of the window, slide the selection bar next to the Set New Display Point field to the left or right until the desired value is displayed in the numeric field to the right of the bar. The selection range is from 700 to 950 AIDs. The default is 900 AIDs.

5 Provision the global settings for collection and viewing of PM data. You have the option of setting up 15–minute and 1–day data collection/viewing differently (for example, collect and view 15–minute PM data on a per facility-type basis while collecting/viewing 1–day PM data on a per-AID basis, or vice versa), or globally enabling collection/viewing of both 15–minute PM data

and 1–day PM data on a per facility-type basis or AID basis.

TO...	DO THIS...
Collect and view 15–minute PM report data from an NE on a per-facility type basis (the default)	Click the Facility radio button under the Collect and View 15–Minute PM Report Data label
Collect and view 15–minute PM report data from an NE on a per-AID basis	Click the AID radio button under the Collect and View 15–Minute PM Report Data label
Collect and view 1–day PM report data from an NE on a per-facility basis (the default)	Click the Facility radio button under the Collect and View 1–Day PM Report Data label
Collect and view 1–day PM report data from an NE on a per-AID basis	Click the AID radio button under the Collect and View 1–Day PM Report Data label

6

TO...	DO THIS...
Display the collected PM threshold and parameter data as a raw number	Click the Raw Format radio button in the Display Threshold and Parameter Data portion of the window.
Display the collected PM threshold and parameter data as a raw number and a percentage of the maximum value for a particular parameter	Click the Raw and Percentage Format in the Display Threshold and Parameter Data portion of the window.**Important!** If the option to collect PM data as a raw number and a percentage is chosen, percentages only apply to digital PM parameters, not to analog PM parameters. For analog PM parameters, only a raw number is provided regardless of how this option is set.

7 Click the Apply button to activate your choices.

Result:

A question dialog box is displayed, informing you that changing parameter values (for the PM feature) may affect service and asks if you are really sure you want to modify them.

8 Choose Yes.

Result:

The PM feature is globally enabled, using the data collection and reporting method(s) that you have specified.

END OF STEPS

□

Enable/Disable PM Data Collection (Per Facility Basis)

Purpose

Use this procedure to enable or disable PM data collection for the specified NE on a per-facility basis, and, if PM data collection is enabled, select the PM reporting interval. You can also reset the digital PM data registers and the start time of 1-day PM data collection, if needed (for WaveStar® OLS 1.6T NEs only).

When the Navis™ Optical EMS collects PM data from a network element on a per-facility type basis, it differentiates between PM data that is not in the Navis™ Optical EMS database because it has a value of zero versus data that was not collected by the system.

The basic steps for setting up PM data collection in the Navis™ Optical EMS from an NE are:

1. Set Port Mode (for the port) or Tributary Monitoring Mode (for the tributary) to MON (Monitored) mode for each port/tributary from which PM data will be collected.
2. Provision the collection of path, far-end, or near-end PM data for a port or tributary on an NE using the Provisioning window.
3. Globally enable the PM feature using the Global PM Data Administration window. As part of globally enabling the feature, you specify whether PM data will be collected and viewed per facility type or per AID. You have the option of collecting and viewing 15–minute PM data or 1–day PM data on per facility-type basis, or both 15–minute and 1–day PM data on a per-facility type basis.
4. Enable PM data collection for the NE using the NE PM Data Administration window. Based on the global setting for PM data collection on per facility-type basis, you can specify, for the selected NE, the reporting interval (15-minute PM data, 1-day PM data, or both). You also specify the facility type(s) or AID(s) for which PM data will be collected from the NE.

Before you begin

Before you begin this task, be aware that NE PM data collection will not be performed until the PM feature is globally enabled (see “Globally Enable/Disable the PM Feature” (3-7)).

The method and type of PM data that can be collected for an NE (per facility or AID) depends on the global setting for PM data collection made through the Global PM Data Administration window. A different

version of the EMS Data Settings panel is displayed on the NE PM Data Administration window, depending on whether the PM feature was enabled globally for all NEs to collect data on a per-facility or per-AID basis. See "Globally Enable/Disable the PM Feature" (3-7) for instructions on how to globally enable PM data collection on a per-facility or on a per-AID basis.

If the PM feature is globally enabled to collect 15–minute and 1–day PM data on a per AID basis ***only***, then refer to "Enable/Disable PM Data Collection (Per AID Basis)" (3-19)

Be aware that PM data collection is suspended during an alarm storm. The Navis™ Optical EMS resumes PM data collection after the alarm storm has subsided.

The Date/Time Synchronization feature should be enabled for any NE that has PM data collection enabled to ensure that the date/time of the NE is synchronized with the date/time of the Navis™ Optical EMS host.

For details about enabling Date/Time Synchronization on an NE, refer to the *Navis™ Optical EMS Provisioning Guide.*

Related tasks

- "Globally Enable/Disable the PM Feature" (3-7)
- "View PM Data (Per Facility Basis)" (3-31)

Task Complete the following steps to enable collection of the selected PM data types or disable PM data collection for the entire NE. You may also reset digital PM data registers (bins) and/or the start time of 1-day PM data collection for WaveStar® OLS 1.6T NEs, if needed.

1 Choose an NE by positioning the mouse cursor on the network element symbol in the Subnetwork Explorer or Map pane portion of the Map window and single-clicking the left mouse button.

2 Select **Performance** from the main menu bar on the Map window.

Result:

The Performance menu is displayed.

3 Select **NE PM Management** from the Performance menu.

Result:

A sub-menu is displayed.

4

IF...	THEN...
Collection and viewing of ***only*** 15–minute PM data per facility-type has been set through the Global PM Data Administration window	Select **Manage 15–Minute PM...** from the displayed sub-menu.
Collection and viewing of ***only*** 1–day PM data per facility-type has been globally set through the Global PM Data Administration window	Select **Manage 1 Day PM...** from the displayed sub-menu.
Collection and viewing of ***both*** 15–minute and 1–day PM data has been globally set through the Global PM Data Administration window	Select **Manage Both** from the displayed sub-menu.

Result:

If you did not choose an NE in Step 1, the Choose an NE window is displayed.

Double-click on the NE in the Choose an NE list to select it and click the OK button.

The NE PM Data Administration window is displayed.

IF...	THEN...
If the selected NE is an WaveStar® OLS 1.6T	Two window panels are displayed: • EMS PM Data Settings • Network Element PM Data Settings The NE PM Data Administraton panel has a Network Element explorer that can be expanded to show the equipment hierarchy for provisioning and two additional panels on the right side of the window
If the selected NE is not an WaveStar® OLS 1.6T	One window panel is displayed: • EMS PM Data Settings

The EMS PM Data Settings panel is initially displayed.

5 Select the PM data type (15–minute or 1–day) for collection on a per facility-type basis.

IF...	THEN...
The PM feature is globally enabled to collect both 15–minute and 1–day PM data on a per facility-type basis	Enable collection of 15–minute or 1–day PM data, or both, by clicking the appropriate checkbox(es) in the Enable/Disable PM Data Collection portion of the panel
The PM feature is globally enabled to collect ***only*** 15–minute PM data on a per facility-type basis	Click the checkbox to enable 15–minute PM data collection for this NE (the enable 1–day PM data collection checkbox is grayed out).
You want to disable PM data collection for this NE	Click on the checkbox(es) to remove the check from either box or leave both checkboxes blank

IF...	THEN...
The PM feature is globally enabled to collect ***only*** 1–day PM data on a per facility-type basis	Click the checkbox to enable 1–day PM data collection for this NE (the enable 15–minute PM data collection checkbox is grayed out).

6 Choose the facility type(s) from which to collect and report PM data

TO...	DO THIS...
Collect and view PM data for all facility types in this NE	Click the All Facility Types radio button
Collect and view PM data for one or more specified facility type(s)	Click the “Only these facility types” radio button and click the checkbox next to the facility type(s)

7

IF...	THEN...
You want to reset PM digital data registers and/or specify the start time for collection of 1–day PM data for an WaveStar® OLS 1.6T NE	To to Step 8
You are only selecting from which facility type(s) to collect and report PM data from this NE	Go to Step 14

8 Click on the Network Element PM Data Settings panel tab.

Result:

The Network Element PM Data Settings panel is displayed (if the selected NE is an WaveStar® OLS 1.6T).

9 In the Network Element Explorer portion of the panel:

Click on the NE's TID to select the NE level of the equipment hierarchy

OR

Click the plus (+) sign next to the NE's TID and click the plus (+) sign to expand the equipment hierarchy until the specific level and unit of equipment that you want to provision is shown in the explorer (bay, shelf, slot, circuit pack, or optical port).

10 Click the Provision button below the explorer portion of the panel.

Result:

The NE-level PM Data Settings fields are displayed.

11

IF...	THEN...
You selected the NE level of the equipment hierarchy for provisioning in Step 9	Select to reset the digital PM registers for: • All SUPV Channels • All OTUs • All SUPV Channels and ALL OTUs by clicking the associated radio button in the Reset NE's Digital PM Registers (Bins) portion of the Network Element PM Settings panel. Go to Step 11 to choose which digital PM registers to reset.
You selected a unit of equipment in step 8	Click on the Reset Digital PM Registers (Bin) panel tab. Go to Step 12 to choose which digital PM registers to reset

12 For the entire NE or the selected unit of equipment (bay, shelf, or slot):

TO ...	CLICK ...
reset the current 15-minute digital PM data registers	the Reset 15 Minute Bins Only button

TO ...	CLICK ...
reset the current 1-day digital PM data registers	the Reset 1 Day Bins Only button
reset both digital PM data registers	the Reset Both Bins button

13 If you selected the NE level for provisioning an WaveStar® OLS 1.6T NE in Step 9, and you enabled collection of 1-day PM data on the EMS Data Settings panel, the NE's 1 Day PM Data Collection Start Time portion of the panel displays the current start time (hour) for collection of 1-day PM data. To change the start time, click the up/down spinner buttons to change the time (hour). The hour counter uses a 24-hour time format. For example, to change the start of 1-day PM data collection to 1:00 PM, click the up/down spinner buttons until the number 13 is displayed in the hour field.

Important! Use the Retrieve button to retrieve the current settings.

14 Click the Apply button to activate your choices.

A pop-up question dialog window is displayed, informing you that changing the PM parameter values may affect service, and asks if you want to modify the values. Choose Yes to initiate the PM data parameter changes.

END OF STEPS

□

Enable/Disable PM Data Collection (Per AID Basis)

Purpose

Use this procedure to enable or disable PM data collection for the specified NE on a per-AID basis, and, if PM data collection is enabled, select the PM reporting interval. You can also reset the digital PM data registers and the start time of 1-day PM data collection, if needed (for WaveStar® OLS 1.6T NEs only).

When the Navis™ Optical EMS collects PM data from a network element on a per-AID basis, it differentiates between PM data that is not in the Navis™ Optical EMS database because it has a value of zero versus data that was not collected by the system.

The basic steps for setting up PM data collection in the Navis™ Optical EMS from an NE are:

1. Set Port Mode (for the port) or Tributary Monitoring Mode (for the tributary) to MON (Monitored) mode for each port/tributary from which PM data will be collected.
2. Provision the collection of path, far-end, or near-end PM data for a port or tributary on an NE using the Provisioning window.
3. Globally enable the PM feature using the Global PM Data Administration window. As part of globally enabling the feature, you specify whether PM data will be collected and viewed per facility type or per AID. You have the option of collecting and viewing 15–minute PM data or 1–day PM data on per facility-type basis, or both 15–minute and 1–day PM data on a per-facility type basis.
4. Enable PM data collection for the NE using the NE PM Data Administration window. When you enable PM data collection for a specific NE, you specify the reporting interval (15-minute PM data, 1-day PM data, or both). You also specify the facility type(s) or AID(s) for which PM data will be collected from the NE.

Before you begin

Before you begin this task, be aware that NE PM data collection will not be performed until the PM feature is globally enabled (see “Globally Enable/Disable the PM Feature” (3-7)).

The method and type of PM data that can be collected for an NE (per facility or AID) depends on the global setting for PM data collection made through the Global PM Data Administration window. A different

version of the EMS Data Settings panel is displayed on the NE PM Data Administration window, depending on whether the PM feature was enabled globally for all NEs to collect data on a per-facility or per-AID basis. See "Globally Enable/Disable the PM Feature" (3-7) for instructions on how to globally enable PM data collection on a per-facility or on a per-AID basis.

Be aware that there is a pre-defined maximum limit on the total number of AIDs (currently 1000) that can be selected for PM data collection. An option allows you to set when the number of AIDs provisioned for data collection/viewing has reached a defined number (ranging from 700–950 AIDs) before an advisory message is issued, instructing the user to review the AIDs currently provisioned for all NEs and remove AIDs from the selection list. This constitutes the "soft limit" on the number of AIDs allowed for data collection. A user will not be able to provision any more AIDs until enough AIDs have been removed from the list to satisfy the "soft limit" (the provisioned limit before an advisory message is issued). (The AID limit option is further explained in this procedure).

Be aware that PM data collection is suspended during an alarm storm. The Navis™ Optical EMS resumes PM data collection after the alarm storm has subsided.

The Date/Time Synchronization feature should be enabled for any NE that has PM data collection enabled to ensure that the date/time of the NE is synchronized with the date/time of the Navis™ Optical EMS host.

For details about enabling Date/Time Synchronization on an NE, refer to the *Navis™ Optical EMS Provisioning Guide.*

Related tasks

- "Globally Enable/Disable the PM Feature" (3-7)
- "View PM Data (Per AID Basis)" (3-35)

Task Complete the following steps to enable collection of the selected PM data types or disable PM data collection for the entire NE. You may also reset digital PM data registers (bins) and/or the

start time of 1-day PM data collection for WaveStar® OLS 1.6T NEs, if needed

1 Choose an NE by positioning the mouse cursor on the network element symbol in the Subnetwork Explorer or Map pane portion of the Map window and single-clicking the left mouse button.

2 Select **Performance** from the main menu bar on the Map window.

Result:

The Performance menu is displayed.

3 Select **NE PM Management** from the Performance menu.

Result:

A sub-menu is displayed.

4

IF...	THEN...
Collection and viewing of ***only*** 15–minute PM data on an AID basis has been set through the Global PM Data Administration window	Select **Manage 15–Minute PM...** from the displayed sub-menu.
Collection and viewing of ***only*** 1–day PM data on an AID basis has been set through the Global PM Data Administration window	Select **Manage 1 Day PM...** from the displayed sub-menu.
Collection and viewing of ***both*** 15–minute and 1–day PM data has been globally set through the Global PM Data Administration window	Select **Manage Both** from the displayed sub-menu.

Result:

If you did not choose an NE in Step 1, the Choose an NE window is displayed.

Double-click on the NE in the Choose an NE list to select it and click the OK button.

The NE PM Data Administration window is displayed.

IF...	THEN...
If the selected NE is an WaveStar® OLS 1.6T	Two window panels are displayed: • EMS PM Data Settings • Network Element PM Data Settings The NE PM Data Administraton panel has a Network Element explorer that can be expanded to show the equipment hierarchy for provisioning and two additional panels on the right side of the window
If the selected NE is not an WaveStar® OLS 1.6T	One window panel is displayed: • EMS PM Data Settings

The EMS PM Data Setting panel is initially displayed.

5 In the EMS PM Data Settings panel:

Choose the Facility Type from which to collect PM data by clicking the down arrow next to the Facility Type field to display a drop-down list of choices, and choose the facility.

6 Choose the AID(s) for which PM data is being collected.

When the NE PM Data Administration window is first displayed, the Choose AID(s) field is blank. The list below the Choose AID(s) field is populated with applicable AIDs as soon as you select a facility

type. You must type either type an AID in the Choose AID(s) field or select an AID from the list below the Choose AID(s) by double-clicking on it. When you double-click on an AID in the list, it appears in the Choose AID(s) field.

7 Choose the Report Type (time interval of PM data collected) by clicking the down arrow next to the Report Type field to display a list of choices. The Report Type(s) that are available (15–minute, 1–day, or both) for a specific NE on an AID basis depend on which type(s) of PM data are globally enabled for an AID through the Global PM Data Administration window. For example, if only 15–minute PM data was globally enabled for collection on an AID basis, then only the 15 minute data option is displayed in the drop-down list of the Report Type field. If both have been globally provisioned, then you have the choice of 15–minute, 1–day, or both report types on an AID basis for a specific NE.

IF ...	THEN CHOOSE...
you want to collect PM data for the selected facility type/AID in 15-minute intervals	the 15 minute data option
you want to collect PM data for the selected facility type/AID in 1-day intervals	the 1 day data option
you want to collect both 15-minute and daily PM data for the facility type/AID	the Both 15 minute and 1 day data option

8 Click the Add button.

Result:

The AID selected, along with the facility and report type selected, is displayed in the Chosen AID(s) portion of the window.

9 Continue to select AID(s) from the same facility, as explained in Steps 5 and 6, or change the Facility Type (and the Report Type, if desired), and choose the AID(s) from a different facility.

10

TO...	DO THIS...
Remove AID(s) from the Chosen AID(s) list	Click on the AID in the Chosen AID(s) to be removed and click the Remove button
Leave the AID list as is	Go to Step 11**Important!** When the number of AIDs selected for PM data collection approaches or reaches the maximum limit allowed (as defined by the system administrator; the default is 900 AIDs), the Navis™ Optical EMS issues a message advising you to review and remove AIDs from the Chosen AID(s) list or any NE configuration.

11

IF ...	THEN ...
You only want to enable/disable PM data collection for the NE for the chosen AID(s)	click the Apply button to activate your choices. Stop at this point. Click the Close button to close the window.
You also want to reset the digital PM data registers and/or the start time of 1-day PM data collection for an WaveStar® OLS 1.6T NE	go to Step 12.

12 Click on the Network Element PM Data Settings panel tab.

Result:

The Network Element PM Data Settings panel is displayed (if the selected NE is an WaveStar® OLS 1.6T).

13 In the Network Element Explorer portion of the panel:

Click on the NE's TID to select the NE level of the equipment hierarchy

OR

Click the plus (+) sign next to the NE's TID and click the plus (+) sign to expand the equipment hierarchy until the specific level and unit of equipment that you want to provision is shown in the explorer (bay, shelf, slot, circuit pack, or optical port).

14 Click the Provision button below the explorer portion of the panel.

Result:

The NE-level PM Data Settings fields are displayed.

15

IF...	THEN...
You selected the NE level of the equipment hierarchy for provisioning in Step 13	Select to reset the digital PM registers for: • All SUPV Channels • All OTUs • All SUPV Channels and ALL OTUs by clicking the associated radio button in the Reset NE's Digital PM Registers (Bins) portion of the Network Element PM Settings panel. Go to Step 16 to choose which digital PM registers to reset.
You selected a bay, shelf, or slot for provisioning in Step 13	Click on the Reset Digital PM Registers (Bin) panel tab. Go to Step 16 to choose which digital PM registers to reset

16 For the entire NE or the selected unit of equipment (bay, shelf, or slot):

TO ...	CLICK ...
reset the current 15-minute digital PM data registers	the Reset 15 Minute Bins Only button
reset the current 1-day digital PM data registers	the Reset 1 Day Bins Only button
reset both digital PM data registers	the Reset Both Bins button

17 If you selected the NE level for provisioning in Step 13, and you enabled collection of 1-day PM data on the EMS Data Settings panel, the NE's 1 Day PM Data Collection Start Time portion of the panel displays the current start time (hour) for collection of 1-day PM data. To change the start time, click the up/down spinner buttons to change the time (hour). The hour counter uses a 24-hour time format. For example, to change the start of 1-day PM data collection to 1:00 PM, click the up/down spinner buttons until the number 13 is displayed in the hour field.

Important! Use the Retrieve button to retrieve the current settings.

18 If you have completed the additional steps required to reset the digital PM data registers and/or the start time of 1–day PM data collection for an WaveStar® OLS 1.6T NE, click the Apply button to activate your choices.

A pop-up question dialog window is displayed, informing you that changing the PM parameter values may affect service, and asks if you want to modify the values. Choose Yes to initiate the PM data parameter changes.

END OF STEPS

□

Administer PM Data

Purpose

Use this procedure to display and provision analog and/or digital PM data parameters for the selected NE interface. For the WaveStar® OLS 1.6T, this option allows you to provision PM threshold values for the:

- Supervisory Channel
- Optical Line
- Optical Channel
- Optical Translator Port Signal (OTPS)

Before you begin

Be aware that the PM feature must be globally enabled and the selected NE must have PM data collection activated for one or more PM data types.

PM threshold values can only be provisioned for an WaveStar® OLS 1.6T NE with this procedure. For other NE types, PM threshold values must be set by issuing TL1 commands via the Cut-Through window.

PM threshold parameter values for the facility types listed above do not apply to WaveStar® OLS 1.6T repeaters.

The Date/Time Synchronization feature should be enabled for any NE that has PM data collection enabled to ensure that the date/time of the NE is synchronized with the date/time of the Navis™ Optical EMS host.

For details about enabling Date/Time Synchronization on an NE, refer to the *Navis™ Optical EMS Provisioning Guide.*

Task

Complete the following steps to display and provision PM parameters for the selected NE interface.

1 Select **Performance** from the main menu bar on the Map window.

Result:

The Performance menu is displayed.

2 Select **NE PM Management** from the Performance menu.

Result:

A sub-menu is displayed.

3

IF...	THEN...
Collection and viewing of ***only*** 15–minute PM data per facility-type has been set through the Global PM Data Administration window	Select **Manage 15–Minute PM...** from the displayed sub-menu.
Collection and viewing of ***only*** 1–day PM data per facility-type has been globally set through the Global PM Data Administration window	Select **Manage 1 Day PM...** from the displaye sub-menu.
Collection and viewing of ***both*** 15–minute and 1–day PM data has been globally set through the Global PM Data Administration window	Select **Manage Both** from the displayed sub-menu.

Result:

If you did not choose an NE in Step 1, the Choose an NE window is displayed.

Double-click on the NE in the Choose an NE list to select it and click the OK button.

The NE PM Data Administration window is displayed.

An alternate method to bring up the NE PM Data Administration window is to select an NE on the Map or Subnetwork Explorer, right-click on the NE to bring up a pop-up menu, select **Performance Management** from the pop-up menu, select **NE PM Management**, which displays a sub-menu, and (depending on the settings in the Global PM Data Management window), choose **Manage 15-Minute**, **Manage 1-Day**, or **Manage Both**to display the NE PM Data Administration window.

The Network Element PM Data Settings panel is only displayed if the NE is an WaveStar® OLS 1.6T. The remaining steps in this procedure only apply to an WaveStar® OLS 1.6T NE.

The NE PM Data Administration window is divided into two parts. The left side of the window contains an NE explorer tree. Depending on the NE type chosen, the NE explorer may contain just a TID at the top part of the hierarchy, or can be expanded to show equipment entities and AIDs for facilities below the NE (TID) level.

The right side of the window consists of two panels:

- EMS PM Data Settings
- Network Element PM Data Settings

When the PM Data Administration window is first displayed, the NE TID is selected in the explorer tree, the explorer tree is unexpanded (if it is expandable), and the current EMS PM Data settings for the entire NE are shown in the EMS PM Data Settings panel.

4 Click on the Network Element PM Data Settings tab.

5 In the explorer portion of the window, single-click on the plus (+) sign next to the TID of the selected NE to expand the tree and display the equipment entities of the NE. Continue to click and expand levels of the equipment hierarchy until you locate the AID of a PM facility for which you want to display and provision PM parameters. Double-click on the AID of the PM facility in the explorer tree to select it.

6 Click on the Provision button below the explorer tree portion of the window.

Result:

The PM Data Admin Panel for the selected NE facility is displayed in the right side of the window.

7 Depending on the NE PM facility selected, the PM Data Admin Panel displays some or all the following parameter fields and buttons:

- Digital PM Threshold/TCA Settings—this portion of the panel allows you to set the 15-minute and/or 1 day threshold values for digital PM data collection and the TCA alarm for the specific parameter. Click on the Get NE Defaults button to retrieve the current defaults from the NE for these parameters. Modify the value(s) as needed.
- Analog PM Threshold/TCA Settings—this portion of the panel allows you to display and change the low and high threshold values for analog PM data and the TCA alarm for the specific parameter. Click the Retrieve button to obtain the current settings from the NE. Modify the value(s) as needed.
- Recalculate Baseline—this portion of the panel allows you to recalculate (set) the baseline value for an analog PM data parameter. First, click the down arrow next to the Reason Code field to display a valid list of reason codes for the recalculation (for example, Add a New NE), and select a reason code. Depending on the NE PM facility selected, one or more of the following buttons to recalculate the signal power baseline value is displayed and enabled:
  - Recalulate Xmit: click this button to recalculate the signal power transmitted baseline value
  - Recalculate Receive: click this button to recalculate the signal power received baseline value
  - Recalculate Both: click this button to recalculate the baseline value for signal power in both directions

Important! To obtain the current values from the NE for these fields, click the Retrieve button.

8 Click the Apply button to activate your choices.

A pop-up question dialog window is displayed, informing you that changing the PM parameter values may affect service, and asks if you want to modify the values. Choose Yes to initiate the PM data parameter changes.

END OF STEPS

□

View PM Data (Per Facility Basis)

Purpose

Use this procedure to view the PM data from an NE facility collected by the Navis™ Optical EMS. You can choose to view either current data from the NE(s) or historical data stored in the Navis™ Optical EMS database, as well as for what facility type, and whether to show 15-minute or 1-day PM data. The data selected for viewing is shown in table format, sorted and filtered according to your choices.

The View PM Data function can also be accessed from the Equipment View window in the Navis™ Optical EMS GUI. Refer to "SE 3-1: Viewing PM Data from the Equipment View window" (3-34).

Before you begin

Before you begin this task, the PM feature must be globally enabled, the selected NE must have PM data collection activated for one or more PM data types, and the Facility option under the View PM Report Settings section of the Global PM Data Administration window must be selected.

Task

Complete the following steps to view PM data for a specified NE.

1 Choose an NE by positioning the mouse cursor on the network element symbol in the Subnetwork Explorer or Map pane portion of the Map window and single-clicking the left mouse button.

2 Select **Performance** from the main menu bar on the Map window.

Result:

The Performance menu is displayed.

3 Select **View PM Data** from the Performance menu.

Result:

A sub-menu is displayed.

4

IF...	THEN...
Collection and viewing of ***only*** 15–minute PM data per facility-type has been set through the Global PM Data Administration window	Select **View 15–Minute PM...** from the displayed sub-menu.
Collection and viewing of ***only*** 1–day PM data per facility-type has been globally set through the Global PM Data Administration window	Select **View 1 Day PM...** from the displaye sub-menu.
Collection and viewing of ***both*** 15–minute and 1–day PM data has been globally set through the Global PM Data Administration window	Select **View Both** from the displayed sub-menu.

Result:

If you did not choose an NE in Step 1, the Choose an NE window is displayed.

Double-click on the NE in the Choose an NE list to select it and click the OK button.

The View PM Data window for the selected NE is displayed.

5 Choose to show either current data or historical data by clicking on the appropriate radio button.

If you choose current 1-day data, the PM data that is displayed is from 12:00 AM of the current day through the current time.

If you choose historical 1-day data, the PM data displayed is from 12:00 AM of the date entered through 12:00 AM of the following day.

If you chose historical data, choose the date and time of the data by using the date and time (if you choose 15-minute data, in 15 minute increments) spinner fields.

Important! If you configured the data retention period on the Global PM Data Administration window for less than 30 days, you can only view the data files that fall within the selected data retention period.

6 Choose one of the NE facility types for viewing by clicking on the appropriate radio button.

7 Choose to show 15-minute or 1-day PM data by clicking on the appropriate radio button.

Important! The availability of the 15–minute or 1–day PM data options for viewing depend on the whether one or both data types are globally enabled for viewing on a per-facility type basis through the Global PM Data Administration window.

8 Click the OK button.

Result:

The PM Data window is displayed, showing the selected PM data in table format.

If you selected the Raw and Percentage display option on the Global PM Data Administration window, the percentage of the maximum allowed value of each PM parameter is shown in parentheses next to its numeric value.

9 To save the contents of table data to a file on the local system, click the Save button on the PM Data window.

END OF STEPS

SE 3-1: Viewing PM Data from the Equipment View window

Use the following procedure to access the View PM Data function from the Equipment View window in the Navis™ Optical EMS GUI.

1 Select an NE on the Map pane or Subnetwork Explorer portion of the Map window, or select no NE at this point.

2 Choose **Configuration** from the main menu on the Map window.

Result:

The Configuration menu is displayed.

3 Choose **Equipment** from the Configuration menu.

Result:

If no NE was selected in Step 1, the Choose an NE window is displayed. Choose an NE from the list by double-clicking on it and click the OK button.

The Equipment View window is displayed.

4 Choose the NE level in the Network Element Explorer portion of the window.

Result:

The NE (identified by its TID) is highlighted in the explorer portion of the Equipment View window.

5 Choose **Performance** from the main menu bar on the Equipment View window, then choose **View PM Data** from the Performance menu and follow the procedure in "View PM Data (Per Facility Basis)" (3-31).

An alternate method is to choose the NE level in the Network Element Explorer portion of the Equipment View window, click the right mouse button to display a pop-up menu, choose **Performance** from the Performance menu, then choose **View PM Data** from the Performance menu and follow the procedure in "View PM Data (Per Facility Basis)" (3-31).

END OF STEPS

View PM Data (Per AID Basis)

Purpose

Use this procedure to view the PM data collected by the Navis™ Optical EMS for a specific AID on a facility. You can choose to view either current data from the NE(s) or historical data stored in the Navis™ Optical EMS database, as well as for what facility type, what time interval (15-minute or 1-day PM data), and which PM parameter(s). The data selected for viewing is shown in table format, sorted and filtered according to your choices.

The Navis™ Optical EMS guides you through the process of selecting the desired facility, AID(s), and PM parameters for viewing through a series of related windows.

The View PM Data function can also be accessed from the Equipment View window in the Navis™ Optical EMS GUI. Refer to "SE 3-1: Viewing PM Data from the Equipment View window" (3-39).

Before you begin

Before you begin this task, the PM feature must be globally enabled, the selected NE must have PM data collection activated for one or more PM data types. and the AID option under the View PM Report Settings section of the Global PM Data Administration window must be selected.

Task

Complete the following steps to view PM data for a specified NE and AID.

1 Choose an NE by positioning the mouse cursor on the network element symbol in the Subnetwork Explorer or Map pane portion of the Map window and single-clicking the left mouse button.

2 Select **Performance** from the main menu bar on the Map window.

Result:

The Performance menu is displayed.

3 Select **View PM Data** from the Performance menu.

Result:

A sub-menu is displayed.

4

IF...	THEN...
Collection and viewing of ***only*** 15–minute PM data on an AID basis has been globally enabled through the Global PM Data Administration window	Select **View 15–Minute PM...** from the displayed sub-menu.
Collection and viewing of ***only*** 1–day PM data on an AID basis has been globally enabled though the Global PM Data Administration window	Select **View 1 Day PM...** from the displayed sub-menu.
Collection and viewing of ***both*** 15–minute and 1–day PM data on an AID basis has been globally enabled through the Global PM Data Administration window	Select **View Both** from the displayed sub-menu.

Result:

If did not choose an NE in Step 1, the Choose an NE window is displayed.

Double-click on the NE in the Choose an NE list to select it and click the OK button.

The View PM Data window is displayed (for AID-based PM data viewing).

5 Choose to show 15-minute or 1-day PM data by clicking on the appropriate radio button.

6 Choose to show either current data or historical data by clicking on the appropriate radio button.

If you choose current 1-day data, the PM data that is displayed is from 12:00 AM of the current day through the current time.

If you choose historical 1-day data, the PM data that is displayed is from 12:00 AM of the date entered through 12:00 AM of the following day.

If you chose historical data, choose the start and end dates of the reporting period and start time of the data (if you have chosen 15-minute data, in 15 minute increments) by using the date and time spinner fields.

Important! If you configured the data retention period on the Global PM Data Administration window for less than 30 days, you can only view the data files that fall within the selected data retention period.

7 Click the Next button to advance to the next window.

Important! To return to the previous window at any time to change your selections, click the Back button.

Result:

The second in a series of PM Report windows is displayed. This window is used to choose an NE, a facility type, an AID, and the desired PM parameters to be displayed.

8 Choose the NE by double-clicking on one of the NEs shown in the list under the Choose NE #1 field.

Result:

The chosen NE is highlighted in the list and appears in the text field below the Choose #1 label.

9 Choose a facility type by double-clicking on one of the facility types shown in the list under the Choose a Facility field.

Result:

The chosen facility type is highlighted and appears in the text field below the Choose a Facility label. The AIDs for the facility type chosen are listed under the Choose AID #1 field.

10 Choose an AID from the Choose AID list by double-clicking on one of the AIDs listed under the Choose AID #1 field.

Result:

The chosen AID is highlighted and appears in the text field below the Choose AID #1 label. The PM parameters associated with the chosen facility type and AID are listed in the Chosen Parameters portion of the window.

Initially, all PM parameters are selected.

11

TO...	DO THIS...
Include all PM parameters in the AID report	Leave all PM parameters in the list selected
Select a single PM parameter	Click on the PM parameter in the list. **Result:** The other PM parameters are deselected
Select several PM parameters (but not the entire list)	Position the mouse cursor over each PM parameter, press and hold the CTRL key while clicking the left mouse button.

12

TO...	DO THIS...
View PM data for a second NE or different AID for the same NE and facility type	Press the Next button to advance to the third window. Repeat Steps 7 through 10. When you have made your selections, go to Step 13.
View PM data for only the single NE or AID(s) already chosen	Go to Step 13.

13 When you are finished making your selections, click the Finish button.

Result:

The PM Data window is displayed, showing the selected PM data in table format.

If you (or the system administrator) selected the Raw and Percentage display option on the Global PM Data Administration window, the percentage of the maximum allowed value of each PM parameter is shown in parentheses next to its numeric value.

14 To save the PM data displayed to a file on the local system, select **File** from the menu bar on the PM Data window and then choose **Save As**.

Result:

A Save window is displayed, allowing you to specify the folder and filename for the saved data. When you are finished, click the Save button on the window. The PM data is saved to the specified folder and file.

END OF STEPS

SE 3-1: Viewing PM Data from the Equipment View window

Use the following procedure to access the View PM Data function from the Equipment View window in the Navis™ Optical EMS GUI.

1 Select an NE on the Map pane or Subnetwork Explorer portion of the Map window, or select no NE at this point.

2 Choose **Configuration** from the main menu on the Map window.

Result:

The Configuration menu is displayed.

3 Choose **Equipment** from the Configuration menu.

Result:

If no NE was selected in Step 1, the Choose an NE window is displayed. Choose an NE from the list by double-clicking on it and click the OK button.

The Equipment View window is displayed.

4 Choose the NE level in the Network Element Explorer portion of the window.

Result:

The NE (identified by its TID) is highlighted in the explorer portion of the Equipment View window.

5 Choose **Performance** from the main menu bar on the Equipment View window, then choose **View PM Data** from the Performance menu and follow the procedure in "View PM Data (Per AID Basis)" (3-35).

An alternate method is to choose the NE level in the Network Element Explorer portion of the Equipment View window, click the right mouse button to display a pop-up menu, choose **Performance** from the Performance menu, then choose **View PM Data** from the Performance menu and follow the procedure in "View PM Data (Per AID Basis)" (3-35).

END OF STEPS

□

View a PM Profile

Purpose Use this procedure to view an existing PM profile for a Profile Type in an NE.

Before you begin Be aware that is GUI function is not available for WaveStar® OLS 1.6T NEs. Before you begin this task, access the Map window.

PM parameter threshold values are displayed as a raw number or as a raw number and a percentage of the optimal value of the parameter, depending on the global settings made through the Global PM Data Administration window.

Task Complete the following steps to view an existing PM profile.

1 Select an NE from the Map window.

OR

Select no NEs at this point.

2 Select **Performance** from the main menu bar on the Map window.

Result:

The Performance menu is displayed.

3 Select **PM Profiles** from the Performance menu.

If you did not select an NE in Step 1, the Choose an NE window is displayed. Select an NE by double-clicking on the item and click the OK button.

Result:

The Manage PM Profiles window is displayed. This window consists of an explorer, which allows you to view and select the Profile Type under the selected NE, and five action buttons to the right of the explorer:

- Add
- Modify
- Delete

- View
- Assignments

4 Click on the plus (+) sign next to the NE TID in the explorer to expand and view the Profile Types for that NE.

5 Click on the plus (+) sign next to the Profile Type in the explorer to expand and view the Profile Names under that Profile Type.

6 Choose a Profile Name under a Profile Type.

Result:

The chosen Profile Name is highlighted.

7 Click on the View button.

Result:

The View a PM Profile window is displayed, showing the PM parameter threshold values for the selected Profile Type.

END OF STEPS

□

Add a PM Profile

Purpose

Use this procedure to add a new PM profile for a Profile Type in the chosen NE. To add a new PM profile, the PM parameter threshold values of the default profile for the selected Profile Type are copied over to a new Profile Name. The newly created PM profile will have the same threshold values as the default PM profile unless they are changed. Once it is created, the new PM profile, which is identified by its Profile Name, can be assigned to an entity (AID) in the NE.

PM parameter threshold values are displayed as a raw number or as a raw number and a percentage of the optimal value of the parameter, depending on the global settings made through the Global PM Data Administration window.

Before you begin

Before you begin this task, be aware that the Navis™ Optical EMS will prevent you from adding a new PM profile for a Profile Type if the maximum number of allowable profile for that Profile Type in the NE has been exceeded.

Be aware that this GUI function is not available for WaveStar® OLS 1.6T NEs.

Task

Complete the following steps to add a new PM profile.

1 Select an NE from the Map window.

OR

Select no NEs at this point.

2 Select **Performance** from the main menu bar on the Map window.

Result:

The Performance menu is displayed.

3 Select **PM Profiles** from the Performance menu.

If you did not select an NE in Step 1, the Choose an NE/Alarm Severity Profiles is displayed. Select an NE by double-clicking on the item and click the OK button.

Result:

The Manage PM Profiles window is displayed. This window consists of an explorer, which allows you to view and select the Profile Type under the selected NE, and five action buttons to the right of the explorer:

- Add
- Modify
- Delete
- View
- Assignments

4 Click on the plus (+) sign next to the NE TID in the explorer to expand and view the Profile Types for that NE.

5 Select the desired Profile Type in the explorer by single-clicking on it.

6 Click the Add button.

Result:

The Add a Performance Management Profile window is displayed, showing the default PM parameter threshold values in the default profile for the Profile Type chosen.

7 To create a profile for a Profile Type other than the one originally chosen, go back to the Manage PM Profiles window, select a different Profile Type in the explorer, and then click the Add button to return to the Add a Performance Management Profile window.

8 Enter a name for the new profile in the Profile Name field. The Profile Name can be 1-24 characters (A-Z, a-z, 0-9).

Important! The new Profile Name cannot be Default. Also, you cannot use a name that has already been used under the selected Profile Type.

9 If desired, make changes to the threshold values for the new profile.

10 Click the Apply button activate your choices, or click the OK button to activate your choices and close the window. The new profile is created.

END OF STEPS

□

Modify a PM Profile

Purpose

Use this procedure to modify an existing PM profile for a Profile Type. You can modify the PM thresholds in an existing profile, the Profile Name, or both.

PM parameter threshold values are displayed as a raw number or as a raw number and a percentage of the optimal value of the parameter, depending on the global settings made through the Global PM Data Administration window.

Before you begin

Be aware that this GUI function is not available for WaveStar® OLS 1.6T NEs. Before you begin this task, access the Map window.

Task

Complete the following steps to modify an existing profile.

1 Select an NE from the Map window.

OR

Select no NEs at this point.

2 Select **Performance** from the main menu bar on the Map window.

Result:

The Performance menu is displayed.

3 Select **PM Profiles** from the Performance menu.

If you did not select an NE in Step 1, the Choose an NE window is displayed. Select an NE by double-clicking on the item and click the OK button.

Result:

The Manage PM Profiles window is displayed. This window consists of an explorer, which allows you to view and select the Profile Type under the selected NE, and five action buttons to the right of the explorer:

- Add
- Modify
- Delete

- View
- Assignments

4 Click on the plus (+) sign next to the NE TID in the explorer to expand and view the Profile Types for that NE.

5 Click on the plus (+) sign next to the Profile Type in the explorer to expand it.

6 Choose a Profile Name for the profile to be modified.

Result:

The Profile name is highlighted.

7 Click on the Modify button.

Result:

The Modify a PM Profile window is displayed, showing the current PM parameter threshold values in the selected Profile Type and Profile Name.

8 Make changes to the PM parameter threshold values, as needed. You can also change the Profile Name if desired.

Important! The new Profile Name cannot be Default. Also, you cannot use a name that has already been used under the selected Profile Type.

9 Click the OK button. The changes are made to the selected profile.

END OF STEPS

□

Delete a PM Profile

Purpose Use this procedure to delete a PM profile for a Profile Type in an NE.

Before you begin Be aware that this GUI function is not available for WaveStar® OLS 1.6T NEs.

Before you begin this task, make sure that the PM profile to be deleted is not assigned to an AID in an NE. If it is, remove the PM profile assignment from the NE's AID. Also, you cannot delete the default profile for a Profile Type in an NE or an active PM profile.

To perform this task, access the Map window.

Task Complete the following steps to delete a PM profile.

1 Select an NE from the Map window.

OR

Select no NEs at this point.

2 Select **Performance** from the main menu bar on the Map window.

Result:

3 Select **PM Profiles** from the Performance menu.

If you did not select an NE in Step 1, the Choose an NE window is displayed. Select an NE by double-clicking on the item and click the OK button.

Result:

The Manage PM Profiles window is displayed. This window consists of an explorer, which allows you to view and select the Profile Type under the selected NE, and five action buttons to the right of the explorer:

- Add
- Modify
- Delete

- View
- Assignments

4 Click on the plus (+) sign next to the NE TID in the explorer to expand and view the Profile Types for that NE.

5 Click on the plus (+) sign next to the Profile Type in the explorer to expand it.

Result:

The explorer shows the list of profiles available for that Profile Type.

6 Click on the Profile Name of the profile to be deleted.

Result:

The profile is highlighted.

7 Click the Delete button.

Result:

A pop-up window is displayed, asking if you really want to delete the selected profile.

8 Choose Yes to delete the profile.

END OF STEPS

□

Assign PM Profile to AID

Purpose Use this procedure to associate a PM profile with one or more AIDs in an NE. You have the option of either assigning the default PM profile or a PM profile that you have created to an NE's AID.

Before you begin Be aware that this GUI function is not available for WaveStar® OLS 1.6T NEs. Before you begin this task, add the new profile (if it has not already been created) or modify the existing profile to be associated with the NE's AID(s). Also, use the Assignments button on the Manage PM Profiles window to view the NE entity(ies) currently assigned to a Profile Name.

Task Complete the following steps to assign an ASAP to one or more AIDs in an NE.

1 Select **Configuration** from the main menu bar on the Map window.

Result:

The Configuration menu is displayed.

2 Select **Provision** from the Configuration menu.

Result:

The Choose an NE window is displayed.

3 Double-click on the NE in the list to select it.

4 Click the OK button.

Result:

The Provisioning window is displayed.

The alternate way to access the Provisioning window is to position the mouse pointer on the NE in the Map window and click the right (menu) mouse button to display a pop-up menu, and select **Provision** from the pop-up menu.

5 In the Network Element Explorer portion of the Provisioning window, expand the NE equipment hierarchy until the desired AID is displayed.

6 Click on the AID to choose it.

Result:

The AID is highlighted.

7 Click the Provision button.

Result:

The Provisioning panel of the window is displayed.

8 Click the down arrow next to the appopriate Profile pointer field in the Provisioning panel to display a drop-down list of available profiles for the AID.

Important! There may be more than one profile displayed, depending on the AID selected. For example, there may be both Physical and Section-Line profile fields available for provisioning. The types of PM profiles that can be assigned depend on the rate of the AID selected.

Result:

The currently assigned PM Profile for the AID is highlighted and displayed, by default.

9 Select the PM profile to be assigned to the AID.

10 Click the Apply button.

Result:

A pop-up message is displayed, advising you that the parameter change may affect service and asks whether you want to proceed with the change.

11 Choose Yes.

Result:

The Status Dialog window is displayed, showing that the profile assignment request is being processed. Click the Close button on the Status Dialog window to close it.

12 To make additional profile assignments, repeat Steps 6-11.

END OF STEPS

□

View PM Profile Assignments

Purpose Use this procedure to view the entities to which the chosen PM profile is assigned.

Task Complete the following steps to view the entity assignments (by AID) for the selected Profile Type and Profile Name.

1 Select an NE from the Map window.

OR

Select no NEs at this point.

2 Select **Performance** from the main menu bar on the Map window.

Result:

The Performance menu is displayed.

3 Select **PM Profiles** from the Performance menu.

If you did not select an NE in Step 1, the Choose an NE window is displayed. Select an NE by double-clicking on the item and click the OK button.

Result:

The Manage PM Profiles window is displayed. This window consists of an explorer, which allows you to view and select the Profile Type under the selected NE, and five action buttons to the right of the explorer:

- Add
- Modify
- Delete
- View
- Assignments

4 Click on the plus (+) sign next to the NE TID in the explorer to expand and view the Profile Types for that NE.

5 Click on the plus (+) sign next to the Profile Type in the explorer to expand it.

6 Choose a Profile Name for the profile to be viewed.

Result:

The Profile name is highlighted.

7 Click on the Assignments button.

Result:

The PM Profile Assignments window is displayed.

8 At the top of the window is a drop-down list for selecting the shelf. Select the desired shelf and click the View Assignments button.

Result:

The panel is updated and shows the entity(ies), by AID, for the selected Profile Type, profile name, and shelf.

9 To view assignments on a different shelf, select another shelf from the drop-down list and click the View Assignment button.

10 After you are finished viewing assignments, click the Close button to close the window.

END OF STEPS

□

Generate a Relative Signal Power Report

Purpose

Use this procedure to generate a report of the relative signal power of the optical channels for one specified optical line or for all of the optical lines in a Metropolis™ EON NE.

Relative signal power report

For each optical channel, a Relative Signal Power report provides the following information:

- The AID of each optical channel in the specified optical line(s)
- The time when the Relative Signal Power of the optical channel was measured by the NE
- The Relative Signal Power per channel on a scale of 0 to 100, in increments of 1 or a dash (“-”) if there is no measurement available
- The Measured Signal Power per Channel in the format of +/-XX.X or a dash (“-”) if there is no measurement available
- The Optical Signal to Noise Ratio per Channel in the format of +XX.X or a dash (“-”) if there is no measurement available

Before you begin

Before you begin this task, be aware that this feature is only supported for Metropolis™ EON NEs.

Task

Complete the following steps to generate a Relative Signal Power report for a selected NE.

1 Select an NE on the Map window.

OR

Select no NE at this point.

2 Select **Performance** from the main menu bar on the Map window.

Result:

The Performance menu is displayed.

3 Select **Relative Signal Power** from the Performance menu.

If no NE was chosen in Step 1, the Choose an NE window is displayed. Choose an NE from the list by double-clicking on it and click the OK button.

Result:

A window for choosing the Optical Line(s) for which the report will be generated is displayed.

4

TO...	DO THIS...
Generate a Relative Signal Power report for a single optical line	Double-click on an optical line identifier in the list (for example, **oline-1a**
Generate a Relative Signal Power report for all optical lines	Double-click on the optical line identifier that represents all optical lines in the NE (for example, **oline-all**

5 After selecting the optical line(s) on the window, click the OK button.

Result:

The Relative Signal Power Report window, showing the relative signal power measurements of each optical channel in the selected optical line(s) of the NE, is displayed

6 Optionally, you can save the resulting Relative Signal Power Report output to a file. To save the output, click the Save button on the Relative Signal Power Report window.

Result:

A Save window is displayed for specifying the folder/file in which to save the data. After specifying the folder/file, click the Save button on the Save window.

To cancel the save operation, click the Cancel button on the Save window to return to the Relative Signal Power Report window.

7 To close the Relative Signal Power Report window, click the Close button.

END OF STEPS

4 Alarm Management Concepts

Overview

Purpose This chapter provides general information about monitoring alarms and conditions in a subnetwork of network elements managed by the Navis™ Optical EMS. It also provides general information about the Log Management features provided by the Navis™ Optical EMS for displaying and viewing alarm/event data, NE commands/responses, and other messages generated by the Navis™ Optical EMS and managed network elements.

Objectives This chapter explains how to do the following:

- Use the Alarm Notification window to identify the number and type of alarms currently in the subnetwork
- Display the Alarm Summary, Alarm List, and Alarm Details windows to identify various information about current alarms
- Initiate resynchronization of alarms
- Limit the amount of autonomous messages to be monitored for an NE using the Alarm Throttling feature
- Administer audible alarms
- Manage alarm severity assignment profiles (ASAPs) for an NE
- Use the Network Alarm/Event Log to obtain a history of all alarms and events generated by NEs as a result of unexpected behaviors

- Use the Network Notification Log to obtain information on database changes, protection switching, and other NE-related activities
- Use the Network Command/Response Log to review all commands and responses that originate from or received by the Navis™ Optical EMS
- Use the EMS Activity Log to obtain information about all user and system-related acitivities

Contents

Fault Management

Overview

Fault Management monitors alarms and conditions in the subnetwork. Users can access Fault Management functions from the Main Menu, or by accessing the pop-up menu on an NE or Aggregate icon in the Map window, or on the items listed in tables or other screens. Some important Fault Management features include the alarm summary and alarm list, viewing autonomous alarms as they are received, alarm throttling, and visible alarm indicators.

Features

The Navis™ Optical EMS receives autonomous alarm messages from NEs when alarm states are set or cleared. These alarm messages are processed and made available to the user through the GUI. Following is a complete list of Fault Management features, all of which are available to the user via the GUI:

- Alarm notification (tallies)
- Alarm Summary
- Trail Alarm Summary
- Alarm List
- Alarm Indication and Acknowledgement
- Alarm Details
- Trail Alarms
- Alarm Resynchronization
- Alarm Throttling
- Audible Alarms
- Alarm Browser
- Alarm Filtering
- Alarm Severity Assignment Profile Management
- Transient Event Condition Browser
- Alarm Provisioning Latching—office alarm and messages, alarm delays, miscellaneous discretes

In addition to the above alarm windows and reports, the Map window indicates which NEs and aggregates have alarms and their severity level by different colors. Also, the EMS host icon indicates the alarm status of the host. Furthermore, the Map window indicates which NEs have unacknowledged alarms (by flashing those nodes), and which

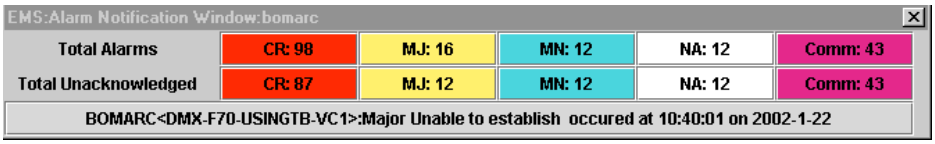
NEs have exceeded the alarm throttling threshold (with a gray square in the center of the icon).

Alarm notification

One of the ways the Navis™ Optical EMS keeps you informed about current alarms and standing condition (SC)events is via the Alarm Notification window. This window contains information on the type and number of current alarms and events in the subnetwork. It remains open on your screen, and comes to the front each time another alarm is received by the Navis™ Optical EMS.

Figure 4-1, “Alarm Notification Window” (4-4) shows an example of the Alarm Notification window.

Figure 4-1 Alarm Notification Window



The Alarm Notification window consists of two rows of alarm/event data.

The first row shows a current tally of the total outstanding alarms/events, broken down by alarm/event category. Depending on the setting of the Alarm Display option done via the Preferences window, the Alarm Notification window shows the current number of Critical, Major, Minor alarms, Not Alarmed (which represents Standing Condition events that require clearing), and Communication alarms or the current number of Prompt, Deferred alarms, No Alarms (which represents Standing Condition events that require clearing), and Communication alarms.

The second row shows a current tally of unacknowledged alarms/events, broken down by alarm/event category, as explained above.

The total number of alarms or events for a category is automatically updated whenever a new alarm or event of that alarm category is received. The count of unacknowledged alarms/events in a category decreased by one whenever an alarm or event of that category is acknowledged. Alarms/events are acknowledged either by using one of the Alarm Acknowledgement functions in the Fault GUI or by selecting an alarm or event on the Alarm List and acknowledging it.

Instructions on how to acknowledge specific alarms and events are provided in Chapter 2, “Alarm Management”.

The color of each alarm category box is the default color for each alarm category (unless you change the color used for an alarm category through the Preferences option via the View Preferences menu selection on the Map window main menu).

The following table shows the default system colors used to indicate each alarm severity level or communication status.

Table 4-1 Default System Colors for Alarm Severity Levels

Alarm Color (default)	Alarm Severity Level (SONET)	Alarm Severity Level (SDH)
Red	Critical	Prompt
Yellow	Major	Prompt
Cyan	Minor	Deferred
Gray	Throttled	
Green	No Active Alarms	
Magenta	Loss of Communications	
White	Not Alarmed state	Not Alarmed state

For additional instructions on how to modify user preferences, see the *Navis™ Optical EMS Provisioning Guide*.

When the color of an NE is white on the Map window (the default color), this indicates that the NE is in a “Not Alarmed” state, or has received one or more Standing Condition (SC) events which require clearing by the NE. When the SC event has been cleared by the NE, the color of the NE returns to green, indicating that there are no active alarms present and the NE is communicating.

You can click on any of the alarm category boxes in the Total Alarms row to display the Alarm List window and obtain a list of the currently active alarms for that category. If you click on the Communications alarms box, a list of NEs that are currently not communicating with the system is displayed. The Alarm List window is only displayed if there is one or more active alarms or standing condition events for the selected alarm category.

Below the two rows of alarm/event data is the Click Here to Retrieve Alarm List button. When you click this button, the Alarm List window is displayed with a complete list of all current alarms for all

NEs (if no alarm filtering has been enabled) in the user's Target Group.

If the Alarm Tally Popup option is enabled on the Fault panel of the Preferences window, when a new alarm is received by the Navis™ Optical EMS, the Alarm Notification window is brought to the forefront of the GUI display to signal the arrival of the new alarm. Also, the text on the Click Here to Retrieve Alarm List button changes, displaying a message that shows the Navis™ Optical EMS host, affected NE, alarm severity (such as Critical, Major, or Minor), affected NE component, and alarm message text, time the alarm occurred, and, if there was an alarm resync, the time the resync occurred. The totals in the Total Alarms row on the window are automatically updated to account for the new alarm.

Once displayed, the Alarm Notification window remains open during the GUI session.

NE alarm summary

The Alarm Summary feature provides a single-line overview of alarm information for each node in an aggregate. This information is provided via the NE Alarm Summary window on the GUI. This window lists the NEs in your Target Group and displays the number of Critical, Major, Minor and Not Alarmed (standing condition) alarms/events (for SONET) or Prompt, Deferred, and Informational (standing condition) alarms/events (for SDH) for each NE. The alarms can be listed by severity or TID.

Trail alarm summary

The Trail Alarm Summary feature provides a single-line overview of alarm information for each trail in the subnetwork. This information is provided via the Trail Alarm Summary window on the GUI. This window lists the trails in your Target Group and displays the number of Critical, Major, Minor and Not Alarmed (standing condition) alarms/events (for SONET) or Prompt, Deferred, and Informational (standing condition) alarms/events (for SDH) for each NE. The alarms can be listed by severity or trail.

Alarm list

The Alarm List contains a line of various information about each active alarm in an NE. You can sort the list using various critieria, such as alarm severity and age, age alone, condition, date/time logged, and acknowledged vs. unacknowledged. You can also acknowledge or unacknowledge the alarms listed here.

Alarm indication and acknowledgement

The Alarm Indicator feature graphically indicates the arrival of new alarms by flashing the impacted nodes and aggregates. If there are one or more alarms against an NE and alarm indication is enabled, that node will flash (in the color of the highest severity alarm). Likewise, if there are one of more alarms against one or more NEs in an aggregate and alarm indication is enabled, that aggregate will flash. (When all the alarms against an NE or aggregate are acknowledged it no longer flashes.) Users should acknowledge alarms for which they are responsible. (The system tags the acknowledgment so that other users will not attempt to troubleshoot the same problem.)

Double acknowledgement of alarms

The Navis™ Optical EMS has a "Double Acknowledgement" capability for alarms that can be enabled at system installation time. It is disabled, by default. When set, Double Acknowledgement assures that a cleared alarm is acknowledged before the alarm is removed from the Alarm List for an NE.

When Double Acknowledgment is enabled (the Alarm Latching feature in the GUI is enabled by default), an alarm is removed from the Alarm List only when the following conditions are met:

- If Alarm Latching for an NE is enabled, the alarm can either be latched or double acknowledged. If the alarm is acknowledged, Double Acknowledgement takes effect. The second acknowledgement is needed after the alarm is cleared in order to remove the alarm from the alarm list. If the alarm is cleared before acknowledgement, then the Alarm Latching takes effect. An acknowledgement is needed to remove the alarm from the alarm list.
- If Alarm Latching for an NE is disabled, the alarm can be double acknowledged or not acknowledged. That means if the alarm is acknowledged before it is cleared, a second acknowledgement is needed. If it is not acknowledged before it is cleared, then no acknowledgement is needed to remove it from the alarm list.

When Double Acknowledgement is disabled, Alarm Latching can either be enabled or disabled. If the Alarm Latching is enabled, an alarm is removed from the Alarm List only when the following conditions are met:

- If Alarm Latching for the NE is enabled, the Alarm Latching feature takes effect. The alarm can be removed from the list either by acknowledgement before or after it is cleared.
- If Alarm Latching for the NE is disabled, the alarm is removed from the alarm list when it is cleared no matter it has been acknowledged or not acknowledged.

If the Double Acknowledgement capability has been enabled system-wide, the Navis™ Optical EMS ensures that an alarm is acknowledged before the alarm is cleared and again after the alarm is cleared. Both of these alarm acknowledge events are logged and displayed in the Alarm Details window when it is displayed for a particular alarm.

The setting of both the Alarm Latching Readiness function and Double Acknowledgement capability determine when an alarm is removed from the Alarm List for an NE.

The current setting of the Alarm Latching Readiness function can be viewed on the Fault panel of the Preferences window in the GUI.

The following table lists possible alarm states and maintenance of alarms on the Alarm List, based on whether Alarm Latching and/or Double Acknowledgement is set in the Navis™ Optical EMS (and Alarm Latching is enabled in the GUI for a specific NE).

Alarm Acknowledge/Clear states			**Double Acknowledgement Disabled**		**Double Acknowledge-ment Enabled**	
acknowledge status (raised alarm)	**clearance**	**acknowledge status (cleared alarm)**	**Latched**	**Unlatched**	**Latched**	**Unlatched**
unack	uncleared	unack	Alarm List	Alarm List	Alarm List	Alarm List
unack	cleared	unack	Alarm List	removed	Alarm List	removed

Alarm Acknowledge/Clear states			Double Acknowledgement Disabled		Double Acknowledge-ment Enabled	
acknowledge status (raised alarm)	**clearance**	**acknowledge status (cleared alarm)**	**Latched**	**Unlatched**	**Latched**	**Unlatched**
unack	cleared	ack	removed	NA***	removed	NA***
ack	uncleared	unack	Alarm List	Alarm List	Alarm List	Alarm List
ack	cleared	unack	removed	removed	Alarm List	Alarm List
ack	cleared	ack	NA***	NA***	removed	removed

Notes:

1. ***NA: Not Applicable: the alarms already have been removed from the Alarm List

If the Double Acknowledgement capability has been enabled for the application at system installation time, the Navis™ Optical EMS will not allow alarms to be unacknowledged.

Alarm latching and double acknowledgement

Alarm latching ensures that alarms for an NE are acknowledged and cleared before they are removed from the Alarm List. The Double Acknowledgement feature ensures that an alarm is cleared before the alarm is removed from the Alarm List.

The Navis™ Optical EMS allows the user to enable/disable the Alarm Latching Readiness (ALR) and Double Acknowledge (DA) capability for a Navis™ Optical EMS application at installation time. By default, both capabilities are enabled (turned on). The Double Acknowledge capability must be disabled to change the setting of the Alarm Latching Readiness capability at installation time. To change the settings of these capabilities, the Navis™ Optical EMS application must be brought down, the changes made, and then the application must be brought back up to allow the changed setting to take effect.

Alarm Latching can be enabled per NE through the Navis™ Optical EMS GUI. The Alarm Latching Readiness capability must be enabled at installation time before Alarm Latching can be turned on for an individual NE.

If Alarm Latching or Double Acknowledgement is enabled, the Navis™ Optical EMS handles alarms in the following manner:

- Raised — The alarm was raised and has not been cleared or acknowledged. The alarm goes back to Raised status once the alarm is unacknowledged
- Cleared — The alarm has been cleared regardless of whether the alarm has been acknowledged or not. The alarm status remains Cleared even if the alarm is acknowledged after the clearance
- Acknowledge — The alarm has been acknowleged before it is cleared

The Alarm Details and Alarm Logs display the user ID and the date/time of acknowledgement before the alarm is cleared and the acknowledgement after the alarm is cleared.

If the Double Acknowledgement feature is disabled and Alarm Latching is enabled for an NE, an alarm that is set to latch is removed from the Alarm List when it is acknowledged (before or after it is cleared) or cleared.

The Double Acknowledgement capability can be enabled for the entire Navis™ Optical EMS system. An alarm is remvoed from the Alarm List when the following conditions are satisfied:

- For an alarm that is set to latch, the alarm has been cleared and the acknowledgement after the clearance
- If the alarm has been acknowledged before it is cleared, the alarm has to be acknowledged after it is cleared regardless of whether it is set to latch or not
- For an alarm that is not set to latch, the alarm is cleared before it is acknowledged

If both Alarm Latching Readiness or Double Acknowledge are disabled at installation time, the Alarm Details window does not not display the acknowledgement date/time and the user ID.

Alarm details

Alarm Details are available to the user via the Alarm List window. This window contains a line of information about each active alarm in an NE or aggregate. Before acknowledging an alarm, it is a good practice to display it on the Alarm List window to check the details and make sure you want to acknowledge it. You can then perform the acknowledgement right from the Alarm List window.

Trail alarms

Trails are physical links between NEs. The system monitors all existing trails for alarm conditions.

NEs can only automatically discover and report to Navis™ Optical EMS trails over which there is an active Data Communications Channel (DCC). Users can, however, add trails between any pair of termination points on NEs.

The following Information about trail alarms that have occurred can either be displayed on the Alarm Summary window or by selecting the trail:

- Trail Alarm Summary Window—this lists a count of critical, major, and minor alarms for the AIDs that terminate the trail between two NEs.
- Trail Alarm List—this contains a line of information about each active alarm for the trails between two NEs. This information includes alarm severity, occurrence date/time, condition, and date/time logged.

Alarm resynchronization

Alarm Resynchronization provides the ability for the system to update its alarm list, autonomous message log, and command/response log from network elements in the subnetwork whenever any outage of NE communications occurs. The system automatically resynchronizes alarms whenever the communications status with an NE changes from “down” to “up.”

Before resynchronizing alarms for an NE, the user should disable the automatic/manual alarm throttling control for the NE. Alarm resynchronization does not work unless the NE is in an unthrottled state.

The alarm resynchronization process does not clear the existing GUI display and alarm notification/list displays during the resynchronization process, but rather retains the existing alarms until the resynchronization is completed. The system can distinguish between:

- standing alarms that already exist in the GUI and alarm/notification list displays
- new alarms
- alarms that are cleared by the NE between resynchronizations.

This allows the system to incrementally update the GUI display and alarm notification/list displays to accurately indicate the subnetwork status to the user.

Alarm throttling

The Alarm Throttling feature enables you to limit the amount of autonomous messages and Critical autonomous messages that should be monitored for an NE.

Alarm throttling can be done on demand for an NE through the Alarm Throttling option on the NE's pop-up menu or be set up to occur automatically when the number of alarms exceed a specified threshold. An alarm throttle level between zero and 3,600 per hour can be specified in the Automatic Alarm Throttling window. The recommended initial level is 100 messages per hour (and this is the default). If an NE has been enabled for alarm throttling and the number of alarms in the NE exceeds the set level, the NE is automatically put on throttled, or partial, alarm monitoring.

The Alarm Throttling feature is useful during events, such as an initial network turn-up (or maintenance activity), where large numbers of messages are generated by an NE. Throttling alarm only allows alarms of a Critical priority to be displayed on the GUI, sent upstream to an OS, or retrieved via alarm queries. (Non-maintenance-related messages are not affected by alarm throttling and continue to be logged in the normal manner.)

Audible alarms/events

The Audible Alarm feature provides an alternative way to alert the user to existing alarms or standing condition (SC) events. The following list provides an overview of audible alarm specifications:

- Audible alarms are generated at each system interface screen.
- To eliminate possible confusion, the characteristics of the audible alarm (that is, sound, duration, and interval between sounds) is common to all users of the host.
- Individual user interface users can enable or disable the audible alarm feature for their respective system user interface screens.
- The Map window contains the audible alarm symbol near the upper middle of the screen. The symbol is a speaker if the audible alarm is enabled, or a speaker with a slash through it if disabled.

- When the audible alarm is enabled, an audible alarm is initiated at the onset of each new alarm or Standing Condition (SC) event, with sound characteristics that correspond to the severity level of the most severe alarm/SC event. When there are multiple concurrent alarms or SC events of different severity levels, the sound emitted corresponds to the most severe unacknowledged prevailing alarm or SC event.
- Audible alarms last for a short duration and are repeated after a set time interval, until quieted by the user.

When you log off Navis™ Optical EMS and then log in again, the Audible Alarm feature is enabled. You can disable it The audible alarm sounds are initially loaded with system default settings. These settings can be adjusted by the system administrator.

Alarm browser

The Alarm Browser lets you view alarms and clear messages for the NEs in your Target Group as they occur. Specifically, it captures `alarm` and `clear` messages that are received from NEs in your Target Group and displays them in the Browsing Alarm Audit Log window on your workstation screen.

Alarm filtering

Alarm filtering is the selective removal of alarm messages from being forwarded to the GUI. Alarm filtering can be applied to reduce the number of alarms forwarded to the GUI caused by intermittent failure, or to filter symptomatic alarms associated with a reported signal failure, such as those that occur during a fiber cut. All alarms that are filtered out are logged in the Navis™ Optical EMS and can be viewed through the Alarm Browser.

See the following alarm filtering procedures:

- "Turning the Age/Time and EPT filters on or off" (4-24)
- "Changing Age/Time and EPT filter values" (4-25)
- "Changing the SAF filter parameter values" (4-26)
- "Turning the SAF filter on or off" (4-27)

Types of Alarm Filtering

The Navis™ Optical EMS uses three basic methods to reduce the number of alarms to be displayed:

- Aging—waiting for a pre-set time period to eliminate alarms that are caused by temporary failures (and are cleared within a time period shorter than the aging interval)
- Event-per-Time (EPT) Filtering—EPT, which is primarily an alarm reduction technique, filters transient condition (TC) events such as PM Threshold Crossing Alerts (TCAs). To forward all TC events, set the EPT count to zero. Both the time and number of TEs can be adjusted to only log TCs that exceed the expected normal level.
- Symptomatic Alarm Filtering—Symptomatic Alarm Filtering (SAF) filters out a set of pre-defined symptomatic NE alarms and standing condition (SC) events. The filtering is based on the Probable Cause (Condition Type) of the alarms and SC events received from all NEs, including the EMS-based alarms. The list of Probable Causes for SAF filtering is specified in the SAF filter parameter file, which is a UNIX flat file that can be edited using standard UNIX editing tools such as `vi`. Any alarm (including NE and EMS alarms) that match a Probable Cause specified in the SAF filter parameter file is filtered out. Alarms and events that are filtered out are not shown in the Map window or alarm lists. The SAF filter does not differentiate between NE types for the source of the alarms/events.
  The Navis™ Optical EMS provides a default set of pre-defined Probable Causes for alarms only in the SAF filter parameter file as follows:
  SONET
  - AIS-P (SONET Path Alarm Indication Signal Detected)
  - AIS-L (SONET Line Alarm Indication Signal Detected)
  - AIS (SONET Alarm Indication Signal Detected)
  - RFI-P (SONET Remote Failure Indication-STS path)
  - RFI-L (SONET Remote Failure Indication-line)
  - PDI-P (SONET Remote Failure Indication-VT path)

  SDH
  - MSAIS (SDH MSect Alarm Indication Signal Detected)
  - AUAIS (SDH AU Alarm Indication Signal Detected)

- MSRDI (SDH MSect Remote Failure Indication)
- HPRDI (SDH HP Remote Failure Indication)
- TRIBSDH (SDH Communications Failure)

The set of Probable Causes in the SAF filter parameter file can be modified by editing the file using standard UNIX editing tools.

The SAF filter is enabled by default and cannot be turned off by the user via the GUI. The Navis™ Optical EMS administrator enables or disables SAF filtering by changing the value of the *SNC_FM_SAF_FLAG* parameter in the */snc/etc/FM_rc* file (see the "Adjusting Fault Management Parameters" (4-17) section in this chapter). The Navis™ Optical EMS updates its SAF filtering based on the current Probable Causes specified in the SAF filter parameters file after the system administrator executes the `alarm_filter_update` command.

The Map window displays an "unfiltered view" of alarms, including symptomatic alarms filtered out by the SAF filter, by default. You can choose a "filtered view" of alarms, where the symptomatic alarms listed above in the explanation of the SAF feature are not displayed or counted in the alarm tallies, Map window view, and Alarm List.

Adjusting Aging and EPT Filtering Parameters

The Navis™ Optical EMS provides several adjustable parameters for processing, collecting, and filtering alarm and event messages. These messages are grouped into three categories, as shown in the following table:

Table 4-2 Alarm and Event Categories

Message Type	Condition Status
Active alarms/events	These alarms/events have not been cleared.
Standing condition alarms/events	The alarm originator (for example, the NE) sends a clear message when the condition no longer exists.
Transient condition events	The alarm originator (for example, the NE) does not send a clear message because the event does not change an NE's condition for an extended period of time.

The Navis™ Optical EMS fault management parameters are adjustable for each type of supported NE. The following parameters for alarm aging and EPT filtering can be adjusted.

- *Age Time*– This parameter is the number of seconds that an alarm or standing condition event is held while waiting for a clear message. Enabling this filter suppresses repeated alarm/clear message pairs, such as those that are generated by intermittent failures.
  Alarms that do not clear within the specified time are forwarded to the Map window and other windows that list alarm information, such as the Alarm Summary and Alarm List windows.
  Held alarms do not appear on the alarm windows and are not forwarded to a network surveillance system. These alarm messages are, however, available through the Navis™ Optical EMS Logs.
  The default value for all NE types and Probable Causes is 0 seconds (in effect, aging is "disabled."). The maximum value is 3600 seconds.
  However, the value of the Aging Filter flag, SNC_FM_AGING_FLAG, in the file */snc/etc/FM_rc*, which enables or disables the Aging Filtering feature itself, is 1 (enabled). See the "Adjusting Fault Management Parameters" (4-17) section in this chapter.
- *Event-Per-Time (EPT) Count*– This parameter is the number of occurrences of a transient condition event that must be generated within the specified EPT Time before the event is flagged in the Navis™ Optical EMS event log and passed to an external operations system. The events that are counted must have matching condition codes, TIDs, and AIDs. The default count for all NE types and Probable Causes is 0. The maximum count is 3600.
- *EPT Time*– This parameter is the number of seconds that the system maintains an EPT count parameter for a recurring transient event. The default value for all NE types and Probable Causes is 0 seconds. The maximum value is 3600 seconds.
  Transient events that occur in the network can be viewed through the Transient Condition (TC) Event Browser available through a toolbar button on the Map window in the Navis™ Optical EMS GUI.

The following events are shown in the Transient Condition Browser:

- TL1-based messages—REPT-EVT with the “condeff” parameter equals “TC” (WaveStar®BWM, WaveStar® TDM 2.5G, WaveStar® TDM 10G (OC-192 2F), WaveStar® TDM 10G (OC192 4F), AllMetro)
  Only the TC events that exceed the Event-Per-Time (EPT) alarm filtering count are displayed; in other words, the REPT-EVT with “condeff” = “TC” and passing the EPT filter (“eptexceeded” = “1”). The EPT filter does not apply to other TC events, such as REPT-SW and REPT-PROTSW.
- CMISE-based messages—Report Event message M-EVENT-REPORT with “condeff” (mapped API parameter) equals “TC” (400G).

The above alarm filtering parameters are maintained in a UNIX file that the Navis™ Optical EMS system administrator can edit (see “Adjusting Fault Management Parameters” (4-17)).

Adjusting Fault Management Parameters

Certain parameter settings for alarm filtering are maintained in an editable UNIX file under */snc/etc/FM_rc*.

The following table shows the environment variables for the filtering parameters, their default value, and their allowed values.

Table 4-3 Alarm Filtering Environment Parameters

Parameter	Environment Variable	Allowed Value	Default Value
Aging Filtering flag (to turn filtering by aging method on/off)	SNC_FM_AGING_FLAG	1=enabled 0=disabled	0 (disabled)
Symptomatic Alarm Filtering (SAF) flag to turn SAF filtering on/off	SNC_FM_SAF_FLAG	1=enabled 0=disabled	1 (enabled)
Age Time	SNC_FM_DEF_AGE_TIME	0 to 3600 seconds	10 seconds
EPT Flag	SNC_FM_EPT_FLAG	1=enabled 2=disabled	2 (disabled)
EPT Count	SNC_FM_EPT_COUNT	0 to 3600	0 seconds

Table 4-3 Alarm Filtering Environment Parameters (continued)

Parameter	Environment Variable	Allowed Value	Default Value
EPT Time	SNC_FM_DEF_STAT_TIME	0 to 3600 seconds	0 seconds
Auto Throttle Flag	SNC_FM_AUTO_THROTTLE_ FLAG	1=enabled 0=disabled	1 (enabled)
Manual Throttle Flag	SNC_FM_MANUAL_THROTTLE_ FLAG	1=enabled 0=disabled	0 (disabled)
Status Time	SNC_DEF_STAT_TIME	0 to 3600 seconds	3600 seconds
Throttle Level	SNC_FM_DEF_THROTTLE_LEVEL	0 to 3600 seconds	100 seconds

Overload conditions and fault management

When the Navis™ Optical EMS receives a large number of alarms and Threshold Crossing Alerts (TCAs), as during an alarm storm, and the volume of alarms/messages exceeds a certain pre-set limit, the system is in an overload condition.

The Navis™ Optical EMS is in overload mode when the number of outstanding (unprocessed) messages in the Fault Management Input Queue (buffer) exceeds the Overload Set Limit of 800 messages (the pre-set default value).

The Map window in the GUI has an Overload Indicator box that alerts the user to the overload condition.

When the Navis™ Optical EMS is in an overload condition, it suspends processing of TCAs and other transient condition events, the collection of PM data and display of PM historical data, and certain on-demand and scheduled user activities (such as NE data backups, software downloads, and DNOs) until the overload condition ends.

When the number of messages in the Fault Management Input Queue drops below 200 messages, the system is no longer in overload and the system resumes processing of alarms/events, collection of PM data, and user-initiated transactions in the following order:

1. All transactions requested by users in “ad hoc” (on demand) mode.
2. All scheduled NE data backups.
3. All other scheduled tasks.

Alarm severity assignment profile management

An Alarm Severity Assignment Profile (ASAP) is used to assign an alarm severity level to a given entity within an NE, based on the probable cause of the alarm and the NE type.

Each entity can be assigned to a specific ASAP. Each ASAP consists of a set of probable causes with specified alarm severity levels. By default, entities of the same type are assigned to a default ASAP for that type.

The following table shows which ASAP capabilities are currently available through the GUI-based ASAP management functions, based on the NE type and the earliest NE release to which it applies, if available. In the table, “NA” means “Not Available”.

	BWM	TDM 2.5G	TDM 10G	OLS 1.6T	LambdaUnite™ MSS	LambdaRouter128/256 AOS
View an ASAP	1.2	2.0	3.0	2.0	2.0	2.0
Add an ASAP	1.3	NA	3.0	2.0	2.0	2.0
Modify an ASAP	1.2	2.0	3.0	2.0	2.0	2.0
Delete an ASAP	NA	NA	4.0	2.0	2.0	2.0
Rename an ASAP	1.3	NA	3.0	NA	2.0	2.0
Assign ASAP to AID	1.2	2.0	3.0	2.0	2.0	2.0
View ASAP Assignment for an AID	1.2	2.0	3.0	2.0	2.0	2.0
View all AIDs assigned to a profile	NA	NA	NA	2.0	2.0	2.0

Important! For the WaveStar® OLS 1.6T R. 2.0 NEs, ASAP provisioning only affects the alarms sent to the Navis™ Optical EMS, not alarms sent to other OSs, including the Craft Interface Terminal (CIT). ASAP provisioning for WaveStar® OLS 1.6T R. 3.0 NEs affects all alarms generated by the NE and sent to all OSs.

Alarm severity assignment for AllMetro NEs

Important! Support for AllMetro NEs is not available in the current Navis™ Optical EMS release, and will not be supported in future releases of the EMS.

AllMetro NEs do not support the ASAP feature. Alarm severity assignment is done by direct assignment of the alarm severity for an AID or group of AIDs. Alarm severity provisioning on an AllMetro NE can be done for the following entities:

- Supervisory channels
- Incoming port (OTU IN)
- Environment ports

Alarm severity provisioning for AllMetro environmental points can be done at the port level through the GUI or by issuing TL1 commands in Cut-Through mode. The TL1 commands `RTRV-ATTR-ENV {TID}{AID}` and `SET-ATTR-ENV{TID}{AID}` allow you to retrieve and set the alarm message and notification code for the AID for the specified AID.

For details about use of TL1 commands to provision alarm severity assignment in the AllMetro NE, consult the AllMetro documentation.

Example of an ASAP entry

A Loss of Signal (LOS), which can be a probable cause of an alarm on an Incoming DS3 Port (the entity) of a WaveStar® BWM NE, may be assigned an alarm severity level of Critical in the ASAP associated with the DS3 port entity type.

Important! For an explanation of specific probable causes for an NE type, refer to the related NE documentation.

Types of ASAPs

There are different types of ASAPs associated with different types of equipment entities. An ASAP can only be assigned to each entity of the same type. Each ASAP/entity type has a specific list of applicable probable alarm causes associated with it.

Example of a profile type

In the WaveStar®OLS 1.6T, a shelf is a specific entity in an NE that generates its own set of alarms for which there are probable causes. Therefore, a shelf can be a Profile Type for which an ASAP exists or can be created.

Parts of an ASAP

Each Profile Type for an entity in an NE contains:

- A list of probable causes (condition types)
- The service affecting state of each probable cause
  - Service Affecting (SA)
  - Non-Service Affecting (NSA)
  - Service Interrupting (SI)
- The assigned alarm level values for each probable cause
  - Critical (CR) for SONET or Prompt (PR) for SDH
  - Major (MJ) for SONET or Deferred (DF) for SDH
  - Minor (MN) for SONET or Deferred (DF) for SDH
  - No Alarm (NA) for SONET and SDH
  - No Report (NR) for SONET and SDH

  The display of alarm level values when adding a new ASAP depends on user selection of SONET or SDH alarm severity levels through the Fault panel of the Preferences option through the GUI.

  Refer to the TL1 documentation for the `ED-ASAP-PROF` command for the allowed alarm severity levels for each condition type.

ASAP options

The Navis™ Optical EMS allows you to:

- Retrieve and view ASAPs for an NE
- Add a new ASAP for an NE
- Modify an existing ASAP
- Delete an ASAP
- Rename an existing ASAP (except for default ASAPs)
- View ASAP assignments for NE entities

Adding an ASAP

Each entity/AID (Profile Type) has a default ASAP. When it is first created, a new ASAP inherits the same alarm severity levels as those set up in the default ASAP for a Profile Type. The alarm severity levels for each item in the new ASAP can remain the same as the default ASAP, or be modified as needed. The new ASAP is given a

new Profile Name. The newly created ASAP can be assigned to a specific AID (entity) in an NE.

Important! When adding a new ASAP for an NE, the Profile Names "Default" or "default" cannot be used.

Modifying an ASAP

Any ASAP can be modified, including the default ASAP for a Profile Type in an NE, by changing the alarm severity assignments for probable causes in the ASAP.

Deleting an ASAP

Once created, you can delete an ASAP. However, you cannot delete an ASAP that is currently assigned to an entity (AID) in an NE, until you remove the assignment from the AID. You cannot delete the default ASAP for a Profile Type in an NE.

Renaming an ASAP

Once created, you can change the profile name of an inactive ASAP that is not a default ASAP.

Assigning an ASAP to an NE's AID

Each AID in an NE may generate specific types of alarms. The severity of the alarms with different probable causes generated by each NE's AID depends on the ASAP assigned to the AID. Each NE's AID is assigned to a default ASAP. You can assign an ASAP that you created to an AID. Each AID in an NE can be associated with a different ASAP.

Viewing ASAP assignments for NE entities

Each AID may generate specific types of alarms. The alarm severity level of each probable cause for an NE entity depends on the ASAP assigned to the AID. You can select an ASAP for a Profile Type in an NE and see which entities are assigned to the ASAP.

Transient event condition browser

The Navis™ Optical EMS provides a GUI-based browser that allows you to display a list of transient condition (TC) events that occur in the host's NE network. Transient events do not require a clear message by the NE because they do not change the NE's condition over an extended period of time.

Administering fault management functions

The Navis™ Optical EMS allows you to set up or modify several aspects of alarm reporting for the NEs in your network at the same

time, using a single GUI window that can be accessed from the Fault menu option on the Map window toolbar. This GUI window allows you to:

- assign severity levels to environmental alarms generated by miscellaneous discretes on the NE (such as “door open” alarms). Severity levels for these types of alarms are set up by assigning an Alarm Severity Assignment Profile (ASAP) to the miscellaneous discrete AID and selecting the alarm severity level
- provision facility and equipment alarm delays
- provision facility and equipment alarm clearing delays
- enable or disable audio/visual alarm indicators
- allow or inhibit the receipt of autonomous messages (***Note:*** this option is currently available only for WaveStar® OLS 1.6T and WaveStar® BWM R. 3.0 (and later) NEs)
- enable or disable alarm latching. When alarm latching is enabled for an NE, an alarm is removed from the Alarm List only when the following conditions are met: 1) the alarm is cleared 2) the alarm is acknowledged. Alarm acknowledgement may be done before or after the alarm is cleared. For Alarm Latching to be enabled for an NE, Alarm Latching Readiness must be enabled during installation of the Navis™ Optical EMS. Alarm Latching Readiness is disabled, by default.

Related tasks See Chapter 2, “Alarm Management” for related tasks.

□

Turning the Age/Time and EPT filters on or off

To turn the Age/Time and EPT filters on or off in the file *FM_rc*, do the following:

1 Go to the directory */ems/etc* (for Navis™ Optical EMS R. 4.0 or later releases) or the directory */snc/etc* (for Navis™ Optical EMS releases before R. 4.0).

2 Edit (using the UNIX `vi` editor) the file *FM_rc* and change the following values:

Change the value of the variable *SNC_FM_AGING_FLAG* to zero (0) to turn the Aging filter off (the default) or 1 to turn the Aging filter on.

Search for and change the value of the variable *SNC_FM_EPT_FLAG* to zero (0) to turn the EPT filter off (the default) or 1 to turn the EPT filter on.

3 After modifying the *FM_rc* file, run the `alarm_filter_update` script to execute the update.

END OF STEPS

□

Changing Age/Time and EPT filter values

To change other Age/Time and EPT filter parameter values, do the following:

1 Go to the directory */ems/config/FM* (for Navis™ Optical EMSR. 4.0 or later releases) or the directory */snc/config/FM* (for Navis™ Optical EMS releases before R. 4.0).

2 Edit (using the UNIX `vi` editor) the file *FM.cfg* and change the following values:

The first column is the Condition Type (the first row contains the default values for all Condition Types that are not in the first column).

The second column is the timer value of the Age/Time filter for a Condition Type (the first row value is the default).

The sixth column is the value for the count of the EPT filter.

The seventh column is the value for the time period of the EPT filter.

3 After modifying the *FM.cfg* file, run the `alarm_filter_update` script to execute the update.

END OF STEPS

□

Changing the SAF filter parameter values

To change the SAF filter parameter values, do the following:

1 Go to the directory */ems/config/FM* (for Navis™ Optical EMS R. 4.0 or later releases) or the directory */snc/config/FM* (for Navis™ Optical EMS releases before R. 4.0).

2 Edit (using the UNIX `vi` editor) the file *FM_Conditions* and change the following values:

The file lists the Condition Types that are to be filtered out. Modify as needed.

3 After modifying the *FM_Conditions* file, run the `alarm_filter_update` script to execute the update.

END OF STEPS

□

Turning the SAF filter on or off

To turn the SAF filter on or off, do the following:

1. Go to the directory */ems/etc* (for Navis™ Optical EMS R. 4.0 or later releases) or the directory */snc/etc* (for Navis™ Optical EMSreleases before R. 4.0).

2. Edit (using the UNIX `vi` editor) the file *FM_rc* and change the following values:

   Search and change the value of the variable *`SNC_FM_SAF_FLAG`* to 1 to turn the SAF filter on (the default) or to zero (0) to turn the SAF filter off.

3. After modifying the *FM_rc* file, run the `alarm_filter_update` script to execute the update.

END OF STEPS

□

The Navis™ Optical EMS Logs

Overview

The Navis™ Optical EMS keeps track of certain information regarding system performance and actions. This information is stored in logs, and may be filtered and viewed by the user. The process of collecting, storing, and displaying this information is called Log Management.

Log Management provides the following four functions:

- ***Logging—***logs messages and data into the Navis™ Optical EMS database or a flat file.
- ***Browsing—***provides GUI functionality for the user to browse the messages and data.
- ***Filtering—***filters log data to provide only desired data.
- ***Purging—***purges old log messages from the Navis™ Optical EMS database or temporal log files generated by system modules.

Types of logs

There are two main categories of logs available through the Navis™ Optical EMS:

- Log data from the EMS (Navis™ Optical EMS)
- Log data obtained directly from the NE

The following EMS logs are maintained:

- ***Alarm/Event Log—***This log stores a history of all the alarms and events received from the network elements as a result of unexpected behaviors by an NE.
- ***Network Element Notifications Log—***This log stores notifications from NEs on database changes, protection switching, and other NE-related activities.
- ***Network Element Command/Response Log—***This log stores all commands and responses, except retrieval commands and responses (for example, RTRV-rr) that are originated from and received by SNMS. The user ID information and user interface information (GUI, cut-through, TCP/IP, or dial-up) are also logged.

- ***EMS Alarm/Event Log—***This log stores alarms originated by system on all system hardware and/or software-related unexpected behaviors detected by the Navis™ Optical EMS itself.
- ***EMS Activity Log—***This log displays information on selected Navis™ Optical EMS activities for one or more users.

The Navis™ Optical EMSalso provides access to data logs obtained directly from a specific NE.

Important! The Navis™ Optical EMS currently only supports access to the alarm data log from an NE.

Alarm/event log

Use the Alarm/Event Log to view, save, and print important alarm and event information. The Navis™ Optical EMS logs and stores various alarms and non-alarm events as listed in the appropriate NE documentation.

Clear messages for an WaveStar® OLS 1.6T NE are always shown as alarms in the log.

The user can filter the Network Alarm/Event Log on certain parameters, including start date/time, end date/time, TID, aggregate, EPT, alarm/event type, and severity. The maximum number of days for which alarm/event data can be displayed is 45.

Alarm/event log format

The following table shows the system failure information logged by the Navis™ Optical EMS to the Alarm/Event Log.

Table 4-4 System Failure Information in the Navis™ Optical EMSAlarm/Event Log

Parameter	Values	Description
Alarm/Event Type	Alarm	for alarms only
Alarm ID	1 - 999999	the Navis™ Optical EMS assigned alarm identification number
Date of Occurrence	YYYY-MM-DD (month-day)	
Time of Occurrence	HH:MM:SS (hours:minutes:seconds)	
Category	Equipment/ Processing Error	
Alarm Issue Point	<=20 characters	LAN/Disk IO/File System/Database

Table 4-4 System Failure Information in the Navis™ Optical EMSAlarm/Event Log (continued)

Parameter	Values	Description
Effect on Service	NSA	
Severity	CR/MJ/CL	
Probable Cause	Text String (see the Navis™ Optical EMS alarm list)	condition type
Description	Text String (see the Navis™ Optical EMS alarm list)	description of the failure conditions

The user can filter the Navis™ Optical EMS Alarm/Event Log on the start date/time and end date/time parameters. The maximum number of days for which alarm log data can be displayed is 45.

NE notifications log

The Navis™ Optical EMS logs the following notifications/events in the NE Notifications Log:

- The completion (or noncompletion) of an automatic database backup (from primary NVM to secondary)
- Any change in the Navis™ Optical EMS database
- The autonomous removal from service of an administrative or data link
- Automatic and manual (user-initiated) equipment protection switches, synchronization mode switches, and system timing reference switches.

The user can filter the NE Notification Log on certain parameters, including start date/time, end date/time, TID, aggregate, and notification type. The maximum number of days for which network notification data can be displayed is 45.

NE command/response log

All commands that are formulated by internal subsystems as a result of a user operation from the GUI are logged to the NE Command/Response Log. (The one exception is retrieval commands, which are left out for performance reasons.) The Navis™ Optical EMS provides a user interface parameter for each logged command from all interface types. The possible values for the parameter are GUI, cut-through, TCP/IP, and dial-up.

The system administrator is allowed access to all commands/responses, while users are able to view self-originated commands and responses. The commands are displayed in the order

they were received by the Navis™ Optical EMS, each command followed by its response. (If a command did not receive a response, the display indicates this with the entry “time out.”)

The user can filter the NE Command/Response Log on certain parameters, including start date/time, end date/time, TID, and aggregate. The system administrator can filter on these same parameters, plus two more - command interface and user login ID. The maximum number of days for which network command/response data can be displayed is 7.

EMS activity log

All user activities that are executed through the GUI as well as system activities are stored in the Navis™ Optical EMS database and logged in the EMS Activity Log. By using the Log Management feature, the Activity Log can be browsed by the user and the information saved and printed.

The user can filter the Activity Log on certain parameters including start date/time, user, activity type, and selected activity. The maximum number of days for which activity can be displayed is seven.

The activities are listed in the order they were received by the Navis™ Optical EMS with the requested information.

The onset and termination of system overload conditions are also logged in the Activity Log.

Related tasks

See Chapter 2, “Alarm Management” for related tasks.

□

5 Performance Management Concepts

Overview

Purpose

This chapter provides general information about the Performance Management features of the Navis™ Optical EMS.

Objectives

This chapter provides information to perform the following:

- Enable the Performance Monitoring (PM) feature for PM data collection
- Set the threshold PM parameters for data collection
- Administer storing of PM data
- View PM data
- Generate PM data reports
- Administer PM parameters
- Add, modify, and delete PM profiles
- View PM profile assignments
- Assign a PM profile to an entity (AID) in an NE

Contents

Background

Overview The Performance Management features of the system allows users to collect Performance Monitoring (PM) data from certain NE types. Users can specify the NEs and reporting of PM data from either a facility or specific entity (AID) from which PM data is collected. The collected PM data can be viewed online through the GUI or exported to external systems for analysis and report generation.

□

Performance Monitoring Capabilities

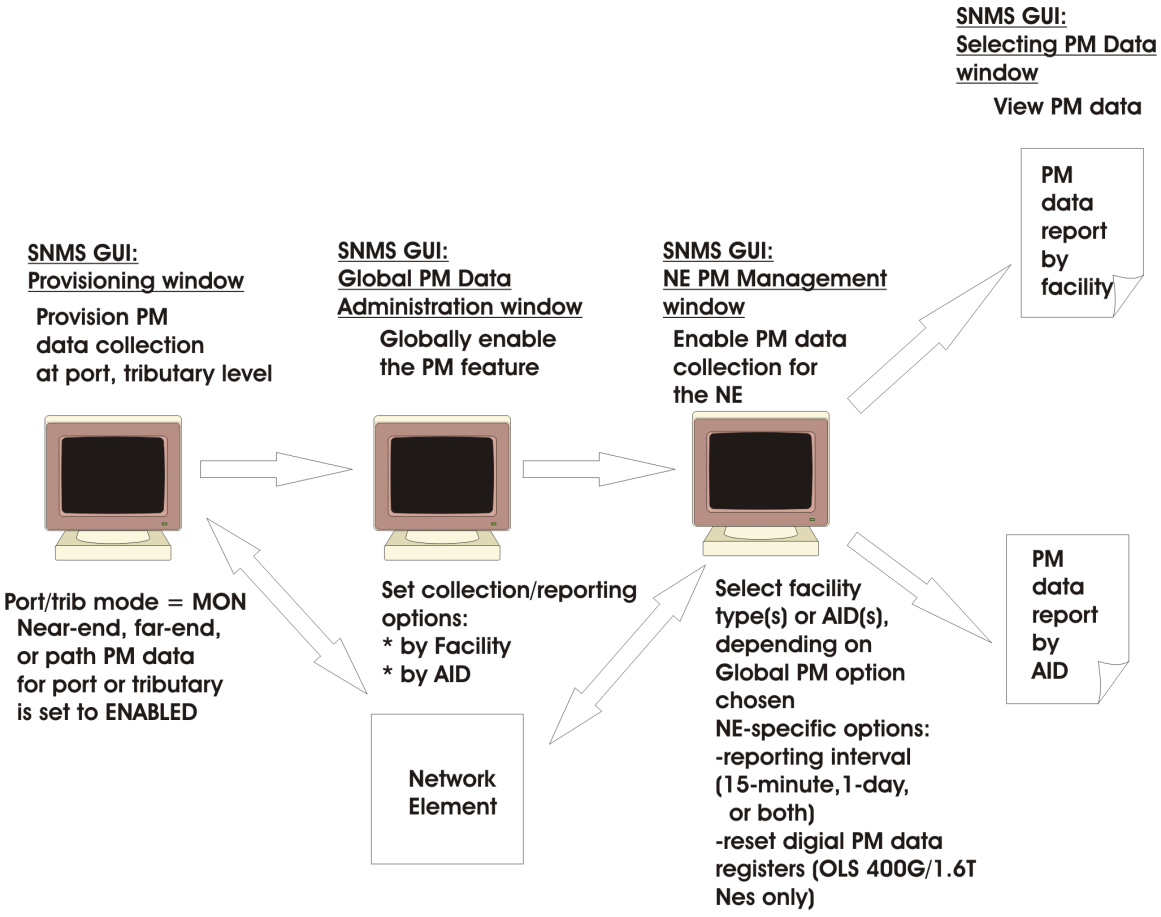
Overview

The Performance Management feature allows the system to retrieve, store, and export Performance Monitoring (PM) data from WaveStar® OLS 400G R2.0 (and later), WaveStar® BandWidth Manager (BWM) R1.3 (and later) SDH interfaces, WaveStar®TDM 10G (STM-64) SDH interfaces, 2.5G_10G R3.0 (and later), WaveStar®WaveStar® TDM 10G (OC-192) 4-Fiber R1.0 (or later), and Metropolis™ DMX Access Multiplexer R1.1 NEs. The system retrieves intermediate and terminal path SONET/SDH bin and line PM data from WaveStar® BWM R2.0 (and later) NEs. This feature also allows you to retrieve, store, and export PM data from FT-2000 LCT R4.0 NEs. The PM feature, which is enabled or disabled through the GUI, allows you to initiate performance monitoring of managed NEs. PM data can be collected from none, some, or all NEs in the network. You can specify, on a per-NE basis, the type(s) of interfaces from which to collect PM data for analysis. PM data can be turned on or off for each NE and can be collected in 15-minute and/or 1-day time intervals. PM data can be viewed online through the GUI or exported to an external reports system for more sophisticated reports and analysis.

The system also supports remote administration of performance parameters and thresholds through the Cut-Through feature. For the WaveStar® OLS 1.6T CMISE protocol, the system provides GUI windows to configure WaveStar® OLS 1.6T performance parameters and thresholds. Performance exceptions are logged from the NEs as Threshold Crossing Alerts (TCAs) each time the administered threshold for these events is exceeded.

Setting up PM data collection in the Navis™ Optical EMS

The following figure illustrates the basic steps of setting up PM data collection in the Navis™ Optical EMS from an NE for later viewing/reporting.



Provisioning PM data collection at port/tributary level

PM data collection must be enabled at the port or tributary level of an NE. PM data collection at the port/tributary level is done through the Provisioning window in the Navis™ Optical EMS GUI.

PM data collection must be enabled for each port or tributary of the NE from which data is to be collected.

To enable PM data collection at the port level, you must set the Port Mode to MON (Monitored) and enable collection for each type of data (near-end, far-end, path).

To enable PM data collection at the tributary level, you must set the Tributary Monitoring mode to MON (Monitored) and enable collection for each type of data (near-end, far-end, path).

Globally enabling the PM feature

The PM feature must be globally enabled before PM data can be collected from NEs. If the PM feature is not enabled globally, PM data cannot be collected even if PM data collection is turned on for an NE.

When the PM feature is globally enabled, you have the option of collecting and reporting PM data on a per-AID basis or a per-facility type basis. If global PM data collection and reporting is done on a per-facility type basis, you can specify, on a per-NE basis, the type(s) of NE interfaces from which PM data is to be collected. If global PM data collection and reporting is done on a per-AID basis, you can specify, on a per-NE basis, the AIDs for which PM data is to be collected.

When the PM feature is globally enabled, the system periodically polls each NE that has PM data collection enabled for PM data.

Per-facility type or per-AID basis

The PM feature can be globally enabled to collect PM data on a per-facility type or per-AID basis. The global setting determines how PM data is later viewed. Collection and reporting of PM data on a per-facility type basis is the default.

Hybrid method of PM data collection

The PM feature provides flexibility by allowing you to provision PM data collection and viewing on a per-facility type or per AID basis separately. For example, you can globally provision collection of 15–minute PM data on a per-facility basis while provisioning 1–day PM data on a per-AID basis (or vice versa), or you can provision collection and viewing of both 15–minute and 1–day PM data on either a per-facility basis or per-AID basis.

Reporting by raw number or percentage

When the PM feature is globally enabled, you can designate whether PM data for each parameter is collected and displayed as a raw number format or as a raw number and as a percentage of the maximum allowed value for the PM parameter.

If the option to provide both a raw number and a percentage is enabled, the percentages only apply to digital PM parameters, not to analog PM parameters.

PM data collection

PM data collection can be enabled or disabled for an NE. You can also select the type of PM data to be collected (15-minute, 1-day, or both) for each port type on the NE, or disable PM data collection for a port type.

If global PM data collection is done a per-facility basis, NEs are normally polled every two hours. Data polling is done by the system in such a way as to avoid overwhelming the network with PM data traffic.

If PM global PM data collection is done on a per-AID basis, NEs are polled every 15 minutes. In either mode, 1 day PM data is collected once a day.

Loss of communications

If connectivity is lost to an NE during PM data polling, upon re-establishing the connection, the system resumes data collection, and polls for the oldest PM data not yet collected, based on the value of the *OLDEST_TO_POLL* variable, *.pm_global* file, found in the */ems/.pm* directory, which can be changed by the system administrator.

For example, if the value of the *OLDEST_TO_POLL* variable is set to four hours and connectivity between an NE and the system is lost for three hours, the system resumes polling for PM data that is up to four hours old if it has not already been collected.

Suspension of PM data collection

PM data collection is suspended during an alarm storm. The Navis™ Optical EMS resumes PM data collection after the alarm storm has subsided.

Initialization of PM data registers

For the selected NE, the PM feature allows you to reset (initialize) the digital PM registers for:

- All current 15-minute digital PM data (Bin A)
- All current 1-day digital PM data (Bin B)
- Both 15-minute and 1-day current PM data

At the NE level, the PM feature allows you to reset (initialize) the digital PM registers for:

- All Supervisory channels in the Optical Line
- All Optical Translator Units (OTUs) in the Optical Line
- Both (All Supervisory Channels and All OTUs in the Optical Line

On an Optical Line basis, the PM feature allows you to reset (initialize) the digital PM registers for:

- All Supervisory channel digital PM bins
- All associated Optical Translator Port Signals (OTPSs)
- Both (All Supervisory channel and all associated OTPSs)

At the Bay level, the PM feature allows you to reset (initialize) the digital PM registers for:

- All OTPSs on all OTUs' digital PM bins (15-minute, 1-day, or both)

On an OTU level, the PM feature allows you to reset (initialize) the digital PM registers for:

- Both OTPSs' digital PM bins (15-minute, 1-day, or both)

On an OTPS level, the PM feature allows you to reset (initialize) the digital PM registers for:

- The OTPS' digital PM bins (15-minute, 1-day, or both)

Setting the start time for 1-day PM data collection

For the selected NE, the PM feature allows you to view and then reset (if necessary) the hour of the start time for collection of 1-day PM data.

Storing PM data

The system stores collected PM data in the Navis™ Optical EMS database. Each PM database record contains a:

- TID and AID of the NE from which the PM data was collected
- 15-minute or 1-day PM data indicator
- NE interface type from which PM data was collected
- time/date of PM data collection
- validity of PM data
- type of PM data

- value of PM data
- PM threshold exceeded indicator (in other words, whether the PM data collection exceeded the established threshold during PM data collection). ***Note:*** this variable is not applicable to WaveStar® OLS 1.6T NEs.

The PM data collected can be invalid if the NE date/time was reset during PM data collection or if the NE PM data register overflowed during the collection interval.

PM data can be stored in the system for 1 to 30 days. The default retention period for 15-minute data is 30 days. The default retention period for 1-day data is 30 days. The data retention period for both 15-minute and 1-day PM data can be specified through the Global PM Management option on the GUI.

PM files are kept for the set retention period, unless the files have to be overwritten due to insufficient data storage space. The system automatically deletes any PM data file when it is older than the retention period or there is a lack of storage space. If there is a lack of data storage space, the system deletes PM data files, starting with the oldest file first, until the storage problem is resolved.

When PM data is deleted, the Navis™ Optical EMS puts an entry into the Alarm Log indicating that PM data has been deleted.

Deleting an NE from the Navis™ Optical EMS

Any PM data associated with an NE is removed from the Navis™ Optical EMS database when that NE is deleted from the Navis™ Optical EMS.

Viewing PM data

The system allows you to view the “raw” PM data which is either stored in the Navis™ Optical EMS database or not yet collected from the NE only if global PM data collection is done on a per-facility basis. You can specify which PM data to view using selection criteria such as:

- Current or historical PM data
- Date/time of historical PM data
- The type of PM data (15-minute or 1-day)
- The NE interface type (per-facility type)
- The NE, facility type, and AID (per-AID)

The date is specified for 1-day data. The date and time of day is specified for 15-minute data.

Hybrid method of viewing PM data

The PM feature allows you to globally provision the collection and viewing of PM data on a per-facility type or per AID separately, so, based on the the setting of this option through the Global PM Data Management window, you can set up the Navis™ Optical EMS to collect and view both 15–minute and 1–day PM data on a per-facility type or AID basis, or set it up to collect and view 15–minute PM data for a selected facility type while collecting and viewing 1–day PM data per AID, or vice versa.

Generating PM data reports

PM data collected by the system can be automatically downloaded by Lucent Technologies' Integrated Transport Management Dynamic Network Analyzer (ITM-DNA), an external PC-based system which can produce various types of user-defined reports. The downloaded PM data that is stored in the ITM-DNA database can be used to generate reports in a variety of formats, including tabular reports, line graphs, and bar graphs.

Types of PM data

The system can be set up to collect PM data from specific NE interfaces and the Optical Translator Unit (OTU).

The following table shows the interfaces (facility types) by NE type from which PM data can be collected.

NE Types	Applicable Facility Types
WaveStar® OLS 1.6T	Optical Channels, Optical Lines, Supervisory Channels, Optical Translator Port Signals (OTPS)
WaveStar® BWM R1.3	STM16, STM4, STM1, T3
WaveStar® BWM R2.0	STM64, STM16, STM4, STM1, VC3[1], VC4[2] , VC44c[2] , VC416c[2] , OC192 , OC48 , OC12, OC3 , T3
WaveStar® BWM R2.1	STM64, STM16, STM4, STM1, VC3[1], VC4[2] , VC44c[2] , VC416c[2] , OC192 , OC48 , OC12, OC3 , EC1, T3

NE Types	Applicable Facility Types
WaveStar® BWM R3.0-R3.1	STM64, STM16, STM4, STM1, VC3[1], VC4[2], VC44c[2] , VC416c[2] , OC192, OC48, OC-12, OC3, EC1, STS1, STS3c, STS12c, STS48c, T3
WaveStar® TDM 10G (STM-64) R1.0-R1.1	STM64, STM16, STM1, STM1E
WaveStar® TDM 10G (STM-64) R2.0	STM64, STM16, STM4, STM1, STM1E
WaveStar® TDM 10G (STM-64) R2.1	STM64, STM16, STM4, STM1, STM1E, VC3[1], VC4[1], VC44c[1],VC416c[1]
FT-2000 LCT R4.0	OC48, OC12, OC3, EC1, STS1[1], T3
2.5G_10G R3.0	OC192, OC48, OC12, OC3, EC1, T3, STS48c[2] , STS12c[2], STS3c[2], STS1[2]
2.5G_10G R4.0	OC192, OC48, OC12, OC3, EC1, T3, STS48c[1] , STS12c[1], STS3c[1] , STS1[1]
Metropolis™ DMX Access Multiplexer R1.1, R2.0	OC48, OC12, OC3, EC1, T3, T1, STS12c, STS3c, STS1, VT1, Ethernet

Notes:

1. Both Terminating Path and Mid-Path PM data are supported.
2. Only Mid-Path PM data is supported.

Refer to the respective NE hardware documentation for details about the types of PM data that can be generated from each of these interfaces.

NE PM data administration

The PM Data Administration window on the GUI allows you to administer three categories of NE PM data related to the WaveStar® OLS 1.6T:

- digital PM threshold settings
- analog PM threshold settings
- baseline value calculations

PM threshold values can only be provisioned for an WaveStar®OLS 1.6T NE through the PM Data Administration window. For other NE types, PM threshold values must be set by issuing TL1 commands via the Cut-Through window.

Digital PM data threshold settings

For the selected NE, the PM data administration feature allows you to retrieve and set the 15-minute and/or 1-day threshold values for PM data collection for the specific parameters listed on the GUI window.

The feature also allows you to set whether going above a high threshold or below a low threshold, for a particular PM parameter, results in the NE issuing a Threshold Crossing Alert (TCA). This applies to both analog and digital PM parameters.

Analog PM data threshold data settings

For the selected NE, the PM data administration feature allows you to display and change the high and low threshold values for PM data collection for the parameters listed on the GUI window.

Recalculation of baseline signal power

The PM data administration feature allows you to set, in the NE, the current baseline value of NE facilities associated with analog PM parameters. To establish the reference point for the high and low threshold values for signal power, the PM feature allows you to recalculate (set) the current baseline value for the signal power received, transmitted, or both. This may be required, for example, when a new NE is brought into service.

Administering PM parameters

Some of the parameters that are used by the system to manage the PM feature, such as the data retention period or the age of the data collected during polling, can be manually changed by the system administrator by editing the value of the corresponding variable in the *.pm_global* file, which is found under */snc/.pm*.

The following table shows the PM variables that can be edited, with their default values.

Table 5-1 PM Feature Variables

Variable	Description	Default Value
PM_COLLECT_STATUS	The current global setting of the PM feature. Value is On or Off.	On
RETENTION_FOR_MIN	The global data retention period for 15-minute PM data.	30 (days)
RETENTION_FOR_DAY	The global data retention period for 1-day PM data.	30 (days)
POLL_SESS_FREQ	The frequency that the system polls the NEs for PM data in a session. Allowed value is 2 to 6 hours, specified in minutes	120 (minutes)
PM_OLDEST_TO_POLL	The age of the oldest PM data that can be collected by the system from the NEs.	6 (hours)
PM_MAX_FILE_POLL	The maximum number of PM data reports for which the system can poll NEs in one session.	20
TOTAL_FILE_ SYSTEM	The total number of system host machines for which PM data is being collected.	1
DATA_COLLECTION_ MODE	The global PM data collection and reporting mode	FACILITY

Exception reporting

The system provides exceptions by logging Threshold Crossing Alerts (TCAs) received from the NEs. TCAs, in the form of report events, are generated every time an administered performance threshold is exceeded in the NE. In addition, the system EPT Threshold capability flags the TCA rate when it exceeds the system threshold.

TCAs and alarms are stored in the Navis™ Optical EMS database and are available for online queries through the EMS Alarm/Event Log.

PM profile management

A Performance Management (PM) profile is used to assign a threshold value for the various types of PM data that can be generated by an NE, to a given entity within the NE to establish, for example, threshold limits for TCAs to be generated by an NE.

By default, each entity is assigned to one default PM profile of more than one PM profile type.

The following table shows which PM profile capabilities are currently available through the GUI-based PM profile management functions, based on the NE type and the earliest NE release to which it applies, if available. In the following table, “NA” means “Not Available”.

	BWM	TDM 2.5G	TDM 10G	OLS 1.6T
View an PM/TCA Profile	1.3	3.0	2.0	2.0
Add an PM/TCA Profile	2.0	3.0	2.0	NA
Modify an PM/TCA Profile	1.3	3.0	2.0	2.0
Delete an PM/TCA Profile	2.0	3.0	2.0	NA
Assign PM/TCA Profile to AID	1.3	3.0	2.0	NA
View PM/TCA Profile Assignment for an AID	1.3	3.0	2.0	2.0
View all AIDs assigned to a PM/TCA profile	2.0	3.0	2.0	NA

PM profile types

There are different types of PM profiles associated with different types of equipment entities. Each PM Profile Type has an associated set of PM parameters with related threshold values.

The following table lists the available PM Profile Types and the earliest NE releases supported for each profile type. In the table, a plus (+) sign indicates that the Profile Type is supported for releases following the earliest release supported.

PM Profile Types	NE Rels
PHYSICAL	WaveStar® BWM R1.3, 25G_10G R3.0-, WaveStar® TDM 10G (OC–192 4F) R2.0-, WaveStar® TDM 10G (STM-64) R. 2.0–
SECTION-LINE	WaveStar® BWM R1.3, 25G_10G R3.0-, WaveStar® TDM 10G (OC–192 4F) R2.0-
PATH	WaveStar® BWM R1.3, 25G_10G R3.0-, WaveStar® TDM 10G (OC–192 4F) R2.0-
DS3	WaveStar® BWM R1.3, 25G_10G R3.0-, WaveStar® TDM 10G (OC–192 4F) R2.0-
SDH RS-MS (Regenerator Section - Multiplex Section)	WaveStar® BWM R1.3, WaveStar® TDM 10G (STM-64) R.2.0–
SDH HOVC. (High Order Virtual Container path)	WaveStar® BWM R1.3, 10G, WaveStar® TDM 10G (STM-64) R.2.0–
Ethernet	WaveStar® 10G (STM-64) R.4.0, 2.5G_10G R. 3.0–

PM profile options

The Navis™ Optical EMS allows you to:

- Retrieve and view PM profiles for an NE
- Add a new PM profile for an NE
- Modify an existing PM profile
- Delete a PM profile
- View PM profile assignments for NE entities

Adding a PM profile

Each PM Profile Type has a default profile. When it is first created, a new PM profile inherits the same threshold values as those set up in the default profile for a Profile Type. The threshold values for each item in the new profile can remain the same as the default one for the Profile Type, or be modified as needed. The new profile is given a

new Profile Name. The newly created profile can be assigned to a specific AID (entity) in an NE.

The Navis™ Optical EMS allows a maximum number of profiles (default and newly created). If you attempt to add a new profile and it exceeds the maximum number of profiles allowed for a given profile type, the request is denied by the Navis™ Optical EMS.

PM parameter threshold values are displayed as a raw number or as a raw number and a percentage of the optimal value of the parameter, depending on the global settings made through the Global PM Data Administration window.

The maximum number of profiles allowed for each Profile Type of an NE (applicable to the BWM and 2.5G_10G NE types) are as follows:

- The system supports up to 10 Physical profiles.
- The system supports up to 30 port level profiles (a total of section-line and SDH RS-MS profiles cannot exceed 30).
- The system supports up to 80 path level profiles (in other words, the number of path profiles, SDH HOVC paths, and number of DS3 profiles cannot exceed 80).

The total number of profiles defined above apply to both the system default profiles and the profiles created by the user.

Modifying a PM profile

The Navis™ Optical EMS allows you to modify the threshold values for parameters in the default profile of each Profile Type. You can also modify the PM Profile Name of an inactive profile (one that is not currently assigned to an NE's AID). You cannot modify the name of the default profile for a given Profile Type.

If you modify a PM profile, it erases all of the PM profile threshold values provisioned for individual threshold parameters.

Deleting a PM profile

Once created, you can delete a PM profile. However, you cannot delete a PM profile that is currently active (assigned to an entity (AID) in an NE), until you remove the assignment from the AID. You cannot delete the default profile for a Profile Type in an NE.

Assigning a PM profile to an NE's AID

The default PM/TCA profile or one that you have created can be assigned by selecting the PM Profile Name of the profile when

provisioning port parameters for a specific port AID (entity) via the Provisioning function in the GUI, if this parameter is provisionable for a given NE type and port type/interface. The field parameter name is usually “TCA Profile”. Each AID in an NE can be associated with a different PM/TCA profile.

Viewing PM profile assignments for NE entities

The Navis™ Optical EMS allows you, through a GUI-based function, to see which entities (AIDs) in a given shelf of an NE are assigned to a specific profile.

PM parameter threshold values are displayed as a raw number or as a raw number and a percentage of the optimal value of the parameter, depending on the global settings made through the Global PM Data Administration window.

Related tasks See Chapter 3, “Performance Management” for related tasks.

□

6 Data Extraction Tool

Overview

Purpose

This chapter provides general information about the Data Extraction Tool provided by the Navis™ Optical EMS.

Contents

Overview

Purpose This chapter provides background information on the Data Extraction Tool provided by the Navis™ Optical EMS.

Data Extraction Tool

Introduction

The Data Extraction Tool creates field-delimited flat files from data in the Navis™ Optical EMS database.

Types of data

The Data Extraction Tool can create four types of pre-defined flat file views:

- Inventory data
- Performance Monitoring (PM) data (15-minute and/or 1-day PM data)
- Alarm data
- NE type/release data

When any of these categories of flat file data is extracted from the Navis™ Optical EMS database, each file contains information for all of the NEs within the Navis™ Optical EMS management domain.

File format

Flat files generated by the Data Extraction Tool are UNIX ®ASCII files. The first row of each file contains column headings for each field. Each row of the file is a separate record. Individual fields within the record row are delimited by a vertical bar (|).

File transfer

Files generated by the Data Extraction Tool can be transferred from the Navis™ Optical EMS server to another system via a File Transfer Protocol (FTP) interface.

Periodicity of data

The periodicity of the data collected by the Data Extraction feature is either:

- Snapshots in time reports (current) - the snapshots in time report types are: NE Data, Inventory
- Interval of time reports (historical) - the interval of time report types are: PM 15-minute data, PM 24-hour data, Alarm

The periodicity for interval of time reports implies the stop date and time for the data for interval of time reports.

Enabling the data extraction tool

The Data Extraction Tool is disabled, by default.

Data extraction (reporting on individual report types) can be enabled (turned on) by turning on reporting for a report type in the */ems/etc/report.cfg* configuration file by changing the value for the

report type parameter to ON. See "Sample /ems/etc/report.cfg file" (6-6) for a sample of the */ems/etc/report.cfg* file, which shows the parameters that can be turned ON or OFF for each report type.

Once the Data Extraction Tool (data extraction from the Navis™ Optical EMS database) is enabled for one or more report types, a nightly ***cron*** job is executed to extract the specified data from the Navis™ Optical EMS database. Once enabled, the data files are created using Time-Of-Day for the snapshot in time reports and start time for data gathered for interval of time reports. The collection interval for interval of time reports is from 1 to 7 days.

Command line interface

The Data Extraction Tool can be kicked off immediately, via a command line interface, to automatically/periodically extract data by file type (inventory data, 15-minute PM data, 24-hour PM data, alarm data, NE type/release data), if report data is needed ahead of the nightly `cron` job.

The command to enable the Data Extraction Tool, from the command line is:

```
report [ne_data|ne_inv|alarm|pm15min|pm24hr]
[days_to_collect]
```

Where:

`ne_inv` = NE type/release data

`ne_inv` = Inventory data

`alarm` = Alarm data

`pm15min` = PM 15-minute data

`pm24hr` = PM 24-hour data

For interval of time reports (Alarm, 15-minute PM data, 24-hour PM data), the `[days_to_collect]` value entered is equivalent to the current date/time, which determines the date/time to stop collection of data. The [days_to_collect] value also determines the date/time to start collection.

For snapshot data (NE type/release data, Inventory data), a `[days_to_collect]` value is not needed.

If a report type (for example, `ne_inv`) is specified in the command line to enable the Data Extraction tool, only the specified report is generated.

The Data Extraction Tool uses the default parameters defined in the configuration file */ems/etc/report.cfg* unless otherwise specified in the command line.

Disabling the data extraction tool

The Data Extraction Tool is disabled, by default, for all report types. Reporting on individual report types can be turned off by turning off reporting for a report type in the */ems/etc/report.cfg* configuration file by changing the value for the report type parameter to OFF. See "Sample /ems/etc/report.cfg file" (6-6) for a sample of the */ems/etc/report.cfg* file, which shows the parameters that can be turned ON or OFF for each report type.

File storage

Report files generated by the Data Extraction feature are stored under */data/ftp/pub/snms_report/*.

Subdirectories under the above directory are created for each File Type (report category) as follows:

- NE Data
- NE Inventory
- Alarms
- 15-minute PM data
- 24-hour (1-day) PM data

The files in each File Type directory are named by the Date and Time of the report (flat file).

Retention period for files

Flat files generated by the Data Extraction feature are retained for 3 days, by default.

The retention period can be changed by editing the value for this parameter in the configuration file */ems/etc/report.cfg*

Files older than the specified retention period are automatically purged or overwritten by the system.

Settable parameters for the data extraction tool

In summary, the following parameters can be changed for the Data Extraction Tool in the file */ems/etc/report.cfg*:

- One or all report types can be turned on or off. All report types are disabled, by default.
- The retention period for file data. The retention period is three days, by default.
- For historical report types (Alarm, 15-minute PM data, 24-hour PM data), the periodicity (interval in days) can be specified to determine how the number of days for which data has to be extracted by the Data Extraction Tool.
  No other parameters for the Data Extraction Tool can be modified by the user.

Sample */ems/etc/report.cfg* file

The following is a sample of the */ems/etc/report.cfg* file.

```
#
# An Example of /ems/etc/report.cfg
#
# Configuration file used by report script
#
# **** Define default configurations ****
#
#
# NE Data
DO_NE_DATA=OFF
NE_DATA_RETENTION=3
# NE Inventory
DO_NE_INV=OFF
NE_INV_RETENTION=3
# Alarm Data
DO_ALM_DATA=OFF
ALM_RETENTION=3
ALM_STOP_DATE=$DB_TDATE # reserved for further development
```

```
ALM_INTERVAL=3
# PM 15min Data
DO_PM_15MIN=OFF
PM_15MIN=OFF
PM_15MIN_RETENTION=3
PM_15MIN_STOP_DATE=$DB_TDATE
PM_15MIN_INTERVAL=3
# PM 24hr Data
DO_PM_24HR=OFF
PM_24HR_RETENTION=3
PM_24HR_STOP_DATE=$DB_TDATE
PM_24HR_INTERVAL=3
# File Creation
REPORT_DIR=/data/ftp/pub/snms_report
NE_INV_BASE=ne_inv
NE_DATA_BASE=ne_data
ALM_DATA_BASE=alm_data
PM_15MIN_BASE=pm_15min
PM_24HR_BASE=pm_24hr
#### end of /ems/etc/report.cfg
```

Inventory data

An Inventory data flat file is a snapshot of the circuit pack inventory information at a given point in time. Each file includes all of the circuit packs and associated inventory data for each NE.

The following table provides a description of each field in an Inventory data flat file.

Parameter	Description	Remarks
tid	NE Identifier	
aid	Circuit Pack Identifier	

typename	Circuit Pack Name	Metropolis™ DMX and LambdaRouter128/ 256 AOS use type to classify circuit pack types. The WaveStar® BWM family of NEs use 2 parameters to classify circuit pack types: “name” and “qual”.
qual	Circuit Pack Identifier	Does not apply to Metropolis™ DMX and LambdaRouter128/ 256 AOS
app	Apparatus Code	9 character code
sssn	Series Number	6 character code
clei	CLEI Code	Common Language Identification Code (10 characters)
eci	ECI Code	Equipment Catalog item code (6 characters)
vrsn/brv	Circuit SW Version (Metropolis™ DMX). Boot ROM Version (WaveStar® OLS 1.6T)	Does not apply to WaveStar® BWM family of NEs; is always null for these NE types
sin	Serial Number	1-25 alphanumeric characters
provst	Provisioned State	WaveStar® BWM family of NEs only. This indicates whether the circuit pack is physically installed or merely pre-provisioned

Performance monitoring data (15-minute or 24-hour)

A Performance Monitoring (PM) data file is an interval report of 15-minute or 24-hour PM data for an NE. Each file includes all of the measured performance parameters and their values for an individual NE.

The following table provides a description of each field in a PM data flat file.

Parameter	Description	Remarks
tid	NE Identifier	
aid	Monitored Point Identifier	
modifier (AID type)	Monitored Point Type (such as OC-48 or STS-1)	
tmper	Time Period (15-minute or 24-hour)	
montype	Monitored Parameter Type	
monval	Monitored Value	
validity	Validity	
mondat	Monitored Date	
montm	Monitored Time	

Alarm data

An Alarm data file is an interval of alarm data for the Navis™ Optical EMS. Each file includes all of the received alarm set and clear messages received by the Navis™ Optical EMS in the interval.

Dates and times for alarm data are based on the Navis™ Optical EMS logged date and time, not the occurrence date and time as reported by the NEs.

The following table provides a description of each field in an alarm data flat file.

Parameter	Description	Remarks
Alarm ID	Alarm Identifier	Navis™ Optical EMS generated identifier

tid	NE Identifier	
aid	Alarm Issue Point	
Status	Alarm Status: raised or cleared	Navis™ Optical EMS generated identifier
modifier (AID type)	Alarm Issue Point Type/Signal Level Identifier (EQPT, COMM, OC-48, and so forth)	
ntfcncde	Notification Code (Severity)	Not applicable for cleared conditions
condtype	Condition Type (condition code)	Not applicable for cleared conditions
srveff	Service Effect (service-affecting or non-service affecting)	Not applicable for cleared conditions
ocrdat	Occurrence date	
Date of Log		Navis™ Optical EMS generated date

NE data file

An NE data file is a snapshot of NE information at a given point in time. Each file includes all of the managed NEs of a Navis™ Optical EMS application and basic information identifying their type and software release.

The following table provides a description of each field in an NE data flat file.

Parameter	Description	Remarks
tid	NE Identifier	
NE Added Date	NE Added Date/Time	
NE Type	NE Type	
NE Release	NE release/software version	

□

Index