Lucent Technologies
Bell Labs Innovations

Navis™ Optical Network Management System (NMS)

Release 7.0

Administration Guide

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About this information product

Purpose

This preface provides an overview of this information product, which is the ***Navis™ Optical Network Management System (NMS) Administration Guide, Release 7.0***.

The purpose of this ***Administration Guide*** is to explain to users how to administer the *Navis™* Optical Network Management System (NMS), Release 7.0 (R7.0).

Reason for reissue

Issue 1 of this ***Administration Guide*** is a new document that supports the Navis™ Optical NMS, R7.0

Safety labels

This document does not use safety labels.

Intended audience

This document is written primarily for operations personnel who administer the Navis™ Optical NMS.

How to use this information product

This document contains:

- ***task*** information, which includes administration tasks (that is, step-by-step instructions).
- ***conceptual*** information, which is specific data related to the tasks.

Both types of information is presented within the chapters of this ***Administration Guide***.

Chapter descriptions

The following table describes the information in each chapter of this ***Administration Guide***.

Section	Title	Description
Preface	About this information product	Explains this document's purpose, its intended audience, and how to use the document.
Chapter 1	Chapter 1, "Administration Overview"	Provides an overview of the administration process.
Chapter 2	Chapter 2, "Platform Administration"	Contains HP-UX and Windows configuration set-up, printer set-up, power on and power down tasks.
Chapter 3	Chapter 3, "System Administration"	Explains how to start and stop the system, set preferences, restart the database and how to perform other system administration tasks.
Chapter 4	Chapter 4, "Users and User Profiles"	Provides the conceptual information needed to comprehend the administration of users and user profiles in the Navis™ Optical NMS and the tasks that are needed to add users to and to assign privileges and restrict access to the Navis™ Optical NMS application.

Section	Title	Description
Chapter 5	Chapter 5, “Geographic Domain Partitioning”	This chapter provides the conceptual information needed to comprehend the administration of the Geographic Domain Partitioning feature and the related tasks that are needed to administer and maintain the feature.
Chapter 6	Chapter 6, “Service Domain Partitioning”	Provides the conceptual information needed to comprehend the administration of the Service Domain Partitioning feature and the related tasks that are needed to administer and maintain the feature.
Chapter 7	Chapter 7, “Provisioning Administration”	Contains tasks on managing areas, aggregates, and scheduled entities.
Chapter 8	Chapter 8, “Reliability and Service Recovery ”	Provides instructions on how to perform hot and cold backups.
Chapter 9	Chapter 9, “Off-Line Tools”	Contains tasks for off-line tools.
Chapter 10	Chapter 10, “EMS Management ”	Describes how to add new element management systems, perform a database synchronization, and view LAN status information.
Chapter 11	Chapter 11, “Trouble Clearing”	Contains troubleshooting procedures.
Chapter 12	Chapter 12, “Software Release, Version, and Patch Information”	Provides instructions on how to upgrade the system.
Appen-dix A	Appendix A, “Navis™ Optical NMS Filesystems”	Contains a list of file systems.

Section	Title	Description
Appendix B	Appendix B, "Navis™ Optical NMS Configuration Parameters"	Is a placeholder for general information about system configuration parameters.
Appendix C	Appendix C, "Navis™ Optical NMS Common UNIX Commands and Tasks"	Contains explanations of several UNIX commands that are used in administrative tasks.
Glossary	"Glossary"	Contains a list of abbreviations, acronyms, and terms that are commonly used in the Navis™ Optical NMS documentation library.
Index	Index	Enables the user to find information on specific topics.

Conventions used

This ***Administration Guide*** relies on the following typographical conventions to distinguish between computer input and output.

- When describing the Navis™ Optical NMS software, fields in windows and field entries are identified with **this font**.
- When describing the *UNIX*® environment, text and numbers that the user inputs to the computer are identified with `boldface type`.
- In the UNIX environment, text and numbers that the computer outputs to the user are identified with `monospace type`.

Related documentation

This ***Administration Guide*** is part of a set of documents that supports the Navis™ Optical NMS.

List of documents

The documents that support the Navis™ Optical NMS R7.0 application are the following:

- *Navis™ Optical Network Management System Getting Started Guide*, (365-309-260R7.0) instructs users how to begin using the product to provision and manage a network. This document includes tasks and conceptual information.
- *Navis™ Optical Network Management System Applications and Planning Guide*, (365-309-261R7.0) describes the Navis™ Optical NMS features and applications, provides a product description and the hardware platforms for the product, and describes system planning and engineering, ordering, and product support. This document contains conceptual information only.
- *Navis™ Optical Network Management System Provisioning Guide*, (365-309-262R7.0) instructs users how to use the product to provision and manage a network. This document includes tasks and conceptual information.
- *Navis™ Optical Network Management System Maintenance Guide*, (365-309-263R7.0) instructs users on how to maintain the product and the network. This document includes tasks and conceptual information.
- *Navis™ Optical Network Management System Administration Guide*, (365-309-264R7.0) instructs users on how to administer the product and the network. This document includes tasks and conceptual information.

Glossary

This ***Administration Guide*** contains a glossary that will be helpful to users of the Navis™ Optical NMS.

On-line documentation

The Navis™ Optical NMS documentation set is provided in HTML format and is available on CD-ROM with the Navis™ Optical NMS software. A separate CD-ROM, which is titled *Navis™ Optical NMS User Documentation CD-ROM*, (365-309-265R7.0), can be ordered. This CD-ROM iincludes the full set of documents listed previously.

Screen help

The Navis™ Optical NMS software includes screen help for each form, which describes the purpose of the form, each field, and each button.

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1 Administration Overview

Overview

Purpose

This chapter provides an overview of the *Navis*™ Optical Network Management System (NMS) administration process.

Contents

Administration Basics

What administration of the application includes

The administration of the Navis™ Optical NMS application includes the security management of the application and the administration of Geographic Domain Partitioning and Service Domain Partitioning, which are optional Navis™ Optical NMS features.

Admininistrative support provided

The administrative support provided by supports the Navis™ Optical NMS application includes the following:

- Security management support, which includes tasks associated with how to add and delete user IDs and profiles
- Provisioning support, which includes tasks used to add or delete geographic domains or to list network elements.
- System support, which includes system-related tasks, such as how to backup or recover the system.

Platform Administration and Application Administration

Administration of the Navis™ Optical NMS application includes the following areas:

- ***Platform Administration*** contains critical setup tasks that are performed outside of the Navis™ Optical NMS application, which include tasks for powering on or powering off the HP servers, the desktops , adding users to desktops, and assigning user privileges.
- ***Application Administration***, which includes tasks and concepts specific to the Navis™ Optical NMS application.

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Who Performs Administration Tasks?

Introduction

Administrative tasks are performed by users with a system administrator user type.

Navis™ Optical NMS system administrator user types

Navis™ Optical NMS has the following system administrator user types:

- ***Navis™ Optical NMS System Administrator***, which is the **dacscan** user with privileges to start or stop the Navis™ Optical NMS.
- ***Navis™ Optical NMS Administrator***, which is an **sa** user allowed to create other Navis™ Optical NMS application users.

In addition to those system administrator user types, there are also hardware administrators for UNIX and Windows systems known as ***OS (Operating System) Superusers***. The OS Superuser has ultimate power over UNIX or Windows hardware, and are **root** and **Administrator** respectively.

For a description of Navis™ Optical NMS user types, see Chapter 4 of this document.

Functions

Users with system administrator privileges are able to perform tasks that enable them to:

- Provide security management, provisioning, and system support to the Navis™ Optical NMS host and to the Network Map.
- Control the appearance of the Network Map

□

Administer Hardware Configurations

Introduction

Navis™ Optical NMS supports various hardware configurations.

List of hardware configurations

The following hardware configurations are supported:

- single server
- single server (with disk mirroring)
- local redundancy
- geographic redundancy

For details on the hardware configurations, refer to the *Navis™ Optical NMS Applications and Planning Guide*.

□

2 Platform Administration

Overview

Purpose

This chapter contains information on how to:

- power on and power down servers and desktops
- perform configuration setup tasks
- add various types of printers

Contents

Section I: Power on Servers

Overview

Purpose

This section provides information on how to power on HP servers in the following configurations:

- single server configuration
- geographic redundancy configuration
- local redundancy configuration

This section also contains information on how to power on a Windows terminal server.

Contents

Power on an HP Server in a Single Server Configuration

Purpose This procedure is used to power on an HP server in a single-server hardware configuration.

> **Important!** When the system is powered on, it ***does not*** automatically start the Navis™ Optical NMS application.

Task Complete these steps to power on the HP server in a single-server configuration:

1 Power on all associated peripherals, for example, the control terminal, external disk drives, external tape drives, and modems.

2 Press the power switch or turning the key, as appropriate, on the HP server.

> **Result:**
>
> The HP server runs a sequence of diagnostics then boots into multi-user mode. The server is ready when the `Console Login` prompt displays on the controlling terminal. Its initial run level setting is set to `init 3`. Refer to "init Command for Changing Run Levels" (C-2).

END OF STEPS

□

Power on HP Servers in a Local Redundancy Configuration

Purpose This procedure is used to power on HP servers in a local redundancy configuration.

> **Important!** When the system is powered on, it ***does not*** automatically start the Navis™ Optical NMS application.

Task Complete these steps to power on the ***primary*** server and ***standby*** HP server(s) in a local redundancy configuration:

1 Power on all peripherals associated with the cluster, for example, control terminal(s), external disk drives, external tape drives, and modems.

2 Power on the ***primary*** HP server by pressing the power switch or turning the key, as appropriate.

Result:

The HP server runs a sequence of diagnostics then boots into multi-user mode. The server is ready when the `Console Login` prompt displays on the controlling terminal.

3 Power on the ***standby*** HP server(s) by pressing the power switch or turning the key, as appropriate.

Result:

The standby server(s) runs a sequence of diagnostics, then boots into multi-user mode. The server(s) is ready when the `Console Login` prompt displays on the controlling terminal.

END OF STEPS

□

Power on HP Servers in a Geographic Redundancy Configuration

Purpose This procedure is used to power on an HP server with any of the geographic redundancy configurations.

> **Important!** When the system is powered on, it ***does not*** automatically start the Navis™ Optical NMS application. Note that the designation of ***primary*** and ***standby*** servers in this task refers to the ***current*** status of the servers ***not*** the status of the servers at installation.

Task Complete these steps to power on the HP server in a geographic redundancy configuration:

1 Start the primary server. See "Power on an HP Server in a Single Server Configuration" (2-4).

2 Start the standby server. See "Power on an HP Server in a Single Server Configuration" (2-4).

END OF STEPS

□

Power on a Windows Terminal Server

Purpose This procedure is used to power on a Windows terminal server.

Task Complete these steps to power on a Windows terminal server:

1. Power on all associated peripherals, for example, control terminal(s), external disk drives, external tape drives, and modems.

2. Power on the server by pressing the power switch or turning the key, as appropriate.

   Result:

   The server runs a sequence of diagnostics. The server is ready when the Windows login dialog box displays.

END OF STEPS

□

Section II: Power Down Servers

Overview

Purpose

This section contains information on how to power down HP servers in the following configurations:

- single server configurations
- local redundancy configurations
- geographic redundancy configurations

In addition, this section contains information on how to power down a Windows terminal server.

Contents

Power Down an HP Server in a Single Server Configuration

Purpose This procedure is used to shut down the Navis™ Optical NMS application and to power down a single server.

Before you begin Be sure to follow the steps below to shut down the application and power down the server. Use local procedures to inform users that the application will be shut down.

Task Complete these steps to power down a single server:

1 On the control terminal, log in as `root`.

2 Shut down the Navis™ Optical NMS application; see the "Stop the Navis™ Optical NMS Application on a Single Server" (3-15) procedure.

3 At the prompt, type `cd /`.

Result:

The directory is changed.

4 At the prompt, type `shutdown -h -y 0`.

Important! The 0 parameter in the command line `shutdown -h -y 0` causes the shutdown process to begin in 0 seconds, or immediately. To delay the shutdown process, replace the 0 with the number of seconds to wait before the shutdown is to commence. Refer to "shutdown Command for Halting or Rebooting Servers" (C-10).

Result:

The shutdown process initiates and eventually displays the following message unless the message `wait for UPS to turn off power` message is printed:

```
System has halted
OK to turn off power or reset system
```

5 Power off the HP server by pressing the power switch or turning the key, as appropriate.

Result:

The HP server is powered off.

6 Power off all associated peripherals, for example, the control terminal, external disk drives, external tape drives, and modems.

END OF STEPS

□

Power Down HP Servers in a Local Redundancy Configuration using SAM

Purpose This procedure is used to power down HP servers in a local redundancy configuration that relies on HP's MC/ServiceGuard cluster administration GUI.

Before you begin Be sure to follow the steps below to shut down the application and power down the server. Use local procedures to inform users that the application will be shut down.

Task Complete these steps to power down an HP server in a local redundancy configuration:

1 Log into any server in the cluster as `root`.

2 Shut down the Navis™ Optical NMS application; see the "Stop the Navis™ Optical NMS Application on a Single Server" (3-15) procedure.

3 Enter `sam` at the prompt and press **Enter**.

Result:

The System Administration Manager window is displayed.

4 From the System Administration Manager window, select **Clusters > High Availability Clusters > Cluster Admin**.

5 Select **ITM Cluster**, then select **Actions > Shutdown Cluster**.

Result:

The shutdown process initiates and eventually displays the following message unless the message `wait for UPS to turn off power` message is printed:

```
System has halted
OK to turn off power or reset system
```

6 Power off the HP server by pressing the power switch or turning the key, as appropriate.

Result:

The HP server is powered off.

7 Repeat Step 4 through Step 6 until all cluster servers are off.

8 Power off all peripherals associated with the cluster, for example, the control terminal, external disk drives, external tape drives, and modems.

END OF STEPS

□

Power Down HP Servers in a Geographic Redundancy Configuration

Purpose This procedure is used to power down an HP server in any geographic redundancy configuration.

Before you begin Be sure to follow the steps below to shut down the application and power down the server. Use local procedures to inform users that the application will be shut down.

Task Complete these steps to power down an HP server in a geographic redundancy configuration:

1 Log in on the control terminal of the ***primary*** server as `root`.

2 Shut down the Navis™ Optical NMS application; see the "Stop the Navis™ Optical NMS Application on a Single Server" (3-15) procedure.

3 At the prompt, type `cd /`.

Result:

The directory is changed.

4 At the prompt, type `shutdown -h -y 0`.

Important! The 0 parameter in the command line `shutdown -h -y 0` causes the shutdown process to begin in 0 seconds, or immediately. To delay the shutdown process, replace the 0 with the number of seconds to wait before the shutdown is to commence. Refer to "shutdown Command for Halting or Rebooting Servers" (C-10).

Result:

The shutdown process initiates and eventually displays the following message unless the message `wait for UPS to turn off power` message is printed:

```
System has halted
OK to turn off power or reset system
```

5 Power off the HP server by pressing the power switch or turning the key, as appropriate.

Result:

The HP server is powered off.

6 Power off all associated peripherals, for example, the control terminal, external disk drives, external tape drives, and modems.

7 Log in on the control terminal of the ***secondary*** server as `root`.

8 At the prompt, type `cd /`.

Result:

The directory is changed.

9 At the prompt, type `shutdown -h -y 0`.

Important! The 0 parameter in the command line `shutdown -h -y 0` causes the shutdown process to begin in 0 seconds, or immediately. To delay the shutdown process, replace the 0 with the number of seconds to wait before the shutdown is to commence. Refer to "shutdown Command for Halting or Rebooting Servers" (C-10).

Result:

The shutdown process initiates and eventually displays the following message unless the message `wait for UPS to turn off power` message is printed:

```
System has halted
OK to turn off power or reset system
```

10 Power off the HP server by pressing the power switch or turning the key, as appropriate.

Result:

The HP server is powered off.

11 Power off all associated peripherals, for example, the control terminal, external disk drives, external tape drives, and modems.

END OF STEPS

□

Power Down a Windows Terminal Server

Purpose This procedure is used to power down a Windows terminal server.

Before you begin Before you begin this task, be sure that the Navis™ Optical NMS application has been shut down.

Task Complete these steps to power down a Windows terminal server:

1 Log in to the server as `Administrator`.

2 Press the **Ctrl**, **Alt**, and **Del** buttons.

Result:

The Windows Security dialog box displays.

3 Press the **Shut Down** button.

Result:

The Shut Down Windows dialog box displays.

4 Select the **Shut Down** button.

Result:

The Shutdown Computer dialog box displays.

5 Select the **OK** button.

Result:

The Windows terminal server powers down.

6 Power off the terminal server by pressing the power switch or turning the key, as appropriate.

Result:

The terminal server is powered off.

7 Power off all associated peripherals, for example, the control terminal, external disk drives, external tape drives, and modems.

END OF STEPS

□

Section III: Power on Desktops

Overview

Purpose

This section contains information on how to power on HP and Windows workstations.

Contents

Power on an HP-UX Workstation

Purpose This procedure is used to power on an HP-UX workstation.

Task Complete these steps to power on the HP-UX workstation:

1. Power on all associated peripherals, for example, control terminal(s), external disk drives, external tape drives, and modems.

2. Power on the workstation by pressing the power switch or turning the key, as appropriate.

   Result:

   The workstation runs a sequence of diagnostics and then boots to the X-Windows system. The workstation is ready when the Common Desktop Environment (CDE) login dialog box displays.

END OF STEPS

□

Power on a Windows Desktop

Purpose This procedure is used to power on a Windows desktop.

Task Complete these steps to power on a Windows desktop:

1 Power on all associated peripherals, for example, control terminal(s), external disk drives, external tape drives, and modems.

2 Power on the workstation by pressing the power switch or turning the key, as appropriate.

Result:

The workstation runs a sequence of diagnostics. The workstation is ready when the Windows login dialog box displays.

END OF STEPS

□

Section IV: Power Down Desktops

Overview

Purpose

This section contains information on how to power down HP and Windows workstations.

Contents

Power Down an HP-UX Workstation

Purpose This procedure is used to power down an HP-UX workstation.

Task Complete these steps to power down an HP-UX workstation:

1 Log in to the workstation as `root`.

2 At the prompt, type `cd /`.

Result:

The directory is changed.

3 At the prompt, type `shutdown -h -y 0`.

Important! The 0 parameter in the command line `shutdown -h -y 0` causes the shutdown process to begin in 0 seconds, or immediately. To delay the shutdown process, replace the 0 with the number of seconds to wait before the shutdown is to commence. Refer to "shutdown Command for Halting or Rebooting Servers" (C-10).

Result:

The shutdown process initiates and eventually displays the following message unless the message `wait for UPS to turn off power` message is printed:

```
System has halted
OK to turn off power or reset system
```

4 Power off the workstation by pressing the power switch or turning the key, as appropriate.

Result:

The workstation is powered off.

END OF STEPS

□

Power Down a Windows Desktop

Purpose This procedure is used to power down a Windows workstation.

Task Complete these steps to power down a Windows workstation:

1 Log in to the workstation as `Administrator`.

2 Select **Start > Shut Down**.

Result:

The Shut Down Windows dialog box displays.

3 Select the **Shut Down** button then select **Yes**.

Result:

The Windows workstation powers down.

4 Power off the workstation by pressing the power switch or turning the key, as appropriate.

Result:

The workstation is powered off.

END OF STEPS

□

Section V: Configuration Tasks

Overview

Purpose

This section contains tasks that explain how to configure Navis™ Optical NMS hardware and how to set up supporting processes.

Contents

Add a Workstation to the Navis™ Optical NMS Host

Purpose This procedure is used to add a workstation to the Navis™ Optical NMS host.

Task Complete these steps to add a workstation to the Navis™ Optical NMS host:

1 Log in to the Navis™ Optical NMS host as `root`.

2 At the prompt, enter `ksh /install/add.ethers`.

3 At the prompt, enter `y` and press **Enter**.

4 At the prompt, enter the workstation name and press **Enter**.

5 Enter `y` to confirm that the name was entered correctly then press **Enter**.

6 Enter the `IP address` then press **Enter**.

Result:

You are prompted to confirm your entry.

7 Enter `y` if the entry of the IP address is correct.

Enter `n` if the IP address is incorrect and enter the correct IP address to continue.

8 Log in to the workstation.

9 At the prompt, enter `pg /etc/hosts`.

Result:

The system outputs the contents of the `/etc/hosts` file.

10 View the contents of the /etc/hosts file to determine if an entry exists for the workstation.

11

IF	THEN
an entry exists,	proceed to the next step.
an entry does not exist,	add the workstation information to the bottom of the **/etc/hosts** file.

12 Download the Navis™ Optical NMS GUI.

Result:

The GUI is displayed.

END OF STEPS

□

TIM TCP/IP Configuration Setup

Purpose This procedure is used to set up a Telecommunications Management Network Integration Module (TIM) TCP/IP configuration.

Task Complete these steps to set up a TIM TCP/IP configuration:

1 Log into the host as `root`.

2 At the prompt, enter `init 3`.

Result:

The Navis™ Optical NMS application is stopped.

3 At the prompt, enter `cd /etc/dscan`.

```
touch .tim
chmod 666 .tim
```

Result:

The file's timestamp is updated and its permissions are changed.

4 At the prompt, enter `/etc/dscan/chg_env_var`.

Result:

The following message will be displayed:

```
THE DEFAULT SETTINGS FOR <COMPANY_NAME> WILL NOW BE
   DISPLAYED
YOU WILL BE PROMPTED TO CONFIRM THE SETTINGS.
PRESS ENTER TO CONTINUE:
```

5 Press **Enter**.

Result:

A list of settings display with a prompt requesting whether or not you want to change the settings.

6 Type `y` and press **Enter** to continue.

Result:

The `WS-NMS Parameter Editor` menu displays.

7 Find the number corresponding to `TIM_PORT` or `TIM_TCP`.

Important! You may have to press **Enter** to view this selection.

8 At the prompt, enter the number corresponding to `TIM_PORT` or `TIM_TCP`.

Result:

The selection displays.

9 At the prompt, enter `2` and press **Enter**.

Result:

You are prompted to enter the IP address for TIM.

10 Enter the `IP address` then press **Enter**.

Result:

You are prompted to confirm your entry.

11 Enter `y` if the entry of the IP address is correct.

Enter `n` if the IP address is incorrect and enter the correct IP address to continue.

Result:

You are prompted to enter the TIM hostname.

12 Enter the hostname, then press **Enter**.

Result:

You are prompted to confirm your entry.

13 Enter `y` if the entry of the hostname is correct.

Enter `n` if the hostname is incorrect and enter the correct hostname to continue.

Result:

The following messages are displayed followed by a prompt to add or change the TIM Interface login and password.

```
Updated host's file successfully

Updated CCP file successfully
```

14 Add or change the password as required.

Result:

The following message displays.

```
Updated TIM login file successfully
```

15 Press **Enter** to return to the Edit Parameter menu.

Result:

You are in the Edit Parameter menu.

16 Type `q` and press **Enter**, and type `n` and press **Enter**.

Result:

You have exited the menu.

17 Log into the host as `dacscan`.

18 Copy the parameters to the following file in the database: `/usr/dacscan/bin/DBinitParam`

Result:

A list of parameters display without entries for `TIM_PORT` and `TIM_TCP`.

19 Log into the host as `root`.

20 At the prompt, enter `init 4`.

Result:

Navis™ Optical NMS application is started.

END OF STEPS

□

Asynchronous Port Setup for TIM Interface

Purpose This procedure is used to set up an asynchronous port for the Telecommunications Management Network Integration Module (TIM) interface.

Before you begin In this procedure, you will be required to edit a file. To avoid losing data, consider making a copy of this file before editing. If you choose to copy this file, remember to delete it from the system when you are finished editing.

Task Complete these steps to set up an asynchronous port:

1 Log into the host as `root`.

2 Enter `sam` at the prompt and press **Enter**.

Result:

The System Administration Manager window is displayed.

3 View the display, highlight **Peripheral Devices** then press **Enter**.

Result:

A new menu displays.

4 Highlight **Terminals and Modems** then press **Enter**.

Result:

The current configuration displays.

5 Press **F4**.

Result:

The main menu bar is activated.

6 Select **Actions** then press **Enter**.

Result:

A drop down menu displays.

7 Select **Add Modems** then press **Enter**.

Result:

A note menu displays.

8 Select `OK`.

Result:

A hardware scan occurs and returns with the installed Mux/Serial cards and their respective hardware paths.

9 Highlight **Mux/Serial card with a h/w path of 12** then press **tab** three times.

10 Enter the port number, press **tab** once, then enter `9600` for the baud rate.

11 Press **tab** once, then unselect "`Do you want the device for calling out?`" Use defaults for all other prompts, then press **F5**.

Result:

A device file is created, for example for `port 3`: `/dev/ttyd0p3`

12 Record the displayed device information then exit `sam`.

13 At the prompt, enter `vi /etc/inittab` and press **Enter**.

Result:

The file is displayed.

14 Locate the `a0:2:respawn:/etc/getty -h ttyd0p3 9600` line.

15 Change the `a0:2:respawn:/etc/getty -h ttyd0p3 9600` line to `a0:24:respawn:/etc/getty -h ttyd0p3 9600`.

16 Press **Esc**, then type `:wq`.

Result:

The file is saved.

17 At the prompt, enter **init q** then press **Enter**.

Result:

The changed is initialized.

END OF STEPS

□

Section VI: Printer Administration

Overview

Purpose

This section describes how to add a network or local serial printer and how to set up the Common Desktop Environment (CDE) printer icon.

Contents

Install a Network Printer on an HP Server

Purpose This procedure is used to install a network printer on an HP server that is running the Navis™ Optical NMS application.

Before you begin Before you begin this task, collect the following information about the network printer from the system administrator and/or by printing the test/configuration page from the printer.

- Printer name
- IP Address
- LAN Hardware Address
- Name or IP address of the server providing spooler facilities

Task Complete these steps to add a network printer on an HP server:

1 Take the printer off-line.

2 Press the **Menu** button until `TEST MENU` appears in the display.

3 Press the **Item** button until `SELF TEST` appears in the display.

4 Press **Enter**.

Result:

A printer status sheet prints. This status sheet indicates the LAN hardware address (LAN HW ADDRESS), network peripheral name (HOST NAME), and the IP address, if these values have been assigned to the printer.

5 Press **On Line**.

6 Using the system console, log in as root on the primary server via the system console.

7 Enter `ksh /install/prtinstall` at the # prompt.

Result:

Additional prompts display.

8 Respond to the `IP address`, printer `name`, and `Type in the LAN Hardware Address` prompts.

Result:

The network printer is added.

END OF STEPS

□

Add a Network Printer

Purpose This procedure is used to add a network printer to your workstation.

Before you begin Before you begin this task, collect the following information:

- Printer name (the printer name must be six characters or less)
- IP Address

The network printer must be connected to Ethernet. The local serial printer must be connected to the asynchronous mux board.

Task Complete these steps to add a network printer:

1 Take the printer off-line.

2 Press the **Menu** button until `TEST MENU` appears in the display.

3 Press the **Item** button until `SELF TEST` appears in the display.

4 Press **Enter**.

Result:

A printer status sheet prints. This status sheet indicates the LAN hardware address (LAN HW ADDRESS), network peripheral name (HOST NAME), and the IP address, if these values have been assigned to the printer.

5 Press **On Line**.

6 Using the system console, log in as root on the primary server via the system console.

7 Enter `ksh /install/prtinstall` at the # prompt.

Result:

Additional prompts display.

8 Respond to the `IP address`, printer `name`, and `Type in the LAN Hardware Address` prompts.

Result:

The network printer is added.

END OF STEPS

□

Add a Local Serial Printer

Purpose This procedure is used to add a local serial printer.

Before you begin Make sure you know the printer name, which must be 6 characters or less.

Task Complete these steps to add a local serial printer to your workstation:

1 Using the system console, log in as `root` onto the primary server.

2 Enter `ksh /install/prtinstall` at the # prompt.

3 Answer the questions as appropriate.

Result:

The local serial printer is added.

END OF STEPS

□

Set Up the CDE Printer Icon

Purpose This procedure is used to configure the workstation to print Navis™ Optical NMS forms to a local printer.

The workstation can be configured to enable the Common Desktop Environment (CDE) printer icon to be used to print Navis™ Optical NMS forms to a local printer.

Task Complete these steps to set up the CDE printer icon:

1 Log in as `root`.

2 Enter `cd /config` at the UNIX prompt.

3 Enter `vi sys.vuewmrc`.

4 Change the *`PUSH_ACTION`* variable in the ***CONTROL Printer*** section to `PUSH_ACTION f.action PrintPush`.

5 Save the file.

6 Exit the file.

7 Enter `cd /usr/vue/config/types`.

8 Enter `vi PrintPush.vf`.

9 Change the *`EXEC-STRING`* variable in the ***Action PrintPush*** section to `EXEC-STRING bin/ksh -c 'xwd -frame | xpr -device ps -cutoff 70 -rv | lp -o nb -o postscript'`.

10 Save the file.

11 Exit the file.

12 Select **Exit** on the CDE to reboot the workstation.

END OF STEPS

□

3 System Administration

Overview

Purpose

This chapter describes administration tasks for the Navis™ Optical NMS application.

Contents

Section I: Start the Navis™ Optical NMS Application on the Servers

Overview

Purpose

This section describes how to start the Navis™ Optical NMS application on HP servers and a Windows terminal server.

Background

The initial step to start Navis™ Optical NMS is to power on the server. (See the ***power on*** tasks in Chapter 2, "Platform Administration".) A single server configuration may or may not have mirrored disks.

This section includes tasks for single-server configurations only. For start and stop tasks that support geographic and local redundancy configurations, see "Section IV: Geographic Redundancy Configuration" (3-19) and "Section V: Local Redundancy Configuration" (3-22).

Start the host application

The application starts when the Navis™ Optical NMS application is set to run level 4. See "Run level 4" (C-2) for additional details.

Contents

Start the Navis™ Optical NMS Application on a Single Server

Purpose

This procedure is used to start the Navis™ Optical NMS application on a single server.

Before you begin

The single server must be powered up. See "Power on an HP Server in a Single Server Configuration" (2-4).

The GUI must be downloaded on the workstation(s) or terminal server(s).

Start Navis™ Optical NMS on a single server

Complete these steps to start the Navis™ Optical NMS application on a single server.

1 Log into the server as `root`.

2 At the prompt, enter `who -r`.

Result:

A message displays a line of current run level information, such as `run-level 3 Oct 30 11:26 3 0 S`.

3 Continue with one of the following options.

IF	THEN
`run-level` is 3,	proceed to the next step to continue.
`run-level` is 4,	the application is already running; no further action is necessary.
`run-level` is not 3 or 4,	contact the system support staff.

4 At the prompt, enter `init 4`.

Result:

The run level is changed to `run-level 4`.

5 At the prompt, enter `tail –f/etc/rc.log`.

Important! To terminate this command, press the **Ctrl** and **c** buttons.

Result:

The message,

```
WS-NMS Application has been started...

HP-UX run-level transition completed

<Weekday> MMM DD HH:MM:SS <timezone> YYYY
```

displays.

END OF STEPS

□

Start the Navis™ Optical NMS Application on a Windows Terminal Server

Overview Once the Windows terminal server is powered on ("Power on a Windows Terminal Server" (2-7)), it is not necessary to start the Navis™ Optical NMS application on a Windows terminal server; therefore, a procedure is not required.

□

Section II: Start the Navis™ Optical NMS Application on the Desktops

Overview

Purpose

This section describes how to start the Navis™ Optical NMS application on the desktops that are the user interface.

Background

Once the servers are powered up (as described in the previous section of this chapter), users can start the Navis™ Optical NMS application:

- on a single server or server configured for geographic redundancy
- on an HP-UX workstation
- on a Windows desktop

This section includes information on how to start the Navis™ Optical NMS application on HP-UX and Windows desktops in a single-server configuration only. For information on how to start workstations in a local redundancy configuration, see "Section V: Local Redundancy Configuration" (3-22).

Contents

Start the Navis™ Optical NMS Application on a Windows Terminal Server

Overview Once the Windows terminal server is powered on ("Power on a Windows Terminal Server" (2-7)), it is not necessary to start the Navis™ Optical NMS application on a Windows terminal server, therefore a procedure is not required.

□

Start the Navis™ Optical NMS Application on an HP-UX Workstation

Purpose This procedure is used to start the Navis™ Optical NMS application on an HP-UX workstation.

Before you begin Be sure that the HP-UX workstation is powered on. See "Power on an HP-UX Workstation" (2-19).

Task Complete these steps to start the Navis™ Optical NMS application on an HP-UX workstation:

1 Log in to the HP-UX workstation.

Result:

The Navis™ Optical NMS icon displays on the Common Desktop Environment (CDE) panel. (The icon ***may*** display as a Lucent logo.)

2 Continue with one of the following.

IF...	THEN...
the Navis™ Optical NMS icon ***displays*** on the Common Desktop Environment (CDE) panel:	double-click the icon. **Important!** The icon ***may*** display as a Lucent logo. **Result:** The Navis™ Optical NMS Network Map displays.
the icon ***does not display***:	contact the system support staff. (See the ***Technical support*** information located at the beginning of this document for details.)

END OF STEPS

□

Start the Navis™ Optical NMS Application on a Windows PC

Purpose This procedure is used to start the Navis™ Optical NMS application on a Windows PC.

Before you begin Before running Navis™ Optical NMS on a Windows PC, the desktop must be powered on. Refer to "Power on a Windows Desktop" (2-20). In addition, the Navis™ Optical NMS application must be loaded on the desktop.

Task Complete these steps to start Navis™ Optical NMS on a Windows desktop:

1 Log into the Windows desktop.

Result:

The Windows desktop displays.

2 Continue with one of the following.

IF	THEN
the icon ***displays*** on the desktop:	double-click the icon. **Result:** The Navis™ Optical NMS Network Map displays.
the icon ***does not display*** on the desktop:	contact the system support staff. (See the ***Technical support*** information located at the beginning of this document for details.)

END OF STEPS

□

Section III: Stop the Navis™ Optical NMS Application on the Desktops and Servers

Overview

Purpose

This section describes how to stop Navis™ Optical NMS.

Stop the host application

The Navis™ Optical NMS application stops when Navis™ Optical NMS is brought to run level 3 (multi-user mode).

Under certain circumstances, it might be necessary to bring the Navis™ Optical NMS application to run level 3, for example, if the system needs a new software load. See "Run level 3" (C-2) for additional details.

This section includes procedures for single-server configurations only. For procedures that support geographic and local redundancy configurations, see "Section IV: Geographic Redundancy Configuration" (3-19) and "Section V: Local Redundancy Configuration" (3-22).

Contents

Stop the Navis™ Optical NMS Application on a Desktop

Purpose

This procedure is used to stop the Navis™ Optical NMS application on a desktop.

Related information

Other procedures are required to stop the Navis™ Optical NMS application on single servers or on servers that are configured for local redundancy or geographic redundancy:

- To stop the Navis™ Optical NMS application on a single server, see "Stop the Navis™ Optical NMS Application on a Single Server" (3-15).
- To stop the Navis™ Optical NMS application on servers configured for local redundancy, see "Stop the Navis™ Optical NMS Application on Local Redundancy Configurations" (3-26).
- To stop the Navis™ Optical NMS application on servers configured for geographic redundancy, see "Stop the Navis™ Optical NMS Application on a Geographic Redundancy Configuration" (3-21).

Task

Complete these steps to stop the Navis™ Optical NMS application on a desktop:

1 On the Network Map, do one of the following:

- Select **File > Exit**.
- Select the close button in the top right corner of the Network Map.

Result:

A confirmation dialog box displays.

2 At the dialog box, select **OK**.

Result:

The Navis™ Optical NMS session is terminated.

END OF STEPS

□

Stop the Navis™ Optical NMS Application on a Single Server

Purpose

This procedure is used to stop the Navis™ Optical NMS application on a single server.

Stop Navis™ Optical NMS on a single server

Complete these steps to stop the Navis™ Optical NMS application on a single server.

1 Log into the server as `root`.

2 At the prompt, enter `who -r`.

Result:

A message displays a line of current run level information, such as `run-level 4 Oct 30 11:26 3 0 S`.

3 Continue with one of the following options.

IF	THEN
`run-level` is `4`,	proceed to the next step to continue.
`run-level` is `3`,	the application is not running; no further action is necessary.
`run-level` is not `3` or `4`,	contact the system support staff. (See the ***Technical support*** information located at the beginning of this document for details.)

4 At the prompt, enter `init 3`.

Result:

The run level is changed to `run-level 3`.

5 At the prompt, enter `tail –f/etc/rc.log`.

Important! To terminate this command, press the **Ctrl** and **c** buttons.

Result:

The message,

```
HP-UX run-level transition completed

<Weekday> MMM DD HH:MM:SS <timezone> YYYY
```

displays.

END OF STEPS

□

Stop Navis™ Optical NMS on a Windows Terminal Server

Overview Since the Navis™ Optical NMS application is not run on a Windows terminal server, a procedure is not required.

□

Stop the Navis™ Optical NMS on a Server Configured with an UPS

Introduction

An Uninterruptible Power Supply (UPS) protects against power failures. It is used to protect the main servers and their essential peripherals from minutes of power failure. In the case of a longer power loss, the UPS enables the system to shut down gracefully.

Configurable file

The UPS provides a configurable file that contains two timers used in the shutdown process. When the Navis™ Optical NMS application receives notification to indicate a loss of AC power, the application runs a shutdown script that results in a graceful shutdown of the application within the time limit of these timers:

- ***shutdown_delay_mins***: This parameter indicates the number of minutes following notification that its UPS has switched to internal battery power before the UPS monitor initiates a shutdown. The default value for this parameter is one minute.
- ***shutdown_timeout_mins***: This parameter indicates the number of minutes to monitor the shutdown operation before a reboot is initiated with the halt option. The default value for this parameter is five minutes.

These timers are tunable at time of installation and can be changed subsequent to installation; however, normally they should not need to be changed. UPS is not supported in local redundancy configurations and is only compatible with Non-Safeguard configurations.

Systems configured with UPS are brought into init level 4 automatically on power up.

□

Section IV: Geographic Redundancy Configuration

Overview

Purpose

This section contains tasks to start and stop the Navis™ Optical NMSapplication on an HP server configured for geographic redundancy.

Contents

Start the Navis™ Optical NMS Application on a Geographic Redundancy Configuration

Purpose This procedure is used to start the Navis™ Optical NMS application on a server configured for simplified or full geographic redundancy.

Before you begin The server configured for simplified or full geographic redundancy must be powered up; see "Power on HP Servers in a Geographic Redundancy Configuration" (2-6).

Task Complete these steps to start the Navis™ Optical NMSapplication on a server configured for simplified or full geographic redundancy:

1 Log in to the primary server as `root`.

2 Enter `ksh /usr/dacscan/bin/StartUp`.

Result:

Navis™ Optical NMS is initiated on the simplified or full geographic redundancy server. If problems are identified, the startup terminates.

END OF STEPS

□

Stop the Navis™ Optical NMS Application on a Geographic Redundancy Configuration

Purpose This procedure is used to stop the Navis™ Optical NMSapplication on a server configured for simplified or full geographic redundancy.

Task Complete these steps to stop the Navis™ Optical NMS application on a server configured for simplified or full geographic redundancy:

1 Log on to the primary server using a geographic redundancy configuration as `root`.

2 At the prompt, enter `ksh /usr/dacscan/bin/ShutDown`.

Result:

The Navis™ Optical NMS application is stopped.

END OF STEPS

□

Section V: Local Redundancy Configuration

Overview

Purpose

This section describes how to start and stop the Navis™ Optical NMS application on an HP server configured for local redundancy that relies on HP's MC/ServiceGuard cluster administration GUI. It explains how to switch to a backup server configured for local redundancy using the cluster administration GUI and it includes package switching tasks and information on how to administer clusters.

Switchovers

Because a redundant server configuration can switch to its standby server when needed, a redundant server configuration enhances system availability. A switchover might occur if a hardware failure occurs, a software upgrade is needed, or if general maintenance needs to be performed. If the primary server fails, the standby server takes over.

Note: Switchover procedures are not provided for single-server configurations because they cannot be switched.

Monitoring the switchover

Monitoring the switchover consists of two processes, the ***pulse*** process and the ***heartbeat*** process, which must be present on each server and which can be started and stopped manually on each server. The standby server has a pulse process that monitors the heartbeat of the primary server to determine if it is alive (up and running). The heartbeat process, which resides on the primary server, is the detection mechanism for the standby server.

Contents

Start the Navis™ Optical NMS Application on a Local Redundancy Configuration

Purpose This procedure is used to start the Navis™ Optical NMS application on HP servers configured for local redundancy using HP's MC/ServiceGuard cluster administration GUI.

Before you begin The servers within the cluster must be powered up. See "Power on HP Servers in a Local Redundancy Configuration" (2-5).

Related information This task can also be performed using SAM. See "Start the Navis™ Optical NMS Application on a Local Redundancy Configuration using SAM" (3-27) for details.

Task Complete these steps to start the Navis™ Optical NMS application on HP servers configured for local redundancy using HP's MC/ServiceGuard cluster administration GUI:

1. Log in to any server within the cluster as `root`.

2. Determine if the package is running on a member of the cluster by viewing the cluster/application status. Refer to "View Cluster Status Information" (3-35).

3. If the application ***is not running*** on a member of the cluster, proceed to the next step to continue.

   If the application ***is running*** on a member of the cluster, further action is not necessary and the task is ended.

4. Start the Navis™ Optical NMS application.

   Result:

   The Navis™ Optical NMS application is started.

5 Repeatedly perform a status check to view the cluster/application status (see "View Cluster Status Information" (3-35) for details) until a `Running` status displays.

Result:

Application status moves from `Halted` to `Starting` to `Running`. Since the status changes take several minutes to complete, the status check is performed repeatedly until the required results display.

END OF STEPS

□

Stop the Navis™ Optical NMS Application on Local Redundancy Configurations

Purpose This procedure is used to stop the Navis™ Optical NMS application on HP servers configured for local redundancy using HP's MC/Service Guard cluster administration GUI.

Task Complete these steps to stop the Navis™ Optical NMS application on HP servers configured for local redundancy using HP's MC/Service Guard cluster administration GUI:

1 Log into any server in the cluster as `root`.

2 Determine if the package is running on a member of the cluster by viewing the cluster/application status. Refer to "View Cluster Status Information" (3-35).

3 If the application ***is running*** on a member of the cluster, proceed to the next step to continue.

If the application ***is not running*** on a member of the cluster, further action is not necessary and the task is ended.

4 Stop the Navis™ Optical NMS application. See "Stop the Navis™ Optical NMS Application on a Specific Server using SAM" (3-28).

Result:

Navis™ Optical NMS application is stopped.

5 Repeatedly perform a status check to view the cluster/application status (see "View Cluster Status Information" (3-35) for details) until a `Halted` status displays.

Result:

Application status moves from `Running` to `Stopping` to `Halted`. Since the status changes take several minutes to complete, the status check is performed repeatedly until the required results display.

END OF STEPS

Start the Navis™ Optical NMS Application on a Local Redundancy Configuration using SAM

Purpose This procedure is used to start the Navis™ Optical NMS application on a specific server using the SAM application. This task may be used, for example, to isolate a problem on the server.

Task Complete these steps to start the Navis™ Optical NMS application on a specific server.

1 Log in to either the primary or the standby server as `root`.

2 Enter `sam` at the prompt and press **Enter**.

Result:

The System Administration Manager window is displayed.

3 Select **Clusters > High Availability Clusters > Package Admin**.

4 Highlight the **ITMHost** entry.

5 On the pull down menu, select **Actions > Start a package > Start a package on a specific node**.

6 Check **enable package switching**.

7 Highlight **Node entry**.

8 Select **OK**.

Result:

The Navis™ Optical NMS application starts on the specific server.

END OF STEPS

□

Stop the Navis™ Optical NMS Application on a Specific Server using SAM

Purpose This procedure is used to stop the Navis™ Optical NMS application on a specific server using the SAM application.

Task Complete these steps to stop the Navis™ Optical NMS application on a specific server using SAM:

1 Log in to either the primary or the standby server as `root`.

2 Enter `sam` at the prompt and press **Enter**.

Result:

The System Administration Manager window is displayed.

3 Select **Clusters > High Availability Clusters > Package Admin**.

4 Highlight the **ITMHost** entry.

5 On the pull down menu, select **Actions > Halt package**.

6 At the displayed dialog box, confirm that the package should be halted.

Result:

The package is stopped.

END OF STEPS

□

Stop the Navis™ Optical NMS Application on a Local Redundancy Configuration using SAM

Purpose This procedure is used to stop the Navis™ Optical NMS application on HP servers configured for local redundancy using the SAM application.

Task Complete these steps to stop the Navis™ Optical NMS package:

1 Log into the cluster as `root`.

2 Enter `sam` at the prompt and press **Enter**.

Result:

The System Administration Manager window is displayed.

3 From the System Administration Manager window, select **Clusters > High Availability Clusters > Cluster Admin**.

4 Select **ITM Cluster**, then select **Actions > Shutdown Cluster** .

Result:

The shutdown process initiates and eventually displays the following message unless the message `wait for UPS to turn off power` message is printed:

```
System has halted
OK to turn off power or reset system
```

END OF STEPS

□

Switch to a Standby Server in a Local Redundancy Configuration using SAM

Purpose This procedure is used to switch to a standby server in a local redundancy configuration using SAM.

Before you begin If package switching is disabled, the application must be started and switching must be enabled.

Task Complete these steps to switch to a standby server in a local redundancy configuration configuration:

1 Log in to either the primary or the standby machine as `root`.

2 Enter `sam` at the prompt and press **Enter**.

Result:

The System Administration Manager window is displayed.

3 Select the **Clusters** option.

4 Select the **High Availability Clusters** option.

5 Select the **Package Administration** option.

6 Highlight the **ITMHost** entry.

7 Select the **Actions** menu.

8 Select the **Move a Package** option.

9 Select the **Standby Host** entry.

10 Select **OK**.

11 Confirm that the system successfully switched over.

END OF STEPS

□

Enable Automatic Package Switching in a Local Redundancy Configuration using SAM

Purpose This procedure is used to enable package switching in a local redundancy configuration using SAM.

Task Complete these steps to enable package switching:

1. Using the system console, log into the primary or the standby server as `root`.

2. Enter `sam` at the prompt and press **Enter**.

   Result:

   The System Administration Manager window is displayed.

3. Select the **Clusters** option.

4. Select the **High Availability Clusters** option.

5. Select the **Package Administration** option.

6. Highlight the **ITMHost** entry.

7. From the **Actions** menu, select **Modify Failover Options**.

8. Change Automatic Switching value to **Enable**.

9. Select **OK**.

   Result:

   Package switching is enabled.

END OF STEPS

□

Disable Automatic Package Switching in a Local Redundancy Configuration using SAM

Purpose This procedure is used to disable automatic package switching in a local redundancy configuration using SAM.

Task Complete these steps to disable package switching using SAM:

1. Using the system console, log into the primary or the standby server as `root`.

2. Enter `sam` at the prompt and press **Enter**.

   Result:

   The System Administration Manager window is displayed.

3. Select the **Clusters** option.

4. Select the **High Availability Clusters** option.

5. Select the **Package Administration** option.

6. Highlight the **ITMHost** entry.

7. From the **Actions** menu, select **Modify Failover Options**.

8. Change Automatic Switching value to **Disable**.

9. Select **OK**.

   Result:

   Package Switching is disabled.

END OF STEPS

□

Re-add the HP Server to a Cluster in a Local Redundancy Configuration using SAM

Purpose This procedure is used to re-add the HP server to a cluster in a local redundancy configuration using SAM.

Task Complete these steps to re-add the server to the cluster:

1 Using the system console, log into either the primary or the standby server as `root`.

2 Enter `sam` at the prompt and press **Enter**.

Result:

The System Administration Manager window is displayed.

3 Select **Clusters** option.

4 Select **High Availability Clusters** option.

5 Select **Package Administration** option.

6 Highlight the **ITMHost** entry.

7 From the **Actions** menu, select **Specify node to join the cluster**.

8 Highlight **Host name**.

9 Select **OK**.

Result:

Host node joins the cluster.

END OF STEPS

□

View Cluster Status Information

Purpose This procedure is used to view cluster status information in a local redundancy configuration.

Task Complete these steps to view the cluster status information:

1 Using the system console, log into the primary or the standby server as `root`.

2 Enter `cmviewcl -v`.

Result:

The cluster status information is displayed.

END OF STEPS

□

Section VI: Restart and Stop the Oracle Database

Overview

Purpose

This section describes how to restart and stop the Oracle database.

Definition: Oracle database

The Oracle database is used to retain persistent copies of application and customer data. Use of Oracle's Transaction Processing Option enables concurrency control and a high degree of data integrity.

Important

Starting and stopping the database should be performed only at the direction of Lucent Customer Support.

Contents

Restart the Oracle Database

Purpose This procedure is used to restart the Oracle database.

Important! This procedure should be performed only with the direction of Lucent Customer Support.

Task Complete these steps to restart the Oracle database:

1 Using the system console, log in as `oracle`.

2 Enter `/usr/dacscan/toolbin/startdb.sh` at the prompt.

Result:

A message is displayed on the form to indicate that the database has been started.

END OF STEPS

□

Stop the Oracle Database

Purpose This procedure is used to stop the Oracle database, which would need to occur, for example, before backing up the Oracle database.

Important! This procedure should be performed only with the direction of Lucent Customer Support.

Task Complete these steps to stop the Oracle database:

1 Using the system console, log in as `oracle`.

2 Stop the application on the primary server.

Reference:

For instructions, see the section "Stop the Navis™ Optical NMS Application on a Desktop" (3-14), earlier in this chapter.

3 Enter `/usr/dacscan/toolbin/shutdb.sh` at the prompt.

Result:

A message is displayed on the form and indicates that the database has been stopped.

END OF STEPS

□

Section VII: Administer the System cron File

Overview

Purpose

This section describes how to administer the system cron file.

Background

The cron file contains commands that are automatically executed at set times.

Certain commands can be executed at desired times by using the system cron. The root cron and dacscan cron operate independently. The root cron has various administrative functions that are executed on a routine basis, such as daily backups and file system space monitoring. The dacscan cron has various application-related functions, such as database syncs and auto-implementation.

File format

The read-only root cron file format is such that everything on the active line is separated by blanks or tabs. Each field of the active line correlates to a subset of time. The following is an example of an active line, with each field separated by a tab (indicated by -->):

```
min-->hour-->day-->month-->day-of-week-->command min: 0-59
hour: 0-23 day:1-31 month:1-12 day of week: 0-6 (Sunday=0)
command: program to be executed
```

In place of numerics, an asterisk (*) may be used to imply the whole range (wild card). A sample active line may look like:

```
01 04,23 * * * ksh /usr/dacscan/bin/auto_backup &
```

This line implies that the auto_backup will execute in the background one minute past the 4th hour (4:01 a.m.) and, again, one minute past the 23rd hour (11:01 p.m.), every day, every month and every day of the week.

The cron files can be edited; however, editing should be performed only at the direction of Lucent Customer Support. Once the file is created/edited, it must be loaded into the cron.

Contents

View the dacscan cron File

Purpose This procedure is used to view the dacscan cron file.

Important! The dacscan cron file is a read-only file. It can only be edited by the superuser (root user).

Task Complete these steps to view the dacscan cron file:

1 Using the system console, log into the primary server as `dacscan`.

Important! Using the `root` login, you can alternatively enter `su - dacscan` and enter the `dacscan` password.

2 Enter `crontab -l` at the # prompt.

3 Press **Enter**.

Result:

The dacscan cron file is displayed.

END OF STEPS

□

View the root cron File

Purpose This procedure is used to view the root cron file.

Important! The root cron file is a read-only file. It can only be edited by the superuser (root user).

Task Complete these steps to view the root cron file:

1 Using the system console, log into the primary server as `root`.

2 Enter `crontab -l` at the # prompt.

3 Press **Enter**.

Result:

The root cron file is displayed.

END OF STEPS

□

Edit the System cron File

Purpose

This procedure is used to change the desired execution times of commands in the system cron file.

Before you begin

Important! The system cron file can only be edited by the superuser (root user).

In this procedure, you will be required to edit a file. To avoid losing data, consider making a copy of this file before editing. If you choose to copy this file, remember to delete it from the system when you are finished editing.

Task

Complete these steps to edit the system cron file:

1 Using the system console, log into the primary server as `root`.

2 At the # prompt, type `cd /usr/spool/cron/crontabs`.

3 At the # prompt, type `ls -l`.

Result:

The files **root** and **dacscan** are listed.

4 Open the **root** or **dacscan** file using the `vi` editor and edit the required parameter.

5 Press **Esc**, and then type **:wq** to save and close the file.

6 Use one of the following to read the revised file into the system cron.

IF	THEN
the **root** file was edited	log in as `root` and then type: `crontab root` at the # prompt. **Result:** The **root** file is read into the system cron.

IF	THEN
the **dacscan** file was edited	log in as dacscan and type crontab dacscan at the # prompt. **Result:** The **dacscan** file is read into the system cron.

END OF STEPS

Section VIII: Monitor Space

Overview

Purpose

Navis™ Optical NMS has an internal, space monitoring script that periodically checks its own filesystems to verify that they are not running out of space. The following section describes the Navis™ Optical NMS script that produces warning and recovery messages as required.

Contents

Monitor Space

Definition: Spacewatch program

Spacewatch is a space monitoring and recovery program that provides file-system monitoring once per hour for the following controller files:

- Provisioning documents directory (**/dacscan/prov**)
- Alarms directory (**/dacscan/alarms**)
- Application logs directory (**/dacscan/log**)
- Database archives directory (**/dacscan/dbarch**)
- Application users directory (**/dacscan/users**)
- Application trace information directory (**/dacscan/trace**)

Spacewatch executes according to the parameters defined in the root cron file. These parameters should not be changed.

Warning messages

If the **dacscan/log** file is over 60% full, Spacewatch sends this warning message to the system event log: `LOG_FILESYSTEM_SPACE_LOW`.

Recovery actions/messages

Special recovery actions/messages are provided for the following files:

- If **/dacscan/trace** is over 80% full, its recovery action is: `Removed log files - Archives may be incomplete!`
- If **dacscan/log** is over 80% full, its recovery action is: `Removed log files - Archives may be incomplete!`
- If **dacscan/users** is over 80% full, its recovery message is: `"Logfile" is running low on space, clean up immediately!`
- The **dacscan/dbarch** controller file recovery message is: `"Logfile" removed database archive file - back up database immediately!`

□

Section IX: Administer Performance Monitoring Data Export

Overview

Purpose

This section describes how to administer the Performance Monitoring Data Export feature via off-line tools.

Performance Monitoring Data Export is an optional feature that enables the automatic capture of all 24-hour performance monitoring data for all network elements controlled by the Navis™ Optical NMS and the ITM-SC applications. During execution, it requests that all 24-hour performance monitoring data collected for the previous day be transferred to an ASCII file—one per Element Management System (EMS)—on a workstation or PC specified at the time of installation.

Contents

Performance Monitoring Data Export Variables

Overview

The Performance Monitoring Data Export feature executes according to the values specified by certain environment variables that control how this feature operates:

- ***$PM_LOG_WKST*** is a variable that exists on the server. It is the workstation to which performance monitoring data is exported.
- ***$PM_LOG_DIR*** is a variable that exists on the server. It is the directory on the ***$PM_LOG_WKST*** workstation where the exported data is stored. In this directory, the user must create one subdirectory for each day of the week, plus ***yesterday***: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, and yesterday.
- ***$PM_DATA_FILE*** is variable file on the ***$PM_LOG_WKST*** workstation that contains the exported performance monitoring data.
- ***$PM_DATA_FILE_DIR*** is the directory on the server that contains the request files. One request file must be created for each EMS, based on the ***$PM_DATA_FILE*** environment variable and the EMS name.
- ***$PM_EMS_TIMEOUT*** is the duration (in seconds) that is allocated to the EMS to collect and export the requested data. When this duration expires, a time-out error is logged.

For example, given these environment variables, the most recently transferred performance monitoring data file is located at:

$PM_LOG_WKST:$PM_LOG_DIR/<yesterday>/$PM_DATA_FILE

The ***$PM_LOG_WKST*** and the ***$PM_LOG_DIR*** variables are located on the server in the `/etc/dscan` directory. Their values are set at installation. The remaining variables, (***$PM_DATA_FILE*** , ***$PM_DATA_FILE_DIR*** and ***$PM_DATA_TIMEOUT***) are set up when the export tool is run.

□

Display Performance Monitoring Data Export Variable Settings

Purpose This procedure is used to display Performance Monitoring Data Export variable settings.

Task Complete these steps to display Performance Monitoring Data Export variable settings:

1 From a workstation, log in as `dacscan`.

2 To display Performance Monitoring Data Export variable settings, enter one of the following at the prompt.

- To display all variable settings, type `env`.
- To display a specific variable's setting, type `echo <$variable_name>`.

Result:

The variable settings are displayed.

END OF STEPS

□

Change the Scheduled Run Time of the Performance Monitoring Data Export File Transfer

Purpose

This procedure is used to change the scheduled run time of the Performance Monitoring Data Export file transfer.

The Performance Monitoring Data Export file transfer process is scheduled to run daily. By default, it is scheduled to run at 02:10 a.m. local time.

Before you begin

Important! This task should be performed only at the direction of Lucent Customer Support.

In this procedure, you will be required to edit a file. To avoid losing data, consider making a copy of this file before editing. If you choose to copy this file, remember to delete it from the system when you are finished editing.

Task

Use these steps to change the scheduled run time of the Performance Monitoring Data Export file transfer process.

1 Log into the host as `dacscan`.

2 Enter `crontab -e`.

3 Locate the following line in the file, which is used to clean up the old files and start the PM log file process:

```
mm hh * * * ksh /usr/dacscan/toolbin/StartPmData.sh >
/tmp/StartPmData.log
```

4 Edit the **mm** and **hh** entries so they correspond with the required hour (hh) and minute (mm).

5 Enter `<shift:wq!>`.

Result:

The scheduled run time of the performance monitoring data file transfer process is changed.

END OF STEPS

Workstation Set Up for Data Export Task

Purpose

This procedure is used to set up the workstation for PM data export to monitor reports.

Before you begin

Ensure that a `dacscan` login ID does not already exist on the workstation.

You must access and edit the **.rhosts** file, which is typically located in **/usr/dacscan/.rhosts**. (Under most conditions, the **.rhosts** file does not have to be created or re-created.) To avoid losing data, consider making a copy of this file before editing. If you choose to copy this file, remember to delete it from the system when you are finished editing.

In step 5, you must create a directory structure that can be used to store data for each day of the week along with one subdirectory as a backup ***yesterday*** directory. The access privileges for these directories must be changed so their contents can be read by and written to by the ***owner***, ***group***, and ***other***.

Example:

cd /usr/dacscan

mkdir pm_export (This directory name is user specified; any directory name can be assigned to the directory; however, the same directory name must exist on the server.)

chmod 777 pm_export (Change the permissions on the directory just created so it is accessible to all.)

cd pm_export (Change directories to the directory that you just created.)

mkdir Monday (Make a subdirectory under *pm_export* called ***Monday***.)

chmod 777 Monday (Change the permissions of the directory *Monday* so it is accessible to all.)

mkdir Tuesday (Make another subdirectory under *pm_export* called ***Tuesday***.)

chmod 777 Tuesday (Change the permissions of the directory *Tuesday* so it is accessible to all.)

Continue to make directories for each remaining day of the week, along with a directory called ***yesterday***, and change the access privileges for each directory created.

You need write permissions for step 6.

Task Use these steps to create a `dacscan` login ID and to modify the **.rhosts** file:

1 Create a `dacscan` login ID.

2 From a new terminal window on that workstation, log in as the `dacscan` user.

3 Enter `cd $HOME`.

4 Using `vi`, access the `.rhosts` files and add a line to the file with the name of the host machine where PF and performance monitoring servers are running for the Navis™ Optical NMS application.

5 On the workstation, set up a directory structure for storing PM data. (See ***Before you begin***.)

6 Log into the Navis™ Optical NMS host server as `dacscan`.

7 Enter `remsh <name of Workstation> uname -a` to test whether the `.rhosts` file works correctly.

Result:

The name and operating system of the workstation are displayed.

END OF STEPS

□

Execute the PM Data Export Tool

Purpose

This procedure is used to view relevant log information or the current environment associated with the Performance Monitoring (PM) Data Export tool, or to reissue the request to transfer the 24-hour performance monitoring data associated with the previous day.

Related Information

The Performance Monitoring Data Export tool allows a host user to view relevant log information and to view the current environment associated with this feature. It provides the means for a host user to reissue the request to transfer 24-hour performance monitoring data associated with the previous day.

Any user can access the Performance Monitoring Data Export tool from the host server. It is located in **/usr/dacscan/toolbin**.

Task

Use these steps to execute the Performance Monitoring Data Export.

1 From the system prompt, enter:

```
/usr/dacscan/toolbin/pm_export_tool.
```

Result:

A user menu is displayed.

2

IF	THEN
You want to display the Performance Monitoring Data Export feature overview	Enter **1**
You want to display the Performance Monitoring Data Export feature environment	Enter **2**
You want to view the Performance Monitoring Data Export log entries for mm/dd/yyyy	Enter **3**

IF	THEN
You want to reissue the request to export 24-hour performance monitoring data (An option does not exist to issue a request on an individual EMS basis.)	Enter **4**
You want to quit executing the Performance Monitoring Data Export tool.	Enter **5** **Result:** Relevant log files are created and are located in `/usr/dacscan/toolbin`. On a dedicated UNIX workstation, uncompress the Performance Monitoring Data Export files by entering the command `gunzip -c <filename>`

END OF STEPS

Section X: Network Map

Overview

Purpose

This section contains tasks associated with the Network Map, including tasks associated with Network elements, Out-of-Domain Objects (ODOs), changing the background map, and changing model names.

Contents

Install a New Background Map

Purpose

This procedure is used to install a new background map on HP-UX client machines or on Windows terminal servers.

The system administrator of the host will use an off-line hardware, (such as a scanner) to scan the customer's map and save it onto the host machine as a **.gif** file. This map can be an image (**.gif**) file scanned by the user and stored in the **$DEST/jnm/itm/data/customer** directory of the host server.

If you need assistance with performing this task, contact Lucent Customer Support.

Choosing a background map

A new background map must be selected carefully so that it does not obscure the icons and its displayed text. For example, a map that is largely white hides the white text of the icon names.

When selecting a background map, keep the following in mind:

- Select a map that is mainly of a different color than the icons and text displayed on the map.
- Select a map that includes colors that contrast sufficiently with the icons and text displayed on the map so that they are easily distinguished by the user.

Task

Complete this step to install a new background map for all users:

1 Contact Lucent Customer Support to perform this task.

END OF STEPS

□

Update Network Element and ODO Positions

Purpose Use the following procedure to update network element and Out-of-Domain (ODO) positions on the Network Map.

Before you begin You must have ***Configuration management***, ***Element Management***, or ***system administrator*** privileges to permit you to save the updated network element and ODO positions on the Network Map. See "Navis™ Optical NMS system administrator user types" (1-3) for a description of what is allowable for system administrator users.

Task Complete these steps to permanently move a node or an ODO to a new position on the Network Map:

1 On the Network Map, select the node or ODO you want to reposition.

2 Drag and drop the node or ODO to the new location.

Result:

The node or ODO and its connecting links are repositioned.

3 Select the following menu option: **File > Save Node and Label Map Positions**.

Result:

The network element or ODO location is updated.

END OF STEPS

□

Search the Location Reference Table

Purpose This procedure is used to search for location-type information for a specific network element. The user may query by Office/Location/NE ID, Area, or Node Type, or request a list of all location-type information.

Network element queries display controlled or noncontrolled network elements. Controlled network elements are those controlled or cataloged by Navis™ Optical NMS. Noncontrolled network elements include black boxes and ODOs.

Results received from controlled network element queries include information about the digital cross-connect systems that are part of the network.

> **Important!** This search is limited to NEs that are controlled or cataloged by the Navis™ Optical NMS application.

Task Complete these steps to search for location-type information for a specific network element:

1 On the Network Map, select **Administration**.

2 Select **Location Reference Table**.

Result:

The Location Reference Table Query Box is displayed.

3

IF	THEN
You want to query by ***office location*** or ***network element ID***,	Enter the office location or network element ID in the **Office Location/NE ID** field.
You want to query by ***area ID***,	Select a value from the **Area** drop-down list.
You want to query by ***node type***,	Select a value from the **Node Type** drop-down list.

IF	THEN
You want to query ***all available location-type information***,	Leave all fields blank, then proceed to the last step.

4 Optional: Complete the **Additional Information** field.

5 Select **OK**.

Result:

The Location Reference Table displays the requested location-type information.

When the value `ITMNM` displays in the **Type** field, this represents Navis™ Optical NMS. When `SNMS` displays in the **Type** field, this represents Navis™ Optical EMS.

END OF STEPS

□

Modify Noncontrolled Network Element Information

Purpose This procedure is used to modify the description or administration information of an existing noncontrolled network element, including black boxes and ODOs.

Task Complete these steps to modify the description or administrative information of a noncontrolled network element:

1 From the Network Map, select **Administration > Location Reference Table**.

Result:

The Location Reference Table Query Box is displayed.

2 In the **Office Location/NE ID** field, enter the appropriate existing noncontrolled network elements.

3 Optional: In the **Additional Information** field, enter any additional information.

4 Optional: Select the **Area** associated with the noncontrolled network element from the drop-down menu.

5 Optional: Select the **Node Type** associated with the noncontrolled network element from the drop-down menu.

6 Click **OK**.

Result:

The Location Reference Table is displayed.

When the value `ITMNM` displays in the **Type** field, this represents Navis™ Optical NMS. When `SNMS` displays in the **Type** field, this represents Navis™ Optical EMS.

7 To modify the information, either click the first box in a row to select the row or click a box in a specific column to modify the information. You may modify rows in the following columns:

- **Description**
- **Acronym**
- **Additional Information**

8 Select **Actions > Update**.

9 Select **File > Close**.

Result:

The description or administration information of the noncontrolled network element is modified.

END OF STEPS

□

Change the Model Name of a Network Element

Purpose This procedure is used to change a model name of a network element.

Task Complete these steps to change a model name of a network element:

1 Delete the network element that has a model name to be changed. See the ***Navis™ Optical Network Management System Provisioning Guide*** for details.

Result:

The network element is deleted.

2 Add the network element and enter the new model name. See the ***Navis™ Optical NMS Provisioning Guide*** for details.

Important! Navis™ Optical EMS network elements do not need to be re-added because they are automatically discovered by Navis™ Optical NMS.

Result:

The network element is added and contains a new model name.

END OF STEPS

□

Section XI: Administer the TIM Northbound Interface

Overview

Purpose

This section explains how to set filtering criteria for Navis™ Optical NMS alarms to be sent to the TMN Integration Module (TIM) northbound Alarm Interface, which is an optional feature.

Contents

Set Filtering Criteria for Navis™ Optical NMS Alarms

Purpose This procedure is used to set filtering criteria for Navis™ Optical NMS alarms to be sent to the TIM northbound alarm interface.

Task Complete these steps to set filtering criteria for Navis™ Optical NMS alarms:

1 Start the Navis™ Optical NMS application.

Reference:

For instructions, see the section "Start the Navis™ Optical NMS Application on an HP-UX Workstation" (3-11), earlier in this chapter.

2 On the Network Map, select **Administration > NB Transmission Filter**.

Result:

The Alarm Transmission Filter form is displayed.

3 To send service-affecting and non-service affecting alarms to the TIM northbound alarm interface, select **Both** then click **OK**.

To send only service-affecting alarms to the TIM northbound alarm interface, select **SA** then click **OK**.

Result:

The appropriate alarms are sent to the TIM northbound alarm interface.

END OF STEPS

□

Section XII: Set Preferences

Overview

Purpose

This section defines how to set preferences in Navis™ Optical NMS.

Contents

Set Event Indications Preferences

Purpose This procedure is used to set event indications preferences for the Network Event Summary.

Task Complete these steps to set event indications preferences:

1 On the Network Map, select **Administration > Preferences**.

Result:

The Preferences form is displayed.

2 Select the **Event Indications** tab.

Result:

The Event Indications form displays.

3

IF	THEN
You want to set an audible beep when a new alarm is reported.	Select **Set Beep On**, then select the number of beeps to sound when a new alarm is reported.
You want to set the Event form to display in the foreground.	Select **Set Event Screen to Foreground**.

4 Select **OK**.

Result:

The form closes. Changes to the event indications take effect during the next and subsequent sessions.

END OF STEPS

□

Set Map Preferences

Purpose This procedure is used to set map preferences.

Task Complete these steps to set map preferences:

1 On the Network Map, select **Administration > Preferences**.

Result:

The Preferences form is displayed.

2 Select the **Map** tab.

Result:

The Map form displays the **User Login View** and **Link Width** sections.

3

IF	THEN
You want to select a different map view,	In the **User Login View** section's **Map View** field, highlight an entry in the drop down list. **Important! System Area Map** is the default.
You want to specify area or select no area,	In the **User Login View** section's **Expand Area** field, highlight an entry in the drop down list.
You want to change the Network Map's link width display,	In the **Link Width** section of the form, select **Normal** to have links display at a normal width or **Heavy** to have links display at a wide width.

4 Select **OK**.

Result:

The form closes. Changes to the map take effect during the next and subsequent sessions.

END OF STEPS

□

Set Alarm Preferences

Purpose This procedure is used to set alarm preferences on forms.

Task Complete these steps to set alarm preferences on forms:

1 On the Network Map, select **Administration > Preferences**.

Result:

The Preferences form is displayed.

2 Select the **Alarm Information On Forms** tab.

Result:

The Alarm Information on Forms form displays.

3 Click each box corresponding to the form to be changed.

Result:

Each selected box is marked.

4 Select **OK**.

Result:

The form closes.

5 Close and restart the Navis™ Optical NMS application.

Result:

Changes to the alarm preferences take effect during the next and subsequent sessions.

END OF STEPS

□

Set Fault Management (FM) Operational Preferences

Purpose This procedure is used to set FM operational preferences.

Task Complete these steps to set FM operational preferences:

1 On the Network Map, select **Administration > Preferences**.

Result:

The Preferences form is displayed.

2 Select the **FM Operational Mode** tab.

Result:

The Fault Management Operational Mode form displays.

3

IF	THEN
You want to set fault management to use the alarm approach,	Select **Alarm Approach**.
You want to set fault management to use the service approach,	Select **Service Approach**.

4 Select **OK**.

Result:

An Attention dialog box displays indicating that the change will take effect for the next and subsequent sessions.

5 On the Attention dialog box. select **OK**.

Result:

The dialog box closes.

6 On the Fault Management Operational Mode form, select **OK**.

Result:

The Fault Management Operational Mode form closes.

END OF STEPS

Set Port Address Preferences

Purpose This procedure is used to set port address preferences.

Important! The **Port Address** tab only displays if the Port Aliasing feature is enabled during installation. If you have any questions, contact Lucent Customer Support.

Task Complete these steps to set port address preferences:

1 On the Network Map, select **Administration > Preferences**.

Result:

The Preferences form is displayed.

2 Select the **Port Address** tab.

Result:

The Default Port Address form displays.

3

IF	THEN
you want the port address to default to a ***customer-specific*** selection,	select the customer-specific button.
you want the port address to default to network management,	select **Network Mgt**.

4 Select **OK**.

Result:

An Attention dialog box displays indicating that the change will take effect for the next and subsequent sessions.

5 On the Attention dialog box, select **OK**.

Result:

The dialog box closes.

6 On the Default Port Address form, select **OK**.

Result:

The Default Port Address form closes.

END OF STEPS

4 Users and User Profiles

Overview

Purpose

This chapter provides the conceptual information needed to understand the administration of users on the Navis™ Optical NMS application's hardware platform and on the application itself and the tasks that are needed to administer users in both the platform and application environments.

Contents

User and User Profile Concepts

The basics of user administration

The users of Navis™ Optical NMS application are of two basic types:

- The ***users*** of Navis™ Optical NMS application are typically those people who provision the application through the application's GUI.
- The ***system administrators*** of Navis™ Optical NMS application are typically those people who administer and/or maintain the health of the application for the users. System administrators are often given access privileges that are denied to users.

User administration involves completing tasks on the hardware platform that the Navis™ Optical NMS runs on and on the application itself for both users and system administrators. Specifically, these tasks include the following:

- creating user IDs through HP's System Administration Manager (SAM) GUI-based or terminal-based program and assigning specific privileges to regular users and to system administrators on a Windows desktops
  Note: Users do not have to be added to HP servers because any needed user IDs are loaded with the software.
- adding, modifying, and deleting user IDs and user profiles on the application
- ***optionally*** adding or deleting Secure Access Gateway for Enterprises (SAGE) users to/from an HP-UX client workstation

The default administrator

The Navis™ Optical NMS has a default administrator login that is called ***sa***. This login is used by the initial user to do start-up tasks. This initial user has access to all Navis™ Optical NMS screens, including those screens that are needed to add other new users.

Users who are created by ***sa*** are typically set up with access to only a subset of Navis™ Optical NMS screens. Therefore, to become authorized, a user has to already have the correct permissions to access these Navis™ Optical NMS screens or to have the ***sa*** change his or her permissions.

User types and user profile

The Navis™ Optical NMS application allows authorized users to have different levels of access, which are controlled by a login ID, a password, a user type, and a user profile.

The ***Navis™ Optical NMS User*** is the user who has access to the Navis™ Optical NMS application. By default, this user is of the type that is called ***regular user***.

A user profile controls which task groupings a user can access. A user can be assigned to more than one user profile.

The Navis™ Optical NMS offers the following user profiles:

- The ***Initial*** profile provides access to the Fault Management, Configuration Management, Performance Monitoring, Preplan Management, and NE Management task groupings. By default, all new users are assigned to the Initial Profile.
- The ***Combined*** profile provides access to the All Tasks task grouping, which includes the Fault Management, Configuration Management, Performance Monitoring, Preplan Management, NE Management, System Administrator, Fault Management (View only), Configuration Management (View only), Performance Monitoring (View only), Preplan Management (View only), and the Geo Domain Administrator and the Service Domain Administrator task groupings.
- The ***Provisioning (View Only)*** profile provides access to the Configuration Management (View Only) task grouping.
- The ***Alarm Management*** profile provides access to the Fault Management task grouping.
- The ***Geo Domain User*** profile provides access to all groups that are included in the Initial profile, which include the Fault Management, Configuration Management, Performance Monitoring, Preplan Management, and NE Management task groupings. Note that the Geographic Domain Partitioning is an optional feature. Refer to Chapter 5, “Geographic Domain Partitioning”.

- The ***Service Domain User*** profile provides access to the Fault Management, Configuration Management, Performance Monitoring, and Preplan Management task groupings. Note that the Service Domain Partitioning is an optional feature. Refer to Chapter 6, “Service Domain Partitioning”.
- The ***External CM User*** profile provides access to the Configuration Management task grouping.

While each profile has a finite number of ***assigned*** tasks, the system administrator can select which tasks to associate with a particular profile.

In addition to the user profiles listed, the system administrator can add a new profile, or modify or delete an existing profile. The ***Initial Profile*** can never be deleted and the ***Combined Default Profile*** cannot be modified or deleted.

SAGE Desktop Integration

SAGE Desktop Integration is an optional feature for NMS applications that allows users to access multiple Navis™ Optical NMS systems through a web browser.

The system administrator can add or delete SAGE users to/from an HP-UX client workstation.

Since SAGE requires each user to have an individual profile, the system administrator needs to manage these, along with user logins and passwords. The administrator needs to teach users how to log into SAGE, how to change passwords, how to modify user attributes, and how to interpret and respond to system messages.

For more detailed system administration instructions, refer to the *Secure Access Gateway for Enterprises (SAGE) Administration Guide.*

□

Create a User ID through the SAM GUI-Based Program

Purpose This procedure is used to create a user ID for the application through the GUI-based version of the SAM program using an HP-UX workstation.

Task Complete these steps to create a user ID for the application through SAM using an HP-UX workstation:

1 Log into the workstation as `root`.

2 On the Common Desktop Environment (CDE) panel (at the bottom of the screen), select the terminal icon to open a **dtterm** window.

Result:

A **dtterm** window displays.

3 Enter `sam` at the prompt and press **Enter**.

Result:

The System Administration Manager window is displayed.

4 Double click the **Accounts for Users and Groups** icon.

Result:

The System Administration Manager form redisplays with Groups and Local Users icons.

5 Double click the **Local Users** icon.

Result:

The Accounts for Users and Groups form displays.

6 Select **Actions > Add**.

Result:

The Add a User Account form displays.

7 In the **Login Name** field, enter a value of up to 8 characters representing the ID (such as the person's abbreviated name).

Important! The valid characters allowed in the ID are lowercase letters (a to z), numbers (0 to 9), and one or more underscores (_). The first character must be a lowercase letter. The underscores may be in any position after the first.

Result:

The **Home directory** field displays the directory path, which includes the Login Name field's value, such as **/home/<login_name>**.

8 At the **Create Home directory** field, select the box.

Important! The **Create Home Directory** box ***must*** be selected in order to successfully add the user. If this box is not checked, a corruption may occur in the **/etc/passwd** file that causes the computer to boot up in single user mode.

9 In the **Primary Group Name** field, enter `dba` or `users`.

Important! In most cases, `dba` is selected. User IDs within the `users` group may be restricted from performing certain functions.

10 In the **Start-up Program** field, enter `/usr/bin/ksh`.

Important! The remaining information is optional.

11 Optional: Complete the remaining fields then select the Set Passwords Options button.

Result:

The Password Options form is displayed.

12 At the **Password Options** field, choose an option from the list then select **OK**.

Result:

The Password Options form closes and the Add a User Account window redisplays.

13 Select **OK** to continue.

Result:

The Set User Password dialog box is displayed.

14 Enter a password for the user ID, then click **OK**.

Result:

A verification message displays.

15 Re-enter a password for the user ID, then click **OK**.

Result:

A Note dialog box displays a message that the user ID has been added.

16 On the Note dialog box, click **OK**.

Result:

The Note dialog box closes.

17 To exit the Add a User Account form, select **File > Exit**.

Result:

The Accounts for Users and Groups form displays the new user ID.

18 To exit the Accounts for Users and Groups form, select **File > Exit SAM**.

19 At the prompt, type `cat /etc/passwd | pg` then view the display to determine if permissions have been properly set for the created user ID in the **passwd** file.

20 For each user entered in the **Login Name** field in Step 7 of this task, use the "Add a User in the Application" (4-22) task to add the user to the Navis™ Optical NMS application.

Important! If this new user ID is to be used for cut-through access to an EMS, the user ID must be added through the EMS GUI. See "Set up a User ID for Cut-Through to Navis™ Optical EMS" (4-21) for details.

END OF STEPS

□

Create a User ID through the SAM Terminal-Based Program

Purpose This procedure is used to create an application user ID through the terminal (non-GUI) version of the SAM program, which may be accessed through a `telnet` session.

Task Complete these steps to create an application user ID by accessing SAM through a `telnet` session:

1 Log into a workstation.

2 Click the **Start** button in the taskbar, then select **Run**.

Result:

The Run dialog box displays.

3 In the **Open** field of the Run dialog box, enter the following:

```
telnet <ip_address_or_hostname>
```

4 On the host server that contains the SAM program, log in as `root`.

5 At the prompt, type `sam` and press **Enter**.

Result:

A message indicates that the terminal version of **sam** is started.

6 At the highlighted **Accounts for Users and Groups** selection, press **Enter**.

Result:

A menu of User and Group options is displayed.

7 Using the down arrow key, highlight the **Users** item and press **Enter**.

Result:

The Accounts for Users and Groups form is displayed.

8 Using the **Tab** and arrow keys, scroll to the **Actions** menu selection, then press **Enter**.

Result:

The Actions menu is displayed.

9 At the highlighted **Add** entry, press **Enter**.

Result:

The Add a User Account form is displayed.

10 In the **Login Name** field, enter a value of up to 8 characters representing the ID (such as the person's abbreviated name) and press **Enter**.

Important! The valid characters allowed in the ID are lowercase letters (a to z), numbers (0 to 9), and one or more underscores (_). The first character must be a lowercase letter. The underscores may be in any position after the first.

Result:

The cursor bypasses the **User ID (UID)** field, which is already populated with a system-generated entry. The **Home directory** field displays the directory path, which includes the Login Name field's value, such as **/home/<login_name>**.

11 Use the **Tab** to move to **Create Home Directory**, then press **Enter** if **X** is not displayed in the box.

Important! The **Create Home Directory** box ***must*** be checked in order to successfully add the user. If this box is not checked, a corruption may occur in the **/etc/passwd** file that causes the computer to boot up in single user mode.

12 Use the **Tab** to move to the **Primary Group Name** field, type `dba` or `users`, and press **Enter**.

Important! In most cases, `dba` is entered. User IDs within the `users` group may be restricted from performing certain functions.

13 In the **Start-Up Program** field, press **Enter**, and use the **Tab** to move to /usr/bin/ksh, and press **Enter**.

Result:

The **Start-Up Program** field contains the selected entry.

14 Optional: Complete the remaining fields, tab to **Set Password Options** and press **Enter**.

Result:

The Password Options dialog box displays.

15 Press **Enter** to display the list of password options, scroll to your selection, press **Enter**, use the **Tab** to move to **OK**, then press **Enter**.

Result:

The Password Options dialog box closes.

16 Use the **Tab** to move to **OK** and press **Enter**.

Result:

The Set User Password dialog box displays.

17 Enter a password then press **Enter**.

Result:

A verification message displays.

18 Re-enter a password, use the **Tab** to move to **OK**, then press **Enter**.

Result:

A message displays that the login has been added.

19 To exit the Add a User Account form, use the **Tab** to move to the **File** menu, highlight **Exit** then press **Enter**.

Result:

The Accounts for Users and Groups form is displayed.

20 To exit the Accounts for Users and Groups form, use the **Tab** move to the **File** menu, highlight **Exit SAM**, then press **Enter**.

21 At the prompt, type `cat /etc/passwd | pg` and view the display to determine if permissions have been properly set for the created user ID in the ***passwd*** file.

22 At the prompt, type **exit**.

Result:

A `logout root` and telnet status message is displayed.

23 For each user entered in the **Login Name** field in Step 10 of this task, perform the "Add a User in the Application" (4-22) task to add the user to the Navis™ Optical NMS application.

Important! If this new user ID is to be used for cut-through access to an EMS, then the user ID must be added to the EMS GUI. See "Set up a User ID for Cut-Through to Navis™ Optical EMS" (4-21) for details.

END OF STEPS

□

Assign User Privileges to a User on a Windows PC

Purpose This procedure is used to assign user privileges to a user on a PC running Windows software.

Before you begin Be sure that the user ID has been created.

Permissions You must have system administrator privileges on the PC in order to perform this task.

Task Complete these steps to assign user privileges to a user on a Windows PC:

1 On the Windows main window, click on the **Start** button in the task bar.

Result:

A menu is displayed.

2 Select **Programs > Administrative Tools (Common) > User Manager**.

Result:

The **User Manager** window is displayed.

3 From the **User Manager** window, select **User > New User**.

Result:

The **New User** window is displayed.

4 Complete the required **Username** field and the optional **Full Name** and **Description** fields.

5 In the **Password** field, enter the password associated with the new user ID.

6 In the **Confirm Password** field, enter the same password.

7 Optional: Click to remove the check in the **User Must Change Password at Next Logon** box.

8 Optional: Check the **Password Never Expires** box.

9 Select the **Groups** button.

Result:

The **Group Membership** screen is displayed.

10 On the **Group Membership** screen, view the **Member of** list for a **Users** entry. If **Users** is not listed, highlight **Users** in the **Not Member of** list and select the **Add** button.

Important! If an entry other than **Users** displays in the **Member of** list, highlight the entry, then select the **Remove** button to move the entry to the **Not Member of** list.

Result:

Users displays in the **Member of** list.

11 On the **Group Membership** screen, select **OK**.

Result:

The **Group Membership** screen closes.

12 On the **New User** screen, select **OK**.

Result:

The **New User** screen closes and the new user is listed on the **User Manager** screen.

END OF STEPS

□

Assign User Privileges to a User on a Windows 2000 PC

Purpose This procedure is used to assign user privileges to a user on a PC running Windows 2000 software.

Before you begin Be sure that the user ID has been created.

Permissions You must have system administrator privileges on the PC in order to perform this task.

Task Complete these steps to assign user privileges to a user on a Windows 2000 PC:

1 Log into a workstation as an administrator.

2 In the task bar, click the **Start** button, and then select **Settings > Control Panel**.

Result:

The Control Panel form displays.

3 Double click the **Users and Passwords** icon.

Result:

The Users and Passwords form displays.

4 Click the **Add** button.

Result:

The Add New User form displays.

5 Complete the **User name, Full name,** and **Description** fields, and then click the **Next** button.

Result:

The Add New User form displays the password fields.

6 Complete the **Password** and **Confirm Password** fields, and then click the **Next** button.

Result:

The Add New User form displays access selections.

7 Click **Standard user** (or other required level of access), and then click the **Finish** button.

Result:

The user is added.

END OF STEPS

□

Assign System Administrator Privileges to an Administrator on a Windows PC

Purpose This procedure is used to assign system administrator privileges to a user on a Windows PC.

Before you begin Be sure that the user ID has been created.

Permissions You must be authorized to perform this task.

Tasks Complete these steps to create a system administrator login and assign system administrator privileges on a Windows PC.

1 On the Windows main window, click on the **Start** button in the task bar.

Result:

A menu is displayed.

2 Select **Programs > Administrative Tools (Common) > User Manager**.

Result:

The **User Manager** window is displayed.

3 From the **User Manager** window, select **User > New User**.

Result:

The **New User** window is displayed.

4 Complete the required **Username** field and the optional **Full Name** and **Description** fields.

5 In the **Password** field, enter the password associated with the new user ID.

6 In the **Confirm Password** field, enter the same password.

7 Uncheck **User Must Change Password at Next Logon** box.

8 Check the **Password Never Expires** box.

9 Select the **Groups** button.

Result:

The **Group Membership** screen is displayed.

10 On the **Group Membership** screen, view the **Member of** list for an **Administrators** entry. If **Administrators** is not listed, highlight **Administrators** in the **Not Member of** list and select the **Add** button.

Important! If an entry other than **Administrators** displays in the **Member of** list, highlight the entry then select the **Remove** button to move the entry to the **Not Member of** list.

Result:

Administrators displays in the **Member of** list.

11 On the **Group Membership** screen, select **OK**.

Result:

The **Group Membership** screen closes.

12 On the **New User** screen, select **OK**.

Result:

The **New User** screen closes and the new user is listed on the **User Manager** screen.

END OF STEPS

□

Add a User on an HP Server

Note There is no need to add any new users on the HP servers. Any necessary User IDs should have already been loaded with the software.

□

Set up a User ID for Cut-Through to Navis™ Optical EMS

Purpose

In earlier Navis™ Optical EMS releases (pre-Release 4.2), a default **itm** user ID was hardcoded into the interface to support Navis™ Optical NMS cut-through connections to Navis™ Optical EMS. For Navis™ Optical EMS Release 4.2 and greater, a cut-through user ID (other than the default **itm** user ID) may be created and used for Navis™ Optical NMS to Navis™ Optical EMS cut-through connections.

Once the Navis™ Optical EMS cut-through user ID is created, it can be used in a cut-through session to apply geographic domain restrictions to ITM-SC or Navis™ Optical EMS, such as restricting network elements that a user is allowed to view.

This procedure is used to set up a user ID (other than the default **itm** user ID) for cut-through to Navis™ Optical EMS Release 4.2 and later releases.

Task

Use the following steps to add a cut-through user ID to Navis™ Optical EMS:

1 Add a cut-through user ID to Navis™ Optical EMS. (See the *Navis™ Optical EMS Administration Guide* for details.)

2 Enable the user option in the Secure Access Gateway for Enterprises (SAGE) feature. See the *Secure Access Gateway for Enterprises (SAGE) Administration Guide.*

END OF STEPS

□

Add a User in the Application

Purpose

This procedure is used to add a Regular User, Service Domain User, or Geographic Domain user to the Navis™ Optical NMS application.

Before you begin

The user ID must first be created using the SAM program. See "Create a User ID through the SAM GUI-Based Program" (4-6) and "Create a User ID through the SAM Terminal-Based Program" (4-10) for details.

Permissions

You must be authorized to perform this task.

Related information

If a Geographic Domain User is being added, refer to "Add Users or Network Elements to a Geographic Domain" (5-13) to continue with the administration process for this user.

Task

Complete these steps to add a Regular User, Service Domain User, or Geographic Domain user to Navis™ Optical NMS:

1 Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

Result:

The Network Map displays.

2 On the Network Map, select **Administration > Security Assignments > Users > Add**.

Result:

The Add User form displays.

3 In the **User ID** field, enter a user ID.

4 In the **Description** field (if desired, this field is optional), enter a description to be associated with the user ID.

5 In the **Profile** field, select a user profile from the drop-down list.

If a user profile is not selected, the user is automatically assigned **Initial Profile**.

Result:

The selected profile is displayed and the tasks associated with the profile selection are displayed in the **Assigned Tasks** area of the window.

6 In the **User Type** field, select one of the following:

- If the user is ***not*** to be added to the Service Domain user list or to the Geographic Domain user list, select **Regular User**.
- If the user is to be added to the Service Domain user list, select **Service Domain User**.
- If the user is to be added to the Geographic Domain user list, select **Geo Domain User**.

7 Click **Apply**.

Result:

A message displays at the bottom of the Add User form indicating that the user is added.

8 Click **OK**.

Result:

The Add User form closes.

END OF STEPS

□

Modify a User in the Application

Purpose This procedure is used to modify user ID information.

Permissions You must be authorized to perform this task.

Task Complete these steps to modify a user:

1. Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

   Result:

   The Network Map displays.

2. On the Network Map, select **Administration > Security Assignments > Users > Display/Modify**.

   Result:

   The List of Users form displays.

3. Highlight the user ID to be modified.

4. From the Actions menu, select **Modify User**.

   Result:

   The Modify User form displays.

5. Change the **Description**, **Profile**, or **User Type** parameters as desired.

6. Click **Apply**.

   Result:

   A message displays at the bottom of the Modify User form which states that the parameters for the selected user are modified.

7. Click **OK**.

Result:

The Modify User form closes.

8 From the List of Users form, select **File > Close**.

Result:

The List of Users form closes.

END OF STEPS

□

Delete a User in the Application

Purpose This procedure is used to delete a Regular User, Service Domain User, or Geographic Domain user.

Permissions You must be authorized to perform this task.

Complete these steps to delete a user:

1 Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

Result:

The Network Map displays.

2 On the Network Map, select **Administration > Security Assignments > Users > Display/Modify**.

Result:

The List of Users form displays.

3 Highlight the user ID to be deleted.

4 From the **Actions** menu, select **Delete User**.

Result:

A confirmation box displays and asks if you really want to delete this user.

5 Click **Yes**.

Result:

The user ID is deleted.

6 Select **File > Close**.

Result:

The List of Users form closes.

END OF STEPS

Add a User Profile in the Application

Purpose This procedure is used to add a user profile.

Permissions You must be authorized to perform this task.

Task Complete these steps to add a user profile:

1. Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

   Result:

   The Network Map displays.

2. On the Network Map, select **Administration > Security Assignments > Profiles > Add**.

   Result:

   The Add Profile form is displayed.

3. In the **Profile Name** field, enter a name for the user profile (up to 30 characters).

4. Add tasks to the user profile by moving them from the **Available Tasks** list to the **Selected Tasks** list.

5. Click **Apply**.

   Result:

   The user profile is added and is now available for assignment to users.

6. Click **OK**.

   Result:

   The Add Profile form closes.

END OF STEPS

□

Modify a User Profile in the Application

Purpose This procedure is used to modify a user profile.

Permissions You must be authorized to perform this task.

Task Complete these steps to modify a user profile:

1 Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

Result:

The Network Map displays.

2 On the Network Map, select **Administration > Security Assignments > Profiles > Modify**.

Result:

The Modify Profile form displays.

3 In the **Profile Name** field, select the user profile to be modified from the drop-down list.

Result:

The selected and available tasks for the user profile are displayed.

4 Do one of the following:

- Add tasks to the user profile by moving them from the **Available Tasks** list to the **Selected Tasks** list.
- Remove tasks from the user profile by moving them from the **Selected Tasks** list to the **Available Tasks** list.

5 Click **Apply**.

Result:

The user profile is modified.

6 Click **OK**.

Result:

The Modify Profile form closes.

END OF STEPS

Delete a User Profile in the Application

Purpose This procedure is used to delete a user profile.

Permissions You must be authorized to perform this task.

Task Complete these steps to delete a user profile:

1 Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

Result:

The Network Map displays.

2 On the Network Map, select **Administration > Security Assignments> Profiles > Delete**.

Result:

The Delete Profile form displays.

3 In the **Profile Name** field, select the name of the user profile to be deleted from the drop-down list.

4 Click **Apply**.

Result:

A confirmation box displays and asks if you really want to delete this profile.

5 Click **Yes**.

Result:

The user profile is deleted.

6 Click **Close**.

Result:

The Delete Profile form closes.

END OF STEPS

Add a User to a SAGE Workstation

Purpose This procedure is used to add a user to a SAGE workstation.

Task Complete these steps to add a user to a SAGE client workstation:

1 Log into the SAGE client workstation as system administrator.

2 Click on the **IWS** icon.

Result:

The IWS HOME PAGE form is displayed.

3 Click on the **NMS** icon.

Result:

The Navis™ Optical NMS Network Map is displayed.

4 Select **Administration > Security Assignments > Users > Add**.

Result:

The Add User form is displayed.

5 In the **User ID** field, type `sawg` and then click **OK**.

6 In the **Description** field (if desired, this field is optional), enter a description to be associated with the user ID.

7 In the **Profile** field's drop-down list, select **Combined Profile**.

Result:

The selected profile is displayed and the tasks associated with the profile selection are displayed in the **Assigned Tasks** area of the window.

8 In the **User Type** field, select one of the following:

- If the user is ***not*** to be added to the Service Domain user list or to the Geographic Domain user list, select **Regular User**.
- If the user is to be added to the Service Domain user list, select **Service Domain User**.
- If the user is to be added to the Geographic Domain user list, select **Geo Domain User**.

9 Click **Apply**.

Important! If a specific geographic domain is required for the new User ID, refer to Chapter 5 in this document.

Result:

A message displays at the bottom of the Add User form indicating that the user is added to the SAGE workstation.

10 Click **OK**.

Result:

The Add User form closes.

11 Type the user ID in the **User ID** field and click **OK**.

Important! If a specific geographic domain is required for the new User ID, refer to Chapter 5 in this document.

Result:

The user ID is added to the SAGE workstation.

END OF STEPS

□

Delete a User from a SAGE Workstation

Purpose This procedure is used to delete a user from a SAGE workstation.

Task Complete these steps to delete a user from a SAGE desktop:

1 Log into the SAGE workstation as system administrator and then bring up the Navis™ Optical NMS Network Map.

Result:

The Navis™ Optical NMS Network Map is displayed.

2 On the Network Map, select **Administration > Security Assignments > Users > Display/Modify**.

Result:

The List of Users form displays.

3 Highlight the user ID to be deleted.

4 From the **Actions** menu, select **Delete User**.

Result:

A confirmation box displays and asks if you really want to delete this user.

5 Click **Yes**.

Result:

The user ID is deleted.

6 Select **File > Close**.

Result:

The List of Users form closes.

END OF STEPS

□

5 Geographic Domain Partitioning

Overview

Purpose

This chapter provides the conceptual information needed to comprehend the administration of the Geographic Domain Partitioning feature and the related tasks that are needed to administer and maintain the feature.

Contents

Geographic Domain Partitioning Concepts

Definition

Geographic Domain Partitioning, which is an ***optional*** feature provided with the Navis™ Optical NMS application, enables administrators to assign users access to specific geographic domains and to group network elements into domains that are under the control of these Lucent optical management systems:

- Navis™ Optical NMS
- Navis™ Optical EMS
- ITM-SC

The Geographic Domain form

The Geographic Domain form facilitates geographic domain partitioning by permitting a user who has the proper security privileges—such as a Navis™ Optical NMS privileged user—to control the assignment of network elements and users to domains.

Users with correct privileges can view a list of:

- all users
- users who have access to a particular geographic domain
- users who are not assigned to any geographic domain
- users who are assigned to geographic domains
- users who have access to a particular network element
- all network elements
- network elements that are assigned to a particular geographic domain
- network elements that are not assigned to any geographic domain
- network elements are assigned to geographic domains
- all geographic domains

Feature installation

When Geographic Domain Partitioning is installed on a particular system, the wording **Geographic Domain** appears on the Domain Administration menu. If Geographic Domain Partitioning is not installed on a particular system, the wording **Geographic Domain** is grayed out on the Domain Administration menu.

During installation, the Geographic Domain Partitioning feature can be configured with either of the following options:

- view ALL option
- restricted user option

The ability to view network elements and links depends on the **readall** DBP variable, which is configured during installation. Refer to the important note in ***Three types of users*** later in this section.

Getting started

The network elements and users to be partitioned must first exist in the Navis™ Optical NMS database before they can be assigned to any domain. Network elements must be added in the standard fashion before using the Geographic Domain Partitioning feature.

Feature particulars and restrictions

The following are the particulars and restrictions of the Geographic Domain Partitioning feature:

- The feature creates some ***default geographic domains*** that cannot be deleted, such as the ITM-SC controller domain and the **ALL** domain. Although they cannot be deleted, default geographic domains can be modified and users can be added to them.
- A ***network element*** can only be assigned to one geographic domain.
- ***Users*** can only access all network elements within an assigned geographic domain. A user can be assigned to one or more geographic domains; however, a network element can only be assigned to one geographic domain.
- ***Multiple logins are permitted.*** A single user can have more than one login (user ID). Each login can have access to different domains only if the login is permitted access to those domains. This access permits the user to have greater coverage during out-of-hours or to have weekend privileges using one login and more restricted access during normal working hours by using a second login. These associations are accomplished by use of the Add User form.

Three types of users

Geographic domain partitioning recognizes three types of users with associated permissions:

- The ***Geographic Domain Admin User*** is generally a Navis™ Optical NMS system administrator with superuser privileges who has permission to:
  - access all features and forms
  - create geographic domains
  - assign users to geographic domains
  - view all network elements and links in the network
- The ***Geographic Inter-Domain User*** is a user who is assigned to more than one geographic domain by the system administrator. The Inter-Domain user has permission to:
  - control assigned network elements in multiple geographic domains
  - view only the network elements and links within the user's assigned geographic domains, if this user is a restricted geographic domain user. A user with the **View All** option sees all, but can only perform operations on nodes assigned in his or her geographic domain. The **View All** option also displays all Shared Risk Groups.
- The ***Geographic Domain User*** has permission to:
  - control assigned network elements in the geographic domain, if the user is a restricted geographic domain user
  - provision network element ports
    Note: To implement a circuit that crosses geographic domains, the geographic domain user must implement that portion of the circuit that is in his or her geographical domain. The user then must refer the work item to another work group or to a user who has access to the remaining network elements of the other domain(s).
  - view only the network elements and links within the user's assigned geographic domain, if the user is a restricted geographic domain user

Important! The ability to view network elements and links depends on the setup of the DBP variable **readall** at installation. If this variable is selected, the geographic domain users and/or the geographic inter-domain users can view network elements; however,

these users can only perform operations on network elements assigned to the particular geographic domain.

Assigning users to a geographic domain

Only users with the user type ***Geo Domain User*** can access the Geographic Domain forms.

Specific users can then be assigned access to specific domains. This is done by the Admin User who selects the User Type when the user is added to the Navis™ Optical NMS system.

The network elements and users must first exist in the controller database before they can be assigned to any domain.

For a user to appear on the Geographic Domain Administration form, the user must exist in the database with a login.

Note: None of the geographic domain user types can add a service domain.

Security permissions

A person with proper security permissions can create, delete, modify, or associate network elements, domains, and users.

□

Add a Geographic Domain

Purpose This procedure is used to add a geographic domain.

Before you begin Geographic domain administration procedures can only be performed by those with the appropriate security privileges.

Network elements or users must be assigned to a geographic domain or the domain will not be created. If you assign either network elements or users, the domain will be created and you can assign or delete more users or network elements at a later time.

> **Important!** Some geographic domains are created by default and cannot be deleted (for example, the ITM-SC controller domain and the **ALL** domain). Geographic domains created by default can be modified. You can add users to them.

Task Complete these steps to add a geographic domain:

1 On the Network Map, select **Administration > Domain Partitioning > Geographical Domain > Add**.

Result:

The Geographical Domain Add form is displayed.

2 In the **Domain** field, enter a name for the new geographic domain.

3

IF	THEN
You want to add users to the geographic domain.	Select the **Users** tab.
You want to add network elements to the geographic domain.	Select the **NEs** tab.

4 Highlight the user or network element that is to be added to the domain.

5 Select **Add** to add the highlighted selection.

6 Select **OK**.

Result:

The domain is created and its selected users or network elements are assigned to the new domain. An Attention form confirms that the geographic domain has been added.

7 Select **OK**.

Result:

The Attention form closes.

END OF STEPS

□

Display a Geographic Domain

Purpose This procedure is used to list a geographic domain and its assigned users and network elements.

Permissions Geographic domain administration procedures can only be performed by those with the appropriate security privileges. You must be authorized to perform this task.

Task Complete these steps to display a geographic domain and its assigned users and network elements:

1 Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

Result:

The Network Map displays.

2 On the Network Map, select **Administration > Domain Partitioning > Geographical Domain > Display/Modify**.

Result:

The Geographical Domain Administration form displays.

3 Select the **Domains** radio button.

Result:

A list of domains display in the **Domains** area of the form.

4 Select a listed domain.

Result:

The assigned users and network elements associated with the domain are displayed.

END OF STEPS

□

Display Network Elements Assigned to Geographic Domains

Purpose This procedure is used to display network elements assigned to geographic domains and their assigned users.

Permissions Geographic domain administration procedures can only be performed by those with the appropriate security privileges. You must be authorized to perform this task.

Task Complete these steps to display network elements, their geographic domains and assigned users:

1 Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

Result:

The Network Map displays.

2 On the Network Map, select **Administration > Domain Partitioning > Geographical Domain > Display/Modify**.

Result:

The Geographical Domain Administration form displays.

3 Select the **Assigned NEs** radio button.

Result:

A list of users display in the **Assigned NEs** area of the form.

4 Select a listed network element.

Result:

The geographic domains and assigned users are displayed.

END OF STEPS

□

Modify a Geographic Domain

Purpose This procedure is used to modify a geographic domain, which includes adding users and/or network elements to the geographic domain and deleting users and/or network elements from the geographic domain.

Task Complete these steps to modify a geographic domain:

1 On the Network Map, select **Administration > Domain Partitioning > Geographical Domain > Display/Modify**.

Result:

The Geographical Domain Administration form is displayed.

2 In the top field, select the **Domains** radio button.

Result:

The **Domains** list is populated.

3 In the **Domains** list, select a domain.

4 Select **Actions > Modify Domain**.

Result:

The Geographical Domain Modify form is displayed.

5 To modify the users that are assigned to the domain, select the **Users** tab.

To modify the network elements that are assigned to the domain, select the **NEs** tab.

6 Highlight the user or network element that is to be added or deleted from the domain.

7 Select the appropriate arrow button to add or delete the highlighted selection.

8 Select **Apply**.

Result:

The selected network elements or users are assigned to or deleted from the domain.

9 Select **OK**.

Result:

The Geographical Domain Modify form closes.

10 Select **File > Close**.

Result:

The Geographical Domain Administration form closes.

END OF STEPS

□

Delete a Geographic Domain

Purpose This procedure is used to delete a domain from geographic domain partitioning.

Task Complete these steps to delete a domain from geographic domain partitioning:

1 On the Network Map, select **Administration > Domain Partitioning > Geographical Domain > Delete**.

Result:

The Geographical Domain Delete form is displayed.

2 In the **Domain** field, select a geographic domain from the drop-down list.

3 Select **Apply**.

Result:

A form displays for you to confirm that the geographic domain should be deleted.

4 Select **Yes**.

Result:

The confirmation form closes.

5 Select **Close**.

Result:

The Geographical Domain Delete form closes.

END OF STEPS

□

Add Users or Network Elements to a Geographic Domain

Purpose

This procedure is used to add user(s) or network element(s) to a geographic domain.

Before you begin

When adding a user to a geographic domain, that user ID must first be defined as a **Geo Domain User** in Navis™ Optical NMS. See the "Add a User in the Application" (4-22) task for details.

Permissions

Geographic domain administration procedures can only be performed by those with the appropriate security privileges. You must be authorized to perform this task.

Task

Complete these steps to add a user or a network element to a geographic domain:

1 Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

Result:

The Network Map displays.

2 On the Network Map, select **Administration > Domain Partitioning > Geographical Domain > Display/Modify**.

Result:

The Geographical Domain Administration form is displayed.

3 Select the **Domains** radio button.

Result:

A list of domains are displayed in the **Domains** area of the form.

4 Under the **Domains** list, select a domain, then select **Actions > Modify Domain**.

Result:

The Geographical Domain Modify form is displayed.

5 Do one of the following:

- To add user(s) to a geographic domain, click the **User** tab, highlight user(s), then click the **Add** button.
- To add a network element to a geographic domain, click the **NEs** tab, highlight network element(s), then click the **Add** button.

Result:

The selected user(s) or network element(s) are moved to the left of the window.

6 On the Geographical Domain Modify form, click **OK**.

Result:

The Geographic Domain Modify form closes.

END OF STEPS

□

Display Users Assigned to Geographic Domains

Purpose This procedure is used to display users assigned to geographic domains and their assigned network elements.

Permissions Geographic domain administration procedures can only be performed by those with the appropriate security privileges. You must be authorized to perform this task.

Task Complete these steps to display assigned users, their geographic domains, and assigned network elements:

1 Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

Result:

The Network Map displays.

2 On the Network Map, select **Administration > Domain Partitioning > Geographical Domain > Display/Modify**.

Result:

The Geographical Domain Administration form displays.

3 Select the **Assigned Users** radio button.

Result:

A list of users display in the **Assigned Users** area of the form.

4 Select the radio button that matches the type of user to be viewed.

- **Both**, which displays Domain and Inter-domain Users
- **Domain**, which displays Domain users only
- **Inter-Domain**, which displays users assigned to more than one geographic domain

5 Select a listed user.

Result:

The domains and network elements associated with the user are displayed.

END OF STEPS

□

Display Users Assigned to a Network Element

Purpose This procedure is used to display users assigned to a network element.

Task Complete these steps to display all users who have access to a particular network element:

1 On the Network Map, select **Administration > Domain Partitioning > Geographical Domain > Display/Modify**.

Result:

The Geographical Domain Administration form displays.

2 In the top field, select the **Assigned NEs** radio button.

Result:

The Assigned NEs list is displayed.

3 In the **Assigned NEs** list, select a network element.

Result:

The Assigned Users list displays, and all users who have access to the selected network element are displayed.

END OF STEPS

□

Display Network Elements Assigned to a User

Purpose This procedure is used to display the network elements assigned to a user.

Task Complete these steps to display the network elements that a specific user can access:

1 On the Network Map, select **Administration > Domain Partitioning > Geographical Domain > Display/Modify**.

Result:

The Geographical Domain Administration form displays.

2 In the top field, select the **Assigned Users** radio button.

Result:

The Assigned Users list is displayed.

3 Select the radio button that matches the type of user:

- **Both**, which displays Domain and Inter-domain Users
- **Domain**, which displays Domain users only
- **Inter-Domain**, which displays users assigned to more than one geographic domain

4 Select the desired user.

Result:

The Assigned NEs list displays all the network elements to which the selected user has access via the selected domain.

END OF STEPS

□

Delete Users or Network Elements from a Geographic Domain

Purpose This procedure is used to delete user(s) or network element(s) from a geographic domain.

Permissions Geographic domain administration procedures can only be performed by those with the appropriate security privileges. You must be authorized to perform this task.

Task Complete these steps to delete user(s) or network element(s) from a geographic domain:

1 Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

Result:

The Network Map displays.

2 On the Network Map, select **Administration > Domain Partitioning > Geographical Domain > Display/Modify**.

Result:

The Geographical Domain Administration form displays.

3 Select the **Domains** radio button.

Result:

A list of domains display in the **Domains** area of the form.

4 Under the **Domains** list, select a domain, then select **Actions > Modify Domain**.

Result:

The Geographical Domain Modify form is displayed.

5 To remove user(s) from a geographic domain, click the **User** tab, highlight user(s), then click the **Remove** button.

To remove a network element from a geographic domain, click the **NEs** tab, highlight network element(s), then click the **Remove** button.

Result:

The selected user(s) or network element(s) are moved to the right of the window.

6 On the Geographical Domain Modify form, click **OK**.

Result:

The Geographic Domain Modify form closes.

END OF STEPS

□

6 Service Domain Partitioning

Overview

Purpose

This chapter provides the conceptual information needed to comprehend the administration of the Service Domain Partitioning feature and the related tasks that are needed to administer and maintain the feature.

Contents

Service Domain Concepts

Definition

Service Domain Partitioning is an ***optional*** administrative feature that enables an administrator to partition trails, channels, ports, and Virtual Concatenation Groups (VCGs) and their end ports, which are referred to as ***PTPs***, into domains and to assign specific users access to particular domains.

Trails, channels, ports, and VCGs

In the Navis™ Optical NMS application, a trail is an end-to-end connection that consists of cross-connects and channels. It is a logical entity.

A VCG is a logical entity that consists of a group of member VC-n trails. A VCG, its PTPs, and any number of VC-n trails can belong to the same service domain. Through the Virtual Private Network (VPN) feature, system administrators can restrict a user's ability to assign channels. This restriction is made during the creation of the service domain.

Service domain modes

Service domains are created in one of the following modes:

- ***Dedicated*** mode, in which the user can group channels, trails, ports, and VCGs into service domains. As a result, the user can assign channels and assign ports for trail provisioning or assign trails, for example, to monitor fault and performance.
- ***Shared*** mode, in which the VPN feature is implemented and channel assignment is not permitted. The user can only group trails, ports, and VCGs into service domains, assign ports for trail provisioning purposes, or assign trails for monitoring purposes.

The selection of either mode is explained in the "Add a Service Domain" (6-5) task.

Getting started

Channels and users must first exist in the controller database before they can be assigned to any domain.

Feature particulars and restrictions

The following particulars and restrictions apply to the Shared mode of the Service Domain Partitioning feature:

- A service domain user cannot belong to a geographic domain nor can the service domain user belong to more than one service domain.
- An empty service domain does not contain any users, ports, or trails.
- A geographic domain user cannot be added to a service domain.
- Both a trail and a port can only belong to one service domain.

Two types of users

Service Domain Partitioning recognizes two types of users:

- A ***service domain administrator*** can create, modify, delete, and use a service domain. This user is generally an Navis™ Optical NMS system administrator who has superuser privileges.
- A ***service domain user*** is a user who can access and use the service domain forms. A service domain user cannot be a geographic domain user. A user may only be assigned to one service domain and ***generally*** cannot belong to more than one service domain. If a user must be assigned to additional service domains, the user must be assigned additional user IDs. However, the user can only operate in the service domain that he or she is currently logged into by the user ID.

Service Domain forms

Service domain administration is accomplished through several service domain administration forms, which are accessed from the Network Map Administration menu. The service domain forms do not create users or network elements. Only a service domain administrator can create, delete, or modify a domain.

□

Add a Service Domain

Purpose This procedure is used to add a service domain.

Before you begin Service domain administration procedures can only be performed by those with the appropriate security privileges.

Task

Important! Channels, circuits, or users must be assigned to create the domain.

Complete these steps to add a service domain:

1. On the Network Map, select **Administration > Domain Partitioning > Service Domain > Add**.

   Result:

   The Service Domain Add box is displayed.

2. In the **Service Domain Name** field, enter a name for the service domain.

3. In the **Service Domain Mode** field, select **Shared** (default) or **Dedicated**.

4. Select the **OK** button.

   Result:

   An Attention form confirms that the service domain has been added.

5. Select **OK**.

   Result:

   The Attention form closes.

END OF STEPS

□

Delete a Service Domain

Purpose This procedure is used to delete a service domain.

Before you begin Service domain administration procedures can only be performed by those with the appropriate security privileges.

Before deleting a service domain, be sure that:

- all ports, trails, and users have been unassigned from the service domain
- if the service mode is dedicated, all channels assigned to the domain have been unassigned from the service domain

Task Complete these steps to delete a service domain:

1 Select **Administration > Domain Partitioning > Service Domain > Delete**.

Result:

The Service Domain Delete form is displayed.

2 In the **Service Domain Name** field, select the domain name from the drop-down list.

3 Select **Apply**.

Result:

A form is displayed to confirm that the service domain should be deleted.

4 Select **Yes**.

Result:

The confirmation form closes.

5 Select **Close**.

Result:

The Service Domain Delete form closes.

END OF STEPS

Display Trails Assigned to a Service Domain

Purpose This procedure is used to list trails that are assigned to a service domain.

Task Complete these steps to list trails that are assigned to a service domain:

1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Assignments**.

Result:

The Service Domain Query form is displayed.

2 In the **Service Domain Name** field, select the domain name from the drop-down list.

3 Select the **Trails** tab.

4 Optional: Complete the **A Node** and **Z Node** fields.

Important! To view A Node and Z Node values, select the **A Node** or **Z Node** button to display a selection box. Next, select the **Find** button, select the value from the displayed list and select **OK**.

5 Select a trail type from the drop-down list.

6 Select **OK**.

Result:

The Service Domain Display/Modify Trails form displays and lists the trails assigned to the service domain.

END OF STEPS

□

Display Channels Assigned to a Service Domain

Purpose This procedure is used to display the channels assigned to a service domain.

Task Complete these steps to list the channels assigned to a service domain:

1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Assignments**.

Result:

The Service Domain Query form is displayed.

2 In the **Service Domain Name** field, select the domain name from the drop-down list.

3 Select the **Channels** tab.

4 Optional: Complete the **A Node** and **Z Node** fields.

Important! To view ***A Node*** and ***Z Node*** values, select the **A Node** or **Z Node** button to display a Selection box. Next, select the **Find** button, select the value from the displayed list and select **OK**.

5 Select a trail type from the drop-down list.

6 Select a channel type from the drop-down list.

7 Select **OK**.

Result:

If the Service Domain mode value is **Dedicated**, the Service Domain Display/Modify Channels form displays and lists the channels assigned to the service domain.

END OF STEPS

□

Display Ports Assigned to a Service Domain

Purpose This procedure is used to display ports that are assigned to a service domain.

Task Complete these steps to display ports that are assigned to a service domain:

1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Assignments**.

Result:

The Service Domain Query form is displayed.

2 In the **Service Domain Name** field, select the domain name from the drop-down list.

3 Select the **Ports** tab.

4 Optional: Complete the **Node** field.

Important! Existing node values may be viewed by selecting the **Node** button.

5 Select the **Rate** value from the drop-down list.

6 Select **OK**.

Result:

The Service Domain Display/Modify Ports form displays and lists the ports assigned to the service domain.

END OF STEPS

□

Display VCGs Assigned to a Service Domain

Purpose This procedure is used to display the Virtual Concatenation Groups (VCGs) that are assigned to a service domain.

Task Complete these steps to display the VCGs that are assigned to a service domain:

1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Assignments**.

Result:

The Service Domain Query form is displayed.

2 In the **Service Domain Name** field, select the domain name from the drop-down list.

3 Select the **VCGs** tab.

4 Optional: Complete the **A Node** and **Z Node** fields.

Important! To view A Node and Z Node values, select the **A Node** or **Z Node** button to display a selection box. Next, select the **Find** button, select the value from the displayed list and select **OK**.

5 Select a **VCG** from the drop-down list.

6 Select **OK**.

Result:

The Service Domain Display/Modify VCG form closes.

END OF STEPS

□

Modify the Trails Assigned to a Service Domain

Purpose This procedure is used to modify the trails assigned to a service domain.

Before you begin Service domain administration procedures can only be performed by those with the appropriate security privileges.

Task Complete these steps to modify the trails assigned to a service domain:

1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Assignments**.

Result:

The Service Domain Query form is displayed.

2 In the **Service Domain Name** field, select the domain name from the drop-down list.

3 Select the **Trails** tab.

4 Optional: Complete the **A Node** and **Z Node** fields.

Important! A Node and Z Node values may be viewed by selecting the **A Node** or **Z Node** button to display a Selection box. Next, select the **Find** button, select the value from the displayed list and select **OK**.

5 Select a trail type from the drop-down list.

6 Select **OK**.

Result:

The Service Domain Display/Modify form displays and lists the trails assigned to the service domain.

7 Continue with one of the following:

- Add trails to the service domain by moving them from the **Non Member Trails** list to the **Member Trails** list.
- Delete trails from the service domain by moving them from the **Member Trails** list to the **Non Member Trails** list.

8 Select **Apply**.

Result:

The trails assigned to the service domain are modified. The **Non Member Trails** and **Member Trails** lists redisplay and show the modifications.

9 Select **OK**.

Result:

The Service Domain Display/Modify Trails form closes.

END OF STEPS

□

Modify the Channels Assigned to a Service Domain

Purpose This procedure is used to modify the channels assigned to a service domain.

Before you begin Service domain administration procedures can only be performed by those with the appropriate security privileges.

Task Complete these steps to modify the channels assigned to a service domain:

1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Assignments**.

Result:

The Service Domain Query form is displayed.

2 In the **Service Domain Name** field, select the domain name from the drop-down list.

3 Select the **Channels** tab.

4 Optional: Complete the **A Node** and **Z Node** fields.

Important! A Node and Z Node values may be viewed by selecting the **A Node** or **Z Node** button to display a Selection box. Next, select the **Find** button, select the value from the displayed list and select **OK**.

5 Continue with one of the following:

- Add channels to the service domain by moving them from the **Non Member Channels** list to the **Member Channels** list.
- Delete channels from the service domain by moving them from the **Member Channels** list to the **Non Member Channels** list.

Important! Channels will not display if **Shared** was selected for the **Service Domain Mode** (when this service domain was added).

6 Select **Apply**.

Result:

The channels assigned to the service domain are modified. The **Non Member Channels** and **Member** lists redisplay and show the modifications.

7 Select **OK**.

Result:

The Service Domain Display/Modify Channels form closes.

END OF STEPS

□

Modify the Ports Assigned to a Service Domain

Purpose This procedure is used to modify the ports assigned to a service domain.

Before you begin Service domain administration procedures can only be performed by those with the appropriate security privileges.

Task Complete these steps to modify the ports assigned to a service domain:

1. On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Assignments**.

   Result:

   The Service Domain Query form is displayed.

2. In the **Service Domain Name** field, select the domain name from the drop-down list.

3. Select the **Ports** tab.

4. Complete the **Node** field.

   Important! Existing node values can be viewed by selecting the **Node** button.

5. Select the **Rate** value from the drop-down list.

6. Select **OK**.

   Result:

   The Service Domain Display/Modify Ports form displays and lists the ports assigned to the service domain.

7 Continue with one of the following:

- Add ports to the service domain by moving them from the **Non Member Ports** list to the **Member Ports** list.
- Delete ports from the service domain by moving them from the **Member Ports** list to the **Non Member Ports** list.

8 Select **Apply**.

Result:

The ports assigned to the service domain are modified. The **Non Member Ports** and **Member Ports** lists redisplay and show the modifications.

9 Select **OK**.

Result:

The Service Domain Display/Modify Ports form closes.

END OF STEPS

□

Modify the VCGs Assigned to a Service Domain

Purpose This procedure is used to modify the Virtual Concatenation Groups (VCGs) assigned to a service domain.

Before you begin Service domain administration procedures can only be performed by those with the appropriate security privileges.

Task Complete these steps to modify the VCGs assigned to a service domain:

1 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Assignments**.

Result:

The Service Domain Query form is displayed.

2 In the **Service Domain Name** field, select the domain name from the drop-down list.

3 Select the **VCGs** tab.

Result:

The VCGs form appears.

4 Optional: Complete the **A Node** and **Z Node** fields.

Important! A Node and Z Node values may be viewed by selecting the **A Node** or **Z Node** button to display a Selection box. Next, select the **Find** button, select the value from the displayed list and select **OK**.

5 Use the right and left arrows to move the **VCGs** to/from the Member VCGs and Non-Member VCG fields.

6 Select **Apply**.

Result:

The VCGs assigned to the service domain are modified. The **Non Member VCGs** and **Member VCGs** lists redisplay and show the modifications.

7 Select **OK**.

Result:

The Service Domain Display/Modify VCGs form closes.

END OF STEPS

□

Add Users to a Service Domain

Purpose This procedure is used to add a user or users to a service domain.

Permissions Service domain administration procedures can only be performed by those with the appropriate security privileges. You must be authorized to perform this task.

> **Important!** When adding a user to a service domain, that user ID must first be defined as a **Service Domain User** in Navis™ Optical NMS. See the "Add a User in the Application" (4-22) task.

Task Complete these steps to add users to a service domain:

1 Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

Result:

The Network Map displays.

2 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Users**.

Result:

The Service Domain Display/Modify Users form is displayed.

3 In the **Service Domain Name** field, select a service domain name.

Result:

The users assigned to that service domain display in the **Members** box and users not assigned to the service domain display in the **Non-Members** box.

4 To add user(s) to the **Members** box, highlight user(s) in the **Non-Members** box and click the left arrow button.

Result:

The selected user(s) are moved to **Members** box.

5 On the Service Domain Display/Modify form, click **OK**.

Result:

The Service Domain Display/Modify form closes.

END OF STEPS

□

Display Service Domain Users

Purpose This procedure is used to display members assigned to a service domain.

Permissions Service domain administration procedures can only be performed by those with the appropriate security privileges. You must be authorized to perform this task.

Task Complete these steps to display service domain users:

1 Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

Result:

The Network Map displays.

2 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify Users**.

Result:

The Service Domain Display/Modify Users form displays.

3 From the **Service Domain Name** field, select a service domain.

Result:

The users assigned to the selected domain are listed in the left box, and the users not assigned to the domain display in the right box, if applicable.

END OF STEPS

□

Delete Users from a Service Domain

Purpose This procedure is used to delete a user or users from a service domain.

Permissions Service domain administration procedures can only be performed by those with the appropriate security privileges. You must be authorized to perform this task.

Task Complete these steps to delete user(s) from a service domain:

1 Start Navis™ Optical NMS. See "Section I: Start the Navis™ Optical NMS Application on the Servers" (3-5) for details.

Result:

The Network Map displays.

2 On the Network Map, select **Administration > Domain Partitioning > Service Domain > Display/Modify > Users**.

Result:

The Service Domain Display/Modify Users form is displayed.

3 In the **Service Domain Name** field, select a service domain name.

Result:

The users assigned to that service domain display in the **Members** box and users not assigned to the service domain display in the **Non-Members** box.

4 To delete user(s) from the **Members** box, highlight user(s) in the **Members** box and click the right arrow button.

Result:

The selected user(s) are moved to **Non-Members** box.

5 On the Service Domain Display/Modify form, click **OK**.

Result:

The Service Domain Display/Modify form closes.

END OF STEPS

7 Provisioning Administration

Overview

Purpose

This chapter contains topology and provisioning tasks performed to administer Navis™ Optical NMS.

Contents

Section I: Aggregates

Overview

Purpose

An ***aggregate*** is a collection of one or more network elements collapsed into a single node displayed on the Network Map. An aggregate can contain other aggregates.

This section discusses the provisioning tasks associated with aggregates as they relate to managing the topology of the Navis™ Optical NMS Network Map.

Contents

Add an Aggregate

Purpose This procedure is used to add an aggregate to the Navis™ Optical NMS Network Map.

Task Complete the following task to add an aggregate to the Navis™ Optical NMS Network Map.

1 On the Network Map, select **Administration > Aggregate > Add**.

Result:

The Aggregate Add form is displayed.

2 In the **Area ID** field, click the down arrow and select an area ID.

3 In the **Aggregate ID** field, enter a 1 to 20 character name for the Aggregate ID.

4 In the **Acronym** field, enter a 1 to 4 character name for the Aggregate Acronym.

5 From the **Non-Member List**, select the network element or elements you want to add to the aggregate.

Important! To select more than one network element, press the Control key. The number of network elements that can be selected at one time is unlimited.

6 Click the right arrow to move the network elements appearing in the **Non-Member** list to the **Members** list.

Result:

The selected network elements appear within the **Members** list.

7 Click **Apply**.

Result:

A confirmation window is displayed.

8 Click **OK**.

Result:

You are returned to the Aggregate Add form.

9 Click **OK**.

Result:

The Aggregate is added to the Network Map. A corresponding network element is displayed at the top left-hand side of the Network Map.

END OF STEPS

□

Delete an Aggregate

Purpose This procedure is used to delete an aggregate from the Navis™ Optical NMS Network Map.

Task Complete the following task to delete an aggregate from the Navis™ Optical NMS Network Map.

1 From the Network Map, select **Administration> Aggregate > Delete**.

Result:

The Aggregate Delete form is displayed.

2 In the **Area ID** field, click the down arrow and select an area ID.

3 Click the **Aggregate ID** to be deleted.

4 Click **Apply**.

Result:

A confirmation window is displayed.

5 Click **OK**.

Result:

The Aggregate Add form is displayed.

6 Click **OK**.

Result:

The aggregate is deleted and is no longer displayed on the Network Map.

END OF STEPS

□

Add a Member to an Aggregate

Purpose This procedure is used to add a network element as a member to an existing aggregate. (A ***member*** can be defined as a network element, which constitute aggregates.)

> **Important!** There is not a limit on the number of members that may reside in an aggregate.

Task Complete the following task to add a member to an existing aggregate.

1. On the Network Map, select **Administration > Aggregate > Display/Modify**.

   Result:

   The Aggregate Add form appears.

2. In the **Area ID** field, click the down arrow and select an area ID.

3. In the **Aggregate ID** pull-down menu, left-click the aggregate to be modified.

   Result:

   The members of the aggregate are displayed in the **Members** column.

4. In the **Non-members** column, left-click the network element to be added to the aggregate.

   Result:

   The network element is highlighted.

5. Click the **left-pointing arrow**.

   Result:

   The network element is moved to the **Members** column.

6 Click **Apply**.

Result:

A confirmation window is displayed.

7 Click **OK**.

Result:

The Aggregate Add form is displayed.

8 Click **Close**.

Result:

The form closes and the network element becomes a new member of the aggregate.

END OF STEPS

□

Remove a Member of an Aggregate

Purpose This procedure is used to remove a member from an existing aggregate. (A ***member*** can be defined as a network element, which constitutes an aggregate.)

Before you begin Before removing a member from an aggregate, note the following items:

- The aggregate must have at least one member.
- The last aggregate member cannot be deleted without deleting the aggregate itself.

Task Complete the following task to remove a member from an existing aggregate.

1 From the Network Map, select **Administration> Aggregate > Display/Modify**.

Result:

The Aggregate Modify window appears.

2 In the **Aggregate ID** menu, left-click the aggregate to be modified.

Result:

The members of the aggregate are displayed in the **Members** column.

3 In the **Members** column, left-click the network element to be deleted from the aggregate.

Result:

The network element becomes highlighted.

4 Click the **right-pointing arrow**.

Result:

The network element is moved to the **Non-members** column.

5 Click **Apply**.

Result:

A confirmation window is displayed.

6 Click **OK**.

Result:

The Aggregate Add form is displayed.

7 Click **Close**.

Result:

The form closes. The member is removed from the aggregate.

END OF STEPS

□

Specify an Acronym for an Aggregate

Purpose This procedure is used to specify an on-screen ***acronym*** for an aggregate, which is the title that is formed from the initial letters or parts of the full name of the aggregate.

Task Complete the following task to modify an aggregate's on-screen acronym.

1 From the Network Map, select **Administration > Aggregate > Add**.

Result:

The Aggregate Add window appears.

2 In the **Aggregate ID** pull-down menu, select the aggregate whose acronym you wish to specify.

Result:

The members of the aggregate are displayed in the **Members** column.

3 Select **Acronym** and press the **Backspace** key.

Result:

The Aggregate List form is displayed.

4 Enter the new acronym.

5 Click **Apply**.

6 Click **OK**.

Result:

The on-screen acronym updates automatically.

END OF STEPS

□

Section II: Areas

Overview

Purpose

This section describes areas and describes the tasks related to areas.

Background

Navis™ Optical NMS managed networks can be subdivided into smaller, manageable networks called ***areas***. When the network is subdivided into areas containing a limited set of network elements/aggregates and associated links, the potential to overcrowd the display is reduced and system performance is improved because the subsystems exchange less information.

Areas may be a set of network elements and/or aggregates:

- that are dedicated to a subscriber
- which are or are not connected
- in a remote location or building

Areas cannot reside within other areas.

Users can choose to view only the areas they are interested in, which reduces the potential to overcrowd the display and improves system performance because the subsystems exchange less information.

Only a system administrator can create areas.

Definition: area

An area is a collection of network elements, aggregates, and their associated links. An area is displayed as an icon on the Area Panel of the Network Map. An area can be expanded, which causes the Expansion Panel to appear on the Network Map and display all of the nodes, aggregates, and links in the area.

The number of network elements that can be included in an area is unlimited, however we recommend a limit of 300 network elements in an area to avoid a cluttered display and performance problems.

Contents

Add an Area

Purpose This procedure is used to add an area.

Permissions You must be authorized to perform this task.

Related information For instructions on how to add members to the area that is being created with this task, see the following task, “Modify an Area” (7-14).

Task Complete these steps to add an area.

1 On the Network Map, select **Administration > Area > Add**.

Result:

The Area Create form is displayed.

2 In the **Area ID** field, enter a name for the area.

3 Select **OK**.

Result:

The area is added. Note that an area icon displays in the top left side of the Area Panel on the Network Map. An entry for the new area appears in the Network Tree Panel on the Network Map.

END OF STEPS

□

Modify an Area

Purpose This procedure is used to modify an area.

Permissions You must be authorized to perform this task.

Task Complete these steps to modify an area:

1 On the Network Map, select **Administration > Area > Display/Modify**.

Result:

The Area Modify form is displayed.

2 In the Area ID field, select the area from the drop-down list.

Result:

Non-members of the area display in the **Non-Members** list, and members of the area display in the **Members** list.

3 Add nodes to the area by moving them from the **Non-Members** list to the **Members** list.

Delete nodes from the area by moving them from the **Members** list to the **Non-Members** list.

4 Select **Apply**.

Result:

The area is modified. The **Non-Members** and **Members** lists redisplay and show the modifications.

5 Select **Close**.

Result:

The Area Modify form closes.

END OF STEPS

□

Delete an Area

Purpose This procedure is used to delete an area.

Permissions You must be authorized to perform this task.

Task Complete these steps to delete an area:

1 On the Network Map, select **Administration > Area > Delete**.

Result:

The Area Delete form is displayed.

2 In the **Area ID** field, click the down arrow to select the area ID from the drop down menu.

3 Click **OK**.

Result:

The area is deleted. The area icon is deleted from the Area Panel on the Network Map. The entry for the area disappears from the Network Tree Panel on the Network Map.

END OF STEPS

□

Section III: User Defined Area Map

Overview

Purpose

This section describes how to add, display/modify, or delete user defined area maps. These maps allow a specific user to define which network elements to display on the screen within a submap. (See "Section IV: User Defined Submap" (7-20).)

Contents

Add a User Defined Area Map

Purpose This procedure is used to add a user defined area map.

Permissions You must be authorized to perform this task.

Task Complete these steps to add a user defined area map.

1 On the Network Map, select **Administration > User Defined Area Map > Add**.

Result:

The Add User Defined Area Map form is displayed.

2 In the **User Defined Area Map Name** field, enter 1 to 20 characters for the name of the user defined map.

3 To add member(s) to the new area map, select one or more entries from the **Non-Members** list, then click the left arrow.

Important! You can optionally complete the **Filters** field to lessen the number of listed entries.

Result:

The selection(s) are moved to the **Members** list.

4 Select **OK**.

Result:

The new user defined area map is added and the Add User Defined Area Map form closes.

END OF STEPS

□

Display/Modify a User Defined Area Map

Purpose This procedure is used to display/modify a user defined area map.

Permissions You must be authorized to perform this task.

Task Complete these steps to display/modify a user defined area map:

1 On the Network Map, select **Administration > User Defined Area Map > Display/Modify**.

Result:

The Modify User Defined Area Map form is displayed.

2 In the **User Defined Area Map Name** field, select the map to be displayed/modified.

Result:

The selected information displays.

3 Do one of the following:

- Make no changes and proceed to the next step.
- Add member(s) to the area map by selecting one or more entries from the **Non-Members** list, then click the left arrow button.
- Remove member(s) from the area map by selecting one or more entries from the **Members** list, then click the right arrow button.

4 Select **OK**.

Result:

The area map is modified if changes were made.

END OF STEPS

□

Delete a User Defined Area Map

Purpose This procedure is used to delete a user-defined area map.

Permissions You must be authorized to perform this task.

Task Complete these steps to delete a user defined area map:

1 On the Network Map, select **Administration > User Defined Area Map > Delete**.

Result:

The Delete User Defined Area Map form is displayed.

2 In the **User Defined Area Map Name** field, select a map name from the drop-down menu.

Result:

The selected information displays.

3 Select **OK**.

Result:

The user defined area map is deleted.

END OF STEPS

□

Section IV: User Defined Submap

Overview

Purpose

This section describes how to add, display/modify, or delete user defined submaps. A submap allows a specific user to define which areas to display on the screen. (See also "Section II: Areas" (7-12) and "Section III: User Defined Area Map" (7-16).)

Contents

Add a User Defined Submap

Purpose This procedure is used to add a user defined submap.

Permissions You must be authorized to perform this task.

Task Complete these steps to add a user defined submap.

1 On the Network Map, select **Administration > User Defined Submap > Add**.

Result:

The Add User Defined Submap form is displayed.

2 In the **User Defined Submap Name** field, enter a name for the user defined submap.

3 To add member(s) to the new submap, select one or more entries from the **Non-Members** list, then click the left arrow button.

Important! You can optionally complete the **Filters** field to lessen the number of listed entries.

Result:

The selection(s) are moved to the **Members** list.

4 Select **OK**.

Result:

The new user defined submap is added and the Add User Defined Submap form closes.

END OF STEPS

□

Display/Modify a User Defined Submap

Purpose This procedure is used to display/modify a user defined submap.

Permissions You must be authorized to perform this task.

Task Complete these steps to display/modify a user defined submap:

1 On the Network Map, select **Administration > User Defined Submap > Display/Modify**.

Result:

The Modify User Defined Submap form is displayed.

2 In the **User Defined Submap Name** field, select the submap to be displayed/modified.

Result:

The selected information displays.

3 Do one of the following:

- Make no changes and proceed to the next step.
- Add member(s) to the submap by selecting one or more entries from the **Non-Members** list, then click the left arrow button.
- Remove member(s) from the submap by selecting one or more entries from the **Members** list, then click the right arrow button.

4 Select **OK**.

Result:

The submap is modified if changes were made.

END OF STEPS

□

Delete a User Defined Submap

Purpose This procedure is used to delete a user-defined submap.

Permissions You must be authorized to perform this task.

Task Complete these steps to delete a user defined submap:

1 On the Network Map, select **Administration > User Defined Submap > Delete**.

Result:

The Delete User Defined Submap form is displayed.

2 In the **User Defined Submap Name** field, select a map name from the drop-down menu.

Result:

The selected information displays.

3 Select **OK**.

Result:

The user defined submap is deleted.

END OF STEPS

□

Section V: Scheduled Entities

Overview

Purpose

This section describes the administration of scheduled entities.

Definition: Scheduled entity

A scheduled entity is a provisioning assignment for a facility, path, or circuit that has been designated to occur at a future date and time. All assignments, with the exception of digital links, can be scheduled.

Contents

View a List of Scheduled Entities

Purpose This procedure is used to view a list of scheduled entities, such as a list of VC4s that have been scheduled for assignment or a list of scheduled facilities.

Before you begin The active form must be the Network Map.

Task Complete these steps to view a list of scheduled entities.

1 On the Network Map, select **Administration > Scheduled List**.

Result:

The Scheduled List Query Box is displayed.

2 Enter the **Scheduled Entity**.

3 Enter the **Schedule Type** from the menu.

4 Select **OK**.

Result:

The Scheduled List form appears and displays the queried information.

END OF STEPS

□

Delete a Scheduled Entity

Purpose This procedure is used to delete a scheduled entity.

Task Complete these steps to delete a scheduled entity.

1 On the Network Map, select **Administration > Scheduled List**.

Result:

The Scheduled List Query Box is displayed.

2 Enter an existing **Scheduled Entity**.

3 Enter a **Schedule Type** from the menu.

4 Select **OK**.

Result:

The Scheduled List form is displayed with the queried information.

5 Select **Actions > Delete**.

Result:

A confirmation box is displayed which prompts the user to confirm the delete request.

6 Select **OK.**

Result:

The selected scheduled entity is deleted.

END OF STEPS

□

Modify a Scheduled Entity

Purpose This procedure is used to modify a scheduled entity.

Task Complete these steps to modify a scheduled entity.

1 On the Network Map, select **Administration > Scheduled List**.

Result:

The Scheduled List Query Box is displayed.

2 Enter an existing **Scheduled Entity**.

3 Enter the **Schedule Type** from the menu.

4 Select **OK**.

Result:

The Scheduled List form is displayed with the queried information.

5 Select **Actions > Modify**.

Result:

A popup form is displayed for the selected entity.

6 Change the Start Date, Start Time, or both.

7 Select **OK.**

Result:

The selected scheduled entity is modified.

END OF STEPS

□

Filter the Display of Scheduled Entities on the Scheduled List

Purpose This procedure is used to filter the display of the scheduled entities on the Scheduled List.

Task Complete these steps to filter the display of the scheduled entities on the Scheduled List.

1 On the Network Map, select **Administration > Scheduled List**.

Result:

The Scheduled List Query Box is displayed.

2 Enter a **Scheduled Entity**.

3 Select **OK**.

Result:

The Scheduled List form is displayed with the queried information.

4 Select the **Scheduled Entity**.

5 Select **View > Filter/Sort**.

Result:

The Scheduled List Sort/Filter form is displayed.

6 Select the **Filter** tab.

Result:

The Filter fields are displayed.

7 In the **Filter 1**, **Filter 2**, and **Filter 3** fields, select a field from the drop-down menu, then enter a value to the right of your selection.

WARNING

When the Date or Time fields are selected, enter the From and To date values in the appropriate fields.

8 Select **OK**.

Result:

The filtered entities are displayed on the Scheduled List form.

END OF STEPS

□

View Successful/Failed Scheduled Entities Through the Scheduled History List

Purpose This procedure is used to query for a historical list of scheduled entities that were successfully completed or that failed during reinstatement.

Task Complete these steps to query for a historical list of successful/failed scheduled entities.

1 On the Network Map, select **Administration > Scheduled History List**.

Result:

The Scheduled History List Query Box is displayed.

2 Enter a **Scheduled Entity**.

3 Enter a **Schedule Type** from the menu.

4 Select **OK**.

Result:

The Scheduled History List form is displayed with the queried information.

END OF STEPS

□

8 Reliability and Service Recovery

Overview

Purpose

This chapter contains tasks performed to insure the reliability of Navis™ Optical NMS. It also contains system recovery tasks to use if Navis™ Optical NMS becomes unavailable, a routine maintenance task, and tasks associated with redundancy configurations.

Contents

Section I: Perform Backups

Overview

Purpose

This section describes how to perform various types of backups.

Regular backups

The system can be set to perform daily backups. The time for the daily backups is set in the cron file. For information on how to edit the cron file, see Chapter 3, "System Administration".

Host database backup

Two types of backup are available to HP server systems:

- Hot backup
- Cold backup

Hot backups occur when the system is up and running (hot). Cold backups occur when the Navis™ Optical NMS is shut down (cold). The hot backup takes longer to complete than the cold backup, but the hot backup can be initiated while the Navis™ Optical NMS application is running. The application must be stopped before a cold backup can be initialized.

Hot backup

The system automatically backs up the database on Sunday, Tuesday, Wednesday, Thursday, and Friday at 2:00 a.m. if a tape is present in the tape drive. A customer may alter the run frequency of hot backups by changing the run time in the **cron** file.

The system also performs a hot backup to machines in simplified geographic redundancy configurations. See "Simplified and full geographic redundancy configurations" (8-18) within this chapter for details.

The system is required to be at run level 4 for hot backup.

No operator action is required during the hot backup, which takes from 60 to 180 minutes to complete, depending on the size of the database. The default database backup retention is 5 days (5 tapes/rotation).

> **Important!** It is recommended that you maintain backup tape in the standby HP 9000 server.

Cold backup

A cold backup is the most accurate type of backup.

Operator action is required during the cold backup procedure. The system is required to be set at run level 3 for cold backup. The system must be down to run cold backups. It is recommended that cold backups are run every week, however it is up to the customer to determine run frequency.

Contents

Perform a Hot Backup

Purpose A hot backup occurs daily as the result of an entry in the `cron` file. This backup occurs when the system is up and running.

The following describes how to manually run a hot backup at a time other than when it is scheduled to run in cron.

Task Complete these steps to perform a hot backup.

1 Using the system console, log into the system as `root`.

2 Remove the ***daily backup tape*** and insert the ***hot backup tape*** into the tape drive.

Important! Wait until the lights on the tape drive stop flashing.

3 Enter `/bin/ksh /usr/dacscan/bin/hot_backup`.

Result:

The hot backup begins. It takes 60 to 180 minutes to complete. The # prompt is issued to the system console once the backup is completed.

4 Remove the ***hot backup*** tape.

5 Label the tape ***hot backup*** and add the:

- current date
- host server name

6 Store the tape in a safe place.

Result:

The hot backup is complete.

7 Insert the ***daily backup tape*** into the tape drive.

END OF STEPS

□

Perform a Cold Backup

Purpose A cold backup occurs when the NMS is shutdown (cold). This task should be completed ***once a month***.

Task Complete these steps to perform a cold backup.

1 Using the system console, log into the system as `root`.

2 At the prompt, type `init 3` to stop the Navis™ Optical NMS application.

Reference:

For instructions, see the section "Stop the Navis™ Optical NMS Application on a Specific Server using SAM" (3-28), in Chapter 3, "System Administration".

3 Log in to the Navis™ Optical NMS server as `root`.

4 Remove the ***daily backup tape*** and insert the ***cold backup tape*** into the tape drive.

5 Wait until the lights on the tape drive stop flashing.

6 Enter `/bin/ksh /usr/dacscan/bin/cold_backup`.

Result:

The cold backup begins. It takes approximately 40 minutes to complete. The # prompt is issued to the system console once the backup is completed.

7 Remove the ***cold backup*** tape.

8 Label the tape ***cold backup*** and add the current date and host server name.

9 Store the tape in a safe place.

10 Insert the ***daily backup tape*** into the tape drive.

Result:

The backup is complete.

11 At the prompt, enter `shutdown -ry 0` to reboot the host server to clean up UNIX system files.

Result:

The host server shuts down and restarts, which takes approximately 10 minutes. The prompt redisplays once the process is completed.

12 Log into the system as `root`.

13 At the prompt, enter `init 4` to start the Navis™ Optical NMS application.

Result:

The application is started.

14 Optional: Enter `top` to display the status of the start process. Press the **Ctrl** and **c** keys to exit the display.

END OF STEPS

□

Section II: Perform Recoveries

Overview

Purpose This section describes how to perform various types of recoveries.

Contents

Recovering Hot or Cold Backups

Introduction

Two types of recovery are available:

- Recovering a hot backup
- Recovering a cold backup

Recovering a Hot Backup

Hot backups are recovered using the hot_recover script. The Navis™ Optical NMS application must be shut down to perform this procedure.

Recovering a Cold Backup

Cold backups are recovered using the cold_recover script. The Navis™ Optical NMS application must be shut down to perform this procedure.

Recovering the database to a different server

The database can be recovered onto a different server after a hot backup is completed.

Assumptions

- Both systems have network connectivity to all workstations, external servers, and network elements. This connectivity establishes a disaster recovery site.
- The systems have been installed with an identical release of the Navis™ Optical NMS application, including identical environment variable settings.
- The systems have both been licensed for identical features and network elements.
- The system administrators at both sites are synchronizing the following files:
  - **/etc/passwd**
  - **/etc/hosts**
  - **/usr/dacscan/oam/config_data/cm/ccpm/ccpconfig** (all references to hostnames except those that contain the local hostname)
  - users accounts (use the HP-UX system administration tool, SAM).

□

Perform a Hot Backup Recovery

Purpose Use this procedure to perform a hot backup recovery.

Before You Begin Be sure that you have the hot backup tape containing the:

- current date
- host server name

Task Complete these steps to perform a hot backup recovery.

1 Using the system console, log into the system as `root`.

2 At the prompt, type `init 3` to stop the Navis™ Optical NMS application.

Reference:

For instructions, see the section "Stop the Navis™ Optical NMS Application on a Specific Server using SAM" (3-28), in Chapter 3, "System Administration".

3 Insert the hot backup tape into the tape drive.

4 Wait until the lights on the tape drive stop flashing.

5 At the prompt, enter `su - dacscan`.

6 At the prompt, enter `/bin/ksh /usr/dacscan/bin/hot_recover`.

Result:

The hot backup recovery begins, which takes approximately 90 minutes. The # prompt is issued to the system console once the hot backup recovery is completed.

7 Remove the tape.

8 Label the tape with the current date, and store the tape in a safe place.

Result:

The hot backup recovery is complete.

9 At the prompt, enter `init 4` to start the Navis™ Optical NMS application.

Result:

The application is started.

END OF STEPS

□

Perform a Cold Backup Recovery

Purpose Use this procedure to perform a cold backup recovery.

Before You Begin Be sure that you have the cold backup tape containing the:

- current date
- host server name

Task Complete these steps to perform cold backup recovery.

1 Using the system console, log into the system as `root`.

2 At the prompt, type `init 3` to stop the Navis™ Optical NMS application.

Reference:

For instructions, see the section "Stop the Navis™ Optical NMS Application on a Specific Server using SAM" (3-28), in Chapter 3, "System Administration".

3 Insert a tape with a valid cold backup into the tape drive.

4 Wait until the lights on the tape drive stop flashing.

5 At the prompt, enter `su - dacscan`.

6 Enter `/bin/ksh /usr/dacscan/bin/cold_recover`.

Result:

A prompt appears and asks for the date of the backup tape.

7 Enter `YYYYMMDD` (or `YYMMDD` for older tapes).

Important! The date entered must match the date on the backup tape.

Result:

The cold backup recovery begins, which takes approximately 90 minutes. The # prompt is issued to the system console once the backup is completed.

8 Remove the tape.

9 Label the tape with the current date, and store the tape in a safe place.

Result:

The cold backup recovery is complete.

10 At the prompt, enter `init 4` to start the Navis™ Optical NMS application.

Result:

The application is started.

END OF STEPS

□

Recover the Database to a Different Server

Purpose This procedure is used to recover the database to a different server. This task can be used for system upgrades, or when it is necessary to analyze data when trouble clearing.

Before You Begin This task can only be performed after a hot backup has been completed. In addition:

- Create a hot backup tape at the site which has the source database, using the "Perform a Hot Backup" (8-5) task.
- Ensure that the destination system is at run level 3. Refer to "init Command for Changing Run Levels" (C-2).
- Recover the hot backup tape at the destination site, using the "Perform a Hot Backup Recovery" (8-10) task.
- On each workstation ensure that:
  - the hostnames/IP addresses for both Navis™ Optical NMS systems (source and destination) are in `/etc/hosts`
  - the hostnames for both Navis™ Optical NMS systems (source and destination) are present in `/.rhosts`
  - the hostnames for both Navis™ Optical NMS systems (source and destination) are present in `/home/dacscan/.rhosts`

Task Complete these steps to recover the database to a different server:

1 Using the system console, log in as `dacscan` on the Navis™ Optical NMS server.

2 Enter `ksh /usr/dacscan/bin/local.sh`.

Result:

This script resets the "active controller" field in the database with the name of the new hostname.

3 Refer to ITM-SC or Navis™ Optical EMS documentation for procedures to enable the EMS to accept connection requests from the new Navis™ Optical NMS host.

4 For any network elements that require knowledge of the connecting manager, refer to the appropriate documentation for procedures to enable connections.

5 For each user on each workstation, reset the name of the Navis™ Optical NMS to which the user should connect.

6 Enter the command `init 4` to bring the system to run level 4.

Result:

The Navis™ Optical NMS application is started.

END OF STEPS

□

Section III: Delete History

Overview

Purpose This section describes the delete history tool.

Contents

About this Tool

Background

Whenever a circuit is rearranged, the data from the previous circuit is retained in the Navis™ Optical NMS database. A circuit that has been rearranged several times accumulates a large amount of history information. The Delete History script retains only the necessary historical data associated with each circuit, and deletes all unnecessary historical data from the database.

The Delete History script consists of two parts:

- A script that automatically runs once, when upgrading the database to a new version. If you need to refer to any circuits listed in the history that are not the most recent non-RS (restoration), non-RI (reinstatement) circuits, you should print out these circuits before upgrading the database. The Delete History script will delete these circuits from the history during the upgrade.
- A daily script execution that runs immediately following each successful daily backup.

□

Section IV: Redundancy

Overview

Purpose

This section describes the redundancy configurations available to support Navis™ Optical NMS and Element Management System (EMS) failures, which include local redundancy and simplified and full geographic redundancy.

Geographic redundancy configurations

Geographic redundancy configurations provide site protection by maintaining a primary and a standby server in separate locations and ensuring that the two servers are far enough apart so that natural disasters or adverse weather conditions cannot affect the servers at the same time.

There are two types of geographic redundancy: ***simplified*** and ***full***. Both consist of a primary Navis™ Optical NMS server connected to a standby Navis™ Optical NMS server.

Simplified and full geographic redundancy configurations

Simplified and full geographic redundancy configurations differ in the frequency in which updates occur to the standby server's database. For example, for simplified geographic redundancy, data is transmitted from the primary server to the standby server during the hot backup process. Full geographic redundancy updates the standby server's database every 30 minutes through Navis™ Optical NMS's geographic redundancy software which manipulates Oracle files to perform the regular updates. If there is a failure, no more than 30 minutes of operations should be lost.

Note that there may be user activity on the standby server in the simplified geographic redundancy configuration however no user activity is permitted on this server in the full redundancy configuration.

Full geographic redundancy switchovers

When a failure occurs to Navis™ Optical NMS servers, the full geographic redundancy process protects availability through its switchover process. Similarly, EMS geographic redundancy switchovers protect the availability of EMS servers. For both scenarios, procedures are available to address how to maintain Navis™ Optical NMS-EMS connectivity.

Navis™ Optical NMS geographic redundancy commands

Several Navis™ Optical NMS geographic redundancy commands are used to either set up the standby database, or reinitialize the primary database. These commands are:

- **InitializeStandby.sh** creates a standby database on a standby machine and completes a Full Geographic Redundancy environment between the primary and standby machines.
- **GR_Oracle.sh** performs common functions related to the Oracle database, which includes how to retrieve system date, how to revoke or grant privileges, and how to retrieve information of Oracle files or archive logs.
- **OnlineStandby.sh** runs on the standby database only in the event of a disaster, at which time it activates the standby database.
- **SwitchOver.sh** performs switchover or switchback between primary and standby databases.
- **AlterStandby.sh** synchronizes primary and standby databases or takes a data file off-line on a standby database after physical structure of primary database was altered.
- **CleanGRARCH.sh** cleans the geographic redundancy archive file system.

Navis™ Optical NMS local redundancy switchover

The standby server has a pulse process that monitors the heartbeat of the primary server. These processes can be started and stopped manually. The pulse process resides on the standby server. This process is used to determine whether the primary server is alive. The heartbeat process resides on the primary server. This process is used as a detection mechanism to initiate automatic switchover for Navis™ Optical NMS local redundancy configurations.

Local redundancy configuration switches to the standby server

The local redundancy configuration is supported by HP's MC/ServiceGuard paradigm in which the primary and standby servers are connected to the same database. In this paradigm, the ***primary*** and the ***standby*** systems are treated as a ***cluster***, and applications are bundled into ***packages***, which can be launched on either machine in the cluster. When one machine in a cluster detects the loss of heartbeat from the other machine, the cluster is reformed without the failed machine. Any packages run on the failed machine are migrated to, and restarted on, the remaining machine. For applications that can take advantage of distributed computing, this solution allows the full resources of both machines to be utilized.

The incorporation of MC/ServiceGuard results in a local redundancy configuration with distinct Switchover/UX-like characteristics, namely a ***primary*** and a ***standby*** system. The entire application—with all its assets, is bundled as a single package and configured to run in a single instance. The MC/ServiceGuard configuration offers some failover performance over the Switchover/UX configuration, because a reboot is no longer required as part of the switchover.

Automatic and manual switchovers

Automatic switchovers occur when there is a link loss or when there is a failure of an association between a primary server and a network element. Manual switchovers occur when a user manually initializes a switchover to a standby server. Navis™ Optical NMS geographic redundancy configurations require manual switchover processing, while its local redundancy configurations feature automatic switchover.

Navis™ Optical NMS supports manual switchovers for the ITM-SC EMS and manual and automatic switchovers in Navis™ Optical EMS. (See "EMS Switchovers" (8-22) for details). The support is designed to assure maximum availability of Navis™ Optical NMS while minimizing the downtime of the subtending EMS population, where several switchovers can be expected. While local redundancy switchovers are always automatic, the EMS geographic redundancy switchover process occurs manually only in the earlier releases of Navis™ Optical EMS (for example, R5.0) while Navis™ Optical EMS R5.1 supports both manual and automatic switchovers.

For example, in Navis™ Optical EMS releases earlier than R5.1, a command is entered to initiate switchover. Newer releases of Navis™ Optical EMS (Release 5.1 and beyond), manual switchovers are handled through a Cluster Administrator GUI, which may be set up to support manual or automatic switchovers.

Navis™ Optical EMS Cluster Administration GUI

The Navis™ Optical EMS Cluster Administration GUI contains two icons to support local and remote servers. When a failure occurs, an 'X' displays on the failed server's icon, which is displayed in Navis™ Optical EMS. The 'X' clears once communication is re-established to the server.

In order to provide an instant status to Navis™ Optical NMS personnel, it is recommended that the GUI is placed on a convenient workstation at the Navis™ Optical NMS work center.

Supporting EMS/Navis™ Optical NMS server failures

When failures occur to the Navis™ Optical EMS and ITM-SC EMS servers, they are ***automatically*** resolved through redundancy software intervention methods in place or they must be resolved ***manually*** through EMS system administrator intervention.

Manual intervention varies by EMS server type, release number, and redundancy type. It also differs depending upon whether the failure occurs on the EMS side or the Navis™ Optical NMS side.

The following tasks define the steps that need to be performed by Navis™ Optical NMS system administrators after any switchover occurs to an EMS server.

Contents

EMS Switchovers

Navis™ Optical EMS switchover behavior (for geographic redundancy configurations)

During the initial installation of the complex containing Navis™ Optical EMS servers in a geographic redundancy configuration, the `add.controller` command is entered ***twice*** in Navis™ Optical NMS. More specifically, the command is entered one time per Navis™ Optical EMS server.

Before a switchover occurs, the Navis™ Optical EMS primary and standby servers in a geographic redundancy configuration display on the Navis™ Optical NMS Network Controller Map as two green icons.

The two servers are distinguished by their adjacent ″Controller Name” labels.

Assuming that Server A in this configuration is `Active` and Server B is in `Standby` mode, when Navis™ Optical EMS Server A fails, its icon turns to magenta while Server B’s icon remains green. Once the Navis™ Optical EMS switchover occurs, about 7 minutes elapse between Server A’s failure and Server B’s new status. When Server A is repaired by the Navis™ Optical EMS staff, Server A’s icon becomes green again, and two green icons display on the Navis™ Optical NMS Network Controller Map.

At this point, there is no Navis™ Optical NMS manual re-synchronization action required. Note that when the switchover occurred, Navis™ Optical NMS had interrupted communications to Navis™ Optical EMS Server A, however it held the orders during the 7 minute time frame and then resumed communication with Navis™ Optical EMS Server B.

Navis™ Optical EMS switchover behavior (for local redundancy configurations)

In Navis™ Optical EMS local redundancy configurations, the Navis™ Optical EMS MC/ServiceGuard cluster is assigned an arbitrary designation name, such as `<C_arbitrary_designation_name>` which serves as a Package IP address.

During the initial installation of Navis™ Optical EMS servers in a local redundancy configuration, the `add.controller` command must be used to uniquely support the Package IP address representing the cluster.

The actual Navis™ Optical EMS primary and standby servers within the cluster (for example, Server A and Server B) are designated in the

`/etc/hosts` file of the Navis™ Optical NMS server with their fully-qualified name, such as `<servername>.<full_name>.com`.

Before a switchover occurs, the Navis™ Optical EMS cluster in a local redundancy configuration displays on the Navis™ Optical NMS Network Controller Map as one green icon.

Assuming that Server A in this configuration is `Active` and Server B is in `Standby` mode, when Navis™ Optical EMS Server A fails, the icon turns to magenta for 3 to 5 minutes, after which the Navis™ Optical EMS local redundancy switchover occurs. Once switchover is complete, the icon turns back to green and Navis™ Optical NMS operation continues as usual with Navis™ Optical EMS Server B as `Active`.

At this point, there is no Navis™ Optical NMS manual re-synchronization action required. Note that when the switchover occurred, Navis™ Optical NMS had interrupted communications to Navis™ Optical EMS Server A, however it held the orders during the 3-5 minute time frame and then resumed communication with Navis™ Optical EMS Server B.

ITM-SC switchover behavior

When ITM-SC servers experience a failure, the icons (in the geographic redundancy configuration) representing the failed machine changes its color.

On the Network Controller Map, the failed server's icon changes from ***green*** to ***magenta***. This indicates that Navis™ Optical NMS has lost communications with the failed machine. Navis™ Optical NMS attempts to regain communication with the failed machine.

When the failed ITM-SC machine does not recover, switchover processing occurs in the background on the ITM-SC side to change the standby machine to the primary machine. The switchover occurs either automatically (through software intervention) or manually by the ITM-SC network operator. Once switchover is complete, the icon turns back to green and Navis™ Optical NMS operation continues as usual with the alternate ITM-SC server in `Active` state.

Detecting EMS switchovers

While the icon(s) changes colors on the Network Controller Map when EMS switchovers occur, it may not be clear as to exactly when the EMS switchovers occur. The restoration is automatic, yet there may be critical provisioning that must be re-sent because orders were placed in pending state during the switchover. A notification process is in place for newer releases of Navis™ Optical EMS through the Cluster Administration GUI. This process notifies Navis™ Optical NMS administrators (by a call, page, or email message), that a switchover has occurred.

Since the notification process is not in effect for ITM-SC switchovers or in prior releases of Navis™ Optical EMS, it is important to contact the network operator(s) responsible for the EMS in question if it is unclear as to which server is primary.

□

Restart Navis™ Optical NMS Communication with EMS Servers

Restart Navis™ Optical NMS communication with EMS servers

When icons representing EMS servers appear magenta for an extended period of time, use one of the following tasks to initiate communication to the EMS servers.

- To restart communication to Navis™ Optical EMS servers in a local redundancy configuration, see "Restart Navis™ Optical NMS Communication with Navis™ Optical EMS Local Redundancy Servers" (8-26).
- To restart communication to Navis™ Optical EMS servers in a geographic redundancy configuration, see "Restart Navis™ Optical NMS's Communication with Navis™ Optical EMS Geographic Redundancy Servers" (8-27).
- To restart communication to ITM-SC servers, see "Restart Navis™ Optical NMS's Communication with ITM-SC servers" (8-28).

For additional information, see the ***Database Maintenance*** chapter in the ***Navis™ Optical EMS Administration Guide*** or the ***Geographic Redundancy*** chapter of the ***ITM-SC Release 7.0 Administration Guide***.

□

Restart Navis™ Optical NMS Communication with Navis™ Optical EMS Local Redundancy Servers

Purpose This procedure is used to restart Navis™ Optical NMS communication with Navis™ Optical EMS servers residing in a local redundancy configuration. This task would be performed if the color of the icon representing the Navis™ Optical EMS cluster does not change from magenta to green after 5 minutes.

Task Use the following steps to restart communication to Navis™ Optical EMS local redundancy servers.

1 On the Network Map, select **File > Open Network Controller Map**.

Result:

The Network Controller Map displays.

2 Select the icon representing the Navis™ Optical EMS cluster configuration, click the left mouse button, and select **Session > Start Communication**.

Result:

A dialog box containing the following text displays: `START SESSION COMMAND SENT FOR FRAME:<ems_ name>`.

3 On the dialog box, click **OK**.

Result:

Communication should start.

4 If communication does not start, contact the network operator(s) responsible for the Navis™ Optical EMS local redundancy servers.

END OF STEPS

□

Restart Navis™ Optical NMS's Communication with Navis™ Optical EMS Geographic Redundancy Servers

Purpose This procedure is used to restart Navis™ Optical NMS's ability to communicate with Navis™ Optical EMS servers residing in a geographic redundancy configuration. This task would be performed if the color of the icon representing a Navis™ Optical EMS server does not change from magenta to green after 7 to 15 minutes.

Task Use the following steps to restart Navis™ Optical NMS's ability to communicate with Navis™ Optical EMS geographic redundancy servers.

1 On the Network Map, select **File > Open Network Controller Map**.

Result:

The Network Controller Map displays.

2 Select the icon representing the Navis™ Optical EMS geographic redundancy configuration, click the left mouse button, and select **Session > Start Communication**.

Result:

A dialog box containing the following text displays: `START SESSION COMMAND SENT FOR FRAME:<ems_ name>`

3 On the dialog box, click **OK**.

Result:

Communication should restart.

4 If communication does not restart, contact the network operator(s) responsible for the Navis™ Optical EMS geographic redundancy servers.

END OF STEPS

□

Restart Navis™ Optical NMS's Communication with ITM-SC servers

Purpose This procedure is used to restart Navis™ Optical NMS's ability to communicate with ITM-SC servers residing in a geographic redundancy configuration. This task would be performed if the color of the icon representing the ITM-SC server does not change from magenta to green after several minutes.

Task Use the following steps to restart Navis™ Optical NMS's ability to communicate with ITM-SC servers.

1 On the Network Map, select **File > Open Network Controller Map**.

Result:

The icons representing the ITM-SC servers should display.

2 Select the icon representing the ITM-SC server, click the left mouse button, and select **Session > Start Communication**.

Result:

A dialog box containing the following text displays: `START SESSION COMMAND SENT FOR FRAME:<ems_ name>`

3 On the dialog box, click **OK**.

Result:

Communication should restart.

4 If communication does not restart, contact the network operator(s) responsible for the ITM-SC servers.

END OF STEPS

□

Switch the Roles of the Servers (Simplified or Full Geographic Redundancy Configuration)

Purpose This procedure is used to switch the roles of the HP servers (primary becomes standby and standby becomes primary) when using the simplified or full geographic redundancy configuration. This task is performed, for example, when service is required to the primary server.

Task Perform the step below to switch the roles of the servers.

1 Log into the standby server as **dacscan**.

2 Enter /usr/dacscan/bin/Switchover.sh.

Result:

The roles of the servers are switched. (Primary becomes standby and standby becomes primary.)

END OF STEPS

□

Section V: Geographic Redundancy Configuration

Overview

Purpose

This section describes how to perform a task to support servers residing in a geographic redundancy configuration.

Contents

View Which Server is Running the Navis™ Optical NMS Application

Purpose This procedure is used to view which server is running the Navis™ Optical NMS application on an HP server configured for geographic redundancy.

Task Complete these steps to view which server is running the application:

1 Do one of the following:

- Enter `cat /install/GR.role`
- On the Network Controller Map, locate the labeled Navis™ Optical NMS icon.

END OF STEPS

□

Section VI: Routine Maintenance

Overview

Purpose

This section describes how to perform a routine maintenance task to support single servers.

Contents

Clear Single Server Buffers

Purpose This task is used periodically to clear the buffers on single servers only.

Task Complete these steps to clear single server buffers.

1 Log into the single server as `root`.

2 At the prompt, enter `init 3`.

Result:

Navis™ Optical NMS application is stopped.

3 At the prompt, enter `who -r`.

Result:

A message displays indicating the current run level and when the machine was last rebooted, such as

```
run-level 3 Dec 30 11:26 3 0 S.
```

END OF STEPS

□

9 Off-Line Tools

Overview

Purpose

This chapter describes off-line script tools provided with Navis™ Optical NMS. It also contains tasks associated with off-line tools.

Contents

Section I: Auto-Discovery Tool

Overview

Purpose

The Auto-Discovery Tool is a UNIX script that is used off-line from Navis™ Optical NMS in two instances:

- When new customers with an existing live network (not yet or already managed by an element management system), wish to migrate their network management to Navis™ Optical NMS.
- When existing Navis™ Optical NMS customers who already have part of their network managed by Navis™ Optical NMS, wish to move another part of their network under Navis™ Optical NMS management.

The Auto-Discovery tool performs two different tasks, which users can combine or run singly:

- Discover the network's connection layout based on input files. The Auto-Discovery tool uses input files provided by the EMS to locate (discover) the connection's layout and will only discover connections defined by the data provided by the EMS. If the file defines only one part of a connection, a manual merging may be later needed to connect the connection's different sections.
  The Auto-Discovery tool performs connection discovery in two phases. In the first phase, it discovers VC-4 layer connections; in the second phase, it discovers low-order connections. The tool can discover VC4-4c and AU3 connections during the first or second phases.
- Provision the discovered connections into Navis™ Optical NMS. For each discovered assignable path, the tool can automatically provision a circuit to ride exactly on the path.

Initially, the Auto-Discovery tool is run to discover and provision paths. It is then run to provision the circuits riding on top of the discovered paths. The tool discovers the VC-4 and structured connections in the same run. When the combo option is set, the tool achieves discovery of the lower order connections and their circuits in the same run.

This tool is used for a large number of circuits. If there are only a few circuits to be discovered, the In-effect order may be used.

Prerequisites

Before using this tool:

1. All digital links belonging to the ***migrated*** or ***discovered*** network must first be (manually) provisioned in the Navis™ Optical NMS before the Auto-Discovery tool can be run.
2. Two input files, a port file and a cross connect file must be ***extracted*** from each EMS. These extractions are provided by running a script file in the EMS. See "Data import interface" (9-7) for details.

Using the tool

The tasks that use this tool are provided after this description.

Restrictions

The following restrictions apply to the Auto-Discovery tool:

- Users must run the tool while the Navis™ Optical NMS host is running.
- While the tool is running, do not continue operational and provisioning procedures through Navis™ Optical NMS as it will slow down the tool's performance. Auto-Discovery tool could fail if the user tries to access the same resources as the tool.
- Commands are not sent to the network element level.
- Several instances of the tool cannot run simultaneously.
- It is possible to run the tool to discover several levels of connections. It is not, however, possible to discover high-order (VC-4) and low-order connections within the same run.
- The connections discovered by the tool may already have some alarms raised or may be affected by a server failure.
- Input files describe the subnetwork involved in the auto-discovery. The tool supports filtering of these input files.
- Users attempting to merge connections after path discovery may have to first delete the circuit before being able to merge the path.

Supported network elements and connection types

For a complete list of supported network elements and connection types (circuits, combos, and paths), see the ***Navis™ Optical NMS Provisioning Guide*** for details.

Unsupported connection types

The following connections are ***not*** supported by the Auto-Discovery tool:

- loopback on Navis™ Optical NMS DACS
- one-way or broadcast connections
- single-node connection—that is, a connection where A_NE=Z_NE
- the discovery of connections running through or ending on a black box

Parameters

The Auto-Discovery tool supports command line parameters and prompt options. If a user specifies a command line parameter, the tool prompts the user to confirm the parameters. If the user does not specify any parameter, the auto discovery tool prompts the user to confirm each of the following parameters:

- ***Input file names*** (default or new).
- ***WAIT_TIME*** (default or new) is the waiting period (in seconds) between two connection provisioning commands sent to Navis™ Optical NMS from the Auto-Discovery tool. It prevents Navis™ Optical NMS from being congested by a burst of provisioning commands. The default is 20 seconds.
- ***Network element models*** (when a model file is used). The user input file specifying models is located at **/tmp/modelslist**.
- ***Network elements file*** (if a network element file is used). By default, the user input file specifying the list of network elements is located at **/tmp/nes_list**. Note: ITM-SC does not support the ***Network elements file*** option.
- ***Element management system files*** (if used). The default location for the EMS files used by the tool are located at **/tmp/ems.port** (for the port file) and **/tmp/ems.xc** (for the cross-connect file).

Log files

The Auto-Discovery tool generates three log files to track discovered and provisioned connections. The three log files are:

- **/tmp/auto_disc/auto_disc.log**
- **/tmp/auto_disc/end2end.log**
- **/tmp/auto_disc/send_g2.log**

Discovered connections logs

When the Auto-Discovery tool discovers a connection, it is logged to **/tmp/auto_disc/newckts**. Each record consists of one line, and each line consists of `A_NE:Z_NE:type:id:ckt_id`. Paths and combos are written to a flat file located at **/tmp/auto_disc/path_G2.line** and circuits are written to **/tmp/auto_disc/ckt_G2.line**.

The creation of a log file does not indicate that a connection has been successfully provisioned. The connection may be left in a pending state in Navis™ Optical NMSNavis™ Optical NMS if an error occurred during provisioning. It is possible to reapply the pending connections through Navis™ Optical NMS.

Provisioned connections logs

When a discovered connection is provisioned in Navis™ Optical NMS, it is logged to the file **/tmp/auto_disc/provckts**. Each record consists of one line. Each line consists of `A_NE:Z_NE:type:id:ckt_id`.

When a discovered connection is provision in Navis™ Optical NMS, it is also logged in a specific format to be used as an input for the connection renaming tool. Only one port is logged for each provisioned connection. The file is located at **/tmp/auto_disc/renameckts**.

Error Log Files

The Auto Discovery tool stores any errors in a log file located at **/tmp/auto_disc/circuit.err**. In addition to data validation errors, the tool also logs any layout inconsistencies and unsupported connection configurations.

Tool files

The following files affect the use of the auto-discovery and connection renaming tool:

- Network element model file
- Network element file
- Rate file

The Network element model file

The model file restricts the domain of the Auto-Discovery tool. The Auto-Discovery tool only discovers the connections that run through network elements whose models are specified within this file.

For a complete list of models, see the ***Navis™ Optical NMS Provisioning Guide*** for details.

The Network Element file

The network element file restricts the domain of Auto-Discovery tool. The Auto-Discovery tool will only discover the connections that run through the network elements specified by this file. Please refer to the ***Navis™ Optical NMS Provisioning Guide*** for details.

The Rate file

The rate file restricts the connection types discoverable by the Auto-Discovery tool. The following rates are allowed in the file:

- VC4-64c
- VC-16c
- VC4-4c
- VC4
- AU3
- VC3
- VC2
- VC12

Data import interface

The Auto Discovery tool's data import interface allows for the importation of data from an element management system to a network management system.

The data import interface consists of two files: a cross-connect file and a port file. The EMS extraction tool extracts from the EMS database all the ports and cross-connects supported by the Auto-Discovery tool and save them into these two files.

For each EMS, the interface is applicable to any network element type that supports at least one signal rate supported by the Auto-Discovery tool. For a complete list of ITM-SC and Navis™ Optical EMS network elements, see the ***Navis™ Optical NMS Provisioning Guide*** for details.

The Cross-Connect file

The cross-connect file contains the supported rates for the cross-connects. The file is applicable to the following rates:

- VC4-64c
- VC4-16c
- VC4-4c
- VC4

- AU3 (high-order VC-3)
- VC3 (low-order VC-3)
- VC-2
- VC-12

Depending on the network elements, the fixed cross-connect may or may not be part of the interface. For the WaveStar® ADM 4/1 STM-4, the fixed line to line AU4 cross-connects are part of the interface. For the WaveStar® ADM 16/1 and Phase ADMs and TMs, the fixed low-order cross-connect is not part of the interface when a VC-4 trail terminates on a tributary card. VC-3/VC-12 fixed cross-connects in the VC-4 are not returned.

For a protected cross-connect (SNCP), the protected port is mapped in the ***toport*** parameter and the protecting port is mapped into the ***newto*** port.

Table 9-1 Cross-Connect File Field Descriptions

Field	Description
Field 1	EMS ID
Field 2	network element ID
Field 3	fromport address
Field 4	fromport physical type, for example, S16, S4, S1, S0, C1, C3, DS3, DS1
Field 5	toport address
Field 6	toport physical type
Field 7	newto address
Field 8	newto physical type
Field 9	cross-connect type (P for Protected, T for Unprotected)
Field 10	rate (VC-12/VC-2/VC-3/AU3/VC-4/VC4-4c/ VC4-16c/VC4-64c)

The Port file

The port file contains the rates supported by the interface for ports. The interface is applicable to the following rates:

- V4 (155 Mb/s or 140 Mb/s)
- VC-4 (140 Mb or VC-4 substructured)
- C3 (34 Mb)
- DS3 (45 Mb)
- C1 (2 Mb)
- DS1 (1.5 Mb)
- OC192/48/12/3 and EC1

For the low-order rates (all rates except VC-4), each port record corresponds to a SDH TTP port on a PDH interface card. The port information also includes information about the related PDH CTP port, when applicable.

Note: The OC192/48/12/3 is for LambdaUnite™ MSS; EC1 is used for WaveStar® BandWidth Manager only.

Table 9-2 Port File Field Descriptions

Field	Description
Field 1	Network element identifier (TID) of EMS
Field 2	TID of network element
Field 3	Port address
Field 4	Physical Type
Field 5	param1
Field 6	param2
Field 7	pti_t
Field 8	pti_e
Field 9	pti_mode
Field 10	rate (C1, C3, DS3, DS1, VC4)

Add or Migrate Networks to Navis™ Optical NMS Management using the Auto-Discovery Tool

Purpose

Use this task to add or migrate networks to Navis™ Optical NMS management.

The auto-discovery tool is an off-line UNIX script that is used in two instances:

- When new customers who already have an existing live network (not yet or already EMS managed) wish to migrate their network management to Navis™ Optical NMS.
- When existing Navis™ Optical NMS customers, who already have a part of their network managed by Navis™ Optical NMS, wish to include another part of a live network under Navis™ Optical NMS management.

Before you begin

Before using the auto-discovery tool, note the following items:

- One or more element managed systems already manage the network elements the auto-discovery tool will discover.
- At anytime, use [`-h`] to access screen help.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task

Use the following procedure to either migrate an existing live network to Navis™ Optical NMS management or to add another part of a live network already under Navis™ Optical NMS management to a Navis™ Optical NMS-managed network.

1 Run the EMS extraction tool, to extract the VC-4 data from each of the EMS databases, and export the data to the EMS disk. Refer to the ITM-SC documentation for instructions on this step.

2 Copy the EMS files onto the Navis™ Optical NMS disk.

3 Merge the EMS files into two files (the port and cross-connect files).

4 Log in as `dacscan`.

5 Enter /usr/dacscan/toolbin/auto_disc to discover the VC-4 connections and provision them into the NMS database using the EMS data.

Result:

The system sends IE commands to the element management system to verify the cross-connect and end ports used by the discovered connections.

6 Specify the tool parameters, the WAIT_TIME variable and filenames. See "Specify Auto-Discovery Tool Parameters" (9-12) for details.

7 Run the EMS extraction tool to extract the low-order data from the EMS database and export it to the EMS disk.

8 Copy the EMS files on to the Navis™ Optical NMS disk.

9 Enter /usr/dacscan/toolbin/auto_disc to discover the low-order connections and provision them in the NMS database using the EMS data.

Important! When the combo option is installed, this can be achieved in one run of the tool. When the combo option is not set, this has to be achieved in at least two steps. The tool is first run to discover and provision the paths. The tool is then run to provision the circuits riding on top of the discovered paths.

Result:

IE commands are sent to the EMS to verify the cross-connect and endports used by the discovered connections. The network is then added or migrated to Navis™ Optical NMS management.

END OF STEPS

□

Specify Auto-Discovery Tool Parameters

Purpose Use this task to specify auto-discovery tool parameters.

The auto-discovery tool uses user-provided input files to discover a connection's layout. The tool will only discover connections defined by the data provided by the element management system. If the file only defines one part of a connection, a manual merging may be necessary to connect the connection's different sections.

Task Use the following procedure to specify and confirm the parameters used by the auto-discovery tool during operation.

1 Log in as `dacscan`.

2 Enter `/usr/dacscan/toolbin/auto_disc`. The auto-discovery tool then prompts you to confirm the following parameters:

- If ***Function [-f y/d/p]*** is set to ***y*** (Navis™ Optical NMS), the tool discovers connections and provisions them in the Navis™ Optical NMS.
  If it is set to ***d***, the tool discovers connections, but does not provision them.
  If it is set to ***p***, the tool provisions the already discovered connections.
- ***Trail Type [-t path/ckt]*** specifies the connection type to discover. It must be set to path (default) if combo was set as an installation.
- If ***Send EMS [-s y/n]*** is set to ***y*** (default), it checks provisioned connections against the element management system databases. If it is set to ***n***, the connections are not checked.
- ***Rate [-r VC-2/VC-3/VC-12/VC-4/VC4-4c/VC4-16c/VC4-64c]*** causes the tool to only discover and provision the connections for the list of rates given in the parameter. VC-4 ***cannot*** be selected if a low-order rate (C3, C1, DS1, DS3) is selected. The default is VC-12.

- ***Domain [-m no/model/nes]*** restricts the domain of the connection discovery process by filtering the EMS data with a list of network element types (model) or a list of network elements (nes). If set to ***no*** (default), the tool discovers all connections described in the input files without restriction, ignoring the existing model and network element files.
- ***Rate [-r VC-2/VC-3/VC-12/VC-4/VC4-4c/VC4-16c/VC4-64c] Help [-h]*** displays user help information.

3 Confirm the ***WAIT_TIME*** variable.

Result:

The complete command line will discover the VC-4 connections and provision them into the Navis™ Optical NMS database using the element management system data.

END OF STEPS

□

Section II: Change Network Element ID Tool

Overview

Purpose

When a name change occurs to an existing network element ID, the change must be reflected in each application through which it is managed.

This section describes how to change the identification of an existing network element using the Change Network Element ID tool.

Change Network Element ID script

Network Element IDs are changed in applications as a result of running a change network element ID script. This script is first run at the EMS-level to support name changes to ITM-SC or the Navis™ Optical EMS controlled network elements. After the script completes, a change script is run at the Navis™ Optical NMS-level to support network element name changes in the Navis™ Optical NMS application. The final step is to run the script at the Navis™ PM - MRP level.

Different change network element ID scripts are used in the ITM-SC, the Navis™ Optical EMS, the Navis™ Optical NMS, and the Navis™ PM - MRP applications. The tasks included in this section capture how each script is run.

Impact to other applications

When Navis™ Optical NMS network elements are managed by the Navis™ PM - MRP, the final step is to run the tool in the Navis™ PM - MRP application.

Source File

The first step of this process is to create a source file containing the requested changes. This source file can be used by each script to change ITM-SC or the Navis™ Optical EMS controlled network element names.

Limitations

Users should keep in mind the following limitations when renaming an existing network element:

- The system does not perform any alphabetic ordering after the network element name change.
- Subnet ID, Aggregate ID, and Controller Name changes are not supported.

- The system does not update any Kanji-related tables. This limitation is only relevant for Japanese customers.
- For the changed name to be displayed, the user must restart the user interface.
- If a network element is deleted, has its name changed, or its Office identification does not have an associated TID name, it remains on the Location Reference Table.
- The performance monitoring start time is lost after a Management Information Base (MIB) download. Thus, any required information from a network element's performance monitoring report must be obtained before its name is changed.

Contents

Change a TID using the CIT

Purpose This task describes how to change an network element target identifier (TID) on a craft interface terminal (CIT).

Important! This must be done before the scripts are run.

Before you begin Consider the following:

- The user must ensure the uniqueness of the new network element name.
- Changing a network element's name should first be done in the EMS that controls the network element. It is recommended that users perform an EMS on-line archive before changing the network element's name.
- When renaming a network element, users must abide by a strict naming convention. The new network element name should not include a backslash character because it may not be supported.

Task Perform the following steps to change the target identifier of an existing network element on the CIT:

1 Log into the CIT of the network element.

2 Right click on **NE > Graphical (OSI) > <network element name>** and **OK**.

Result:

The System Type Selection dialog box is displayed.

3 Select a network element from the list.

Result:

The NE Login Dialog box is displayed.

4 Enter the login and password, and click **OK**.

Result:

A process dialog box is displayed, followed by a legal notice.

5 Click **OK**.

Result:

A form is displayed.

6 Select **Administration > Set TID** and click **OK**.

Result:

A form is displayed.

7 Select **Fault > Enter/Exit Maintenance Condition > Enter Maintenance Condition** and click **Yes**.

Result:

A red, maintenance box is displayed at the lower right of the form.

8 Select **Administration > Set TID** and click **OK** and change the TID.

Important! The new network element name should not include a backslash character because it may not be supported.

Result:

A form is displayed.

9 Select **Fault > Enter/Exit Maintenance Condition > Exit Maintenance Condition** and click **Exit**.

Result:

The WaveStar® CIT Confirmation dialog box is displayed.

10 Click **Yes**.

Result:

The TID name change process is initiated. It is important to wait for the change to be processed, which takes about 25 minutes, before proceeding to the next step.

11 To verify the change, log into the CIT of the network element, enter the password, and click **OK**. Refer to steps 1 through 4 for details.

12 In the toolbar, select **Update**.

Result:

The new TID is displayed.

END OF STEPS

□

Change Network Element Names in the Navis™ Optical EMS and in the Navis™ Optical NMS

Purpose

This task describes how to change existing network element identifiers on the Navis™ Optical EMS using the change network element identifier tool.

Processing Order

After an existing network element TID is changed, this tool's change script is first run on an Navis™ Optical EMS server and then a script is run on theNavis™ Optical NMS host server. This task contains the commands to run the script on both servers.

If the Navis™ Optical NMS is being managed by a northbound interface, such as Navis™ Optical PM - MRP, then the final step is to run the tool in that application.

Before you begin

Before changing the name of an existing network element, consider the following items:

- Be sure that the name change has been made. See "Change a TID using the CIT" (9-16) for details.
- Shut down the Navis™ Optical EMS before running the off-line script. The user will not be able to communicate with the Navis™ Optical EMS at this time.
- Navis™ Optical NMS will only update the new name in the Circuit IDs that are in M.1400 format. For Circuit IDs with FREE FORMAT, it is the user's responsibility to update the Circuit IDs (using the Graphical Layout Parameters form).
- The Navis™ Optical NMS will not dynamically update any current screen with the new network element ID name. From the Network Map, the user must select **File > Query Again** to display the new name.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task

Important! Because the Navis™ Optical EMS portion of this script may change, please refer to the Navis™ Optical EMS user documentation for updated information on how to run this script on the Navis™ Optical EMS system.

Perform the following steps to change the identification of an existing network element. The steps used in the first part of this task apply to the Navis™ Optical EMS host server while the remaining steps apply to the Navis™ Optical NMS host server.

1 From the Network Controller Map, right click the Navis™ Optical EMS and Navis™ Optical NMS icons and then select **Session > Stop Communication**.

Result:

Communication is disabled on the Navis™ Optical EMS and the Navis™ Optical NMS.

2 Log into the Navis™ Optical EMS host as `ems` and enter the password.

Result:

The user is logged into the Navis™ Optical EMS host.

3 Use a text editor to create a file that contains the old and new network element names.

Important! The new network element name should not include a backslash character because it may not be supported. Be sure that the created file contains one line each, in old_name|new_name format separated with a | (pipe) character. A return must separate each line.

4 Use ftp to copy the created file to the Navis™ Optical NMS host server.

Important! If the script must be run on the Navis™ Optical PM - MRP, copy the file to the Navis™ Optical PM - MRP server also.

5 At the prompt, enter `tidchange -f <created_filename> -du -y .`

Result:

The Navis™ Optical EMS is stopped and the renaming tool runs on the Navis™ Optical EMS host server. Upon completion, the Navis™ Optical EMS is brought back up.

The remaining process may now begin on the Navis™ Optical NMS host server.

6 Log in to the Navis™ Optical NMS host server as `dacscan`.

7 At the prompt, enter `cd /usr/dacscan/toolbin`.

Result:

The prompt resides at the directory in which the change_neid tool is located.

8 Retrieve the Navis™ Optical NMS **node_mapping** data file then type **mv node_mapping nms_snms_node**.

Result:

The file is renamed to**nms_snms_node**. Note that the last line of the **nms_snms_node** file must not contain a return (step 6). The filename **nms_snms_node** is only recommended; any filename can be used.

9 At the prompt enter `./change_neid nms_snms_node`.

10 If a prompt is displayed, enter `./change_neid nms_snms_node`.

Important! A prompt is only displayed if CKTFMT=AZTYPEID:FREE

Result:

The renaming tool runs; completes its name change process; then, the Navis™ Optical PM - MRP host server comes back up. The process takes about 45 minutes.

11 If the rename script has run on all affected systems, then, from the Network Controller Map, right click the Navis™ Optical EMS and the Navis™ Optical NMS icons and select **Session > Start Communication**.

If communication must be started on the Navis™ Optical PM - MRP, then select its icon and **Session > Start Communication**.

Result:

Communication is now enabled on the Navis™ Optical EMS and the Navis™ Optical NMS; and optionally, the Navis™ Optical PM - MRP.

12 Refresh the Navis™ Optical NMS GUI and synchronize its database with the Navis™ Optical EMS host server.

13 If the Navis™ Optical NMS is being managed by a northbound interface, such as the Navis™ Optical PM - MRP, then run the script on the Navis™ Optical PM - MRP. See the related ***Change Network Element ID Tool*** task in the ***Navis™ Optical Provisioning Manager - Multi-Regional Provisioning Administration Guide***.

Result:

Communication is enabled on ITM-SC, the Navis™ Optical EMS, and the Navis™ Optical NMS.

END OF STEPS

□

Change Network Element Names in Navis™ Optical EMS and Navis™ Optical NMS

Purpose

This task describes how to change existing network element identifiers on the Navis™ Optical EMS using the change network element identifier tool.

Processing Order

This change script is first run on the Navis™ Optical EMS host server and then a script is run on theNavis™ Optical NMS host server. This task contains the commands to run the script on both servers.

Before you begin

Before changing the name of an existing network element, consider the following items:

- Be sure that the name change has been made. See "Change a TID using the CIT" (9-16) for details.
- Shut down the Navis™ Optical EMS before running the off-line script. The Navis™ Optical NMS user will not be able to communicate with the Navis™ Optical EMS at this time.
- Navis™ Optical NMS will only update the new name in the Circuit IDs that are in M.1400 format. For Circuit IDs with FREE FORMAT, it is the user's responsibility to update the Circuit IDs (using the Graphical Layout Parameters form).
- The Navis™ Optical NMS will not dynamically update any current screen with the new network element ID name. From the Network Map, the user must select **File > Query Again** to display the new name.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task

Important! Because the Navis™ Optical EMS portion of this script may change, please refer to the Navis™ Optical EMS user documentation for updated information on how to run this script on the Navis™ Optical EMS system.

Perform the following steps to change the identification of an existing network element. The steps used in the first part of this

task apply to the Navis™ Optical EMS host server while the remaining steps apply to the Navis™ Optical NMS host server.

1 From the Network Controller Map, right click the ITM-SC, Navis™ Optical NMS, and Navis™ Optical NMS icons then select **Session > Stop Communication**.

Result:

Communication is disabled on ITM-SC, Navis™ Optical NMS, and Navis™ Optical NMS.

2 Log into the Navis™ Optical EMS host as `ems` and enter the password.

Result:

The user is logged into the Navis™ Optical EMS host.

3 Use a text editor to create a file that contains the old and new network element names.

Important! The new network element name should not include a backslash character because it may not be supported.

Be sure that the file contains one line each, in `old_name|new_name` format separated with a `|` (pipe) character. A carriage return must separate each line.

4 Use **ftp** to copy the created file to the Navis™ Optical NMS host server.

5 At the prompt, enter `tidchange -f <created_filename> -du-y`

Result:

The Navis™ Optical EMS is stopped and the renaming tool runs on the Navis™ Optical EMS host server. Upon completion, the Navis™ Optical EMS is brought back up.

The renaming process may now begin on the Navis™ Optical NMS server.

6 While the Navis™ Optical NMS server is still down, log into the Navis™ Optical NMS host as `dacscan`.

7 At the prompt, enter `cd /usr/dacscan/toolbin`

Result:

The prompt resides at the directory where the `change_neid` tool is located.

8 Retrieve the Navis™ Optical EMS **node_mapping** data file then type **mv node_mapping tms_snms_node**.

Result:

The file is renamed to **tms_snms_node**.

The last line of the **tms_snms_node** file ***must not*** contain a carriage return. (See Step 3.)

tms_snms_node is only a recommended filename. Any filename can be used.

9 At the prompt, enter

```
./change_neid tms_snms_node
```

10 If a prompt, enter `Y`.

Important! A prompt only displays when `CKTFMT=AZTYPEID:FREE`.

Result:

The renaming tool runs, completes its name change process, then the Navis™ Optical NMS host server comes back up. The process takes about 45 minutes.

11 If the rename script has run on all affected systems, then enter the following:

From the Network Controller Map, right click the ITM-SC, Navis™ Optical EMS, and Navis™ Optical NMS icons then select **Session > Start Communication**.

Result:

Communication is enabled on ITM-SC, the Navis™ Optical EMS, and the Navis™ Optical NMS.

12 Restart the Navis™ Optical NMS GUI and synchronize its database with the Navis™ Optical EMS server.

END OF STEPS

□

Section III: INSERTNODE and REMOVENODE Tools

Overview

Purpose

This section contains information on the INSERTNODE and REMOVENODE tools which are UNIX scripts that allow users to insert and remove network elements from Navis™ Optical NMS. These tools automatically update the Navis™ Optical NMS database.

This tool uses cross-connect and port files when inserting a node; there is no file needed when removing a node.

Features

The INSERTNODE and REMOVENODE tools provide the following features:

- Updates Navis™ Optical NMS configuration locally. It will not send any commands to the element management system.
- Digital links can be part of a path-switched ring or a line-switched ring.
- Supports MSP digital link and Optical Multiplex Section (OMS) with OMS Protection (OMSP).
- Handles the updates of one-way, two-way, and broadcast paths/circuits.
- Handles fault management reconciliation.
- Supports combo circuits that are handled the same as VC-N paths.
- Handles path trace parameters, PTI and PT mismatch detection mode.
- Supports the removal of a black box from a physical link.
- Supports inserting a node into a digital link. Supports all types of digital links (from STM-0 to STM-64).
- Supports inserting a node into an OMS and optical link.
- Supports removing a node from two digital links. All types of digital links (from STM-0 to STM-64) are supported.
- Supports removing a node from 2 OMS and 2 Optical Layer (OL).
- Supports black box removal.

Supported network elements

For a complete list of supported ITM-SC and Navis™ Optical EMS network elements, see the ***Navis™ Optical NMS Provisioning Guide*** for details.

Supported physical link types

The tool supports the following physical type links:

For inserting a node:

- Optical Multiplex Section
- Optical Link

For removing a node:

- Optical Multiplex section
- Optical Layer

Contents

Insert an ITM-SC Controlled Network Element into a Digital Link using INSERTNODE

Purpose

This procedure is used to insert an ITM-SC controlled network element into a digital link using the **INSERTNODE** tool. Upon completion, the task generates a cross connect and port file to update the Navis™ Optical NMS database.

Before you begin

Before you insert an ITM-SC controlled network element into a digital link, consider the following items:

- The network element to be inserted in the Navis™ Optical NMS database must be correctly installed in the network and must already known by Navis™ Optical NMS—that is, it must display on the Navis™ Optical NMS Network Map, which occurs when all ports are provisioned and all cross-connections are made on the EMS that the Navis™ Optical NMS application is managing.
- When inserting a node, the network element has to be pre-provisioned—all ports must be provisioned and cross-connections must be made as needed to provide services.
- This task can be used before or after the fibers are physically reconnected to insert or remove a node. If the tool is used before reconnecting the fibers and the process succeeds, the reconnection of the fiber minimizes the risk of interrupting any logical paths that the physical layer carries.
- The EMS provides a file with port provisioning and cross-connection status. This file should be created just before the tool is executed. The user must transfer this file to the server running the Navis™ Optical NMS application and must specify the full path at the beginning of the task.
- If the EMS reports more cross-connections than are needed, an error has not occurred. These cross-connections are displayed in the Uncorrelated Cross Connect form after the user does a database synchronization.
- The user has to provide the connection ID for those connections that have to be merged or replaced by two new ones.
- The physical link where the node is inserted or removed should be in the ***in-effect*** state. The digital link to be updated should not contain any scheduled paths.

- Preplan paths should not be associated with any path carried by the physical link to be updated.
- Performance Monitoring (PM) data collection on the physical links should be stopped prior to execution of this task. When inserting a node, PM data collection should be stopped on the VC-4 substructured paths, terminating on the inserted node; however, PM on the path going through the inserted node does not have to be stopped.
- The regenerators or amplifiers with an Optical Multiplex Section (OMS) must be removed from the digital links before running this tool. After the task is completed, the user must return the regenerators/amplifiers to the new physical links.
- The Navis™ Optical NMS user interface might not reflect the correct configuration at the run time of the tool. While the tool is executing, the user should not modify/delete existing paths that ride on the digital link where the tool is being run. The user interface should be down when the tool is run. If the user interface is not down, the user must refresh the Network Map and any open forms.
- Time slot or frequency interchange do not exist in the cross-connections on the inserted/removed node. The EMS does not report cross-connections with timeslot or frequency interchange. The EMS also does not report SNCP cross-connections in the inserted/removed node.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task Complete these steps to insert an ITM-SC controlled node into a digital link using the **INSERTNODE** tool.

1 Log into the ITM-SC host as `i2kadmin`.

Result:

The ITM-SC host will request a password.

2 Enter the ITM-SC password for the `i2kadmin` login.

Result:

The user is logged into the ITM-SC host.

3 At the prompt, enter the following command lines:

```
. itmsc_setup
db_ian_wrapper <node_name> <A EID> <Z EID>
```

Result:

`db_ian_wrapper` is executed and two files are generated containing cross connect and tributary information in the following format:

```
/home/i2kadmin/db_sc_xc_ddmmyyyy_hhmm
/home/i2kadmin/db_sc_pp_ddmmyyyy_hhmm
```

4 Use **ftp** or **rcp** to get these two files to the Navis™ Optical NMS host **/usr/dacscan/data** then record the path name on the Navis™ Optical NMS host.

5 Log into the Navis™ Optical NMS host as `root`.

Result:

A password is requested.

6 Enter the password for the `root` login.

Result:

The user is logged into the into the Navis™ Optical NMS host as `root`.

7 At the prompt, enter `cd /usr/dacscan/data`.

8 At the prompt, enter the following command lines:

```
chmod 777 db_sc_xc_ddmmyyyy hhmm
chmod 777 db_sc_pp_ddmmyyyy hhmm
```

9 At the prompt, enter the following:

```
su - dacscan
```

cd /usr/dacscan/bin

Result:

The user changes to dacscan and the prompt displays in the requested directory.

10 At the prompt, enter INSERTNODE.

Result:

The INSERTNODE tool is initiated.

11 At the CLO/Order Number prompt, enter the value of the digital link where the new node will be inserted.

12 At the Network Element Name prompt, enter the name of the network element that will be inserted.

13 At the PORT ADDRESS to original A prompt, enter the service port address (in NMS-Port Address-format) that will connect to the original digital link's A location.

14 At the PORT ADDRESS to original Z prompt, enter the service port address (in NMS-Port Address-format) that will connect to the original digital link's Z location.

15 At the Digital Link 1 CKT ID prompt, enter the circuit ID for the first new digital link.

Result:

This terminations on this link are the original digital link A location on the <new_node_name>.

16 At the Digital Link 2 CKT ID prompt, enter the circuit ID for the second new digital link.

Result:

The terminations this link are the original digital link Z location on the <new_node_name>.

17 At the `EMS Port Provision File` prompt, enter the full path name of the EMS port provisioning file.

18 At the `EMS Cross Connect File` prompt, enter the full path name of the EMS cross connect file.

19 At the `Is this all correct` prompt, enter `Y` or `N` then continue with one of the following options to determine if a CAC/CLO (CCL) data file should be generated.

20

IF	THEN
`Do you want to Purge the CCL Data?` displays when the **INSERTNODE** tool is running,	select `N(o)`

IF	THEN

an older version of Fault Management (FM) is being used in Navis™ Optical NMS:	generate a CCL file with the following steps.
	• Log into the Navis™ Optical NMS server as `dacscan`, then run the **$/usr/dacscan/toolbin/gen_ins_ccl.sh** tool.
	• At the `Do you want to Purge the CCL data?` prompt, select **Y(es)** to create the **/dacscan/words/sc/db_nm_ccl_<datemmyy_hourminute> file**.
	• **ftp** the file to the ITM-SC server as `i2kadmin` where the network element is managed and enter the password.
	• Enter the following:
	`. itmsc_setup`
	`chmod 775 db_nm_ccl_datemmyy_hourminute`
	`db_nm_ccl_datemmyy_hourminute`
	During the import of the CCL file, the ITM-SC application will be stopped/started, so management will be temporarily lost of all network elements managed by this ITM-SC server.

END OF STEPS

□

Insert a Navis™ Optical EMS-Controlled Network Element into a Digital Link using INSERTNODE

Purpose

This procedure is used to insert a Navis™ Optical EMS-controlled network element into a digital link using the **INSERTNODE** tool. Upon completion, the task generates a cross connect and port file to update the Navis™ Optical NMS database.

Before you begin

Before you insert an Navis™ Optical EMS controlled network element into a digital link, consider the following items.

- The network element to be inserted in the Navis™ Optical NMS database must be correctly installed in the network and must already known by Navis™ Optical NMS—that is, it must display on the Navis™ Optical NMS Network Map, which occurs when all ports are provisioned and all cross-connections are made on the EMS that the Navis™ Optical NMS application is managing. **Important!** A cross-connect sync must be done on the network element prior to running the INSERTNODE tool.
- When inserting a node, the network element has to be pre-provisioned—all ports must be provisioned and cross-connections must be made as needed to provide services.
- This task can be used before or after the fibers are physically reconnected to insert or remove a node. If the tool is used before reconnecting the fibers and the process succeeds, the reconnection of the fiber minimizes the risk of interrupting any logical paths that the physical layer carries.
- The EMS provides a file with port provisioning and cross-connection status. This file should be created just before the tool is executed. A user must transfer this file to the server running the Navis™ Optical NMS application and must specify the full path at the beginning of the task.
- If the EMS reports more cross-connections than are needed, an error has not occurred. These cross-connections are displayed in the Uncorrelated Cross Connect form after the user does a database synchronization.
- The user has to provide the connection ID for those connections that have to be merged or replaced by two new ones.

Insert a Navis™ Optical EMS-Controlled Network Element into a Digital Link using INSERTNODE

- The physical link where the node is inserted or removed should be in the ***in-effect*** state. The digital link to be updated should not contain any scheduled paths.
- There should not be preplan paths associated with any of the paths carried by the physical link to be updated.
- Performance Monitoring (PM) data collection on the physical links should be stopped prior to execution of this task. When inserting a node, PM data collection should be stopped on the VC-4 substructured paths, terminating on the inserted node; however, PM on the path going through the inserted node does not have to be stopped.
- The regenerators or amplifiers with an Optical Multiplex Section (OMS) must be removed from the digital links before running this tool. After the task is completed, the user must return the regenerators/amplifiers to the new physical links.
- The Navis™ Optical NMS user interface might not reflect the correct configuration at the run time of the tool. While the tool is executing, the user should not modify/delete existing paths that ride on the digital link where the tool is being run. The user interface should be down when the tool is run. If the user interface is not down, the user must refresh the Network Map and any open forms.
- Time slot or frequency interchange do not exist in the cross-connections on the inserted/removed node. The EMS does not report cross-connections with timeslot or frequency interchange. The EMS also does not report SNCP cross-connections in the inserted/removed node.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task Complete these steps to insert a Navis™ Optical EMS-controlled node into a digital link using the **INSERTNODE** tool:

1 Log into Navis™ Optical EMS as `ems`.

2 At the prompt, enter

```
cd /ems/bin
```

<node_path>

Result:

<node_path> is executed and the following two files are generated:

```
/tmp/db_snms_xc_ddmmyyyy_hhmm
/tmp/db_snms_pp_ddmmyyyy_hhmm
```

3 Use **ftp** or **rcp** to get these two files to the Navis™ Optical NMS host **/usr/dacscan/data** then record the path name on the Navis™ Optical NMS host.

4 Via the Navis™ Optical NMS GUI, perform a cross-connect sync on the network element that is to be inserted.

5 Log into the Navis™ Optical NMS host machine as root and enter the password.

6 At the prompt, enter cd /usr/dacscan/data.

7 At the prompt, enter the following command lines:

```
chmod 777 db_snms_xc_ddmmyyyy hhmm
chmod 777 db_snms_pp_ddmmyyyy hhmm
```

8 At the prompt, enter su - dacscan.

Result:

The user is changed to dacscan.

9 At the prompt, enter cd /usr/dacscan/bin.

Result:

The prompt displays in the requested directory.

10 At the prompt, enter INSERTNODE.

Result:

The INSERTNODE tool is initiated.

11 At the CLO/Order Number prompt, enter the value of the digital link where the new node will be inserted.

12 At the Network Element Name prompt, enter the name of the network element that will be inserted.

13 At the PORT ADDRESS to original A prompt, enter the service port address (in NMS-Port Address-format) that will connect to the original digital link's A location.

14 At the PORT ADDRESS to original Z prompt, enter the service port address (in NMS-Port Address-format) that will connect to the original digital link Z location.

15 At the Digital Link 1 CKT ID prompt, enter the circuit ID for the first new digital link.

Result:

The terminations on this link are the original digital link A location on the <new_node_name>.

16 At the Digital Link 2 CKT ID prompt, enter the circuit ID for the second new digital link.

Result:

The terminations on this link are the original digital link Z location on the <new_node_name>.

17 At the EMS Port Provision File prompt, enter the full path name of the EMS port provisioning file.

18 At the EMS Cross Connect File prompt, enter the full path name of the EMS cross connect file.

19 At the `Is this all correct` prompt, enter `Y` or `N`.

END OF STEPS

□

Delete an ITM-SC Controlled Network Element from a Digital Link using REMOVENODE

Purpose

This procedure is used to remove an ITM-SC controlled network element from a digital link using the **REMOVENODE** tool.

Before you begin

Before you remove an ITM-SC controlled network element from a digital link, consider the following items.

- This task can be used before or after the fibers are physically reconnected to insert or remove a node. If the tool is used before reconnecting the fibers and the process succeeds, the reconnection of the fiber minimizes the risk of interrupting any logical paths that the physical layer carries.
- The EMS provides a file with port provisioning and cross-connection status. This file should be created just before the tool is executed. A user must transfer this file to the server running the Navis™ Optical NMS application and must specify the full path at the beginning of the task.
- If the EMS reports more cross-connections than are needed, an error has not occurred. These cross-connections are displayed in the Uncorrelated Cross Connect form after the user does a database synchronization.
- The user has to provide the connection ID for those connections that have to be merged or replaced by two new ones.
- The physical link where the node is inserted or removed should be in the ***in-effect*** state. The digital link to be updated should not contain any scheduled paths.
- Preplan paths should not be associated with any paths carried by the physical link to be updated.
- The regenerators or amplifiers with an Optical Multiplex Section (OMS) must be removed from the digital links before running this tool. After the task is completed, a user must return the regenerators/amplifiers to the new physical links.

- The Navis™ Optical NMS user interface may not reflect the correct configuration at the run time of the tool. While the tool is in progress, a user should refrain from modifying/deleting existing paths that ride on the digital link where the tool is being executed. It is recommended that the user interface should be down when the tool is run. If not, a user has to refresh the Network Map and any forms that are open.
- Time slot or frequency interchange do not exist in the cross-connections on the inserted/removed node. The EMS does not report cross-connections with timeslot or frequency interchange. The EMS also does not report SNCP cross-connections in the inserted/removed node.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task Complete these steps to remove an ITM-SC controlled node from a digital link.

1 Log into the Navis™ Optical NMS server as `dacscan`.

2 At the prompt, enter **cd /usr/dacscan/bin** then enter **REMOVENODE**.

Result:

The tool is initiated and a prompt displays.

3 At the `Network Element name` prompt, enter the name of the network that will be removed.

4 At the ***first*** `CLO/Order Number` prompt, enter the value of the first digital link from where the node will be removed.

5 At the ***second*** `CLO/Order Number` prompt, enter the value of the second digital link from where the node will be removed.

6 Enter the CKT ID (All Fields of the Format) for the new digital link.

7 At the `Is this all correct` prompt, enter `Y` or `N` then continue with one of the following options to determine if a CAC/CLO (CCL) data file should be generated.

8

IF	THEN
`Do you want to Purge the CCL Data?` displays when the **REMOVENODE** tool is running:	select `N(o)`

an older version of Fault Management (FM) is being used in Navis™ Optical NMS:	generate a CCL file with the following steps.
	• Log into the Navis™ Optical NMS server as `dacscan`, then run the **$/usr/dacscan/toolbin/gen_rem_ccl.sh** tool.
	• At the `Do you want to Purge the CCL data?` prompt, select **Y(es)** to create the **/dacscan/words/sc/db_nm_ccl_<datemmyy_hourminute> file**.
	• **ftp** the file to the ITM-SC server as `i2kadmin` where the network element is managed and enter the password.
	• Enter the following:
	`. itmsc_setup`
	`chmod 775 db_nm_ccl_datemmyy_hourminute`
	`db_import_ccl db_nm_ccl_datemmyy_hourminute db_ian_wrapper`
	During the import of the CCL file, the ITM-SC application will be stopped/started, so management will be temporarily lost of all network elements managed by this ITM-SC server.

END OF STEPS

□

Delete a Navis™ Optical EMS-Controlled Network Element from a Digital Link Using REMOVENODE

Purpose

Use this task to remove a Navis™ Optical EMS-controlled network element from a digital link using the **REMOVENODE** tool.

Before you begin

Before you remove a Navis™ Optical EMS network element from a digital link, consider the following items.

- This task can be used before or after the fibers are physically reconnected to insert or remove a node. If the tool is used before reconnecting the fibers and the process succeeds, the reconnection of the fiber minimizes the risk of interrupting any logical paths that the physical layer carries.
- The EMS provides a file with port provisioning and cross-connection status. This file should be created just before the tool is executed. A user must transfer this file to the server running the Navis™ Optical NMS application and must specify the full path at the beginning of the task.
- If the EMS reports more cross-connections than are needed, an error has not occurred. These cross-connections are displayed in the Uncorrelated Cross Connect form after the user does a database synchronization.
- The user has to provide the connection ID for those connections that have to be merged or replaced by two new ones.
- The physical link where the node is inserted or removed should be in the ***in-effect*** state. The digital link to be updated should not contain any scheduled paths.
- Preplan paths should not be associated with any paths carried by the physical link to be updated.
- The regenerators or amplifiers with an Optical Multiplex Section (OMS) must be removed from the digital links before running this tool. After the task is completed, a user must return the regenerators/amplifiers to the new physical links.

- The Navis™ Optical NMS user interface might not reflect the correct configuration at the run time of the tool. While the tool is executing, the user should not modify/delete existing paths that ride on the digital link where the tool is being run. The user interface should be down when the tool is run. If the user interface is not down, the user must refresh the Network Map and any open forms.
- Time slot or frequency interchange do not exist in the cross-connections on the inserted/removed node. The EMS does not report cross-connections with timeslot or frequency interchange. The EMS also does not report SNCP cross-connections in the inserted/removed node.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task Complete these steps to remove an Navis™ Optical EMS-controlled node from a digital link:

1 Log into the Navis™ Optical NMS server as `dacscan`.

2 At the prompt, enter `cd /usr/dacscan/bin` then enter `REMOVENODE`.

Result:

The tool is initiated and a prompt displays.

3 At the **Network Element name** prompt, enter the name of the network element that will be removed.

4 At the ***first*** `CLO/Order Number` prompt, enter the value of the first digital link from where the node will be removed.

5 At the ***second*** `CLO/Order Number` prompt, enter the value of the second digital link from where the node will be removed.

6 Enter the CKT ID (All Fields of the Format) for the new digital link.

7 At the `Is this all correct` prompt, enter `Y` or `N`.

END OF STEPS

□

Section IV: Network Element Reparenting Tool

Overview

Purpose

This section describes the reparenting process, which involves moving network elements from one EMS to another EMS or transferring EMS resources from one Navis™ Optical NMS to another Navis™ Optical NMS.

Reparenting Tool

This tool supports ***Network Element Reparenting***, which is reparenting network elements between two ITM-SCs or two Navis™ Optical EMSs and ***Navis™ Optical NMS Reparenting***, or transferring EMS resources from one Navis™ Optical NMS to another Navis™ Optical NMS. Both processes are covered in the following tasks.

Contents

Reparenting ITM-SC Controlled Network Elements

Purpose This section describes how to reparent ITM-SC controlled network elements.

Before you begin Before you use this tool, be sure that:

- No provisioning or software download or upload activities are occurring to the network elements involved in the reparenting process.
- Pending circuits are not connected to target network element(s).
- Network element alarms are cleared from the ITM-SC.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task Complete the following steps to run the reparenting tool.

1 To verify that there are no pending circuits, at the Network Map, select the target network element.

Result:

A menu displays.

2 From the displayed menu, select **NE Port Assignments**.

Result:

The NE Assignments Query box form displays.

3 Click the **More** button, then under **Order Status**, select **Pending**.

Result:

If pending circuits exist, a list displays.

4

IF	THEN
pending circuits ***display***,	end this task.
pending circuits ***do not display***,	continue with the next step.

5 After receiving a notification from ITM-SC that network elements have been deleted from an old ITM-SC as a result of an ITM-SC export tool run, login to the server as `dacscan` then enter `cd /usr/dacscan/toolbin`.

6 At the command line, type and include the location of the input file containing information on each target network element and old and new ITM-SC information.

Result:

The old ITM-SC data related to the target network elements is changed to the new ITM-SC data in Navis™ Optical NMS.

7 Before performing this step, be sure that:

- The online ITM-SC import tool is run to add target network elements to the new ITM-SC.
- A message is sent from ITM-SC to notify Navis™ Optical NMS that the network elements have been created.
- Alarms are sent to Navis™ Optical NMS.

In Navis™ Optical NMS, clear alarms associated with this process. Refer to the ***Navis™ Optical NMS Maintenance Guide*** for details.

END OF STEPS

□

Reparenting Navis™ Optical EMS-Controlled Network Elements

Purpose

This section describes how to reparent Navis™ Optical EMS-controlled network elements.

Before you begin

Before you use this tool, be sure that:

- provisioning or software download or upload activities are not occurring in conjunction with the network elements involved in the reparenting process
- pending circuits are not connected to target network element(s)

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task

Complete the following steps to run the reparenting tool:

1 Log into the old Navis™ Optical EMS as `ems`.

2 At the prompt, enter `NEReparentSource <network_element_TID>`.

Important! `<network_element_TID>` represents the TID of the network element being reparented.

Result:

A **tmp_<network_element_TID>.data** file is created in **$TMFA_DATA_DIR**.

3 Repeat Step 2 for each network element to be reparented.

4 Using the old Navis™ Optical EMS GUI, delete the network element(s). See the ***Delete a Network Element*** task in the ***Navis™ Optical EMS Provisioning Guide*** for details.

Result:

Each network element(s) is deleted.

5 Using **ftp**, send each **tmp_<network_element_TID>.data** file from the old Navis™ Optical EMS to the new Navis™ Optical EMS.

Important! Be sure to retain the files in **$TMFA_DATA_DIR**.

6 Physically move the network element connections from the old Navis™ Optical EMS to the new Navis™ Optical EMS.

7 Log into the new Navis™ Optical EMS as `ems`.

8 On the new Navis™ Optical EMS, use the Navis™ Optical EMS GUI to add the network element(s) and then wait for the Dynamic Network Operation (DNO) to complete before proceeding to the next step. See the ***Add a Network Element*** tasks in the ***Navis™ Optical EMS Provisioning Guide*** for details.

Result:

The network elements are added.

9 At the prompt, enter `NEReparentTarget <network_element_TID>` for each network element that needs to be reparented.

Result:

A **ne_snc_ids.dat** file is created in **$TMFA_DATA_DIR**.

Note that only one **ne_snc_ids.dat** file is created, no matter how may network elements are involved.

10 Using **ftp**, send the **ne_snc_ids.dat** file from the new Navis™ Optical EMS to the Navis™ Optical NMS host under the **/tmp/reparent** directory.

Result:

The **ne_snc_ids.dat** file is sent to the Navis™ Optical NMS host.

11 On the Navis™ Optical NMS host in the **/tmp/reparent** directory, create a one-line, **ems_map.dat** file in **<OLD_Navis™ Optical EMS_NAME>|<NEW_Navis™ Optical EMS_NAME>** format.

Important! Note: The Navis™ Optical EMS names must be all caps as they appear on the Network Controller Map and separated by the **|** character, for example: **TUNA|SHARK**.

12 Login to the Navis™ Optical NMS server as `dacscan`, then enter **cd /usr/dacscan/toolbin/reparent**.

Result:

The user logs into the Navis™ Optical NMS server and the prompt displays in the requested directory.

13 At the prompt, enter

```
./reparent.ksh SNMS
```

Result:

The reparenting tool is initiated.

14 From the Navis™ Optical NMS Controller Map, synchronize both EMSs. See "Synchronize the Navis™ Optical NMS Database with an EMS Database" (10-26).

END OF STEPS

□

Reparenting Navis™ Optical NMS EMS Resources to Another Navis™ Optical NMS

Purpose

This section describes how to reparent Navis™ Optical NMS EMS resources to another Navis™ Optical NMS (that is, one EMS at a time) using the reparenting tool.

Before you begin

Before you use this tool, be sure that:

- the Navis™ Optical NMSs involved in this process are not connected to any other northbound system.
- the ID of the EMS to be moved is unique.
- the target network elements are not involved in an ITM-SC geographic redundancy switch.
- the EMS is not involved in an ITM-SC geographic redundancy.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task

Complete these steps to run the tool:

1

IF	THEN
there are circuits/digital links that are connected beyond the EMS domain,	disconnect them then proceed to the next step.
there are not circuits/digital links that are connected beyond the EMS domain,	proceed to the next step.

2 Login to the server as `dacscan` then enter **cd /usr/dacscan/toolbin**.

3 Run the export data tool to extract data from the current Navis™ Optical NMS to datafiles.

Result:

Data is stored to datafiles.

4 Disconnect the old EMS (for example, ITM-SC) and its managed network elements from the old Navis™ Optical NMS, then re-add the EMS and its managed network elements to the target Navis™ Optical NMS. (See "Add an ITM-SC" (10-15).)

5 Run the import data tool.

Result:

Data is imported to the target Navis™ Optical NMS.

6 Disconnect circuit orders. See the "Virtual Disconnect Tool Description" (9-75) for details.

Result:

This cleans up circuit provisioning information that was stored in the old Navis™ Optical NMS and is now successfully transferred to the target Navis™ Optical NMS.

7 Run the clean up tool.

Result:

This cleans up all remaining data that was stored in the old Navis™ Optical NMS and is now successfully transferred to the target Navis™ Optical NMS.

8 Perform a database synchronization with the new Navis™ Optical NMS and ITM-SC.

Result:

This is performed to ensure that data is consistent between the new Navis™ Optical NMS and ITM-SC.

END OF STEPS

□

Section V: Upgrade WaveStar® OLS 400G to WaveStar® OLS 800G

Overview

Purpose

This section describes how to upgrade WaveStar® OLS 400G network elements to WaveStar® OLS 800G network elements to add more circuit packs and increase their capacity. The script changes ***most*** network elements having a release level lower than R5.0 to R5.0 with the exception of WaveStar® OLS 400G R4.0 network elements, which ***cannot*** be upgraded.

Note that WaveStar® OLS 400G R6.0 network elements will also not change to R5.0 as a result of this script.

Contents

Upgrade WaveStar® OLS 400G to WaveStar® OLS 800G

Purpose

This task describes how to increase the capacity of an WaveStar® OLS 400G network element by upgrading it to WaveStar® OLS 800G.

Before you begin

Before you begin this upgrade, be sure that:

- the database has been backed up
- no provisioning activities involving the target WaveStar® OLS 400G network element(s) occur during the upgrade process.
- the upgrade is complete in Navis™ Optical EMS which may be detected by Navis™ Optical NMS after receiving a second ***State Change*** alarm from Navis™ Optical EMS.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task

Complete these steps to run the upgrade tool:

1 After receiving an alarm notification from Navis™ Optical EMS that the upgrade is complete, back up the Navis™ Optical NMS database. See "Section I: Perform Backups" (8-3).

2 Log into the server as `dacscan` then enter **cd /usr/dacscan/toolbin**.

3 Open the log files then enter **<network_element_identifier(s)>** to run the script.

Result:

The script either reads the entered TID(s) or a file containing a list of WaveStar® OLS 400G TIDs to be upgraded to WaveStar® OLS 800G. The script accepts entries for multiple network elements residing under the ***same*** Navis™ Optical EMS however the script must be run separately when network elements reside under ***different*** Navis™ Optical EMSs.

4 Once the run is complete, select **View > Network View Reset** to refresh the GUI and display the upgraded network elements.

5 Synchronize Navis™ Optical NMS with Navis™ Optical EMS. See "Synchronize the Navis™ Optical NMS Database with an EMS Database" (10-26)

END OF STEPS

□

Section VI: Upgrade WaveStar® OLS 400Gs from CMISE Mode to TL1 Mode

Overview

Purpose

WaveStar® OLS 400G R6.0 network elements use a TL1 mode protocol. Earlier WaveStar® OLS 400G network elements used the Common Management Information Service Element (CMISE) mode protocol.

When WaveStar® OLS 400G network elements need to be upgraded from an earlier release to R6.0, a script is run in Navis™ Optical NMS.

Before running the script, WaveStar® OLS 400Gs must first be upgraded to R6.0 in Navis™ Optical EMS. Note that the WaveStar® OLS 400G R4.0 ***cannot*** be upgraded to R6.0.

Contents

Use the CMISE to TL1 Upgrade Tool for WaveStar® OLS 400G

Purpose

This task describes how to upgrade WaveStar® OLS 400G network elements (R6.0 and beyond) in Navis™ Optical NMS.

Before you begin

Before you use this tool, be sure that:

- the Navis™ Optical NMS database has been backed up.
- no provisioning activities involving the target WaveStar® OLS 400G network element(s) occur during the upgrade process.
- the Network Event Summary form has displayed a network element software upgrade event to indicate that WaveStar® OLS 400G network element(s) have been upgraded from CMISE mode to TL1 mode in Navis™ Optical EMS. See the "In Service Upgrade of WaveStar® OLS 400G Software from Release 5.0 to Release 6.0 TL1 Mode" task in the ***Navis™ Optical EMS Provisioning Guide***.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task

Complete these steps to run the upgrade tool:

1 After the Network Event Summary form displays a network element software upgrade event , backup the Navis™ Optical NMS database. See "Section I: Perform Backups" (8-3).

2 Log into the server as `dacscan` then enter **cd /usr/dacscan/toolbin**.

3 Open the log files then enter **<network_element_identifier(s)>** to run the script.

Result:

The script either reads the entered TID(s) or a file containing a list of WaveStar® OLS 400G TIDs then upgrades the node type from CMISE to TL1.

Note that the script accepts entries for multiple network elements residing under the ***same*** Navis™ Optical EMS however the script must be run separately when network elements reside under ***different*** Navis™ Optical EMSs.

4 Once the run is complete, synchronize Navis™ Optical NMS with Navis™ Optical EMS. See "Synchronize the Navis™ Optical NMS Database with an EMS Database" (10-26)

END OF STEPS

□

Section VII: Connection Renaming Tool

Overview

Purpose

The Connection renaming tool is a UNIX script used to:

- Rename a large number of network connections using a list of trail/circuit identifications (connection identifications) as input.
- Rename discovered network connections with a given naming rule after a path discovery procedure.

Usable independently of the Auto-Discovery tool, the Connection Renaming tool takes a user-provided input file, containing every trail identification as a parameter, and retrieves the connections to which the end ports belong and renames them with the trail identification. The tool only renames the connections defined in the input file. If the file provides at least one end port of a connection, the tool will rename the related connection.

The tool is applicable to any in-effect SDH and PDH connection provisioned in Navis™ Optical NMS.

Using the tool

The tasks which utilize this tool are contained after this description.

Restrictions

The following restrictions apply to the Connection Renaming tool:

- Not applicable to new network objects introduced with the optical layer.
- Only applicable if the free format option for the trail/circuit ID is set.
- Local to Navis™ Optical NMS. No commands will be sent to the network elements level.
- Users must provide a file containing the end ports of the connections they wish to rename.
- The trail identifications provided in the input file must be unique in Navis™ Optical NMS.
- There is no consistency check when a file provides a connection's two end ports. If a user provides two different trail ids for the two end ports, then the tool will rename the connection with one of the two trail IDs without error.

- Several instances of the tool cannot be run simultaneously.
- Users must refresh screens to reflect new connection identifications.
- Recommended that users only operate the tool while the Navis™ Optical NMS host is running.

Log files

When the Connection Renaming tool successfully renames a connection, it logs the renamed connection to **/tmp/auto_disc/rename_ckts**. The file format is structured so each record is a line. Each line consists of:

```
old_trail_id:new_trail_id
```

Error Log

The tool logs errors to **/tmp/err_rename.log**. Errors are logged to a file for the following reasons:

- The data validation fails.
- The trail ID is not unique in Navis™ Optical NMS.
- The input file's port does not have any related connection.

There is no error if the trail identification in the user input file is the same as the current trail identification in the database.

Supported interfaces

The Connection renaming tool supports the following interfaces: ITM-SC and Navis™ Optical EMS.

Contents

Rename Network Connections with the Connection Renaming Tool

Purpose Use this task to rename network connections using the connection renaming tool.

The connection renaming tool is a UNIX script that is used to rename large numbers of network connections using a list of connection or ***trail*** identifications as input.

Before you begin Before using the connection renaming tool, consider the following items:

- You must run the connection renaming tool while Navis™ Optical NMS is running.
- Be sure that the circuits are set at the free format option.
- Although not recommended, it is possible to continue operation procedures through the Navis™ Optical NMS interface while the tool is running.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task Complete these steps to rename network connections using the Connection Renaming tool:

1 Log in as `dacscan`.

2 At the prompt, enter `cd /tmp/auto_disc`.

Result:

The directory is changed

3 At the prompt, type **ls** and then view the display to confirm that the input port file is listed in this directory.

Important! If `<port_input_filename>` is not listed, then it must be created. The `<port_input_filename>` is a text file consisting of a record set, with each record consisting of one

line. Each line consists of a set of fields separated by | and populated as follows:

- Field 1: TID of the network element.
- Field 2: Port address, using the EMS format.
- Field 3: Rate. (Values are C1, C3, D3, D1, C4, V12, V2, AU3, V3, V4, V4-4c, V4-16c)
- Field 4: Trail ID, which is the new ID that the user is assigning to the trail.

4 At the prompt, type /usr/dacscan/toolbin/rename_ckt /tmp/<port_input_filename>.

Result:

The connection renaming tool uses the port input file to specify the trail ID of the connections to be renamed. The tool will, for each record of the input file, identify the IE connection and rename the Trail ID with the specified ID. It will then update the trail ID within the Navis™ Optical NMS database.

5 Verify the renamed connection at **/tmp/auto_disc/rename_ckts**.

Result:

The renamed connections should appear. Note that each record consists of old_trail_id:new_trail:id.

END OF STEPS

□

Section VIII: Bulk Link Provisioning Tool

Overview

Purpose

This section describes the bulk link provisioning tool, which is used to perform a bulk transfer of topological links from provisioning systems, such as the Physical Resource Manager, to Navis™ Optical NMS. This off-line tool abstracts the topological links into a bulk process then performs a bulk add of the links to Navis™ Optical NMS as if they were added individually through the Navis™ Optical NMS GUI.

About this tool

Before running this tool, an input file is created which contains one line per Navis™ Optical NMS link to be provisioned. The created file is entered in the bulk link provisioning tool command and run with one of the following options:

- ***-v***, which performs a pre-provisioning run to validate the input file ***without*** provisioning links. Depending on the results of the validation, users may edit the input file and rerun this command until the results predict that a clean run will occur.
- ***-p***, which runs the bulk link provisioning command.
- ***-a***, which takes the latest provisioning run and audits the Navis™ Optical NMS database against the input file.
  When a link is detected in this run that is not ***In-Effect***, this is noted in the error file, ***link_audit.log*** which lists each suspect input line along with one audit error message per error.

Contents

Bulk Link Provisioning Tool Task

Purpose This section describes how to perform bulk link provisioning in Navis™ Optical NMS.

Before you begin Consider the following before running the bulk link provisioning tool.

Important! This tool is expected to be run during ***off-hours*** to avoid the impact that the process may have on system response. If this is your first time running this tool, contact Lucent Customer Support for assistance.

Task Complete the following steps to run the bulk link provisioning tool:

1 Log into the server as dacscan then enter **cd /usr/dacscan/toolbin/offline**.

2 In the **/usr/dacscan/toolbin/offline** directory, create an input file.

3 In the input file, add one row of the following data, separated by the **|** character for each Navis™ Optical NMS link to be provisioned.

- The full 'A' network element identifier **<*aloc*>**.
- The full 'Z' network element identifier **<*zloc*>**.
- The network element-level port address of the service link at the ***A*** location.
- The network element-level port address of the service link at the ***Z*** location.
- The coded rate of the link <link_type>.
- The free-format label for the circuit ID field <link_ID>.
- The coded Multiplex Section Protection (MSP) configuration. Values are **1X1MSP**, **1+MSP** or **none**.
- The free-format label denoting the **protecting link** or **none**.
- The network element-level port address of the protecting link at **A_location** or **none**.

- The network element-level port address of the protecting link at **Z_location** or **none**.
- The MSP protection group name for **1X1MSP** or **none**.
- The type of MSP configuration: **UNI**, **BI**, **NTT** or **none**.

Note: If the row is being created for ***MSP*** links, the protecting link and service link fields must be consistent for the sequential array of fields. The row must also have the same ***A*** network element ID and ***Z*** network element ID while conforming to the correct MSP port groupings at either end. The protecting link and service link must also have the same link ID.

4 Save and close the file, then select one of the following options from the next step.

5

IF	THEN
You want to validate data in the input file ***without*** provisioning links,	enter **net_entity NM_links -v** **Result:** All records in the data file are validated and error messages are logged to a file.
You want to provision a group of ***In-Effect*** links,	enter **net_entity NM_links -p** **Result:** A group of links are provisioned.
You want to take the latest provisioning run and audit the Navis™ Optical NMS database against the input file,	enter **net_entity NM_links -a** **Result:** The run is audited and any non-***In-Effect*** links are noted in the link_audit.log error file.

END OF STEPS

□

Section IX: Bulk Circuit Provisioning Tool

Overview

Purpose This section describes the bulk circuit provisioning tool.

Contents

Bulk Circuit Provisioning Tool Task

Purpose This task describes how to use the bulk circuit provisioning tool.

Before you begin Be sure to create a VC-12 from the Network Map first.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task Complete the following steps to run the bulk circuit provisioning tool.

1 Using the Network Map, create a VC-12 and optionally create a CEPT-1 on the VC-12. See the ***Add a Circuit*** tasks in the ***Navis™ Optical NMS Provisioning Guide***.

2 Log into the server as `dacscan` then enter `cd /usr/dacscan/toolbin`.

3 In the **/usr/dacscan/toolbin** directory, create a **data_file** file.

4 Add the following information to **data_file**, then save and close the file.

- Circuit ID <CKT_ID> of the created VC-12 circuit, e.g., **HTN1 HTN2 VC12S.2000**.
- Total number of VC-12 circuits to be created during the bulk provisioning, e.g., **2**
- External port address of the VC-12 at the A_location
- External port address of the VC-12 at the Z_location
- A to Z Path Trace ID (transmitting).
- Z to A Path Trace ID (receiving).

- **Y**(es) or **N**(o) value to specify if a CEPT-1 should be created over the VC-12.
- **Y**(es) or **N**(o) value to specify if alarms should be ignored during the bulk provisioning.

For example, **data_file**'s contents may appear as follows:

HTN1 HTN2 VC12S.2000|2

S1/1/2/1/1-3|S1/1/2/1/1-3|0|0|N|Y

S1/1/4/1/1-3|S1/1/4/1/1-3|0|0|N|Y

The first line represents the circuit ID followed by the total number of circuits to be created. The second and third lines contain the a frame, z frame, A to Z and Z to A path trace IDs, and the assign CEPT-1 and ignore alarm values.

5 In the **/usr/dacscan/toolbin/offline** directory, create and save an index file that contains the directory path of the **data_file**, e.g., **/usr/dacscan/toolbin/offline/data_file**.

6 At the prompt, enter **/usr/dacscan/toolbin/offline/net_entity <indexfilename> -p**

<indexfilename> is a file containing a list of all data files to be used to perform the bulk circuit provisioning.

Result:

A prompt displays requesting a proxy host.

If you are not prompted to enter the proxy host, none of the VC-12s will be added and an error message displays indicating that there are other proxyproc processes on the system.

7 At the prompt, enter the proxy host.

Result:

The script continues to run.

END OF STEPS

□

Section X: ODO Tool

Overview

Purpose

This section describes how to convert black boxes into individual ODOs with an Off-line tool.

Contents

ODO Tool Task

Purpose This procedure is used to convert black boxes into ODOs.

Important! This tool does an off-line change of the database, so have a recent backup of the database as a means of undoing the effects of this tool, if needed.

Before you begin Before running the tool, ensure that:

- Navis™ Optical NMS is not being used by any users.
- The nodes connected to the black boxes being converted into ODOs are located in the same area as the black boxes in Navis™ Optical NMS.

Important! If this is your first time using this tool, contact Lucent Customer Support for assistance.

Task Complete these steps to run the Navis™ Optical NMS ODO tool.

1 Log into the server as **dacscan**.

2 At the prompt, enter `cd /usr/dacscan/toolbin`.

Result:

The prompt resides in the appropriate directory.

3 At the prompt, enter `BB_ODO [-f filename] [-l logfile]`.

Result:

The ODO tool prompts the user for an action.

4

IF	THEN
you want to extract the black boxes,	proceed to Step Step 5 to continue.

IF	THEN
you want to convert the Black Boxes in the ASCII file to ODO elements	proceed to Step Step 6 to continue.

5 Extract the black boxes and store them in an ASCII file. The default filename is **BB_ODO.txt**. The default logfile is **BB_ODO.log**. The user may override these defaults by supplying appropriate arguments.

Result:

A list of black box elements is created in the system.

6 Convert the black boxes in the ASCII file to ODO elements.

Result:

The tool will name each ODO as `ODO_CILLIKEY_running_number`, where `CILLIKEY` represents the node to which ODO is connected. As each black box in the ASCII file is converted, the tool:

- Checks the Navis™ Optical NMS database for the existing blackbox.
- Verifies that the black box is connected to one or more real network elements in the Navis™ Optical NMS database. If more than one network element is connected, the tool will convert the black box into individual ODOs for each network element. Area/submap will be updated with ODOs.
- Preserves existing Link IDs and clients of the ODOs, when the black box is converted into individual ODOs.
- Creates an aggregate in the Navis™ Optical NMS database for the ODOs. The tool will name the aggregate with the same name as the black box that is split. Area/submap will be updated.

- Produces a log file that contains the results of the conversion tool and stores them. If a black box requested by the tool does not exist in the database, a message indicating `black box name` and error `not found in NMS DB` will be stored in log file.
- Requests the host to update the GUI display upon completing its operations.

If the tool fails to successfully convert a particular black box into an ODO/aggregate, the tool will abandon the operation on this black box and undo any partial changes in the conversion process. The tool will create an entry for this failure in the tool error log file.

END OF STEPS

□

Section XI: Provisioning Maintenance Tool

Overview

Purpose This section describes the virtual disconnect tool.

Contents

Virtual Disconnect Tool Description

Overview

The virtual disconnect tool is used to clean up the Navis™ Optical NMS database when facility, path, or circuit provisioning does not proceed as planned.

When cross-connections are disconnected at the EMS or network element level without notification to the Navis™ Optical NMS, the record of the assignment in the Navis™ Optical NMS still exists.

The virtual disconnect tool is a means to clean up the Navis™ Optical NMS database without sending commands to the EMS or to the network elements.

This also might be required, for example, in the unlikely event that an operator incorrectly assigned a circuit to a wrong black box location when provisioning the circuit in Navis™ Optical NMS. The result of this script is to cause change to the Navis™ Optical NMS database without interacting with the network elements.

For the task used to perform this function, see the ***Perform a Virtual Disconnect*** task in the ***Navis™ Optical NMS Provisioning Guide***.

□

Section XII: Provisioning Maintenance Support

Overview

Purpose

This section describes the disconnect order script and contains a task on how to use this tool.

Contents

The Disconnect Order Script

The disconnect order script is used to clean up the Navis™ Optical NMS database when circuit provisioning does not proceed as planned. Cleanup is sometimes needed because circuits can be disconnected at the EMS or network element level without notification to the Navis™ Optical NMS, or circuits can be partially provisioned and need to be cleaned up before a re-attempt is executed.

The disconnect order script provides a way to clean up the Navis™ Optical NMS database when circuits are disconnected at the EMS or network element level, or when circuits are partially provisioned and need to be cleaned up before a re-attempt is executed. For example, this script would need to be run if an operator incorrectly assigned a circuit to a wrong black box location when provisioning the circuit in the Navis™ Optical NMS. This script changes the Navis™ Optical NMS database without interacting with the network elements.

□

Run the Disconnect Circuit Order Script

Purpose This procedure is used to run the disconnect order script, which is run when a need exists to disconnect circuits.

Prerequisites Have a list of each circuit name to be disconnected.

You must have access to the following files:

- **/usr/dacscan/data/discord.fmt**
- **/usr/dacscan/data/disc_order**
- **/usr/dacscan/toolbin/deleteorder**
- **/usr/dacscan/toolbin/get_disc.sh**
- **/usr/dacscan/toolbin/ug**

Files can be transmitted electronically or are also available in a tape and can be loaded via the **patch.install** program, which automatically sets the correct permissions and ownership and installs the files into the corresponding directories. If the files are transmitted electronically, the permissions must be modified to **755 (-rwxr-xr-x)**, the ownership needs to be modified to **dacscan dba**, and the files need to be installed in directories.

> **Important!** Circuits are not disconnected if a pending order is on the stack or if lower order facilities are riding on it.

Task Complete these steps to run the disconnect circuit script:

1 Log in to the server as **dacscan**.

2 At the prompt, type `cd /usr/dacscan/data`.

Result:

The system puts you in the **data** directory.

3 Create a file named **disc_ckt** and add the name of each circuit to be disconnected.

4 To run the script, type the following command line at the prompt:

ksh /usr/dacscan/data/disc_order.sh.

Result:

Circuits that can be disconnected are saved in the **/usr/dacscan/data/disc_input** file. Circuits that cannot be disconnected are listed in the **tmp/disc_order.err** file.

5 From the Network Map, view the graphical layout of the circuits.

6 On the host server, type **display_disc_log** and view the display.

Result:

The disconnected circuits should not be displayed in the log file.

7 To view the disconnected circuits, check the /dacscan/trace/deleteorder.log file.

Result:

The disconnected circuits are displayed.

END OF STEPS

□

10 EMS Management

Overview

Purpose

This chapter describes tasks used to interact with subsystems in the network.

Contents

Section I: Interact with Navis™ Optical EMSs

Overview

Purpose

This section describes how to administer the following Element Management Systems (EMSs):

- ITM-SC
- Navis™ Optical EMS

Definition: EMS

An EMS is a graphical user interface-based element manager used for network management.

Definition: ITM-SC

An ITM-SC is an application that provides services to the network management system to enable it to set up end-to-end paths and to monitor overall network behavior.

Definition: Navis™ Optical EMS

Navis™ Optical EMS is a management system for the Navis™ product family, providing Element Management Layer (EML) management functions for Navis™ products. This system has configuration management, fault management, performance management, and security management functions.

Contents

Add a New Navis™ Optical EMS

Purpose Use this task to add a new Navis™ Optical EMS on the Navis™ Optical NMS.

Important! The task below must be run for each Navis™ Optical EMS to be added.

Before you begin Before you begin this task, collect the following information:

- system name
- Internet address

Task Perform the steps below to add a new Navis™ Optical EMS.

1 Log in as `root` to the Navis™ Optical NMS host.

2 At the prompt, enter `ksh /usr/dacscan/bin/add.controller` and press **Enter**.

Result:

The following prompt is displayed along with a menu of all possible controllers:

```
Which Controller do you want to add to this WS-NMS?
```

3 At the prompt, enter `17`, which is `External SNMS (SDH Add/Drop Multiplexer)` and press **Enter**.

Result:

The following prompt is displayed:

```
What is the name of the SNMS?
```

4 Enter the name of the Navis™ Optical EMS and press **Enter**.

Result:

You are prompted to confirm your entry.

5 View the entry, then enter `y` if it is correct, or `n` if it is not correct, and then enter the correct entry to continue.

Result:

You are prompted to enter the IP address for the Navis™ Optical EMS.

6 Enter the `IP address` then press **Enter**.

Important! If the machine to be added is in a ***local redundancy configuration***, the ***Package*** IP address should be entered.

Result:

You are prompted to confirm your entry.

7 View the entry, then enter `y` if it is correct, or `n` if it is not correct, and then enter the correct entry to continue.

Result:

You are prompted to enter the Acronym.

8 Enter the acronym using all CAPS. This entry is a unique identifier, which should not be more than four characters long. Generally, the first four characters of the Navis™ Optical EMS hostname are used.

Result:

You are prompted to confirm your entry.

9 View the entry, then enter `y` if it is correct, or `n` if it is not correct, and then enter the correct entry to continue.

Result:

The original activity screen displays.

10 Continue with one of the following steps.

- If you have ***have*** additional Navis™ Optical EMSs to add, for example, if a geographic redundancy configuration is in place, repeat Step 4 through Step 9 to continue.
- If you ***do not have*** additional Navis™ Optical EMSs to add, go to the next step.

11 Enter `quit` to exit the script.

Result:

The script is exited.

12 Using the system console, log in to the new EMS as `root`.

END OF STEPS

□

Set Up a Cut-Through to Navis™ Optical EMS via the Navis™ Optical NMS Server

Purpose

This procedure is used to establish a cut-through to the Navis™ Optical EMS application.

Related information

The "Set Up a Cut-Through to Navis™ Optical EMS via the Navis™ Optical EMS Server" (10-13) procedure is used to complete the cut-through.

Before you begin

Be sure that:

- The Navis™ Optical EMS server is running when this task is being performed.
- The Navis™ Optical EMS server has an entry in its host file so the Navis™ Optical NMS server allows Orbix to communicate successfully.

Important! To enable cut-through to a R4.2 Navis™ Optical EMS, the Navis™ Optical NMS user invoking the cut-through must also exist on the Navis™ Optical EMS. It is also essential that SAGE is enabled at the Navis™ Optical EMS for the cut-through to work. For user administration and enabling SAGE, refer to the relevant Navis™ Optical EMS documentation.

Task

Perform the steps below to set up a Navis™ Optical EMS to permit cut-through sessions to occur.

1 Log in as `root` to the Navis™ Optical NMS host.

2 At the prompt, enter `who -r`.

Result:

The current run-level displays.

3

IF	THEN
the run-level value is `3` (or less),	go to the next step.

IF	THEN
the run-level value is ***greater*** than 3, and this is a ***single server configuration***,	type `init 3` and go to the next step.
the run-level value is ***greater*** than 3, and this is a ***geographic redundancy configuration***,	use the "Stop the Navis™ Optical NMS Application on a Geographic Redundancy Configuration" (3-21) task.
the run-level value is ***greater*** than 3, and this is a ***local redundancy configuration***,	use the "Stop the Navis™ Optical NMS Application on Local Redundancy Configurations " (3-26) task.

4 At the prompt, enter `ksh /usr/dacscan/bin/add.controller` and press **Enter**.

Result:

A list displays.

5 At the prompt, enter `17` and press **Enter**.

Result:

The following prompt is displayed:

```
What is the name of the SNMS?
```

6 Enter the name of the Navis™ Optical EMS then press **Enter**.

Result:

You are prompted to confirm your entry.

7 View the entry, then enter `y` if it is correct, or `n` if it is not correct, and then enter the correct entry to continue.

Result:

You are prompted to enter the IP address for the Navis™ Optical EMS.

8 Enter the `IP address` then press **Enter**.

Result:

You are prompted to confirm your entry.

9 View the entry, then enter `y` if it is correct, or `n` if it is not correct, and then enter the correct entry to continue.

Result:

You are prompted to enter the Acronym.

10 Enter the acronym using all capital letters only. Note that this entry is a unique identifier, which should not be more than four characters long. Generally, the first four characters of the Navis™ Optical EMS hostname are used.

Result:

You are prompted to confirm your entry.

11 View the entry, then enter `y` if it is correct, or `n` if it is not correct, and then enter the correct entry to continue.

Result:

The script is exited.

12 At the prompt, enter `/usr/dacscan/bin/AddEMS.sh` to add any joint Navis™ Optical EMS/Navis™ Optical NMS clients to the Navis™ Optical EMS server.

Result:

A menu displays.

13 Select option **2** for the Navis™ Optical EMS server.

14 Continue with one of the following steps.

- For a local redundancy configuration using MC/ServiceGuard, repeat Step 4 through Step 13 to continue.
- For configurations other than local redundancy, go to the next step.

15 At the `Enter the Navis™ Optical EMS Server Name, then press [return]:?` prompt, enter the hostname of the Navis™ Optical EMS.

16 At the `Enter the Version of the Navis™ Optical EMS, then press [return]:` prompt, enter the Navis™ Optical EMS version.

Important! Press **Return** if this is not applicable.

17 At the `Are the WS-NMS GUI and Navis™ Optical EMS GUI installed on the same desktop(y/n)?` prompt, enter `y` if a joint workstation is deployed or `n` if the Navis™ Optical NMS and Navis™ Optical EMS GUIs are running on separate machines.

18 Continue with one of the following options.

- If `n` was selected in the last step, continue with Step 20.
- If `y` was selected in the last step, enter the IP address of the Navis™ Optical NMS and Navis™ Optical EMS GUIs (when prompted) then continue with the next step.

19 Review the displayed prompt, then enter `y` if the information is correct.

Result:

The original list displays

20 Continue with one of the following steps.

- For a local redundancy configuration using MC/ServiceGuard, repeat Step 15 through Step 19 to continue.
- For configurations other than local redundancy, go to the next step.

21 Select `quit` from the displayed list.

22 Start the Navis™ Optical NMS application with one of the following options:

- For a single server configuration, use the "Start the Navis™ Optical NMS Application on a Single Server" (3-6) task.
- For a local redundancy configuration using MC/ServiceGuard, use the "Start the Navis™ Optical NMS Application on a Local Redundancy Configuration" (3-24) task.
- For a geographic redundancy configuration, use the "Start the Navis™ Optical NMS Application on a Geographic Redundancy Configuration" (3-20) task.

23 At the prompt, enter **who -r**.

Result:

The run-level status displays.

24 Use the "Set Up a Cut-Through to Navis™ Optical EMS via the Navis™ Optical EMS Server" (10-13) procedure to continue to configure the cut-through.

END OF STEPS

□

Set Up a Cut-Through to Navis™ Optical EMS via the Navis™ Optical EMS Server

Purpose

This procedure is used to set up a cut-through from the Navis™ Optical NMS to the Navis™ Optical EMS on the .Navis™ Optical EMS server.

Before you begin

The Communications Software Launcher (CSL) must be enabled on the Navis™ Optical EMS host server.

In this procedure, you will be required to edit a file. To avoid losing data, consider making a copy of this file before editing. If you choose to copy this file, remember to delete it from the system when you are finished editing.

When adding Navis™ Optical NMS users to the Navis™ Optical EMS GUI, make sure all users, including ***sa*** are added.

Task

Complete these steps to set up a cut-through from Navis™ Optical NMS to Navis™ Optical EMS:

1. Log on to the Navis™ Optical EMS server.
2. Input the following command to change directories: `cd /ems/etc`.
3. Use the vi editor to access the **GUI_Server.cfg** file: `vi GUI_Server.cfg`.
4. Once in the **GUI_Server.cfg** file, search for the string **CSL_**.
5. Change `CSL_ENABLE = 0` to `CSL_ENABLE = 1`.
6. Save the changes made to the file and exit the vi editor.
7. Copy the `sncFint.cfg` file from the desktop server.

For example: c:/snmsR4.2/snc/fint/sncFint.cfg to c:/jui/jnm/itm/southbound/snc/sncfint.

8 To add Navis™ Optical NMS users (including ***sa***) to the Navis™ Optical EMS GUI, from Navis™ Optical EMS Network Map navigate from **Administration -> Security -> User Provisioning -> Add**.

9 Enter the following information for each user who is to use the cut-through:

Name is a 2 to 10 character string that represents the name of the Navis™ Optical NMS user.

Alias is another, possibly abbreviated name, for the Navis™ Optical NMS user.

Password is a 6 to 10 character string that must include at least two alphabetical characters, at least one numeric character, and at least one special character. These special characters are not permitted (: , ;).

Confirm Password is the 6 to 10 character string that was entered in the **Password** field.

Login Type is ITM-NM.

Enter the default for all other fields.

10 Click **OK**.

11 Start traces by typing the following commands:

```
tracestrt -p tmf_notifsvr -s tmf_nci -t -5
tracestrt -p tmf_gateway -s tmf_nci -t -5
tracestrt -p SB_TL1Mgr -s SB_TL1Mgr -t -5
```

END OF STEPS

□

Add an ITM-SC

Purpose Use this task to add an ITM-SC on the Navis™ Optical NMS.

Important! This task must be run for each ITM-SC to be added. The number of ITM-SCs that may be added varies with the Navis™ Optical NMSconfiguration installed. The limit for ITM-SC is 20 subnetwork controllers. When the limit is reached, an error message is displayed after the last step of the procedure to inform the user that the EMS could not be added because it exceeded the number allowed.

Before you begin Before you begin this task, collect the following information:

- system name for the ITM-SC to be added
- IP address for the ITM-SC to be added

Task Perform the steps below to add an ITM-SC.

1 Log in as `root` to the Navis™ Optical NMS host.

2 At the prompt, enter `ksh /usr/dacscan/bin/add.controller` and press **Enter**.

Result:

A list displays.

3 At the prompt, enter `8` and press **Enter**.

Result:

The following prompt is displayed:

```
What is the name of the ITM-SC?
```

4 Enter the name of the ITM-SC then press **Enter**.

Result:

You are prompted to confirm your entry.

5 View the entry, then enter `y` if it is correct, or `n` if it is not correct, and then enter the correct entry to continue.

Result:

You are prompted to enter the IP address for the ITM-SC.

6 Enter the `IP address` then press **Enter**.

Result:

You are prompted to confirm your entry.

7 View the entry, then enter `y` if it is correct, or `n` if it is not correct, and then enter the correct entry to continue.

Result:

You are prompted to enter the Acronym.

8 Enter the acronym using all capital letters. Note that this entry is a unique identifier, which should not be more than four characters long. Generally, the first four characters of the ITM-SC hostname are used.

Result:

You are prompted to confirm your entry.

9 View the entry, then enter `y` if it is correct, or `n` if it is not correct, and then enter the correct entry to continue.

Result:

The user, `i2kadmin` is created and you are prompted to enter a new password for the new user ID.

10 At the prompt, enter a password and then re-enter the same password to continue.

Result:

The original activity screen displays.

11 Continue with one of the following steps.

- If you have ***have*** additional ITM-SCs to add, for example, if a geographic redundancy configuration is in place, repeat Step 3 through Step 10 to continue.
- If you ***do not have*** additional ITM-SCs to add, proceed to the next step.

12 Using the system console, log in to the new EMS as `root`.

13 Enter `/opt/itm/sc/toolbox/bin/itmsc_set_itmnm_name` to configure the EMS to communicate with Navis™ Optical NMS.

Result:

The ITM-SC is added.

END OF STEPS

□

Set Up ITM-SC for a Cut-Through

Purpose Use this task to configure ITM-SC for a cut-through.

Before you begin Before you begin this task, be sure that:

- the Navis™ Optical NMS and ITM-SC servers are fully installed.
- the ITM-SC server is running when this task is being performed.
- a user ID already exists with privileges that will permit cut-through to the ITM-SC.

Task Perform the steps below to configure an ITM-SC for cut-through purposes.

1 Login as `root` to the Navis™ Optical NMS server.

2 At the prompt, enter `who -r`.

Result:

The current run-level displays.

3

IF	THEN
the run-level value is 3 (or less),	proceed to the next step.
the run-level value is ***greater*** than 3, and this is a ***single server configuration***,	type `init 3` and proceed to the next step.
the run-level value is ***greater*** than 3, and this is a ***geographic redundancy configuration***,	use the "Stop the Navis™ Optical NMS Application on a Geographic Redundancy Configuration" (3-21) task.
the run-level value is ***greater*** than 3, and this is a ***local redundancy configuration***,	use the "Stop the Navis™ Optical NMS Application on Local Redundancy Configurations" (3-26) task.

4 At the prompt, enter `ksh /usr/dacscan/bin/add.controller` and press **Enter**.

Result:

A list displays.

5 At the prompt, enter `8` and press **Enter**.

Result:

The following prompt is displayed:

```
Which type of EMS Controller do you want to cut-thru
from ITM-NM GUI?
```

6 Enter the name of the ITM-SC to be added for cut-through support then press **Enter**.

Result:

You are prompted to confirm your entry.

7 View the entry, then enter `y` if it is correct, or `n` if it is not correct, and then enter the correct entry to continue.

Result:

You are prompted to enter the IP address for the ITM-SC.

8 Enter the `IP address` then press **Enter**.

Result:

You are prompted to confirm your entry.

9 View the entry, then enter `y` if it is correct, or `n` if it is not correct, and then enter the correct entry to continue.

Result:

You are prompted to enter the Acronym.

10 Enter the acronym using all CAPS. Note that this entry is a unique identifier, which should not be more than four characters long. Generally, the first four characters of the ITM-SC hostname are used.

Result:

You are prompted to confirm your entry.

11 View the entry, then enter `y` if it is correct, or `n` if it is not correct, and then enter the correct entry to continue.

Result:

The user, `i2kadmin` is created and you are prompted to enter a new password for the new user ID.

12 At the prompt, enter a password and then re-enter the same password to continue.

Result:

The script completes then exits.

13 Continue with one of the following steps.

- If an MC/ServiceGuard configuration is in place, repeat Step 4 through Step 12 to continue.
- If an MC/ServiceGuard configuration is not in place, proceed to the next step.

14 At the prompt, enter `/usr/dacscan/bin/AddEMS.sh` to configure the desktop cut-through for the ITM-SC.

Result:

A menu displays.

15 Select **ITM-SC (SDH add/drop multiplexers)**.

16 At the `Enter the SC Server Name, then press [return]:?` prompt, enter the hostname of the Navis™ Optical EMS.

17 At the `Enter the Version of the SC <ITM–SC Name>, then press [return]:` prompt, enter the Navis™ Optical EMS version.

Important! Press **Return** if this is not applicable.

18 At the `Are the WS-NMS GUI and SC GUI installed on the same desktop (y/n)?` prompt, enter `y` if a joint workstation is deployed or `n` if the Navis™ Optical NMS and Navis™ Optical EMS GUIs are running on separate machines.

19 Continue with one of the following options.

- If `n` was selected in the last step, enter the IP address of the Navis™ Optical NMS GUI, enter **all** if you want all Navis™ Optical NMS desktops to access the same pool of ITM-SC GUI workstations, then enter the IP address of the ITM-SC GUI.
- If `y` was selected in the last step, enter the IP address of the Navis™ Optical NMS and ITM-SC GUIs (when prompted).

20 Review the displayed prompt, then enter `y` if the information is correct.

Result:

The original list displays.

21 Continue with one of the following steps.

- If an MC/ServiceGuard (local redundancy) configuration is in place, repeat Step 14 through Step 20 to continue.
- If an MC/ServiceGuard configuration is not in place, proceed to the next step.

22 Select `quit` from the displayed list.

23 Start the Navis™ Optical NMS application with one of the following options:

- If a single server configuration applies, use the "Start the Navis™ Optical NMS Application on a Single Server" (3-6) task.
- If an MC/ServiceGuard (local redundancy) configuration applies, use the "Start the Navis™ Optical NMS Application on a Local Redundancy Configuration" (3-24) task.
- If an geographic redundancy configuration applies, use the "Start the Navis™ Optical NMS Application on a Geographic Redundancy Configuration" (3-20) task.

24 At the prompt, enter **who -r**.

Result:

The run-level status displays.

END OF STEPS

□

Cut-Through to an EMS

Purpose Use this task to cut-through to ITM-SC or Navis™ Optical EMS using the Navis™ Optical NMS.

Task Perform the step below to cut-through to ITM-SC or Navis™ Optical EMS EMSs.

1 On the Network Map or the Network Controller Map, right-click on an EMS, then select then select **Session > Login to EMS**.

Result:

A dialog box displays, indicating that the request is processing.

END OF STEPS

□

Verify the Run Status of the Navis™ Optical EMS Application on the HP Server

Purpose This task is used to verify the run status of the HP server running the Navis™ Optical EMS application.

Task Use these steps to verify the run status of the Navis™ Optical EMS application on the HP server.

1 Log in into the HP server running the Navis™ Optical EMS application as `ems`.

2 At the prompt, enter `appstat`.

Result:

The system displays the current run level.

3 If the system displays `CURRENT RUN LEVEL IS: Running`, no action is needed.

If the system displays `Can not connect to server and CURRENT RUN LEVEL IS: SHUTDOWN`, type `up` to bring the application up.

END OF STEPS

□

Verify the Communication Status of the Navis™ Optical EMS Application and a Network Element

Purpose This task is used to verify the communication status of the Navis™ Optical EMS application and a network element.

Task Use this task to verify the communication status of the Navis™ Optical EMS application and a network element:

1. Log in into the HP server running the Navis™ Optical EMS application as `ems`.

2. At the prompt, enter `cmtool -a`.

   Result:

   The system displays a list of network elements.

3. Examine the list of network elements to determine which network elements on the list show a `Link Status` of `Up`. These network elements are communicating with the Navis™ Optical EMS application.

END OF STEPS

□

Synchronize the Navis™ Optical NMS Database with an EMS Database

Purpose This procedure is used to synchronize the Navis™ Optical NMS database with an EMS database.

Task Complete the following task to synchronize the Navis™ Optical NMS database with an EMS database.

1 From the Network Map, select **File -> Open Network Controller Map**.

Result:

The Network Controller Map is displayed.

2 On the Network Controller Map, right-click the desired EMS node, then select **Node -> Session -> Start Database Synchronization**.

Result:

The Database Download/Synchronization form is displayed and its **EMS ID** field is pre-populated with the name of the EMS.

3 From the **Type** field's drop-down menu, select a synchronization type then press **Apply**.

4

IF	THEN
You select **Alarm**,	an alarm synchronization occurs with all the network elements under control of this EMS.
You select **Port**,	a port synchronization is initiated.
You select **Switch**,	a switch synchronization is initiated.
You select **All**,	a full frame synchronization process occurs, including alarm, equipment, switch, cross-connect, and protection group synchronization.

IF	THEN
You select **Cross Connect**,	a cross-connections synchronization process occurs to update the From Port, To Port, and type of cross-connection information in the Cross-Connection Map database.
You select **Protection Group**,	a synchronization occurs to the listed protection groups.

END OF STEPS

□

Refederate a Navis™ Optical EMS Server

Purpose

This procedure is used to refederate a Navis™ Optical EMS Server.

When the Navis™ Optical EMS application is upgraded to a new release, the Navis™ Optical EMS server(s) must be refederated, which involves re-establishing the association between the Navis™ Optical NMS and Navis™ Optical EMS Orbix instances.

> **Important!** This task applies to Navis™ Optical EMS R4.2 (or greater). If the task is not run, communication would be severed between the Navis™ Optical EMS server(s) and the Navis™ Optical NMS server because the associated Inter-operable Object Reference (IOR) string would be lost. The task also relies on the naming service repository being intact. If corruption is suspected, refer to Navis™ Optical NMS release notes.

Before you begin

Be sure that the Navis™ Optical NMS server is at run level 4. See "Run level 4" (C-2) for details.

Task

Complete these steps below to refederate Navis™ Optical EMS server(s) from a Navis™ Optical NMS server.

1 Using a terminal window on the Navis™ Optical NMS server, log in as `dacscan`.

2 At the prompt, enter `cd /usr/dacscan/toolbin`.

Result:

The directory is changed to `toolbin`.

3 At the prompt, enter `. refederate_snms <Navis™ Optical EMS_hostname>`.

4 Using a terminal window on the Navis™ Optical NMS server, log in as `root`.

5 Determine whether or not the version of the Navis™ Optical EMS has changed.

- If the version of the Navis™ Optical EMS ***has not changed***, proceed to Step 16 to continue.
- If the version of the Navis™ Optical EMS ***has changed***, continue with the next step.

6 At the prompt, enter `init 3` to bring Navis™ Optical NMS to run level 3.

7 At the prompt, enter `/usr/dacscan/bin/AddEMS.sh`.

8 Select option **2** (for Navis™ Optical EMS server).

9 At the `Enter the SNMS Server Name, then press [return]:?` prompt, enter the hostname of the Navis™ Optical EMS.

10 At the `Enter the Version of the SNMS <SNMS Name>, then press [return]:` prompt, enter the Navis™ Optical EMS version.

11 At the `Are the WS-NMS GUI and SNMS GUI installed on the same desktop (y/n)?` prompt, enter `y` if a joint workstation is deployed or `n` if the Navis™ Optical NMS and Navis™ Optical EMS GUIs are running on separate machines.

12 If `y` was selected in the last step, enter the IP address of the Navis™ Optical NMS and Navis™ Optical EMS GUIs (when prompted). If `n` was selected in the last step, enter the IP address of the Navis™ Optical NMS GUI, and then enter the IP address of the ITM-SC GUI.

13 Review the displayed prompt, then enter `y` if the information is correct.

14 Select `quit` from the displayed list.

15 At the prompt, enter `init 4` to bring Navis™ Optical NMS to run level 4.

16 At the Navis™ Optical NMS client GUI, click the desired Navis™ Optical EMS server icon, then select **Session > Start Communication**.

Result:

A dialog box containing the following text displays: `START SESSION COMMAND SENT FOR FRAME:<ems_ name>`.

17 On the dialog box, click **OK**.

Result:

Communication is re-established between the Navis™ Optical EMS and Navis™ Optical NMS servers. The **emsmap.cfg** file is also automatically updated where necessary; therefore, editing this file is not required.

If communication cannot be immediately established with the refederated Navis™ Optical EMS server, restart the Navis™ Optical NMS application using the **init 3/init 4** commands. See ***Start the host application*** in Chapter 3, "System Administration" for details.

18 For each Navis™ Optical EMS server to be refederated, repeat Step 1 through Step 16 of this task.

END OF STEPS

□

Section II: Miscellaneous Management Communication Tasks

Overview

Purpose This section contains a LAN communications task.

Contents

Enable or Disable LAN Communications

Purpose Use this task to enable or disable the LAN.

Task Complete these steps to enable or disable the LAN communications using either `sam` or by entering a command:

1 Using the system console, log into the primary host as `root`.

2 Determine if you are using `sam` or command line entries to enable or disable the LAN.

IF	THEN
`sam` will be used:	Bring up `sam`. Select **Network Communications > Network Interface Cards**. Select the card that you want to enable/disable. Click **Actions** and **Enable** or **Disable**.
command entries will be used:	at the prompt, enter `ifconfig up` to enable the LAN or `ifconfig down` to disable the LAN.

END OF STEPS

□

Section III: Database Audit and Synchronization

Overview

Purpose

This section describes alarm database audits and database synchronization processes and their impact to stored data.

Contents

Alarm Database Audit

Overview

To optimize certain searches, the Navis™ Optical NMS fault management module has data storage redundancy, which results in an occasional deviation in data. The Alarm Database Audit feature corrects this deviation in data.

A nightly cron job triggers—according to a schedule defined during installation—an Alarm Database Audit.

The cron job is not triggered if an alarm synchronization with an EMS is currently in progress. An automatic audit occurs after a manually triggered alarm synchronization with an EMS.

At the end of the Alarm Database Audit, a message indicates that the audit is completed. A message is not broadcast if the Alarm Database Audit does not find any discrepancies.

□

Database Synchronization

Overview

The Database Synchronization form is used to synchronize the Controller database and the database of an individual digital cross-connection system. The synchronization can be a partial or a full synchronization.

The Controller supports the following types of Database Synchronization processes:

- Alarm Database Synchronization
- Cross Connection Map Database Synchronization
- Equipment Database Synchronization
- Complete Database Synchronization

Facility-based port parameter data synchronization can only be performed manually (on-demand). The other three types of data synchronization can be performed either automatically or manually. The Controller displays associated commands, data, and status messages on the Database Synchronization form.

□

11 Trouble Clearing

Overview

Purpose

This chapter describes how to turn on the trace capability and to view trace files.

For information on fault management and performance monitoring tasks, refer to the ***Navis™ Optical NMS Maintenance Guide***.

Navis™ Optical NMS home directory

The home directory of Navis™ Optical NMS is **/usr/dacscan**. The application servers reside in the bin directory of the home directory. Each server has trace information linked to it and it can be turned on and off via the **tinfo** file in **/usr/dacscan/bin**.

> **Important!** The trace files should never be removed while the application is up under any circumstances.

Definition: trace file

A trace file contains information that identifies equipment status at a given point in time. The typical use of a trace file is to send it to Lucent technical support to be used as part of their remote troubleshooting activities.

Contents

Turn on the Trace Capability for Troubleshooting

Purpose

This procedure is used to turn on the trace capability in the appropriate trace configuration file. The system administrator can turn on, capture, and send trace data to Lucent Customer Support when troubleshooting problems.

Before you begin

Trace should only be turned on when requested by Lucent Customer Support.

In this procedure, you will be required to edit a file. To avoid losing data, consider making a copy of this file before editing. If you choose to copy this file, remember to delete it from the system when you are finished editing.

Task

Complete these steps to turn on the trace capability in the appropriate trace configuration file:

1 Using one of the ***Create Trace*** tasks provided in this chapter, edit the appropriate trace configuration file to turn on trace.

2 Re-initiate the condition to be checked.

Result:

Trace output should be produced.

3 Send the trace output to Lucent Customer Support.

4 Edit the appropriate trace configuration file to turn off trace.

END OF STEPS

□

Create a Host Trace File on a Server

Purpose Use this procedure to turn on a host trace at a particular server and to create a host trace file for capturing information.

Before you begin The application must be at run level 3.

Task Complete these steps to create a trace file:

1 Enter the command `who -r` to check the current run level.

Result:

The run level number displays, such as `run-level 3`.

2 If the displayed run level is higher than 3, enter the command `init 3` to bring the application up to run level 3.

3 Using the system console, log in to the primary host as `dacscan`.

4 At the prompt, enter **cd /usr/dacscan/bin** to change to the directory containing the **tinfo** file.

5 To edit the **tinfo** file, enter **vi tinfo**.

6 In the **tinfo** file, locate a line containing the following format: **<servername> -1 0 <servername>. 0 Y**.

Important! In your **tinfo** file, **<servername>** will be replaced with the actual server name.

7 To increase the trace level from `0` (the lowest level) to `5`, press the **Esc** button, then type `:1,$s/-1 0/-1 5/` then press **Enter**.

Result:

The lines containing those entries will be substituted with the higher trace level value, such as `<servername> -1 5 <servername>.0 y`

8 Save and exit the file.

Result:

The file is saved with the new trace level.

9 At the prompt, enter **init 4** to bring the application up to run level 4.

Result:

Trace is turned on. A trace file is generated and contains a name in the following format: **<process_name>.<pid>.<hostname>**, where the **<process_name>** is the FM or southbound/northbound process, such as ***fm_notif*** or ***tmf_gateway***.

10 Verify that the trace file **/dacscan/trace/<servername>.<pid>** exists.

Result:

The file displays in the appropriate directory.

11 To decrease the trace level from `5` to `0`, repeat Step 4 to Step 6 to bring up the `tinfo` file.

Result:

The `tinfo` file displays .

12 Press the **Esc** button, then type `:1,$s/-15/-10/` then press **Enter**.

13 Write and save the file.

Result:

The file is saved with the new trace level.

To increase the available space in the `/dacscan/trace` directory, only retain the latest version of each file, and use `rm ulog.<old_date>` command to remove old trace files.

END OF STEPS

□

Create a Trace File for FM and the Southbound/Northbound Interface

Purpose This procedure is used to create a trace file on a particular server for fault management (FM) and the southbound/northbound interface configuration.

Before you begin The application must be at run level 3.

Task Complete these steps to create a trace file for FM and the southbound/northbound interface configuration:

1 Enter the command `who -r` to check the current run level.

Result:

The run level number displays, such as `run-level 3`.

2 If the displayed run level is higher than 3, enter the command `init 3` to bring the application to run level 3.

3 Using the system console, log in to the primary host as `dacscan`.

4 At the prompt, enter **cd /usr/dacscan**.

5 Type `ls` to display a list of files.

Result:

The system displays a list of files.

6 Verify that the **NMSconfig** file exists.

7

IF	THEN
the NMSconfig file exists,	go to step 9.

IF	THEN
the NMSconfig file does not exist,	create the file with the following information: EMSTRACEON fm_notif -1 -1 0 EMSTRACEON fm_gfs -1 -1 -1 EMSTRACEON fm_rms -1 -1 -1 EMSTRACEON fm_tt 0 -1 0 EMSTRACEON fm_server -1 -1 0 EMSTRACEON coproc -1 -1 0 EMSTRACEON SBGW200LSrv -1 -1 -1 EMSTRACEON Cor2tuxSvr -1 -1 -1 EMSTRACEON brokerSrv -1 -1 -1 EMSTRACEON I2KNL -1 -1 -1 EMSTRACEON fm_fls -1 -1 0 EMSTRACEON tmf_gateway -1 -1 0 EMSTRACEON STMFGWSrv -1 -1 -1 EMSTRACEON ExtObserverSrv -1 -1 -1 EMSTRACEON ExtAlarmSynchSrv -1 -1 -1 TRACELOGSIZE 5000

8 Save and exit the file.

Result:

The file is saved with the new trace level.

9 At the prompt, enter **init 4** to bring the application up to run level 4.

Result:

Trace is turned on.

10 At the prompt, enter cat NMSconfig to verify that the trace file exists.

Result:

The file displays.

END OF STEPS

□

Create a Trace File on an HP-UX Workstation

Purpose

This procedure is used create a trace file for capturing information on an HP-UX workstation. Use this procedure if you want to increase global tracing and turn on the F-interface tracing.

Important! Trace files should never be removed.

Before you begin

Start the Navis™ Optical NMS application; see the "Start the Navis™ Optical NMS Application on an HP-UX Workstation" (3-11) task for details.

In this procedure, you will be required to edit a file. To avoid losing data, consider making a copy of this file before editing. If you choose to copy this file, remember to delete it from the system when you are finished editing.

Task

Complete these steps to turn create a trace file on an HP workstation:

1 Log in to the HP-UX workstation as `dacscan`.

2 Edit the **/usr/add-on/ui/jui/bin/run_jnm** file by changing `gt=1` to `gt=4 fint.tr=4`.

3 Save the edited **run_jnm** file.

4 Shut down and restart the Navis™ Optical NMS GUI; see the "Stop the Navis™ Optical NMS Application on a Desktop" (3-14) and "Start the Navis™ Optical NMS Application on an HP-UX Workstation" (3-11) tasks.

Result:

Tracing is turned on and a trace file is generated.

5 Verify that the trace file exists.

Result:

The file displays in the appropriate directory.

END OF STEPS

Create a Trace File on a PC

Purpose

This procedure is used create a trace file for capturing information on a PC console. Use this procedure if you want to increase global tracing and turn on the F-interface tracing.

Important! Trace files should never be removed.

Before you begin

Start the Navis™ Optical NMS application. See the "Start the Navis™ Optical NMS Application on a Windows PC" (3-12) task for details.

In this procedure, you will be required to edit a file. To avoid losing data, consider making a copy of this file before editing. If you choose to copy this file, remember to delete it from the system when you are finished editing.

Task

Complete these steps to turn create a trace file on a Windows PC:

1. Log in to the PC as `sa`.

2. Edit the **<drive>:\jui\bin\run_jnm.bat** file by changing `gt=1` to `gt=4 fint.tr=4`.

3. Save the edited **run_jnm.bat** file.

4. Shut down and restart the Navis™ Optical NMS GUI; see the "Stop the Navis™ Optical NMS Application on a Desktop" (3-14) and "Start the Navis™ Optical NMS Application on a Windows PC" (3-12) tasks.

   Result:

   Tracing is turned on and a trace file is generated.

5. Verify that the trace file exists.

   Result:

   The file displays in the appropriate directory.

END OF STEPS

□

View the Log Files

Overview

Operator transaction logs are stored in compressed format in the **/dacscan/log/data** directory with the following naming convention:

<log-prefix>.<julian-date>.<hour>.<minute>

The following is a list of log files:

- sys (System Event) - records all system error messages. File name is **nms.log.<hostname>**.
- dcs (Digital cross connect log) - records communication information with the DACS in the network. File name is **ne.log.<hostname>**.
- Notification log file - **notif.log.<hostname>**
- Orbix log file - **orbix.log.<hostname>**.
- HP client log file - File name is **console.log** and is stored at **/home/<user_name>/NM/<workstationname>.<pid>/jui/logs \ /console.log**
- PC client log file - The file is stored at **<drive>:\jui\logs\<user>.log**

All log files are maintained up to seven days; the oldest file is overwritten first. One log file is retained for each day of the week.

Event files

All significant events associated with the database backup and transfer scheme are logged.

The events are also retained in log files in **/dacscan/tmp**.

Log file management for joint workstations

Joint workstation logs record all ICA client sessions from a joint workstation. The log files for the joint workstation are not automatically deleted by the system. For space consideration, it is recommended that the system administrator or user manually delete the log files that are no longer necessary.

Location of log files

Joint workstation log files are located in c:\jui\logs and use the format <username><win station name>#<a random number> where:

- <username> is any valid user
- <win station number> is the console on which the GUI is run

- # is the actual character #
- <a random number> is any random number assigned (<999). The random number is attached to the log file to prevent a user with the same user ID from overwriting a log file that is already in use.

□

View the Log File on an HP Workstation

Purpose This procedure is used to view the log file residing on an HP workstation.

Task Complete these steps to view the log file:

1 Using the system console, log in to the primary host as `dacscan`.

2 Change to the directory containing the log file to be viewed:

`cd /<full_directory_pathname>` **cd /<full_directory_path>**

For example, `cd /home/<user>/NM/<workstation>.<pid>/jui/logs/console.log`

3 Enter `pg <logfilename>.log`.

Result:

The contents of the log file are displayed.

END OF STEPS

□

Clear Trace Files on a Server

Purpose This procedure is used to clear trace files on a server.

Important! Be sure that you are in the correct directory because all deleted files ***will not*** be recovered.

Task Complete these steps to clear trace files on a server:

1 Using the system console, log in to the primary host as `dacscan`.

2 At the prompt, type: `cd /dacscan/trace`.

Result:

The directory is changed to the one containing the trace files.

3 At the prompt, type:

```
for i in 'ls'
do
>$i
done
```

Result:

The contents of the trace file are cleared.

END OF STEPS

□

Create a Single File for Trace Data

Purpose Use this task to create one file containing information from one or more trace files produced on the server.

Task Perform the steps below to copy trace source into one file.

1 Using the system console, log in to the primary host as `dacscan`.

2 At the prompt, type `cd /dacscan/trace`.

Result:

The directory has changed to the one containing the trace files.

3 At the prompt, type `tar cvf trace.tar ./*`.

Result:

The files will be copied into a single file.

END OF STEPS

□

View the console.log File on a PC

Purpose This procedure is used to view the console.log file residing on a PC.

Task Complete these steps to view the log file:

1 Log in to the PC as **sa**.

2 Using Notepad or Wordpad, display the **console.log** file which resides in **<drive_letter>:\jui\logs\<user>.log**.

Result:

The file displays.

END OF STEPS

□

12 Software Release, Version, and Patch Information

Overview

Purpose

This chapter contains information on how to display the current software release and load ID, how to determine which software patch is loaded, and how to display the software version number.

Contents

Display the Software Release and Load ID

Purpose This procedure is used to display the Navis™ Optical NMS release number and load ID.

Task Complete these steps to display the Navis™ Optical NMS release number and load ID:

1 Log into the server as **root** or **dacscan**.

2 To display the release number, enter `cat /etc/dscan/release`.

Result:

The current release number is displayed.

3 To display the load ID, enter `cat /etc/dscan/ws-nmshr-loadid`.

Result:

The current load ID is displayed.

END OF STEPS

□

Display the Current Software Patch Loaded

Purpose This procedure is used to display the current software patch that is loaded.

Task Complete these steps to display the current software patch that is loaded:

1 Using the system console, log in to the primary host as `dacscan`.

2 At the prompt, type `swlist | grep PATCH`.

Result:

A complete patch list displays.

END OF STEPS

□

Display the Version Number of the Application Software

Purpose This procedure is used to display the version number of Navis™ Optical NMS software.

Task Complete this step to display the version number of the application software:

1 From the Network Map, select **Help > Version**.

Result:

The version number of the currently installed application software and the build date of that software are displayed.

END OF STEPS

□

Appendix A: Navis™ Optical NMS Filesystems

Navis™ Optical NMS file systems

Introduction

This appendix contains a list of the Navis™ Optical NMS file systems.

List of file systems

The following lists the directory structure supported within Navis™ Optical NMS.

1. Root directory (**/**)
2. OS kernel (**/stand**)
3. Spool directories (**/var**)
4. Core OS components (**/usr**)
5. Optional software (**/opt**)
6. Provisioning documents directory (**/dacscan/prov**)
7. Alarms directory (**/dacscan/alarms**)
8. Three Oracle tablespace directories (**/oradb**, **/oradb2**, **/oradb3**)
9. Application logs directory (**/dacscan/log**)
10. Database redo logs and archives directory (**/dacscan/dbarch** and **/dacscan/journal**)
11. Application users directory (**/dacscan/users**)
12. Application trace information directory (**/dacscan/trace**)
13. Temporary directory (**/tmp**)
14. Application temporary space (**/dacscan/tmp**)

15. Application software (**/usr/dacscan**)
16. Application software patch history (**/patch**)
17. Filesystem used for the PAMs feature **(/ITM_QA)**

□

Appendix B: Navis™ Optical NMS Configuration Parameters

Overview

Description To change Navis™ Optical NMS configuration parameters, contact Lucent Customer Support.

□

Appendix C: Navis™ Optical NMS Common UNIX Commands and Tasks

Overview

Purpose This appendix explains some UNIX commands that are used in the administration process. Some commands in this appendix are used in the tasks provided in this document; other commands can be used to access remote systems or to verify network communication status.

□

init Command for Changing Run Levels

Introduction An `init` command is used to change the run level of the Navis™ Optical NMS application on an HP-UX machine. The following describes two run levels, ***run level 3*** and ***run level 4***.

Run level 3 When the system administrator enters the **init 3** command, it causes the system to switch to run level 3, which shuts down the Navis™ Optical NMS application. The **init 3** command would be entered, for example, before creating a trace file.

Run level 4 When the system administrator enters the **init 4** command, it causes the system to switch to run level 4, which starts up the Navis™ Optical NMS application. The **init 4** command would be entered, for example, after a trace file has been created.

□

who Command for Verifying System Run Level

Purpose The `who` command allows you to verify system run level.

Task Complete these steps to determine the current run level of the system:

1 Log into the host as `root`.

2 At the prompt, enter `who -r`.

Result:

A message displays a line of current run level information, such as `run-level 3 Dec 30 11:26 3 0 S`.

END OF STEPS

□

ping Command for Verifying Communication

Purpose The `ping` command is used to determine whether it is possible to communicate with a remote system. Failure to communicate may be caused by the remote system being switched off or the communication link not working correctly.

Task Complete these steps to use the `ping` command:

1 Log in to the host as `root`.

2 Enter `ping <hostname> <-n number>`; where: `hostname` is the name of the host to be pinged and `-n number` is the number of packets to be pinged.

Result:

When a user enters `ping <host_name> –n 10` at a prompt, output similar to the following displays:

```
PING <host_name>.lucent.com: 64 byte packets
64 bytes from <ip_address>: icmp_seq=0. time=155. ms
64 bytes from <ip_address>: icmp_seq=1. time=155. ms
64 bytes from <ip_address>: icmp_seq=2. time=155. ms
64 bytes from <ip_address>: icmp_seq=3. time=154. ms
64 bytes from <ip_address>: icmp_seq=4. time=155. ms
64 bytes from <ip_address>: icmp_seq=5. time=154. ms
64 bytes from <ip_address>: icmp_seq=6. time=154. ms
64 bytes from <ip_address>: icmp_seq=7. time=155. ms
64 bytes from <ip_address>: icmp_seq=8. time=155. ms
64 bytes from <ip_address>: icmp_seq=9. time=157. ms
----<host_name> PING Statistics----
10 packets transmitted, 10 packets received, 0%
packet loss round-trip (ms) min/avg/max = 154/154/157
```

3

To stop ping, type Ctrl C.

Result:

The ping command is now stopped.

END OF STEPS

□

telnet Command for Initiating Remote Sessions

Description The `telnet` command is used to initiate a session on a remote system. When `telnet <system_name>` is entered at a prompt, the system requests the user to type the login ID and password. Once successfully logged in, the session is active until the user logs off of the remote system.

□

uname Command for Displaying System Information

Purpose The `uname` command allows you to identify the system with which a terminal is communicating.

Task Complete these steps to display system information:

1 Log into a terminal as `root`.

2 At the prompt, enter `uname –a`.

Result:

A line similar to the following displays:

```
HP-UX <host_name> B.11.00 A 9000/810 2013485357
two-user license.
```

END OF STEPS

□

lanscan Command for Viewing LAN Status

Purpose The `lanscan` command allows you to view the status of any of the LANs that are connected to the machine, including the LAN that connects the Navis™ Optical NMS to the EMS.

Task Complete these steps to view LAN status information:

1 Using the system console, log into either the primary or the standby host as `root`.

2 Enter `lanscan`.

Result:

The LAN status information is displayed.

END OF STEPS

□

vgdisplay Command for Verifying Mirroring Status

Purpose

The `vgdisplay` command is used to verify that the application and databases residing on separate disks are synchronized.

About the mirrored disk configuration

A mirrored disk configuration eliminates the need to have a second server to serve as a backup. The application and database that reside on separate disks are mirrored onto a second set of disks. Information that is written to disk is reflected onto the mirrored counterpart. It is recommended that the mirroring status is checked from time to time to ensure that all the mirrored information is synchronized with the primary information.

Before you begin

Ensure that the LVSTATUS is set to SYNC.

Task

Complete these steps to obtain mirroring status:

1 Using the system console, log into the primary host as `root`.

2 Enter `vgdisplay -v | pg` at the # prompt.

Result:

The mirroring status displays.

END OF STEPS

□

shutdown Command for Halting or Rebooting Servers

Purpose

The `shutdown` command is used to halt or reboot the servers.

Before you begin

The format for the shutdown command is the following:

`shutdown -<hy/ry> <seconds>`

Where: `shutdown` is the command verb used to halt or reboot the servers.

`-hy` specifies that the servers are to be shut down using the halt option.

`-ry` specifies that the servers are to be shut down using the reboot option.

`<seconds>` specifies the numbers of seconds that are to elapse before the shutdown commences.

Task

Complete these steps to halt or reboot the servers:

1 Log in to the server as `root`.

2 To shut down the server using the halt option, at the prompt type `shutdown -hy 0`.

To shut down the server using the reboot option, at the prompt type `shutdown -ry 0`.

Result:

The server is shut down.

END OF STEPS

□

ps Command for Information About Active Processes

Purpose The ps command is used to view information about active processes.

Before you begin A helpful note—by ***piping*** the output of the ps command to the wc (word count) command, the system can display line, word, and byte counts. For example: ps -ef | wc. The output would show numbers such as 33 17 12, which would represent the line, word, and byte counts of the process.

Task Complete these steps to use the ps command:

1 Log in to the host server as root.

2 At the system prompt, enter the ps command: ps.

Result:

The system outputs information about the active processes.

END OF STEPS

□

Glossary

A

Action
Order Action - Represents the work activities against a facility/circuit order.

Add Channel
One direction of a bidirectional signal; a wavelength being added into the single flow.

Add Side
Hardware that handles a signal coming in from the network to an end terminal.

ADM
Add-drop multiplexer

Aggregate
A collection of one or more network elements and/or aggregates. An aggregate is represented by a single icon on the Network Map.

AIS
Alarm Indication Signal

AL
Alarm List

Alarm
An event, or a pair of events, that indicates there is a problem that must be resolved by the operator. Alarms appear in the Alarm List. There are different types of alarms, including current alarms, repeat alarms, and historic alarms.

Alarmed Object
A network resource on which a problem exists or has existed, and on which a user needs to take action. The network resource can be a piece of equipment, a port, or a trail.

Archive
The act of copying information to an external device. The file may then be referred to as an archive file.

Area

Networks managed by Navis™ Optical NMS can be subdivided into smaller, manageable networks called areas. An area is a collection of nodes and/or aggregates, and their associated links. An area is represented by a single icon on the Network Map. Subdividing a network into areas reduces overcrowding on the display and improves system performance because smaller amounts of information are exchanged by the subsystems.

Assignable

A characteristic of a trail set at the time of provisioning. In Navis™ Optical NMS, a trail should be set as assignable if it is expected that at least one client trail will be provisioned for it.

B BBE

Background Block Errors - An errored block not occurring as part of an SES.

Black box

A functional network unit, displayed on the Network Map, that is not monitored or controlled by Navis™ Optical NMS. An example of a black box is a non-Lucent network element.

BLSR

Bidirectional Line Switched Ring

C CAC

Circuit access code - A code unique to a particular circuit that equates to a particular Circuit Identification name for the same facility/circuit. The code is randomly generated in the circuit provisioning system. The CAC does not change during a facility's lifetime.

Catalogued connection

A connection that physically or logically exists in the network, and that is recorded in Navis™ Optical NMS.

Channel

When either a digital link, path, or facility is channelized, it is subdivided into channels. For Time Division Multiplexing (TDM) equipment, channels represent the time slots with which information is carried within a digital link or in a server trail. Channels are created by Navis™ Optical NMS for use during circuit/trail provisioning. When creating channels for digital links, depending on the network element capability, alternate channels are created. The channel is given an identity when it becomes either a provisioned path or facility, or a subdivision of a digital link, path, or facility.

Channel Type

Indicates the type of channel riding on a facility/circuit.

Circuit
A transmission path through the network, terminating at equipment at both the A and Z ends. The transmission path combines equipments and channels of facilities. The circuit has a defined purpose such as data, video, or voice.

Circulate
The act of moving the window at the bottom of a stack (of windows) to the top of the stack.

CKT
Circuit

CLO
Circuit Layout Order - Code (number) identifying a specific circuit layout order (configuration), and used as the work item tracking key for a circuit order.

COI
Complete Order/Item state - The last state in most circuit order life cycles.

Cold backup
A backup that is performed while Navis™ Optical NMS is not running.

Combo circuit
The SDH version of ***one step combo*** provisioning is an optional feature in which ***24N***, ***30N***, ***480N***, ***672N***, ***672N***, and ***1920N*** circuits/paths can be provisioned without an explicit provisioning of ***TU12-VC11S***, ***VC-12***, ***VC-3***, ***AU3S***, and ***VC-4*** respectively. These circuits/paths provisioned via ***one step*** provisioning are identified using ***VC12S-24N***, ***VC12S-30N***, ***VC3S–480N***, ***VC3S-672N***, ***AU3S-672N*** and ***VC4S-1920N*** respectively. The selection of either ***TU12-VC11S-24N***, ***VC12S-30N***, ***VC3S-480N***, ***VC3S-672N***, ***AU3S-672N*** or ***VC4S-1920N*** for provisioning is the selection of ***24N***, ***30N***, ***480N***, ***672N***, ***672N***, and ***1920N*** provisioning respectively.

Connection
Generic name for all transmission objects managed by Navis™ Optical NMS. A connection can be a trail or a subnetwork connection or a link connection.

Console
A local terminal which is dedicated to administering a single host machine, and connected directly via a console port.

Controlled network element
A network element controlled by Navis™ Optical NMS that displays on the network maps as nodes interconnected by digital links. These network elements are in constant communication with their EMS and are controlled by commands sent from the EMS. They also report and show alarms. ***See*** Network element.

CORBA
Common Object Resource Broker Architecture

CTM
Channel Terminations state - The state in a circuit order's life cycle where the user enters channel termination information.

Current Alarm
A new alarm received by, or generated by, Navis™ Optical NMS.

Customer equipment
See Equipment.

D

DA
Digital Cross Connect Alarm - Displays the type of digital cross-connect alarms that are active on the port. Possible values are: E (equipment alarm), S (signal or loss of signal alarm), P (performance), M (multiple alarms).

Days Past Due
The number of calendar days (0-30) past the due date of a pending order.

DB
Database

DB Sync
Database Synchronization - Refers to the synchronization of digital cross-connect system databases with the Navis™ Optical NMS database.

DCS
Display Construction Set

DD
Due date - Date when the work requested by the order is to be completed.

Default Weight
Navis™ Optical NMS calculated link weight.

Dense Wavelength Division Multiplexing (DWDM)
A connection that combines multiple optical signals to increase capacity. These signals are amplified as a group and then transported over a single fiber.

Digital link
Fiber or electrical connections between two points. These transport facilities are assignable to high-order and low-order circuits to carry customer services.

Digital links can be of two types: Synchronous Digital Hierarchy (SDH) or Plesiochronous Digital Hierarchy (PDH).

- SDH digital links are synonymous with multiplexer sections. They connect two SDH network elements, black boxes or equipment.
- PDH digital links are asynchronous connections between two PDH ports of the network elements assignable to the PDH circuits.

DISC
Disconnect (improper disconnect) - Indicates whether a facility/facility channel has been improperly disconnected. If it has, a "D" appears in this field and Navis™ Optical NMS lists it as In-Effect.

Domain
A collection of network elements that can be assigned to specific users in "database partitioning."

Drop Channel
One direction of a bidirectional signal; a wavelength being dropped from the single flow.

Drop Side
Hardware that handles a signal leaving an end terminal and heading out to the network.

DTE
Data Terminating Equipment

DTS
Digital Transmission System

DWDM
Dense Wavelength Division Multiplexing

DXC
Digital Cross-Connect System - A generic term for electronic cross-connect systems.

DXC Model
The model of the digital cross-connect system frame.

DXCAM
Digital Cross Connect Administration and Maintenance

E E

Specifies an alarm condition for the equipment assigned to an area.

E1
International facility on which DS0 channels are multiplexed up. The E1 carries 32 channels; channel 0 is used for signaling between DACS frames. Channel 16 may be used for carrying DS0 signaling. Otherwise, channel 16 may be used for customer service and signaling is carried inband.

EBC
Errored Block Count

EML
Element Management Layer

EMS
Element Management System

Equipment
Equipment is a network element that will never be controllable. Customer equipment does not report alarms and the Navis™ Optical NMS does not send provisioning commands to customer equipment. Customer equipment does not appear on the Network Map but does appear at the Graphical Layout of the provisioned digital link, path, and/or circuit. Although customer equipment is not displayed on the Network Map, it can be a place holder for end lines. ***Also called*** customer equipment.

ES
Errored Seconds - A one-second period with one or more errored blocks or at least one defect.

Event
Something that has happened — either in the transmission network, or in an EMS that Navis™ Optical NMS is managing, or within Navis™ Optical NMS itself. Examples of events include an operation that has succeeded, an operation that has failed, or failure of a network resource. Failure events give rise to alarms. Some events occur as a pair (a raise followed by a clear).

External Address
Address used by Navis™ Optical NMS in configuration management.

F

Facility
A carrier of low-order trails. A facility is a channel-assignable trail.

Fault State
The state of an alarmed object with respect to its ability to carry traffic.

There are three fault state values:

- "Working" indicates that the object can carry traffic as intended.
- "Degraded" indicates that the object is still carrying traffic but has lost some protection or the quality of traffic is impaired.
- "Failed" indicates that the object is not carrying traffic.

Faulted connection
A connection that has an event correlated against it.

FM
Fault Management

Form
A task window where the user can enter data, perform commands, and view data from the system.

Full Geographic Redundancy
See Geographic Redundancy

G

Geographic domain
A geographic domain is a partition of the network that is defined to include a group of network elements.

Geographic domain partitioning
Geographic Domain Partitioning is an optional feature that allows a network to be partitioned into geographic domains. A geographic domain is a partition of the network that is defined to include a group of network elements. Access to the geographic domains can be controlled on a per-user basis.

Geographic redundancy
Geographic redundancy provides site protection by maintaining a primary server and a standby server in separate locations and ensuring that the two servers are far enough apart so that natural disasters or adverse weather conditions cannot affect the primary and standby servers at the same time. The database of the standby server is maintained as a copy of the primary server. If the primary server fails, the standby server can be manually brought on-line.

There are two types of geographic redundancy:

- ***simplified***, an optional Navis™ Optical NMS feature which uses nightly backups to update the database of the standby server.
- ***full***, an optional Navis™ Optical NMS feature which uses a mirroring facility to update the database of the standby server every 30 minutes.

The two types of geographic redundancy differ in the frequency of database updates from the primary server to the standby server.

GR
Geographic Redundancy

GUI
Graphical User Interface

H

Historic alarm
An alarm that has been deleted.

Hot backup
A backup that is performed while Navis™ Optical NMS is running.

I

IMP
Implementation state - The state in the life cycle of a circuit order where the digital cross-connect system commands are implemented.

IMR
Implementation Roll state - The state in the life cycle of a circuit order that permits testing between the bridge and roll commands.

Int ChType
Internal Channel Type

Integrated Transport Management - Cross-Connect Module (ITM-XM)
An EMS to which Navis™ Optical NMS has direct access; no interface is required.

Integrated Transport Management - Subnetwork Controller (ITM-SC)
Previously known as Transport Management Application Group (TMAG).

Internal Address
Address sent to the network element via the ITM-SC (Element Management System), sometimes referred to as the software address of the port. This address is specified by the vendor.

IOR
Inter-operable Object Reference

ITM-PRM
Integrated Transport Management - Physical Resource Manager

ITM-SC
See Integrated Transport Management - Subnetwork Controller.

ITM-XM
See Integrated Transport Management - Cross-Connect Module.

L

LAY
Layout state

Local Terminal
The terminal that resides next to the digital cross-connect in the central office and can be used to interface directly with the ITM-SC. Also known as “console terminal”.

Location
The location code of the equipment or digital cross-connect frame.

LOF
Loss of frame

Log
Record of past and/or current activities.

Logical Port Address (External or Internal)
Address of a channel (logical channel) riding on a higher-order system; the higher-order system is terminated on a physical port. There are two address formats: ***network-level*** (external) and ***EMS-level*** or ***Network Element level*** (internal).

LOM
Loss of multiframe

LOP
Loss of pointer

LOS
Loss of signal

LSR
Line-Switched Ring

M

MDI
Miscellaneous Discrete Input

MDO
Miscellaneous Discrete Output

MIB
Management Information Base. A conceptually organized database that contains the management information accessed through SNMP.

MODE
Execution (Restoration) mode of a preplan circuit.

MS
Multiplex Section

MS-SPRING
Multiplex Section-Shared Protection Ring

MSP
Multiplex Section Protection

MT
Moyens de Transmission (Transmission Means)- A digital transmission medium (facility) of specific bandwidth between A Location and Z Location. Contract circuits are routed on MTs.

N

Navis Optical Element Management System (EMS)
Navis™ Optical EMS is a management system for the WaveStar product family, providing Element Management Layer (EML) management functions for WaveStar products. This system has configuration management, fault management, performance management, and security management functions.

NE
Network Element

NEID
Network Element Identifier of digital cross-connect systems under ITM-SC. (Same as **TID**.)

Network
A network carries a payload from one point to another. This payload can consist of data, voice, video, or images. Only circuits carry data. Digital links, facilities, and paths carry the circuits that carry the data.

Network connection
A transport connection that is connected at each end to a trail termination point.

Network element
A network element is a functional unit in a customer's network that the Navis™ Optical NMS displays on the Network Map and is monitored by the Navis™ Optical NMS user through the graphical user interface. Network elements supply switching, transmission, or multiplexing functionality in a network. A network element is either ***controlled*** or ***noncontrolled***.

Node
Physical location representing any managed equipment, including regenerators.

Non-assignable
A characteristic of a trail set at the time of provisioning. In Navis™ Optical NMS, a trail should be set as non-assignable if it is expected that no client trail will be provisioned for it.

Non-service-affecting alarm
Alarms categorized as ***non-service-affecting*** indicate that at least one channelized facility, without provisioned circuits, is alarmed.

Noncontrolled network element
A noncontrolled network element is a Black box or Customer equipment that cannot be controlled by Navis™ Optical NMS. These network elements do not report alarms. Noncontrolled network elements support only manual provisioning and are listed in the database as a part of provisioning records. ***See*** Network element.

NSA
Non-service-affecting

NTN
Network Telephone Number - Used on a network to represent a physical address.

NTN1
Network Telephone Number - Primary telephone number of the digital cross-connect frame on the packet network.

NTN2
Network Telephone Number - Backup telephone number of the digital cross-connect frame on the packet network.

O

OA
Optical Amplifier

OCH
Optical Channel

OFS
Out-of-Frame Seconds

OLS
Optical Line System

OMS
Optical Multiplex Section

Order
Circuit Order number

OTU
Optical Translator Unit

P

Path
An SDH transmission object between two SDH/virtual ports. There are high-order paths (VC-4) and low-order paths (VC-3 and VC-12).

PDH
Plesiochronous Digital Hierarchy

Performance Monitoring (PM) Export
An optional feature that allows performance-monitoring information to be exported to a predefined data file, which can be used for a variety of purposes.

Physical Port
The object responsible for the processing of the signal on the communication infrastructure.

- For an SDH port, the physical port is the processing from the fiber to the MS level.
- For a PDH port, the physical port is the PDH processing before insertion/extraction to the SDH.
- For an optical port, the physical port is the processing from fiber to the optical MS level.

Physical Port Address (external or internal)
Address of the port that physically terminates a facility.

Plesiochronous Digital Hierarchy
A transmission hierarchy wherein all the elements have the same nominal digital rate but are synchronized on different clocks (near synchronization).

Port
The port address of the facility.

Post
Command to initiate the continuity check of a facility/circuit layout across the network and to determine the route of a facility or circuit.

Preplan Circuit
The preplan circuit is the protecting circuit used to restore the service circuit. Also known as service circuit.

Preplan Restoration
An optional feature that allows a dedicated backup route to be specified for paths and circuits. When Preplan Restoration is used, a disrupted circuit is temporarily rerouted on an alternate route to restore service. The restoration process is triggered manually or automatically by an alarm. Once the alarm situation is resolved, the restored circuit can be manually reinstated to its original route.

Primary Alarm
An alarm that is a direct result of a failure in the network, such as Loss of Service (LOS).

Protection Path
The protection path is a backup route that protects the service path. The service path is the path that is standards operational.

PSR
Path-Switched Ring

PTI
Path Trace Identifier

PTP
Port

R

Receive Date
The date an order is received.

Redline
Indicates whether circuit requires special service protection marking and treatment.

Refederate
The process of re-establishing the association between the Navis™ Optical NMS and Navis™ Optical EMS Orbix instances.

Repeat Alarm
A type of current alarm; a current alarm that has the same source as probable cause as another current alarm becomes a repeat alarm.

Response Display
You specify whether you want to see all responses from the frame, only your own responses, or your own and alarm responses.

Ring
Rings are formed when the digital links connect all participating network elements to form a closed loop.

RNAME
The system name that identifies the specific DTE to use to communicate with the packet network and the host name.

S

SA
Service affecting

Scheduled entity
A provisioning assignment for a facility, path, or circuit that has been designated to occur at a future date and time. All assignments, with the exception of digital links, can be scheduled.

SDH
Synchronous Digital Hierarchy

Section
A trail in a section layer.

Service Circuit
See Preplan circuit.

Service Domain
A partition of the network that is defined to include a subset of a network's link connections (channels) and physical ports and their derived connectivity.

Service domain partitioning
Service Domain Partitioning is an optional feature that allows a network to be partitioned into service domains. A service domain is a partition of the network that is defined to include a subset of a network's link connections (channels) and physical ports and their derived connectivity. Access to the service domains can be controlled on a per-user basis.

Service Path
The path that is standards operational. The protection path is a backup route that protects the service path.

Service-affecting alarm
Alarms categorized as ***service-affecting***indicate that at least one non-channelized facility is alarmed or that at least one channelized facility with provisioned circuits is alarmed.

SES
Severely Errored Seconds - A one-second period that contains 30% or more errored blocks or at least one defect. SES is a subset of ES.

Shared Risk Group
A group of entities that share the risk among fibers which use the same conduit.

SI
Session indicator - Type of session between the Navis™ Optical NMS and the DACS: DS (Navis™ Optical NMS Session) or VS (VCIT Session).

Simplified Geographic Redundancy
See Geographic Redundancy.

SNC
Subnetwork Connection

SNCP
Subnetwork Connection Protection

SNMP
Simple Network Management Protocol

SNMS
See Navis Optical Element Management System (EMS).

Speed
Baud rate

Status
Current condition or state of progress of an instance or object.

Subnetwork
A collection of interconnected network elements that has a certain behavior. The subnet concept allows Navis™ Optical NMS to manage fixed cross-connect systems and rings through SDH multiplexers. Also called a ″subnet.″

Synchronous Digital Hierarchy
A transmission hierarchy wherein all the elements are synchronized.

T

Tandem connection
A sublayer between the management system connection and path layer that allows users to monitor the quality of the signal transport within its managed domain. Tandem connections also provide users with information about the total quality of a signal before the signal travels from the user's managed network to a network managed by a different user. Users can create tandem connections on paths that do not terminate in its managed network but traverse its network from other user managed networks.

TCA
Threshold Crossing Alert

TCAL
Traffic Correlated Alarm List

TCM
Tandem Connection Monitoring

Termination
Port address

TID
Target Identifier - The target identification name of the digital cross-connect frame, that is used in the network to identify a digital cross-connect frame. (Same as **NEID**.)

TMAG
See Transport Manager Application Group.

TMN
Telecommunications Management Network Integration Module

TP
Termination Point

Trail Termination Point
The transport, trail termination, and adaptation functions that terminate a trail.

Transport Manager Application Group
An interface that uses Lucent proprietary TMAG protocol to interface with the ITM-SC EMS.

Tributary Port
Generally forms the add/drop side of an ISM. This is where signals going from the tributary side to the line side of an ISM get added, or where signals going from the line side to the tributary side of an ISM get dropped. The tributary ports terminate 2-Mb/s (CEPT-1 or VC-12), 140 Mb/s (CEPT-4 clear channel), or 155 Mb/s (STM-1 clear channel or TUG structured)

signals.

TTP
Trail Termination Point

U

UAP
Unavailable Period

UAS
Unavailable Seconds - A period containing 10 or more consecutive Severely Errored Seconds.

UID
User Identification - Host login of the user.

Uncatalogued connection
A connection that physically or logically exists in the network, and that is ***not*** recorded in Navis™ Optical NMS.

Uncorrelated Alarm
Specifies an alarm condition that exists on ports or network elements assigned to an area that does not terminate links, trails, or circuits in Navis™ Optical NMS.

Uncorrelated Event
An event that does not affect any trail provisioned in Navis™ Optical NMS.

User defined area maps
These maps allow a specific user to define which network elements to display on the screen within a submap. See ***User defined submaps***.

User defined sub maps
These maps allow a specific user to define what areas to display on the screen. See ***Area*** and ***User defined area maps***.

User ID
A login ID. Each user ID represents a person who has been granted access to use Navis™ Optical NMS.

User Profile
A user profile is an association of a list of tasks with a User ID. The user profile controls which tasks the user is allowed to perform.

V

VCG

A Virtual Concatenation Group is a logical entity that is a grouping of member VC-n trails. A VCG, its end ports---which are referred to as PTPs---and any number of VC-n trails can belong to the same service domain.

VCIT

Virtual Craft Interface Terminal

Virtual Port

Terminates the two line ports in a protection scheme. You enter the line port addresses in the normal manner. The virtual port address is in addition.

Virtual Port Address (External or Internal)

Addressing scheme that allows you to enter a virtual port address that controls the two line ports; the address allows one line port to be the service port and the other line port to be the protection port. Virtual port addressing is a protection scheme.

VPN

Virtual Private Network

W

Work Log

The history of a work item; a log of significant operations performed on work items.

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